

**CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN
(CEMP) – BIODIVERSITY
FOR
BRO DDYFI COMMUNITY HOSPITAL
MACHYNLLETH, POWYS**

A report to:
Willmott Dixon Construction Limited
Global Reach (Wing A)
Celtic Gateway
Dunleavy Drive
CARDIFF CF11 0SN

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1.0 Introduction

Purpose

- 1.1. The purpose of this Construction Environmental Management Plan (CEMP) is to outline how works consented under Applications to Powys County Council 20/0857/REM for Full Planning Permission and 20/0858/CAC for Conservation Area Consent will avoid, minimise or mitigate effects on biodiversity within the grounds of Bro Ddyfi Hospital.
- 1.2. Biodiversity issues dealt with in this document are as follows:
 - Roosting bats – requirements for European Protected Species licensing and other measures that cannot/ need not be licensed. A stand-alone Method Statement suitable for EPS licensing accompanies this document and is referred to here, but not in full. Additional enhancement measures are also covered. In addition to this, a non-licensed Method Statement is laid out for low risk works to the boiler house.
 - Nesting birds – avoidance of constraints, mitigation and reinstatement of nesting sites and enhancements for avian biodiversity;
 - Measures to protect amphibians, reptiles and hedgehogs;
 - Waxcap grassland translocation – A stand-alone Mitigation Strategy on this subject accompanies this document and is referred to here, but not in full;
 - Other landscaping proposals, including measures to enhance habitats for invertebrates, amphibians, reptiles and hedgehogs. Given the small scale of these proposals, a stand-alone Landscape and Ecological Management Plan (LEMP) to cover this is not considered necessary.
- 1.3. Enhancements for biodiversity proposed are consistent with the requirements of Section 6 of the Environment (Wales) Act 2016.
- 1.4. The desk study carried out in 2018 has shown that no Statutory or non-Statutory Designated Nature Conservation Sites of ecological value will be affected by the proposals. Therefore, no further reference is made to off-site habitat receptors.
- 1.5. It is intended that this document should be considered as evidence for Discharge of the Conditions listed in Appendix I and set out in the relevant sections below. Confirmation of this will be requested from Powys County Council.
- 1.6. The following abbreviations will be used throughout the document:
 - **PP** Conditions listed on the Decision Notice for the Planning permission
 - **CAC** Conditions listed on the Decision Notice for the Conservation Area Consent

What this document does not cover

- 1.7. It is not intended to cover other environmental issues such as air quality or waste management. These are covered under the Willmott Dixon Project Environmental Plan (PEP) which cross-refers to this document where appropriate.

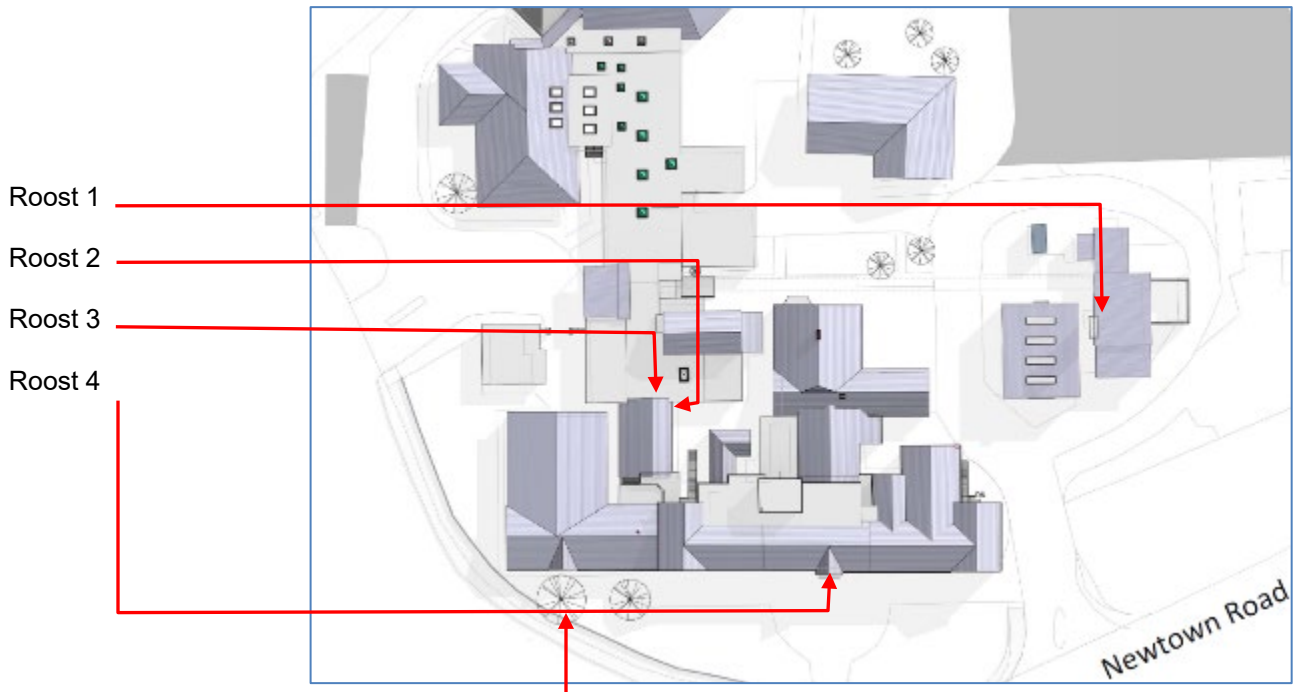
- 1.8. Condition 11 of the Conservation Area Consent and Condition 13 of the Planning Consent require that a Tree Protection Plan is included in a CEMP. This is referred to in this document but is the responsibility of the arboriculturists, not the ecologists. Full details of tree protection measures can be found in their report.
- 1.9. Condition 8 of the Conservation Area Consent and Condition 9 of the Planning consent require (amongst other measures) adherence to the recommendations of Section 5 of the Extended Phase 1 habitat Survey by Opus, dated February 2018. That report included broad recommendations for re-landscaping and for the design of a Wellbeing Garden that was planned for a new courtyard area, to be formalised in a Landscape Environmental Management Plan (LEMP). Given that re-landscaping in the existing garden areas is covered under the Waxcap Translocation and Aftercare Plan and measures beneficial to biodiversity within the Wellbeing Garden are so small-scale, a stand-alone LEMP is not included in this submission. Neither is the full detail of the design of the Wellbeing Garden, which has been finalised by a landscaper to ensure it is safe for intended users (people with likely limited mobility and other health issues). Reference is made to the design of the Wellbeing Garden but full details of it should be viewed in the plans drawn up by Stride Treglown.

2.0 Roosting bats

Overview

- 2.1. It is intended that the following Conditions will be discharged by this section of the CEMP (see Appendix I):
 - PP 8, 9, 10, 13, 15
 - CAC 6, 7, 8, 11
- 2.2. Surveys carried out at the Hospital between 2017 and 2020 have identified four roosts of common pipistrelle (*Pipistrellus pipistrellus*) on site. Three of these will be destroyed as a result of the proposals, whilst one roost is at risk of minor disturbance. There is additional potential for bat roosting in a tree that is scheduled for removal. Method Statements for the treatment and protection of bats in all of the affected locations are provided, or referred to, below. A summary plan of bat roosting features on site is shown below.

Plan 1 - Locations of roosts found between 2017 and 2020.



Location of Sycamore tree with the potential to support roosting bats.

European Protected Species Licensing – Bats

2.3. This is covered under the accompanying Method Statement that is intended to be submitted to Natural Resources Wales (NRW) for consent once all Planning Conditions have been discharged. Submission is intended to be made in December 2020 or January 2021 at the latest. It relates to Roosts 2-4 only. In summary it makes provision for the following:

- Safe exclusion of bats prior to demolition;
- An ecologist to be on hand when roof materials are removed around the roost features;
- Re-location of any bats found to bat boxes that will have been erected on adjacent buildings. The locations of these boxes is given on the submitted *Ecology Plan – Bird & Bat Provisions, Drawing no. BDH-STL-V1-ZZ-DR-A-0910, Revision PL_P65*;
- Re-creation of Roost 4 *in situ*;
- Creation of alternative roosting provision to replace Roosts 2 and 3;
- Monitoring of the success of the mitigation.

Non-licensed works in close proximity to a bat roost – Method Statement

2.4. A roost in the boiler house (Roost 1) was re-confirmed in 2020 but, as had been found previously in 2017 and 2018, bats were absent at the time of the activity surveys. On the basis of the evidence available and in view of the nature and extent of the work, it is considered appropriate to subject the modifications to the boiler house to a non-licensed precautionary Method Statement rather than including it in the EPS Licence. The full Method Statement is provided in Appendix II. This is set out to provide a means by which the effects of the work can be anticipated, monitored and dealt with effectively and legally.

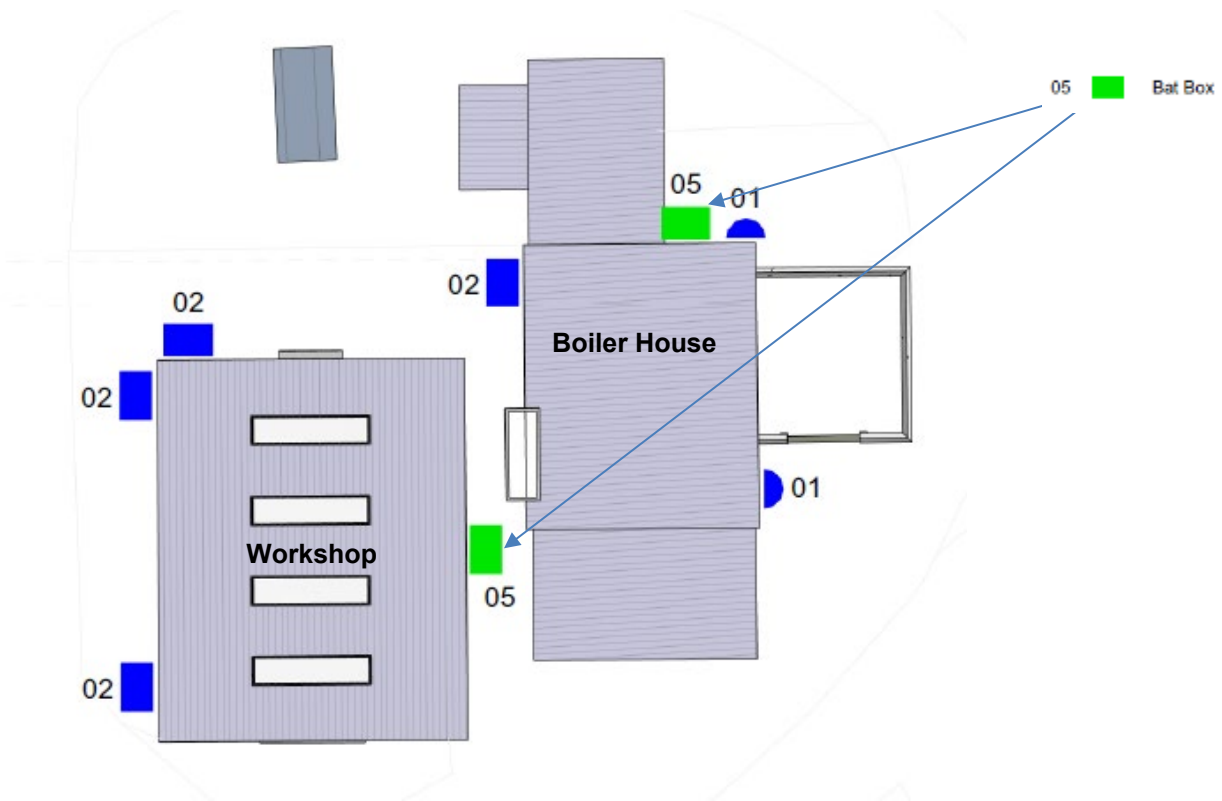
Bat roosting potential in trees on site

- 2.5. Two trees were inspected in summer 2020, following concerns expressed by the Powys County Council Planning Ecologist. Of these, one was found to have the potential to support roosting bats. This was Sycamore T474 (ArbTS 2020), which is recommended for removal due to the need to construct a new car parking area but also because the tree is in poor condition. A feature that from the ground appeared to provide a potential roosting location for bats (a cavity) was found on closer inspection to be a gap between branches that had partially grown together. This gap extended downward by about 20cm between the branches and was confirmed to be potentially suitable for roosting. The cavity was easily reached and could be inspected thoroughly using an endoscope. The presence of bat(s) or signs of them at the time of the inspection was ruled out. Occupation of the feature in the future, however, was thought to be possible.
- 2.6. It is a Condition of Planning (PP Condition 8 and CAC Condition 6) that this tree is inspected once more for roosting bats prior to felling. This will entail a repeat survey using a ladder and endoscope and will be done immediately before felling takes place, in January/February 2021.
- 2.7. Whilst no other tree was identified as having the potential to support roosting bats, the ecologist will carry out another brief inspection of the other trees scheduled for felling to confirm that no additional features have arisen since the inspection carried out in summer 2020. The arboriculturists will then be briefed on what to look for before felling or lopping of other trees.
- 2.8. All actions by the ecologist will be carried out on the same day.
- 2.9. Should presence of roosting bats be confirmed no works to the tree shall be undertaken until the necessary European Protected Species licence has been obtained from NRW.

Compensatory bat roosting provision during works

- 2.10. The old workhouse building will need to be kept free of roosting bats for the duration of demolition and reconstruction, which is programmed between March 2021 and September of the same year. Therefore, in order to provide alternative roosting sites in the 2021 active season, three (no.) bat boxes will be provided on buildings that will be unaffected by the works. The locations of these are shown on Drawing BDH-STL-V1-ZZ-DR-A-0910-P65-Ecology Plan - Bird & Bat Provision that accompanies this CEMP. An extract of this drawing to detail locations of bat roosting boxes additional to those required under EPS licensing is shown below. These will be installed in February 2021:

Plan 2 – bat boxes to be installed as biodiversity enhancements



Lighting Scheme

- 2.11. The lighting scheme design for the re-developed site is set out in Drawings 33760C *Machynlleth Hospital_EXT_LIGHT* and BDH-HP-VE-XX-DR-E-802 (4)_EXT_LIGHT and 33760E *Machynlleth Hospital Redevelopment*, extracts of which are shown in Appendix III. In considering its impacts on nocturnal wildlife it is important to review the existing baseline conditions on site.

Current lighting scheme

- 2.12. It should be noted that the following description is based on observations rather than measurements of light intensity, which have not been taken. Illustrative photographs are shown below.
- 2.13. The current lighting scheme presents, for the most part, a heavily lit site. Nevertheless, impacts of existing light levels on Roost 1 are not considered to be great and do not account for it being vacant on all surveys between 2017 and 2020. Light spillage from the car park to the north side is clearly evident but the likely location of the entry point into the roost (which was never proven between 2017 and 2020) is shaded from this light by the adjacent workshop building. To the south, light levels are clearly acceptable to bats, as is evidenced by the presence (albeit intermittently) of a maternity roost of common pipistrelle bats in the residential building opposite the boiler house.
- 2.14. Artificial light impacts directly on Roosts 2 and 3 when lights are switched on in the courtyard area at the rear of the Workhouse building and it was only in 2020 that one survey was carried out with the lights switched off. Light spillage directly onto the entrance to roost 2 was particularly notable for its intensity, but it may have explained the low number of animals present and their atypical behaviour

(e.g. exiting from the roost towards dawn rather than entering it).

- 2.15. Roost 4 currently suffers limited impacts of artificial light spill from adjacent street lighting. This spills onto the lawned areas and reflects upward to the eaves of the building, but not excessively so. The roost itself is not directly illuminated but it is visible to the human eye well into the night.
- 2.16. Within the garden and car park areas in the centre of the site, as well as at the entrance off Garth Road, light levels are very high, presumably to ensure safe access for patients and carers. This was considered to be a reason for the low levels of recorded bat foraging within the site.
- 2.17. In the above context, a significant change to benefit nocturnal wildlife is not considered to be strictly necessary for those parts of the site already affected, although the new scheme does represent a minor improvement within the courtyard (see below).

Photos 1 and 2 – Illuminance of Roosts 2 and 3 noted during surveys in 2017-20



Photo 3 – Vehicular entrance off Newtown RoadPhoto 4 – Hospital entrance from car park accessPhoto 5 – Entrance seen from the west side of the boiler housePhoto 6 – Main entrance off Garth Road

Proposed Scheme

- 2.18. Modelled light splay is shown in *Drawing 33760E Machynlleth Hospital Redevelopment* and extracts of this are highlighted in Appendix III. Light splay within the centre of the site (gardens and car park, plus the routes to the entrances) is not considered likely to differ significantly from the current situation so no net increase or decrease in impacts on nocturnal wildlife is envisaged. This is considered acceptable given the imperative to provide safe access for people from the car parks to the entrances.
- 2.19. It is not considered likely that light splay onto the boiler house (Roost 1) will be significantly different to the current situation due to the unchanged alignment of the buildings and the shade that will continue to be cast by the Workshop.
- 2.20. Roosts 2 and 3 will be replaced (under EPS licensing) by a bat roosting box built into the wall of the building in a very similar location to that of Roost 2. This will benefit from a complete lack of artificial light within the re-designed courtyard and so will represent a net gain for nocturnal wildlife. It is hoped that under these conditions, the roosting box may be occupied by larger numbers of bats than has been observed to be the case in Roosts 2 and 3 currently.

- 2.21. The front (south elevation) of the building will be illuminated by 3 (no.) luminaires on 5m columns, representing an increase in light potentially affecting Roost 4. However, it can be seen from the light calculations on the scheme drawings (extract shown in Appendix III) that lux levels at ground level will be low. The lighting engineers have also confirmed that the modelling has indicated that the vertical plot shows the lux level at the eaves to equal zero.
- 2.22. Overall, the proposed lighting scheme is considered to represent a good compromise between the clear and obvious needs of people and those of foraging bats, and there is likely to be little or no impact on roosting bats.

3.0 Nesting birds

- 3.1. It is intended that the following Conditions will be discharged by this section of the CEMP (see Appendix I):
- PP 9, 11,13
 - CAC 7, 9,11

Nesting birds within the working area

- 3.2. Previous reports have noted the presence of a House Martin (*Delichon urbicum*) colony, with nests mainly found on the front façade but also with small numbers of nests on the rear of the same building. In 2020 at least one Starling (*Sturnus vulgaris*) nest was also recorded. The nest sites are within the part of the site scheduled for demolition so they present a serious constraint to works.
- 3.3. Under the Wildlife and Countryside Act 1981 (as amended), all nesting birds are protected from disturbance whilst occupying a nest. Therefore, if a nest were to be established just prior to commencement, or during work, the program will be delayed and major additional costs could be incurred as a result.
- 3.4. The work that will most directly affect nesting birds is that of the demolition of the old workhouse building. The south and east facades will be retained but the roof will be removed. House Martins nest at the eaves level around the building whilst cavity dwelling species such as starling will occupy any defect they find, such as holes in soffits or gaps in fascias etc. House Sparrow (*Passer domesticus*) and Swift (*Apus apus*) are two more species present in the area which could occupy such features in 2021.
- 3.5. Demolition is scheduled to commence on 11th March 2021 and continue until 26th May. House Martins tend not to return to the UK until April (Snow and Perrins, 1998) and The British Trust for Ornithology (BTO) web site¹ states that returning birds do not always start breeding immediately, so in theory this timing will avoid the nesting season for this species, provided that the roof is removed first. However, Starlings can begin nesting in April and House Sparrows establish nesting territories between early winter and spring but are unlikely to commence egg laying until late March. All of these species are multiple-brooded so occupancy of individual nests can be prolonged, extending into October in the case of House Martin and House Sparrow.
- 3.6. The establishment of Swift nesting sites within the fabric of the Hospital building during the demolition

¹ <https://www.bto.org/understanding-birds/species-focus/house-martin>

is considered unlikely. This species arrives back in the UK relatively late, in May, with egg-laying not usually commenced until the end of that month. However, there is a residual risk of Swift presenting a constraint to works.

- 3.7. In view of the extended nesting phenology of the species proven to be present in 2017-20 and those that could also be present in 2021, the following measures will be implemented, across the working area, and will be completed no later than the end of February 2021:
- Netting-off of all eaves and overhanging ledges against which House Martin nests have been or could be established. Approved bird netting that is available commercially will be used, with the smaller mesh size² chosen to ensure that the smaller bird species likely to be present are effectively excluded. This will be fitted in “modules” that can be removed as demolition progresses over the 10-week period of works. The fitting and removal of the netting will be overseen by the site ecologist to ensure that it has been undertaken appropriately. The netting will be subject to daily inspection (by Willmott Dixon staff) to ensure that it remains bird-proof and to confirm that no birds have become trapped or entangled within it. This inspection should be undertaken by a member of the construction team, with a daily report emailed to the site ecologist to confirm that this has been carried out.
 - All cavities and other defects that could offer nesting sites for other species will be examined and then blocked using rag, bubble wrap or other easily removable materials. This will be done by the site ecologist to ensure that any such features are not already occupied by birds and/or are ruled out for their potential for roosting bats. Should any doubt arise regarding the status of a feature for bats, precautionary exclusion will be carried out using approved devices such as one-way gates and funnels³. Where bat roosting has already been proven, such exclusion will take place under the provisions of an NRW EPS licence, as specified in Section 2 above.
- 3.8. All of the above will be done using a mobile elevating work platform (cherry picker and/or scissor lift) as soon as the NRW bat licence is in place, to ensure compliance with legislation regarding both birds and bats.

Biodiversity enhancement for nesting birds

General

- 3.9. All enhancements described below are set out in Drawing BDH-STL-V1-ZZ-DR-A-0910-P65-Ecology Plan - Bird & Bat Provision that accompanies this CEMP.

Compensatory nesting provision during works

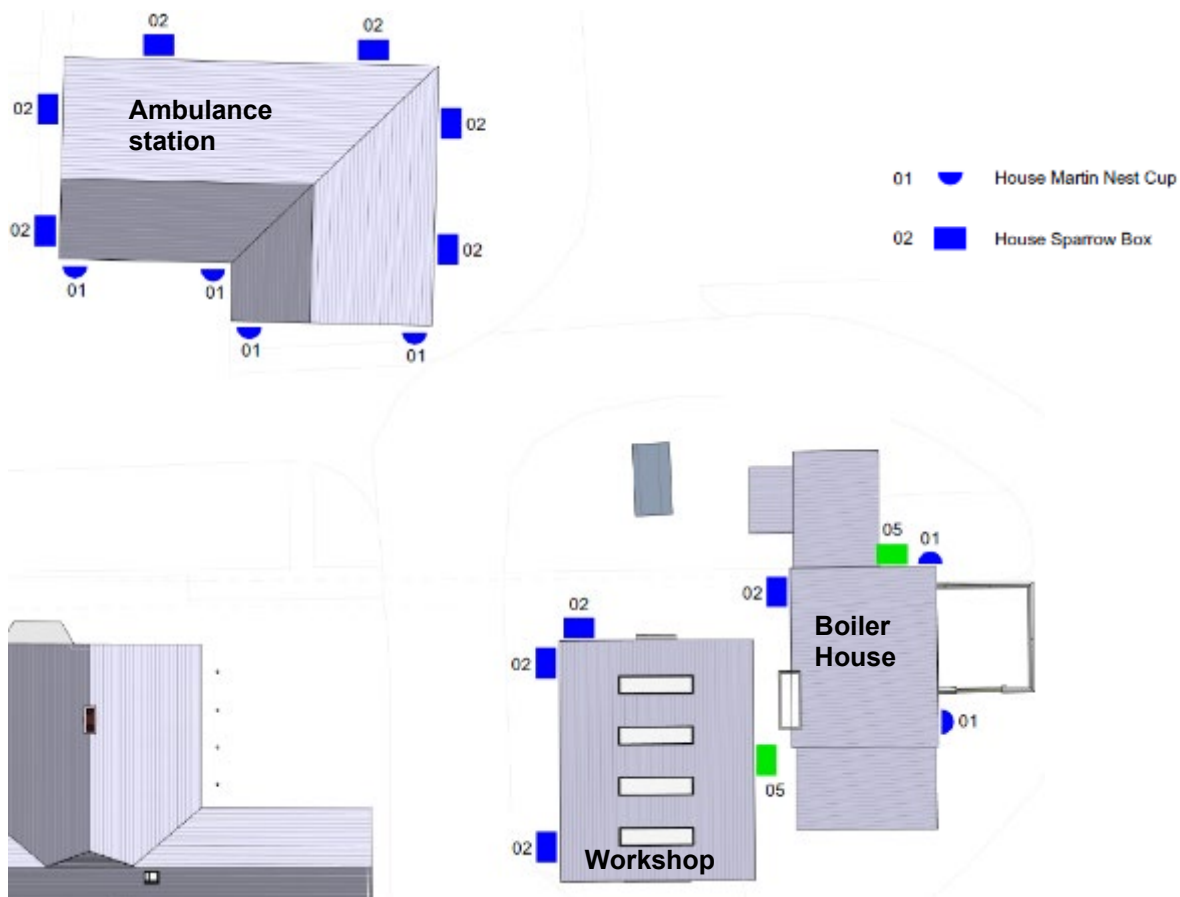
- 3.10. The old workhouse building will need to be kept free of nesting birds for the duration of demolition and reconstruction, which is between March 2021 and September of the same year. Therefore, to ensure that nesting opportunities are available in the 2021 breeding season, a number of compensatory (but permanently placed) artificial nest sites will be provided on buildings that will be unaffected by the works. An extract from Drawing BDH-STL-V1-ZZ-DR-A-0910-P65-Ecology Plan - Bird & Bat Provision is shown below to detail where these opportunities will be placed, in February 2021. These will be restricted to provision for House Martins (6 nest cups) and House Sparrows (10

² E.g. <https://www.nomorebirds.co.uk/sparrow-net---black~288>

³ E.g. <https://www.wildcare.co.uk/bats/bat-worker-accessories/bat-excluders.html>

boxes).

Plan 3 – compensatory bird nesting provision during works



Nest site reinstatement and/or replacement after completion of works

- 3.11. It is considered appropriate to reinstate the colony of House Martins *in situ*, with birds encouraged to nest in locations similar to those currently occupied. To this end, reinstatement of eaves in a manner that would be hospitable to birds re-occupying their previously favoured nesting locations, and/or locations in similar positions once works are finished will be planned in. Such reinstatement will include the provision of discrete areas of rough-textured surface and therefore would provide a suitable medium upon which nests can be built. Each of these surfaces will have one of 13 (no.) artificial nesting cups constructed using “woodcrete” materials as available commercially via a number of outlets. The design of this arrangement is shown in Figure 1 below. The remainder of the eaves will not be suitable for the establishment of natural nests because soffits will be made of aluminium and render on the walls will be smooth.
- 3.12. A single nest box suitable for Starlings will be installed on the finished building to compensate for the loss of the one nest found in 2020.

Additional enhancements after completion of works

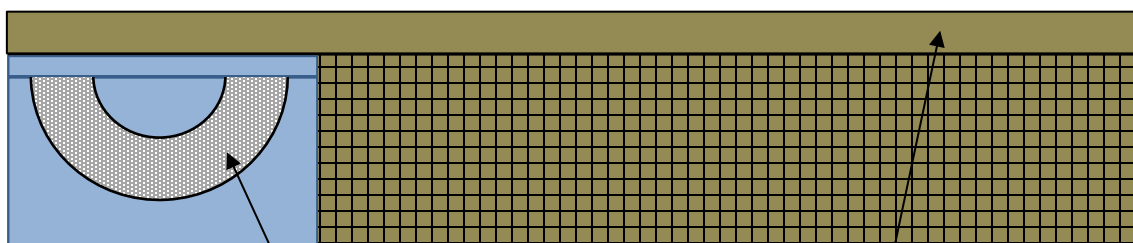
- 3.13. Additional nesting opportunities for Swift (3 boxes) and House Sparrow (5 boxes) will be installed on the finished building. The number of boxes specified for House Sparrows is to ensure that this semi-

colonial species, found elsewhere in Machynlleth, can establish in sufficient numbers to form a viable breeding population.

- 3.14. Drawing BDH-STL-V1-ZZ-DR-A-0910-P65-Ecology Plan - Bird & Bat Provision details where nest site reinstatement for House Martins, replacement nesting provision for Starlings and enhancements for House Sparrow and Swift will be located on the finished building, to be effected as soon as the roof and façade works are completed.

Figure 1 – design of nesting features for House Martins

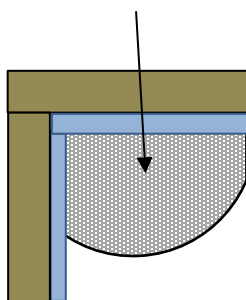
a. Front view



b. Side view

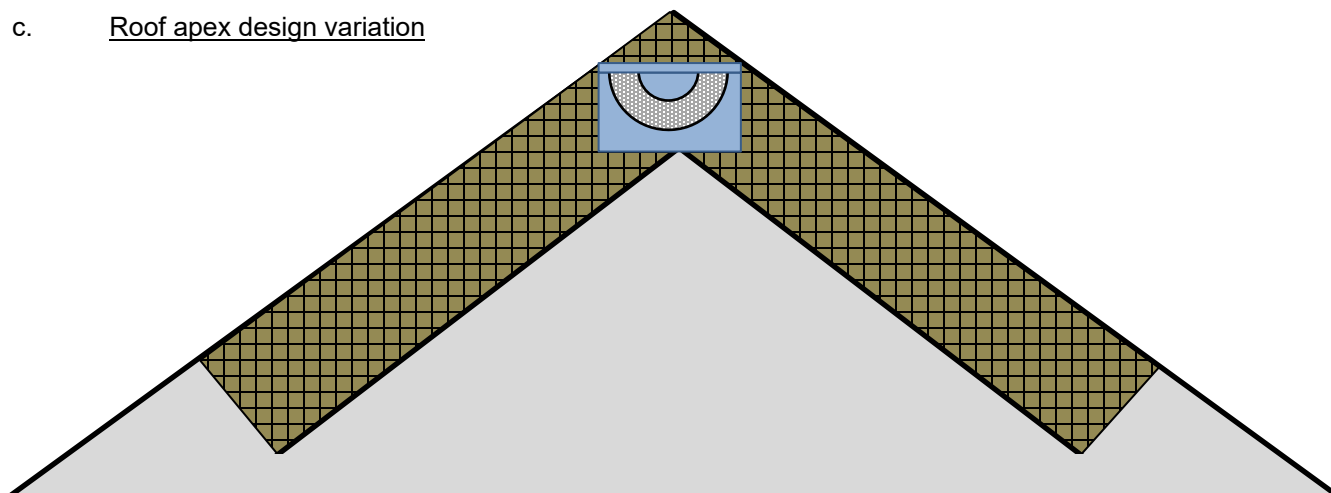
Pre-constructed Woodcrete nesting box on backing (shown in blue)

Typical dimensions of entire construction:
W 200 x H 120 x L 150 mm



Backing board and soffit liner faced with small-gauge galvanized mesh to present a rough surface for the establishment of natural nests next to Woodcrete box. Length to accommodate at least 3 natural nests

c. Roof apex design variation



4.0 Waxcap translocation

- 4.1. It is intended that the following Conditions will be discharged by this section of the CEMP (see Appendix I):
- PP 12
 - CAC 10
- 4.2. A separate Waxcap Grassland Translocation and Aftercare Plan accompanies this CEMP and provides full details of how grassland affected by demolition and construction works will be preserved for the benefit of waxcap fungi. In summary, the following measures will be adopted:
- Creation of new areas of waxcap grassland within the footprint of existing planting beds (see plan within the Plan), using grassland turves that will be translocated from the footprint of areas of grassland to be lost. Grassland turves will be removed to a minimum depth of 30cm, under the supervision of the site ecologist;
 - Reinstatement of grassland along the route of the haul road detailed in Drawing 20_0857_REM-MACHYNLLETH_DEMOLITION_PHASE-310427. Grassland turves will be removed from the route and placed on top of the removed topsoil in a temporary storage area located on hard-standing within the hospital grounds and the grassland will be reinstated following completion of the site works;
 - Protection of waxcap grassland through the placement of protective matting along the route of the proposed temporary footpath that will be in use for contractors during the construction period;
 - Translocated turves will be watered during both temporary storage and following their placement in the Receptor locations until such time that they become sufficiently bedded in; and
 - Retained and newly created waxcap grassland will be protected during construction by the erection of fencing. Post-construction, appropriate management methods to promote the diversity of the waxcap fungi assemblage will be undertaken, to include regular mowing, maintenance of adjacent shrubs and trees to prevent heavy shading and no application of herbicides, moss killers or fertiliser.

5.0 Measures to protect amphibians, reptiles and hedgehogs

- 5.1. It is intended that the following Conditions will be discharged by this section of the CEMP (see Appendix I):
- PP 11,13
 - CAC 9,11
- 5.2. In accordance with the recommendations of the Opus survey report (2) (2018), the following measures will be implemented during demolition and construction works on site:

Amphibians

- 5.3. A residual risk of Great Crested Newts (*Triturus cristatus*) being present on site was identified by Opus in 2018. The great crested newt is a European Protected Species (EPS) under Schedule 2 of the Conservation of Habitats & Species Regulations 2010 (as amended) and Schedule 5 of the

Wildlife & Countryside Act 1981 (as amended). It is therefore appropriate to ensure that all site staff are aware of the identification of this species and what to do if an animal is found. An identification guide is provided in Appendix IV, which will be provided to all site staff on induction. Should great crested newts be found at any point during the works, the site ecologist should be immediately notified and all works considered to be a risk to this species should cease until further guidance from the ecologist, and where necessary NRW is sought.

Reptiles

- 5.4. A residual risk of reptiles being found on site was also identified. Reptiles enjoy limited protection from deliberate harm under the 1981 Act and so any risk to them will be notified by site staff (following a suitable induction) to site management and, if necessary, specific protection measures will be instigated, including daily inspections of any open excavations and any stored materials that could act as refugia and/or basking sites for these species. Site staff will be briefed on identification of reptiles and what to do if an animal is found. An identification guide is provided in Appendix V, and will be provided to all site staff on induction.

Hedgehogs

- 5.5. There is a small risk of hibernating hedgehogs (*Erinaceus europaeus*) being present within the planting beds that are to be removed and used as Receptor locations for the translocated waxcap grassland turves. Hedgehogs are a species of Principal Importance in Wales under The Environment (Wales) Act 2016 and are protected from deliberate harm under the Wildlife and Countryside Act (1981).
- 5.6. Removal of vegetation will be subject to a pre-clearance check by the site ecologist to search for any evidence of hibernating hedgehogs. Vegetation clearance will only take place in mild weather, when arousal of an animal from hibernation is less damaging to its survival. Shrub clearance will be overseen by the ecologist and undertaken using hand tools where the ecologist advises. Should an animal be discovered, it will be checked for any visible signs of injury or illness, and if it appears small it will be weighed using kitchen scales and advice sought from a hedgehog rehabilitator as to whether it should be taken into captivity for the remaining winter period. Every effort will be made to keep handling time to a minimum to avoid unnecessary arousal of a healthy hibernating animal. Once these checks have been made and the ecologist is satisfied that the animal is healthy, the hedgehog will be immediately placed in one of the hedgehog nesting boxes that will be installed within the grounds of the hospital (as described in Section 6 below) which will be provisioned with a bowl of water and some tinned dog food in case the hedgehog wakes. A temporary block will be placed in the hibernaculum entrance, which will be removed at dusk to prevent the hedgehog from exiting the hibernaculum during daylight hours which would put it at greater risk of predation and disturbance.

6.0 Landscaping proposals

- 6.1. It is intended that the following Conditions will be discharged by this section of the CEMP (see Appendix I):
- PP 9
 - CAC 7

Wellbeing Garden

- 6.2. This is the responsibility of a landscape gardener and has been designed by Stride Treglown. This feature is shown on Plan 1 in Appendix VI. In addition to the planting scheme that will attract pollinating insects, it is envisaged that a “Bug hotel”⁴ will be incorporated into the design to provide nesting habitat for a range of species.

Measures to enhance habitats for invertebrates, amphibians, reptiles and hedgehogs

- 6.3. This section provides information on the provision of permanent features for the above-named species groups, as recommended in Section 5 of the report by Opus (2) (2018).

Invertebrates

- 6.4. In addition to the “bug hotel” in the Wellbeing Garden, further simple measures will be instigated to increase the invertebrate diversity and biomass of the site, including the provision of two (no.) deadwood piles incorporating areas of deep leaf litter elsewhere on the site. The deadwood piles will be composed of woody material sourced on site as a result of tree surgery operations and ornamental rocks that will be moved from existing planting beds to make way for waxcap turf translocation (see appended Strategy). The rocks will provide a solid perimeter to the features, as shown in Figure 2 below.
- 6.5. Locations for the habitat features described above are shown on Plan 3 in Appendix VI. As described below, these will also be beneficial for amphibians and reptiles.
- 6.6. Re-planting of existing borders with native species planting in new borders, as recommended by Opus, is not considered to be necessary or proportionate now that waxcap translocation will take up some of the existing borders and there is a need to retain much of the rest of the existing planting to provide screening for patients.
- 6.7. Setting aside unmown areas of lawn to increase habitat structural diversity for invertebrates was recommended in the Opus report but there are no areas of this kind where there is no current interest for waxcaps, so this provision is now considered inappropriate. Additionally, the Opus recommendation to provide standing deadwood is not considered to be a viable option within the site due to health and safety concerns and a lack of suitable areas for these.

Amphibians

- 6.8. Provision of the habitat piles specified for invertebrates above will benefit the terrestrial phase of all amphibian species that may be found on site. At least one deadwood pile will have well-rotted compost from an existing store placed on top of it to ensure that the hibernation potential of such a feature is maximised. The design set out in the *Great Crested Newt Mitigation Guidelines* (2001) will be followed, with minor modifications as set out in Figure 2 below.
- 6.9. Locations for the habitat features described above are shown on Plan 3 in Appendix VI. As described above and below, these will also be beneficial for invertebrates and reptiles.

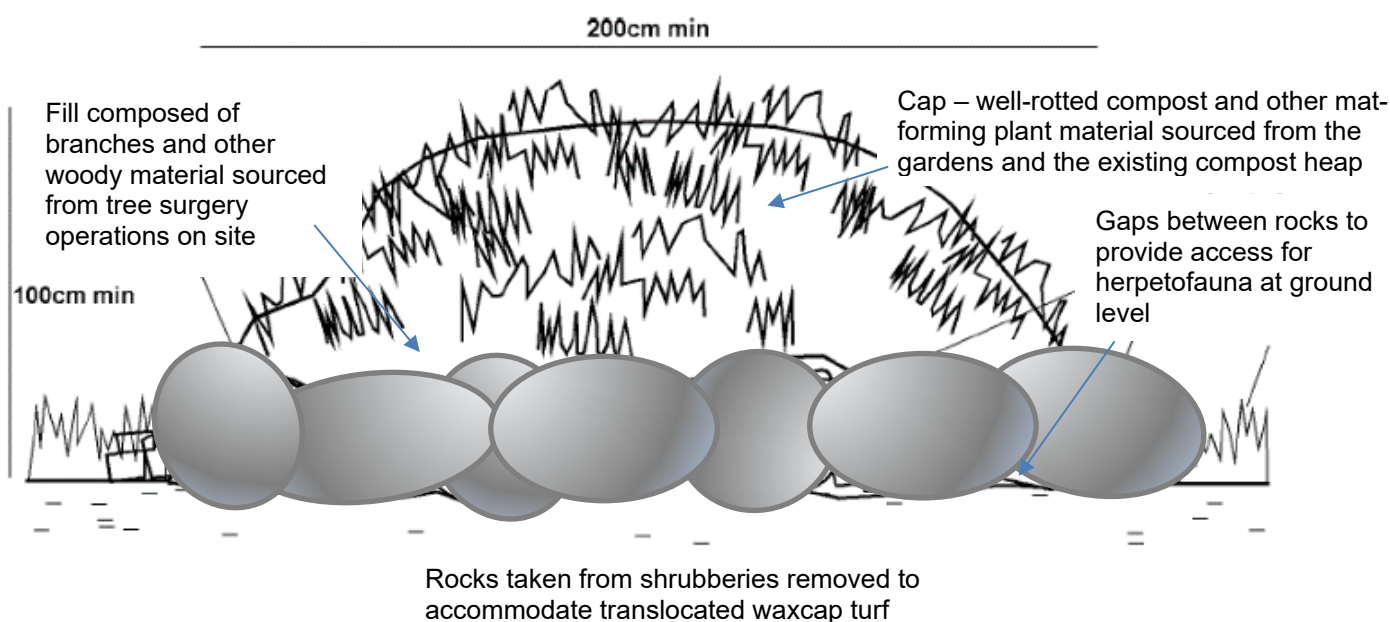
⁴ E.g. <https://www.rspb.org.uk/get-involved/activities/give-nature-a-home-in-your-garden/garden-activities/build-a-bug-hotel/> or <https://www.woodlandtrust.org.uk/blog/2019/09/how-to-build-a-bug-hotel/>

Reptiles

- 6.10. Habitat piles beneficial to invertebrates and amphibians will also benefit any hibernating reptiles if placed in shaded locations. One habitat pile will be placed in full or partial sunlight to encourage basking animals.
- 6.11. Locations for the habitat features described above are shown on Plan 2 in Appendix VI. As described above, these will also be beneficial for invertebrates and amphibians.

Figure 2 – outline design of habitat piles beneficial to invertebrates, amphibians and reptiles

Note - This is a variation on the hibernaculum design recommended in the Great Crested Newt Mitigation Guidelines (2001), from which the underlying sketch is taken (see page 42, Figure 3 of that document).



- 6.12. The habitat piles will be installed during enabling works in January or February 2021.

Hedgehogs

- 6.13. Two (no.) hedgehog nesting boxes will be installed within retained boundary plantings, as shown in Plan 2 in Appendix VI. This will follow the specification recommended by the People's trust for Endangered Species (PTES) and the British Hedgehog Preservation Society – see <https://www.hedgehogstreet.org/wp-content/uploads/2018/06/Hedgehog-Street-Hedgehog-houses-instructions-2018.pdf>

7.0 Biosecurity Measures regarding non-native invasive species

7.1. It is intended that the following Conditions will be discharged by this section of the CEMP (see Appendix I):

- PP 13
- CAC 11

7.2. A species of *Cotoneaster* has been noted growing in one of the planting beds scheduled for removal to make way for waxcap grassland translocation. This is shown in Plan 2 in Appendix VI. A number of species of this genus of tree/shrub are listed as invasive under Schedule 9 of the Wildlife and Countryside Act (1981). This legislation requires that no activities are undertaken that could cause it to spread in the wild. It has not been possible to identify the shrub on site to species level because there are over 100 species that grow in the UK and they are notoriously difficult to identify, particularly when they are not in flower. However, we consider it probable that it is entire-leaved cotoneaster (*Cotoneaster integrifolius*), which is one of those listed on Schedule 9. In order to prevent its spread, the following measures will be taken:

- Above-ground material will be cut off and chipped along with branches from other species of tree and shrub removed from around the site. The arisings will be added to the habitat piles for invertebrates/ amphibians/ reptiles described above.
- Root masses will be excavated, dried out, shaken free of soil and then burned on site in a small garden brazier to minimize smoke nuisance.

8.0 Tree Protection Plan

8.1. As noted in the introduction, Condition 11 of the CAC and Condition 13 of the PP require that a Tree Protection Plan is included in a CEMP. This is the responsibility of the arboriculturists, not the ecologists. A stand-alone document has been produced by ArbTS Ltd, detailing the locations of root protection areas, consistent with *British Standard 5837:2012 Trees in Relation to Design, Demolition and Construction - Recommendations*. The Tree Protection Plan is contained within Appendix 4 of that document.

9.0 References

- ArbTS Ltd. (May 2020) *Arboricultural Report for Bro Ddyfi Hospital, Machynlleth*. Unpublished report Ref: ArbTS_903.1
- Collins, J. (ed) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edition), The Bat Conservation Trust, London. ISBN–13 978-1-872745-96-1
- English Nature (2001) *Great Crested Newt Mitigation Guidelines*. English Nature, Peterborough. ISBN 1 85716 568 3
- English Nature (2004) *Bat Mitigation Guidelines*. English Nature, Peterborough. ISBN 1 85716 781 3.
- JNCC. 2004. *Bat Workers' Manual*. ISBN 1 86107 558 8
- Opus International Consultants (UK) Ltd. (2017) *Bat Scoping Survey of Bro Ddyfi Community Hospital, Machynlleth, Powys*. Unpublished report on behalf of Kier Plc. And Powys Teaching Health Board.
- Opus International Consultants (UK) Ltd. (2018) *Bat Emergence and Dawn Surveys Bro Ddyfi Community Hospital, Machynlleth, Powys*. Unpublished report on behalf of Kier Plc. And Powys Teaching Health Board.
- Opus International Consultants (UK) Ltd. (2) (2018) *Extended Phase 1 Survey of Bro Ddyfi Community Hospital, Machynlleth, Powys*. Unpublished report on behalf of Kier Plc. And Powys Teaching Health Board.
- Snow, D.W. and Perrins, C.M. (1998) *The Birds of the Western Palearctic Concise Edition Volume 1 Non-Passerines*. Oxford University Press. ISBN – 0 19850 187 0
- Snow, D.W. and Perrins, C.M. (1998) *The Birds of the Western Palearctic Concise Edition Volume 2 Passerines*. Oxford University Press. ISBN – 0 19850 188 9
- WSP UK (2018) *Bro Ddyfi Community Hospital, Machynlleth, Powys - Addendum Bat Report – 2018 Survey and Proposed Mitigation*. Unpublished report on behalf of Kier Plc. And Powys Teaching Health Board.

Appendix I – Planning and Conservation Area Conditions relating to Biodiversity

Listed below are the planning conditions set out under consents for 20/0857/REM Full Planning Permission (PP) and 20/0858/CAC Conservation Area Consent (CAC). Unless otherwise stated, the wording of the conditions is the same. Condition numbers are as listed. The right hand column provides references to content of this report which relates to Discharge of the Conditions.

Condition numbers		Consent Condition
CAC	PP	
6	8	Prior to felling or any other works to the sycamore tree identified as T474 in the Arboricultural Report by ArbTS Ltd, dated 4th May 2020, an inspection shall be undertaken by a suitably experienced and qualified ecologist to confirm the absence of roosting bats. Should presence of roosting bats be confirmed no works to the tree shall be undertaken until the necessary European Protected Species licence has been obtained from NRW.
7	9	The demolition, shall be undertaken in strict accordance with the mitigation and enhancement measures for bats and nesting birds identified on Ecology Plan – Bird & Bat Provisions, Drawing no. BDH-STL-V1-ZZ-DR-A-0910, Revision PL_P65, and in section 5 of the Extended Phase 1 habitat Survey by Opus, dated February 2018, and in section 4 and Appendix 3 of the Update Bat and Extended Phase 1 Survey Report by Link Ecology Ltd, dated August 2020. The measures identified shall be adhered to and implemented in full and maintained thereafter.
8	10	Prior to the commencement of development, including demolition, vegetation and tree clearance, a detailed method statement regarding bat species shall be submitted to and approved in writing by the Local Planning Authority . The approved measures shall be implemented and adhered to in full.
9	11	The recommended measures regarding invertebrates, amphibians, reptiles, roosting bats, commuting and foraging bats, nesting birds, hedgehogs and invasive non-native species identified in section 5 of the Extended Phase 1 habitat Survey by Opus, dated February 2018 shall be adhered to and implemented in full.
10	12	Prior to commencement of development, including demolition, vegetation and tree clearance, a waxcap grassland translocation and aftercare plan shall be submitted to the Local Planning Authority and approved in writing. The approved plan shall be adhered to and implemented in full.
11	13	<p>No development, including demolition, shall take place until a construction environmental management plan (CEMP) for biodiversity has been submitted to and approved in writing by the local planning authority. The CEMP (Biodiversity) shall reference the following:</p> <ul style="list-style-type: none"> a) Bat Species b) Great Crested Newts (including amphibian identification) c) Nesting Birds d) Biosecurity Measures regarding non-native invasive species e) Tree Protection Plan <p>and include measures to be taken if animals are found on site and preventative measures to avoid inadvertent trapping of animals in the area of works. The approved CEMP shall be adhered to and implemented throughout the construction period strictly in accordance with the approved details.</p>
Additional:	15	Prior to the commencement of development a detailed lighting design scheme to take into account any impacts on nocturnal wildlife into consideration shall be submitted for written Local Planning Authority approval and implemented as approved and maintained thereafter.

Appendix II - Method Statement for Non-Licensed works to the Boiler House at Bro Dyfi Hospital, Machynlleth

Background and Supporting Information

Summary

Three minor roosts for common pipistrelle bats will be destroyed by demolition works to Bro Dyfi Hospital, Machynlleth. These roosts will be subject to European Protected Species (EPS) Licensing and are covered by the accompanying Method Statement that will form part of an application to Natural Resources Wales (NRW).

A fourth roost in the boiler house on site cannot be licensed because the conservation status of the roost cannot be assessed – this was unoccupied on all survey dates in 2017, 2018 and 2020. The roost is instead subject to this separate non-licensed Method Statement, as agreed with Matt Ellis of Natural Resources Wales in January 2018 (e-mail correspondence is attached). The proposed activity that cannot be licensed may affect bats because there is evidence of a roost in the building to which it relates but the population of bats using it cannot be assessed.

The proposal is to replace the boilers in the boiler house during the summer months, so that any disruption to heating supply in the hospital is minimised. The interior of the building will essentially be the same as it is now but there will be noise impacts as a result of the removal and replacement of equipment. No external works to the building are proposed. It is hoped and expected that impacts on any bats roosting in the flat roof of the building and/or on the exterior will be negligible and therefore the works are not licensable. If evidence arises that bats are being disturbed then consultation with NRW will be entered into before works continue, with recourse to EPS licensing if necessary.

The following document relates specifically to the boiler house. All reference to the other buildings on site is omitted unless it is pertinent to the works proposed in the boiler house. Reference should be made to the EPS Licence Method Statement if there is any doubt as to what is covered by each of these documents.

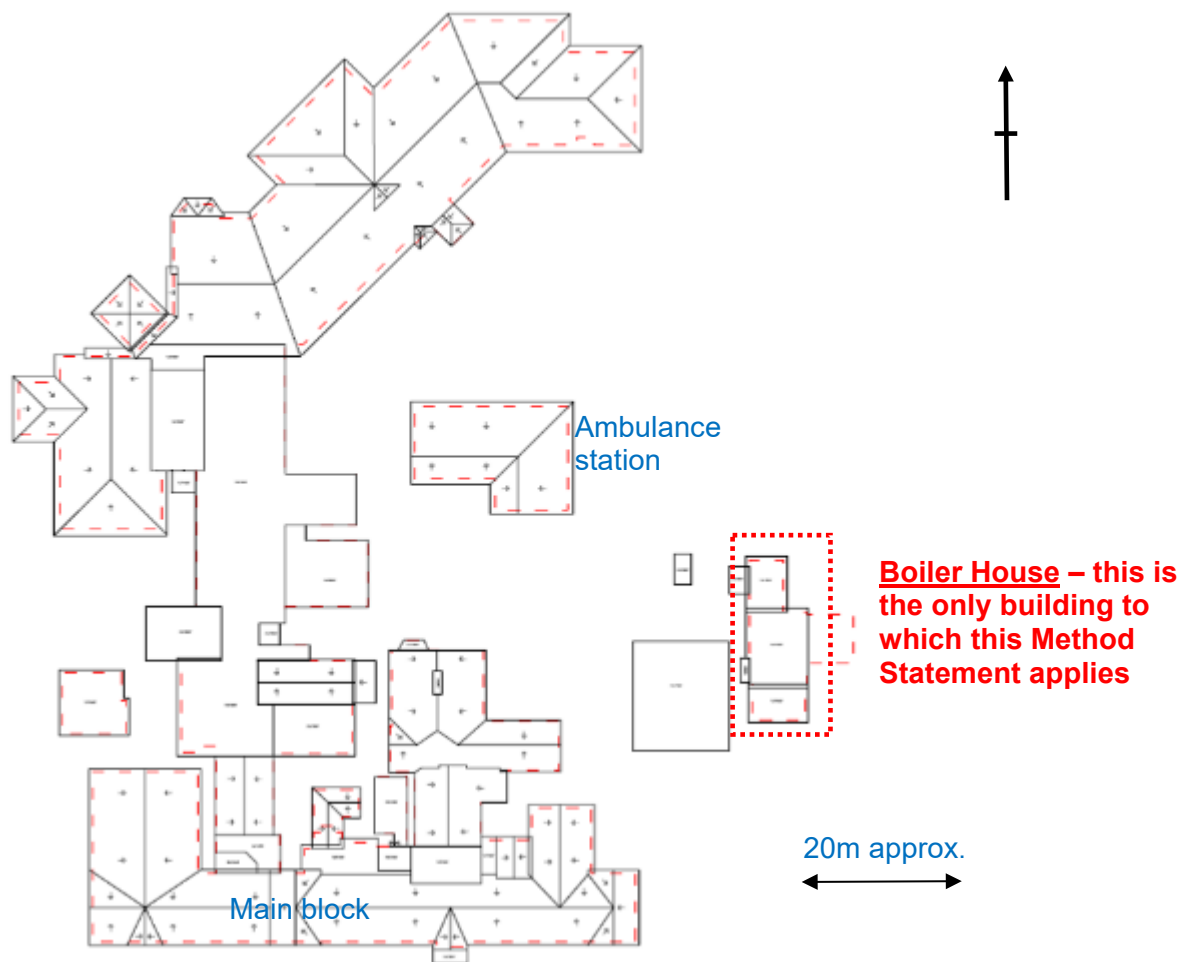
Site assessment

Existing information on the bat species at the survey site

A search from the local biological records centre (the Biodiversity Information Service for Powys and the Brecon Beacons National Park, BIS), was undertaken for records of bats within 2km of the site. This is reported on under the EPS Licence application Method Statement that accompanies this document. None of the records relate specifically to Bro Ddyfi Hospital.

Scaled plan/map of survey area

Scaled plan of the site



Base plan from Faithful Gould "Machynlleth Roof Plan" dated 07.07.14

Site/habitat description

The boiler house is a brick building with a flat roof composed of concrete beams covered with bitumen felt. Adjacent to the boiler house are ancillary rooms, storage and a redundant chimney, also composed of brick.

Photo 1 – exterior of the boiler house



Photo 2 – interior of boiler house showing concrete beams in ceiling




Field survey(s).Field Surveys carried out


Survey number	Method	Timings	Weather	Personnel	Equipment used
1	Daytime scoping inspection	10-11/10/16 and 13/01/17	Sunny but cool Cold and overcast	Eric Palmer and Laura Hammerton	Ladder, high-powered torches, inspection torches, endoscopes and mirrors.
2	Emergence	12/06/17	13°C throughout survey; no rain; light SW wind and 100% cloud	Eric Palmer Matthew Pickard Jane Sedgely-Strachan	Anabat SD2 (*3)
3	Emergence	17/07/17	18°C at start, 17°C at end; no wind; no rain; 30% cloud at start, 0% at end.	Craig Bulga Nia Jones Doug Lewns David Lewns Penny Lewns Elinor Parry Eric Palmer Jane Sedgely-Strachan 2 IR cameras	Pettersson D240x Elekon bat logger (*4) Bat box Duet (*2) Anabat SD2 (*3)
4	Dawn	18/07/17	14°C throughout survey; no rain; no wind and 10% cloud throughout	Eric Palmer Craig Bulga Jane Sedgely-Strachan 2 IR cameras	Pettersson D240x Bat box Duet Anabat SD2
5	Emergence	10/08/17	14°C at start, 12°C at end; no rain; no wind and 0% cloud throughout	Eric Palmer Matt Pickard Jane Sedgely-Strachan 3 IR cameras	Pettersson D240x (*2) Tranquillity Transect (*2) Anabat SD2
6	Dawn	21/09/17	13°C throughout survey; no rain; no wind and 10% cloud throughout	David Lewns Elinor Parry	Elekon batlogger (*2)
7	Emergence	04/06/18	18°C throughout survey; no rain; light NW wind, 80% cloud at start and 100% at end	Eric Palmer David Lewns Elinor Parry	Pettersson D240x Elekon bat logger Anabat SD2
8	Dawn	05/06/18	15°C throughout survey; no rain; moderate NE wind and 100% cloud throughout	Eric Palmer David Lewns Elinor Parry	Pettersson D240x Elekon bat logger Anabat SD2
9	Daytime inspection	10/06/20	Not noted	Matt Pickard	Torch, endoscope
10	Emergence	10/06/20	12°C, light but persistent rain and 100% cloud	Matt Pickard and Simon Cope	Pettersson D240x Anabat Walkabout
11	Emergence	29/07/20	15°C; no rain, no wind. Very humid after rain	Eric Palmer and Matt Pickard	Pettersson D240x (*2) Tranquillity Transect (*2) Anabat SD2 (*2)

Personnel used on surveys

Name	Experience	Licence number
Eric Palmer	Licensed bat worker since 2000 in England and 2004 in Wales	S085940/1
Matthew Pickard	Licensed bat worker since 2013	S086314-1
David Lewns	Licensed bat worker since 2004 in England and 2007 in Wales	74629:OTH:CSAB:2017
Penny Lewns	Bat worker since 1984, licensed since 2010.	77663:OTH:CSAB:2017
Jane Sedgeley-Strachan	Bat worker (academic research) since 1985. Consultant ecologist since 2009.	Licensed in England only – licence number 2014-5693-SCI-SCI
Elinor Parry	<1 year	-
Doug Lewns	>2 years	-
Nia Jones	<1 year	-
Craig Bulga	>2 years	-
Laura Hammerton	>2 years	-
Danny Ardeshir	>2 years	-
Simon Cope	Licensed bat worker	S086636/1
Nicola Wheeler	Licensed bat worker	S086637/1
Tony Hodges	Licensed bat worker	S085038/1
Kirsty Martuccio	3 years	-
Chris Hall	Licensed bat worker	S085724-1
Natalie Parry	1 year	-
Lee Walton	1 year	-

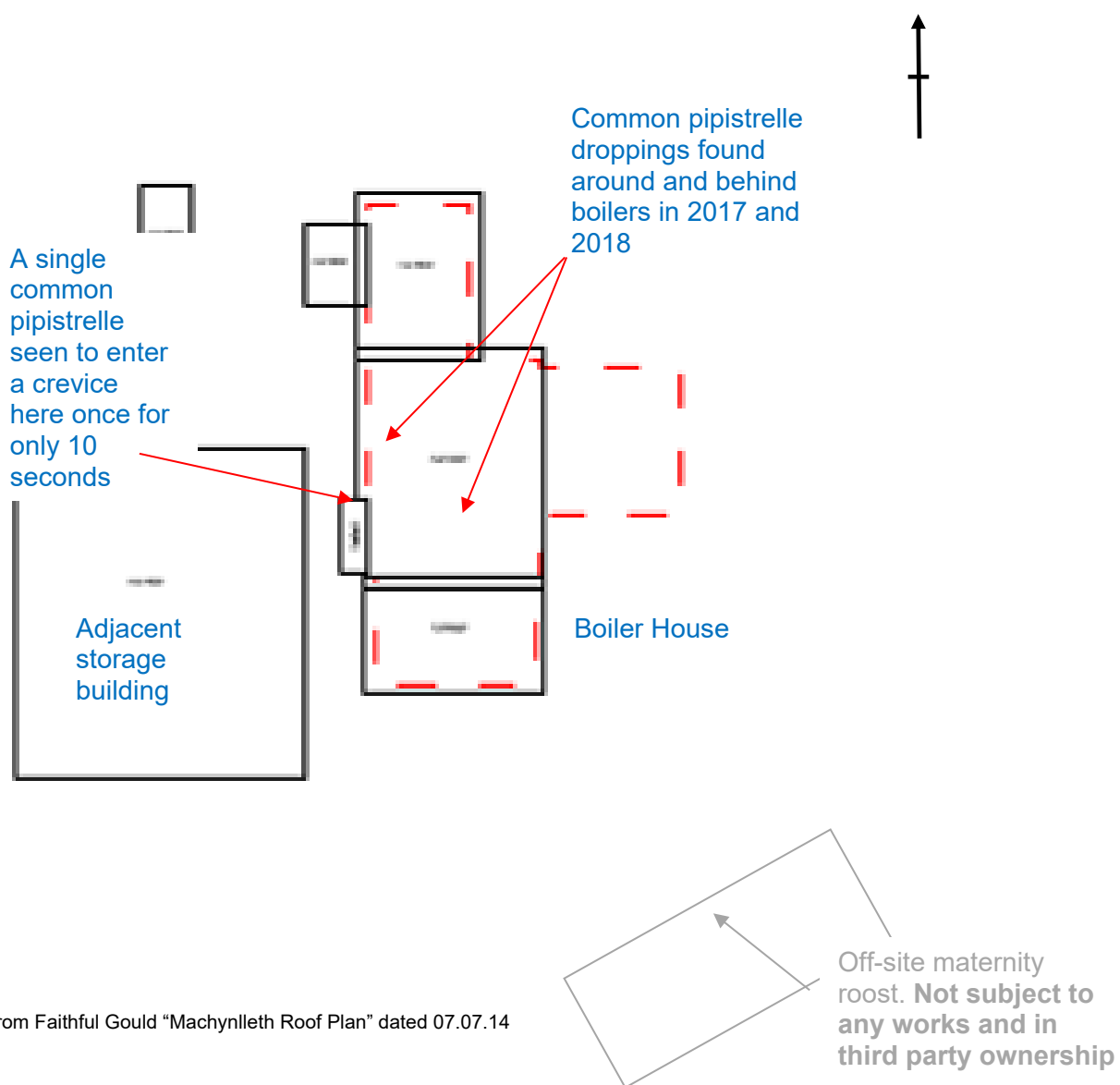
Survey Results.

Survey method	Date(s)	Summary of Results
Note:		For full results of surveys in 2017, including plans and photographs, see <i>Bat Scoping Survey</i> by Opus International Consultants Ltd. Dated Feb17 and <i>Bat Dusk and Dawn Surveys Report</i> by Opus International Consultants Ltd. Dated Jan18 (enclosed under file Previous Reports)
Daytime scoping inspection	10-11/10/16 and 13/01/17	<p>The boiler house was found to contain relatively large numbers of bat droppings, suggesting that it was (or had been) used as a maternity site.</p>  <p>Droppings collected were confirmed to be from common pipistrelle bats using DNA techniques.</p>
Emergence	12/06/17	No bats emerged from the boiler house, but incidental note was made of a roost in a building adjacent to it. This was a maternity colony of common pipistrelle bats.
Emergence	17/07/17	No bats emerged from the boiler house.
Dawn	18/07/17	No bats entered the boiler house.
Emergence	10/08/17	No bats emerged from the boiler house.
Note:		For full results of surveys in 2018, including plans and photographs, see <i>Bro Ddyfi Community Hospital - Addendum Bat Report</i> by WSP. Dated Jul18 (enclosed under file Previous Reports)
Emergence	04/06/18	None of the roosts found within the site boundary in 2017 were found to be occupied by bats. Incidental observations indicated that the common pipistrelle maternity roost in the residential block adjacent to the boiler house had been re-occupied.

Survey method	Date(s)	Summary of Results
Dawn	05/06/18	<p>A single common pipistrelle briefly entered a crevice on the exterior of the boiler house, between the brick wall and the now-redundant chimney. This animal left the feature approximately 10 seconds later. It was therefore not recorded as an active day roost. This was the first time that bat activity indicating roosting had been observed at the boiler house.</p> 
Daytime inspection	10/06/20	<p>Accumulations of droppings considered to have been deposited since the last surveys in 2018 were found inside the boiler house, largely on a protruding socket box on the rear interior wall, behind the boilers themselves. Scattered droppings were also noted and these were considered to be more sparsely distributed in comparison with the findings of previous surveys. This may have been due to a lack of bat activity or due to people sweeping up droppings.</p> <p>No bat droppings were found on the exterior walls of the boiler house. In contrast with the findings of the 2018 work, there were none in association with the crevice between the main wall of the building and the now-redundant chimney. However, the potential use of the crevice as a roost and/or as a means of access to the flat roof of the building was still there.</p>

Survey method	Date(s)	Summary of Results
Emergence	10/06/20	No bats emerged from the boiler house.
Emergence	29/07/20	No bats emerged from the boiler house.

Plan: Summary of Results



Base plan from Faithful Gould "Machynlleth Roof Plan" dated 07.07.14

Interpretation/evaluation of survey results

Count

No common pipistrelle bats recorded from a disused maternity roost which has not been used as such since at least 2017.

Status of the site

A disused maternity site for common pipistrelle bats that may be occupied by small numbers of animals through the year. The numbers of recent droppings suggest that there may have been a pre-breeding cluster of bats in 2018 that ultimately moved to the adjacent residential block. However, no bats were recorded entering or leaving the building over the two years of survey. Consequently, the roost is considered to be un-licensable.

Roost significance

On the sliding scale given in The Bat Mitigation Guidelines (p.39), the boiler house is of low conservation significance **at the present time**, being host to “*Small numbers of common species. Not a maternity site*”. It is possible that the status of the site could change, however, back to being a maternity site.

Constraints on the surveys

None identified

Impact assessment

Short-term impacts: disturbance

If bats are present in the roof of the boiler house at the time works take place, disturbance due to noise, light and dust could occur. Such disturbance is not anticipated to cause significant problems and the survey results suggest that bats will be absent.

Long-term impacts: roost modification

No roost modification is proposed. The structures used by bats will be unaltered and any means of access to them will not be affected.

Long-term impacts: roost loss.

No roost loss is anticipated

Long-term impacts: fragmentation and isolation.

No fragmentation or isolation of the roost is anticipated. No additional lighting is planned.

Post-development interference impacts.

No post-development interference impacts have been identified.

Predicted scale of impact

The scale of impact, in the absence of mitigation, is considered to be:

Species status at the site - neutral to low. Disturbance of any bats present is likely to be low and affect low numbers.

Species status at a local level – Presently low. If bats re-occupy the site as a maternity roost then this would need to be re-evaluated to moderate. This is in consideration of the nature of the work proposed, which will not intrude into the roost itself.

Species status at county level – Presently low. If bats re-occupy the site as a maternity roost then this would need to be re-evaluated to moderate.

Species impact at regional level – Under all circumstances, the impact on the species at a regional level is considered to be low because the species concerned is common.

Delivery Information – Monitoring to ensure that works are compliant with the law, with or without recourse to EPS licensing

Pre-works monitoring survey

The works are scheduled to commence on 21st June 2021 and have a duration of 16 weeks. A pre-works survey up to 4 weeks prior to the start date will be carried out by two ecologists with up to three IR video cameras (one inside the building and two monitoring the chimney on the outside). A dusk and a dawn survey within the same 24 hour period will be carried out.

Appropriate response to the results of the pre-works survey

The results of the surveys will be reported to the site manager on the same day.

If bats are absent or are only found roosting in low numbers on the exterior of the building, works will be given the go-ahead without the need for further consideration or liaison with NRW.

If bats are found in occupation of the building interior and/or are found in numbers suggesting the presence of a maternity roost, an officer of NRW will be consulted. Discussion will centre on whether or not the proposed works could disturb bats sufficiently that they would vacate the roost and/or abandon dependent young as a result. If the conclusion is that works would be detrimental to the bats, the works will be postponed until either:

1. appropriate measures are in place to protect the bats from disturbance (under an EPS licence);
or
2. bats are absent from the building.

Contingency for bats found during works

All site staff will be inducted on what to do if they find a bat. Instruction will entail the following:

1. Do not handle the bat
2. If possible, cover the animal with a cloth or re-place the material that the animal was found in/under if injury to the bat is considered impossible (e.g. a slate can be placed back over the bat without trapping a forearm, wing membrane or other body part).
3. Stop work in the immediate area and notify the site manager.

If the ecologist is present – any bat(s) found will be notified to the ecologist immediately, who will capture the animal(s), weigh, sex and examine them for injury. Any animals not requiring care will be released at dusk.

If the ecologist is not present – cover the animal as instructed in the induction and call the ecologist. Stop work in that area until clear instruction is received. The ecologist will attend site at the earliest opportunity to assess the bat. In exceptional circumstances, the site manager, having been suitably trained, will be asked to release the bat without the ecologist being present.

Post-development site safeguard

Any additional works to the exterior of the building (e.g. blocking of existing gaps in brickwork, re-roofing etc.) that may be proposed must be reviewed by an appropriately qualified and licensed bat ecologist. Works likely to prevent bat access into the roost in the flat roof must be preceded by a pre-works dusk or dawn survey in the appropriate season (May to September).

If bats are found to be present in 2021, the results of the pre-works survey must be discussed with NRW prior to works being programmed. It may be the case that more surveys are required to determine occupancy.

Appropriate avoidance of impacts must be considered fully and reasons for requiring/ not requiring a licence to proceed should be documented in a formal report, as has been the case to date.

Timetable of works

Include timings of exclusion operations, demolition and construction works, creation of mitigation measures, timing of other post development works and monitoring.

Timing of works	Works to be carried out
May to June 2021	Pre-works survey
June to Oct 2021	Boiler replacement

Declaration

We declare that this Method Statement will be strictly adhered to. We understand that any deviation from the works as proposed in this Method Statement could result in a breach of the law.			
Signature of the Site Manager		Date	
Full name in BLOCK LETTERS			
Signature of the Contractor (for and on behalf of Willmott Dixon)		Date	
Full name in BLOCK LETTERS		Date	
Signature of the Site Ecologist		Date	
Full name in BLOCK LETTERS	Eric Palmer		

See overleaf for Induction Record

Method Statement for Non-Licensed works to the Boiler House at Bro Dyfi Hospital, Machynlleth

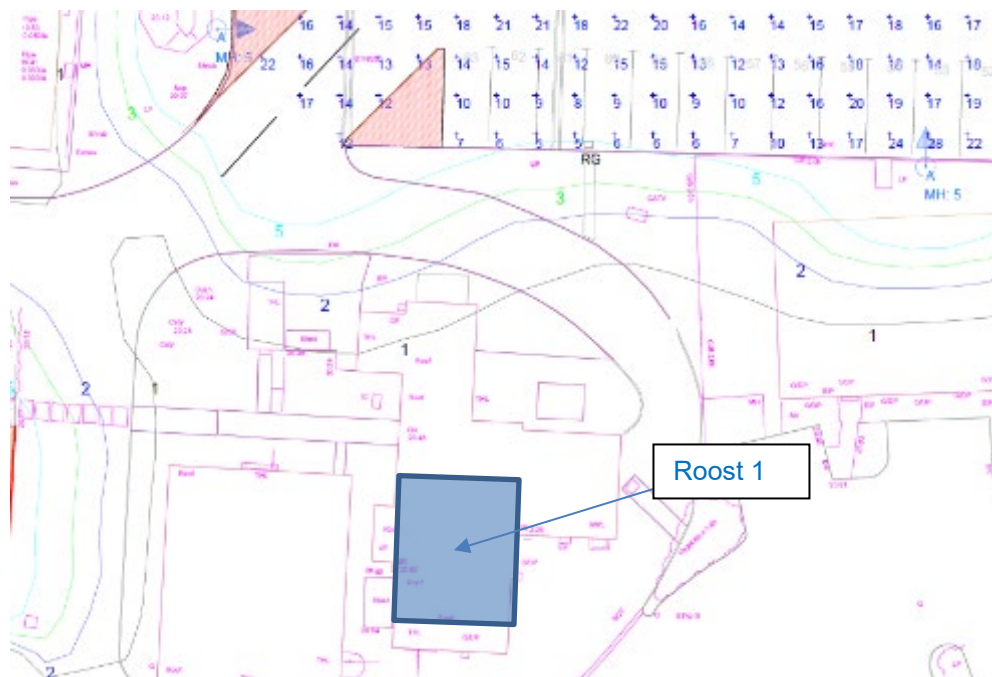
Induction record

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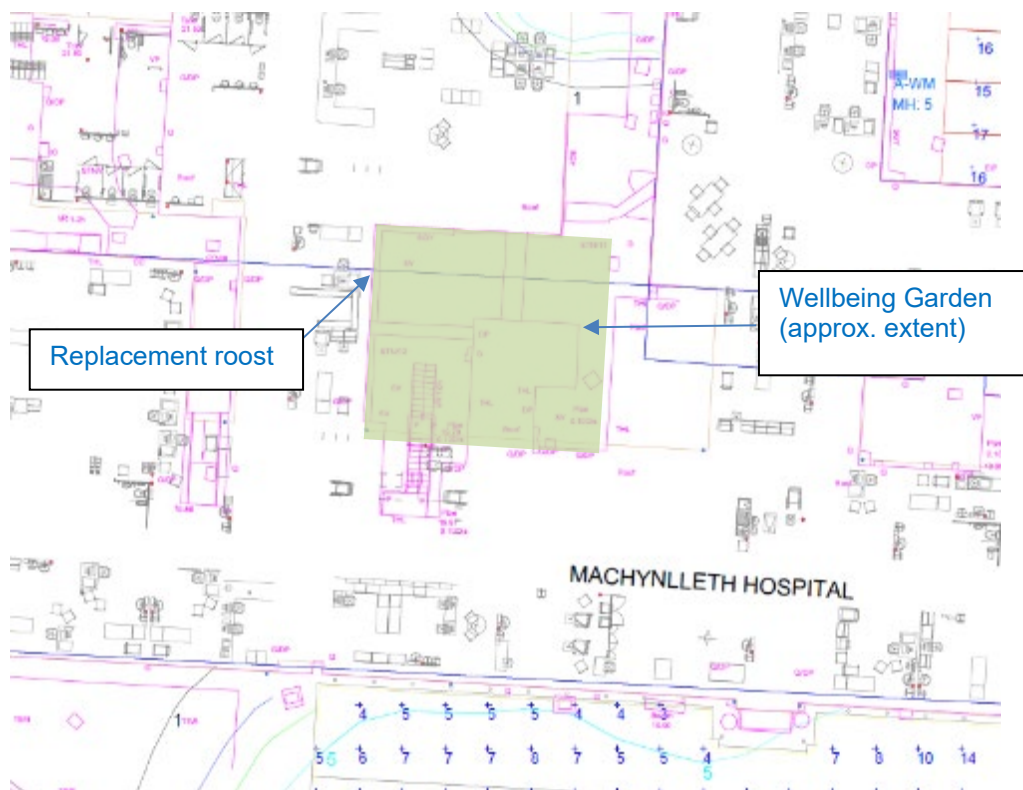
Appendix III – Lighting Scheme

The lighting scheme design for the re-developed site is set out in Drawings 33760C *Machynlleth Hospital_EXT_LIGHT* and BDH-HP-VE-XX-DR-E-802 (4)_EXT_LIGHT and 33760E *Machynlleth Hospital Redevelopment* which are attached separately. Below are plans illustrating the main features of the lighting scheme that will benefit roosting and (to a limited extent) foraging bats.

Plan 1 – Anticipated light levels affecting Roost 1

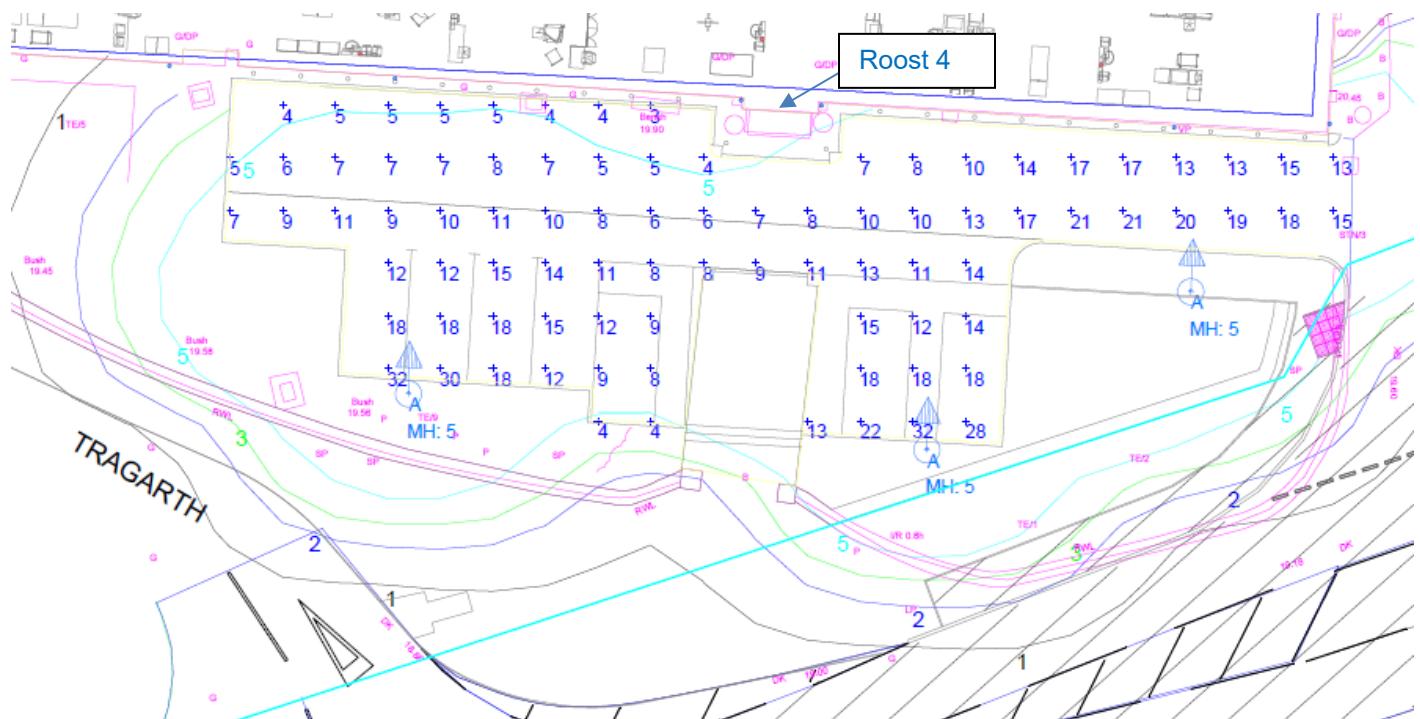


Plan 2 – Anticipated light levels affecting replacement roost for Roosts 2 and 3 - none



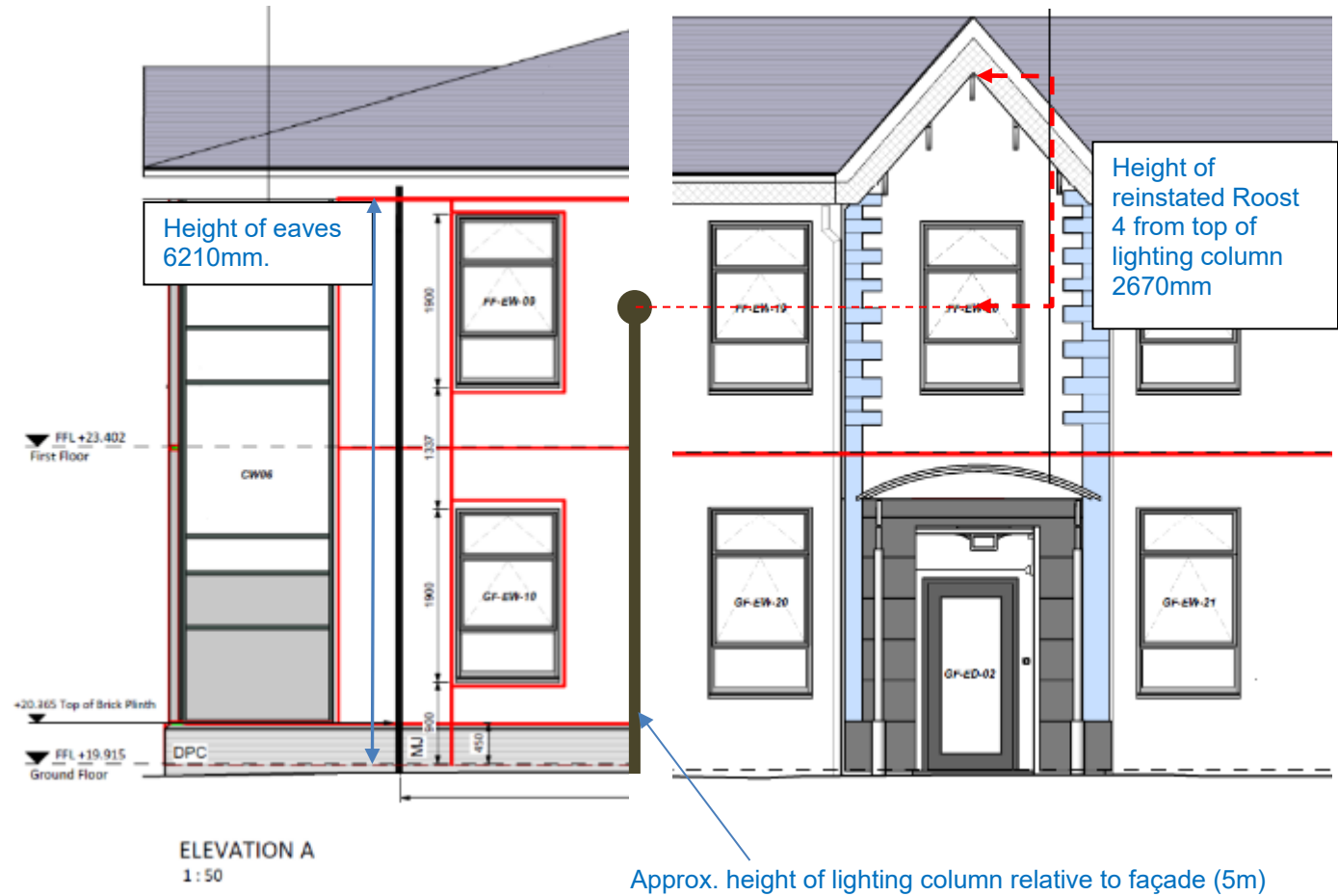
Plan 3 – Anticipated light levels at the front (south elevation) of the building – Plan view

Note - The figures in blue show lux levels at ground level



Extracts from Drawing 33760C Machynlleth Hospital_EXT_LIGHT

Plan 4 – Anticipated light levels at the front (south elevation) of the building – Elevation view

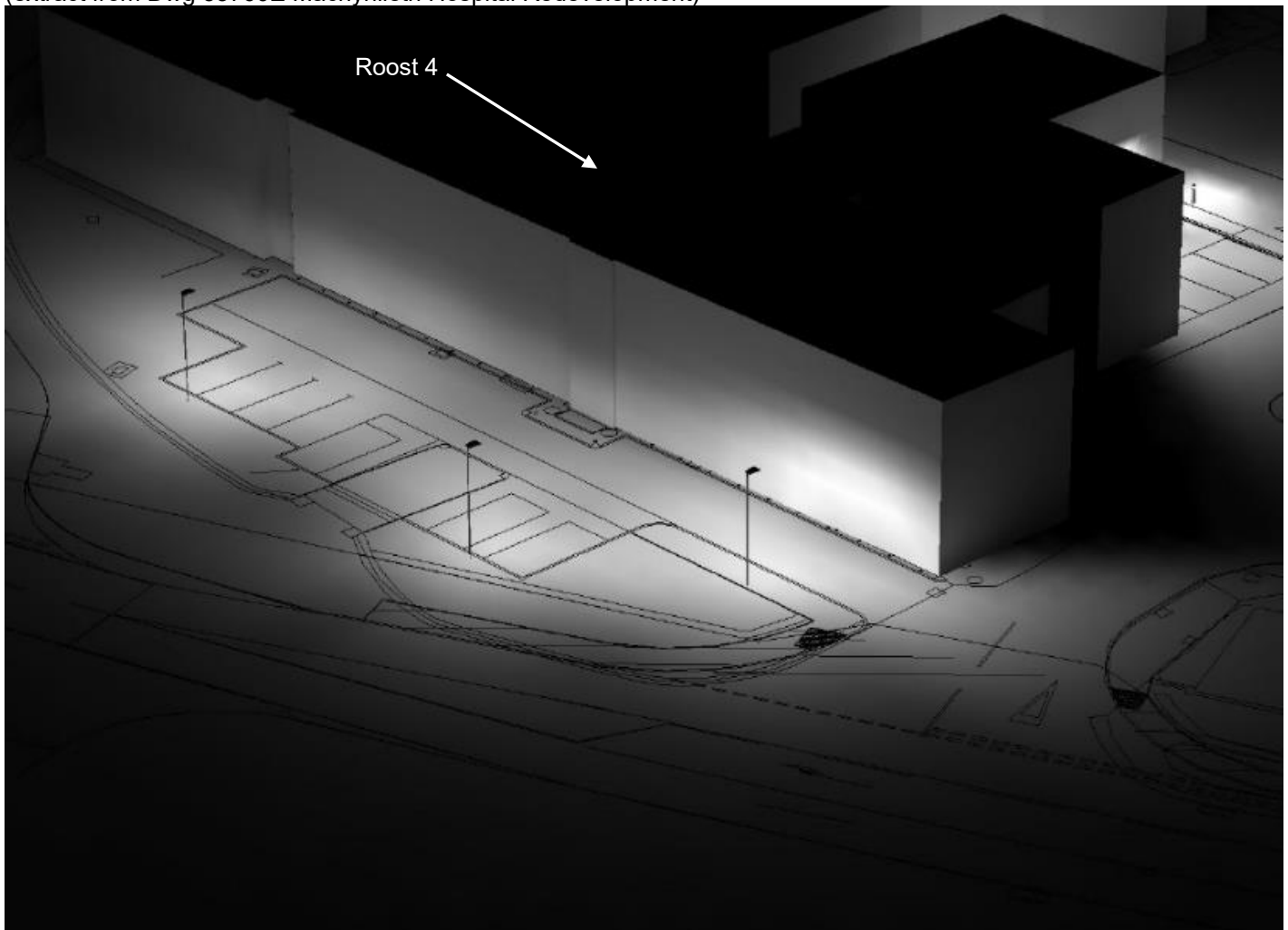


Extract from drawing Technical Elevations – Sheet 1:BDH-STL-V1-ZZ-DR-A-2101

Plan 5 – modelled light splay relating to Roost 1 and replacement roost for Roosts 2 and 3
(extract from Dwg 33760E Machynlleth Hospital Redevelopment)



Plan 6 – modelled light splay relating to Roost 4
(extract from Dwg 33760E Machynlleth Hospital Redevelopment)



Appendix IV - Identification of Great Crested Newts and other amphibians – notes for contractors

All photographs © Link Ecology Ltd.

Main features of GCN



Warty skin, dark colouration

Orange belly with dark spots (although Smooth Newts have this too)

Males have a crest that flops over when out of the water. In the water, a notch in the crest between the back and the tail is obvious





Males have a flash of silver/ white on the tail



Size difference between GCN and Palmate newt. Smooth newts (not shown) are a similar size to Palmate.

Shown here is a female GCN and a male Palmate.

Note lack of crest on the female GCN

Other Species of newt

Male **Palmate Newt**.
Distinguished by black
hind feet

Females are plainer and
lack the black feet.
Distinguished from
Smooth Newt females by
not having large spots on
the throat



Male (left) and female (right) **Smooth Newt**. Crest on male extends from head to tail tip, unlike GCN.

Females are plainer. Distinguished from Palmate Newt females by having large spots on the throat that extend down the belly.

Avoidance of harm to amphibians

Amphibians, including all newt species, common frog and common toad, shelter within some stored materials and damp places such as leaf litter, deadwood piles and cavities in the ground. They can also become trapped in excavations. Harming amphibians can be avoided by:

- Checking under materials such as stored timber, brick, roof tiles, large aggregate etc. as they are moved from one place to another;
- Checking site excavations before filling them.

If you find an amphibian

Avoid handling animals unless absolutely necessary to prevent (further) harm to them i.e. only if it is an emergency. If handling, wet your hands first using clean water.

Report all sightings immediately to the Site Manager, who will inform the ecologist.

Let's try to avoid this:**Or this:**

Appendix V – Identification of Reptiles – notes for contractors

The most likely species you will find on site is the Slow worm. It looks like a snake but is in fact a legless lizard. Shown below is a female Slow worm, which is identified by the dark banding on the sides of the body. Males are plainer looking.



Common Lizard may be found but this is unlikely because habitat on site is sub-optimal for them . It is the only legged lizard likely to be found in this part of the UK.



Avoidance of harm to reptiles

Reptiles shelter within some stored materials, generally in drier and warmer places than amphibians but they do use, deadwood piles and cavities in the ground. They can also become trapped in excavations. Harming reptiles can be avoided by:

- Checking under materials such as stored timber, brick, roof tiles, large aggregate etc. as they are moved from one place to another;
- Checking site excavations before filling them.

If you find a reptile

If you find any species of snake, do not approach it. Try to get a photo or a description and report it to the Site Manager. Grass snake is harmless but will defecate on you if you pick it up. Adders have a poisonous bite which can cause severe allergic reaction in some people. Neither species has been recorded within 2km of the site and habitat on site is sub-optimal for them, so they are unlikely to be present.

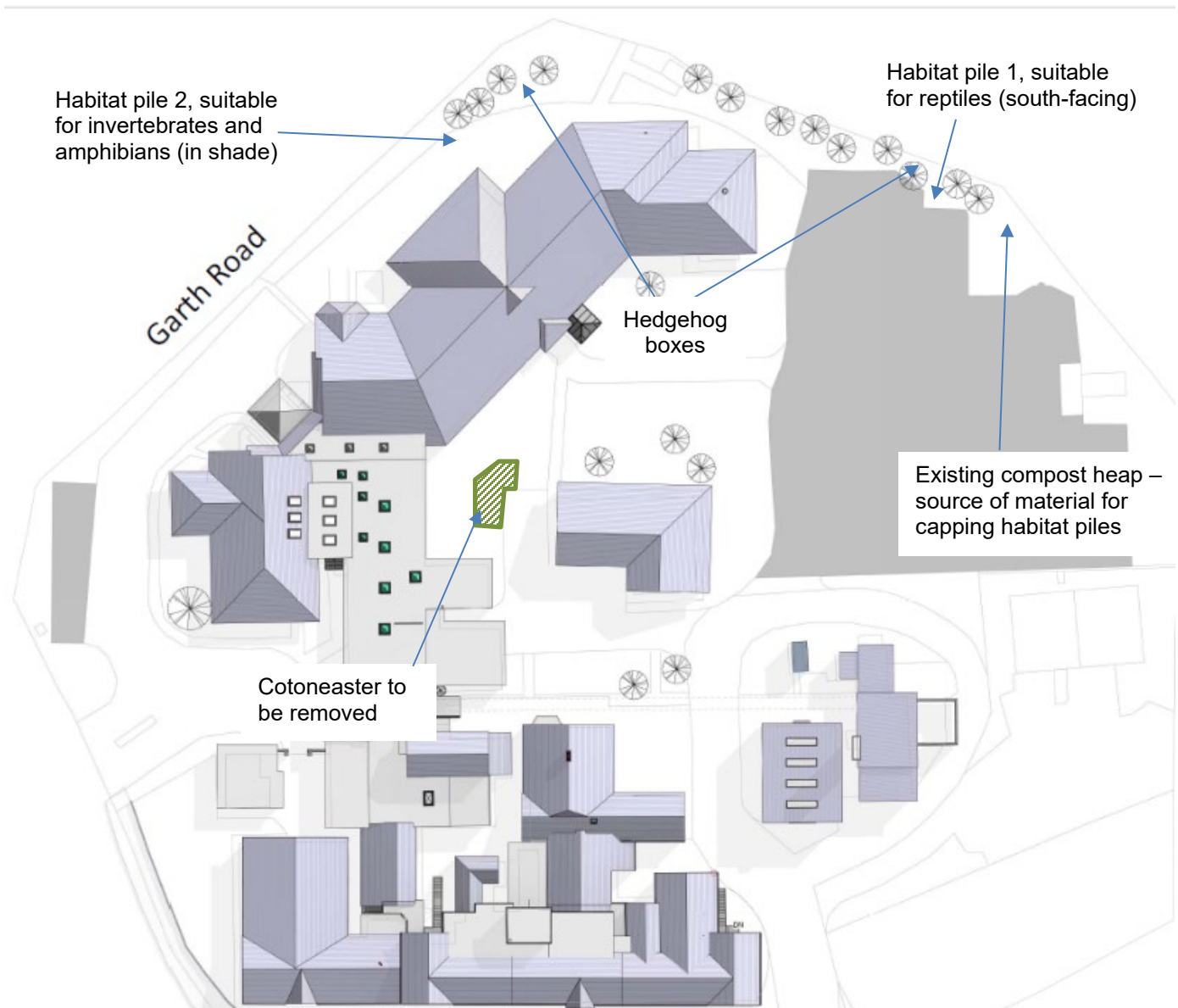
Avoid handling animals unless absolutely necessary to prevent (further) harm to them i.e. only if it is an emergency. You are likely to cause any animal found to shed its tail (lizards and slow worms), defecate on you (grass snake) or bite you (adder). It is almost always best to leave them alone.

Report all sightings immediately to the Site Manager, who will inform the ecologist.

Appendix VI – Landscape features for Biodiversity

Plan 1 - Design of the Wellbeing Garden (see PDF attached)

Plan 2 - Locations of Habitat piles for Invertebrates, amphibians and reptiles, hedgehog boxes and Cotoneaster to be removed



Base plan from BDH-STL-V1-ZZ-DR-A-0901 Existing Site Plan

Photo 1 – location of Habitat pile 1 – Cherry Laurel to be cut back



Photo 2 – Location of Habitat Pile 2



Photo 3 – existing compost heap to be used to supplement habitat piles



Photo 4 – Cotoneaster to be removed

