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ECOLOGICAL IMPACT ASSESSMENT REPORT

MERTHYR TYDFIL SYNAGOGUE, CF47 0ER

FOUNDATION FOR JEWISH HERITAGE

Document Ref: WWE23174 EcIA | 08/08/2025

Client:	Foundation for Jewish Heritage
Site/Job:	Merthyr Tydfil Synagogue, CF47 0ER
Report title:	Ecological Impact Assessment Report
Report reference:	WWE23174 EcIA

Grid Reference:	SO051062
Survey date(s):	PRA/PEA: 05/12/2023 and 12/06/2024 GLTA: 02/02/2024, 09/02/2024 Bat hibernation survey: 02/02/2024 Bat emergence surveys: 23/05/2024, 17/07/2024, 22/08/2024 Static monitoring surveys: 23/05/2024 – 28/05/2024, 17/07/2024-22/07/2024, 02/08/2024-08/08/2024.
Surveyed by:	PRA/PEA: Jack McCormack, Beth Lewis, and Shannon Phillips GLTA: Jack McCormack and Beth Lewis Bat emergence surveys: Jack McCormack, Beth Lewis, Maddie Anderson, Jenny O'Neill, Kate Wickens, Hannah Humphreys, Amy Williams Schwartz, Paul Anderson, Emma Douglas, Andy Freeman-Hall, Lucy Boulton, and Lindsay Harrison. Hibernation survey: Jack McCormack, Jenny O'Neill and Beth Lewis
Architect/Agent:	GWP Architecture

VERSIONING AND QUALITY ASSURANCE

Status	Date	Author	Reviewed by	Approved by
Final	08/08/2025	Beth Lewis ACIEEM Consultant Ecologist Jack McCormack Assistant Consultant Ecologist	Ivi Szaboova MCIEEM Director of Ecology	Ivi Szaboova MCIEEM Director of Ecology

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The evidence which we have prepared and provided is true and has been prepared and provided in accordance with the guidance of The Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

Purpose
Wildwood Ecology were commissioned by Foundation for Jewish Heritage (the client) to undertake an Ecological Impact Assessment (EcIA) at Merthyr Tydfil Synagogue, CF47 0ER. The site is subject to a full planning application to site is the subject of a planning application to renovate the synagogue (building A) including external works to roof, guttering, windows and brickwork. Internal works comprise full renovation works to provide exhibition and presentation zones for the public visiting the synagogue, including demolition of one ground floor internal wall, construction of void/balcony area on the second floor overlooking the first floor, renovation of existing internal features, and construction of a building to the rear of the synagogue at the eastern elevation. Additionally, the proposed works include landscaping of the woodland area, including tree removal and retention, coppicing and enhancement of current treelines with native planting and replanting of lost trees. Works to building B (Primrose Hill) include internal works to the basement and ground floor flats and external works to convert an existing window on the ground floor to its former use as a door.
Work undertaken
A Preliminary Ecological Appraisal (PEA)/Preliminary Roost Assessment (PRA) was undertaken, consisting of a field survey and desk study carried out in December 2023 and June 2025 following the Chartered Institute of Ecology and Environmental Management (CIEEM) Preliminary Ecological Appraisal (2017) guidelines and standard Phase 1 Habitat Survey protocol (JNCC, 2010). Three dusk emergence surveys were undertaken at the synagogue between May and August 2024. As the Primrose Hill building proposals were limited and the potential roost features were sufficiently separated from the works area, bat surveys were not considered necessary. One static bat monitoring device was deployed in the synagogue on the second floor between 23/05/2024 and 28/05/2024, and three static bat detectors were deployed on each floor between 02/08/2024 and 08/08/2024. A bat hibernation survey was undertaken in February 2024, with endoscoping checks carried out in the basements on 02/02/2024, and two static monitoring devices were deployed in the basements between 02/02/2024 to 20/02/2024. A Ground Level Tree Assessment (GLTA) was carried out at the trees in the woodland adjacent to the building in February 2024. Bat droppings collected on the second floor at the synagogue were analysed in a laboratory and confirmed presence of serotine.

[1] CIEEM (2019). *Advice Note: On the Lifespan of Ecological Reports and Surveys*. Chartered Institute for Ecology and Environmental Management, Winchester.

The PRA, GLTA, and bat surveys followed best practice in line with the Bat Surveys for Professional Ecologists: Good Practice Guidelines, 4th edn (Collins 2023).

Impacts and Effects

Due to the type/ scale of works and distances to designated site, no adverse effects on designated sites are anticipated.

Due the proposed works, it is likely that in the absence of mitigation there will be adverse effects on the following ecological features:

- trees (proposed for removal);
- woodland;
- amphibians (common; in their terrestrial phase);
- roosting bats;
- commuting and foraging bats;
- badger (if new setts are created);
- dormouse;
- hedgehog;
- nesting birds; and
- reptiles.

Recommendations Compensation and Enhancements

As adverse effects on bats are not anticipated at Primrose Hill, no further recommendations are therefore required. If Primrose Hill roof is to be repaired in the future, bat survey(s) will be required.

Mitigation measures during the construction phase of the proposed development will be required.

- As a maternity roost of brown long-eared, night roost of lesser horseshoe, day roost of serotine, and day roosts of common and soprano pipistrelle, were confirmed onsite, a European Protected Species Licence (EPSL) for bats will be required from Natural Resources Wales (NRW) for the proposed works to legally proceed. The licence can be applied for after full planning permission is obtained and when bat-related pre-commencement planning conditions are discharged. The licence must be obtained prior to the commencement of works
- Roof stripping works where crevice-dwelling bats may be present (that would not be observed during the internal building check) will be conducted under supervision of named ecologist or an accredited agent.
- The roof strip/ roof repair work and internal redevelopment work will be subject to timing constraints due to the presence of a maternity and hibernation roosts.
- Compenations roosts will be required and will be set out in the bat licence, to be agreed by NRW. The work methods/ timing will need to be agreed with NRW during the licence application. For further details please see the recommendations section.

[1] CIEEM (2019). *Advice Note: On the Lifespan of Ecological Reports and Surveys*. Chartered Institute for Ecology and Environmental Management, Winchester.

- The trees to be removed will require an ivy strip and inspection of any PRFs, supervised and conducted by a licensed ecologist, immediately prior to felling. If bat roosts are confirmed, a EPSL will be required from NRW prior to tree removal.
- Precautionary working measures (as set out in Recommendations section) as well as Ecological Clerk of Works supervision will be required to avoid triggering legislation by killing/injuring common amphibians, badger, dormouse, hedgehog, reptiles, and nesting birds.
- If buildings or habitats suitable for nesting birds are to be removed, then works will take place outside of the bird nesting season. If clearance work has to be undertaken during the nesting season (generally from 1st March until 31st August, although birds are known to nest outside of these dates in suitable conditions), a nesting bird check will be required; carried out by a suitably qualified person. Active nests will be protected by a suitable buffer, as directed by the ecologist, until the young have fledged, as confirmed by the ecologist.

Mitigation measures during the operational phase of the proposed development are required.

- As additional lighting is to be installed as part of the development, a sensitive lighting strategy will be implemented to protect the current dark zones around the building in the form of retained and/or enhanced woodland/treelines to the south-west, west and north aspects. The lighting strategy could be controlled by a pre-installation planning condition.

The following compensation measures will be required (NB the details of compensation for the lost roosts will be agreed with NRW during the licence application):

- a dedicated bat loft within the existing loft space;
- a hibernaculum, in form of a cellar, for hibernating bats (located beneath the new proposed building at the east elevation, the hibernation roost will be situated on the north-east corner of the building); and
- compensatory planting, which is proportionate to the loss of trees and woodland. It is recommended in PPW that any replacement tree planting will be at a ratio equivalent to the quality, environmental and ecological importance of the tree(s) lost, and this must be preferably onsite, or immediately adjacent to the site, and at a minimum ratio of at least 3 trees of a similar type and compensatory size planted for every 1 tree lost.

Conclusions

Providing that the recommendations outlined in this report are implemented in full, the proposed development will adequately mitigate, compensate, and enhance the protected, priority and notable habitats and species within and adjacent to the site.

This report will remain valid for a maximum period of 18 months from the date of the last survey[1] - i.e. until 22/02/2026. In the case of certain exceptions, data may only be valid for 12 months, examples include:

[1] CIEEM (2019). *Advice Note: On the Lifespan of Ecological Reports and Surveys*. Chartered Institute for Ecology and Environmental Management, Winchester.

- where a site may support existing or new features which could be used by mobile species, such as bats and birds, within a short timeframe;
- where bats and birds are present onsite or in the wider area, and can create new features of relevance to the assessment; and
- where country-specific or species-specific guidance dictates otherwise.

Further surveys may be required to update the site information if planning is not obtained, or works do not commence within this time period.

[1] CIEEM (2019). *Advice Note: On the Lifespan of Ecological Reports and Surveys*. Chartered Institute for Ecology and Environmental Management, Winchester.

1 INTRODUCTION

1.1 Wildwood Ecology were commissioned by Foundation for Jewish Heritage (the client) to undertake an Ecological Impact Assessment (EcIA) at Merthyr Tydfil Synagogue, CF47 0ER (the site), centred at grid reference: SO051062.

1.2 This report has been written in cognisance of the CIEEM Guidelines on: Ecological Report Writing and Ecological Impact Assessment, with full survey methodology provided in the appendices.

Site description

1.3 The aerial image of the site (Figure 1) showed the site to consist of buildings A (the synagogue) and B (Primrose Hill house) woodland to the north and east of the building. The distant aerial image of the site (Figure 2) showed the habitat surrounding the site to consist of residential housing and retail areas connected with A-roads to the west. Woodland and a park were present to the south and east, with further residential housing extending to the east.

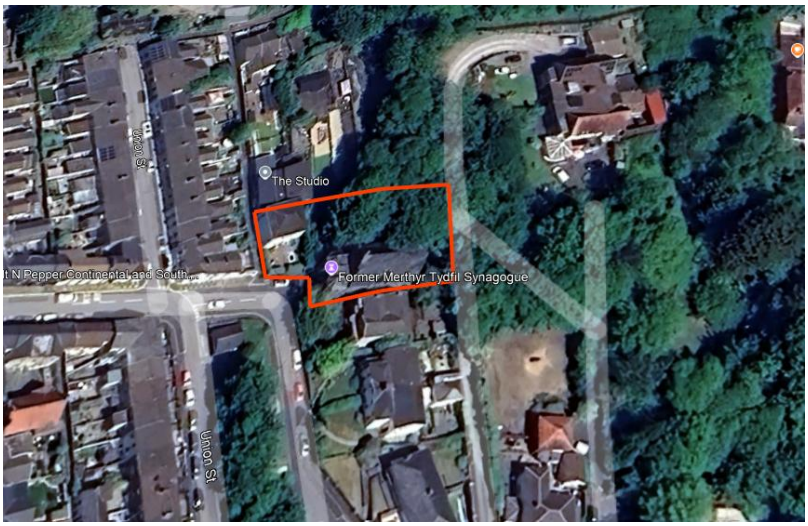


Figure 1 - Aerial image of the site. Red line shows the site boundary. Image used under licence (@2025 Google).

Figure 2 - Distant aerial image of the site. Red line shows boundary. Image used under licence (@2025 Google). Figure created: 04/08/2025.

Proposed development

1.4 The site is subject to a full planning application to site is the subject of a planning application to renovate the synagogue (building A) including external works to roof, guttering, windows and brickwork. Internal works comprise full renovation works to provide exhibition and presentation zones for the public visiting the synagogue, including demolition of one ground floor internal wall, construction of void/balcony area on the second floor overlooking the first floor, renovation of existing internal features, and construction of a building to the rear of the synagogue at the eastern elevation.

1.5 Additionally, the proposed works include landscaping of the woodland area, including tree removal and retention, coppicing and enhancement of current treelines with native planting and replanting of lost trees.

1.6 Works to building B (Primrose Hill house) include internal works to the basement and ground floor flats and external works to convert an existing window on the ground floor to its former use as a door.

Data collected

1.7 Data from the following sources was used to inform this report:

- Desk study undertaken on 04/12/2023 including:
  - South East Wales Biodiversity Records Centre (SEWBReC)*;*
  - Multi-Agency Geographic Information for the Countryside (MAGIC); and
  - Light pollution map (VIIRS 2024).
- Preliminary Ecological Appraisal (PEA)/Preliminary Roost Assessment (PRA) survey undertaken on 05/12/2023 and 12/06/2025.
- Further surveys including:
  - dusk emergence surveys;
  - Ground Level Tree Assessment (GLTA);
  - hibernation survey; and
  - static monitoring surveys.

1.8 Full information on the data sets and search buffers used can be found in the appendices.

Purpose of this report

1.9 The purpose of this report is to provide sufficient information for the local planning authority to fully assess the ecological impacts of the proposed development.

1.10 Key objectives are to identify:

- the likely ecological constraints associated with the proposed development;
- mitigation measures likely to be required, following the 'Mitigation Hierarchy'; and

- opportunities for the proposed development to deliver ecological enhancement.

Limitations and assumptions

1.11 During the hibernation endoscoping survey, some crevices were too deep to fully inspect. Given that this survey was supplemented with static monitoring data, however, it is considered unlikely that any roosts were missed.

1.12 Due to the synagogue building height/ complex layout, and tree cover, the north aspect and full extent of the roof were not fully visible during the surveys despite the use of infrared and thermal imaging cameras. Additional survey effort would not have yielded more results.

1.13 The synagogue lofts were not accessible for H&S reasons, therefore certain assumptions about their suitability for hibernating bats had to be made based on experience of similar unheated unused loft space use by bats in winter.

1.14 No further limitations were encountered, or assumptions made during either the desk study or the field survey and it is considered that with the access gained and recording undertaken an accurate assessment of the site's ecological importance has been made.

2 RESULTS

Links to the surrounding landscape

2.1 The habitat onsite was not very well connected to other similar habitats. Thomastown Park was situated approximately 70m east of the site, and some species which were likely to use this parkland may also use the onsite woodland edges (bats, birds, and reptiles, for example).

2.2 Tree lines provided connectivity to the wider landscape for bats, for which the woodland onsite would likely be suitable. In regard to commuting bats, particularly those emerging from the synagogue, there was ample tree coverage immediately adjacent to site (to the north-east). These treelines were well connected to Thomastown recreation park, which in turn would provide good foraging and roosting opportunities.

Desk study

Designated sites

2.3 There was one statutory international designated site requiring special consideration (Special Area of Conservation (SAC), Special Protection Area (SPA), and RAMSAR sites) within 10km. Cwm Cadlan SAC was located 8.9km north-west of the site.

2.4 There were two statutory national designated sites (Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), and Local Nature Reserve (LNR)) within 2km. Cwm Glo a Glyndyrys SSSI was sited 1.1km south-west and Cwm Taf Fechan Woodlands LNR and SSSI was situated 1.9km north-west.

2.5 There was one non-statutory site (Site of Interest to Nature Conservation (SINC) and Local Wildlife Site (LWS) within 1km of the site. The River Taff SINC was situated 472m south-west of the site.

Light pollution

2.6 The site was in an urban area with moderate levels of light pollution (VIIRS Database, 2024).

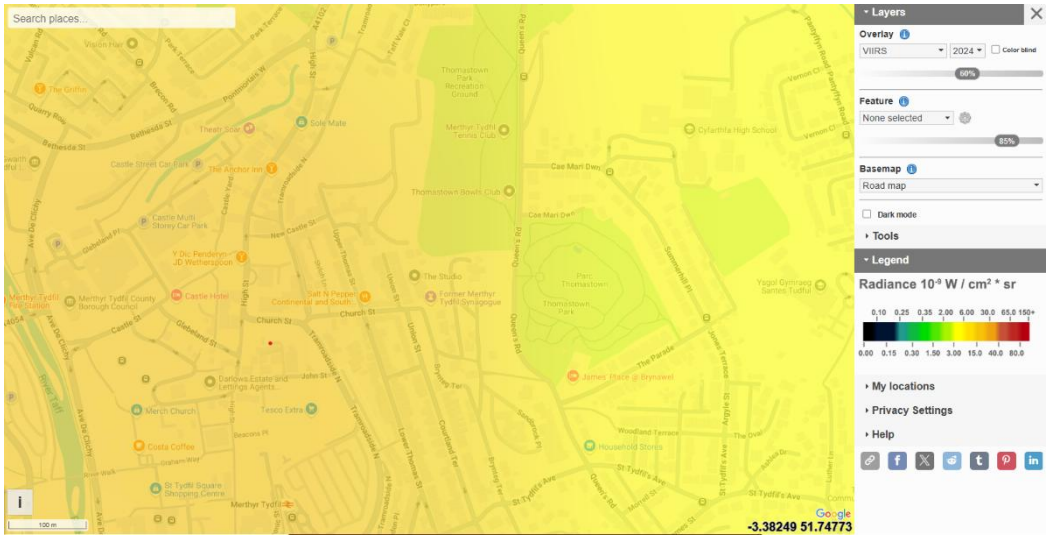


Figure 32 - Light pollution map (VIIRS 2024).

Habitat Regulations Assessment (HRA) Screening

2.7 The site was not situated within the zone of influence (ZoI) of any international designated sites. Therefore, due to the distance of the development from the international designated sites and/or lack of identified impact pathways, a Habitat Regulations Assessment was considered unlikely to be required.

Core sustenance zones/consultation areas

2.8 The site was not situated within the core sustenance zones of any maternity or hibernation roost. Therefore, the proposed development is highly unlikely to impact foraging behaviour within the core sustenance zones of bats for which records were returned by the records centre and will not be considered further in the report. However, the site may be used for foraging by bats that are not recorded by the records centre.

Priority and notable habitats

2.9 There were no priority and/or notable habitats noted within or adjacent to the site. Following priority/notable habitats were noted within and adjacent to the site:

Priority and protected species

2.10 Priority and protected species records were returned from the South East Wales Biodiversity Records Centre (SEWBReC) for species located within 2km of the site. Key species records can be found below, with the full data set available upon request.

- One record of a badger sett was returned 1260m from site.

Field survey – PEA

2.11 A PEA survey was undertaken at the site on 05/12/2023, led by Beth Lewis QCIEEM Consultant Ecologist and Jack McCormack Assistant Ecologist. Survey details can be found in Table 1.

2.12 An additional PEA survey was carried out at Primrose Hill house grounds by Beth Lewis ACIEEM Consultant Ecologist and Shannon Phillips Assistant Ecologist. Survey details can be found in Table 1.

Table 1 - Field survey timings and conditions.

Date	Weather conditions			
	Temp [°C]	Cloud cover [Oktas]	Wind speed [Beaufort scale]	Rain
05/12/2023	5	3	1	Nil
12/06/2025	16	6	1	Light rain

2.13 Table 2 sets out descriptions of the habitats present within the site using UK habitat Classification Version 2.0 codes, along with a list of species present.

2.14 The distribution and extent of habitat parcels at the site, along with the locations of any target notes, are included within a habitat plan in the appendices, alongside an accompanying full species list.

Table 2 - Habitats and linear features present within the site.

Habitat	Habitat description	Species present
A1.3.1 Semi-natural, mixed woodland	There was a section of woodland to the rear of the building, comprising common broadleaved species. There were several areas of open space within the woodland. The understory was comprised of scattered scrub.	Canopy: Common yew, sycamore, goat willow, field maple. Understorey: Hazel, bramble, hazel, dog rose, hawthorn, blackthorn, common yew. Ground flora: Fern sp., herb Robert, common ivy, wood avens, box-leaved honeysuckle, common nettle, wall lettuce, dandelion.
J2.5 Wall	A wall was present adjacent to steps at the north and south aspects of the building. A wall was also present to north of the building, as well as forming the northern boundary.	N/A
B.6 Poor semi-improved grassland	Managed grassland either side of hard standing path formed the forecourt of Primrose hill house.	Cleavers, cock's foot, common dandelion, creeping buttercup, field maple sapling, meadow buttercup, perennial rye, Yorkshire fog, and wild strawberry.
J2.1 Intact hedgerow	Hedgerow formed the south and west boundary of the forecourt of Primrose Hill house.	Box, bramble, honeysuckle, ivy, laurel, privet, sycamore sapling.
Fence	A wooden panel fence formed the eastern boundary of Primrose Hill house forecourt.	N/A

Priority habitats

2.15 No priority habitats were noted onsite or immediately adjacent.

Priority, protected, and notable species

2.16 The suitability of the site habitats for protected species, the connectivity of the site, and any evidence identified can be found in Table 3.

Table 3 - Protected species onsite.

Species or group	Habitat suitability	Site connectivity	Presence confirmed?
Amphibians, including great crested newt	Good	Poor	No incidental evidence onsite but the site was well connected to surrounding habitat.

			The site had some suitable terrestrial habitat for common species at the woodland edges.
Badger	Good	Good	No incidental evidence identified but the site was well connected to suitable habitat offsite. The woodland was suitable for foraging/ commuting badger, and for sett creation.
Bats	Good	Excellent/direct	No incidental evidence identified during the PRA, but the site was well connected to suitable habitat offsite.
Birds	Good	Excellent/direct	No incidental evidence identified but the site was well connected to suitable habitat offsite.
Hazel dormouse	Poor	Poor	No incidental evidence onsite and the site was poorly connected to surrounding habitat. However, the site had some suitable terrestrial habitat.
Hedgehog	Excellent	Excellent/direct	No incidental evidence identified but the site was well connected to suitable habitat offsite.
Invertebrates	Excellent	Excellent/direct	No incidental evidence identified but the site was well connected to suitable habitat offsite.
Reptiles	Good	Poor	No incidental evidence but there was some suitable habitat in the form of refugia, and woodland edge habitat. The site was poorly connected to surrounding habitat.

Key findings

2.17 Many trees in the canopy had dense ivy cover, potentially obscuring potential bat roosting features (PRFs).

2.18 Stone piles in the woodland were suitable for hibernating reptiles and amphibians (Target Note 1).

2.19 The understorey had some suitable foraging and sheltering opportunities for hedgehog and dormouse.

2.20 The site was suitable for nesting birds, and for reptiles and amphibians (including during hibernation) (Target Note 2). The woodland may be used by badger.

Protected species surveys

2.21 Results of protected species surveys undertaken at the site are listed in the following sections:

Bats

PRA

2.22 A PRA survey was undertaken at the site on 05/12/2023, led by Beth Lewis QCIEEM Consultant Ecologist and Jack McCormack Assistant Ecologist. A Ground Level Tree Assessment (GLTA) was undertaken on 02/02/2024 by Beth Lewis QCIEEM Consultant Ecologist and Jack McCormack Assistant Ecologist.

2.23 An additional update PRA was undertaken at the synagogue and Primrose Hill house, led by Beth Lewis ACIEEM Consultant Ecologist and Shannon Phillips Assistant Ecologist on 12/06/2025.

2.24 Descriptions of the structures surveyed during the PRA are summarised in Table 4. Structure locations can be seen in Figure 3.

2.25 Descriptions of the trees surveyed during the GLTA are summarised in Table 6.

Table 4 - Structures surveyed during the PRA.

Structure reference	Building description	Development plans
A (Synagogue building)	The building consisted of four floors, including a basement. It has been left derelict for some time with some works evident in order to make the building safe, including installation of wooden plywood flooring and wooden beams located on the stairs. There was some evidence of nesting birds inside the building, in the form of droppings, feathers, and nesting material.	The building is due to be renovated.
B (Primrose Hill house)	The building consisted of three floors, including a basement. Ground floor and second floors were occupied flats. The basement and first floors were empty.	Ground floor window on eastern elevation is due to be returned to use as a door. No other works to any other floors are planned.

2.26 Survey results, including the suitability of each structure for roosting bats and a description of potential roost features, can be found in Table 5.

Figure 4 - Structure locations and suitability for roosting bats.

Table 5 – Structure information and survey results.

Structure reference	Suitability for bats	Potential roost features and evidence of use identified
A	High	**Basements/lower ground floor:** • Accessible to bats from ground floor via opening in ceiling. • Crevices in exposed brick suitable for bats. • Gaps in walls may be suitable for hibernating bats. **Ground floor:** • Crevices in exposed brick. **First floor:** • Gaps between internal walls suitable for roosting bats. • Bird droppings, feathers, and nesting material present. • Wooden beams suitable for void-dwelling bat species.

Structure reference	Suitability for bats	Potential roost features and evidence of use identified
		• Small gaps above windows – accessible for crevice-dwelling bat species. **Second floor:** • Gaps in windows are suitable for bats to fly in. • Gaps in roofing felt. **External:** • Gaps between wooden soffits and walls on northern aspect of building.
B	Low	The ground floor window was well sealed and there were no gaps in the brickwork - no potential roost features. Small gaps between soffit and wall on east and west elevations. Both sufficiently separated from works area.

2.27 As adverse effects on bats are not anticipated at Primrose Hill, no further recommendations are therefore required. If Primrose Hill roof is to be repaired in the future, bat survey(s) will be required.

2.28 Onsite and adjacent habitat features were likely to be used by foraging and commuting bats, especially across the woodland edge at the northern boundary of the site, and the tree line north-east of the site. The woodland canopy and nearby offsite woodland and grassland were suitable for foraging and roosting bats.

Ground Level Tree Assessment (GLTA)

2.29 Due to the suitability of onsite trees for roosting bats, a GLTA was undertaken. The GLTA involved a detailed inspection of the trees with suitability for bats, with full details of the trees inspected and their suitable features found in Table 6. Tree locations correspond to tree numbers identified in arboriculture report (ArbTS_1710.1_Victorian Gothic Merthyr Tydfil Synagogue 10th March 2025).

Table 6 - Ground Level Tree Assessment results.

Tree reference	Tree species	PRF type	PRF height	PRF aspect	PRF description	Development plans
G1	Ash (group of nine trees)	Damage	2m, 3m, and 4m	-	Multiple small, snapped branches and crevices (do not	Removal

Tree reference	Tree species	PRF type	PRF height	PRF aspect	PRF description	Development plans
					appear to extend)	
		Association	Entire stem	All	Light-moderate ivy cover	
G2	Hawthorn (group of two)	Association	Entire stem	All	Moderate ivy cover	Removal
G3	Goat willow, hawthorn, sycamore (group of 5+)	Association	Entire stem	All	Light-moderate ivy cover	Retain
T803	Ash	Association	Entire stem	All	Moderate ivy cover	Removal
G804	Group of two sycamore forming a whole	Association PRF	Whole stem	N/A	Moderate ivy cover	Retain
		Association PRF	1m	N/A	Fluting	
		Damage	5m	North	Snapped branch	
T805	Goat willow	Association PRF	Whole stem	N/A	Moderate ivy cover	Removal
G806	Group of three sycamore creating a wide forming whole	Association PRF	Whole stem	N/A	Moderate ivy cover	Removal
		Damage	7m	North	Knothole (does not appear to extend)	
T807	Sycamore	Association PRF	Whole stem	N/A	Moderate ivy cover	Removal
T808	Hawthorn	Association PRF	Whole stem	N/A	Moderate ivy cover	Removal
T809	Sycamore	Damage	6m	West	Knothole (does not appear to extend)	Removal
		Association PRF	Whole stem	N/A	Moderate ivy cover	

Tree reference	Tree species	PRF type	PRF height	PRF aspect	PRF description	Development plans
T810	Sycamore	Association PRF	Whole stem	N/A	Moderate ivy cover	Removal
T811	Sycamore	Damage	6m	East	Knothole (does not appear to extend)	Removal
		Association PRF	Whole stem	N/A	Moderate ivy cover	

2.30 The Arboriculture Impact Assessment report and Landscape Strategy indicates that 21 trees (individual trees and small groups) will be lost to facilitate the proposed development.

Bat emergence surveys (Synagogue)

2.31 A summary of survey timings can be found in Table 7.

Table 7 - Emergence survey timings and weather conditions.

Date	Type	Survey Timing			Conditions			
		Start	End	Sunset / Sunrise	Temp [°C]	Cloud Cover [Oktas]	Wind Speed [Beaufort]	Rain
23.05.24	Dusk emergence	20:57	22:42	21:12	10	8	1	Nil
17.07.24	Dusk emergence	21:07	22:52	21:22	16	1	2	Nil
22.08.24	Dusk emergence	20:06	21:51	20:21	14	8	1	Nil

2.32 The results of the bat emergence surveys are summarised in Table 8.

Table 8 - Emergence survey results.

Survey type and date	Roosts / points of particular interest	General observations	Equipment Used
23.05.24	Brown long-eared roost	Moderate foraging and commuting activity within and alongside the woodland adjacent to site.	Nightfox whiskers (1080P (30fp), 850nm, 3W, 57º) and thermal camera (1080P (30fps) i.e. 1080 pixels and 30 frames per second).
17.07.24			
22.08.24			

2.33 Bat flight-lines identified during the emergence surveys can be seen in the appendices.

2.34 Bat roosts identified during the emergence surveys are summarised in Table 9 and are shown on Figure 5. The access point was determined during the third

emergence survey by positioning all surveyors inside the building and using a thermal imaging camera during the internal survey, as visibility was limited on the exterior of the building due to tree cover and height/ complexity of the synagogue building.

Table 9 - Details of bat roosts identified.

Date	Species	Roost type (number)	Structure reference	Roost location	Access points	Dimensions or description
23.05.24	Brown long - eared	Maternity (2<6)	Building A	Loft, but flying inside whole building	Not known due to visibility limitations.	Loft, but flying inside whole building
17.07.2024	Brown long-eared	Maternity (2<6)			Not known due to visibility limitations.	
22.08.24	Brown long-eared	Maternity (2<6)			Wooden louvres into third floor room. Access into/out of loft above using open hatch.	

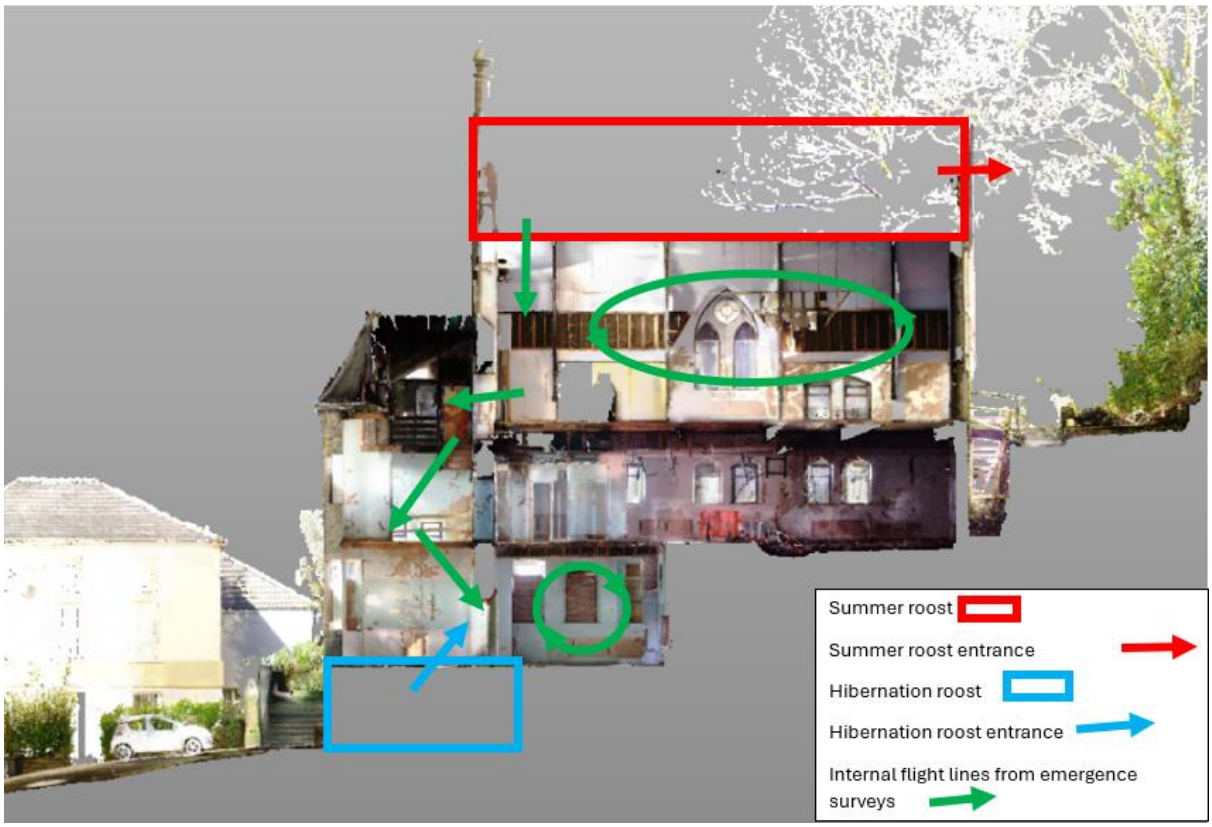


Figure 5 - Known bat roost locations.

Bat droppings analysis

2.35 Bat droppings were found in the synagogue building during collection of the static detectors in August 2024.

2.36 The droppings were sent to Ecotype Genetics for DNA analysis, and the following species were identified: brown long-eared and serotine.

Static monitoring surveys

2.37 Static monitors were deployed onsite on the top floor of the building for five consecutive nights, prior to, or following each emergence survey, in order to supplement the findings of the emergence surveys.

2.38 The static information and records analysed indicated that the species onsite included brown long-eared, common pipistrelle, soprano pipistrelle, and lesser horseshoe. It should be noted that lesser horseshoe were only recorded in the early hours of the morning on two nights, so it was considered that the building was used as a night roost by this species.

2.39 Full results from the static monitoring surveys can be seen in Table 10.

Table 10 - Static monitoring results.

Dates (from – to)	Static monitor locations	Species identified	Number of call sequences	Minimum / maximum number of call sequences per night
23/05/2024 – 28/05/2024	Second floor	Brown long-eared	99	4 / 27
		Common pipistrelle	25	2 / 5
		Soprano pipistrelle	5	1 / 2
02/08/2024 - 08/08/2024	Ground floor	Brown long-eared	27	2 / 12
	First floor	Brown long-eared	65	6 / 14
	Second floor	Brown long-eared	560	19 / 151
		Lesser horseshoe	16 (only in the early hours of the morning, not around sunset or sunrise).	6 / 10

Hibernation surveys

2.39 A hibernation survey was undertaken at the basements, consisting of endoscope checks and a period of static monitoring. The endoscoping checks were undertaken on 02/02/2024, with no evidence of hibernating bats found in the accessible crevices.

2.40 Static monitors were also deployed onsite in each of the basements for 10 consecutive nights.

2.41 The static information and records analysed confirmed that the species that potentially hibernated onsite include brown long-eared, albeit in low numbers (1 call).

Table 11 - Hibernation static results.

Dates (from – to)	Static monitor locations	Species identified	Number of calls
02/02/2024 – 20/02/2024	Basements	Brown long-eared	1 in basement at north-west corner at 17:16 (sunset +16mins).

3 IMPACTS AND EFFECTS

3.1 The following discussion and assessment are provided to ensure compliance with legislation and planning policy (see Appendices).

Impacts of the proposed development

3.2 The proposed development will result in the renovation of building A, including removal of some internal walls in the two basement rooms to form one room, removal of one internal wall on the ground floor, construction of a void/balcony on the second floor overlooking the first floor and renovation of existing internal features. On the exterior of the building, garden landscaping, with loss of trees and vegetation removal within the semi-natural mixed woodland is proposed.

3.3 Building B (Primrose Hill house) will be subject to minimal renovation works. The only external works comprise the change of use of the existing window on the ground floor (east elevation) to a door.

3.4 Due the proposed works, it is likely that in the absence of mitigation there will or may be adverse effects on the following designated sites, habitats, and species:

- trees within semi-natural mixed woodland;
- common amphibians (in their terrestrial phase);
- roosting bats;
- foraging and commuting bats;
- badger (if new setts are created in the woodland prior to works);
- dormouse;
- hedgehog;
- reptiles; and
- nesting birds.

3.5 A summary of impacts and effects can be found in Table 12.

Table 12 - Summary of potential impacts.

Ecological feature	Potential impacts and effects	Cause of impact	When will impacts occur?
Trees	Loss of semi-mature trees	Felling	Construction phase
Amphibians (excluding great crested newt) possibly present	Killing/injury of common amphibian species, triggering legislation	Vegetation clearance	Construction phase
Foraging and commuting bats	Fragmentation of foraging and commuting areas	Lighting of notable commuting routes and or foraging areas	Construction phase / Operational phase
Roosting bats	Building A • Brown long-eared maternity roost (2<6 bats) – killing/ injury and disturbance of bats; modification of roosts, all triggering legislation • Lesser horseshoe night roost (6<10 bats) – killing/ injury and disturbance of bats; modification of roosts, all triggering legislation • Serotine day roost (1<5 bats) – killing/ injury and disturbance of bats; modification of roosts, all triggering legislation • Common pipistrelle day roost (1<5 bats) - killing/ injury and disturbance of bats; modification of roosts, all triggering legislation • Soprano pipistrelle day roost (1<3 bats) - killing/ injury and disturbance of bats; modification of roosts, all triggering legislation	Renovation works to the building	Construction phase and operational phase
Breeding birds likely nesting onsite	Destruction of an active nest, triggering legislation	Works to the building (internal and roof) carried out in the nesting bird season, or without a pre-works check	Pre-commencement / Demolition phase
Reptiles	Direct killing/injury of common reptile species, triggering legislation	Vegetation removal and/or removal of a hibernaculum	Construction phase

Badger possibly venturing onsite	Loss of low suitability badger foraging and sett building habitat	Loss of modified grassland, scrub and woodland habitat	Construction phase
Hazel dormouse	Damage/loss of woodland of very low/negligible suitability for use by dormouse Disturbance via increased lighting and/or human activity	Vegetation removal Lighting	Construction phase and operational phase
Hedgehog	Killing/injury of hedgehog	Vegetation removal and/or removal of a hibernaculum	Construction phase

4 RECOMMENDATIONS, COMPENSATION AND ENHANCEMENTS

4.1 There are impacts and effects on ecological features which cannot be eliminated as a result of proposed mitigation measures.

4.2 Due to these resulting impacts and effects, the following recommendations and/or compensation measures are made:

Recommendations / compensation measures

Designated sites

4.3 Designated sites in the vicinity of the site are sufficiently well separated so that no impacts on their designated features are anticipated as a result of the proposed development, in line with core policy EnW2 of Merthyr Tydfil Local Development Plan 2016-2031.

Amphibians (including great crested newt)

4.4 Based on aerial map review, no waterbodies were identified within 250m of the site, and there were no great crested newt records returned by the records centre. Therefore, the species is not anticipated to be present onsite, however, common amphibian species are considered likely to be present onsite at the woodland/ woodland edges/ refugia.

4.5 Therefore, to prevent impacts on common amphibians, a two-phase cut of vegetation will be carried out in active season and there will be timing restriction for ground-breaking works. The same methods/ restrictions will be followed as set out in the reptile section below.

Bats

4.6 Building A (synagogue) was identified to be used as a roost of brown-long eared bat, lesser horseshoe, common pipistrelle, soprano pipistrelle, and serotine. Therefore, a European Protected Species Licence (EPSL) for bats will be required from Natural Resources Wales for the proposed works to legally proceed. The EPSL will require a detailed mitigation and compensation strategy to be devised in the form of a method statement. This will aim to ensure the maintenance of the roosts and that local bat populations are maintained at a favourable conservation status.

4.7 Full details of the bat mitigation measures will be subject to agreement by Natural Resources Wales during the licence process. However, general details of proposed mitigation are as follows:

- Due to the impact on a multi-species roost, including a small brown long-eared maternity roost, day roosts of common and soprano pipistrelle and serotine, and a night roost of lesser horseshoe, a dedicated bat loft will be required.
- The bat loft will be situated in the existing loft space of building A, where the roosts are currently located. It will be a minimum of 2m in height (from the floor to the apex, i.e. up to the ridge beam), with a length of 5.3m and width of 4.7m. Access into the loft will be provided by installing four modified bat access tiles and two modified bat access ridge tiles along the roofs/ ridge lines. The

current roost access point, through the louvres on the eastern elevation, will be retained.

- In order to supplement the access points, particularly for the night roost of lesser horseshoe (as their presence was identified by static detectors, their access point and flight paths into and within the building were not observed) a fly-in access point, in the form of a hopper will be installed. One hopper bat entrance leading into the loft will be created, facing into the woodland north-east of the building. The hopper entrance will be c. 30cm x 20cm and include an internal metal-lined chute (c. 50cm long), leading into the loft at a c. 45° angle (to provide bat access but to deter birds).
- The loft will be accessible via a lockable service hatch for monitoring purposes by a Licensed Bat Worker (LBW).
- Additionally, the synagogue, building A, supports a brown long-eared hibernation roost within the basement situated at the north-west corner of building A. As connectivity through the building (from the loft to the basement) will be lost, a compensatory hibernation roost will be provided. A hibernaculum will be created on the north-east corner of the building. This will be located below ground, positioned as a basement under the building to be constructed on the east elevation of the synagogue building. To provide additional hibernation opportunities for crevice-dwelling bats, two Norfolk bat bricks (or similar design) will be installed internally in the hibernacula wall. The bricks will be built into the top of the wall; one at the back wall of the hibernacula and the other brick closer to the entrance to provide a range of thermal regimes.
- Due to the impact on crevice-dwelling bat roost (common and soprano pipistrelle and serotine), dedicated bat access tiles will be installed within the roof of the building. A minimum of four access tiles, with corresponding roofing felt cut, will be required, located across the roofs of building A at south and north elevations. Two modified bat access ridge tiles along the roof ridge lines will also be required.
- Within the bat loft, battens will be fixed to the roof pitches (on top of the roofing felt so they are visible from the loft) at 50cm intervals to create new roosting opportunities for hanging bats.
- Batten crevices will be installed at intervals (x 10 such crevices in the loft). The crevices will be c. 15cm long, made from two battens to create a short tunnel. Each crevice will be enclosed by a piece of timber laid over the battens, and a small piece of timber at one end of the tunnel. The crevices will be installed on the roof pitch, some with the tunnel opening facing down, and some with the tunnel opening facing sideways.
- Three triangular plywood or orientated strand board baffles of different sizes, painted black, will be incorporated into the loft to provide new internal roosting features, and varied thermal regimes and dark locations.
- Two bat boxes (one Schwegler 2F, Eco Kent or Beaumaris Bat Box for crevice-dwelling species, and one improved cavity bat box for brown long-eared bats,

or similar design if the above box types are not available) will be installed by contractors on a suitable tree within the applicant's ownership prior to the commencement of works, as instructed by the ecologist. The bat boxes will be used as a receptor site for crevice-dwelling bats and brown long-eared (outside of maternity season) during works in case bats are found during the works.

- Lesser horseshoe bats, if found during works, will be dissuaded from roosting in rooms where works are required by non-tactile disturbance methods (lighting, static net, human presence). Once bats emerge, they will be excluded from the building post-emergence by securing windows/ doors. If this measure is not practicable, lesser horseshoe bats will be taken into bat care by non-tactile methods (static net) and released onsite after dusk.
- Roof stripping works where crevice-dwelling bats may be present (that would not be observed during the internal building check) will be conducted under supervision of named ecologist or an accredited agent.

4.8 The completed development will be monitored according to the requirements of the EPSL, to ensure that all mitigation is successful, or to inform modifications where appropriate, and to inform best practice.

4.9 The method statement and the licence work schedule will detail the appropriate timing of works to the buildings. As maternity and hibernation roosts are present, works will have to be conducted at different times of year. The works to the basement, where the hibernation roost was confirmed, must be carried out in between late spring and winter (April – October, inclusive) when hibernating bats will not be present.

4.10 The works to the first and second floor must be undertaken after and before the maternity season, (October - April, inclusive) to avoid disturbance of the maternity roost confirmed in the roof space, as bats were confirmed to fly inside the whole building.

4.11 There was no safe access into the lofts and hibernation surveys could not be carried out. As the synagogue is disused/ not heated and therefore hibernating bats cannot be confirmed to be absent from the lofts, as a precaution, the internal roof repairs of timbers/ crevices must avoid the hibernation season as well as the maternity season.

4.12 The roof strip and internal roof timber/ wall repairs therefore will be timed to avoid the maternity and hibernation season. The roof strip and repairs will be carried out in September/ October AND/ OR late March/ April, in suitable weather conditions.

4.13 Alternatively, subject to NRW agreement, internal wall/ timber crevices can be inspected by an endoscope during active season (avoiding maternity season). If crevices are free of bats, bats may be excluded from crevices under the licence, under supervision by the ecologist. Deep crevices may be observed during an emergence survey and bats thereafter excluded after emergence under the licence, under supervision by the ecologist. Crevice/ timber repairs where bats were excluded could be carried out during hibernation season as hibernating bats

would not be affected. Such methods and timing will be agreed with NRW during the licence application.

4.14 Following the roof replacement and internal loft repairs, the loft must be available to be used by brown long-eared bats as a maternity roost by the start of May. The potential loss of hibernation features inside the loft will be compensated by the creation of a hibernation roost in the void under the proposed building at the eastern elevation of the synagogue. The compensation roost will be situated on the north-east corner.

4.15 Due to the heritage status of the synagogue building, there were concerns regarding permeability of roofing membranes within this building, and BS747 Type 1F bitumen roofing felt could not be used. Therefore, it is recommended that 'BatSafe TLX' or 'Siga Majcoat 350'membranes are used. It is vital that a 'snagging propensity certificate' must be provided by the client from the manufacturer to ensure that it is safe for bats, and to support the licence application.

4.16 Building B (Primrose Hill house) was classified as to have 'low suitability' for roosting bats. The potential roost features (potential small gaps between the soffit and wall on east and west elevations) were contained to the roof where there will be no works taking place. Therefore, as the only works to be carried out are to the ground floor window, it is considered that these two areas are sufficiently separated. As adverse effects on bats are not anticipated, no further recommendations are therefore required. If Primrose Hill roof is to be repaired in the future, bat survey(s) will be required.

4.17 All UK bats are nocturnal species, and some species are light-averse (horseshoe bats, brown long-eared, and Myotis particularly so). Artificial lighting of foraging and commuting routes is known to act as a barrier to bats and fragment otherwise suitable habitats, causing a negative impact on their local populations. As the above listed light-averse species were observed to commute at and around the site, and brown long-eared/ lesser horseshoe bats were confirmed to roost onsite, dark zones will need to be maintained around key foraging and commuting areas to avoid impacting foraging and commuting features.

4.18 As areas of the site will require new lighting, a sensitive lighting plan will be produced, demonstrating consideration for bats with dark flight lines retained to ensure the proposed development would not have a detrimental effect on bats commuting/ foraging along nearby habitat. The external works for the proposed development will be undertaken during daylight hours. Daylight hours in this context is taken to mean works starting at least 30 minutes after sunrise and finishing at least 30 minutes before sunset.

4.19 Suggestions for mitigating the light impact on bats are outlined in Guidance Note 08/23 - 'Bats and artificial lighting in the UK; Bats and the built environment series' (The Bat Conservation Trust, BCT, and the Institution of Lighting Professionals, ILP). These are summarised in the appendices.

4.20 The trees to be removed will require an ivy strip, and inspection of any potential roost features, supervised and carried out by a licensed ecologist immediately

prior to felling. Should a roost be found, a development licence will be required prior to their removal.

Badger

4.21 Although badger setts were not confirmed in the woodland during the PEA, badger is a mobile species that readily digs new setts. Therefore, a pre-works site walkover by an ecologist will be required to check that no new setts exist that would be affected by the works. If a new sett is found that cannot be protected by a buffer zone (minimum 30m), a licence from NRW will be required to exclude badger from the sett.

Birds

4.22 If buildings or habitats suitable for nesting birds are to be removed, then works will take place outside of the bird nesting season. If clearance work has to be undertaken during the nesting season (generally from 1st March until 31st August, although birds are known to nest outside of these dates in suitable conditions), a nesting bird check will be required; carried out by a suitably qualified person. Active nests will be protected by a suitable buffer, as directed by the ecologist, until the young have fledged, as confirmed by the ecologist.

4.23 As a precaution, a pre-works check of the habitats/buildings by the ecologist will be required to ensure that nesting birds are not present. If an active nest is confirmed during works, in order not to trigger legislation protecting birds during nesting, work must be delayed until the young have fledged, as confirmed by the ecologist.

Hazel dormouse

4.24 Dormouse presence within the vegetation within the woodland is considered unlikely as no records were returned by the records centre, and the site is on the edge of an urban area. However, as the vegetation had some suitable structure and woody species to support hazel dormouse, to avoid triggering legislation, precautionary working methods will be required for the proposed works to proceed.

4.25 The cutting regime for the vegetation removal is only to be conducted between October and March when dormouse are less likely (if present) to be within the upper structure of the vegetation. A fingertip search will be required by an ecologist prior to the proposed works to ensure there are no nests present on the ground where the trees will be felled. If evidence of the species (such as nests) or dormouse are found, then works are to stop immediately and a licence applied for from Natural Resources Wales.

Hedgehog

4.26 Hedgehog are considered to likely be present onsite, therefore, to reduce the risk of killing or injury of hedgehog, precautionary working methods will be required during vegetation clearance and construction. A phased cut, as detailed in section 4.30, under supervision of an ECoW will be required.

4.27 Trenching or excavations will be backfilled or securely covered if left overnight. If any excavation must be left open overnight, the contractor must ensure that one

end of the trench is shallow sloping so that any animals falling into the excavation can escape. Alternatively, the excavation can be fitted with a plank, or similar, to act as a means of escape. The excavation will be checked for the absence of animals prior to works re-commencing.

4.28 Machinery and onsite materials will be stored so that animals cannot come into contact with them. Concrete will not be left unset overnight.

4.29 Any new fencing across the site should have gaps at the base to allow hedgehog to pass through them. These gaps should be approximately 15cmx15cm with at least one pass in each run of new fencing. If new concrete gravel boards are proposed for the fencing, then pre-cast hedgehog passes are available (see Hedgehog friendly fencing - Hedgehog Street/).

Reptiles

4.30 Avoidance and mitigation measures will be undertaken to avoid triggering legislation by killing and injuring reptiles and amphibians. Vegetation clearance will need to be managed in phases, with a first cut down to a minimum of 150mm to allow reptiles to move out of the areas of vegetation to be removed. At least 24hrs later, the remainder of the vegetation will be removed in a second cut down to ground level. Cutting above ground vegetation with handheld machinery only (i.e., strimmers or brush cutters) will make areas less suitable for reptiles once they emerge after brumation and can, in a non-invasive way, guide the animals to areas outside of the site footprint. The vegetation will be cut in a northerly direction, to guide herptiles to safe areas with suitable habitat away from the works activities. All cuttings must be removed from site. The manipulation of habitat must be undertaken before the start of the bird breeding season (i.e. works may typically commence between September and mid-February, and weather/ temperature dependent as per the ecologist's advice).

4.31 Additionally, ground-breaking works will not take place during the reptile/amphibian brumation period of mid-October to February (inclusive) without an inspection of the area proposed for the ground-breaking works by a suitably qualified ecologist to search the area for reptiles and amphibians. If reptiles or amphibians are found, all ground-breaking and construction works in that area must stop until further advice has been provided by the ecologist.

<u>Enhancements</u>

4.32 Local authorities have a duty to seek to maintain **and enhance** biodiversity in the exercise of their functions.

4.33 Where possible the existing onsite habitat of ecological importance will be retained to ensure that habitats and species that rely on them are not adversely affected by the development.

4.34 Further onsite habitat retention, creation or enhancement may be required as part of the required net benefit for biodiversity (NBB). As per paragraph 6.4.42 of the PPW, permanent removal of trees, woodland, and hedgerows will only be permitted where it would achieve significant and clearly defined public benefits. Where loss of trees and woodland is unavoidable, PPW requires compensatory planting, which is proportionate to the loss of trees and woodland. It is

recommended in PPW that any replacement tree planting will be at a ratio equivalent to the quality, environmental and ecological importance of the tree(s) lost, and this must be preferably onsite, or immediately adjacent to the site, and at **a minimum ratio of at least 3 trees of a similar type and compensatory size planted for every 1 tree lost.**

4.35 In order to achieve NBB, the following measures are recommended, and/or may be required:

- Ensure light spill is effectively managed in onsite and offsite habitat in order to avoid adverse effects on nocturnal species (such as badger and bats, as well as nocturnal pollinators such as moths).
- Where possible, any offsite habitat creation will follow the B-Lines initiative, a nationwide network of 'pollinator pathways' aimed at ensuring pollinator populations do not face adverse impacts resulting from habitat fragmentation.
- A Green Infrastructure Assessment (GIA), Green Infrastructure Implementation Plan (GIIP) and Green Infrastructure and Landscape Ecological Management Plan (GILEMP) may be required to ensure that new habitat achieves the desired levels of connectivity to the wider landscape.
- Use of native species of local provenance (grown in UK) and avoidance of non-native species in planting areas.

4.36 The following bird and bat box enhancements are recommended:

- Bird nesting boxes and bat roosting boxes (in addition to any recommended as part of mitigation and compensation measures) will be incorporated within the newly constructed aspect at the rear of building A and boundary features.
- A range of box types will be used to provide additional roosting/nesting opportunities for a number of species. The following designs are recommended (or similar, if they are not available):
    - Bats - small crevice dwelling species, such as pipistrelle - Schwegler 2F, Eco Kent, Beaumaris Bat Box;
    - Bats - large crevice dwelling species, such as noctule or serotine - Schwegler 1FF, Wildcare Eco Cavity/Crevice Bat Box;
    - Bats - large maternity colony - Schwegler 1FFH, Schwegler 1FS, Wildcare Maternity Bat Box;
    - Birds - general purpose, small bird species (Schwegler 1B, Schwegler 2M, Woodstone Nest Box - 32mm / 28mm);
    - Birds - sparrows (Woodstone Sparrow Nest Box, Schwegler 1SP Sparrow Terrace, Wildcare House Sparrow Nest box);
    - Birds - swifts (Vivara Pro Woodstone Swift Box, Ibstock Swift Eco, Cambridge Swift Brick, Schwegler 1A, Schwegler 18, Schwegler 16, Schwegler 1MF) sited in clusters of 2-3 in the north, east and west gable ends or close under the eaves away from windows and doors,

at a height of 4m+, with clear flight access and no protruding ground floor roofs such as garages at the south and east aspects of building B;

- Birds – two house martins and swallows (Woodstone single chamber house sparrow, Esco House Martin Nest Box, Eco Swallow Nest Bowl, Woodstone House Martin Nester, Schwegler No.9B Double House Martin Nest, Schwegler 10 Swallow Nest) boxes sited under eaves, preferably on north or east-facing walls, to avoid direct sunlight and rain, of building B. A height of at least two meters (6.6 feet) is recommended to protect from predators and allow for easy flight.; and
- Birds – dunnock, robin, wren, blackbird (Vivara Pro Barcelona WoodStone Open Nest Box placed low to the ground to encourage use by dunnocks).

5 CONCLUSION

5.1 Providing that the requirements outlined within this report are implemented in full, the proposed development will be able to proceed and there will be no long-term effects on the designated sites, habitats and species discussed within this report.

6 APPENDIX I: SURVEY METHODS

Extended Phase 1 Habitat Survey

All habitats present within the site with the suitability to support rare, protected, or otherwise notable species of flora or fauna (together with direct signs) were noted.

In the context of this report, rare, protected, or otherwise notable species of flora or fauna were those considered to meet any of the following criteria:

- Species protected by legislation (see Appendix VII)
- UK Post 2010 UK Biodiversity Framework priority species or Local Biodiversity Action Plan (LBAP) species
- Nationally rare or nationally scarce species
- Species of Conservation Concern (e.g. JNCC Red List, RSPB/BTO Red Lists)
- The Wildlife and Countryside Act (1981) as amended, makes it an offence to release or allow to escape into the wild any animal, plant or micro-organism not ordinarily resident in the UK (as listed in Schedule 9 of the Act). Plant species listed in Schedule 9 were searched for during the survey. However, many invasive species can be cryptic and therefore this survey does not provide a guarantee that an invasive species is not present and shouldn't be relied upon to rule out absence of an invasive species

An extended Phase 1 Habitat Plan was produced in QGIS, incorporating Target Notes used to highlight features of ecological interest (see Appendix II).

PRA

The buildings within the site were subject to a PRA. This is an external and internal building inspection survey, the purpose of which is to search for bats/evidence of bats and assess the likelihood of bats being present and the need for further survey and/or mitigation.

A systematic search was made of the building and the ground, especially below suitable access points where present. Such features include window sills, windowpanes, walls, tiles, weather boarding, lead flashing, eaves, behind surfacing materials and under tiles, and other cracks and crevices that provide protection from the elements. Such features are known to be used by roosting bats.

The building inspection included searching for the following evidence of roosting bats:

- roosting bats within crevices or free-hanging;
- bat corpses e.g. on the floor, in uncovered water (header) tanks or other containers in roof voids;
- bat droppings beneath roosting features;
- feeding remains e.g. moth/butterfly Lepidoptera spp. wings and beetle Coleoptera spp. wing casings;

- scratch marks and characteristic staining from urine and/or fur oil beneath roosting features e.g. on roofing timbers and walls within roof voids;
- 'clean' gaps associated with bat roosts;
- bat-fly Nycteribiid spp. pupal cases;
- droppings, corpses, feeding remains and/or bat-fly pupal cases beneath roof insulation, which indicates use by bats before the insulation was installed; and
- clean swept floors, which may indicate evidence has been removed.

The internal building inspection included searching for the following evidence of roosting bats:

- roosting bats within crevices or free-hanging, bat corpses including in uncovered water tanks or other containers in roof voids;
- bat droppings, scratch marks or staining beneath roosting features, and 'clean' gaps associated with bat roosts;
- feeding remains e.g. moth/butterfly Lepidoptera spp. wings and beetle Coleoptera spp. wing casings;
- bat-fly Nycteribiid spp. pupal cases;
- evidence beneath roof insulation, which indicates use by bats before the insulation was installed;
- clean swept floors, which may indicate evidence has been removed;
- gaps within the structure of the building, for example: light ingress in the roof indicating access points to the outside; between the roof lining and roof covering; within the structure of walls and suitable access points to cavity or rubble-filled walls; around the structure of chimneys or within disused chimneys; and around lintels;
- suitable locations for free-hanging bats and/or night/feeding perches e.g. timber beams; and
- cool areas suitable for torpor or hibernation e.g. cellars.

The following equipment was used for the bat survey:

- elevation and baseline drawings of the building or structure;
- binoculars;
- powerful torch to illuminate dark corners from the ground;
- a ladder;
- collection pots and labels for corpses and droppings; and
- camera to record evidence and suitable roosting sites.

Bats - Ground Level Tree Assessment (GLTA)

The trees were searched for bats/evidence of bats and assessed for their suitability to support roosting bats. Evidence searched for included: roosting bats, bat corpses, bat droppings, feeding remains, and 'clean' entrance/exit points. The features that bat species use to roost were searched for on the trees with reference to the Bat Tree Habitat Key[1]. These are as follows:

- longitudinal splits;
- crevices;
- rot-hollows;
- transverse cracks;
- loose bark; and
- dense ivy lattices.

The following equipment was used for the bat survey:

- smartphone with GPS OS mobile application;
- tree survey plans of the site;
- binoculars to inspect PRFs at higher elevations;
- powerful torch to illuminate dark features from the ground;
- a ladder;
- collection pots and labels for corpses and droppings; and
- camera to record evidence and Potential Roost Features (PRFs).

Bats - DNA analysis of bat droppings

Samples of the bat droppings found onsite were sent to Ecotype Genetics, for species identification using DNA analysis techniques.

Bats – Emergence surveys

Dusk emergence surveys were undertaken.

Dusk emergence surveys commenced approximately 15 minutes before local sunset and continued for approximately 1.5 hours after sunset.

Surveyors were positioned to ensure complete coverage of the building and/or the known/Potential Roost Features.

Surveyors were equipped with broadband bat detectors (Elekon BatScanner Stereo). Elekon Batloggers was also deployed to record bat activity across the site.

[1] Andrews H. (2018). *Bat Roosts in Trees - A Guide to Identification and Assessment for Tree-care and Ecology professionals: Bat Tree Habitat Key*. Pelagic Publishing, Exeter.

All bat activity was recorded including (where appropriate) roost access points, species, time of re-entry, direction of flight, behaviour (foraging or commuting) and use of landscape features.

Minimal lighting was used during the surveys as this can alter the behaviour of the bats emerging from or entering a roost, or foraging or commuting within an area.

Nightfox whiskers (1080P (30fp), 850nm, 3W, 57º) and infrared cameras (1080P (30fps) i.e. 1080 pixels and 30 frames per second) alongside infrared torches (Nightfox XB5) were used on different elevations throughout the surveys. Cameras were either positioned next to a surveyor, who view the building through the camera once visibility was low, or near a surveyor to get a wider angle.

Footage from cameras placed away from a surveyor was later reviewed by an ecologist to check for unrecorded emergences, and to cross reference records of emergence from surveyors.

Static monitoring surveys

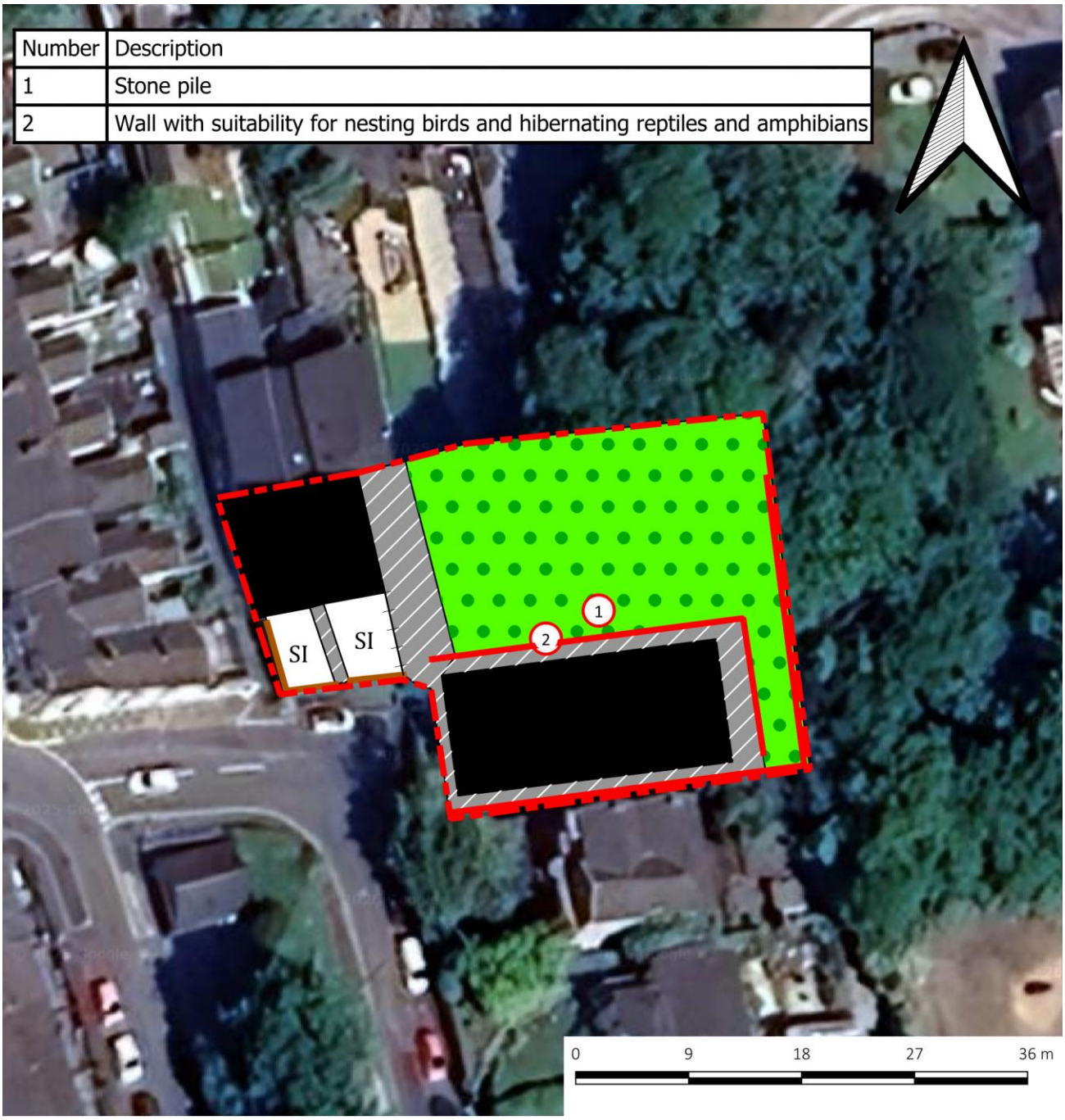
Static detectors (Song Meter SM4 and/or anabat express) were deployed across the site at different locations over a set time period and collected data for a total of 10 consecutive nights.

The static data was analysed using Kaleidoscope Pro with all files labelled as “noID”, horseshoe species, non-UK resident species or barbastelle manually checked, and with a minimum of 10% of all “noise files” and other species labelled files also manually checked.

Myotis species were also grouped as a genus, with only those clearly identifiable (manually) as a species listed as such.

The aim of the static recordings was to assess species usage of the area across the time periods surveyed.

APPENDIX II: PEA MAP



Key

Site boundary

Linear

Intact hedgerow, species-poor

Fence

Wall

Target Notes

Habitats

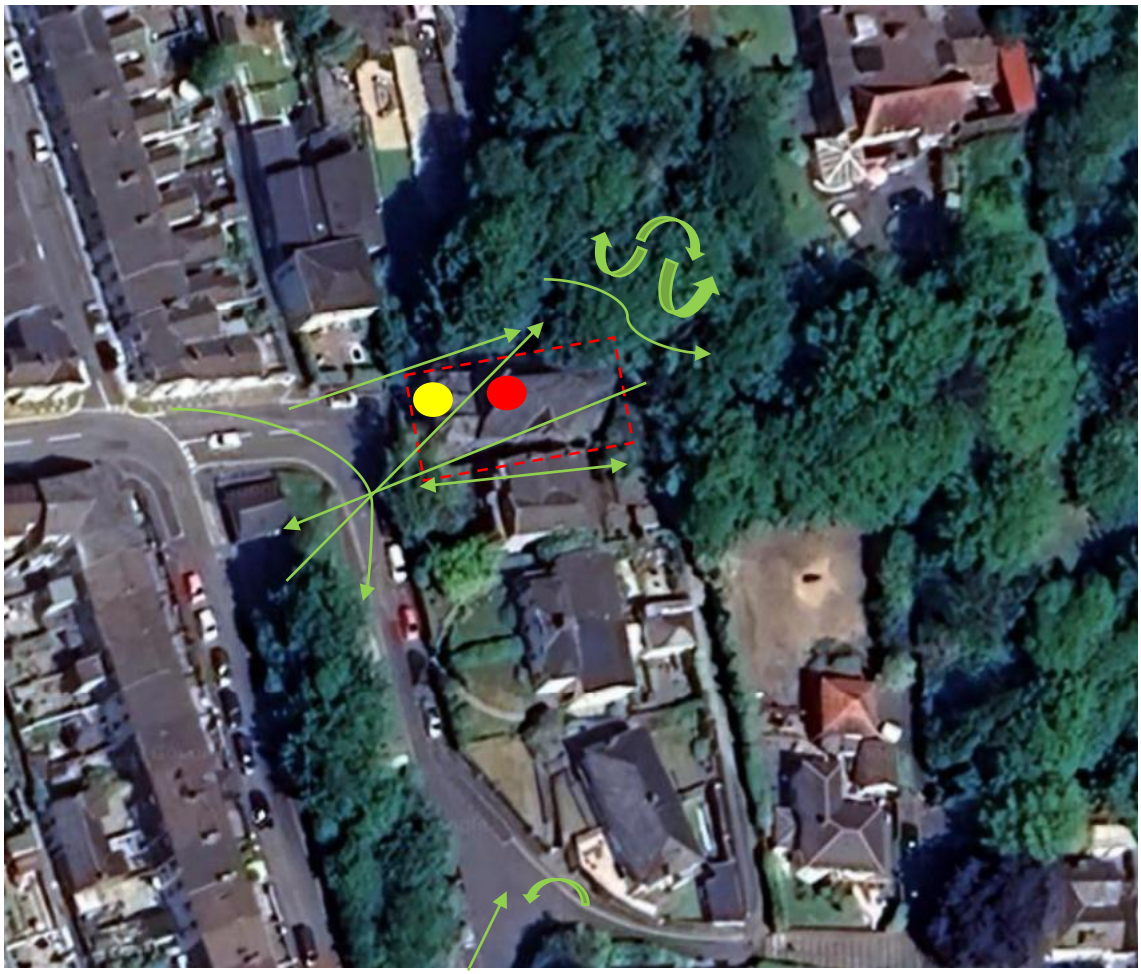
A.1.3 Mixed woodland, semi-natural

SI B.6 Poor semi-improved grassland

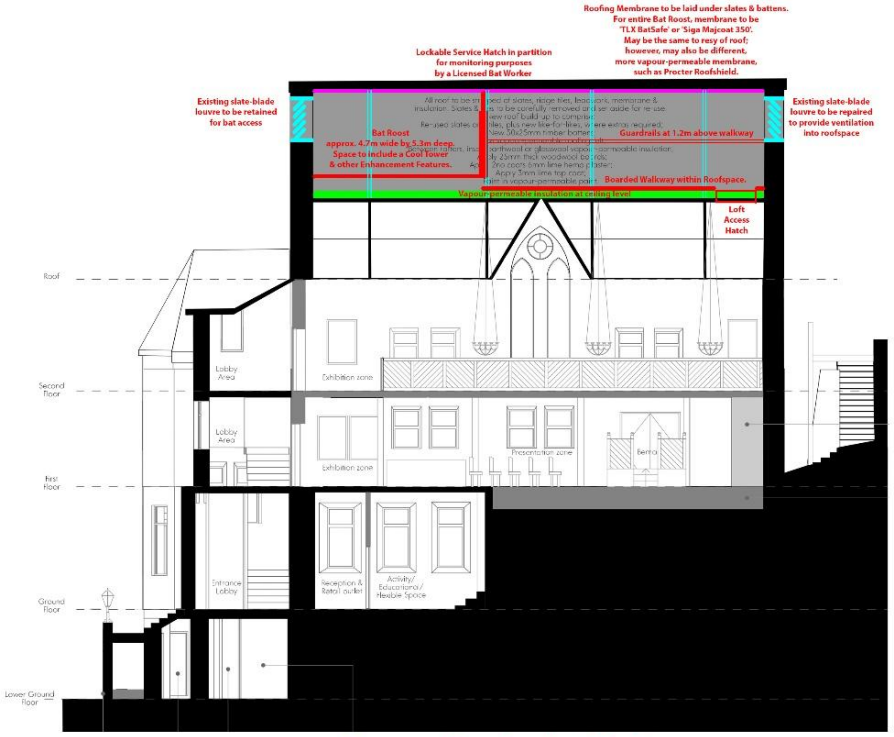
J.3.6 Buildings

Hard standing

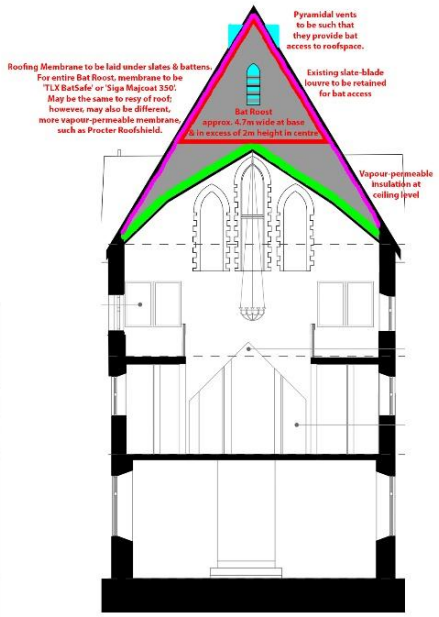
APPENDIX III: FLIGHT PATHS MAP – EMERGENCE SURVEYS



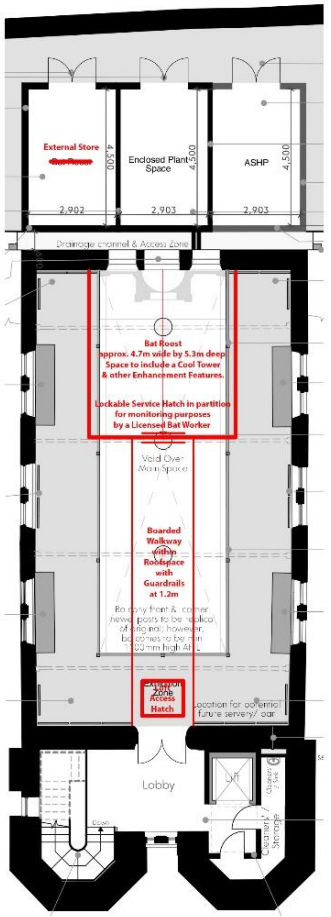
APPENDIX IV: PROPOSED DEVELOPMENT PLAN – BUILDING A



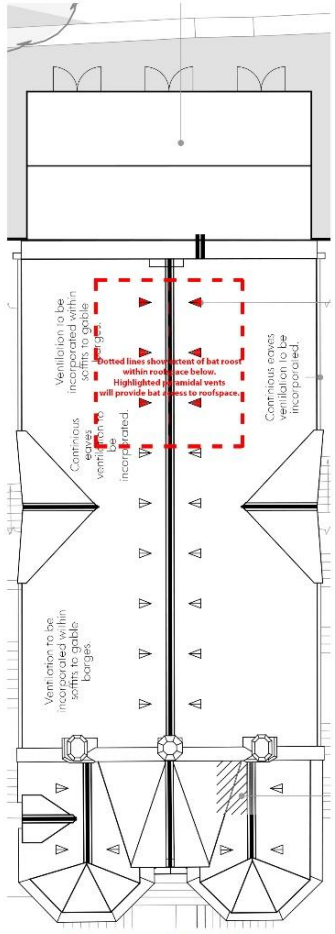
Proposed Longitudinal Section



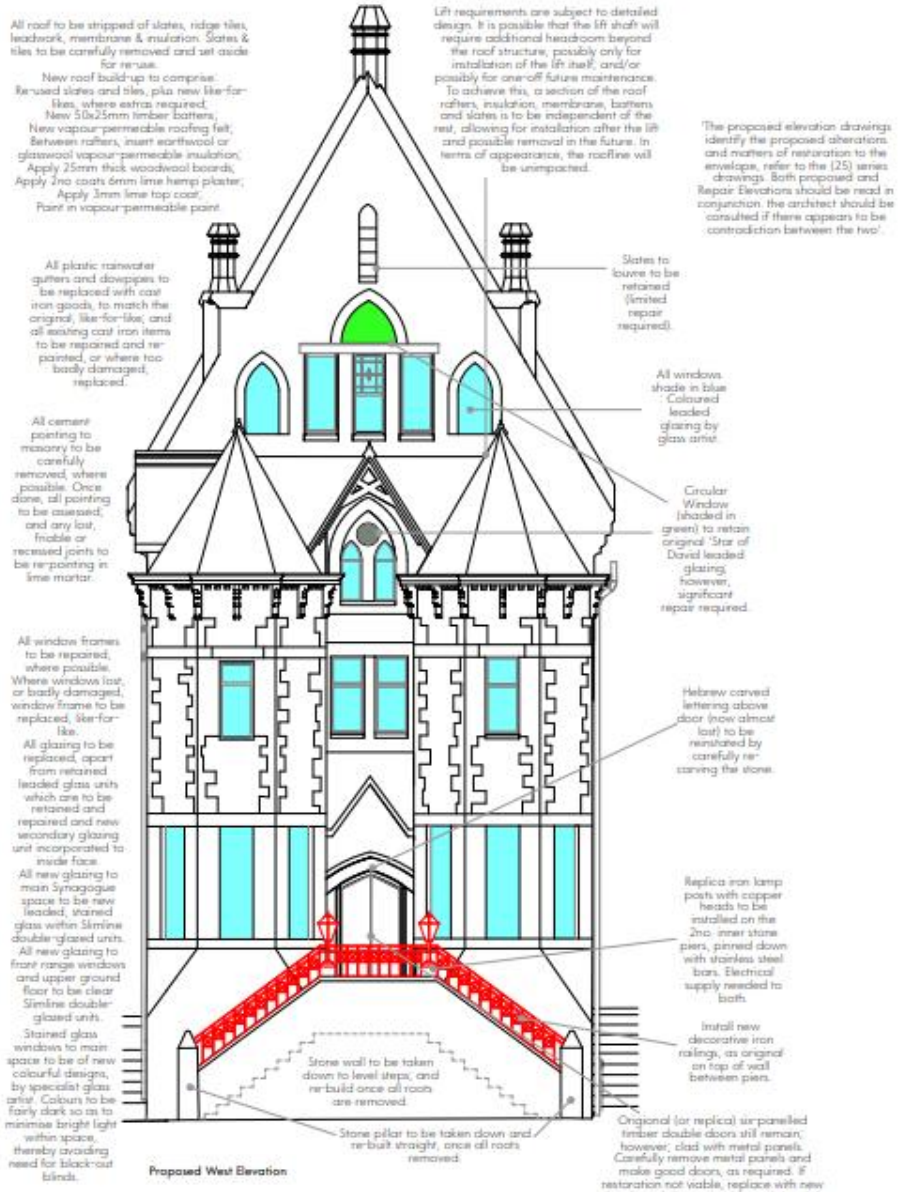
Proposed Cross Section

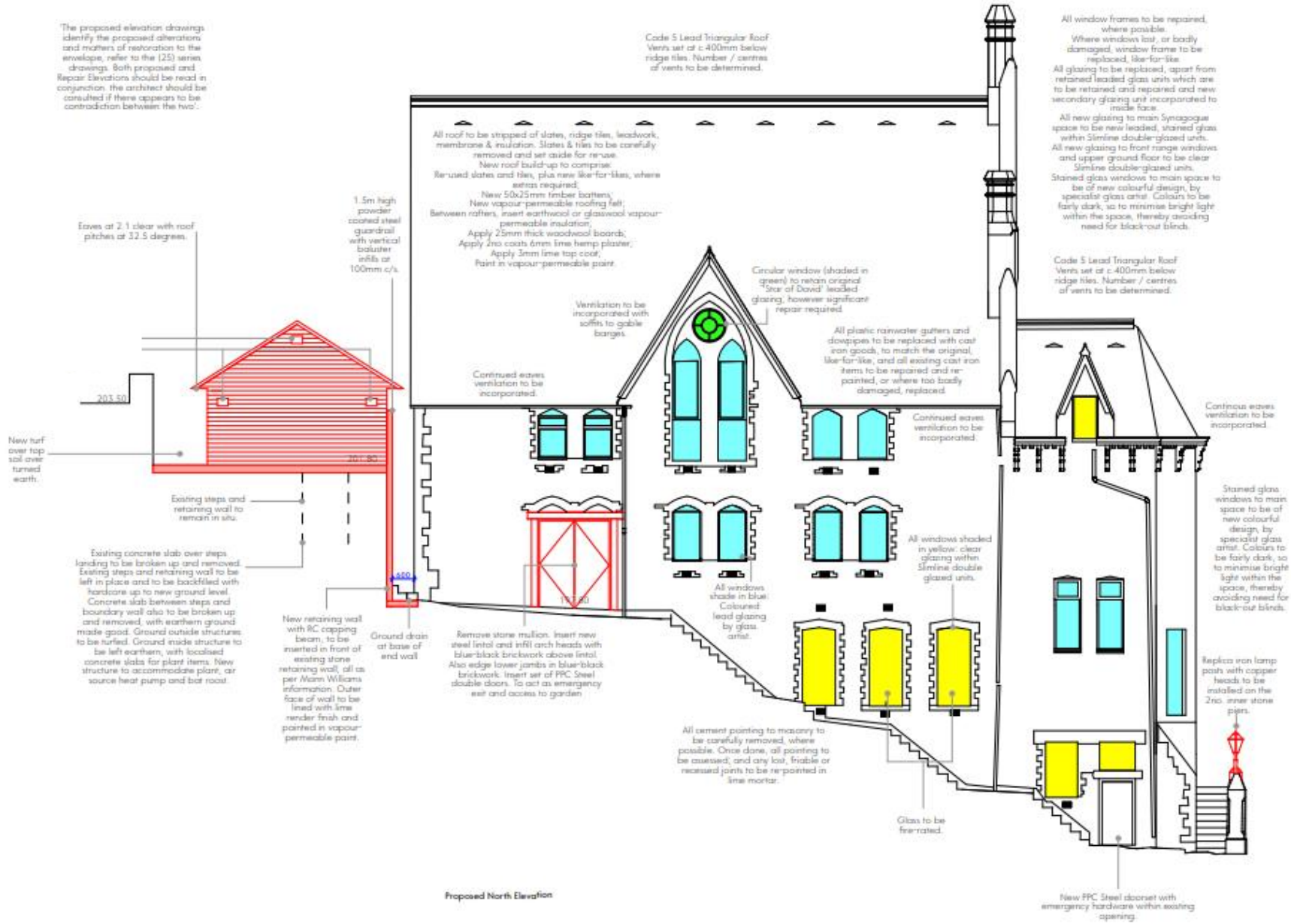


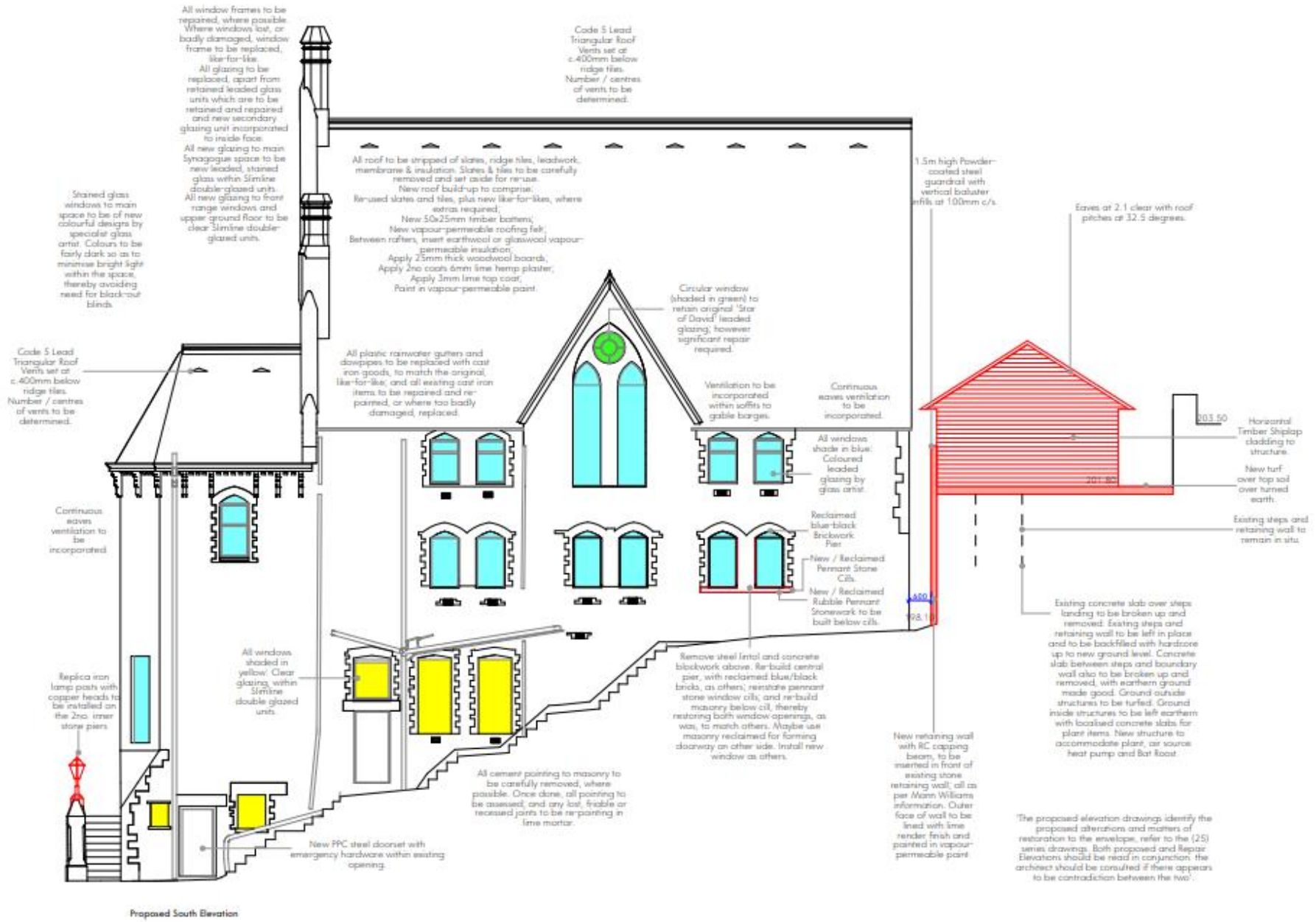
Proposed Roofspace Plan

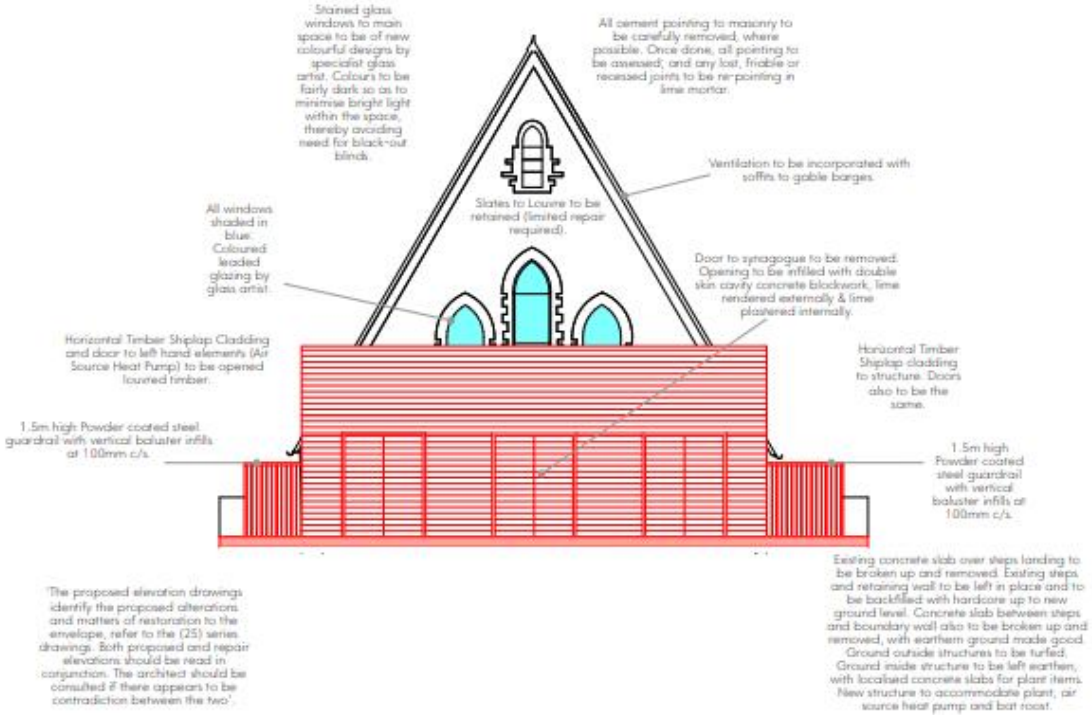


Proposed Roof Plan

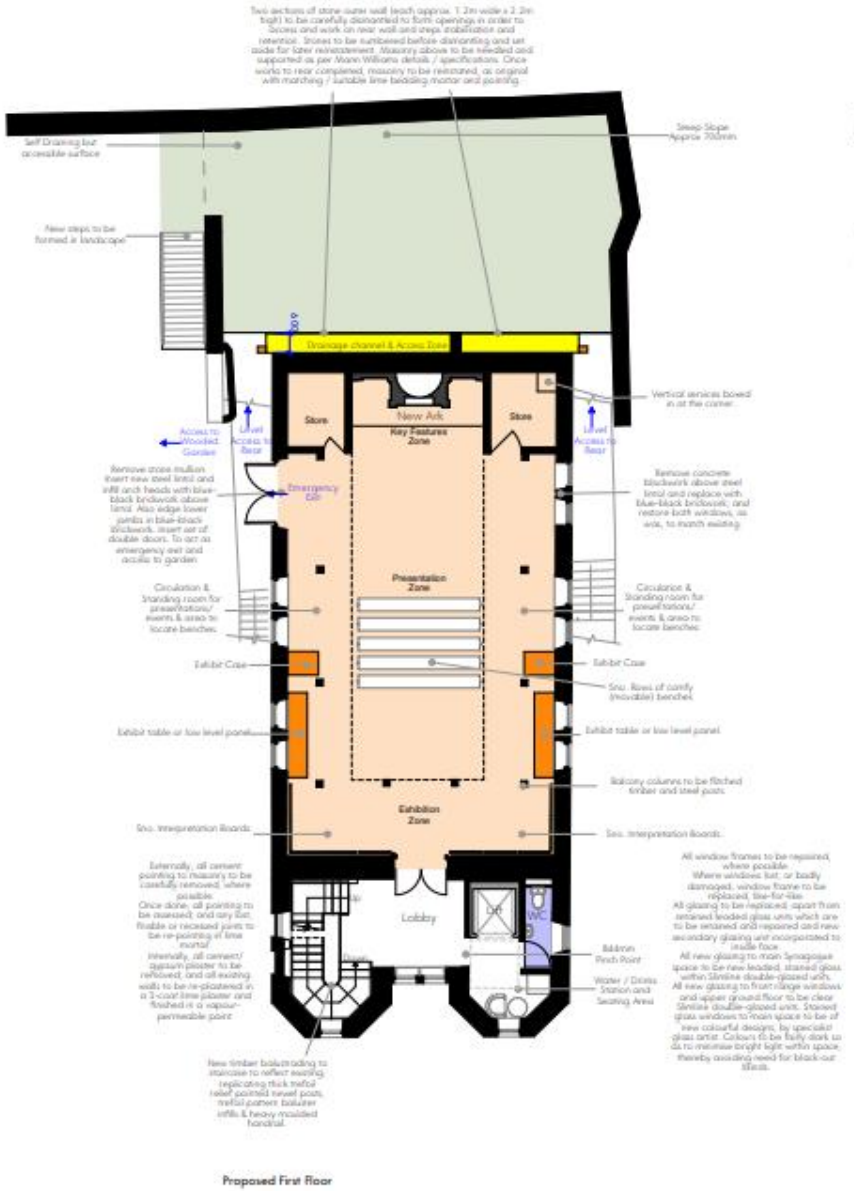

All roof to be stripped of slates, ridge tiles, leadwork, membrane & insulation. Slates & tiles to be carefully removed and set aside for re-use.
New roof build-up to comprise:
Re-used slates and tiles, plus new like-for-likes, where extras required;
New 50x25mm timber battens;
New vapour-permeable roofing felt;
Between rafters, insert earthwool or glasswool vapour-permeable insulation;
Apply 25mm thick woodwool boards;
Apply 2no coats 6mm lime hemp plaster;
Apply 3mm lime top coat;
Paint in vapour-permeable paint.
Lift requirements are subject to detailed design. It is possible that the lift shaft will require additional headroom beyond the roof structure, possibly only for installation of the lift itself, and/or possibly for one-off future maintenance. To achieve this, a section of the roof rafters, insulation, membrane, battens and slates is to be independent of the rest, allowing for installation after the lift and possible removal in the future. In terms of appearance, the roofline will be unimpacted.
'The proposed elevation drawings identify the proposed alterations and matters of restoration to the envelope, refer to the (25) series drawings. Both proposed and Repair Elevations should be read in conjunction. the architect should be consulted if there appears to be contradiction between the two'.
All plastic rainwater gutters and downpipes to be replaced with cast iron goods, to match the original, like-for-like, and all existing cast iron items to be repaired and re-painted, or where too badly damaged, replaced.
Slates to louvre to be retained (limited repair required).
All windows shade in blue Coloured leaded glazing by glass artist.
All cement pointing to masonry to be carefully removed, where possible. Once done, all pointing to be assessed; and any lost, friable or recessed joints to be re-pointing in lime mortar.
Circular Window (shaded in green) to retain original 'Star of David leaded glazing, however, significant repair required.
All window frames to be repaired, where possible. Where windows lost, or badly damaged, window frame to be replaced, like-for-like.
All glazing to be replaced, apart from retained leaded glass units which are to be retained and repaired and new secondary glazing unit incorporated to inside face.
All new glazing to main Synagogue space to be new leaded, stained glass within 5mmIne double-glazed units.
All new glazing to front range windows and upper ground floor to be clear 5Immne double-glazed units.
Stained glass windows to main space to be of new colourful designs, by specialist glass artist. Colours to be fairly dark so as to minimise bright light within space, thereby avoiding need for black-out blinds.
Hebrew carved lettering above door (now almost lost) to be reinstated by carefully re-carving the stone.
Replica iron lamp posts with copper heads to be installed on the 2no. inner stone piers, pinned down with stainless steel bars. Electrical supply needed to both.
Install new decorative iron railings, as original on top of wall between piers.
Stone wall to be taken down to level steps, and re-build once all roofs are removed.
Stone pillar to be taken down and re-built straight, once all roofs removed.
Original (or replica) six-panelled timber double doors still remain; however, clad with metal panels. Carefully remove metal panels and make good doors, as required. If restoration not viable, replace with new hardwood doors matching original / existing pattern and mouldings in all respects.
Proposed West Elevation

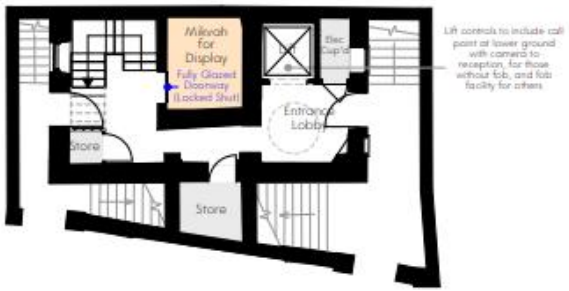




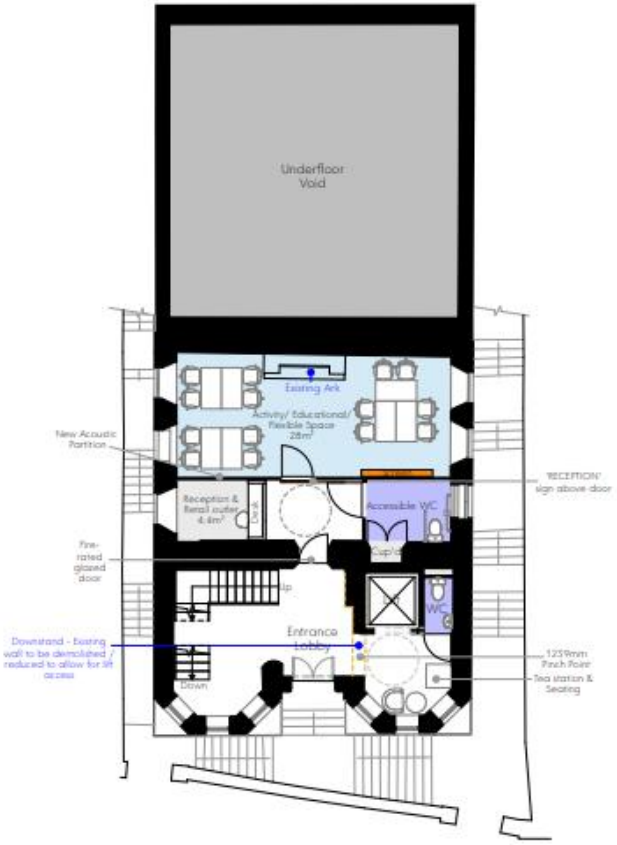


Proposed East Elevation


Proposed First Floor
Proposed Second Floor
Merthyr Tydfil Synagogue Project
Proposed Plan



Proposed Lower Ground Floor



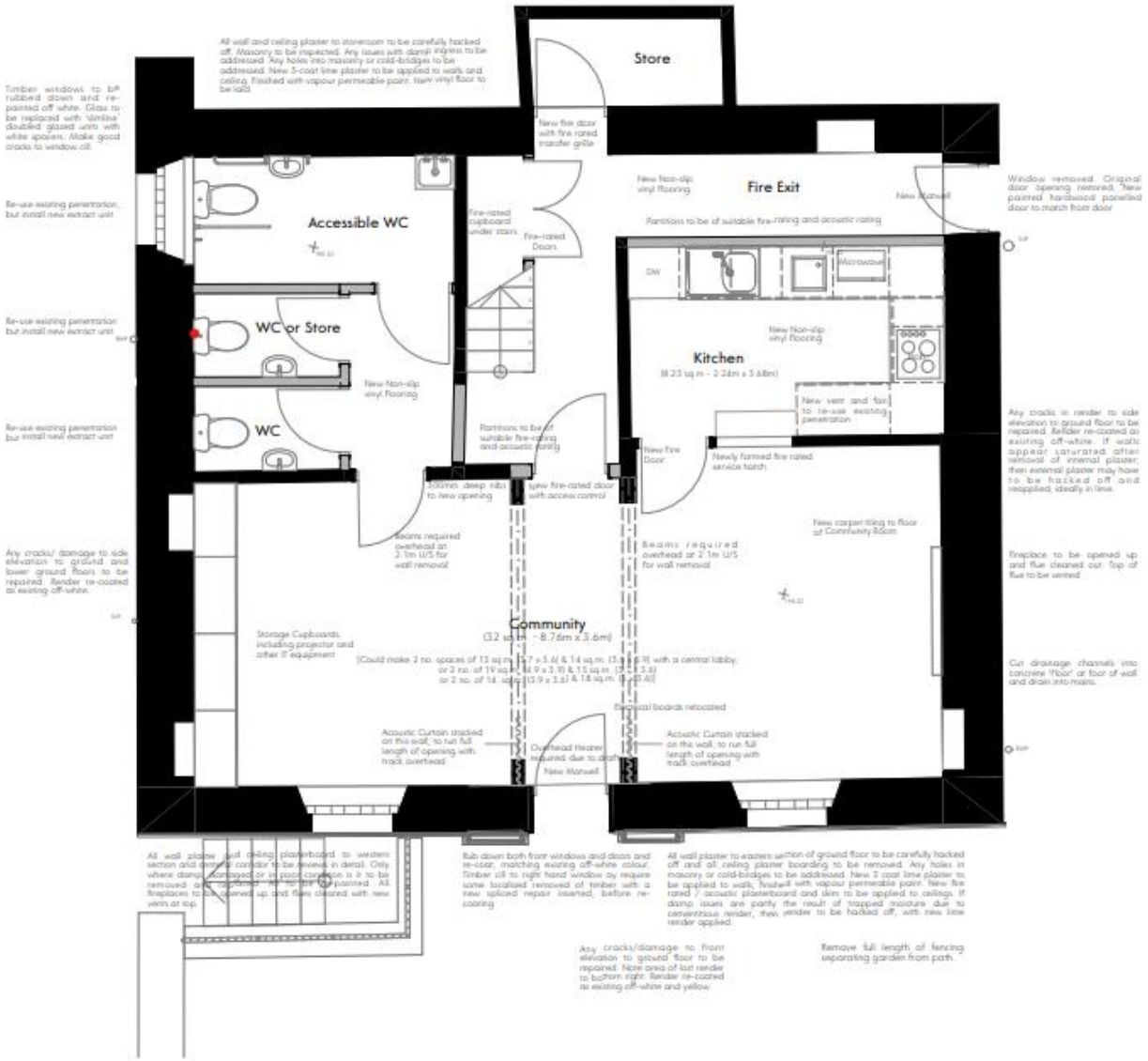
Proposed Ground Floor

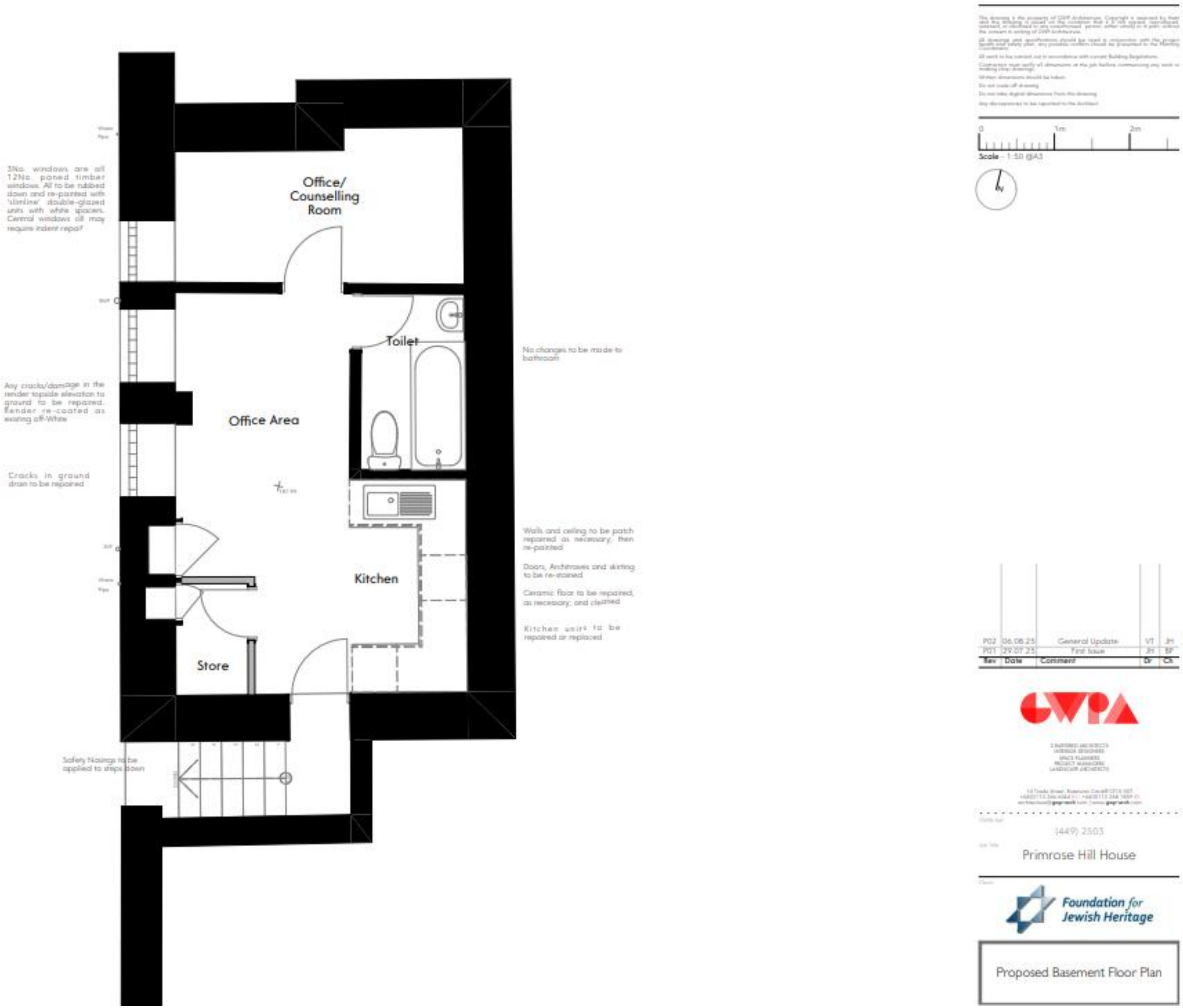
Name	(536)2324-GWP-01-XX-SK-A-(SK)-0021
Scale	1:150@A3
Rev / Status	S2 / Sketch
Dr/Checked	NW / RT
Date of Issue	25.09.23

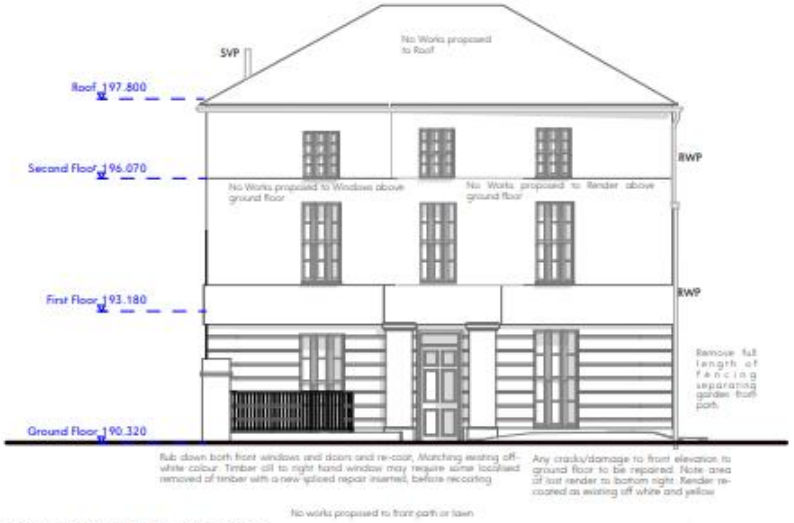
Merthyr Tydfil Synagogue Project

Proposed Plan

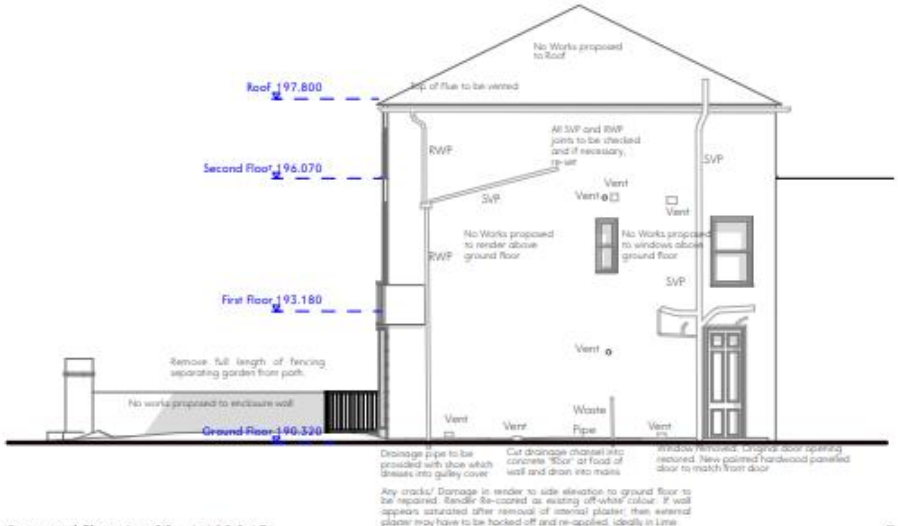
APPENDIX V: PROPOSED DEVELOPMENT PLAN – BUILDING B



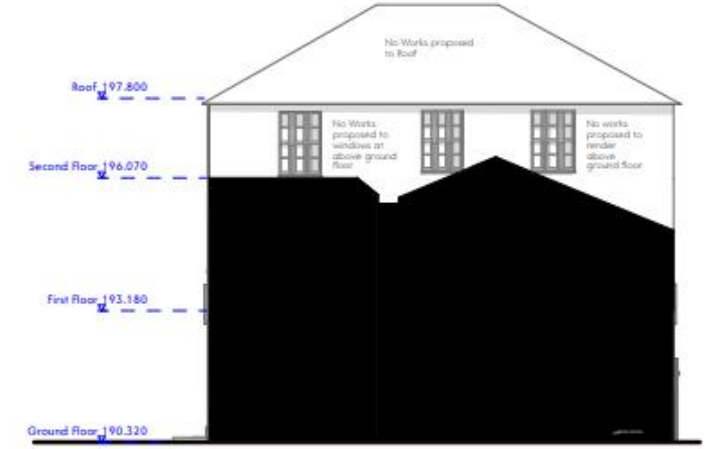

3No. windows are all 12No. paned timber windows. All to be rubbed down and re-painted with 'slimline' double-glazed units with white spacers. Central windows sill may require indent repair
Any cracks/damage in the render topside elevation to ground to be repaired. Render re-coated as existing off-White
Cracks in ground drain to be repaired
Office/ Counselling Room
Toilet
Office Area
Kitchen
Store
Safety Nosings to be applied to steps down
No changes to be made to bathroom
Walls and ceiling to be patch repaired as necessary; then re-painted
Doors, Architraves and skirting to be re-stained
Ceramic floor to be repaired, as necessary; and cleaned
Kitchen unit to be repaired or replaced
P02 06.08.25 General Update VT JH
P01 29.07.25 First Issue JH BF
Rev Date Comment Dr Ch
(449) 2503
Primrose Hill House
Foundation for Jewish Heritage
Proposed Basement Floor Plan



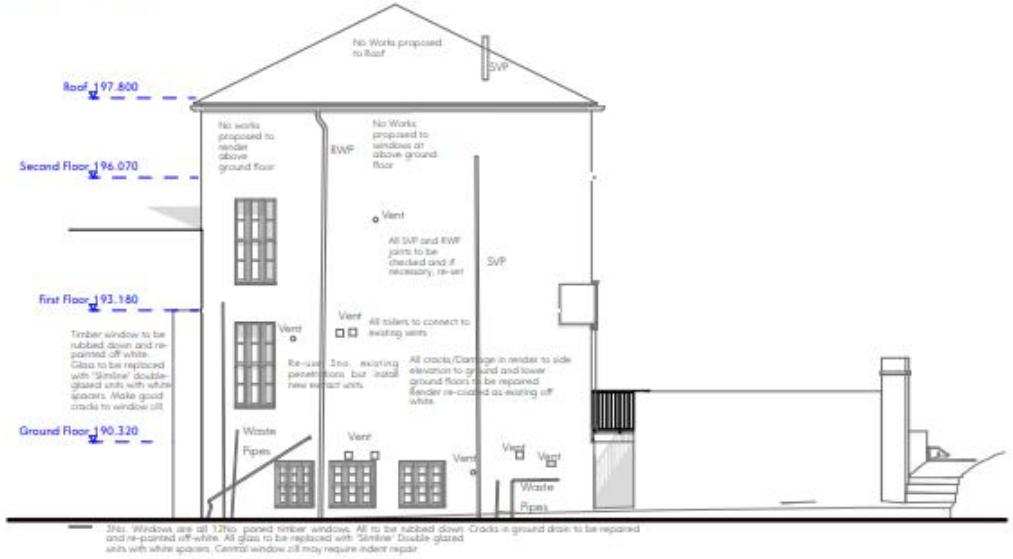
Proposed Elevation 01 - 1:100@A3



Proposed Elevation 02 - 1:100@A3



Proposed Elevation 03 - 1:100@A3



Proposed Elevation 04 - 1:100@A3

Rev	Date	Comment	Dr	Ch
P02	06.08.25	General Updates	VT	JH
P01	29.07.25	First Issue	JH	BP

(449) 2503
Primrose Hill House

Proposed Elevation

Name	(449) 2503-GWP-01-ZZ-D-A-(PA)-0013
Scale	1:100@A3
Revision	P02
Drawn/Checked	JH / BP
First Issue	29.07.25
Drawing Status	S2 - For Information

APPENDIX VI: SURVEY IMAGES

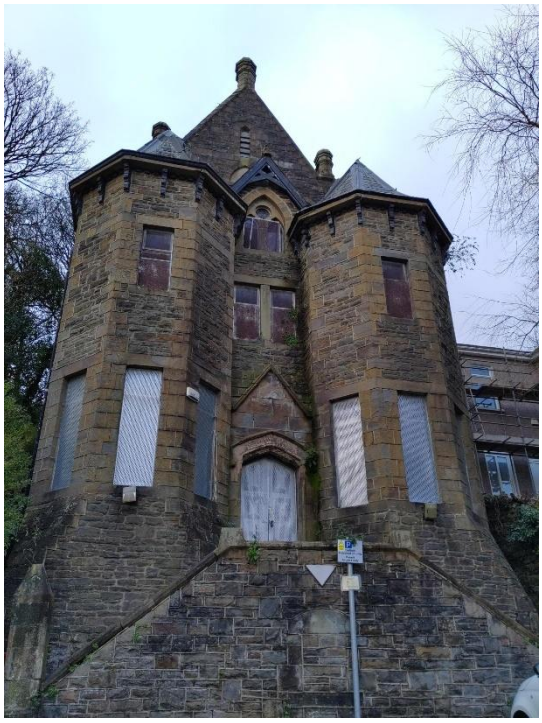


Figure 6 - Synagogue from the front, west elevation.

Figure 7 - Front door from the inside.

Figure 8 - Exposed brickwork on the ground floor.

Figure 9 - Ground floor of the building.

Figure 10 - Bricked up windows on the ground floor.

Figure 11 - Bricked up windows on ground floor.

Figure 12 - Gaps in stonework in roof of ground floor.

Figure 13 - Gaps in stonework in roof of ground floor.

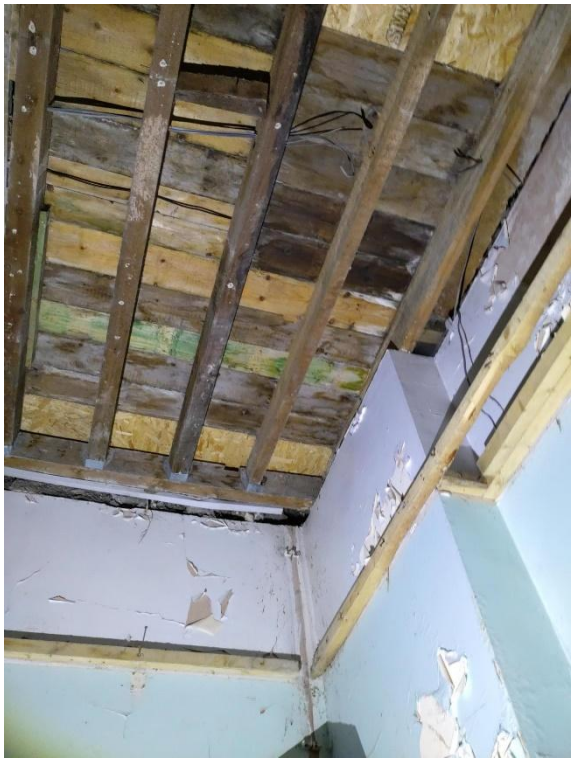


Figure 14 - Gaps between walls and ceiling on ground floor.

Figure 15 - Exposed brickwork on ground floor.

Figure 3 - Feathers indicating nesting birds on ground floor.

Figure 17 - Bird droppings on a windowsill on the ground floor.

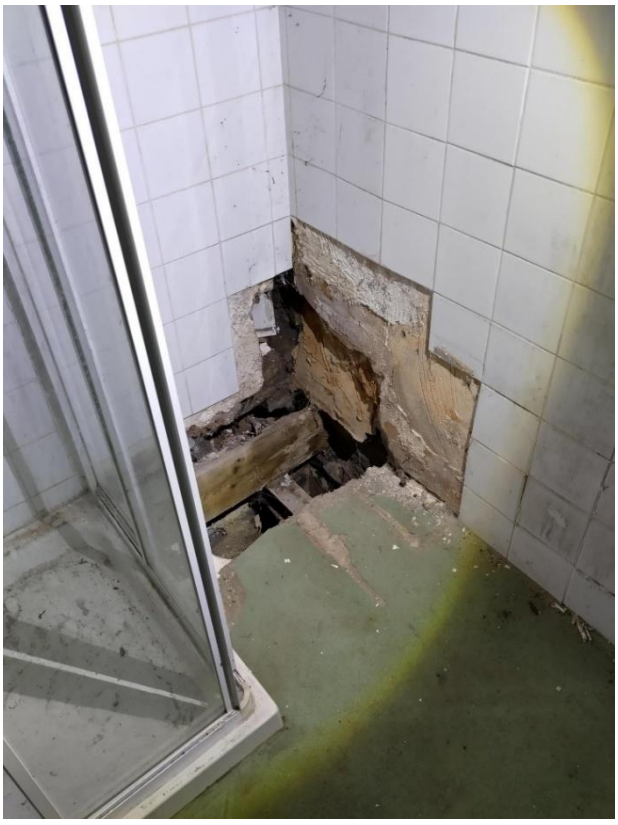


Figure 18 - Hole in shower room floor on ground floor leading to basement.

Figure 19 - Shower room on ground floor.

Figure 20 - Gaps in brickwork on first floor.

Figure 214 - Gaps in stonework on first floor.

Figure 22 - Wooden beams on second floor.

Figure 23 - Wooden beams on second floor.

Figure 24 - Gaps in the ceiling on the second floor.

Figure 25 - Wooden beams on second floor.

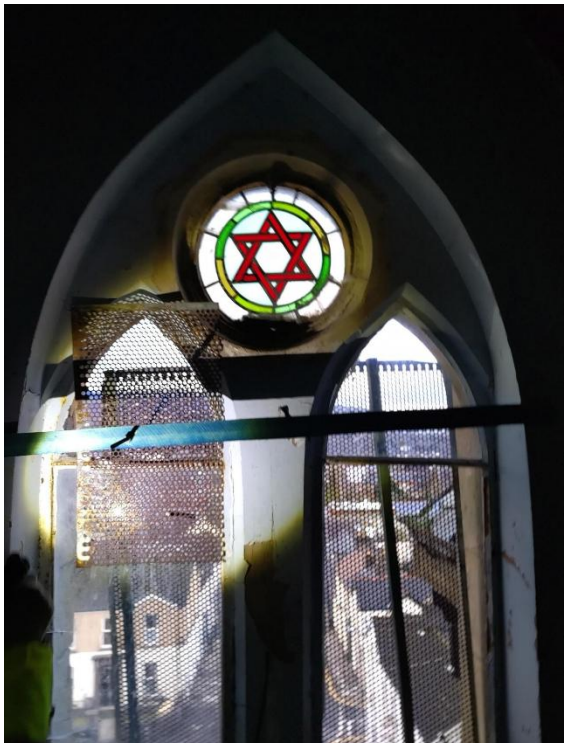


Figure 26 - Gaps in window on second floor.

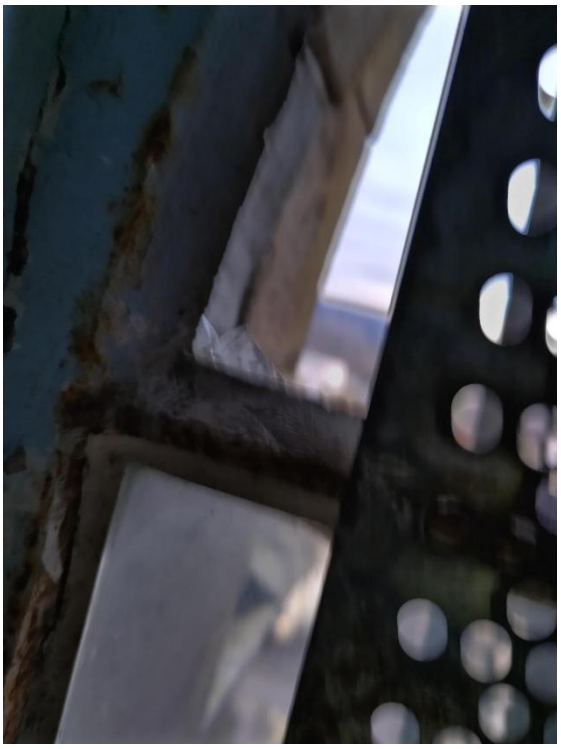


Figure 27 - Gaps in window on second floor.

Figure 28 - Wooden beams on second floor.

Figure 29 - Internal space on second floor.

Figure 30 - Gaps in roofing felt on second floor.

Figure 31 - Gaps in roofing felt on second floor.

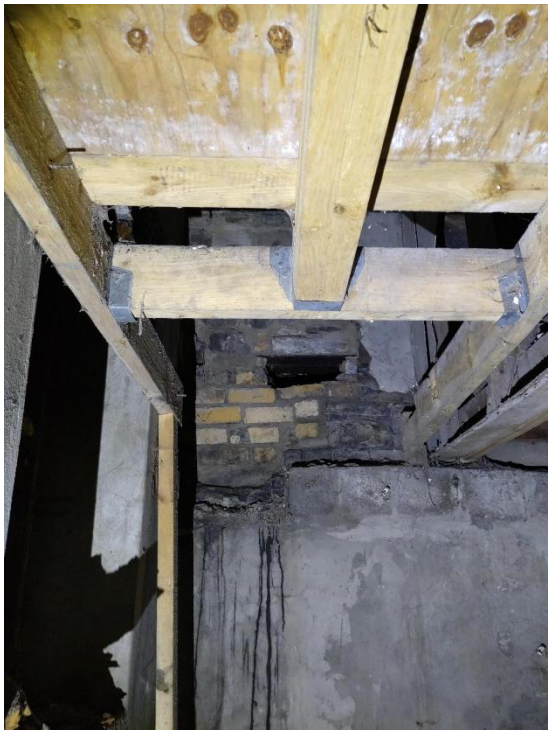


Figure 32 - Gaps in brickwork in northern basement.

Figure 33 - Gaps in brickwork in northern basement.

Figure 34 - Gaps in brickwork in northern basement.

Figure 35 - Eastern aspect of building, showing brown long-eared bat access point into loft. Note other bat roost access points likely exist onsite that could not be confirmed by the surveys due to poor visibility (building height/ complexity and tree cover).

Figure 36 - Pipe on northern aspect of building.

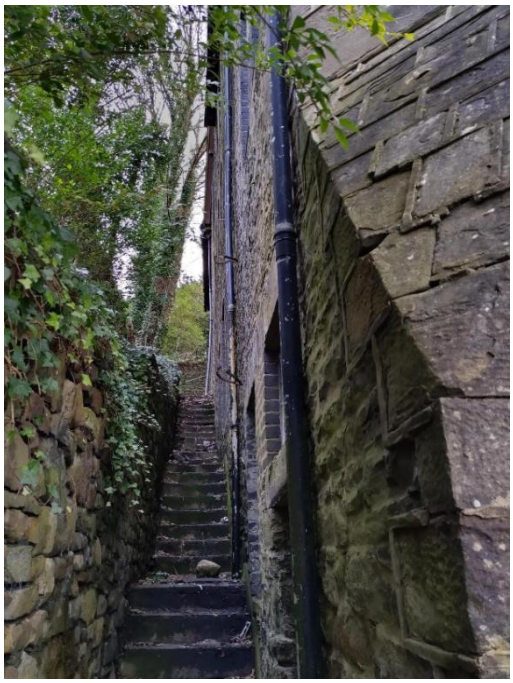


Figure 37 - Stairs on northern aspect.

Figure 38 - Gap between wooden soffit and wall on northern aspect of the building.

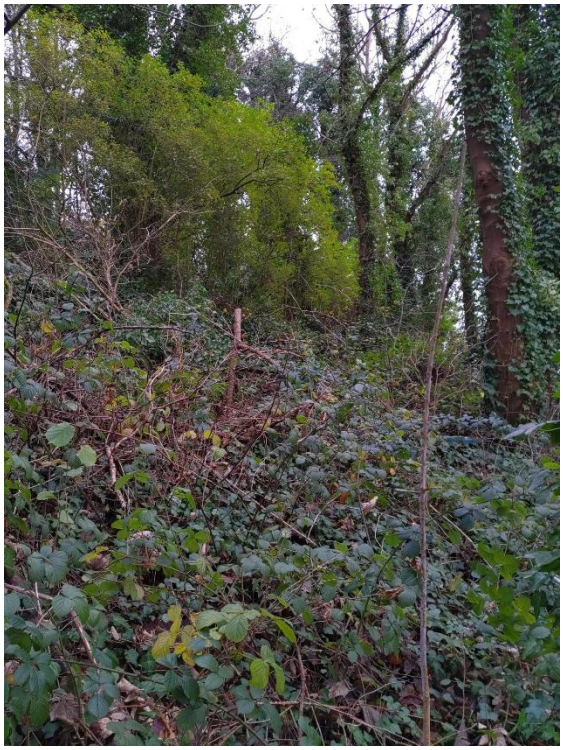


Figure 39 - Understorey vegetation in the woodland onsite to the north of the building.

Figure 40 - View of the understorey of the woodland facing the northern aspect of the building.

Figure 41 - View of the woodland facing north-west.

Figure 42 - Ground vegetation in the woodland.

Figure 43 – Ivy-covered tree.

Figure 44 - Interior of Primrose Hill (building B).

Figure 45 - Interior of Primrose Hill.

Figure 46 - Basement of Primrose Hill.

Figure 47 - Access to Primrose Hill basement flat.

Figure 48 - Windows of Primrose Hill basement flat.

Figure 49 - North-west corner of Primrose Hill (with ground floor window to be changed to door).

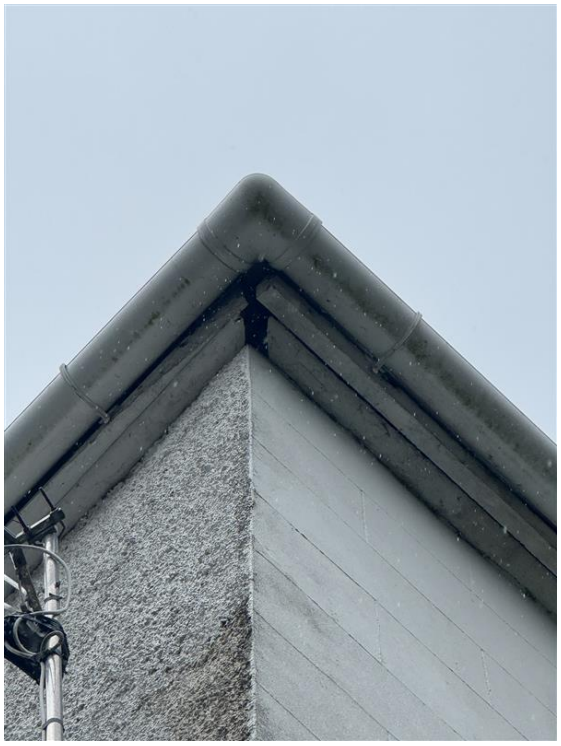


Figure 50 - Gap in soffit at Primrose Hill south-west corner.

Figure 51 – Primrose Hill window to be changed to door.

Figure 52 - Eastern aspect of Primrose Hill.

Figure 53 - Forecourt of Primrose Hill, looking west.

Figure 54 - Hedgerow on southern boundary of Primrose Hill.

Figure 55 - Second floor of synagogue (Building A).

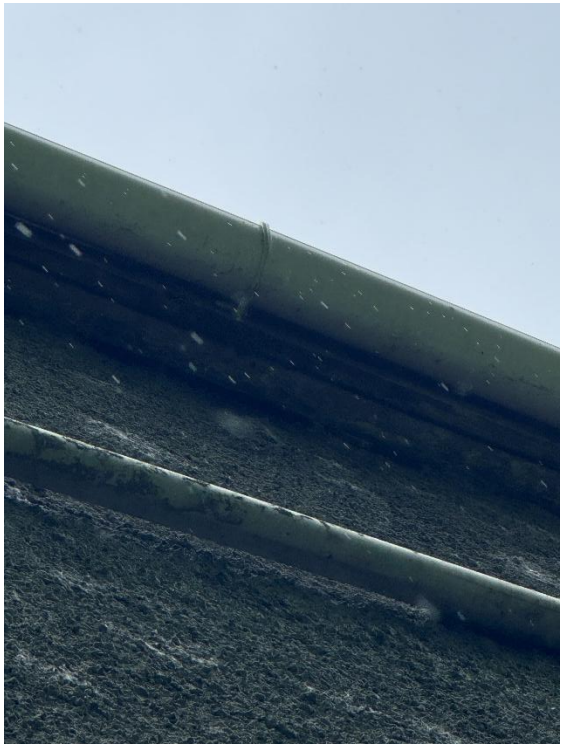


Figure 556 - Possible gaps between soffit and wall on eastern aspect of building B.

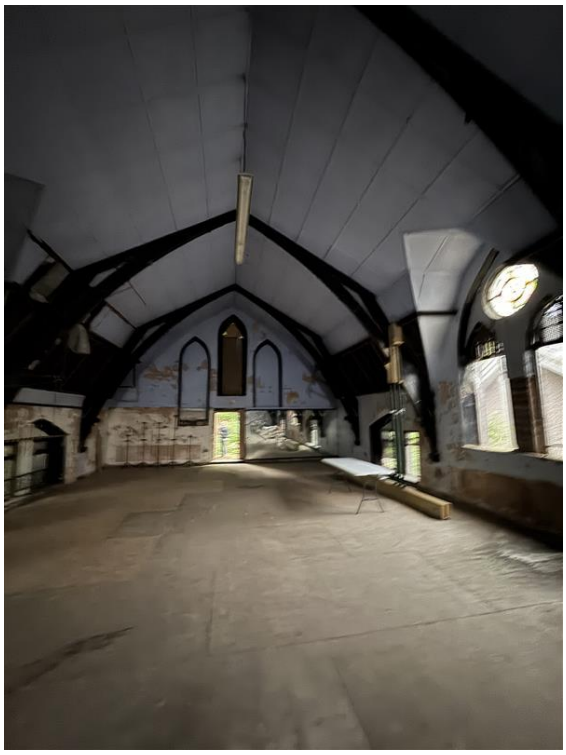


Figure 57 - Second floor of synagogue.

Figure 58 - G1 ash.

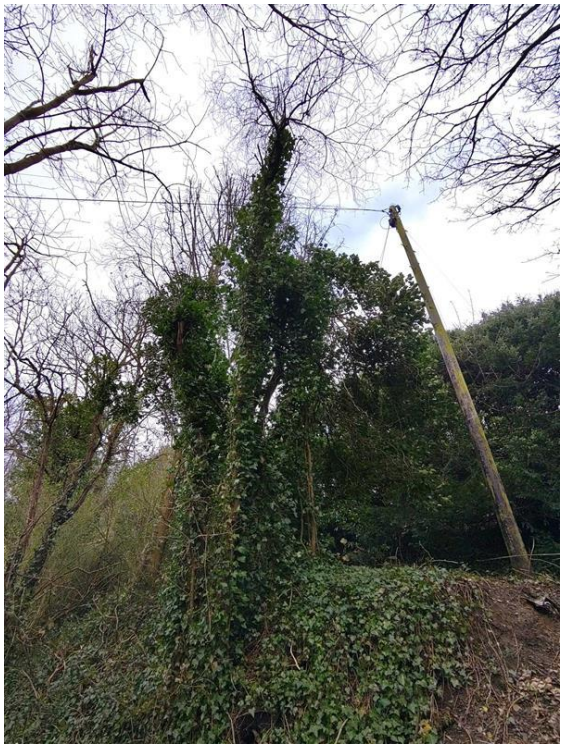


Figure 59 - G2 hawthorn.

Figure 60 - T803 ash.

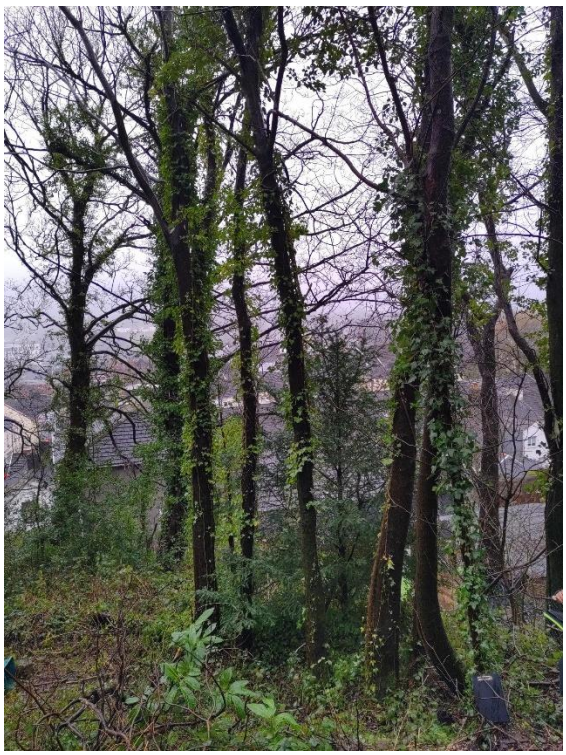


Figure 61 – G3 goat willow, hawthorn, sycamore.

Figure 62 - T804 sycamore.

Figure 63 - T805 goat willow.

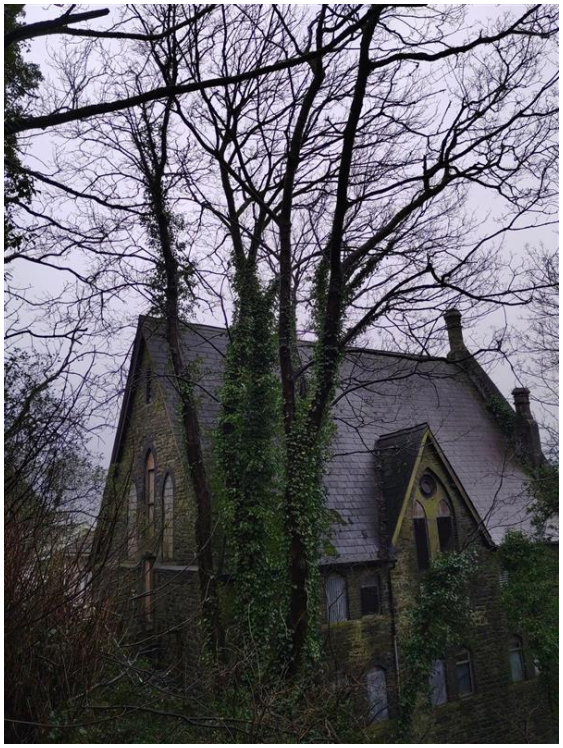


Figure 64 - G806 sycamore.

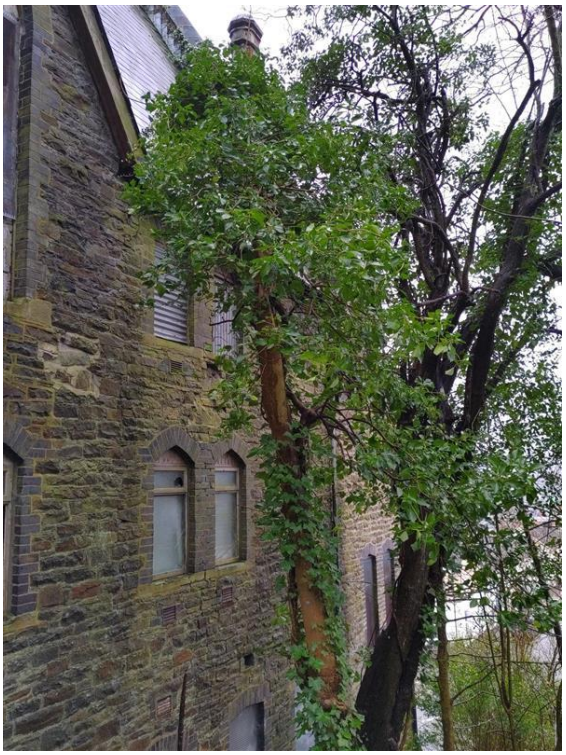


Figure 65 - T807 ash.

Figure 66 - T808 hawthorn.

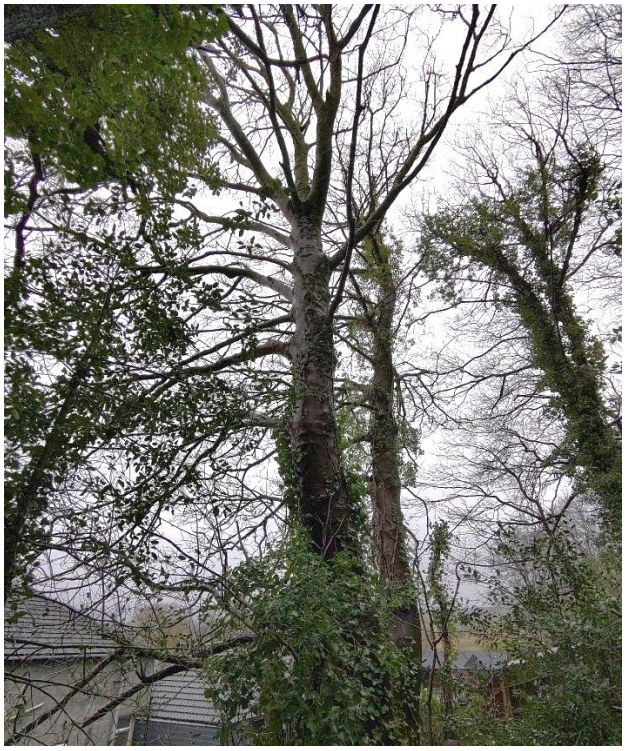


Figure 67 - T809 sycamore.

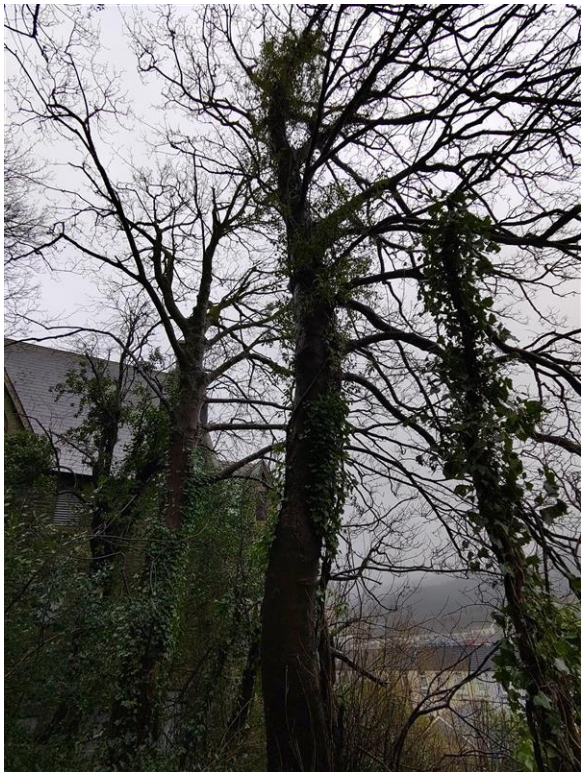


Figure 68 - T810 sycamore.

Figure 69 - T811 sycamore.

APPENDIX VII: SPECIES LIST

The site name: Merthyr Tydfil Synagogue, CF47 0ER **Provided by:** Wildwood Ecology

Grid reference: SO051062 **Verified by:** Jack McCormack

Common name	Scientific Name (if known)
Flora	
Blackthorn	*Prunus spinosa*
Box-leaved honeysuckle	*Lonicera pileata*
Bramble	*Rubus fruticosus*
Cleavers	*Galium aparine*
Cock's foot	*Dactylis glomerata*
Common ivy	*Hedera helix*
Common nettle	*Urtica dioica*
Common yew	*Taxus baccata*
Creeping buttercup	*Ranunculus repens*
Dandelion	*Taraxacum* agg.
Dogrose	*Rosa canina*
Fern sp.	*Tracheophyta* sp.
Field maple	*Acer campestre*
Goat willow	*Salix caprea*
Hawthorn	*Crataegus monogyna*
Hazel	*Corylus avellanaria*
Herb Robert	*Geranium robertianum*
Honeysuckle	*Lonicera*
Laurel	*Laurus nobilis*
Meadow buttercup	*Ranunculus acris*
Perennial rye	*Lolium perenne*
Privet	*Ligustrum*
Sycamore	*Acer pseudoplatanus*
Wall lettuce	*Lactuca muralis*
Wild strawberry	*Fragaria vesca*
Wood avens	*Geum urbanum*
Yorkshire fog	*Holcus lanatus*
Fauna	
Brown long-eared	*Plecotus auritus*
Common pipistrelle	*Pipistrellus pipistrellus*
Carrion crow	*Corvus corone*
Dunnock	*Prunella modularis*
Jackdaw	*Corvus monedula*
Lesser horseshoe	*Rhinolophus hipposideros*
Long-tailed tit	*Aegithalos caudatus*
Magpie	*Pica pica*
Soprano pipistrelle	*Pipistrellus pygmaeus*
Serotine	*Eptesicus serotinus*
Robin	*Erithacus rubecula*

APPENDIX VIII: FULL METHODOLOGY

This report has been informed by the following, with detailed methodology provided in Appendix I:

- Full desk study and records search;
- Preliminary Ecological Appraisal;
- Preliminary Roost Assessment survey;
- Dusk emergence surveys;
- Hibernation surveys; and
- Ground Level Tree Assessment

This report has been written in cognisance of the CIEEM Guidelines on: Ecological Report Writing, Preliminary Ecological Appraisal, Preliminary Roost Appraisal and Ecological Impact Assessment.

A desk study was undertaken in relation to the site. The sources consulted and the type of information obtained are summarised below.

Source	Information and data sets	Search buffer from the site centre/boundary
South East Wales Biodiversity Records Centre (SEWBReC)	• Protected and priority species. • Non-statutory designations	• (2km) • (1km)
Multi-Agency Geographic Information for the Countryside (MAGIC)	• International statutory designations • National statutory designations	• (10km) • (2km)

The search buffers are sufficient to cover the Zone of Influence (ZoI) of the proposed development in relation to Protected and Priority species and designated sites.

The impact of the proposed development on the biological integrity of nearby designated protected sites has been fully considered.

Assessing ecological importance

The assessment of the importance of sites, habitats and species are made with reference to CIEEMs guidelines for EcIA, where possible. These guidelines provide consistency in the approach to evaluating the importance of the ecological features within a site and the effects or impacts a proposed development will have on them.

Firstly, the sites, habitats and species are assessed using a framework which assigns a level of geographical importance to ecological features. This framework incorporates a wide range of legislation and governmental guidance in assessing each feature's importance.

Next, the effects/likely effects of the proposed development are predicted, considering different stages and activities within the development process. These effects/likely effects are then assessed for their significance, based upon the importance of the site, habitat or species being assessed. The assessment of effects/likely effects significance is considered before and after the proposed mitigation to give an overall indication of significance.

The importance of specific ecological receptors (sites, habitats or species) is assigned according to their level of importance using the following terms:

- International Importance;
- UK Importance;
- National Importance (i.e. England/Northern Ireland/Scotland/Wales);
- Regional Importance;
- County Importance;
- District Importance (or Unitary Authority, City, or Borough);
- Local or Parish Importance; and
- Of Importance within the site (the zone of influence or a larger defined area).

Contributor information

The PRA was undertaken by Jack McCormack and Beth Lewis. The report was written by Jack McCormack and Beth Lewis. The report was reviewed and approved by Ivi Szaboova MCIEEM Director of Ecology.

APPENDIX IX: LIGHTING GUIDANCE

As foraging and commuting bats are confirmed to be present on or close to the site, Guidance Note 08/23 - 'Bats and artificial lighting at night' (The Bat Conservation Trust, BCT, and the Institution of Lighting Professionals, ILP) will be followed:

All luminaires should lack UV elements when manufactured. Metal halide, compact fluorescent sources should not be used.

LED luminaires should be used where possible due to their sharp cut-off, lower intensity, good colour rendition and dimming capability.

A warm white light source (2700Kelvin or lower) should be adopted to reduce blue light component.

Light sources should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats (Stone, 2012).

Internal luminaires can be recessed (as opposed to using a pendant fitting - See Figure 5) where installed in proximity to windows to reduce glare and light spill.

Waymarking inground markers (low output with cowls or similar to minimise upward light spill) to delineate path edges (see Case Study 1).

Column heights should be carefully considered to minimise light spill and glare visibility. This should be balanced with the potential for increased numbers of columns and upward light reflectance as with bollards.

Only luminaires with a negligible or zero Upward Light Ratio, and with good optical control, should be considered - See ILP GN01.

Luminaires should always be mounted horizontally, with no light output above 90° and/or no upward tilt.

Where appropriate, external security lighting should be set on motion sensors and set to as short a possible a timer as the risk assessment will allow. For most general residential purposes, a 1 or 2 minute timer is likely to be appropriate.

Use of a Central Management System (CMS) with additional web-enabled devices to light on demand.

Use of motion sensors for local authority street lighting may not be feasible unless the authority has the potential for smart metering through a CMS.

The use of bollard or low-level downward-directional luminaires is strongly discouraged. This is due to a considerable range of issues, such as unacceptable glare, poor illumination efficiency, unacceptable upward light output, increased upward light scatter from surfaces and poor facial recognition which makes them unsuitable for most sites. Therefore, they should only be considered in specific cases where the lighting professional and project manager are able to resolve these issues.

Only if all other options have been explored, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed. However, due to the lensing and fine cut-off control of the beam inherent in modern LED luminaires, the

effect of cowls and baffles is often far less than anticipated and so should not be relied upon solely.

APPENDIX X - BIBLIOGRAPHY

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APPENDIX XI: PLANNING POLICY AND LEGISLATION

The following planning policy and legislation relating to nature conservation and biodiversity status are considered of relevance to the current proposal.

Planning and biodiversity (Wales)

Local Authorities have a requirement to consider biodiversity and geological conservation issues when determining planning applications under the following planning policies.

Planning Policy Wales – Edition 12 (2024) and Technical Advice Note 5 (2009)

Planning Policy Wales (Edition 12, February 2024) sets out the land use planning policies of the Welsh Government, integrating with the Environment (Wales) Act (2016). The advice contained within Planning Policy Wales (PPW) is supplemented for some subjects by Technical Advice Notes (TANs).

Section 6.2 of Planning Policy Wales (Edition 12) describes how elements of Green Infrastructure should be incorporated into new developments. Paragraph 6.2.12 states: "A green infrastructure statement should be submitted with all planning applications. This will be proportionate to the scale and nature of the development proposed and will describe how green infrastructure has been incorporated into the proposal. In the case of minor development this will be a short description and should not be an onerous requirement for applicants. The green infrastructure statement will be an effective way of demonstrating positive multi-functional outcomes which are appropriate to the site in question and must be used for demonstrating how the step-wise approach (Paragraph 6.4.15) has been applied."

Section 6.4 of Planning Policy Wales outlines how all developments should achieve net benefit for biodiversity by implementing the DECCA framework. Paragraph 6.4.5 states: "Planning authorities must seek to maintain and enhance biodiversity in the exercise of their functions. This means development should not cause any significant loss of habitats or populations of species (not including non- native invasive species), locally or nationally and must work alongside nature and it must provide a net benefit for biodiversity and improve, or enable the improvement, of the resilience of ecosystems. A net benefit for biodiversity is the concept that development should leave biodiversity and the resilience of ecosystems in a significantly better state than before, through securing immediate and long-term, measurable and demonstrable benefit, primarily on or immediately adjacent to the site. The step-wise approach outlined below is the means of demonstrating the steps which have been taken towards securing a net benefit for biodiversity. In doing so, planning authorities must also take account of and promote the resilience of ecosystems, in particular the following attributes, known as the DECCA Framework:

- diversity between and within ecosystems;
- the extent or scale of ecosystems;
- the condition of ecosystems including their structure and functioning;
- the connections between and within ecosystems; and
- adaptability of ecosystems including their ability to adapt to, resist and recover from a range of pressures likely to be placed on them through climate change for example."

Section 6.4.15 outlines how the step-wise approach should applied to all new developments. This has been summarised below:

Avoid

"The first priority for planning authorities is to avoid damage to biodiversity in its widest sense (i.e. the variety of species and habitats and their abundance) and ecosystem functioning."

Proposals in statutory designated sites are, as a matter of principle, unacceptable and therefore must be excluded from site searches undertaken by developers. This principle also extends to those sites containing protected species and habitats which are irreplaceable and must be safeguarded."

Minimise

"When all locational, siting and design options for avoiding damage to biodiversity have been exhausted, applicants, in discussion with planning authorities, must seek to minimise the initial impact on biodiversity and ecosystems."

Restore/mitigate

"Where, after measures to minimise impact, biodiversity and ecosystems could still be damaged, or lost through residual impacts, the proposed development should mitigate that damage."

"Effective mitigation or restoration measures should be incorporated into the design proposal following the consideration of steps one and two above. Mitigation or restoration measures must be designed to address the specific negative effects by repairing damaged habitats and disturbed species. They should seek to restore in excess of like for like, accounting for disturbance and time lags for the recovery of habitat and species, and in every case, mitigation or restoration measures should seek to build ecosystem resilience within the site and where possible the wider area."

Compensate onsite

"When all the steps above have been exhausted, and where modifications, alternative sites, conditions or obligations are not sufficient to secure biodiversity outcomes further on-site/immediately proximate, as a last resort off-site compensation for unavoidable damage must be provided."

"Off-site compensation should normally take the form of habitat restoration, or habitat creation, or the provision of long-term management agreements to enhance existing habitats and deliver a net benefit for biodiversity."

"The Green Infrastructure Assessment should be used to identify suitable locations for securing off-site compensation."

"Where compensation for specific species is being sought, the focus should be on maintaining or enhancing the population of the species within its natural range."

"Any proposed compensation should be place based, take account of the Section 6 Duty (Biodiversity and Resilience of Ecosystems Duty), the DECCA framework and appropriate ecological advice from the local authority Ecologist, NRW or a suitably qualified ecologist."

Compensate offsite

"Each stage of the step-wise approach must be accompanied by a long term management plan of agreed and appropriate avoidance, minimisation, mitigation/restoration and compensation measures alongside the agreed enhancement measures."

Refuse planning permission
"Finally, where the adverse effect on biodiversity and ecosystem resilience clearly outweighs other material considerations, the development should be refused."

TAN 5 (Welsh Government, 2009) specifically provides advice about how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. The TAN provides advice for local planning authorities on the key principles of positive planning for nature conservation; nature conservation and Local Development Plans; nature conservation in development management procedures; development affecting protected internationally and nationally designated sites and habitats; and development affecting protected and priority habitats and species.
Under Section 2.4 within the TAN 5, 'when deciding planning applications that may affect nature conservation local planning authorities should':

- Pay particular attention to the principles of sustainable development, including respect for environmental limits, applying the precautionary principle, using scientific knowledge to aid decision making and taking account of the full range of costs and benefits in a long term perspective;
- Contribute to the protection and improvement of the environment, so as to improve the quality of life and protect local and global ecosystems, seeking to avoid irreversible harmful effects on the natural environment;
- Promote the conservation and enhancement of statutorily designated areas and undeveloped coast;
- Ensure that appropriate weight is attached to designated sites of international, national and local importance;
- Protect wildlife and natural features in the wider environment, with appropriate weight attached to priority habitats and species in Biodiversity Action Plans;
- Ensure that all material considerations are taken into account and decisions are informed by adequate information about the potential effects of development on nature conservation;
- Ensure that the range and population of protected species is sustained;
- Adopt a step-wise approach to avoid harm to nature conservation, minimise unavoidable harm by mitigation measures, offset residual harm by compensation measures and look for new opportunities to enhance nature conservation; where there may be significant harmful effects local planning authorities will need to be satisfied that any reasonable alternative sites that would result in less or no harm have been fully considered.

Future Wales: The National Plan 2040

Policy 9 of Future Wales: The National Plan 2040 (Resilient Ecological Networks and Green Infrastructure) states: "In all cases, action towards securing the maintenance and enhancement of biodiversity (to provide a net benefit) the resilience of ecosystems and green infrastructure assets must be demonstrated as part of development proposals

through innovative, naturebased approaches to site planning and the design of the built environment."

Policy 34 of Future Wales: The National Plan 2040 (Green Belts in the South East) states: "The Welsh Government requires the Strategic Development Plan to identify a green belt to the north of Cardiff, Newport and the eastern part of the region to manage urban form and growth. The Strategic Development Plan must consider the relationship of the green belts with the green belt in the West of England. Local Development Plans and development management decisions should not permit major development in the areas shown for consideration for green belts, except in very exceptional circumstances, until the need for green belts and their boundaries has been established by an adopted Strategic Development Plan."

Wellbeing of Future Generations (Wales) Act 2015

The Wellbeing of Future Generations (Wales) Act 2015 aims to create:

- A globally responsible Wales;
- A prosperous Wales;
- A resilient Wales;
- A healthier Wales;
- A more equal Wales;
- A Wales of cohesive communities; and
- A Wales of vibrant culture and thriving Welsh language.

As part of the National Well-being Indicator Framework, 46 wellbeing indicators have been identified including Healthy Ecosystems (43) and Biological Diversity (44). These indicators have been identified as central to all seven of the goals that the Wellbeing of Future Generations (2015) Wales Act has set out to achieve.

The Future Generations Commissioner for Wales acts as a guardian for the interests of future generations in Wales, supporting 48 public bodies in assuring sustainable development (defined as acting "in a manner which seeks to ensure that the needs of the present are met without compromising the ability of future generations to meet their own needs") in line with each of the seven wellbeing goals. The public bodies listed within the act include Natural Resources Wales, Local Authorities and National Park Authorities. Therefore, planning proposals submitted to the aforementioned parties should be in aligned with the goals listed within the Wellbeing of Future Generations (Wales) Act 2015, and should aim to have a positive impact on the indicators identified with the National Well-being Indicators Framework.

Wildlife & Countryside Act 1981 (as amended)

The Wildlife & Countryside Act 1981 (as amended) [WCA] is the primary legislation for England and Wales for the protection of flora, fauna and the countryside. Part I within the Act deals with the protection of wildlife.

Most European Protected Species offences are now covered under the Conservation of Habitats and Species Regulations (see below), but some 'intentional' acts are still covered under the WCA, such as obstructing access to a bat roost.

The WCA prohibits the release to the wild of non-native animal species listed on Schedule 9 (e.g. signal crayfish and American mink). It also prohibits planting in the wild of plants listed in Schedule 9 (e.g. Japanese Knotweed and *Rhododendron ponticum*) or otherwise deliberately causing them to grow in the wild. This is to prevent the release of invasive non-native species that could threaten our native wildlife.

The provisions relating to animals in the Act only apply to 'wild animals'; these are defined as those that are living wild or were living wild before being captured or killed. It does not apply to captive bred animals being held in captivity.

There are 'defences' provided by the WCA. These are cases where acts that would otherwise be prohibited by the legislation are permitted, such as the incidental result of a lawful operation which could not be reasonable avoided, or actions within the living areas of a dwelling house.

Licensing: certain prohibited actions under the Wildlife and Countryside Act may be undertaken under licence by the proper authority. For example, scientific study that requires capturing or disturbing protected animals can be allowed by obtaining a licence – e.g. bat surveys.

Conservation of Habitats and Species Regulations 2017 (as amended)

These regulations provide for the:

- protection of European Protected Species (EPS) (animals and plants listed in Annex IV Habitats Directive which are resident in the wild in Great Britain) including bats, dormice, great crested newts, and otters;
- designation and protection of domestic and European Sites - e.g. Site of Special Scientific Interest (SSSI) and Special Area of Conservation (SAC); and
- adaptation of planning controls for the protection of such sites and species.

Public bodies (including the Local Planning Authority) have a duty to have regard to the requirements of the Habitats Directive in exercising their function – i.e. when determining a planning application.

There is no defence that an act was the incidental and unavoidable result of a lawful activity.

Licensing: it is possible for actions which would otherwise be an offence under the Regulations to be undertaken under licence issued by the proper authority. For example, where a European Protected Species has been identified and the development risks deliberately affecting an EPS, then a 'development licence' may be required.

<u>Species protection</u>

The following protected species information is relevant to this report. Legislation is only discussed in relation to planning and development; other offences may exist.

Bats

All British bats are classed as European Protected Species and therefore receive protection under the Conservation of Habitats and Species Regulations 2017 (as amended), making it an offence inter alia to:

- deliberately kill, injure or capture a bat;
- deliberately disturb bats; and
- damage or destroy a breeding site or resting place of a bat.

In addition, all British bats are also listed under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) which contains further provisions making it an offence to intentionally or recklessly:

- obstruct access to any structure or place which any bat uses for shelter or protection; or
- disturb any bat while occupying a structure or place which it uses for that purpose.

If proposed development work is likely to destroy or disturb bats or their roosts, then a licence will need to be obtained from Natural Resources Wales, which would be subject to appropriate measures to safeguard bats.

Birds

In the UK, the provisions of the Birds Directive are implemented through the Wildlife & Countryside Act 1981 (as amended), the Conservation of Habitats and Species Regulations 2017 (as amended). All wild birds, their nests and eggs are protected it an offence to:

- kill, injure, or take any wild bird;
- take, damage or destroy the nest of any such bird whilst it is in use or being built; or
- take or destroying an egg of any such wild bird.

The law covers all species of wild birds including common, pest or opportunistic species.

Special protection against disturbance during the breeding season is also afforded to those species listed on Schedule 1 of the Act.

