

Hub South East Scotland

**Herdmanflat Landscape
Masterplan
Ecological Appraisal
Report**

Final report

Prepared by LUC

March 2023



Hub South East Scotland

Herdmanflat Landscape Masterplan Ecological Appraisal Report

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Chapter 1

Executive Summary

1.1 LUC was commissioned by Hub South East Scotland on behalf of East Lothian Council (ELC) to prepare an Ecological Appraisal (EA) of the former Herdmanflat Hospital and its grounds (hereafter referred to as the 'Site') located in Haddington, East Lothian (centred at NGR NT 51076 74266).

1.2 The EA comprises a desk study, Extended Phase 1 Habitat Survey, and a suite of bat surveys including a Preliminary Roost Assessment (PRA) and nocturnal activity surveys. Surveys were conducted between 2020 and 2022.

Extended Phase 1 Survey

Habitats

1.3 An Extended Phase 1 Habitat Survey was initially undertaken in October 2020 and was updated in June 2022.

1.4 The northern section of the Site is occupied by former hospital buildings, hardstanding areas, amenity grassland and scattered trees. There is a strip of mixed woodland running along the northern Site boundary. The central and southern sections of the Site are dominated by semi-improved neutral grassland and mixed woodlands. Native species-rich hedges and tree lines run along with the south-western and north-eastern Site boundaries.

1.5 The majority of the ecological features within the Site are of limited ecological value and therefore much of the Site is considered suitable for redevelopment. The exceptions are areas of the mixed woodland plantation and mature trees (both scattered and forming tree lines). In addition, the mosaic of informal habitats (i.e. tall grassland, scrub and scattered trees) provides shelter and foraging opportunities for wildlife.

1.6 In the event that some woodland removal is necessary to facilitate development, appropriate mitigation measures outlined in **Table 5.1** will be required. In addition, the landscaping of the Site will aim to mitigate for any loss of the mosaic of informal habitats (see **Table 5.1**).

Invasive Non-Native Species

1.7 Non-native plant species were recorded throughout the Site, including west of building BS7, north-east of building BS4, forming a hedgerow along the access road to the south-west of the former hospital buildings, and scattered within the south of Site (see **Figure 5, Appendix A**).

1.8 These species are considered to be invasive non-native species (INNS) due to their potential to impact upon semi-natural habitats. Therefore, an invasive species management plan will be required to inform site construction methods.

Breeding birds

1.9 Bird nests were recorded within the Site, including associated with the former hospital buildings in the north of the Site, and associated with areas of woodland and tree lines in the south of Site (see **Figure 5, Appendix A**).

1.10 A range of bird species were recorded during the surveys between 2020 and 2022 including: blackbird *Turdus merula*, blue tit *Cyanistes caeruleus*, carrion crow *Corvus corone*, chiffchaff *Phylloscopus collybita*, house martin, jackdaw *Corvus monedula*, magpie *Pica pica*, robin *Erithacus rubecula*, starling *Sturnus vulgaris*, treecreeper *Certhia Familiaris*, wren *Troglodytes troglodytes* and woodpigeon *Columba palumbus*.

1.11 Pre-works surveys for nesting birds will be necessary if the development requires works to be undertaken during the breeding bird season (March-August, inclusive). Further information regarding mitigation is provided in **Table 5.1**.

Bat Survey

Buildings (BS)

1.12 A PRA was originally undertaken in October 2020, as part of the Extended Phase 1 Survey. The assessment of the buildings within the Site was refreshed in May 2021.

1.13 Results from the PRA were used to inform the appropriate number of bat nocturnal surveys required for Buildings BS 1-14 (see **Appendix A, Figure 2, and Figure 6**). Bat activity surveys were undertaken between the May and September 2021. Bat roosts, comprising non-breeding transient soprano and common pipistrelle roosts, were confirmed in Buildings BS 1, BS 7, BS 9 and BS 14.

1.14 Intrusive and destructive works, including demolition, were required to be undertaken to the buildings. Results from the nocturnal surveys were therefore used to inform applications to NatureScot for licences to cover works affecting bats, and as a result two licences were issued by NatureScot (numbers 197253 and 197546). Buildings BS 7 and BS 14 were removed in early 2022, and intrusive and destructive works were undertaken to BS 1 and BS 9 in 2022.

1.15 Applications for licence extensions were made to NatureScot to enable works to BS 1 and BS 9 to continue beyond the initial licence validity period, and update licences were issued (numbers 212338 and 212342). Update surveys were undertaken in June 2022 in support of these licences and to confirm the on-going status of the buildings with

regards to roosting bats. Works to the buildings were completed in accordance with the licence conditions.

Trees

1.16 Trees within the south of the Site were identified as being within or adjacent to the footprint of the proposed development; these trees were subject to a PRA in June 2022. Eight of these trees within the south of the Site were assessed to have moderate Bat Roost Potential (BRP) (see **Appendix A, Figure 6**). Therefore, if at any stage of the development these trees are required to be limbed or removed, a minimum of two nocturnal surveys or aerial inspection surveys will be required in the appropriate survey season.

1.17 A further two trees in the south of the Site were identified with moderate BRP and were scheduled for removal due to health and safety concerns as they had been identified to be dead by an arboriculturalist.

1.18 One nocturnal survey of these dead trees was undertaken on the 9th August 2022, which found no evidence of roosting bats.

1.19 A second nocturnal survey was scheduled for the 29th August 2022, but it was aborted as the two dead trees had been removed due to a communication error among onsite contractors. A report regarding these trees was submitted to NatureScot.

Mitigation

1.20 Further information regarding mitigation is provided in **Table 5.1**.

1.21 If works do not commence before 18 months from the last bat survey (9th June 2022), update surveys will be required on any buildings that may be impacted by works.

1.22 Further surveys will be required in due course to inform detailed proposals for redevelopment of the retained buildings, but this is outwith the scope of this report.

1.23 A total of 12 2F Schwegler bat boxes will be required to be erected on trees within the Site boundary. All bat boxes will be installed within 100m of affected roosts.

Chapter 2

Introduction

2.1 LUC was commissioned by Hub South East Scotland on behalf of East Lothian Council (ELC) to prepare an Ecological Appraisal (EA) of the Site, located in Haddington, East Lothian.

2.2 The EA comprises a desk study, Extended Phase 1 Habitat Survey and a suite of bat surveys including a Preliminary Roost Assessment (PRA) and nocturnal activity surveys. The EA will inform feasibility analyses for the future redevelopment of the site while highlighting any potential ecological constraints and opportunities associated with the redevelopment.

2.3 This report details the methods and results of the ecological surveys, and the potential ecological constraints identified as a result, and mitigation to ensure the protection and enhancement of site ecology, where necessary.

Background and Proposals

2.4 The Site is located within a residential area, close to the centre of Haddington. The Site comprises disused Herdmanflat hospital buildings, vacant houses at Hopetoun Mews and open ground that was originally designated as landscaped gardens for patients and visitors. Much of the open grounds of the Site is surrounded by lines of trees and woodlands. The Site is currently used as a recreational resource, supporting numerous formal and informal paths.

2.5 The proposed redevelopment of the Site is to renovate and repurpose the historic buildings, restore the landscape setting and deliver housing for older people on site that integrates with the adjoining communities.

2.6 Enabling works were undertaken in 2022, which included the demolition of some non-listed buildings under a separate consenting mechanism. Detailed ecological support was provided to these works as set out in this report.

Legislation and Policy

2.7 The scope of the PEA has been informed by relevant legislation and policy, including European and domestic nature conservation legislation, policy and local biodiversity guidance, as listed below:

Chapter 2
Introduction

Herdmanflat Landscape Masterplan
March 2023

- The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended in Scotland);
- The Wildlife and Countryside Act 1981 (as amended in Scotland);
- Scottish Government planning policy;
- The Scottish Biodiversity List; and
- East Lothian planning policy.

Chapter 3

Methods

Desk Study

3.1 A desk study of 2km radius from the Site was undertaken to provide a context for the potential ecological importance of the Site.

3.2 The desk study focuses on sites designated for their nature conservation value, and records of extant protected species populations. It takes records from publicly available sources, including NatureScot SiteLink¹ website for detail on designations, and the National Biodiversity Network (NBN) Atlas² for detail of species records.

3.3 Records older than the year 2000 were excluded from the results.

Extended Phase 1 Habitat Survey

3.4 An Extended Phase 1 Habitat Survey was initially undertaken by Michal Ostalowski, Consultant Ecologist and ACIEEM, in October 2020. An update survey was completed in June 2022 by Anna Dennis, Principal Ecologist and ACIEEM, and Blyth Walker, Seasonal Consultant Ecologist.

3.5 The surveys aimed to identify and record all natural and semi-natural habitats located within the Site boundary, as shown in **Figure 1, Appendix A**, with particular attention given to habitats of potential ecological sensitivity (such as Annex 1 habitats). The surveys followed recognised Joint Nature Conservation Committee (JNCC)³ survey methods to broadly identify and map habitats, and record associated floral species. Target Notes (TN) and photographs were recorded where features of potential ecological interest were identified.

3.6 The surveys were extended to include an assessment of the potential of the habitats within the Site to support notable and/or protected species such as bats and badgers. Where evidence of species was identified, this was recorded and photographed.

3.7 The surveys also included an assessment of the potential of the habitats within the Site to support breeding bird assemblages.

¹ NatureScot SiteLink. Available online at <https://sitelink.nature.scot/home>

² NBN Atlas. Available online at <https://nbnatlas.org>

³ Joint Nature Conservation Committee (2010). Handbook for Phase 1 habitat survey - a technique for environmental audit. JNCC, Peterborough.

Bat Roost Potential Survey

3.8 A Preliminary Roost Assessment (PRA) was undertaken, to assess the suitability of built structures and trees located within the Site to support roosting bats. The PRA was undertaken in accordance with Bat Conservation Trust (BCT) Guidelines⁴. The PRA also aimed to record any direct evidence of bats, such as bat droppings. Features were categorised into negligible, low, moderate and high BRP in accordance with BCT guidelines. These categories are summarised in **Table 3.1**.

3.9 The PRA of the buildings and trees was initially undertaken in October 2020. The assessment of the buildings was refreshed in May 2021.

3.10 The assessment of trees was updated in March 2022 upon receiving information regarding works to trees that were proposed due to health and safety concerns. The assessment was further updated in June 2022 once further information was available regarding the likely zone of impact of the proposed development.

Table 3.1: Structure Suitability to Support Roosting Bats

BRP Category	Roosting Habitat Features	Commuting and Foraging Habitat Features	Survey Requirement
Negligible	Negligible habitat features likely to support roosting, commuting or foraging bats		No surveys required
Low	<p>Structures in this category offer one or more potential roost sites for individual, opportunistically roosting bats. These sites do not offer the space, shelter or appropriate conditions to support large numbers of bats or maternity roosts.</p> <p>Tree in this category include those of sufficient size and age to support suitable roosting features, but none are visible from the ground</p>	Habitat on and around the site could be used by a small number of commuting bats. This category includes densely urbanised landscapes or linear vegetation features poorly connected to the wider landscape (e.g. gappy hedges in an agricultural context).	<p>1 dusk or dawn survey required for structures.</p> <p>No surveys required for trees.</p>
Moderate	Structures and trees in this category offer one or more roost site that, due to their space, shelter or conditions, offer roost potential for a range of species. Roosts may be more permanent, rather than opportunistic. Small maternity roosts of common species may form in one of these roost sites.	Habitat on and around the site is well-connected to wider continuous habitat and offers commuting and foraging habitat to a larger number of bats across a number of species. (e.g. tree lines or linked gardens in the urban context, or continuous hedge/ tree lines and watercourses in an agricultural setting)	<p>1 dusk and 1 dawn survey required for both structures and trees.</p> <p>Tree-climbing may be an appropriate alternative to dusk and dawn surveys.</p>
High	Structures and trees in this category have one or more potential roost sites that are suitable for large number of bats. Roosts are likely to be permanent and include maternity roosts. Potential roost sites exist for a wide range of species or species of particular conservation interest.	<p>Habitat on and around the site is diverse, continuous and linked to extensive suitable habitat. This category includes well-vegetated rivers, streams, hedgerows and woodland edge.</p> <p>Habitat is sufficiently diverse to offer opportunities to a wide range of species or those of particular conservation interest.</p>	<p>3 surveys, including both dusk and dawn elements.</p> <p>Tree-climbing may be an appropriate alternative to dusk and dawn surveys.</p>

⁴ Collins, J. (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn)*. The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

Bat Activity Surveys

Buildings

3.1 Following standard practice, nocturnal surveys were undertaken on buildings within the Site with bat roost potential in 2021. All buildings considered to have low BRP were subject to a single dusk emergence survey, and all buildings considered to have moderate BRP were subject to both a dusk emergence and dawn re-entry survey.

3.2 Where roosts were identified, a full suite of three dusk or dawn surveys were completed.

3.3 Surveys complied with current best practice⁴. During each survey, surveyors were positioned around each section of the building to ensure full visibility of all aspects and elevations. Surveyor positions are shown in **Figures 2 and 3, Appendix A**. Each surveyor was equipped with a heterodyne bat detector (Model: Bat Box Duet) and a zero-crossing bat detector with recording capabilities (Model: Anabat Express).

3.4 Surveyors watched the building, using standardised recording forms to record bat activity, with a focus on roost emergence or re-entry locations. Surveyors used their experience and professional judgement to characterise any roosts identified. Emergence and re-entry locations were photographed at the time of survey and assumptions about species assemblages subsequently verified from Anabat recordings.

3.5 Emergence surveys commenced approximately 15 minutes prior to sunset and continued until 90 minutes after sunset. Re-entry surveys commenced 90 minutes prior to sunrise and finished between 0 and 20 minutes following sunrise (dependent on light levels and ongoing bat activity).

Licences and Update Surveys

3.6 Intrusive and destructive site investigations were required. Results from the 2021 nocturnal surveys were used to inform applications to NatureScot for licences to cover works affecting bats, and as a result two licences were issued by NatureScot (numbers 197253 and 197546). Enabling works were therefore able to proceed in 2022 under a separate consenting mechanism, and included the demolition under licence of some non-listed buildings.

3.7 Update surveys were undertaken in 2022 to support extensions to the two licences (numbers 212338 and 212342).

Trees

3.8 The PRA identified trees with moderate bat roost potential that were scheduled for removal due to health and

safety concerns. As per best practice (see **Table 3.1**), trees with moderate bat roost potential that may be impacted by proposals require two surveys prior to works.

3.9 Two trees were identified with moderate BRP which were scheduled for removal due to health and safety concerns. One nocturnal survey of these trees was undertaken on 09.08.22 following the methods described above, with an infrared camera as an additional survey aide.

3.10 A second nocturnal survey was scheduled for 29.08.22, but it was aborted as the two dead trees with moderate BRP had been removed in error (see **Survey Limitations**). A report regarding these trees was submitted to NatureScot.

Summary of Nocturnal Surveys

3.11 All surveys were undertaken during the accepted bat maternity season (May – September) and in dry, calm weather with ambient air temperatures of at least 10°C.

3.12 **Table 3.2** below provides a summary of the nocturnal surveys undertaken on buildings within the Site and the weather conditions during each survey.

Table 3.2: Summary of Nocturnal Surveys of Buildings⁵

Date	Survey Type	Weather Conditions	Buildings Surveyed		
13.05.21	Dusk	Dry and calm. Conditions were clear, but with 70% cloud cover. Temperature fell from 12°C to 10°C.	13	14	
14.05.21	Dawn	Dry and calm. Conditions were clear, but with 80% cloud cover. Temperature was 7°C throughout.	5		
10.06.21	Dusk	Dry with light breeze. Conditions were clear, but cloud cover increased during survey. Temperature fell from 17°C to 16°C.	3	7	
11.06.21	Dawn	Dry with light breeze. Conditions were increasingly clear during survey. Temperature was 15°C throughout.	2	6	
15.07.21	Dusk	Dry and calm. Conditions were clear with 70% cloud cover. Temperature fell from 17°C to 16°C.	1		
16.07.21	Dawn	Dry and calm. Conditions were clear with little cloud cover. Temperature was 13°C throughout.	3	4	8
29.07.21	Dusk	Dry and calm. Conditions were clear but with increasing cloud cover. Temperature was 15°C throughout.	5		
30.07.21	Dawn	Dry and calm. Conditions were clear but completely overcast. Temperature was 13°C throughout.	13	14	
19.08.21	Dusk	Dry and calm. Conditions were clear, but with 100% cloud cover. Temperature fell from 14°C to 13°C.	9	10	11
20.08.21	Dawn	Dry and calm. Conditions were clear but fully overcast. Temperature was 11°C throughout.	7		
26.08.21	Dusk	Dry and calm. Conditions were clear but completely overcast. Temperature fell from 13°C to 11°C.	2	6	14
02.09.21	Dusk	Dry and calm. Conditions were clear, with limited cloud cover. Temperature fell from 11°C to 9°C.	4	8	
03.09.21	Dawn	Dry and calm. Conditions were clear, but with 100% cloud cover. Temperature was 12°C throughout.	1		
16.09.21	Dusk	Dry and calm. Conditions were clear with 80% cloud cover. Temperature fell from 18°C to 16°C.	1		
17.09.21	Dawn	Dry and calm. Conditions were clear with 60% cloud cover. Temperature was 14°C throughout.	7	9	
28.09.21	Dusk	Dry and calm. Conditions were clear with 90% cloud cover. Temperature fell from 11°C to 10°C.	9		
06.06.22	Dusk	Dry and calm. Conditions were clear throughout with 50% cloud cover. Temperature fell from 10°C to 9°C.	9		
09.06.22	Dusk	Dry with a light breeze. Conditions were clear, but with 60% cloud cover. Temperature was 14°C throughout.	1		

⁵ Green = first survey; Orange = second survey; Red = third survey; Blue = update survey

Survey Limitations

3.13 The timeframe in which each survey was undertaken provides a snapshot of activity within the Site and will not necessarily detect all evidence of use by a protected species. Ecological surveys are limited by a variety of factors which affect the presence of flora and fauna such as season, migration patterns and behaviour. Evidence of protected species is not always discovered during the survey. This does not mean that a species is absent and as such the survey will also assess and record the suitability of habitats to support protected species.

3.14 The built structures were assessed externally. Due to lack of access, only a few of them were assessed internally. Internal assessment was carried out to the best ability of the surveyor without increasing the risk of harm and injury.

3.15 The Site supports a large number of trees, and most of these will not be impacted by the proposals; as such, not every tree was subject to detailed survey. Trees likely to be affected were targeted for detailed ground-based survey.

3.16 Two trees with moderate bat roost potential were identified as requiring removal due to Health and Safety concerns, and were therefore scheduled for two nocturnal activity surveys in summer 2022. One nocturnal dusk watch was successfully undertaken in early August 2022. The second survey was scheduled for late August 2022; however, before the second survey was undertaken, the trees were felled due to a communication error among onsite contractors. No roosts were identified during the first nocturnal survey. Nevertheless, the survey and removal of these trees was regrettably not in accordance with best practice guidance⁴. A report regarding these trees was submitted to NatureScot.

Chapter 4

Results

Desk Study

Statutory and Non-statutory Designated Sites

4.1 The desk study identified that there are no statutory sites designated for ecological features within 2km of the Site. One type of non-statutory designated site was identified. Details of these sites are provided below.

Ancient Woodland Inventory

4.2 There are several blocks of woodland that are listed on the Ancient Woodland Inventory (AWI) within 2 km of the Site; the closest of these is located 1.2km to the south-west. These woodlands are shown in **Figure 4, Appendix A**.

Existing species data

4.3 The desk study identified records of the following protected species within a 2km buffer:

- Common pipistrelle.
- Soprano pipistrelle.
- Daubenton's bat.
- Noctule bat.
- Otter.
- Water vole.
- Great crested newt.
- Kingfisher.
- Crossbill.
- Barn owl.
- Wide range of other breeding birds.

Extended Phase 1 Habitat Survey

Habitats

4.4 The Site is located within the Haddington town boundaries, in a residential area, and is surrounded by streets of housing. The northern section of the Site is occupied by former hospital buildings, hardstanding areas, amenity grassland and scattered trees. There is a strip of mixed woodland running along the northern Site boundary, screening

the Site from the A199 road. The hospital buildings take up the higher ground in the north and are overlooking the lower central and southern portions of the Site

4.5 The central and southern sections of the Site are dominated by semi-improved neutral grassland and mixed woodlands. Native species-rich hedges and tree lines run along with the south-western Site boundary screening the Site from Aberlady Road. Similarly, an avenue of lime *Tilia* sp. runs along the north-eastern site boundary and screens the Site from residential areas to the east.

4.6 Detailed habitat descriptions are provided below. When considering the habitat descriptions, the reader should refer to **Figure 5** in **Appendix A**. Site photography is provided in **Appendix B**.

Mixed woodland (plantation) (A1.3.2)

4.7 Mixed woodland plantation was recorded running along the south-western, south-eastern and northern site boundaries (**Photograph 1, Appendix B**). Woodland running along the south-eastern site boundary extends in its northern section towards the centre of the Site. Species present included Scots pine *Pinus sylvestris*, beech *Fagus sylvatica*, larch *Larix* sp., lime, elder *Sambucus nigra*, wild cherry *Prunus avium*, downy birch *Betula pendula*, sycamore *Acre pseudoplatanoides* and yew *Taxus baccata*. The understorey was dominated by young trees, shrubs and tall grasses. The woodland provides screening from roads present around the Site and serves as a resource for local biodiversity.

Scrub (dense continuous) (A2.1)

4.8 Small stands of scrub were recorded within the northern section of the Site. Species present included yew, butterfly bush *Buddleja davidii* and willow *Salix* sp. The scrub stands form part of the Site landscaping.

Broadleaved scattered trees (A3.1)

4.9 Stands of self-seeded broadleaved trees were recorded scattered throughout the semi-improved grassland and scrub mosaic habitat with the southern section of the Site. Species recorded included downy birch, rowan *Sorbus aucuparia*, sycamore and willow.

Mixed scattered trees (A3.3)

4.10 Small stands of self-seeded trees, including rowan, sycamore, ash *Fraxinus excelsior*, willow and Scots pine, were recorded throughout the Site.

Neutral grassland (semi-improved) (B2.2)

4.11 Semi-improved neutral grassland constitutes one of the commonest habitats on Site. This grassland was recorded in

the central section of the Site, to the south of the hospital buildings (**Photograph 2, Appendix B**). The grassland was noted to be dominated by false oat-grass *Arrhenatherum elatius*, with species including cock's-foot *Dactylis glomerata*, rosebay willowherb *Chamaenerion angustifolium* and creeping thistle *Cirsium arvense*. Two extensive patches of tall ruderal vegetation dominated by rosebay willowherb were recorded in the centre and north-west corner of the grassland. The grassland provides an open space for people and foraging opportunities for insects and birds.

Neutral grassland (semi-improved) (B2.2)/ Scrub (scattered) (A2.2)

4.12 The southern section of the Site comprises a mosaic of coarse, unmanaged semi-improved neutral grassland and scattered scrub dominated by bramble *Rubus fruticosus* agg. and self-seeded young Scots pine (below 5 m in height). Grassland species recorded include Yorkshire fog *Holcus lanatus*, bent grass *Agrostis* sp., cock's-foot, white clover *Trifolium repens*, coltsfoot *Tussilago farfara*, tufted vetch *Vicia cracca* and oxeye daisy *Leucanthemum vulgare*. Small patches of tall ruderal vegetation dominated by rosebay willowherb, common nettle *Urtica dioica* and creeping thistle were also recorded scattered within this habitat. Several paths were noted within this habitat mosaic as this area is used as an informal amenity open space by local residents and dog walkers.

Hardstanding (HS)

4.13 Hardstanding in the form of tarmac access tracks, car parks and pavements were recorded, mainly within the northern section of the Site.

Amenity grassland (J1.2)

4.14 Amenity grassland was recorded around buildings and hardstanding within the Site. At the time of survey, the grassland was noted to have a very short sward and therefore difficult to fully appraise. Species recorded included perennial ryegrass *Lolium perenne*, ribwort plantain *Plantago lanceolata*, dandelion *Taraxacum officinale* agg. and white clover. The amenity grassland forms part of the formal landscaping around the former hospital buildings.

Amenity grassland (J1.2)/ Broadleaved scattered trees (A3.1)

4.15 A further area of amenity grassland (as described above) with scattered broadleaved trees was present to the east and west of built structure BS 9. Tree species recorded included lime and apple *Malus* sp. The amenity grassland and trees form part of the formal landscaping of the Site.

Introduced shrub (J1.4)

4.16 A small area of introduced shrub was noted to the north-east of building BS 4. Species recorded included cotoneaster *Cotoneaster* sp., cypress *Thuja* sp., and other ornamental species. The introduced shrub forms part of the ornamental planting within the Site.

Introduced shrub (J1.4)/ Mixed scattered trees (A3.3)

4.17 A small area of introduced shrub with mixed scattered trees was noted to the west of building BS 7. Species present included cotoneaster, dog rose *Rosa canina* agg., hazel *Corylus avellana*, apple and cypress trees. The introduced shrubs and trees form part of the ornamental planting within the Site.

Buildings (J3.6)

4.18 Fourteen built structures (BS 1 to BS 14) were recorded within the Site, all of which were unoccupied at the time of the survey. Detailed descriptions of these built structures are provided below in the **Bats** section of this report. Photographs of the buildings are provided in **Appendix B**.

Intact hedge (native species rich) (J2.1.1)

4.19 A species-rich hedgerow was recorded in the central section on the western boundary of the Site, providing a boundary feature and screening from Aberlady Road. The species composition included yew, privet *Ligustrum* sp., beech and hawthorn *Crataegus monogyna*.

Intact hedge (species-poor) (J2.1.2)

4.20 A cotoneaster hedgerow was noted along the access road to the south-west of the former hospital buildings. Another small section of species-poor intact hedge comprising yew and privet was recorded to the east of building BS8. These hedgerows form part of the formal landscaping of the Site.

Defunct hedge (species-poor) (J2.2.2)

4.21 Extents of species-poor defunct hedge was recorded in the north-eastern corner of the semi-improved neutral grassland, to the east of a group of mixed scattered trees. Species present included yew and dog rose. The hedgerow forms part of the formal landscaping of the Site.

Tree line (TL)

4.22 Lines of trees were noted at several locations along site boundaries and in the centre of the semi-improved grassland, providing a landscape feature and screening from surrounding areas. The majority of trees were mature, and species

recorded included sycamore, lime, yew, larch, sycamore, beech, downy birch and Scots pine.

Bats

4.23 The habitats within and adjacent to the Site offer suitable habitat for roosting, foraging and commuting bats. The woodlands, scrub, hedgerows, tree lines and scattered trees offer foraging habitat for a range of bat species. Woodland edges, tree lines and hedgerows act also as commuting corridors for bats.

Trees

4.24 The trees present on Site were assessed for their bat roost potential (BRP). Ten trees within the southern portion of the Site were assessed to have moderate BRP, exhibiting features such as loose bark, rot holes or dense ivy. Such features create sheltered areas suitable for roosting bats. A further nine trees were assessed to have low BRP. See **Figure 6, Appendix A**.

4.25 Two trees (tag numbers 575, 579; **Photographs 18 and 19 in Appendix B**) with moderate BRP were scheduled for removal in 2022 due to health and safety concerns, and so were subject to nocturnal activity survey⁴. No roosts were identified during the first dusk survey on 09.08.22.

4.26 A second scheduled survey could not proceed due to a communication error within the onsite contractors that meant the trees were felled before the survey was undertaken (see **Survey Limitations**). A report regarding these trees was submitted to NatureScot.

Buildings – Preliminary Roost Assessment

4.27 The Site comprises fourteen buildings that were subject to external and internal inspection, where possible. The description of each building is provided below. The arrangement and assessment of BRP of the built structures (BS 1-14) is shown in **Figure 6, Appendix A**. Several buildings have been retained, while others were demolished following the completion of ecology surveys in 2021. A summary of the buildings is provided in **Table 4.1**.

BS 1 – Main Building

4.28 The main building surveyed comprises a category C listed building dating back to circa 1860. The building has an irregular plan with a central main block flanked by two wing blocks on the south-west and north-east elevation (**Photograph 3, Appendix B**). The roof of the building is complex, predominantly pitched although flat-roofed porches and projections are also present, covered with grey slates and lead flashing fitted on the ridges, in valleys and around chimneys. Skylights and dormer windows were noted on the pitched roofs. The flat roofs were covered with bitumen felt/tar

paper with fascias fitted on the walls. The walls of the building are constructed of light brown sandstone construction with boarded up sash and case windows.

4.29 The roof was noted to be in a moderate condition with occasional missing or lifted slates and lifted lead flashing along the roof ridges. A small area of a damaged roof covered with bitumen felt, with pockets under the felt, was recorded on the northern aspect of the north-eastern wing of the building. A gap was also recorded behind fascias on the north-eastern elevation of the flat-roofed section of the central main block. The external walls of the building were generally in good condition; however, a narrow crevice was present at the apex of the north-eastern gable-ended wall of the central main block. All the above-identified features within the roof and the walls of the building could provide roosting sites for crevice dwelling bat species.

4.30 Internally, the building was unoccupied and due to the lack of access, the roof space was not inspected except for a small loft on the northern section of the north-eastern wing of the building. The roof was of timber construction with no insulation on the floor and had an exposed wooden sarking. No access points for bats could be seen (i.e. from light penetrating the loft space) and the loft was generally clean and free of clutter.

4.31 No bats or evidence of bats was found during the internal and external daytime survey of the building. The building was considered to have a moderate bat roost potential. This building remains present on Site.

BS 2 – Ancillary Building

4.32 The Ancillary Building is a category C listed building dating back to circa 1860. It is a single storey, rectangular plan building with a small extension adjacent to the north-eastern elevation, pitched roof and sandstone constructed walls (**Photograph 4, Appendix B**). The roof was noted to be covered with grey slates and lead flashing fitted on the ridges and around the chimney. The roof was in moderate condition with a few lifted slates near the roof ridge and around the chimney. There were also some crevices found under cracked and lifted mortar on the north-eastern roof edge. All the above-listed features were suitable for roosting bats; however, no bats or evidence of bats was found during the external building inspection.

4.33 The attic of the building was not inspected internally due to the lack of access.

4.34 The bat roost potential of the building was assessed as moderate. This building remains present on Site.

BS 3 – Generator Room

4.35 BS 3 comprises rendered walls and a flat roof covered with tar paper (**Photograph 5, Appendix B**). The building was

noted to have a single door, guttering present only at the eastern aspect, and no windows. Wide fascia board was noted to be attached at the top of the walls. There was a crevice between fascia and building walls creating a possible access point for bats.

4.36 No signs of bat presence were found within the building during the daytime survey, and the building was considered to have moderate bat roost potential. This building remains present on Site.

BS 4 – Pencraig

4.37 Pencraig was an H-plan building consisting of a two-storey southern wing connected via a single-storey passage to a newer single-storey northern wing (**Photograph 6, Appendix B**). The northern wing and the passage had mono-pitched and flat roofs and rendered brick walls with boarded-up windows and doors. The mono-pitched roofs were covered with slates, whereas the flat roofs with bitumen felt/tar paper. The southern wing (retained) has a complex pitched roof with slates and ridge tiles, lead flashing fitted around dormer windows and wooden soffit box under eaves. The walls of the building were of light brown sandstone construction with bay windows on the south-eastern elevation and sash and case windows on the remaining walls.

4.38 All windows and doors were boarded up with plywood and metal sheets. The roofs of the building were generally in good condition; however, occasional missing and lifted slates and ridge tiles were recorded on the south-eastern aspect of the roof on the southern building's wing. A large hole in the wooden soffit box and a gap in stonework were recorded on the north-western and north-eastern elevation of the building, respectively. All the above-identified features could provide roosting sites for crevice dwelling bat species.

4.39 Internally, the building was unoccupied and due to the lack of access only a loft on the north-western section of the southern wing was inspected. The roof was of timber construction with no insulation on the floor and had exposed wooden beams and sarking. No access points for bats could be seen (i.e. from light penetrating the loft space) and the loft was generally clean and free of clutter.

4.40 No bats or evidence of bats was found during the internal and external daytime survey of the building. The building was considered to have moderate bat roost potential. The northern portion of the building has since been removed, and the southern portion remains present on Site.

BS 5 – Lammerlaw

4.41 Lammerlaw was a two-storey building with a newer single-storey extension adjoined to the northern elevation (**Photograph 7, Appendix B**). The older part of the building (retained) was noted to be of similar construction as the

southern wing of Pencraig comprising of pitched roofs and light brown sandstone walls.

4.42 The newer extension comprised of two main blocks with a flat roof porch and a mono-pitched addition. The main blocks had pitched roofs covered with roof and ridge tiles. Wooden fascia boards were fitted around the flat-roof and soffit boxes under eaves on side elevations. The walls of the newer extension were of red brick built with all windows and doors boarded up with metal sheets. The external fabric of the building was in general good condition; however, occasional lifted slates and ridge tiles were recorded on the south-eastern aspect of the roof on the older building. Large ventilation panels were recorded on at the apex of the south-west facing wall of the older part of the building providing direct flight access into the loft void for bats including brown long-eared bats.

4.43 Internally, the building was unoccupied and due to the lack of access only a loft on the older section of the building was inspected. The roof was of timber construction with no insulation on the floor and had exposed wooden beams and sarking. Some damp staining was recorded on the sarking. No access points for bats could be seen (i.e. from light penetrating the loft space) and the loft was generally clean and free of clutter.

4.44 No bats or evidence of bats was found during the internal and external daytime survey of the building. The building was considered to have a moderate bat roost potential. The northern portion of the building has since been removed, and the southern portion remains present on Site.

BS 6

4.45 BS 6 was a single-storey mono-pitched building with a flat-roof addition adjoined on the south-western elevation (**Photograph 8, Appendix B**). The building had rendered brick walls with boarded-up windows and doors. The mono-pitched roof was covered with slates with lead flashing fitted on parapet walls and round flues. The roof was in a good condition, although gaps under slates around flues and behind lifted lead flashing in the northern corner of the parapet walls were recorded. Wooden fascia boards were fitted along the flat-roof edges. The fascia was in poor condition with missing, rotten and raised/loose timber panels. All the above-identified features could provide roosting sites for crevice dwelling bat species.

4.46 Due to the lack of access no internal inspection was undertaken.

4.47 The building was considered to have a moderate bat roost potential. The building has since been removed.

BS 7 – Maintenance Building

4.48 BS 7 was a single-storey cottage-style building with various additions to the rear and both side elevations (**Photograph 9, Appendix B**). The building had a pitched slate roof with lead flashing fitted on the ridges, edges and around skylights, whilst the extensions had flat roofs. Wooden fascia boards were fitted around the flat-roofs and on both side elevations of the cottage. The roofs of the building were generally in good condition (where visible), however, occasional lifted slates and a gap behind the wooden fascia on the south-eastern elevation of the cottage were recorded; these features provide potential roosting sites for crevice dwelling bat species.

4.49 The walls of the building composed exposed stone, whereas rear and sides additions had rendered brick walls. The south-western addition, a former boiler room, had timber cladding on the upper walls with large wooden ventilation panels and a missing panel on the south-west elevation. These features could provide access for bats into the interior of the building. Furthermore, a missing panel was recorded on a large door opening on the north-west elevation of the boiler room; this could provide direct flight access into the interior for void dwelling species, including brown long-eared bats.

4.50 Due to the lack of access no internal inspection was undertaken.

4.51 The building was considered to have a moderate bat roost potential. The building has since been removed.

BS 8 – Gate Lodge

4.52 The Gate Lodge is a category C listed building dating back to circa 1860. The lodge comprises a single storey, rectangular-plan building with a flat-roofed canted window adjacent to the south-eastern elevation and L-shaped extension adjacent to the north-western elevation (**Photograph 10, Appendix B**). The lodge is constructed of sandstone walls with a pitched roof. The roof was noted to be covered with grey slates and lead flashing fitted on the ridges and in valleys. The roof was in moderate condition with a few missing and lifted slates, lifted lead flashing at the ridgeline and missing mortar between sandstone blocks near the top of one of the chimneys. All of the above-listed features created suitability for roosting bats.

4.53 The attic of the building was not inspected internally due to the lack of access.

4.54 The building was considered to have a moderate bat roost potential. This building remains present on Site.

BS 9 – Garleton Unit

4.55 Garleton Unit is a category B listed building dating back to 1965. The building is rectangular plan and formed over 2 levels with a flat roof (**Photograph 11, Appendix B**). Walls

were noted to be constructed of concrete vertical and horizontal ribs/bands with rough pebbledash elements on the south-west and north-east elevations. Side elevations comprised a red brick build with horizontal concrete bands. A four-storey plain brick lift tower was adjoined to the north-east elevation of the building.

4.56 All windows and doors were boarded up with plywood boards. Overall, the condition of the building was good with shallow cracks in the brickwork on the lift tower and a small gap under roof flashing on the eastern corner of the building.

4.57 Due to the lack of access no internal inspection was undertaken.

4.58 The building was considered to have a low bat roost potential. This building remains present on Site.

BS 10 – Electrical substation

4.59 The electrical substation building was of breeze block construction with a mono-pitched roof (**Photograph 12, Appendix B**). The roof was noted to be covered with pan tiles and was in good condition. Wooden fascia and barge boards were recorded at the top of the walls and guttering was present only at the south-eastern aspect of the building. The door located on the north-eastern elevation had shutter effect panels. There were gaps noted between shutters, creating a suitable location for individual, opportunistically roosting bats.

4.60 The electrical substation was considered to offer low bat roost potential. This building remains present on Site.

BS 11 – Stores

4.61 The building was of breeze block construction with the flat roof (**Photograph 13, Appendix B**). The roof was covered with tar paper and metal sheets. Four doors were present at the southern elevation and the fascia board and the gutter were located at the northern elevation. There was a wide crevice present between the fascia board and the wall creating a suitable roosting opportunity for bats.

4.62 No bats or evidence of bats was found during the daytime survey, and the building was considered to have a low bat roost potential. This building has since been removed

BS 12 – Electrical substation

4.63 The second electrical substation was recorded on the edge of the woodland near the south-western site boundary (**Photograph 14, Appendix B**). It is also of breeze block construction with a mono-pitched roof, wooden fascia boards, barge boards and guttering. The door with shutter effect panels was noted on the south-western aspect of the building. A metal netted gate was placed directly on top of the door. The gaps between door shutters were inaccessible for bats at the time of survey due to metal netting.

4.64 The building was considered to have negligible bat roost potential. This building remains present on Site.

BS 13

4.65 This L-shaped building comprised of breeze block constructed walls and pitched roof (**Photograph 15, Appendix B**). The roof was covered with pan tiles and was in good condition. A wooden fascia and barge boards were fitted around the building. A gap suitable for roosting bats was discovered between fascia and barge boards and the building walls. A hole that could support roosting bats was also found in the soffit at the inward-facing corner of the building.

4.66 The building was not inspected internally due to the lack of access.

4.67 The building was considered to have a moderate bat roost potential. This building has since been removed.

BS 14 – Mews Building

4.68 This building was a rectangular-shaped building of the same construction as BS 13 (**Photograph 16, Appendix B**). A gap between fascia and barge boards and the building walls was also recorded here. Potential bat roost was found in the gap behind the barge board near the gable end of the south-eastern elevation of the building.

4.69 An internal inspection of this house was also not carried out due to lack of access.

4.70 Bat roost potential of the building was assessed as moderate. This building has since been removed.

Buildings – Nocturnal Results

4.71 The results of nocturnal surveys are shown in **Appendix C**.

BS 1 – Main building

4.72 This building was subject to three nocturnal bat surveys in summer 2021. Three non-breeding soprano pipistrelle roosts were identified (**Appendix C**).

4.73 The West Wing of the main building was subject to an update nocturnal survey in June 2022. A single soprano pipistrelle bat was observed emerging from the northern aspect of the West Wing from a similar area as Roost 3 (**Appendix C**).

BS 7 – Maintenance Building

4.74 This building was subject to three nocturnal bat surveys in summer 2021. Two non-breeding soprano and common pipistrelle roosts were identified (**Appendix C**).

BS 9 – Garleton Unit

4.75 The building was subject to three nocturnal surveys in summer 2021. The Garleton Unit was initially considered to have low bat roost potential. However, three non-breeding common pipistrelle bat roosts were subsequently identified during nocturnal surveys, with each roost observed on shallow external features (**Appendix C**).

4.76 The building was subject to an update nocturnal survey in June 2022. Up to three pipistrelle bats were observed emerging from behind the plywood window boarding on the eastern aspect, corresponding to the same area as Roosts 1

to 3 identified in 2021. In addition, a single common pipistrelle bat was observed emerging from behind the plywood window boarding on the western aspect (**Appendix C**).

4.77 Although roosts have been confirmed in this building, it does not appear to have features with suitability to support large numbers of bats (e.g., breeding roosts).

BS 14 – Mews Building

4.78 This building was subject to three nocturnal bat surveys in summer 2021. Two non-breeding soprano pipistrelle roosts were identified (**Appendix C**).

Table 4.1: Summary of Bat Survey Results of Buildings

Building Number	Bat Roost Potential	Nocturnal Results	Current Status
1	Moderate	Confirmed; four non-breeding soprano pipistrelle roosts.	Retained
2	Moderate	No roosts recorded.	Retained
3	Moderate	No roosts recorded.	Retained
4	Moderate	No roosts recorded.	Southern portion retained; northern portion removed early 2022.
5	Moderate	No roosts recorded.	Southern portion retained; northern portion removed early 2022.
6	Moderate	No roosts recorded.	Removed early 2022
7	Moderate	Confirmed; two non-breeding soprano and common pipistrelle roosts.	Removed early 2022
8	Moderate	No roosts recorded.	Retained
9	Moderate	Confirmed; four non-breeding common pipistrelle roosts .	Retained
10	Low	No roosts recorded.	Retained
11	Low	No roosts recorded.	Removed early 2022
12	Negligible	No roosts recorded.	Retained
13	Moderate	No roosts recorded.	Removed early 2022
14	Moderate	Confirmed; two non-breeding soprano pipistrelle roosts .	Removed early 2022

Breeding birds

4.79 Habitats present within the Site were suitable for breeding birds. Mixed woodland, scrub, introduced shrub, scattered trees, hedgerows and semi-improved neutral grassland offer suitable foraging and nesting habitat for tree and shrub nesting birds. The neutral grassland may also provide habitat for ground-nesting birds. However, the ground bird nesting potential is reduced due to the likely high levels of disturbance from dog walkers.

4.80 Eight bird nests in total were recorded within the Site. Two house martin nests were observed under the eaves of Pencraig building (BS 4) (see **Photograph 17** in **Appendix B**). The remaining nests were recorded within the southern section of the Site (see **Figure 5, Appendix A**); three within mixed woodland, two within tree lines and one on the Scots pine tree, within the group of mixed scattered trees.

4.81 Species recorded during the surveys between 2020 and 2022 include: blackbird, blue tit, carrion crow, chiffchaff, house martin, jackdaw, magpie, robin, starling, treecreeper, wren and woodpigeon. This provides a snapshot of the species using the Site, and it is likely that a range of birds nest across the Site between April and August each year.

Invasive Non-Native Species (INNS)

4.82 Non-native cotoneaster species *Cotoneaster* spp. were recorded throughout the Site, in particular west of building BS7, north-east of building BS4 and forming a hedgerow along the access road to the south-west of the former hospital buildings (see **Figure 5** in **Appendix A**).

4.83 Steeple bush *Spiraea douglasii* and montbretia *Crocsmia x crocosmiiflora* were also noted on Site (see **Figure 5** in **Appendix A**).

Chapter 5

Discussion

Designated Sites

5.1 There are no statutory designated sites within 2km of the Site.

5.2 Woodlands listed on the AWI are present within 2km of the Site. However, these are not expected to be affected by the proposed development given the distance from the Site (at least 1.2km) and the lack of structural connectivity between these woodlands and the Site.

Habitats

5.3 The ecological features within the Site are generally limited in value and therefore much of the Site is considered suitable for redevelopment. The exceptions are areas of the mixed woodland plantation and mature trees (both scattered and forming tree lines). These habitats provide variety and structural diversity in the local landscape, and habitat for protected species (further described below). Furthermore, woodlands are listed as a priority habitat on the Scottish Biodiversity List (SBL), therefore, the proposals should seek the retention and, where possible, enhancement of woodland features within the Site.

5.4 In addition, the mosaic of informal habitats (i.e. extents of tall neutral grassland, scattered scrub and scattered trees) provides shelter and foraging opportunities for wildlife.

5.5 In the event that some woodland removal is necessary to facilitate development, it may be possible to mitigate the ecological effect through careful enhancement and diversification of retained woodland features. Mitigation in this regard is provided in **Table 5.1**.

5.6 The proposed redevelopment of the Site is expected to result in the loss of some informal habitats (for example, the mosaic of tall neutral grassland, with scattered scrub and scattered trees in the south of the Site). Measures to mitigate for any such loss are provided in **Table 5.1**.

Invasive Non-Native Species (INNS)

5.7 Cotoneaster, stepple bush and montbretia were recorded within the Site.

5.8 These species are considered to be INNS due to their potential to impact upon semi-natural habitats. These species can be difficult to eradicate and if introduced into the wild

might damage native vegetation. Care should be taken when vegetation is being removed to avoid the spread of these species. Mitigation in this regard is provided in **Table 5.1**.

Bats

Buildings

5.9 The buildings BS 1, BS 2, BS 3, BS 4, BS 5, BS 6, BS 7, BS 8, BS 13 and BS 14 have been assessed as having moderate potential to support roosting bats. The features identified on the exterior and/or interior of the buildings provide the suitable roost potential for an individual or a small number of bats and/or small maternity roost of crevice dwelling bat species, such as pipistrelle bats.

5.10 The buildings BS 9, BS 10 and BS 11 have been categorised as having a low potential for roosting bats. The features identified during the buildings' inspection, such as gaps under roof flashing and behind fascia boards; provide potential roosting locations suitable for an individual or a small number of crevice dwelling bat species. However, considering the construction materials and condition of these buildings, it is considered unlikely that the buildings BS 9, BS 10 and BS 11 could be used on a regular basis.

5.11 The electrical substation (BS 12) is considered to have negligible roost potential due to lack of suitable roosting features.

5.12 Roosts were identified in four of the buildings: BS 1, BS 7, BS 9 and BS 14. All roosts comprised of soprano and common pipistrelle bats. All of the roosts were assessed to be transient with limited potential for breeding sites.

5.13 As non-breeding pipistrelle roosts had been confirmed, licences were issued by NatureScot to allow works to proceed. Buildings BS 7 and BS 14 were removed in early 2022, and intrusive and destructive works were undertaken to BS 1 and BS 9 in 2022. These works were completed in accordance with the licence conditions.

5.14 It should be noted that further surveys will be required in due course to inform detailed proposals for redevelopment of the retained buildings, but this is outwith the scope of this report.

Trees

5.15 Mature trees within the woodlands were noted to have bat roost potential. Suitable foraging habitat was present within and adjacent to the Site. The woodland edges, and tree lines and hedgerows act as a wildlife corridor that could be used by any bats present to navigate around different areas.

5.16 Two trees were subject to one nocturnal watch in August 2022. Unfortunately, these were mistakenly felled before a

second survey could be undertaken. No roosts were identified during the successful dusk survey. However, it is not possible to confirm full legislative compliance with regards these trees as they were removed contrary to survey guidance. A report regarding these trees was submitted to NatureScot.

5.17 At this stage (Planning Permission in Principle (PPiP)), detailed plans for works to tree are not available. However, the proposed development zones have been designed to retain areas of woodland and avoid impacting mature trees wherever possible. Further surveys of trees proposed for removal or limbing will likely be required to inform detailed proposals in due course.

Breeding birds

5.18 Many of the habitats within the Site offer optimal foraging habitat for a range of bird species, as well as providing suitable nesting and roosting opportunities. In addition, given the location of the Site on the northern edge of the town close to open countryside, the rough neutral grassland potentially provides foraging habitat for raptors and owls, of which barn owl could use it as a potential foraging ground as this species was identified within the desk study.

5.19 A number of common bird species were recorded on Site, and it is likely that a range of birds nest across the Site between April and August each year, as confirmed by the number of recorded nests.

5.20 All wild birds are vulnerable when they are on nests with eggs, or have dependent young, therefore, all wild birds in Scotland are protected under the Wildlife and Countryside Act 1981 (as amended) against killing, injuring and destruction of eggs and nests while breeding. In addition, it is an offence to obstruct or prevent a nest from being accessed or used during the breeding season. As such, impacts to nesting birds, in the form of disturbance or killing/injuring, may occur if removal of aforementioned habitats is carried out during the nesting bird season.

5.21 Pre-works surveys will be necessary if the development requires works to be undertaken during the breeding bird season. Further mitigation measures are provided in **Table 5.1**.

Mitigation

5.22 Ecological features are potential constraints to the project and will require careful consideration during construction activity at the Site. Ecological constraints and associated mitigation are detailed in **Table 5.1** below. On the basis that mitigation is applied successfully, development of the Site is unlikely to result in a breach of nature conservation legislation or policy. It should also be noted that the proposed development of the Site creates opportunities to enhance

biodiversity and contribute significantly to nature conservation efforts at the local level.

Table 5.1: Ecological Constraints, Opportunities and Mitigation

Ecological Constraints	Features	Mitigation
Habitats	Mature trees and woodlands Mosaic of informal habitats	<ul style="list-style-type: none"> • Appropriate tree protection measures will be implemented around retained mature trees and along retained woodland edge. • Any future detailed planning application will require a detailed BS5837 tree survey and associated Tree Protection Plans. • An opportunity exists to enhance retained woodland features, bringing them into positive management for biodiversity and subsequently increasing their value to the wider nature conservation effort in East Lothian. This will be achieved through development of a Habitat Management Plan for the Site, which establishes prescriptions for habitat diversification, creation and management. • Related to the above, an opportunity exists to partner the emerging community with established local nature conservation organisations, such as RSPB Scotland, Scottish Wildlife Trust and the local Ranger Service. Each of these organisations have specific programmes and projects related to community engagement. • The landscaping of the Site will ensure the continued provision of a range of shelter and foraging opportunities for wildlife including birds and bats. This will be achieved through the inclusion, wherever possible, of informal habitats that are designed to be species-rich, with varied structure, and requiring low-intensity management. In addition, areas of formal landscaping will consider opportunities to contribute to the ecological resource of the Site and promote biodiversity.
Bats	Buildings and trees with bat roost potential were recorded within the Site	<ul style="list-style-type: none"> • A total of 12 2F Schwegler bat boxes will be erected on trees within the Site boundary. All bat boxes will be installed within 100m of affected roosts. Best practice⁶ will be observed during the siting and installation of bat boxes. • Update watches will be required in line with guidance if works do not start after 18 months from the last bat survey. • Further surveys will be required when detailed proposals for redevelopment of the retained buildings are brought forward for a detailed planning application (outwith the scope of this report).
Breeding birds	Habitats suitable of supporting breeding birds were recorded within the Site	<ul style="list-style-type: none"> • Vegetation removal works will be undertaken outwith the breeding bird season (March – August, inclusive) wherever possible. • If this is not possible, all works will be preceded by a breeding bird check, undertaken by a suitably experienced ecologist. If an active nest is identified a suitable buffer around the nest will be enforced and the nest left until the young has fledged and no longer returning to the nest site.
Invasive Species	Various plant species	<ul style="list-style-type: none"> • An invasive species management plan will be prepared to inform site construction methods and will be incorporated into the Habitat Management Plan for the Site.

⁶ <https://www.bats.org.uk/our-work/buildings-planning-anddevelopment/bat-boxes/putting-up-your-box>

Appendix A

Figures

Figure 1: Proposed Development Area

Figure 2: Surveyor positions 2021

Figure 3: Surveyor positions 2022

Figure 4: Designated Sites Search Results

Figure 5: Phase 1 Habitat Survey Results

Figure 6: Bat roost potential

Figure 1: Site location

 Site boundary



Figure 2: Surveyor positions for nocturnal surveys in 2021



- Site boundary
- Building from 2021 survey*
- Surveyor position**
- Building 1
- Building 2
- Building 3
- Building 4
- Building 5
- Building 6
- Building 7
- Building 8
- Building 9
- Building 10
- Building 11
- Building 13
- Building 14

*Some buildings present have since been demolished/partly demolished and are not present in more recent surveys.

Figure 3: Surveyor positions for nocturnal surveys in 2022



- Site boundary
- Building*
- Surveyed tree
- Surveyor position**
 - Building 1
 - Building 9
 - Tree

*Only buildings labelled as per the legend are currently present at the site. The aerial imagery does not reflect that several buildings have been demolished/partly demolished since the aerial imagery was captured.

Figure 4: Designated sites within 2km of the study area



- Site_boundary
- 2km buffer around site boundary
- Ancient Woodland Inventory (AWI)

Figure 5: Extended phase 1 habitat survey results



- Site boundary
- Building
- Target note**
- 1 Bat box
- 2 Bird's nest
- 3 Invasive non-native species (INNS)
- Linear features**
- J2.1.1 Intact hedge (native species-rich)
- J2.1.2 Intact hedge (species-poor)
- J2.2.2 Defunct hedge (species-poor)
- TL Tree line
- Phase 1 habitat**
- A1.3.2 Mixed woodland (plantation)
- A2.1 Scrub (dense/continuous)
- A3.1 Broadleaved scattered trees
- A3.3 Mixed scattered trees
- B2.2 Neutral grassland (semi-improved)
- B2.2 Neutral grassland (semi-improved) / A2.2 Scrub (scattered)
- HS Hard standing
- J1.2 Amenity grassland
- J1.2 Amenity grassland / A3.1 Broadleaved scattered trees
- J1.4 Introduced shrub
- J1.4 Introduced shrub / A3.3 Mixed scattered trees

Figure 6: Bat roost potential



- Site boundary
- Building***
- Confirmed
- Moderate
- Low
- Negligible
- Demolished building**
- Confirmed
- Low
- Moderate
- Bat roost potential tree area**
- Moderate
- Bat roost potential tree**
- M Moderate
- L Low

*Only buildings labelled as per the legend are currently present at the site. The aerial imagery does not reflect that several buildings have been demolished/partly demolished since the aerial imagery was captured.

Appendix B

Photographs

Appendix B
Photographs

Herdmanflat Landscape Masterplan
March 2023



Photograph 1: Mixed woodland plantation



Photograph 2: Semi-improved neutral grassland



Photograph 3: Northern elevation of main building (BS 1)



Photograph 4: Ancillary Building (BS 2)

Appendix B
Photographs

Herdmanflat Landscape Masterplan
March 2023



Photograph 5: Building BS 3



Photograph 6: Penraig building (BS 4)



Photograph 7: Lammerlaw building (BS 5)



Photograph 8: Building BS 6



Photograph 9: Building BS 7



Photograph 10: Gate Lodge (BS 8)

Appendix B
Photographs

Herdmanflat Landscape Masterplan
March 2023



Photograph 11: Garleton Unit (BS 9)



Photograph 12: Electrical substation (BS 10)



Photograph 13: Stores (BS 11)



Photograph 14: Second electrical substation (BS 12)



Photograph 15: Building BS 13



Photograph 16: Building BS 14



Photograph 17: House martin nests observed under the eaves of Pencraig building (BS 4)



Photograph 18: Tree 575



Photograph 19: Tree 579

Appendix C

Bat Roosts

Building 1: Roost 3 recorded 2021



Building 1: Roost 4 recorded 2022



Building 7: Roosts 1 and 2 recorded 2021



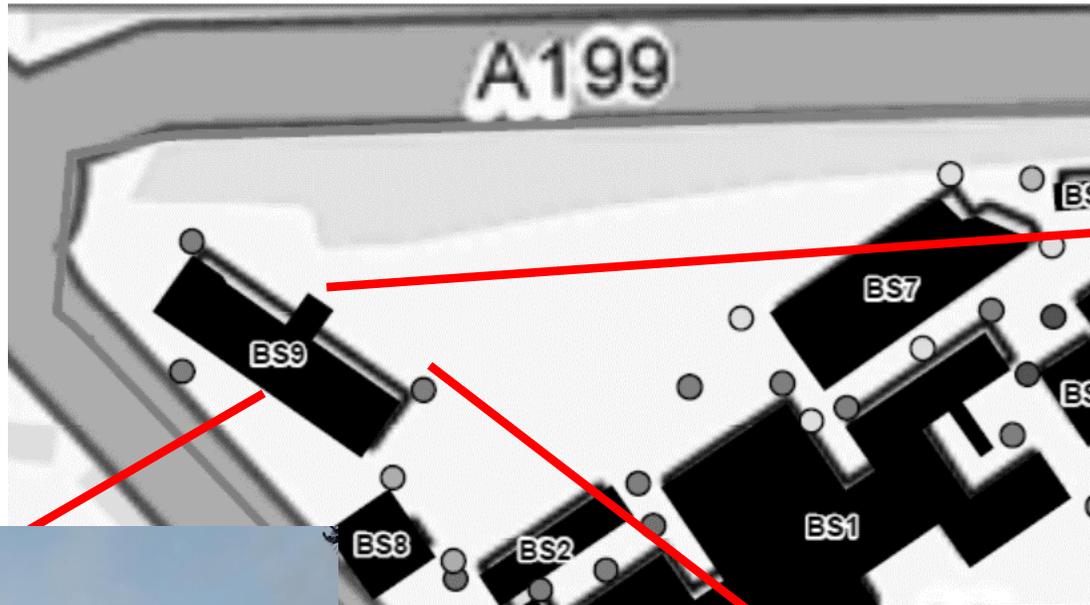
Building 1: Roost 2 recorded in 2021



Building 1: Roost 1 recorded in 2021



Building 9: Roosts 1-3 recorded in 2021 and 2022



Building 9: Roost 4 recorded in 2022



Building 9: Wider view of eastern elevation for context

Building 14: Roost 1 recorded 2021



Building 14: Roost 2 recorded 2021

