Biodiversity Enhancement Strategy

Fairways, The Green, Newton

for

Dr. Yanli Wang

10 October 2022

greenlight
environmental consultancy

Client
Dr. Yanli Wang

Planning authority
Babergh Mid Suffolk

Time limit of reliance

Please note that the reported surveys were conducted on the date(s) stated in the report and that it represents site conditions at the time of the visit. The findings and recommended mitigation are based on these conditions. If site conditions change materially after the site survey, the original report cannot be relied upon and will need to be updated. Ecological reports and surveys can typically be relied on for 18 to 24 months from the date of survey.

Surveys supporting European Protected Species Mitigation Licence applications must be within the current or most recent survey season for bats (May to September), or within two survey seasons for great crested newts (March to June).

Document	Biodiversity Enhancement Strategy
Version	1.0
Date	10 October 2022
Reference number	2876
Authors	Matthew Ashley M.Sc, B.Sc (Hons) Ebonie Lambo-Hills M.Sc, B.Sc (Hons), Natural England licences (Bat survey level 1, Great crested newt level 1)
Reviewer	Nathan Duszynski M.Sc, B.Sc (Hons), ACIEEM, Natural England licences (Bat survey level 2, Great crested newt level 1)

Signed disclosure

The information, data, advice and opinions provided in this report which I have provided is true and has been prepared in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. I confirm that the opinions expressed are my true and professional bona fide opinions.

Etienne Swarts, ACIEEM

Greenlight Environmental Consultancy Limited
Diss Business Hub
Hopper Way
Diss
Norfolk
IP22 4GT
www.greenlightco.co.uk

Table of Contents

1. INTRODUCTION

1.1. Greenlight Environmental Consultancy Ltd. has been commissioned to produce a Biodiversity Enhancement Strategy for a proposed development located at Fairways, The Green, Newton, Suffolk, CO10 0QN (grid reference: TL 91410 40664).

2. BIODIVERSITY ENHANCEMENT STRATEGY

Purpose and conservation objectives

2.1. The purpose of this report is to provide detailed information on the construction, design and location of mitigation and enhancements identified within the Preliminary Bat Roost and Barn Owl Assessment report (Greenlight Environmental Consultancy Ltd., August 2021).

2.2. The conservation objectives include:

i. Mitigation and compensation for potential impacts on protected and priority species/habitats.
ii. Maintaining the favourable conservation status of protected species.
iii. Providing a net gain in biodiversity, as is encouraged by the National Planning Policy Framework (NPPF, 2021).

Mitigation and enhancement measures

Habitat

2.3. A soft landscaping scheme to be implemented including the planting of new trees and hedgerows around the site, using native species to create a 'green buffer' zone (Appendix F). New hedgerows will be planted with shrub species 40% blackthorn Prunus spinosa, 25% hawthorn Crataegus monogyna, 10% crab apple Malus sylvestris, 10% hazel Corylus avellana and 10% wild privet Ligustrum vulgare, and tree species 5% field maple Acer campestre.

2.4. All bare root stock shall be planted between late October and March inclusive. Plants shall be delivered to site in quantities which can be planted the same day. No plant roots shall be allowed to dry out.

2.5. Dig L or T shaped notches and insert eight plants at 25cm intervals in two staggered rows, remove weeds, large stones to 50cm x 50cm and insert whip and cane support and photo-degradable guards.

2.6. Construction work carried out in accordance with British Standards Institution (2012), BS 5837:2012, Trees in relation to design, demolition and construction – recommendations, to protect trees which are to be retained and their root protection areas.

Bats

2.7. A European Protected Species mitigation licence from Natural England will be obtained prior to works commencing on site and comprise of the following mitigation measures:

i. The annex loft space, which is occasionally used by a brown long-eared maternity colony, must not be destroyed until a replacement roost has been created. The replacement roost will be constructed within void two of the existing bungalow, which measures approximately 6m x 6m x 2.5m (width, length, height) (Appendix D, Appendix H for location). The void/roof will retain the existing timber trusses, ridge beam, bitumen felt lining and interlocking clay roof tiles. The loft space will feature four crevice roosts (Appendix B). Two baffled access points will be created in the hip tiles and the lining will be opened up internally to provide access into the loft space (Appendix C).
ii. A sign will be positioned on the inspection hatch denoting the loft space is a bat roost and must only be entered by licenced bat workers.
iii. Two integrated bat boxes will be installed on the south and east aspects of the new dwelling (Bat Block – Appendix A, Appendix H for location).
iv. One standalone bat box will be installed on mature tree or building nearby (Schwegler 1FF Bat Box with built-in wooden rear panel – Appendix A, Appendix H for location).
v. Lighting schemes will follow guidance from the Bat Conservation Trust and CIE 150:2003. Warm-white (long wavelength) lights with UV filters will be fitted as close to the ground as possible. Lighting units will be angled below 70° and equipped with movement sensors, baffles, hoods, louvres and horizontal cut off units at 90°.
vi. Monitoring will be conducted over a three-year period and consist of a visual inspection and an emergence survey of the proposed mitigation in the second and fourth year following the completion of works.

2.8. After the effects of the above mitigation, we consider that the favourable conservation status of the local bat population will be maintained and that an EPS mitigation licence should be granted by Natural England.

Birds

2.9. Any works affecting bird nesting habitat such as clearance of vegetation or buildings needs to be conducted outside of the main nesting season, which lasts from March to August. If work is planned during the bird nesting season, a precautionary check of all habitats will be conducted by a qualified ecologist immediately prior to starting any work. If any nesting birds are found,

an appropriate protection zone from the nest will be required and should be maintained until the young have fledged.

2.10. As enhancements the following will be implemented:

i. One integrated swift box installed on the new dwelling (Swift Block (large) – Appendix E, Appendix H for location).
ii. One house sparrow terrace installed on the new dwelling (Schwegler 1SP Sparrow Terrace – Appendix E, Appendix H for location).

Other animals

2.11. The surrounding habitat of the site is considered suitable for hedgehogs. To maintain potential hedgehog routes within the site and between the site and further habitats, any fencing installed will be porous and provide access openings for hedgehogs (see Appendix G for examples).

2.12. General mitigation to protect wildlife during the construction period are as follows:

i. Any excavations will have a rough sawn plank placed inside to act as a ramp to allow any animals that have fallen in to escape. The excavations will be checked each morning works are scheduled for, to remove any animals trapped.
ii. Lighting of the construction site at night will be minimised as far as practicable, to reduce the risk of possible disruption to nocturnal animals[redacted]
iii. Construction materials will be stored off the ground on pallets and waste materials in skips, to prevent providing shelter for animals and subsequent harm when materials are moved.

Responsible persons

2.13. The client is the developer and landowner of the site, and it will be their responsibility to ensure the safeguarding of the mitigation, enhancements and any post-development management, maintenance and monitoring.

Aftercare and long-term maintenance

2.14. The model of bat and bird boxes have been selected for their design and material, which will ensure the boxes will be protected from weather and attacks from other animals.

2.15. If the bat or bird boxes experience any damage, they may need to be repaired or replaced.

2.16. Bird boxes will need to be cleaned at the end of each bird nesting season; the main nesting seasons lasts from March to August, so it is recommended boxes are cleaned in October to ensure all nests are unoccupied.

2.17. Hedgerows and tree may need to be maintained. Management would ideally be undertaken outside the main nesting season, which lasts from March to August, and if work is planned during the bird nesting season, a precautionary check of all habitats will be conducted by a qualified ecologist immediately prior to starting any work. If any nesting birds are found, an appropriate protection zone from the nest will be required and should be maintained until the young have fledged.

3. BIBLIOGRAPHY

Baker, J., Beebee, T., Buckley, J. Gent, T., Orchard, D. (2011). Amphibian Habitat Management Handbook. Amphibian and Reptile Conservation: Bournemouth

Barn Owl Trust (2012). Barn Owl Conservation Handbook. Pelagic Publishing: Exeter.

Bright, P., Morris, P., Mitchell-Jones, T. (2006). The dormouse conservation handbook. English Nature

British Standard BS 42020:2013 Biodiversity - Code of Practice for planning and development.

British Standards Institution (2012). BS 5837:2012, Trees in relation to design, demolition and construction – Recommendations.

CIEEM (2017). Guidelines for Preliminary Ecological Appraisal.

Collins, J. (Ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.). The Bat Conservation Trust, London.

Eaton, M.A., Aebischer, N.J., Brown, A.F., Hearn, R., Lock, L. Musgrove, A., Noble, D., Stroud, D., Richard, G. (2015). Birds of conservation concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 108, 708-746.

Edgar, P., Foster, J., Baker, J. (2010). Reptile Habitat Management Handbook. Amphibian and Reptile Conservation: Bournemouth

English Nature (2001). Great Crested Newt Mitigation Guidelines. Peterborough.

Gent, A.H. and Gibson, S.D. eds. (1998). Herpetofauna Workers' Manual. Peterborough, Joint Nature Conservation Committee.

Griffiths, R.A., Raper, S.J., Brady, L.D. (1996). Evaluation of a standard method for surveying common frogs (Rana temporaria) and newts (Triturus cristatus, T. helveticus, and T. vulgaris). Joint Nature Conservation Committee Report No. 259.

International Commission on Illumination (2003). CIE 150:2003, Guide on the Limitation of the Effects of Obtrusive Light from Outdoor Lighting Installations.

JNCC (2010). Handbook for Phase 1 Habitat Survey - a Technique for Environmental Audit. England Field Unit, Nature Conservancy Council, reprinted JNCC, Peterborough.

Langton, T., Beckett, C., Foster, J. (2001). GCN Conservation handbook. Froglife.

McLean, I.F.G., JNCC (Drafted by) on behalf of the Inter-agency Translocations Working Group (2003). A Habitats Translocation Policy for Britain.

Mitchell-Jones (2004). Bat mitigation guidelines. English Nature: Peterborough

Oldham, R.S., Keeble, J., Swan, M.J.S., Jeffcote, M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (Triturus cristatus). Herpetological Journal 10 (4), 143-155.

Pearce, G.E. (2011). Badger behaviour, conservation and rehabilitation. Pelagic Publishing: Exeter.

Sewell, D., Griffiths, R.A., Beebee, T.J.C., Foster, J., Wilkinson, J.W. (2013). Survey protocols for the British herpetofauna. ARC, DICE University of Kent and University of Sussex.

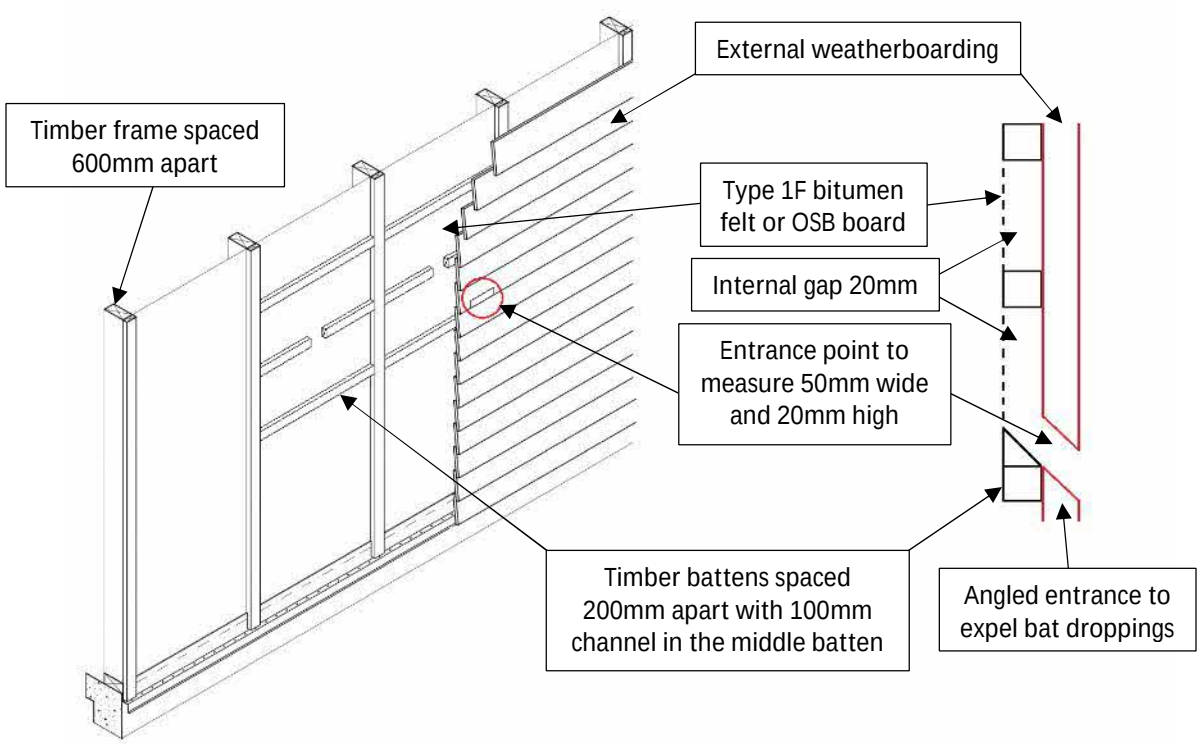
Stone, E.L. (2013). Bats and lighting: Overview of current evidence and mitigation. University of Bristol.

Strachan R., Moorhouse T.,Gelling, M. (2011). Water Vole Conservation Handbook Third Edition. University of Oxford: Abingdon

Appendix A
Examples of bat boxes

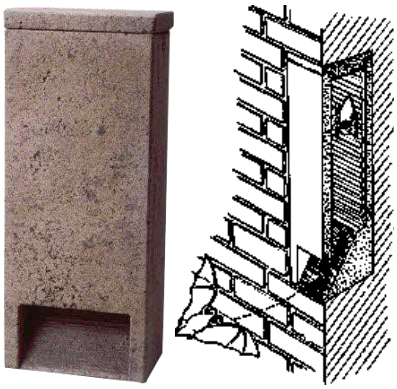
(images sourced from www.nhbs.com and www.habibat.co.uk)

Integrated weatherboard roost



Integrated bat box
Bat Block

Integrated bat box
1FR Schwegler Bat Tube



Standalone bat box 2F Schwegler Bat Box (General purpose)	Standalone bat box 1FF Schwegler Bat Box with built-in wooden rear panel
	

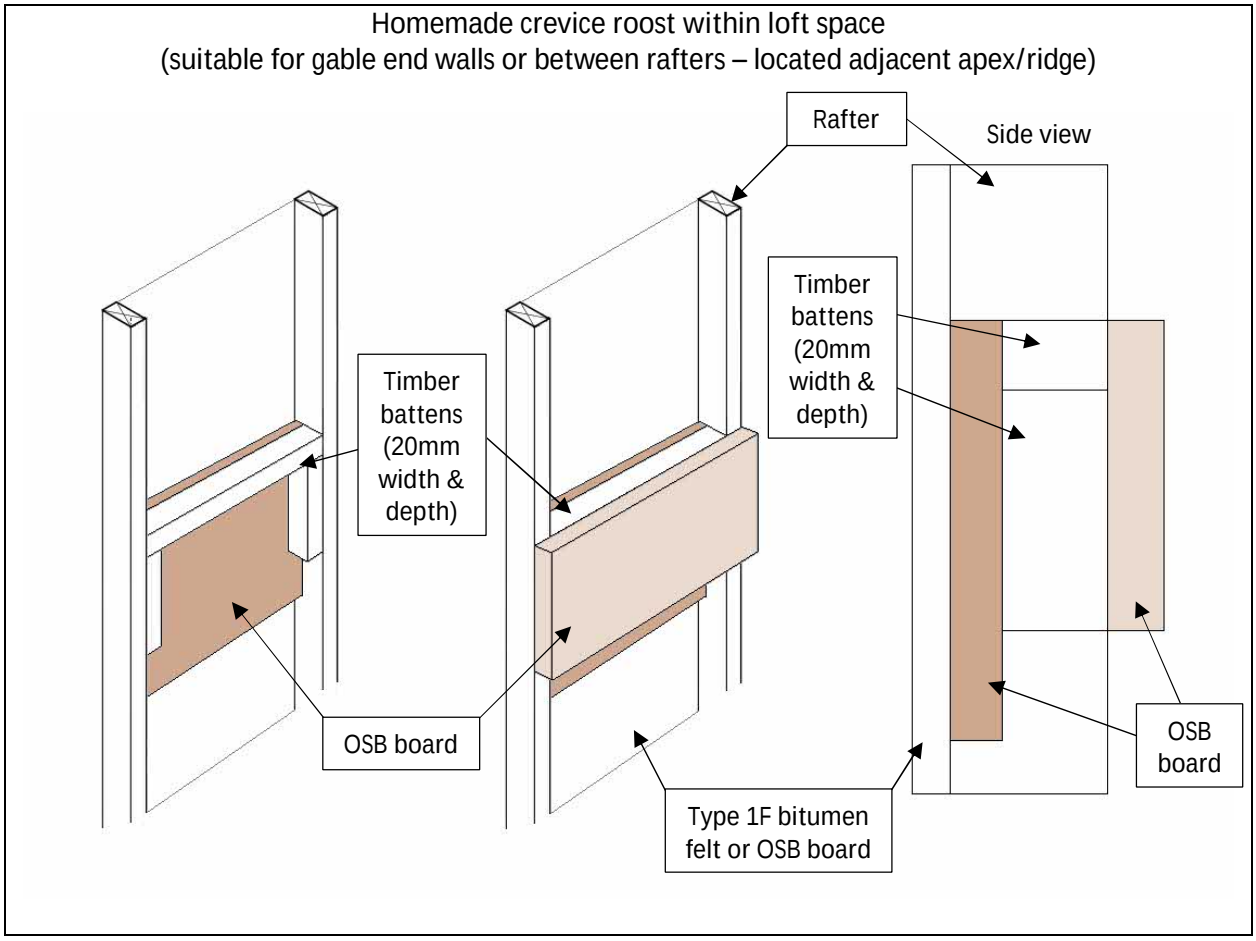
Recommendations for installing bat boxes:
(Sourced from Bat Conservation Trust www.bct.org)

Ideally, several boxes should be put up facing in different directions to provide a range of conditions.
Locate boxes:

- Where bats are known to feed close to hedges and treelines (some bats use a treeline or hedgerow for navigation, putting boxes near these features may help the bats find the box).
- On trees: boxes should be placed on the trunk of a mature tree, where there is a clear flight line/accessible entrance.
- On buildings: boxes should be placed as close to the eaves as possible.
- As high as possible (ideally, at least 3 to 4m above the ground, where safe installation is possible).
- In sunny places, sheltered from strong winds (usually between south-west and south-east).

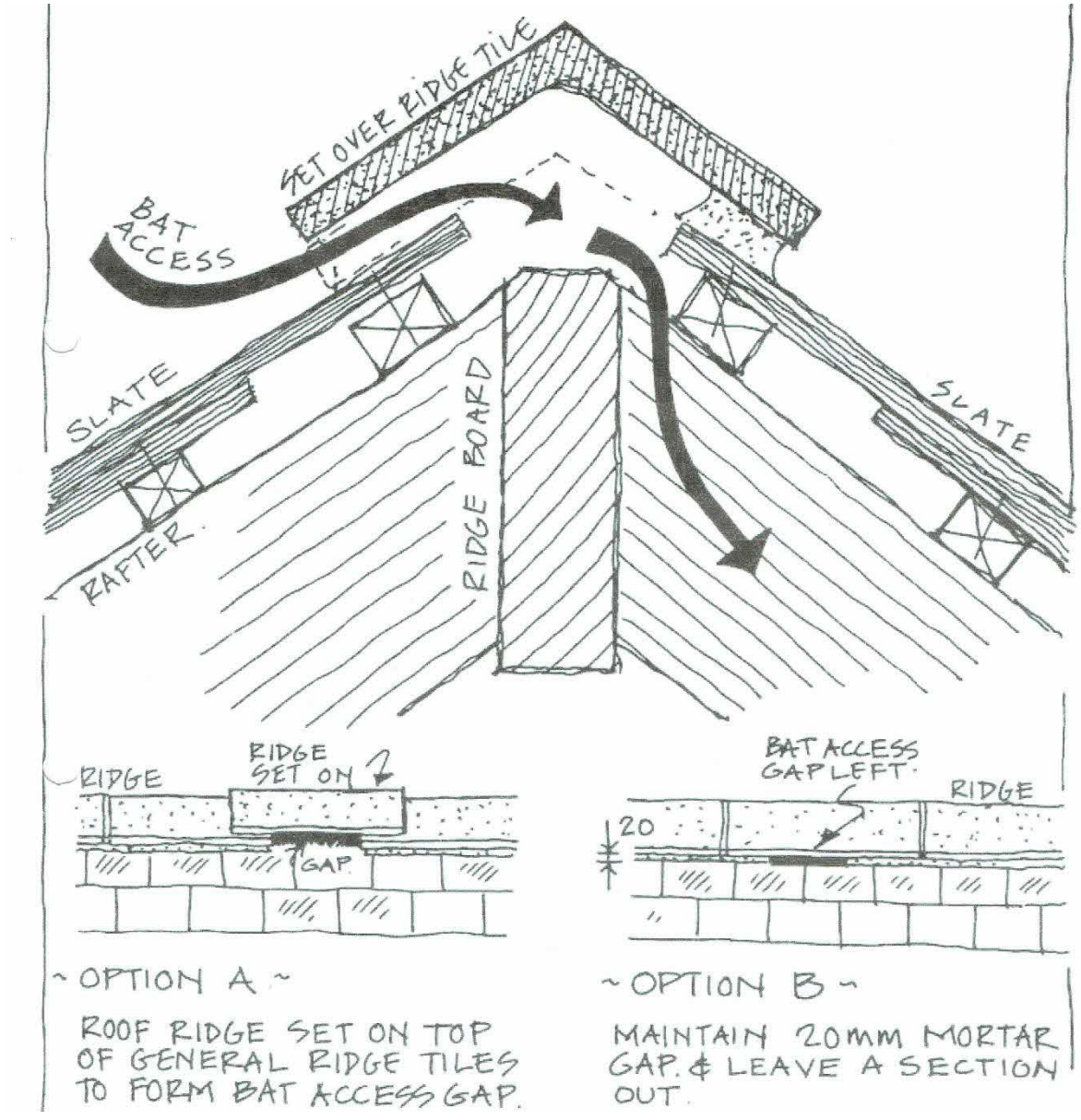
Make sure the boxes are secured.
Boxes can be installed on trees using adjustable ties to avoid damaging the trees. Otherwise, timber screw bolts or nails can be used. Aluminium alloy nails are less likely to damage saws and chipping machinery.
Bats need time to find and explore new homes, and it may be several months or even years before boxes have residents. Once bats find a place they want to live they can return over and over again. Droppings on the landing area, urine stains around the lower parts of the box and chittering noises from inside on warm afternoons and evenings are signs of occupation.

Appendix B
Examples of crevice roosts for bats



Appendix C
Examples of access points

Ridge tile access
(only line with type 1F black bitumen underfelt)

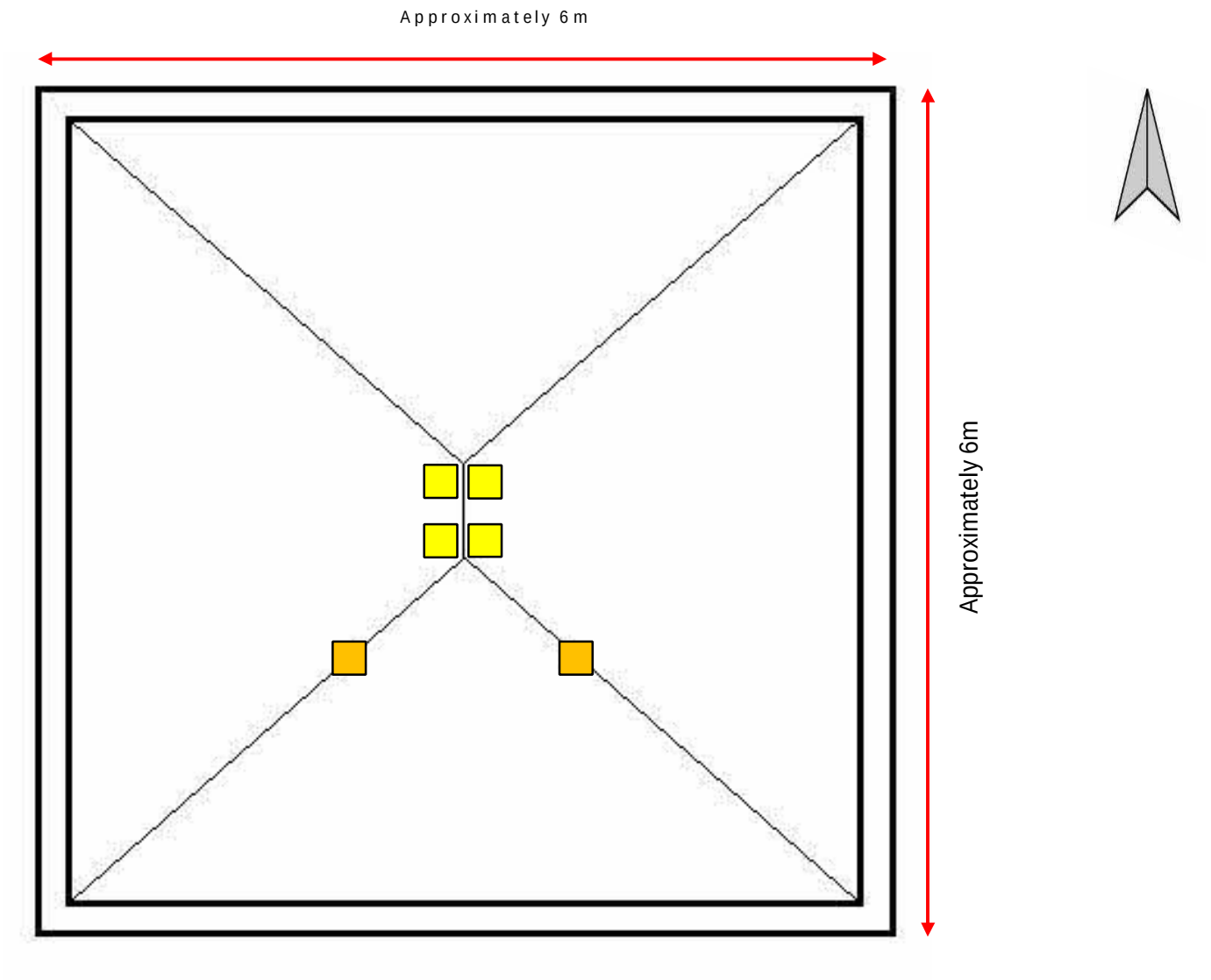


Appendix D
Location of bat loft

Red line indicates the location of the proposed bat loft.

Indicates a crevice roost (Appendix B).

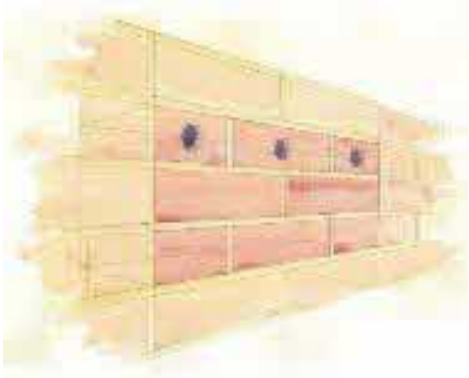
Indicates a bat access panel (Appendix C).


Approximately 6m
Approximately 6m


Proposed bat loft
Proposed development

Appendix E
Examples bird boxes

(images sourced from www.nhbs.com, www.habibat.co.uk and www.manthorpe.co.uk)

Small bird nesting box 1B Schwegler Nest Box 	Small bird nesting box 2H Schwegler Robin Box 
Integrated swift box Swift Block (large) 	Integrated swift box Manthorpe Swift Brick 
Integrated sparrow terrace 1SP Schwegler Sparrow Terrace 	Integrated sparrow terrace Terraced Sparrow Box 

Recommendations for installing bird boxes:
(Sourced from British Trust for Ornithology www.bto.org and Manthorpe www.manthorpe.co.uk)

The highest priority when siting a nest box must be to provide a safe and comfortable environment in which birds can nest successfully.

Tips for putting up a nest box:

- Boxes should be sited 1-3m from the ground, ideally on tree trunks but can be placed on the side of a shed or wall. Avoid areas where foliage obscures the entrance hole.
- Don't place boxes too close to another nest box of the same type, as this may promote aggressive behaviour between neighbours.
- Shelter your nest box from prevailing wind, rain and strong sunlight. The box should face between north and east, and angled vertically or slightly downwards to prevent rain entering.
- Make sure cats cannot get into the box.
- Keep nest box away from bird feeders.
- Use galvanized or stainless steel screws or nails. If fixing boxes to trees, galvanised wire can be used to tie the box to the trunk or hang it from a branch. Make sure to regularly inspect these fittings (every two or three years) to ensure the box remains securely attached.

Tips for putting up house sparrow terraces and swift bricks/boxes:

- Locate ≥5m high on the gable wall of the property and above the level of the insulation zone.
- Where possible, install in locations that are unlikely to receive large amounts of direct sunlight during the hottest times of the day, ideal places include below the overhang of the verge and barge board.

Appendix F
Native species suitable for planting and sowing

Plants should be obtained from specialist nurseries and preferably be of local genetic stock.

Key: (f) – fruit and berry species; (e) – evergreen species; (se) semi-evergreen species; (d) – deciduous species

Trees	
Alder (d)	Alnus glutinosa
Apples (f; d)	Malus spp. (local varieties)
Ash (d)	Fraxinus excelsior
Beech (d)	Fagus sylvatica
Bird cherry (f; d)	Prunus padus
Elder (f; d)	Sambucus nigra
Elm (d)	Ulmus procera
Field maple (d)	Acer campestre
Pedunculate oak (d)	Quercus robur
Rowan (f; d)	Sorbus aucuparia
Pears (f; d)	Pyrus spp.
Silver birch (d)	Betula pendula
Small-leaved lime (d)	Tilia cordata
White willow (d)	Salix alba
Wild cherry (f; d)	Prunus avium
Walnut (d)	Juglans regia

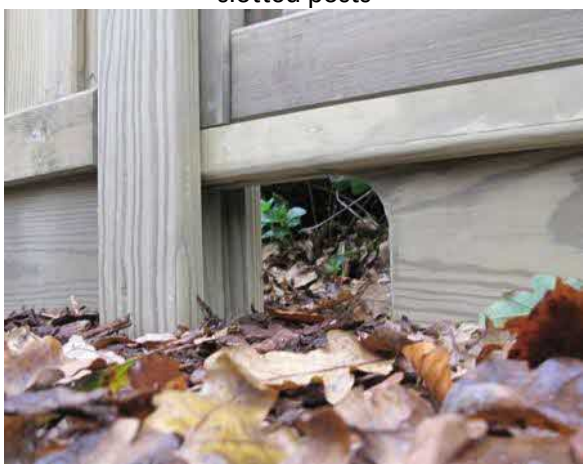
Shrubs	
Blackthorn (f; d)	Prunus spinosa
Buckthorn (f; d)	Rhamnus catharticus
Crab apple (f; d)	Malus sylvestris
Dog rose (f; d)	Rosa canina
Dogwood (f; d)	Cornus sanguinea
Field maple (d)	Acer campestre
Guelder-rose (f; d)	Viburnum opulus
Hawthorn (f; d)	Crataegus monogyna
Hazel (d)	Corylus avellana
Holly (e)	Ilex aquifolium
Honeysuckle (f; d)	Lonicera periclymemum
Spindle (f; d)	Euonymus europaeus
Wild privet (f; se)	Ligustrum vulgare
Yew (f; e)	Taxus baccata

Flowering plants	
Bird's-foot trefoil	Lotus corniculatus
Black knapweed	Centaurea nigra
Common cat's-ear	Hypochoeris radicata
Common sorrel	Rumex acetosa
Common vetch	Vicia sativa
Cowslip	Primula veris
Field scabious	Knautia arvense
Foxglove	Digitalis purpurea
Lady's bedstraw	Galium verum
Meadow buttercup	Ranunculus acris
Meadow vetchling	Lathyrus pratensis
Oxeye daisy	Leucanthemum vulgare
Primrose	Primula vulgaris
Red clover	Trifolium pratense
Selfheal	Prunella vulgaris
Sweet violet	Viola odorata
Wild daffodil	Narcissus pseudonarcissus
Yarrow	Achillea millefolium

Grasses	
Common bent	Agrostis capillaris
Crested dog's-tail	Cynosurus cristatus
Meadow fescue	Festuca pratensis
Red fescue	Festuca rubra
Rough meadow-grass	Poa trivialis
Small timothy	Phleum bertolonii
Smooth meadow-grass	Poa pratensis
Sweet vernal-grass	Anthoxanthum odoratum
Yellow oat-grass	Trisetum flavescens

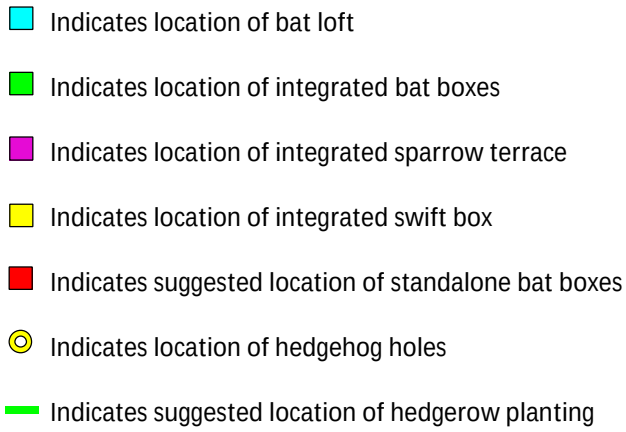
Appendix G
Examples of hedgehog friendly fencing

(images sourced from www.quercusfencing.com and www.jackson-fencing.co.uk)

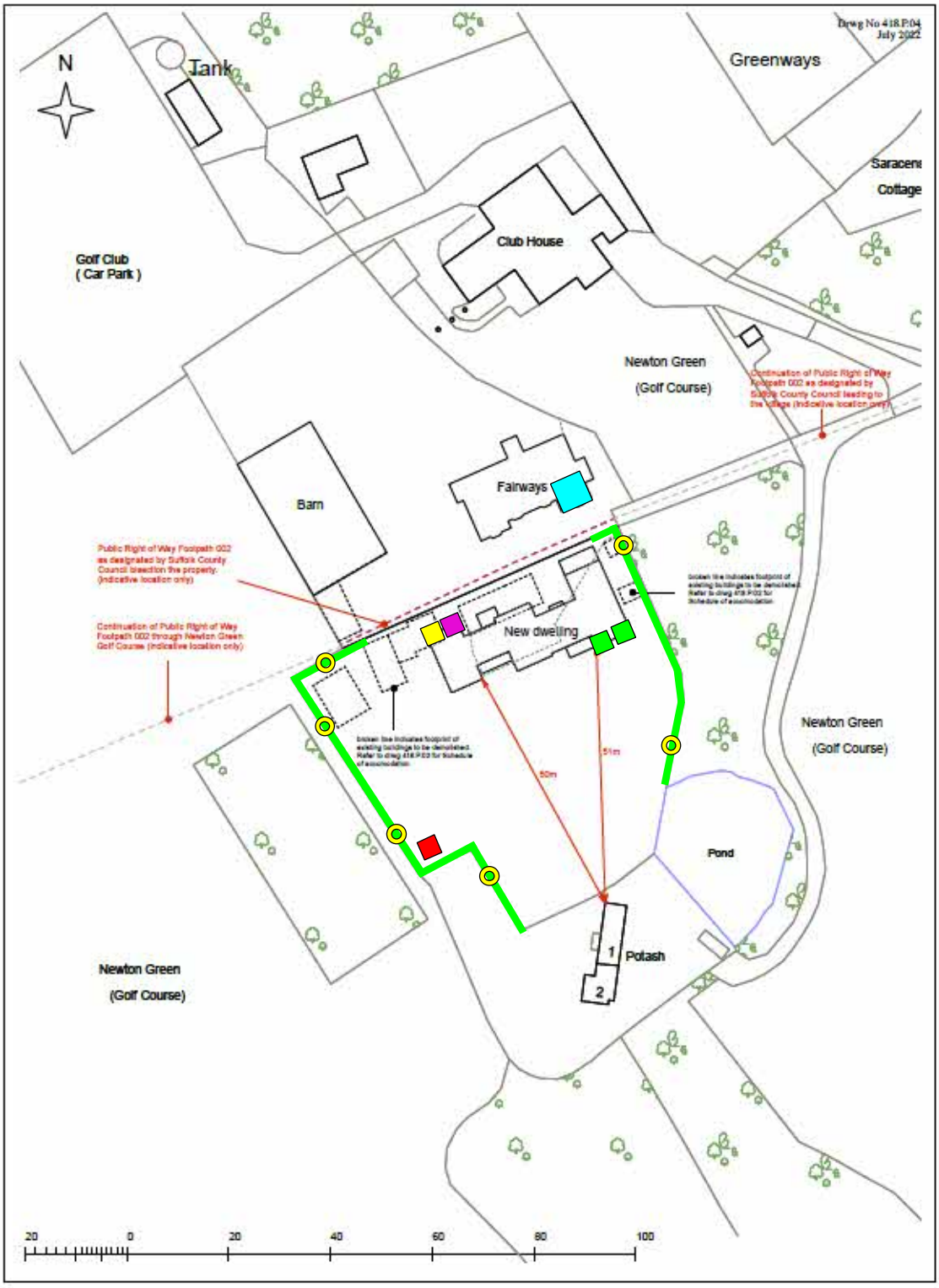
Quercus Fencing Hedgehog friendly oak woven fencing panels	Jacksons-Fencing Hedgehog friendly gravel board for use with slotted posts
	

Recommendations for installing hedgehog friendly fencing: (Sourced from Hedgehog Street www.hedgehogstreet.org)
A hedgehog friendly fence should have a gap measuring at least 13cm by 13cm in the gravel board. These gaps allow any hedgehog to pass through but are too small for nearly all pets. At least one hedgehog friendly fence panel should be located on each side of your garden, to provide unimpeded access. Almost all fencing materials can be made hedgehog friendly, but may require DIY adaptations. Please note that some concrete gravel boards contain metal rods running along the length of the boards to provide strength and rigidity, and cannot be cut. To overcome this, a gap can be left between the gravel board and post to provide the required gap.

Appendix H
Location of enhancement measures



BLOCK PLAN: PROPOSED SCALE 1:500 @ A2



FAIRWAYS
NEWTON
SUDBURY

OPUS Architecture and Design

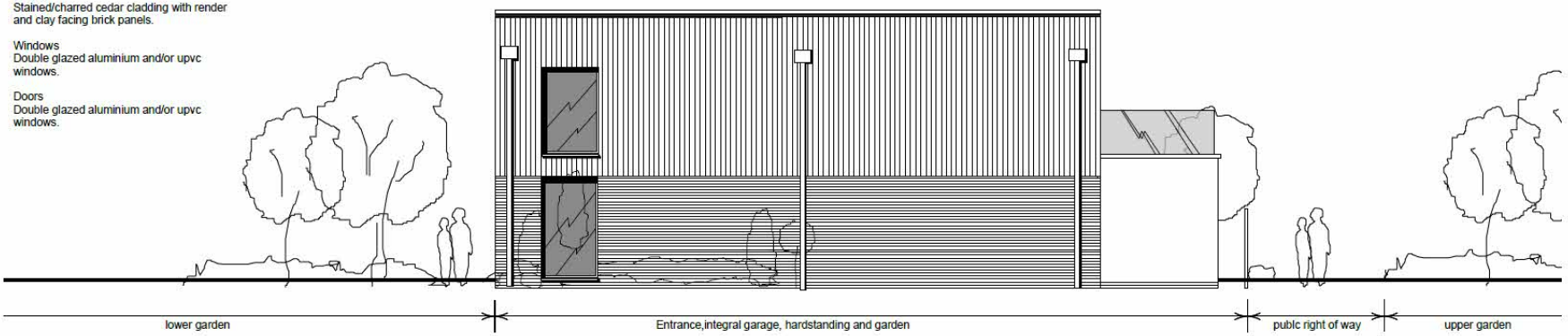
Proposed Materials

Roof
EDMP rubberised flat roofing system concealed behind raised parapet.
Galvanised downpipes and hoppers.

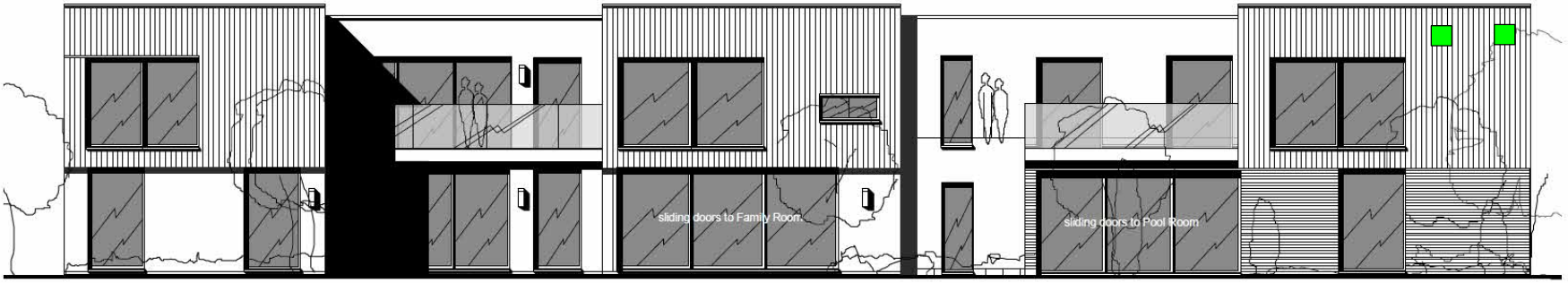
Walls
Stained/charred cedar cladding with render and clay facing brick panels.

Windows
Double glazed aluminium and/or upvc windows.

Doors
Double glazed aluminium and/or upvc windows.



EAST ELEVATION



SOUTH ELEVATION

0m 5m

OPUS Architecture and Design 15A Crabtree Close Plymouth Devon PL3 6EL T: 07595 218458	Rev / Date / Description		Project Fairways Newton Green Sudbury	Title SOUTH/EAST ELEVATIONS	
				Date 20.9.22	Scale 1:100@ A3
				Number 418.P.10	

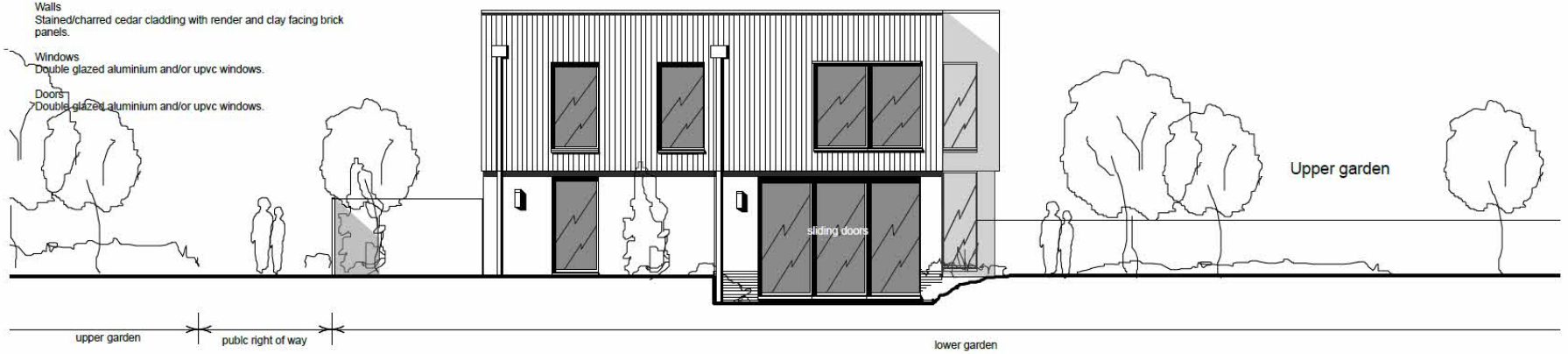
Proposed Materials

Roof
EDMP rubberised flat roofing system concealed behind raised parapet. Galvanised downpipes and hoppers.

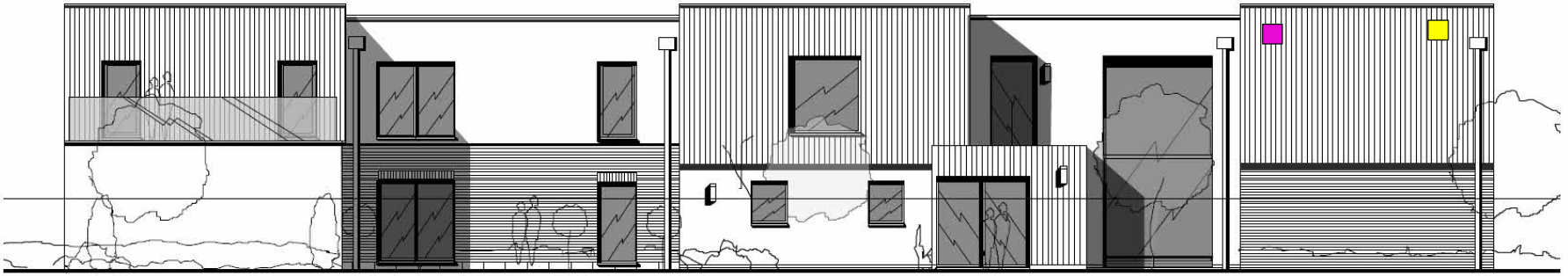
Walls
Stained/charred cedar cladding with render and clay facing brick panels.

Windows
Double glazed aluminium and/or upvc windows.

Doors
Double glazed aluminium and/or upvc windows.



WEST ELEVATION



NORTH ELEVATION

0m 5m

OPUS Architecture and Design 15A Crabtree Close Plymouth Devon PL3 6EL T: 07595 218458	Rev	Date	Description	Project Fairways Newton Green Sudbury	Title NORTH/WEST ELEVATIONS Date 25.9.22 Scale 1:100 Number 418.P.09