



PMP Construction Ltd

UNION PARK,
UXBRIDGE,
GREATER LONDON

**Ecological
Enhancement Scheme**

February 2017
6913.EMMP.vf

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1. INTRODUCTION

- 1.1 This Ecological Enhancement Scheme (EES) has been prepared by Ecology Solutions Ltd on behalf of PMP Construction Ltd in respect of the proposed development of Union Park, Uxbridge, Greater London; hereafter referred to as the development site.
- 1.2 This document has been produced in order to discharge planning Condition 10 associated with development proposals (reference 1197/APP/2015/4164).
- 1.3 Condition 10 states that:
- “Prior to the commencement of development an ecological enhancement scheme shall be submitted to and approved in writing by the Local Planning Authority. The scheme shall clearly detail measures to promote and enhance wildlife opportunities within the landscaping and the fabric of the buildings including measures such as habitat walls, bird and bat boxes and nectar rich planting. The scheme shall aim to include an area of land dedicated to wildlife habitat. The development must proceed in accordance with the approved scheme.”*
- 1.4 Due regard has also been given to Condition 3, as attached to the planning consent, which requires that the development shall proceed in accordance with the measures set out in the Ecological Assessment (November 2015) which supported the
- 1.5 The EES is set out as follows:
- Ecological baseline, trends, constraints and evaluation of important features within the site;
 - Aims and objectives of the EES in order to maximise the ecological potential of biodiversity features;
 - Management prescriptions in order to achieve objectives, including any monitoring requirements
 - Preparation of a Work Schedule.
- 1.6 The ecological value of the site is set out in detail within the report entitled Union Park, Uxbridge, Greater London – Ecological Assessment (November 2015) produced by Ecology Solutions.
- 1.7 The contents of this document have been written with reference to published guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) and with regards to guidance produced by Natural England in relation to protected species.

2. ECOLOGICAL BASELINE AND EVALUATION

- 2.1 Ecology Solutions were initially commissioned in October 2015 to review previous ecological survey work undertaken at Union Park, Uxbridge, Greater London and to undertake further survey work as required to inform the planning application for the site.
- 2.2 Ecological survey work undertaken at the development site by the previous ecological consultants included a Phase 1 Habitat Survey and specific surveys for bats. These surveys were undertaken between May and August 2015.
- 2.3 Subsequently, Ecology Solutions undertook an updated Phase 1 survey in addition to a further suite of bat surveys in October 2015. These additional surveys were undertaken to further inform the ecological baseline of the site as well to clarify European Protected Species (EPS) Licence requirements.
- 2.4 The habitat surveys undertaken were based upon an extended Phase 1 survey technique. The habitats and dominant plant species were recorded, together with conspicuous faunal activity and evidence of the presence, or potential presence, of protected species. Results from the habitat surveys were then plotted onto a base map of the site (see Plan ECO2 within the Ecological Assessment). General observations of faunal activity, including for nesting birds, was also made during the survey by Ecology Solutions.
- 2.5 For details of the survey methodology used for protected species, please see the report entitled Union Park, Uxbridge, Greater London – Ecological Assessment (November 2015) produced by Ecology Solutions.

Results

Habitats

- 2.6 The assessment found that there are no statutory or non-statutory nature conservation designations within the site; however the site lays adjacent (along the western boundary) to a non-statutory designated site the Grand Union Canal which forms a constituent part of the London's Canals Site of Metropolitan Importance to Nature Conservation (SMINC).
- 2.7 Habitat features identified within the development site include:
- Buildings and hardstanding;
 - Amenity Shrub Planting;
 - Amenity Grassland;
 - Scrub; and
 - Scattered Trees
- 2.8 A full species list for the site is included within the Ecological Assessment; however a summary of the habitats present within the site is provided below.

Habitats within the Development Site

Buildings and Hardstanding

- 2.9 The majority of the site comprises hardstanding in the form of tarmac and brick parking that are well maintained with no significant vegetation present.
- 2.10 In addition, a series of buildings are present on site and comprise three large, modern, multi-storey brick built buildings with pitch slate tile roofs as well as smaller ancillary structures. During the time of survey by Ecology Solutions in October 2015, the majority of buildings on site were subject to construction works with much of the external features and internal fittings stripped out and removed.
- 2.11 Buildings and areas of hardstanding are considered to be of negligible ecological value.

Amenity Shrub Planting

- 2.12 Small areas of managed, amenity shrub are present within the application site and support a range of amenity and non-native species. Areas of amenity shrub planting are considered to be of very limited ecological value both in the context of the site and the wider area.

Amenity Grassland

- 2.13 Small areas of amenity grassland are present within the site. At the time of survey this habitat was subject to regular management and supports a very limited range of widespread and common botanical species. As for amenity scrub planting, areas of amenity grassland are considered to be of negligible ecological value.

Scrub

- 2.14 Areas of scrub are present towards the boundaries of the application site and support a small range of generally common species. Areas of scrub are considered to be of higher ecological value although only in the context of the site.

Scattered Trees

- 2.15 A number of immature and semi-mature trees are present within the site, with the majority of these trees being situated towards the boundaries. These trees, as with scrub present on site, are considered to be of higher ecological value in the context of the site

Faunal Species

- 2.16 Protected species, or evidence of protected species, noted within the site included;
- Foraging and commuting bats; and

- Nesting Birds.

- 2.17 It is expected that the site will be utilised by a range of common invertebrate species, though there is no evidence to suggest that any protected or notable species would be present.

Bats

- 2.18 None of the trees within/adjacent to the development site were identified to support any features of potential value to roosting bats.
- 2.19 Detailed internal surveys of the buildings undertaken in 2015 found no evidence of roosting bats within any of the buildings on site, with these buildings overall considered to be of extremely limited suitability to support roosting bats. Subsequent emergence / re-entry surveys undertaken at the development site further confirmed that bats are not utilising building within the site for roosting.
- 2.20 General bat activity recorded during the emergence / re-entry surveys at the development site identified the site to be subject to only low levels of foraging and commuting by a small number of common bat species.
- 2.21 Bats are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and included on Schedule 2 of the Conservation of Habitats and Species Regulations 2010 ("the Habitats Regulations", as amended). These include provisions making it an offence:
- Deliberately to kill, injure or take (capture) bats;
 - Deliberately to disturb bats in such a way as to:-
 - (i) be likely to impair their ability to survive, to breed or reproduce, or to rear or nurture their young, or to hibernate or migrate; or
 - (ii) affect significantly the local distribution or abundance of the species to which they belong;
 - To damage or destroy any breeding or resting place used by bats;
 - Intentionally or recklessly to obstruct access to any place used by bats for shelter or protection.

Nesting Birds

- 2.22 The trees, scrub and to some extent the amenity shrub habitats within the site offer nesting opportunities for birds. A number of bird species were recorded across the site during the surveys undertaken, as detailed in the Ecological Assessment.
- 2.23 All birds, their nests and eggs are protected by law under Part 1 of the Wildlife and Countryside Act 1981 (as amended).

3. ECOLOGICAL ENHANCEMENTS AND MANAGEMENT REQUIREMENTS

- 3.1 The aims and objectives of the Ecological Enhancement Scheme (EES) are to fully safeguard the existing ecological interests of the site and to ensure that long term ecological enhancements are realised through proposed landscaping and on-going site management.
- 3.2 The management prescriptions as outlined in this EES will also ensure that there will be no adverse impacts to protected and notable species which utilise the site.
- 3.3 The following objectives have been identified:
- Objective 1: Maintain and enhance retained and newly created habitats within the site;
 - Objective 2: Maintain populations of any protected species identified within the site at a favourable conservation status; and
 - Objective 3: Increase biodiversity by maximising opportunities for flora and fauna.
- 3.4 Appropriate management options for achieving these objectives are set out below.

Objective 1: Maintain and enhance retained and newly created habitats within the site

Grassland Habitats

- 3.5 New shade tolerant wildflower meadow planting, to comprise Emorsgate EH1 mixture (Hedgerow Mixture) will be provided on site both within the north-east and intermittently along the western boundary of the site and additionally within areas of public open space provided within the development site. These new areas will provide nectar rich habitat for a range of faunal species and will realise an enhancement over the existing situation.
- 3.6 Detailed planting proposals for the site are provided at Appendix 1.
- 3.7 Areas of wildflower meadow grassland that are to be totally reseeded, will be prepared through the removal of existing vegetation and tilling of soil (where required) prior to sowing. Areas of existing grassland which are to be oversown will be prepared through mechanical disturbance (e.g. through mowing and scarification) in order to produce a short sward and areas of bare ground within which seed mixes can be sown and bedded for germination.
- 3.8 Management of these swards in the first year will involve regular maintenance in order to ensure that seedling development is successful and that the growth of competitive weed species is controlled. Where required, weeding will be undertaken by hand or if necessary, through the sensitive use of Glyphosate based chemicals. Cuttings should be

removed immediately from site. For the first few years, it may be necessary to re-seed areas of wildflower meadow in order that a sufficient, self-sustainable seed-bank can develop.

- 3.9 Subsequent to cutting in Year 1, wildflower meadow grassland should be cut two times a year, once in March/April and again in September/October (after flowering). These cuts should be completed once the sward has reached a height in excess of 100mm, and cutting should be completed to a height of between 40-70mm. Areas of grassland within the site should be cut on a rotational basis leaving areas to grow longer allowing herb and grass species to flower in order to enhance the variation and diversity of meadow habitats, which will in turn maximise the biodiversity value of the habitat. Cuttings should be left on site to dry for approximately seven days prior to removal in order to allow for flower seeds to disperse.
- 3.10 Elsewhere within the main development footprint, a native, amenity seed mix or turf more resilient to regular mowing and footfall, will be utilised.
- 3.11 Amenity grassland areas to be provided within the main development footprint will generally be subject to an intensive cutting regime; however where possible areas will be left to grow longer, allowing herb and grass species to flower and providing benefits to biodiversity.
- 3.12 By complying with the management regimes above, the need for additional management to proposed grassland habitats in the form of weed removal or scrub clearance will be largely alleviated. Should additional management be required, this should be in the form of either manual or mechanical vegetation removal. Where this is not possible, Glyphosate based herbicides may be applied to habitats of concern, where necessary.
- 3.13 The provision of differing areas of species-rich grassland, in addition to the implementation of an appropriate management regime for these habitats will ensure that long-term biodiversity enhancements are realised for the development site.

Tree and Native Shrub Planting/Removal

- 3.14 The majority of the vegetative corridors running along the boundaries of the application site will be fully retained under the proposals.
- 3.15 In order to mitigate for minor losses to boundary vegetation and tree belts, and to provide enhancements in the long-term, new tree and shrub planting will be provided within the development site. New planting in this regard will include the provision of native shrub and scrub planting along western boundary of the development site.
- 3.16 The planting mix will comprise a wide range of native and wildlife beneficial species, including a number of seed and berry-bearing species such as Dogwood *Cornus sanguinea*, Hawthorn *Crataegus Monogyna* and Guelder Rose *Viburnum opulus*. Planting proposals for the site are provided at Appendix 1.

- 3.17 From Year 3 (post completion of boundary planting), new planting will be subject to rotational management to remove overly dominant species and to prevent encroachment of this habitat type into adjacent habitats such as the new wildflower grassland.
- 3.18 All areas of new tree/shrub planting will be subject to a care programme during the establishment period with maintenance including cutting/pruning undertaken where necessary to promote healthy vigorous growth.
- 3.19 Additionally, regular health checks of newly planted trees/shrubs will be made during periods of dry weather to ensure that these are not affected by drought and in order to conduct pruning of dead / damaged branches as required.
- 3.20 Where necessary, protective fencing or tree guards will be installed to avoid grazing by rabbits.
- 3.21 The vast majority of existing trees will also be retained within the main development footprint. Prior to commencement of relevant works, protective fencing will be installed at canopy width around any retained trees to protect roots from compaction. This fencing will remain in place until construction works are completed within the vicinity of the tree.
- 3.22 All semi-mature trees to be retained will be subject to appropriate arboriculture, where necessary, to help prolong their life and also make them safe. The condition of the semi-mature and newly planted trees within the site will be monitored to ensure that favourable condition is maintained. All management involving tree removal and remedial arboricultural works to trees will be carried out by experienced and appropriately qualified contractors.
- 3.23 Any works to trees proposed for the period March to August inclusive will be preceded by a survey by an ecologist to check for nesting birds.
- 3.24 Regular checks will be undertaken to identify the presence of invasive and overly-dominant plant species (within both new and retained habitats) and subsequent management undertaken as required.
- 3.25 Where possible, verges of hedgerows are to be managed to promote wildflower edges. Management will include a relaxed cutting regime in which hedge margins to 1.5m will be cut no more than twice in any one season, with one cut undertaken in late July / August and a further cut in suitable weather conditions in October (where required). Weeding of these verges by hand will be conducted on a monthly basis during the establishment period in order to prevent the establishment of undesirable species.

Herbaceous and Ground Cover Planting

- 3.26 Ornamental shrub and herbaceous planting is proposed within the development site and will comprise a mix of native and wildlife beneficial plant species suited to the conditions present on site.

- 3.27 Once planted, shrubs will be watered and covered with 75mm bark mulch to inhibit weed growth. Regular maintenance will ensure that these areas are kept weed-free during the establishment period and will ensure that all shrubs are healthy.
- 3.28 Bulb planting is proposed in grassland habitats across the site and will include for Daffodil *Narcissus* sp.. Mowing will be restricted within areas of bulb planting during the species' flowering season (Spring).
- 3.29 Again, detailed planting proposals for the site are provided at Appendix 1.

Objective 2: Maintain Population of Protected Species at a Favourable Conservation Status

- 3.30 Within the development site, habitat creation and the introduction of a management regime will provide for a net enhancement in the quality of habitats present on site compared to the existing situation. This will be of benefit to key species / groups, such as small mammal species, bats and birds.
- 3.31 The retention and enhancement of vegetated boundary habitats, in addition to the provision of native shrub planting and wildflower grassland within an area of dedicated ecology habitat and within areas of public open space will allow for enhanced links between on-site habitats, as well as adjoining off-site habitats such as the adjacent grassland and woodland to the west of the Grand Union Canal. These habitat enhancements will be of further benefit to the notable and protected species groups recorded (or otherwise considered likely to be present) within the development site. These new and retained areas will be sensitively managed in order to maximise their biodiversity value.

Bats

- 3.32 Areas of suitable bat foraging habitat including existing trees, boundary vegetation and scrub will largely be retained across the site.
- 3.33 Moreover the provision of new landscape planting, comprising a species-rich grassland habitat and new scrub and shrub planting will provide additional foraging and commuting opportunities for this group within the development site. The retention and reinforcement of boundary vegetation across the site, notably the habitats along the western boundary of the development site (i.e. adjacent to the canal), will ensure minimal disruption to existing feeding and commuting behaviour and will provide enhanced opportunities for bats on site.
- 3.34 A sympathetic lighting regime associated with the new proposals will be employed to minimise light spillage along the retained boundary vegetation including trees and scrub as well as areas of public open space, in order to maintain foraging and navigation opportunities in these areas. Measures to reduce light spillage may include the use of sodium / low LED lights, which produce less light spillage than other types of lighting, or other UV-filtered lights should be considered to

reduce the light spillage on existing bat flight lines. In addition, the spillage of the light can be reduced further through use of low-level lights and the employment of lighting 'hoods' which will direct light below the horizontal plane, preferably at an angle less than 70 degrees. This will enable lighting within the development to accord with highways requirements whilst retaining dark areas for use by foraging and commuting bats.

- 3.35 In addition, a total of 7 bat roosting features will be installed on new and/or retained trees or otherwise integrated into the fabric of the buildings within the development site. The indicative locations of bat box placement are shown on Plan ECO1 and reflect areas of suitable bat foraging and commuting habitat.
- 3.36 The bat roosting features to be provided on new and/or retained trees will comprise Schwegler bat box type 1FF, with 4 of this bat box proposed within the site (See Appendix 2). This model of bat box is known to be attractive to a number of the smaller bat species, including Pipistrelle bats, which were the most commonly recorded species on site and which are the most likely species to roost within the features currently present on site. Those bat roost features which are to be integrated with the fabric of the building, of which 3 are proposed, will comprise integrated specialised bat bricks, the design of which is provided at Appendix 2.
- 3.37 In order to maximise their uptake by bats, these features will be situated close to natural vegetation (to include the new species rich ecology habitats proposed along the northern and western boundaries of the site) and away from artificial lighting. Bat roosting features will be provided at a range of orientations to ensure continued suitability of roosting habitats year round. New bat roosts will be located a minimum height of 12 feet from the ground.
- 3.38 These features will be checked for damage on an annual basis and should repair or replacements be required, removal of the existing feature will be completed by a suitably licensed and experienced individual or group.
- 3.39 The provision of novel bat roosting features will further enhance the value of the site for bats and will provide benefits for Priority Species on the national BAP.

Birds

- 3.40 Birds will benefit from new landscaping and planting, particularly of berry bearing species, and also the implementation of appropriate habitat management, as this will provide additional nesting/roosting habitats in addition to an increased foraging resource.
- 3.41 Management of habitats will be undertaken with due consideration for potential use by birds. Any necessary management of vegetation, particularly new and existing trees which will provide important nesting habitats, will be undertaken outside of the main bird breeding season (March – August inclusive) wherever possible. Trees that would provide

poorer nesting habitats than others will be chosen for removal where possible.

- 3.42 As a further enhancement, a total of four nesting boxes will be provided on new buildings and/or retained trees within the development site (indicative positions shown on Plan ECO1). The boxes will be cleaned once a year (by persons to be agreed) and any damaged boxes will be repaired or replaced as and when necessary. Bird boxes will be of varying types to encourage a variety of species (see Appendix 3).

Invertebrates

- 3.43 The provision of new areas of species rich meadow grassland (a habitat type not previously present) within the development site will be of significant value to pollinating invertebrates and will ensure a significant new nectar source within the site.
- 3.44 As a further enhancement for invertebrates, a dedicated 'invertebrate hotel' will be provided within the dedicated wildlife habitat in the north-west of the site. This invertebrate hotel will comprise a simple wooden structure within which a variety of materials will be stacked, thereby providing a range of different sized refugia and micro-habitats which will in turn provide opportunities for a wide range of invertebrates, not least solitary bees.
- 3.45 The invertebrate hotel will be subject to checks on an annual basis for signs of damage. Should this inspection identify the requirement to repair the feature or otherwise replace any of the materials (e.g. due to decomposition), works will be undertaken as required.
- 3.46 The provision of this invertebrate hotel adjacent to areas of high quality semi-natural habitat (nectar-rich grassland and retained tree / shrub habitat) will provide a significant enhancement for invertebrates over the existing situation.

Objective 3: Increase Biodiversity by Maximising Opportunities for Flora and Fauna

- 3.47 Due to the nature of the development, this Ecological Enhancement Scheme aims to increase the biodiversity overall through delivery of linked pockets of high quality habitat along the boundaries of the development site. In particular, new and retained (enhanced) habitats will be provided along the western and northern boundaries providing corridors of dedicated wildlife habitats that adjoin semi natural habitats in the wider area.
- 3.48 New meadow grassland habitats created within the development site will be sown with a species-rich wildflower which will significantly increase the nectar resource within the site. Management of this habitat will ensure that its biodiversity habitat is retained and indeed enhanced in the long-term through preventing scrub encroachment and allowing a greater range of plant species to establish, further enhancing biodiversity and providing a range of opportunities for pollinators.

- 3.49 Additional planting within the proposed development site will utilise planting mixes based around the use of native species, or those of benefit to wildlife (berry/nut bearing varieties of shrubs and trees).
- 3.50 Bat boxes and bird nesting boxes will be provided on suitable retained trees, with additional bat roosting features to be integrated into the fabric of buildings associated with the development proposals.
- 3.51 In order to further increase the biodiversity value of the development site, an invertebrate hotel will be provided in the north-west corner of the site offering new habitat for saproxylic and solitary invertebrates as well as potential hibernacula for amphibian or reptile species should either of these faunal groups colonise the site in the future.

Management Constraints

- 3.52 Management cannot be undertaken which compromises the survival or success of any of the species listed in this document. This will ensure conformance with relevant legislation relating to protected species.
- 3.53 Should any more mature trees or those with obvious damage, or thick coverings of Ivy need to be felled as part of future management, these should first be surveyed by an appropriately experienced ecologist to check for the presence of bats. Should a bat roost be found, either during the initial survey or during felling work, work must stop immediately and cannot continue until appropriate advice has been sought. A licence from Natural England may be required.
- 3.54 All British birds are legally protected from disturbance whilst actively nesting (generally March to August inclusive). Management of scrub and trees should therefore be undertaken outside of the bird-breeding season wherever possible.

4. MONITORING AND MANAGEMENT RESPONSIBILITIES

Personnel Responsible for Implementation of the Plan

- 4.1 Responsibility for implementation and continuation of this Ecological Enhancement Scheme will be placed with an appointed Management Company who will ensure that management undertaken at the site complies with the prescriptions as set out in this document.
- 4.2 The Management Company will employ the services of a specialist Landscape Company who will be responsible for maintaining the landscaped areas.
- 4.3 Where required, Ecology Solutions or another suitably qualified ecologist, will be able to advise on any specific questions or queries in regards to any issues regarding ecology or nature conservation which may arise.

Monitoring and Remedial / Contingency Measures triggered by Monitoring

- 4.4 On the basis that there are no significant constraints related to protected species within the development site, and given the nature of the new landscape planting and management proposed, it is considered that monitoring required for development site should be limited to the establishment period of the natural habitats proposed, with annual monitoring undertaken thereafter.
- 4.5 Annual monitoring checks shall be undertaken to highlight any site specific problems (such as disease or damage to flora or the presence of invasive species) or to identify problems associated with past management regimes. Upon identification of such issues, suitable remedial works will be implemented.
- 4.6 It is considered that these checks need not be undertaken by a qualified ecologist and could instead be undertaken by the Management Body employed to undertake the duties prescribed elsewhere in the EES.
- 4.7 Notwithstanding the above, it is noted that there may be occasions when felling or remedial measures (e.g. from a health and safety perspective) will be required in respect of trees. Where any features which could be used by roosting bats are to be subject to work (i.e. those trees which have been provisioned with bat boxes), pre-commencement checks should be made by an appropriately qualified ecologist. Checks for nesting birds will also be necessary for any works undertaken within the main bird breeding season (March to August inclusive).

5. SCHEDULE OF WORKS

Objective	Receptor	Management Prescription	Timing of Works	Commencement, Frequency and Duration of Works
1. MAINTAIN AND ENHANCE RETAINED AND CREATED HABITATS	<u>Grassland Habitats</u>	Weed and invasive plant removal.	Monthly during establishment period. Periodically as required thereafter.	Year 1 (during establishment) and as required thereafter
		Long-term management of scrub.	As required following annual assessment. Conduct outside of the main bird breeding season (March-July) wherever possible.	Annually
		Long-term cutting regime.	Monthly during establishment period. Periodically as required thereafter. Main annual cut of meadow grassland to occur between July-August. Additional cuts to occur in Autumn or early Spring if required.	Annually
	<u>Trees and Native Shrub</u>	Protect retained trees (through installation of temporary protective fencing as required)	Duration of construction phase	Construction phase
		Retained trees subject to appropriate arboriculture, to prolong life and make safe	Annually as required. Conduct outside of main bird breeding season (March-July) wherever possible.	Annually
		Monitoring of new tree and shrub planting to ensure establishment	Monthly during establishment period.	Year 1 (during establishment)

		Regular checks for invasive or overly dominant species. To be followed by removal where required.	Annual checks, removal as required.	Annually
		Rotational management of boundary planting	Annually (with no more than 30% of habitat subject to management in any one year).	Year 3 (Annually thereon)
	<u>Herbaceous and Ground Cover Planting</u>	Weed and invasive plant removal.	Monthly during establishment period. Periodically as required thereafter.	Year 1 (during establishment) and as required thereafter
		Monitoring of new shrub planting to ensure establishment, stock replacement where required	Monthly during establishment period.	Year 1 (during establishment)
2. MAINTAIN POPULATIONS OF PROTECTED SPECIES AT A FAVOURABLE CONSERVATION STATUS	<u>Bats</u>	Bat boxes to be installed and maintained on existing trees and buildings to provide roosts. Damaged boxes replaced or repaired as necessary.	Annual condition checks and replacement as necessary during the winter period. Advice sought from suitably qualified ecologist where necessary.	Installation in Year 1. Annual checks.
	<u>Birds</u>	Nest boxes to be maintained on more semi-mature trees. Boxes to be cleaned once a year (in the autumn) and repaired when necessary.	Annual condition checks and replacement as necessary.	Annually
		Any management work to trees to be sympathetic to breeding birds	See habitats above. Avoid undertaking management work during main bird breeding season 1 st March to 31 st July.	Annually

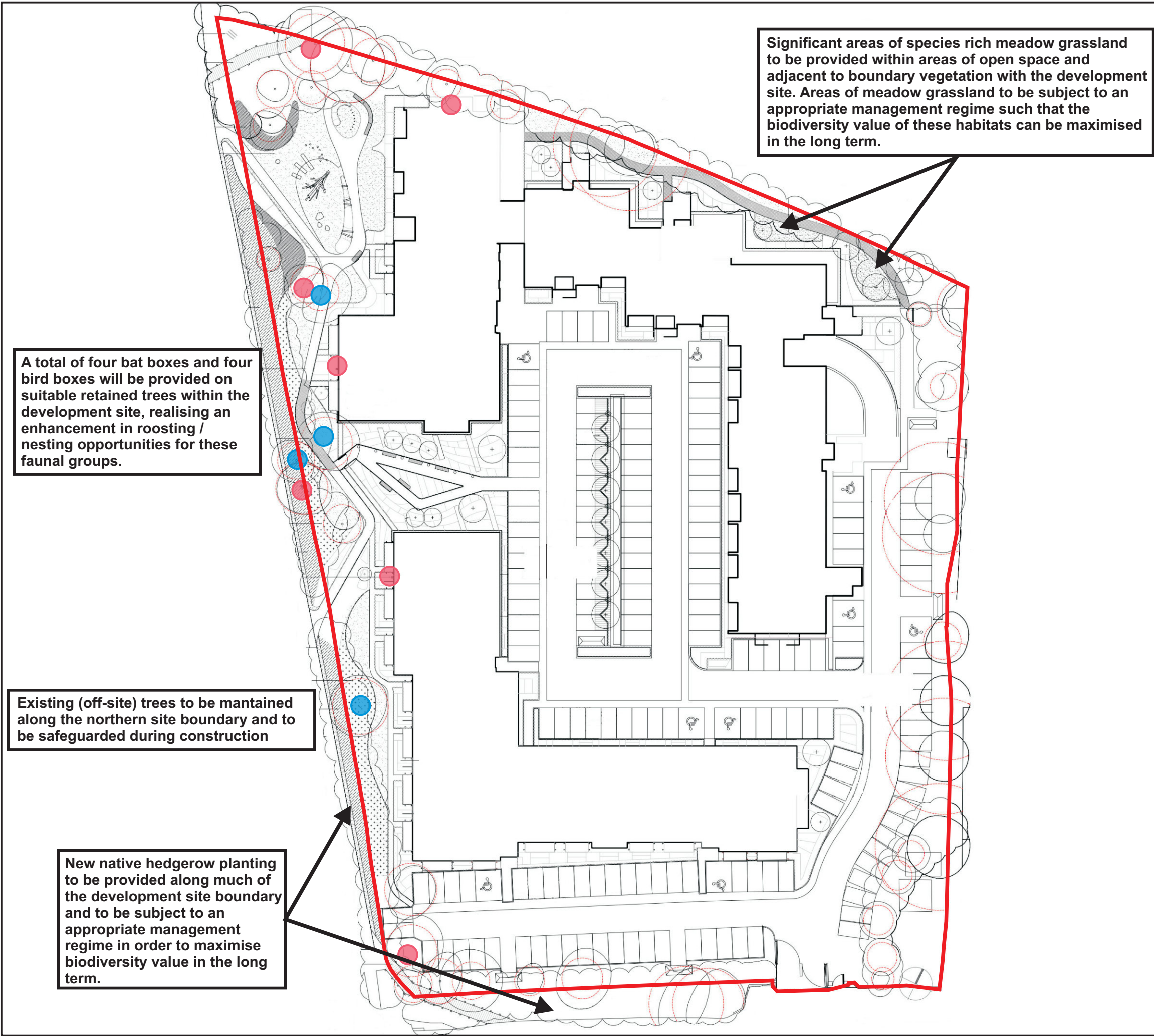
	<u>Invertebrates</u>	Invertebrate hotel to be provided and maintained. Damaged/decomposed materials to be replaced as required.	Annual condition checks and replacement as necessary.	Installation in Year 1. Annual checks.
3. INCREASE BIODIVERSITY BY MAXIMISING OPPORTUNITIES FOR FLORA AND FAUNA		Provision of insect hotel	Annual condition checks and replacement as necessary.	Installation in Year 1 Annual checks
		Maintenance of bat and bird boxes on existing semi-mature trees	Annual checks	Annually
		Annual habitat management as detailed above will increase the biodiversity value of the new development over time	As applicable (see above)	Annually
		Management of trees and shrub to be undertaken outside breeding bird season where possible, with specific surveys undertaken if conflicts are likely	As necessary, see habitats above	Annually

PLANS AND APPENDICES

PLANS

PLAN ECO1

Ecological Enhancement Measures



KEY:

-  SITE BOUNDARY
-  BAT BOX LOCATION
-  BIRD BOX LOCATION

Graphic amended from Detailed planting plan #206L04
produced by Turkington Martin Landscape Architects



ecology solutions ltd

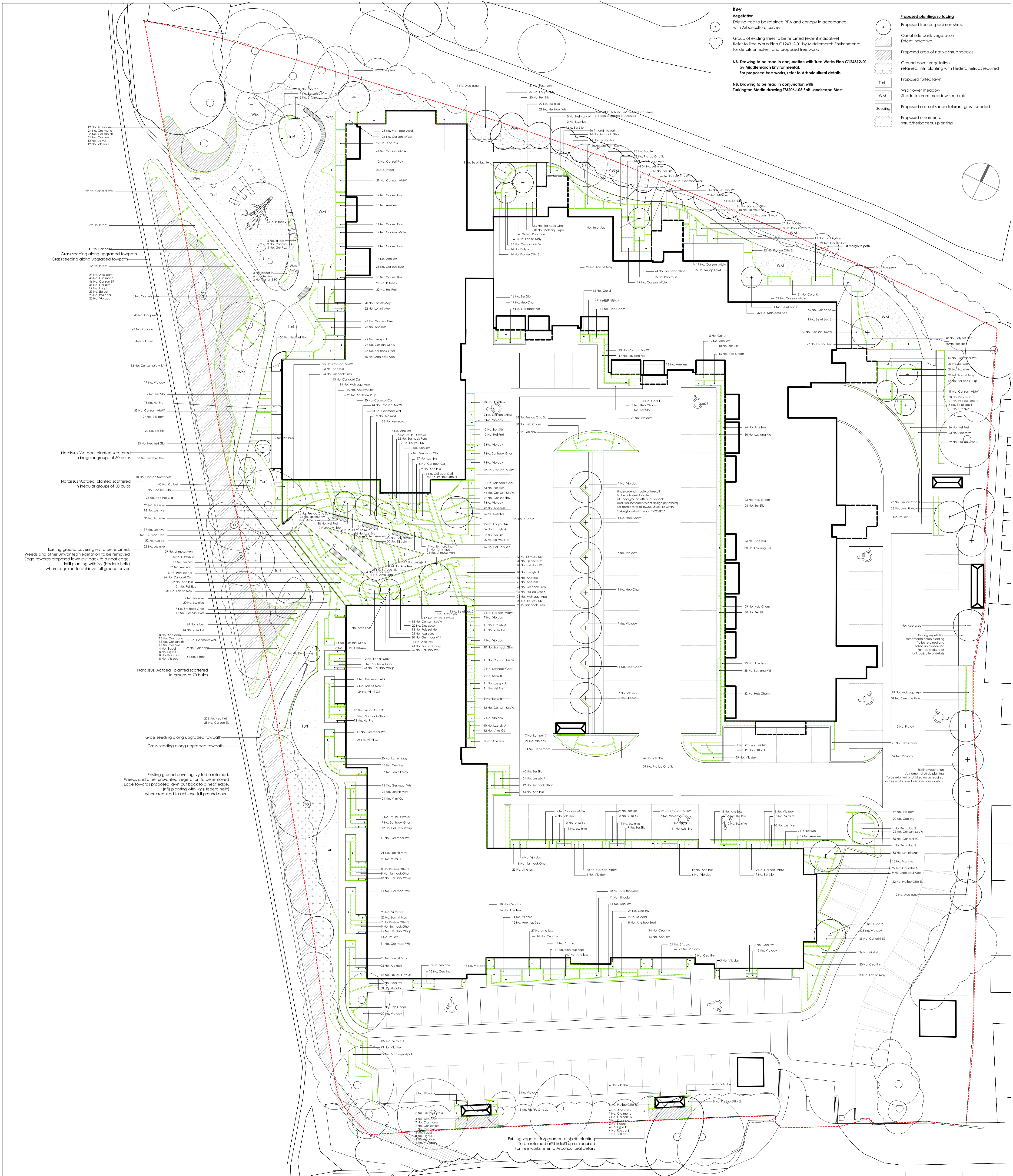
6913: UNION PARK, UXBRIDGE,
GREATER LONDON

PLAN ECO1
LOCATION OF BAT AND
BIRD BOXES

APPENDICES

APPENDIX 1

Soft Landscaping Proposals



ABBREVIATION	SPECIES	COMMON NAME	HEIGHT	STEM	CONTAINER	SPECIFICATION
Ace pseu	<i>Acer pseudoplatanus</i>	Sycamore	5-5.5m	18-20cm	R8	
Anie Lam	<i>Amenlaeche lamorckii</i>	Snowy mesquit	3.5-4.0m	Mult	400L	Min 3 breaks from ground
Be ul Jac 2	<i>Betula uliginosa</i>	White-barked Himalayan Birch	3.0-3.5m	Mult	110L	Min 3 breaks from ground
Plu ovi	<i>Prunus avium</i>	Bird Cherry	5-5.5m	18-20cm	R8	
Tit cord	<i>Tit cord</i>	Small-leaved Lime	6-6.5m	20-25cm	R8	

ABBREVIATION	SPECIES	COMMON NAME	TYPE	SIZE	POT SIZE	DENSITY	SPECIFICATION
Ceo thy	<i>Ceanothus thyrsiflorus repens</i>	Creeping Blueberry	Shrub	30-40cm	3L	2	Buty, min 3 breaks
Cor san SL	<i>Cornus sanguinea</i>	Common Dogwood	Shrub	40-60cm	3L	2	Buty, min 3 breaks
Cor san Midw	<i>Cornus sanguinea 'Midwinter Fire'</i>	Dogwood	Shrub	30-40cm	3L	5	Buty, min 3 breaks
Cor san Midw 3m	<i>Cornus sanguinea 'Midwinter Fire'</i>	Dogwood	Shrub	30-40cm	3L	5	Buty, min 3 breaks
Cor san flw	<i>Cornus sanguinea 'Flower'</i>	Dogwood	Shrub	40-60cm	3L	5	Buty, min 3 breaks
Co al K	<i>Cornus alba 'Kesselringii'</i>	Hebe	Shrub	40-60cm	3L	5	Buty, min 3 breaks
Hed Cham	<i>Hebe 'Cham'</i>	Hebe	Shrub	20-30cm	3L	5	Buty, min 3 breaks
Lav ong Hld	<i>Lavandula angustifolia 'Hidcote'</i>	Lavender 'Hidcote'	Shrub	15-20cm	3L	7	Buty, min 3 breaks
Lon nrl May	<i>Lonicera nrl May Green'</i>	Box Honeysuckle 'Maygreen'	Shrub	25-30cm	3L	5	Buty, min 3 breaks
Mah ovi Apol	<i>Mahonia aquifolium 'Apol'</i>	Oregon Grape 'Apol'	Shrub	30-40cm	3L	5	Buty, min 3 breaks
Pru lau Otto SL	<i>Prunella lauro-cerasus 'Otto Lyken'</i>	Cherry Laurel 'Otto Lyken'	Shrub	30-40cm	3L	5	Buty, min 3 breaks
Rus ovi	<i>Ruscus aculeatus</i>	Bulwer's broom	Shrub	30-40cm	3L	5	Buty, min 3 breaks
Sar hook Ghor	<i>Sarcococca hookeriana 'digi. Purple Stem'</i>	Sweet box	Shrub	20-30cm	3L	5	Buty, min 3 breaks
Sar hook Ghor	<i>Sarcococca hookeriana 'digi. Purple Stem'</i>	Sweet box	Shrub	20-30cm	3L	5	Buty, min 3 breaks
Skim japa Kew G	<i>Skimmia japonica 'Kew Green'</i>	Skimmia	Shrub	30-40cm	3L	5	Buty, min 3 breaks
Sym che non	<i>Symphoricarpos chenouffii 'Narrow'</i>	Snowberry	Shrub	30-40cm	3L	5	Buty, min 3 breaks
Vib burk	<i>Viburnum burkwoodii</i>	Burkwood Viburnum	Shrub	100-125cm	18L	as per plan	Branches, min 4 breaks
Vib dav	<i>Viburnum davidii</i>	Viburnum	Shrub	30-40cm	3L	5	Buty, min 3 breaks

ABBREVIATION	SPECIES	COMMON NAME	TYPE	SIZE	POT SIZE	DENSITY	SPECIFICATION
Co bet	<i>Cornus betulus</i>	Common hawthorn	Hedge	100-125cm	10L	4/m	Feathered, double staggered row
Pru lau Otto SL	<i>Prunella lauro-cerasus 'Otto Lyken'</i>	Cherry Laurel 'Otto Lyken'	Hedge	40-60cm	3L	4/m	Buty, min 3 breaks double staggered row

ABBREVIATION	SPECIES	COMMON NAME	TYPE	SIZE	POT	DENSITY	SPECIFICATION
Hed hel	<i>Hedera helix</i>	Common Ivy	Climber	20-30cm dia	3L	5	Branches, min 3 breaks
Hed hel Glo	<i>Hedera helix 'Glozier'</i>	Ivy 'Glozier'	Climber	20-30cm dia	3L	5	Branches, min 3 breaks
Lon perl S	<i>Lonicera periclymenum 'Serotina'</i>	Honeysuckle	Climber	100-150cm	10L	2/m	

SPECIES	COMMON NAME	TYPE	ROOT	SPECIFICATION
Narcissus 'Actaea'	<i>Poa annua</i> bulbs	Bulbs	Bulbs	Bulbs to be scattered in irregular groups within marked out areas. Plant 10-15cm deep
Narcissus 'Dutch Master'	<i>Daffodils</i>	Bulbs	Bulbs	Bulbs to be scattered in irregular groups within marked out areas. Plant 10-15cm deep

ABBREVIATION	SPECIES	COMMON NAME	TYPE	SIZE	ROOT	DENSITY	SPECIFICATION
Ace com	<i>Acer campestre</i>	Field maple	Native shrub	80-100cm	BR	3	Buty, min 3 breaks
Cor san BR	<i>Cornus sanguinea</i>	Common Dogwood	Native shrub	80-100cm	BR	3	Buty, min 3 breaks
Cor are	<i>Corylus avellana</i>	Common Hazel	Native shrub	80-100cm	BR	3	Buty, min 3 breaks
Crat mono	<i>Crataegus monogyna</i>	Hawthorn	Native shrub	80-100cm	BR	3	Buty, min 3 breaks
Ix aquilum	<i>Ilex aquilum</i>	Holly	Native shrub	40-60cm	3L	3	Leader and laterals
Lup ulv	<i>Lupinus ulva</i>	Common Privet	Native shrub	40-60cm	BR	3	Buty, min 3 breaks
Ros can	<i>Rosa canina</i>	Dog Rose	Native shrub	30-40cm	BR	3	Buty, min 3 breaks
Vib opus	<i>Viburnum opulus</i>	Guelder Rose	Native shrub	80-100cm	BR	3	Buty, min 3 breaks

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CLIENT

London Green Ltd

PROJECT TITLE

Urban Park Masterplan

DRAWING TITLE

Detailed planting plan

DRAWING STATUS

For Planning

DRAWING SCALE

1:250

PAPER SIZE

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Turkington Martin LANDSCAPE ARCHITECTS

APPENDIX 2

Examples of Suitable Bat Roosting Features

Bat Tube

Schwegler bat boxes are made from 'woodcrete' and have the highest rates of occupation of all types of box.

The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot and predator proof and extremely long lasting.

Schwegler No 750/6 Bat Tube

Brick boxes are designed for buildings, or underneath bridges, arches or tunnels, where conditions are relatively humid. They are particularly useful for new buildings or bridges to attract bats, or to provide new roost sites where existing buildings with bats are being renovated.

This long box can be installed within brick masonry, beneath plasterwork or wood panelling, or incorporated into concrete structures such as factory buildings or bridges. Inside it contains a woodcrete surface, a roughened wood board, and a metal mesh, providing a choice of roosting areas depending on the weather conditions and the bats' habits. This box is maintenance-free as the entrance slit is at the bottom.

No painting required, but if painting is necessary a natural breathable paint should be used.

Woodcrete (75% wood sawdust, concrete and clay mixture)

Width: 20cm

Height: 47.5cm

Depth: 12.5cm

Entrance Width: 15cm

Entrance Depth: 2cm

Weight: 13kg

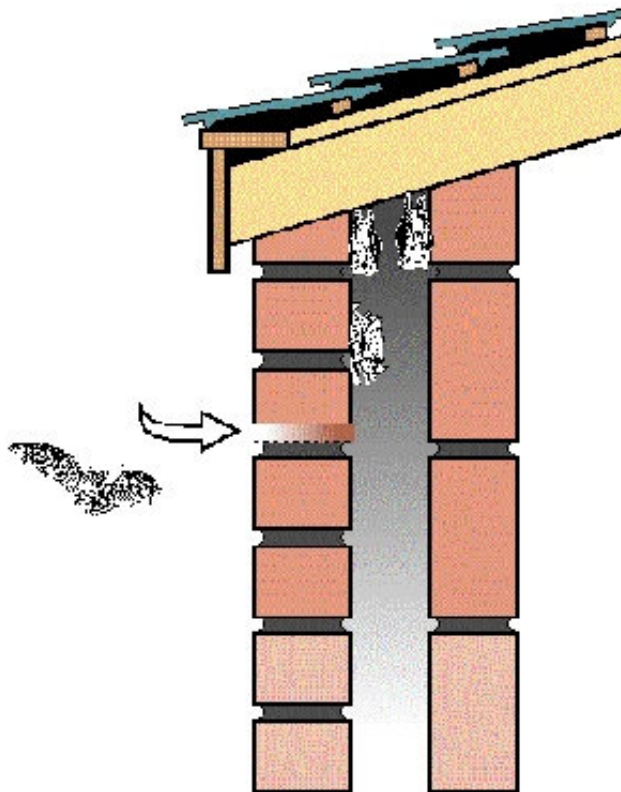


Bat Bricks

Bat Access Bricks are produced by Marshalls Clay Products, and are specially designed to help provide access to wall cavities or roof spaces of buildings.



Marshalls Bat Access Brick



A Bat Brick should ideally be placed as high as possible, at the gable apex or close to the soffit.

Bat Access Bricks produced by Marshalls Clay Products
Quarry Lane, Howley Park, Woodkirk, Dewsbury, West
Yorkshire WF12 7JJ
Tel (01132) 203535 Fax (01132) 203555

Bat Boxes

Schwegler bat boxes are made from 'woodcrete' and have the highest rates of occupation of all types of box.

The 75% wood sawdust, clay and concrete mixture is ideal, being durable whilst allowing natural respiration and temperature stability. These boxes are rot and predator proof and extremely long lasting.

Boxes can be hung from a branch near the tree trunk or fixed using 'tree-friendly' aluminum nails.



1FF Bat Box

The rectangular shape makes the 1FF suitable for attaching to the sides of buildings or in sites such as bridges, though it may also be used on trees. It has a narrow crevice-like internal space to attract Pipistrelle and Noctule bats.

Woodcrete (75% wood sawdust, concrete and clay mixture)

Width: 27cm

Height: 43cm

Weight: 8.3kg

APPENDIX 3

Examples of Suitable Bird Nesting Features

Bird Boxes

Schwegler bird boxes have the highest rates of occupation of all types of box. They are designed to mimic natural nest sites and provide a stable environment with the right thermal properties for chick rearing and winter roosting. Boxes are made from 'Woodcrete'. This 75% wood sawdust, clay and concrete mixture is breathable and very durable making these bird boxes extremely long lasting.



1B Bird Box

This is the most popular box for garden birds and appeals to a wide range of species. The box can be hung from a branch or nailed to the trunk of a tree with a 'tree-friendly' aluminium nail.

Available in four colours and three entrance hole sizes. 26mm for small tits, 32mm standard size and oval, for redstarts.

2H Bird Box

This box is attractive to robins, pied wagtails, spotted flycatcher, wrens and **black redstarts**.

Best sited on the walls of buildings with the entrance on one side.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.



2M Bird Box

A free-hanging box offering greater protection from predators.

Supplied complete with hanger which loops and fastens around a branch.

With standard general-purpose 32mm diameter entrance hole.

Schwegler boxes have the highest occupation rates of all box types. They are carefully designed to mimic natural nest sites and provide a stable environment for chick rearing and winter roosting. They can be expected to last 25 years or more without maintenance.



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