

Health & Life Sciences Project University of Reading

Ecological Management Plan

Final Report

April 2018

P16/00 – 1B



Health & Life Sciences Project, University of Reading

Ecological Management Plan

Report Release Sheet

Draft/Final:

FINAL REPORT

Issue Number:

P16/00 – 1B

Date:

13 April 2018

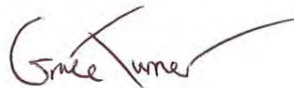
Client:

UNIVERSITY OF READING
Whiteknights Campus
Berkshire
Reading
RG6 6AE

Main Author(s):

Grace Turner MSc BSc (Hons) GradCIEEM

Report Prepared for Issue by:



.....
Grace Turner MSc BSc (Hons) GradCIEEM

Report Approved for Issue by:



.....
Alison Hogan BSc (Hons) MSc MCIEEM

Doc. No EPR 10 Issue 04



Ecological Planning & Research Ltd

*The Barn, Micheldever Station, Winchester, Hampshire SO21 3AR
Tel: 01962 794720 Fax: 01962 794721 email: info@epr.uk.com www.epr.uk.com*

Health & Life Sciences Project, University of Reading

Ecological Management Plan

Contents

1.	Site Description and Context.....	1
2.	Ecological Enhancements.....	3
3.	Installation & Maintenance.....	4
4.	Summary.....	6
5.	References.....	7

Maps

Map 1 Locations of Recommended Ecological Enhancements

Appendices

- Appendix 1** Landscape Plan Reference: 1459939-STL-XX-00-DR-L-6020-91001
- Appendix 2** Bat Boxes, Bird Boxes and Invertebrate Shelters

Health & Life Sciences Project, University of Reading

Ecological Management Plan

1. Site Description and Context

- 1.1 The current proposals for the Health & Life Sciences Project development at the University of Reading will include the construction of a new 5 storey building within the footprint of the previous Engineering Building. The former engineering building was demolished in January 2018, following a suite of ecological survey work; including bat internal and external inspections and two subsequent dusk emergence surveys, one by EPR surveyors and one by WSP surveyors.
- 1.2 The Site for the proposed Health & Life Sciences Building is located adjacent to the Harborne Building within the University of Reading Whiteknights Campus (National Grid Reference: SU 73533 71503) within a complex of office and teaching blocks, interspersed with amenity gardens and ornamental planting. The campus lies to the south-west of Reading city centre within a largely residential urban setting.
- 1.3 A full planning application (Reference Number: 162219) for the above described development was approved on 25th March 2017 with a number of associated conditions.
- 1.4 The pre-commencement Planning Condition 4 of the Reading Borough Council states:
- 1.5 *“The development hereby approved shall not be commenced (excluding any works of demolition) until a detailed scheme of Biodiversity Enhancements for invertebrates, hedgehogs, birds and bats, based on the recommendations of the submitted Ecological Appraisal (EPR Ltd Ref P16/00 1A, dated 13 April 2016), to include a timetable for its implementation and details of future maintenance, has been submitted to and approved in writing by the local planning authority. The measures within the approved detailed scheme of Biodiversity Enhancements shall be fully implemented in accordance with the approved details and timetable and shall be maintained in accordance with the approved maintenance details at all times thereafter.”*
- 1.6 **Reason:** *To enhance the ecological value of the site and surrounding Green Network in accordance with Policy CS36 of the Reading Borough LDF Core Strategy 2008 (altered 2015), Policy DM17 of the Sites and Detailed Policies Document 2012 (altered 2015) and national planning policy and guidance.*
- 1.7 Planning Condition 5 of Wokingham Borough Council states a similar Pre-commencement Planning Condition:
- 1.8 *“Before the development hereby permitted is commenced, excluding any works of demolition, a detailed scheme to provide wildlife enhancements for invertebrates, hedgehogs, birds, and bats as proposed in the submitted Ecological Appraisal (EPR Ltd, Ref: P16/00 1A, 13 April 2016) shall be submitted to and approved in writing by the local planning authority. The measures contained within*

the plan shall be implemented in accordance with the approved plans and these shall be maintained thereafter in accordance with the scheme.”

- 1.9 **Reason:** *To secure wildlife enhancements within the course of the development, as appropriate under the NPPF.*
- 1.10 This LEMP has been produced to meet the requirements under Planning Conditions 4 and 5 subsequently for Wokingham and Reading Borough Councils. This is in order to be submitted to the two Borough Councils to enable these conditions to be discharged. Both Borough councils also highlight the need for the implementation of a Lighting Strategy Document, which EPR will input into with regards to bat foraging.

2. Ecological Enhancements

- 2.1 Although no bat roosts were identified during the survey work conducted at the Engineering building, in the recommendations made in the Phase 2 Bat Surveys Letter dated 22nd September 2016, the loss of potential roost features for bats was highlighted and opportunities to provide alternative roost features identified, in the form of new bat boxes to be installed on retained mature trees on campus, close to the Health & Life Sciences Building.
- 2.2 During the emergence and re-entry surveys, both Common Pipistrelle *Pipistrellus pipistrellus* and Soprano Pipistrelle *Pipistrellus pygmaeus* bat species were recorded. These are listed as Priority Species under the Reading BAP. The installation of bat boxes, such as the Schweglar 1FD, should provide roosting opportunities suitable for these two species. Examples of the specified bat box are depicted in **Appendix 2**. Due to the number of mature trees within the campus, these should be prioritised for bat boxes, rather than the new buildings themselves which will be subject to regular disturbance and higher levels of artificial lighting. A separate Lighting Mitigation Strategy document will be produced, which EPR will provide inputs in relation to bat foraging.
- 2.3 Since the production of the original bat survey report, an updated landscape plan has been produced (**Appendix 1**). Some of the Ecological enhancements previously recommended in the appraisal letter (dated 13th April 2016) have been incorporated within this plan, including a proposed area for beehives and an insect garden. Some additional alterations have been made to the Planting Plan as a result of the BREEAM Assessment (EPR, 15th December 2016) by the replacement of some ornamental species with native plant species of known value to wildlife. Three bird and three bat boxes, a Hedgehog box will be located around the building as indicated on **Map 1**. A Stag Beetle loggery and an invertebrate biome will be installed within the insect garden.
- 2.4 These ecological enhancements will provide biodiversity gains in accordance with the aspirations of the NPPF would include the installation of bird boxes suitable for House Sparrow which are listed as a Priority Species under the Reading BAP.
- 2.5 In addition to the native planting and bee hives to encourage invertebrates, dead wood piles and an insect shelter or “Biome” will be provided within the proposed insect garden (similar to the one shown in **Appendix 2**). This will cater for a wider range of invertebrates such as butterflies and true bugs. A small invertebrate loggery will be created within the insect garden to encourage Stag Beetle *Lucanus cervus*. and is comprised of a selection of buried dead deciduous logs. The dead logs will then be buried with soil and more logs piled on top. This creates an ideal habitat for some species of beetle larvae which spend most of their time buried in the ground feeding off decaying deadwood. These will provide opportunities for nesting, shelter and/or hibernation options for invertebrates such as Stag Beetle and other ground beetles.

3. Installation & Maintenance

Installation of Bat Boxes

- 3.1 The Schweglar 2F bat boxes are designed to mimic a cavity wall and are therefore suited for crevice dwellings species such as Pipistrelles and can be left undisturbed on a tree nearby the building, away from direct artificial lighting. The approximate locations are shown on **Map 1**, however, the specific placement of boxes should be agreed with a suitably qualified ecologist prior to installation

Planting of native shrubs, climbers and trees

- 3.2 The planting of trees, hedges and shrubs are proposed as part of the Planting Plan (**Appendix 1**). These must be managed in an appropriate way, as specified in the planting plan (Reference number: 1459939-STL-XX-00-DR-L-6020-91040).

Installation of Bird Boxes

- 3.3 One Sparrow Terrace (1SP) nesting box is to be installed on the new Health & Life Sciences building (see **Appendix 2**). The box will be installed at least 3m above the ground, and two standard 1B Schweglar bird nesting boxes will be installed on trees, locations shown on **Map 1**. These standard nesting boxes are suitable for a range of small common garden bird, such as Blue Tit *Cyanistes caeruleus* and Great Tit *Parus major*.

Installation of Invertebrate Biome, Stag Beetle Loggery & Hedgehog box

- 3.4 The invertebrate biome and Stag Beetle loggery will be installed within a section of the insect garden to provide habitat and shelter for insects the location of which is shown on **Map 1**. The biome will encourage pollinating insects and other invertebrates which may provide a food resource birds and bats.
- 3.5 A single Hedgehog nesting box (like those shown in **Appendix 2**) will be installed within the insect garden along the boundary, tucked under the existing hedgerow so it is hidden from view, proposed location shown on **Map 1**.

Maintenance

- 3.6 The Bird boxes should be cleaned out every 3-5 years to ensure there is not a build-up of mites and any old nesting material is removed. This must be done outside of nesting bird season (March to September) in order to avoid disturbing any nesting birds. The invertebrate biome, Stag Beetle Loggery and the Hedgehog box and the bat boxes are all being installed as an Enhancement feature, so they will not require monitoring and should therefore be left undisturbed.

4. Summary

- 4.1 If all the enhancement activities are carried out as described above, then the two conditions; Condition 4 of the Reading Borough Council and Condition 5 of the Wokingham Borough Council respectively can both be discharged.
- 4.2 The enhancement features described in this report will provide biodiversity gains in accordance with the aspirations of the NPPF and provide habitat suitable to support species listed as a Priority Species under the Reading BAP (2005-2015).

5. References

EPR, 13/04/2016, Engineering Building, The University of Reading, Whiteknights Campus – Preliminary Ecological Appraisal & External and Internal Bat Inspection Report

EPR, 22/09/2016, Engineering Building, The University of Reading, Whiteknights Campus – Phase 2 Bat Survey

EPR, 15/12/2016, Engineering Building BREEAM Ecology Assessment, The University of Reading, Whiteknights Campus.

Reading Biodiversity Action Plan, 2005-2015

Maps

Map 1 Locations of Recommended Ecological Enhancements

MAP 1 Locations of Biodiversity Enhancements

KEY

-  Sparrow Terrace (1SP)
-  Bird Nesting Box (1B)
-  Hedgehog Box Location
-  Bat Box (2F)
-  Beehives & insect garden
-  Minimal lighting corridor

SCALE: 1:400 at A3

0 5 10 15 20 Metres



Ecological Planning & Research

CLIENT: University of Reading

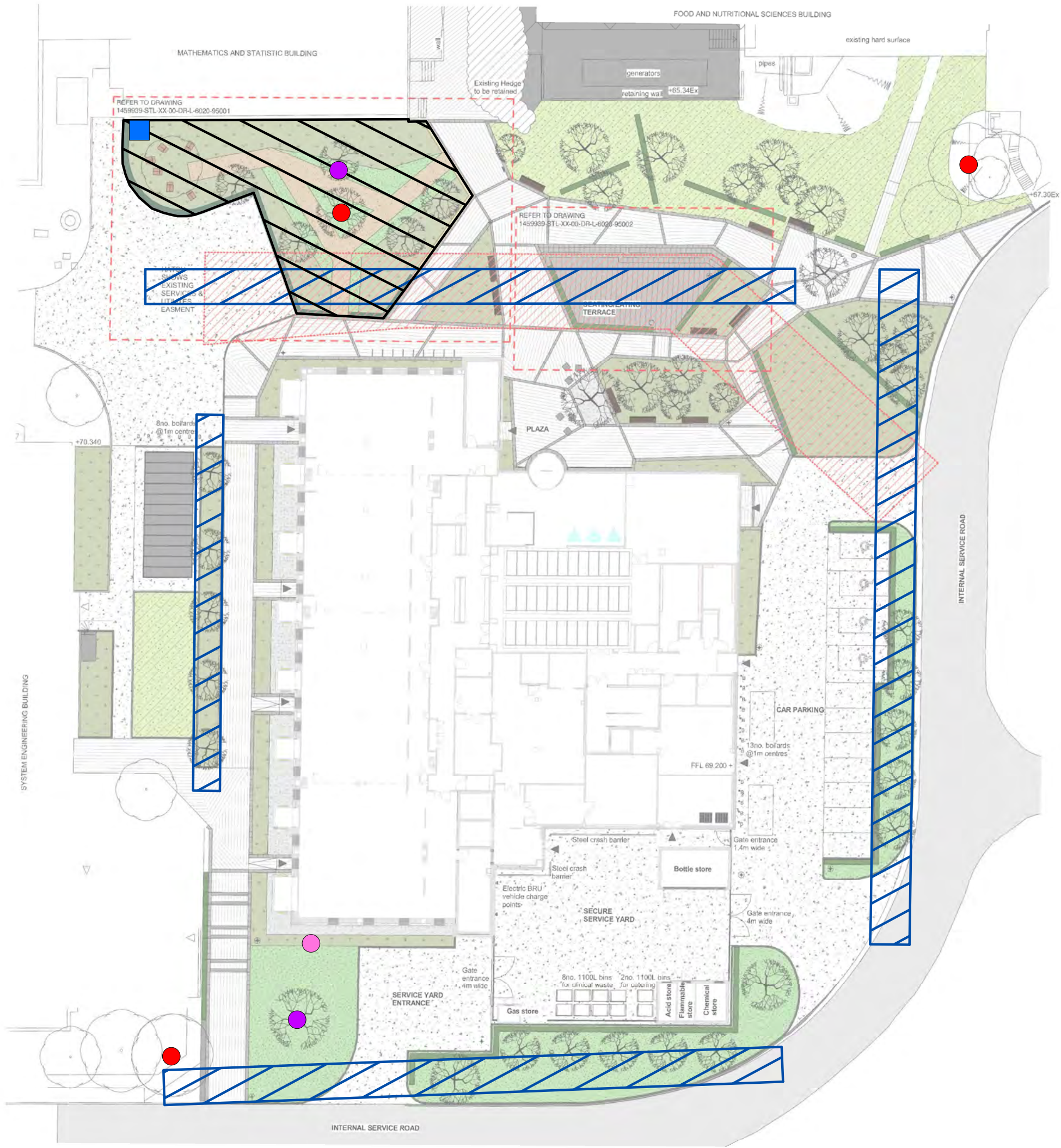
PROJECT: UoR Health and Life Sciences

DATE: March 2018

Y:\HealthAndLifeSciences_UoR\GIS\Map1_Locations_of_Biodiversity_Enhancements_P1600_190318.mxd

P16/00

Landscape GA, Stride Treglown, 1459939-STL-XX-00-DR-L-6020-91001, Rev P57, 03/03/2017



Appendix 1

Landscape Plan: Ref: 1459939-STL-XX-00-DR-L-6020-91001
& Planting Plan: Ref: 1459939-STL-XX-00-DR-L-6020-91040



Legend

Site Planning Boundary

Soft Landscape

- Existing trees to be retained**
Refer to the following drawing for details:
1459939-STL-XX-00-DR-L-6020-91010 Tree Retention and Removal Plan
- Proposed trees**
Refer to the following drawing for details:
1459939-STL-XX-00-DR-L-6020-91040 Planting Plan - Tree and Hedge planting
- Proposed hedgerow**
with protective fence installed centrally.
Refer to the following drawing for details:
1459939-STL-XX-00-DR-L-6020-91040 Planting Plan - Tree and Hedge planting
- Proposed shrub planting**
Refer to the following drawing for details:
1459939-STL-XX-00-DR-L-6020-91041 and 91042 Planting Plan - Shrub planting
- Proposed amenity grass**
Refer to the following drawing for details:
1459939-STL-XX-00-DR-L-6020-91041 and 91042 Planting Plan - Shrub planting
- Proposed meadow seeding mix and woodland edge**
Refer to the following drawing for details:
1459939-STL-XX-00-DR-L-6020-91041 and 91042 Planting Plan - Shrub planting

Hard Landscape

- Proposed kerbs to road**
Refer to drawing
1459939-STL-XX-00-DR-L-6020-91080 Kerb and edging plan
- Granite paving**
Hardscape or similar approved, 600x150mm x 65mm,
Midnight black, Kobra, Royal White colours in flamed textured finish
- Proposed paving banding**
200mm and 300mm wide granite kerbs. Refer to drawing
1459939-STL-XX-00-DR-L-6020-91080 Kerbing and boundary plan
- Pebble Material - Loose**
Cobbles max size 120mm in any one direction
to trees in hard landscape and building maintenance strip
- Asphalt surface**
Refer to Engineers details and specifications
- Sand path to Insect garden**
Breedon Golden Amber Gravel
- Benches**
with concrete slab to Engineers details and specifications.
Refer to drawing 459939-STL-XX-00-DR-L-6020-95001 for details
- Seating**
with concrete slab to Engineers details and specifications.
- Dry stone wall 1.2m high**
Refer to drawing 459939-STL-XX-00-DR-L-6020-95001 for details
- Cycle stands**
- Light columns**
Locations to M+E engineers
- Bollard**
Steel bollards
- Beehives**
Locations to be confirmed
- Existing Kerb Line

Refer to the following drawings and documents for accompanying information:

1459939-STL-XX-00-DR-L-6020-91005 - Levels Plan
1459939-STL-XX-00-DR-L-6020-91010 - Tree Removal and Retention Plan
1459939-STL-XX-00-DR-L-6020-91020 - Tree pit and root barrier location Plan
1459939-STL-XX-00-DR-L-6020-91021 - Soiling Plan
1459939-STL-XX-00-DR-L-6020-91022 - Mulching Plan
1459939-STL-XX-00-DR-L-6020-91040 to 91042 - Soft Planting Plans and Planting Schedules
1459939-STL-XX-00-DR-L-6020-91051 - Kerbing and edging plan
1459939-STL-XX-00-DR-L-6020-91052 - Boundary treatment plan
1459939-STL-XX-00-DR-L-6020-91061 - Street furniture plan

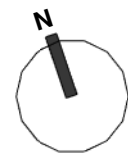
1459939-STL-XX-XX-SP-L-4080-SP001 Landscape Specification

Note:

- Main contractor to determine exact location of services/drainage, this should be confirmed on site prior to commencement of works to avoid tree pit / services conflicts
- All manhole covers within paving areas to be recessed.
- For external lighting details refer to M&E Engineers drawings and specifications.
- For drainage and foundation details refer to Civil Engineers drawings and specifications.
- All soil is subject to detailed testing and analysis and will be in accordance with the soft landscape specifications
- All treatment of softwork areas to comply to BS4428 Code of Practice for general landscape operations.
- All shrub & hedge species plant type supplied for designated areas are to be determined by the proposed planting season. (ie bareroot or container grown stock).

Responsibility is not accepted for errors made by others in scaling from this drawing.
All construction information should be taken from figured dimensions only.

0mm 50mm 100mm



D2 P57 03/03/2017 Tender Issue

STATUS	REV	DATE	DESCRIPTION	REVISED BY
CLIENT				CC
				CHECKED BY
				DK
				ORIGINATOR NO
				32443

CONSULTANT

STRIDE TREGLOWN
www.stridetreglown.com © Stride Treglown Limited 2016

PROJECT

Health & Life Sciences
University of Reading

DRAWING TITLE

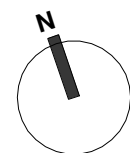
Landscape GA

SUITABILITY STATUS
D2 : SUITABLE FOR
TENDER

SCALE
1 : 200 @ A1

PROJECT | ORIGINATOR | ZONE | LEVEL | TYPE | ROLE | CLASSIFICATION | NUMBER
1459939-STL-XX-00-DR-L-6020-91001

REVISION
P57



Legend

- Existing trees to be retained**
- Proposed trees**
Refer to Tree schedule for details
- Proposed hedgerow 'Fagus sylvatica'**
Refer to Hedge planting schedule for details
- Proposed shrub planting**
Refer to drawings:
1459939-STL-XX-00-DR-L-6020-91041 and 91042
- Proposed Meadow seedling**
for chalk and limestone soil
Refer to drawings:
1459939-STL-XX-00-DR-L-6020-91041 and 91042
- Proposed amenity grass**
Refer to drawings:
1459939-STL-XX-00-DR-L-6020-91041 and 91042

Refer to the following drawings for accompanying information:
1459939-STL-XX-00-DR-L-6020-91001_GA Landscape Plan
1459939-STL-XX-00-DR-L-6020-91010_Tree Removal and Retention Plan

Refer to drawings
1459939-STL-XX-00-DR-L-6020-91041 Shrub planting - sheet 1 of 2
1459939-STL-XX-00-DR-L-6020-91042 Shrub planting - sheet 2 of 2

TREE SCHEDULE

Species	Form	Age Condition	Girth	Overall Height	Clear Stem (C/S)	Rootball Diameter	Notes	Total No.
Acer campestre 'Elegant'	Extra-heavy standard	3x		450-500cm	200cm min	70cm	RB	10
Acer platanoides	Extra-heavy standard	3x	18-20cm	450-650cm	200cm min	500-600mm	RB	3
Betula utilis jacquemontii	Extra-heavy standard	3x/4x	18-20cm	450-500cm	200cm min		RB	4
Betula utilis jacquemontii (Multi-stem)	Multi stem, 3 stems	4x	-		450cm min	80cm	RB	7
Carpinus betulus	Extra-heavy standard	3x	10-20cm	450-500cm	200cm min	70cm	RB	4
Carpinus betulus 'Frans Fontaine'	Extra-heavy standard	3x/4x	18-20cm	450-500cm	200cm min		RB	5
Malus 'Golden Hornet'	Extra-heavy standard	3x/4x	18-20cm	450-500cm	200cm min		RB	1
Malus 'John Downie'	Extra-heavy standard	3x/4x	18-20cm	450-500cm	200cm min		RB	2
Malus 'Profusion'	Extra-heavy standard	3x/4x	18-20cm	450-500cm	200cm min		RB	1
Prunus avium	Extra-heavy standard	3x/4x	18-20cm	200cm min	200cm min		RB	1
Prunus domestica	Extra-heavy standard	3x/4x	18-20cm	450-500cm	200cm min		RB	1
Quercus robur 'Regal Prince'	Multi stem, 3 stems	4x			450cm min	80cm	RB	2
Tilia tomentosa 'Brabant'	Multi stem, 3 stems	4x	16-18cm		450cm min	80cm	RB	1

HEDGE PLANTING:

Hedges to be planted on a double staggered row 300mm apart. Ground to be rotovated to a depth of 400mm with all weed/grass and stones over 50mm in any one direction removed and taken offsite. Following completion of planting a 75mm thick covering of bark mulch to spread at the base of each plant and extent of hedge.

HEDGEROW PLANTING

Name	Form	Root (cm)	Age/condition	Total No.
Fagus sylvatica				972

INSECT GARDEN HEDGEROW PLANTING

Mix	Name	Form	Age Condition	Overall (cm)	Root (cm)	RB/Container Condition	Breaks/ Branches	No. plants in a group	Total No.
10%	Acer campestre	Transplant	1+1 or 1/1	60-80	B			3-5	15
10%	Aesculus hippocastanum	Transplant	1+2 or 1/2	60-80	B			3-5	15
10%	Corylus avellana	Transplant	1+2	60-80	B			1-3	15
40%	Crataegus monogyna	Transplant	1+1 or 1/1	80-100	B			5-10	57
10%	Myrtus communis			30-40	B	C3	5	3-5	15
10%	Prunus spinosa	Transplant	1+1 or 1/1	60-80	B	C2		3-5	15
5%	Pyracantha coccinea			30-40D	B	C3	5	1-3	13
5%	Sorbus aucuparia	Transplant	1+1 or 1/1	80-100	B			1-3	13

Note:

- Main contractor to determine exact location of services/drainage, this should to be confirmed on site prior to commencement of works to avoid tree pit / services conflicts
- All soil is subject to detailed testing and analysis and will be in accordance with the soft landscape specifications
- All imported soil is subject to detailed testing and analysis in accordance with the soft landscape specification. All treatment of soft works areas to comply to BS4428 Code of Practice for general landscape operations.
- Soil profile depths for ornamental shrub and hedging are: Minimum topsoil depth: 300mm; Minimum subsoil depth: 450mm
Refer to Planting Schedule and Soft Landscape Specification for details
- All treatment of softwork areas to comply to BS4428 Code of Practice for general landscape operations.
- All shrub & hedge species plant type supplied for designated areas are to be determined by the proposed planting season. (ie bareroot or container grown stock).

D2 P57 03/03/2017 Tender Issue

STATUS REV DATE DESCRIPTION

CLIENT REVISED BY

University of Reading CC

CHECKED BY

DK

ORIGINATOR NO

32443

CONSULTANT

STRIDE TREGLOWN

www.stridetreglown.com

© Stride Treglown Limited 2016

PROJECT

Health & Life Sciences
University of Reading

DRAWING TITLE

Planting plan - Tree and Hedge planting

SUITABILITY STATUS

S1 : SUITABLE FOR
CO-ORDINATION

SCALE

1 : 200 @ A1

PROJECT | ORIGINATOR | ZONE | LEVEL | TYPE | ROLE | CLASSIFICATION | NUMBER

1459939-STL-XX-00-DR-L-6020-91040

REVISION

P57

Appendix 2

Bat Boxes, Bird Boxes, Hedgehog Boxes & Invertebrate Shelters

Recommended Bat Boxes



2F Schwegler Bat Box with Built-in double front Panel

This 2F with a Double Front Panel bat box has the same shape as the 2F but the front panel has a second inner wooden panel fitted to it to create a cavity wall. This provides ideal quarters for bats that inhabit crevices as the wooden panel mimics this type habitat in a greater way and can easily be installed on a mature tree.

Recommended Bird Boxes



1SP Schwegler Sparrow Terrace

The 1SP Sparrow Terrace has been designed to help redress the balance of falling house sparrow numbers. The current UK population of 6 million pairs is half what it was in 1980 and this is thought to be due to habitat destruction and lack of suitable nesting spaces. Sparrows are social birds and like to nest in company. This terrace provides ideal nesting opportunities for three families.



1B Schweglar Bird Box with 26mm sized entrance hole. This is a popular model designed to encourage Blue, Marsh, Coal and Crested Tits; it might also be used by Wrens. This model comes with an inspection hatch for cleaning and maintenance.

Examples of invertebrate boxes providing nesting, shelter and hibernation options



Big Insect Biome

The biome has a wide range of habitats designed to attract a variety of insects. Habitats include:

- Multi-insect dormitories that provide nesting areas for solitary bees and habitats for a variety of other species such as ladybirds
- Drilled refuge holes
- Litter critter zone
- Nectar feeding terrace
- Pine cone filled refuge area
- Central over-wintering area

Dimensions: 650 x 270 x 155mm

Weight: 3kg



Hedgehog Nest Box

-Fully built-in tunnel with large square access for even the largest hedgehog to avoid unwanted visitors.

-Raised 'step' at entrance to enable the nesting box to be partly buried. Safe nesting area well away from the tunnel entrance.

-Inbuilt ventilation (protected against blocking) designed to provide just the right temperature and humidity without draughts.

-Removable roof for easy inspection and cleaning. Underfloor runners letting air to the underside of the nesting box but allowing the nest box to be pushed easily into place in undergrowth, etc.

Dimensions: 222 x 380 x 470mm

Weight: 4kg