8.13 Squire and Partners

Twyman House, London NW1

Code for Sustainable Homes Ecology Report

By URS Corp Ltd

For CIT Developments Ltd

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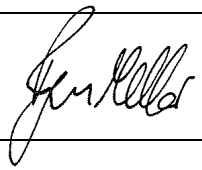
Approved by	Ryan Mellor		25/03/2011	Associate Director

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1. INTRODUCTION

This report has been compiled by URS Corporation Ltd. (URS), on behalf of CIT Developments Ltd. as part of the Department for Committees and Local Government's Code for Sustainable Homes ("the Code") ecological assessment at the site known as Twyman House (hereafter referred to as "the Site"), which is proposed for redevelopment.

This ecological assessment specifically relates to the ecology credits Eco 1 to Eco 4 available within the Code assessment. The format of this report complies with the EcoHomes 2006 and the Code Ecology Report template as provided by the Building Research Establishment (BRE).

All surveys required to complete this report were undertaken by URS. This ecological assessment aims to identify any impacts that the development may have on the environment by identifying, if any, the important ecological features on Site and detailing how they should be protected. Suitable enhancements to incorporate into the proposed development are also recommended.

The main sections in this report are as follows:

Section 2 A brief outline on the Code, including how the credits can be achieved.

Section 3 The qualification details of those involved in the completion of this report.

Section 4 The methodology used to complete the surveys required for the assessment.

Section 5 A brief description of what is currently on Site.

Section 6 A brief description of the proposed development.

Section 7 Which credits can be achieved.

Section 8 A summary of the credits awarded.

2. CODE FOR SUSTAINABLE HOMES

2.1 Background

The Code was introduced in England in April 2007 to replace and update the BRE's EcoHomes 2006 assessment. The Code is a standard created to provide guidance to the building industry on improving the overall environmental sustainability of new houses, while also providing information to buyers on the environmental performance of their new home. The Code was made mandatory on all new housing developments in May 2008.

Trained registered assessors complete the final assessment awarding the development credits in the following nine issue categories:

- Energy and carbon dioxide (CO2) emissions;
- Water;
- Materials;
- Surface water run-off;
- Waste;
- Pollution;
- Health and Wellbeing;
- Management; and phenomenal
- Ecology.

Each category includes a number of environmental issues/impacts on the environment, which can be assessed against a performance target and warded one or more credits. Performance targets are more demanding than the minimum standard needed to satisfy building regulations or other relevant legislation. They represent good or best practice, are technically feasible and can be delivered by the housing industry. Mandatory minimum levels of performance have been set in seven key areas:

- Energy efficiency /CO2;
- Water efficiency;
- Materials;
- Surface water management;
- Site waste management;
- Household waste management; and
- Lifetime homes (code level 6 only).

Individual dwellings are assessed, rather than groups of dwellings, and are rated on a scale of Code Level 1 to Code Level 6, where 6 is the highest.

The Code assessment is carried out in two stages, one at design stage to provide an interim certification and the second at post construction to confirm compliance to the interim certification.

The ecology credits available aim to reduce the impact on the ecology present on Site by;

- Reducing any adverse impact upon important ecological features on Site pre-development; and

- Providing guidance on designing features to positively enhance the Site's ecology by incorporating new habitats and enhancing those already present.

2.2 How the Ecology Credits Are Achieved

Credits Eco 1 to Eco 4 relate to different aspects of the potential impact on the Site's ecology. Eco 1, Eco 3 and Eco 4 relate to what is currently on Site, compared to what will be on Site post-development. Eco 2 relates to ecological enhancements to compare the Site's ecology post-development.

2.2.1 Eco 1 Ecological Value of Site (1 Credit)

1 credit is awarded when it has been demonstrated that the development site is defined as land of inherently 'low ecological value'. Any land of ecological value outside of the construction zone but within the Site would need to be fully protected from damage during site preparation and construction works in order to award this credit.

2.2.2 Eco 2 Ecological Enhancement (1 Credit)

1 credit is awarded when a suitably qualified ecologist provides appropriate 'key' and 'additional' recommendations that will enhance the ecological value of the Site. The developer also needs to adopt all key recommendations and 30% of additional recommendations.

2.2.3 Eco 3 Protection of Ecological Features (1 Credit)

1 credit is awarded where all existing features of ecological value on the Site are protected and maintained during site clearance, preparation and construction works. This credit can be awarded by default if the entire Site has been classified as being land of inherently 'low ecological value' in accordance with Eco 1. It can also be awarded if it has been confirmed by a suitability qualified ecologist that a feature can be removed because of its low ecological value or where an arboriculturalist has confirmed a feature can be removed owning to poor health/condition, as long as all other features are adequately protected in accordance with the ecologists recommendations.

2.2.4 Eco 4 Change in Ecological Value of Site (4 Credits)

Four credits are awarded using the change in ecological value calculations outlined in the Code Technical Guidance –November 2010 (Ref. 1). This calculates the ecological value of the site before and after development, using the number of species present per metre squared (m^2). Then the overall change in ecological value is calculated by comparing the ecological value of the site pre- and post-development.

If there is a minor negative change in ecological value, one credit is awarded; if there is a neutral difference, two credits are awarded; and if there is a minor enhancement, three credits are awarded. The full four credits will be awarded if there is a major enhancement, of more than nine species per hectare as a result of the redevelopment.

3. PROFESSIONAL PROFILES

3.1 Suitably Qualified Ecologist and Report Reviewer

Name: Emma Hatchett

Position: Senior Ecological Consultant at URS

Qualifications: BSc Honours Environmental Biology

Memberships: Full Member of the IEEM

3.1.1 Experience

Emma has completed a BSc Honours in Environmental Biology and supplemented her consultancy experience by undertaking a Postgraduate Certificate in Biological Recording. Emma has seven years consultancy experience, including three years experience in undertaking various sustainability assessments. Emma specialises in protected species and Phase 1 habitat surveys throughout the United Kingdom. Emma holds survey licenses for bats, great crested newts, native crayfish and dormice.

Emma predominantly undertakes ecological field survey work; in particular Extended Phase 1 habitat surveys, and also conducts Ecological Impact Assessments (EcIA), both as part of EIAs and as stand-alone documents. Emma works within the wider URS ecology team to help develop appropriate protected species mitigation strategies. Her baseline survey experience also includes bat, water vole, great crested newt, otter, dormouse, badger, amphibian and reptile surveys.

3.1.2 Verification of Report

Emma Hatchett, who has verified this report, is a Suitably Qualified Ecologist (SQE) as defined by BRE, that is to say she is a full member of the IEEM and is therefore covered by a professional code of conduct.

A full CV is provided in Appendix A of this report.

3.2 Surveyor

Name: Chloe Phelan

Position: Ecological Consultant

Qualifications: BSc Zoology (Hons), MSc in Ecology

Memberships: Associate Member of the IEEM.

3.2.1 Experience

Chloe completed a BSc in Zoology at the University of Leeds in 2006 and recently completed an MSc in Ecology and Management of the Natural Environment at the

University of Bristol. This course covered a range of applied ecological skills including surveying, protected species monitoring, habitat creation and restoration, ecological impact assessment, ecological mitigation and project management.

Chloe has gained over three years experience within ecological consultancy since graduating from the University of Leeds. This experience has been both abroad and in the UK at URS.

She predominantly completes ecological field survey work, particularly extended Phase 1 habitat surveys, and EcIA both as part of EIAs and as stand-alone documents. Through the impact assessment process she works with the URS ecology team to help develop appropriate mitigation strategies. Her baseline survey experience also includes reptile, bat, badger, bird and water vole surveys. She has completed multiple BREEAM and Code for Sustainable Homes Ecology Assessments.

A full CV is provided within Appendix A of this report.

4. METHODOLOGY

This section outlines details of the methodology used to carry out the ecological assessment for the Site:

- An extended Phase 1 habitat (Phase 1) survey and a full species list;
- Bat daytime assessment and emergence survey
- A review of landscaping proposals to provide information on post development planting; and
- A compilation of recommendations to enhance the ecological importance of the Site.

4.1 Extended Phase 1 Habitat and Bat Survey Methodology

An extended Phase 1 survey of the Site was undertaken, in line with guidance set out by the Joint Nature Conservation Committee (JNCC) (Ref. 2). A Phase 1 survey is a standard technique for rapidly obtaining baseline ecological information over a large area of land. It is primarily a mapping technique and uses a standard set of habitat definitions for classifying areas of land on the basis of the vegetation present. For this survey, the technique was modified (or extended) to provide more detail over a smaller area; give further consideration to fauna; and identify the potential for the Site itself to support protected and/or notable species. For the purposes of this assessment, a full species list of each habitat type within the survey area was recorded with species abundance assessed against the DAFOR scale: entail

- D – Dominant;
- A – Abundant;
- F – Frequent;

- O – Occasional; and
- R – Rare.

It should be recognised that this scale represents relative abundance within each habitat type, rather than regional or national abundances. Incidental records of fauna were also made during the survey and the habitats identified were evaluated for their potential to support protected species and other species of conservation concern, including BAP priority species.

The survey was undertaken on the 3rd August 2010 during optimal survey conditions prior to any Site works commencing.

During the extended Phase 1 survey, the buildings and trees within the Site were assessed to determine their potential to support bats, in accordance with guidelines published by the Bat Conservation Trust (Ref. 3). Features looked for included holes, ivy cover and slits in the trees within the Site; and missing/cracked tiles, droppings and staining on the buildings. None of the buildings were entered during the extended Phase 1 habitat survey. The trees and buildings were assessed in line with the following criteria:

- High – Numerous potentially suitable summer roosting sites, including at least one feature that may potentially be used as a hibernaculum or maternity roost, with good connectivity to high quality foraging habitat;
- Medium – Some potentially suitable summer roosting sites with at least moderate connectivity to foraging habitat;
- Low – Very few potentially suitable summer roosting sites with at least some connectivity to foraging habitat; and
- Negligible/None – Feature has no apparently suitable roosting sites or is entirely isolated from foraging habitat.

In addition to the daytime assessment, evening emergence surveys were undertaken on 3rd and 18th August 2010.

Emergence surveys were undertaken by two surveyors, on both occasions, which provided adequate coverage of the necessary buildings within the Site. The surveys were undertaken using Batbox Duet detectors connected to Edirol R-09 digital recorders. The data recorded was then analysed using BatScan software. Computer analysis of ultrasound in this way can assist in determining the identity of bats.

The survey on 3rd August 2010 was undertaken between 20.45 (approximately 15 minutes before sunset) and 22.46 (approximately two hours after sunset). The weather conditions during the emergence survey were overcast with a slight breeze and air temp of approximately 19°C.

The second emergence survey was undertaken between 1957 (approximately 19 minutes before sunset) and 2211 (approximately two hours after sunset). The weather conditions

during the emergence survey were dry and partly cloudy. Approximate air temperature at the start of the survey was 17°C falling to approximately 15°C at the end of the survey.

The surveys were undertaken at an optimal time to conduct bat surveys, May – August.

5. EXISTING SITE ECOLOGY

5.1 Existing Site Flora

The survey has shown that semi-natural habitats within the Site are limited. Nonetheless, the following Phase 1 habitat types were identified within the Site or immediately adjacent to its boundary:

- Scattered trees;
- Dense scrub;
- Amenity grass;
- Tall ruderal;
- Introduced shrub;
- Buildings; and
- Hard standing.

These habitats are described in detail and their distribution mapped in Figure 1 at the end of this report. A list of plant species recorded, in addition to their relative abundance according to the DAFOR scale, is given in Appendix B.

5.1.1 Scattered trees

Indicative positions of the single on-site tree and off-site scattered trees are shown in Figure 2. Only one tree occurs within the boundary of the Site. This is a mature London plane, shown as T1 on Figure 2, found at the frontage of Twyman House. Several other scattered trees occur off-site but within approximately 3m of the Site boundary, as follows:

- T2 and T3: one young to semi-mature ash tree (its canopy overhanging the on-site yard area) and one young to semi-mature sycamore tree, both in the rear garden of residential property 8 Bonny Street.
- T7: a sapling (believed to be an ornamental *Sorbus* species), as road-side amenity planting, adjacent to the entrance to 16 Bonny Street.
- T8: a young to semi-mature balsam/black poplar hybrid, within the rear garden of 41 Camden Road.

- T9: a semi-mature London plane tree, positioned at the edge of the Regent's Canal footpath, close to T1.

T4, T5 and T6 are a line of three semi-mature Norway maple trees, alongside the frontage of the warehouse on Bonny Street. These were included in the survey but are unlikely to be impacted by the proposals.

5.1.2 Amenity grassland

A narrow strip of amenity grassland occurs along the edge of a section of the Regent's Canal footpath. Species present smooth meadow-grass and perennial rye-grass.

5.1.3 Tall Ruderal

There is an area of tall ruderal adjacent to Camden Road in an area of land that has been left to colonise naturally. Weed species are also abundant between and upon the paved frontage of Twyman House onto Camden Road,. Species noted to be at least locally frequent comprised Canadian fleabane (*Conyza canadensis* L.), herb Robert (*Geranium robertianum*), willowherb sp (*Chamaenerion* sp), perennial sow thistle (*Sonchus arvensis*), annual meadow grass (*Poa annua*) and perennial rye-grass (*Lolium perenne).*

5.1.4 Introduced shrub

Introduced shrub principally occurs on-site in the form of formal brick-walled shrub beds and potted shrubs, positioned to the rear of Twyman House, at the front of 16 Bonny Street and the front of the commercial property (which adjoins the warehouse) onto Bonny Street. These shrub borders were dominated by common widely planted non-native ornamental species, such as begonia (*Begonia sp.*), primrose (*Primula sp.*), geranium (*Pelargonium sp.*), variegated euonymus (*Euonymus sp.*), fuchsia (*Fuchsia sp.*), yucca (*Yucca* sp.) and spotted laurel (*Aucuba japonica*).

5.1.5 Dense Scrub

Dense scrub is the dominant on-site semi-natural habitat, though even so, it occupies only a minimal proportion of the total Site area. The wall delineating the southern edge of the Site's yard was noted to be clad by Virginia creeper (*Parthenocissus quinquefolia*) and elder (*Sambucus nigra*). This extends up the western boundary of the Site. There is also an area of dense scrub behind B3 on Figure 2. Species present include ivy (*Hedera helix*), Virginia creeper and honeysuckle (*Lonicera periclymenum).*

5.1.6 Buildings

Several buildings occur on Site. These are listed below:

- B1 – Twyman House – an unoccupied 6-storey brick-walled and flat-roofed office block;

- B2 – A one storey flat roofed bike shed; and

- B3 – An unoccupied commercial unit sandwiched between the warehouse and No. 2 Bonny Street – a 2-storey building, with 1-storey rear extension with brick walls and flat roof.

5.1.7 Hard standing

Hard standing within the Site comprises the hard-landscaped frontages to the on-site buildings, the central car parking and yard area and the driveway into this parking / yard area from Bonny Street.

5.2 Existing Site Fauna

5.2.1 Bats

Of the 17 species of bat found in the UK, six species have been recorded within a 2km radius of the proposed development Site in the last 20 years. The majority of these records are from Hampstead Heath approximately 1.5 km southwest. The closest bat record is of a common pipistrelle (*Pipistrellus pipistrellus)* bat 236m southeast in 2005. There is a known common pipistrelle roost 236m southeast of the Site, confirmed in 2005. Species sightings in the locality are Daubenton's bat (*Myotis daubentoni*), Leisler's bat (*Nyctalus leisleri*), noctule (*Nyctalus noctula*), common pipistrelle Nathusius' Pipistrelle (*Pipistrellus nathusii*) and soprano pipistrelle (*Pipistrellus pygmaeus*). The extended Phase 1 survey assessed a number of buildings has having low potential to support roosting bats (see table 3 below). None of the vegetation or other buildings were considered suitable for bat roosting habitat.

The buildings within the Site were subject to daytime assessment and are briefly described within Table 1 below, with an assessment of their potential to support bats also given.

Table 1: Building Descriptions

Building Type	Building Description	Evidence of Bats?	Bat Potential
Building 1	This is a multi-storey flat roofed building made of brick. There are wooden soffit boards along the roof. It is currently in use.	No	Low-Negligible
Building 2	This is a flat roofed building, part of it is single storey and the eastern side is two storey. It is made of brick with a flat bitumen roof. There are cracks in the brick work and concrete running along the edge of the roof.	No	Low-negligible

During the two emergence visits conducted, no bats were recorded emerging from any of the structures subject to observation. There were no bats seen or recorded at all during either of the surveys on the 3rd and 18th of August 2010.

5.2.2 Other Mammals

There are records of hedgehog within the search area, the closest record was 0.1km west in 2002. There have been 24 other records of hedgehog between 0.3km and 1.9km from the proposed development in various directions from 1999 to 2002.

In relation to other wild mammals, no evidence of fox or hedgehog activity was noted during the extended Phase 1 habitat survey. The Site, together with adjoining semi-natural habitats, would be expected to present suitable habitat for foxes, however given the extent of hardstanding surrounding the Site and limited vegetation the Site is not likely to support hedgehog.

5.2.3 Birds

A number of records of protected and/or notable species of bird have been recorded for the 2km radius surrounding and including the Site. Species records received include greylag goose (*Anser anser),* ruddy shelduck (*Tadorna ferruginea),* pintail (*Anas acuta),* common scoter (*Melanitta nigra),* grey heron (*Ardea cinerea),* hobby (*Falco subbuteo*), lapwing (*Vanellus vanellus),* greenshank (*Tringa nebularia),* sand martin (*Riparia riparia),* dunnock (*Prunella modularis),* song thrush (*Turdus philomelos),* starling (*Sturnus vulgaris),* linnet (*Carduelis cannabina)* and house sparrow (*Passer domesticus).* The majority of these records are from Hamstead Heath 1.5km southwest.

There is one record of black redstart (*Phoenicurus ochruros*) within 2km of the Site, located 0.5km west in 2004. In addition to this the Site lies within the black redstart "*Likely Key Area"* (Ref. 4). The Site does not currently have habitats to support either foraging or nesting black redstarts; however suitable nesting habitat could be created for black redstarts during the demolition and construction period through the provision of open brownfield habitat and tall structures present such a cranes.

Wood pigeon (*Columba palumbus*) and feral pigeon (*Columba livia*) were recorded using the Site during the extended Phase 1 survey. It is considered likely that the vegetation within the Site, particularly the scrub and scattered trees, is used by a number of common and widespread bird species.

5.2.4 Invertebrates

A number of notable invertebrates have been recorded within the search area. The majority of these records are from Hampstead Heath 1.5km southwest of the Site. These species will be associated with the habitats found in Hampstead Heath, the habitats present within the Site not likely to support notable invertebrate species due to their low naturalness and low structural and botanical diversity.

5.2.5 Amphibians

There have been two notable amphibian species recorded within the search area. These were the common toad (*Bufo bufo*) and the common frog (*Rana temporaria*). There are no habitats present within the Site boundary that will support amphibian species. The

adjacent canal lacks vegetation so is also believed to be unsuitable for amphibian species.

5.2.6 Plants

A number of notable plant species have been recorded within the search area. All of these plants were recorded from over 1km from the Site, mainly from St Pancras Gardens 1.2km southeast and Hampstead Heath 1.5km southwest. The plant species observed and recorded during the survey are either common, widespread native species or ornamental, planted species. No notable or invasive plant species have been identified on-site.

5.2.7 Adjacent Habitats

The Regent's Canal is situated on the southern side of a wall along the southern boundary of the Site. The Canal has concrete sides and is bounded by concrete pavements on the northern side and a wall of an adjacent modern building on the southern side. There was no vegetation visible in the canal or on the adjacent sides or pavements. There was also litter observed in the waterway and the canal was shaded by adjacent buildings. There is a line of vegetation along the southern boundary of the Site and the pavement adjacent to the Canal, consisting of overgrown climbers from the wall along the southern boundary of the Site and a mature tree situated on the edge of the pavement.

5.2.8 Other Protected/Notable Species

No evidence of any other protected species was noted. This Site is considered unlikely to support any other protected or notable species other than those stated above

6. PROPOSED DEVELOPMENT

The proposed development includes the removal of all buildings and hardstanding currently present within the Site and the construction of apartment accommodation with landscaped planting. The mature London plane tree will be retained on Site; the rest of the vegetation will be removed.

7. WHICH CREDITS CAN BE ACHIEVED

7.1 Eco 1 Ecological Value of Site

The Site can be confirmed as being of low ecological value. The scattered trees, dense scrub, amenity grass, tall ruderal and introduced shrub do not provide a great level of ecological value in the local area due to them having predominately non native species and they are carefully managed. Any land of ecological value outside the construction zone but within the development site will remain undisturbed by the construction works, this includes the mature trees outside of the boundary and the Regent's Canal south of the Site.

As the Site is considered as of low ecological value, one credit can be awarded for Eco 1.

7.2 Eco 2 Ecological Enhancement

Key recommendations are outlined in Section 7.2.1 and additional recommendations are outlined in Section 7.2.2. All UK and EU legislation in relation to wildlife, protected species and sites will be abided by, as outlined in the Tywman House Ecology Report included in the submission. The key and additional recommendations are beyond the requirements of such laws.

7.2.1 Key Recommendations

The following key recommendations are made in relation to the redevelopment of the Site:

- Ensure a native mix of species is planted in the form of a wild flower and biodiverse roofs.
- Incorporate two bird boxes of varying type into the scheme.
- Protect the retained tree during the construction period, in accordance with British Standard (BS) 5837:2005 Trees in Relation to Construction (Ref. 5), including incorporating a suitable root protection zone.

7.2.2 Additional Recommendations

Additional recommendations include:

- Incorporate log piles into the scheme.

- Incorporate mud baths/ water features into the scheme for use by birds.
- Incorporate acid grassland as part of green roof provision.
- Incorporate a variety of insect houses into the proposed development.
- Incorporate bat boxes into the development.
- Incorporate a brown roof into the development.

It has not yet been confirmed that all key recommendations and at least 2 (greater than 30%) of the additional recommendations will be implemented, however these recommendations have been agreed in principle with the design team. If documentary evidence is provided to prove this, then the one credit available can be awarded.

7.3 Eco 3 Protection of Ecological Features

The mature trees around the periphery of the Site will be retained. The retained tree will be protected during the construction period, in accordance with British Standard (BS) 5837:2005 Trees in Relation to Construction (Ref. 5), including incorporating a suitable root protection zone. Details on measures to protect the trees due to be retained can be found in the Twyman House Aboricultrual Report Tree Report as included in the submission.

One credit can be awarded as all existing features of ecological value within the Site will be protected and maintained during Site clearance, preparation and construction works.

7.4 Eco 4 Change in Ecological Value of Site

The pre-development Site score provided by the 'Change in Ecological Value Calculator' is 2.5, see Table 2.

Table 2. Pre-Development Site Score

Habitat Type	**Area of Habitat Type (approx. m^2)**	**Number of Species Present**	**Site Score**
Buildings	787	0	0
Hardstanding	1111	0	0
Dense scrub/tall ruderal/introduced shrub	227	23*	5221
Total	2125		5221
Site Score (total site score / total area)			2.5

** Species included are those considered to be of ecological value, indicated in Appendix B - Plant Species List*

7.4.1 Design Stage

The landscaping proposed for the Site will include a communal garden, with native planting, seating and the inclusion of informal play areas for young children. In addition to the communal garden there will be green roofs (at level three of Block A and level five of

Block C) and planting along the new frontage to Camden Road. The Twyman House - Landscape Proposals, as included in the submission, provides full details on proposed development and includes an indicative planting list.

The communal garden will provide a valued green environment with three landscaped geometric shapes providing small informal gardens. Trees planted in the gardens will include multi-stemmed silver birch and flowering cherry (*Prunus sp.*). Areas will be planted with wild flower meadow and grass species, which will be left to grow long in the summer.

A new site frontage onto Camden Road is proposed which will comprise the planting of three cherry trees, retaining the existing mature London plane and strips of low shrub planting.

The most valuable habitat proposed for the local biodiversity is the third floor extensive green roof located on Block A, the building closest to the Regent's Canal on the southern end of the Site. In addition to the green roof terrace proposed on the fifth floor of Block C.

The green roof on Block A will incorporate the following features:

- Plug-planted sedum with sown annual cornfield mix and bulbs and a calcareous wildflower seed mix.
- Mounding for biodiversity: Small mounded areas of substrate, comprising free-draining, acidic materials (i.e. sands, small diameter gravels and organic element based on more acidic material – bracken etc.) providing an important habitat for invertebrates.
- Log Piles: Sections of round logs, recycled from arboricultural works. Logs will be approx. 500mm in length and between 100-150mm diameter. Only native hardwood will be used. Substrate will be mounded- up around the base of the log pile to 100mm high etc. On some of the larger logs the outer face should be drilled with a series of 2-10mm wide holes to provide tunnels for invertebrates etc.
- Bird Boxes: 2 open-fronted boxes will be positioned in close proximity to the living roof.
- Mud / Water Baths: Mud/water baths will be placed on the roof to provide bird baths. These should be constructed from a non-rusting metal, ideally plastic. Two of the trays should be filled (and kept filled) with soft mud for potential nest building material for species such as house martin (*Delichon urbica*).

The green roof on the fifth floor of Block C will add to the local biodiversity and provide an additional recreational resource for residents. Areas of managed and non-manage habitats are proposed to provide an amenity space for residents and an area for biodiversity value. Where the substrate allows, small trees and scrubs will also be planted. A paved periphery walkway and large section timber benches will be included to provide a functional roof space.

The proposals will help replace and enhance the overall biodiversity value of the Site. It is likely that the level of planting post development will provide at least a minor enhancement, awarding at least three credits.

In the event that documentary evidence is provided to the registered Code assessor, to show that the species planted provide a minor enhancement in the ecological value of the Site, three credits of a possible four will be awarded.

8. SUMMARY OF WHICH CREDITS CAN BE ACHIEVED

As a result of the assessment shown in Section 7, Table 3 below summarises the number of ecology credits that can be awarded at this stage.

Table 3. Summary of Credits Awarded

Credit	Credits Available	Credits Likely to be Awarded	Explanation
Eco 1	1	1	The Site is considered of low ecological value
Eco 2	1	1	Once it has been proven that all key recommendations of this report and 30% of additional recommendations will be adopted, this credit can be awarded
Eco 3	1	1	Once evidence is provided that the trees/vegetation retained were protected during the construction period, this credit can be awarded.
Eco 4	4	3	Assuming that documentary evidence is provided to prove that the difference between the post and pre development sties will be greater than zero species, resulting in a minor enhancement.
Total	7	**6**	

In summary, it is likely that six credits will be awarded out of a possible seven for Eco 1 to Eco 4.

9. REFERENCES

Ref. 1 Communities and Local Government (2010) 'Code for Sustainable Homes Technical Guide November 2010'.

Ref. 2 Joint Nature Conservation Committee (JNCC), (1993); Handbook for Phase 1 Habitat Survey: A technique for environmental audit, revised reprint 2003

Ref. 3 Bat Conservation Trust, (2007); Bat Surveys – Good Practice Guidelines. Bat Conservation Trust, London.

Ref. 4 Greenspace Information for Greater London (2008) Data Request for Twyman House.

Ref. 5 British Standards Institute (2005), 'British Standard (BS5837): Trees in Relation to Construction.'

10. LIMITATIONS

URS Corporation Limited (URS) has prepared this Report for the sole use of CIT Developments Ltd. in accordance with the Agreement under which our services were performed. No other warranty, expressed or implied, is made as to the professional advice included in this Report or any other services provided by us. This Report may not be relied upon by any other party without the prior and express written agreement of URS. Unless otherwise stated in this Report, the assessments made assume that the sites and facilities will continue to be used for their current purpose without significant change. The conclusions and recommendations contained in this Report are based upon information provided by others and upon the assumption that all relevant information has been provided by those parties from whom it has been requested. Information obtained from third parties has not been independently verified by URS, unless otherwise stated in the Report.

Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the services. The results of any measurements taken may vary spatially or with time and further confirmatory measurements should be made after any significant delay in using this Report.

11. COPYRIGHT

Appendix A CVs

EMMA HATCHETT

Senior Ecologist

CURRICULUM VITAE

Areas of Expertise

- Phase I ecological surveys and desktop appraisals
- Phase II NVC surveys
- Protected species surveys including:
    - Reptiles
    - Dormice
    - Bats
    - Badgers
    - Water voles
    - Newts
- Holder of Natural England and Countryside Council for Wales Dormouse License
- Holder of Natural England and Countryside Council for Wales Bat Licenses
- Holder of Natural England and Countryside Council for Wales Great Crested Newt License
- Holder of English Nature White Clawed Crayfish License
- Holder of Personal Track Safety Card since July 2009
- Hedgerow and woodland surveys
- Creating, supervising and coordinating reptile translocation strategies
- Preparing badger license applications
- Consultation with statutory bodies
- Evaluation of ecological interest
- Analysis of bat recordings using BatSound and BatScan
- Provision of Ecological Clerk of Works role including provision of Tool Box Talks to construction personnel

Education

University of Birmingham Certificate in Biological Recording

BSc (Hons) Environmental Biology (2004), Oxford Brookes University

Career Summary

Emma is a Senior Ecologist with over 6 years experience working in ecological consultancy. She has a BSc (Hons) in Environmental Biology and has experience in undertaking data trawls, extended phase I surveys of a variety of sites and some experience of undertaking phase II NVC surveying techniques. Project management has led to experience being gained in all forms of reporting including the preparation of ecological appraisal reports, Environmental Statement chapters, technical and non-technical appendices, ecological management plans and ecological construction method statements. In addition, Emma has experience in preparing more specific reports such as great crested newt, bat, badger and dormouse method statements for licence applications to Natural England; BREEAM assessment reports for industrial sites and new office buildings; Code for Sustainable Homes Assessments for proposed residential sites; and method statements for the undertaking of reptile and water vole translocations. Emma also has experience in undertaking Phase II surveys for the European Protected great crested newt, dormouse, white-clawed crayfish and all species of bat and holds licenses for handling these species. Emma is also experienced in undertaking Phase II surveys for reptiles, water voles and badgers.

Career Detail

- **Redevelopment of existing power station and construction of new road in Walton on Trent, January 2003, Roger Bullivant Ltd** - Update data trawl followed by coordination of all supplied biological records and input into Environmental Statement, otter and water vole surveys, and analysis of public consultation results to form a short briefing note.
- **Housing development in Andover, January 2003 to December 2004, George Wimpey UK Ltd -** Initial ecological appraisal and desktop study followed by coordination of dormouse survey.

- **New housing in Fareham, January 2003, Persimmon Homes Ltd -** Initial ecological data trawl and desktop study followed by reptile survey, nut search and input into fifteen year woodland management plan. Experience in reptile translocation strategy also gained.
- **Redevelopment of hospital site in Walsall, January 2003, Bovis Homes Ltd -** Initial ecological data trawl and production of short briefing note outlining key factors to take into consideration when managing the site.
- **Housing development in Reading, February 2003, Bewley Homes Plc -** Initial ecological data trawl followed by subsequent badger and reptile surveying.
- **Large scale housing development in Aylesbury, February 2003, George Wimpey UK Ltd -** Badger bait marking exercise carried out to assess the usage, by badgers, of land ear-marked for development and therefore calculate loss of habitat that would occur.
- **Housing development in Petersfield, February 2003, Taylor Woodrow Developments Limited** - Identification of receptor site for slow worm translocation, follow up reptile surveying and coordination of destructive search.
- **Redevelopment of buildings at MOD sites in Aldershot and Warminster, March 2003, Waterman Environmental** - Initial ecological scoping via data trawl with follow up reptile and bat surveying.
- **Commercial development adjacent to SSSI in Doncaster, April 2003 to present, Catesby Property Group -** Initial ecological scoping via a data trawl followed by coordination of reptile translocation strategy and identification of a receptor site.
- **Housing development in West Durrington, May 2003 – March 2006, Heron Land Developments Ltd** - Coordination of reptile and dormouse surveys along with newt and water vole surveys.
- **Peatlands expansion in Cumbria, April 2003, English Nature -** Woodland and scrub appraisal with a view to woodland expansion including assessment of value and ability to increase area size of selected woodlands.
- **Housing development in Wiltshire, May 2003, Countryside Properties Ltd - I**dentification and coordination of receptor site for crayfish translocation including consultation with statutory bodies and members of the public on sensitive ecological issues.
- **Commercial development in Milton Keynes, June 2003, Gazeley Properties Ltd -** Initial ecological scoping and input into Environmental Statement along with coordination of newt surveys including management of an ecological subconsultant.
- **Expansion of leisure facilities in Devon, June 2003, Bourne Leisure Group -** Ecological appraisal and desktop study with input made to the Environmental statement.
- **Housing development in Princes Risborough, June 2003, Taylor Woodrow Developments Ltd -** Initial ecological scoping in the form of data trawl with input into Environmental Statement ecology chapter and follow up coordination of reptile survey work.
- **Proposed housing development in Reading, June 2003, CALA Homes -** Survey carried out to assess the likelihood of the presence of nesting birds in felled trees and assessment of disturbance if the felled trees were to be removed during bird nesting season.
- **Proposed housing development in Doncaster, August 2003, Catesby Property Group -**Compilation of reptile translocation strategy and coordination with both statutory and non statutory organisations to allow translocation to occur on to a Site of Special Scientific Interest.
- **Proposed housing development in Chatham, August 2003, Croudace ltd -** Compilation of reptile translocation strategy following English Nature recommendations including consultation with statutory organisations.

Professional History

February 2009 – present, URS Corporation Limited, Birmingham
March 2006 – January 2009, The Environmental Dimension Partnership, Cirencester
January 2003 – March 2006, Waterman CPM, Cirencester

Training

- Great Crested Newts and Development
- Dormice and Development
- Dormouse Ecology and Conservation
- Grasses – Flowering ID
- An Introduction to Extended Phase 1 Habitat Survey
- Biological Recording
- Identification of Sedges
- Song Bird Identification
- Identification of Aquatic Plants
- Using a Flora
- Grassland NVC Survey
-

Affiliations

Full Member of Institute of Ecology and Environmental Management
Member of Bat Conservation Trust

Languages

English

Chloe Phelan

Environmental Consultant

CURRICULUM VITAE

Areas of Expertise

- Environmental Impact Assessment.
- Ecology

Education

MSc. Ecology and Management of the Natural Environment (The University of Bristol) Graduated February 2010.
BSc. Zoology (University of Leeds, Hons. Grade 2.1). Graduated June 2006.

Career Summary

Chloe has gained over four years experience working within ecological consultancy, both abroad and in the UK at URS. She has a BSc (Hons) in Zoology and an MSc in Ecology and Management of the Natural Environment. She predominantly completes Ecological Impact Assessments (EcIA) both as part of a wider EIA and as stand-alone documents, in addition to a variety of baseline surveys, mitigation strategies, ecological constraint assessments, recommendation notes, landscaping recommendations; consultation with landscape architects, local wildlife groups and statutory consultees. Her baseline survey experience includes phase 1 vegetation, herptofauna, bat, badger, bird, dormice, hedgerow and water vole surveys. She has completed multiple BREEAM and Code for Sustainable Homes Ecology Assessments. Chloe has experience in reptile mitigation and the surveying of rare reptiles and is a member of the Peregrine Working Group in London.

Career Detail

ScottishPower Generation Limited, East Lothian, 2009

- Lead ecologist in gathering baseline data for Cockenzie Powerstation in the Firth of Forth, assessing coastal, inland and marine impacts upon Nature 2000 European Sites and European protected species. Completed the EcIA and assisted in the Habitat Regulation Assessment screening, consultation with statutory consultees and production of Habitat Regulation Assessment report.

Wates Living Space, Surrey, 2010

- Project manager for ecological post planning work required for a housing development in Horley. This involved the completion of an Extended Phase 1 Habitat survey, EcIA, bat surveys, terrestrial herptofauna surveys and compilation of reptile mitigation strategy.

Notting Hill Housing Ltd. London, 2010

- Lead ecologist in the planning requirements for a housing development known as Douglas Close in Harrow. Completed Ecology BREEAM report, Extended Phase 1 Habitat survey, detailed internal bat assessment and bat activity surveys.

Ballymore Properties limited, London, 2009 and 2010

- Compiled the ecology chapter for the Millharbour Quarter ES and completed a Code for Sustainable Homes and BREEAM Offices 2006 ecology report.
- Lead ecologist in the Thames Road Industrial Estate, Silvertown, planning application. Included the completion of extended Phase 1 habitat survey, constraints report, EcIA, BREEAM report and bat surveys.

Confidential Client, 2010

- Baseline survey work completed for a former Powerstation in Kent planning application, surveys included bats, reptiles, great crested newts and black redstarts.

British Land Property Management Ltd, London, 2010

- Completed ecological works required for 5 Broadgate planning application for a commercial development in the City of London designed by Make Architects. This included EcIA and Ecology BREEAM Report.

Bouygues Immobilier, Meudon, France 2010

- Completed an Ecology BREEAM Europe Offices 2008 report for a green office development in France.

Royal Mail Group Ltd, Northampton, 2010

- Lead ecologist in the completion of EcIA for the development of a former Royal Mail depot in Northampton known as Barrack Road. This involved scoping for protected species such as badgers and bats, completion of phase1 habitat survey and Ecology BREEAM Report.

Kier Southern, Watford, 2009

- Lead ecologist in the required ecological works for the redevelopment of Francis Combe School in Watford. Completed Extended Phase 1 habitat survey, landscaping recommendations, Ecology BREEAM report and EcIA.

The Trustees of The Tate Gallery, London, 2008

- Carried out the required ecological surveys for the Transformation of the Tate Gallery; an Extended Phase 1 Survey and bat survey. Compiled the ecology chapter within the Environmental Statement (ES) and BREEAM Ecology report.

EDCO Design London Ltd. London, 2008

- Undertook BREEAM Ecology report for development on Holloway Road in Islington. Involved liaising with architects and providing landscaping recommendations.

East Road Investments Ltd, London, 2008

- Completed the ecology chapter within the Environmental Statement (ES) for the East Road Development. This involved carrying out an ecological walkover survey scoping for bats and black redstarts.
- A BREEAM ecological report was completed based on the findings of this survey, which included providing suitable recommendations.

City Forum, Frogmore Estates, London, 2008

- Lead ecologist for EIA for a residential led use development located within the London Borough of Islington known as City Forum. Completed Phase 1, EcIA and BREEAM Report.

Englewood Limited, London, 2007

- Compiled the EcIA and BREEAM report for Eileen House EIA and EIA Addendum for a mixed use development located within the London Borough of Southwark.

Professional History

URS Corporation Ltd, Wimbledon. October 2007 - Present
URS Corporation, Abu Dhabi. September 2006- February 2007

Affiliations

Associate Member of IEEM
Member of the Peregrine Working Group in London
PADI Rescue Diver, 70 logged dives
Emergency First Aid Responder

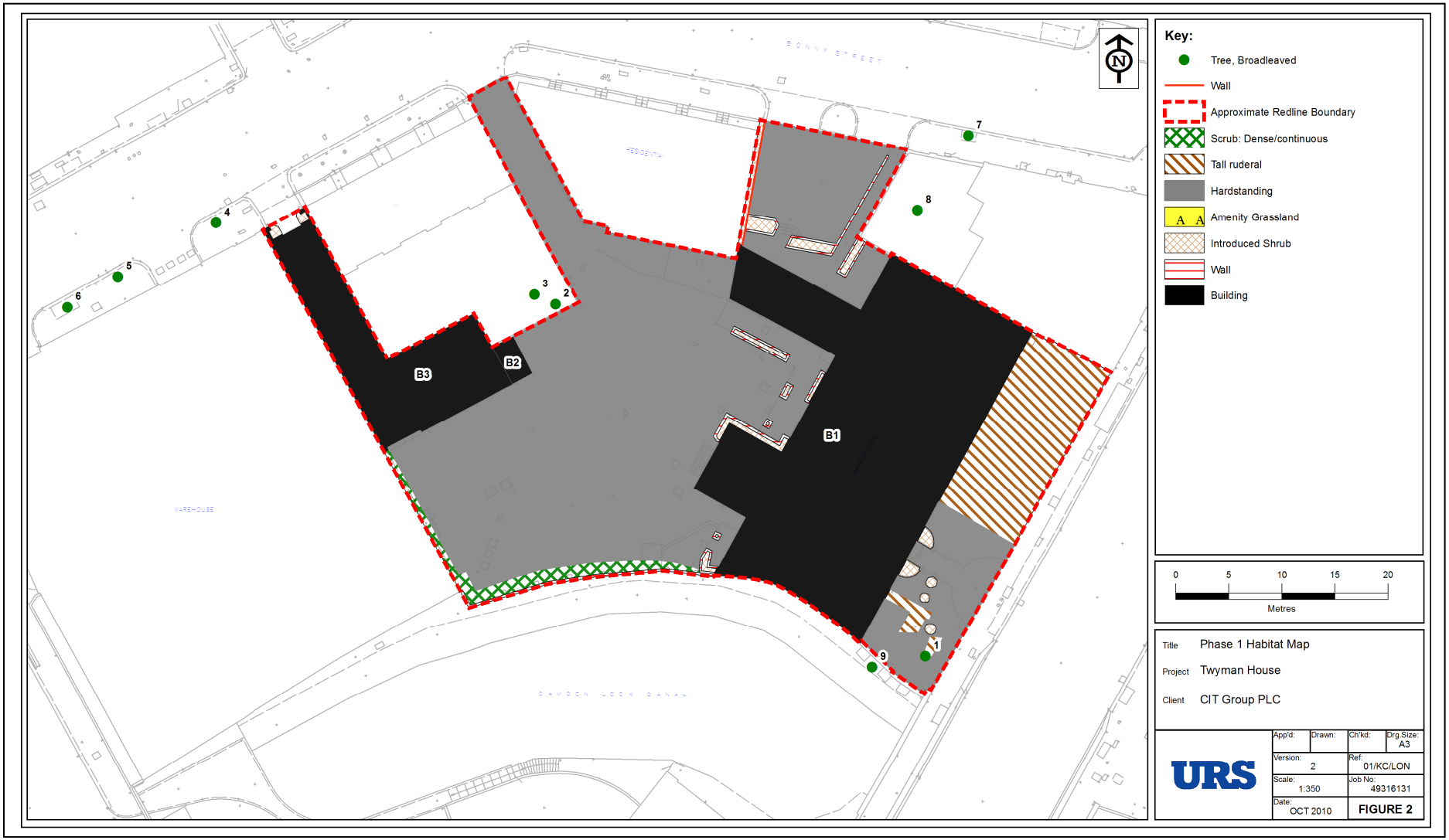
Appendix B Plant Species List

Appendix B – Plant Species List

Common name	Species name	ST	AM	TR	IS/DS
Annual Meadow-grass	*Poa annua*			LF	
Annual mercury	*Mercurialis annua*		LF		
Ash	*Fraxinus excelsior*	R			
Aucuba*	*Aucuba japonica*				LF
Balsam / black poplar hybrid*	*Populus sp.*	R			
Begonia*	*Begonia sp.*				LF
Brambles	*Rubus fruticosus L. agg.*				O
Broad-leaved Cockspur Thorn*	*Crataegus persimilis*				O
Cherry laurel*	*Prunus laurocerasus*				O - R
Common cat's-ear	*Hypochaeris radicata*			LF	
Common chickweed	*Stellaria media*		O		
Common couch	*Elymus repens*		O		
Common nettle	*Urtica dioica*		LF		
Cow parsley	*Anthriscus sylvestris*		O		
Creeping thistle	*Cirsium arvense*				O - R
Cultivated crane's-bill	*Geranium sp.*				LF
Dandelions	*Taraxacum officinale*			F	
Dock sp.	*Rumex sp.*		R		
Elder	*Sambucus nigra*				O
Finger-grass	*Digitaria sp.*				LF
Firethorn	*Pyracantha coccinea*				LD
Fleabane sp.*	*n/a*			LF	
Fuchsia*	*Fuchsia sp.*				LF
Geranium*	*Geranium sp.*				F - LA
Greater plantain	*Plantago major*		R		
Groundsel	*Senecio vulgaris*			LF	
Guernsey fleabane*	*Conyza sumatrensis*				O
Hibiscus*	*Hibiscus syriacus*				R
London plane*	*Platanus x hispanica*	O			
Mugwort	*Artemisia vulgaris*				R
Norway maple*	*Acer platanoides*	O - LF			
Ornamental Ballota*	*Ballota sp.*				O
Ornamental conifer*	*n/a*				LF
Ornamental Solanum*	*Solanum sp.*				LF
Ornamental Sorbus*	*Sorbus p.*	R			
Perennial rye-grass	*Lolium perenne*		A	LF	
Primula*	*Primula sp.*				LF
Skimmia*	*Skimmia sp.*				O
Smooth meadow-grass	*Poa pratensis*		A		
Smooth sow-thistle	*Sonchus oleraceus*			A	
Sycamore *	*Acer pseudoplatanus*	R			
Variegated euonymus*	*Euonymus japonica / radicans*				A
Variegated ivy	*Hedera sp.*				A - LD
Varigated periwinkle*	*Vinca sp.*				O - LF
Virginia Creeper*	*Parthenocissus sp.*				LD
Yucca*	*Yucca sp.*				LF

*those with an asterisk not considered to be of ecological value

ST	Scattered trees
AM	Amenity grassland
TR	Tall ruderal
IS/DS	Introduced shrub/Dense scrub


BONNY STREET
RESIDENTIAL
WAREHOUSE
CAMDEN LOCK CANAL
B1
B2
B3
1
2
3
4
5
6
7
8
9
N
Key:
Tree, Broadleaved
Wall
Approximate Redline Boundary
Scrub: Dense/continuous
Tall ruderal
Hardstanding
Amenity Grassland
Introduced Shrub
Wall
Building
0
5
10
15
20
Metres
Title Phase 1 Habitat Map
Project Twyman House
Client CIT Group PLC
URS
App'd:
Drawn:
Ch'kd:
Drg.Size: A3
Version: 2
Ref: 01/KC/LON
Scale: 1:350
Job No: 49316131
Date: OCT 2010
FIGURE 2