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Biodiversity Impact Calculation

45 Upper Redlands Road, Reading

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Report Summary

1. The Ecology Co-operation was commissioned by The Keen Partnership to undertake a Biodiversity Impact Calculation of a proposal to create a new residential dwelling at 45 Upper Redlands Road, Reading, using the Statutory Biodiversity Metric, to quantify net change in biodiversity.

2. The proposed development scheme at this site will result in the loss of:

On-site

- u1 – vegetated garden (828) – 0.044ha, and
- urban tree – 0.0163ha (moderate condition) (T7).

3. The proposed development scheme at this site will retain:

On-site

- u1 – vegetated garden (828) – 0.077ha;
- u1b5 – building – 0.003ha;
- urban tree – 0.0163ha (moderate condition) (T3);
- urban tree – 0.0041ha (poor condition) (T5);
- urban tree – 0.0041ha (poor condition) (T6), and
- urban tree – 0.1344 (moderate condition) (G1).

4. Post intervention the following habitats will be created:

On-site

- u1b5 – building – 0.02ha;
- u1b – developed land; sealed surface 0.02ha; and
- h2 – native hedgerow 0.017km

5. The Statutory Biodiversity Metric Calculation has demonstrated that the proposed scheme will result in a likely net loss of 0.68 habitat units (-29.69%).

6. There is a likely gain of 0.03 hedgerow units.

7. The current scheme does not satisfy the trading rules within the Statutory Biodiversity Metric. The calculation has identified the following trading deficits:

- -0.06 medium distinctiveness units (individual trees)
- -0.09 low distinctiveness units.



8. In order to achieve a 10% net gain in biodiversity units, the scheme would need to secure a further 0.91 habitat units, of which 0.6 must be created through tree planting.



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1 INTRODUCTION

1.1 Purpose of the Report

AS of the 12th February 2024, there is now a mandatory requirement for all new developments to demonstrate 'net gains' in biodiversity following the release of updated National Planning Policy Framework¹ by the Department of Housing, Communities and Local Government and the Environment Act 2021². A mandatory value of 10% net gain for all developments has also been set out within the Environment Act 2021.

This document includes a baseline 'Biodiversity Impact Calculation' (BIC) for the proposed development at 45 Upper Redlands Road, Reading. The calculation utilises the Statutory Biodiversity Metric and assigns 'biodiversity units' to the pre-existing habitats contained within a proposed development site and those that are predicted to be lost, restored and/or created once the development has been constructed. This allows an objective comparison to be made between the existing biodiversity value of a given site and the predicted biodiversity value post development, with the net change in biodiversity value subsequently quantified.

The purpose of this document is to present the findings of the BIC based on the most up-to date existing habitat survey information and the most current outline plans for the proposed development of the site. Biodiversity Impact Calculations provide an evidence base for discussions between the ecological consultant, developer and the local planning authority regarding on-site avoidance, on-site mitigation and off-site compensation requirements.

This report will be used in relation to a proposal for the creation of a new residential development. Given the likelihood of proposed changes in the design scheme, some of the recommendations will potentially be subject to change.

This report was commissioned and produced at the request of The Keen Partnership.

1.2 Background

The site measures approximately 0.34ha and consists of a former garden bound by wooden panel fencing and brick walls. An air raid shelter exists towards the southern edge of the site and is set within a collection of trees.

Habitats (UKHab) within the site and along the site boundaries are shown in (Figure 1), these include:

- u1(828) –vegetated garden, and
- individual trees (5 medium and 35 small sized specimens).

¹ HM Government (2023). National Planning Policy Framework. Department for Communities and Local Government. Available online at:

https://assets.publishing.service.gov.uk/media/65a11af7e8f5ec000f1f8c46/NPPF_December_2023.pdf

² HM Government (2021). Environment Act 2021 . Available online at:

<https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>



Figure 1. UKHab map showing existing habitats within the site at 45 Upper Redland Road, Reading. Produced using QGIS software, version 3.16.3 – Hannover.

The proposed development would see the creation of a single residential dwelling. A proposed layout plan and proposed UKHab map are provided in Figure 2 and Figure 3 respectively.



Figure 2. A proposed layout plan for the development at 45 Upper Redlands Road, Reading. Reproduced courtesy of The Keen Partnership. Drawing No. 9242-102 (Dated 22.11.23).

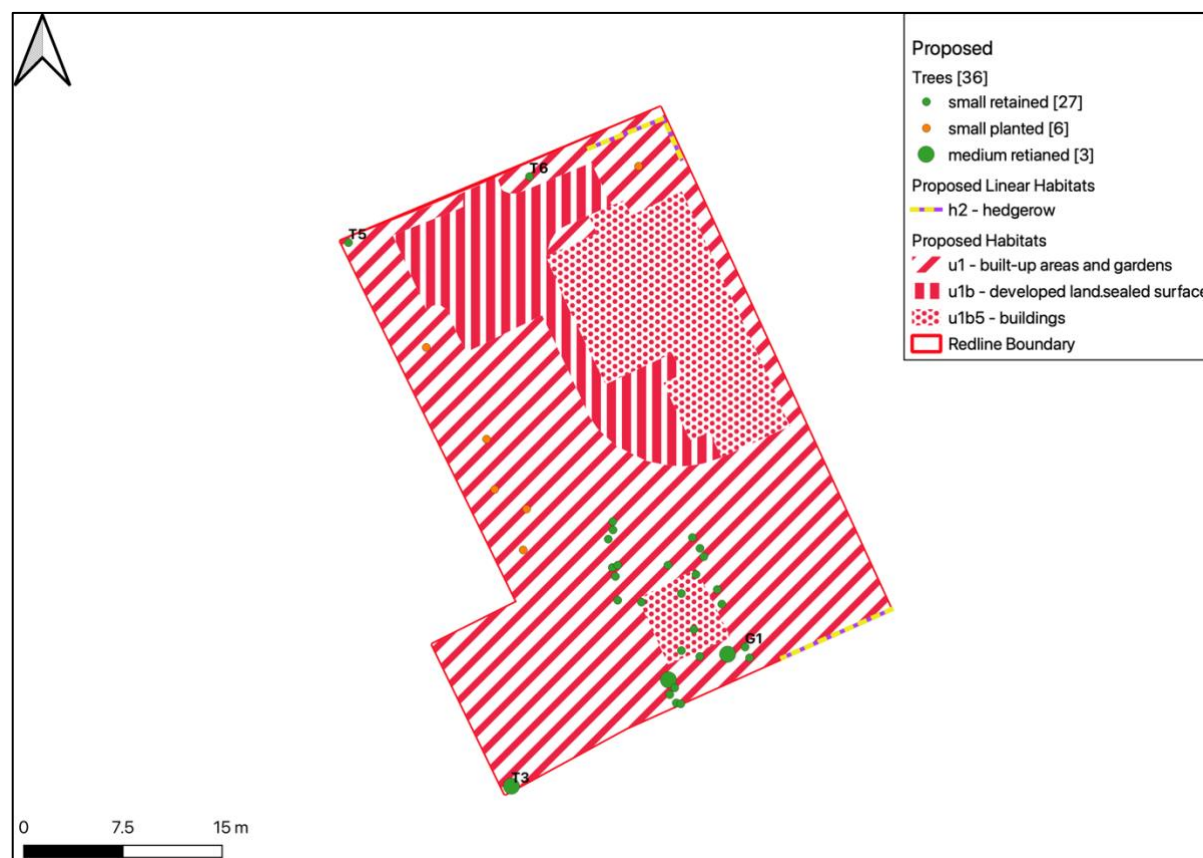


Figure 3. UKHab map showing proposed habitats within the site at 45 Upper Redlands Road, Reading. Produced using QGIS software, version 3.16.3 – Hannover. N.B. Email correspondence with the project architect has agreed variations from Figure 2 such that all existing trees, with the exception of T7, will be retained.

1.3 Policy & Legislation

NPFF (2023)

The NPFF sets out the Government's view on how planners should balance nature conservation with development and helps ensure that Government meets its biodiversity commitments with regards to the operation of the planning system.

Paragraph 180d, states that planning policies and decisions should contribute to and enhance the local environment by:

- “*minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.*”

Paragraph 185b, states that to protect and enhance biodiversity and geodiversity, plans should;

- “*promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.*”

Paragraph 186d, states that when determining planning applications, authorities should apply the following principle:

- “*development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be*



integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.”

Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system³.

In accordance with the NPPF, it is important that developments should contribute to local policies that enhance the natural environment by:

- minimising impacts on existing biodiversity and habitats and designated features
- establishing coherent ecological networks that are more resilient to current and future pressures
- providing net gains in biodiversity and habitats, wherever possible

Environment Act (2021)

The Environment Act sets a target of halting the decline in species through the inclusion of a legally binding 2030 species abundance target. Aiming to restore natural habitats and enhance biodiversity, the Act requires new developments to improve or create habitats for nature (through mechanisms such as mandatory Biodiversity Net Gain), and tackle deforestation. Going forwards, UK businesses will need to look closely at their supply chains as amongst other measures they will be prohibited from using commodities associated with wide-scale deforestation. Woodland protection measures are also strengthened through the Act.

1.4 Methodology

This Biodiversity Impact Calculation uses the Statutory Biodiversity Metric Calculation Tool published by Natural England⁴. This uses the Government Biodiversity Metric developed by DEFRA (‘the DEFRA Biodiversity Metric’) to calculate ‘habitat units’ and ‘hedgerow units’ by multiplying the area (ha) or lengths (km), ‘distinctiveness’ (habitat type), ‘condition’ (quality), and strategic significance (location in relation to the authority’s local strategy) of each habitat parcel.

The calculation provides a negative value to the biodiversity units where habitat is being directly lost to development. Where habitats are enhanced or created on-site, or off-site, the calculation gives a positive value but adds risk factors that account for uncertainty - difficulty in creating new habitats and time delays while they establish; habitats that are more difficult to restore or that will take a long time to reach a set target condition will score lower and therefore make a smaller positive contribution.

Where on-site gains are equal to or larger than the losses, the project is deemed to have neutral biodiversity impact or biodiversity ‘net gain’ respectively.

³ HM Government (2005) ODPM Circular 06/05 Government Circular: *Biodiversity and Geological Conservation – Statutory Obligations and their Impact within the Planning System*. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf.

⁴ Natural England (2023) The Statutory Biodiversity Metric – Calculation Tool. Available online at: <https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>



Where on-site gains do not outweigh on-site losses and a biodiversity 'net loss' is calculated, this becomes an 'offset requirement'. Offsets can be provided by further habitat creation or enhancement in-situ or elsewhere and are assessed using the same metric to balance the predicted gains against the losses to ensure no net loss will be achieved. It follows that a biodiversity net gain can still be achieved by providing higher biodiversity gains through the offset than the net loss resulting from the development.

Note that the Biodiversity Metric does not allow for 'trading down'; one of the key principles in measuring biodiversity net losses or gains is that habitats of high ecological importance cannot be offset by the creation of larger areas of habitats with lower value. The Statutory Biodiversity Metric Calculation Tool includes a 'trading down correction' that deducts the number of biodiversity units that are not accounted for through the creation of equivalent high distinctive habitats than that lost. For example, the loss of a small area of lowland meadow priority habitat (high distinctiveness) will not be offset by a larger area of modified grassland (medium distinctiveness) and will only be offset by an equivalent area of habitat of the same distinctiveness or higher.

1.5 Data Sources

This calculation uses the most up to date survey information, considering previous ecological survey work undertaken by Windrush Ecology⁵, and using botanical data gathered during the most recent site visit of 10th January 2024 by The Ecology Co-op; specific condition assessments were also undertaken on this date. The areas of each habitat category were measured using GIS mapping tools (QGIS). Condition assessments were made in accordance with the Condition Tables within The Statutory Biodiversity Metric Condition Assessment⁶ and draft user guide⁷. Applying the precautionary principle, a presumption for the higher condition was used where there was any uncertainty in the condition of existing habitats.

To predict habitat/hedgerow units supported by the site after completion of the development, the aerial imagery was overlaid by the proposed scheme layout (see Figure 2). This allowed direct losses of habitats to be measured where the built environment overlaps with pre-existing habitat, with gardens and amenity areas treated separately. The habitats that are 'created' after development are assumed to achieve the highest level of condition as appropriate; a separate landscape and enhancement plan should be produced to ensure this condition is achieved

The Statutory Biodiversity Metric uses a separate calculator spreadsheet for linear features. This works under the same principles as above but replaces areas of habitat with linear length of a feature. It should be noted that because linear features often have higher ecological importance, linear habitats are assigned higher distinctiveness and must be offset with other linear features. The hedgerow units generated for linear features are not equivalent or interchangeable with biodiversity calculations for areas of habitat.

⁵ Windrush Ecology (2018). *Land at 45 Upper Redlands Road, Reading – Preliminary Ecological Appraisal*.

⁶ Natural England (2023) *Statutory Biodiversity Metric Condition Assessments* Available online at:

<https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>

⁷ Natural England (2023). *Statutory Biodiversity Metric draft user guide*. Available online at:

<https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>



1.6 Results

1.6.1 Existing Habitats Assessment

A summary of habitats and condition assessments is provided in Table 1. Full results of condition assessments for habitats which require it (using the Statutory Biodiversity Metric condition assessment sheets) are provided in Appendix 1.

Overall, the on-site calculated baseline is 2.3 habitat units and 0 hedgerow units.

Table 1. Existing habitats at 45 Upper Redlands Road, Reading.

Habitats			Condition
UK Habitat (UKHab) Classification System	Location/reference (habitat parcels split if multiple areas with different condition assessments)	Area (ha)	
u1(828) – vegetated gardens	N/A	0.114	N/A
u1b5 - buildings	N/A	0.003	N/A
Urban trees	T3 & T7	0.0326	Moderate
Urban trees	T5	0.0041	Poor
Urban trees	T6	0.0041	Moderate
Urban trees	G1	0.1832	Moderate

1.6.2 Strategic Significance

The site exists within a Green Link under the Reading Borough Council Local Plan⁸ which identifies these designations as “Areas with potential for biodiversity value and which stitch the Green Network together – designated Local Green Space and open green spaces, and existing and potential Green Links”

Table 2. Strategic Significance of existing habitats at 45 Upper Redlands Road, Reading.

Habitats		
UK Habitat (UKHab) Classification System	Location/reference (habitat parcels split if multiple areas with different condition assessments)	Strategic Significance
u1(828) – vegetated gardens	N/A	Formally identified in local strategy
u1b5 - buildings	N/A	Area/compensation not in local strategy/ no local strategy
Urban trees	T3 & T7	Formally identified in local strategy
Urban trees	T5,	Formally identified in local strategy
Urban trees	T6	Formally identified in local strategy
Urban trees	G1	Formally identified in local strategy

⁸ Reading Borough Council (2019) *Reading Borough Council Local Plan – 4. General Policies and Natural Environment*.

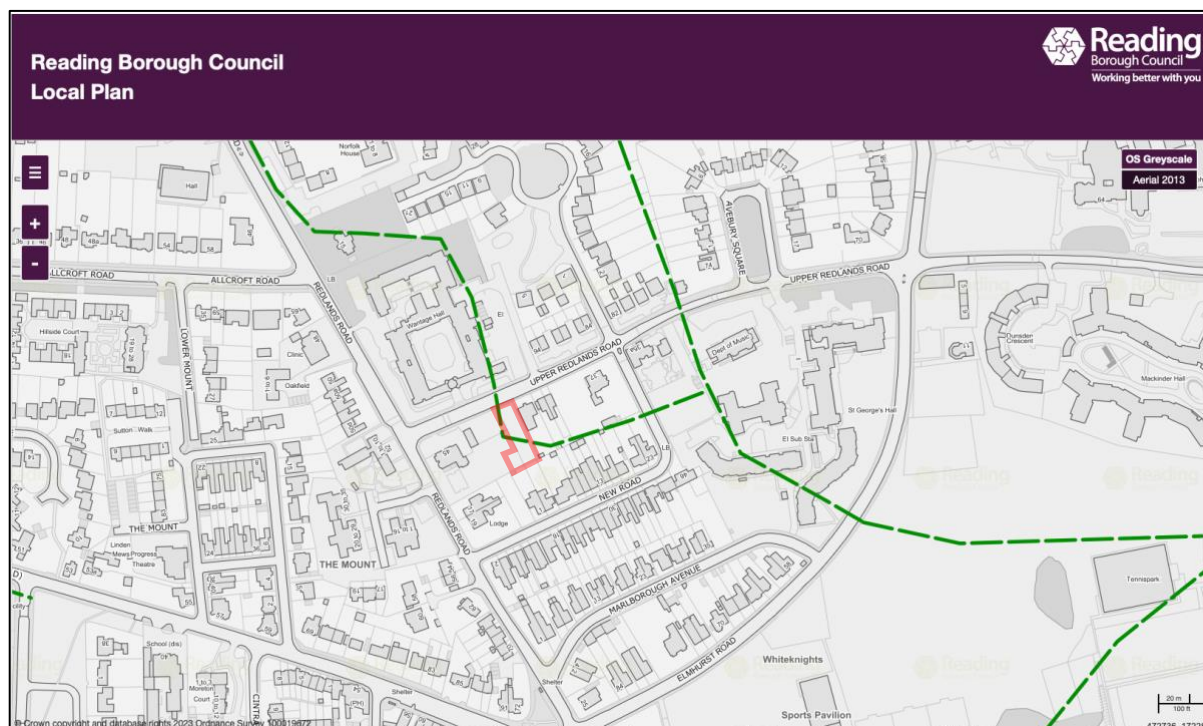


Figure 4. The Green Link which crosses the application site. Taken from <https://my.reading.gov.uk/custom/ReadingLocalPlanSolo.html>

1.6.3 Habitat Losses and Gains

The proposed development scheme at this site will result in the loss of:

On-site:

- u1 (828) vegetated garden – 0.044ha, and
- urban tree – 0.0163ha (moderate condition) (T7).

The proposed development scheme at this site will retain:

On-site:

- u1 (828) vegetated garden – 0.077ha;
- u1b5 – building – 0.003ha;
- urban tree – 0.0163ha (moderate condition) (T3);
- urban tree – 0.0041ha (poor condition) (T5);
- urban tree – 0.0041ha (poor condition) (T6); and
- urban tree – 0.1344ha (moderate condition) (G1).

Post intervention the following habitats will be created:

On-site:

- u1b5 – building – 0.02ha;
- u1b – developed land; sealed surface 0.02ha; and
- h2 – native hedgerow 0.017km.



45 Upper Redlands Road, Reading – Biodiversity Impact Calculation

Whilst a number of small tree will be planted within the site (Figure 3) these will be in residential gardens and so cannot be incorporated into the metric calculation

The overall results of the calculations are presented in Table 3. Please refer to the Statutory Biodiversity Metric Calculation Tool supplied with this document (submitted separately) for full details of the calculation.

Table 3. Headline results of the Biodiversity Impact Calculation for the proposed development at 45 Upper Redlands Road, Reading.

FINAL RESULTS		
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	-0.68
	<i>Hedgerow units</i>	0.03
	<i>Watercourse units</i>	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	-29.69%
	<i>Hedgerow units</i>	N/A
	<i>Watercourse units</i>	0.00%
Trading rules satisfied?	No - Check Trading Summaries ▲	

1.7 Conclusions

The Statutory Biodiversity Metric Calculation has demonstrated that the proposed scheme will results in a likely net loss of **0.68 habitat units (-29.69%)**.

There is a proposed net gain of **0.03 hedgerow units**. As no baseline hedgerow units exist, a percentage change cannot be calculated

The current scheme does not satisfy the trading rules within the Statutory Biodiversity Metric. The calculation has identified the following trading deficits:

- -0.6 medium distinctiveness units (individual trees)
- -0.09 low distinctiveness units.

In order to achieve a 10% net gain in biodiversity units, the scheme would need to secure a further 0.91 habitat units, of which, 0.6 must be created through tree planting.

Should you need any further advice on the information provided above, please do not hesitate to contact The Ecology Co-op.



APPENDIX 1 – Habitat Condition Assessment Sheets

Condition Sheet: INDIVIDUAL TREES Habitat Type
Habitat Types
Individual trees – Urban trees Individual trees – Rural trees Complete a condition sheet for each tree or block of trees. <u>Please see separate Line of trees condition sheet for a line of Rural trees.</u>
Habitat Description
T3 – A semi mature lime <i>Tilia xeuropaea</i> with a DBH of 70cm.  T5 – A young holly <i>Ilex aquilifolium</i> with a DBH of 10cm.  T6 – A semi-mature holly with a DBH of 15cm.



T7 – A semi-mature horse chestnut *Aesculus hippocastenum* with a DBH of 35cm.



G1 – A collection of 33 small and 3 medium (young/semi-mature) ash *Fraxinus excelsior* and sycamore *Acer pseudoplatanus* trees





Individual trees (description applied to the urban or rural environment): Young trees over 7.5 cm in diameter at breast height whose canopies are not touching.								
Urban Perimeter / Linear Blocks and Groups (description applied to the urban environment only): Groups or stands of trees (size requirement as defined above) within and around the perimeter of urban land. This includes those along urban streets, highways, railways and canals, and also former field boundary trees incorporated into developments. Canopies must overlap continuously. Groups of urban trees that don't match the descriptions for woodland may be assessed within this category.								
On-site or off-site, site name and location	On-site	Survey date and Surveyor name	10/01/24 – Owen Crawshaw					
		Survey reference (if relating to a wider survey)						
Limitations (if applicable)		Habitat parcel reference						
		T3	T5	T6	T7	G1		
		Grid reference						
Condition Assessment Criteria		472	472	472	472	472		
		711	700	714	720	725		
		.79	416	272	955	969		
		770	634	788	485	173		
		625	284	15	905	418		
		3	172	172	172	172		
		172	262	271	272	241		
		230	551	765	534	291		
		.98	185	364	836	101		
		493	111	993	268	195		
Criterion passed (Yes or No)						Notes (such as justification)		
A	The tree is a native species (or at least 70% within the block are native species).	Y	Y	Y	Y	Y		
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	Y	Y	Y	Y	Y		



45 Upper Redlands Road, Reading – Biodiversity Impact Calculation

C	The tree is mature (or more than 50% within the block are mature) ¹ .	N	N	N	N	N		
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	N	N	N	N	N		
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	Y	N	Y	Y	Y		
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Y	N	N	N	Y		
Number of criteria passed		4	2	3	3	4		
Condition Assessment Result (out of 6 criteria)	Condition Assessment Score	Score Achieved x/√						
Passes 5 or 6 criteria	Good (3)							
Passes 3 or 4 criteria	Moderate (2)	X		X	X	X		
Passes 2 or fewer criteria	Poor (1)		X					