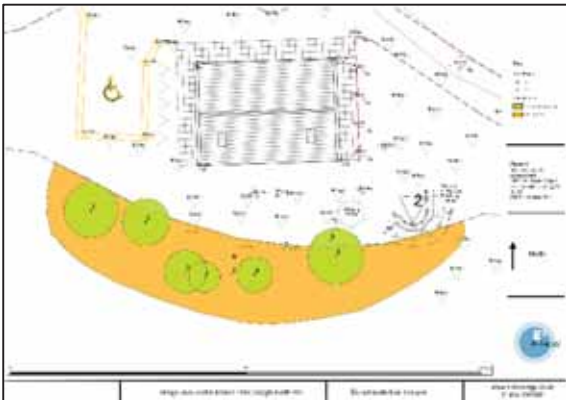


PRE-DEVELOPMENT TREE CONSTRAINTS ASSESSMENT



WALLTOWN CRAGGS VISITORS CENTRE.



September 2014

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A SUMMARY

E³ Ecology Ltd was commissioned by Cundall to undertake a pre-development Tree Constraints Assessment (TCA) for trees to the rear of the Walltown Craggs visitors centre, Northumberland.

Current development proposals include the extension of the rear and the eastern side of the current building to create a covered picnic area and utensil washing area. A two storey/ stacked 'eco-cabin' will be positioned temporarily to the rear of the building.

Survey was undertaken on the 3rd September 2014 and comprised a thorough inspection of the trees within the site to inform the TCA. This assessment places trees into categories of retention as recommended by the prescriptions of British Standard (BS) 5837:2012: 'Trees in relation to design, demolition and construction - Recommendations'.

Ten of the semi-mature to mature trees within the site boundary were surveyed separately and individually reference tagged with a numbered aluminium disc.

All **trees to be retained** should have a Construction Exclusion Zone (CEZ) implemented around them as specified in an Arboricultural Implications Assessment (AIA)/Tree Protection Plan (TPP) following production of detailed scale development plans.

Consultation with the Northumberland National Park Authority, Forestry and Landscapes officer, highlighted that the trees are not within a Conservation Area and that currently no specific tree preservation orders have been served on any of the trees within the site.

Root Protection Areas (RPAs) were calculated for each tree. These dimensions should be used to inform the positions of buildings, associated landscaping, hard standing and access routes in the final landscape plan and the prescriptions of the TPP.

For the purposes of this survey, each significant tree was assigned a category of retention in accordance with BS5837:2012 (Appendix 2: Tree quality assessment) and an estimated safe use life expectancy (SULE) in the context of a future development.

In summary:

- Three trees were category 'B' and,
- Seven were category 'C'.

Overall, within the context of the surrounding area, the trees within the site are currently assessed as being of low to moderate landscape, amenity and ecological value. This is in terms of providing screening from the surrounding areas, and providing important wildlife linkages and nesting and foraging habitat for any wildlife that would be found within the site.

One characteristic group of trees of low to moderate ecological and landscape value were assessed as a whole, across the site (table 3).

No specific works are recommended for any of the trees on the site at the time of survey. This assessment is made according to their status at the time of survey (the default being that unless stated all the trees present are to be retained) from a health, safety and general management perspective.

Potential impacts of the proposed development without appropriate mitigation are:

- Loss of a group of young to semi-mature trees that as a whole are ecological, amenity and landscape assets of moderate to high value to the site and surroundings.
- Serious damage to the roots and crowns of trees being retained during the ground work and construction phase of the development.
- Works to or removal of semi-mature trees with a high risk of supporting nesting birds.
- Harm or disturbance to tree nesting birds during pruning works and vegetation removal should this take place during the bird breeding season (March to August inclusive).

Key mitigation and enhancement measures are likely to include:

- The retention of trees on site where possible.
- Where trees are retained, all works on site are to be undertaken in accordance with a TPP with working methods.
- All works to trees to be carried out to the prescriptions specified in an arboricultural method statement, by an approved and experienced arboricultural contractor working to BS-3998:2010.
- All tree works are to be undertaken outside the bird breeding season (March-August inclusive) unless a checking survey is undertaken by an appropriately qualified ecologist and active nests are found to be absent.
- Spacings between the planted trees within the copse of woodland to the rear of the building are already tight. This area would benefit from a systematic thinning and coppicing regime to encourage natural regeneration and the development of the ground flora.
- No further tree planting is recommended to mitigate for the loss of the trees for the development at this stage.
- Adequate measures should be taken to protect the roots of trees within the root plate areas (see TPP) and the crowns of trees from the movement of high clearance site plant machinery.
- Barriers must prohibit construction works in the areas between the barriers and tree trunks. Barriers are to be installed prior to any preliminary construction or preparation works.
- The adoption of horticultural good practice (e.g. no, or low, use of residual pesticides) especially if stumps are to be treated. If necessary, the stumps should be physically removed or decimated with a stump grinder.

E³ Ecology Ltd accepts no responsibility for injury that may occur as a result of incorrectly interpreting this report. Trees are living organisms whose health and condition can change rapidly as a result of environmental changes. All trees, even healthy ones, are at risk from unpredictable climatic and man-made events. The assessment of risk for these trees is based upon factors evident at the time of the inspection, the potential an individual tree has for survival, and the interpretation of those factors by the inspector. The health, condition and safety of these trees should be checked on a basis commensurate with the level of risk as specified in this report.

If works are not likely to start within 12 months of this report, it is recommended that an updating survey is undertaken to ascertain any changes which may have occurred to trees surveyed, where failure to carry out the prescribed works within the specified time frames has occurred.

If you are assessing this report for a local planning authority and have any difficulties interpreting plans and figures from a scanned version of the report, E³ Ecology Ltd would be happy to email a PDF copy to you. Please contact us on 01434 230982.

B INTRODUCTION

E³ Ecology Ltd was commissioned by Cundall to undertake a pre-development TCA for trees to the rear of the Walltown Craggs visitors centre, Northumberland.

The site is situated near Walltown at approximate central grid reference NY668658. Site location is illustrated below in figures 1 and 2.

Figure 1- Map of site and surrounding area. ©Crown copyright and database (2014)

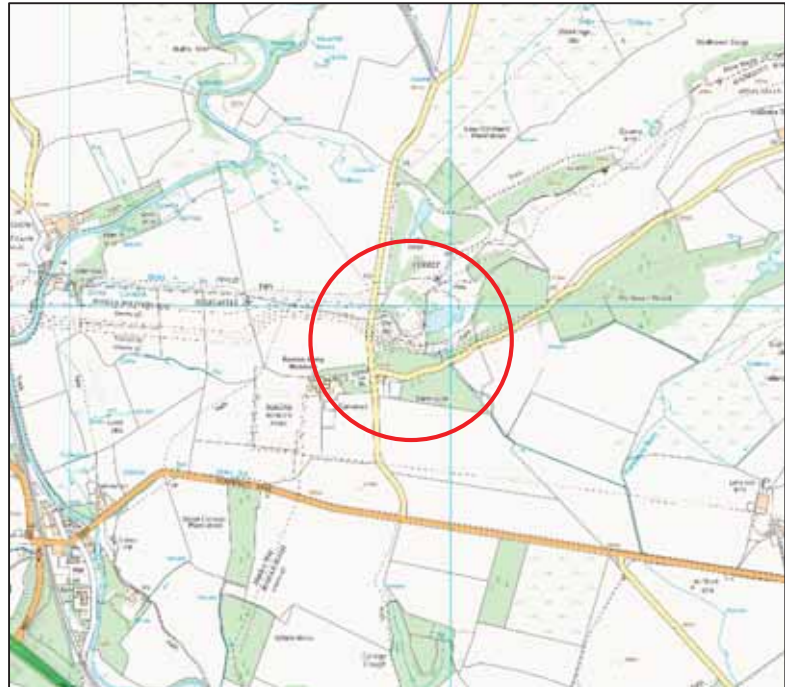


Figure 2 – Aerial photograph of the site location showing individual trees within the context of the land surrounding the site. Reproduced under licence from Google Earth Pro. (2014)



B.1 Details of the proposed works on site

Current development proposals include the extension of the rear and the eastern side of the current building to create a covered picnic area and utensil washing area. A two storey/ stacked 'eco-cabin' will be positioned temporarily to the rear of the building.

Figure 3. Proposed site plan:
Northumberland National Park
Authority, Walltown Craggs
Centre. Tims Morris (140040-
03 Rev C: 09/14)

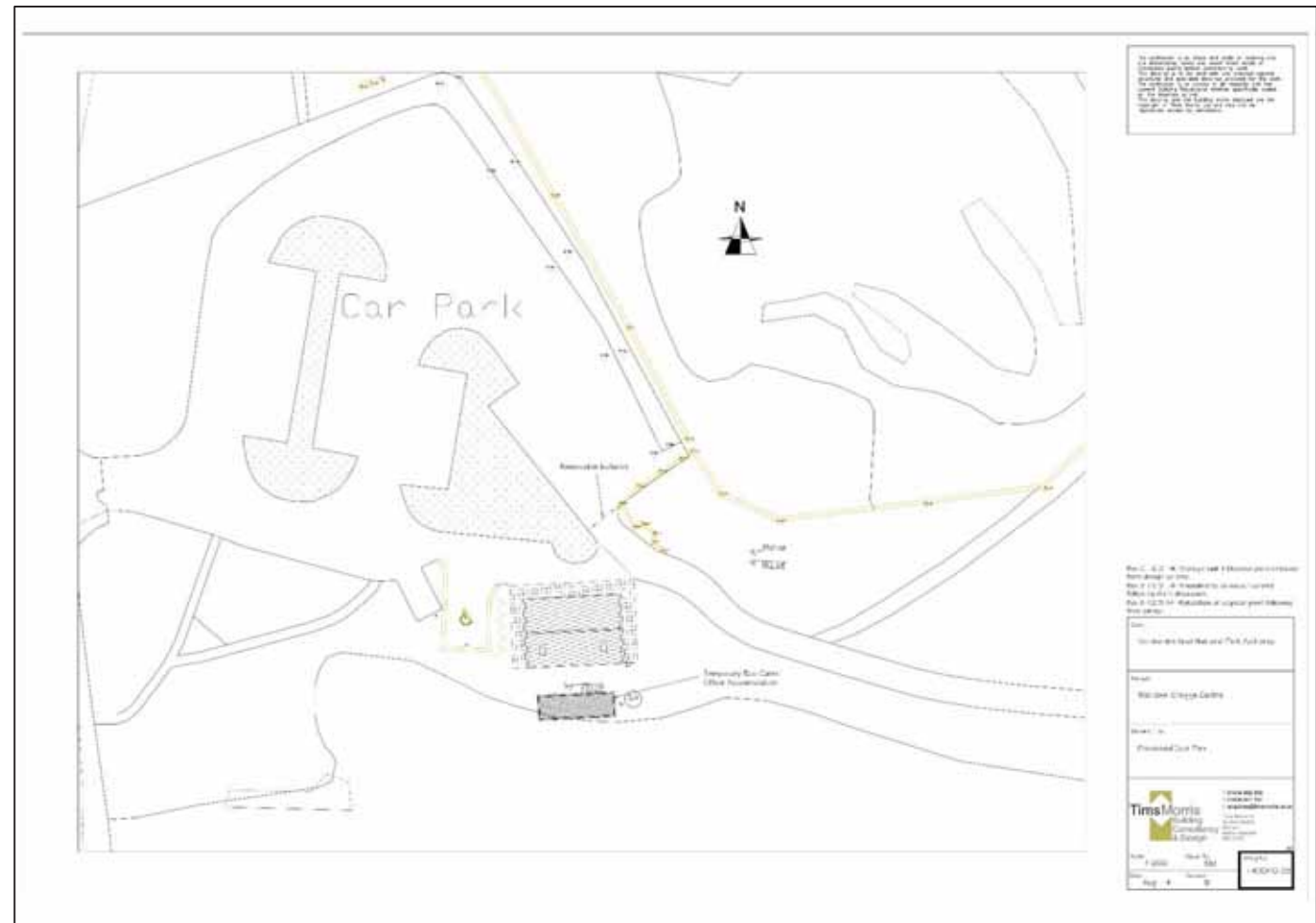
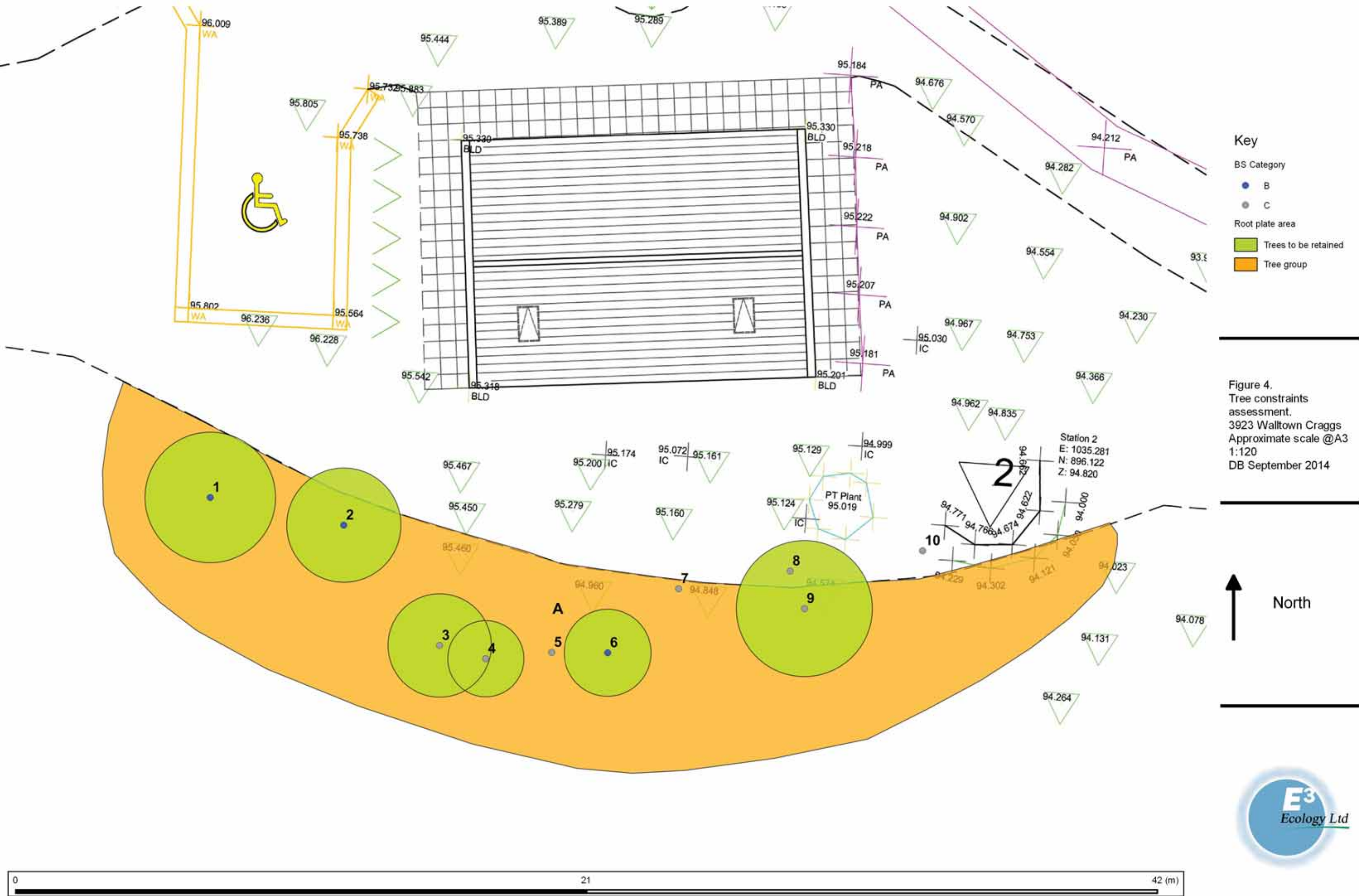


Figure 4 illustrates the locations of surveyed trees around the site.
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C METHODOLOGY

C.1 Land survey

The visitors centre and café is located to the south of the Walltown Craggs car park. There is a small copse of cultivated tree species which have been planted on the slope behind the building as a screen from a public footpath. These trees link to a greater area of plantation woodland growing to the south and to the east. The woodland is isolated within large areas of pasture which dominate the landscape within this area.

C.2 Inspection

A site visit was undertaken on the 3rd September 2014. All observations were carried out from ground level using the Visual Tree Assessment (VTA) method (Mattheck, C and Breoler, H., 2010).

Prescriptions for proposed works on the trees were assigned according to the guidelines in BS 3998:2010: 'Recommendations for tree work' and BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations' from which arboricultural method statements (AMS) an AIA and TPP can be designed.

Young trees and dead trees with a stem diameter of less than 150mm were not tagged (except specific notable trees of high value). If young trees are to be removed, they can easily be transplanted around the site and incorporated into the overall landscape design. If they are to be retained a CEZ should be implemented around them as specified in an AIA and TPP once development proposals have been finalised.

Root Protection Areas (RPAs) were calculated for each tree to allow a TPP to be created where conflicts with any aspect of a future development may occur (a scale diagram should be provided in an annexed AIA/TPP report). These are stated within the TCA schedule in m² as a circle centred on the centre of each stem, or in metres as a radius from the centre of each stem.

- Each tree selected was identified and assigned a reference number on the plan. An aluminium reference tag was attached to each tree with a zinc nail.
- Diameters of trees were taken with a diameter at breast height (DBH) tape at 1.5m above adjacent ground level. Heights were calculated using a Clinometer at intervals of 10m from the tree, depending on accessibility and visibility of the canopy and the height.
- The crown radius was estimated to the nearest 0.5m along the cardinal points (north, east south, and west) and the crown clearance calculated as the nearest point of the crown to ground level.
- Age class, Safe Use Life Expectancy (SULE) (Appendix 3) and physical condition of the trees were assessed subjectively by the inspector in order to designate a category of retention of each tree in accordance with the criteria specified within BS5837:2012 (Table 1 and Appendix 2).

C.3 Rationale

- These techniques identify the quality and value of the tree stock (in a non-fiscal, ecological and landscape sense).
- This allows an informed decision to be made concerning which trees are to be removed or retained during the development stages.

- It also provides an estimate as to how long each tree can be expected to remain on site with an acceptable degree of safety; which is particularly important from a landscape design perspective.
- Management recommendations are made primarily if:
 - a tree is assessed to be potentially hazardous in the short term,
 - if there are hazardous features or defects that could easily be remediated through targeted management, or
 - if the growth form of certain individual trees, within an amenity context, has become detrimental to the natural growth of neighbouring trees.

The timeframe for works or for re-inspection is influenced by the urgency of the work required for health and or the seasonality of the survey.

D SURVEY RESULTS AND ANALYSIS

For the detailed results, please see 'Appendix H: Results', summaries of the survey results are shown below in tables 1, 2 & 3 and within figure 4.

Common Name	Taxonomical nomenclature	Number
Goat willow	<i>Salix caprea</i>	1
Field maple	<i>Acer campestre</i>	1
Sessile oak	<i>Quercus petrea</i>	1
Hawthorn	<i>Crataegus monogyna</i>	1
Weeping Midland Hawthorn	<i>Crataegus laevigata 'pendula'</i>	1
Rowan	<i>Sorbus acuparia</i>	1
Grey poplar	<i>Populus canescens</i>	2
Hazel	<i>Corylus avellana</i>	2




Category	Definition	Number
B1	Those of moderate arboricultural quality and value with a remaining life expectancy of >20 years	3
C1	Those of low arboricultural quality and value with a remaining life expectancy of >10years or young trees with a stem Ø below 150mm. Trees with no material conservation or cultural value	7




One characteristic tree group within the site was surveyed as a whole (table 3):

Group	Description
A	Group of recently planted young to semi-mature amenity tree species, including: silver birch <i>Betula pendula</i> , goat willow <i>Salix caprea</i> , hazel <i>Corylus avellana</i> , ash <i>Fraxinus excelsior</i> , downy birch <i>Betula pubescens</i> , sessile oak <i>Quercus petrea</i> , Rowan <i>Sorbus acuparia</i> , grey poplar <i>Populus canescens</i> , grey willow <i>Salix cinerea oleifolia</i> , eared willow <i>Salix aurita</i> , field maple <i>Acer campestre</i> , Scots pine <i>Pinus sylvestris</i> , weeping midland hawthorn <i>Crataegus laevigata 'pendula'</i> and common alder <i>Alnus glutinosa</i> .

D.1 Plates and discussion.

The following images illustrate the current site layout and the proximity of tree groups to existing buildings.

<p>Image illustrating the proximity of the planted trees to the rear of the existing building (east face).</p>	
<p>The rear of the building will be extended and a two storey eco-cabin located to the left of the image to be used as office space.</p>	
<p>West face of the building with the disabled parking area. The semi-mature grey poplars can be seen to the right of the image.</p>	

<p>Trees within group A are generally low growing scrubby species which have not been allowed to reach their full potential, due to the enclosed canopy and the planting spacings.</p>	
<p>A number of the trees, such as the hazel, have been coppiced in the past, but are beginning to outgrow their coppice stands.</p>	
<p>Image looking down the slope from the south of the building, illustrating the scrubby growth of the low value young trees forming the copse.</p>	

A weeping Midland Hawthorn; an unusual ornamental species to be found within this group.



E RECOMMENDATIONS

E.1 Tree Constraints Assessment

The Tree Constraints Assessment and calculations for the tree protection plan were formulated through calculation of the minimum area to be left undisturbed around each retained tree, based on the diameter of their stems. These are design tools which show the below ground constraints represented by the RPA, and the above ground constraints trees pose by virtue of their size and position.

Figure 4 shows the position of the trees on site, their categories of retention and estimated root plate areas as a calculation of twelve times the diameter at breast height (150mm from level ground adjacent to the bole). These can be used in conjunction with the finalised development layout, to create a scaled TPP.

This will enable any works prescribed to be carried out to the correct designated tree and for exclusion barriers to be erected in the correct positions to ensure that damage to tree roots and low hanging crowns is avoided.

E.2 Impact assessment

Potential impacts of the proposed development without appropriate mitigation are:

- Loss of a group of young to semi-mature trees that as a whole are ecological, amenity and landscape assets of moderate to high value to the site and surroundings.
- Serious damage to the roots and crowns of trees being retained during the ground work and construction phase of the development.
- Works to or removal of semi-mature trees with a high risk of supporting nesting birds.
- Harm or disturbance to tree nesting birds during pruning works and vegetation removal should this take place during the bird breeding season (March to August inclusive).

E.3 Mitigation and recommendations

Key mitigation and enhancement measures are likely to include:

- The retention of trees on site where possible.
- Where trees are retained, all works on site are to be undertaken in accordance with a TPP with working methods.
- All works to trees to be carried out to the prescriptions specified in an arboricultural method statement, by an approved and experienced arboricultural contractor working to BS-3998:2010.
- All tree works are to be undertaken outside the bird breeding season (March-August inclusive) unless a checking survey is undertaken by an appropriately qualified ecologist and active nests are found to be absent.
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- No further tree planting is recommended to mitigate for the loss of the trees for the development at this stage.
- Adequate measures should be taken to protect the roots of trees within the root plate areas (see TPP) and the crowns of trees from the movement of high clearance site plant machinery.

- Barriers must prohibit construction works in the areas between the barriers and tree trunks. Barriers are to be installed prior to any preliminary construction or preparation works.
- The adoption of horticultural good practice (e.g. no, or low, use of residual pesticides) especially if stumps are to be treated. If necessary, the stumps should be physically removed or decimated with a stump grinder.

F GLOSSARY OF TERMS

Adventitious roots: Roots that develop other than at their normal positions of origin.

Bole: The main stem of a tree below its first major branch

Conservation area: These are designated areas of architectural or historical interest, in which there are special procedures for planning applications and a requirement that tree work cannot generally be undertaken unless notice (currently 6 weeks) has been given to the local authority.

Girdling roots: A girdled stem, branch or shoot is encircled by a band of dead, dying, missing or constricted bark. The distal part then usually dies.

Included bark (ingrown bark): Bark, or adjacent parts of a tree (usually in forks) which is in face to face contact, so that there is weakness due to a continuation of a normal fibrous and woody union.

Occluded/occlusion: The process whereby a wound is progressively closed by the formation of wood and new bark around it.

Reaction wood: This forms when part of a woody plant is subject to mechanical stress and helps to bring parts of a plant into an optimum position. This stress may be the result of gravity, wind exposure, build-up, soil movement, etc. The reaction wood is not externally visible, although asymmetric growth is a reliable indicator.

Target: a structure or feature underneath or near the tree which could be damaged if the tree was to fail. For example a building, path or playground.

Torsional ribs: These form when the tree is under helical load (twisted), usually by a prevailing wind, which in essence tightens the vertical structure of the main stem. Ribs form where the tree is attempting to stabilise the growth to by strengthening these sections of the stem with reaction wood. This can eventually lead to shearing of the stem along these lines of weakness either through the normal production of annual growth rings, or the loss of neighbouring trees providing shelter to wind from other directions.

Tree Preservation Order: An order made by a local authority, whereby the authority's consent is generally required for the cutting down, topping or lopping of specified trees.

G REFERENCES

BS5837:2012. *'Trees in relation to design, demolition and construction – Recommendations'*

BS3998:2010. *'Recommendations for tree work'*.

Johnson, O., & More, D. (2006). *'Tree guide'*. Collins.

Lonsdale, D. (2010). *'Principles of Tree Hazard Assessment and Management'*. TSO

Mattheck, C., & Breloer, H. (2012). *'The Body Language of Trees; A handbook for failure analysis'*. TSO

Phillips, R. (1978). *'Trees in Britain, Europe and North America'*. PAN

Strouts, R.G. and Winter, T.G. (2010). *'Diagnosis of ill-health in trees'*. TSO.

H APPENDIX 1: DETAILED RESULTS

Key:

Tree Constraints assessment			
Key		Age class	
St dia:	Stem diameter in mm 1.5m from adjacent ground level	Y- Young	
Cr Rad:	Estimated crown radius to compass points (m) North, East, South, West.	SM- semi-mature (1st 1/3 of life expectancy)	
Cr clearance:	Crown clearance in metres (lowest point from the ground)	EM - early mature	
Est cont:	Estimated remaining contribution in years	M - Mature (final 1/3 of life expectancy)	
Rad RPA:	Radial root protection area in sq metres from stem area	OM -Over Mature(beyond life-expectancy/declining naturally)	
RP	Reinspection period (months)	Time frame: Timing of proposed works	V - Veteran (of great age and potential conservation value)
Condition:	P - Physiological (Poor= significant ill health, Fair= symptoms of ill health that can be remediated, Good= No significant health problems)		
	S - Structural (Poor= significant weakness, Fair= symptoms of weakness that can be remediated, Good= 'normal' structure)		
BS cat:	British Standard (5837:2012) tree quality category of retention: U- removal A(1-3)- high quality value B(1-3)-moderate quality value C(1-3)- low quality value		
Phenological stage (tree ref):	D = dormant,	I = in bud,	L = in leaf F = flowering Fr = Fruiting LD = Leaf drop Nwr - No Work Required

For multi-stemmed trees the RPA is calculated from the square root of the (combined stem diameters) ²

Tree ref. No.	Tag Number	English Name	Scientific Name	Phenological Stage	Height (m)	St dia. at 1.5m (mm)	Cr Rad.(m) N	Cr Rad.(m)E	Cr Rad.(m) S	Cr Rad.(m) W	Cr. Clearance (m)	Age (yrs.)	Est cont	Physiological Structure (+ve/-ve features)	Structural condition (+ve/-ve features)	Management recommendations	Time frame (months)	RP	Rad RPA (m2)	RPA Radius (m)	BS cat
T1	378	Grey poplar	<i>Populus canescens</i>	Leaf	13	198	4	5	2	4	2	SM	40+	Good	Good. Some soil subsidence from around the base.	Nwr	0	36	17.74	2.4	B1
T2	379	Grey poplar	<i>Populus canescens</i>	Leaf	13	173	6	5	4	4	2	SM	40+	Good	Good	Nwr	0	36	13.54	2.1	B1
T3	380	Field Maple	<i>Acer campestre</i>	Leaf	5.4	159	4	3	3	4	1	SM	40+	Good	Good	Nwr	0	36	11.44	1.9	C1
T4	381	Rowan	<i>Sorbus acuparia</i>	Leaf	8.3	117	1	1	1	1	1	SM	40+	Good	Good	Nwr	0	36	6.19	1.4	C1
T5	0	Hazel	<i>Corylus avellana</i>	Leaf	0	0	0	0	0	0	0	Y	40+	Good	Good. Young hazel coppice.	Nwr	0	36	0.00	0.0	C1
T6	382	Sessile Oak	<i>Quercus petraea</i>	Leaf	9.3	133	3	3	1	3	1	Y	40+	Good	Good	Nwr	0	36	8.00	1.6	B1
T7	0	Weeping Midland hawthorn	<i>Crataegus laevigata 'pendula'</i>	Leaf	0	0	0	0	0	0	0	Y	40+	Good	Good	Nwr	0	36	0.00	0.0	C1

T8	0	Hazel	<i>Corylus avellana</i>	Leaf	0	0	0	0	0	0	0	Y	40+	Good	Good. Young hazel coppice.	0	0	36	0.00	0.0	C1
T9	383	Goat willow	<i>Salix caprea</i>	Leaf	7.9	211	4	4	4	4	4	SM	40+	Good	Good. Self-seeded tree.	Nwr	0	36	20.14	2.5	C1
T10	0	Hawthorn	<i>Crataegus monogyna</i>	Leaf	0	0	0	0	0	0	0	Y	40+	Good	Good	Nwr	0	36	0.00	0.0	C1

I APPENDIX 2: TREE QUALITY ASSESSMENT

Figure BS 5837: 2012 Cascade chart for tree quality assessment		
Category and definition	Criteria	Identification
Category U (Trees unsuitable for retention)		
Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning).	Dark Red
	Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline.	
	Trees infected with pathogens of significance to the health and/ or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality	
	NOTE: Category U trees can have existing or potential conservation value which it might be desirable to preserve. For example habitat reinstatement may be appropriate (e.g. U category tree used as a bat roost: installation of bat box in nearby tree)	
Category A. (Trees considered for retention)		
Those of high quality with an estimated remaining life expectancy of at least 40 years	1. Mainly arboricultural qualities - Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (e.g. the dominant and/ or principle trees within an avenue)	Light green
	2. Mainly landscape qualities - Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	
	3. Mainly cultural values, including conservation - Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	

Category B. (Trees considered for retention)		
Those of moderate quality with an estimated remaining life expectancy of at least 20 years	1. Mainly arboricultural qualities- Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects including unsympathetic past management and minor storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Mid blue
	2. Mainly landscape qualities- Trees present in numbers, usually as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	
	3. Mainly cultural values, including conservation – Trees with material conservation or other cultural value	
Category C (Trees considered for retention)		
Those of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm	1. Mainly arboricultural qualities- Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Grey
	2. Mainly landscape qualities- Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary/ transient landscape benefits.	
	3. Mainly cultural values, including conservation – Trees with no material conservation or cultural value	
NOTE: Whilst Category C trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation.		

J APPENDIX 3: SAFE USE LIFE EXPECTANCY (SULE)

(TREE AZ:©Barrell Tree care, 2001)

	1	2	3	4	5
	Long SULE	Medium SULE	Short SULE	Remove	Small, Young or regularly clipped
	<i>Trees that appear to be retainable at the time of assessment for more than 40 years with an acceptable level of risk</i>	<i>Trees that appear to be retainable at the time of assessment for 15 to 40 years with an acceptable level of risk</i>	<i>Trees that appear to be retainable at the time of assessment for 5 to 15 years with an acceptable level of risk</i>	<i>Trees that should be removed within the next 5 years</i>	<i>Trees that can be reliably transplanted or replaced</i>
A	Structurally sound trees located in positions that can accommodate future growth	Trees that may only live for between 15 to 40 more years	Trees that may only live for between 5 and 15 more years	Dead trees	Small trees less than 5 metres in height
B	Storm damaged or defective trees that could be made suitable for retention in the long term by remedial tree surgery	Trees that may live for more than 40 years but would need to be removed for the safe development of more suitable individuals	Trees that may live for more than 15 years, but would need to be removed for the safe development of more suitable individuals	Dying or suppressed and declining trees through disease or inhospitable conditions	Young trees less than 15 years old but over 5m in height
C	Trees of special significance for historical, commemorative or rarity reasons that would warrant extraordinary efforts to secure their long term retention	Trees that may live for more than 40 years, but should be removed during the course of normal management for safety or nuisance reasons	Trees that may live for more than 15 years, but should be removed during the course of normal management for safety or nuisance reasons	Dangerous trees through instability or recent loss of adjacent trees	Trees that have been regularly pruned to artificially control growth
D		Storm damaged or defective trees that could be made suitable for retention in the medium term by remedial work	Storm damaged or defective trees that require substantial remedial work and are only suitable for retention in the short term	Dangerous trees through structural defects including cavities, decay, included bark, wounds or poor form	
E				Damaged trees that are clearly not safe to retain	
F				Trees that will become dangerous after removal of other trees for reasons given in A – E	

K APPENDIX 4: CREATION OF A TREE PROTECTION PLAN

The following factors are to be taken into consideration once development designs are available to provide adequate protection for the root system:

- The likely tolerance of the tree to root disturbance or damage, based on factors such as species, age, condition and presence of other trees;
- The morphology and disposition of the roots, when known to be influenced by past or existing site conditions (e.g. the presence of roads, structures and underground services);
- The soil type and structure;
- Topography and drainage;
- Where any significant part of a tree's crown overhangs the provisional position of tree protection barriers, these parts may sustain damage during the construction period. In such cases, it may be necessary to increase the extent of the tree protection barriers to contain and thereby protect the spread of the crown. This can be mitigated by facilitation (branch end) pruning.

For practical reasons and in the context of the larger trees it is recommended that the area to be protected be capped at 707m², with a radius of 15m or a square with approximately 26m sides. Values stated in Appendix 1 are the absolute values as calculated for that tree and remain as guidance as to the actual root protection zone.

L APPENDIX 5: GENERAL LEGISLATION

L.1 Trees and the law

L.1.1 General

Trees in any location may be protected by legislation. Where development is proposed, additional legal protection may be appropriate and can be enforced by the local authority. Attention is drawn to legal controls and liabilities under common law for consideration at the earliest stages of potential site development.

L.1.2 Legal protection for trees

The Town and Country Planning Act 1990 (as amended) and the Town and Country (Tree Preservation) (England) Regulations 2012 requires that, except in certain circumstances, “no work shall be carried out which will affect trees over a certain size which are situated in conservation areas”. Six weeks’ notice of intent has to be given to the local authority before the work is carried out. This provides an opportunity for the local authority to make a tree preservation order (TPO), under this Act, to protect the trees.

Tree preservation orders allow for trees to be protected either as individuals, groups, areas or woodlands. The orders have the effect of preventing the cutting down, topping, lopping, uprooting, willful damage or willful destruction of trees, except in certain circumstances, other than with consent of the local authority.

Even when no specific legal protection exists, it may be necessary to obtain a felling licence. These apply if the volume of timber exceeds specified amounts; site clearance, even of small areas, before detailed planning permission has been granted could exceed the felling licence quota. The Forestry Commission, under the Forestry Act 1967 (as amended) administers felling licenses.

L.1.3 Legal protection for trees on development sites

Section 197 of the Town and Country Planning Act 1990 states “it shall be the duty of the local planning authority to ensure, whenever it is appropriate, that in granting planning permission for any development adequate provision is made, by the imposition of conditions, for the preservation or planting of trees”. It also states that “it shall be the duty of the local planning authority to make such orders under section 198 [of the Act] as appear to the authority to be necessary in connection with the grant of such permission.”

It is usually appropriate for a tree preservation order to be placed on trees that are in amenity situation and structurally sound. The effect of proposed development on trees protected by tree preservation order ranks as a material consideration, which should be considered by the local authority, when determining a planning application under section 70 of the Town and Country Planning Act 1990.

Where a tree preservation order exists prior to planning permission being granted it should not normally be a block to effective use of a site. It serves to deter damage to or clearance of trees prior to planning permission being granted and provides a means of enforcing their protection during development work.

When planning permission is granted, planning conditions may be imposed to provide for the erection of protective fencing and other measures for ensuring the well-being of trees during development.

NOTE It is considered inappropriate for planning conditions to be used to provide long-term protection to trees when tree preservation orders are available as a specific provision for this purpose.

Where circumstances require it, local authorities should apply a planning condition requiring the developer to appoint an arboriculturist to oversee the project. This person has a duty to monitor and confirm the implementation and maintenance of tree protection measures, as agreed with the local authority. Planning conditions may be imposed requiring tree planting to be undertaken as part of a project, and a tree preservation order can be made to apply to such trees once they have been planted so as to achieve their long term protection.

The consent of the local authority is not needed to carry out work on trees required to enable a person to implement a planning permission. Felling etc. cannot be said to be required when planning permission has been given on an outline application only, nor when development is exempt from planning control.

L.1.4 Enforcement of protection during development

- The effectiveness of measures to protect trees and ensure their healthy survival through development depends on co-operation between site owners, developers, contractors, arboriculturists and local authorities.
- If the local authority considers that there has been a breach of planning conditions that provide for the protection of trees, it can serve an “enforcement notice”; if necessary this can be followed by a “stop notice” (Town and Country Planning Act 1990, sections 172, 183, 184);
- *Enforcing planning control* [19]; *DoE Circular 10/97— Enforcing planning control: Legislative provisions and procedural requirements*). When considering the need for such enforcement, local authorities should consider that trees can be damaged very easily and that survival of trees is most likely to be achieved by maintenance of protection at all times.

L.2 Common law claims and litigation concerning trees

L.3.1 General

Problems caused by trees on development sites can result in disputes giving rise to common law claims and litigation. Such problems are particularly likely where trees grow across boundaries between properties and cause damage to the property of a third party. For instance, root activity can affect structures other than those on the development site. The crowns, stems and roots of trees may have structural weaknesses, which if they fail, could result in damage to property or injury to people. Leaves and fruit falling from trees, obstruction of light and problems of poisonous plants have all been considered by the courts. Legal advice should be sought where trees may become a problem.

Careful planning and design should minimize the possibility of litigation after completion of the development.

L.3.2 Planting adjacent to boundaries

Problems with trees on or close to boundaries have resulted in litigation on many occasions, and the rights and responsibilities of tree owners and their neighbors are, in this respect, well documented in law. The government has published guidance on high hedges (*Hedge height*

and light loss — ODPM, 2002) which advises on reasonable standards for evergreen hedges in domestic gardens. Careful consideration of new planting to anticipate both the likely encroachment of roots or overhang of branches of the fully grown tree relative to the site boundary can prevent potential future conflict, while the possibility of direct mechanical damage to boundary fences and walls can be avoided by allowing room for growth and movement.

M APPENDIX 6: PROTECTED SPECIES AND TREES

M.1 Wildlife and Habitat Considerations

The Government's National Planning Policy Framework (NPPF) states the following:

- Plan policies and planning decisions should be based upon up-to-date information about the natural environment (Paragraph 158 and 165).
- Plan policies should promote the preservation, restoration and recreation of priority habitats, ecological networks and the recovery of priority species (Paragraph 117).
- Local planning authorities should set out a strategic approach in their Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure. (Paragraph 114).
- When determining planning applications in accordance with the Local Plan and the presumption in favour of sustainable development local planning authorities should aim to conserve and enhance biodiversity by applying a number of principles, including if significant harm resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused. (Paragraph 118).

M.2 Bats in trees

Trees provide habitat for bats in the form of roost sites, maternity roost sites and hibernacula. As a habitat, trees provide foraging for bats, being a medium for invertebrates, and provide three dimensional feeding corridors to and from roosting sites.

Where bats are found to be present consultation needs to be carried out with the Statutory Nature Conservation Organization i.e. Natural England.

As trees age, in particular the mature beech, oak and Scots pine on site, their value as roost sites will become more significant.

The following should be considered when carrying out any works to the trees.

All bat species are specially protected under the Conservation of Habitats and Species Regulations (2010) and under Schedule 5 of the Wildlife and Countryside Act of (1981) (as amended).

As a result it is illegal to:

- Deliberately kill, injure or capture bats.
- Deliberately or recklessly disturb bats.
- Deliberately or recklessly obstruct access to a bat roost.
- Damage or destroy a bat roost.

Fines of up to £5000 *per bat* affected and confiscation of vehicles used can be imposed for deliberate or reckless disturbance of bats or damage to a roost site.

If works risk recklessly harming bats then the police can order all construction/renovation work to cease until the issue is properly addressed.

If bats are found at any time during the work E3 Ecology (01434 230982) should be contacted immediately.

M.3 Nesting/ Breeding Birds

Habitats on site are likely to provide a suitable nesting and foraging resource for birds.

- The early mature to mature trees on site are almost all suitable as nest sites.
- Ornamental planting in conjunction with the trees may provide foraging opportunities in the form of berries and invertebrates.

Under the provisions of the Wildlife and Countryside Act of (1981) (as amended) it is illegal to knowingly disturb any nesting bird during the breeding season.

M.4 Nesting/ breeding mammals

Trees provide vital nesting sites for native arboreal mammals, with a contiguous canopy providing an aerial highway to and from foraging sites, providing cover from predators. These factors need to be considered in any landscape design.

Red squirrel are protected under the provisions of the Wildlife and Countryside Act of (1981) (as amended).