

Carillion Rail

Home Farm, Access Track and Barn, Arboricultural Impact Assessment

Stage 1 and 2 Arboricultural Report

Charlton on Otmoor, Kidlington

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RSK



RSK GENERAL NOTES

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This work has been undertaken in accordance with the quality management system of RSK Environment.

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1 INTRODUCTION

1.1 General

This report details a survey of trees along the route of a new farm access track and around the footprint of a proposed new barn. The survey area comprised land close to the Home Farm railway crossing near Charlton on Otmoor, Kidlington. The work was commissioned by the Carillion Rail and was carried out by Dan MacIntyre, on behalf of RSK, in January 2015.

Trees were inspected from ground-level without the use of specialist equipment such as decay detection devices. However, a sounding mallet, binoculars and a metal probe were used to aid inspection.

1.2 Purpose of the Report

The survey was carried out in connection with a proposal to construct a new barn and access track from the M40 underpass alongside the East West main line to the southwest. It is shown in *Figure 1, Tree Removal Plan*.

The aim of the survey was to determine the quality and value of the existing tree-stock and categorise trees according to their suitability for retention. In addition, the impacts of the development on the arboricultural features of the site, and mitigation measures for any tree losses that may occur, were identified. This was carried out in accordance with guidance contained within the British Standard 5837:2012, Trees in Relation to Design, Demolition and Construction.

1.3 Site Context

1.3.1 General

The survey took place along a field boundary to the northeast of Holts Farm and alongside the East West Rail line near to where it passes under the M40 (shown below and in *Figure 1, Tree Removals Plan*). Tree cover is limited with only a scrubby hedgerow present alongside the track (for much of its length) and two individual trees.

Indicative Survey Area



1.3.2 Soil

British Geological Society data indicates that the site is partially on Peterborough Member – Mudstone and superficial deposits of Alluvium - Clay, Silt, Sand and Gravel. However, this is only an indicative assessment as no soil samples were taken or lab analysis carried out. However, as no foundations or excavations are required, this lack of precise analysis will not affect the findings of this report.

1.3.3 Protected Species

Mature trees can be used by birds and bats. All species of bat and nesting birds are protected in the UK by *The Wildlife and Countryside Act 1981* (as amended), extended by the *Countryside and Rights of Way Act 2000*, and the *Conservation (Natural Habitats etc.) Regulations 2010*. If the presence of a legally-protected species is suspected whilst undertaking any tree work, the task should be halted immediately and appropriate advice sought from a suitably-qualified ecologist.

1.4 Statutory Designations

Trees and hedgerows can be afforded statutory protection in a number of ways, including:

- Tree Preservation Orders,
- planning conditions,
- The Hedgerow Regulations, 1997,
- felling licences, and
- being in a designated Conservation Area.

Protected trees, and hedgerows over 20 m length, can only be removed or pruned if permission is granted either as part of a planning permission, or if a separate application is made to the Local Authority (or the Forestry Commission).

Cherwell District Council confirmed that there are no Tree Preservation Orders affecting the site and that it is not within a Conservation Area¹.

1.5 Root Protection Area (RPA)

To ensure that a tree is not harmed by development activities, a root protection area is calculated. BS5837 defines the root protection area as 'the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability'. The root protection area is usually enclosed by a construction exclusion zone for the duration of works and is shown on the tree removal plans as a magenta circle or polygon around the tree.

¹ Telephone communication, Caroline Morrie, Cherwell District Council, 03/09/14.

2 METHOD

2.1 General

All trees and tree groups inspected were categorised using the British Standard BS5837:2012 and the attached Tree Constraints Plan (*Figure 1*) shows tree positions, numbers and retention categories. A schedule of the trees is included in *Table 1* and *Table 2*, which include species, physiological and structural condition, age, recommendations and retention values.

The survey followed the method described in *Appendix 1* and follows guidance in BS5837:2012, with the life expectancy and condition of each tree and group informing its suitability for retention.

2.2 Tree Categorisation

Trees were categorised in terms of the tree's useful life expectancy and condition as summarised below. Full details of categorisation criteria are given in *Appendix 2*. Each category has three sub-categories relating to arboricultural (1), landscape (2) and cultural/conservation (3) qualities. Trees that have been categorised as A, B or C should be considered in the planning process whereas trees categorised as U are not a consideration in the planning process; these are likely to be lost in the short term due to physiological or structural defects.

Tree Categorisation Table

BS5837:2012 Categories	Definitions	Retention implications to a site
Category A (marked light green on the TCP*)	Trees of high quality and value able to make a substantial contribution to the site.	Every effort should be made to retain trees and amendments to a proposed scheme should be identified in preference to tree removal.
Category B (marked mid-blue on the TCP)	Trees of moderate quality and value able to make a significant contribution to the site.	Where possible amendments to a proposed scheme should be considered in preference to tree removal.
Category C (marked in grey on the TCP)	Trees of low quality and value in an adequate condition until new planting can be established, trees with impairments downgrading them from A or B category OR young trees with a stem diameter of less than 150 mm.	The retention of trees may be advantageous in the short term, but they should not be seen as a constraint to development.
Category U (marked in dark red on the TCP)	Trees that have limited condition that will fail or die within 10 years and/or should be removed for reasons of arboricultural best practice	Not a material consideration in the planning process but may have other benefits

* TCP = Tree Constraints Plan – Figure 1

2.3 Distinction between Individual Trees and Tree Groups

Trees have been recorded as individuals or as groups. BS5837:2012 sets out the description of a group as follows: “*The term “group” is intended to identify trees that form cohesive arboricultural features either **aerodynamically** (e.g. trees that provide companion shelter), **visually** (e.g. avenues or screens) or **culturally** including for biodiversity (e.g. parkland or wood pasture), in respect to each of the tree subcategories.*”

Where a tree in a group has characteristics that distinguish it from the rest of the group, it is generally recorded as individual. Such trees may include, but are not limited to, veteran trees, trees with important defects, and specimen trees.

2.4 Constraints

The trees were viewed from ground-level and from within the site boundaries only. The trees were inspected using the Visual Tree Assessment method (*Mattheck and Breloer 1994²*) and guidance from Dr. David Lonsdale (*Principles of Tree Hazard Assessment³*). Detailed inspections including decay detection, soil assessment or aerial inspections have not been carried out.

Trees are living organisms and their health and condition is not static. Therefore, findings and recommendations in this report are only valid for one year. The health and condition of the trees may also change with other factors such as extreme weather conditions or development work.

² Mattheck, C. Breloer, H. (2003) *The Body Language of Trees, A handbook for failure analysis*. The Stationary Office

³ Lonsdale, D. (2007) *Principles of Tree Hazard Assessment and Management*. The Stationary Office

3 RESULTS

3.1 Summary

The survey area is in a rural location currently used for agricultural purposes and is adjacent to the East West rail line and close to the M40 motorway. A maturing broadleaved tree belt is present on the M40 highway verge and a Blackthorn hedgerow is growing alongside much of the rail line, although this becomes sparse and scrubby in places. A trimmed Hawthorn hedgerow lies to the south of the survey area, on a field boundary, and only two individual trees were identified (trees T1 and T2, an Ash and a Pear respectively).

3.2 Condition

Tree T1, a structurally-poor mature Ash, has a large open basal cavity at its base that extends to around 1.6 metres. Sounding with mallet indicates that decay is also present higher up the stem, to around 2.4 metres. The decay causing fungi, *Inonotus hispidus*, was also noted on structural branches which increases the likelihood for premature branch failure.

Tree T2, a mature Pear in a hedgerow, was seen to be in poor physiological condition and its crown apex displayed signs of retrenchment through dieback.

The long term potential of both trees is significantly reduced due to these factors.

3.3 Amenity Value

Despite its poor condition the Ash, Tree T1, is of good form and contributes to the landscape as an open grown specimen. As the surrounding area is well treed, however, its value is not as significant as if it were one of only a few trees in the area. The Pear tree, T2, is of average form and also contributes to the countryside and wildlife but is not as prominent as T1 or other trees in the surrounding area.

Group G1 is a blackthorn scrubby area, typical of many rail way sidings and is largely unremarkable.

4 PROPOSALS AND IMPACTS

4.1 Proposal and Summary

The construction of a Concrete access track and barn is proposed and shown within *Figure 1, Tree Removals Plan*. The barn will require a concrete slab base and adequate foundations.

The track route passes over the Root Protection Area (RPA) of Tree T1 and the slab base for the barn will lie within the RPA of tree T2 by 1 metre at its north east extent. No pruning is required to facilitate the proposals.

4.2 Impact Assessment

4.2.1 Tree Removals

Although the structural defects noted in tree T1 are unlikely to affect the track and new barn its current dimensions, there is potential for disruption in the future as height increases. Furthermore there is a high likelihood for branch breakage of the tree due to wood qualities being weakened by the interaction of the decay causing fungi *Inonotus hispidus*. Although the likelihood of limb failure causing significant damage (at its current dimensions and frequency of site use) is low, it will cause an inconvenience.

Given its condition the construction of the new access track through its RPA is likely to decrease the tree's ability to deal with further pathogens. As such, there is an increased likelihood that the works will cause the tree to enter into a spiral of decline. In addition, the potential for failure or impacts onto the track and new barn must be considered and so it is felt that the retention of this tree is unsuitable.

Tree T2, the mature pear will also be impacted by the construction of the slab base for the new barn. Again, it is unlikely that the tree will respond well to this excavation within its root zone. As it is in a secluded location, well away from the rail line and well frequented areas, it would be appropriate to retain the tree *in situ* as a wildlife resource and construct the slab base with no special measures to protect its root zone.

4.2.2 Below Ground Impacts

The construction of the slab base and access track will not affect the hedgerows adjacent to them as there are an adequate distance from those features and the trees within are small.

4.2.3 Conclusion

Tree T1 will require removal and T2 will be impacted slightly by the construction. As both trees offer a limited long term potential this is not seen as being of significant detriment to the landscape.

5 GENERAL MITIGATION MEASURES

5.1 Pre-Construction

5.1.1 Tree Works

The tree works required (tree removals) should be carried out before construction begins and be undertaken by a competent arboricultural contractor⁴ in accordance with BS3998:2010 Tree work – Recommendations⁵.

5.1.2 Ground Protection

No ground protection is required for this proposal.

5.2 Construction

5.2.1 Vehicle Routes

Construction traffic should take care to avoid inadvertent impacts to nearby trees and hedgerows by ensuring the clearance is adequate and, in some cases, the use of a qualified banksman.

5.2.2 Site Compounds

Provision for materials storage, site offices, deliveries and other related activities should be made available in areas away from retained trees and hedgerows.

5.2.3 Storage of Materials

Any materials required for construction should be stored away from tree bases and hedgerows. This is to avoid unnecessary compaction and accidental damage or run off from contaminated materials.

5.3 Post-Construction

5.3.1 Replanting

Given the rural landscape it may be appropriate to undertake replacement planting in the area to mitigate for tree losses. There is generous scope for planting locations and further advice can be given on species suitability and locations if required.

⁴ Either Arboricultural Association Approved Contractor, LA approved or Level 3 Qualified in relevant subject.

⁵ British Standards Committee. 2010. *BS3998 Tree Works – Recommendations*. BSI

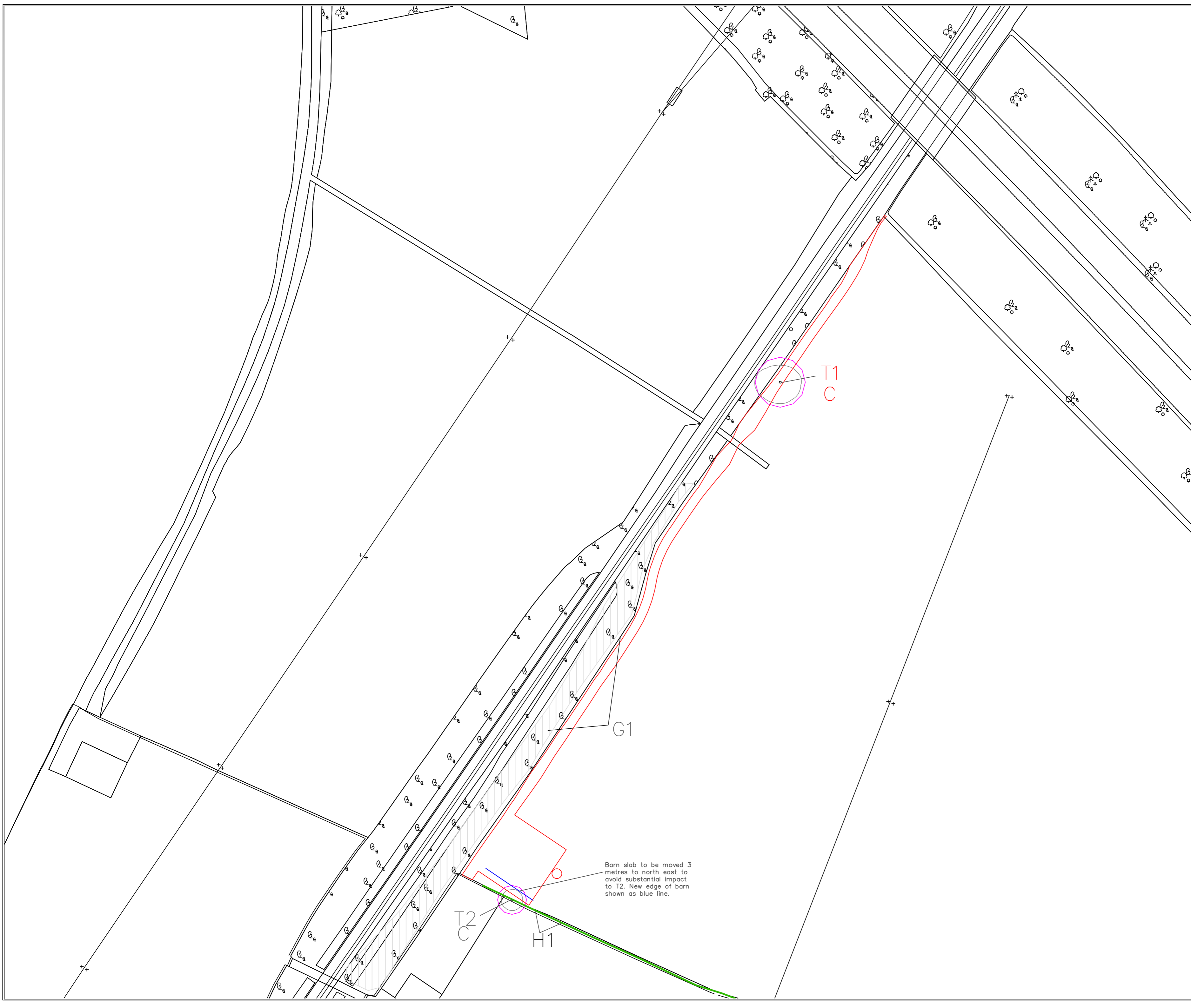
6 TABLES, FIGURES AND APPENDICES

7 TABLE 1 TREE SURVEY DATA

Survey Data

Ref. No.	Species	DBH (mm)	Height (m)	Spread (m)				Canopy Height (m)	Life Stage	General Observations	Est. Remaining Years	Category
				N	S	E	W					
T1	Common ash	950	17	8	10	10	12	3	M	Large open basal basal cavity on south west side extending from base to 1.6m. Tapering column of hollowness extends further up into main stem. Multiple instances of decay fungi (inonotus hispidus) on structural branches.	10-20	C1
T2	Pear	550	12	5	5	5	5	2	M	Old pear tree in hedgeline. In decline with crown retrenchment visible.	10-20	C1
Groups												
G1	Blackthorn	150	4	3				0	M	Scrubby group on rail siding, Becoming sparse to northern extent.	40+	C2
Hedgerows												
H1	Hawthorn	150	1.8	2				0	M	Flailed to around 2m. Bramble in places.	NA	NA

8 **FIGURE 1** **TREE REMOVALS PLAN**



Key

Individual Trees

- Existing crown spread with BS Category Colour. Shown red if removed
- Root Protection Area
- Tree Centre
- Tree number, Shown in red if removed

BS 5837 Category Colours

- BS5837 Category A
- BS5837 Category B
- BS5837 Category C
- BS5837 Category U

- hedgerow
- Proposed Track and Barn Slab

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Client: BUCKINGHAM_GROUP

Project Title: HOME_FARM_ACCESS_TRACK AND_BARN

Drawing Title: TREE_REMOVAL_PLAN PROPOSED_ROUTE

Drawn Date	Checked Date	Approved Date
DM 20/02/15	RF 20/02/15	RF 20/02/15

Scale	Orig Size	Dimensions
NTS	A2	MM

Project No.	Drawing File
855863	- FINAL

Drawing No.	Rev.
1	0

9 APPENDIX 1 METHOD

General

On site data was recorded onto site forms and paper plans or using a handheld pda unit (Trimble sub metre GPS and Windows enabled data collector). Individual tree numbers and locations were plotted to OS base data using the GPS unit.

The data recorded includes:

- Canopy Height - data gathered using a 'tru-pulse laser-ace' digital clinometer or visually estimated to the nearest metre.
- Stem Diameter (DBH) - measurements taken at 1.5 metres above ground level (complying with requirements for BS5837). Girth data was gathered using a metric diameter tape, callipers or estimated when access was restricted.
- Tree crown spread – estimated measurement of the four cardinal points to provide information to be used with the arboricultural constraints plan.
- Tree category - judged using the guidelines produced in the report. The condition is indicated with the appropriate colour on the plan found in the report. (see Figure 1)
- Age class - estimated from an examination of the tree in question.

Age Classification

The following classification is employed:

- Y - Young: Saplings and young trees under 10 years of age
- EM – Early Mature: Trees older than 10 years but less than one third of the life expectancy of their species, normally making substantial extension growth.
- SM – Semi Mature: Trees between one third and two thirds of the life expectancy of their species. More or less full Height and large girth, increasing only slowly.
- M – Mature: Trees beyond two thirds of the life expectancy of their species. No significant extension growth.
- V – Veteran: Trees that shows features of biological, cultural or aesthetic value that are characteristic of an individual surviving beyond the typical age range for the species.

Estimated Remaining Contribution in Years

The estimated remaining contribution in years is an estimate based on currently known factors of the possible remaining life of the tree as an asset. Clearly, it is impossible to predict changes in condition which may occur in the future and this reflects what is considered reasonable under existing circumstances, the classification that has been used is in accordance with the British Standard 5837.

The estimated remaining contribution in years will be dependent on the interaction of the typical longevity of the species, its current age and condition with prevailing environmental factors. The estimated remaining contribution in years also dependent on future tree management that can extend useful life in some instances.

Tree Condition

The tree survey assessed the individual condition of all trees identified on the site. The assessment of condition is based on a visual and professional view.

The categories considered for Physiological Condition are good, fair, poor and dead.

Structural Condition is also commented on and this will include items such as the presence of decay and physical defects.

Trees are living organisms and their condition can change rapidly in response to environmental variables. Condition remarks refer to the date of survey and cannot be assumed to remain unchanged. While there is no such thing as a safe tree, regular inspection of trees is recommended to reduce the foreseeable risks associated with trees. There is currently no published guidance from the UK insurance industry on the frequency of tree inspections. In the German courts a bi-annual routine inspection is normally expected for older street trees, giving an indication of the rapidity of change in condition that can occur.

Preliminary Management Recommendations

Recommendations are given where it is felt by the arboriculturist that further investigations are required due to suspected defects.

Tree Categorisation Using BS 5837 Methodology

The trees surveyed were categorised using the method explained in BS5837 Trees in Relation to Construction 2012. This method categorizes individual trees, groups and woodlands in a systematic way. Each tree, group or woodland is identified on an attached plan.

Groups are identified as those trees forming a single arboricultural feature with trees that provide companion shelter, are avenues or screens or cultural.

Initially the surveyor will determine if the tree should be regarded as a U category tree. U category trees are those that are low value trees that have little future due to physiological and structural condition.

Other trees are graded A, B or C. The initial category should reflex the trees value in making an important contribution to the amenity of the site over a period of time. The higher the category the longer the perceived time period.

A sub category is included 1, 2 or 3. This sub category reflects the type of value the surveyor feels the tree presents in regards its value to 1 – arboricultural, 2 – landscape, 3 – cultural or conservation.

The cascade chart used is included as *Appendix 2* of this report.

10 APPENDIX 2 - BS5837:2012 CASCADE CHART

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U 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	<ul style="list-style-type: none"> 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 (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) 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 <p><i>NOTE</i> Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</p>			See Table 2
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	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 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	Trees present in numbers, usually growing 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	Trees with material conservation or other cultural value	See Table 2
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2