TOWN AND COUNTRY
PLANNING ACT 1990

Land at St Jude’s Hospital,
Sandy Lane, Newcastle under Lyme,
Staffordshire. ST5 0LZ

BS5837 Tree Survey

COMMISSIONED FOR:

Carl Copestake B.A. (Hons), DipUPI, MRTPI
Hacking Ashton LLP
Berkeley Court
Borough Road
Newcastle under Lyme
Staffordshire
ST5 1TT

SURVEYED BY:

Peter Jackson Ba Hons DipLA CMLI M.Arbor.A

DATED: 9th June 2011
CONTENTS

1.0 Qualifications and Experience 3
2.0 Brief History 4
3.0 Introduction 5
4.0 Terms of Reference/Instructions 6
5.0 Definitions 8
6.0 Individual Arboricultural Survey Sheets 11
7.0 Tree Constraints Plan 13
8.0 Arboricultural Implications Assessment 14

Appendix 1

Tree survey (in the absence of pre-application discussions)

Tree retention / removal plan (finalized)

Retention trees and RPAs shown on proposed layout

Strategic hard and soft landscape proposals and layout
1.0 QUALIFICATIONS AND EXPERIENCE

1.1 My name is Peter Jackson. I am an Associate member of the Landscape Institute and have a Bachelor of Arts Degree (with Honours) in Landscape Architecture and a Diploma in Landscape Architecture both from Manchester Metropolitan University (formerly Manchester Polytechnic). I became an Associate of the Landscape Institute in 1994 and have worked additionally as a consultant for 18 years.

1.2 I am a Professional member of the Arboricultural Association.

1.3 I am an Associate member of the Institute of Chartered Foresters.

1.4 I am an ISA Certified Arborist.

1.5 I am a TrustMark approved arboricultural consultant

1.6 The BS 5837 arboricultural consultancy aims to provide a comprehensive, efficient and cost effective service incorporating all aspects of arboriculture and planning. We provide a consultancy service on all tree related issues involving a planning application for the private sector. We are committed to providing specialist expertise in BS 5837 arboriculture to meet our clients' requirements and where appropriate we will liaise with other professionals to provide structural engineering solutions to obtain planning permission.

1.7 We provide arboricultural advice to architects, planning consultants, developers and other professions associated with maximising land within a prospective development. Our surveyors are all Professional Members of the Arboricultural Association (M.Arbor.A) and therefore our reports are able to be given as proof of evidence in any appeal or Public Inquiry.

1.8 We specialise in BS 5837 arboricultural consultancy, rather than conducting any tree surgery work. However we can provide schedules of work and recommend suitably competent and qualified tree surgeons that will carry out any work to a high standard for us.

1.9 We offer a service in the following counties:-

    Cheshire, Derbyshire, Leicestershire, Merseyside, Nottinghamshire, Shropshire, Staffordshire, Warwickshire, West Midlands, Worcestershire and other areas by special arrangement.
2.0 **BRIEF / HISTORY**

2.1 I have been instructed by Tim Hugh to comment upon 37 existing individual trees within a proposed development site and to provide a plan of protection for the trees to be retained on a construction site according to the guidance laid out in BS 5837 Trees in relation to construction – Recommendations 2005. The report is required to validate a planning application.

2.2 There are several trees on this site. Only 37 trees are shown individually on the plan. Measurements have been taken from the trees closest to the area of proposed development to form a cell that complies with the British Standard. Works to the trees may be specified but this report does not confirm that Newcastle under Lyme Borough Council has given any form of consent to undertake any works. No works should be undertaken to any trees on or adjacent to the site until the contractor has confirmed that planning permission has been approved or that the tree works have been separately approved by alternative TPO decision notices.

2.3 The area contains a number of mature trees in an urban location and as the trees have formed a natural association each individual tree is not debated in depth on an individual basis. The purpose of this report is only to examine in detail the effect of a proposed future development of the land on the existing vegetation during construction of the proposed development.

![Figure 1. Site and surroundings.](image-url)
3.0 **INTRODUCTION**

3.1 BS5837: 2005 gives recommendations and guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees, including shrubs, hedges and hedgerows, with proposed structures. It follows, in sequence, the stages of planning and implementing the provisions, which are essential to allow development to be integrated with trees.

3.2 The standard recognises that there can be problems with development close to existing trees which are to be retained, and of planting trees close to existing and new structures. The standard sets out to assist Local Planning Authorities (LPAs) to form balanced judgements. Where proposed development, including demolition, is to occur, the standard provides guidance on how to decide which trees are appropriate for retention, on the means of protecting these trees during development, including demolition and construction work, and on the means of incorporating trees into the developed landscape.
4.0 TERMS OF REFERENCE/INSTRUCTIONS

4.1 I have been instructed by Tim Hugh to carry out an inspection of 37 (thirty seven) trees within the development boundary of land at St Jude’s Hospital and to provide information on their condition and make recommendations for good arboricultural practice for the suitability of the trees to be retained within a proposed development.

The study will identify, evaluate and possibly mitigate the extent of direct or indirect impacts on existing trees that may arise as a result of the implementation of the site layout proposal.

4.2 The production of this arboricultural survey and report will comply with the following specification as set out in BS5837 2005 as follows:

- Reference number (to be recorded on the tree survey plan);
- Species (common and scientific names, where possible);
- Height in metres;
- Stem diameter in millimetres at 1.5m above adjacent ground level (on sloping ground to be taken on the upslope side of the tree base) or immediately above the root flare for multi-stemmed trees;
- Branch spread in metres taken at the four cardinal points to derive an accurate representation of the crown (to be recorded on the tree survey plan);
- Height in metres of crown clearance above adjacent ground level (to inform on ground clearance, crown stem ratio and shading);
- Age class (young, middle aged, mature, over-mature, veteran);
- Physiological condition (e.g. good, fair, poor, dead);
- Structural condition, e.g. collapsing, the presence of any decay and physical defect;
- Preliminary management recommendations, including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat;
- Estimated remaining contribution in years (e.g. less than 10, 10-20, 20-40, more than 40);
- R, A, B or C category grading to be recorded in plan on the tree survey plan.

4.3 The trees referred to in this report are living entities and are therefore subject to natural processes. They will also be subject to changes in their natural environment caused by human activities and weather conditions. Therefore we cannot wholly guarantee the conditions of safety of the trees commented upon beyond what can reasonably be assessed from the procedure used. Trees have not been aerially inspected. We recommend regular inspections and advise on the frequency and type of inspection. We would recommend that re inspections be carried out within one year or within specific stipulated timescales. No assessment has been made of soil conditions and the impact of soil conditions on tree cover/built environment. No assessment has been
made for underground services, proposed or existing, unless otherwise stated. The contents of this report are valid for one year. This period of validity maybe reduced in case of any change in conditions to, or in proximity to, the trees.

4.4 The report is for the sole use of the client and refers only to those trees referred to within; use by any other person(s) in attempting to use the contents for any other purpose renders the report invalid for that purpose.
5.0 DEFINITIONS

5.1 TREES TO BE CONSIDERED FOR REMOVAL

Category R

Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.

- 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 R category trees (i.e. 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 (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality;

NOTE: Habitat reinstatement may be appropriate (e.g. R category tree used as a bat roost: installation of bat box in nearby tree).

Trees in this category will be shown Dark Red on the Tree Constraints Plan.

5.2 TREES TO BE CONSIDERED FOR RETENTION

Category A

Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).

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 principal trees within an avenue).

Trees, groups or woodlands which provide a definite screening or softening effect of the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups).

Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture).

Trees in this category will be shown Light Green on the Tree Constraints Plan.
Category B

Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested).

Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage).

Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wilder locality.

Trees with clearly identifiable conservation or other cultural benefits.

Trees in this category will be shown Mid Blue on the Tree Constraints Plan.

Category C

Those of low quality and value: currently in inadequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150mm.

Trees not qualifying in higher categories.

Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary screening benefit.

Trees with very limited conservation or other cultural benefits.

Trees in this category will be shown Grey on the Tree Constraints Plan.

5.3 Age Class

Y – Young; tree in first third of life expectancy

MA – Middle Aged; tree in second third of life expectancy

M – Mature; tree in final third of life expectancy

OM – Over Mature; tree in decline

V – Veteran; tree with major physiological decline, surviving beyond the typical age range for the species.
5.4 Physiological condition

- Those trees marked ‘Good’ can generally be classed as having good overall structural and physiological condition. Most usually specimens are in good/excellent condition. They generally have few and less significant arboricultural defects than those trees classed as ‘B’ or ‘C’. Usually contribute significantly to the local or site amenity.

- Those trees marked ‘Fair’ can generally be classed as having reasonable structural and physiological condition. They may contain smaller areas of included bark within either major or minor fork junctions. They may be subject to single or multiple fungal invasions, bacterial or virus. In the case of fungal invasion or bacteria the Latin name of the species has been stated. They may be subject to minor crown dieback, unusually pale or smaller foliage or have been subjected to outside influences such as restriction of rooting spread, vandalism or mechanical damage, but should be viewed as in generally good overall condition.

- Those trees marked ‘Poor’ can generally be classed as having poor overall structural or physiological condition. They may contain large areas of included bark either within major for junctions. They may be subject to single or multiple fungal invasions, bacteria or virus. In the case of fungal invasion or bacteria the Latin name has been stated. They may contain splits or cracks throughout the branching structure. They may be subject to significant crown dieback or exhibit unusually pale or small foliage. They may be subject to outside influences such as restriction of rooting spread, vandalism or mechanical damage and costly to retain.

- Those trees marked ‘Dead’ have no visible foliage, brown cell structure under young bark.

5.5 The purpose of the tree categorisation method which has been applied by the surveyor, is to identify the quality and value of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained should development occur.

For a tree to qualify under any given category it should fall within the scope of the category’s definition (R, A, B, C) and, for a tree in categories A – C, it should qualify under one or more of the three subcategories.

In the categories A, B, C, which together deal with trees that should be a material consideration in the development process, the subcategories are intended to reflect arboricultural, landscape and cultural values respectively. Category R trees are those which would be lost in the short term for reasons connected with their physiological or structural condition. For this reason, they should not be a consideration in the planning process.
6.0 INDIVIDUAL ARBORICULTURAL SURVEY SHEETS
## Tree Survey Schedule

**Site:** Land at St Judes Hospital, Sandy lane, Newcastle under Lyme  
**Date of Survey:** 8th June 2011

### Tree Survey Schedule

<table>
<thead>
<tr>
<th>Tree Tag No.</th>
<th>Species</th>
<th>Height</th>
<th>Stem diam. at 1.5 m</th>
<th>Branch Spread</th>
<th>Crown Clear.</th>
<th>Age Class</th>
<th>Physiol. Condition</th>
<th>Structural Condition</th>
<th>Preliminary Work Required</th>
<th>Est. Contrib. (years)</th>
<th>B.S. Cat</th>
<th>Sub Cat</th>
<th>Prot. Mul.</th>
<th>Root Protection Radius</th>
<th>Root Protection Area (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8773</td>
<td>Copper Beech</td>
<td>12</td>
<td>440</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>Middle Aged</td>
<td>Good</td>
<td>No significant visible defects. One sided crown due to suppression from previously removed tree adjacent to Sandy Lane.</td>
<td>Crown lift to a height 5.2 metres to clear highway and adjacent house.</td>
<td>40+</td>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td>8774</td>
<td>Sycamore</td>
<td>16</td>
<td>580</td>
<td>6</td>
<td>5</td>
<td>10</td>
<td>6</td>
<td>4</td>
<td>Middle Aged</td>
<td>Good</td>
<td>No significant visible defects. One sided crown due to suppression from previously removed tree adjacent to Sandy Lane.</td>
<td>Crown lift to a height 5.2 metres to clear adjacent house. Deadwood</td>
<td>40+</td>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td>8775</td>
<td>Caucasian Lime <em>Tilia euchlora</em></td>
<td>9</td>
<td>280</td>
<td>6</td>
<td>2</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>Young</td>
<td>Fair</td>
<td>No significant visible defects. Leans 20 degrees north over neighbouring property. Suppressed by 8774.</td>
<td>Crown lift to a height 5.2 metres to clear adjacent house.</td>
<td>40+</td>
<td>C</td>
<td>2</td>
</tr>
<tr>
<td>8776</td>
<td>Caucasian Lime <em>Tilia euchlora</em></td>
<td>14</td>
<td>600</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>Mature</td>
<td>Good</td>
<td>No significant visible defects.</td>
<td>Crown lift to a height 5.2 metres to clear adjacent house.</td>
<td>40+</td>
<td>B</td>
<td>2</td>
</tr>
<tr>
<td>8777</td>
<td>Common Holly <em>Ilex aquifolium</em></td>
<td>9</td>
<td>260</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>3</td>
<td>1</td>
<td>Middle Aged</td>
<td>Good</td>
<td>No significant visible defects. Wounds in base. Suppressed by 8778.</td>
<td>Crown lift to a height 3.0 metres for clear pedestrian use.</td>
<td>40+</td>
<td>C</td>
<td>2</td>
</tr>
<tr>
<td>8778</td>
<td>Caucasian Lime <em>Tilia euchlora</em></td>
<td>14</td>
<td>470</td>
<td>5</td>
<td>6</td>
<td>4</td>
<td>8</td>
<td>8</td>
<td>Mature</td>
<td>Good</td>
<td>No significant visible defects. Forks at 4 metres and then again at 7 metres.</td>
<td>No work required.</td>
<td>40+</td>
<td>B</td>
<td>2</td>
</tr>
</tbody>
</table>

### Notes

1. All dimensions are in metres, except trunk diameter, which is in mm.
2. Height describes the approximate height of the tree from ground level.
   Measurements with a decimal place have been measured.
3. Trunk Diameter is the diameter of the stem measured in millimetres at 1.5m from ground level for single-stemmed trees or at ground level for multi-stemmed trees. Stem diameter may be estimated where access is restricted.
4. The Branch spread refers to the crown radius in meters from the stem centre at the four cardinal points.
5. Crown Clearance is the height in meters of crown clearance above adjacent ground level.
6. Estimated contribution in years is the trees estimated remaining contribution in years.
7. Protection Multiplier is 12 for single stemmed and 10 for multi-stemmed trees and is the number used to calculate the trees protection radius and area.
8. Root Protection Radius is a radial distance measured from the trunk centre.
9. Root Protection Area is the minimum area in m² which should remain undisturbed.
10. B.S. Cat refers to BS 5837:2005, Table 1 and refers to tree/group quality and value  
    ‘A’ - High - (Green);  ‘B’ - Moderate - (Blue);  ‘C’ - Low - (Grey)  
    ‘R’ - Remove (Red).
11. Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is landscape and 3 is cultural including conservation, historic and commemorative.
<table>
<thead>
<tr>
<th>Tree Tag No.</th>
<th>Species</th>
<th>Height</th>
<th>Stem diam. at 1.5 m</th>
<th>Branch Spread</th>
<th>Crown Clear.</th>
<th>Age Class</th>
<th>Physiol. Condition</th>
<th>Structural Condition</th>
<th>Preliminary Work Required</th>
<th>Est. Contrib. (years)</th>
<th>B.S. Cat</th>
<th>Sub Cat</th>
<th>Prot. Multi.</th>
<th>Root Protection Radius</th>
<th>Root Protection Area (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8780</td>
<td>Sycamore</td>
<td>14</td>
<td>570</td>
<td>2 10 6 4</td>
<td>8</td>
<td>Mature</td>
<td>Poor</td>
<td>Major stem defects south side.</td>
<td>Fell.</td>
<td>0-10</td>
<td>R</td>
<td>2</td>
<td>2</td>
<td>104</td>
<td></td>
</tr>
<tr>
<td>8781</td>
<td>Sycamore</td>
<td>18</td>
<td>600</td>
<td>4 5 4 5</td>
<td>4</td>
<td>Mature</td>
<td>Poor</td>
<td>Major stem defects south side.</td>
<td>Fell.</td>
<td>0-10</td>
<td>R</td>
<td>2</td>
<td>2</td>
<td>104</td>
<td></td>
</tr>
<tr>
<td>8782</td>
<td>Sycamore</td>
<td>16</td>
<td>1000</td>
<td>4 5 3 2</td>
<td>2</td>
<td>Middle</td>
<td>Poor</td>
<td>Triforated tree. Major base decay.</td>
<td>Fell.</td>
<td>0-10</td>
<td>R</td>
<td>2</td>
<td>2</td>
<td>104</td>
<td></td>
</tr>
<tr>
<td>8783</td>
<td>Sycamore</td>
<td>14</td>
<td>480</td>
<td>8 6 6 4</td>
<td>4</td>
<td>Mature</td>
<td>Good</td>
<td>No significant visible defects. Fork at 3 metres.</td>
<td>Crown lift to a height 5.2 metres to clear vehicular access.</td>
<td>40+</td>
<td>B</td>
<td>2</td>
<td>12</td>
<td>5.76</td>
<td>104</td>
</tr>
<tr>
<td>8791</td>
<td>Caucasian Lime</td>
<td>13</td>
<td>320</td>
<td>3 3 4 2</td>
<td>4</td>
<td>Middle</td>
<td>Aged</td>
<td>Good No significant visible defects. Single stem, gentle sweep.</td>
<td>Remove basal suckers.</td>
<td>40+</td>
<td>B</td>
<td>2</td>
<td>12</td>
<td>3.84</td>
<td>46</td>
</tr>
<tr>
<td>8792</td>
<td>Caucasian Lime</td>
<td>14</td>
<td>450</td>
<td>6 4 4 4</td>
<td>2</td>
<td>Mature</td>
<td>Fair</td>
<td>Major included union 3 metres main stem. Note 8793 to be removed.</td>
<td>Re survey see 8793.</td>
<td>20-40</td>
<td>C</td>
<td>2</td>
<td>12</td>
<td>5.40</td>
<td>92</td>
</tr>
</tbody>
</table>

Notes:
1. All dimensions are in metres, except trunk diameter, which is in mm.
2. Height describes the approximate height of the tree from ground level.
3. Trunk Diameter is the diameter of the stem measured in millimetres at 1.5m from ground level for single stemmed trees or at ground level for multi-stemmed trees. Stem diameter may be estimated where access is restricted.
4. The Branch spread refers to the crown radius in meters from the stem centre at the four cardinal points.
5. Crown Clearance is the height in meters of crown clearance above adjacent ground level.
6. Estimated contribution in years is the trees estimated remaining contribution in years.
7. Protection Multiplier is 12 for single stemmed and 10 for multi-stemmed trees and is the number used to calculate the trees protection radius and area.
8. Root Protection Radius is a radial distance measured from the trunk centre.
9. Root Protection Area is the minimum area in m² which should remain undisturbed.
10. B.S. Cat refers to BS 5837:2005, Table 1 and refers to tree/group quality and value 'A' - High - (Green); 'B' - Moderate - (Blue); 'C' - Low - (Grey) 'R' - Remove (Red).
11. Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is landscape and 3 is cultural including conservation, historic and commemorative.
# Tree Survey Schedule

**Site:** Land at St Judes Hospital, Sandy lane, Newcastle under Lyme

**Date of Survey:** 8th June 2011

<table>
<thead>
<tr>
<th>Tree Tag No.</th>
<th>Species</th>
<th>Height</th>
<th>Stem diam. at 1.5 m</th>
<th>Branch Spread</th>
<th>Crown Clear.</th>
<th>Age Class</th>
<th>Physiol. Condition</th>
<th>Structural Condition</th>
<th>Preliminary Work Required</th>
<th>Est. Contrib. (years)</th>
<th>B.S. Cat Grading</th>
<th>Sub Cat</th>
<th>Prot. Multi.</th>
<th>Root Protection Radius</th>
<th>Root Protection Area (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8793</td>
<td>Sycamore</td>
<td>16</td>
<td>540</td>
<td>8</td>
<td>7</td>
<td>4</td>
<td>4</td>
<td>Mature</td>
<td>Poor</td>
<td>Fell</td>
<td>0-10</td>
<td>R</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acer pseudoplatanus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8794</td>
<td>Ash</td>
<td>7</td>
<td>260</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>Young</td>
<td>Poor</td>
<td>Major decay. Suppressed by 8793</td>
<td>Fell</td>
<td>0-10</td>
<td>R</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fraxinus excelsior</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8795</td>
<td>Common Holly</td>
<td>6</td>
<td>220</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>Young</td>
<td>Poor</td>
<td>Cavity main stem. South side.</td>
<td>Fell</td>
<td>0-10</td>
<td>R</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ilex aquifolium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8796</td>
<td>Common Holly</td>
<td>5</td>
<td>200</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>Young</td>
<td>Fair</td>
<td>No significant visible defects.</td>
<td>No work required.</td>
<td>20-40</td>
<td>C</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Ilex aquifolium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8797</td>
<td>Caucasian Lime</td>
<td>16</td>
<td>570</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>4</td>
<td>Mature</td>
<td>Fair</td>
<td>Major deadwood and thin crown. Possible phytophthora.</td>
<td>Major deadwood.</td>
<td>10-20</td>
<td>C</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Tilia euchlora</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8798</td>
<td>Sycamore</td>
<td>14</td>
<td>300</td>
<td>3</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>Middle Aged</td>
<td>Good</td>
<td>No significant visible defects. Very close to neighbouring structure. Actionable nuisance less than 10 years</td>
<td>Fell</td>
<td>0-10</td>
<td>R</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Acer pseudoplatanus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes:**

1. All dimensions are in metres, except trunk diameter, which is in mm.
2. Height describes the approximate height of the tree from ground level.
3. Trunk Diameter is the diameter of the stem measured in millimetres at 1.5m from ground level for single stemmed trees or at ground level for multi-stemmed trees. Stem diameter may be estimated where access is restricted.
4. The Branch spread refers to the crown radius in meters from the stem centre at the four cardinal points.
5. Crown Clearance is the height in meters of crown clearance above adjacent ground level.
6. Estimated contribution in years is the trees estimated remaining contribution in years.
7. Protection Multiplier is 12 for single stemmed and 10 for multi-stemmed trees and is the number used to calculate the trees protection radius and area.
8. Root Protection Radius is a radial distance measured from the trunk centre.
9. Root Protection Area is the minimum area in m² which should remain undisturbed.
10. B.S. Cat refers to BS 5837:2005, Table 1 and refers to tree/group quality and value: ‘A’ - High - (Green); ‘B’ - Moderate - (Blue); ‘C’ - Low - (Grey)
11. Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is landscape and 3 is cultural including conservation, historic and commemorative.
## Tree Survey Schedule

**Site:** Land at St Judes Hospital, Sandy lane, Newcastle under Lyme  
**Date of Survey:** 8th June 2011

<table>
<thead>
<tr>
<th>Tree Tag No.</th>
<th>Species</th>
<th>Height</th>
<th>Stem diam. at 1.5 m</th>
<th>Branch Spread N</th>
<th>S</th>
<th>E</th>
<th>W</th>
<th>Crown Clear.</th>
<th>Age Class</th>
<th>Physiol. Condition</th>
<th>Structural Condition</th>
<th>Preliminary Work Required</th>
<th>Est. Contrib. (years)</th>
<th>B.S. Cat</th>
<th>Sub Cat</th>
<th>Prot. Multi.</th>
<th>Root Protection Radius</th>
<th>Root Protection Area (m²)</th>
</tr>
</thead>
</table>
| 8799        | Sycamore    | 14     | 280                 | 6               | 2 | 6 | 6 | 5            | Middle Aged | Good                | No significant visible defects.  
Very close to neighbouring structure. Actionable nuisance less than 10 years | Fell. | 0-10    | R        | 2     |
| 8800        | Cherry      | 12     | 370                 | 3               | 3 | 10| 3 | 1            | Mature     | Poor                | No significant visible defects but very supressed by 8798 & 8799. | Fell. | 10-20   | R        | 2     |
| 8801        | Common Holly | 8      | 130                 | 2               | 2 | 2 | 2 | 1            | Young      | Good                | Crown dense and healthy. | No work required. | 20-40   | B        | 2      | 12     | 1.56    | 8    |
| 8802        | Sycamore    | 14     | 580                 | 2               | 2 | 5 | 2 | 4            | Middle Aged | Poor                | Twin stem. | No work required. | 20-40   | C        | 2      | 10     | 5.80    | 106   |
| 8803        | Common Holly | 9      | 225                 | 2               | 2 | 2 | 2 | 0            | Middle Aged | Good                | Single stem. | No work required. | 20-40   | C        | 2      | 12     | 2.70    | 23    |
| 8804        | Common Holly | 9      | 225                 | 2               | 2 | 2 | 2 | 0            | Middle Aged | Good                | Single stem. | No work required. | 20-40   | C        | 2      | 12     | 2.70    | 23    |

### Notes

1. All dimensions are in metres, except trunk diameter, which is in mm.
2. Height describes the approximate height of the tree from ground level. Measurements with a decimal place have been measured.
3. Trunk Diameter is the diameter of the stem measured in millimetres at 1.5m from ground level for single stemmed trees or at ground level for multi-stemmed trees. Stem diameter may be estimated where access is restricted.
4. The Branch spread refers to the crown radius in meters from the stem centre at the four cardinal points.
5. Crown Clearance is the height in meters of crown clearance above adjacent ground level.
6. Estimated contribution in years is the trees estimated remaining contribution in years.
7. Protection Multiplier is 12 for single stemmed and 10 for multi-stemmed trees and is the number used to calculate the trees protection radius and area.
8. Root Protection Radius is a radial distance measured from the trunk centre.
9. Root Protection Area is the minimum area in m² which should remain undisturbed.
10. B.S. Cat refers to BS 5837:2005, Table 1 and refers to tree/group quality and value 'A' - High - (Green); 'B' - Moderate - (Blue); 'C' - Low - (Grey)  
'R' - Remove (Red).
11. Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is landscape and 3 is cultural including conservation, historic and commemorative.
# Tree Survey Schedule

**Site:** Land at St Judes Hospital, Sandy lane, Newcastle under Lyme

**Date of Survey:** 8th June 2011

<table>
<thead>
<tr>
<th>Tree Tag No.</th>
<th>Species</th>
<th>Height</th>
<th>Stem diam. at 1.5 m</th>
<th>Branch Spread N</th>
<th>Branch Spread S</th>
<th>Branch Spread E</th>
<th>Branch Spread W</th>
<th>Crown Clear.</th>
<th>Age Class</th>
<th>Physiol. Condition</th>
<th>Structural Condition</th>
<th>Preliminary Work Required</th>
<th>Est. Contrib (years)</th>
<th>B.S. Category Grading</th>
<th>Sub Cat</th>
<th>Prot. Multi.</th>
<th>Root Protection Radius</th>
<th>Root Protection Area (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8805</td>
<td>Sycamore</td>
<td>18</td>
<td>580</td>
<td>6</td>
<td>6</td>
<td>7</td>
<td>3</td>
<td>4</td>
<td>Mature</td>
<td>Good</td>
<td>Forks at 2 metres.</td>
<td>40+</td>
<td>B</td>
<td>2</td>
<td>12</td>
<td>6.96</td>
<td>152</td>
<td></td>
</tr>
<tr>
<td>TPO</td>
<td>Acer pseudoplatanus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8806</td>
<td>Sycamore</td>
<td>18</td>
<td>580</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>7</td>
<td>7</td>
<td>Mature</td>
<td>Good</td>
<td>Forks at 4 metres.</td>
<td>No work required.</td>
<td>40+</td>
<td>B</td>
<td>2</td>
<td>12</td>
<td>6.96</td>
<td>152</td>
</tr>
<tr>
<td>TPO</td>
<td>Acer pseudoplatanus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8807</td>
<td>Sycamore</td>
<td>18</td>
<td>550</td>
<td>7</td>
<td>6</td>
<td>3</td>
<td>3</td>
<td>7</td>
<td>Mature</td>
<td>Good</td>
<td>Single stem.</td>
<td>No work required.</td>
<td>40+</td>
<td>B</td>
<td>2</td>
<td>12</td>
<td>6.60</td>
<td>137</td>
</tr>
<tr>
<td>TPO</td>
<td>Acer pseudoplatanus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8808</td>
<td>Sycamore</td>
<td>16</td>
<td>360</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>7</td>
<td>Middle Aged</td>
<td>Fair</td>
<td>No significant visible defects. Inhibited by adjacent trees. Poor form and shape.</td>
<td>No work required.</td>
<td>40+</td>
<td>C</td>
<td>2</td>
<td>12</td>
<td>4.32</td>
<td>59</td>
</tr>
<tr>
<td>TPO</td>
<td>Acer pseudoplatanus</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8809</td>
<td>Common Holly</td>
<td>9</td>
<td>220</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>Young</td>
<td>Good</td>
<td>No significant visible defects.</td>
<td>No work required.</td>
<td>20-40</td>
<td>C</td>
<td>2</td>
<td>12</td>
<td>2.64</td>
<td>22</td>
</tr>
<tr>
<td>TPO</td>
<td>Ilex aquifolium</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5810</td>
<td>Horse Chestnut</td>
<td>14</td>
<td>375</td>
<td>5</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>4</td>
<td>Middle Ages</td>
<td>Dead</td>
<td>Dangerous.</td>
<td>Fell.</td>
<td>0</td>
<td>R</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TPO</td>
<td>Aesculus hippocastanum</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Notes**

1. All dimensions are in metres, except trunk diameter, which is in mm.
2. Height describes the approximate height of the tree from ground level.
3. Measurements with a decimal place have been measured.
4. Trunk Diameter is the diameter of the stem measured in millimetres at 1.5m from ground level for single stemmed trees or at ground level for multi-stemmed trees. Stem diameter may be estimated where access is restricted.
5. The Branch spread refers to the crown radius in meters from the stem centre at the four cardinal points.
6. Estimated contribution in years is the trees estimated remaining contribution in years.
7. Protection Multiplier is 12 for single stemmed and 10 for multi-stemmed trees and is the number used to calculate the trees protection radius and area.
8. Root Protection Radius is a radial distance measured from the trunk centre.
9. Root Protection Area is the minimum area in m² which should remain undisturbed.
10. B.S. Cat refers to BS 5837:2005, Table 1 and refers to tree/group quality and value
    - ‘A’ - High - (Green); ‘B’ - Moderate - (Blue); ‘C’ - Low - (Grey)
    - ‘R’ - Remove (Red).
11. Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is landscape and 3 is cultural including conservation, historic and commemorative.
# Tree Survey Schedule

**Site:** Land at St Judes Hospital, Sandy lane, Newcastle under Lyme

**Date of Survey:** 8th June 2011

<table>
<thead>
<tr>
<th>Tree Tag No.</th>
<th>Species</th>
<th>Height</th>
<th>Stem diam. at 1.5 m</th>
<th>Branch Spread</th>
<th>Crown Clear.</th>
<th>Age Class</th>
<th>Physiol. Condition</th>
<th>Structural Condition</th>
<th>Preliminary Work Required</th>
<th>Est. Contrib. (years)</th>
<th>B.S. Category Grading</th>
<th>Sub Cat</th>
<th>Prot. Multi</th>
<th>Root Protection Radius (m)</th>
<th>Root Protection Area (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8811 TPO</td>
<td>Common Hawthorn Crataegus monogyna</td>
<td>6</td>
<td>150</td>
<td>1 2 2 2</td>
<td>1 2</td>
<td>Middle Aged</td>
<td>Poor</td>
<td>Major stem defect.</td>
<td>Fell</td>
<td>0-10</td>
<td>R</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8812 TPO</td>
<td>Sycamore Acer pseudoplatanus</td>
<td>16</td>
<td>530</td>
<td>9 6 5 5</td>
<td>6 6</td>
<td>Mature</td>
<td>Good</td>
<td>Main stem splits at 3 metres. Included union.</td>
<td>Deadwood</td>
<td>40+</td>
<td>C</td>
<td>2</td>
<td>12</td>
<td>6.36</td>
<td>127</td>
</tr>
<tr>
<td>8813 TPO</td>
<td>Common Ash Fraxinus excelsior</td>
<td>16</td>
<td>330</td>
<td>3 2 3 3</td>
<td>12</td>
<td>Middle Aged</td>
<td>Poor</td>
<td>No significant visible defects. Drawn up thin and leggy. Splits into 2 stems at 4 metres. Unstable limbs too long with end weight.</td>
<td>Fell</td>
<td>20-40</td>
<td>C</td>
<td>2</td>
<td>12</td>
<td>3.96</td>
<td>49</td>
</tr>
<tr>
<td>8814 TPO</td>
<td>Common Holly Ilex aquifolium</td>
<td>7</td>
<td>240</td>
<td>2 2 1 2</td>
<td>1 2</td>
<td>Middle Aged</td>
<td>Good</td>
<td>No significant visible defects. Drawn up and leggy. Crown dense and healthy.</td>
<td>No work required</td>
<td>20-40</td>
<td>C</td>
<td>2</td>
<td>12</td>
<td>2.88</td>
<td>26</td>
</tr>
<tr>
<td>8815 TPO</td>
<td>Common Ash Fraxinus excelsior</td>
<td>10</td>
<td>270</td>
<td>2 3 4 3</td>
<td>5</td>
<td>Middle Aged</td>
<td>Good</td>
<td>No significant visible defects. Drawn up and leggy. Crown dense and healthy.</td>
<td>No work required</td>
<td>40+</td>
<td>B</td>
<td>2</td>
<td>12</td>
<td>3.24</td>
<td>33</td>
</tr>
<tr>
<td>8816 TPO</td>
<td>Sycamore Acer pseudoplatanus</td>
<td>16</td>
<td>350</td>
<td>5 7 5 3</td>
<td>5</td>
<td>Mature</td>
<td>Good</td>
<td>Slight lean to the east. Slight sparsity of growth due to removal of adjacent tree.</td>
<td>No work required</td>
<td>40+</td>
<td>C</td>
<td>2</td>
<td>12</td>
<td>4.20</td>
<td>55</td>
</tr>
</tbody>
</table>

**Notes:**

1. All dimensions are in metres, except trunk diameter, which is in mm.
2. Height describes the approximate height of the tree from ground level.
3. Trunk Diameter is the diameter of the stem measured in millimetres at 1.5m from ground level for single-stemmed trees or at ground level for multi-stemmed trees. Stem diameter may be estimated where access is restricted.
4. The Branch spread refers to the crown radius in meters from the stem centre at the four cardinal points.
5. Crown Clearance is the height in meters of crown clearance above adjacent ground level.
6. Estimated contribution in years is the tree's estimated remaining contribution in years.
7. Protection Multiplier is 12 for single stemmed and 10 for multi-stemmed trees and is the number used to calculate the tree's protection radius and area.
8. Root Protection Radius is a radial distance measured from the trunk centre.
9. Root Protection Area is the minimum area in m² which should remain undisturbed.
10. B.S. Cat refers to BS 5837:2005, Table 1 and refers to tree/group quality and value
    'A' - High - (Green);  'B' - Moderate - (Blue);  'C' - Low - (Grey)
    'R' - Remove (Red).
11. Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is landscape and 3 is cultural including conservation, historic and commemorative.
**Tree Survey Schedule**

**Site:** Land at St Judes Hospital, Sandy lane, Newcastle under Lyme

**Date of Survey:** 8th June 2011

<table>
<thead>
<tr>
<th>Tree Tag No.</th>
<th>Species</th>
<th>Height</th>
<th>Stem diam. at 1.5 m</th>
<th>Branch Spread N</th>
<th>S</th>
<th>E</th>
<th>W</th>
<th>Crown Clear.</th>
<th>Age Class</th>
<th>Physiol. Condition</th>
<th>Structural Condition</th>
<th>Preliminary Work Required</th>
<th>Est. Contrib. (years)</th>
<th>B.S. Cat</th>
<th>Sub Cat</th>
<th>Prot. Multi</th>
<th>Root Protection Radius</th>
<th>Root Protection Area (m²)</th>
</tr>
</thead>
</table>

**Notes**

1. All dimensions are in metres, except trunk diameter, which is in mm.
2. Height describes the approximate height of the tree from ground level.
3. Trunk Diameter is the diameter of the stem measured in millimetres at 1.5m from ground level for single stemmed trees or at ground level for multi-stemmed trees. Stem diameter may be estimated where access is restricted.
4. The Branch spread refers to the crown radius in meters from the stem centre at the four cardinal points.
5. Crown Clearance is the height in meters of crown clearance above adjacent ground level.
6. Estimated contribution in years is the trees estimated remaining contribution in years.
7. Protection Multiplier is 12 for single stemmed and 10 for multi-stemmed trees and is the number used to calculate the trees protection radius and area.
8. Root Protection Radius is a radial distance measured from the trunk centre.
9. Root Protection Area is the minimum area in m² which should remain undisturbed.
10. B.S. Cat refers to BS 5837:2005, Table 1 and refers to tree/group quality and value: 'A' - High - (Green); 'B' - Moderate - (Blue); 'C' - Low - (Grey) 'R' - Remove (Red).
11. Sub Cat refers to the retention criteria values where 1 is Arboricultural, 2 is landscape and 3 is cultural including conservation, historic and commemorative.
# Table 1 — Cascade chart for tree quality assessment

<table>
<thead>
<tr>
<th>Category and definition</th>
<th>Criteria</th>
<th>Identification on plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category A</strong>&lt;br&gt;Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management</td>
<td>- Trees that have a serious, irreparable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other A category trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning).&lt;br&gt;- Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline.&lt;br&gt;- Trees infected with pathogens of significance to the health and/or safety of other trees nearby (e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality. <strong>NOTE</strong> Habitat reinstatement may be appropriate (e.g. A category tree used as a bat roost: installation of bat box in nearby tree).</td>
<td><strong>SOIL RED</strong>&lt;br&gt;RGB code: 127-000-000&lt;br&gt;AutoCAD 246</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Category and definition</th>
<th>Criteria — Subcategories</th>
<th>Identification on plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category A</strong>&lt;br&gt;Those of high quality and value: in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested)</td>
<td>1 Mainly arboreal values&lt;br&gt;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 principal trees within an avenue).&lt;br&gt;Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remendable defects including unsympathetic past management and minor storm damage)&lt;br&gt;Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal arboricultural features (e.g. trees of moderate quality within an avenue that includes better, A category specimens), or trees situated mainly internally to the site, therefore individually having little visual impact on the wider locality.</td>
<td><strong>LIGHT GREEN</strong>&lt;br&gt;RGB code: 000-255-000&lt;br&gt;AutoCAD 90</td>
</tr>
<tr>
<td><strong>Category B</strong>&lt;br&gt;Those trees of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)</td>
<td>2 Mainly landscape values&lt;br&gt;Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value, and/or trees offering low or only temporary remaining benefits</td>
<td><strong>BLUE</strong>&lt;br&gt;RGB code: 000-000-255&lt;br&gt;AutoCAD 170</td>
</tr>
<tr>
<td><strong>Category C</strong>&lt;br&gt;Those trees of low quality and value: currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 150 mm</td>
<td>3 Mainly cultural values, including conservation&lt;br&gt;Trees with clearly identifiable conservation or other cultural benefits&lt;br&gt;Trees with very limited conservation or other cultural benefits</td>
<td><strong>GREY</strong>&lt;br&gt;RGB code: 91-91-91&lt;br&gt;AutoCAD 252</td>
</tr>
</tbody>
</table>

**NOTE** Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150 mm should be considered for relocation.
7.0  TREE CONSTRAINTS PLAN

7.1  Following categorisation of trees on the development site the influence that trees on and adjacent to the site will have on the layout has been plotted on a plan called the Tree Constraints Plan (TCP).

7.2  To correctly protect below ground constraints a Root Protection Area (RPA) should be calculated and plotted on the Tree Constraints Plan. In order to avoid damage to the rooting environment of retained trees the RPA should be plotted around each of the category A, B, C trees. The radius of the RPA is calculated as 12 times the stem diameter for single stem trees and 10 times the basal diameter for trees with more than one stem.

7.3  The RPA, for each tree has been plotted on the TCP taking full account of the following factors, which may change its shape but not reduce its area whilst still providing adequate protection for the root system.

   (a) The likely tolerance of the tree to the root disturbance or damage based on factors such as species, age and condition and presence of other trees. (For individual open grown trees only, it may be acceptable to offset the distance by up to 20% in one direction).

   (b) 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).

   (c) The soil type and structure.

   (d) Topography and drainage.

   (e) Where any significant part of a tree’s crown overhangs the provisional position of tree protection area, these parts may sustain damage during the construction period. In such cases, it may be necessary to increase the extent of tree protection barriers to contain and thereby protect the spread of the crown. Protection may also be achieved by access facilitation pruning. The need for such measures, including the precise extent of pruning is described in the individual arboricultural survey sheets under preliminary management recommendations, where necessary.
8.0 ARBORICULTURAL IMPLICATIONS ASSESSMENT

8.1 INTRODUCTION

The Arboricultural Implications Assessment (AIA) is a type of tree survey that considers how a proposed development and its associated trees will co-exist and interact in the present, during construction and in the future. AIA is a document that many Local Planning Authorities (LPA’s) are now requesting as part of a planning application; as they need to satisfy themselves that factors such as root protection, changes in levels, access, cranes, installation of services, material storage, etc have been considered during the development layout and that these items will not prove detrimental to important trees. They also need to ensure that future issues, such as the long term effects of changing a surface level or the future need to prune or remove trees because they cast excessive shade or encroach upon property, are addressed and avoided.

Items considered are as follows:

- Tree root protection (distances, area, RPA)
- Tree crown protection (access facilitation pruning)
- Tree protection measures during construction (BS5837 Figure 2 & Figure 3)
- Changes in levels in the RPA
- Changes in surfaces in the RPA
- Installation and layout of services in the RPA
- Demolition of existing buildings, removal of previous surfaces
- Exposure due to tree removal, wind throw
- Sunlight and shading
- Construction site access
- Construction site layout (compounds, offices, parking)
- Construction site materials storage (wash off)
- Planting (species selection e.g. thorns near footpaths)
STATUS OF ARBORICULTURAL IMPLICATIONS

This statement can be included and issued as an induction to the principal contractor to undertake the works and can form part of the contract.

Root Protection Area, RPA

The Root Protection Area (RPA) is the area surrounding the tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m².

In order to avoid damage to the roots or the rooting environment of retained trees the RPA should be plotted around each tree. The RPA is calculated as an area equivalent to 12 times the stem diameter for single stem trees, (10 times for multistems) shown initially as a radius on Greenfield sites.

This information should be plotted on the site and a single line drawn outside of the RPA to demonstrate the position of the tree protection fencing which should be erected in accordance with BS5837 Figure 2 in a continuous line.

Barriers should protect all trees, which are being retained on site. Barriers should be erected before any machinery or materials are bought to site and before any demolition commences. Once erected barriers should be regarded as sacrosanct and should not be removed without the prior approval of the Local Planning Authority. Signs should be erected to indicate why the barriers have been installed.

Weld mesh panels standing on feet, chestnut pale and orange mesh is no longer acceptable under the British Standard.

Crown Protection

Pruning or access facilitation pruning needs to be undertaken to complete the proposed works. In addition recommendations have been made to improve the trees on site however this isn’t necessary to allow development.

Tree Protection Measures

Tree protection should be undertaken in accordance with BS5837. Trees in relation to construction 2005 Figure 2. Posters should be laminated and secured to the heras fencing. Below is an example of what the site should look like prior to the commencement of development. BS5837 Figure 2 is available upon request.
Changes in Levels in the RPA

There are no changes in levels in the RPA, if the recommendations in the survey are followed. Where construction is necessary in the RPA it will be undertaken by one of the approved techniques such as suspended foundations or no-dig driveways.

Changes in surface in the RPA

There are alterations in the surface of the RPA, and this will be by overlaying the existing surfacing. In small areas extensions to the existing surfacing will be required, but this will not be greater than the amount stipulated in BS5837.

Installation of services

Wherever trees are present, precautions should be taken to minimise damage to their root systems. As the shape of the root system is unpredictable, there should be control and supervision of any works, particularly if this involves excavating through the surface 600mm, where the majority of roots develop.

Fine roots are vulnerable to desiccation once they are exposed to the air. Larger roots have a bark layer which provides some protection against desiccation and temperature change. The greatest risk to these roots occurs when there are rapid fluctuations in air temperature around them e.g. frost and extremes of heat. It is therefore important to protect exposed roots where a trench is to be left open overnight where there is a risk of frost. In winter, before leaving the site at the end of the day, the exposed roots should be wrapped with dry sacking. This sacking must be removed before the trench is backfilled.
The precautions referred to are applicable to any excavations or other works occurring within the Root Protection Area.

Whenever possible apparatus should always be diverted or re-aligned outside the Root Protection Area. Under no circumstances can machinery be used to excavate open trenches within the Construction Exclusion Zone.

The appropriate method of working within the Root Protection Area should be determined in consultation with the local authority & for privately owned trees the owner or their agent.

Where works are required for the laying or maintenance of any apparatus within the Root Protection Area there are various techniques available to minimise damage.

Acceptable techniques in order of preference are:

a) Trenchless

Wherever possible trenchless techniques should be used. The launch and reception pits should be located outside the Root Protection Area. In order to avoid damage to roots by percussive boring techniques it is recommended that the depth of run should be below 600mm. Techniques involving external lubrication of the equipment with materials other than water (e.g. oil, bentonite, etc.) must not be used when working within the Root Protection Area. Lubricating materials other than water may be used within the Root Protection Area following consultation and by agreement.

b) Broken Trench - Hand-dug

This technique combines hand dug trench sections with trenchless techniques if excavation is unavoidable. Excavation should be limited to where there is clear access around and below the roots. The trench is excavated by hand with precautions taken as for continuous trenching as in (c) below. Open sections of the trench should only be long enough to allow access for linking to the next section. The length of sections will be determined by local conditions, especially soil texture and cohesiveness, as well as the practical needs for access. In all cases the open sections should be kept as short as possible and outside of the Root Protection Area.

c) Continuous Trench - Hand-dug

The use of this method must be considered only as a last resort if works are to be undertaken by agreement within the Prohibited Zone. The objective being to retain as many undamaged roots as possible. Hand digging within the Root Protection Area must be undertaken with great care requiring closer supervision than normal operations. After careful removal of the hard surface material digging must proceed with hand tools. Clumps of roots less than 25mm in diameter (including fibrous
roots) should be retained in situ without damage. Throughout the excavation works great care should be taken to protect the bark around the roots. All roots greater than 25mm diameter should be preserved and worked around. These roots must not be severed without first consulting the owner of the tree or the local authority tree officer / arboriculturist. If after consultation severance is unavoidable, roots must be cut back using a sharp tool to leave the smallest wound.

**Demolition of existing buildings**

N/A

**Exposure**

N/A

**Shading**

N/A

**Construction Site Access**

The proposed access is via an existing and well established route from Sandy Lane. This will result in the need to pass the more mature trees on the site with plant and machinery; however there is plenty of room without the need for tree surgery or tree removal that would not be considered as routine and would also comply with BS3998. Herras fencing should be used to protect the RPA outside of the proposed access, and a planning condition should be included with the consent requiring prior approval of the Tree Protection Plan and scheme.

**Construction site Layout**

There should be a dedicated construction compound on the site that should not be located within the RPA of the trees on or surrounding the site.

**Construction Site Materials**

Additionally avoid washing out mixers around the edge of the RPA.

**Planting**

A comprehensive tree planting scheme is included with this application which includes tree planting to ensure the longevity of tree cover on Sandy Lane.
**Design change advise**

N/A

**Tree Protection Plan**

Planning condition BS5837 draft 2011 page 38 Table B1

**Assessment of special surfacing**

N/A

**Assessment of supervisory requirements**

It is recommended that the first site visit is made to inspect any approved Arboricultural works such as access facilitation pruning and to ensure that the tree protection fencing position and specification has been adhered to.

After the felling/pruning/remedial works have been undertaken and the tree protection has been approved construction work can begin. It is not considered that periodic monitoring will be required, as the new standard requires permanent protection to be installed.
Appendix 1 BS5837 draft 2011 page 38 Table B.1
Delivery of tree-related information into the planning system

Tree survey (in the absence of pre-application discussions)

Tree retention / removal plan (finalized)

Retention trees and RPAs shown on proposed layout

Strategic hard and soft landscape proposals and layout