STAGE 1
ARBORICULTURAL REPORT
&
TREE CONSTRAINTS PLAN TO
AID IN THE
SITE DESIGN / LAYOUT

CONSULTING ARBORIST: GARY MARSDEN
FDSc Arb M.Arb.A

ARBORICULTURAL REPORT FOR:
Mr and Mrs Wearden
86 Knowsley Rd
Wilpshire
Blackburn

LAND OWNER:
Mr and Mrs Wearden
86 Knowsley Rd
Wilpshire
Blackburn

SITE LOCATION:
Land in-between 54 and 52 Knowsley Rd
Wilpshire
Blackburn

DATE OF SITE INSPECTIONS: 7th July 2010
DATE OF REPORT COMPLETION: 14th July 2010
Validation statement for council registration of this report

In accordance with the Department for Communities and Local Government circular 02/2008 and its guidance document Validation of Planning Applications, this report fulfils the recommended national list criteria for tree survey/arboricultural information. More specifically, it contains the following:

- A full tree survey compliant to the requirements of B55837; (2005) Trees in Relation to Construction - Recommendations undertaken by a qualified arboriculturist.

- A plan to a suitable scale with a north point and showing tree survey information, retention categorisation and root protection areas, tree height and ultimate tree height.
Summary

I have inspected all the relevant trees that could influence the development of this site and listed there details within this report, a minimum root protection zone is indicated around each tree, as no construction would be allowed within this area of any retained tree.

This information can now be used to assist the architect in producing there design while still protecting any retained trees in compliance with BS 5837:2005 Trees in relation to construction.

Retain the Elm tree for aesthetic reasons.

Retain the conifer hedge due to screening benefits.

If the development does not impinge on the hawthorn hedge then prune / layer accordingly, removal is an option.

Gary Marsden FDSc Arb M.Arbor.A
# Table of Contents

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Title Page</td>
<td>1</td>
</tr>
<tr>
<td>1.</td>
<td>Validation Statement</td>
<td>2</td>
</tr>
<tr>
<td>1.</td>
<td>Summary</td>
<td>3</td>
</tr>
<tr>
<td>1.</td>
<td>Table of Contents</td>
<td>4</td>
</tr>
<tr>
<td>2.</td>
<td>Introduction</td>
<td>5</td>
</tr>
<tr>
<td>2.</td>
<td>Limitations</td>
<td>7</td>
</tr>
<tr>
<td>3.</td>
<td>Site Visit and Observations</td>
<td>8</td>
</tr>
<tr>
<td>4.</td>
<td>Tree categorisation</td>
<td>10</td>
</tr>
<tr>
<td>5.</td>
<td>Root protection area</td>
<td>11</td>
</tr>
<tr>
<td>6.</td>
<td>Appraisal</td>
<td>12</td>
</tr>
<tr>
<td>7.</td>
<td>Conclusion</td>
<td>13</td>
</tr>
<tr>
<td>8.</td>
<td>Other Considerations</td>
<td>14</td>
</tr>
<tr>
<td>9.</td>
<td>Bibliography and References</td>
<td>16</td>
</tr>
</tbody>
</table>

## APPENDIX

<table>
<thead>
<tr>
<th>Ref.</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Qualifications and Experiences</td>
<td>17</td>
</tr>
<tr>
<td>2.</td>
<td>Site location aerial photo</td>
<td>18</td>
</tr>
<tr>
<td>3.</td>
<td>Tree survey index</td>
<td>19</td>
</tr>
<tr>
<td>4.</td>
<td>Tree location maps</td>
<td>21</td>
</tr>
<tr>
<td>5.</td>
<td>Tree survey data</td>
<td>22</td>
</tr>
<tr>
<td>6.</td>
<td>Cascade chart for tree quality assessment</td>
<td>23</td>
</tr>
<tr>
<td></td>
<td>Signature</td>
<td>24</td>
</tr>
</tbody>
</table>
1.0 Introduction

1.1 Instruction:
I am instructed by Mr and Mrs Wearden to inspect the significant trees that could affect the development at land in-between 54 and 52 Knowsley Rd, Wilpshire, and to provide the following information to aid in the design of the site:

- A schedule of the relevant trees to include basic data and a condition assessment as per section 4.2.6 of BS5837:2005.
- A tree constraints map showing: root protection areas, above ground constraints, crown spreads, retention categories, tree height plus ultimate tree height.

1.2 Purpose of this report:
This report’s primary purpose is to allow the architect to design relevant buildings / site layout while taking into account any impact this will have on the retained trees on site.

Within this planning process, this report will be available for inspection by people other than tree experts so the information is presented to be helpful to those without a detailed knowledge of the subject.

1.3 Qualifications and experience:
I have based this report on my site observations and any provided information and I have come to conclusions in the light of my experience. I have experience and qualifications in arboriculture, and include a summary in Appendix 1.

1.4 Documents and information provided:
Mr Wearden and Sunderland Peacock Associates Ltd provided me with copies of the following documents or information:

- Their e-mail of instruction dated 08/07/2010;
- Proposed drawings of the development.

1.5 Relevant background information:
Prior to the site visit, Sunderland Peacock Associates Ltd advised me that:

- They intended to construct a residential development on the site.
- They would like to keep the lone tree to the north of the site.

1.6 Scope of this report:
This report is only concerned with the prominent trees within or around the proximity of the site that could influence the development of this site. It takes no account of any trees outside this remit or any structural issues. It includes a preliminary assessment based on the site visit and any documents provided, listed in 1.4 above.

The survey is based upon information that was available at the time of the inspection. Further inspections are necessary over time to give a fuller picture of the health of trees.
1.7 **Mapping:**
Site plans showing the tree locations and any relevant details can be found in Appendix 4

1.8 **Justification of work:**
Where management action / tree surgery are recommended, this is based on maximizing the tree’s safe useful life expectancy (SULE), given its current situation or the safety of persons and surrounding targets.
2.0 Limitations

2.1 The inspection was carried out from ground level only and relates only to arboricultural aspects. All visual observations and recommendations, relate, to the condition of the trees on the day of the survey. The trees have been assessed with the aid of a Nylon mallet for the purpose of detecting changes in resonance which may indicate that further investigation is required. Any unusual weather conditions, changes in soil, soil levels and changes to surroundings may result in a dramatic change in the trees health.

2.2 Due to the changing nature of trees and other site circumstances, this report and any recommendations made are limited to a 12-month period. Any alteration to the site and any development proposals could change the current circumstances and may invalidate this report and any recommendations made.

2.3 Trees are dynamic structures that can never be guaranteed 100% safe: even in good condition they can suffer damage under average conditions. Regular inspections can help to identify potential problems before they become acute.

2.4 A lack of recommended work does not imply that a tree is safe and likewise it should not be implied that a tree would be made safe following the completion of any recommended work.

2.5 Any implications concerning the buildings with in the area in relation to the foundations is also beyond the scope of this report. For a further report a structural engineer will be consulted and the analysis dealt with separately.
3.0 Site visit and observations.

3.1 Site visit:
- I carried out an unaccompanied site visit on 7th July 2010.
- All my observations were from ground level without detailed investigations and I estimated all dimensions unless otherwise indicated.
- I did not have access to trees outside the client’s boundaries and have confined observations of them to what was visible from within the client’s property.
- The weather at the time of inspection was dull, still and dry, with average visibility.

3.2 Brief site description:
- Knowsley Road is located in the residential suburbs of Wilpshire, Blackburn.
- Number 52 is on the eastern side of the road and surrounded by residential developments.
- The site consists of a large area of derelict land.
- The surrounding topography is relatively flat and the site is not particularly exposed.
- No utility services were observed on site.
- No visual inspections of any services were made below ground level.
- There is no known history on this site either personal nor from a third party.

3.3 Identification and location of the trees:
I have illustrated the locations of the significant trees (+/- 1m) on the digital maps included in Appendix 4. These plans are for illustrative purposes only and it should not be used for directly scaling measurements. All the relevant information on it is contained within this report and the provided documents.

3.4 Restrictions:
No Tree Preservation Orders are in place on this site.
This site is not located in a Conservation Area
No other known restrictions apply to this site.
As confirmed by:

David Hewitt,
Arboricultural Planning and Tree Preservation Officer,
Ribble Valley Borough Council
Council Offices,
Church Walk,
CLITHEROE,
Lancashire,
BB7 2RA

Tel: 01200 414505,
E-mail: david.hewitt@ribblevalley.gov.uk
3.5 **Collection of basic data:**
I inspected each tree and have indicated the numbering on the site map enclosed in Appendix 4. I identified obvious hedges and groups where appropriate. For each individual tree and hedge, I collected information on species, height, diameter, maturity and potential for contribution to amenity in a development context. I have recorded this information in the tree schedule included as Appendix 5. I stress that my inspection was of a preliminary nature and did not involve any climbing or detailed investigation beyond what was visible from accessible points at ground level. This data collection is fully compliant with the BS 5837 recommendations set out in subsection 4.2.6 of the standard.
4.0 Tree Categorisation

4.0 **Guidance:**
I have applied the following principals to categorise the tree in accordance with BS 5837 (2005): Trees in Relation to Construction.

The category for the tree is ascertained by following the guidelines in the BS 5837 (2005) cascade chart for tree quality assessment included with the TCP tree schedule in Appendix 6. A brief summary of each category is outlined as follows:

4.1 **Category ‘A’ trees:**
This category signifies trees that are of a high quality and value. Occasionally a veteran tree, although not in the best condition may warrant this category because of its wildlife and cultural value. It is essential to retain these trees. The design of the proposed development should take into account the retention of category ‘A’ trees.

4.2 **Category ‘B’ trees:**
This category signifies trees that are of a moderate quality and value. It is important to retain these trees. The design of the proposed development, where feasibly possible, should take into account the retention of category ‘B’ trees. A design layout that suggests the removal of category ‘B’ trees has an increased risk of planning refusal.

4.3 **Category ‘C’ trees:**
This category signifies trees that are of low quality and value. They are generally trees that could remain and are expected to have a safe useful life expectancy of between 10 and 20 years if no development were to occur. However, because of their generally low quality it would not be a great loss if they had to be removed if they were a significant constraint to the design or construction process of the proposed development. Particular attention is drawn to the phrase “significant constraint”.

4.4 **Category ‘R’ trees:**
This category signifies trees that are 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.
5.0 Root Protection Areas (RPAs)

5.1 Why do we need root protection areas?
Approximately eighty percent of a tree’s roots are in the top 600 mm of soil. Therefore any changes in this vital environment including: ground level, soil compaction, physical damage to roots, moisture or levels of contaminants can have a dramatic affect on the health of a tree. At deeper strata alterations in water table and routing of services can cause detrimental, long term, effects.

5.2 Method of calculations:
The area of roots that need to be protected around a tree to try and ensure that it does not suffer damage during the construction process is called the Root Protection Area (RPA).

The RPA is calculated using a formula based upon the diameter of the tree at 1.5 metres high for single stem trees and near ground level for multi-stem trees. At this stage it is generally represented by a circle centred on the tree’s stem. A small percentage lost from the outside of the circle may be tolerated by the tree or offset in another direction. However, where there are significant existing constraints additional root loss in close proximity near to a tree’s stem is likely to have a detrimental effect on the tree’s health or even complete failure of the root plate.

5.3 How to use RPAs:
The RPAs for the trees in question are indicated in Appendix 5. At this point the RPA is only indicative and intended to assist in preparing the design layout.
6.0 Appraisal

6.1 Relevant references:
   - NJUG Guidance Notes for the planning, installation and maintenance of utility apparatus in proximity to trees.
   - Arboricultural Practice Note (APN) 12 – Through the trees to Development

6.2 Overview:
   - There are no trees recommended for removal (R).
   - There are no category ‘A’ trees on site.
   - There is 1 category ‘B’ tree and 1 hedge that should be retained if feasible as part of the development due to the benefits they provide to the landscape feature.
   - There is 1 category ‘C’ hedge that should be retained if possible as part of the development site although removal is an option if development in this area is needed.

6.3 Category B tree and hedge:
   There is a hedge, H1 that is located on the boundary line of the property to the north of number 52 and 54: this is a conifer hedge that acts as a visual screen between numbers 52 and 54. Retention of this hedge is desirable due to the screening properties between the 2 properties. Several smaller tree species are located along the hedge line of H1, removal of these are recommended, due to their size they have not been mapped.

   T1 is a weeping elm and has good form and condition, the finished site would benefit if the site layout can be sympathetic to this tree I feel it would make an attractive garden feature.

6.4 Category C hedge:
   The hedge, H2 is located to the south of the existing site entrance. At present the hedge is unmaintained and in need of formative pruning or layering if retained, although this hedge should not influence any site layout or constraints.

6.5 Tree works:
   The management options noted in the survey data should be followed so to keep a maintained tree stock on and around this development site, particularly giving clearance over the roads and footpaths.
7.0 Conclusions

7.1 Conclusion:
On the basis of the above information and discussions, I summarise my conclusions as follows:-

- Retain the Elm tree for aesthetic reasons.
- Retain the conifer hedge due to screening benefits.
- If the development does not impinge on the hawthorn hedge then prune / layer accordingly, removal is an option.
8.0 Other Considerations

8.1 Trees subject to statutory controls:
If any trees are covered by a tree preservation order or located in a conservation area, it will be necessary to consult the council before any pruning works other than certain exemptions can be carried out. The works specified above are necessary for reasonable management and should be acceptable to the council. However, tree owners should appreciate that they may take an alternative point of view and have the option to refuse consent.

8.2 Trees outside the property boundaries:
Any trees that are located in adjacent properties are effectively out of the control of the owners of 52 Knowsley rd. It will not be possible to easily carry out any recommended works without the full co-operation of the tree owners. The implications of non cooperation require legal interpretation and are beyond the scope of this report. By common law, branches from trees on adjacent properties extending over boundaries can be pruned back to the boundary line without the permission of the owners. However, the material belongs to the tree owner and the same guidance on statutory controls applies as discussed in 8.1 above.

8.3 Development within the rooting area:
The zone of influence has been determined using the calculation outlined in Table 2, of section 5.2.2 of BS 5837: 2005 Trees in relation to construction – Recommendations. This calculation utilises the diameter of the trunk, at a height of 1.5m from the surrounding ground level; and calculates the root protection area (RPA) by multiplying the diameter by a value of 12; the result is then used to calculate the total area (m²) of the RPA. The calculations are illustrated in the tree survey data in Appendix 5.

8.4 Construction Exclusion Zone:
The values indicate the area of soil around the base of the tree to be retained undisturbed. This area should be protected with vertical barriers and considered sacrosanct. Signs should be erected on the fencing to indicate that the area is a Construction Exclusion Zone (CEZ).

8.5 Arboricultural Implication Assessment:
A detailed Arboricultural Implication Assessment (AIA), outlining the impact of proposal on trees by the extent of disturbance in RPAs and the encroachment of structures is available as a further commission. This process should be undertaken once the final decision has been made on the proposed structure.

8.6 Arboricultural Method Statement:
A detailed Arboricultural Method Statement (AMS), outlining the different stages and progression of construction is available as a further commission. This process should be undertaken once the final decision has been made on the proposed structure.
8.7 **Implementation of works:**

All tree works should be carried out to BS 3998 *Recommendations for Tree Work* as modified by more recent research. It is advisable to select a contractor from the local authority list and preferably one approved by the Arboricultural Association. Their Register of Contractors is available free from:

Arboricultural Association
Ullenwood Court,
Ullenwood, Cheltenham,
Gloucestershire,
GL53 9QS,
England.
Telephone: 01242 522 152
Website: [www.trees.org.uk/contractors.htm](http://www.trees.org.uk/contractors.htm)
E-mail: admin@trees.org.uk

8.8 **Local Arboricultural Contractors:** If requested I can provide a list of reputable local arboricultural contractors that have carried out work on previous projects.

8.9 **Safety:** Tree works can be a hazardous profession, so it is important that all operatives have the necessary and relevant training, health and safety policy and valid forms of insurance.

8.10 **Statutory wildlife obligations:** The Wildlife and Countryside Act 1981 as amended by the Countryside and Rights of Way Act 2000, provide statutory protection to birds, bats and other species that inhabit trees. All tree work operations are covered by these provisions and advice from an ecologist must be obtained before undertaking any works that might constitute an offence.

8.11 **Future considerations:** These remaining trees should be inspected on a regular basis by a qualified arboricultural consultant.

8.12 **Replanting:** Any trees on this site that are protected by a preservation order and are being recommended for removal, the appropriate replanting of replacement trees will be needed as a condition of the council granting permission for these trees being felled. This should be incorporated into the landscaping plans at the design stage and followed through after building work is completed.
9.0 Bibliography / References

BS 5837: 2005 Trees in relation to construction – BSI Publication

BS 3998: 1989 Recommendations for tree work – BSI Publication

National Joint Utilities Group (NJUG) Guidance Notes for the planning, installation and maintenance of utility apparatus in proximity to trees – issue 2

Arboricultural Practice Note (APN) 12 – Through the trees to Development – Derek Patch and Ben Holding – Arboricultural Advisory and Information Service

Principles of Tree Hazard Assessment and Management – David Lonsdale

The Body Language of Trees – Claus Mattheck and Helge Breoloer

Diagnosis of Ill Health in Trees R.G. Strouts and T.G. Winter


Field Guide Trees – Allan Mitchell


E-mail communication with David Hewitt (Local Arboricultural / Planning Officer)
APPENDIX 1

Brief qualifications and experience of Gary Marsden:

Qualifications:
- National Certificate in Arboriculture – August 1998
- The Leonard Cheshire Home Award, Practical Award – September 1998
- NVQ in Amenity Horticulture Level 1 – November 2003
- Foundation Degree In Science - Arboriculture - June 2005
- BTEC Higher National Diploma in Arboriculture – June 2005

Practical experience:
After qualifying at NC level in arboriculture I gained full time employment with Blackburn with Darwen Borough Council as an Arborist / Climber (September 1998) where I gained a wide range of practical Arboricultural experience ranging from pruning, dismantling and planting.

In January 2004 I was promoted to Team Leader Arborist were I developed my skills in Arboriculture, leadership, organisation and prioritising work loads.

In August 2005 I was promoted to ‘Arboricultural Officer’ this job involves:
- Health and Safety of all Arboricultural aspects
- Inspection and scheduling of tree complaints
- Tree surveys and report writing
- Staff management

In July 2008 I set up my own tree consultancy company – GM Tree Consultants – which I am constantly developing and evolving.

Continuing professional development:
- Certificate of Competence in the Thorough Examination of Arboricultural Equipment - January 2006
- Arboricultural Association ‘Professional Member’ - November 2006
- Professional Tree Inspection Course - June 2007
- Basic Report Writing – Arboricultural Association – July 2007
- Quantified Tree Risk Assessment – October 2008 – training and registered user
- Disease and Decay in Trees workshop – October 2008 – through Trevor Roberts Associations at Myerscough College.
- Tree hazard assessment workshop – November 2008 – through Trevor Roberts Associations at Manchester University.
- Visual Tree Assessment workshop run by Mike Ellison of QTRA – March 2009
- Tree mortgage report writing qualification run by Delga O’Calahan – March 2009
- Professional Member of Consulting Arborist Society – May 2009
- The Professional Business of Consultancy – Arboricultural Association – June 2009
- Successful Prosecution under the Town and Country Planning Act 1990 – Arboricultural Association – February 2010
- Effective Application of Tree Preservation Orders – CAS – February 2010
- BS5837 Workshop – Tree Life – March 2010
- Subsidence Workshop – Tree Life – April 2010
- Mortgage report writing course – Tree life – April 2010
APPENDIX 2

Site Location aerial photo:
APPENDIX 3

Tree survey Index

Tree Locations:
This has been measured using a laser distancing device with a digital compass and plotted on the site plan using tree management software. The accuracy given for the tree stem location is ±1m.

Tree Number:
Each surveyed feature is assigned an individual number:
e.g. – Tree A072014013 is made up of:
- ‘A’ – this represents the tablet pc that was used to record the data
- ‘07’ – this is the month that the inspection was recorded
- ‘20’ – the day of the month when the tree was recorded
- ‘14’ – the hour in the day when the tree was recorded
- ‘013’ – the tree number recorded in that hour of the day (when the hour changes this resets to 001)

Alternatively; each surveyed feature is assigned a number prefixed by a ‘T’ for individual trees, ‘G’ for groups of trees and ‘H’ for hedgerows. It is used to locate the tree in the data survey and the relevant position on the plan.

Species:
The species identification is based on visual observations and the common English name of what the tree appeared to be is listed first. In some instances, it may be difficult to quickly and accurately identify a particular tree without further detailed investigations. The botanical name is followed by the abbreviation sp if only the genus is known.

Height:
Overall height of tree recorded in meters. Height is recorded using a clinometer.

Potential Height of tree:
The expected mature height of the tree

Number of stems:
The number of main stems of each individual tree.

Height of clear stem:
Height in metres of crown clearance above adjacent ground level at the base of the tree (to inform on ground clearance, crown stem ratio and shading).

Stem Diameter:
These figures relate to stem diameter in millimetres at 1.5m above ground level (on sloping ground, taken on the upslope side of the tree base) or immediately above the root flare for multi-stemmed trees. This is accurately measured using a girdling tape.

Root Protection Area:
This is the minimum area in m² which should be left undisturbed around each retained tree.

Branch Spread:
This is measured in meters taken at the four cardinal points to derive an accurate representation of the crown.
Age Class:
Described as young, semi mature, mature, over-mature, veteran.

Physiological Condition:
Described as good, fair, poor, dead and notes as needed.

Structural Condition:
Described as good, fair, poor, dead and notes as needed.

Preliminary management recommendations:
Practical arboricultural operations that are suggested and described as needed.

Remaining Contribution:
Estimated remaining contribution in years: e.g. less than 10, 10-20, 20-40, more than 40. This is based upon Jeremy Barrels’ system of SULE (Safe Useful Life Expectancy).

Tree Retention Category Grading:
R or A to C category grading as referenced from BS 5837:2005 Trees in relation to construction (see Table 1 in appendix 6)
APPENDIX 4

Inserted site maps showing tree locations and all other relevant details:
**Tree Protection Plan**

**Knowsley Road 54**

**Date:** 12th July 2010  
**Scale:** 1:200

---

**T01 54**

**Wych Elm**  
**Height:** 5m  
**Potential:** 30m

**H1**

**Conifer Hedge**  
**Height:** 5m  
**Potential:** 24m

**H2**

**Hawthorn Hedge**  
**Height:** 3m  
**Potential:** 9m

---

**Tree Retention Category**

- **Category A**  Desirable to retain in long term
- **Category B**  May be desirable to retain in medium term
- **Category C**  Could retain in short term
- **Category R**  Unsuitable for retention, Remove

© Crown copyright. All rights reserved.  
2009 Licence number 0100031673
APPENDIX 5

Tree survey data inserted including the calculations for the root protection zones:
## TREE SPECIFICS

<table>
<thead>
<tr>
<th>Tree number</th>
<th>Species (common)</th>
<th>Number of stems</th>
<th>Trunk dia. @ 1,3m (mm)</th>
<th>Height (M)</th>
<th>Potential height of SPECIES (m)</th>
<th>Height of clear stem (meters)</th>
<th>C/S NORTH (m)</th>
<th>C/S EAST (m)</th>
<th>C/S SOUTH (m)</th>
<th>C/S WEST (m)</th>
<th>AGE CLASS</th>
<th>Physiological Condition</th>
<th>Structural Condition</th>
<th>REMAINING CONTRIBUTION</th>
<th>TREE QUALITY ASSESSMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>elm</td>
<td>1</td>
<td>225</td>
<td>5</td>
<td>30</td>
<td>3 2 2 3 3</td>
<td>sm</td>
<td>good</td>
<td>slight dieback inside the tree canopy</td>
<td>good</td>
<td>good form - weeping canopy</td>
<td>none</td>
<td>&gt;40</td>
<td>b</td>
<td>1</td>
</tr>
<tr>
<td>H1</td>
<td>conifer</td>
<td>20</td>
<td>175</td>
<td>5</td>
<td>24.0</td>
<td>0 1 1 1 1</td>
<td>sm</td>
<td>good</td>
<td>no issues</td>
<td>good</td>
<td>no issues</td>
<td>maintain at current height to prevent excessive shadowing</td>
<td>20&gt;40</td>
<td>b</td>
<td>2</td>
</tr>
<tr>
<td>H2</td>
<td>hawthorn</td>
<td>15</td>
<td>75</td>
<td>3</td>
<td>9.0</td>
<td>0 1 1 1 1</td>
<td>y</td>
<td>fair</td>
<td>no issues</td>
<td>fair</td>
<td>not maintained</td>
<td>prune hard back to form a boundary hedge</td>
<td>10&gt;20</td>
<td>c</td>
<td>2</td>
</tr>
</tbody>
</table>
Calculations giving **MINIMUM** root protection area needed around each tree on site - **NOTE** - the number of stems denotes which set of calculations are used - trees with one stem use the "single stem results" all other trees use the "multi stem results"

<table>
<thead>
<tr>
<th>Tree Number</th>
<th>Species</th>
<th>Multi-Stemmed Yes/No</th>
<th>Stem Diameter @ 1.5m or above root flair (mm)</th>
<th>Single Stemmed Tree</th>
<th>Multi-Stemmed Trees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Circle Radius (m)</td>
<td>Radius Squared (m²)</td>
</tr>
<tr>
<td>1</td>
<td>elm</td>
<td>1</td>
<td>225</td>
<td>2.70</td>
<td>7.29</td>
</tr>
<tr>
<td>H1</td>
<td>conifer</td>
<td>20</td>
<td>175</td>
<td>2.10</td>
<td>4.41</td>
</tr>
<tr>
<td>H2</td>
<td>hawthorn</td>
<td>15</td>
<td>75</td>
<td>0.90</td>
<td>0.81</td>
</tr>
<tr>
<td>Category and definition</td>
<td>Criteria</td>
<td>Identification on plan</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>----------</td>
<td>-----------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<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 significant contribution (a minimum of 20 years is suggested)**&lt;br&gt;<strong>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)</strong></td>
<td>Trees present in numbers, usually as groups or woodlands, but without this conferring on them sufficiently greater landscape value, and/or trees offering low or only temporary screening benefit <strong>Trees with very limited conservation or other cultural benefits</strong>&lt;br&gt;<strong>Grey</strong>&lt;br&gt;<strong>RGB code: 91,91,91</strong>&lt;br&gt;<strong>AutoCAD 252</strong></td>
<td><strong>GREY</strong>&lt;br&gt;<strong>RGB code: 91,91,91</strong>&lt;br&gt;<strong>AutoCAD 252</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Category B</strong>&lt;br&gt;Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)**&lt;br&gt;<strong>Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remissible defects including unsympathetic past management and minor storm damage)</strong></td>
<td>Trees present in numbers, usually as groups or woodlands, but without this conferring on them sufficiently greater landscape value, and/or trees offering low or only temporary screening benefit <strong>Trees with very limited conservation or other cultural benefits</strong>&lt;br&gt;<strong>Grey</strong>&lt;br&gt;<strong>RGB code: 91,91,91</strong>&lt;br&gt;<strong>AutoCAD 252</strong></td>
<td><strong>GREY</strong>&lt;br&gt;<strong>RGB code: 91,91,91</strong>&lt;br&gt;<strong>AutoCAD 252</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Category C</strong>&lt;br&gt;Those 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**&lt;br&gt;<strong>Trees not qualifying in higher categories</strong></td>
<td>Trees present in numbers, usually as groups or woodlands, but without this conferring on them sufficiently greater landscape value, and/or trees offering low or only temporary screening benefit <strong>Trees with very limited conservation or other cultural benefits</strong>&lt;br&gt;<strong>Grey</strong>&lt;br&gt;<strong>RGB code: 91,91,91</strong>&lt;br&gt;<strong>AutoCAD 252</strong></td>
<td><strong>GREY</strong>&lt;br&gt;<strong>RGB code: 91,91,91</strong>&lt;br&gt;<strong>AutoCAD 252</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Category D</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**&lt;br&gt;<strong>Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unsuitable after removal of other D category trees (i.e. those where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning)</strong>&lt;br&gt;<strong>Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline</strong>&lt;br&gt;<strong>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>&lt;br&gt;<strong>NOTE: Habitat reinstatement may be appropriate (e.g. B category trees used as a bat roost: installation of bat box in nearby tree)</strong></td>
<td>Trees present in numbers, usually as groups or woodlands, but without this conferring on them sufficiently greater landscape value, and/or trees offering low or only temporary screening benefit <strong>Trees with very limited conservation or other cultural benefits</strong>&lt;br&gt;<strong>Grey</strong>&lt;br&gt;<strong>RGB code: 91,91,91</strong>&lt;br&gt;<strong>AutoCAD 252</strong></td>
<td><strong>GREY</strong>&lt;br&gt;<strong>RGB code: 91,91,91</strong>&lt;br&gt;<strong>AutoCAD 252</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Table 1 — Cascade chart for tree quality assessment

<table>
<thead>
<tr>
<th>Category and definition</th>
<th>Criteria – Subcategories</th>
<th>Identification on plan</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Mainly arboricultural values</strong></td>
<td><strong>2 Mainly landscape values</strong></td>
<td><strong>3 Mainly cultural values, including conservation</strong></td>
</tr>
<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 20 years is suggested)**&lt;br&gt;<strong>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)</strong></td>
<td><strong>Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remissible defects including unsympathetic past management and minor storm damage)</strong>&lt;br&gt;<strong>Trees present in numbers, usually as groups or woodlands, but without this conferring on them sufficiently greater landscape value, and/or trees offering low or only temporary screening benefit</strong>&lt;br&gt;<strong>Trees with clearly identifiable conservation or other cultural benefits</strong>&lt;br&gt;<strong>Light Green</strong>&lt;br&gt;<strong>RGB code: 000-255-000</strong>&lt;br&gt;<strong>AutoCAD 90</strong></td>
<td><strong>Trees present in numbers, usually as groups or woodlands, but without this conferring on them sufficiently greater landscape value, and/or trees offering low or only temporary screening benefit</strong>&lt;br&gt;<strong>Trees with clearly identifiable conservation or other cultural benefits</strong>&lt;br&gt;<strong>Light Green</strong>&lt;br&gt;<strong>RGB code: 000-255-000</strong>&lt;br&gt;<strong>AutoCAD 90</strong></td>
</tr>
<tr>
<td><strong>Category B</strong>&lt;br&gt;Those of moderate quality and value: those in such a condition as to make a significant contribution (a minimum of 20 years is suggested)**&lt;br&gt;<strong>Trees that might be included in the high category, but are downgraded because of impaired condition (e.g. presence of remissible defects including unsympathetic past management and minor storm damage)</strong></td>
<td><strong>Trees present in numbers, usually as groups or woodlands, but without this conferring on them sufficiently greater landscape value, and/or trees offering low or only temporary screening benefit</strong>&lt;br&gt;<strong>Trees with clearly identifiable conservation or other cultural benefits</strong>&lt;br&gt;<strong>Light Green</strong>&lt;br&gt;<strong>RGB code: 000-255-000</strong>&lt;br&gt;<strong>AutoCAD 90</strong></td>
<td><strong>Trees present in numbers, usually as groups or woodlands, but without this conferring on them sufficiently greater landscape value, and/or trees offering low or only temporary screening benefit</strong>&lt;br&gt;<strong>Trees with clearly identifiable conservation or other cultural benefits</strong>&lt;br&gt;<strong>Light Green</strong>&lt;br&gt;<strong>RGB code: 000-255-000</strong>&lt;br&gt;<strong>AutoCAD 90</strong></td>
</tr>
<tr>
<td><strong>Category C</strong>&lt;br&gt;Those 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**&lt;br&gt;<strong>Trees not qualifying in higher categories</strong></td>
<td><strong>Trees present in numbers, usually as groups or woodlands, but without this conferring on them sufficiently greater landscape value, and/or trees offering low or only temporary screening benefit</strong>&lt;br&gt;<strong>Trees with very limited conservation or other cultural benefits</strong>&lt;br&gt;<strong>Grey</strong>&lt;br&gt;<strong>RGB code: 91,91,91</strong>&lt;br&gt;<strong>AutoCAD 252</strong></td>
<td><strong>Trees present in numbers, usually as groups or woodlands, but without this conferring on them sufficiently greater landscape value, and/or trees offering low or only temporary screening benefit</strong>&lt;br&gt;<strong>Trees with very limited conservation or other cultural benefits</strong>&lt;br&gt;<strong>Grey</strong>&lt;br&gt;<strong>RGB code: 91,91,91</strong>&lt;br&gt;<strong>AutoCAD 252</strong></td>
</tr>
</tbody>
</table>
I hope that this report provides all the necessary information, but should any further advice be needed please do not hesitate to contact me.

Signed

Gary Marsden

Gary Marsden FDSc Arb  M.Arbor.A
Professional Member - Arboricultural Association (AA)
Professional Member - Consulting Arborist Society (CAS)

For and on behalf of **GM TREE CONSULTANTS**

**Office:**

16, FARFIELD DRIVE,
LOWER DARWEN,
LANCASHIRE,
ENGLAND,
BB3 0RJ.

Tel: 077 61 66 73 84
Email: gary@gmtreeconsultants.co.uk
Web: www.gmtreeconsultants.co.uk