ARBORICULTURAL SURVEY REPORT

PRE-DEVELOPMENT

Robert C Yates

January 2016

PROJECT : Land at Thorley Drive, Cheadle, Staffs.

CLIENT : Mayer Brown Ltd

RGS – ARBORICULTURAL CONSULTANTS

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A pre-development advisory document, broadly in accord with British Standard 5837 : 2012 'Trees in relation to Design, demolition & construction - Recommendations', designed to inform the conceptual design by highlighting the above and below ground arboricultural constraints in the context of a proposed development.

CONTENTS :

1.0 Terms of Reference

1.1 We are instructed by Paul Zanna on behalf of Mayer Brown Ltd, to undertake a pre-development arboricultural survey on land to the south of Thorley Drive, Cheadle, which is to be in line with B.S. 5837 : 2012 'Trees in Relation to Design, Demolition & Construction - Recommendations'. We are further required to assess the arboricultural impact of a proposed development of the site for residential use.

1.2 All trees and hedgerows on or immediately adjacent the application site have been inspected from ground level only. Should further more detailed inspection be deemed appropriate, this will be covered under Recommendations. Trees are dynamic living organisms, whose health and condition can be subject to rapid change, depending on a number of external and internal factors. The conclusions and recommendations contained in this report relate to the trees at the time of inspection.

1.3 The site survey and tree assessment was undertaken by Robert Yates, who holds the formal qualification Tech.Cert(Arbor.A), the LANTRA Certificate in Professional Tree Inspection and is a professional member of the Consulting Arborist Society and member of the Arboricultural Association. In assistance was Leo Hawkes FdSc Arb.

1.4 This report, its appendices and any subsequent revisions or additional information will form part of any formal planning application in respect of the development of this site, and as such will be open to public scrutiny and comment.

2.0 Survey Methodology

2.1 The trees have been assessed using the current recommendations, as detailed in British Standard 5837 : 2012 'Trees in relation to Design, Demolition & Construction – Recommendations', in order to arrive at a Retention Category for each individual tree or group of trees. A Root Protection Area (RPA) has been assigned to each tree, based on its stem diameter and in some cases crown spread, which has then been used to produce the Tree Constraints/Protection Plan (attached as appendix 3). For full details of the relevant assessment criteria and retention categories see Table 1 of B.S. 5837 (attached as appendix 4).

2.2 All surveyed trees and hedgerows have been given a notional reference number prefixed 'T' (Trees), 'TG' (Tree Group) or 'H' (Hedgerow). The collected survey data for all features is presented in the survey schedule which forms appendix 2a to this report. For the location of all trees see appendix 3 (Tree Constraints & Protection Plan).

3.0 Site Overview / Design Brief

3.1 The scope of the survey comprises an area of agricultural pasture land situated to the south of Thorley Drive, Cheadle, in all extending to approximately 2.235 hectares.

3.2 The current planning proposal briefly comprises a residential development of 52no. units with access road, landscaped amenity areas and a balancing pond.

4.0 Summary of Findings & Conclusions

4.1 A total of **19**no. individual trees, **12**no. groups of trees and **1**no. hedgerow have been surveyed. A breakdown of the numbers of trees in each retention category can be seen in the table below:

Retention Category	Individual Trees (T)	Groups of Trees (TG)	Hedgerows (H)
A High Quality	0	0	0
B Moderate Quality	7	4	0
C Low Quality	11	8	1
U (Unsuitable for retention)	1	0	0
Totals	**19**	**12**	**1**

4.2 All U Category trees should generally be removed for reasons of sound arboricultural practice or health & safety, irrespective of any development proposals, unless they offer particular conservation value to the site, in which case this will be highlighted in the survey schedule along with appropriate recommendations.

4.3 As regards the C category trees; it may not always be possible or even desirable to retain low quality trees within the context of a proposed development, unless in such a location that they do not represent a significant constraint on the design brief. Young trees, and those with a stem diameter of less than 150mm, will normally be placed in the C category, unless it is considered that they are of especially good form or are of a species that is particularly rare, in which case they may be upgraded. In certain cases it may be appropriate to consider re-location of young C category trees within the site.

4.4 All A & B Category trees (high & moderate quality) will under normal circumstances be retained on development sites, and should ideally influence and inform the conceptual design, site layout, and in some cases the specific construction methods to be used – The root protection area and/or crown spread of these trees will generally form a construction exclusion zone, although under certain circumstances it may be possible to build or operate within these areas providing that appropriate measures and specifications have been formally agreed between the local planning authority, the consulting arboriculturist and the developer/client.

5.0 Arboricultural Impact Assessment

5.1 Based on the definitive site layout drawing supplied to us (Ref. B5580-SK-03-C) the following impacts and implications have been identified and their significance assessed:

5.1.1 Only one small individual tree (T1) and a 20 metre section of the hedgerow H1 will need to be removed to facilitate the proposed development; both of these features are C category i.e. considered to be of low quality, and thus their loss will not require direct mitigation.

5.1.2 In general terms the construction activities should have little or no impact on the health and vigour of the retained arboricultural features, providing that basic measures are put in place for the temporary protection of trees and hedgerows during the construction phase. Since there are significant areas of land, primarily to the east and west of the site, that are intended for amenity space and supplementary planting, it may be considered appropriate to position the tree protection barriers so that these areas are included, thus protecting the ground from potential damage which could impact on successful plant establishment.

5.1.3 In conclusion, it would appear that this development has been sympathetically designed in respect of the existing trees and hedgerows, the vast majority of which can be usefully retained and will enhance the biodiversity of the development.

6.0 Recommendations

6.1 All trees that have been selected for retention should receive any remedial works recommended in Appendix 2b to this report, and furthermore should be suitably protected with appropriate temporary fencing for the duration of the construction phase of the development; a proposed location for such fencing is shown on the drawing at Appendix 3. Appropriate fencing will comprise 2 metre high Heras® type galvanised weldmesh panels, which must be securely anchored to the ground and suitably braced at regular intervals in order to resist accidental impacts or movement (See Fig.1a/1b). It is further recommended that the installation of the fencing is checked for conformity by an arboriculturist prior to commencement of any enabling works on site.

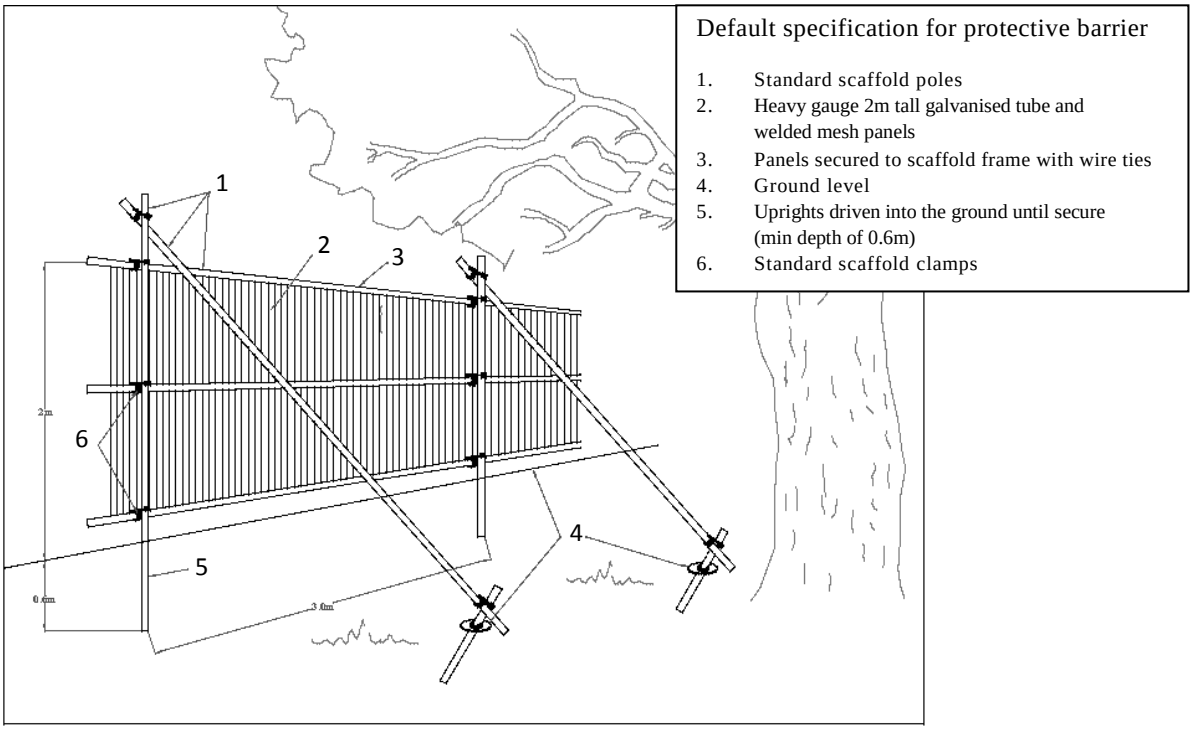
6.2 All tree works must only be carried out by suitably qualified and experienced contractors, and should conform to guidelines set out in British Standard 3998 : 2010 'Tree work – Recommendations'.

6.3 Before commencement of any enabling works on site, with the exception of essential tree works, a detailed site specific arboricultural method statement (AMS) should be produced. This document will include the following heads of terms:

- Details of facilitation pruning or trees to be removed
- Site monitoring arrangements, by arboriculturist and others
- Site organisation and logistics inc. storage of materials on site
- Specifications for tree protection barriers
- General measures for protection of trees & hedgerows
- Sequencing of works
- Installation of underground services
- Removal of tree protection measures
- External works and landscaping

It is likely that provision of this type of document will form part of a planning approval condition.

Fig.1a : Default spec. as below; required for certain individual trees where construction works will be in close proximity (An arboricultural method statement will give specific direction).



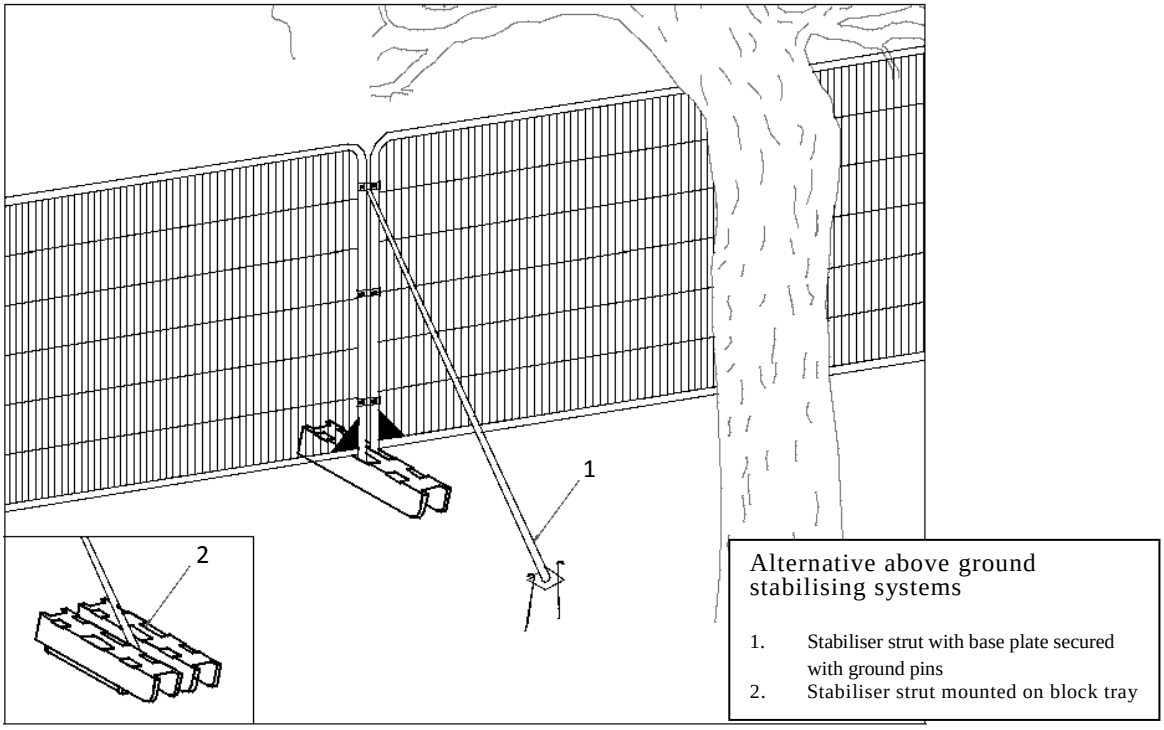


Fig.1b : Reduced spec. as above will be suitable for the much of tree protection applications on site (An arboricultural method statement will give specific direction).

7.0 **Statutory Obligations**

- Works to trees which are covered by Tree Preservation Orders [TPOs] or are within a Conservation Area [CA] require permission or consent from your Local Planning Authority [LPA]. It is necessary to gain confirmation from the LPA of any TPOs or CAs on the site, and to follow the necessary application procedure if tree surgery or indeed felling, is required in respect of protected trees. Full planning consent will however override the need for a separate application, providing that details of all tree works were included in the submission and subsequently approved by the local authority.

- It is a criminal offence under normal circumstances to disturb or destroy - whether intentional or unintentional - the nesting sites of wild birds or the roost sites of bats, under the 'Wildlife & Countryside Act 1981 and the 'Countryside and Rights of Way Act 2000'.
  Therefore, avoid carrying out significant tree works during the bird nesting season [mid-March to end of July] and ensure that trees are professionally surveyed for signs of bat roosts and/or bat activity before starting any significant tree work, such as felling or heavy crown reduction. Further advice on how to proceed should bat occupation be suspected should be obtained from the project ecologist or your local office of Natural England or any qualified ecologist.

APPENDIX 1 : KEY TO SURVEY SCHEDULE

<table>
<tr><th>Measurements</th><th>Age Class</th><th>Overall Condition</th><th>Root Protection Area (RPA)</th></tr>
<tr><td>Height - estimated from ground level (m).</td><td>YNG: Young trees up to ten years of age.</td><td>G - Good: Trees with only a few minor defects and in good overall health needing little, if any attention.</td><td rowspan="4">• The RPA column gives the required area (m^2).
• The RPA Radius column gives the radius (m) of an equivalent circle.
• The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the required rooting area in order for a tree to be retained.</td></tr>
<tr><td>Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837.</td><td>SM: Semi-mature, trees less than 1/3 life expectancy.</td><td>F - Fair: Trees with minor, but rectifiable, defects or in the early stages of stress from which it may recover.</td></tr>
<tr><td>Crown - crown spread estimated radially from the main stem (m).</td><td>EM: Early mature, trees 1/3 – 2/3 life expectancy.</td><td>P - Poor: Trees with major structural and/or physiological defects such that it is unlikely the tree will recover in the long term.</td></tr>
<tr><td rowspan="2">Abbreviations

Est - Estimated stem diameter
Avg - Average stem diameter
Max - Maximum stem diameter</td><td>M: Mature trees, over 2/3 life expectancy.</td><td>D - Dead: Trees no longer alive. This could also apply to trees that are dying and unlikely to recover.</td></tr>
<tr><td>OM: Over mature, declining or moribund trees of low vigour.</td><td colspan="2" rowspan="2">In the assessment, of the BS category, particular consideration has been given to the following

• The health, vigour and condition of each tree
• The presence of any structural defects in each tree and its future life expectancy
• The size and form of each tree and its suitability within the context of a proposed development
• The location of each tree relative to existing site features e.g. its screening value or landscape features
• Age class</td></tr>
<tr><td></td><td>V: Veteran, tree possessing certain attributes relating to veteran trees.</td></tr>
</table>

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA sq.mtr	RPA Radius	BS5837 Cat
INDIVIDUAL TREES										
T1	Crab Apple Malus sylvestris	3	70	1	Y	G	Situated inside a hedgerow adjacent to the B5032. Loss of main leader at 2 metres above ground.	2	0.8	C
T2	Hawthorn Crataegus monogyna	3.5	110	1	Y	P	Situated inside a hedgerow adjacent to the B5032. Twisted stem growth. Poor canopy form with past pruning wounds. Minor deadwood.	N/A	N/A	U
T3	English Oak Quercus robur	14	840	6 S - 7	M	F	Situated inside a hedgerow on the eastern boundary. The base of the tree was obscured and inaccessible due to dense holly growth. Minor deadwood. Large wound at base; facing west at 1.5 metres long. Major branch failure at 5 metres approximately 1 - 2 metres long.	319	10.1	B (1)
T4	English Oak Quercus robur	7	est 450	2 S - 5 W - 5	EM	F	Situated inside a hedgerow on the eastern boundary. The base of the tree was obscured and inaccessible due to dense holly growth. Main stem failure at 6 metres above ground with failed wood hanging from tree at approximately 3 metres long. Sparse canopy with minor deadwood.	92	5.4	C
T5	English Oak Quercus robur	14	est 700	4 S - 6	M	G	Situated inside a hedgerow on the eastern boundary. The base of the tree was obscured and inaccessible due to dense holly growth. Dieback of crown with a major branch failure at 10 metres above ground; hanging branch of approximately 4.5 metres long. Minor deadwood. Competing for space against T4.	222	8.4	B (1)
T6	Sycamore Acer pseudoplatanus	10	360 360	7	EM	F	Situated inside hedgerow on the western boundary adjacent to the barbed wire fencing. Part of the barbed wire fencing has been occluded into the tree stem; bark necrosis was discovered around this area and at base of stems. Sparse canopy. Compacted soil around the root area.	117	6.1	B (3)

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA sq.mtr	RPA Radius	BS5837 Cat.
T7	Common Ash Fraxinus excelsior	9	200 350	5	EM	G	Situated on southern boundary. Ivy covering stem up to 4 metres above ground.	74	4.8	C
T8	English Oak Quercus robur	12	est 850	N - 7 S - 7 E - 4.5 W -4.5	M	P	Situated within the hedgerow on the southern boundary. Minor deadwood. Cavity at base up to 8 metres high with nesting material discovered. Good habitat.	327	10.2	B (3)
T9	Common Ash Fraxinus excelsior	11	est 500	4 E - 1	EM	F	Situated within the hedgerow on the southern boundary. Twin stem forming at 2 metres above ground. Suppressed growth caused by competing T16. Asymmetrical canopy.	113	6.0	C
T10	Common Ash Fraxinus excelsior	9	230 230 130	4	EM	F	Situated on western boundary. Minor amount of ivy covering stem up to 3 metres above ground. Multiple stem growth at base which forms into inosculated stems.	56	4.2	C
T11	English Oak Quercus robur	8	est 400	3 S - 5	EM	F	Situated within hedgerow on western boundary. Typical species form with no major defects.	72	4.8	B (1)
T12	Flower Cherry Prunus sp.	7	est 300	4	EM	F	Situated offsite in garden area beyond northern boundary. Typical species form with no major defects.	41	3.6	C
T13	Silver birch Betula pendula	7	est 180	2	SM	F	Situated offsite in garden area beyond northern boundary. Typical species form with no major defects. Minor deadwood and broken branches.	15	2.2	C

Tree No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA sq.mtr	RPA Radius	BS5837 Cat.
T14	Common Yew Taxus baccata	10	est 400	3	EM	G	Situated offsite in garden area beyond northern boundary. High canopy on tree with good form. No major defects.	72	4.8	B (1)
T15	Atlas Cedar Cedrus atlantica 'Glauca'	13	est 450	5	EM	G	Situated offsite in garden area beyond northern boundary. Typical species form with no major defects.	92	5.4	B (1)
T16	Antarctic Beech Nothofagus antarctica	5	250 250	2	SM	P	Situated offsite in garden area beyond northern boundary. Past pruning wounds evident from tree being topped and lopped.	57	4.2	C
T17	Flower Cherry Prunus sp.	6	350	4	SM	F	Situated offsite in garden area beyond northern boundary. Past pruning wounds evident from tree being topped and lopped.	55	4.2	C
T18	Weeping Willow Salix x sepulcralis	4	350	2	SM	G	Situated offsite in garden area beyond northern boundary. Past pruning wounds evident from tree being topped and lopped.	55	4.2	C
T19	Laburnum Laburnum anagyroides	3	150	1.5	EM	F	Situated offsite in garden area beyond northern boundary. Past pruning wounds evident from tree being topped and lopped. Dense growth of wisteria within tree's canopy.	10	1.8	C

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA sq.mtr	RPA Radius	BS5837 Cat.
GROUPS OF TREES										
TG1	Cherry Prunus sp. English Holly Ilex aquifolium Silver Birch Betula pendula	9	est 350	4	M	F	Situated offsite in garden area beyond the northern boundary. Ivy covering stem up to 5 metres above ground. Multiple stems on the silver birch forming from base.	55	4.2	B (2)
TG2	2 x Bullace Prunus insititia	3	est 100	2	SM	F	Situated offsite in garden area beyond the northern boundary. Sparse canopies affected by wind causing the trees to lean eastward. Past pruning wounds were evidence from trees being topped. Minor deadwood within the trees canopies.	5	1.2	C
TG3	2 x Lawson Cypress Chamaecyparis lawsoniana 2 x Cypress Cupressus sp.	2 - 6	est 100	1	SM	G	Situated offsite in garden area beyond the northern boundary. Typical species form with no major defects discovered.	5	1.2	C
TG4	2 x Common Hawthorn Crataegus monogyna 1 x Blackthorn Prunus spinosa	5	avg 190	3.5 E - 1	EM	G	Situated inside a hedgerow adjacent to the B5032. Interlocking branches but no major defects.	16	2.3	B (2)
TG5	Common hawthorn Crataegus monogyna English Holly Ilex aquifolium Blackthorn Prunus spinosa Elder Sambucus nigra	5	avg 120	2	EM	G	Forming an outgrown hedgerow situated mostly on the eastern boundary but also a small section of the southern boundary of the site. Growing close to barbed wire fencing. Dense ivy on some of the trees.	7	1.4	B (2)
TG6	Common hawthorn Crataegus monogyna English Holly Ilex aquifolium Blackthorn Prunus spinosa Elder Sambucus nigra	4 - 5	est 150	3	EM	G	Forming an unmanaged hedgerow situated on the southern western boundary; west of adjacent pond. Typical species form with no major defects.	10	1.8	B (2)

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA sq.mtr	RPA Radius	BS5837 Cat.
TG7	Common hawthorn Crataegus monogyna English Holly Ilex aquifolium Blackthorn Prunus spinosa Elder Sambucus nigra	4	est 150	3	EM	G	Forming an unmanaged hedgerow situated on the southern western boundary. Typical species form with no major defects.	10	1.8	C
TG8	Common hawthorn Crataegus monogyna English Holly Ilex aquifolium Blackthorn Prunus spinosa Elder Sambucus nigra	4 - 5	est 150	3	EM	G	Forming an unmanaged hedgerow situated on the southern western boundary; west of adjacent pond. Typical species form with no major defects.	10	1.8	C
TG9	Common hawthorn Crataegus monogyna English Holly Ilex aquifolium Elder Sambucus nigra	2 - 5	avg 150	2	SM / EM	F	Forming an unmanaged hedgerow situated on the southern boundary Interlocking branches and dense growth.	10	1.8	C
TG10	3 x Common Hawthorn Crataegus monogyna 1 x English Holly Ilex aquifolium	3	90	2	SM	F	Forming hedgerow situated on southern boundary. Typical species form with no major defects.	4	1.1	C
TG11	Common hawthorn Crataegus monogyna English Holly Ilex aquifolium Blackthorn Prunus spinosa Elder Sambucus nigra	4 - 5	est 150	3	EM	G	Forming an unmanaged hedgerow situated on the southern western boundary; west of adjacent pond. Typical species form with no major defects.	10	1.8	C

Group No	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Condition	Structural Condition	RPA sq.mtr	RPA Radius	BS5837 Cat.
TG12	Blackthorn Prunus spinosa Elder Sambucus nigra Hawthorn Crataegus monogyna Holly Ilex aquifolium	5	avg 200	3	EM / M	F	Appeared as a lapsed hedgerow with indistinct canopy forms, interlocking branches, and similar heights Minor deadwood in some hawthorn and elder specimens Ivy present on some specimens	18	2.4	C

Hedge No.	Species	Height	Stem Dia.	Crown Radius	Age Class	Overall Conditio	Structural Condition	RPA sq.mtr	RPA Radius	BS5837 Cat.
HEDGEROWS										
H1	Elder Sambucus nigra Hawthorn Crataegus monogyna Hazel Corylus avellana	2	80 80 80	1	EM	F	Predominantly hawthorn Tidy appearance with no major defects	9	1.7	C

ID	Species	Work Specification
T1	Crab Apple	Remove to facilitate access road construction
H1	*various*	Remove 20m section to facilitate access road construction
TG10	Hawthorn / Holly	Reduce northerly crown spread as required to facilitate erection of temporary protective fencing

KEY:

- U Category Trees
- A Category Trees
- B Category Trees
- C Category Trees
- Root Protection Area for Retained Trees & Hedgerows
- Proposed location for tree protection fencing
- Proposed new tree planting (provisional)

N

Balancing Pond
Size and Position TBC

POS and green buffer
0.35 hectares
Design to landscape Architect details

15m landscaped buffer -Design to landscape architects details

T1 T2 T3 T4 T5 T6 T7 T8 T9 T10 T11 T12 T13 T14 T15 T16 T17 T18 T19

TG1 TG2 TG3 TG4 TG5 TG6 TG7 TG8 TG9 TG10 TG11 TG12

H1

Notes: THIS DRAWING IS TO BE REPRODUCED IN COLOUR - OTHERWISE IT CANNOT BE RELIED UPON AS AN ACCURATE REFERENCE
This plan consists of the proposed layout overlaid onto the topographical survey/tree constraints plan

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Site	Title	DRG.No.	SCALE:	PAPER SIZE:	DATE:
L/A Thorley Drive, Cheadle	Tree Constraints/Protection	Appendix 3	1:500	A1	Jan2016

SCALE 1 : 500
SCALE 1 : 1
0m 5m 10m 20m 30m 40m 50m
0m 10mm 20mm 40mm 60mm 80mm 100mm

APPENDIX 4 **Table 1 : Cascade chart for tree quality assessment**

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.*			Dark Red
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A Trees of **high** quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	Light green
Category B Trees of **moderate** quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	Mid blue
Category C Trees of **low** quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter of 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	Grey