

**ARBORICULTURAL IMPACT ASSESSMENT
to BS 5837:2012**

at

**Holme House
Oxford Road
Cleckheaton
West Yorkshire
BD19 4LA**

Client:
Croft Care Group

Client Address:
31 Castleford Road
Normanton
WF6 2DP

JCA Ref:
13931c/ChC

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1. Introduction

1.1 Purpose of the Report

- 1.1.1 This Arboricultural Impact Assessment is required in relation to the proposed development at **Holme House, Oxford Road, Cleckheaton**.
- 1.1.2 The purpose of this report is to assess the impact of the proposals on the existing tree stock and outline mitigation actions, where appropriate, to minimize potential damage to retained trees.

1.2 Terms of Reference

- 1.2.1 JCA Ltd has been instructed by **Croft Care Group** to prepare an Arboricultural Impact Assessment, based on our Arboricultural Report dated 9th January (JCA Ref: **13931/ChC**). The arboricultural survey and report conforms to the most recent specifications outlined in BS 5837: 2012 Trees in relation to design, demolition and construction - Recommendations.
- 1.2.2 I have been supplied with the development proposal plan which details the proposed scheme. The tree data has been overlaid onto the proposed designs to create the Arboricultural Implications Plan, which can be found at **Appendix 7**. This provides the basis for which this Arboricultural Impact Assessment has been prepared.

1.3 Scope of the Report

- 1.3.1 This report is compiled in accordance with *BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations'* and is based on an objective assessment of the existing vegetation.
- 1.3.2 The specific design of the proposed development has been considered within the Arboricultural Implication Assessment in **Section 3** and is detailed on the Arboricultural Implications Plan at **Appendix 7**.

1.4 Survey Details

- 1.4.1 The original survey took place during the month of December 2017 and was conducted by Jonathan Cocking F.R.E.S., Tech. Cert. (Arbor.A), PDipArb (RFS) FARborA CBiol MSB. MICFor and Charles Cocking *FdSc (Arboriculture)*.

2. Tree Descriptions and Recommendations

- 2.1 Full details of all individual trees surveyed are recorded in the tables at **Appendix 1**. A full explanation of the tables can be found at **Appendix 2**. Please refer also to the Tree Constraints Plan at **Appendix 6** for tree locations.

3. Arboricultural Implications Assessment (AIA)

3.1 Proposed Development

- 3.1.1 It is proposed to construct 8 detached residential dwellings with an internal access road serving the properties. Part of the proposals also include for soft landscaping, to create an attractive site post development, and mitigate the loss of those specimens which require removal to facilitate the scheme.
- 3.1.2 All tree works required to accommodate the proposals are detailed in *italics* in the recommendation columns of the tables at **Appendix 1**. Please note that any works recommended during the initial survey and also listed in these tables in non italics.

3.2 Tree Removals for Development

- 3.2.1 There is little room for development within this site without the removal of some trees.
- 3.2.2 Based on the proposals, **four** trees and **two** groups require removal to accommodate the scheme.
- 3.2.3 Whilst the development will require the removal of some trees within the site, it should be noted that a planting scheme is included within the proposals. This will act to mitigate tree losses, improve the visual benefits of the site and the surrounding area, and will improve the localised tree stock. The planting of trees can improve the aesthetic value of the surrounding area and can be conditioned in the usual manner.

3.3 Pruning for Development

- 3.3.1 To accommodate the proposals, it will be necessary to prune **T9** to provide suitable access and working distances for pedestrians and vehicles and to afford reasonable clearances from the adjacent building post development.
- 3.3.2 As the proposals have been designed to ensure proposed buildings are to be located entirely outside all RPA's of trees to be retained, it is envisaged that no root pruning will be required for this development.

3.4 Implications for Retained Trees

3.4.1 The Protective Barrier

- 3.4.1.1 In order to ensure the effective protection of retained trees during development, a protective barrier will be installed, in accordance with BS5837: 2012 and may comprise of protective fencing and/or ground protection. This will be the first job on site following the tree removal and pruning works. The fencing should ideally be positioned to protect the entire **Root Protection Area (RPA)** of the retained trees, in order to create a **Construction Exclusion Zone (CEZ)**.
- 3.4.1.2 Routes for pedestrian and site traffic will be located outside, and diverted away from, the RPAs of the retained trees wherever possible. Where this is not practicable, temporary protective surfaces (ground protection) must be laid over the exposed RPAs which will distribute the weight of site vehicles, machinery or pedestrians whilst allowing moisture to reach the tree rooting area beneath. Such surfaces should be constructed in accordance with BS5837: 2012.
- 3.4.1.3 Where work is required within the RPA of a tree which is to be retained, specialist measures must be adopted during the construction phase to avoid ground compaction and minimise root damage. Such areas are highlighted on the Arboricultural Implications Plan at **Appendix 7**.

3.4.2 Access/Construction of Hard Surfacing

- 3.4.2.1 The proposed development entails the construction of a hard surfaced internal access road within the RPA of several trees to be retained. In order to prevent foreseeable damage to tree roots, a 'no-dig' method of construction will be utilised and has been agreed upon during the design stage.
- 3.4.2.2 The chosen system must be fit for purpose and of suitable construction to dissipate compaction damage to tree roots, allow gaseous diffusion to/from the soil and the percolation of water to the soil surface. This may require the use of specialist materials and sensitive edging systems to prevent damage to tree roots. It is recommended that this surfacing be constructed as an initial phase of construction, in order to afford the maximum protection throughout development, as this can then be used as ground protection. Design principles should be included in an Arboricultural Method Statement and confirmed by an appropriately qualified engineer.

3.4.3 Demolition

- 3.4.3.1 In order to meet the needs of this proposal, the demolition of the large care home building is required adjacent to several retained trees. Due to this, specialist demolition methods will be required to prevent damage to these trees. Firstly the protective fencing will be installed to prevent damage to the tree stem and any debris spillage onto the RPA. A sensitive demolition method will then be employed. Ideally the building will be collapsed onto its existing footprint in a direction away from the trees; a method referred to as ‘top down, pull back’.
- 3.4.3.2 Full details on such methods should be included in an Arboricultural Method Statement, including where arboricultural supervision is necessary.

3.4.4 Construction/ Foundation Design.

- 3.4.4.1 Prior to construction, all protective measures required should be correctly installed to prevent unnecessary damage during development.
- 3.4.4.2 The footprints of the proposed buildings do not incur the RPA of any tree to be retained. As such no specialist construction or foundation methods are considered necessary for the sole purpose of preventing damage to trees.
- 3.4.4.3 Despite this, specialist foundation designs may still be required for other reasons, and advice should always be sought from a suitably qualified structural expert. The water demand of trees can be an important consideration when determining the appropriate foundation design. Because of this, water demands for the trees identified on this site are included at **Appendix 1**, in accordance with **NHBC Chapter 4.2**, for use by the appointed structural expert.

3.4.5 Utilities

- 3.4.5.1 JCA have been provided with a drainage layout plan for the proposed scheme and the proposed utilities are situated outside the RPAs of retained trees. As such, no mitigation actions are considered necessary to mitigate potential damage to tree roots.

3.4.6 Site Compound

- 3.4.6.1 The site compound, which typically includes the site office, mess facilities, toilets, storage of materials and parking, must be located away from all of the trees and outside their RPAs. Care should also be taken to prevent soil contamination from chemical spillages, including petrol, diesel and oils.

3.4.7 Post Construction Landscaping

- 3.4.7.1 The site offers scope for landscaping and tree planting. All areas identified for the new planting should also be protected by fencing during the construction phase to prevent the compaction of the soil.
- 3.4.7.2 The planting of new trees may go ahead in the first planting season (November-March) after the development is complete. This is to prevent damage to newly planted trees via construction activity.
- 3.4.7.3 No ground level changes are to be undertaken within the RPA of retained trees, unless otherwise stated or agreed with the appointed Arboricultural consultant or the LPA. The requirement to raise/lower ground levels within RPAs should be communicated to these parties at the earliest practical convenience.

3.5 Remedial Measures

- 3.5.1 In order to protect the retained trees during the construction phase, protective fencing needs to be installed. Protective fencing specifications and on site positioning, along with details of any necessary specialist construction methods can be provided in an Arboricultural Method Statement (AMS).

4. Conclusions

- 4.1 There is an Area Tree Preservation Order in force on this site, meaning all trees surveyed are protected.
- 4.2 Some tree works were recommended during the original survey, irrespective of the development proposals. This is to manage potential risks, prevent the development of defects or for general maintenance purposes. These are detailed at **Appendix 1**.
- 4.3 The arboricultural implications of the development have been considered and are discussed in **Section 3**.
- 4.4 It is proposed to construct 8 detached residential dwellings with an internal access road serving the properties. Part of the proposals also include for soft landscaping, to create an attractive site post development, and mitigate the loss of those specimens which require removal to facilitate the scheme.
- 4.5 A no-dig method of construction will be used for the proposed internal access road in the interest of retaining trees and preventing damage to the RPA's.
- 4.6 Some trees require removal or pruning works in order to facilitate the proposed development. All tree works are included at **Appendix 1**. These are discussed in **Section 3.2** and **3.3** and their locations are shown on the Arboricultural Implications Plan at **Appendix 7**.
- 4.7 All development work carried out in close proximity to trees should be done so in a manner sympathetic to their needs. Otherwise the condition of the trees may deteriorate in the months and years following the development, leading to a loss of amenity and potentially hazardous trees.
- 4.8 The protection of retained trees can be achieved by the creation of a Construction Exclusion Zone based on the Root Protection Area of a tree. The Root Protection Area of each tree or group is marked on the Tree Constraints Plan at **Appendix 6**.
- 4.9 The proposed development should be accompanied by an Arboricultural Method Statement detailing the specific protection measures necessary for each tree. This should specify the required fencing standard and positions (the creation of the Construction Exclusion Zone), acceptable construction techniques and all tree works.
- 4.10 The data gained during the original survey provides an indication of the health of the trees. However, it does not enable a comprehensive assessment of their condition over time. Trees are living organisms which are affected by many factors including weather conditions, diseases/disorders, light levels and human activities. Due to this, the report is only valid for a period of 1 year from the date of issuing. Should an update or revision of this report be required outside of this time period, JCA may require a further site visit to ensure that the condition of the trees has not significantly changed. It is advised that the trees are inspected regularly, in the interests of risk management.

Appendices

Tree Ref.	Age Common Name <i>Botanical Name</i>	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	Diameter (cm)	Crown Spread			Observations	Recommendations Priority	Physiological Condition	Structural Condition	Amenity Value	NHBC Water Demand	Life Expectancy (yrs)	Retention Category
						N	W	E								
T 1	Early-mature Ash <i>Fraxinus excelsior</i>	14	3	3 S	#45	3 2.5	2.5	2.5	Ivy covers the main stem and prevented a detailed inspection. Previously pruned to a poor standard.	No action required at present. <i>Remove to facilitate the proposed development.</i> n/a	FAIR	FAIR	LOW	MOD	10+	C 2
T 2	Mature Horse Chestnut <i>Aesculus hippocastanum</i>	13	5	5 W	65	5.5 6.5	6	5	A multiple-stemmed specimen in poor condition. Evidence of previous Bleeding Canker; splits and cracking on the main stems. A minor cavity was noted on the road side.	Remove and re-place. Moderate	POOR	POOR	LOW	MOD	<10	U
T 3	Mature Horse Chestnut <i>Aesculus hippocastanum</i>	15	5	5 W	76	3 6	5.5	4.5	A multiple-stemmed specimen in poor condition. Evidence of previous Bleeding Canker and stress; splits and cracking on the main stem with epicormic growth.	Remove and re-place. Moderate	POOR	POOR	LOW	MOD	<10	U
T 4	Early-mature Sycamore <i>Acer pseudoplatanus</i>	14	5	5 W	59	4 6	6	4	A tree of reasonable form with a balanced crown. No major visible defects were observed. Some epicormic growth noted.	Crown clean. Low	FAIR	GOOD	MOD	MOD	20+	1 B 2
T 5	Early-mature Sycamore <i>Acer pseudoplatanus</i>	13	5	5 E	55	4 4	7	4	The majority of the canopy is overhanging the road. A tree of reasonable form.	No action required at present. n/a	GOOD	FAIR	MOD	MOD	20+	1 B 2
T 6	Mature Horse Chestnut <i>Aesculus hippocastanum</i>	14	3	3 N	60	6 5	4	5	Bacterial cankers and evidence of previous Bleeding. Epicormic growth noted and decay present on some old wounds. Poor specimen.	Remove and re-place. Moderate	POOR	POOR	LOW	MOD	<10	U
T 7	Mature Sycamore <i>Acer pseudoplatanus</i>	19	6	6 W	70	5 8	7	2	Significantly leaning in towards the site; a dominant specimen which is multiple-stemmed at 3.5m.	No action required at present. <i>Remove to facilitate the proposed development.</i> n/a	FAIR	FAIR	MOD	MOD	10+	C 2
T 8	Semi-mature Lime <i>Tilia sp.</i>	10	5	5 W	29	1.5 1	5.5	2.5	May improve with the removal of T7. Epicormic growth noted.	No action required at present. n/a	FAIR	FAIR	MOD	MOD	10+	C 2
T 9	Mature Sycamore <i>Acer pseudoplatanus</i>	17	5	5 W	51	2 8	3	3	The main stem kinks approximately 60 degrees towards the site; a potential weak point to monitor.	Monitor on an annual basis. <i>Prune back the western section of the canopy only by 3.5m-4m to appropriate growing points to re-balance the canopy and to provide sufficient clearances from the proposed adjacent dwelling post development.</i> High	FAIR	FAIR	MOD	MOD	10+	C 2

Tree Ref.	Age Common Name <i>Botanical Name</i>	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	Diameter (cm)	Crown Spread			Observations	Recommendations Priority	Physiological Condition	Structural Condition	Amenity Value	NHBC Water Demand	Life Expectancy (yrs)	Retention Category
						N	W	E								
T 10	Mature Pear <i>Pyrus communis</i>	8	4	4 S	38	2 3 4.5		3.5	A poor tree due to leaning form, canker and stem cavities with decay. No value or long term future.	Remove and re-place. Low	POOR	POOR	LOW	MOD	10+	U
T 11	Mature Lime <i>Tilia sp.</i>	18	6	6 W	67	5 7.5 6		7	A valuable specimen with no major visible defects noted.	No action required at present. n/a	GOOD	GOOD	HIGH	MOD	40+	1 A 2
T 12	Mature Lime <i>Tilia sp.</i>	18	6	6 N	65	5 5.5		6	A valuable specimen with no major visible defects noted. Slight lean towards the road. The adjacent wall is bulging slightly due to root and stem growth.	No action required at present. n/a	GOOD	GOOD	HIGH	MOD	40+	1 A 2
T 13	Mature Lime <i>Tilia sp.</i>	17	5	5 E	55	2 0 4.5		6	Heavily leaning tree; would collapse into the adjacent road if it failed.	Remove and re-place. Moderate	FAIR	POOR	MOD	MOD	<10	U
T 14	Mature Lime <i>Tilia sp.</i>	20	5	5 N	70	8 8 6		6	A reasonable tree on the boundary of the site. Ivy noted.	No action required at present. n/a	GOOD	GOOD	HIGH	MOD	40+	1 A 2
T 15	Early-mature Sycamore <i>Acer pseudoplatanus</i>	16	3	3 N	39	5.5 2 4		2.5	Located on top of the boundary wall.	No action required at present. n/a	FAIR	FAIR	MOD	MOD	10+	C 2
T 16	Mature Sycamore <i>Acer pseudoplatanus</i>	18	5	5 N	60	7 3.5 4.5		5.5	A reasonable tree on the boundary of the site. Dense Ivy noted.	Remove the Ivy. Low	GOOD	GOOD	MOD	MOD	20+	1 B 2
G 17	Semi-mature Mixed	To 10	0+	n/a n/a	Avg. 20	See Plan			Species include Elm, Holly and Sycamore. Ivy covers the majority of stems.	Remove the Ivy. <i>Remove to facilitate the proposed development.</i> Low	GOOD	GOOD	LOW	LOW MOD & HIGH	10+	C 2
T 18	Mature Sycamore <i>Acer pseudoplatanus</i>	19	7	7 N	85	5 4 5		10	Dense Ivy restricted access to the main stem.	Remove the Ivy. <i>Remove to facilitate the proposed development.</i> Low	FAIR	GOOD	MOD	MOD	20+	1 B 2
T 19	Mature Copper Beech <i>Fagus sylvatica 'Atropurpurea'</i>	19	4	4 N	76	7 6.5 8.5		8	A tree of good value with a well balanced crown.	No action required at present. n/a	GOOD	GOOD	HIGH	MOD	40+	1 A 2

Tree Ref.	Age Common Name <i>Botanical Name</i>	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	Diameter (cm)	Crown Spread			Observations	Recommendations Priority	Physiological Condition	Structural Condition	Amenity Value	NHBC Water Demand	Life Expectancy (yrs)	Retention Category
						N	W	E								
T 20	Mature Beech <i>Fagus sylvatica</i>	17	5	3.5 N	69	9.5 4.5 5		9.5	Dense Ivy on the main stem. No major visible defects were observed.	No action required at present. n/a	GOOD	GOOD	HIGH	MOD	40+	1 A 2
T 21	Mature Lime <i>Tilia sp.</i>	20	7	7 E	69	4 5 4		3.5	Growing close to and overhanging the adjacent building. Overhead cables are passing the canopy. Epicormic growth noted.	Remove the epicormic growth and prune around the overhead cables to give sufficient clearance. Low	GOOD	GOOD	MOD	MOD	20+	1 B 2
T 22	Mature Lime <i>Tilia sp.</i>	20	8	n/a n/a	55	4 3.5 2		7	Located on top of a rockery. Restricted access. Ivy and epicormic growth noted.	Remove the Ivy and epicormic growth. Low	FAIR	GOOD	MOD	MOD	20+	1 B 2
T 23	Mature Lime <i>Tilia sp.</i>	20	10	n/a n/a	55	3 7 7		7	Located on top of a rockery. Restricted access. Ivy and epicormic growth noted.	Remove the Ivy and epicormic growth. <i>Remove to facilitate the proposed development.</i> Low	FAIR	GOOD	MOD	MOD	20+	1 B 2
G 24	Early-mature Sycamore <i>Acer pseudoplatanus</i>	16	7	n/a n/a	Avg. 45	See Plan			Four trees in group. Covered in dense Ivy.	Remove the Ivy. <i>Remove to facilitate the proposed development.</i> Low	FAIR	GOOD	MOD	MOD	20+	1 B 2
T 25	Early-mature Cypress <i>Cupressus sp.</i>	8	3	n/a n/a	52	3 3 3		3	Single-stemmed and vertical with a balanced crown. No major visible defects.	No action required at present. n/a	FAIR	GOOD	LOW	HIGH	10+	C 2

Appendix 2: Explanation of Tree Descriptions

A2.1 Measurements/ Reference Information

- A2.1.1 *REF NUMBER*. All items surveyed are allocated a reference number preceded with a letter, identifying the type of vegetation surveyed: T = an individual tree, G = a group of trees or an area of vegetation, W = woodland, H = a hedgerow.
- A2.1.2 *SPECIES: COMMON AND BOTANICAL NAME*. The common and botanical names of the species present are noted. If the species is not clear or identifiable, then a general common name and genus will be noted.
- A2.1.3 *AGE CLASS* of the tree is described as young, semi-mature, early-mature, mature, over-mature, veteran or dead.
- A2.1.4 *HEIGHT* of the tree is measured in metres from the stem base to the top of the crown.
- A2.1.5 *CROWN HEIGHT* is an indication of the height above ground level at which the crown begins.
- A2.1.6 *STEM DIAMETER* is measured at 1.5 metres above (higher) ground level. Where the tree is multi-stemmed at this point; diameter measurements are taken for each stem. If more than five stems are present, an average stem diameter is taken. If for whatever reason it is not practical to measure multiple-stemmed trees in this way, the diameter is measured close to ground level, just above the root buttress.
- A2.1.7 *CROWN SPREAD* is measured from the centre of the stem base to the tips of the branches to all four cardinal points.
- A2.1.8 *HEIGHT AND DIRECTION OF LOWEST BRANCH*. The height and direction of the lowest significant branch is noted because of potential issues relating to clearances and the need for tree pruning.
- A2.1.9 *NHBC WATER DEMAND*. The water demand of each tree, as listed in NHBC Standards 2010 Chapter 4.2 'Building near trees'. This is included to aid structural engineers, architects and other members of the design team as it determines foundation depth and other considerations with regard to trees.

A2.2 Evaluations

A2.2.1 *PHYSIOLOGICAL CONDITION* is classed as good, fair, poor, or dead. This is an indication of the health and vitality of the tree and takes into account vigour, presence of disease and dieback.

A2.2.2 *STRUCTURAL CONDITION* is classed as good, fair or poor. This is an indication of the structural integrity of the tree and takes into account significant wounds, decay and quality of branch junctions.

A2.2.3 *LIFE EXPECTANCY* is classed as; 0, less than 10 years, 10+ years, 20+ years, or 40 + years. This is an indication of the minimum number of years before removal of the tree is likely to be required.

A2.2.4 *AMENITY VALUE*. A general indication is given in respect to the amenity/landscape value of the tree/group within the surrounding area.

A2.2.5 *PRIORITIES*. A priority rating is given concerning the time periods in which the recommended works should be undertaken. LOW priority works should be undertaken within 12 months of the survey, MOD (moderate) priority works should be undertaken within 6 months and HIGH priority works should be completed as soon as practically possible. If no works are recommended, N/A (not applicable) will be used.

A2.3 Retention Categories

A2.3.1 *A (marked green on the plan) = Trees of high quality.*

These trees are of high quality and value with a good life expectancy (usually with an estimated remaining life expectancy of 40 years).

A2.3.2 *B (marked in blue on the plan) = Trees of moderate quality.*

These trees are of moderate quality and value with a reasonable life expectancy (usually with an estimated life expectancy of at least 20 years).

A2.3.3 *C (marked in grey on the plan) = Trees of low quality.*

These trees are of low quality and value but which are in adequate condition to remain or are young trees with a stem diameter below 15cm (usually with an estimated life expectancy of at least 10 years).

A2.3.4 Trees categorised as retention category 'A', 'B' or 'C' are then justified by being further divided into 3 subcategories:

1 = Mainly arboricultural qualities.

2 = Mainly landscape qualities.

3 = Mainly cultural values, including conservation value.

A2.3.5 U (marked in red on the plan) = Trees usually unsuitable for retention due to poor condition.

These trees are in such a condition that they cannot be realistically retained as living trees in the context of the current land use for longer than 10 years. This may be due to any of the following:

- 1) Failure is likely due to serious, irredeemable, structural defects.
- 2) Removal of other category U trees will render them exposed and unstable.
- 3) They are in serious, overall decline or are dead.
- 4) They are of low quality and suppressing adjacent trees of better quality.
- 5) Diseases are present which may affect the health of adjacent trees.

These trees should be removed or treated in such a way as to make them safe where they have high ecological value, such as in a woodland setting.

Appendix 3: General Guidelines

- A3.1 All tree work should be undertaken to BS 3998: 2010 '*Recommendations for tree work*' or other recognised industry practice.
- A3.2 Staff carrying out the work must be qualified, experienced and ideally be Arboricultural Association approved contractors. They should be covered by adequate public liability insurance.
- A3.3 This report is based upon a visual inspection. The consultant shall not be responsible for events which happen after this time due to factors which were not apparent at the time, and the acceptance of this report constitutes an agreement with the guidelines and the terms listed therein.
- A3.4 Any defects seen by a contractor or the employer that were not apparent to the consultant must be brought to the consultant's attention immediately.
- A3.5 No liability can be accepted by JCA in respect of the trees unless the recommendations of this report are carried out under the supervision of JCA and within JCA's timescale.
- A3.6 It is advisable to have trees inspected by an arboricultural consultant on a regular basis.

Appendix 4: Glossary of Terms & Abbreviations

Arboriculture	The cultivation of trees in order to produce individual specimens of the greatest ornament, for shelter or any primary purpose other than the production of timber or fruit.
Canker	Disease damaged area of a tree, usually caused by fungus or bacteria affecting the bark.
Crown lift	The removal of the lowest branches, usually to a given height. It allows more residual light and greater clearance underneath for vehicles etc.
Crown reduction	The reduction of a tree's height and spread while preserving its natural shape.
Crown thin	The removal of some of the density of a tree's crown, usually 5-15% allowing more light through its canopy and reducing wind resistance.
Deadwood	Either dead branches, or a procedure involving the removal of dead, dying and diseased branches.
Dieback	Where branches are beginning to show signs of death usually at the tips in the crown.
Epicormic shoots	Small branches that grow in clusters around the base of the stem of a tree or within the crown. This is usually as a result of bad pruning or some other stress factor, although can be a natural growth pattern for some species of tree (eg Lime species).
Included bark	Where the bark on two adjoining branches or stems is growing tight together, forming a joint with limited physical strength.
Pollarding	A method of tree management in which the main trunk and principle branches of the tree are cut to the same height, and the resulting branches are then cropped on a regular basis.
Remedial pruning	The removal of old stubs, deadwood, epicormic growth, rubbing or crossing branches and other unwanted items from the tree's crown. Sometimes referred to as crown cleaning.
RPA	Root Protection Area – Theoretical rooting area of a tree as defined in BS5837:2012 <i>Trees in relation to construction</i> .
Topping	Topping is a form of pruning that removes terminal growth leaving a 'stub' cut end. Topping can cause serious health problems to a tree.

Appendix 5: Author Qualifications

Principal Consultant and Managing Director

Jonathan Cocking *F.R.E.S., Tech. Cert. (Arbor.A), PDipArb (RFS) FArborA CBiol MSB. MICFor.* Jonathan is a Registered Consultant and Fellow of the Arboricultural Association and sits on its Professional Committee. He has 31 years experience in the Arboricultural profession and served for eight years as Senior Arboriculturist with a large local authority before establishing JCA in 1997. Jonathan has since developed JCA's portfolio of services and its extensive client base. He is a Chartered Biologist, a Chartered Arboriculturalist and an Expert Witness with much experience of litigation work.

Technical Director

Toby Thwaites *BSc (Hons), HND (Arboriculture).* Toby joined JCA in 1998 after graduating in Ecology at the University of Huddersfield and has since graduated in Arboriculture at the University of Central Lancashire. A former JCA team leader and Consulting Arboriculturist, Toby is now Technical Director and oversees all office and on-site activities at JCA and is on hand to offer technical support and advice.

Consulting Staff: Arboriculture

Toby Parsons *Cert. Arb. (RFS), Tech. Cert. (Arbor.A).* Toby joined JCA after spending 6 years working as a senior climber for various Arboricultural contractors in the East Midlands and the South-West. He has gained the Level 2 Certificate in Arboriculture (RFS) and an Arboricultural Technicians Certificate. Toby is LANTRA certified in Professional Tree Inspection.

Scott Reid *ND (Arboriculture and Forestry).* Scott joined JCA after working with other consultancy companies in the south of England. He specialises in trees in relation to development and holds a National Diploma, various NPTC qualifications and is currently studying for his Level 4 Diploma in Arboriculture.

Andrew Bussey. Andrew joined JCA having spent 12 years working as a tree surgeon for various private companies and a Local Authority. He has various NPTC qualifications, is QTRA qualified and is currently studying for his Arboricultural Technicians Certificate.

Phil Humeniuk *FdSc (Arboriculture).* Phil joined JCA having spent 3 years working for various tree surgery companies and as a Tree Officer for a Local Authority. He also has several years experience working as a consultant both for JCA and for another consultancy. Phil obtained his foundation degree in Arboriculture at the University of Central Lancashire and has various NPTC's and is LANTRA certified in Professional Tree Inspection.

Emily Wilde *FdSc (Arboriculture).* Emily joined JCA having previously worked for various private tree surgery and consultancy companies over the past 8 years. She initially obtained a ND in Forestry & Arboriculture, followed by a FdSc in Arboriculture at Askham Bryan College, York. Emily has various NPTC certificates and is QTRA qualified.

Mick Eltringham *ND (Forestry).* Mick joined JCA after spending 12 years working in the industry for various private companies in the north and south of England. He has also spent the last five years working as a consultant for two canopy research projects in the Amazon Rainforest, working with Oxford University and the University of Arizona. He has various NPTC Qualifications.

Charles Cocking *(FdSc Arboriculture).* Charles joined JCA in January 2014 as an Apprentice having previously worked for the company on a part time basis during 2013. Charles obtained his Foundation Degree in Arboriculture at Askham Bryan College, York, and is now part of our qualified Arboricultural consultancy team.

Consulting Staff: Ecology

David Bodenham *BSc Ind (Hons) Zoology, MSc Biodiversity and Conservation.* David joined JCA as an addition to the expanding ecology department. An advocate of evidence based conservation, he studied Zoology (Ind) at University and moved onto an MSc in Biodiversity and Conservation where he gained the myriad of skills needed as an ecologist. With over 7 years of experience, David specialises in bat and amphibian ecology.

Jenny Butler *Bsc (Hons) Environmental Science.* Jenny joined JCA's ecology department in 2017, bringing with her a bachelor degree in Environmental Science from Bangor University. Jenny has previously worked as an Environmental Consultant for an Agri-Environment company and as a freelance ecological consultant. Jenny specialises in great crested newt and bat ecology.

Amanda Beck *Cert He in Field Ecology.* Amanda joined JCA's ecology department in 2018, previously working as a freelance Ecological Consultant in North Wales and Liverpool and as a trainee Ecologist in South Wales. Amanda has extensive practical experience in surveying for botanical, amphibians, terrestrial and marine mammals along with invertebrate research work. She has practical experience in habitat management and creation and is a CIEEM student member.

Administrative Staff

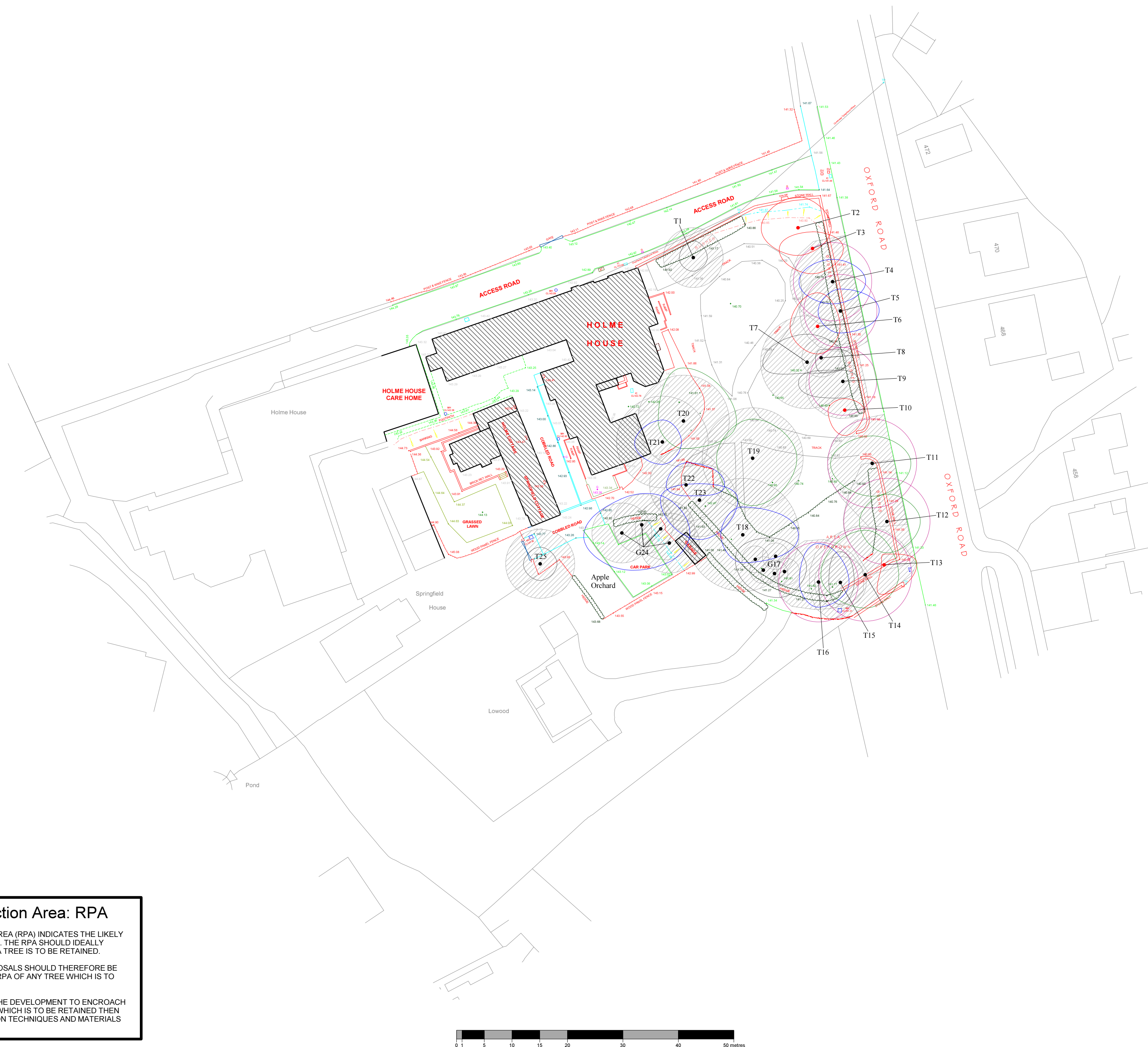
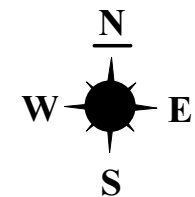
Sue Guest Administrative Team Leader.

Catherine Cocking Accounts Manager.

Lisa Hampson Marketing Manager.

Simeon Haigh *BSc (Hons).* IT Director.

Lorraine Spink Administrative Assistant.



Root Protection Area: RPA

THE ROOT PROTECTION AREA (RPA) INDICATES THE LIKELY ROOTING ZONE OF A TREE. THE RPA SHOULD IDEALLY REMAIN UNDISTURBED IF A TREE IS TO BE RETAINED.

THE DEVELOPMENT PROPOSALS SHOULD THEREFORE BE DESIGNED TO AVOID THE RPA OF ANY TREE WHICH IS TO BE RETAINED.

IF IT IS NECESSARY FOR THE DEVELOPMENT TO ENCROACH INTO THE RPA OF A TREE WHICH IS TO BE RETAINED THEN SPECIALIST CONSTRUCTION TECHNIQUES AND MATERIALS MUST BE CONSIDERED.



Appendix 6: Tree Constraints Plan

ADDRESS: Holme House, Oxford Road,
Gomersal, West Yorkshire, BD19 4LA.
JCA REF: 13931/ChC

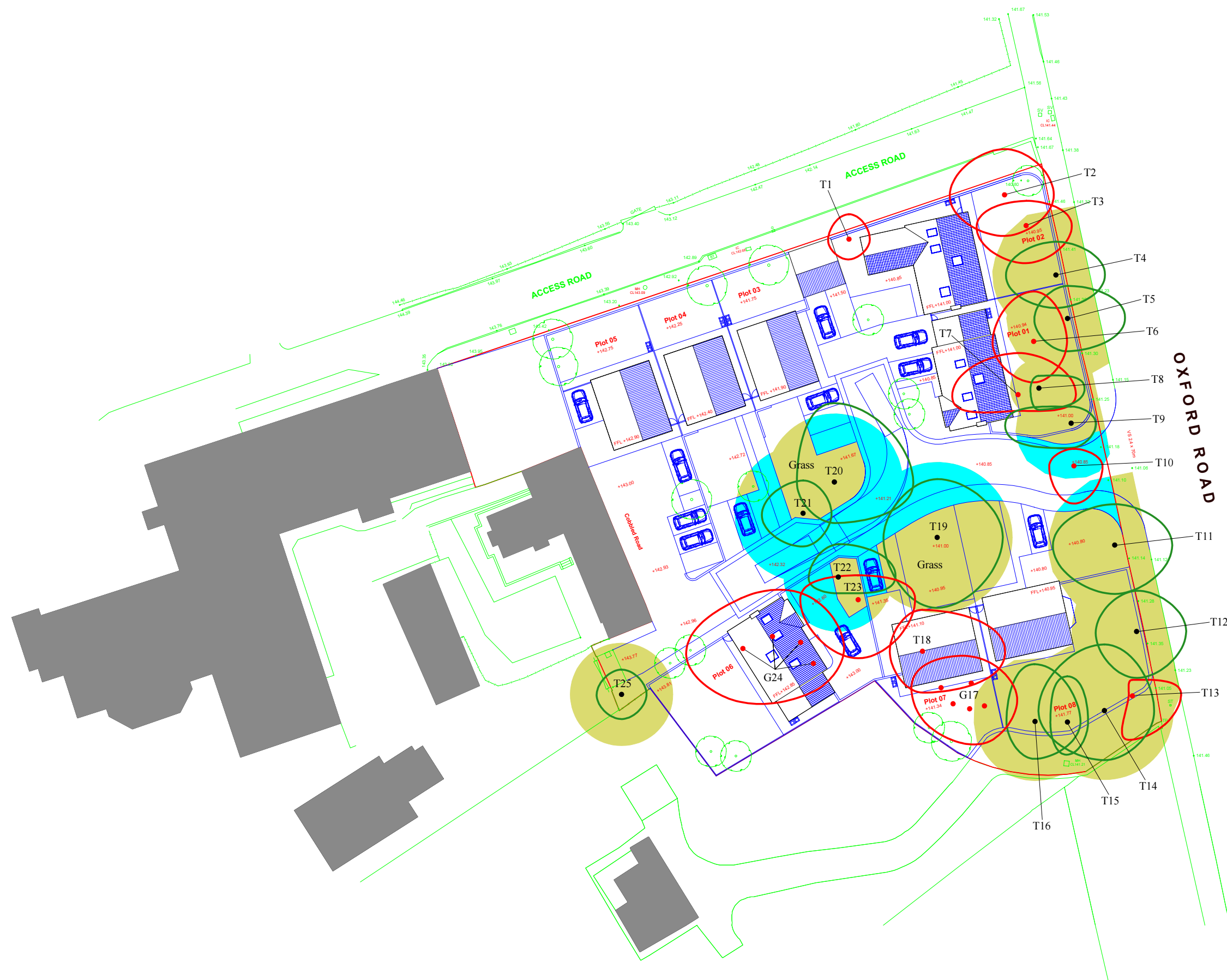
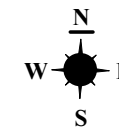
SCALE : 1:500 PAPER SIZE : A2

SURVEYED BY: JC/CC DRAWN BY: CC APPROVED BY: JC

BRITISH STANDARD 5837:2012: 4.5 RETENTION CATEGORIES

Detailed definitions of these categories are at Appendix 2 of our report. N.B. These categories do not necessarily represent or correspond to recommendations for action made in this report.

	CATEGORY 'A' TREE
	CATEGORY 'B' TREE
	CATEGORY 'C' TREE
	CATEGORY U: 'TREE FOR REMOVAL'
	STEM OF TREE TO BE RETAINED
	STEM OF TREE TO BE REMOVED
	ROOT PROTECTION AREA
	ROOT PROTECTION AREA (PRIOR TO OFF-SETTING)



Appendix 7: Arboricultural Implications Plan

ADDRESS: Holme House, Oxford Road, Cleckheaton, West Yorkshire, BD19 4LA.
JCA REF: 13931b/ChC

SCALE : 1:500

PAPER SIZE : A3

	TREE TO BE RETAINED
	TREE TO BE REMOVED
	STEM OF TREE TO BE RETAINED
	STEM OF TREE TO BE REMOVED
	ROOT PROTECTION AREA
	ROOT PROTECTION AREA ENCROACHED BY THE PROPOSED DEVELOPMENT; SPECIALIST CONSTRUCTION METHODS AND TECHNIQUES REQUIRED AND/OR SUPERVISION

JCA Limited
Arboricultural & Forestry Consultants

I hope that this report provides all the necessary information, but should any further advice be needed please do not hesitate to contact the author.

Signed



.....
Charles Cocking *FdSc (Arboriculture)*.

3rd May 2018

For and on behalf of *JCA Ltd*

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JCA Ltd. Arboricultural and Ecological Consultants

Professional Tree and Ecology Advice nationwide

ARBORICULTURAL SERVICES

Guidance for Architects and Developers

- British Standard 5837 Tree Surveys
- Arboricultural Implication Assessments (AIA)
- Arboricultural Method Statements (AMS)

Tree Advice for the Legal Profession

- Subsidence Litigation
- Personal Injury and Accident Investigation
- Expert Witness, Planning Inquiries and Appeals

Advice for Engineers, Loss Adjusters and Insurers

- Tree Surveys for Subsidence
- Heave Assessment
- Tree Root Identification

Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

Advice for Local Authorities and Social Housing

- Tree Safety Surveys
- Specialist Decay Detection
- Landscape and Orchard Design

Tree Health and Pest and Disease Management

- Pest and Disease Surveys
- Tree Health Checks
- Disease Mitigation and Control

ECOLOGICAL SERVICES

Ecological Pre-Planning Services

- Phase 1 Habitat Surveys
- Great Crested Newt eDNA Sampling
- Protected Species: Bat, Wintering and Nesting Bird, Badger, Amphibian, Otter, Water Vole, White-Clawed Crayfish, Dormice and Reptile Surveys.
- Preparation for Environmental Impact Assessment (EIA)
- Invasive Species Surveys
- Code for Sustainable Homes

Ecological Post-Planning Services

- Biodiversity Enhancement Plans
- Protected Species Mitigation
- Ecological Management (Bat and Bird box installation and inspection)

HEAD QUARTERS:

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