

**ARBORICULTURAL REPORT
AND
ARBORICULTURAL IMPACT ASSESSMENT
to BS 5837:2012
at
Stable Hills
Chadwick Hall Road
Rochdale
Lancashire
OL11 4DJ**

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1. Introduction

1.1 Purpose of the Report

- 1.1.1 This report is required for land within the property named as **Stable Hills**, off **Chadwick Hall Road** in **Rochdale** to provide detailed, independent, arboricultural advice on the trees present, in the context of a potential development.
- 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 minimise potential damage to the trees which are being retained. The report includes an assessment of the existing vegetation, along with recommendations based on the current context of the site; clearly defined from those required to facilitate a proposed development.

1.2 Terms of Reference

- 1.2.1 JCA Ltd has been instructed by Chris Grieves of **Hallmark Estates Ltd (NW)** to survey the trees and prepare the findings in a report.
- 1.2.2 For this purpose a topographical survey has been supplied (**Drawing ref: Stable Hills.dwg**), which forms the basis for the Tree Constraints Plan at **Appendix 6**. The topographical survey, along with all other documents supplied to JCA, is assumed to be correct. No checking of such documents will be undertaken and JCA cannot be held responsible for incorrect data supplied by other parties.

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 Preliminary recommendations are given with a view to the long-term management of a sustainable tree cover and to uphold the interests of health and safety.
- 1.3.3 Where applicable trees outside the site boundary, but close enough to be affected by the proposed development, have been included.
- 1.3.4 The loose design of this proposed development has been considered as far as possible based on the drawing provided within the Arboricultural Implication Assessment in **Section 6** and is detailed on the plan at **Appendix 7**.

1.4 Survey Details

- 1.4.1 The survey took place during the month of June 2017 and was carried out by Phil Humeniuk *FdSc (Arboriculture)*.
- 1.4.2 During this survey, all trees were inspected from ground level. Further investigation, such as climbed inspections or decay detection surveys, have not been undertaken but may have been recommended where considered appropriate.
- 1.4.3 Measurements were obtained using clinometers, specialist tapes or electronic distometers. Where this was not possible, measurements were estimated to the best ability of the surveyor. JCA endeavour to provide accurate information and will always take measurements unless inhibited by restricted access or other mitigating circumstances. Where measurements have been estimated, they are clearly highlighted at **Appendix 1**.

2. Site Description

2.1 Land Use

- 2.1.1 The site is currently occupied by a single detached property with an outbuilding and surrounding garden area. There is an additional land plot located to the south of the current property.

2.2 Topography

- 2.2.1 The site is approximately level, however the area proposed for development slopes steeply down towards the southern boundary.

2.3 Treescape

- 2.3.1 Surrounding the site is a residential area containing many mature garden trees.
- 2.3.2 The trees on this site have a significant impact on the local treescape.

2.4 Visual Amenity Value

- 2.4.1 The trees on site collectively provide an excellent visual amenity to the surrounding area. Occasional specimens have a higher amenity value due to their size and stature.

2.5 Age Class Mix

- 2.5.1 The trees surveyed ranged in age from young to mature. However, the trees were predominantly middle aged to mature.

2.6 Species Diversity

- 2.6.1 Species surveyed include Apple, Ash, Beech, Cherry, Cherry Plum, Cotoneaster, Elder, Hawthorn, Holly, Horse Chestnut, Scots Laburnum, Lime, Rowan, Sycamore and Willow. The predominant species on site is Sycamore.

3. Status of the Trees

- 3.1 A check was made on 6th June 2017 with **Rochdale Borough Council**.
- 3.2 We are informed that there are Tree Preservation Orders (**TPO190 & TPO 278**) in force on this site (see **Appendix 6** for the protected trees and their locations)
- 3.3 ***Before any tree works are undertaken, written consent from the Local Authority must first be obtained. An application for tree works form must therefore be completed and submitted to the Local Authority.***

No work must be undertaken on any tree until permission has been granted.

- 3.4 The presence of a Tree Preservation Order (TPO) represents the Local Authority's desire to retain trees within the landscape. As such, trees covered by a TPO are generally more likely to require retention within a proposed scheme and this should be taken into account during the design process. In some cases, the removal of TPO trees may be agreed upon, providing the benefits of the proposed development are deemed greater than the material loss of the trees. The value of existing vegetation is just one factor in the decision making process; all benefits of the proposed development will be taken into consideration in the usual manner.

4. Tree Descriptions and Recommendations

- 4.1 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.

5. Discussion Relating to the Existing Treescape

5.1 Tree Condition & Recommended Works

- 5.1.1 The tree survey revealed a total of **26** items of vegetation (**22** individual trees, **3** groups of trees and **1** hedge). Of these, **5** trees were identified as retention category 'A', **14** trees and **3** groups were identified as retention category 'B', **3** trees and **1** hedge were identified as retention category 'C'. Please refer to **Appendix 2** for retention category and definition criteria.
- 5.1.2 Within the survey, tree works may have been identified for reasons of public safety, to ensure the long-term health of the trees or for general maintenance purposes. Such recommendations have been made without regard to any proposed layout designs and should be undertaken irrespective of development. For full details of all recommendations, please refer to **Appendix 1**. For an explanation and timescales of the priority ratings, please refer to **Appendix 2 (A2.2.5)**.

5.2 Removals Irrespective of Development

- 5.2.1 On this occasion, no trees have been identified as category 'U' and as such no trees are recommended for removal in the current context of the site.

5.3 Remedial Tree Works

- 5.3.1 Remedial tree works have been recommended for **T11** and **T15** to manage foreseeable risks.
- The work recommended for **T11** and **T15** should be carried out as a matter of **moderate priority**.
- 5.3.2 Those trees which overhang public footpaths or public highways shall require future maintenance in order to maintain clearance heights for vehicular or pedestrian traffic. These heights should be 5.6m above a road and 2.5m above a footpath.

5.4 Monitoring/Further Investigations

- 5.4.1 Ground level changes were noted adjacent to **T20**. The original ground level therefore needs to be re-instated as a matter of **high priority**.
- 5.4.2 **T14** and **T20** were noted to have structural or physiological defects, as detailed at **Appendix 1**. Although these trees were considered to be in an acceptable condition at the time of the inspection, the defects observed may lead to their early demise or render them unsafe in the future. As such, it is recommended that these trees be monitored (re-inspected and assessed) on a biennial (2 yearly) basis to assess if their condition is still acceptable (as advised at **Appendix 1**).
- 5.4.3 In addition, all trees to be retained within the site should be re-inspected on a regular basis, in the interests of risk management.
- 5.4.3 A full detailed inspection of **T9**, and **T13** was inhibited by the presence of Ivy. For these trees, it is advised that they are re-inspected for any possible defects once the Ivy has been removed.

6. Arboricultural Implications Assessment (AIA)

6.1 Proposed Development

- 6.1.1 The proposed development will consist of the construction of a new access route east of the current stable hills property and leading to two new three tier residential dwellings with car parking facilities and associated garden spaces.
- 6.1.2 Drawing ref: **L(--)** 002 **T_site plan as prop 2.dwg** has been supplied by the client; this plan can be found at **Appendix 7** and is the basis for which this AIA has been prepared.
- 6.1.3 All tree works required to accommodate the proposals are included at **Appendix 1**, which lists all works recommended during the initial survey and those required for the development (in italics).

6.2 Tree Removals for Development

- 6.2.1 **Two** tree groups (**G21** and a portion of **G25: 4 Hollies**) require removal to accommodate this proposed scheme.
- 6.2.2 The two items for removal are retention category 'B' items and comprise fifteen individual tree stems in total.

6.3 Pruning for Development

- 6.3.1 To accommodate the proposal for an access road, it will be necessary to prune some of the trees being retained in order to provide suitable access clearances. This process is also known as 'access facilitation pruning' and is likely to be relevant for trees **T16**, **T17**, **T18**, **T19** and **T20** where the access route is to be laid.

6.4 Implications for Retained Trees

6.4.1 The Protective Barriers

- 6.4.1.1 In order to ensure the effective protection of trees to be retained during post-development, protective measures will be installed where appropriate, in accordance with BS5837: 2012 these 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)**.

- 6.4.1.2 Routes for pedestrian and site traffic should ideally be located outside, and diverted away from, the RPAs of the retained trees. Where this is not possible, 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.
- 6.4.1.3 Where ground protection or work is required within the RPA of a retained tree, specialist measures must be adopted during the construction phase to avoid ground compaction and minimise root damage. Such areas are highlighted in blue on the Arboricultural Implications Plan at **Appendix 7**.

6.4.2 Access/Construction of Hard Surfacing

- 6.4.2.1 The proposed development entails the construction of hard surfacing within the RPA of several of the trees to be retained post development, some of which currently afforded protection with a TPO (**T10, T11, T12, T13, T14, T15, T16, T17, T19 and T20**). This new access, in order to prevent foreseeable damage to retained tree roots, a 'no-dig' method of construction must be utilised.
- 6.4.2.2 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 requires the use of specialist materials and sensitive and appropriately designed edging systems (kerb stones) to prevent damage to existing 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. The design principles and specification will be included in an Arboricultural Method Statement (**AMS**).
- 6.4.2.3 Hard surfaces are currently present within the RPA of *three* of the trees to be retained (**T10, T11 and T12**). In this case, the proposed new surface is situated within the footprint of existing hard surfacing. Where this is applicable, the existing surface will be retained in situ to prevent damage to tree roots. If required, it may then be resurfaced as appropriate, providing that the base is retained and no excavation takes place within the RPA.

6.4.3 Demolition

- 6.4.3.1 In order to meet the needs of this proposal, the demolition of an existing wall is required adjacent to **T22** (a protected tree) and a portion of tree group **G25**. Due to this, specialist methods will be required in order to prevent damage. This may include collapsing the wall sensitively in a direction away from the trees and utilising hand digging methods, and strictly avoiding root severance when working within the RPA of **T22**. Full details on such methods will be included in an AMS (Arboricultural Method Statement); including where and when arboricultural supervision is necessary to ensure no damage occurs to protected trees.
- 6.4.3.2 Some of the existing hard surfacing may be replaced as part of this development proposal. If this is the case, these surfaces will be retained during the initial construction process up until the final stages of development, at which point they may be removed. This will afford the maximum protection to these trees and completed in accordance with **Section 6.4.2**.

6.4.4 Construction/ Foundation Design.

- 6.4.4.1 Prior to construction, all protective measures required and listed in **Section 6.4.1** (protective measures) and **Section 6.4.2** (hard surfaces) should be correctly installed to prevent unnecessary damage during development.
- 6.4.4.2 The footprint of a new wall incurs into the RPA of **T22** and the western specimens of **G25**. As such, arboricultural supervision is considered necessary for the sole purpose of preventing damage to the protected trees root system.
- 6.4.4.3 The footprint of the new dwellings do not incur into the RPAs of the retained trees. As such, no specialist foundations are required for arboricultural reasons.
- 6.4.4.4 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.

6.4.5 Tree Shade

- 6.4.5.1 Due to the location of the trees, and their distance from to the proposed buildings, issues related to shading are considered to be unlikely and do not require mitigation.
- 6.4.5.2 Any problems of shading in relation to new buildings caused by retained trees are likely to be minimal as the trees are deciduous, and light penetration will increase in the winter when the sun is lowest.

6.4.6 Utilities

- 6.4.6.1 Details on service routes are not available at this time. Where utilities need to be brought onto the site, these must be routed away from the rooting areas of retained trees. Where this is not possible, appropriate methodologies on the installation of such underground services without causing significant damage to trees roots should be considered.
- 6.4.6.2 All service providers should be consulted prior to the commencement of works with the aim of minimising the number of service runs on the site. Any foreseeable incursions into the RPAs should be communicated to the appointed arboricultural consultant and the LPA at the earliest possible time to prevent breach of planning conditions and damage to protected or retained trees.

6.4.7 Site Compound

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

6.4.8 Landscaping

- 6.4.8.1 Any proposed fence lines may be constructed within the RPA if necessary, providing that appropriate considerations are made to the protection of the tree. This is providing that no continual trenching is undertaken (e.g. for small walls onto which panel fencing is installed). Excavation must be kept to a minimum and therefore only fence designs requiring intermittent posts will be acceptable within the RPA of retained trees.
- 6.4.8.2 Any patios, garden paths or other hard surfaces within RPAs which may not be shown on the projected layout may be constructed using no-dig techniques, providing that they do not cover more than 20% of the RPA and are implemented in accordance with BS5837: 2012. If there is any concern of damaging retained trees, further advice should be sought from the qualified Arboriculturalist.
- 6.4.8.3 No ground level changes are to be undertaken within the RPA of protected or 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.

6.5 Remedial Measures

- 6.5.1 Part of the proposed development will encroach into the RPAs of retained trees, resulting in possible root loss. It would therefore be prudent to apply mycorrhizal fungi to the soils around these trees after the construction phase is complete. Mycorrhizae are fungi that form symbiotic relationship with tree roots. A tree root associated with mycorrhizae takes up nutrients more effectively and this will help the trees to produce new roots more effectively, so benefitting their recovery.
- 6.5.2 The site offers significant scope for landscaping and areas for new tree planting. Should new planting be conditioned, then these areas should also be protected by temporary fencing during the construction phase to prevent the compaction or contamination of the soils.
- 6.5.3 In order to protect the retained trees during the construction phase, protective fencing will need 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).

7. Conclusions

- 7.1 The trees surveyed were generally found to be in good condition.
- 7.2 **Nine** trees, (**T1, T7, T8, T9, T11, T13, T14, T15** and **T22**) as numbered in this report and shown at **Appendix 6**) are protected by a Tree Preservation Order.
- 7.3 **No** trees have been recommended for removal for arboricultural reasons.
- 7.4 **Two** trees have been recommended for pruning works for reasons of public safety and to enhance their long term health. These are summarised in **Section 5.3** and detailed at **Appendix 1**.
- 7.5 **One** tree has suffered ground level changes within its rooting area; this area of soil needs reinstating back to its original level. This is discussed in **Section 5.4** and detailed at **Appendix 1**.
- 7.6 **Four** trees require re-inspecting due to the presence of Ivy or the suspicion of structural or physiological defects. These are discussed in **Section 5.4** and detailed at **Appendix 1**.
- 7.7 The arboricultural implications of the development have been considered as far as possible and discussed in **Section 6**.
- 7.8 All development work carried out in close proximity to trees must be executed in a manner sympathetic to their needs. Otherwise, the condition of the trees may deteriorate in the months and years following development, leading to a loss of amenity and resulting in potentially hazardous trees. Care must therefore be taken to ensure that the retained trees are suitably protected.
- 7.9 In accordance with **Section 6.1** of **BS 5837: 2012**, the next stage on this site should be the preparation of an **Arboricultural Method Statement (AMS)**, to ensure that all the retained trees survive the development/construction process. An **AMS** will detail which trees are to be removed, which trees are to be retained and any other tree works which is required to facilitate this development. The **AMS** will also advise on temporary protective measures, temporary fencing/ground protection, site supervision, location of services and it will also detail any specialist construction methods required to enable development.
- 7.10 In accordance with **Section 5.6** of **BS 5837: 2012** a **Tree Planting Scheme** should be prepared which will help to ensure that this site retains sustainable long term tree cover. A carefully designed **Tree Planting Scheme** will incorporate *appropriate* tree species in harmony with the development whilst seeking to improve the overall age range and species diversity on the site.
- 7.11 In accordance with **Section 6.3** of **BS 5837: 2012**, monthly site supervision is recommended throughout the construction phase of this proposed development.

Appendices

Appendix 1: Tree Descriptions and Recommendations

Tree Ref.	Age Common Name Botanical Name	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations Priority	Physiological Condition	Structural Condition	Amenity Value	NHBC Water Demand	Life Expectancy (yrs)	Retention Category
T 1	Mature Sycamore <i>Acer pseudoplatanus</i>	20	7	7 SW	#85	9 9 9 9.5	TPO 190; T1 Sycamore. Limited stem inspection due to location amongst dense shrubs; an excellent specimen. Single stemmed becoming twin-stemmed at 6m with a balanced crown. Overhanging the access and boundary. Occasional pruning wounds due to crown lifting - occluding well. No major visible defects.	No action required. n/a	GOOD	GOOD	HIGH	MOD	40+	1 A 2
T 2	Mature Scots laburnum <i>Laburnum alpina</i>	9.5	3.5	3.5 S	63	4.5 4.5 4.5 4.5	An excellent specimen; single stemmed becoming multi-stemmed at 2.5m with good unions and a balanced crown. Overhanging a car parking area. Minor deadwood yet no significant defects.	No action required. n/a	GOOD	GOOD	MOD	MOD	40+	A 1
T 3	Early mature Purple cherry plum <i>Prunus cerasifera 'nigra'</i>	8.5	2	2 S	3 x # Av. 18	#5 4 4 4	Multi-stemmed from ground level with a balanced crown. Overhanging the boundary. Good vigour and no significant defects.	No action required. n/a	GOOD	GOOD	MOD	MOD	40+	B 2
T 4	Early mature Cotoneaster <i>Cotoneaster sp.</i>	7	2	2.5 S	17 16	5 4.5 #4 4	Twin-stemmed from 0.5m with crossing stems and branches; multiple pruning wounds due to crown lifting. The canopy displays good vigour and overhangs the outbuilding.	No action required n/a	GOOD	GOOD	MOD	MOD	40+	B 2
T 5	Early mature Apple <i>Malus sp.</i>	7	2.5	2.5 n/a	28	3.5 2.5 2.5 3.5	One of four unknown apple varieties. Single-stemmed and vertical with a slightly unbalanced crown. Minor deadwood and occasional pruning wounds observed. No major visible defects.	No action required. n/a	GOOD	GOOD	MOD	MOD	40+	1 A 2 3
G 6	Semi mature Apple <i>Malus sp.</i>	7	2.5	2.5 n/a	Av. 18	See plan	Three in the group; all single-stemmed and vertical with balanced crowns. Minor deadwood and occasional pruning wounds noted. No major visible defects.	No action required. n/a	GOOD	GOOD	MOD	MOD	40+	1 B 2 3
T 7	Early mature Sycamore <i>Acer pseudoplatanus</i>	17	6.5	6.5 n/a	81	#7 7 #7 8	TPO 278; listed as part of G1, 6x mature Sycamore. Single-stemmed and vertical with a balanced crown. Overhanging the boundary. Multiple pruning wounds due to crown lifting; occasionally occluding slowly yet no significant defects.	No action required. n/a	GOOD	GOOD	HIGH	MOD	40+	1 B 2
T 8	Early mature Sycamore <i>Acer pseudoplatanus</i>	15	6	7 W	69	#6 7 #6 7	TPO 278; listed as part of G1, 6x mature Sycamore. Single-stemmed and vertical with a slightly unbalanced crown. Overhanging the boundary. Multiple pruning wounds due to crown lifting.	No action required. n/a	GOOD	GOOD	HIGH	MOD	40+	1 B 2
T 9	Early mature Sycamore <i>Acer pseudoplatanus</i>	15	2	2 W	52	6 7 #7 7	TPO 278; listed as part of G1, 6x mature Sycamore. Inspection was limited due to young Holly at the base and Ivy on the stem. Single stemmed becoming twin-stemmed at 3m with a slightly unbalanced crown due to competition. the canopy displays good vigour and overhangs the boundary.	Sever Ivy at ground level and 1m. Re-inspect when the Ivy is desiccated. Low	GOOD	FAIR	HIGH	MOD	40+	B 2

Tree Ref.	Age Common Name Botanical Name	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations Priority	Physiological Condition	Structural Condition	Amenity Value	NHBC Water Demand	Life Expectancy (yrs)	Retention Category
T 10	Semi mature Sycamore <i>Acer pseudoplatanus</i>	8	3	3 S	4 x Av. 15	3.5 4 3 3.5	Not on the topographical survey. Four stemmed from ground level with a slightly unbalanced crown. A self-seeded specimen.	No action required. n/a	GOOD	GOOD	LOW	MOD	40+	C 2
T 11	Mature Wych Elm <i>Ulmus glabra</i>	23 to 25	6	6.5 S	#100	10.5 10 10.5 10	TPO 278; T2 Elm. An excellent specimen. Limited stem inspection due to its location amongst dense shrubs. Single-stemmed and vertical with a balanced crown. A hazard beam was observed at 9m (north side). Exposed surface roots observed (north side).	Remove the damaged limb in line with BS: 3998. Moderate	GOOD	GOOD	HIGH	HIGH	40+	1 A 2 3
T 12	Early mature Common Lime <i>Tilia x europaea</i>	18	6.5	6.5 N	70	7 5 6.5 7	Single stemmed becoming twin-stemmed at 4m with an asymmetric crown due to suppression. Ivy establishing the stem. Acceptable condition at present.	No action required. n/a	GOOD	GOOD	MOD	MOD	40+	B 2
T 13	Early mature Beech <i>Fagus sylvatica</i>	16	6	6 E	54	7 5.5 6.5 6	TPO 278; T3 Beech. Limited inspection due to Ivy on the stem and into the crown. Single-stemmed and vertical with a slightly unbalanced crown; displaying good vigour. Part of a linear group running south. Surface roots visible.	Sever Ivy at ground level and 1m. Re-inspect when the Ivy is desiccated. Low	GOOD	GOOD	MOD	MOD	40+	1 B 2
T 14	Early mature Sycamore <i>Acer pseudoplatanus</i>	15	4	4 W	46	#7 7 #6 2	Potentially covered by TPO 278; part of G1, 6x mature Sycamore. Single-stemmed and vertical with an unbalanced crown due to suppression. Overhanging the boundary; minor deadwood observed. A buttress root wound with the onset of internal decay noted (west side). Not considered worthy of protection under the description of the order listed as G1. Acceptable condition at present.	Re-inspect biennially. Moderate	GOOD	GOOD	MOD	MOD	20+	B 2
T 15	Early mature Sycamore <i>Acer pseudoplatanus</i>	11	4	4 W	27	3 6 #5 1	Potentially covered by TPO 278; part of G1, 6x mature Sycamore. Single-stemmed and vertical with an unbalanced crown due to suppression from a recently removed large tree to the south. Poor form overall. The canopy has deadwood throughout and overhangs the boundary. Damage to lower stem noted. Not considered worthy of protection under description of order listed as G1.	Remove then deadwood and rebalance the remaining crown in line with BS:3998. Moderate	FAIR	FAIR	LOW	MOD	20+	C 2
T 16	Early mature Sycamore <i>Acer pseudoplatanus</i>	16	4	3.5 E	36	5 5.5 5.5 6	Part of a linear group; limited inspection due to Ivy to the stem. Single-stemmed and vertical with a slightly unbalanced crown. No major visible defects.	No action required. <i>Access facilitation pruning required.</i> n/a	GOOD	GOOD	MOD	MOD	40+	B 2
T 17	Semi mature Rowan <i>Sorbus aucuparia</i>	7	3	3 S	11 14	1 2 #2 3.5	Not shown on the topographical survey; considered to be self-seeded. Twin-stemmed from ground level with an unbalanced crown due to past suppression from a recently removed large tree to the north. Occasional pruning wounds due to crown lifting (west side).	No action required <i>Access facilitation pruning required.</i> n/a	GOOD	FAIR	LOW	MOD	20+	C 2

Tree Ref.	Age Common Name Botanical Name	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	Diameter (cm)	Crown Spread N W E S	Observations	Recommendations Priority	Physiological Condition	Structural Condition	Amenity Value	NHBC Water Demand	Life Expectancy (yrs)	Retention Category
T 18	Early mature Common Lime <i>Tilia x europaea</i>	15	4	4 E	#50	4 5 5 4	Part of a linear group; limited inspection due to Ivy to the stem. Single-stemmed and vertical with a slightly unbalanced crown. No visible defects.	No action required. <i>Access facilitation pruning required.</i> n/a	GOOD	GOOD	MOD	MOD	40+	B 2
T 19	Early mature Common Lime <i>Tilia x europaea</i>	15.5	3	3 E	#70	5 5 5	Part of linear group; limited inspection due to Ivy to stem. Single-stemmed and vertical with balanced, dense crown. Possibly historically crown reduced. No visible defects.	No action required <i>Access facilitation pruning required.</i> n/a	GOOD	GOOD	MOD	MOD	40+	B 2 3
T 20	Early mature Sycamore <i>Acer pseudoplatanus</i>	15	4	4.5 S	49	5 6 5	Part of a linear group; limited inspection due to Ivy to the stem. Single-stemmed and vertical with a balanced crown; a broken branch was noted at 4m (north east side). Several broken roots and an altered ground level observed.	Re-instate the original ground level and reinspect biennially. <i>Access facilitation pruning required.</i> High	GOOD	FAIR	MOD	MOD	20+	B 2
G 21	Semi mature Mixed species <i>Details in observations</i>	# to 11	2	2 n/a	# Av. 25	See plan	Limited stem inspection due to the steep topography; species include Rowan, Sycamore, Cherry, Goat Willow and Elder. Growing in close proximity; the crowns merge and display good vigour.	No action required. <i>Remove to facilitate development.</i> n/a	GOOD	FAIR	MOD	MOD	20+	B 2
T 22	Early mature Horse Chestnut <i>Aesculus hippocastanum</i>	13	5	5 E	# 75	6 #6 7 6.5	TPO 278; T1 Horse Chestnut. Limited stem inspection due to location. Rooting at lawn level. Single-stemmed becoming multi-stemmed at 4m with a slightly unbalanced crown; displaying good vigour. Ivy severed and removed at ground level and 1m. No major visible defects.	No action required. <i>Arboricultural supervision required when undertaking works in the RPA.</i> n/a	GOOD	GOOD	HIGH	MOD	40+	B 1
T 23	Mature Beech <i>Fagus sylvatica</i>	18	2	2 NE	#80	8 8 8	A landscape feature. Limited stem inspection due to steep topography. Single-stemmed and vertical with a dense, balanced crown displaying good vigour. No visible defects.	No action required. n/a	GOOD	GOOD	HIGH	MOD	40+	1 A 2 3
T 24	Mature Sycamore <i>Acer pseudoplatanus</i>	19	1	1 n/a	#85	8 9 9	A landscape feature. Limited stem inspection due to steep topography> Single-stemmed and vertical with a dense, balanced crown displaying good vigour. No visible defects.	No action required. n/a	GOOD	GOOD	HIGH	MOD	40+	1 B 2 3
G 25	Semi to early mature Mixed species <i>Details in observations</i>	4	0	0 n/a	# Av. 25	See plan	A linear topiary group comprising 4 variegated Holly (west) and approximately 5 Rhododendron; east. A nice feature with no major visible defects.	No action required. <i>Remove western specimens to facilitate development.</i> n/a	GOOD	GOOD	MOD	MOD	40+	B 2
H 26	Semi to early mature Mixed species <i>Details in observations</i>	3.5 to 6	0	0 n/a	# Av. 20	See plan	A boundary hedgerow (west); 3 distinct sections. South; (see plan) a native field boundary hedgerow of Hawthorn and Ash; in an acceptable condition at present. Middle portion; a well manicured Beech, garden boundary hedgerow. North; lapsed management, overgrown Beech and native saplings providing screening between the properties.	No action required. n/a	GOOD	GOOD	LOW	MOD	40+	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 must 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 in this report.
- 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 regularly.

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.
Canker	Disease damaged area of a tree, usually caused by fungus or bacteria affecting the bark.
Co-dominant stem	A stem which has grown in direct competition to the main stem and which has formed a substantial size influencing the appearance of the tree.
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 5-25% 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).
Formative pruning	The pruning of a tree to remove the potential weaknesses or irregularities which could lead to future problems. The formative pruning operation is aimed at reducing the potential for future weaknesses or problems within the tree's crown and to encourage an optimal canopy shape.
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 *Trees in relation to construction*.

Topping

Topping is a form of pruning that removes terminal growth leaving a ‘stub’ cut end. Topping causes serious health problems to a tree and poorly attached subsequent re-growth.

Appendix 5: Author Qualifications

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 Coordinator

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 Coordinator 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.

Charles Cocking. Charles joined JCA in January 2014 as an Apprentice having previously worked for the company on a part time basis during 2013. In between his roles at JCA, Charles will be studying at Askham Bryan College, York, undertaking a two year course in order to obtain a Foundation Degree in Arboriculture (FdSc Arboriculture).

Consulting Staff: Ecology

David Ryder David joined JCA as our in-house ecologist. He brings with him over 8 years experience in the field of ecological consultancy. David holds a Natural England Licence to disturb and handle bats and is currently undergoing assessment for Chartered Institute of Ecology & Environmental Management (CIEEM) membership.

Josie Collier *BSc (Hons) Ecology.* Josie joined JCA's ecology department and brings with her a degree in Ecology and Environmental Biology from the University of Leeds. Josie has gained experience from working with a local authority and is seeking to become a member of the Chartered Institute of Ecology and Environmental Management (CIEEM).

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.

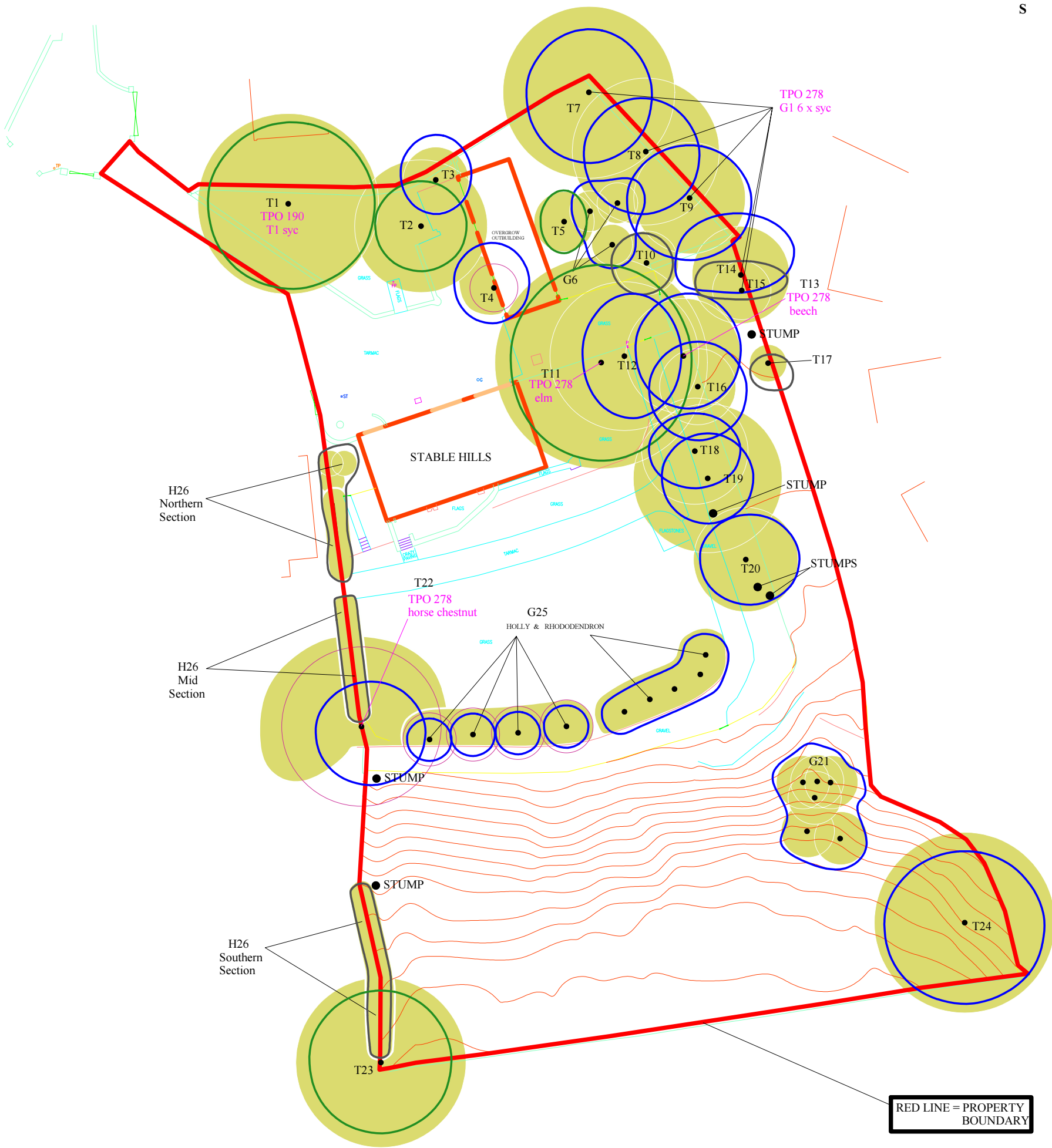
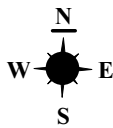
Freya Olsson *BSc (Hons) Biology and Geography (within Natural Sciences).* Freya joined the Ecology department in July 2016 following a 6 week placement in the summer of 2015. Freya studied at Durham University gaining a degree in Biology and Geography (Joint Honours within Natural Sciences). She has extensive field and analytical experience, giving her the core skills required as an ecologist.

Administrative Staff

Sue Guest Administrative Team Leader.
Simeon Haigh *BSc (Hons).* IT Officer.
Lorraine Spink Administrative Assistant.

Yasmin Shahzad Administrative Assistant.
Catherine Cocking Accounts Manager.

Appendix 6: Tree Constraints Plan



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

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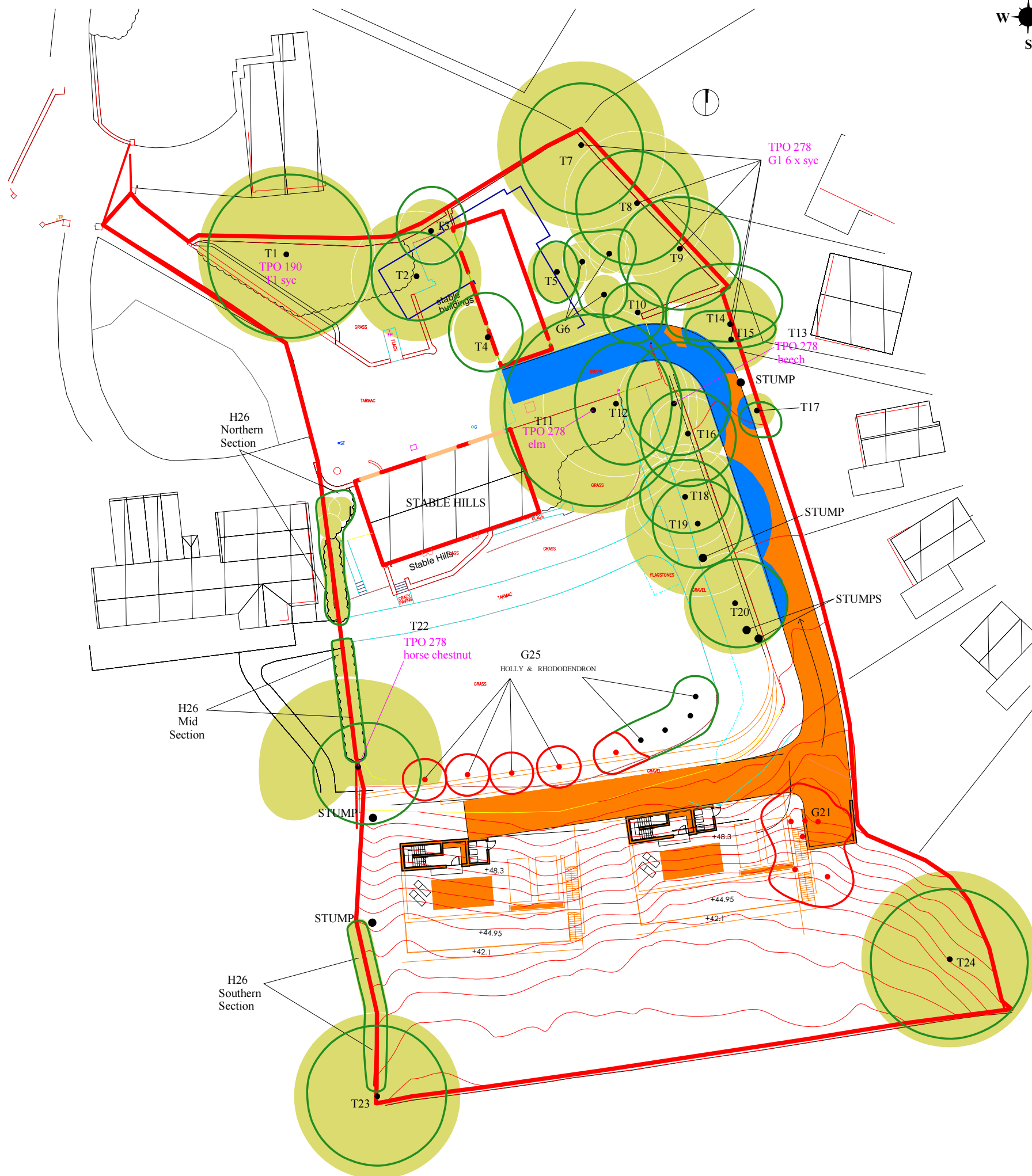
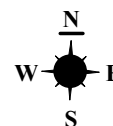
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BRITISH STANDARD 5837:2012: 4.5 RETENTION CATEGORIES

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: 'RETENTION MOST DESIRABLE'
	CATEGORY B: 'RETENTION DESIRABLE'
	CATEGORY C: 'TREE WHICH COULD BE RETAINED'
	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



Appendix 7: Arboricultural Implications Plan

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 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

 PROPOSED DEVELOPMENT

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.



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

P. Humeniuk

.....

Phil Humeniuk *FdSc (Arboriculture)*.

1st September 2017

For and on behalf of **JCA Ltd**

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- 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)

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