

**ARBORICULTURAL REPORT
AND
ARBORICULTURAL IMPACT ASSESSMENT
to BS 5837:2012
at
Old Mill Lane
Barnsley
South Yorkshire
S71 1LH**

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Transport Executive

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1. Introduction

1.1 Purpose of the Report

- 1.1.1 This report is required at **Old Mill Lane, Barnsley** to provide detailed, independent, arboricultural advice on the trees present, in the context of 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 to be 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 the development.

1.2 Terms of Reference

- 1.2.1 JCA Ltd has been instructed by **South Yorkshire Passenger Transport Executive** to survey the trees and prepare the findings in a report.
- 1.2.2 For this purpose a topographical survey has been supplied (**Drawing: 51635-Topo-3D (27-06-18)**), 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 independent and 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 All trees within the site boundary with a stem diameter above 75mm are included.
- 1.3.4 Where applicable trees outside the site boundary, but close enough to be affected by the proposed development, are included.
- 1.3.5 The specific design of the proposed development has been considered within the Arboricultural Impact Assessment in **Section 6** and is detailed on the Arboricultural Implications Plan at **Appendix 7**.

1.4 Survey Details

- 1.4.1 The survey took place during the month of February 2021 and was conducted by **Dan Kemp** *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.
- 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 Old Mill Road is a three lane main road extending from the south-west to the north-east with various outlets nearby. There is a large roundabout adjoining the south-west end of the proposed development with a B&M store sited in the centre of the roundabout and there is an Asda Superstore to the north/west side of Old Mill Road. The River Dearne extends beneath the proposed area just to the north-east of the Asda Superstore.

2.2 Topography

- 2.2.1 The site slopes gently down from the south-west to the north-east.

2.3 Treescape

- 2.3.1 There are many trees of varying age groups along the length of this section of road. In particular, Fleets Park woodland extends west at the north end and woodland areas extend along the River Dearne on both the eastern and western sides of the proposed development.
- 2.3.2 The trees on either side of the public highway 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 high amenity value.

2.5 Age Class Mix

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

2.6 Species Diversity

- 2.6.1 Species surveyed include Sycamore, Ash, Cherry, Crack Willow, Hazel, Swedish Whitebeam, Sea Buckthorn, Field Maple, Norway Maple, Black Poplar, Rowan, London Plane, Cornus, Silver Birch, Thorn and Oak. The predominant species were Sycamore.

3. Status of the Trees

- 3.1 A check was made on 19th January 2021 with ***Barnsley Metropolitan Borough Council***.
- 3.2 We are informed that there are two Tree Preservation Orders (TPO) in force on this site:
- A **Woodland TPO, Reference Number 5, Number W1** which relates to **W10** within this report and
 - A **Group TPO, Reference Number 38, Number G1** which relates to **W12** within this report.
- 3.3 Before any work is organised, an application form must be submitted to the Local Authority, outlining all the proposed works along with suitable justification. A waiting period of eight weeks is then required, after which time the council will either give consent to the works, refuse the works or grant a conditional consent.

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 **25** items of vegetation (**13** individual trees, **10** groups of trees and **2** woodlands). Of these, **22** trees/groups/woodlands were identified as retention category 'B' and **3** trees 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 have been identified for reasons of public safety, to ensure the long-term health of the trees or for general maintenance purposes. These 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 work has been recommended to prevent the development of defects/for general maintenance purposes. This is relevant to **T1**.
- The work recommended for **T1** is of **low 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 One tree, a Rowan, growing within **G14** was noted to have a physiological defect, as detailed at **Appendix 1**. Although this group of trees were considered to be in an acceptable condition at the time of the inspection, the defects observed may lead to the tree's early demise or render them unsafe in the future. As such, it is recommended that these trees be monitored (re-inspected and assessed) on an annual basis to assess if their condition is still acceptable (as advised at **Appendix 1**).
- 5.4.2 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 **G11** to **G14** and **T15** was inhibited by restricted access and the view of the two Sycamores growing within the group **G16** was inhibited by the presence of Ivy, as detailed at **Appendix 1**. For all these trees and groups of trees, it is advised that they are re-inspected for any possible defects once access has been made available and when the Ivy has been removed.

6. Arboricultural Impact Assessment (AIA)

6.1 Proposed Road Widening

- 6.1.1 The proposed road widening will consist of the widening of Old Mill Lane in order to provide a dedicated bus lane on the south-west bound side, a second lane to match the two lanes on the north-east bound side and a cycle lane.
- 6.1.2 **Drawing: CH_A61 Phase 1_VE.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.

6.2 Tree Removals for the Proposed Road Widening

- 6.2.1 There is little room for the proposed road layout without the removal of some trees.
- 6.2.2 **G7, G8, G9**, part of **W10, T15**, part of **G16** and **T23** as shown on the Arboricultural Implications Plan at **Appendix 7** and as detailed in **Appendix 1** require removal to accommodate the proposals. These include 6 category 'B' trees/groups/woodlands and 1 category 'C' tree.
- 6.2.3 The proposed scheme requires the removal of some trees identified as significant specimens (retention category 'B'). Whilst the removal of these trees will be of detriment to the arboricultural values of the site, it is recognised that the retention of trees is only one consideration in the design process. The loss of these trees must be weighed against the benefits of the proposed development in the usual manner.
- 6.2.4 The removal of trees for development can often be mitigated (either partially or entirely) by the replacement of suitable specimens within a planting scheme. Whilst not always necessary, the planting of trees can improve the aesthetic value of the surrounding area and may be conditioned in the usual manner.

6.3 Implications for Retained Trees

6.4.1 The Protective Barrier

- 6.4.1.1 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 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 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 to reduce/limit soil compaction. The ground protection must therefore distribute the weight of site vehicles, machinery or pedestrians whilst allowing moisture to reach the tree rooting area beneath. Such surfaces must be constructed in accordance with BS5837: 2012.
- 6.4.1.3 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 in blue on the Arboricultural Implications Plan at **Appendix 7** and are addressed in the following sections.

6.4.2 Demolition

- 6.4.2.1 In order to meet the needs of this proposal, the demolition of existing surfaces and retaining wall to the north and west end of the proposed route is required. Whilst the structures in question are located outside the RPA of retained trees, no demolition will commence until full protective measures (e.g. barriers and/or ground protection) are installed. This is to prevent foreseeable damage to trees, either by the demolition itself, or relating to vehicular movement over RPAs.

6.4.3 Construction/ Foundation Design.

- 6.4.3.1 Prior to construction, all protective measures required and listed in **Section 6.4.1 (The Protective Barrier)** need to be correctly installed to prevent unnecessary damage during development.
- 6.4.3.2 Advice should always be sought from a suitably qualified Structural Engineer. The water demand of trees can be an important consideration when determining the appropriate foundation design. Due of this, water demands for the trees identified on this site are included in **Appendix 1**, in accordance with **NHBC chapter 4.2**, for the use of the appointed structural expert.

6.4.4 Utilities

- 6.4.4.1 Details on service routes are not available at this time. Where utilities need to be brought onto the site, these should be routed away from the RPAs of retained trees. Where this is not possible, methodologies on the installation of underground services without damage to tree roots should be considered.
- 6.4.4.2 All service providers should be consulted prior to commencement of works with the aim of minimising the number of service runs on the site. Any foreseeable incursions to 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 retained trees.

6.4.5 Site Compound

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

6.4.6 Landscaping

- 6.4.6.1 Proposed fence lines may be constructed within the RPA of a tree if necessary, providing that appropriate considerations are taken with regards to the well-being of the tree. As such, no continual trenching is to be undertaken within the RPA (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. Fences should also be kept as far away from the main stems of the trees as is reasonably possible.
- 6.4.6.2 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.

6.4 Remedial Measures

- 6.5.1 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).
- 6.5.2 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.

7. Conclusions

- 7.1 The trees surveyed were generally found to be in a good condition.
- 7.2 Part of **W10** and the whole of **W12** are protected by two Tree Preservation Orders.
- 7.3 A post and banner attached to one tree is recommended for removal.
- 7.4 **One** tree requires an annual inspection as it has a physiological defect. This is discussed in **Section 5.4.1** and detailed at **Appendix 1**.
- 7.5 The arboricultural implications of the proposed road widening have been considered and discussed in **Section 6**.
- 7.6 **G7, G8, G9, T15, T23** and a section of **W10** as shown on the Arboricultural Implications Plan at **Appendix 7** and as detailed in **Appendix 1** require removal to accommodate the proposed road widening.
- 7.7 All the proposed works 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.
- 7.8 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 process. An **AMS** details which trees are to be removed, which trees are to be retained and any other tree works which are required to facilitate development. The **AMS** will also advise on temporary protective barriers, temporary ground protection, site supervision, location of services and it will detail specialist construction techniques.
- 7.9 In accordance with **Section 6.3** of **BS 5837: 2012**, site supervision at key stages of the development is likely to be advisable.

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	No. of Stems	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	Semi mature Swedish Whitebeam <i>Sorbus x intermedia</i>	4 #	1 to 2 #	1 to 2 # N/A	1	15 #	2 # 2 # 2 #	Vertical main stem and spreading crown. Post and banner tied to main stem of tree.	Remove post and banner. LOW	Fair	Fair	MOD	MOD	40+	B 1
T 2	Semi mature Swedish Whitebeam <i>Sorbus x intermedia</i>	4 #	1 to 2 #	1 to 2 # N/A	1	10 #	2 # 2 # 2 #	Vertical main stem and spreading crown. Growing within an area of shrubs.	No action required. N/A	Fair	Fair	MOD	MOD	40+	B 1
T 3	Semi mature Swedish Whitebeam <i>Sorbus x intermedia</i>	5 #	1 to 2 #	1 to 2 # N/A	2	15, 10 #	2.5 # 2.5 # 2.5 #	Vertical main stem and spreading crown. Two secondary stems from about 0.5 metres. Growing in shrub bed with areas of missing shrubs.	No action required. N/A	Fair	Fair	MOD	MOD	40+	B 1
T 4	Semi mature Cherry (cultivar) <i>Prunus 'Hillieri Spire'</i>	5 #	2 #	2 # N/A	1	15 #	1 # 1 # 1 #	Vertical main stem with upright crown growth.	No action required. N/A	Fair	Fair	MOD	MOD	40+	B 1
G 5	Early mature Field Maple <i>Acer campestre</i>	10 #	0 #	0 # N/A	5+	30 to 40 #	See plan	Vertical main stems with spreading crowns. Some multiple stems from low down and extensive small sized epicormic growth from low down. Trees growing on bank sloping down from highway. Group extends south/west further than that shown on plan.	No action required. N/A	Fair	Fair	MOD	MOD	40+	1 B 2
G 6	Early mature See Observations	10 to 12 #	2 #	2 # N/A	20 #	10 to 40 #	See plan	Silver Birch, Wild Cherry and Field Maple. Municipal planting across a grassed area adjacent to the highway. Vertical main stems and spreading crowns. Trees approximately three metres apart from one another.	No action required. N/A	Fair	Fair	MOD	MOD	40+	1 B 2
G 7	Early mature See Observations	10 to 12 #	2 to 3 #	2 to 3 # N/A	8 #	15 to 30 #	See plan	Four Silver Birch and three Wild Cherries at north-east end of group two of the Cherry trees look to have been topped in the past possibly as they are growing beneath two telephone lines and a single Sycamore. The Ivy growth on the main stems looks to have been severed in the past as some dead growth noted with minor new growth in places.	No action required. <i>Remove to facilitate the project.</i> N/A	Fair	Fair	MOD	MOD	40+	1 B 2
G 8	Early mature See Observations	10 to 12 #	2 to 3 #	2 to 3 # N/A	14 #	20 to 40 #	See plan	Two Field Maples, two Silver Birch, three Norway Maples, three Oaks, three Wild Cherries and one Common Ash. Vertical main stems and spreading crowns. Dead Ivy on main stems looks to have been severed.	No action required. <i>Remove an approximately 15 metre section to facilitate the project.</i> N/A	Fair	Fair	MOD	MOD	40+	1 B 2
G 9	Semi mature to Early mature See Observations	10 to 12 #	0 #	0 # N/A	N/A	To 35 #	See plan	Species noted include Hazel mainly to the front, Silver Birch. A London Plane, Cornus species, Norway Maple, one more mature specimen near the frontage of the group Field Maple.	No action required. <i>Remove an approximately 15 metre section to facilitate the project.</i> N/A	Fair	Fair	MOD	MOD	40+	1 B 2

Tree Ref.	Age Common Name Botanical Name	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	No. of Stems	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
W 10	Early mature to Mature A partially depleted woodland area. See Observations	20+ #	2 #	2 # N/A	N/A	To 60 #	See plan	Main species estimated to be within falling distance of the highway include a fairly linear group of Sycamores. These look to have self set along the high boundary wall, one significantly sized tree at the south end adjacent to the river adapting to growing against the bottom of the highway boundary/retaining wall. A few Crack Willows one of which has failed near its base at the south end and near to the river and boundary/retaining wall. Common Ash, Silver Birch were also noted to be present. Limited inspection due to 3rd party trees, trees viewed from highway.	No action required. <i>Remove an approximately 15 metre section to facilitate project</i> N/A	FAIR	FAIR	HIGH	MOD	40+	1 B 2
G 11	Early mature Sycamore <i>Acer pseudoplatanus</i>	14 to 16 #	2 #	2 # N/A	5 #	20 to 35 #	See plan	Group of trees look to be self set, growing from below the level of the highway. Street lamp on highway extending through tree crowns.	No action required. <i>Root prune under arboricultural supervision to facilitate project.</i> N/A	FAIR	FAIR	HIGH	MOD	40+	1 B 2
W 12	Young to Mature Mixed deciduous, see Observations	To 20+	0+ #	0+ # N/A	N/A	To 80 #	See plan	Sycamore and Ash look to be mainly self set. Birch, Field Maple and upright Black Poplar all growing below the highway level on land adjacent to the river. One large Sycamore growing out from the side of the river bank with its crown mainly over the river. A mesh chain link type fence extends between the group along the river. Limited inspection due to 3rd party trees, trees viewed from highway.	No action required. N/A	FAIR	FAIR	HIGH	LOW to HIGH	40+	1 B 2
G 13	Early mature Sycamore <i>Acer pseudoplatanus</i>	18+ #	2 #	2 # N/A	10 to 15 #	20 to 35 #	See plan	Group of trees look to be self set, growing from below the level of the highway. Street lamp on highway extending through tree crowns. Limited inspection due to 3rd party trees, trees viewed from highway..	No action required. N/A	FAIR	FAIR	HIGH	MOD	40+	1 B 2
G 14	Early mature to Mature Mixed deciduous, see Observations	To 15 #	2 to 3 #	2 to 3 # N/A	5 #	20 to 55 #	See plan	Three Rowans, one Sycamore and one Norway Maple growing on land below the level of the highway. All vertical stems with spreading crowns. Central Rowan with some tip dieback over the top of the crown. Limited inspection due to 3rd party trees, trees viewed from highway.	Monitor middle of three Rowan trees annually. <i>Root prune under arboricultural supervision to facilitate project.</i> Moderate	FAIR	FAIR	HIGH	MOD	40+	1 B 2
T 15	Mature Black Poplar (variety) <i>Populus nigra</i> 'Planticrensis'	20+ #	2 to 3 #	2 to 3 # N/A	1	80 #	3 # 3 # 3 #	Vertical main stem with several large epicormic growths at least one up to about 30cms diameter from basal area. Upright crown form. Tree growing below level of the highway. Limited inspection due to 3rd party trees, trees viewed from highway.	No action required. <i>Remove to facilitate project.</i> N/A	GOOD	GOOD	HIGH	HIGH	40+	B 1
G 16	Early mature to Over mature Mixed deciduous, see Observations	7 to 10 #	1 to 2 #	1 to 2 # N/A	10 to 15 #	20 to 30 #	See plan	Fairly linear group of about ten mature to over mature See Buckthorns, some extensive decay in one or two of the main stems to the extent to which they have collapsed onto the low boundary/retaining wall behind and a single small diameter branch has broken. Other species look to have their main stems resting on the top of the wall. Some pruning wounds noted. Two Early mature Sycamores at the south-east end of the group with dense Ivy growth limiting a detailed inspection.	Clear Ivy from both Sycamores and reinspect both trees. <i>Remove approximately a 5 x 5 metre section at the north end of the group to facilitate the project.</i> Moderate	FAIR	FAIR	MOD	MOD	40+	1 B 2
T 17	Early mature Norway Maple <i>Acer platanoides</i>	13 #	2 #	2 # E	1	50 #	5.5 # 5.5 # 5.5 #	Vertical main stem and spreading crown. Some small pruning wounds, tree looks to have been crown lifted/cut back from the highway.	No action required. N/A	FAIR	FAIR	MOD	MOD	40+	B 1

Tree Ref.	Age Common Name Botanical Name	Height (m)	Crown Height (m)	Height (m) and Direction of the Lowest Branch	No. of Stems	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 Silver Birch <i>Betula pendula</i>	14 #	2 to 3 #	2 to 3 # N/A	1	25 to 30 #	3.5 # 3.5 # 3.5 # 3.5 #	Vertical main stem and spreading crown. Very minor deadwood, branch tips lower crown area. Crown growing in restricted space, looks to be being suppressed slightly by T17 and T19.	No action required. N/A	FAIR	FAIR	MOD	LOW	40+	B 1
T 19	Early mature Norway Maple <i>Acer platanoides</i>	13 #	2 #	2 # E	1	50 #	5.5 # 5.5 # 5.5 # 5.5 #	Vertical main stem and spreading crown. Some small pruning wounds, tree looks to have been crown lifted/cut back from the highway.	No action required. N/A	FAIR	FAIR	MOD	MOD	40+	B 1
T 20	Early mature Silver Birch <i>Betula pendula</i>	7 #	1 #	1 # N/A	1	17 #	2.5 # 2.5 # 2.5 # 2.5 #	Vertical main stem and spreading crown. No significant defects noted.	No action required. N/A	GOOD	GOOD	MOD	LOW	40+	B 1
T 21	Early mature Silver Birch <i>Betula pendula</i>	7 #	1 #	1 # N/A	1	17 #	2.5 # 2.5 # 2.5 # 2.5 #	Vertical main stem and spreading crown. No significant defects noted.	No action required. N/A	GOOD	GOOD	MOD	LOW	40+	B 1
T 22	Semi mature Thorn <i>Crataegus species</i>	4 #	1 #	2 # N/A	1	10 #	1.5 # 1.5 # 1.5 # 1.5 #	Vertical main stem and spreading crown. Tree growing in area of shrubs. No significant defects noted.	No action required. N/A	GOOD	GOOD	LOW	HIGH	40+	C 1
T 23	Semi mature Sycamore <i>Acer pseudoplatanus</i>	6 #	1 to 2 #	1 to 2 # N/A	2	15 x2 #	2.5 # 2.5 # 2.5 # 2.5 #	Possibly two trees emerging from an area of shrubs. Two vertical stems with companion crown area. Bird nest in tree.	No action required. <i>Remove to facilitate the project.</i> N/A	FAIR	FAIR	LOW	MOD	40+	C 1
T 24	Early mature Silver Birch <i>Betula pendula</i>	8 #	1 #	1 # N/A	2	25, 20 #	3 # 3 # 3 # 3 #	Vertical main stem and spreading crown. Main stem divides into two secondary stems at 1 to 2 metres.	No action required. N/A	FAIR	FAIR	MOD	LOW	40+	B 1
T 25	Semi mature Common Ash, Field Maple <i>Fraxinus excelsior, Acer campestre</i>	6 #	2 #	2 # N/A	2	10 x2 #	2.5 # 2.5 # 2.5 # 2.5 #	Two vertical main stems. Two trees with merging crowns become companions. Growing in shrub bed.	No action required. N/A	FAIR	FAIR	LOW	MOD	40+	C 1 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 Tree Constraints 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 Tree Constraints 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 Tree Constraints 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 Tree Constraints 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 are to be removed or managed in a way which reduces their risk of failure, 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 5-15% 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.
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 causes 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), MArborA.* 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

Andrew Bussey. Andrew started working in consultancy at JCA in 2006 having spent 12 years working as an arborist for various private companies before joining a Local Authority forestry team. He has various NPTC qualifications, is QTRA qualified and is a LANTRA Accredited Professional Tree Inspector.

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), MArborA.* 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.

Robert Hickey *FdSc (Arboriculture), TechArborA.* Robert joined JCA in January 2019 having obtained his foundation degree in Arboriculture at the University of Central Lancashire. He has various NPTC's qualifications and has previously worked for several Arboricultural contractors.

Dan Kemp *FdSc (Arboriculture).* Dan joined JCA with nearly 30 years' experience in arboriculture. He worked as a London Tree Officer for 12 years and in several arboricultural and horticultural management posts, specialising particularly in tree risk assessments and tree related subsidence.

Ryan Bateman *BSc (Hons), FdSc (Arboriculture), TechArborA.* Ryan joined JCA in 2020 after working as a Lecturer on the Foundation Degree in Arboriculture at Askham Bryan College in York. Ryan has both practical skills, NPTC qualifications and theoretical knowledge and owned his own contracting business prior to, and whilst working as a lecturer.

Consulting Staff: Ecology

Amanda Beck, Ecological Officer *Cert/He in Field Ecology, Diploma Field and Conservation Ecology, CIEEM member.* Amanda joined JCA's ecology department in 2018, previously working as a freelance Ecological Consultant in North Wales and as a trainee Ecologist in South Wales. She has a background surveying for botanical, amphibians, birds, terrestrial and marine mammals along with small mammal trapping and invertebrate research work on SSSI sites. She has practical experience in habitat management and creation while working as a volunteer for North Wales Wildlife Trust and currently volunteers with Yorkshire Wildlife Trust. She is a member of the Butterfly Conservation Trust, Bat Conservation Trust, Clwyd Bat Group and the British Hedgehog Preservation Society. Amanda is DBS checked and holds a Natural England level 1 bat licence.

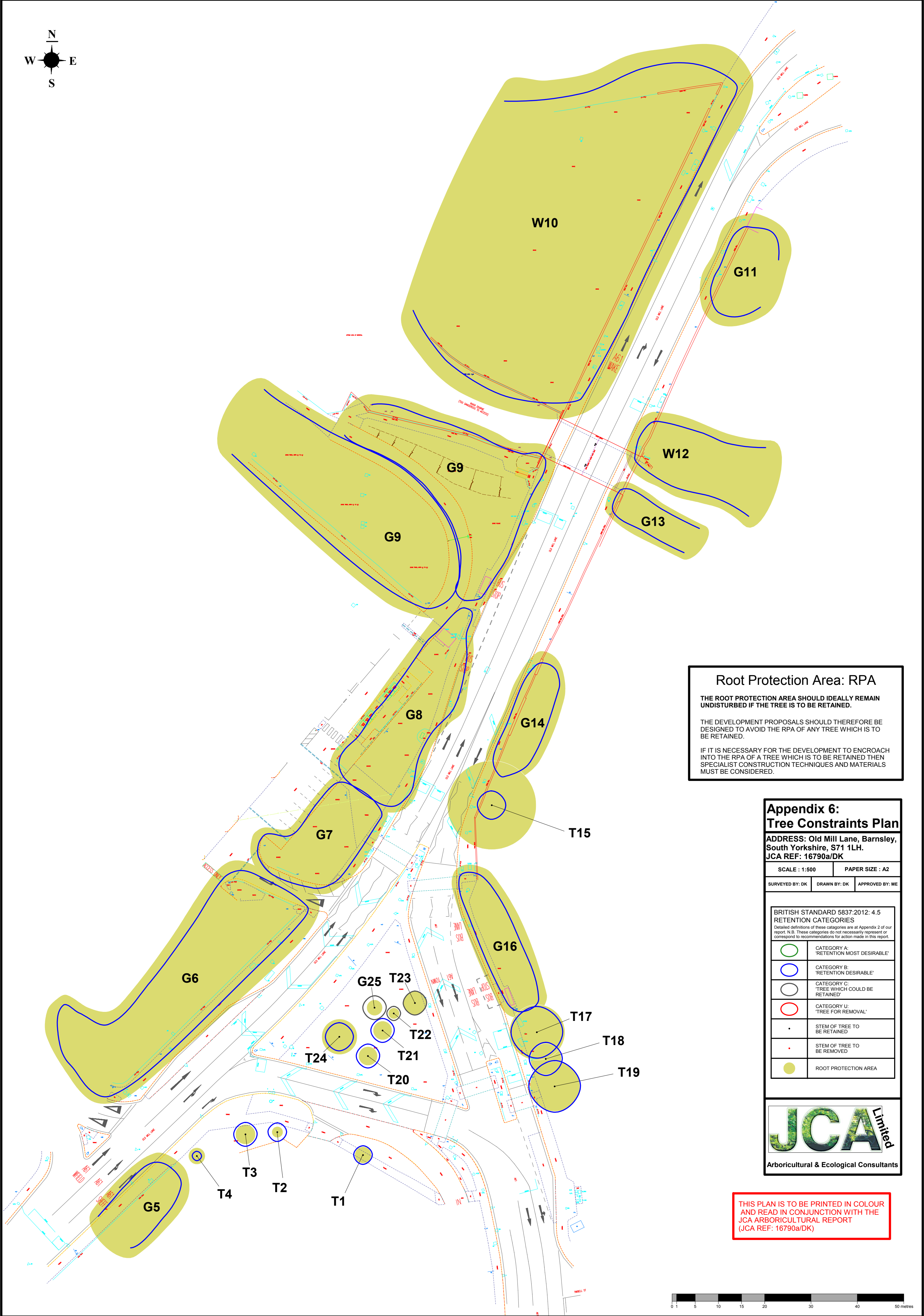
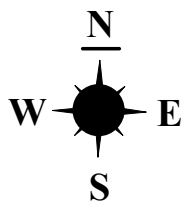
Joe Earnshaw, Graduate Ecologist *BSc (Hons), MSc Biodiversity and Conservation, Qualifying CIEEM Member.* Joe joined the ecology department of JCA in 2018 after taking part in JCA's student training programme. He initially obtained a bachelor degree in Animal Management from Askham Bryan College, York. He has since furthered his education and brings to the company an MSc in Biodiversity and Conservation from the University of Leeds. Joe has expertise in aquatic invasive species identification and control.

Administrative Staff

Simeon Haigh *BSc (Hons).* IT Director.
Lorraine Spink Administrative Assistant.
Hampson Marketing Manager.

Catherine Cocking Accounts Manager.
Kelly Saunders Accounts Assistant.
Lisa

Appendix 6: Tree Constraints Plan



Root Protection Area: RPA

THE ROOT PROTECTION AREA SHOULD IDEALLY REMAIN UNDISTURBED IF THE 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: Old Mill Lane, Barnsley,
South Yorkshire, S71 1LH.
JCA REF: 16790a/DK

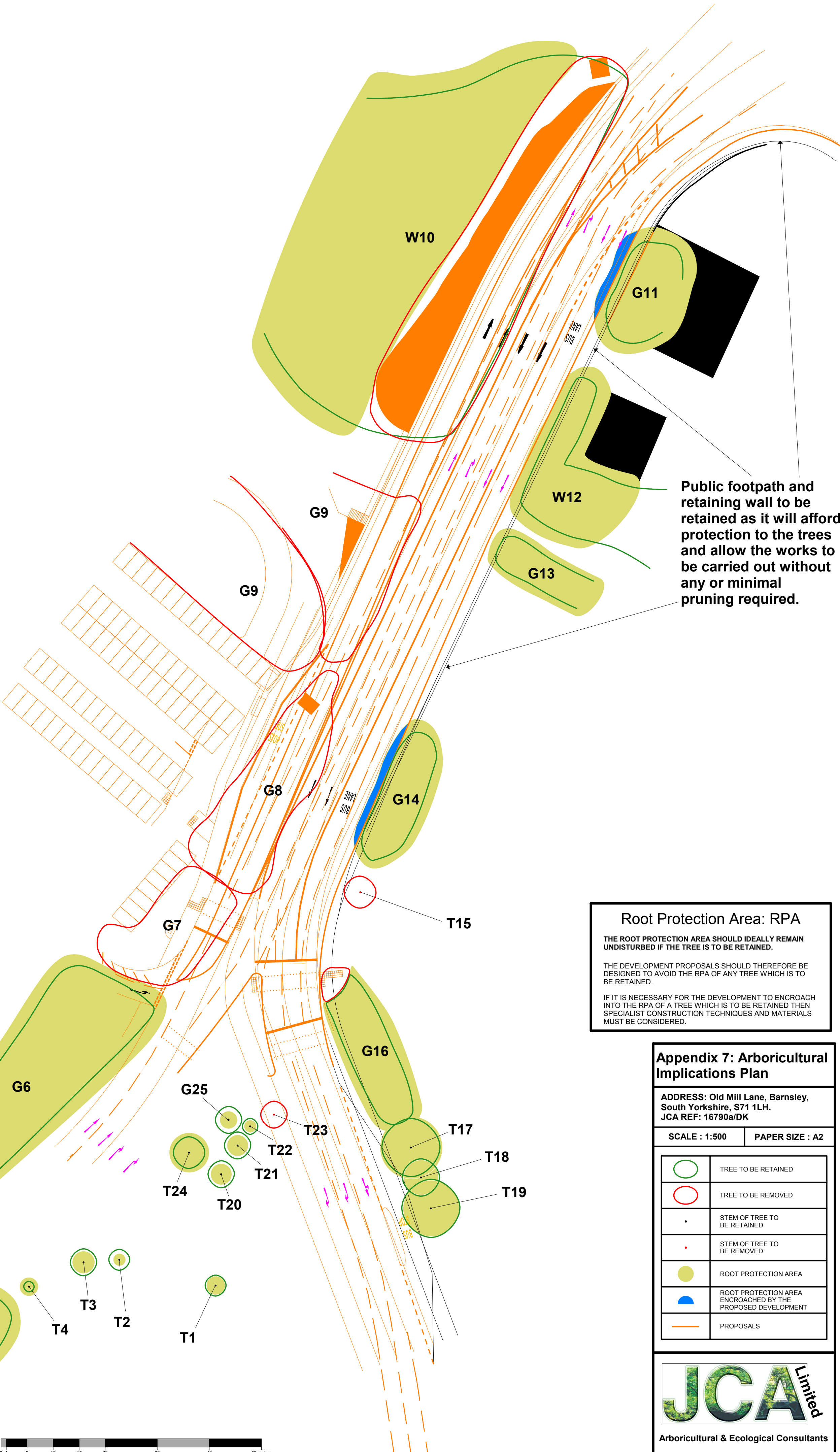
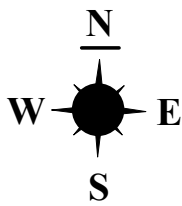
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SURVEYED BY: DK	DRAWN BY: DK		APPROVED BY: ME

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



THIS PLAN IS TO BE PRINTED IN COLOUR
AND READ IN CONJUNCTION WITH THE
JCA ARBORICULTURAL REPORT
(JCA REF: 16790a/DK)

Appendix 7: Arboricultural Implications Plan



Root Protection Area: RPA

THE ROOT PROTECTION AREA SHOULD IDEALLY REMAIN UNDISTURBED IF THE 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 7: Arboricultural Implications Plan

ADDRESS: Old Mill Lane, Barnsley, South Yorkshire, S71 1LH.
JCA REF: 16790a/DK

SCALE : 1:500 PAPER SIZE : A2

	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
	PROPOSALS



Arboricultural & Ecological Consultants

THIS PLAN IS TO BE PRINTED IN COLOUR AND READ IN CONJUNCTION WITH THE JCA ARBORICULTURAL REPORT (JCA REF: 16790a/DK)



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



Daniel Kemp (FdSc Arboriculture)

26th February 2021

For and on behalf of **JCA Ltd**

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- Tree Root Identification

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- Subsidence Litigation
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Veteran Tree Management

- Ancient Woodland Management
- Veteran Tree Management

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- 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)

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