Arboricultural Impact Assessment

BE1082.1a

88 Wakefield Road, Barnsley, South Yorkshire S71 1NF

Bagshaw Ecology Ltd
Unit 1 Town Hall
St George's Street, Hebden Bridge
West Yorkshire HX7 7BY
Registered in England and Wales number 9211547
Telephone: 01422 417310
Email: info@bagshawecology.co.uk
Website: www.bagshawecology.co.uk

Report title	Arboricultural Impact Assessment
Report reference	BE1082.1
Revision	a
Site address	88 Wakefield Road, Barnsley, South Yorkshire S71 1NF
Grid reference	SE 35033 07871
Report compiled by	Jack Delaney Ba (Hons) FdSc TechArborA
Report reviewed by	David Watts BSc (Hons) FdSc MArborA MICFor
Client	Laurence Murray (SRA Architects)
Date	5th August 2019

CONTENTS

TABLES AND FIGURES

Executive Summary

Bagshaw Ecology Ltd have been instructed by Laurence Murray on behalf of SRA Architects to undertake an Arboricultural Impact Assessment of the land 88 Wakefield Road, Barnsley, South Yorkshire S71 1NF in relation to an application for planning.

The development proposals are to demolish the several existing and unused buildings at the site, and subsequently construct a new commercial car sales building, with surrounding car parking and storage facilities.

The site survey identified a total of four trees and four groups of trees with the potential to be affected by the development proposals. The trees on the site include four Category C trees and four groups of low-quality.

There were no Category A trees of high-quality, Category B trees of moderate quality, or Category U trees which were considered unsuitable for retention identified at the site.

According to the website of Barnsley Metropolitan Borough Council (2019), none of the trees on the site are afforded protection by Tree Protection Orders (TPOs), nor are they located within the boundaries of a Conservation Area.

In order to make the development proposals feasible, four Category C trees and four Category C groups will necessitate removal from the site.

Six trees should be included within a post-development mitigation planting scheme that should seek to improve the amenity value and diversify species structure at the site.

1. Introduction

1.1. Background

Bagshaw Ecology Ltd have been instructed by Laurence Murray on behalf of SRA Architects to undertake an Arboricultural Impact Assessment of the land 88 Wakefield Road, Barnsley, South Yorkshire S71 1NF in relation to an application for planning.

The purpose of the report is to:

- Assess the quality of the trees on and immediately adjacent to the site, in accordance with BS5837: 2012 – Trees in Relation to Design, Demolition and Construction: Recommendations (hereafter referred to as BS5837: 2012).
- Identify trees suitable for retention and for removal due to the proposed development.
- Prescribe tree protection measures to ensure that retained trees survive the proposed development and thrive after its completion.
- Prescribe arboricultural recommendations for the long-term management of trees on the site.
- To assess the site for its suitability for mitigation planting, and to specify planting requirements.

1.2. Site Details

The site is located at OS grid reference SE 35033 07871 and is accessed west off Wakefield Road. The site is bound by Wakefield Road to the east, Leak Hall Road to the east, the River Dearne to the west, and by commercial units to the north and south.

The site is approximately 0.47 ha in size, and comprises several unused former depot buildings. The site is currently used for car parking and storage.

Figure 1: Aerial imagery showing approximate boundary of the site and surrounding area (Google Earth Pro, 2019)

1.3. Development Proposals

The development proposals are to demolish the several existing and unused buildings at the site, and subsequently construct a new commercial car sales building, with surrounding car parking and storage facilities.

2. Methods

2.1. Desk Based Study

The local council was consulted to determine if any trees on the site and immediately adjacent to the site are protected by Tree Preservation Orders (TPOs) and/or are within Conservation Areas. Cranfield (2019) was consulted as to the soil type of the surrounding area.

2.2. Site Survey

The site survey was carried out on Tuesday 9th July 2019. The weather at time of survey was clear and dry; visibility was good.

The survey was carried out by Jack Delaney. Jack Delaney has worked within the arboricultural industry for ten years, holds an FdSc in Arboriculture, and is a Technician member of the Arboricultural Association.

All trees on site were inspected from ground level, using the Visual Tree Assessment (VTA) method (Mattheck *et al*, 2015). Any notable defects of trees were recorded, although the site survey did not constitute a full tree safety assessment.

Tree heights and crown clearances were measured to the nearest 0.5m with a clinometer. Crown spreads of trees were measured on their, north, east, south and west aspects to the nearest 0.5m.

The diameter at breast height (DBH) of trees was measured to the nearest 10mm. This was used to calculate the root protection area (RPA) of trees using methods prescribed in BS5837: 2012:

- For single stem trees, the RPA was calculated as a circle with a radius 12 times the DBH.
- For trees with 2-5 stems, the RPA was calculated using the formula:

  $$\text{RPA} = \sqrt{(\textbf{Stem 1 DBH})^2 + (\textbf{ Stem 2 DBH})^2 + \dots (\textbf{Stem 5 DBH})^2}$$

- For trees with 6 or more stems, the RPA was calculated using the formula:

  $$\text{RPA} = \sqrt{(\mu \boldsymbol{DBH})^2 \textbf{ x number of stems}}$$

In accordance with BS5837: 2012, trees were classified as either A, B, C or U, using the criteria shown in Table 1. Trees are further classified by the subcategories 1, 2 and 3, depending upon whether they have mainly arboricultural qualities, landscape qualities, or cultural values. The additional subcategory does not affect the retention value of the tree, e.g. a Category A2 tree does not have a higher value than a Category A1 tree.

Table 1: BS5837 Cascade Chart (adapted from British Standards, 2012)

Category	Definition	Retention	Colour code
Category A	Trees of high quality with an estimated remaining life expectancy of at least 40 years; trees that are particularly good examples of their species, especially if rare or unusual.	Highly desirable	Light green
Category B	Trees of moderate quality with an estimated remaining life expectancy of at least 20 years; trees lacking the special quality to merit category A designation.	Desirable	Dark blue
Category C	Trees of low quality with an estimated remaining contribution of at least 10 years, or trees with a stem diameter below 150mm; unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	Feasible, but should be removed if posing a constraint to development	Grey
Category U	Trees that have serious, irremediable, structural and/or physiological defects, including those that will become unviable after removal of other category U trees.	Unfeasible	Dark red

2.3. Constraints

The survey was constrained by the season in which it took place. Some pathogens of trees, in particular fruiting bodies of decay fungi, are only visible at certain times of year.

3. Results and Assessment

3.1. Desk Based Study

According to the website of Barnsley Metropolitan Borough Council (2019), none of the trees on the site are afforded protection by Tree Protection Orders (TPOs), nor are they located within the boundaries of a Conservation Area.

Cranfield (2019) states that the surrounding area consists of slowly permeable, acid loamy and clayey soils, that are seasonally wet. No further detailed soil analysis was carried out as part of the survey.

3.2. Tree Population Assessment

The site survey identified a total of four trees and four groups of trees with the potential to be affected by the development proposals.

The trees on the site include four Category C trees and four groups of low-quality.

There were no Category A trees of high-quality, Category B trees of moderate-quality, or Category U trees which were considered unsuitable for retention identified at the site.

Table 2: Summary of Tree Categories

Category	Description	Tree/group numbers	Totals
A	Trees of high-quality which should where be possible be retained throughout any proposed development	-	-
B	Trees of moderate-quality which should where possible be retained throughout any proposed development	-	-
C	Trees of low-quality which should not be considered a constraint to development	T1, T2, T3, T4 G1, G2, G3, G4	4 Trees 4 Groups
U	Trees which should be removed for sound management reasons, regardless of proposals	-	-
		Total:	**4 Trees 4 Groups**

Tree data can be viewed in **Appendix 1: Tree Survey Schedule**. Images of trees can be viewed in **Appendix 2: Images of Trees.** Tree locations can be viewed in **Appendix 3: Tree Constraints Plan.**

Tree species on and adjacent to the site include sycamore *Acer pseudoplatanus*, rowan *Sorbus* aucuparia, wych elm *Ulmus glabra,* horse-chestnut *Aesculus hippocastanum*, common lime *Tilia* x *europaea*, Norway maple *Acer platanoides,* beech *Fagus sylvatica* and holly *Ilex aquifolium.*

4. Impact Assessment

4.1. Tree Removals

Prior to works commencing, G1, G2, G3, G4, T1, T2, T3 and T4 will necessitate removal.

All of the abovementioned trees are situated within the footprint of the proposed development, and as such retention throughout the proposed development is unfeasible.

G1, G2, G3, G4, T1, T2, T3 and T4 include only Category C trees of low-quality, and as such should not be considered a constraint to the development.

5. Recommendations

5.1. Tree Works

Prior to works commencing, G1, G2, G3, G4, T1, T2, T3 and T4 will necessitate removal.

According to the website of Barnsley Metropolitan Borough Council (2019), none of the trees on the site are afforded protection by Tree Protection Orders (TPOs), nor are they located within the boundaries of a Conservation Area.

However, as the allocation of these can be liable to change, any legal delegations affecting trees on the site should be checked and verified with Barnsley Metropolitan Borough Council prior to the commencement of works.

Killing or damaging a protected tree is a criminal offence and can result in an unlimited fine.

All tree works, including tree removals, should be carried out by a fully insured and suitably qualified arboricultural contractor who is able to comply with BS3998: 2010 – Tree Works: Recommendations.

5.2. Tree Protection

Since all of the trees on site will necessitate removal prior to the commencement of works, tree protection measures will not be necessary during construction. As such, a Tree Protection Plan and Method Statement have not been appended to this report.

5.3. Mitigation

The development proposals will necessitate the removal of four C trees and four groups of low-quality. Since these are trees of low-quality, which offer little in the way of amenity value, the removal of these is anticipated to have minimal impact upon the site and surrounding area.

That being said, tree removals should be mitigated for through a scheme of post-development tree planting at the site; six trees should be included within a post-development planting scheme, which should aim to diversify species structure at the site, with native trees often providing the greatest ecological benefits.

To ensure the best possible chances of successful establishment, trees planted should ideally be standard in size and should be planted in accordance with BS845: 2014 – Trees: from Nursery to Independence in the Landscape.

All trees should be affixed with a wooden stake, secured to the tree by a biodegradable cable tie. An organic woodchip mulch should be applied in a 1m radius around tree stems.

Suggested species include:

- Hornbeam *Carpinus betulus*
- Silver birch *Betula pendula*
- Sessile oak Quercus petraea
- Cut-leaved alder *Alnus glutinosa* ‘Laciniata’
- Rowan *Sorbus aucuparia*

6. References

British Standards (2010). BS3998: 2010 – Tree Works: Recommendations. British Standards Institute, London

British Standards (2012). BS5837: 2012 - Trees in Relation to Design, Demolition and Construction: Recommendations. British Standards Institute, London

British Standards (2014). BS8545: 2014 – Trees: from Nursery to Independence in the Landscape. British Standards Institute, London

Cranfield (2019). *Interactive Soilscapes Viewer* [online]. Available at: >www.landis.org.uk< [accessed 24th July 2019]

Google Earth Pro (2019). *Google Earth* [online]. Available at: >www.google.co.uk/earth< [accessed 24th July 2019]

Johnson, O., More, D. (2004). *Collins Tree Guide.* London: HarperCollins

Barnsley Metropolitan Borough Council (2019) *Interactive Mapping Service* [online] Available at: >www.barnsley.gov.uk< [accessed 24th July 2019]

Mattheck, C., Bethge, K., and Weber, K. (2015). *The Body Language of Trees.* The Karlsruhe Research Institute, Karlsruhe (Germany)

Appendices

Appendix 1: Survey Schedule

A plan of the tree locations can be viewed in **Appendix 2: Tree Constraints Plan**.

Key			
Species	Common name following Johnson & More (2004)	**Age**	Early mature; tree in 2/3 of estimated lifespan
Height	Measured to nearest 0.5m		Mature; tree in 3/3 of estimated lifespan
CC	Height of crown clearance, measured to nearest 0.5m		Over mature; tree that has exceeded its natural life span
Stems	Number of stems bifurcating below 1.5 metres		Veteran tree
DBH	Diameter at breast height (1.5m), in centimetres	**SULE**	Safe useful life expectancy of tree, in years
Crown spread	Measured to nearest 0.5m	**Category**	See BS5837 cascade chart (Table 1)
Age	Young sapling/newly planted tree	**#**	Denotes estimated value
	Semi-mature; tree in 1/3 of estimated lifespan		

Individual Trees

Tree No.	Species	Height	CC	Stems	DBH	Crown Spread				Age	Comments	SULE	Category
						N	E	S	W				
T1	Ash *Fraxinus excelsior*	8	2	5	10	3	3.5	3	3.5	Semi-mature	Self-seeded tree situated at base of south-west corner of building. Previously coppiced with multiple co-dominant leaders and 8m of regen growth. Limited arboricultural merit.	11-20	C1
T2	Ash *Fraxinus excelsior*	6	2	1	14	1	1	1	1	Young	Self-seeded tree of limited arboricultural merit. Mechanical damage to base of main stem.	11-20	C1

Tree No.	Species	Height	CC	Stems	DBH	Crown Spread				Age	Comments	SULE	Category
						N	E	S	W				
T3	Goat willow *Salix caprea*	9	1	1	31	4	4	5	4	Early-mature	Growing within boundary fence line. Previously topped at 4m. Branches to south significantly overhang onto site.	11-20	C1
T4	Goat willow *Salix caprea*	7	1.5	4	17 15 14 12	5	4	3.5	4.5	Early-mature	Self-seeded tree at base of adjacent building wall. Bifurcates at ground level into multiple co-dominant leaders. Limited arboricultural merit.	11-20	C1

Groups of Trees

Group No.	Species	Av. Height	Av. CC	Approx. Stems	Av. DBH	Av. Crown Spread	Av. Age	Comments	SULE	Category
G1	Goat willow *Salix caprea*, elder *Sambucus nigra*	6	1	10	20	2	Semi-mature	Linear group of low-quality trees on site boundary. Limited arboricultural merit.	11-20	C1
G2	Elder *Sambucus nigra*, ash *Fraxinus excelsior*, silver birch *Betula pendula*, goat willow *Salix caprea*	6	1	20	10	2	Young	Linear group of self-seeded trees located at foot of site boundary wall. Limited arboricultural merit.	11-20	C1
G3	Goat willow *Salix caprea*, ash *Fraxinus excelsior*, silver birch *Betula pendula*	6	0	40	10	2	Young/ semi-mature	Linear group of self-seeded trees on site boundary. Effective visual barrier though of limited arboricultural merit.	11-20	C1
G4	Rowan *Sorbus aucuparia*, ash *Fraxinus excelsior*, goat willow *Salix caprea*, elder *Sambucus nigra*	5	0	10	10	1	Young	Linear group of self-seeded trees at base of adjacent wall and building. Limited arboricultural merit.	11-20	C1

Appendix 2: Images of Trees

Plate 1: T1

Plate 2: T2

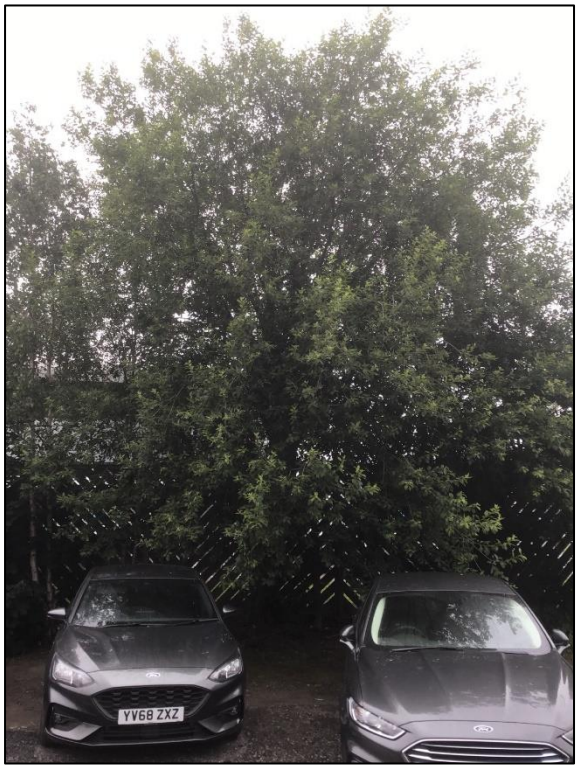


Plate 3: T3

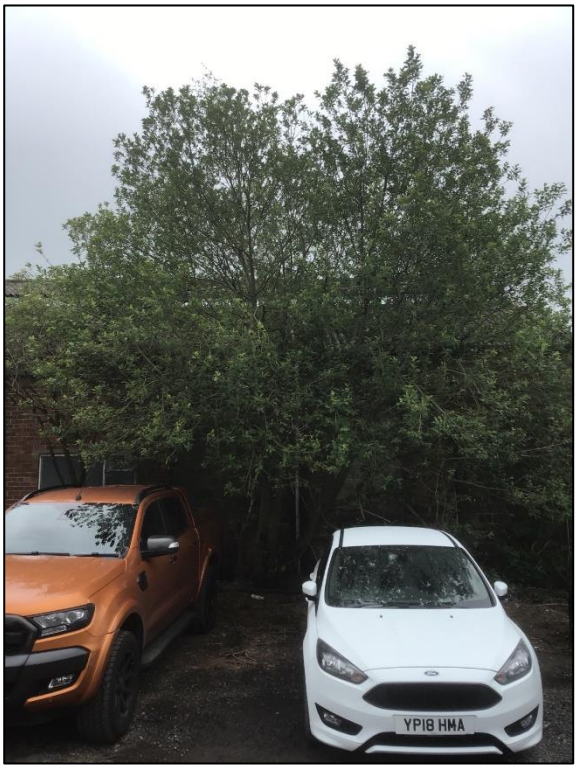


Plate 4: T4

Plate 5: G1

Plate 6: G2

Plate 7: G3

Plate 8: G4

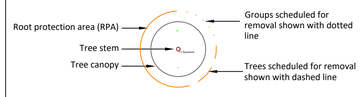
Appendix 3: Tree Constraints Plan

Project:	Wakefield Road
Drawn by:	Jack Delaney
Date:	24th July 2019
Scale:	1:200 @ A1

Do not scale off this drawing - to be reproduced in colour only

Key:

Category C trees/groups of low quality



Bagshaw Ecology