ARBORICULTURAL SURVEY
at
22 Park Avenue
Levenshulme
Manchester
Greater Manchester
M19 2EE

Client:
360 Globalnet
on behalf of Direct Line

Client Address:
Regus House
Herald Way
Pegasus Business Park
Castle Donnington
Derbysire
DE74 2TZ

Client Telephone:
0116 4781258

Insured:
Mrs Jo Shapero

Claim Number:
DLG-SN-21-002749

JCA Ref:
17089-A/AJB

Client Ref:
077624880



JCA Limited
Arboricultural & Ecological Consultants

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1. Introduction

1.1 Purpose of the Report

1.1.1 This arboricultural report is required by our client as part of an investigation into suspected clay shrinkage subsidence damage at:

22 Park Avenue, Levenshulme, Manchester, Greater Manchester, M19 2EE.

1.2 Terms of Reference

1.2.1 We are instructed by **360 Globalnet**, to visit the site and carry out an arboricultural survey covering all vegetation within likely influencing distance of the subject property. It has been requested that we only consider vegetation management options.

1.2.2 We have been supplied with details of the site investigation, which was carried out by **Drainage Repair Company**, and have included the salient points in this report. We have applied this information to our knowledge of trees and the arboricultural data we gathered on site in prescribing recommendations for current, or future action.

1.2.3 We are to prepare our findings in a detailed report, making specific recommendations as to any arboricultural management required to prevent further damage.

1.3 Scope of the Report

1.3.1 The subject property is a two-storey, detached house.

1.3.2 Damage has occurred to the rear of the building. Please see the **360 Globalnet Engineers Report** for full details of the current damage at the subject property.

1.3.3 The distance between the vegetation surveyed and the building is measured from the closest part of the property.

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2. Survey Conditions and Methods

2.1 Date of Inspection and name of Inspector

2.1.1 The site was surveyed during April 2021 by **Andrew Bussey** *LANTRA Accredited PTI*.

2.2 Data Collection Methods

2.2.1 The inspection was carried out at ground level using visual assessment of the tree canopy, stem and rooting area. No digging or drilling was carried out on this occasion.

2.2.2 The measurements were made using instruments including clinometers for tree *HEIGHT*, stem diameter tapes for *DIAMETER* (measured at 1.5m above ground level) and tape measures or electronic distometers for *CROWN SPREAD* and *DISTANCE TO PROPERTY.*

2.2.3 *AGE CLASS* and *LIFE EXPECTANCY* values are estimated based upon our knowledge of trees and the way they grow. No core sampling was carried out on this occasion.

2.2.4 The term *INFLUENCING DISTANCE* as used in this report is not derived from the NHBC's 'zones of influence' formula. It is merely an estimation of the potential of a tree or shrub to cause damage to the subject property after due consideration of many factors including soil characteristics, specimen size, vigour, species, likely water uptake and distance from the property.

2.2.5 *'NHBC WATER DEMAND'* (low, moderate or high) are categories originated by the National House Building Council. The concept was designed to be used as an aid for determining the correct foundation depths for new build situations where there are existing trees present.

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3. Ground Investigation, Soil & Root Analysis

3.1 Introduction

3.1.1 Trees influence soil conditions, and in some soil types root activity can create a soil moisture deficit (S.M.D.), which means that the amount of water being used by the tree and by natural evaporation has exceeded the amount of water falling naturally through precipitation or other means. This deficit can lead to soil shrinkage which in turn can cause a building to move, particularly if its foundations are shallow. The result is *SUBSIDENCE.*

3.1.2 The soil's *PLASTICITY INDEX, PLASTIC LIMIT, MOISTURE CONTENT* and the likely water uptake of the tree/trees in question are key factors in determining whether shrinkage has occurred.

3.1.3 On shrinkable soils, damage to buildings can also occur as a result of tree removal. In such cases, re-hydration of the soil beyond that which would ordinarily occur prior to the removal of vegetation can cause an upwards movement of the ground which is known as *HEAVE.* Trees should not, therefore, be removed without due consideration of likely effects.

3.1.4 The ground investigation and root analysis at this site have been carried out by others. Results of these investigations are briefly summarised below.

3.2 Foundations Types and Depths

3.2.1 Please refer to the site plan at **Appendix 2** for an indication of the trial pit/borehole location.

3.2.2 **Trial pit/borehole 1** revealed a brick corbel foundation at a maximum depth of 200mm below ground level.

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3.3 Soil Types

3.3.1 **Trial Pit/Borehole 1:**

- The soils *plasticity index* ranged from 19% to 20%.
- *Moisture contents* within the soil samples ranged from 17% to 19%.
- The *plastic limit* of the soils ranged from 19% to 21%.
- The *liquid limit* of the soils ranged from 38% to 41%.

These results indicate that the clay soil found within **Trial Pit/Borehole 1** is of low shrinkability and that the soil is desiccated.

3.4 Root Analysis

3.4.1 Microscopic examination of tree root anatomy generally enables the GENUS of roots recovered during the ground investigation to be established. However, it rarely identifies individuals to SPECIES level.

3.4.2 Certain species, for instance Willows and Poplars, are indistinguishable by these methods and identification can only be made at FAMILY level.

3.4.3 The diameter and the depth of the root can be an indication of its significance.

3.4.4 To establish whether the root is alive, iodine is used to test for starch which is stored in some cells of living tree roots but is broken down by micro-organisms upon the death of a root in the soil.

3.4.5 Live root samples are normally a prerequisite for establishing, on a balance of probability, which vegetation is the most likely cause of any damage noted.

3.4.6 Results of the analysis of root material recovered during the ground investigation are summarised in the table below.

Trial Pit/ B/hole	Sample Depth (m)	Family	Genus	Diam. (mm)	Starch Test
1	0.2-2	*Rosaceae*	*Prunus*	Not Specified	Not Specified

3.1.1 The root identification provided is not associated with the vegetation which has been surveyed under the remit of this report.

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4. Status of the Trees

4.1 A check was made in April 2021 with **Manchester City Council**.

4.2 We are informed that the site is within Rushford Park Conservation Area.

4.3 Before any work is organised for trees with a stem diameter of above 75mm, a 'notice of intent' must be submitted to the Local Authority, outlining all the proposed works along with a suitable justification. A waiting period of six weeks is then required, during which time the Local Authority may or may not decide to afford the trees with further protective status. If, after the required timescale has lapsed and/or the authority does not wish to allocate a Tree Preservation Order (TPO), the works may commence as planned.

4.4 ***No work must be done to trees with a stem diameter of above 75mm until the above process has been completed and the trees have not been allocated with a TPO.***

5. Tree Descriptions & Recommendations

5.1 Descriptions of the surveyed vegetation and all recommended work are detailed in the tables at **Appendix 1**.

5.2 Please refer to the site plan at **Appendix 2** for the locations of the vegetation surveyed and all the relevant site features.

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6. Conclusions

6.1 We have been informed by our client that the damage observed at the property is due to clay shrinkage caused by vegetation.

6.2 Based on this information and having made a detailed survey of the site and assuming the presence of shrinkable soil (subject to confirmation), it is likely that subsidence damage has occurred as a result of drying shrinkage caused by vegetation within influencing distance of the property.

6.3 We consider the vegetation identified as **S1, S2** and **T4** to be the primary cause of the damage observed at the subject property. We have therefore recommended that **S1, S2** and **T4** be removed and that the stumps be treated to prevent regrowth.

6.4 We consider the vegetation identified as **T3, T5, T6** and **T7** to be of possible future concern to the subject property, if left unmanaged. We have therefore recommended that **T3, T5, T6** and **T7** be maintained at their current height and spread over the forthcoming years. These works are only recommended as a precaution and are not considered a priority to resolve the damage observed at the subject property.

6.5 We have summarised all our tree specific recommendations in **Section 7** and made general recommendations in **Section 8**. The effect of these recommendations should be to prevent further damage by reducing the moisture uptake close to the problem areas.

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7. Summary of Tree Specific Recommendations

Item	Species	Recommended Action	Location	Planning Restriction
S1	**Eucalyptus**	**Remove to ground level and treat the stump to prevent regrowth.**	**20 Park Avenue**	**Conservation Area**
S2	**Eucalyptus**	**Remove to ground level and treat the stump to prevent regrowth.**	**Subject Property**	**Conservation Area**
T3	**Apple**	**Maintain at current height and spread over the forthcoming years.**	**Subject Property**	**Conservation Area**
T4	**Hawthorn**	**Remove to ground level and treat the stump to prevent regrowth.**	**Subject Property**	**Conservation Area**
T5	**Hawthorn**	**Maintain at current height and spread over the forthcoming years.**	**Subject Property**	**Conservation Area**
T6	**Silver Birch**	**Maintain at current height and spread over the forthcoming years.**	**Subject Property**	**Conservation Area**
T7	**Goat Willow**	**Maintain at current height and spread over the forthcoming years.**	**Subject Property**	**Conservation Area**

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8. General Recommendations and Observations

8.1 This report is based upon a visual inspection. JCA Limited 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.

8.2 All work recommended in this report must be carried out to BS 3998: 2010 - '*Recommendations for Tree Work'*.

8.3 All the work as specified in this report should be carried out by qualified, experienced and skilled arboricultural contractors covered by adequate *public liability and employers liability insurance.* 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.

8.4 The influence of trees on the soil and on buildings may change as they grow, as climate varies or as other changes occur in the local environment. It is therefore advisable to have trees inspected by JCA Limited annually.

8.5 The property and the damage should be monitored by the project engineer on a regular basis after the recommended tree works are complete.

8.6 If, after the works have been carried out, there is little improvement, this may mean that the situation cannot be rectified by arboricultural means alone. If this point is reached the situation must be reassessed in conjunction with other experts.

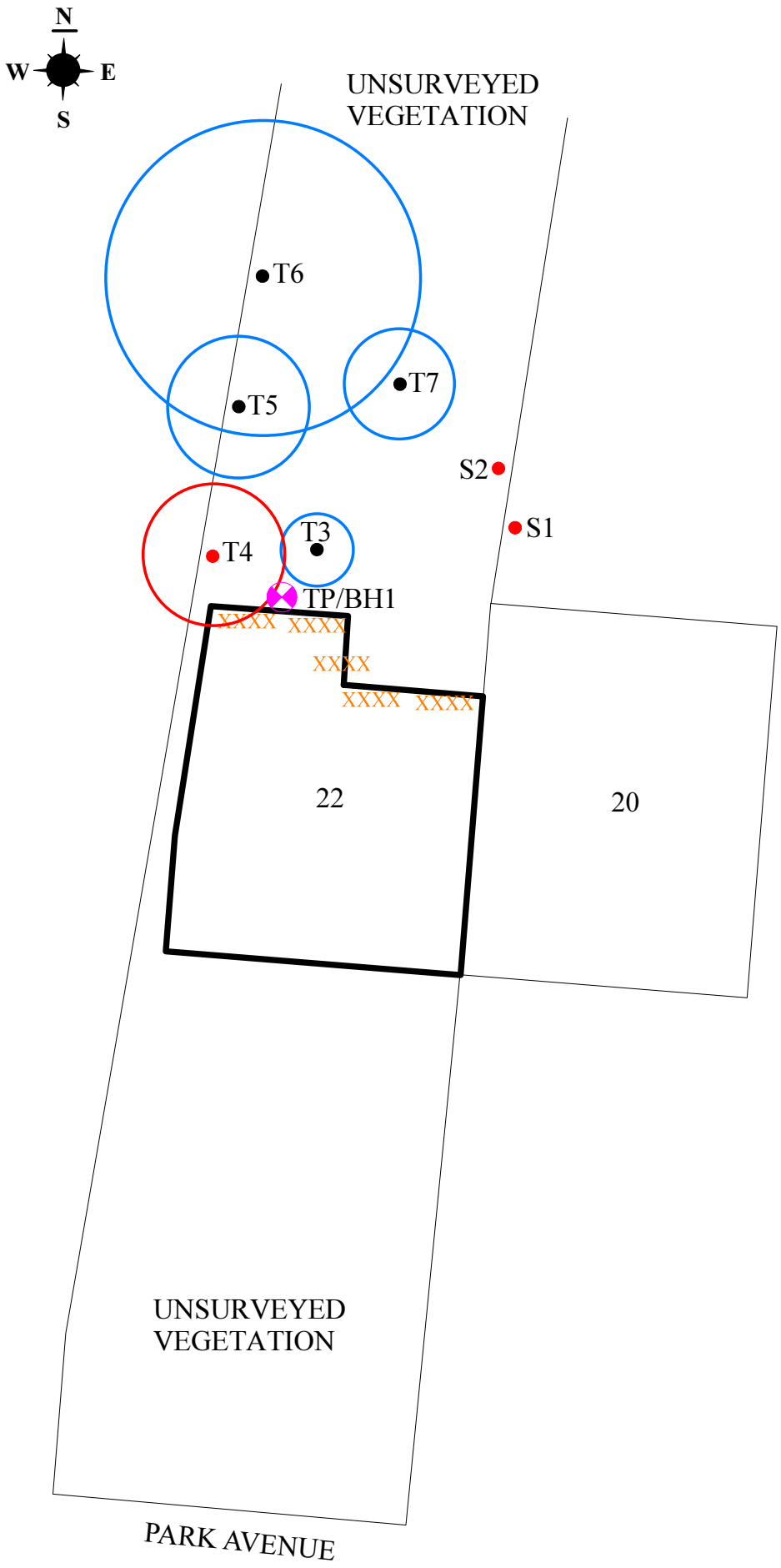
8.7 No liability can be accepted by the consultant in respect of the trees unless the recommendations of this report are carried out under their supervision and within their timescale.

8.8 That the project engineer considers the possibility of heave.

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Appendices

Tree Ref.	Age Common Name *Botanical Name*	Height (m)	Stem Diameter (cm)	Canopy Spread (m)	Owner / Occupier Observations	Condition	Distance to Property (m)	NHBC Water Demand	Life Expectancy (yrs)	Within Potential Influencing Distance	Root Identification Match	Contributing to Damage	Recommendations
S 1	Early-mature Eucalyptus *Eucalyptus gunnii*	/	40#	/	20 Park Avenue A standing stem remaining following removal of the rest of the tree.	POOR	3.4	HIGH	<10	Yes	No	Yes	Remove to ground level and treat the sump to prevent regrowth.
S 2	Early-mature Eucalyptus *Eucalyptus gunnii*	/	40	/	Policy Holder A standing stem remaining following removal of the rest of the tree.	POOR	4.5	HIGH	<10	Yes	No	Yes	Remove to ground level and treat the sump to prevent regrowth.
T 3	Semi-mature Apple *Malus sp.*	4	12, 8	2.3	Policy Holder Twin-stemmed at 1m with a balanced crown. Occasional pruning wounds.	GOOD	2.9	MOD	20+	Yes	No	No	Maintain at current height and spread over the forthcoming years.
T 4	Early-mature Hawthorn *Crataegus monogyna*	6	30#	4.5	Policy Holder Single-stemmed and vertical with a balanced crown. Ivy prevented a detailed inspection.	GOOD	2.5	HIGH	20+	Yes	No	Yes	Remove to ground level and treat the sump to prevent regrowth.
T 5	Early-mature Hawthorn *Crataegus monogyna*	7	20, 12, 12	4.5	Policy Holder Multi-stemmed at ground level with a balanced crown. Ivy prevented a detailed inspection.	GOOD	7.3	HIGH	20+	Yes	No	Potentially	Maintain at current height and spread over the forthcoming years.
T 6	Mature Silver Birch *Betula pendula*	14	48	10	Policy Holder Single-stemmed and vertical with a balanced crown.	GOOD	10.8	LOW	20+	Yes	No	No	Maintain at current height and spread over the forthcoming years.
T 7	Semi-mature Goat Willow *Salix caprea*	10	15	3.5	Policy Holder Single-stemmed and vertical with a balanced crown.	GOOD	7.8	HIGH	20+	Yes	No	No	Maintain at current height and spread over the forthcoming years.



Appendix 2: Site Plan

ADDRESS: 22 Park Avenue, Levenshulme, Manchester, Greater Manchester, M19 2EE.
JCA REF: 17089-A/AJB.

NOT TO SCALE	PAPER SIZE: A4

SURVEYED BY: AJB	DRAWN BY: AJB	APPROVED BY: LW

	CANOPY OF TREE/SHRUB/GROUP TO BE RETAINED; NO ACTION REQUIRED
	CANOPY OF TREE/SHRUB/GROUP TO BE RETAINED; CURRENT OR FUTURE MANAGEMENT REQUIRED
	CANOPY OF TREE/SHRUB/GROUP TO BE REMOVED
	STEM OF TREE/SHRUB TO BE RETAINED
	STEM OF TREE/SHRUB TO BE REMOVED
	OUTLINE OF SUBJECT PROPERTY
XXXX	APPROXIMATE LOCATION OF THE DAMAGE
	BOREHOLE/TRIAL PIT LOCATION

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Arboricultural & Forestry Consultants

Appendix 3: 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.

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.

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.

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.

Matt Large *DipArb L4 (ABC) TechArborA.* Matt is based in Northampton and assists JCA by undertaking surveys in the south of the country. He has been involved in the arboricultural sector since 1996 and obtained a Level 4 Diploma in Arboriculture in 2011. Matt is a LANTRA Accredited Professional Tree Inspector.

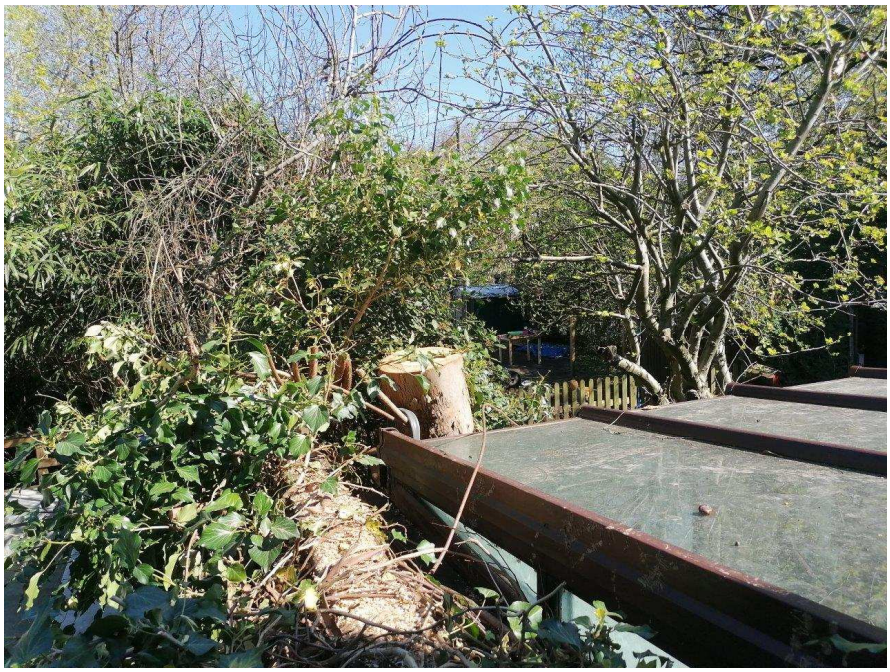
Jonnie Setterfield *BSc (Hons) MArborA. /* **Richard Daubeny** *Level 3 Arboriculture.* Jonnie and Richard are based in the south-east of the UK and assists JCA by undertaking surveys in the south of the country.

Administrative Staff

Simeon Haigh *BSc (Hons).* IT Director.
Catherine Cocking Accounts Manager.
Kelly Saunders Accounts Assistant.
Lorraine Spink Administrative Assistant.
Lisa Beedham Marketing Manager.

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Appendix 4: Photos



S1: Eucalyptus stem to be removed and treated.



S2: Eucalyptus stem to be removed and treated.

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T3: Hawthorn to be removed and treated.

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

The contents of this report are true to the best of our knowledge and belief.

Signed



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19th July 2021

Andrew Bussey *LANTRA Accredited PTI.*

For and on behalf of ***JCA Ltd***

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Professional Tree and Ecology Advice nationwide

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- Arboricultural Implication Assessments (AIA)
- Arboricultural Method Statements (AMS)

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- 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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