Connick Tree Consultants

Specialist in Arboricultural Assessment

ARBORICULTURAL REPORT
(Microdrill)

OUR REFERENCE	203781/RT
CLIENT	Paramount International Networks
SITE	17-29 Hawley Crescent, Camden, London. NW1 8TT
SURVEY & REPORT BY	Mr Richard Tilling
DATE	27th June 2024
DATE OF INSPECTION	26th June 2024
PEER REVIEWED	4th July 2024 Mark Haddock BSc (Hons) CEnv

CONNICK TREE CONSULTANTS
NEW POND FARM, WOODHATCH ROAD, REIGATE, SURREY RH2 7QH
01737 859754
www.connicktreecare.co.uk

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1 INTRODUCTION

1.1 INSTRUCTION

Connick Tree Consultants were instructed by Chloe Carpenter of Paramount International Networks to undertake decay detection upon a Weeping Willow (*Salix chrysocoma*) which is located to the rear of 17-29 Hawley Crescent, London NW1 and provide an analysis of the findings.

The principal objective of the survey was to assess the Weeping Willow (T1) due to location and stem appearance and advise on any remedial action to ameliorate any risk it could represent to people and surrounding infrastructure.

1.2 SCOPE OF REPORT

The inspection was conducted using the Visual Tree Assessment (VTA) method (Mattheck, C and Breloer, H, 1994) examining the external features of the tree to assess the best position to conduct invasive drilling. All measurements, proportions and assessments of age are approximate, except where stated.

The decay detection was undertaken using the IML RESI PD Micro Drill.

The report and recommendations relate to the condition of the tree and its surroundings at the time of inspection only.

The conclusions and recommendations in this report are only valid for one year. Any changes to the site as it stands at present will invalidate this report, e.g. building of extensions, excavation works, importing of soils, extreme weather events etc.

1.3 SUMMARY OF LEGAL OBLIGATIONS

A considerable body of case law has established that, in order to be in a position to foresee and indeed to prevent harm arising from a tree failure, it is necessary to subject the tree or trees in question to 'regular inspection,' with this inspection undertaken by someone competent both to identify any defects present and to interpret their significance for public safety.

Within the United Kingdom the landowner in which a tree stands upon has a duty in relation to the health and safety of those on or near the land. This duty is covered by both civil and criminal law and would leave the owner responsible for any liabilities arising from the falling of a tree or branch either financially or through prosecution (NTSG, 2011).

The breach of or infringement of this duty can lead to potential liabilities to pay damages within civil law under the Occupiers' Liability Act 1957 and 1984 or to the risk of prosecution within criminal law under the Health and Safety at Work etc Act 1974.

1.4 QUALIFICATIONS AND EXPERIENCE

I have based this report on my site observations and investigations, and I have come to conclusions in the light of my qualifications gained and experience obtained whilst working in the field of arboriculture. I have qualifications and practical experience in arboriculture and list the details of this in Appendix III.

1.5 LIMITATIONS AND USE OF COPYRIGHT

Trees are living organisms whose health and condition can change rapidly and all trees, even healthy ones, are at risk from unpredictable climatic and man-made events. This report and recommendations relate to the condition of the trees and their surroundings at the time of inspection only.

DISCLAIMER: I have no connection with any of the parties involved in this situation that could influence the opinions expressed in this report.

2 ARBORICULTURAL SURVEY

2.1 SITE VISIT

The subject Willow was visited on Wednesday the 26th June 2024 by Mr R Tilling and Mr J Howard of Connick Tree Care to undertake a microdrill assessment of the stem of the subject tree.

The weather at the time of inspection was clear and bright with good visibility.

2.2 SITE DESCRIPTION

The site is located off Camden High Street in the Camden Lock area of Camden, London. The tree is located to the rear of the Paramount office building adjacent to the canal lock. The rear of the site is an historic wharf area with concrete canal side, now used as an outdoor seating area for the offices.

2.3 SURVEY SUMMARY

Tree Number – T1
Species – Weeping Willow *(Salix Chrysocoma)*
Stem diameter (**cm**) at 1.5 m above ground level of 81
Height (**m**)– 13
Crown spread (**m**)– 7

3 DECAY DETECTION

Decay in trees can be a concern in relation to human safety and damage to property. Significant decay within certain wood types can eventually weaken stems, branches or roots enough to increase the chance of mechanical failure. Decay is a natural process and commonly occurs in trees without causing structural weakness. It is therefore inappropriate to regard a tree as hazardous merely because decay has been identified.

It is important to be able to evaluate a tree to determine the extent of the decay so that informed management decisions can be made. This will ensure that hazardous trees are identified correctly, and relatively safe trees are not removed or inappropriately pruned.

The decay detection within the Weeping Willow was undertaken in response to a request to investigate the tree by Paramount staff. The Willow was micro drilled from ground level. The location of the drillings are identified in table 1 below:

Table 1: Identifying drill locations and heights

Tree Number	Stem drilling location	Stem Feature	Stem drilling height above ground level
T1	Trace 1 Northeast	stem	1.8m
	Trace 2 East	stem	1.8 m
	Trace 3 South	stem	1.8 m
	Trace 4 West	Low resonance stem	1.8 m
	Trace 5 South	Lower stem test	1 m

The results of the decay detection using the IML RESI PD Micro Drill are included within Appendix I and their findings are summarised below.

3.1 MICRODRILL

The IML RESI PD Micro Drill is a specialist instrument designed for accurate measurement of the resistance given by wood to drilling. Resistance to drilling by wood is not a complete measure of wood strength, but resistance is usually significantly reduced if wood is decayed.

This device is used to excavate a narrow penetration track with a fine drill bit where decay is suspected. The resistance of the wood to the drill bit is indicated by an electronic read out on. This graph can be used to visualise any internal decay.

The Microdrill drill bit causes minimal damage as it is of very small diameter which leaves a narrow penetration track.

3.2 INTERPRETATION OF RESULTS

The Microdrill tests were undertaken into the stem above ground level at 90 degrees to the trunk to provide us with an assessment of the structural integrity of the internal wood through the trees stem.

There can be a slow increase in resistance in the first few centimetres of the reading, even in healthy trees. This is as the needle penetrates through the softer sapwood and hits the older ripe wood. There may be a slight spike in trace result at the very start depending how resistant the bark of the tree is.

Weeping Willow (T1)

Trace 1 indicates a normal pattern of resistance from the beginning to the end of the test. The drop between 2 and 4 cm coming from the transition through bark to sapwood.

Trace 2 indicates a normal pattern of resistance from the beginning of the test.

Trace 3 indicates a normal pattern of resistance from the beginning to the end of the test. The drop between 2 and 4 cm coming from the transition through bark to sapwood. A possible area of decay was encountered towards the end of the test where the increase in resistance is followed by a drop in amplitude.

Trace 4 indicates a lower resistance and low wave amplitude from dysfunctional wood with an increase in resistance through the ripe wood. The increase in resistance at 21 cm is followed by a resistance spike which retracted the needle automatically.

Trace 5 indicates normal resistance pattern throughout the trace. This drilling was undertaken at a lower stem level where no defects were thought to exist.

The microdrill trace results indicate an area of dysfunctional sapwood located on the western stem below the crown break which is the location that low resonance was heard during the sounding with a nylon mallet. The decay is restricted in depth to the sapwood.

The Microdrill trace readings are attached as Appendix I of this report.

4 DISCUSSION

The subject Weeping Willow is a mature specimen growing to the rear of 17-29 Hawley Crescent bordering the historic canal lock and weir. **Images 1 and 2** show the restricted nature of the rooting area. There was evidence of smaller diameter fibrous root bundles extending along the wharf edge into the water and roots visible in the canal up to 11 metres away by the weir.

Anecdotally, there is photograph evidence of a young willow at the current location. The picture being taken from the adjacent bridge circa 1970 (Image not viewed). This ties in with **Image 3,** which shows an aerial photograph of the site taken between 1944 and 1950 (OS 1:1,250 air photos, 1944-190 National Library of Scotland geo referenced maps). There is no sign of a tree in the image and the nature of the site and canal use would preclude the area being used for anything but that related to the works.

Image 4 shows the OS 1:1,250, 1944-190 National Library of Scotland geo referenced map with an overlay from google maps. The image highlights that the wharf area, now being used as outdoor seating for the offices is an original feature with modern surface layer. It is likely that the area is a poor rooting environment for the subject willow. **(Image 5)**

The Willows' dimensions and anecdotal records would lead to an estimated age of the tree of 50 years old.
The tree has grown in a restricted site and has occluded a section of angle iron likely to be an original boundary fence support. **(Image 6)** The lower stem has a helical twist which goes from the lower southwest stem around to the northwest at approximately 3 metres, the section of low resonance stem is adjacent to the helical feature and directly below a decayed branch stub. **(Image 7)**

The low resonance section of stem is 1.7 metres above ground level on the northwest side of the stem, measuring 400 mm wide by 700 mm in height. The stem section was found to be dysfunctional and partially decayed at this location. The end branch stub above this area may be related to the feature.

The surrounding paved area has numerous displaced slabs which pose a trip hazard, **Images 8, 9 and 10.** A slab was lifted to confirm root displacement. Roots are displacing the paving to a distance of 12 metres from the stem. The root depth is shallow due to the wharf construction and restricted depth of the rooting environment.

There is little that can be done with the roots if the tree is to remain. It may be prudent to look into raising the ground level to the rear of the building by means of a raised composite deck. This would have a minimal impact on the willow roots if constructed above current paving levels.

The historic exposed brickwork adjacent to the Willow has cracks around 10 metres from ground level and adjacent to the tree. **(Images 11 and 12)** The cracks should be investigated by a structural engineer. A desktop study of water demand relating to trees on clay soils should be read with caution as there is little documented data that reflect the site conditions.

The stem divides into the crown structure from 2.6 metres above ground level into the two main structural limbs, north and north west.
The crown is healthy, asymmetrical with extended weeping growth to the north and west over the canal. The crown shows evidence of historic crown reduction pruning with 4-5 metres of regrowth which appears healthy with abundant leaf. **(Images 13 and 14).**
There is deadwood in the lower crown, but overall, the crown has good leaf coverage of a healthy colour.

The microdrill trace results indicate an area of dysfunctional sapwood to the west stem, there is no evidence of fungal fruiting bodies and the decay is restricted to a minimal depth of localised sapwood.

The remaining stem was found to be sound. The crown has been historically managed with a re-grown natural appearance. The tree lies in a semi-sheltered location. **Images 15-18** below show the location of the drillings.

The survey results have been assessed with regards to the decay pattern. It is believed that the tree is unlikely to fail as a whole though remedial pruning is recommended to manage the crown size and characteristics of a weeping willow.

Image 1

Image 2

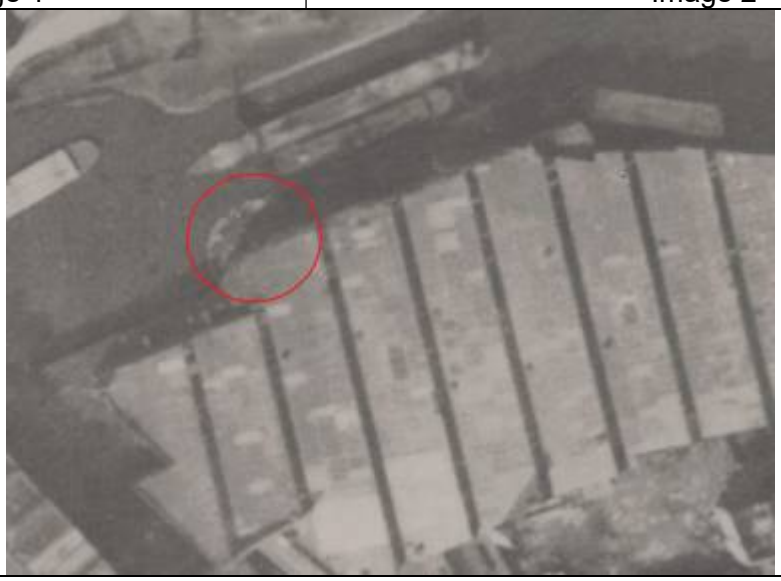


Image 3

Image 4

Image 5

Image 6

Image 7

Image 8

Image 9

Image 10

Image 11

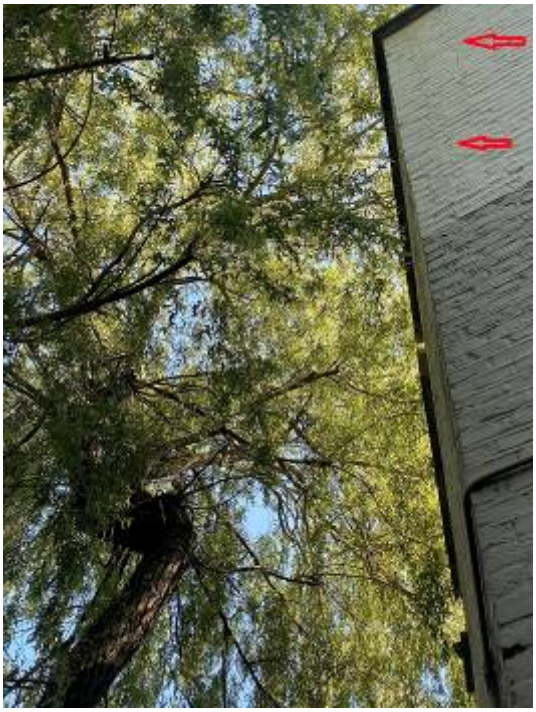


Image 12

Image 13

Image 14

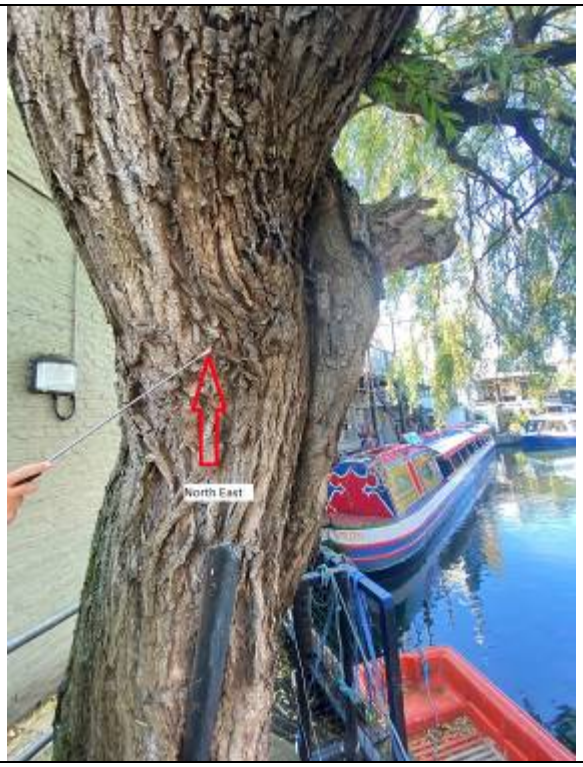


Image 15 Drill location

Image 16 Drill location

Image 17 Drill location

Image 18 Drill location

5 CONCLUSION / RECOMMENDATIONS

On completion of the Micro drilling, it believed that the tree stem is in a Good physiological condition and Fair/Good structural condition and that the crown is in a Good physiological condition and a Fair/Good structural condition.

It is recommended that the crown of the Weeping Willow is pollarded to the historic pollard/reduction points at 8 metres above ground level.

This recommendation should be repeated in a further 4-8 years from the date of initial pruning. The work is recommended to maintain the crown in proportion to the surrounding infrastructure and prevent excessive wind loading of the branch structure.

Further investigations into the structural condition of the building should be undertaken by a structural engineer.

The tree should be visually re-inspected within 4 years of the date of this report. Further micro drilling or Picus Tomography assessments may be recommended following the re-inspection. If fungal fruiting bodies or changes in the trees structural of physiological condition are seen before the next scheduled assessment, this information should be passed to Connick Tree Care for further investigation and recommendations.

6 TREES SUBJECT TO STATUTORY CONTROLS

Before undertaking any work to any of the trees, statutory controls should be checked. If Tree Preservation Orders (TPO's) cover any of the trees, and / or if the site is in a Conservation Area, then no works can be undertaken without the relevant statutory processes being followed.

7 REFERENCES and BIBLIOGRAPHY

Anon, British Standard BS 3998 (2010), “Recommendations for Tree Work”, British Standards Institute. London.

DOE, “Tree Preservation Orders - A guide to the law and good practice,” Department of Environment, 1994.

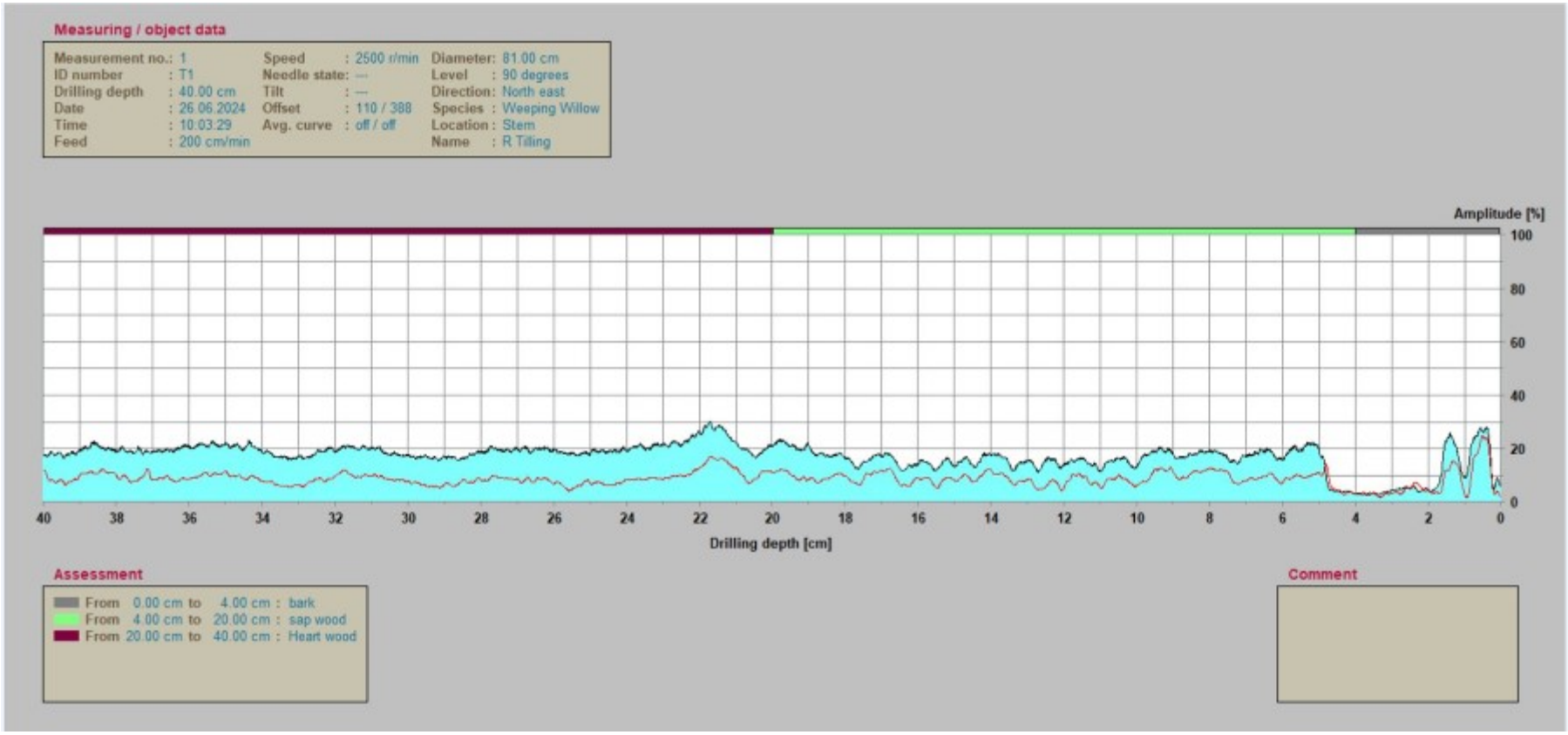
David Lonsdale. (2001), Principles of Tree Hazard Assessment and Management. London, HMSO.

Mattheck, C. and Breloer, H. (1994) The body language of trees, Research for Amenity Trees No.4 HMSO.

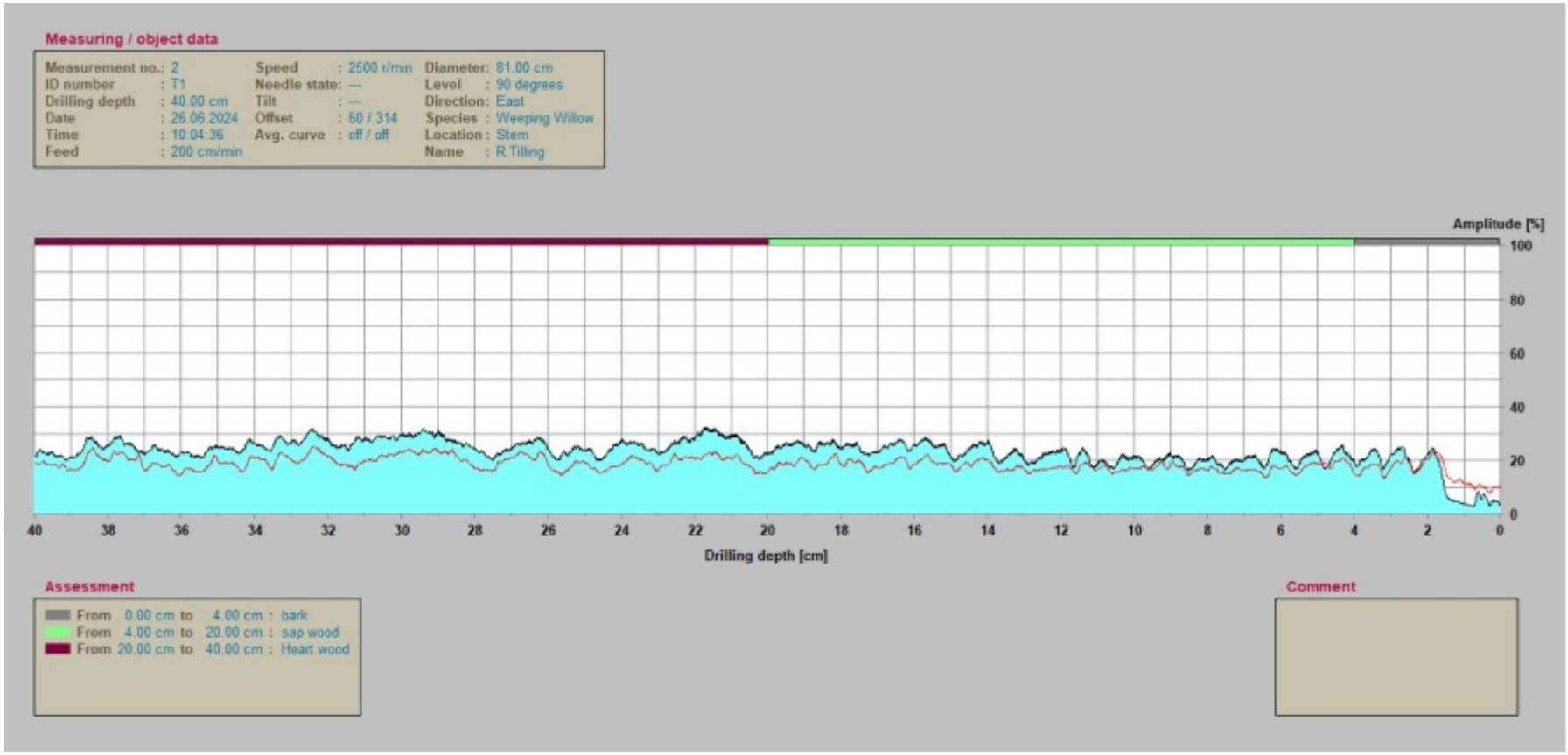
National Tree Safety Group. (2011), Common sense risk management of trees, Guidance on trees and public safety in the UK for owners, managers and advisers. Edinburgh, The Forestry Commission.

APPENDIX I MICRODRILL TRACE RESULTS

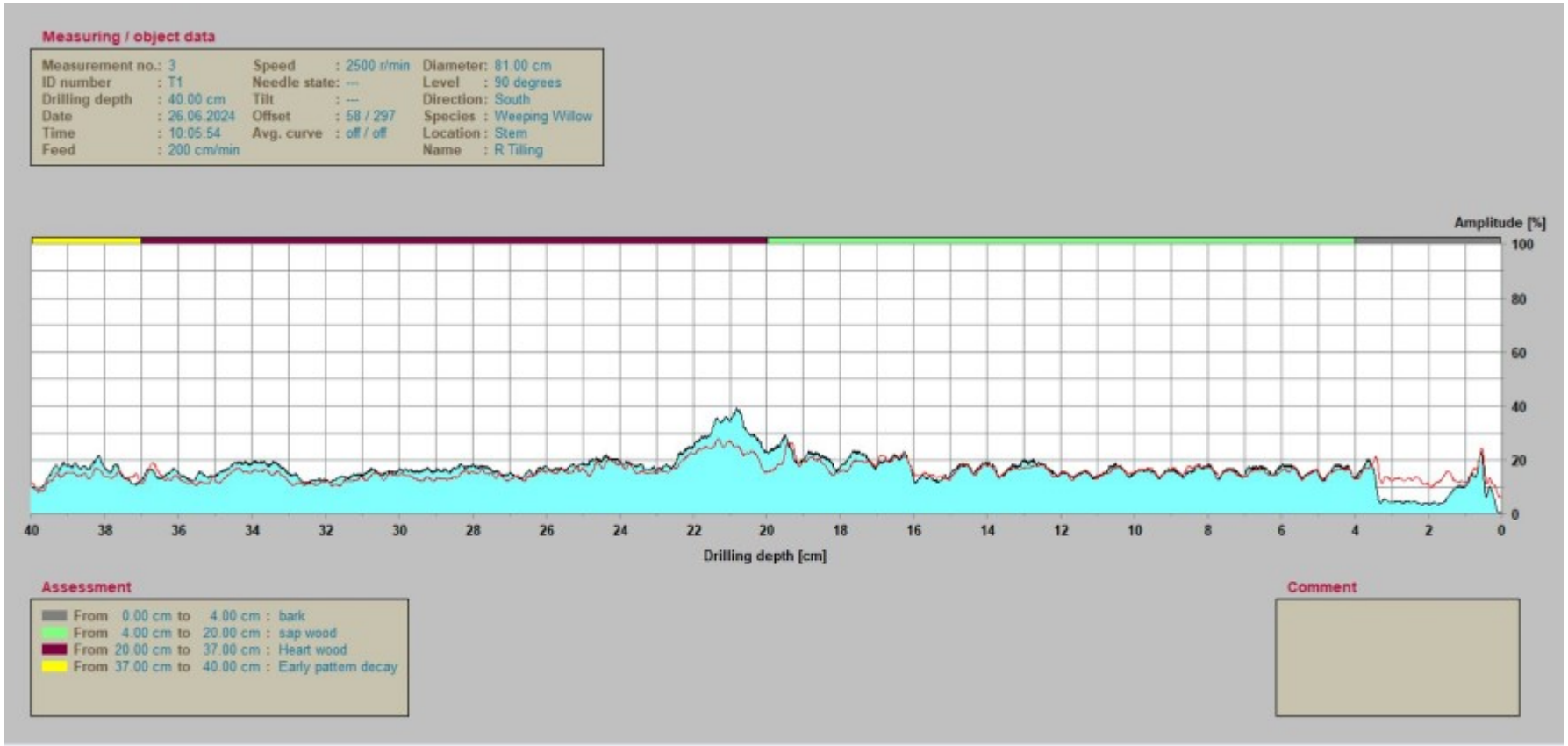
Northeast (1)



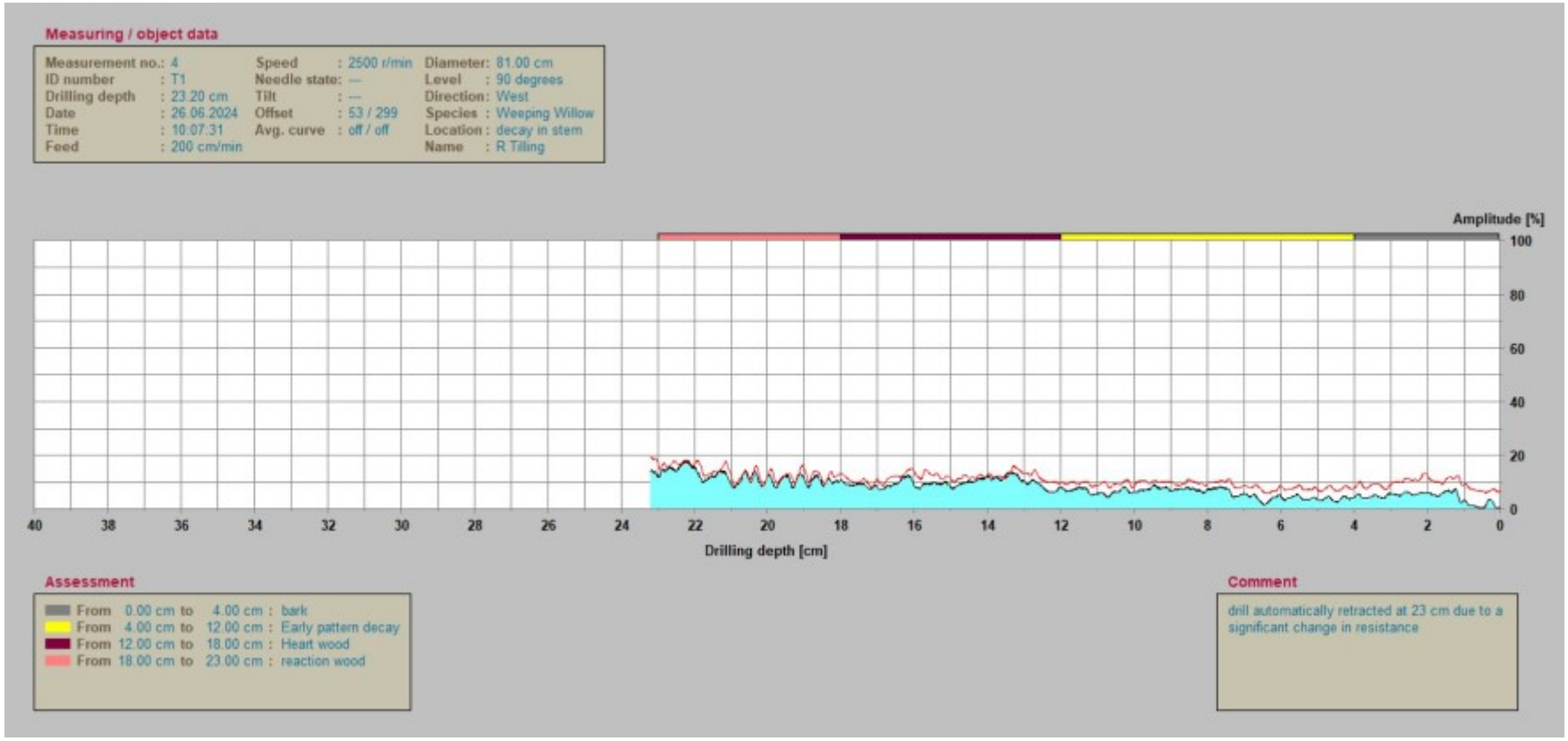
East (2)


Measuring / object data
Measurement no.: 2
ID number : T1
Drilling depth : 40.00 cm
Date : 26.06.2024
Time : 10:04:36
Feed : 200 cm/min
Speed : 2500 r/min
Needle state: ---
Tilt : ---
Offset : 60 / 314
Avg. curve : off / off
Diameter: 81.00 cm
Level : 90 degrees
Direction: East
Species : Weeping Willow
Location : Stem
Name : R Tilling
Amplitude [%]
100
80
60
40
20
0
40 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6 4 2 0
Drilling depth [cm]
Assessment
From 0.00 cm to 4.00 cm : bark
From 4.00 cm to 20.00 cm : sap wood
From 20.00 cm to 40.00 cm : Heart wood
Comment

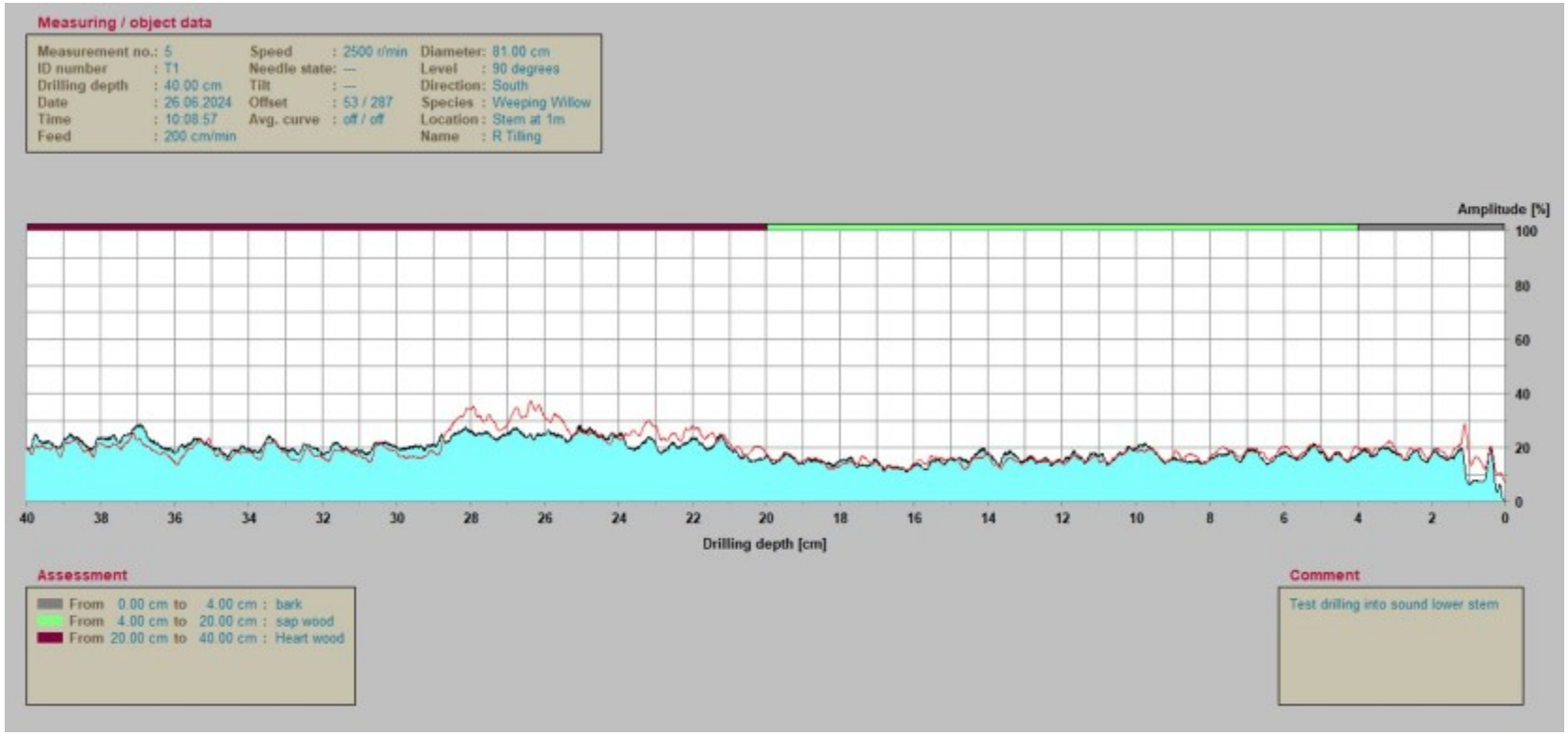
South (3)


Measuring / object data
Measurement no.: 3
ID number : T1
Drilling depth : 40.00 cm
Date : 26.06.2024
Time : 10:05:54
Feed : 200 cm/min
Speed : 2500 r/min
Needle state: ---
Tilt : ---
Offset : 58 / 297
Avg. curve : off / off
Diameter: 81.00 cm
Level : 90 degrees
Direction: South
Species : Weeping Willow
Location : Stem
Name : R Tilling
Amplitude [%]
100
80
60
40
20
0
40 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6 4 2 0
Drilling depth [cm]
Assessment
From 0.00 cm to 4.00 cm : bark
From 4.00 cm to 20.00 cm : sap wood
From 20.00 cm to 37.00 cm : Heart wood
From 37.00 cm to 40.00 cm : Early pattern decay
Comment

West (4)


Measuring / object data
Measurement no.: 4
ID number : T1
Drilling depth : 23.20 cm
Date : 26.06.2024
Time : 10:07:31
Feed : 200 cm/min
Speed : 2500 r/min
Needle state: ---
Tilt : ---
Offset : 53 / 299
Avg. curve : off / off
Diameter: 81.00 cm
Level : 90 degrees
Direction: West
Species : Weeping Willow
Location : decay in stem
Name : R Tiling
Amplitude [%]
100
80
60
40
20
0
40 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6 4 2 0
Drilling depth [cm]
Assessment
From 0.00 cm to 4.00 cm : bark
From 4.00 cm to 12.00 cm : Early pattern decay
From 12.00 cm to 18.00 cm : Heart wood
From 18.00 cm to 23.00 cm : reaction wood
Comment
drill automatically retracted at 23 cm due to a significant change in resistance

South (5)


Measuring / object data
Measurement no.: 5
ID number : T1
Drilling depth : 40.00 cm
Date : 26.06.2024
Time : 10:08:57
Feed : 200 cm/min
Speed : 2500 r/min
Needle state: ---
Tilt : ---
Offset : 53 / 287
Avg. curve : off / off
Diameter: 81.00 cm
Level : 90 degrees
Direction: South
Species : Weeping Willow
Location : Stem at 1m
Name : R Tilling
Amplitude [%]
100
80
60
40
20
0
40 38 36 34 32 30 28 26 24 22 20 18 16 14 12 10 8 6 4 2 0
Drilling depth [cm]
Assessment
From 0.00 cm to 4.00 cm : bark
From 4.00 cm to 20.00 cm : sap wood
From 20.00 cm to 40.00 cm : Heart wood
Comment
Test drilling into sound lower stem

APPENDIX II TREE LOCATION IMAGE

Google Image of tree location

APPENDIX III QUALIFICATIONS AND EXPERIENCE

Richard Tilling

Subject	Level	Date
Microdrill Training	Pass	November 2019
Getting to grips with subsidence	Pass	March 2019
Undertaking Aerial Inspections	Pass	February 2019
Lantra Accredited Professional Tree Inspection	Pass	May 2010 - Refreshed May 2018
CMI Level 3 certificate in First Line Management	Pass	July 2017
NPTC Level 3 Certificate of Competence in the Thorough Examination of Arboricultural Equipment	Pass	April 2006 – Refreshed May 2016
IOSH Training - Managing Safely	Pass	April 2013
Higher National Diploma in Arboriculture	Pass	September 1992 – June 1995

2. CAREER SUMMARY

I began my career in the Arboricultural industry in 1995 following the successful completion of a Higher National Diploma course at Houghall Agricultural College in County Durham. The Course included three placements. Three months with Guildford Borough Council's Arboricultural Department, three months at the National Trusts Winkworth Arboretum and twelve months working for an independent Tree Surgery company.

Upon leaving college I worked for a sole trader Tree Surgeon for two years working for domestic customers. This was followed by sixteen years working for larger tree surgery firms conducting both domestic and commercial work where I completed certification in climbing and chainsaw use, risk assessments and health and safety.

I progressed from climbing supervisor, followed by two years of quoting for private work, through general management to Contract Management in one of the largest UK tree firms where I managed Council tree contracts including Sutton, Bromley, Bexley, Richmond upon Thames, Hounslow and Islington councils.

During my career within the Arboricultural industry, I have built up valuable practical based Arboricultural knowledge, in depth contract management skills and gaining certification including; Professional Tree

Inspection Course over ten years ago and LOLER inspection: Certificate of Competence in the Thorough Examination of Arboricultural Equipment over fifteen years ago.

My qualifications have allowed me to conduct varied tree survey work including a full survey of Camden Councils tree stock, ‘dead, dying and dangerous’ surveying for The Royal Borough of Kingston upon Thames Council, Health and Safety surveying for Transport for London (Southern) and climbing bat roost inspection surveying for Chiswick House and Gardens.

My Contract Management role has giving me experience of Health and Safety, Asset Management and Contract meetings.

I joined Connick Tree Care in January 2018 to expand my knowledge in tree assessment and to get back to a closer relationship with trees and woodland as a whole. I now work as an Arboricultural Consultant with a wide experience of individual tree assessments including Micro drilling, health and safety surveying, Climbing inspections, full site surveying, Insurance or Mortgage surveys and woodland inspection.