Arboricultural Impact Assessment and Method Statement

BE-1088-04C
Oakwood Lodge, Longley Lane, Wythenshawe, Manchester, M22 4HY

David Watts Associates Ltd

St George's Works, 51 Colegate, Norwich, NR3 1DD

Registered in England and Wales number 9211547

Tel: 01603 457476

Email: info@dwaecology.co.uk

Website: www.dwaecology.co.uk

Report title	Arboricultural Impact Assessment and Method Statement
Report reference	BE-1088-04
Revision	C
Site address	Oakwood Lodge, Longley Lane, Wythenshawe, Manchester, M22 4HY
Grid reference	SJ 83407 89488
Report composed by	David Watts MICFor MArborA MCIEEM
Client	Wythenshawe Community Housing Group
Date	28th November 2022

CONTENTS

EXECUTIVE SUMMARY **3**
1. INTRODUCTION **4**
1.1. INSTRUCTION 4
1.2. AIMS AND OBJECTIVES 4
1.3. PREVIOUS REPORT 4
1.4. SITE DETAILS 4
1.5. DEVELOPMENT PROPOSALS 4
1.6. LEGAL PROTECTION OF TREES 4
1.7. SOIL TYPE OF SURROUNDING AREA 5
1.8. QUALIFICATIONS OF THE AUTHOR 5
2. SURVEY METHODS **6**
2.1. SITE SURVEY 6
2.2. SURVEY CONSTRAINTS 6
3. IMPACT ASSESSMENT **7**
3.1. TREE POPULATION ASSESSMENT 7
3.2. TREE REMOVALS DUE TO DEVELOPMENT 7
3.3. ROOT PROTECTION AREAS AFFECTED BY DEVELOPMENT 8
3.4. PROTECTION OF RETAINED TREES 8
4. ARBORICULTURAL METHOD STATEMENT **9**
4.1. TIMING OF WORKS 9
4.2. SITE INDUCTION 9
4.3. TREE WORKS 9
4.4. TREE PROTECTION 9
4.5. CELLULAR CONFINEMENT 10
4.6. GENERAL PRECAUTIONARY MEASURES 11
4.7. FURTHER INSPECTIONS 11
4.8. PROJECT ARBORICULTURIST DETAILS 12

TABLES AND FIGURES

TABLE 2.1 BS5837 CASCADE CHART (ADAPTED FROM BRITISH STANDARDS, 2012) 6
TABLE 3.1 SUMMARY OF TREE CATEGORIES 7
TABLE 3.2 TREE REMOVALS 7
TABLE 4.1 TIMING OF WORKS 9
FIGURE 4.2 TEMPORARY PROTECTIVE FENCING 10
FIGURE 4.3 GEOCELLULAR CONFINEMENT CONSTRUCTION 11

APPENDIX 1: TREE SURVEY SCHEDULE
APPENDIX 2: PHOTOGRAPHS
APPENDIX 3: TREE CONSTRAINTS PLAN
APPENDIX 4: TREE RETENTION & PROTECTION PLAN

Executive Summary

DWA Ecology have been instructed by Wythenshawe Community Housing Group to produce an Arboricultural Impact Assessment and Method Statement relating to a proposed development at Oakwood Lodge, Longley Lane, Wythenshawe, Manchester, M22 4HY. The development proposals are to demolish the existing building and construct a residential development on the site.

The site survey identified 20 trees on and adjacent to the site. These include four Category A trees of high quality, six Category B trees of moderate quality, nine Category C trees of low quality, and one Category U tree which is unsuitable for retention.

The development proposals will necessitate the removal of seven trees, including three Category B trees and four Category C trees.

Proposed parking spaces and hardstanding surfaces are within the root protection areas (RPA) of two Category A trees. It is recommended that hardstanding surfaces within the RPAs of these trees are constructed using minimal excavation upon a geocellular confinement system.

Two proposed dwellings are within the RPAs of two Category A trees. To minimise damage to tree roots it is recommended that these buildings are constructed upon pile foundations.

To ensure that retained trees survive the development proposals, works must follow an Arboricultural Method Statement. This includes the installation of temporary tree protection fencing and the adoption of precautionary working practices during development works.

1. Introduction

1.1. Instruction

DWA Ecology have been instructed by Wythenshawe Community Housing Group to carry out a tree survey in accordance with 'BS5837: 2012 – Trees in Relation to Design, Demolition and Construction: Recommendations' at Oakwood Lodge, Longley Lane, Wythenshawe, Manchester, M22 4HY, hereafter referred to as 'the site'.

1.2. Aims and Objectives

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[1].
- 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.
- If necessary, to assess the site for its suitability for mitigation planting, and to specify planting requirements.

1.3. Previous Report

A previous revision of this report was submitted to planning. This report reiterates the previous arboricultural information, in addition to the recommendation for removal of an additional tree, T4.

1.4. Site Details

The site is located at grid reference SJ 83407 89488 and is accessed off the northeast of Longley Lane in Wythenshawe. The site is bordered by an amenity field to the northeast, by a nursery to the southwest and by residential properties on all other aspects.

The site consists of a disused resource centre and its associated gardens.

1.5. Development Proposals

The development proposals are to demolish the existing building on the site and to construct 14 two-bedroom properties and six three-bedroom properties, in addition to their associated gardens and parking spaces. The existing access road is to be extended off the north of Longley Lane.

1.6. Legal Protection of Trees

Manchester City Council have confirmed that no trees within the site boundary are afforded protection by TPOs. Trees within the garden of the nursery adjacent to the site are afforded protection by a TPO made in 1994. These include T12 and T17, as specified in **Appendix 1: Tree Survey Schedule**

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

(note that numbers within the Tree Survey Schedule do not correspond to numbers listed in the TPO). The TPO also shows a tree afforded protection within the site boundary - listed as 'T12' in the TPO - which is no longer present.

1.7. Soil Type of Surrounding Area

Cranfield (2021)[2] states that the surrounding area consists of naturally wet very acid sandy and loamy soil. No further detailed soil analysis was carried out as part of the survey.

1.8. Qualifications of the Author

David Watts is a Chartered Arboriculturist (registered with the Institute of Chartered Foresters), a Professional member of the Arboricultural Association and a full member of CIEEM. David holds an FdSc in Arboriculture, a BSc (Hons) in Ecology, a PGCert Arboriculture and Urban Forestry and the LANTRA Professional Tree Inspection Certificate.

[2] Cranfield (2021). *Interactive Soilscapes Viewer* [online]. Available at: >www.landis.org.uk< [accessed 19th October 2021]

2. Survey Methods

2.1. Site Survey

The initial site survey was carried out by David Watts in suitable weather conditions on 25th July 2019. An update survey was undertaken on 30th June 2021.

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

Tree heights, crown clearances and crown spreads of trees were measured to the nearest 0.5m. The diameter at breast height (DBH) of trees was measured to the nearest 10mm and was used to calculate the root protection areas (RPA) of trees using methods prescribed in BS5837: 2012.

In accordance with BS5837: 2012, trees were classified as either A, B, C or U, using the criteria shown in Table 2.1. Trees were subcategorised with the suffix 1, 2 and/or 3, to denote amenity, landscape or cultural qualities. As specified in BS5837: 2012, the additional subcategorisation does not affect the retention value of a tree (e.g. a Category A2 tree is not necessarily of greater or less value than a Category A1 tree).

Table 2.1 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 15 cm; unremarkable trees of very limited merit or of 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**

2.2. Survey 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.

Several trees recorded were located at the site boundary on adjacent property. Dimensions of these trees, with the exception of crown spreads extending over the site, were estimated.

3. Impact Assessment

3.1. Tree Population Assessment

The site survey identified 20 trees on and adjacent to the site. These included include four Category A trees of high quality, six Category B trees of moderate quality, nine Category C trees of low quality, and one Category U tree which is unsuitable for retention regardless of the proposals. Table 3.1 shows a summary of the categorisation of trees on and adjacent to the site.

Table 3.1 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	T1, T9, T10, T17	4 Trees
B	Trees of moderate quality which should where be possible be retained throughout any proposed development	T5, T8, T12, T18, T19, T20	6 Trees
C	Trees of low quality which should not be considered a constraint to development	T2, T3, T4, T6, T7, T11, T14, T15, T16	9 Trees
U	Trees which should be removed for sound management reasons, regardless of proposals	T13	1 Tree
		Total:	**20 Trees**

Tree species included silver birch (*Betula pendula*), hornbeam (*Carpinus betulus*), ash (*Fraxinus excelsior*), laburnum (*Laburnum anagyroides*), Scot's pine (*Pinus sylvestris*), wild cherry (*Prunus avium*), pedunculate oak (*Quercus robur*), red oak (*Quercus rubra*) and giant redwood (*Sequoiadendron giganteum*).

Tree data can be viewed in **Appendix 1: Tree Survey** Schedule. Photographs of trees can be viewed in **Appendix 2:** Photographs. Locations of trees can be viewed in **Appendix 3: Tree Constraints Plan**.

3.2. Tree Removals due to Development

Seven trees, including three Category B trees and four Category C trees will necessitate removal due to the development proposals. Table 3.2 shows a summary of trees recommended for removal.

Table 3.2 Tree Removals

Category	Tree/group numbers	Totals
A	-	
B	T5, T8, T19	3 Trees
C	T2, T4, T6, T7	4 Trees
U	-	
	Total:	**7 Trees**

Note that the RPAs of T5, T6 and T7 are not directly impacted by the proposals, however due to the proximity of the proposed building to these trees, long-term retention in regard to the development proposals is not considered viable. Similarly, T4 is not directly impacted by the proposals, however removal of the roots of the adjacent trees will not be feasible without removing this tree.

Note that although T13 is a Category U tree, it is not affected by the development and is located on adjacent land. This tree therefore does not necessitate removal within the context of development.

3.3. Root Protection Areas Affected by Development

Proposed dwellings and parking spaces are within the RPAs of T1, T9 and T17, all Category A pedunculate and red oaks:

- T1 has an RPA of 609m^2. Approximately 11m^2 of the RPA will be impacted by the proposed dwelling, and approximately 27m^2 will be impacted by proposed parking spaces. This will equal to a total of 6% of the total RPA. Note also that 27m^2 of the RPA is covered by the existing building.
- T9 has an RPA of 459m^2. Approximately 23m^2, 5% of the total RPA, will be impacted by the proposed building.
- T17 has an RPA of 222m^2. Approximately 3m^2, 1% of the total will be impacted by proposed parking spaces.

Retention of these trees is considered feasible, provided that excavation is minimised by construction of buildings upon pile foundations and that parking spaces are constructed using no-dig methods upon a cellular confinement system. .

The RPAs of T1, and T13 and T14 are within the proposed driveway. The RPA within this area is under an existing driveway, and provided that no further excavation is carried out, this is not anticipated to impact upon these trees.

3.4. Protection of Retained Trees

Retention of all trees adjacent to the site is considered feasible provided that works follow an Arboricultural Method Statement, which is detailed in Section 4. This includes recommendations regarding the installation of temporary tree protection fencing, cellular confinement, and the adoption of precautionary working practices during development works.

4. Arboricultural Method Statement

4.1. Timing of Works

The phasing of works must be carried out in accordance with Table 4.1, below:

Table 4.1 Timing of Works

Stage	Works
1	Site induction
2	Tree works
3	Install temporary tree protection fencing
4	Inspection by arboricultural consultant
5	Carry out construction works, including construction of cellular confinement
6	Remove tree protection fencing and ground protection once works completed
7	Final inspection by arboricultural consultant

4.2. Site Induction

Prior to works commencing, all contractors will attend a site induction. Contractors must be briefed on arboricultural concerns arising from the development proposals, including tree root protection areas (RPAs). This method statement must be made available to all contractors working on the site.

4.3. Tree Works

It is recommended that T2, T4, T5, T6, T7, T8 and T19 are removed. This should be carried out by a suitably qualified and fully insured arboricultural contractor who is able to comply with British Standards (2010)[3].

At the time of writing trees recommended for removal aren't afforded protection by TPOs and are not within a Conservation Area. This may be subject to change, therefore legal designations afforded trees must be verified with the local authority prior to works commencing. Killing or damaging a protected tree is a criminal offence, subject to an unlimited fine.

4.4. Tree Protection

Prior to machinery entering the site, it will be necessary to ensure that all trees are adequately protected by the installation of temporary tree protection fencing.

The location of tree protection fencing can be viewed in **Appendix 4: tree Retention and Protection Plan.**

Tree protection fencing must consist of a vertical scaffold framework, well braced to resist impacts. The vertical poles should be spaced at a maximum interval of 3m and driven securely into the ground. Onto this framework, welded mesh panels should be fixed (see Figure 4.2, below).

[3] British Standards (2010). *BS3998: 2010 – Tree Works: Recommendations.* British Standards Institute, London

Laminated waterproof A3 signs should be fixed securely to fencing panels on each enclosure at 9m intervals. The signs should clearly read: 'Protected Tree Zone, no storage or operations within fenced off areas'.

Note that it may be necessary to realign the fencing to construct the bin store to the west of the site. This will require a setback of the fencing by around 1m. This stage of works should be carried out once all other works have been completed.

Once the construction works have been completed, the tree protection fencing may be removed. This must be done with care to ensure that no damage to trees is caused.

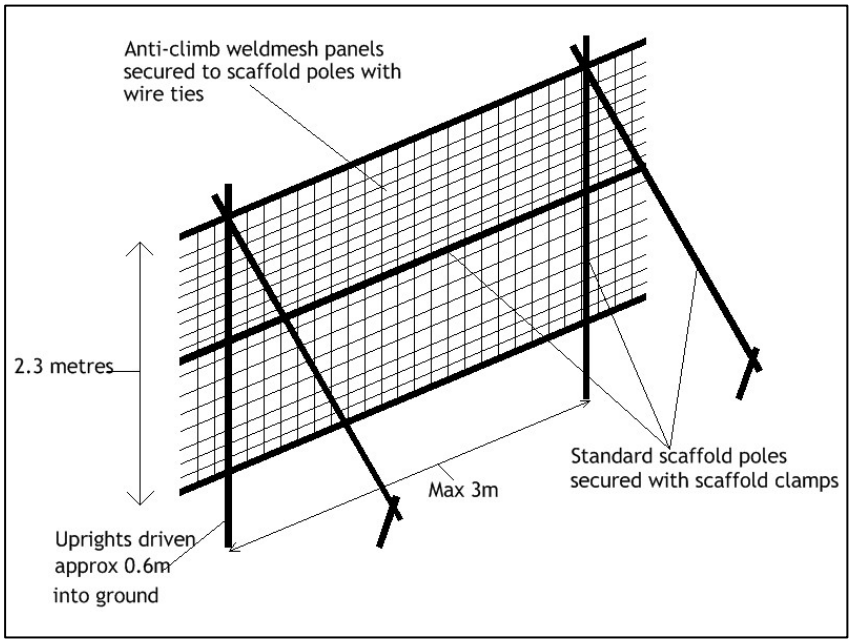


Figure 4.2 Temporary Protective Fencing

4.5. Cellular Confinement

The parking spaces within the RPAs of trees must be constructed upon a cellular confinement system (recommended products include Cellweb and Terram Geocell). The location of cellular confinement is detailed in **Appendix 4: Tree Retention and Protection Plan**.

A diagram illustrating installation of the geocellular confinement system can be viewed in Figure 4.3, below. Installation must be carried out in the following stages:

1. Cover surface with a non-woven, geotextile separation filtration layer.
2. Install cellular confinement sheets.
3. Place 40/20 mm clean angular stone into open cells.
4. Cover with second non-woven geotextile separation filtration layer
5. Install 75 mm porous asphalt or decorative gravel.

As the majority of tree roots are typically found within 1m of ground level, particular attention must be paid to existing levels. Minor excavation may be carried out to level the ground and to remove bark chip mulch and surface vegetation etc. Excavation must not be carried out to depth greater than 10cm.

Installation of the cellular confinement should where possible be carried out by hand. No vehicles or heavy machinery may be operated within the RPAs of trees. The use of tracked excavators and dumper trucks may be used, provided that they are operated from outside tree RPAs.

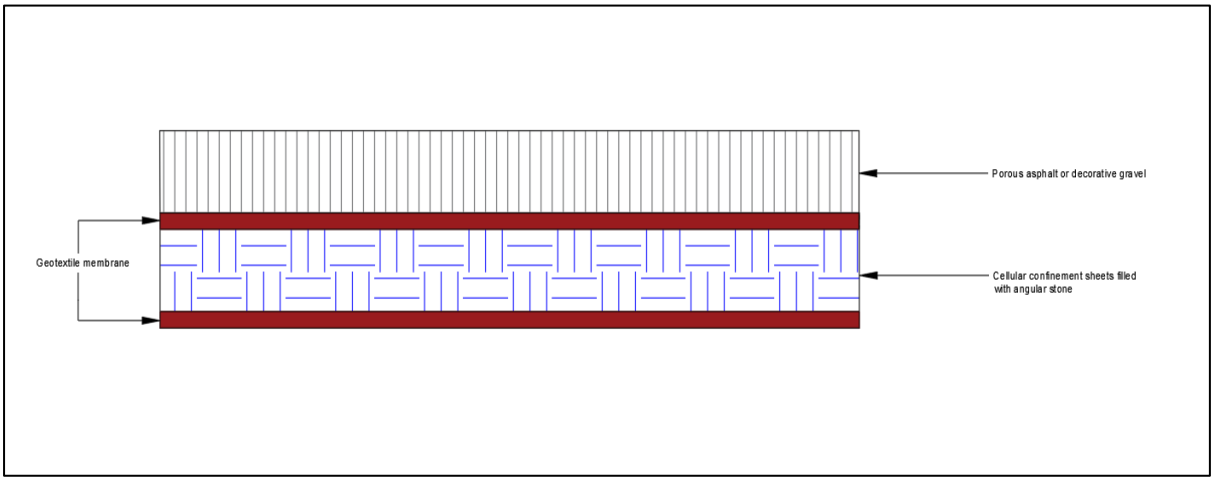


Figure 4.3 Geocellular Confinement Construction

Note that while the use of cellular confinement can be prescribed by the project arboriculturist, to ensure it is sufficiently durable the final specification must be approved by a civic engineer. This may be the project engineer or an engineer from the geocell provider.

4.6. General Precautionary Measures

Prior to the commencement of development works, a site storage area must be designated. This must be outside the RPAs of trees.

No materials hazardous to tree health, such as oil, bitumen or cement should be stored within the RPAs of trees.

No fires may be lit within 15m of the protective fencing.

Where there is a risk of polluted water runoff into RPAs, heavy duty plastic sheeting and sandbags must be used to contain any spillages and prevent contamination.

If any breach in the tree protection measures occurs, it is the site manager's responsibility to report this to an arboricultural consultant so that appropriate measures may be taken.

4.7. Further Inspections

It is recommended that inspections by an arboricultural consultant are undertaken:

- Upon installation of the tree protection fencing to determine if it is satisfactory. The arboricultural consultant will then deliver a toolbox talk to the site manager prior to the commencement of works.
- Upon completion of the development works to determine whether the method statement has been followed and that trees scheduled for retention have not been impacted by development works.

After each inspection a letter accompanied by photographic evidence will be submitted by the arboricultural consultant to the local authority tree officer to confirm if the method statement has been followed correctly and whether trees have been adversely affected by construction works.

4.8. Project Arboriculturist Details

If any issue regarding tree protection arises during the course of development works, the project arboriculturist must be contacted using the details below:

David Watts MICFor MArborA

David Watts Associates Ltd
St George's Works
51 Colegate
Norwich
NR3 1DD

Email: david@dwaecology.co.uk

Telephone: 01603 457476

Appendix 1: Tree Survey Schedule

Key

Species	Common name and scientific name	**Age**	Y – Young sapling/newly planted tree
Height	Measured to nearest 0.5 m		SM – Semi-mature; tree 1/3 of mature size
CC	Height of crown clearance, measured to nearest 0.5 m		EM – Early mature; tree 2/3 of mature size
Stems	Number of stems bifurcating below 1.5 m		M – Mature; tree 3/3 of mature size
DBH	Diameter at breast height (1.5 m), in cm		V – Veteran tree
Crown spread	Measured to nearest 0.5 m	**SULE**	Safe useful life expectancy, in years
Category	See BS5837 cascade chart (Table 2.1)	**RPA**	Root Protection Areas, in m^2
SULE	Safe useful life expectancy, in years	**RPR**	Root Protection Radius (as a circle, measured from stem) in m
*	Estimated value		Note average values given for groups of trees

Tree No.	Species	Height	CC	Stems	DBH	Crown Spread				Age	Comments	SULE	Category
						N	E	S	W				
T1	Pedunculate oak *Quercus robur*	12.5	1.5	1	116	8	9	8.5	9	M	Visually prominent, high quality tree. Branch wound at 4m to south. Deadwood up to 10cm diameter. Tertiary branches slightly overhang existing single storey building.	>40	A2
T2	Hornbeam *Carpinus betulus*	7	1.5	4	31 9 13 23	3.5	3.5	3	3	SM	Multi-stemmed tree with included bark at stem unions and good natural braces above. Canopy overhangs existing single storey building. No major visible defects, however due to proximity to existing building long term retention of the tree is unfeasible.	11-20	C1
T3	Wild cherry *Prunus avium*	5	2	1	26	1.5	3.5	3	3	EM	Bacterial canker on stem. Lean to south. Suppressed by adjacent tree.	11-20	C1
T4	Silver birch *Betula pendula*	12	1	1	26	1.5	1.5	4	3	EM	Suppressed by adjacent tree.	11-20	C1

Tree No.	Species	Height	CC	Stems	DBH	Crown Spread				Age	Comments	SULE	Category
						N	E	S	W				
T5	Scot's pine *Pinus sylvestris*	13	4.5	1	36	2	2.5	2.5	2	EM	No major visible defects. Lacks qualities for Category A designation.	>40	B1
T6	Scot's pine *Pinus sylvestris*	9.5	2.5	1	21	1	1.5	2.5	1	SM	Suppressed by adjacent tree.	11-20	C1
T7	Scot's pine *Pinus sylvestris*	6	2	1	10	1	1	0.5	0.5	Y	Suppressed by adjacent trees.	11-20	C1
T8	Ash *Fraxinus excelsior*	7.5	1	1	18	2.5	3	3.5	2	SM	No major visible defects. Lacks qualities for Category A designation.	21-40	B1
T9	Pedunculate oak *Quercus robur*	16	3	1	100#	7#	7#	11#	7	M	Located offsite, unable to access to fully inspect. Dense ivy on stem. Crown overhangs car lark on site.	>40	A2
T10	Pedunculate oak	15	3	1	80#	5#	8#	9.5#	5	M	Located on adjacent land, unable to access to fully inspect. Dense ivy on stem. Pruning wounds over residential gardens to north. Deadwood up to 10cm diameter. Canopy overhangs car park on site.	>40	A2
T11	Laburnum *Laburnum anagyroides*	4	2	1	15	3	3	3	3	SM	Multi-stemmed tree. Located on adjacent land. Unable to access to fully inspect. Note that T11 is located adjacent to the access drive entrance and is not shown on the Tree Constraints Plan.	11-20	C1

Tree No.	Species	Height	CC	Stems	DBH	Crown Spread				Age	Comments	SULE	Category
						N	E	S	W				
T12	Red oak *Quercus rubra*	10	3.5	1	40#	4#	4#	4#	5	EM	Located on adjacent land, unable to fully inspect. Lacks qualities for Category A designation.	>40	B2
T13	Wild cherry *Prunus avium*	3	1.5	1	19	2	2	2	2	SM	Crown dieback. Located on adjacent land.	<10	U
T14	Wild cherry *Prunus avium*	4	2	1	20	2.5	3	2	2.5	SM	Located on adjacent land, Sparse crown.	11-20	C1
T15	Wild cherry *Prunus avium*	4	2	1	22	3	2	3	3	SM	Located on adjacent land. Occluded wound at basal area.	11-20	C1
T16	Wild cherry *Prunus avium*	8	3	1	50#	4	5#	5#	3.5#	M	Located on adjacent land, unable to access to fully inspect. Crown to east over car park severely died back.	11-20	C1
T17	Red oak *Quercus rubra*	15	3	1	70#	5	5#	5#	5#	M	Located offsite, unable to access to fully inspect. Canopy overhangs site by 2.5m.	>40	A2
T18	Giant redwood *Sequoiadendron giganteum*	7	2	1	35#	2#	1.5#	1.5#	1.5#	SM	Located on adjacent land, unable to access to fully inspect. Lacks qualities for Category A designation.	>40	B1

Tree No.	Species	Height	CC	Stems	DBH	Crown Spread				Age	Comments	SULE	Category
						N	E	S	W				
T19	Silver birch *Betula pendula*	10	2	1	33	3	4	3.5	3	EM	Primary branches overhang single storey building to east.	21-40	B1
T20	Giant redwood *Sequoiadendron giganteum*	8	2	1	40#	2#	1.5#	1.5#	1.5#	SM	Located on adjacent land, unable to access to fully inspect. Lacks qualities for Category A designation.	>40	B1

Appendix 2: Photographs

Plate 1: T1

Plate 2: T2

Plate 3: T3

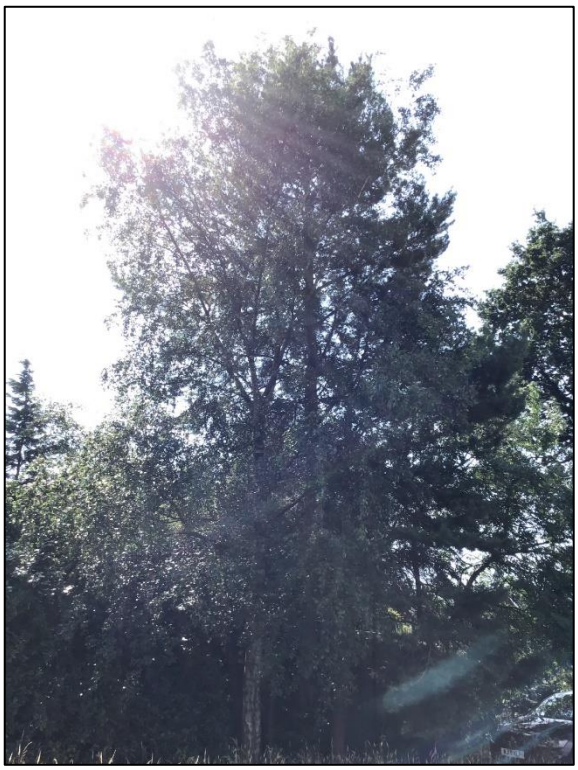


Plate 4: T4, T5, T6 & T7

Plate 5: T8

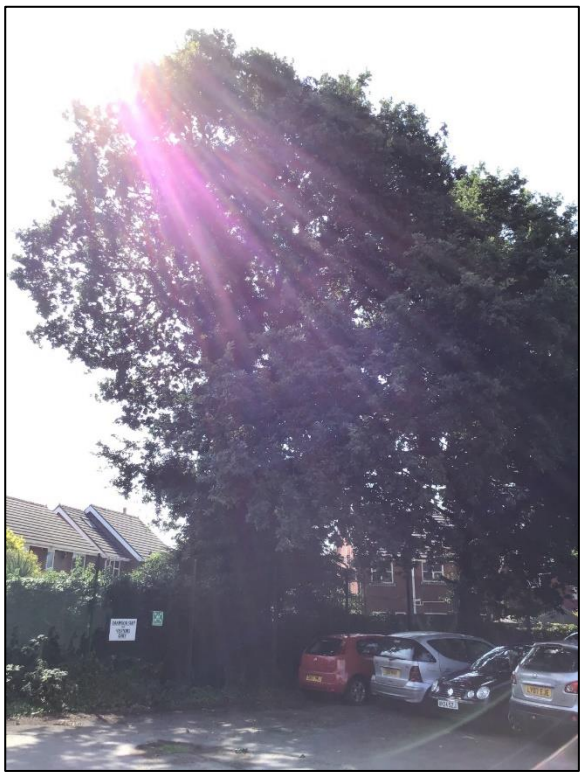


Plate 6: T9

Plate 7: T10

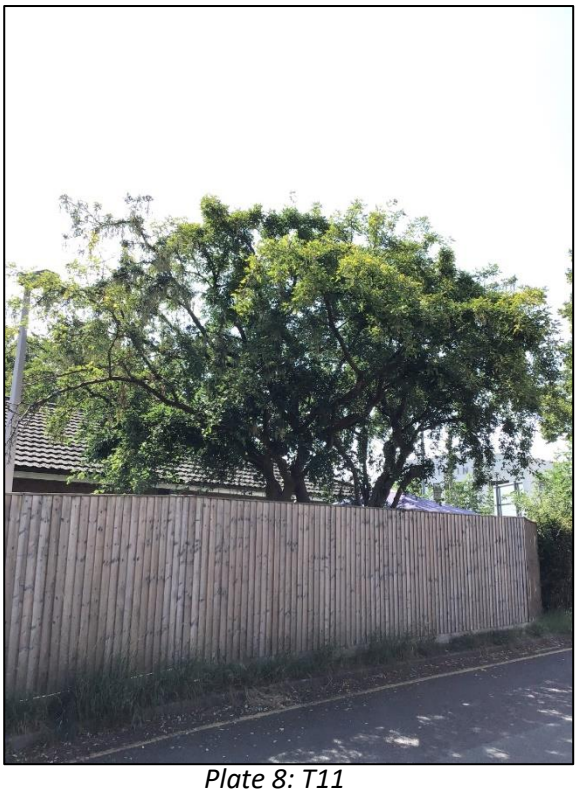


Plate 8: T11

Plate 9: T12

Plate 10: T13

Plate 11: T14

Plate 12: T15

Plate 13: T16

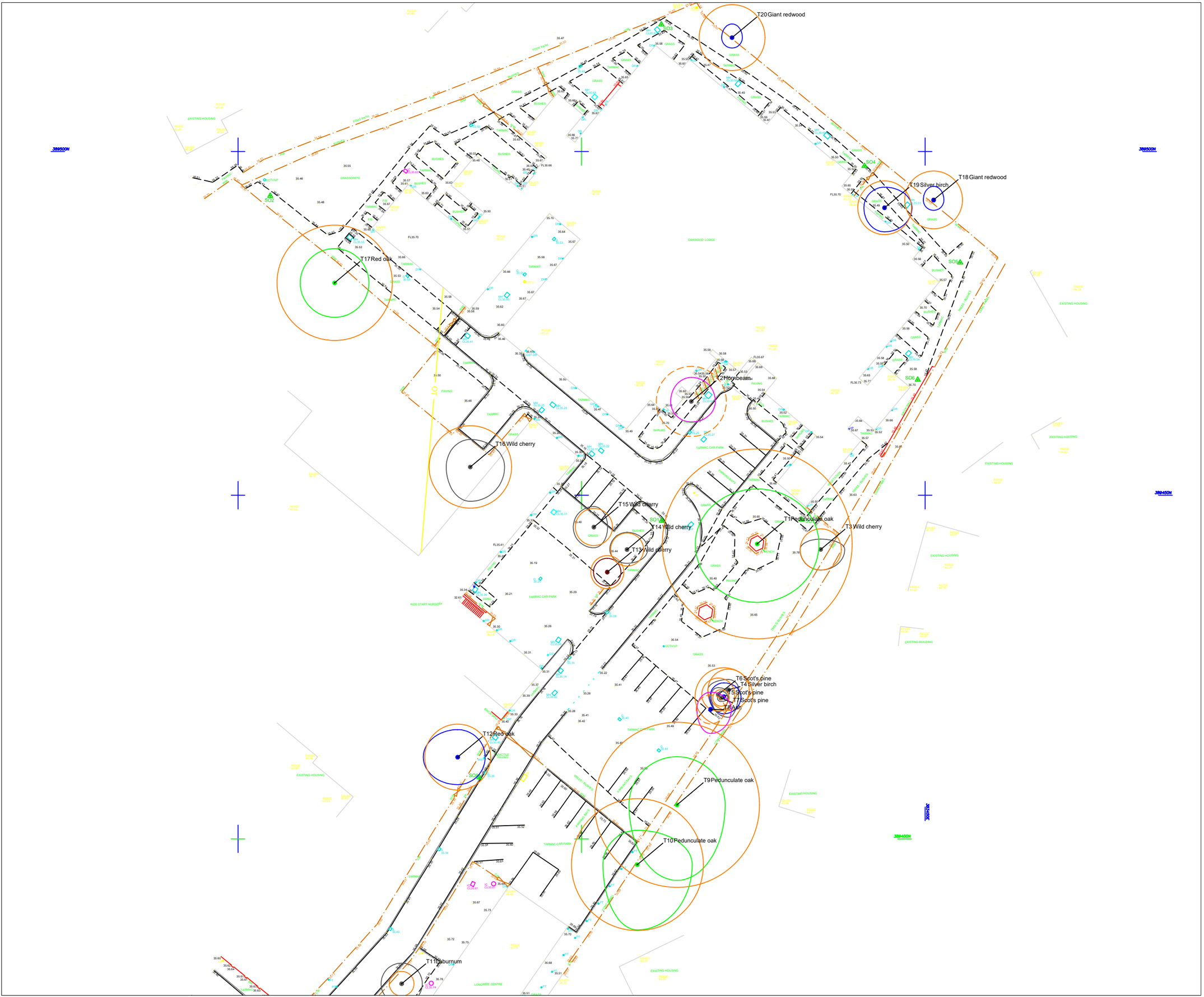
Plate 14: T17

Plate 15: T18

Plate 16: T19

Plate 17: T20

Appendix 3: Tree Constraints and Protection Plan.



Key:

Category A trees of high quality

Root protection area (RPA)
Tree stem
Tree canopy

Category B trees of moderate quality

Root protection area (RPA)
Tree stem
Tree canopy

Category C trees of low quality

Root protection area (RPA)
Tree stem
Tree canopy

Category U trees unsuitable for retention

Root protection area (RPA)
Tree stem
Tree canopy

Drawing title:	Tree Constraints Plan
Project:	Oakwood Lodge
Drawn by:	David Watts
Drawing number:	TCP-1088-02
Date:	19/10/2021
Scale:	1:500 @ A3

To be reproduced in colour only

DWA ECOLOGY

Appendix 4: Tree Retention & Tree Protection Plan

(showing trees to be removed and retained and tree protection measures)

Key:

Trees to be retained throughout development

Root protection area (RPA)
Tree stem
Tree canopy

Trees recommended for removal

Root protection area (RPA)
Tree stem
Tree canopy

Tree protection fencing - to remain in place during development works

Geocellular confinement system

For further details regarding tree protection fencing, precautionary working practices and construction of geocellular confinement system, refer to Arboricultural Method Statement

Drawing title:	Tree Protection Plan
Project:	Oakwood Lodge
Drawn by:	David Watts
Drawing number:	TPP-1088-03
Date:	28/11/2022
Scale:	1:500 @ A3

To be reproduced in colour only

DWA ECOLOGY