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Report Verification

Report Version	Date	Completed by:	Checked & Approved by:
Final	30/11/2023	Andrew Hastings FdSc MArborA Senior Arboricultural Consultant	Duncan Smith BSc (Hons) MArborA Arboricultural Manager

Declaration of Compliance

This study has been undertaken in accordance with British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations'.

Disclaimer

Middlemarch accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared. It should be noted that, whilst every effort is made to meet the client's brief, no site investigation can ensure complete assessment or prediction of the natural environment.

Validity of Data

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified and experienced arboriculturist to assess any changes to the trees, groups, and hedgerows on site and to inform a review of the conclusions and recommendations made.

It should be noted that trees are dynamic living organisms that are subject to natural changes as they age or are influenced by changes in their environment. As such following any significant meteorological event or changes in the growing environment of the trees they should be re-assessed by a suitably qualified and experienced arboriculturist.

This Arboricultural Method Statement has been produced following a review of a fixed approved development layout for the site, based on data provided by the client. The methods of work described herein will be a requirement of all relevant contractors associated with the development proposals.

On Site Monitoring Regime & Contact Details

All operations detailed within this AMS will be monitored by the Principal Contractor. The Principal Contractor will ensure that specifications within this document are followed (this will be built into the contract specification) and that the Project Arboriculturist will be contacted for advice in relation to works near to retained trees, as required. The Project Arboriculturist for the site is:

Name: Andrew Hastings

Position: Senior Arboricultural Consultant

Mobile: 07485 903 943

Email: andrew.hastings@middlemarch.eco

Action	Project Arboriculturist Attendance Required
	✓ ✗
Pre-commencement site meeting / toolbox talk / induction	✓
Audit timetable	✓
RIBA Stage 5 - Enabling Works (Demolition)	
Tree Surgery	✓
Site set up and logistics	✓
Establishment of Demolition Exclusion Zone	✗
Topsoil Stripping / Subsoil Regrading	✗
Removal of Hard Surfaces	✓
RIBA Stage 5 - Main Works (Construction)	
Establishment of Construction Exclusion Zone	✓
Permanent and Temporary Ground Protection Measures	✗
Construction of Structures within the RPA / CEZ	✗
Working space to construct new buildings within RPAs	✗
Installation of utilities within RPAs	✓
RIBA Stage 6 – Handover and Close Out	
Removal of tree protection measures	✓
Tree Safety Assessment for handover	✓

Responsibilities

It is the responsibility of the Principal Contractor to ensure that the planning conditions attached to the planning consent are always adhered to and that a monitoring regime regarding tree protection is adopted on site.

The Principal Contractor will be responsible for contacting the Local Planning Authority should any issues are raised related to the trees on site.

If pruning works to trees beyond the agreed scope within this Method Statement are required at any time, then permission must be sought from the Local Planning Authority prior to commencement. All tree surgery works must be carried out in accordance with BS3998.

The Principal Contractor will ensure the build sequence is appropriate to ensure that no damage occurs to retained trees during the construction processes. Protective measures will remain in position until completion of the construction phase of development and will only be removed to allow the commencement of soft landscaping works.

The protection measures and signs will always be maintained in position and checked daily by a designated person on site under the responsibility of the Principal Contractor.

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1. Introduction

1.1 Project Background

This Arboricultural Method Statement was commissioned by McCarthy Stone to accompany a planning application for commercial development at St Chad's Drive, Kirkby, Liverpool. A survey of the trees on site and within influencing distance of the boundaries was undertaken on the 16th August 2023 as part of a Preliminary Arboricultural Assessment (PAA) to aid design and avoid unnecessary tree removal.

An Arboricultural Impact Assessment (AIA) was subsequently undertaken to identify the potential impact of the development on the existing trees surveyed during the PAA in accordance with British Standard 5837:2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter referred to as BS5837).

This Arboricultural Method Statement has been compiled to provide the information necessary to protect retained trees during works to complete the proposed development and to follow RIBA Stage 5 including:

- Audit schedule
- Specific tree protection measures
- Specific tree-friendly construction operations
- Tree pruning specification
- Arboricultural Clerk of Works (ACoW) supervision

1.2 Site Description, Drawings and Appendices

Attribute	Description
National Grid Reference	SJ 41433 98763
Topography	Flat
Tree Cover	Medium and Low quality, Individual trees and a single group of trees, planted.
Drawings attached	Tree Survey Plan – C161307-01-01 Tree Retention Plan – C161307-02-01-Rev A Tree Protection Plan – C161307-03-01
Appendices	Appendix A: Tree Schedule Appendix B: Tree Protection Fencing Sign Appendix C Arboricultural Impact Assessment RT-MME-161307-02-Rev A

Table 1.1: Summary of Site and Surroundings

1.3 Proposed Development

The proposed development of the site includes the construction of new retirement living accommodation and associated soft and hard landscaping.

1.4 Documentation Provided

This statement is based upon the information provided by the client, in addition to information collected by Middlemarch during the Preliminary Arboricultural Assessment, as detailed below.

Author	Document	Drawing Number	Date
Bright Space Architects	Proposed Site Plan	1002-Rev A	17.11.23
fda landscape	Landscape Masterplan	R/2714/1A	Oct - 23
GGP Consult	Proposed Surface Water Drainage Plan	29958 / 104 – Rev B	Nov -23

Table 1.2: Documentation Provided

2. Statutory Designation

2.1 Tree Preservation Order and Conservation Area Protection

A desk-based study was undertaken to identify if any of the trees present within or near the site are affected by statutory constraints as detailed below.

Statutory Constraint	Present ✓ ✗	Source	Details
TPO	✗	Knowsley Metropolitan Borough Council website	None present
Conservation Area	✗	Knowsley Metropolitan Borough Council website	None present
Ancient Woodland	✗	Multi Agency Geographical Information for the Countryside (MAGIC)	Not present

Table 2.1: Summary of Statutory Constraints that Affect the Site

Where a tree preservation order, conservation area or ancient woodland applies to trees within the assessment area, statutory constraints will apply to the development in respect of trees.

No works must be undertaken on the protected trees without prior permission from the Local Authority unless authorised as part of an approved planning application. Works include pruning, topping, lopping, uprooting or wilful damage or wilful destruction of these trees. Any proposed pruning works not currently approved will need to be fully specified and agreed within a future planning application.

2.2 Protected Species

Bats

Mature trees often contain cavities, hollows, peeling bark or woodpecker holes which provide potential roosting locations for bats. Bats and the places they use for shelter or protection (i.e. roosts) receive European protection under The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2017)¹. They receive further legal protection under the

¹ HM Government – The National Archives (2017) [online] The Conservation of Habitats and Species Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

Wildlife and Countryside Act (WCA) 1981², as amended. Consequently, causing damage to a bat roost constitutes an offence.

Generally, should the presence of a bat roost be suspected whilst completing works on any trees on site then an appropriately licensed bat worker should be consulted for advice.

Birds

Trees offer potential habitat for nesting birds which are protected under the Wildlife and Countryside Act (WCA) 1981, as amended. Some species (listed in Schedule 1 of the WCA) are protected by special penalties. This legislation makes it an offence to intentionally or recklessly damage or destroy an active bird nest or part thereof.

As the trees on, and adjacent, to the site provide potential habitat for nesting birds all tree work should ideally be completed outside the nesting bird season (Generally March to September).

If this is not possible then the vegetation should be subject to a nesting bird inspection by a suitably experienced ecologist prior to commencement of works. If any active nests are identified then the vegetation, and a defined buffer zone, will need to remain in place until the young have naturally fledged.

² HM Government – The National Archives 2017. *Wildlife and Countryside Act 1981*. [online] Available at: <http://www.legislation.gov.uk/ukpga/1981/69/contents>

3. Arboricultural Method Statement

3.1 Introduction

The following sections of this report detail the specific protection measures, working methodologies and pruning requirements to be adopted as part of the demolition and construction phases of the project.

The principal contractor must ensure that they read and understand all of the following sections prior to commencement of site occupation.

Pre-commencement site meeting and site inductions

A pre-commencement site meeting involving the Project Arboriculturist and Principal Contractor will be undertaken at the beginning of the Enabling Works Phase, Main Construction Phase, Post Construction Phase.

Details of tree protection and methods of working around trees will be included within site inductions to new members of site staff. A copy of this document and the related Tree Protection Plan will be kept on site and referred to by operatives working near retained trees.

Monitoring/Audits

An inspection audit will be implemented by the Project Arboriculturist once the protective measures have been installed and prior to site occupation to ensure they provide the level of protection required for retained trees. Feedback will be provided to the Local Planning Authority Arboricultural Officer on completion of this visit and monthly audits of the tree protection measures will be undertaken by the Project Arboriculturist to ensure they remain in position and fit for purpose.

Use of Subcontractors

The Principal Contractor will be responsible for ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any retained tree. If any issues arise in relation to the retained trees the Project Arboriculturist will be contacted for advice.

3.2 Enabling Works

Tree Work

All tree work should conform to BS3998:2010 and be completed prior to the installation of the tree protection measures and site occupation by demolition or construction contractors.

Hedgerow Reference	Species	BS5837 Category	Retained ✓ ✗	Comments
H1	Mixed species	C	✗	To facilitate the installation of new car parking bays and EV charging points.
T1	Silver birch	C	✓	Southern crown lift and or branch tie back to facilitate contractor access workspace when completing boundary fencing installation and soft landscaping.

Hedgerow Reference	Species	BS5837 Category	Retained ✓ ✗	Comments
T2	Silver birch	B	✓	Southern crown lift and or branch tie back to facilitate contractor access workspace when completing boundary fencing installation and soft landscaping.
T3	English elm	B	✓	Southern crown lift and or branch tie back to facilitate contractor access workspace when installing the new Car parking bays and EV charging points.
T4	Silver birch	C	✓	Southern crown lift and or branch tie back to facilitate contractor access workspace when installing the new Car parking bays and EV charging points.
T5	Beech	C	✓	Southern crown lift and or branch tie back to facilitate contractor access workspace when installing the new Car parking bays and EV charging points.
T6	Norway maple	B	✓	Southern crown lift and or branch tie back to facilitate contractor access workspace when installing the new Car parking bays and EV charging points.
T7	Norway maple	B	✓	Southern crown lift and or branch tie back to facilitate contractor access workspace when installing the new Car parking bays and EV charging points.
G1	Beech	B	✓	Southern crown lift and or branch tie back to facilitate contractor access workspace when installing the new Car parking bays and EV charging points.

Table 3.1: Trees to be Removed or Pruned

Site Setup, Compound, Materials Storage and Vehicle Parking

At the time of writing, the location of the site compound had not been formally identified, however, sufficient space is present within the site to accommodate the compound outside of Construction Exclusion Zones and its establishment is unlikely to result in harm to retained trees.

Topsoil Stripping / Subsoil Regrading

Topsoil stripping and regrading of subsoils will not occur within the RPA of any retained tree. Stored soil created from topsoil stripping will not be stored within any Demolition or Construction Exclusion Zone.

Where regrading works are to be carried out within the RPAs of retained trees, these must be supervised by the Project Arboriculturist. No machinery must be located or stored within the RPAs of retained trees and all work must be carried out from the perimeter of RPA, working towards the trees where necessary in a precautionary manner. The spoil created from these works will not be stored within the RPA. Uncovered roots need to be assessed by the Project Arboriculturist. If deemed necessary, minor roots (<25 mm in diameter) uncovered by the works shall be pruned using clean, sterilised pruning saw or secateurs, leaving as small a pruning

wound as possible. If a major root (>25 mm in diameter) is found, then works will be redesigned to accommodate any large roots found.

3.3 Main Works (Construction)

Construction Exclusion Zone

Protective barriers will be positioned to define the Construction Exclusion Zone (CEZ). Signs will be installed on the barriers to inform site contractors of the importance of the tree protection measures and no works that cause physical damage to retained trees, compaction of the soil or severance of tree roots will occur within any exclusion zone. The extent of the CEZ encompasses the Root Protection Area (RPA) and / or tree canopy, whichever is the greatest.

No works, including storage of construction materials shall take place within the Construction Exclusion Zone as defined by the protective barriers.

The proposed location of the protective barriers surrounding the CEZ is identified on the Tree Protection Plan attached. The barriers will remain in place until completion of the demolition phase and will be adjusted as required to form the Construction Exclusion Zone (CEZ) prior to the next phase.

Removal of Hard Surfaces

Removal of hard surfaces are required within the RPAs of retained trees to facilitate the construction of new car parking spaces.

The following methodology should be followed to ensure that the sub surface conditions of the trees RPAs are not changed, and as result there is no impact, or damage to the tree roots and soil structure.

1. Prior to works commencing, the areas of re surfacing will be marked out.
2. The existing asphalt hard surface present within the area will be carefully broken and removed using an excavator mounted breaker and a flat edged bucket, now waste material shall left piled within the RPAs of retained trees.
3. The existing subbase layer should be retained, and the new hard surface finish material laid on this. Where this is not possible the Project Arboriculturist must be present for the removal and replacement of the subbase layer to manage and minimise the loss of any roots found during this work practice.

Installation of Utilities within RPAs

The installation of new subterranean utilities will require works within the Root Protection Areas of retained trees for the installation of EV charging points. The proposed works will be completed following the methodology as set out below and under supervision of the project arboriculturist. The following methodology must be adhered to:

1. The positions of the EV charging posts shall be marked out and the post setting holes will be hand dug under supervision to ensure root disturbance and root loss is at a minimum.
2. To avoid compaction within the RPAs of the retained trees affected by the works to install the EV charging points, all contractors and any plant and machinery will work from the south of the trees on the existing asphalt hard surfaced ground, and any waste material

from the works must not be stored in the soft landscaped areas of the retained trees RPAs during the works.

3. Pruning or branch tie back of lower branches to provide clearance for the contractors will be undertaken by a suitably qualified and experienced tree surgeon under supervision of the Project Arboriculturist prior to commencement of the works.
4. Following completion of the hand digging of the EV post setting holes, a trenchless impact moiling technique will be used to insert the required power cable to the EV post.
5. An ingress pit or trench will be excavated outside of the retained trees RPAs and the power cable will be pneumatically hammer driven underground to the EV charge point, post setting hole.
6. Before the setting of the EV charging post and connection of the power cable to the EV charging post, the post setting hole will be lined with a non-permeable DPM type material to ensure that the poured concrete does not leach into the RPAs soil.

Works will not occur where the ambient air temperature is less than +4 °C. Roots shall be temporarily recovered with soil where the ambient temperature exceeds 14 °C or completion of the works is not foreseen within 24 hours of the finished excavation.

3.4 Post Construction Works

Removal of Protective Barriers

Protective barriers will be removed once all external main construction works have been completed to allow the completion of hard and soft landscaping. Barriers shall be removed carefully to ensure no damage to retained trees occurs.

Hard Landscaping

Hard landscaping works that have the potential to cause physical damage to retained trees, compaction of the soil or severance of tree roots shall not occur within the precautionary zones (RPA / canopy) unless under supervision of the Project Arboriculturist. Any hard landscaping works taking place within the precautionary zones surrounding retained trees should be completed in accordance with this AMS following advice from the Project Arboriculturist.

No unsupervised works or storage of hard landscaping construction materials shall occur within the Precautionary Zones (former CEZ).

Soft Landscaping

All soft landscaping within the exclusion zone will be undertaken by hand and in accordance with BS8545³.

A 500 mm radius from any tree stem will remain uncovered by turf or other planting to allow penetration of water and air into the soil. A propriety mulch will be applied to a depth of 100mm to inhibit weed and growth, reduce groundwater evaporation, resist and mitigate soil compaction, reduce maintenance requirements and act as a slow-release fertilizer.

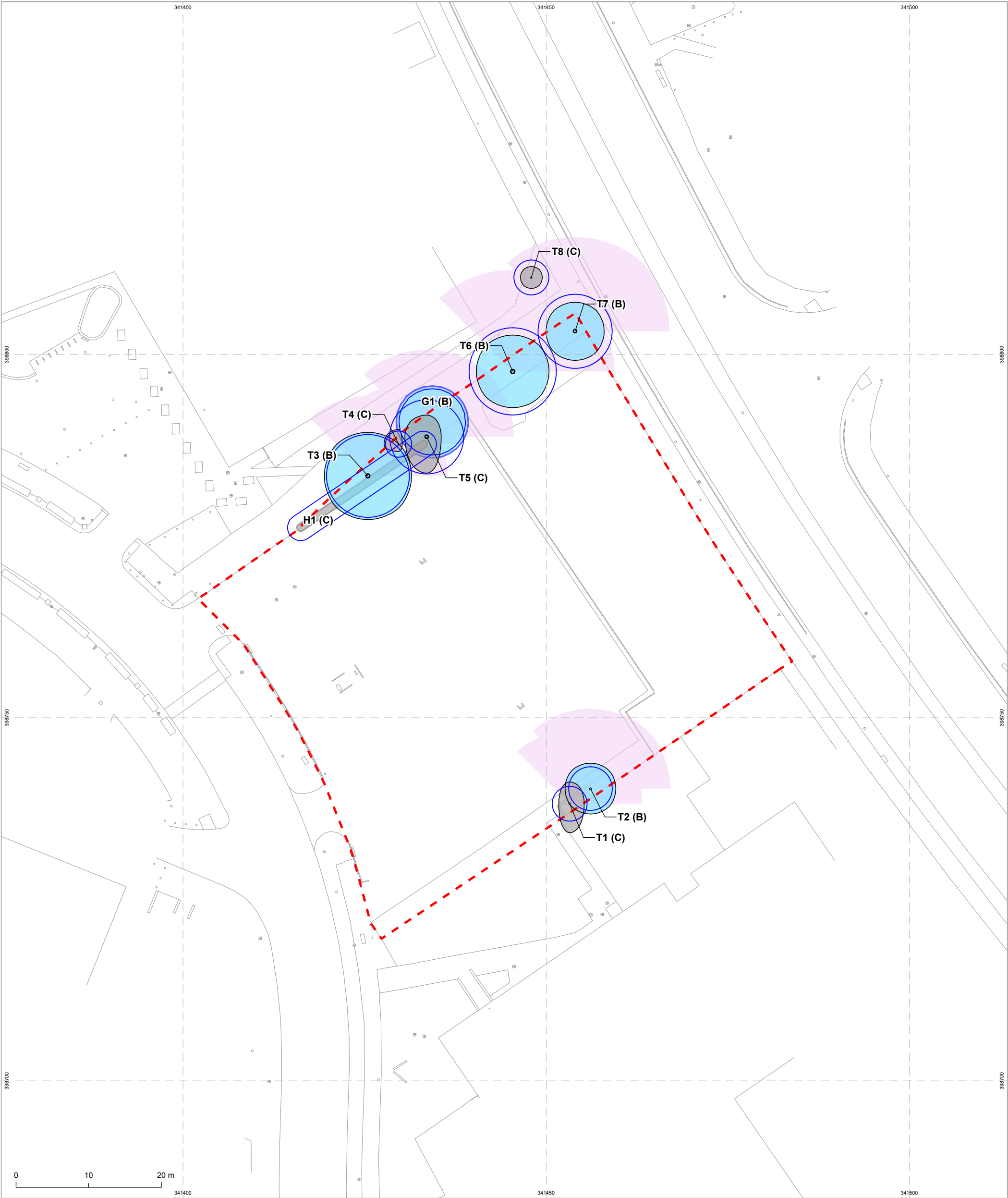
³ British Standards Institution. (2014). *British Standard 8545:2014, Trees: from nursery to independence in the landscape – Recommendations*. British Standards Institution, London.

3.5 Handover and Close Out

Tree Safety Assessment

A tree safety assessment will be required prior to handing over the site to the client for final site use to ensure all retained trees are in good condition and any potential hazards are mitigated sufficiently. All retained trees should positively contribute to the new development and should be included as part of a management plan to ensure the long-term safety of site users.

This BS5837:2012 survey is not a full or thorough assessment of the health and safety of the trees on or adjacent to the site; and therefore, it is recommended that detailed tree inspections are undertaken on a regular basis with the express purpose of complying with the landowner's duty of care to satisfy health and safety requirements.



Legend

- Tree location and stem diameter
- Category B
- Category C
- Current canopy extent
- Root Protection Area
- Indicative tree shadow
- - Survey area

NOTES

All dimensions to be verified on site. Do not scale this drawing, use figured dimensions only. All discrepancies to be clarified with Project Arboriculturist. Drawing to be read in conjunction with Preliminary Arboricultural Assessment and Tree Schedule.

The positions of trees and their current crown spread, root protection area and shade pattern (where appropriate) have been shown on the Tree Survey Plan.

All survey data is based on a topographical survey where possible, supplied by the client.

Where topographical information has not identified tree positions or Ordnance Survey mapping has been utilised, trees have been positioned using GPS and aerial photography to provide approximate locations in relation to existing surrounding features. Further confirmation of tree and hedgerow locations through a topographical survey of the site is recommended to ensure future design accuracy.

The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

The exact position of individual trees or species included as part of a tree group, woodland or hedgerow should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken.

Further survey work would be required for calculating foundation depths in accordance with current Building Regulations requirements.

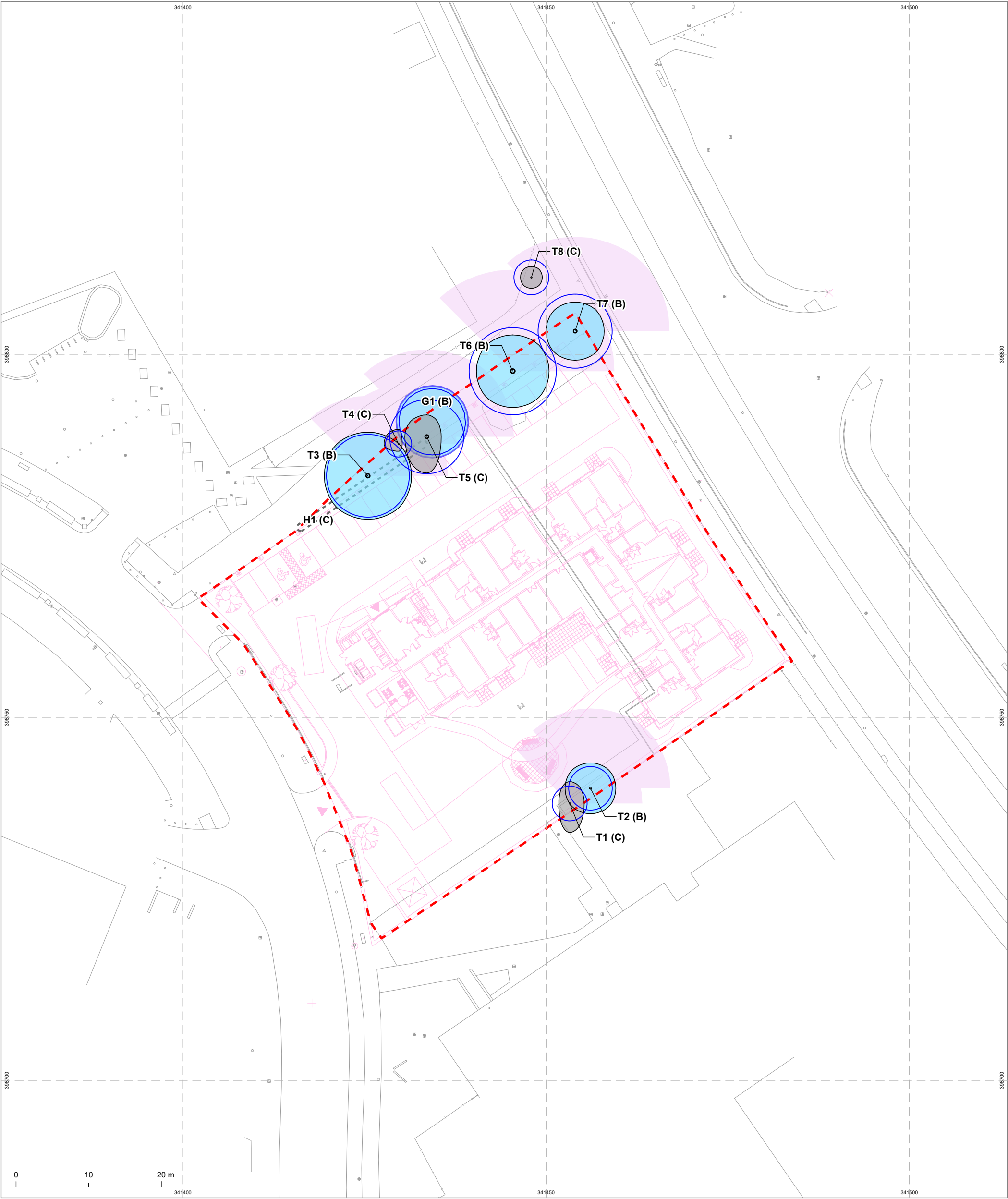
Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the Project Arboriculturist should works commence 12 months after the date of this survey.

TREES INCLUDED DURING THE ASSESSMENT MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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Project	Kirkby, St Chad's Drive, Liverpool	
Drawing	Tree Survey Plan	
Client	McCarthy & Stone	
Drawing Number	C161307-01-01	Revision 00
Scale @ A3	1:500	Date August 2023
Approved By	AH	Drawn By BD
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C161307-01-01



Legend

- Tree location and stem diameter
- Category B
- Category C
- Category C group to be removed
- Current canopy extent
- Root Protection Area
- Indicative tree shadow
- Survey area
- Proposed site layout

NOTES

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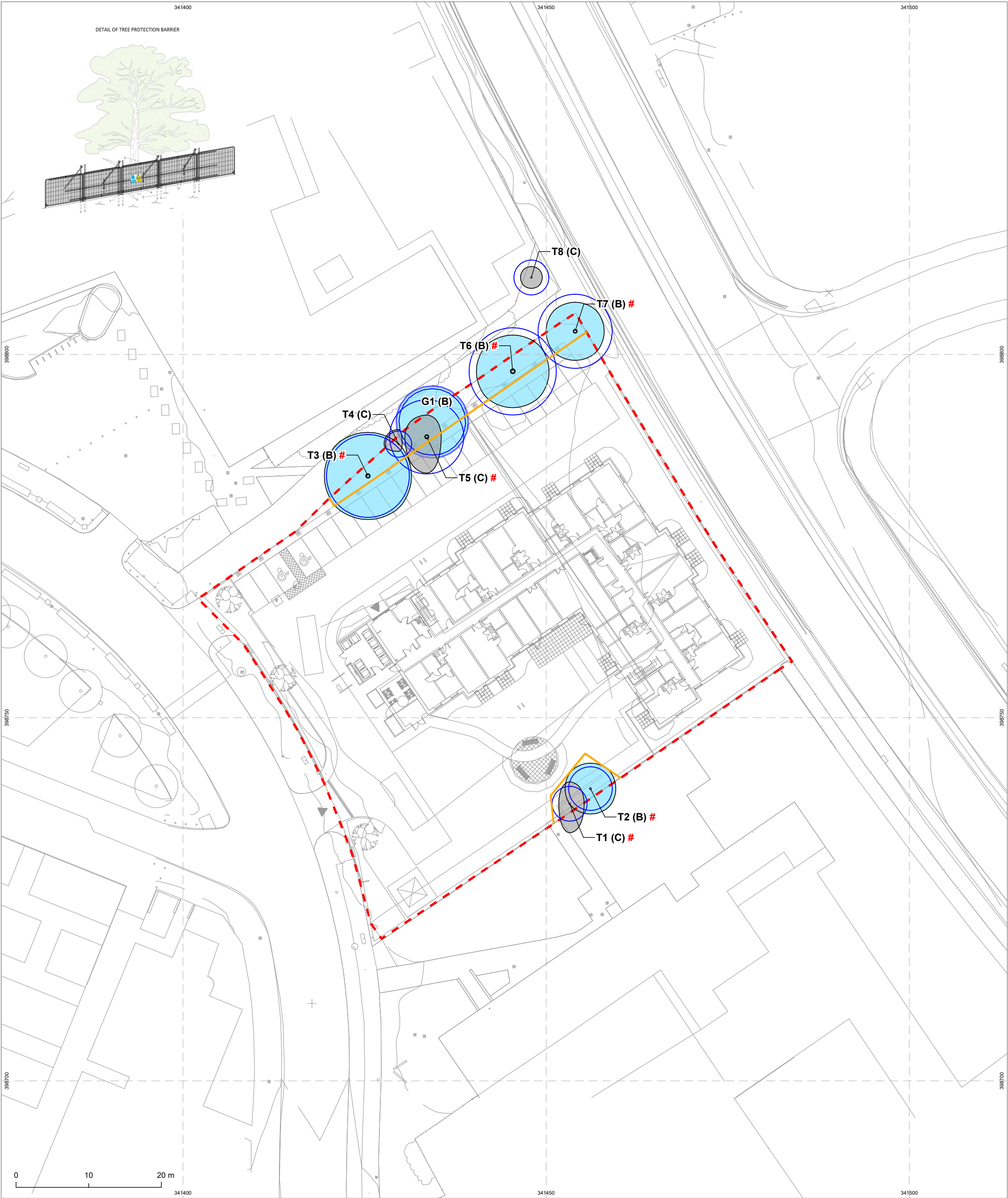
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Project	Kirkby, St Chad's Drive, Liverpool		
Drawing	Tree Retention Plan		
Client	McCarthy & Stone		
Drawing Number	C161307-02-01-RevA	Revision	Rev A
Scale @ A3	1:500	Date	November 2023
Approved By	AH	Drawn By	AW
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C161307-02-01-RevA



- Legend**
- Tree location and stem diameter
 - Category B
 - Category C
 - Current canopy extent
 - Root Protection Area
 - Tree protection barrier (BS5837:2012)
 - - - Survey area
 - # Tree pruning works required

NOTES

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C161307-03-01

Appendix A - Tree Schedule

Measurements	Age Class	Overall Condition	Root Protection Area (RPA)
Height - measured from ground level at base of stem/s (m).	YNG: Juvenile trees that have been recently planted.	G - Good: Trees with only a few minor defects and in good overall health needing little, if any attention.	- The RPA column gives the required area (m²). - The RPA Radius column gives the radius (m) of an equivalent circle. - The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the required rooting area in order for a tree to be retained.
Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837.	SM: Semi-mature, trees upto 1/3 life expectancy.	F - Fair: Trees with minor, but rectifiable, defects or in the early stages of stress from which it may recover.	
Crown - crown spread estimated radially from the main stem (m).	EM: Early mature, trees 1/3 – 2/3 life expectancy.	P - Poor: Trees with major structural and/or physiological defects such that it is unlikely the tree will recover in the long term.	
Abbreviations Est - Estimated stem diameter Avg - Average stem diameter Max - Maximum stem diameter	M: Mature trees, upto 2/3 life expectancy.	D - Dead: Trees no longer alive. This could also apply to trees that are dying and unlikely to recover.	
	OM: Over mature, declining or moribund trees of low vigour.	In the assessment, of the BS category, particular consideration has been given to the following - The health, vigour and condition of each tree - The presence of any structural defects in each tree and its future life expectancy - The size and form of each tree and its suitability within the context of a proposed development - The location of each tree relative to existing site features e.g. its screening value or landscape features	
	V: Veteran, tree possessing certain attributes relating to veteran trees.	- Age class - Life expectancy	

Structural Condition

The following has been considered when inspecting structural condition:

- The presence of fungal fruiting bodies around the base of the tree or on the stem, as they could possibly indicate the presence of possible internal decay.
- Soil cracks and any heaving of the soil around the base.
- Any abrupt bends in branches and limbs resulting from past pruning.
- Tight or weak 'V' shaped forks and co-dominant stems.
- Hazard beam formations and other such biomechanical related defects (as described by Claus Mattheck, Body Language of Trees HMSO Research for Amenity Trees No. 4 1994).
- Cavities as a result of limb losses or past pruning.
- Broken branches or storm damage.
- Canker formations.
- Loose or flaking bark.
- Damage to roots.
- Basal, stem or branch / limb cavities.
- Crown die-back or abnormal foliage size and colour.
- Any changes to the timing of normal leaf flush and leaf fall patterns.

Quality Assessment of Retention Category

Category U - Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

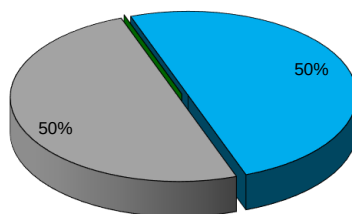
Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Category C - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

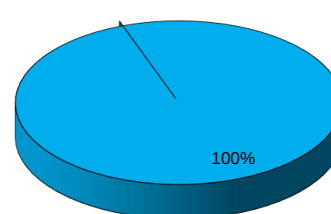
Sub-categories: (i) - Mainly arboricultural value
(ii) - Mainly landscape value
(iii) - Mainly cultural or conservation value

BS5837 category: Individuals



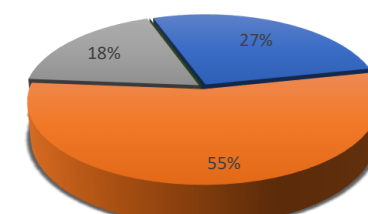
■ Category U ■ Category A
■ Category B ■ Category C

BS5837 category: Groups of trees



■ Category U ■ Category A
■ Category B ■ Category C

Age distribution of tree stock



■ Young ■ Semi Mature ■ Early Mature
■ Mature ■ Over Mature ■ Veteran

Appendix A - Summary

	Individual Trees	Totals	Tree Groups	Totals
Category U		0		0
Category A		0		0
Category B	T2, T3, T6, T7	4	G1	1
Category C	T1, T4, T5, T8	4		0
	Total	8	Total	1

	Hedgerows	Totals	Woodlands	Totals
Category U		0		0
Category A		0		0
Category B		0		0
Category C	H1	1		0
	Total	1	Total	0

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
T1	Silver birch	10.0	3.0	1	200	3.0	2.0	4.0	1.5	SM	P	F	18	2.4	C 1	Apical dieback Branch socket cavity observed Branch stubs observed Dense ivy on the stem Hard surfaces within the rooting area Area of included bark observed Major deadwood in the crown Minor deadwood in the crown Lateral dieback observed Pruning wounds observed Tree is showing signs of decline
T2	Silver birch	11.0	2.0	1	240	3.5	3.5	3.5	3.5	SM	F	F	28	3.0	B 1	Branch stubs observed Estimated dimensions Hard surfaces within the rooting area Included unions observed Minor deadwood in the crown Pruning wounds observed
T3	English elm	11.0	2.0	1	460	6.0	6.0	6.0	6.0	SM	F	F	102	5.7	B 1	Branch stubs observed Epicormic growth observed in the crown Included unions observed Hard surfaces within the rooting area Pruning wounds observed Major deadwood in the crown Minor deadwood in the crown

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
T4	Silver birch	8.0	2.5	1	150	2.0	0.5	1.0	2.0	Y	P	F	10	1.8	C 1	Branch socket cavity observed Apical dieback Branch stubs observed Epicormic growth on the main stem Epicormic growth observed in the crown Hard surfaces within the rooting area Included unions observed Lateral dieback observed Major deadwood in the crown Minor deadwood in the crown Pruning wounds observed Tear wounds present Tree is showing signs of decline
T5	Beech	12.0	2.0	2	370 190	3.0	2.0	5.0	3.0	EM	P	P	81	5.1	C 1	Apical dieback Branch stubs observed Branch socket cavity observed Building within the rooting area Epicormic growth on the main stem Epicormic growth observed in the crown Hard surfaces within the rooting area Exposed heartwood Area of included bark observed Included unions observed Lateral dieback observed Major deadwood in the crown Minor deadwood in the crown Pruning wounds observed Tear wounds present Tree is showing signs of decline Wound present on main stem

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
T6	Norway maple	14.0	2.0	1	490	5.0	5.0	5.0	5.0	EM	F	F	113	6.0	B 1	Apical dieback Branch stubs observed Hard surfaces within the rooting area Building within the rooting area Minor deadwood in the crown Major deadwood in the crown Pruning wounds observed
T7	Norway maple	13.0	2.0	1	420	4.0	4.0	4.0	4.0	SM	F	F	81	5.1	B 1	Branch stubs observed Hard surfaces within the rooting area Minor deadwood in the crown No obvious defects observed Typical crown form
T8	Norway maple	3.0	1.5	1	180	1.5	1.5	1.5	1.5	Y	F	F	18	2.4	C 1	No obvious defects observed Typical crown form

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
G1	Beech	14.0	1.5	-	260	5.0	2.5	4.0	2.5	SM	F	F	34	3.3	B 1	Conjoined canopy Branch stubs observed Hard surfaces within the rooting area Building within the rooting area Minor deadwood in the crowns Small hanging branches in the crowns

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
H1	Dogwood Beech English elm	1.0	0.0	-	150	0.5	0.5	0.5	0.5	Y SM	F	P	10	1.8	C 1,2	Managed



**PROTECTIVE FENCING. THIS
FENCING MUST BE
MAINTAINED IN ACCORDANCE
WITH THE APPROVED PLANS
AND DRAWINGS FOR THIS
DEVELOPMENT.**



**TREE PROTECTION AREA
KEEP OUT !**

**(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A
TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY
LEAD TO CRIMINAL PROSECUTION**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE
WITH THE WRITTEN PERMISSION OF THE LOCAL
PLANNING AUTHORITY**



Report Verification

Report Version	Date	Completed by:	Checked & Approved by:
Final	16/11/2023	Andrew Hastings FdSc MArborA Senior Arboricultural Consultant	Duncan Smith BSc (Hons) MArborA Arboricultural Manager
Rev A	30/11/2023	Andrew Hastings FdSc MArborA Senior Arboricultural Consultant	Duncan Smith BSc (Hons) MArborA Arboricultural Manager

Declaration of Compliance

This study has been undertaken in accordance with British Standard 5837:2012 '*Trees in Relation to Design, Demolition and Construction – Recommendations*'.

Disclaimer

The contents of this report are the responsibility of Middlemarch. It should be noted that, whilst every effort is made to meet the client's brief, no site investigation can ensure complete assessment or prediction of the natural environment.

Middlemarch accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

Validity of Data

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified and experienced arboriculturist to assess any changes to the trees, groups, and hedgerows on site and to inform a review of the conclusions and recommendations made.

It should be noted that trees are dynamic living organisms that are subject to natural changes as they age or are influenced by changes in their environment. As such, following any significant meteorological event or changes in the growing environment of the trees they should be re-assessed by a suitably qualified and experienced arboriculturist.

This Arboricultural Impact Assessment has been produced following a review of a proposed development layout for the site based on data provided by the client. Should the development proposals change, this report will need to be updated to assess the impact of the amended development.

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1. Introduction

1.1 Project Background

This Arboricultural Impact Assessment was commissioned by McCarthy & Stone to accompany a planning application for commercial development at Kirkby, St Chad's Drive, Liverpool. A survey of the trees on site and within influencing distance of the boundaries was undertaken on the 16th August 2023 as part of a Preliminary Arboricultural Assessment to aid design and avoid unnecessary tree removal.

This Arboricultural Impact Assessment has been carried out in accordance with British Standard 5837:2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*'¹ (hereafter referred to as BS5837).

The purpose of this report is to:

- Review the relationship between the proposed development and the existing trees and hedgerows identified during the Preliminary Arboricultural Assessment.
- Provide a Tree Retention Plan to determine trees and hedgerows to be retained and removed in the context of the proposed development.
- Identify mitigation to offset any tree or hedgerow loss as part of the development proposals.
- Identify all areas where specific working methods are required to ensure protection of retained trees and hedgerows as part of an Arboricultural Method Statement.

1.2 Site Description, Drawings and Appendices

Attribute	Description
Location	St Chad's Drive, Kirkby, Liverpool.
National Grid Reference	SJ 41433 98763
Topography	Flat
Tree Cover	Medium and Low quality - Individual trees and a single group of trees – sporadic planted.
Drawings attached	Tree Survey Plan – C161307-01-01 Tree Retention Plan – C161307-02-01-Rev A
Appendices	Appendix A – Tree Schedule

Table 1.1: Summary of Site and Surroundings

¹ British Standards Institution. (2012). *British Standard 5837:2012, Trees in relation to design, demolition, and construction – Recommendations*. British Standards Institution, London.

1.3 Development Proposals

The proposed development of the site includes the construction of new retirement living accommodation and associated soft and hard landscaping.

1.4 Documentation Provided

This assessment is based upon the information provided by the client in addition to information collected by Middlemarch during the Preliminary Arboricultural Assessment, as detailed below.

Author	Document	Drawing Number	Date
Bright Space Architects	Proposed Site Plan	1002-Rev A	17.11.23
fda landscape	Landscape Masterplan	R/2714/1A	Oct - 23
GGP Consult	Proposed Surface Water Drainage Plan	29958 / 104 – Rev B	Nov -23

Table 1.2: Documentation Provided

2. Survey Methodology

2.1 Survey Scope

To determine the status of the trees within the site, a full arboricultural survey has been undertaken, assessing the species and status of all trees present. This survey has been carried out in accordance with BS5837.

All individual trees with a stem diameter greater than 75 mm are shown on the Tree Survey Plan and have been assigned a unique reference number. Trees were visually assessed and a schedule prepared listing:

- Tree number
- Species
- Tree height
- Minimum crown clearance
- Stem diameter
- Crown spread
- Age class
- Vigour
- Structural condition

Measurements for tree height, minimum crown clearance and crown spread were taken to an accuracy of 0.5 m. Stem diameter measurements were recorded to the nearest 10 mm. Any specific observations were also noted. All observations and measurements are included in Appendix A Tree Schedule.

Trees were assessed and assigned one of the following categories:

Category U:

Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

Category A:

Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B:

Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Category C:

Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.

Categories A, B and C have further sub-categories with regards to the reasons for tree retention:

- Mainly arboricultural qualities.
- Mainly landscape qualities.
- Mainly cultural values, including conservation.

N.B. Certain trees considered unsuitable to retain in their current context (Retention Category U) may possess existing or potential conservation value which make them desirable to preserve in the context of wildlife habitat (e.g. areas with limited public access).

2.2 Root Protection Area (RPA)

To avoid damage to the roots or rooting environment of retained trees, the RPA has been calculated for each of the Category A, B and C trees in accordance with section 4.6 of BS5837. BS5837 recommends this as the minimum area around a tree that contains sufficient roots and rooting volume to maintain viable tree vigour and structure. Where groups of trees have been assessed, the Root Protection Area has been shown based on the maximum sized tree stem in each group and so may exceed the Root Protection Area required for some of the individual specimens within the group. Further detailed inspection of the individual trees forming a group may be required where development impacts upon individual trees forming the combined group.

Protection of the roots and soil structure within the RPA should be treated as a priority. These figures have been calculated utilising the formulas within Section 4.6 and Annex D of BS5837.

2.3 Tree Schedule

Appendix A details the individual trees, groups, hedgerows, and woodlands (where present) and includes the relevant information for each at the time of inspection. General observations of any structural and physiological condition and the presence of any decay or physical defects have also been included.

2.4 Assessment Limitations

This survey has been undertaken in accordance with BS5837 and trees with a stem diameter of less than 75mm and the specific location of species within a hedgerow have not been identified in accordance with the guidance. It may therefore be necessary during detailed design to undertake further assessment and accurate positioning of juvenile trees or woody species within hedgerows and tree groups to assist structural calculations for foundation design of structures in accordance with current building regulations and NHBC Chapter 4.2 *Building near Trees*².

This survey is not a full or thorough assessment of the health and safety of the trees on or adjacent to the site; and therefore, it is recommended that detailed tree inspections are undertaken on a regular basis with the express purpose of complying with the landowner's duty of care to satisfy health and safety requirements.

For the purposes of this assessment, a hedgerow is described as a line of trees or shrubs with canopies less than 5m wide which is regularly managed through pruning. Where trees are present within a hedgerow that are significantly different in character from the remainder, these have been identified and recorded separately. A tree survey in accordance with BS5837 does

² National House Building Council. (2022). *NHBC Standards 2022: Chapter 4.2 - Building Near Trees*. NHBC, Milton Keynes.

not assess hedgerows against the Hedgerow Regulations 1997³ or from an ecological perspective.

The exact position of individual trees or species included as part of a tree group, hedgerow or woodland should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken.

2.5 Conditions of Tree Survey

The survey was completed by a suitably qualified and experienced Arboriculturist from ground level and from within the boundary of the site. Aerial tree inspections or the internal condition of the stem/s or branches was not undertaken at this stage. Evaluation of tree condition given within this assessment applies to the date of survey and cannot be assumed to remain unchanged. It may be necessary to review these within 12 months, in accordance with sound arboricultural practice.

All survey data is based on a topographical survey where possible, supplied by the client. Where topographical information has not identified tree positions or Ordnance Survey mapping has been utilised, trees and hedgerows have been positioned using GPS and aerial photography to provide approximate locations in relation to existing surrounding features. Further confirmation of tree and hedgerow locations through a topographical survey of the site is recommended to ensure future design accuracy.

2.6 Tree Survey Plan

The Tree Survey Plan identifies the existing trees including above and below ground constraints which should be considered during the design process.

2.7 Tree Retention Plan

The Tree Retention Plan identifies which trees and hedgerows are to be retained and incorporated as part of the site development and which are to be removed.

³ Department of the Environment, Transport, and the Regions: London. (1997). *The Hedgerows Regulations 1997: A Guide to the Law and Good Practice*.

3. Statutory Protection

3.1 Tree Preservation Order and Conservation Area Protection

A desk-based study was undertaken to identify if any of the trees present within or near the site are affected by statutory constraints as detailed below.

Statutory Constraint	Present ✓ ✗	Source	Details
TPO	✗	Knowsley Metropolitan Borough Council website	None present
Conservation Area	✗	Knowsley Metropolitan Borough Council website	None present
Ancient Woodland	✗	Multi Agency Geographical Information for the Countryside (MAGIC)	Not present

Table 3.1: Summary of Statutory Constraints that Affect the Site

Where a tree preservation order, conservation area or ancient woodland applies to trees within the assessment area, statutory constraints will apply to the development in respect of trees.

No works must be undertaken on the protected trees without prior permission from the Local Authority unless authorised as part of an approved planning application. Works include pruning, topping, lopping, uprooting or wilful damage or wilful destruction of these trees. Any proposed pruning works not currently approved will need to be fully specified and agreed within a future planning application.

3.2 Protected Species

Bats

Mature trees often contain cavities, hollows, peeling bark or woodpecker holes which provide potential roosting locations for bats. Bats and the places they use for shelter or protection (i.e. roosts) receive European protection under The Conservation of Habitats and Species Regulations 2017 (Habitats Regulations 2017)⁴. They receive further legal protection under the

⁴ HM Government – The National Archives (2017) [online] *The Conservation of Habitats and Species Regulations 2017*. Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

Wildlife and Countryside Act (WCA) 1981⁵, as amended. Consequently, causing damage to a bat roost constitutes an offence.

Generally, should the presence of a bat roost be suspected whilst completing works on any trees on site then an appropriately licensed bat worker should be consulted for advice.

Birds

Trees offer potential habitat for nesting birds which are protected under the Wildlife and Countryside Act WCA 1981 (as amended). Some species (listed in Schedule 1 of the WCA) are protected by special penalties. This legislation makes it an offence to intentionally or recklessly damage or destroy an active bird nest or part thereof.

As the trees on, and adjacent, to the site provide potential habitat for nesting birds all tree work should ideally be completed outside the nesting bird season (Generally March to September).

If this is not possible then the vegetation should be subject to a nesting bird inspection by a suitably experienced ecologist prior to commencement of works. If any active nests are identified then the vegetation, and a defined buffer zone, will need to remain in place until the young have naturally fledged.

⁵ HM Government – The National Archives 2017. *Wildlife and Countryside Act 1981*. [online] Available at: <http://www.legislation.gov.uk/ukpga/1981/69/contents>

4. Results Summary

4.1 Preliminary Arboricultural Assessment

The assessment identified eight individual trees, one group of trees and one hedgerow as detailed in Appendix A Tree Schedule and Table 4.1 below.

BS5837:2012 Category	Tree/ Group/ Hedgerow Reference
U	-
A	-
B	T2, T3, T6, T7, G1.
C	T1, T4, T5, T8, H1.

Table 4.1: Summary of Trees, Groups and Hedgerows in BS5837:2012 Categories

The assessment area comprised a parcel of land which, at the time of the survey, was being utilised as a public car park. An area of amenity grass stood to the northeast and adjacent to a busy public highway known as County Road which provided access to the town of Kirkby, Merseyside.

Tree cover recorded during the survey was of moderate to poor quality and was positioned along the northern and southern boundaries of the site.

Four trees and one group of trees (Retention Category B) including Silver birch, English elm and Norway maple were located on the northern boundary. These trees displayed both fair vigour and structure, with no obvious defects and were a prominent feature in the landscape despite being of modest proportions. The position of this linear line of trees offered future visual amenity value to the site and the wider community.

Two Silver birch trees (T1 and T2) stood on the southern boundary and were found to be of low and moderate quality respectively.

The remaining individual trees, and hedgerow were considered to be of low quality (Retention Category C), due to a combination of defects or their juvenile age class. The trees within this category offered limited amenity value and several trees displayed significant defects, such that the trees are unlikely to recover in the long term. Hedgerow H1 could however be improved through removal of adjacent hard surfaces, decompaction of the ground and application of nutrients which would encourage their growth and vigour.

5. Arboricultural Impact Assessment

5.1 Introduction

This section of the report details the potential impacts that the proposed development may have upon the site's tree stock. The assessment has been based upon the documents detailed in Table 1.1 with reference to the results of the Preliminary Arboricultural Assessment.

5.2 Tree Retention and Removal

The trees to be removed are detailed below and are identified on the Tree Retention Plan. All trees, groups and hedgerows not featured within the table below, are to be retained within the proposed development.

Tree/Group/Hedgerow Reference	Species	Retention Category	Reason for Removal
H1	Mixed species	C	Within the footprint of a linear line of new car parking bays kerbing, and new hard surfacing.

Table 5.1: Tree Removal

The proposed development will ensure the retention and incorporation of the vast majority of trees across the site alongside new tree planting as part of the wider landscape strategy. However, the proposed development will require the removal of one hedgerow (H1).

5.3 Works within Root Protection Areas (RPA)

Some aspects of the proposed development will require works within the RPAs of retained trees as detailed below.

Tree/ Group/ Hedgerow Reference	Retention Category	Species	Proposed Works
T3	B	English elm	New car parking bays and EV charging points.
T4	C	Silver birch	New car parking bays and EV charging points.
T5	C	Beech	New car parking bays and EV charging points.
T6	B	Norway maple	New car parking bays and EV charging points.
T7	B	Norway maple	New car parking bays and EV charging points.
G1	B	Beech	New car parking bays and EV charging points.

Table 5.2: Works in RPAs

It should be noted that the RPAs affected by works to construct the new car parking spaces and install the new EV charge points are already hard-surfaced and root development from the surrounding trees in the affected areas may have been restricted. The potential for significant impact upon the trees as a result of the proposed works is therefore unlikely, however, further investigation through the use of root radar may be required to inform decision-making.

The installation of the new car parking bays and EV charging points will require works beneath the canopies of retained trees. All works within the RPAs or beneath the canopies of retained trees should be detailed as part of an Arboricultural Method Statement to ensure the method of construction is suitably considered.

5.4 Trees and Foundations

Any structures built on the site should comply with current building regulations and NHBC Chapter 4.2 - *Building near Trees* (2022)⁶. Foundation depths for buildings near or adjacent to trees should consider the potential size of the trees at maturity and their subsequent water demand. The soil types throughout the site should be fully investigated and appropriate measures taken. If trees are removed across the site, the potential for soil heave should be assessed and foundations designed accordingly.

This survey has been undertaken in accordance with BS5837 and further assessment in accordance with current building regulations will be required to inform foundation design.

5.5 Tree Pruning

Pruning of mature trees should only be undertaken where essential, to prevent open wounds that allow the ingress of decay and provide opportunity for fungal spores to infect the tree. Pruning works should ideally be undertaken during the winter months when the tree is dormant or during the summer months when the tree is fully active. Autumn pruning (when fungal spores are abundant in the surrounding atmosphere) should be avoided if possible. Juvenile trees should be formatively pruned in their early years to reduce the presence of potential defects into maturity that would reduce their lifespan.

All tree pruning works should be detailed as part of an Arboricultural Method Statement and completed in accordance with the current best practice guidance set out within BS3998:2010 *“Tree Work – Recommendations”*⁷ by suitably competent, qualified, and insured arboricultural contractors. The extent of pruning should be identified to contractors in a pre-commencement site meeting as part of enabling works.

⁶ National House Building Council. (2022). *NHBC Standards 2022: Chapter 4.2 - Building Near Trees*. NHBC, Milton Keynes.

⁷ British Standards Institution. (2010). *British Standard 3998:2010, Tree Work – Recommendations*. British Standards Institution, London.

5.6 New Tree Planting

As part of the development proposals, a quantity of five new trees are proposed to be planted as part of the new development. At the time of writing the details of the size and species was not confirmed. The purpose and function of the new tree planting should be carefully considered so that key objectives from a wildlife habitat and landscape perspective can also be achieved.

5.7 Shading

The shade from trees can be considered both a constraint and opportunity and therefore its effect upon the new development should be fully considered to ensure a harmonious and sustainable relationship can be achieved. Where residential development is proposed, the position and orientation of new buildings in relation to existing trees, primary living areas should receive the largest proportion of natural sunlight. BRE⁸ guidelines recommend *“at least half of the garden or open space should receive at least two hours sunlight on March 21 (Spring Equinox)”*.

⁸ Littlefair P. (2011). *Site layout planning for daylight and sunlight: a guide to good practice* (BR 209). British Research Establishment, Watford.

6. Conclusion

6.1 Summary of Impacts

The proposed development of the site is unlikely to significantly impact the visual amenity of the local area as a result of the proposed tree removal. Whilst some works are to be undertaken within the RPAs of retained trees, the nature of those works are such that they can be completed without causing significant impact, subject to the adoption of appropriate working practices as detailed in a future Arboricultural Method Statement following approval of the current planning application.

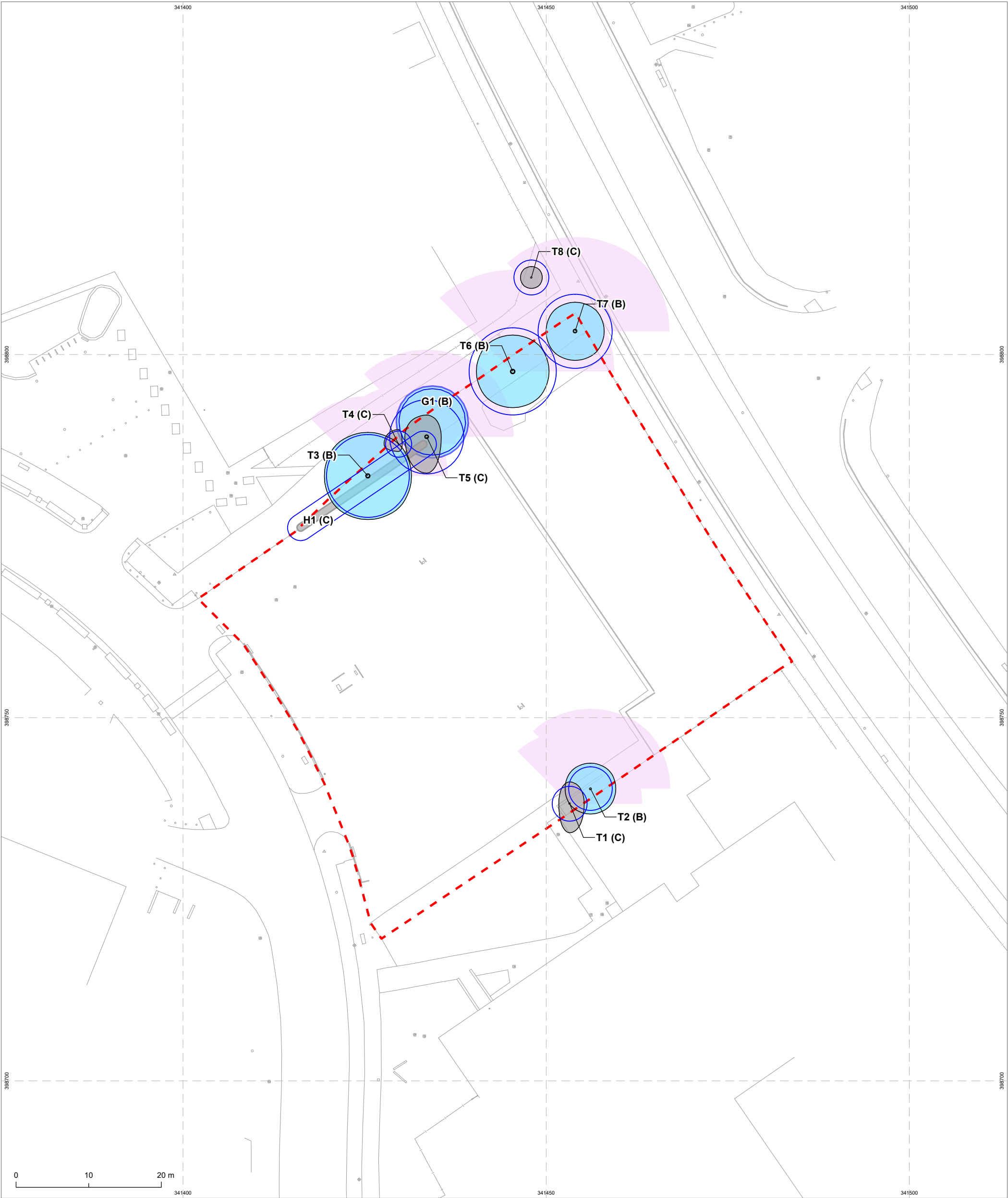
7. Arboricultural Method Statement

7.1 Introduction

An Arboricultural Method Statement will be required for the site as various aspects of the proposed development affect retained trees. The purpose of an Arboricultural Method Statement is to ensure that all site operations occur with minimal risk of adverse impact upon trees that are to be retained.

In relation to this development the Arboricultural Method Statement should address the following:

Action	Required
Tree Surgery	✓
Site set up and logistics	✓
Removal of hard surfaces within RPAs	✓
Working space to construct new buildings within RPAs	✗
Installation of utilities within RPAs	✓
Site access, material storage contractor's parking and site compound location	✓
Protective barrier and ground protection location and specification	✓
Pre-commencement site meeting	✓
Arboricultural Clerk of Works supervision	✓
Audit timetable	✓



Legend

- Tree location and stem diameter
- Category B
- Category C
- Current canopy extent
- Root Protection Area
- Indicative tree shadow
- Survey area

NOTES

All dimensions to be verified on site. Do not scale this drawing, use figured dimensions only. All discrepancies to be clarified with Project Arboriculturist. Drawing to be read in conjunction with Preliminary Arboricultural Assessment and Tree Schedule.

The positions of trees and their current crown spread, root protection area and shade pattern (where appropriate) have been shown on the Tree Survey Plan.

All survey data is based on a topographical survey where possible, supplied by the client.

Where topographical information has not identified tree positions or Ordnance Survey mapping has been utilised, trees have been positioned using GPS and aerial photography to provide approximate locations in relation to existing surrounding features. Further confirmation of tree and hedgerow locations through a topographical survey of the site is recommended to ensure future design accuracy.

The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

The exact position of individual trees or species included as part of a tree group, woodland or hedgerow should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken.

Further survey work would be required for calculating foundation depths in accordance with current Building Regulations requirements.

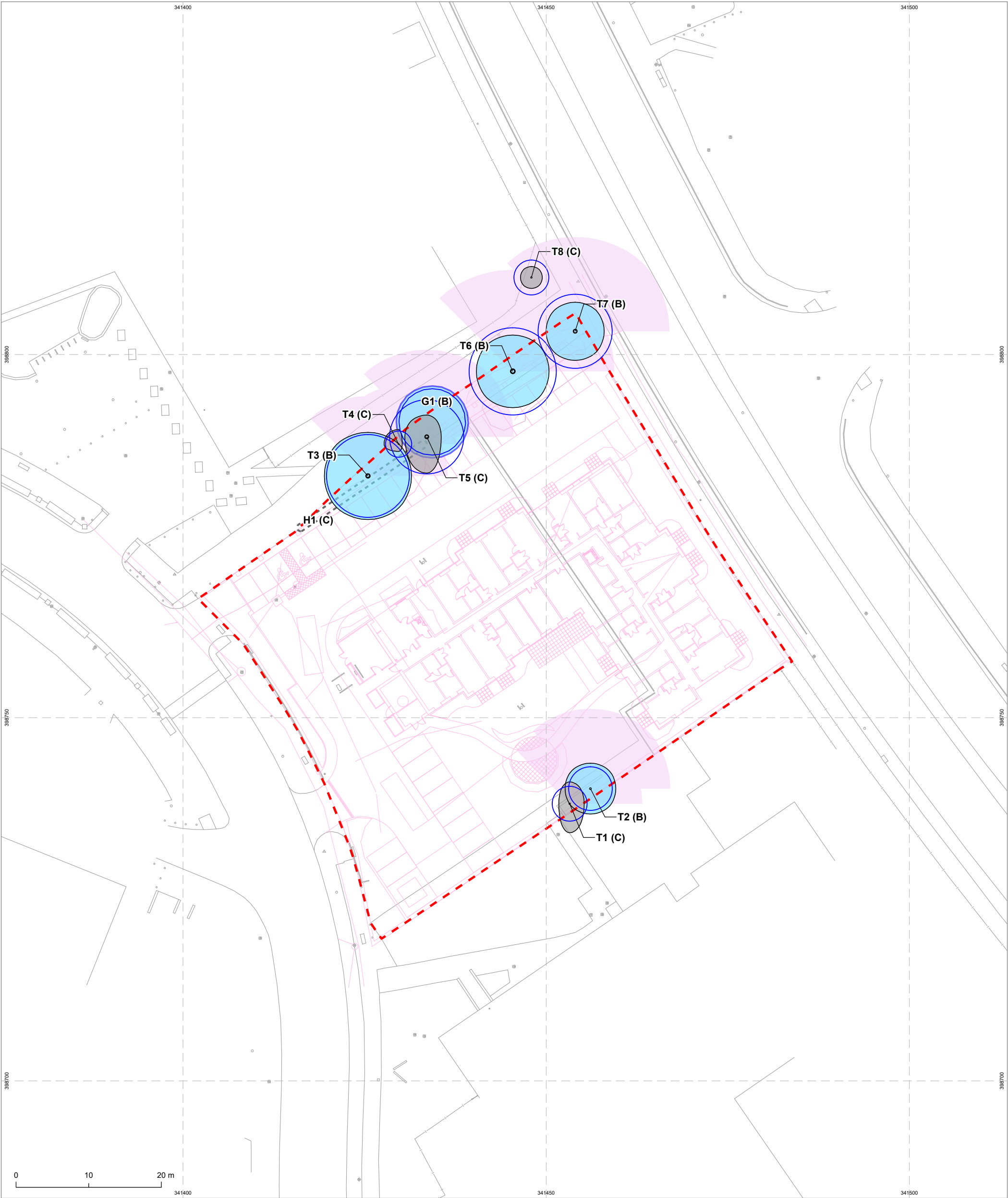
Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the Project Arboriculturist should works commence 12 months after the date of this survey.

TREES INCLUDED DURING THE ASSESSMENT MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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Project	Kirkby, St Chad's Drive, Liverpool	
Drawing	Tree Survey Plan	
Client	McCarthy & Stone	
Drawing Number	C161307-01-01	Revision 00
Scale @ A3	1:500	Date August 2023
Approved By	AH	Drawn By BD
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C161307-01-01



Legend

- Tree location and stem diameter
- Category B
- Category C
- Category C group to be removed
- Current canopy extent
- Root Protection Area
- Indicative tree shadow
- Proposed site layout
- Survey area

NOTES

All dimensions to be verified on site. Do not scale this drawing, use figured dimensions only. All discrepancies to be clarified with Project Arboriculturist. Drawing to be read in conjunction with Preliminary Arboricultural Assessment and Tree Schedule.

The positions of trees and their current crown spread, root protection area and shade pattern (where appropriate) have been shown on the Tree Survey Plan.

All survey data is based on a topographical survey where possible, supplied by the client.

Where topographical information has not identified tree positions or Ordnance Survey mapping has been utilised, trees have been positioned using GPS and aerial photography to provide approximate locations in relation to existing surrounding features. Further confirmation of tree and hedgerow locations through a topographical survey of the site is recommended to ensure future design accuracy.

The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

The exact position of individual trees or species included as part of a tree group, woodland or hedgerow should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken.

Further survey work would be required for calculating foundation depths in accordance with current Building Regulations requirements.

Trees are living organisms that change over time, the condition of all trees illustrated herein, are to be checked by the Project Arboriculturist should works commence 12 months after the date of this survey.

TREES INCLUDED DURING THE ASSESSMENT MAY BE SUBJECT TO STATUTORY CONSTRAINTS. IT IS THEREFORE ADVISED THAT NO WORKS SHOULD BE UNDERTAKEN TO ANY TREES ILLUSTRATED HEREIN WITHOUT FIRST OBTAINING THE RELEVANT AUTHORISATION TO DO SO UNLESS AGREED AS PER THE APPROVED PLANS THROUGH PLANNING CONSENT.

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Project	Kirkby, St Chad's Drive, Liverpool		
Drawing	Tree Retention Plan		
Client	McCarthy & Stone		
Drawing Number	C161307-02-01-RevA	Revision	Rev A
Scale @ A3	1:500	Date	November 2023
Approved By	AH	Drawn By	AW
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C161307-02-01-RevA

Appendix A - Tree Schedule

Measurements	Age Class	Overall Condition	Root Protection Area (RPA)
Height - measured from ground level at base of stem/s (m).	YNG: Juvenile trees that have been recently planted.	G - Good: Trees with only a few minor defects and in good overall health needing little, if any attention.	- The RPA column gives the required area (m²). - The RPA Radius column gives the radius (m) of an equivalent circle. - The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the required rooting area in order for a tree to be retained.
Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837.	SM: Semi-mature, trees upto 1/3 life expectancy.	F - Fair: Trees with minor, but rectifiable, defects or in the early stages of stress from which it may recover.	
Crown - crown spread estimated radially from the main stem (m).	EM: Early mature, trees 1/3 – 2/3 life expectancy.	P - Poor: Trees with major structural and/or physiological defects such that it is unlikely the tree will recover in the long term.	
Abbreviations Est - Estimated stem diameter Avg - Average stem diameter Max - Maximum stem diameter	M: Mature trees, upto 2/3 life expectancy.	D - Dead: Trees no longer alive. This could also apply to trees that are dying and unlikely to recover.	
	OM: Over mature, declining or moribund trees of low vigour.	In the assessment, of the BS category, particular consideration has been given to the following - The health, vigour and condition of each tree - The presence of any structural defects in each tree and its future life expectancy - The size and form of each tree and its suitability within the context of a proposed development - The location of each tree relative to existing site features e.g. its screening value or landscape features	
	V: Veteran, tree possessing certain attributes relating to veteran trees.	- Age class - Life expectancy	

Structural Condition

The following has been considered when inspecting structural condition:

- The presence of fungal fruiting bodies around the base of the tree or on the stem, as they could possibly indicate the presence of possible internal decay.
- Soil cracks and any heaving of the soil around the base.
- Any abrupt bends in branches and limbs resulting from past pruning.
- Tight or weak 'V' shaped forks and co-dominant stems.
- Hazard beam formations and other such biomechanical related defects (as described by Claus Mattheck, Body Language of Trees HMSO Research for Amenity Trees No. 4 1994).
- Cavities as a result of limb losses or past pruning.
- Broken branches or storm damage.
- Canker formations.
- Loose or flaking bark.
- Damage to roots.
- Basal, stem or branch / limb cavities.
- Crown die-back or abnormal foliage size and colour.
- Any changes to the timing of normal leaf flush and leaf fall patterns.

Quality Assessment of Retention Category

Category U - Trees in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.

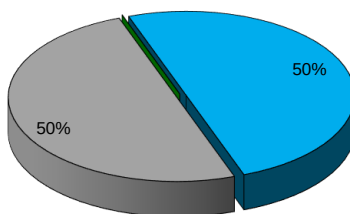
Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

Category C - Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm.

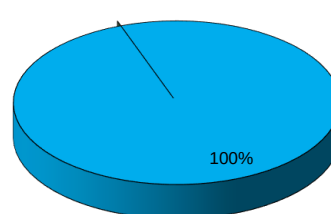
Sub-categories: (i) - Mainly arboricultural value
(ii) - Mainly landscape value
(iii) - Mainly cultural or conservation value

BS5837 category: Individuals



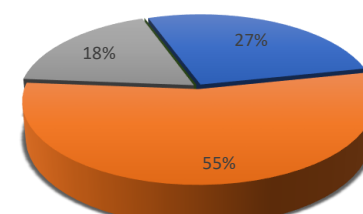
■ Category U ■ Category A
■ Category B ■ Category C

BS5837 category: Groups of trees



■ Category U ■ Category A
■ Category B ■ Category C

Age distribution of tree stock



■ Young ■ Semi Mature ■ Early Mature
■ Mature ■ Over Mature ■ Veteran

Appendix A - Summary

	Individual Trees	Totals	Tree Groups	Totals
Category U		0		0
Category A		0		0
Category B	T2, T3, T6, T7	4	G1	1
Category C	T1, T4, T5, T8	4		0
	Total	8	Total	1

	Hedgerows	Totals	Woodlands	Totals
Category U		0		0
Category A		0		0
Category B		0		0
Category C	H1	1		0
	Total	1	Total	0

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
T1	Silver birch	10.0	3.0	1	200	3.0	2.0	4.0	1.5	SM	P	F	18	2.4	C 1	Apical dieback Branch socket cavity observed Branch stubs observed Dense ivy on the stem Hard surfaces within the rooting area Area of included bark observed Major deadwood in the crown Minor deadwood in the crown Lateral dieback observed Pruning wounds observed Tree is showing signs of decline
T2	Silver birch	11.0	2.0	1	240	3.5	3.5	3.5	3.5	SM	F	F	28	3.0	B 1	Branch stubs observed Estimated dimensions Hard surfaces within the rooting area Included unions observed Minor deadwood in the crown Pruning wounds observed
T3	English elm	11.0	2.0	1	460	6.0	6.0	6.0	6.0	SM	F	F	102	5.7	B 1	Branch stubs observed Epicormic growth observed in the crown Included unions observed Hard surfaces within the rooting area Pruning wounds observed Major deadwood in the crown Minor deadwood in the crown

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
T4	Silver birch	8.0	2.5	1	150	2.0	0.5	1.0	2.0	Y	P	F	10	1.8	C 1	Branch socket cavity observed Apical dieback Branch stubs observed Epicormic growth on the main stem Epicormic growth observed in the crown Hard surfaces within the rooting area Included unions observed Lateral dieback observed Major deadwood in the crown Minor deadwood in the crown Pruning wounds observed Tear wounds present Tree is showing signs of decline
T5	Beech	12.0	2.0	2	370 190	3.0	2.0	5.0	3.0	EM	P	P	81	5.1	C 1	Apical dieback Branch stubs observed Branch socket cavity observed Building within the rooting area Epicormic growth on the main stem Epicormic growth observed in the crown Hard surfaces within the rooting area Exposed heartwood Area of included bark observed Included unions observed Lateral dieback observed Major deadwood in the crown Minor deadwood in the crown Pruning wounds observed Tear wounds present Tree is showing signs of decline Wound present on main stem

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
T6	Norway maple	14.0	2.0	1	490	5.0	5.0	5.0	5.0	EM	F	F	113	6.0	B 1	Apical dieback Branch stubs observed Hard surfaces within the rooting area Building within the rooting area Minor deadwood in the crown Major deadwood in the crown Pruning wounds observed
T7	Norway maple	13.0	2.0	1	420	4.0	4.0	4.0	4.0	SM	F	F	81	5.1	B 1	Branch stubs observed Hard surfaces within the rooting area Minor deadwood in the crown No obvious defects observed Typical crown form
T8	Norway maple	3.0	1.5	1	180	1.5	1.5	1.5	1.5	Y	F	F	18	2.4	C 1	No obvious defects observed Typical crown form

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
G1	Beech	14.0	1.5	-	260	5.0	2.5	4.0	2.5	SM	F	F	34	3.3	B 1	Conjoined canopy Branch stubs observed Hard surfaces within the rooting area Building within the rooting area Minor deadwood in the crowns Small hanging branches in the crowns

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
H1	Dogwood Beech English elm	1.0	0.0	-	150	0.5	0.5	0.5	0.5	Y SM	F	P	10	1.8	C 1,2	Managed