

Arboricultural Method Statement - Enabling Works

A Report To: Genr8 Kajima Regeneration Limited
Report Number: RT-MME-16140-06 REV A
Date: December 23



Report Verification

Report Version	Date	Completed by:	Checked & Approved by:
Final	23/11/2023	Duncan Smith BSc (Hons) MArborA Arboricultural Manager	Luke Webb BSc (Hons) MArborA Senior Arboricultural Consultant
Revision A	04/12/2023	Duncan Smith BSc (Hons) MArborA Arboricultural Manager	Luke Webb BSc (Hons) MArborA Senior Arboricultural Consultant

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. The Project Arboriculturist for the site is:

Name: Duncan Smith

Position: Arboricultural Manager

Mobile: 07827 850972

Email: duncan.smith@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 within RPAs	✓

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 Genr8 Kajima Regeneration Limited as part of a planning application for mixed-use regeneration to inform an Enabling Works planning application and will inform future detailed planning applications for plots to come forward within the redline boundary at Land off Archway Road, Huyton in Merseyside. A survey of the trees on site and within influencing distance of the boundaries was undertaken on the 1st 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 partially provide the information necessary to satisfy RIBA Stage 5 including:

- Audit schedule
- Specific tree protection measures
- Arboricultural Clerk of Works (ACoW) supervision

1.2 Site Description, Drawings and Appendices

Attribute	Description
National Grid Reference	SJ 44211 90875
Topography	Gently sloping land from the higher ground in the southeast to the lower ground in the northwest across car parking and landscape planted areas.
Tree Cover	High, medium and low-quality individual trees, groups of trees and hedgerows mainly planted as ornamental specimens.
Drawings attached	Tree Survey Plan – C161140-03-01 Tree Retention Plan – 161140-04-01 Tree Protection Plan – C161140-06-01
Appendices	Appendix A: Tree Schedule Appendix B: Tree Protection Fencing Sign Appendix C Arboricultural Impact Assessment RT-MME-161140-04

Table 1.1: Summary of Site and Surroundings

1.3 Approved Development

Enabling and engineering works comprising demolition of the Municipal Building and Computer Building; existing car parks and hardstanding, removal of trees, ground reprofiling and remediation, installation and diversion of below ground infrastructure, formation of a temporary car park, installation of security hoarding and associated works.

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
Optimised Environments Ltd	Proposed Ground Levels Plan	M10335_003 REV 01	15.11.23

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	Tree Preservation Order NO.2 1975 75/00002 This TPO covers the whole site
Conservation Area	✗	Knowsley Metropolitan Borough Council website	St Michael's Church Conservation Area extends to the northernmost point of the assessment area but no trees within the assessment stand within the conservation area. Designated 2019
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/ukxi/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 enabling demolition phase 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.

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 (Demolition)

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.

Tree/ Group/ Hedgerow Reference	Species	BS5837 Category	Retained ✓ ✗	Comments
T16	Holly	C	✗	Enabling works including regrading of the ground level
T17	Blue Atlas Cedar	C	✗	
T18	Pear	C	✗	
T20	Hawthorn	C	✗	

Tree/ Group/ Hedgerow Reference	Species	BS5837 Category	Retained		Comments
			✓	✗	
T36	Norway Maple	U		✗	
T37	Norway Maple	C		✗	
T38	Beech	B		✗	
T39	Beech	B		✗	
T40	Whitebeam	B		✗	
T41	Whitebeam	C		✗	
T42	White Poplar	B		✗	
G10	Silver Birch	B		✗	
G11	Swedish Whitebeam	C		✗	
G17	Sycamore Beech Maple	B		✗	
G18	Turkey Oak	B		✗	
G19	Hornbeam	B		✗	
G20	Holly	C		✗	
G22	Eucalyptus Rowan	C		✗	
G23	Sycamore	C		✗	
G25	Ash	C		✗	
G29	Swedish Whitebeam Whitebeam European Lime Maple	B		✗	
G30	Field Maple Norway Maple	B		✗	

Tree/ Group/ Hedgerow Reference	Species	BS5837 Category	Retained		Comments
			✓	✗	
	Sycamore Maple				
G31	Sycamore	B		✗	
G36	Sycamore Whitebeam	C		✗	
H3	Hawthorn	C		✗	

Table 3.1: Trees to be Removed or Pruned

Demolition Exclusion Zone

Protective barriers will define the Demolition Exclusion Zone (DEZ) and will be erected prior to site occupation. 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 DEZ encompasses the Root Protection Area (RPA) and / or tree canopy, whichever is the greatest.

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

The proposed location of the protective barriers surrounding the DEZ 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.

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 DEZ of any retained tree. Stored soil created from topsoil stripping will not be stored within any Demolition 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.

Removal of Hard Surfaces within RPAs

The following guidance will be adhered to for the removal of hard surfaces within the RPA of T35 and the RPAs of retained trees within G21 and G23:

1. All works will be carried out under supervision of the Project Arboriculturist.
2. The initial 'breaking-up' of the asphalt or concrete will be undertaken using an excavator mounted breaker or handheld pneumatic tool.
3. Removal of the surface will occur in 0.5 m bands working from the undisturbed surface. Any exposed roots will be covered with damp hessian sheet to avoid desiccation.
4. The debris resulting from breaking-up the hard surface and the exposed sub-base will be removed by excavator using a suitable bucket with no teeth. No reduction in levels of the underlying soil will occur.
5. If any roots are damaged during the removal of hard surfaces, then they will be cut using secateurs or a sharp knife to leave a clean wound with as small a surface area as possible.
6. Work will not be carried out if the ambient air temperature is below + 4°C.



C161140-03-01-RevB

Legend

Tree location and stem diameter

Category A

Category B

Category C

Category U

Current canopy extent

Root Protection Area

Indicative tree shadow

Dead tree

Stump

Application boundary

Enabling works boundary

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

Land off Archway Road, Huyton

Drawing

Tree Survey Plan

Client

Genr8 Kajima Regeneration Limited

Drawing Number

C161140-03-01-RevB

Revision

RevB

Scale @ A3

1:1,000

Date

November 2023

Approved By

DS

Drawn By

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C161140-04-01-RevA

Legend

●

Tree location and stem diameter

Category A

Category B

Category C

Category U

Category C group

Category C group to be removed

Current canopy - tree to be removed

Current canopy - tree to be retained

Root Protection Area

Indicative tree shadow

✕

Dead tree

⊕

Stump

⊕

Stump to be removed

Application boundary

Enabling works boundary

NOTES

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Project

Land off Archway Road, Huyton

Drawing

Tree Retention Plan

Client

Gen8 Kajima Regeneration Limited

Drawing Number

C161140-04-01-RevA

Revision

RevA

Scale @ A3

1:1,000

Date

November 2023

Approved By

DS

Drawn By

BD

MIDDLEMARCH

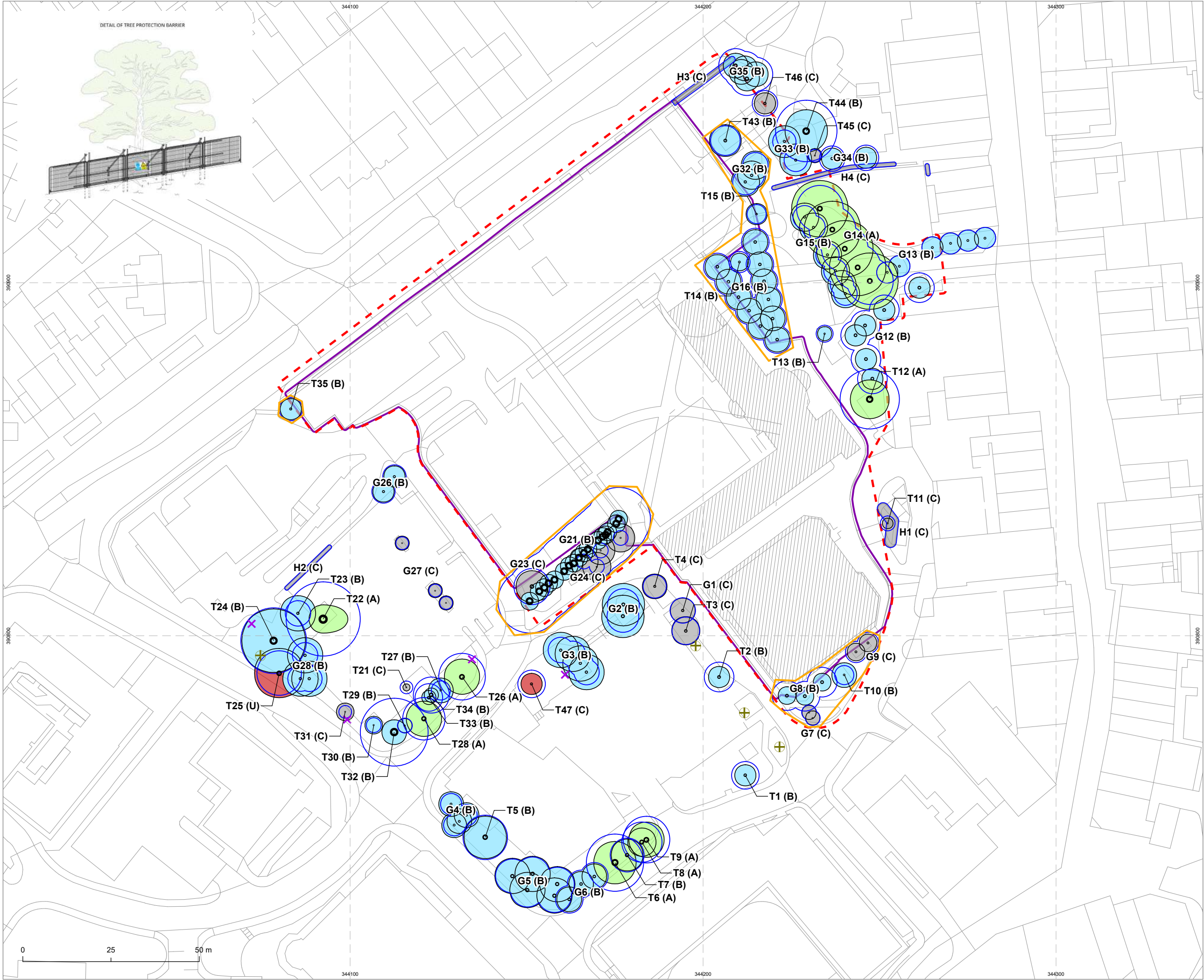
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C161140-06-01-RevA

Legend

●

Tree location and stem diameter

Category A

Category B

Category C

Category U

—

Current canopy - tree to be retained

Root Protection Area

✕

Dead tree

⊕

Stump

Tree protection barrier (BS5837:2012)

- - -

Application boundary

Enabling works boundary

NOTES

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Land off Archway Road, Huyton

Drawing

Tree Protection Plan

Client

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Drawing Number

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Revision

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Scale @ A3

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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.

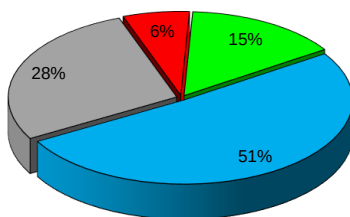
Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.

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.

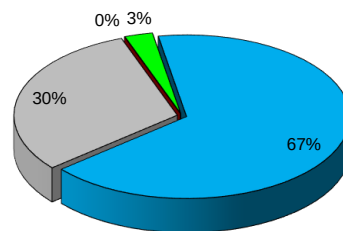
Sub-categories: (i) - Mainly arboricultural value
(ii) - Mainly landscape value
(iii) - Mainly cultural or conservation value

BS5837 category: Individuals



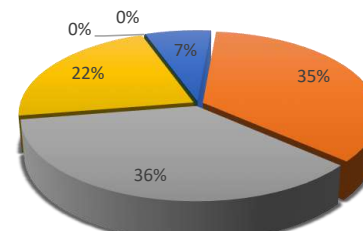
■ Category U
 ■ Category A
■ Category B
 ■ Category C

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	T25, T36, T47	3		0
Category A	T6, T8, T9, T12, T22, T26, T28	7	G14	1
Category B	T1, T2, T5, T7, T10, T13, T14, T15, T19, T23, T24, T27, T29, T30, T32, T33, T34, T35, T38, T39, T40, T42, T43, T44	24	G2, G3, G4, G5, G6, G8, G10, G12, G13, G15, G16, G17, G18, G19, G21, G26, G28, G29, G30, G31, G32, G33, G34, G35	24
Category C	T3, T4, T11, T16, T17, T18, T20, T21, T31, T37, T41, T45, T46	13	G1, G7, G9, G11, G20, G22, G23, G24, G25, G27, G36	11
	Total	47	Total	36

	Hedgerows	Totals	Woodlands	Totals
Category U		0		0
Category A		0		0
Category B		0		0
Category C	H1, H2, H3, H4	4		0
	Total	4	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	Ash	13.0	1.8	1	310	3.0	3.0	3.0	3.0	SM	G	G	48	3.9	B 1	Minor deadwood in the crown No obvious defects observed Typical crown form
T2	Wild cherry	10.0	2.0	1	330	3.0	3.0	3.0	3.0	EM	F	F	55	4.2	B 1	Typical crown form Minor deadwood in the crown Lacks vigour Damaged surface roots observed
T3	Wild cherry	12.0	2.0	1	310	4.0	4.0	4.0	4.0	EM	F	P	48	3.9	C 1	lapsed pollarded form Minor deadwood in the crown Typical crown form Included bark at the stem union Lacks vigour
T4	Swedish whitebeam	10.0	1.8	1	260	3.5	3.5	3.5	3.5	EM	F	G	34	3.3	C 1	Apical dieback Branch stubs observed Minor deadwood in the crown Light ivy in the crown
T5	Sycamore	14.0	2.5	1	510	6.0	6.0	6.0	6.0	M	F	F	124	6.3	B 1	Branch stubs observed Minor deadwood in the crown Large hanging branches in the crown Exposed surface roots observed
T6	European lime	18.0	5.0	1	670	6.0	6.0	6.0	6.0	M	G	G	206	8.1	A 1	Basal epicormic growth observed Minor deadwood in the crown Branch socket cavity observed Pruning wounds observed Lapsed pollard form
T7	European lime	13.0	1.5	1	380	4.5	4.5	4.5	4.5	EM	F	G	72	4.8	B 1	Minor deadwood in the crown Lapsed pollard form
T8	European lime	14.0	1.0	1	460	4.0	4.0	4.0	4.0	M	G	G	102	5.7	A 1	Minor deadwood in the crown 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							
T9	European lime	12.0	1.0	1	530	5.0	5.0	5.0	5.0	M	F	G	137	6.6	A 1	Minor deadwood in the crown Basal epicormic growth observed Lateral dieback observed Lapsed pollard form
T10	Cherry	5.0	1.8	1	220	3.5	3.5	3.5	3.5	SM	F	F	23	2.7	B 1	Minor deadwood in the crown Branch stubs observed Pruning wounds observed Typical crown form
T11	Silver birch	8.0	1.0	1	160	1.5	1.5	1.5	1.5	Y	F	F	14	2.1	C 1	Typical crown form No obvious defects observed
T12	European lime	17.0	2.5	1	700	5.5	5.5	5.5	5.5	M	G	G	222	8.4	A 1	Branch stubs observed Major deadwood in the crown Minor deadwood in the crown Typical crown form Light ivy on stem
T13	Silver birch	11.0		1	180	2.0	2.0	2.0	2.0	SM	G	G	18	2.4	B 1	Pruning wounds observed Typical crown form
T14	Pear	6.0	2.0	1	240	2.5	2.5	2.5	2.5	EM	G	G	28	3.0	B 1	Minor deadwood in the crown No obvious defects observed Typical crown form
T15	Cappadocian maple	7.0	2.0	1	210	3.0	3.0	3.0	3.0	SM	F	F	23	2.7	B 1	Minor deadwood in the crown Pruning wounds observed Typical crown form
T16	Holly	7.0	3.0	3	170 150 160	2.0	2.0	2.0	2.0	M	F	P	41	3.6	C 1	Sparse canopy
T17	Blue Atlas cedar	6.0	2.0	1	160	2.0	2.0	2.0	2.0	Y	G	G	14	2.1	C 1	
T18	Pear	7.0	2.0	1	130	2.5	2.5	2.5	2.5	SM	F	P	10	1.8	C 1	Minor deadwood in the crown Typical crown form
T19	Pear	6.0	1.5	1	170	2.0	2.0	2.0	2.0	SM	G	G	14	2.1	B 1	Typical crown form No obvious defects observed

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							
T20	Hawthorn	4.0	2.5	2	160 170	2.5	2.5	2.5	2.5	M	P	P	28	3.0	C 1	Dense ivy on the stem Dense ivy in the crown Minor deadwood in the crown
T21	Fastigate oak	7.0	1.0	1	130	1.0	1.0	1.0	1.0	Y	G	G	10	1.8	C 1	No obvious defects observed Typical crown form
T22	English oak	4.0	1.5	1	870	4.0	7.0	4.0	4.0	M	G	G	346	10.5	A 1	Branch stubs observed Pruning wounds observed Minor deadwood in the crown Major deadwood in the crown
T23	Sweet chestnut	8.0	1.0	1	290	5.0	5.0	5.0	5.0	SM	G	G	41	3.6	B 1	Minor deadwood in the crown No obvious defects observed Typical crown form
T24	Copper beech	15.0	1.0	1	760	9.0	9.0	9.0	9.0	M	F	G	272	9.3	B 1	Branch stubs observed Minor deadwood in the crown Typical crown form Suspected internal cavity from 0.5m to crown break - water leaking through openings
T25	Sycamore	18.0	3.0	1	510	7.0	7.0	7.0	7.0	M	F	P	124	6.3	U	Branch stubs observed Minor deadwood in the crown Suspected fungal infection resulting in sparse canopy
T26	European lime	14.0	1.0	1	530	5.0	5.0	5.0	5.0	M	F	G	137	6.6	A 1	Basal epicormic growth observed Major deadwood in the crown Minor deadwood in the crown Typical crown form
T27	Sycamore	8.0	3.5	1	210	3.5	3.5	3.5	3.5	SM	F	F	23	2.7	B 1	Pruning wounds observed Minor deadwood in the crown Sparse canopy

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							
T28	European lime	14.0	1.0	1	480	5.0	5.0	5.0	5.0	M	G	F	113	6.0	A 1	Major deadwood in the crown Minor deadwood in the crown Typical crown form Branch stubs observed Basal epicormic growth observed
T29	Sycamore	7.0	2.0	1	170	2.0	2.0	2.0	2.0	SM	G	G	14	2.1	B 1	Minor deadwood in the crown Typical crown form
T30	Whitebeam	5.0	2.0	1	170	2.5	2.5	2.5	2.5	EM	G	G	14	2.1	B 1	Light ivy on stem No obvious defects observed Typical crown form
T31	Sycamore	6.0	2.0	3	100 70 70	2.5	2.5	2.5	2.5	Y	F	G	10	1.8	C 1	Self seeded tree
T32	Lombardy poplar	25.0	2.0	1	800	3.5	3.5	3.5	3.5	M	G	G	290	9.6	B 1	Minor deadwood in the crown No obvious defects observed Typical crown form
T33	Lombardy poplar	23.0	2.0	1	320	2.0	2.0	2.0	2.0	EM	G	G	48	3.9	B 1	Minor deadwood in the crown No obvious defects observed Typical crown form
T34	Lombardy poplar	18.0	2.0	1	420	2.0	2.0	2.0	2.0	EM	G	G	81	5.1	B 1	Minor deadwood in the crown No obvious defects observed Typical crown form
T35	Whitebeam	6.0	1.5	1	270	3.0	3.0	3.0	3.0	EM	G	G	34	3.3	B 1	No obvious defects observed Typical crown form
T36	Norway maple	7.0	3.0	1	240	2.5	2.5	2.5	2.5	SM	P	F	28	3.0	U	Apical dieback Lateral dieback observed Dense ivy on the stem
T37	Norway maple	7.0	3.0	1	160	2.5	2.5	2.5	2.5	SM	F	F	14	2.1	C 1	Apical dieback Minor deadwood in the crown Major deadwood in the crown Pruning wounds observed

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							
T38	Beech	11.0		1	400	4.0	4.0	4.0	4.0	M	F	G	72	4.8	B 1	Minor deadwood in the crown No obvious defects observed Growth has been restricted by planting pit
T39	Beech	8.0	2.0	1	550	5.0	5.0	5.0	5.0	M	F	G	137	6.6	B 1	Dense ivy on the stem Limited inspection due to dense vegetation Limited inspection due to ivy
T40	Whitebeam	6.0	2.0	1	160	2.5	2.5	2.5	2.5	SM	G	G	14	2.1	B 1	No obvious defects observed
T41	Whitebeam	6.0	2.0	1	120	2.5	2.5	2.5	2.5	SM	F	G	7	1.5	C 1	Typical crown form Wound at the base of the stem exposing heartwood
T42	White poplar	20.0	2.0	1	730	7.0	7.0	7.0	7.0	M	F	G	255	9.0	B 1	Minor deadwood in the crown Major deadwood in the crown Typical crown form Open wound at 7m from ground through lost limb leaving heartwood exposed
T43	Norway maple	10.0	3.0	1	330	4.5	4.5	4.5	4.5	EM	G	G	55	4.2	B 1	Pruning wounds observed Typical crown form
T44	Hornbeam	13.0	1.0	1	710	6.0	6.0	6.0	6.0	M	F	G	238	8.7	B 1	Minor deadwood in the crown Typical crown form Branch stubs observed Bulge in stem at 1.5m
T45	Pear	5.0	2.0	1	130	2.0	2.0	2.0	2.0	SM	F	P	10	1.8	C 1	Minor deadwood in the crown Sparse canopy
T46	Silver maple	6.0	4.0	1	280	3.0	3.0	3.0	3.0	EM	F	P	41	3.6	C 1	Minor deadwood in the crown Sparse canopy

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							
T47	Rowan	8.0	1.5	1	310	3.0	3.0	3.0	3.0	M	P	P	48	3.9	U	Apical dieback Lateral dieback observed Branch stubs observed Minor deadwood in the crown Major 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							
G1	Silver birch	10.0	2.0	-	290	3.5	3.5	3.5	3.5	Y SM	F	G	41	3.6	C 2	Conjoined canopy Minor deadwood in the crowns No obvious defects observed Three trees form group
G2	Cherry	9.0	2.0	-	360	6.0	6.0	6.0	6.0	M	F	G	64	4.5	B 2	Branch stubs observed Conjoined canopy Minor deadwood in the crowns
G3	Cherry	11.0	2.0	-	280	5.0	5.0	5.0	5.0	EM	F	F,G	41	3.6	B 2	Branch stubs observed Pruning wounds observed Minor deadwood in the crowns Exposed surface roots observed
G4	Himalayan birch	12.0	1.0	-	240	3.5	3.5	3.5	3.5	EM	F	G	28	3.0	B 2	Conjoined canopy Branch stubs observed Dense ivy on the stems No obvious defects observed Typical crown forms Multitemmed forms
G5	Nothofagus	14.0	2.0	-	380	5.0	5.0	5.0	5.0	EM SM	G	G	72	4.8	B 2	Branch stubs observed Minor deadwood in the crowns Small hanging branches in the crowns Exposed surface roots observed
G6	Norway maple	15.0	2.0	-	320	3.5	3.5	3.5	3.5	M EM	F	G	48	3.9	B 2	Branch stubs observed Small hanging branches in the crowns Conjoined canopy Exposed surface roots observed
G7	Persian ironwood	6.0	2.0	-	170	2.0	2.0	2.0	2.0	SM	P	P	14	2.1	C 2	Conjoined canopy Minor deadwood in the crowns Pruning wounds observed Bark wounds observed Dead stems present

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							
G8	Silver birch	12.0	1.0	-	330	2.5	2.5	2.5	2.5	EM SM	F	F	55	4.2	B 2	Typical crown forms Minor deadwood in the crowns Large open wound vertically other most Eastern stem from 0.5m to 3m
G9	Swedish whitebeam	5.0	2.0	-	230	2.5	2.5	2.5	2.5	SM	F	F,P	28	3.0	C 2	Conjoined canopy Included unions observed Minor deadwood in the crowns Exposed surface roots observed the
G10	Silver birch	10.0	1.0	-	300	3.5	3.5	3.5	3.5	EM	F	G	41	3.6	B 2	Branch stubs observed Minor deadwood in the crowns Typical crown forms Light ivy on stems
G11	Swedish whitebeam	7.0	3.0	-	240	2.5	2.5	2.5	2.5	EM	F	P	28	3.0	C 2	Conjoined canopy Branch stubs observed Minor deadwood in the crowns Included unions observed Bark winds observed
G12	Silver birch	15.0		-	330	3.0	3.0	3.0	3.0	EM SM	F	G	55	4.2	B 2	Dense ivy on the stems Minor deadwood in the crowns Typical crown forms
G13	Himalayan birch	8.0	1.0	-	230	3.0	3.0	3.0	3.0	EM	G	G	28	3.0	B 2	Pruning wounds observed Minor deadwood in the crowns Typical crown forms
G14	Norway maple	13.0	2.0	-	550	8.0	8.0	8.0	8.0	M	G	G	137	6.6	A 2	Branch stubs observed Minor deadwood in the crowns Light ivy on stems No obvious defects observed Typical crown forms Conjoined canopy

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							
G15	Himalayan birch yucca	10.0	1.0	-	260	4.0	4.0	4.0	4.0	EM SM	G	G	34	3.3	B 2	Branch stubs observed Included unions observed Minor deadwood in the crowns Typical crown forms
G16	Ash	15.0	3.0	-	310	3.5	3.5	3.5	3.5	EM	F	F	48	3.9	B 2	Branch stubs observed Minor deadwood in the crowns Major deadwood in the crowns Typical crown forms Sparse canopies
G17	Sycamore Beech Cappadocian maple	14.0	2.0	-	370	6.5	6.5	6.5	6.5	EM M SM	F	G	64	4.5	B 2	Branch stubs observed Minor deadwood in the crowns Conjoined canopy Light ivy on stems
G18	Turkey oak Beech	21.0	4.0	-	700	7.0	7.0	7.0	7.0	M EM	G	G	222	8.4	B 2	Branch stubs observed Conjoined canopy Included unions observed Minor deadwood in the crowns Major deadwood in the crowns Pruning wounds observed
G19	Hornbeam	7.0	1.8	-	160	1.5	1.5	1.5	1.5	SM	G	G	14	2.1	B 2	Conjoined canopy No obvious defects observed Typical crown forms
G20	Holly	6.0	2.5	-	270	2.5	2.5	2.5	2.5	M	F	F	34	3.3	C 2	Conjoined canopy Minor deadwood in the crowns Branch stubs observed Pruning wounds observed Branch socket cavities

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							
G21	Lombardy poplar	23.0	4.0	-	730	2.5	2.5	2.5	2.5	M EM	F	G	255	9.0	B 2	Branch stubs observed Minor deadwood in the crowns Major deadwood in the crowns Conjoined canopy Limited inspection due to dense vegetation Cavities observed
G22	Eucalyptus Rowan	4.0	0.0	-	100	2.0	2.0	2.0	2.0	Y	P	F	5	1.2	C 2	Branch stubs observed Minor deadwood in the crowns Rowantree exhibit poor vigour and structure
G23	Sycamore	14.0	2.0	-	420	4.5	4.5	4.5	4.5	M EM	F,P	F,P	81	5.1	C 2	Minor deadwood in the crowns Major deadwood in the crowns Branch stubs observed Branch socket cavities Pruning wounds observed Typical crown forms All trees in decline
G24	Silver birch Sycamore Wild cherry	8.0	1.0	-	170	4.0	4.0	4.0	4.0	Y EM	F	F	14	2.1	C 2	Minor deadwood in the crowns Suppressed forms
G25	Ash	7.0	1.5	-	180	2.5	2.5	2.5	2.5	SM	F	F	18	2.4	C 2	Branch stubs observed Minor deadwood in the crowns Major deadwood in the crowns Gneral dieback observed throughout
G26	Whitebeam	4.0	1.0	-	270	3.0	3.0	3.0	3.0	SM	G	G	34	3.3	B 2	Light ivy on stems Minor deadwood in the crowns Typical crown forms Conjoined canopy
G27	Whitebeam	3.0	1.8	-	140	2.0	2.0	2.0	2.0	SM	P,F	G	10	1.8	C 2	One specimen is in extensive decline due to large vertical wound on one side

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							
G28	European lime Whitebeam	16.0	0.0	-	300	5.0	5.0	5.0	5.0	M EM SM	G,F	G,F	41	3.6	B 2	Light ivy on stems Pruning wounds observed Minor deadwood in the crowns
G29	Swedish whitebeam Whitebeam European lime Cappadocian maple	7.0	2.0	-	270	3.0	3.0	3.0	3.0	SM EM	F	G	34	3.3	B 2	Conjoined canopy Pruning wounds observed Minor deadwood in the crowns Included unions observed Typical crown forms
G30	Field maple Norway maple Sycamore Cappadocian maple	7.0	2.0	-	180	2.5	2.5	2.5	2.5	SM EM	F,G	G,F	18	2.4	B 2	Minor deadwood in the crowns No obvious defects observed Typical crown forms Conjoined canopy
G31	Sycamore	13.0	3.0	-	540	5.0	5.0	5.0	5.0	M EM SM	F,G	G,F	137	6.6	B 2	Conjoined canopy Dense ivy on the stems
G32	Silver birch	12.0	2.0	-	300	4.0	4.0	4.0	4.0	EM	G	G	41	3.6	B 2	Minor deadwood in the crowns Typical crown forms No obvious defects observed
G33	Norway maple	11.0	2.0	-	270	4.5	4.5	4.5	4.5	EM	G	G	34	3.3	B 2	Minor deadwood in the crowns No obvious defects observed Typical crown forms
G34	Small leaved lime	7.0	2.0	-	290	3.0	3.0	3.0	3.0	SM	G	G	41	3.6	B 2	Group is located off site but overhangs the study area No obvious defects observed Typical crown forms
G35	Ash Norway maple Alder Silver maple	12.0	2.0	-	380	3.5	3.5	3.5	3.5	EM SM	F	G	72	4.8	B 2	Minor deadwood in the crowns Conjoined canopy Branch stubs observed Major deadwood in the crowns Typical crown forms

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							
G36	Sycamore Whitebeam	9.0	2.0	-	260	2.0	2.0	2.0	2.0	SM EM	F,P	G	34	3.3	C 2	Large hanging branches in the crowns Minor deadwood in the crowns Major deadwood in the crowns Typical crown forms

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	Leyland cypress	5.0	0.0	-	140	1.5	1.5	1.5	1.5	SM	F	G	10	1.8	C 2	Managed
H2	Norway maple Beech	1.5	0.0	-	50	0.5	0.5	0.5	0.5	SM	F	G	3	0.9	C 2	Managed Sparse in areas
H3	Hawthorn	1.3	0.0	-	70	0.5	0.5	0.5	0.5	M	G	G	3	0.9	C 2	Managed
H4	Yew	1.3	0.0	-	50	0.5	0.5	0.5	0.5	EM	G	G	3	0.9	C 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**

Arboricultural Impact Assessment

RIBA Stage 4

Land off Archway Road, Huyton, Metropolitan Borough of Knowsley, Merseyside

A Report To: Genr8 Kajima Regeneration Limited
Report Number: RT-MME-161140-04 REV A
Date: November 2023



Report Verification

Report Version	Date	Completed by:	Checked & Approved by:
Final	20/11/2023	Duncan Smith BSc (Hons) MArborA Arboricultural Manager	Luke Webb BSc (Hons) MArborA Senior Arboricultural Consultant
Revision A	04/12/2023	Duncan Smith BSc (Hons) MArborA Arboricultural Manager	Luke Webb BSc (Hons) MArborA Senior Arboricultural Consultant

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 Genr8 Kajima Regeneration Limited to inform an Enabling Works planning application and future detailed planning applications for plots to come forward within the redline boundary at Land off Archway Road, Huyton in Merseyside. A survey of the trees on site and within influencing distance of the boundaries was undertaken on the 1st 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
National Grid Reference	SJ 44211 90875
Topography	Gently sloping land from the higher ground in the southeast to the lower ground in the northwest across car parking and landscape planted areas.
Tree Cover	High, medium and low-quality individual trees, groups of trees and hedgerows mainly planted as ornamental specimens.
Drawings attached	Tree Survey Plan – C161140-03-01 Tree Retention Plan – C161140-04-01
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

Enabling and engineering works comprising demolition of the Municipal Building and Computer Building; existing car parks and hardstanding, removal of trees, ground reprofiling and remediation, installation and diversion of below ground infrastructure, formation of a temporary car park, installation of security hoarding and associated works

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
Optimised Environments Ltd	Proposed Ground Levels Plan	M10335_003 REV 01	15.11.23

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 that would be retained as part of the enabling works, and which could potentially be incorporated as part of the future site development, subject to future detailed design.

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	Tree Preservation Order NO.2 1975 75/00002 This TPO covers the whole site
Conservation Area	✗	Knowsley Metropolitan Borough Council website	St Michael's Church Conservation Area extends to the northernmost point of the assessment area but no trees within the assessment stand within the conservation area. Designated 2019
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 forty-seven individual trees, thirty-six groups of trees and four hedgerows as detailed below and in Appendix A Tree Schedule.

BS5837:2012 Category	Tree/ Group/ Hedgerow Reference
U	T25, T36, T47.
A	T6, T8, T9, T12, T22, T26, T28, G14.
B	T1, T2, T5, T7, T10, T13, T14, T15, T19, T23, T24, T27, T29, T30, T32, T33, T34, T35, T38, T39, T40, T42, T43, T44, G2, G3, G4, G5, G6, G8, G10, G12, G13, G15, G16, G17, G18, G19, G21, G26, G28, G29, G30, G31, G32, G33, G34, G35.
C	T3, T4, T11, T16, T17, T18, T20, T21, T31, T37, T41, T45, T46, G1, G7, G9, G11, G20, G22, G23, G24, G25, G27, G36, H1, H2, H3, H4.

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

Tree cover across the site was largely related to the surrounding buildings and areas of land use as landscape planting. The majority of the trees recorded during the survey formed ornamental planting and comprised a wide variety of species including both ornamental and native species. All trees of whatever species are included within Tree Preservation Order NO.2 1975 75/00002 and statutory constraints therefore apply to any proposed development.

Three trees (T25, T36 & T47) identified during the survey were considered to be unsuitable for retention due to the presence of defects resulting in the reduced life expectancies of the trees. T25, a sycamore tree, exhibited poor crown vigour due to a suspected fungal infection. T36, a Norway maple tree, had both apical and lateral dieback in its canopy and was considered to be in terminal decline. T47, a rowan tree, exhibited poor crown vigour with apical dieback and a large quantity of deadwood in its crown. Consequently, T47 was considered to be in terminal decline.

Seven individual trees and one group of trees (T6, T8, T9, T12, T22, T26, T28 & G14) were considered to be of high retention value. These specimens were in good condition, exhibiting healthy crown vigour and were the largest trees recorded during the survey. G14 formed a landscape feature within the site and wider area due to its stature and canopy connectivity.

The majority of trees surveyed were considered to be of moderate retention value. These comprised twenty-four individual trees and twenty-four groups of trees that were predominantly in good condition, exhibiting healthy crown vigour. The presence of defects such as small cavities, exposed roots, areas of included bark at branch junctions and wounds with exposed heartwood prevented them being considered higher value.

The remaining thirteen individual trees, eleven groups of trees and four hedgerows recorded during the survey were all considered to be of low retention value. These specimens were typically in fair condition; however, several specimens exhibited poor crown vigour or were relatively juvenile and had stem diameters of less than 150mm, resulting in their lower retention categorisation (Retention Category C). The remaining specimens failed to meet the prerequisite of a remaining life expectancy of greater than twenty years due to the presence of defects such

as, branch socket cavities, areas of included bark at branch junctions, exposed heartwood and overall poor vigour.

5. Arboricultural Impact Assessment

5.1 Introduction

This section of the report details the potential impacts that the proposed enabling work may have upon the site's tree stock. The assessment has been based upon the document 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 throughout the enabling works.

Tree/Group/ Hedgerow Reference	Species	Retention Category	Reason for Removal
T16	Holly	C	Enabling works including regrading of the ground level
T17	Blue Atlas Cedar	C	
T18	Pear	C	
T20	Hawthorn	C	
T36	Norway Maple	U	
T37	Norway Maple	C	
T38	Beech	B	
T39	Beech	B	
T40	Whitebeam	B	
T41	Whitebeam	C	
T42	White Poplar	B	
G10	Silver Birch	B	
G11	Swedish Whitebeam	C	
G17	Sycamore Beech Maple	B	
G18	Turkey Oak	B	
G19	Hornbeam	B	
G20	Holly	C	
G22	Eucalyptus Rowan	C	
G23	Sycamore	C	
G25	Ash	C	
G29	Swedish Whitebeam	B	

Tree/Group/ Hedgerow Reference	Species	Retention Category	Reason for Removal
	Whitebeam European Lime Maple		
G30	Field Maple Norway Maple Sycamore Maple	B	
G31	Sycamore	B	
G36	Sycamore Whitebeam	C	
H3	Hawthorn	C	

Table 5.1: Tree Removal

The proposed enabling works will ensure the retention and incorporation of a large proportion of trees identified during the Preliminary Arboricultural Assessment, however, the proposed enabling works will require the removal of eleven individual trees, thirteen groups of trees and a single hedgerow.

A single tree identified for removal was considered to be unsuitable for retention (Retention Category U) during the Preliminary Arboricultural Assessment and therefore the removal of this specimen would be required, irrespective of the proposed development, due to its poor condition.

None of the trees identified for removal were considered to be of high value (Retention Category A).

Four individual trees and seven groups of trees identified for removal were of moderate value (Retention Category B) and suitable new tree planting will therefore be required to offer an adequate level of mitigation for this loss.

The remaining individual trees, tree groups and hedgerow that are to be removed or partially removed were considered to be of a low value (Retention Category C) during the Preliminary Arboricultural Assessment. The proposed removal of these trees should be considered acceptable as new tree planting of higher quality trees more suited to the new development will make a lasting contribution to the visual amenity value and canopy coverage of the site.

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
T35	B	Whitebeam	Enabling works including regrading of the ground level
G16	B	Ash	
G21	B	Lombardy Poplar	
G32	B	Silver birch	

Table 5.2: Works in RPAs

It should be noted that the RPAs affected by the enabling works 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. 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

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

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.

5.6 New Tree Planting

No new tree planting has been proposed as part of the enabling works, however, new mitigation tree planting will be provided in a subsequent development through a new planning application.

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

6. Conclusion

6.1 Summary of Impacts

The proposed development of the site is likely to result in temporary impact upon the visual amenity of the local area as a result of the proposed tree removal. Although trees of varying quality, age and proportions are to be removed, no high-quality tree cover is to be removed to facilitate the enabling works. No new tree planting has been proposed as part of the enabling works, however, new tree planting as part of an emerging development scheme will be provided to ensure sufficient mitigation in terms of the number of trees, canopy coverage and visual amenity. Mitigation tree planting in relation to the losses identified will therefore need to be further considered during a separate planning application.

Whilst some regrading 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	✓
Building demolition and 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	✓



C161140-04-01-RevA

Legend

●

Tree location and stem diameter

Category A

Category B

Category C

Category U

Category C group

Category C group to be removed

Current canopy - tree to be removed

Current canopy - tree to be retained

Root Protection Area

Indicative tree shadow

✕

Dead tree

⊕

Stump

⊕

Stump to be removed

Application boundary

Enabling works boundary

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

Land off Archway Road, Huyton

Drawing

Tree Retention Plan

Client

Gen8 Kajima Regeneration Limited

Drawing Number

C161140-04-01-RevA

Revision

RevA

Scale @ A3

1:1,000

Date

November 2023

Approved By

DS

Drawn By

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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.

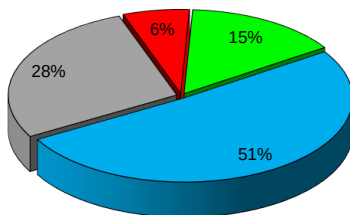
Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.

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.

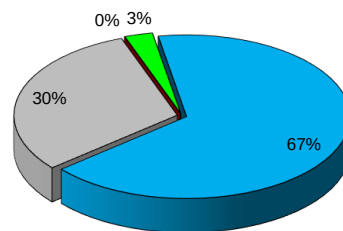
Sub-categories: (i) - Mainly arboricultural value
(ii) - Mainly landscape value
(iii) - Mainly cultural or conservation value

BS5837 category: Individuals



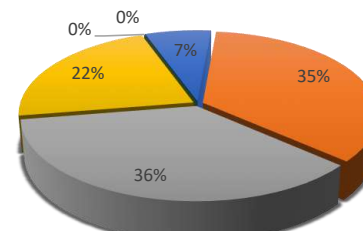
■ Category U
 ■ Category A
■ Category B
 ■ Category C

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	T25, T36, T47	3		0
Category A	T6, T8, T9, T12, T22, T26, T28	7	G14	1
Category B	T1, T2, T5, T7, T10, T13, T14, T15, T19, T23, T24, T27, T29, T30, T32, T33, T34, T35, T38, T39, T40, T42, T43, T44	24	G2, G3, G4, G5, G6, G8, G10, G12, G13, G15, G16, G17, G18, G19, G21, G26, G28, G29, G30, G31, G32, G33, G34, G35	24
Category C	T3, T4, T11, T16, T17, T18, T20, T21, T31, T37, T41, T45, T46	13	G1, G7, G9, G11, G20, G22, G23, G24, G25, G27, G36	11
	Total	47	Total	36

	Hedgerows	Totals	Woodlands	Totals
Category U		0		0
Category A		0		0
Category B		0		0
Category C	H1, H2, H3, H4	4		0
	Total	4	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	Ash	13.0	1.8	1	310	3.0	3.0	3.0	3.0	SM	G	G	48	3.9	B 1	Minor deadwood in the crown No obvious defects observed Typical crown form
T2	Wild cherry	10.0	2.0	1	330	3.0	3.0	3.0	3.0	EM	F	F	55	4.2	B 1	Typical crown form Minor deadwood in the crown Lacks vigour Damaged surface roots observed
T3	Wild cherry	12.0	2.0	1	310	4.0	4.0	4.0	4.0	EM	F	P	48	3.9	C 1	lapsed pollarded form Minor deadwood in the crown Typical crown form Included bark at the stem union Lacks vigour
T4	Swedish whitebeam	10.0	1.8	1	260	3.5	3.5	3.5	3.5	EM	F	G	34	3.3	C 1	Apical dieback Branch stubs observed Minor deadwood in the crown Light ivy in the crown
T5	Sycamore	14.0	2.5	1	510	6.0	6.0	6.0	6.0	M	F	F	124	6.3	B 1	Branch stubs observed Minor deadwood in the crown Large hanging branches in the crown Exposed surface roots observed
T6	European lime	18.0	5.0	1	670	6.0	6.0	6.0	6.0	M	G	G	206	8.1	A 1	Basal epicormic growth observed Minor deadwood in the crown Branch socket cavity observed Pruning wounds observed Lapsed pollard form
T7	European lime	13.0	1.5	1	380	4.5	4.5	4.5	4.5	EM	F	G	72	4.8	B 1	Minor deadwood in the crown Lapsed pollard form
T8	European lime	14.0	1.0	1	460	4.0	4.0	4.0	4.0	M	G	G	102	5.7	A 1	Minor deadwood in the crown 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							
T9	European lime	12.0	1.0	1	530	5.0	5.0	5.0	5.0	M	F	G	137	6.6	A 1	Minor deadwood in the crown Basal epicormic growth observed Lateral dieback observed Lapsed pollard form
T10	Cherry	5.0	1.8	1	220	3.5	3.5	3.5	3.5	SM	F	F	23	2.7	B 1	Minor deadwood in the crown Branch stubs observed Pruning wounds observed Typical crown form
T11	Silver birch	8.0	1.0	1	160	1.5	1.5	1.5	1.5	Y	F	F	14	2.1	C 1	Typical crown form No obvious defects observed
T12	European lime	17.0	2.5	1	700	5.5	5.5	5.5	5.5	M	G	G	222	8.4	A 1	Branch stubs observed Major deadwood in the crown Minor deadwood in the crown Typical crown form Light ivy on stem
T13	Silver birch	11.0		1	180	2.0	2.0	2.0	2.0	SM	G	G	18	2.4	B 1	Pruning wounds observed Typical crown form
T14	Pear	6.0	2.0	1	240	2.5	2.5	2.5	2.5	EM	G	G	28	3.0	B 1	Minor deadwood in the crown No obvious defects observed Typical crown form
T15	Cappadocian maple	7.0	2.0	1	210	3.0	3.0	3.0	3.0	SM	F	F	23	2.7	B 1	Minor deadwood in the crown Pruning wounds observed Typical crown form
T16	Holly	7.0	3.0	3	170 150 160	2.0	2.0	2.0	2.0	M	F	P	41	3.6	C 1	Sparse canopy
T17	Blue Atlas cedar	6.0	2.0	1	160	2.0	2.0	2.0	2.0	Y	G	G	14	2.1	C 1	
T18	Pear	7.0	2.0	1	130	2.5	2.5	2.5	2.5	SM	F	P	10	1.8	C 1	Minor deadwood in the crown Typical crown form
T19	Pear	6.0	1.5	1	170	2.0	2.0	2.0	2.0	SM	G	G	14	2.1	B 1	Typical crown form No obvious defects observed

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							
T20	Hawthorn	4.0	2.5	2	160 170	2.5	2.5	2.5	2.5	M	P	P	28	3.0	C 1	Dense ivy on the stem Dense ivy in the crown Minor deadwood in the crown
T21	Fastigate oak	7.0	1.0	1	130	1.0	1.0	1.0	1.0	Y	G	G	10	1.8	C 1	No obvious defects observed Typical crown form
T22	English oak	4.0	1.5	1	870	4.0	7.0	4.0	4.0	M	G	G	346	10.5	A 1	Branch stubs observed Pruning wounds observed Minor deadwood in the crown Major deadwood in the crown
T23	Sweet chestnut	8.0	1.0	1	290	5.0	5.0	5.0	5.0	SM	G	G	41	3.6	B 1	Minor deadwood in the crown No obvious defects observed Typical crown form
T24	Copper beech	15.0	1.0	1	760	9.0	9.0	9.0	9.0	M	F	G	272	9.3	B 1	Branch stubs observed Minor deadwood in the crown Typical crown form Suspected internal cavity from 0.5m to crown break - water leaking through openings
T25	Sycamore	18.0	3.0	1	510	7.0	7.0	7.0	7.0	M	F	P	124	6.3	U	Branch stubs observed Minor deadwood in the crown Suspected fungal infection resulting in sparse canopy
T26	European lime	14.0	1.0	1	530	5.0	5.0	5.0	5.0	M	F	G	137	6.6	A 1	Basal epicormic growth observed Major deadwood in the crown Minor deadwood in the crown Typical crown form
T27	Sycamore	8.0	3.5	1	210	3.5	3.5	3.5	3.5	SM	F	F	23	2.7	B 1	Pruning wounds observed Minor deadwood in the crown Sparse canopy

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							
T28	European lime	14.0	1.0	1	480	5.0	5.0	5.0	5.0	M	G	F	113	6.0	A 1	Major deadwood in the crown Minor deadwood in the crown Typical crown form Branch stubs observed Basal epicormic growth observed
T29	Sycamore	7.0	2.0	1	170	2.0	2.0	2.0	2.0	SM	G	G	14	2.1	B 1	Minor deadwood in the crown Typical crown form
T30	Whitebeam	5.0	2.0	1	170	2.5	2.5	2.5	2.5	EM	G	G	14	2.1	B 1	Light ivy on stem No obvious defects observed Typical crown form
T31	Sycamore	6.0	2.0	3	100 70 70	2.5	2.5	2.5	2.5	Y	F	G	10	1.8	C 1	Self seeded tree
T32	Lombardy poplar	25.0	2.0	1	800	3.5	3.5	3.5	3.5	M	G	G	290	9.6	B 1	Minor deadwood in the crown No obvious defects observed Typical crown form
T33	Lombardy poplar	23.0	2.0	1	320	2.0	2.0	2.0	2.0	EM	G	G	48	3.9	B 1	Minor deadwood in the crown No obvious defects observed Typical crown form
T34	Lombardy poplar	18.0	2.0	1	420	2.0	2.0	2.0	2.0	EM	G	G	81	5.1	B 1	Minor deadwood in the crown No obvious defects observed Typical crown form
T35	Whitebeam	6.0	1.5	1	270	3.0	3.0	3.0	3.0	EM	G	G	34	3.3	B 1	No obvious defects observed Typical crown form
T36	Norway maple	7.0	3.0	1	240	2.5	2.5	2.5	2.5	SM	P	F	28	3.0	U	Apical dieback Lateral dieback observed Dense ivy on the stem
T37	Norway maple	7.0	3.0	1	160	2.5	2.5	2.5	2.5	SM	F	F	14	2.1	C 1	Apical dieback Minor deadwood in the crown Major deadwood in the crown Pruning wounds observed

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							
T38	Beech	11.0		1	400	4.0	4.0	4.0	4.0	M	F	G	72	4.8	B 1	Minor deadwood in the crown No obvious defects observed Growth has been restricted by planting pit
T39	Beech	8.0	2.0	1	550	5.0	5.0	5.0	5.0	M	F	G	137	6.6	B 1	Dense ivy on the stem Limited inspection due to dense vegetation Limited inspection due to ivy
T40	Whitebeam	6.0	2.0	1	160	2.5	2.5	2.5	2.5	SM	G	G	14	2.1	B 1	No obvious defects observed
T41	Whitebeam	6.0	2.0	1	120	2.5	2.5	2.5	2.5	SM	F	G	7	1.5	C 1	Typical crown form Wound at the base of the stem exposing heartwood
T42	White poplar	20.0	2.0	1	730	7.0	7.0	7.0	7.0	M	F	G	255	9.0	B 1	Minor deadwood in the crown Major deadwood in the crown Typical crown form Open wound at 7m from ground through lost limb leaving heartwood exposed
T43	Norway maple	10.0	3.0	1	330	4.5	4.5	4.5	4.5	EM	G	G	55	4.2	B 1	Pruning wounds observed Typical crown form
T44	Hornbeam	13.0	1.0	1	710	6.0	6.0	6.0	6.0	M	F	G	238	8.7	B 1	Minor deadwood in the crown Typical crown form Branch stubs observed Bulge in stem at 1.5m
T45	Pear	5.0	2.0	1	130	2.0	2.0	2.0	2.0	SM	F	P	10	1.8	C 1	Minor deadwood in the crown Sparse canopy
T46	Silver maple	6.0	4.0	1	280	3.0	3.0	3.0	3.0	EM	F	P	41	3.6	C 1	Minor deadwood in the crown Sparse canopy

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							
T47	Rowan	8.0	1.5	1	310	3.0	3.0	3.0	3.0	M	P	P	48	3.9	U	Apical dieback Lateral dieback observed Branch stubs observed Minor deadwood in the crown Major 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							
G1	Silver birch	10.0	2.0	-	290	3.5	3.5	3.5	3.5	Y SM	F	G	41	3.6	C 2	Conjoined canopy Minor deadwood in the crowns No obvious defects observed Three trees form group
G2	Cherry	9.0	2.0	-	360	6.0	6.0	6.0	6.0	M	F	G	64	4.5	B 2	Branch stubs observed Conjoined canopy Minor deadwood in the crowns
G3	Cherry	11.0	2.0	-	280	5.0	5.0	5.0	5.0	EM	F	F,G	41	3.6	B 2	Branch stubs observed Pruning wounds observed Minor deadwood in the crowns Exposed surface roots observed
G4	Himalayan birch	12.0	1.0	-	240	3.5	3.5	3.5	3.5	EM	F	G	28	3.0	B 2	Conjoined canopy Branch stubs observed Dense ivy on the stems No obvious defects observed Typical crown forms Multitemmed forms
G5	Nothofagus	14.0	2.0	-	380	5.0	5.0	5.0	5.0	EM SM	G	G	72	4.8	B 2	Branch stubs observed Minor deadwood in the crowns Small hanging branches in the crowns Exposed surface roots observed
G6	Norway maple	15.0	2.0	-	320	3.5	3.5	3.5	3.5	M EM	F	G	48	3.9	B 2	Branch stubs observed Small hanging branches in the crowns Conjoined canopy Exposed surface roots observed
G7	Persian ironwood	6.0	2.0	-	170	2.0	2.0	2.0	2.0	SM	P	P	14	2.1	C 2	Conjoined canopy Minor deadwood in the crowns Pruning wounds observed Bark wounds observed Dead stems present

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							
G8	Silver birch	12.0	1.0	-	330	2.5	2.5	2.5	2.5	EM SM	F	F	55	4.2	B 2	Typical crown forms Minor deadwood in the crowns Large open wound vertically other most Eastern stem from 0.5m to 3m
G9	Swedish whitebeam	5.0	2.0	-	230	2.5	2.5	2.5	2.5	SM	F	F,P	28	3.0	C 2	Conjoined canopy Included unions observed Minor deadwood in the crowns Exposed surface roots observed the
G10	Silver birch	10.0	1.0	-	300	3.5	3.5	3.5	3.5	EM	F	G	41	3.6	B 2	Branch stubs observed Minor deadwood in the crowns Typical crown forms Light ivy on stems
G11	Swedish whitebeam	7.0	3.0	-	240	2.5	2.5	2.5	2.5	EM	F	P	28	3.0	C 2	Conjoined canopy Branch stubs observed Minor deadwood in the crowns Included unions observed Bark winds observed
G12	Silver birch	15.0		-	330	3.0	3.0	3.0	3.0	EM SM	F	G	55	4.2	B 2	Dense ivy on the stems Minor deadwood in the crowns Typical crown forms
G13	Himalayan birch	8.0	1.0	-	230	3.0	3.0	3.0	3.0	EM	G	G	28	3.0	B 2	Pruning wounds observed Minor deadwood in the crowns Typical crown forms
G14	Norway maple	13.0	2.0	-	550	8.0	8.0	8.0	8.0	M	G	G	137	6.6	A 2	Branch stubs observed Minor deadwood in the crowns Light ivy on stems No obvious defects observed Typical crown forms Conjoined canopy

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							
G15	Himalayan birch yucca	10.0	1.0	-	260	4.0	4.0	4.0	4.0	EM SM	G	G	34	3.3	B 2	Branch stubs observed Included unions observed Minor deadwood in the crowns Typical crown forms
G16	Ash	15.0	3.0	-	310	3.5	3.5	3.5	3.5	EM	F	F	48	3.9	B 2	Branch stubs observed Minor deadwood in the crowns Major deadwood in the crowns Typical crown forms Sparse canopies
G17	Sycamore Beech Cappadocian maple	14.0	2.0	-	370	6.5	6.5	6.5	6.5	EM M SM	F	G	64	4.5	B 2	Branch stubs observed Minor deadwood in the crowns Conjoined canopy Light ivy on stems
G18	Turkey oak Beech	21.0	4.0	-	700	7.0	7.0	7.0	7.0	M EM	G	G	222	8.4	B 2	Branch stubs observed Conjoined canopy Included unions observed Minor deadwood in the crowns Major deadwood in the crowns Pruning wounds observed
G19	Hornbeam	7.0	1.8	-	160	1.5	1.5	1.5	1.5	SM	G	G	14	2.1	B 2	Conjoined canopy No obvious defects observed Typical crown forms
G20	Holly	6.0	2.5	-	270	2.5	2.5	2.5	2.5	M	F	F	34	3.3	C 2	Conjoined canopy Minor deadwood in the crowns Branch stubs observed Pruning wounds observed Branch socket cavities

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							
G21	Lombardy poplar	23.0	4.0	-	730	2.5	2.5	2.5	2.5	M EM	F	G	255	9.0	B 2	Branch stubs observed Minor deadwood in the crowns Major deadwood in the crowns Conjoined canopy Limited inspection due to dense vegetation Cavities observed
G22	Eucalyptus Rowan	4.0	0.0	-	100	2.0	2.0	2.0	2.0	Y	P	F	5	1.2	C 2	Branch stubs observed Minor deadwood in the crowns Rowantree exhibit poor vigour and structure
G23	Sycamore	14.0	2.0	-	420	4.5	4.5	4.5	4.5	M EM	F,P	F,P	81	5.1	C 2	Minor deadwood in the crowns Major deadwood in the crowns Branch stubs observed Branch socket cavities Pruning wounds observed Typical crown forms All trees in decline
G24	Silver birch Sycamore Wild cherry	8.0	1.0	-	170	4.0	4.0	4.0	4.0	Y EM	F	F	14	2.1	C 2	Minor deadwood in the crowns Suppressed forms
G25	Ash	7.0	1.5	-	180	2.5	2.5	2.5	2.5	SM	F	F	18	2.4	C 2	Branch stubs observed Minor deadwood in the crowns Major deadwood in the crowns Gneral dieback observed throughout
G26	Whitebeam	4.0	1.0	-	270	3.0	3.0	3.0	3.0	SM	G	G	34	3.3	B 2	Light ivy on stems Minor deadwood in the crowns Typical crown forms Conjoined canopy
G27	Whitebeam	3.0	1.8	-	140	2.0	2.0	2.0	2.0	SM	P,F	G	10	1.8	C 2	One specimen is in extensive decline due to large vertical wound on one side

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							
G28	European lime Whitebeam	16.0	0.0	-	300	5.0	5.0	5.0	5.0	M EM SM	G,F	G,F	41	3.6	B 2	Light ivy on stems Pruning wounds observed Minor deadwood in the crowns
G29	Swedish whitebeam Whitebeam European lime Cappadocian maple	7.0	2.0	-	270	3.0	3.0	3.0	3.0	SM EM	F	G	34	3.3	B 2	Conjoined canopy Pruning wounds observed Minor deadwood in the crowns Included unions observed Typical crown forms
G30	Field maple Norway maple Sycamore Cappadocian maple	7.0	2.0	-	180	2.5	2.5	2.5	2.5	SM EM	F,G	G,F	18	2.4	B 2	Minor deadwood in the crowns No obvious defects observed Typical crown forms Conjoined canopy
G31	Sycamore	13.0	3.0	-	540	5.0	5.0	5.0	5.0	M EM SM	F,G	G,F	137	6.6	B 2	Conjoined canopy Dense ivy on the stems
G32	Silver birch	12.0	2.0	-	300	4.0	4.0	4.0	4.0	EM	G	G	41	3.6	B 2	Minor deadwood in the crowns Typical crown forms No obvious defects observed
G33	Norway maple	11.0	2.0	-	270	4.5	4.5	4.5	4.5	EM	G	G	34	3.3	B 2	Minor deadwood in the crowns No obvious defects observed Typical crown forms
G34	Small leaved lime	7.0	2.0	-	290	3.0	3.0	3.0	3.0	SM	G	G	41	3.6	B 2	Group is located off site but overhangs the study area No obvious defects observed Typical crown forms
G35	Ash Norway maple Alder Silver maple	12.0	2.0	-	380	3.5	3.5	3.5	3.5	EM SM	F	G	72	4.8	B 2	Minor deadwood in the crowns Conjoined canopy Branch stubs observed Major deadwood in the crowns Typical crown forms

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							
G36	Sycamore Whitebeam	9.0	2.0	-	260	2.0	2.0	2.0	2.0	SM EM	F,P	G	34	3.3	C 2	Large hanging branches in the crowns Minor deadwood in the crowns Major deadwood in the crowns Typical crown forms

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	Leyland cypress	5.0	0.0	-	140	1.5	1.5	1.5	1.5	SM	F	G	10	1.8	C 2	Managed
H2	Norway maple Beech	1.5	0.0	-	50	0.5	0.5	0.5	0.5	SM	F	G	3	0.9	C 2	Managed Sparse in areas
H3	Hawthorn	1.3	0.0	-	70	0.5	0.5	0.5	0.5	M	G	G	3	0.9	C 2	Managed
H4	Yew	1.3	0.0	-	50	0.5	0.5	0.5	0.5	EM	G	G	3	0.9	C 2	Managed