

Arboricultural Impact Assessment

Land at Alchemy Business Park, Knowsley

Prepared for:

NETWORK SPACE

Our Ref: 22/AIA/KNOWSLEY/26 (Rev B)

March 2023

Tree Solutions Ltd

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1.0 INSTRUCTION

- 1.1 We have been instructed by Network Space to carry out an Arboricultural Impact Assessment (AIA) in order to assess the development proposal in relation to trees in accordance with the principles of British Standard 5837 'Trees in Relation to Design, Demolition & Construction - Recommendations' 2012.
- 1.2 We are instructed to prepare a report in order to provide information to assist all parties involved in the planning process to make balanced judgements regarding arboricultural features in relation to the proposed development on land at Alchemy Business Park, Knowsley. As such, all significant trees within influencing distance to the development proposal both on and adjoining the site have been surveyed and are listed within a Tree Survey Schedule (**Appendix 1**) and plotted on all accompanying plans.
- 1.3 The stage 1 tree survey was carried out on 30 June 2022 by Russell Pearce, Consultant to Tree Solutions Ltd. Our appraisal of the mechanical integrity of trees on the site is enough to inform the current project. The assessment of trees is carried out from ground level without invasive investigation and the disclosure of hidden defects cannot therefore be expected. Whilst the survey is not specifically commissioned to report on matters of tree safety, we report obvious defects that are significant in relation to the existing and proposed land use. We do not carry out detailed safety inspections unless specifically instructed to do so in writing and have not carried out such inspections of trees on the proposal site.
- 1.4 Seven individual trees (T1-T7) and five groups of trees (G1-G5) were surveyed and mapped on a Tree Constraints Plan Ref: 22/AIA/Knowsley/26, Drawing No 1 at **Appendix 2**. All arboricultural information recorded during the survey is presented within a schedule at **Appendix 1**.
- 1.5 The Arboricultural Impact Assessment is based on site layout Ref: 12474-AEW-SI-XX-DR-A-0523 (Rev PO1) provided by AEW Architects.

2.0 STATUTORY CONTROLS

- 2.1 A search on Knowsley Council interactive map on 30/06/2022 revealed that no trees on or adjoining the application site are subject to a Tree Preservation Order and the land does not fall within a designated Conservation Area. As such, statutory planning consent is not required prior to undertaking any tree works.

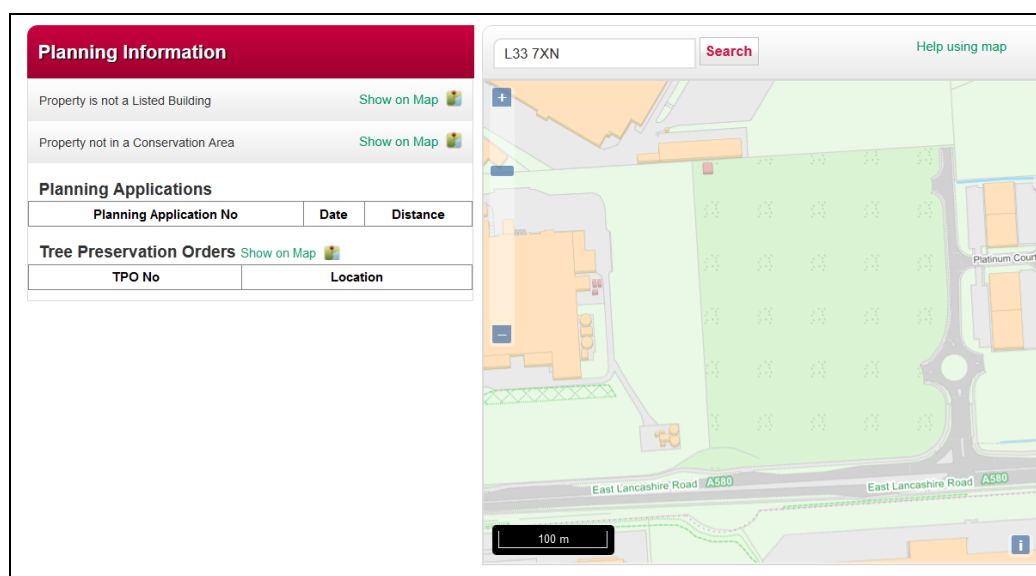


Plate 1 – extract from Knowsley Council interactive map showing no protected trees

2.2 Protected Species

- 2.2.1 Mature trees often contain cavities, crevices and hollows that offer potential habitat for species such as bats and barn owls. Both are afforded protection under the Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Bats are also protected under The Conservation of Habitats and Species Regulations 2010 (as amended). Refer to Rachel Hacking Ecology report for further details.

2.3 Wildlife Habitats

- 2.3.1 Trees and hedgerows of most species provide valuable nesting sites for a wide range of birds, and it is likely that nesting birds will be present on the site during the period March to September.

3.0 THE SITE

- 3.1 The site is a vacant building plot allocated in Knowlsey Local Plan as a primary industrial area. It contains areas of naturally colonised scrub and no trees of any significant landscape or amenity value.

4.0 DEVELOPMENT PROPOSAL

- 4.1 Full application for employment development comprising two units (use class e (g) (ii) (iii) / b2 / b8 use) with ancillary e (g) (i) office space, car parking and vehicular, pedestrian circulation with access onto alchemy way

5.0 GENERAL CONSTRAINTS DATA - CONSTRUCTION EXCLUSION ZONES (CEZ's)

5.1 GENERAL

- 5.1.1 During the development process for retention trees, there may be three and even four constraints to consider: Construction Exclusion Zone (CEZ's):

- CEZ 1: Root Protection Area (see 5.2)
- CEZ 2: Tree Crown Protection (see 5.3)
- CEZ 3: Tree Dominance (see 5.4)
- CEZ 4: New Tree Planting Zone (see 5.5)

CEZ's are explained below:

5.2 CEZ 1: ROOT PROTECTION AREA (RPA)

- 5.2.1 The RPA, calculated in m², should be protected before and during any demolition/construction works. This ensures the effective retention of trees by safeguarding a reliable quantum of functioning tree roots. The RPA is based on a radial measure from the centre of the tree stem, which is calculated by multiplying the stem diameter by a factor of twelve or by the (mean stem diameter²) x number of stems for multi-stemmed trees. With the AIA 1, the RPA is only shown indicatively on the preliminary TCP, as its shape may be subject to amendment as the design progresses.
- 5.2.2 During the AIA 2, the derived radial measure is converted by the arboriculturalist into the actual area to be protected, having due regard to prevailing site conditions and how these may have affected the tree(s), particularly in relation to factors affecting their likely rooting disposition. The RPA for each tree should initially be plotted as a circle centred on the base of the stem. Where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically, a polygon of equivalent area should be produced. Modifications to the shape of the RPA should reflect a soundly based arboricultural assessment of likely root distribution.
- 5.2.3 The means of protecting the RPA will include the installation of tree protective fencing prior to the start of any demolition or construction work on site. The prohibition of various activities within the RPA must be adhered to (e.g. mechanical excavation, soil stripping, fire lighting, material storage, lowering levels and creating excessive sealed surfacing) and may include the use of temporary ground protection and/or special engineering solutions where construction is proposed near to retention trees or within the RPA.

5.3 CEZ 2: TREE CROWN PROTECTION ZONE

- 5.3.1 This is the area above ground occupied by the crown (branches) of the tree, along with allowances for working space (safe working area) and if appropriate, for future growth. The extent of CEZ 2 is determined by considering the existing and future crown spread of the tree(s), bearing in mind the possibility of this being modified by an acceptable quantum of pruning.

5.4 CEZ 3: TREE DOMINANCE ZONE

5.4.1 N/A due to nature of application being industrial.

5.5 CEZ 4: NEW PLANTING ZONE

5.5.1 Refer to landscape plan.

6.0 SURVEY METHODOLOGY

6.1 The method used in the preparation of this report is based on the principles of BS 5837: 2012.

1. Tree heights were surveyed to the nearest 1m.
2. Trunk diameters were measured by use of forestry girth tape
3. The category assessment (Table 1) on which the trees is based include current and long-term arboricultural, landscape, cultural and conservation values (BS5837: 2012). This table can be found at **Appendix 1**
4. For clarity, the grading system is summarised from **Table 2** of the BS as follows:

U grade – trees for removal, effective for less than 10 years

A grade – trees of high quality and value, effective for more than 40 years

B grade – trees of moderate quality and value, effective for more than 20 years

C grade – trees of low quality and value, effective for 10 years

Note: We have indicated colour coding on the drawing and therefore a monochrome copy should not be relied on.

6.2 SOIL ASSESSMENT

6.2.1 A soil assessment should be undertaken by a competent person to inform decisions relating to:

- the root protection area (RPA)
- tree protection
- new planting design; and
- foundation design to take account of retained, removed and new trees (potential soil subsidence/heave)

Tree Solutions do not undertake soil assessments and the client is advised to seek specialist advice in this respect.

7.0 JUXTAPOSITION OF TREES AND STRUCTURES

7.1 Below ground constraints

- 7.1.1 The below ground constraints are generally summarised as the root protection area (RPA). The shape of the RPA and its exact location will depend upon arboricultural considerations including likely tolerance of the tree to root disturbance; morphology and disposition of the roots when known influenced by past or existing site conditions; soil type and structure; and topography and drainage.
- 7.1.2 The purpose of the RPA is to prevent physical damage to tree roots and to prevent damage to the soil structure. Tree roots are damaged by soil compaction, changes in soil levels or soil contamination which could reduce tree health and/or stability.
- 7.1.3 Root patterns are affected by topography and characteristics of the soil or substrate. Where trees are located within proximity to existing hard standing or underground physical barriers, they are unlikely to have an even distribution of lateral roots due to restrictions in root growth created by compacted sub-grades beneath. The RPA of all trees been plotted unmodified as there were no significant underground barriers present to prevent good radial root spread.

7.2 Underground Services

7.2.1 N/A as all trees within the site boundary are to be removed.

8.0 DEVELOPMENT IMPACT TO TREES

8.1 Tree Solutions carried out a stage one preliminary tree survey and provided the project architect with a report in which all existing trees and their respective Root Protection Areas (RPA) were identified and plotted on a tree constraints and impact assessment plan. The architect has incorporated the design and layout advice contained within the stage 1 survey and input from Tree Solutions to ensure the best quality trees can be retained with no adverse construction impacts. We are satisfied that the proposal has taken the long-term future of the tree into account and the layout is therefore in accordance with National Planning Policy Framework (NPPF) 2021, Knowsley Council Planning Policies and recommendations contained within BS5837: 2012.

8.2 In order to accommodate the proposed development it will be necessary to remove tree numbers 1-4, 6, 7, G1, part of G3 and G5. All trees are low-grade naturally colonised scrub that offer only transient value. They are not visually prominent and offer no amenity value. As such, they have been categorised as 'C' grade and should not form a material consideration of this planning application.

9.0 PROPOSED REVISIONS TO THE SCHEME

9.1 We advise that all proposed revisions having implications for trees should be referred to us for review.

10.0 CONCLUSIONS

10.1 BS 5837: 2012 contains clear and current recommendations for a best practice approach to the assessment, retention and protection of trees on development sites. The proposed development has followed this guidance by:

- Seeking arboricultural advice and undertaking a phase 1 preliminary tree survey in order to inform the layout and design of the proposed development
- Respecting the constraints posed to development of the site by high or moderate quality trees
- Acting upon arboricultural advice throughout the design process in order to obtain the best development proposal whilst considering the current and future tree requirements
- Land is allocated for industrial use
- Trees removed will be replaced by new planting

11.0 LIMITING CONDITIONS

Unless stated otherwise:

Information contained in this report covers only those trees that were examined and reflects the condition of those trees at the time of the inspection.

The inspection is limited to visual examination of the subject trees from ground level only and without dissection, excavation, probing or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.

This report has been prepared for the sole use and benefit of the client. Any liability of Tree Solutions shall not be extended to any third party.

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Appendix One

Tree Survey Schedule

TREE SURVEY SCHEDULE (BS5837: 2012)

Tree Solutions

Arboricultural Consultants

Site	LAND AT ALCHEMY BUSINESS PARK, KNOWSLEY
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Client	NETWORK SPACE
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Brief	ARBORICULTURAL IMPACT ASSESSMENT
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Surveyor

Assessment Dates

Viewing Conditions

Job Reference

	RUSSELL REARCE
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	30.06.2022
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CLEAR

22/AIA/Knowsley/26

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Tree Number	Name	Age	Height (m)	Crown clear	North	East	South	West	Diameter (mm)	Vitality	Comments	E.R.C	Management	Category	RPA (m)	RPA (m²)
T1	Sycamore	SM	6	2	2.5	2.5	2.5	2.5	210	Good	Good form. Balanced crown. Minor trimmer damage at base.	10	Remove for development	C1	2.5	20
T2	Sycamore	Y	4	1	2	2	2.5	2	150	Good	Large partially occluded basal stem wound. Squat form.	10+	Remove for development	C1	1.8	10
T3	Sycamore	SM	6	2	2	2.5	2	2	190	Good	Fair form. Trimmer damage at base - not significant at present. Large longitudinal wounds from 0.5m to 2.25m, with shallow open cavity. Central leader previously failed.	10+	Remove for development	C1	2.3	16
T4	Norway Maple	SM	6	2	2.5	2	2	2	140	Good	Good form. Acute primary unions. Deep vehicular tracking throughout RPA <75cm from stem.	10	Remove for development	C2	1.7	8.9
T5	Goat Willow	EM	9	0	4.5	4.5	4.5	4.5	480	Good	DBH estimated - limited access due to dense nettles and steep embankment. Open balanced crown. Acute primary unions.	10+	No action required.	C1	5.6	104
T6	Goat Willow	SM	6	0	3	3	3	3	260	Good	Good form and vitality. Limited access due to dense vegetation. No defects noted.	10+	Remove for development	C1	3	30
T7	White Willow	SM	6	0	4	4	4	4	80 (x9)	Good	DBH Estimated, limited access due to dense brambles. Good form and vitality. Acute primary unions. Spreading crown.	10+	Remove for development	C1	2.9	26
G1	Goat Willow	Y	2 to 4	0	2	2	2	2	120	Good	DBH estimated avg. Dense scrubby low value group. All multi-stemmed stem trees with numerous stems below 75mm. Hawthorn within group.	10+	Remove tree within site boundary for development	C2	1.4	6.5
G2	Goat Willow	Y	1 to 3	0	2	2	2	2	100	Good	Scrubby broken group. Prolifically multi-stemmed at base - DBH estimated. Low aesthetic value.	10+	No action required.	C2	1.2	4.5
G3	Mixed	Y	2 to 6	0	2	2	2	2	120	Good	Goat Willow, Ash and Birch. Young scrubby closely proximate group. Minor deadwood throughout. Competing slender stems. Crossing stems and besides.	10	Remove tree within site boundary for development	C2	1.4	6.5
G4	Mixed	Y to SM	4 to 8	2	2	2	2	2	140	Good	3rd party trees with no access. Dimensions estimated. Goat Willow, Birch, Osier and White Willow. Good form and vitality. Large group on embankment. Visible from a distance.	20+	No action required.	B2	1.7	9
G5	Goat Willow	Y	3	0	2	2	2	2	80	Good	Young scrubby, closely proximate group. Prolifically multi-stemmed at base - DBH estimated. Low value group.	0	Remove those within site boundary for development	C2	1	3

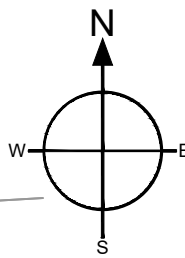
HEADINGS & ABBREVIATIONS

TREE NO.	REFERENCE NUMBER, REFER TO PLAN OR NUMBERED TAGS WHERE APPLICABLE (T = TREE, G = GROUP, H = HEDGE)
SPECIES:	COMMON NAME (LATIN NAMES AVAILABLE ON REQUEST)
AGE RANGE/LIFE STAGE:	Y = YOUNG, SM = SEMI MATURE, EM = EARLY MATURE, M = MATURE, PM = POST MATURE
HEIGHT:	ESTIMATED AND RECORDED IN METRES. APPROXIMATELY 1 IN 10 TREES ARE MEASURED USING A CLINOMETER AND THE REMAINDER ESTIMATED AGAINST THE MEASURED TREES
CROWN SPREAD:	MAXIMUM CROWN RADIUS MEASURED TO THE FOUR CARDINAL COMPASS POINTS FOR SINGLE SPECIMENS ONLY (MEASUREMENT FOR TREE GROUPS - MAXIMUM RADIUS OF THE GROUP)
CROWN CLEARANCE & DIRECTION OF GROWTH:	HEIGHT IN METERS OF CROWN CLEARANCE ABOVE ADJACENT GROUND LEVEL (TO INFORM ON GROUND CLEARANCE, CROWN/STEM RATIO AND SHADING)
STEM DIA/MULTI-STEM DIA:	STEM DIAMETER - MEASURED AT APPROXIMATELY 1.5 METRES ABOVE GROUND LEVEL OR A COMBINATION OF STEMS FOR MULTI-STEMMED TREES
VITALITY:	A MEASURE OF PHYSIOLOGICAL CONDITION. D = DEAD, MD = MORIBUND, P = POOR, M = MODERATE, G = GOOD
E.R.C. = ESTIMATED REMAINING CONTRIBUTION:	RELATIVE USEFUL LIFE EXPECTANCY (YEARS)
B5 5837 CATEGORY & SUB-CATEGORY GRADING	A = HIGH QUALITY AND VALUE, B = MODERATE QUALITY AND VALUE, C = LOW QUALITY AND VALUE, U = UNSUITABLE FOR RETENTION (SUB-CATEGORY REFERS TO ARBORESCENT, LANDSCAPE AND CULTURAL/CONSERVATION VALUES)
B5 5837 RADIUS & B5 5837 RPA:	PROTECTIVE DISTANCE - RADIUS FROM THE CENTRE OF THE STEM TO THE LINE OF TREE PROTECTION (CONSTRUCTION EXCLUSION ZONE - CEZ) AND PROTECTIVE BARRIER ROOT PROTECTION AREA - B5 5837 (2012) ANNEX D (THE RECOMMENDATIONS STATE THAT THE RPA SHOULD BE CAPPED AT 707 M) NOTE - ALL CALCULATIONS ROUNDED TO NEAREST DECIMAL

Table 1 Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those 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	- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline - Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <i>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</i>			See Table 2
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
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	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

Appendix Two
Preliminary Tree Constraints Plan



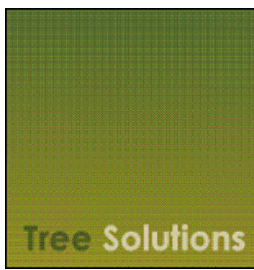
Legend

- Root Protection Area
Modified to Account for
Site Features
- Category A
(High Quality)
- Category B
(Moderate Quality)
- Category C
(Low Quality)
- Category U
(Dead/Dying/In Decline)
- NOTE: Tree/group numbers marked
with an * have approximate locations.
- Root Protection Area
- Crown Spread
- Tree Number

Client:	
Network Space	
Project:	
Land off Alchemy Way, Knowsley	
Title:	
Preliminary Tree Constraints Plan	
Scale:	Date:
1:500 at A1	July 2022
Drawn By:	Revision:
SD	----
Job Ref:	Drawing No:
22/AIA/Knowsley/26	01

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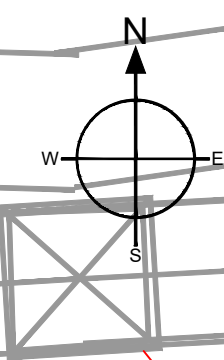


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Appendix Three

Impact Assessment Plan



Red Line Site Boundary:
7.63 acres / 3.09 ha

Embankment retaining
structure may be required

Toe of Embankment from
latest topography

Approx. area of Japanese
Knotweed

Future sprinkler tank
& pump location

Existing mound

21 no. trailer
spaces

2 no. level
loading door

Recycling & Waste
Provision

10m²

10m²

50 no. Car
Parking
Spaces inc
access

1 no. level
loading door

8 no. dock
levellers

Unit 04 GIA
GF GIA: 9,108sqm / 98,038sqft
GF Office: 330sqm / 3,552sqft
FF Office: 330sqm / 3,552sqft
Total: 9,768sqm / 106,142sqft

Unit 05 GIA
GF GIA: 3,588sqm / 38,621sqft
GF Office: N/A
FF Office: 318sqm / 3,423sqft
Total: 3,906sqm / 42,044sqft

1 no. level
loading door

Recycling & Waste
Provision

10m²

10m²

134 no. Car
Parking
Spaces inc
accessible

Proposed
substation location

PLATINUM COURT

CHEMY WAY

Legend

- Root Protection Area
Modified to Account for
Site Features
- Category
- Root
Protection
Area
- Crown
Spread
- Tree
Number
- Category A
(High Quality)
- Category B
(Moderate Quality)
- Category C
(Low Quality)
- Category U
(Dead/Dying/In Decline)
- Tree Proposed for Removal

NOTE: Tree/group numbers marked
with an * have approximate locations.

Client:
Network Space Developments

Project:
Land off Alchemy Way, Knowsley

Title:
Arboricultural Impact Assessment

Scale:
1:500 at A1

Drawn By:
SD

Job Ref:
22/AIA/Knowsley/26

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