

Lowther Forestry Group Ltd
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Lowther Castle,
Lowther, nr Penrith,
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BS5837

Arboricultural Survey, Impact Assessment and Tree Protection

Site Name: Indurent Park, Knowsley

Site Address: Land to the East of Moorgate Point, Alchemy Way, Knowsley Business Park, Kirkby

Client: SK Environmental Ltd on behalf of Indurent Management Limited

Survey Date: 09 July 2025

Report Revision Date: 29 July 2025

Surveyor	Report Author	Quality Control	Document Sign-off
B. Knipe	B. Knipe	K. Dixie	Ben Knipe
09.07.25	14.07.25	15.07.25	27.07.25

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1. Summary

- 1.1 Lowther Forestry Group Ltd has been commissioned by SK Environmental Ltd on behalf of Indurent Management Ltd to produce an Arboricultural Survey and Arboricultural Impact Assessment (AIA) and Tree Protection Plan (TPP) following guidance of BS 5837: 2012 *Trees in Relation to Design, Demolition and Construction - Recommendations*. The report is to aid an application for full planning permission.
- 1.2 The report aims to give a balanced judgement of the trees, their protection prior to the development phase and future management.
- 1.3 The site is Indurent Park, Knowsley. The survey area includes land to the East of Moorgate Point, Alchemy Way, Knowsley Business Park, Kirkby.
- 1.4 The survey identified and recorded five trees and four groups requiring consideration prior to design or development of the site. Table 1 categorises the trees on requirements for the development to proceed.

Table 1. Arboricultural Impact Assessment

Arboricultural Impact Assessment Table						
Construction Proposals:		Category A	Category B	Category C	Category U	Total stems
	Remove for development		1 tree	2 trees 1 group		5 ~100+
	Arb operation to facilitate development			2 trees 1 group	2 groups	5 ~125+

- 1.5 Details of the recorded trees can be found in the Tree Data Table in Appendix 1. Tree locations and root protection areas (RPA) can be seen on Drawing D01, Tree Constraints Plan (F644-12/D01). The proposed development can be seen in Drawing D02, Arboricultural Impact Assessment (F644-12/D02).
- 1.6 The use of tree protection fencing is recommended to protect from damage the roots of two retained trees located outside of the site boundary. Details of these fences can be found in Section 13 and seen on Drawing D03 - Tree Protection Plan (F644-12/D03). Arboricultural operations may be undertaken prior to tree protection fencing being erected. All tree works should conform to BS 3998: 2010 *Recommendations for Tree Works*.

2. Introduction

- 2.1 Lowther Forestry Group Ltd has been commissioned by SK Environmental Ltd on behalf of Indurent Management Ltd to produce an Arboricultural Survey and Arboricultural Impact Assessment (AIA) and Tree Protection Plan (TPP) following guidance of BS 5837: 2012 *Trees in Relation to Design, Demolition and Construction - Recommendations*. The report is to aid an application for full planning permission.

3. Purpose of the Report

- 3.1 The report aims to provide a balanced judgement of the trees, assessing their suitability for retention or removal. The survey will be used to produce an arboricultural Impact Assessment (AIA) and Tree Protection Plan (TPP) following the guidance of BS 5837: 2012 *Trees in Relation to Design, Demolition and Construction - Recommendations*.
- 3.2 To produce a plan to a scale and level of accuracy appropriate to the proposal that shows the position, crown spread, and root protection area (RPA) of every retained tree on site.
- 3.3 To provide a schedule of tree works for all the retained trees in 3.1 above, specifying pruning and other remedial or preventative work; whether for physiological, hazard abatement, aesthetic, or operational reasons. All works shall be carried out in accordance with BS 3998: 2010 *Recommendations for Tree Work*.
- 3.4 Identify tree pruning or removal required for the proposed development to take place.
- 3.5 Highlight the location and specification of tree protection fences and ground protection to protect trees and soil from unnecessary damage during the demolition and construction phases.

4. The Site

- 4.1 The site is Indurent Park, Knowsley. The survey area includes land to the East of Moorgate Point, Alchemy Way, Knowsley Business Park, Kirkby. Currently part of the site is in use in connection with the business park, with the remaining area currently undeveloped.
- 4.2 The survey area includes all trees in and near to the red line development boundary seen in Appendix 2. All recorded trees are close to the red line application boundary and include trees inside and outside of the boundary and potentially differing land ownership.
- 4.3 Tree stock in the survey area is limited to multi-stemmed groups of willow (*Salix* sp.) along the boundary edges, with common hawthorn (*Crataegus monogyna*) and silver birch (*Betula pubescens*) also present in smaller numbers. Single recorded trees include willow, sycamore (*Acer pseudoplatanus*) and pedunculate oak (*Quercus robur*). The principal tree on site is a mature pedunculate oak with a large stem diameter.

5. Proposed Development

- 5.1 The proposed development is for a logistics and industrial development, with the demolition of existing buildings/structures and the erection of industrial & logistics warehouse units (Use Class B2 and/ or B8 and/ or E(g)(iii)). These will include ancillary offices and the provision of revised access arrangements from Alchemy Way along with all associated works of landscaping, car parking and servicing arrangements.
- 5.2 The location of the development can be seen in Drawing D02, Arboricultural Impact Assessment (F644-12/D02).

6. Documents Provided

- 6.1 A plan showing the proposed development was provided (22520-UMC-ZZZZ-SI-M2-A-0601[P04] - Proposed Site Plan) to aid the production of the Arboricultural Impact Assessment (AIA). A topographical plan with tree locations plotted was not provided, therefore tree locations were recorded on site and are subject to the GPS accuracy of the surveyors recording device.

7. Methodology

- 7.1 Trees were surveyed and categorised in accordance with the cascade chart Table 1 of BS 5837: 2012 *Trees in Relation to Design, Demolition and Construction - Recommendations*, page 9. Survey methodology can be seen in Appendix 5.
- 7.2 A schedule of tree works for all the retained trees in 3.1 above, specifying pruning and other remedial or preventative work; whether for physiological, hazard abatement, aesthetic, or operational reasons. All works shall be carried out in accordance with BS3998: 2010 *Recommendations for Tree Work*.
- 7.3 Tools used include a clinometer, diameter tape, compass, sounding hammer, binoculars, and probe.
- 7.4 All observations were made from the ground with the aid of an acoustic sounding hammer.
- 7.5 Data obtained from the survey was used to produce the Tree Constraints Plan (Appendix 2 – Drawing D01).
- 7.6 An Arboricultural Impact Assessment was then created (Appendix 2 – Drawing D02), overlaying the proposed design and showing the extent of crown spreads and Root Protection Areas (RPA's) in relation to the site.
- 7.7 A Tree Protection Plan (TPP) was then produced (Appendix 2 – Drawing D03), highlighting trees, hedges, and groups requiring removal, and showing the location of CEZ fencing recommended to protect retained trees.

8. Legal Restrictions

- 8.1 Trees in any location may be protected by legislation. Where development is proposed, additional legal protection may be appropriate and can be enforced by the local authority. Attention is drawn to legal controls and liabilities under common law for consideration at the earliest stages of potential site development.
- 8.2 The Knowsley Council Local Plan Policies map [Local Plan Policies Map](#) (accessed 14.07.25) confirmed that there are no Conservation Area designations affecting this site. However, the vegetated part of the survey areas is designated as a 'Local Wildlife Site' known as Otis Meadow measuring 2.55 ha. This is within an area designated as being an industrial area.
- 8.3 Substantial penalties and or prison sentences can be incurred for contravention of legislation relating to protected species.
- 8.4 Lowther Forestry Group Ltd has not been requested to make any checks for protected species on this site.
- 8.5 Further legal considerations can be found in Appendix 8.

9. Biodiversity Net Gain

- 9.1 Developments in England must now adhere to Biodiversity Net Gain legislation introduced by Schedule 7a of the Town and Country Planning Act 1990, which is statutory framework inserted by the Environment Act 2021. Subject to some exceptions, the granting of planning permission will be subject to the condition that a gain of 10% biodiversity must be met, measured against the pre-development biodiversity of the site.

10. Caveats and Report Limitations

- 10.1 Any clear and identifiable hazards are highlighted with recommendations. There may, however, be hidden defects or defects which are not identified due to weather conditions or foliage for which Lowther Forestry Group Ltd cannot be held responsible. The survey produces a picture of those trees surveyed as on the date when the survey was undertaken. It is quite possible for hazards to have developed since that time.
- 10.2 This report confines itself to the silvicultural and arboricultural aspects of the trees and does not address any ecological or engineering aspects or anything in relation to soils for which other specialists' advice may be sought.

11. Survey

- 11.1 The survey was carried out in accordance with BS 5837: 2012 *Trees in Relation to Design, Demolition and Construction - Recommendations*. A glossary of arboricultural terms used in this report can be found in Appendix 3.
- 11.2 The surveyor was Ben Knipe, Arboricultural Consultant. Surveyor qualifications can be found in Appendix 4.
- 11.3 The trees have been categorised in accordance with the cascade chart in Table 1 of BS 5837: 2012 *Trees in Relation to Design, Demolition and Construction - Recommendations*, page 9. The survey methodology can be seen in Appendix 5, Survey Methodology.
- 11.4 The survey identified and recorded five trees and four groups requiring consideration prior to design or development of the site.
- 11.5 The trees have been divided into the following four categories and are as follows:
- Category A = 0 trees
 - Category B = 1 tree
 - Category C = 4 trees, 2 groups
 - Category U = 2 groups
- 11.6 Table 2, Tree Quality Assessment Table shows the trees on site categorised following guidance from BS 5837: 2012 *Trees in Relation to Design, Demolition and Construction - Recommendations*.

Table 2. Tree Quality Assessment Table

Tree Quality Assessment Table			
Category	1: Mainly arboricultural values	2: Mainly landscape values	3: Mainly cultural values including conservation
A			
B		T4	
C		T1, T2, T3, T5 G3, G4	
U	G1, G2		

**Indicates an appearance in more than one category*

- A, B, C and U indicate the contribution in years the tree will potentially live for:

40+ years = A, 20 to 40 years = B, 10 to 20 years = C, less than 10 years = U

- 11.7 Category A trees are those of high quality and value, with an estimated remaining life expectancy of at least 40 years. There are no trees recorded as Category A in the survey area.
- 11.8 The Category B trees those are of moderate quality and value with an estimated remaining life expectancy of at least 20 years. One mature pedunculate oak (*Quercus robur*) has been recorded in this category and is located in the northern corner of Otis Meadow. This has normal vitality and retains low limbs, however a chain-link fence historically against the stem has become included into the stem after many years of secondary growth.
- 11.9 The Category C trees are those trees of low quality and value with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm. Four trees and two groups are in this category and include sycamore and willow trees, and hawthorn and willow groups. Groups G3 and G4 and trees T1 and T5 are outside of the ownership boundary but overhang the fence line. Trees T2 and T3 are next to the ownership boundary.
- 11.10 Category U trees are trees which are unsuitable for retention and cannot realistically be retained as living trees for longer than 10 years. Groups G1 and G2 have been recorded into this category due to structural defects. These groups are composed of multi-stemmed willow which in most cases have stems leaning onto the security fence with stem damage as a result.

12. Arboricultural Impact Assessment

- 12.1 Any arboricultural recommendations for the trees aim to promote health, growth, and retention of suitable specimens within the development.
- 12.2 Recommendations may also aim to reduce the potential risk of harm to users of the site, by identifying significant defects within the trees.
- 12.3 Table 3 (below) Arboricultural Impact Assessment Table identifies trees to be removed to facilitate the development, and trees to be retained and managed within the proposed development.

Table 3. Arboricultural Impact Assessment

Arboricultural Impact Assessment Table						
Construction Proposals:		Category A	Category B	Category C	Category U	Total stems
	Remove for development		T4	T2, T3 G4		5 100+
	Arb operation to facilitate development			T1, T5 G3	G1, G2	5 125+

- 12.4 Irrespective of development, the Category U trees have structural defects and will therefore benefit from management intervention, such as coppicing, within the next 10 years where they lean onto, or overhang the site security fence.
- 12.5 To facilitate development, three trees and one group require removal. Retention of these trees is not feasible with the current design of the site.
- 12.6 Two trees and three groups, all located outside the site security fence, will require arb operations to facilitate a new fence and the demolition/construction of site buildings. Groups G1, G2 and G3 are composed mainly of multi-stemmed willow (*Salix* sp.) species which are approximately 5 m away from the fence but have strongly leaning stems either resting on the fence or overhang the site by up to 6 m. These stems are recommended to be cut back near to the stem junction and allowed to regrow, or alternatively if suitable pruning points are present simply cut back from the fence with 2 m clearance. Tree T1 is near to the access point on the southeastern corner of Otis Meadow. This overhangs the fence however its high crown will only require raising to facilitate fence replacement. Tree T5 is a sycamore located near the northern corner of the survey area with its crown and RPA extending into the site. This is recommended to be crown reduced back to the fence line allowing for suitable clearance from new structures and fences.
- 12.7 The RPA for trees T1 and T5 extend into the site beyond the existing fence line, therefore roots are to be protected from damage during fence replacement and landscaping operations. Tree protection fences are recommended to protect these two trees and can be seen on the Tree Protection Plan, Drawing D03 (F644-12/D03). More details are given in section 13.
- 12.8 Should the plans or methods change, then revised works will need to be approved by Knowsley Council and the consulting arboriculturist.

12.9 Details of tree works can be seen in Appendix 1, Tree Data Table.

13. Tree Protection Recommendations

- 13.1 The trees making up G1, G2 and G3 are set back from the current fence line by approximately 5 m. The estimated root protection radius for these trees is also approximately 5 m, therefore fence replacement should be able to proceed in these areas (following tree works recommended in Table 3) without risk of root damage provided that works with mobile plant take place from outside of the root protection areas (RPA), i.e., working inside the site. Assuming that all works involving mobile plant are restricted to inside the site and do not cross the fence line, tree protection fences are not necessary. If mobile plant (not including pedestrian operated machines) needs to enter the RPA of retained trees, then suitable ground protection must be installed over soft ground.
- 13.2 Demolition of existing structures must avoid retained trees, in this case G1. By carrying out recommended tree works (see Table 3) prior to the demolition phase the conflict of overhanging branches will be removed; however, the retention of the existing boundary fence during demolition will serve as a tree protection fence and should only be removed/replaced once activities using large mobile plant have ceased.
- 13.3 The RPA for trees T1 and T5 extends into the site, therefore these will require protection from the construction works in the form of tree protection fences. These are to be positioned outside the RPA radius' given in the Tree Data Table or just beyond the drip line of the crown, whichever distance is furthest from the main stem. These fences can also be used to protect soft ground from compaction, allowing for better quality landscaping to take place upon project completion. The approximate location of these fences can be seen on Drawing D03 – Tree Protection Plan. Examples of suitable Heras panel fences are shown in Appendices 6 & 7.
- 13.4 To enable a new site security fence to be installed through the outer edges of the RPA for trees T1 and T5, it is recommended that once installed, the tree protection fence is only adjusted to allow access for operative and pedestrian-operated plant. Larger plant can be sited outside of the RPA. Post holes are to be dug by hand within the RPA area and no roots over 25 mm diameter are to be cut without consent from the arboricultural consultant.
- 13.5 An additional document is attached to the end of this report - Knowsley Council Tree Care Protection Advice – to assist with planning and implementation of tree protection for this development.

Material Storage

- 13.6 All material should be stored on existing hard surfacing at least 10 m from the edge of any RPA. When siting storage areas consideration should be given to site topography, and an assessment made of the potential impact of any run-off of spilled materials.
- 13.7 No mixing of concrete is to be carried out within 10 m of the edge of any RPA. The Control of Substances Hazardous to Health (COSHH) Regulations 2002 (as amended) is relevant to the use of materials such as cement, and regulations should be adhered to protect both worker health and the local environment.

- 13.8 Any material that could contaminate soil or watercourses should be stored at least 10 m from RPAs and watercourses and handled in a suitable manner that reduces the risk of damage to the environment. A suitable method statement and risk assessment will be required for all materials to be used on site to ensure preservation of the health of the local environment.

Services

- 13.9 Services should avoid wherever possible the RPA of retained trees. Where services are proposed to be installed within the RPA of retained trees, the supervising arboriculturist must be consulted. Suitable method statements can then be provided and may include excavations by hand or with air tools. No mechanical excavation to take place within RPAs.

Site Facilities

- 13.10 If these are required, they should be located outside of any RPA, and ideally on existing hard standing.

14. Sequence of Works

- A pre-commencement meeting attended by the arboricultural consultant and site manager is recommended before any works are undertaken. A copy of the Arboricultural Method Statements and Tree Protection Plan should be retained on site.
- All tree works detailed in the survey should be carried out prior to equipment or materials being brought onto site. The tree works can take place prior to the Construction Exclusion Zone (CEZ) fencing being installed. Heavy tree felling equipment should not be used within the Root Protection Area (RPA) of retained trees.
- Once all tree works are completed, all Tree Protection Fencing and any temporary ground protection should be installed.
- The arboricultural consultant is to confirm together with Knowsley Council that suitable protection methods have been put in place and the development phase can begin.
- The demolition and removal of existing structures can now take place. Construction works can commence, with permanent ground protection installed where required.
- Site visits may be carried out by the arboricultural consultant to undertake a watching brief, and to check that tree protection remains in place and is suitable for its intended use.
- On completion of works the arboricultural consultant will inspect the site prior to the removal of tree protection installations.
- Mitigation planting if applicable can then be carried out. Aftercare of trees will be required.
- A post-development inspection is recommended to be carried out after 1 year to assess the health of retained and newly planted trees. Actions may be recommended to mitigate any decline in tree health caused by the development.

15. Tree Mitigation Recommendations

- 15.1 Mitigation planting will be required due to the tree removal needed for this development. It is recommended to replant native oak (*Quercus* sp.) to offset the loss of mature oak canopy from T4.
- 15.2 Replacement trees must be of high quality, have space to develop large crown sizes when mature and be kept in good health through maintenance such as watering until established. All trees and shrubs must conform to the National Plant Specification guidelines.

Appendix 1 Tree Data Table

Tree Data Table - Arboricultural Survey BS 5837: 2012 - F644-12										 LOWTHER	
Client: SK Environmental Ltd on behalf of Indurent Management Ltd					Location: Alchemy Way, Knowsley Business Park		Surveyor: B. Knipe				
Site: Indurent Park, Knowsley					Survey Date: 09.07.25		Weather: Dry and bright				
Tree ID	Species	Height (m)	Num. Stems	Stem diameter(s) (mm)	All measurements	Life Stage	Retention Category	General Observations	RPA	Action	Rationale
G1	Willow x50 (<i>Salix sp.</i>)	6	50+	#200	Height (m): 6 50 stems Spread (m): 6N, 6E, 6S, 6W Crown Clearance (m): 1 Lowest Branch (m): 1 Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Semi Mature	U	Line of multi-stemmed trees outside of the southern security fence and behind an industrial building. Crowns extend over the fence by 6 m.	Area: 999 sq m.	Coppice stems leaning onto and over the boundary fence.	To remove overhang into site and facilitate fence replacement.
G2	Willow x20 (<i>Salix sp.</i>)	6	50+	#200	Height (m): 6 20 stems, avg.(mm): 100 Spread (m): 4N, 4E, 4S, 4W Crown Clearance (m): 1 Lowest Branch (m): 1 Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Semi Mature	U	Line of multi-stemmed trees along the south side of the security fence. Crowns extend over the fence by 5 m.	Area: 751 sq m.	Coppice stems leaning onto and over the boundary fence.	To remove overhang into site and facilitate fence replacement.
G3	Common hawthorn x25 (<i>Crataegus monogyna</i>)	6	25+	#150	Height (m): 6 25 stems, avg.(mm): 150 Spread (m): 5N, 5E, 5S, 5W Crown Clearance (m): 0.5 Lowest Branch (m): 2 Life Stage: Early Mature Rem. Contrib.: 10+ Years	Early Mature	C2	High crowns, multi-stemmed, 2 m back from Heras panels serving as the site boundary.	Area: 168 sq m.	Coppice stems leaning onto and over the boundary fence.	To remove overhang into site and facilitate fence replacement.
G4	Willow (<i>Salix sp.</i>) Silver birch (<i>Betula pendula</i>) x100+	6	100+	80	Height (m): 6 100 stems, avg.(mm): 80 Spread (m): 1N, 1E, 1S, 1W Crown Clearance (m): 2 Life Stage: Young Rem. Contrib.: 10+ Years	Young	C2	Dense willow and silver birch with narrow stems.	Area: 452 sq m.	Remove group	To facilitate car parking bays
T1	Willow (<i>Salix sp.</i>)	8	4	#250, 250, 200, 200	Height (m): 8 4 stems (mm): 250, 250, 200, 200 Spread (m): 6N, 6E, 6S, 6W Crown Clearance (m): 2 Life Stage: Mature Rem. Contrib.: 10+ Years	Mature	C2	A multi-stemmed tree set back 5 m from the fence outside the ownership boundary.	Radius: 5.4m. Area: 92 sq m.	Crown lift north side to approx. 3 m.	To facilitate fence replacemen

Tree ID	Species	Height (m)	Num. Stems	Stem diameter(s) (mm)	All measurements	Life Stage	Retention Category	General Observations	RPA	Action	Rationale
T2	Goat willow (<i>Salix caprea</i>)	8	1	#350	Height (m): 8 Stem Diam(mm): 350 Spread (m): 6N, 6E, 6S, 6W Crown Clearance (m): 3 Life Stage: Mature Rem. Contrib.: 10+ Years	Mature	C2	An open grown tree with a single stem and a high crown.	Radius: 4.2m. Area: 55 sq m.	Fell	To facilitate access road.
T3	Sycamore (<i>Acer pseudoplatanus</i>)	10	4	270, 190, 250, 250	Height (m): 10 4 stems (mm): 270, 190, 250, 250 Spread (m): 5N, 5E, 5S, 5W Crown Clearance (m): 2 Life Stage: Mature Rem. Contrib.: 10+ Years	Mature	C2	A multi-stemmed tree with two of its smaller diameter stems growing through the palisade fence.	Radius: 5.8m. Area: 106 sq m.	Fell	To facilitate new warehouse and fence replacement.
T4	Pedunculate oak (<i>Quercus robur</i>)	15	1	900	Height (m): 15 Stem Diam(mm): 900 Spread (m): 9N, 13E, 9S, 9W Crown Clearance (m): 0.5 Lowest Branch (m): 0.5(E) Life Stage: Mature Rem. Contrib.: 20+ Years	Mature	B2	Low limbs are present. An old section of chain link fence has become occluded into the stem. This tree is against a palisade fence.	Radius: 10.8m. Area: 366 sq m.	Fell	To facilitate new warehouse and fence replacement.
T5	Sycamore (<i>Acer pseudoplatanus</i>)	10	1	#300	Height (m): 10 Stem Diam(mm): 300 Spread (m): 4N, 4E, 4S, 4W Crown Clearance (m): 2 Life Stage: Semi Mature Rem. Contrib.: 10+ Years	Semi Mature	C2	Located on the north side of the security fence.	Radius: 3.6m. Area: 41 sq m.	Crown reduce southwest side back to boundary line.	To facilitate new warehouse and fence replacement.

Key:

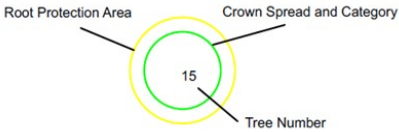
Tree ID:-	Number given to the individual tree or group.
Crown Spreads:-	Distance in meters from the stem of the tree to the edge of the canopy in the four cardinal directions.
1st Branch:-	First significant branch height and direction of growth i.e., North, South, East or West.
Crown Clearance:	Height above ground level to the bottom of the canopy
Diameter:-	Diameter of the trunk at 1.5 m above adjacent ground level. (mm) Multiple measurements indicate a multi-stemmed tree at 1.5 m.
Number of Stems:-	Number of stems per tree below 1.5 m above adjacent ground levels.
Hazards:-	Y = Hazards are present, N = No hazards present.
Physiological / Structural Condition:-	G = Good, F = Fair, P = Poor, D = Dead
SULE = Safe Useful Life Expectancy (years):-	40+ = A, 20 to 40 = B, 10 - 20 = C, less than 10 years = U
BS5837 categorization:-	1 = Arboricultural value; 2 = Landscape value; 3 = Conservation and cultural value. 1, 2 or 3 plus the SULE = BS5837 category
Age Class:-	Y = Young, recently planted with no viable seed production. SM = Semi-Mature, apical dominance with growth to normal crown dimensions for species and height. M = Mature, normal life expectancy with normal crown size for species and type and maximum seed production. LM = Late-mature, in natural decline. V = Veteran and A = Ancient, both (A and V) are as defined by Natural England.
Tree number followed by #	Tree, Group or Woodland with no access therefore dimensions are approximate.

Appendix 2 Survey Area and Drawings

Indurent Park, Knowsley
Drawing D01 - Tree Constraints Plan (F644-12/D01)
Surveyor: B. Knipe
Survey Date: 09.07.25

Key:

- Category A
- Category B
- Category C
- Category U



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Indurent Park, Knowsley
Drawing D02a (F644-12/D02a)
Arboricultural Impact Assessment - Prior to tree works

Key:

- Category A
- Category B
- Category C
- Category U

Root Protection Area

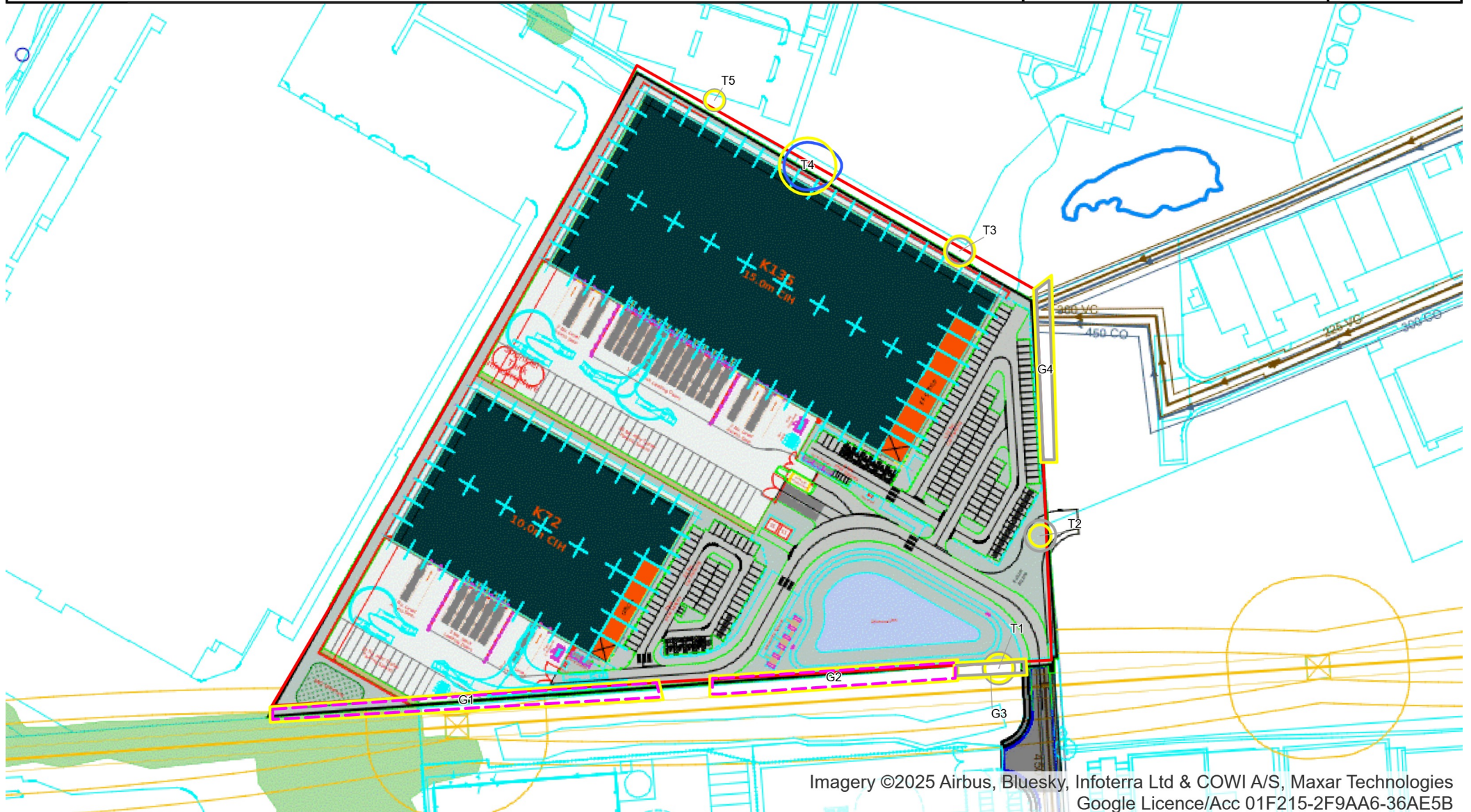
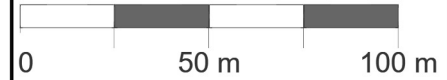
Crown Spread and Category

15

Tree Number

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Indurent Park, Knowsley
Drawing D02b (F644-12/D02b)
Arboricultural Impact Assessment - Post tree works

Key:

- Category A
- Category B
- Category C
- Category U

Root Protection Area

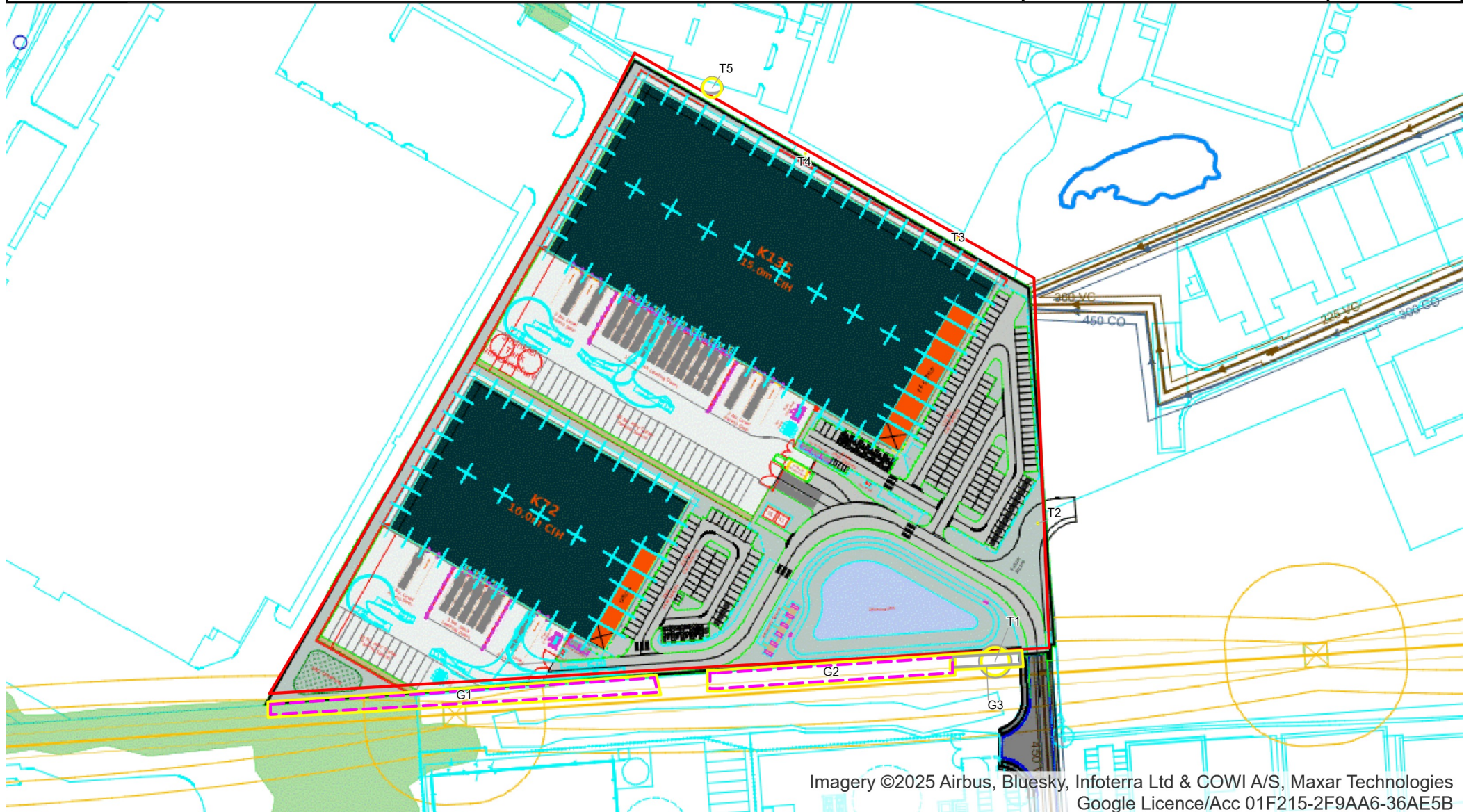
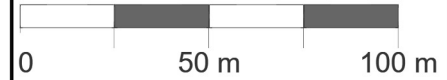
Crown Spread and Category

15

Tree Number

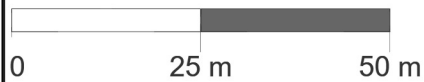
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Indurent Park, Knowsley
Drawing D03 - Tree Protection Plan (F644-12/D03)

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Key:

- Category A
- Category B
- Category C
- Category U

Root Protection Area



Crown Spread and Category

^ Tree Number

Tree Protection Fences



Imagery ©2025 Airbus, Bluesky, Infoterra Ltd & COWI A/S, Maxar Technologies
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Appendix 3 Glossary of Arboricultural Terms

Term	Description
<i>Amenity</i>	A positive attribute of the tree which contributes to the overall visual character or aesthetic enjoyment of an area.
<i>Ancient tree</i>	A tree in the final stage of its life, which is old relative to others of the same species, and which has biological, aesthetic, or cultural value because of its old age.
<i>Branch</i>	A division of another branch, or a subordinate division of a tree's stem.
<i>Bat Potential</i>	The potential for the tree to be used by bats based on visual evidence.
<i>Botanical Name</i>	Binomial plant name consisting of genus name and a species name
<i>Cambium (Vascular Cambium)</i>	An area of tissue under the bark (root, stem, or branch) which produces rows or rings of new cells, as part of secondary growth.
<i>Canopy</i>	Buds, shoots, and leaves supported by the crown, which provide benefits such as air cooling, direct shade, shelter, and water interception.
<i>Chlorosis</i>	Abnormal yellow or yellow-green colouration of normally green foliage. Due to inadequate chlorophyll development, linked to nutrient imbalance or root dysfunction.
<i>Common Name</i>	Common name used for the tree in the UK
<i>Coppice (Coppicing)</i>	Originally a cultural practice of stimulating rapid growth in the form of woody shoots by cutting the base of the trunk. This was repeated to harvest branch material.
<i>Crown</i>	All parts of a tree above the clear section of the stem, and includes branches, live foliage, and the upper portion of the primary stem(s) that support them and, therefore, contains part of the primary structure.
<i>Crown Clearance</i>	Height in metres of crown clearance above adjacent ground level (to inform ground clearance, crown stem ratio and shading).
<i>Crown Lifting</i>	A pruning operation for the selective removal of lower branches from a tree crown to provide clearance or for light management.
<i>Crown Reduction</i>	A method of reducing the height and/or spread of a tree crown by making appropriate pruning (reduction) cuts.
<i>Crown Spread</i>	Distance from the centre of the stem to the crown edge. Usually specified as a single average distance or as four separate measurements for each cardinal points.
<i>Cultivar</i>	A specifically cultivated tree variety, which is bred to promote expression of desirable physical traits or characteristics.
<i>Dripline</i>	The perimeter of the crown as determined by the lateral extent of the foliage.
<i>Graft Union</i>	The point on a tree where the graft is joined to the rootstock or stem.

<i>Hazards</i>	Defects present on a tree which pose an unacceptable risk to persons or property.
<i>Height</i>	Total height in metres taken from ground level.
<i>Occlusion</i>	The overgrowth of a wound by callus tissue which has subsequently grown.
<i>Physiological Condition</i>	Health of the tree based on visual evidence, expressed as good, fair, poor, or dead
<i>Pollard (also Pollarding)</i>	Originally a cultural practice initiated on young trees to cyclically crop branches above the height of grazing animals. On amenity trees, pollarding can be a heavy reduction or removal of the primary structure to remove conflicts and disservices of a large crown. A pollarded tree will require management interventions (i.e., re-pollarding) for the rest of its lifespan.
<i>Primary Structure</i>	The supporting framework for the crown, being the trunk and weight-bearing stems, and branches to the point where they begin to divide.
<i>Recommendations</i>	Preliminary management recommendations, including further investigation of suspected defects that require more detailed assessment and potential for wildlife habitat.
<i>Root(ing) Zone</i>	The volume of soil occupied by the entire root system of a tree.
<i>Species</i>	the fundamental category of taxonomic classification, ranking below a genus or subgenus
<i>Stem</i>	single or multiple above-ground supporting axis of a tree, bearing branches and further sub-divisions
<i>Stem Diameter (DBH)</i>	(Diameter at breast height) Stem diameter in cm taken at 1.5 m above adjacent ground level (on sloping ground to be taken on the upslope side of the tree base) or immediately above the root flare for multi-stemmed trees.
<i>Structural Condition</i>	Integrity of the tree based on visual evidence, expressed as good, fair, or poor.
<i>Structural Roots</i>	Long-lived roots of large diameter (> 25 mm) which form the structural framework of the tree root system.
<i>SULE</i>	Safe Useful Life Expectancy is a professional assessment of the duration for which it is reasonably expected that a tree may be safely retained in its current context. However, the greater the life expectancy the less accurately it can be predicted.
<i>Target</i>	For risk assessment - the location or object which a tree or part may fall onto or damage.
<i>Tree ID</i>	Reference number, or tag number for an individual tree, or group of trees.
<i>Veteran Tree</i>	A tree of any age that has developed some of the habitat features typically found on ancient trees such as wood decay fungi, stem and branch cavities, and deadwood. These result from the tree's environment and/or outside impacts such as damage. Veteran trees are classified by their features and not age and are typically mature trees.

Appendix 4 Surveyor Qualifications

Ben Knipe BA(Hons), MSc

<i>Position in Company:</i>	Arboricultural Consultant & Manager
<i>Professional Qualifications:</i>	MSc – Arboriculture and Urban Forestry BA (Hons) degree - Environmental Management Lantra Professional Tree Safety Inspection qualification QTRA: Quantified Tree Risk Assessment – Advanced User IOSH Managing Safely
<i>Professional Experience:</i>	
<i>2015-Present</i>	Lowther Forestry Group Ltd
<i>2012-2015</i>	National Trust, Woodland Ranger, Central & East Lakes
<i>2007-2012</i>	Area Ranger, National Trust, Windermere & Troutbeck
<i>2011-2012</i>	Head Warden, National Trust, Lyme Park
<i>2003-2007</i>	Warden, South Peak Estate
<i>2000-2003</i>	National Trust Warden (Staffs) & Patrol Ranger (Macclesfield Forest) Peak District National Park
<i>Other Qualifications, Training Courses, and CPD:</i>	Tree Architecture – Ancient Tree Forum Arborsonic (sonic tomograph) Training Resi-PD Training Trees Planning and Construction Conference (2024) Applied Tree Biology – Arboricultural Association (AA) Surveying and Categorising Trees for BS:5837 - AA Introduction to Soils - AA C.A.T. Locator & Genny Off-road Driving (NPTC) Manual Handling Level 2 for Managers CSCS for Managers and SSSTS Peak District National Park Ranger Training

Appendix 5 Survey Methodology

The tree surveys are carried out in accordance with BS 5837: 2012 *Trees in Relation to Design, Demolition and Construction - Recommendations*. A glossary of arboricultural terms used in this report can be found in Appendix 3.

The trees are categorised in accordance with the cascade chart in Table 1 of BS 5837: 2012 *Trees in Relation to Design, Demolition and Construction - Recommendations*, page 9. Tree categorisation is the method by which a surveyor places a value on an individual tree, group, woodland, or hedge using the method described in BS5837: 2012. The method also considers the Safe Useful Life Expectancy (SULE) measured in numbers of years:

Quality Category	Life Expectancy
A – high quality	40+ years
B – moderate quality	20+ years
C – low quality	10+ years
U	<10 years: Unsuitable for retention

Category C is also used by default for trees or hedging plants with stems less than 150 mm diameter taken at 1.5 m. Category U trees cannot be realistically retained as living trees in the current land use due to serious, irremediable defects such as disease or mortality. However, Category U trees can still have conservation value and may be desirable to be preserved under the right circumstances.

Once these categories are established, the contextual attributes of a tree are then determined and come under one or more of the following three headings:

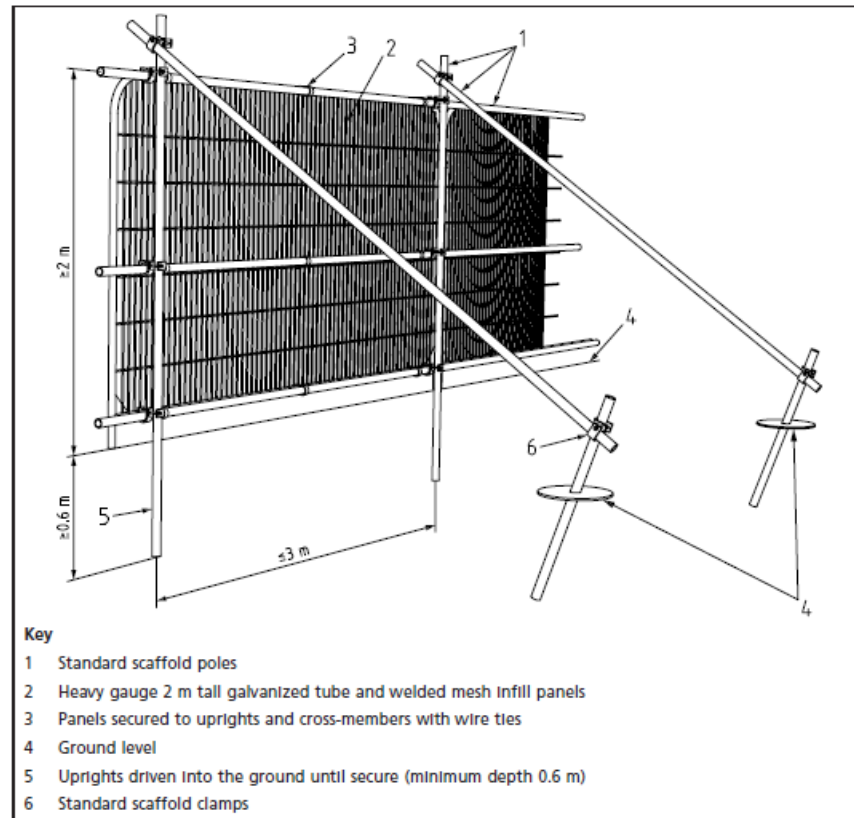
Value Category	Brief Description and Example	
1: Mainly arboricultural qualities	A	Rare, unusual, or good examples of their species. Essential components of tree features e.g., avenues.
	B	Lacking special quality due to storm damage, poor management, or defects, of which can be remedied.
	C	Unremarkable trees of limited merit.
2: Mainly landscape qualities	A	Trees of visual importance, including groups and woodlands.
	B	Trees present in numbers with a higher collective rating.
	C	Low or temporary landscape benefits from groups or woodlands.
3: Mainly cultural values, incl. conservation	A	Significant conservation, historical, or commemorative value.
	B	Material conservation or cultural value.
	C	No conservation or cultural value.

All trees, where accessible, are given unique identification numbers for that survey area which are listed on the Tree Data Table. In some cases, plastic tree tags are attached to the stems of individually recorded trees to aid with identification. Where access to the tree is restricted or within private ownership, the diameter will be approximate and distinguished on the Tree Data Table and drawings by a 'T' prefix.

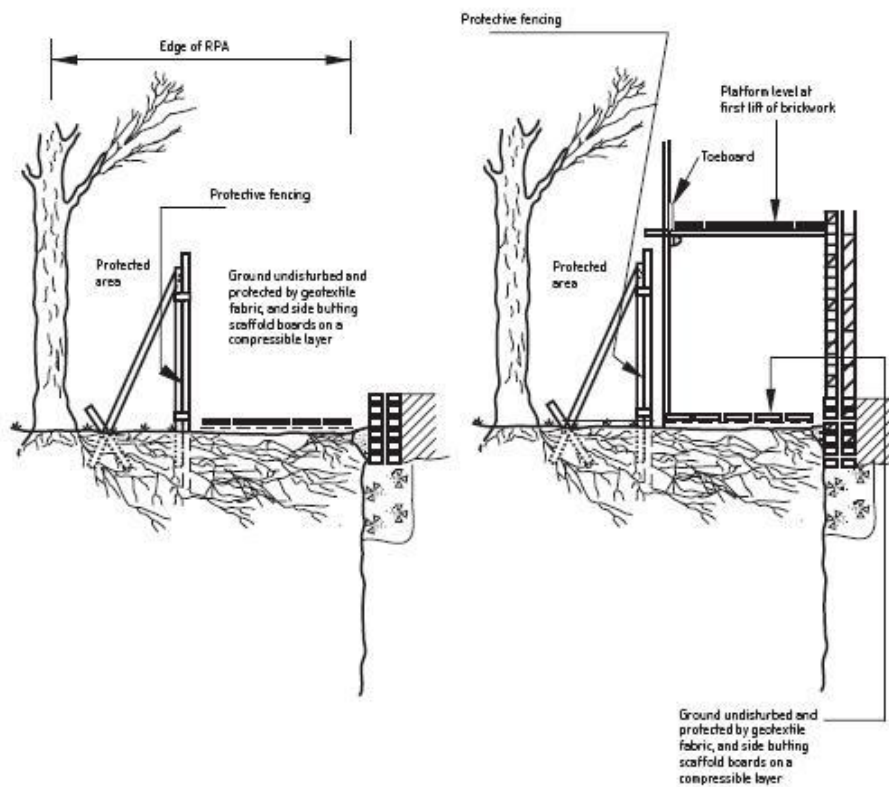
All measuring equipment is regularly checked and calibrated to ensure accuracy. All recommendations of tree works should be carried out to BS 3998: 2010 *Recommendations for Tree Work*.

Appendix 6 Example of root protection fencing

Figure 2 Default specification for protective barrier



Appendix 7 Examples of protection measures for working within the RPA



Appendix 8 Legal Restrictions

Trees in any location may be protected by legislation. Where development is proposed, additional legal protection may be appropriate and can be enforced by the local authority. Attention is drawn to legal controls and liabilities under common law for consideration at the earliest stages of potential site development.

Conservation Area

The Town and Country Planning Act 1990 dictates that local planning authorities have the power to protect areas of special architecture or historic value as Conservation Areas. Before carrying out works to any trees within a Conservation Area it is required to notify the LPA using a 'Section 211 Notice'. This requires a notice period of 6 weeks, unless trees fall under an exemption, such as being below 75 mm diameter at 1.5 m above ground level (GOV.UK, 2014).

Tree Preservation Orders (TPO)

A local planning authority holds the power to issue a Tree Preservation Order to trees, groups of trees, or woodlands where their preservation is considered a contribution to the local environment by their amenity value. Tree preservation regulations prohibit activities such as cutting, lopping, topping, uprooting, and wilful damage or destruction of protected trees (GOV.UK, 2014)

Prior to carrying out any tree works to TPO protected trees permission must be sought from and granted by the LPA.

If the LPA suspects an offence may have taken place, then they are granted powers under section 67 (9) of the Police and Criminal Evidence Act 1984 to investigate (GOV.UK, 2006).

Felling Licence

Even when no specific legal protection exists, it may be necessary to obtain a felling licence. A felling licence is required for the felling of relatively small volumes of wood (5 cubic metres may be felled in any calendar quarter without a licence, as long as no more than 2 are sold). It is an offence to fell trees without a licence if an exemption does not apply. Full details can be found on the Forestry Commission's webpages: [Tree felling licence: when you need to apply - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/tree-felling-licence-when-you-need-to-apply)

Wildlife and Habitat

Before carrying out any arboricultural or forestry operations, consideration should be given to the following legislation for the protection of flora and fauna species:

- The Wildlife and Countryside Act 1981 (as amended) -provides protection to birds, their eggs, and nests, as well as protection of other animals and plants.
- Protection of Badgers Act 1992 – provides protections to badgers and their setts.
- The conservation of Habitats and Species Regulations 2010 – covers the designation and protection of sites and protected species.
- Countryside and Rights of Way Act 2000 and The Habitat Regulation 2009 – provides protection to bats and their roots.

Hedgerows

Under the Management of Hedgerows (England) Regulations 2024 a hedgerow may be protected if it meets the following criteria:

- Length - more than 20 m long with gaps of less than 20 m in length
- Location – see government website for full list.
- ‘Importance’ – See government website for further details.

[Countryside hedgerow protection: removing hedgerows - GOV.UK \(www.gov.uk\)](https://www.gov.uk/countryside-hedgerow-protection-removing-hedgerows)

The act also controls cultivation, pesticide, and fertilisers use within 2 m of the centre of a hedgerow and prohibits the cutting or trimming of an important hedgerow between the 1st March and 31st August in the same year.

Highways and Footpaths

Requirements of the Highways Act 1980 dictate that trees, shrubs, or hedges should neither obstruct nor endanger highway users. The minimum clearance required should be 2.4 m over a footpath and 5.05 m over a road (measured from the centre line). Under section 154 of the act the highway authority has powers to issue a 14-notice to carry out works to cut back offending vegetation. Where the tree owner does not comply the highway authority may carry out the work itself and recover all costs they incur.

Appendix 9 References

1. British Standards Institution, (2010) *Recommendations for Tree Work*
2. British Standards Institution, (2012) *Trees in Relation to Design, Demolition and Construction – Recommendations*
3. Participation, E. (1981) Highways Act 1980, Legislation.gov.uk. Available at: <https://www.legislation.gov.uk/ukpga/1980/66/section/154>
4. Participation, E. (2002) The control of Substances Hazardous to Health Regulations 2002, Legislation.gov.uk. Available at: <https://www.legislation.gov.uk/uksi/2002/2677/contents>).
5. *The management of Hedgerows (England) Regulations 2024 (no date) Legislation.gov.uk.* Available at: <https://www.legislation.gov.uk/ukdsi/2024/9780348260472/part/2>
6. Participation, E. (2024) Town and Country Planning Act 1990, Legislation.gov.uk. Available at: <https://www.legislation.gov.uk/ukpga/1990/8/schedule/7A>
7. *Tree Preservation Orders: A guide to the law and good Practice* (2006) Available at: <https://assets.publishing.service.gov.uk/media/5a790b1d40f0b679c0a08161/tposguide.pdf>
8. *Tree Preservation Orders and trees in conservation areas* (2006) GOV.UK. Available at: <https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas>
9. *Tree Preservation Orders and trees in conservation areas (2014)* GOV.UK. Available at: <https://www.gov.uk/guidance/tree-preservation-orders-and-trees-in-conservation-areas>
10. Woodland Trust (2011) *Ancient Tree Guide 3: Trees and Development*. Grantham, England: Woodland Trust.

Advisory note for the care of trees on development sites

When you receive planning consent it does not include the retention of important trees on the site. In order to assist you in the correct tree protection methods and to help you to comply with your planning conditions, Knowsley Council has produced this short document to give you advice and guidance in caring for trees on development sites.

Protective fencing

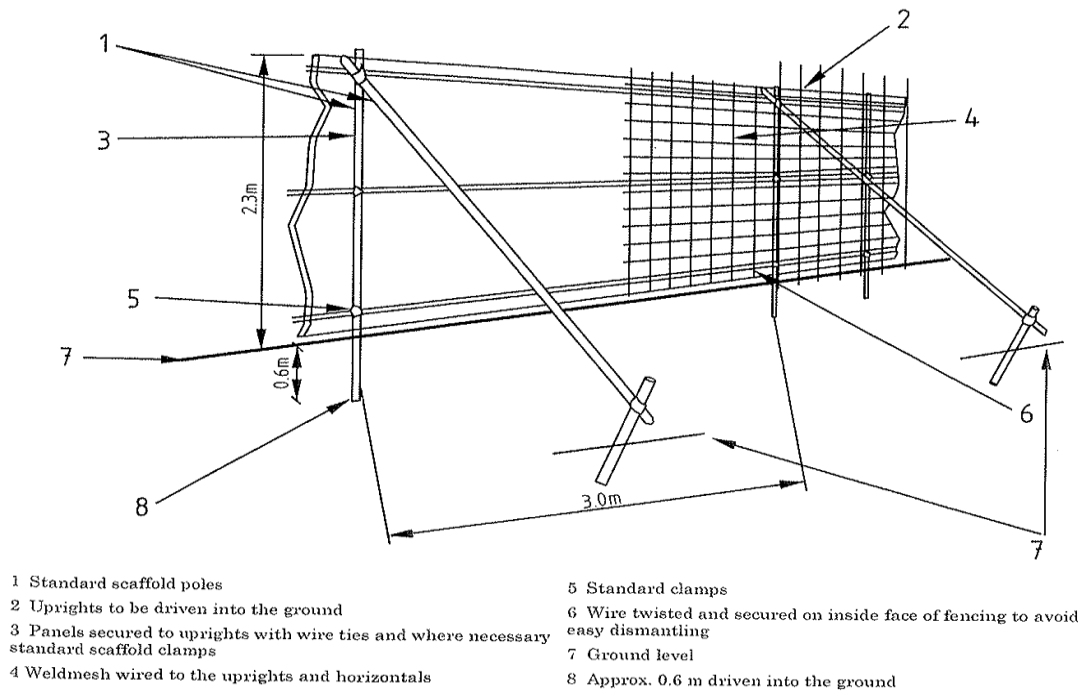
Correct position

The position of this fencing may have already been agreed as part of the planning consent. However, if it has not, it is likely that there will be a planning condition relating to its location which will request the location to be agreed in writing beforehand by the Local Planning Authority. Please contact an Arboricultural Officer on 0151 443 2281/2308 to discuss the matter further before any materials or machinery are brought on site and before development commences.

Correct type

The type of fencing used for tree protection is detailed below, however it should be a minimum of 2.3 m high which shall use vertical and horizontal scaffolding poles with the uprights driven well into the ground and well braced to resist impact. On to this weldmesh panels (without the use of rubber or concrete feet) should be securely fixed.

TREE PROTECTIVE FENCING
(BS5837:2005 Trees in Relation to Construction-Recommendations)



Do's and Don'ts

Do

- Do ensure that all trees are protected with the correct type of fencing as detailed above and that this remains in position until the development is complete.
- Do advise the site foreman of any problems in relation to trees or difficulties in carrying out your duties because of the presence of trees or the associated protective fencing. Arrangements can then be made for the Local Authority Arboricultural Officer to visit the site to discuss the matter.
- Do continue to respect the trees on site and bear in mind that their presence as a healthy tree cover could be a major selling point on the site.

Don't

- Don't remove the protective fencing without prior agreement from the Local Authority Arboricultural Officer.
- Don't store building materials or equipment around the base of a tree. This can cause compaction, which can kill tree roots.
- Don't pile soil, sand or other materials around the base of a tree. This can cause compaction, which can kill tree roots.
- Don't spill cement, fuel or any other potential pollutants around or near trees.
- Don't light fires or drive vehicles beneath the canopies of the trees on site. Driving cause's compaction and fires can serious damage to the trees stem, branches and roots.

This guidance note is intended to provide general guidance only. If you have any further doubts about what you are required to do to comply with planning conditions relating to trees, please contact the council's Arboricultural Officer at the earliest opportunity on 0151 443 2281/2308.