

HITCHIN SWIMMING CENTRE

Tree Survey Report and Arboricultural Impact Assessment



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Tree Survey Report and
Arboricultural Impact
Assessment
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TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

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TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

Contents

1	INTRODUCTION.....	1
2	SITE LOCATION	2
3	SURVEY METHODOLOGY	4
4	APPRAISAL AND RECOMMENDATIONS.....	5
5	ARBORICULTURAL IMPACT ASSESSMENT.....	7
6	TREE WORKS.....	10
7	TREE PROTECTION MEASURES	11
8	SUMMARY.....	13

Tables

Table 1 Tree Characteristics recorded during survey

Table 2 Tree Survey Schedule

Appendices

Appendix A Tree Constraints Plan

Appendix B Tree Removal & Protection Plan

Appendix C Example Tree Protection Barriers (BS5837:2012 Fig 2 & 3)

Appendix D Construction Exclusion Zone (CEZ) Sign

Appendix E Arboricultural Glossary

TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

1 INTRODUCTION

- 1.1 This Tree Survey and Arboricultural Impact Assessment (AIA) has been prepared by RPS on behalf of Willmot Dixon Construction Ltd on behalf of North Hertfordshire District Council in respect of the proposed development at Hitchin Swimming Centre.
- 1.2 A tree survey of the application area was carried out by RPS in September 2024 in accordance with the requirements of BS5837:2012. Refer to the Tree Constraints Plan in Appendix A. During the tree survey the area surveyed included the land within and adjacent to the red line boundary subject to the planning application.
- 1.3 This report has been prepared in accordance with the requirements set out in BS5837:2012 'Trees in relation to design, demolition and construction – Recommendations.'¹
- 1.4 The purpose of this report is to:
- Provide an assessment of the quality of the surveyed trees with reference to the categories and sub-categories listed within Table 1 - BS5837:2012.
 - Assess and quantify the arboricultural impact of the proposed development within the survey area, based on the proposed development layout.
 - Provide additional arboricultural information and advice in relation to the protection of trees throughout the development of the site.
 - Provide a Tree Removal & Protection Plan to detail the proposed protective measures to be taken in respect of the trees during development of the site.
- 1.5 The Tree Removal & Protection Plan included in Appendix B identifies the following:
- Trees to be retained
 - Trees to be removed
 - Alignment and design of protective fencing
 - Root Protection Area (RPA) of trees
- 1.6 The Tree Removal & Protection Plan shall be made available to all relevant site operatives prior to and throughout the construction process, so they understand the scope and importance of the tree protection measures.
- 1.7 To minimise the potential for harm to occur to retained trees all works shall be carried out in accordance with the Tree Protection Measures and construction techniques detailed within this report.
- 1.8 In particular, the establishment of a Construction Exclusion Zone (CEZ) by erection of Tree Protection Fencing, will minimise the potential for harm to occur to retained trees.

¹ British Standards Institute. British Standard (BS5837) Trees in Relation to Design, Demolition and Construction - Recommendations. 2012.

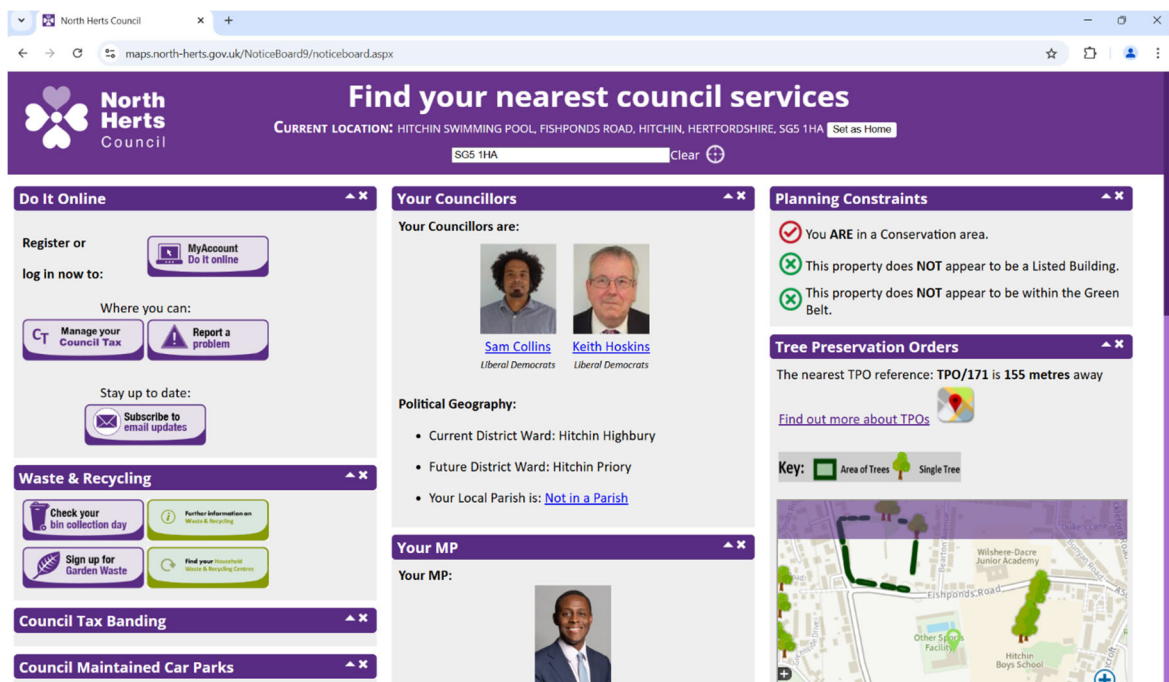
TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

2 SITE LOCATION

- 2.1 The survey site is located at Hitchin Swimming Pool, Fishponds Rd, Hitchin SG5 1HA.
- 2.2 The land is roughly centred on OS grid reference TL 18174 29666. The Local Planning Authority (LPA) governing this site is North Hertfordshire District Council.
- 2.3 The soilscape of the area in which the survey site is situated typically consists of 'Slightly acid loamy and clayey soils with impeded drainage'².

Tree Preservation Orders (TPO)\ Conservation Areas

- 2.4 North Hertfordshire District Council Confirmed that there are no trees with a TPO on site, however, the 'Find my nearest' function on the website displays the site as being situated within a conservation area. See the screenshot below³.



- 2.5 Trees covered by a Tree Preservation Order are protected under the Town and Country Planning Act 1990 (Trees Regulation 2012). The local authority must be consulted, and permission sought for any works that may affect them.
- 2.6 A Tree Preservation Order (TPO) is an order made by a LPA to protect specific trees, groups of trees or woodlands in the interests of amenity. An Order prohibits the:
 - cutting down
 - topping

² <https://magic.defra.gov.uk/MagicMap.aspx>

³ <https://maps.north-herts.gov.uk/NoticeBoard9/noticeboard.aspx>

TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

- lopping
- uprooting
- wilful damage
- wilful destruction

2.7 Of trees without the LPA's written consent. If consent is given, it can be subject to conditions which have to be followed. Cutting roots is also a prohibited activity and requires the authority's consent.

2.8 If a tree is not covered by a TPO but it situated within a Conservation Area, similar restrictions apply. Any works required to a tree situated within a Conservation Area must be notified to the LPA, using a 'section 211 notice', 6 weeks before carrying out the work, unless an exception applies.

TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

3 SURVEY METHODOLOGY

- 3.1 This report was completed by Elva Preston, Senior Arboriculturist of RPS group and authorised by David Cox, a professional member of the Arboricultural Association and Chartered Landscape Architect of RPS Group.
- 3.2 The report and survey were carried out in general accordance with the requirements set out in BS 5837:2012 "Trees in Relation to Design, Demolition and Construction – Recommendations".
- 3.3 The tree survey involved a visual inspection from the ground of individual specimens and groups of trees to record their amenity value, management recommendations and dimensions. Where observed, the general condition of all the trees has been noted. The survey does not constitute a full arboricultural condition assessment involving the detailed inspection of trees in relation to their structural condition, decay, and any other physical and pathogenic defects.
- 3.4 The locations of the trees are based upon a topographic survey produced by Willmott Dixon in November 2024.
- 3.5 The survey assesses individual trees and groups of trees for quality and benefits within the context of proposed development. The quality of each tree or group of trees has been recorded by allocating it to one of four categories as described in table 1. These categories have been differentiated in Appendix A & B by colour.
- 3.6 The survey information was recorded on the attached schedule (Table 2) in general accordance with the guidance contained within Section 4 of BS 5837:2012 "Trees in Relation to Design, Demolition and Construction - Recommendations".
- 3.7 See Table 1 for a breakdown of the information recorded during the survey.

Limitations

- 3.8 The findings of this survey are not valid following adverse or unpredictable weather conditions or for any failure due to 'force majeure' or unpredictable events.
- 3.9 Trees were not climbed or inspected below ground level and inaccessible trees will have best estimates made about the location, physical dimensions and characteristics. Where direct access to trees was difficult and measurements estimated, it will be stated in the Tree Schedule.
- 3.10 Trees and woody vegetation were not assessed for their potential impact upon future construction issues such as foundation designs (re: NHBC chapter 4.2)⁴. Whilst this report may assist in assessing likely future impacts, it should not be classed as a comprehensive vegetation survey in relation to impact upon future designs.
- 3.11 It is recommended that further arboricultural assessments be undertaken to assess the full health and safety of all trees which may possess structural or pathogenic conditions.

⁴ NHBC. 'Chapter 4.2- Building Near Trees'. NHBC Standards 2016. 2016.

4 APPRAISAL AND RECOMMENDATIONS

Generally

- 4.1 During the survey 12 trees were surveyed. The survey also recorded 2 groups of trees and 1 hedgerow.
- 4.2 These trees were mostly located around the peripheries of the site along the southern and western boundaries, with a few specimens in the centre of the site.
- 4.3 The BS5837 quality of the surveyed trees is broken down in the table below:

Species	A	B	C	U	Total
Total	2	5	5	0	12
Distribution Percentage	16%	42%	42%	0%	100.0%

- 4.4 The BS5837 quality of the Groups recorded during the survey is broken down in the table below:

Type	A	B	C	U	Total
Groups/Hedgerows	0	1	2	0	3
Distribution Percentage	0%	33.3%	66.6%	0.0%	100%

Planning considerations

- 4.5 Trees can offer many benefits, including the provision of visual amenity, softening or complementing the effect of the built environment, adding maturity to new developments and by making places more comfortable in tangible ways e.g. contributing screening and shade, reducing wind speed and turbulence, intercepting snow and rainfall, and reducing glare.
- 4.6 New tree planting opportunities should be considered as part of any potential redevelopment; this will help to broaden the age diversity of the tree cover within the area. Sufficient space should be provided for species with significant stature to grow out into maturity.
- 4.7 Under the UK planning system, local authorities have a statutory duty to consider the protection and planting of trees when granting planning permission for proposed development. The potential effect of development on trees, whether statutorily protected (e.g. by a tree preservation order or by their inclusion within a conservation area) or not, is a material consideration that is considered when dealing with planning applications.
- 4.8 Trees covered by a Tree Preservation Order are protected under the Town and Country Planning Act 1990 (Trees Regulation 2012). The local authority must be consulted, and permission sought for any works that may affect them.

Design and Site Layout Considerations

- 4.9 A Tree Constraints Plan defines the Root Protection Area (RPA) for each tree shown as a circle. This area may be adjusted should physical constraints or topographical features limit root activity in a particular area, however the total area should remain the same. The changes should only be done by an arboriculturist. Furthermore, during any future site planning exercises, the current and future growth potential of the trees should be considered.

TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

- 4.10 The RPA for single stem trees broadly equates to a radius 12 times the stem diameter of the tree at 1.5m above ground level or the extent of canopy spread, whichever is the greater. For multi-stemmed, low branching trees or those with trunks with an irregular girth the point of stem diameter measurement is adjusted in consideration of these factors and in accordance with the illustrations in BS5837:2012 (Appendix C).
- 4.11 The RPA should become an exclusion zone during construction works and for any development. It should be fenced-off and protected in accordance with BS5837:2012. The canopy is likewise susceptible to damage during construction work and requires similar protection.
- 4.12 No activities that result in excavations, changes in level or soil compaction should take place within the RPA of any retained trees, especially older mature trees. This would include the storage of materials, any construction work, trafficking by vehicles or even excessive trafficking by pedestrians.
- 4.13 If some form of construction must take place within the RPA, then certain measures need to be adopted to avoid disturbance or damage to the roots and to maintain moisture infiltration and gaseous diffusion into the soil.

Services

- 4.14 Services likewise should be routed outside the existing or potential root zone of trees. Where it is unavoidable, then certain measures should be employed to avoid damage to the tree's larger roots.
- 4.15 The location and siting of new facilities near trees should consider the potential impact on and conflict with both tree roots and canopy. This should consider the ultimate size of existing young and middle-aged trees at maturity. Conversely the impact of the tree on the activities should also be considered regarding obstruction, shading, leaf fall and root action. These are problems that can be managed provided sufficient space is allowed for.
- 4.16 Any new services should avoid the RPAs of any retained tree. Where it is unavoidable, then the route of the services must be designed by an Engineer in consultation with an Arboriculturist. Further advice can be found in NJUG Volume 4- "Guidance for the planning, installation and maintenance of utility services in proximity of trees, 2007".

Trees and Management of Health and Safety

- 4.17 It is recommended that a programme of periodic arboricultural assessments be undertaken in order to regularly assess the full health and safety of all trees both in full leaf and bare stemmed. The assessments should prioritize areas based on levels of access and presence of target (i.e. exposure of people to hazard) and accord with arboricultural advice, taking account of relevant factors (where known) that affect safety such as the age class, condition, size and species of the trees.

5 ARBORICULTURAL IMPACT ASSESSMENT

Introduction

- 5.1 Trees have finite energy reserves, developed each year throughout the growing season, which are utilised for biological processes such as growth and defence against pests or diseases throughout the following year.
- 5.2 Any development in proximity to trees has the potential to cause harm to those trees unless control measures are identified and acted upon; as such it is essential to consider the relationship between the proposed development and the retained trees to identify what precautions are necessary, proportionate and appropriate.
- 5.3 Development has the potential to impact upon the above ground and below ground parts of trees. Whilst some damage that can occur, such as physical damage to the trees stems and branches from machinery movements, is clearly visible, the impact from other aspects of work common on development sites, which can have a significant effect upon the continued health of trees, are not always immediately evident.
- 5.4 Damage that is not immediately evident, but which can cause long term harm to retained trees, includes things such as damage to the soil structure by compaction causing root damage and levels changes altering the water table and affecting moisture availability.
- 5.5 To minimise the potential for harm to occur to retained trees all works must be carried out regarding the Tree Protection measures detailed within this report.
- 5.6 In general, by adopting appropriate methods of working, precautionary and protective measures, significant harm to retained trees can be avoided.
- 5.7 The establishment of a Construction Exclusion Zone (CEZ) by erection of Tree Protection Fencing will minimise the potential for harm to occur to retained trees.
- 5.8 The retention and protection of significant trees and vegetation will assist in assimilating the proposed development into the wider landscape and offer long term tree cover.
- 5.9 Furthermore, redevelopment of the site may offer an excellent opportunity to actively manage any retained vegetation and accordingly we recommend restorative tree works be undertaken as appropriate. This will further improve the amenity value and landscape setting of the site and increase the useful life of any retained trees.

Brief Description of Proposed Development

- 5.10 This document supports the proposed development, consisting of:
- New Air Source Heat Pump Enclosure
 - New Substation
 - Associated utilities infrastructure

TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

Proposed Tree Removal

- 5.11 To implement the proposed development, there will be a requirement to remove 1 Category C, a low quality, individual tree (T4). There will also be a requirement to partially remove the northeastern section of hedgerow H1.

Assessment of Tree Removal Impact

- 5.12 Most of the individual trees on site are to be retained, with 90% of the individual trees surveyed on site being retained.
- 5.13 Overall, the impact of this proposed tree removal work, can be seen as minimal and deemed acceptable to facilitate construction. Given the small proportions of T4 at present, its removal from the site will have minimal impact to the arboricultural quality of the site and surrounding conservation area and it can be readily replaced in the short term with replacement planting.

Tree Pruning Works

- 5.14 It may be necessary to lift the crowns of any trees within group G2 that overhang the proposed air source heat pump or working room required for its installation. This is anticipated to be unlikely, however it should be assessed on site as and when necessary and any pruning carried out to the specification laid out in Section 6 of this report.
- 5.15 This pruning work, if carried out in accordance with Section 6 of this report, should be minimally invasive and have little impact on the overall health of the tree.

Outline methodology within Root Protection Areas

- 5.16 The proposed substation is located within the periphery of the RPA of T2. This incursion falls within the 20% limit as set out in section 7.4.2.3 of the BS5837:2012 which states “New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA”.
- 5.17 Given the small percentage of the incursion, most of the rooting environment will remain unaltered. Therefore, the impact arising from the proposed works is considered minimal given that significant, structural roots are unlikely to be adversely impacted. Works within the RPA should be detailed within an Arboricultural Method Statement (AMS) to outline a sympathetic methodology of work within the RPAs.
- 5.18 All new (and existing re-routed) services shall be routed outside the existing or potential RPA of retained trees. Where it is unavoidable, then hand excavation shall be employed to avoid damage to the larger roots and the services slid through or below the root system. Ducting shall be used to carry cables. Reference shall be made to the recommendations included within Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (NJUG 4)⁵.
- 5.19 Details of Tree Protection Fencing and ground protection are given in Section 7 of this document.
- 5.20 The RPA should become an exclusion zone during construction works and for any development. It should be fenced-off and protected in accordance with BS5837:2012. The

⁵ <http://streetworks.org.uk/wp-content/uploads/V4-Trees-Issue-2-16-11-2007.pdf>

TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

- canopy is likewise susceptible to damage during construction work and requires similar protection.
- 5.21 No activities that result in excavations, changes in level or soil compaction should take place within the RPA of any retained trees, especially older mature trees. This would include the storage of materials, any construction work, trafficking by vehicles or even excessive trafficking by pedestrians.
- 5.22 The location and siting of new facilities near trees should consider the potential impact on and conflict with both tree roots and canopy. This should consider the ultimate size of existing young and middle-aged trees at maturity. Conversely the impact of the tree/s on end user activities should also be considered regarding obstruction, shading, leaf fall and root action. These are problems that can be managed provided sufficient space is allowed for.
- 5.23 Where works within the RPA are unavoidable works must be undertaken by hand and the soil levels should be carefully reduced by hand to avoid damage to the bark of larger roots directly beneath and adjacent to the excavation. Where these become exposed, they should be further protected from drying out. Where root pruning is unavoidable it should be made at a suitable place within the root system, avoiding damage to surrounding tissue in accordance with BS 3998:20106. Final pruning cuts shall be made at right angles to the axis of the root and the final cut wound should be smooth and as small as possible, free from ragged torn ends.
- 5.24 To minimise harm occurring because of the works existing hardstanding should be reused. Any necessary hard surface removal within the Root Protection Area (RPA) shall be carried out by low impact handheld pneumatic tools. Removal of the surface shall occur in strips working from the undisturbed surface, working in a retreating manner away from the retained trees. Subsequent removal of arisings / debris shall also be carried out by hand.

⁶ British Standards Institute. British Standard (BS3998) Trees Work - Recommendations. 2010.

6 TREE WORKS

Standard of Work

- 6.1 The tree work required to facilitate this development will adhere to the following standards.
- 6.2 All tree works shall be carried out in accordance with BS3998:2010 and latest arboricultural best practice.
- 6.3 All tree work shall be carried out by suitably qualified, competent and insured arboricultural contractors in accordance with Arboricultural Association Standard Conditions of Contract and Specifications for Tree Works (2008) Edition and BS 3998:2010 Tree Work.
- 6.4 All green and woody waste generated by the tree works shall be removed from site and disposed of in an environmentally sustainable manner.
- 6.5 When a branch is removed at its point of attachment, injury of the wood and bark of the parent stem or branch above the cut shall be avoided. If a branch collar is visible, the final cut shall be just outside it, and care shall be taken to avoid tearing retained wood and bark when the cut is made. Preliminary cuts shall be made, if necessary, so as to remove weight, before a final cut is made. Care shall be taken to prevent falling branches from harming other parts of the tree (including its roots), its surroundings, people or property. Heavy branches shall be removed in sections and, where necessary, shall be lowered with ropes.
- 6.6 Prior to the commencement of any tree works an appropriate risk assessment shall be produced to describe the measures required to fulfil the statutory safety obligations. It shall aim to identify and prioritise the necessary control measures and precautions.
- 6.7 Following the works, it is recommended that the trees are monitored on a regular basis to ensure their ongoing vitality and health. These inspections shall be completed by a suitably qualified and experienced person.

Timing of Works

- 6.8 Any tree works required shall be completed prior to any construction and enabling works on the site.
- 6.9 All works shall be timed to have regard to the phenological cycles of protected species that are associated with trees; notably birds and bats.
- 6.10 Nesting birds are protected by law and any removal / tree works should not be carried out during the bird nesting season (March-August inclusive). Should any vegetation be outlined for removal during this period, then an ecological inspection would be required to check that no nesting birds are present. Should checks reveal nesting birds the vegetation must remain until September or until an ecologist has certified that the fledglings have left the nest. A visual inspection for bats shall also be carried on mature / ivy clad trees prior to commencing operations.

7 TREE PROTECTION MEASURES

Construction Exclusion Zone

- 7.1 The protective fence line defines the Construction Exclusion Zone (CEZ), and the fencing shall not be moved or taken down at any time. Within the CEZ there must be no mechanical digging or scraping; no alteration to existing ground levels including soil stripping; no earthworks; and no handling or discharge of any chemical substance, concrete washings or of any fuels.
- 7.2 Furthermore, vehicular or pedestrian access and the storage of any materials is prohibited within the CEZ.
- 7.3 Additionally, no materials that may contaminate the soil such as concrete mixings, diesel oil and vehicle washings shall be discharged within 10m of the stem of any tree and no fires shall be lit within 10m of the maximum extent of a trees crown.

Tree Protection Fencing

- 7.4 Unless otherwise agreed in writing with the Arboricultural Consultant and/or LPA Tree Officer, the fencing system to be utilised shall be in accordance with Appendix C and compliant with BS5837:2012.
- 7.5 The tree protection fence shall be erected as shown on the Tree Removal & Protection Plan (Appendix B) included with is report.
- 7.6 The fence line shown is the minimum required, and the length of the fence shall be extended or adjusted on site as agreed with the Arboricultural Consultant to ensure satisfactory protection of all retained trees and RPAs.
- 7.7 Where proposed (permanent) construction site-hoarding provides the same level of protection to the retained trees and RPAs as the proposed tree protection fence, subject to agreement with the Arboricultural Consultant, the hoarding may serve as the tree protection fence. Notwithstanding, depending on the form and alignment of the construction site- hoarding it may be necessary to provide additional tree protection fence to ensure adequate protection of retained trees and RPAs as shown on the Tree Protection and Removal Plan.
- 7.8 Once the protective barrier is in place it must remain in situ throughout the course of the development until the completion of development, other than to facilitate agreed tree removal; see below.
- 7.9 Where necessary, tree protection fencing may be temporarily re-aligned in order to facilitate tree removal. Fencing is to be re-instated immediately following removal in a manner that encompasses the remaining trees and their respective RPAs.
- 7.10 During tree removal, no wheeled or tracked machinery is to enter the area previously encompassed by tree protective fencing as shown in the Tree Protection and Removal Plan.
- 7.11 Copies of the Tree Removal & Protection Plan shall be placed in the site office for reference by all site staff.
- 7.12 Signs detailing the purpose of the protective barrier shall be attached to the barriers at 10m intervals. Such signs should be weatherproof and shall be substantially in the form of the specimen provided in Appendix D. Signs must be replaced as necessary should they be removed or become illegible.

TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

- 7.13 Following erection of the protective barriers and prior to commencement of the development it is recommended that an inspection of the site, by either the Council's Tree Officer or the Arboricultural Consultant, is arranged to confirm fencing has been installed in accordance with the Tree Removal & Protection Plan and that any relevant arboreal conditions attached to the planning consent have been met.

Site Compounds and Materials Stores

- 7.14 Activities related to the establishment of a temporary site compound have the potential to impact upon retained trees by various means. In particular the storage and mixing of chemicals and materials such as concrete can have a damaging effect on tree health if precautions are not taken.
- 7.15 To prevent harm occurring to trees, provision for materials storage, deliveries and other related activities shall be made available in areas away from retained trees.
- 7.16 Under no circumstances shall materials or plant be stored beneath the canopy or within or abutting the Root Protection Zone of any retained trees/hedges, whether fenced or not.

Monitoring

- 7.17 Following erection of the protective fencing and prior to commencement of the construction phase, an inspection of the site by either the Council's Tree Officer or the Arboricultural Consultant should be arranged to confirm fencing has been installed in accordance with the Tree Removal & Protection Plan (Appendix B).
- 7.18 It is also recommended that further monitoring visits be carried out following commencement of the works on site, ideally on at least a monthly basis to ensure ongoing functionality of the CEZ and to check on tree condition.

Reporting

- 7.19 Should any arboricultural issues become apparent during the works the site manager should immediately contact the Arboricultural Consultant or the Council's Tree Officer for advice upon how to proceed.

TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

8 SUMMARY

- 8.1 A tree survey of the application area was carried out by RPS in January 2025 in accordance with the requirements of BS5837:2012. Refer to the Tree Constraints Plan in Appendix A.
- 8.2 The survey site is located at Hitchin Swimming Pool, Fishponds Rd, Hitchin SG5 1HA.
- 8.3 The locations of the trees are based upon a topographic survey produced by Willmott Dixon in November 2024.
- 8.4 During the survey 12 trees were surveyed. The survey also recorded 2 groups of trees and 1 hedgerow. These trees were mostly located around the peripheries of the site along the southern and western boundaries, with a few specimens in the centre of the site.
- 8.5 This document supports the proposed development, consisting of:
- New Air Source Heat Pump Enclosure
 - New Substation
 - Associated utilities infrastructure
- 8.6 To implement the proposed development, there will be a requirement to remove 1 Category C, a low quality, individual tree (T4). There will also be a requirement to partially remove the northeastern section of hedgerow H1.
- 8.7 Most of the individual trees on site are to be retained, with 90% of the individual trees surveyed on site being retained.
- 8.8 Overall, the impact of this proposed tree removal work, can be seen as minimal and deemed acceptable to facilitate construction. Given the small proportions of T4 at present, its removal from the site will have minimal impact to the arboricultural quality of the site and it can be readily replaced in the short term with replacement planting.
- 8.9 It may be necessary to lift the crowns of any trees within group G2 that overhang with proposed air source heat pump or working room required for its installation. This is anticipated to be unlikely however it should be assessed on site as and when necessary and any pruning carried out to the specification laid out in Section 6 of this report.
- 8.10 The proposed substation is located within the periphery of the RPA of T2. This incursion falls within the 20% limit as set out in section 7.4.2.3 of the BS5837:2012 which states “New permanent hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA”.
- 8.11 Given the small percentage of the incursion, most of the rooting environment will remain unaltered. Therefore, the impact arising from the proposed works is considered minimal given that significant, structural roots are unlikely to be adversely impacted. Works within the RPA should be detailed within an Arboricultural Method Statement (AMS) to outline a sympathetic methodology of work within the RPAs.
- 8.12 Should any arboricultural issues become apparent during the works the site manager should immediately contact the Arboricultural Consultant or the Council's Tree Officer for advice upon how to proceed.

TABLES & APPENDICES

TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

Table 1

Tree Characteristics Recorded During Survey

Tree Ref No:	Sequential reference number of trees or groups of trees. Avenues, woodlands and hedgerows were also recorded on the tree constraints plan.				
Species	Species listed by common name, with scientific names (italic lettering).				
Height (m)	Estimated height of canopy to nearest metre.				
Branch Spread	branch spread, taken as a minimum at the four cardinal points, to derive an accurate representation of the crown				
Stem diameter @ 1.5 m (m)	Estimated diameter of trunk at 1.5 m above ground level in metres unless otherwise indicated, multi-stemmed trees being measured in accordance with Annex C: BS5837				
Existing height above ground level	To inform on ground clearance, crown/stem ratio and shading the estimated height of the first significant branch and direction of growth and canopy above ground level.				
Stem No.	Number of stems (if necessary) of individual tree.				
Life Stage	Expressed as:-	Y SM EM M	(Young) (Semi-mature) (Early-mature) (Mature)	OM V D	(Over-mature) (Veteran) (Dead)
Physical Condition	Apparent condition expressed as the following categories, based upon a brief visual inspection from the ground only:-				Good Fair Poor Dead
Comments / Management Recommendations	General observations, particularly of structural and/or physiological condition (e.g. the presence of any decay and physical defect), and/or preliminary management recommendations and potential for wildlife habitats (not exhaustive).				
Estimated remaining contribution (years)	Estimated remaining contribution, in years (<10, 10+,20+,40+)				
Tree Quality Assessment Value: <u>Category</u>	Criteria grading with regards to Table 1: BS 5837:2012, expressed as:-	A (Trees/Vegetation of high quality and value) B (Vegetation of moderate quality and value) C (Trees/Vegetation of low quality and value) 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)			
	* Category U trees can have existing or potential conservation value which might be desirable to preserve.				
Tree Quality Assessment Value: <u>Sub - Category</u>	Criteria grading with regards to Table 1: BS 5837:2012, expressed as:-	1 (Trees with mainly <i>arboricultural</i> value) 2 (Trees with mainly <i>landscape</i> value) 3 (Trees with mainly <i>cultural / conservation</i> value)			

Table 2

Tree Survey Schedule

TREE SURVEY SCHEDULE

Site: Hitchin Swimming Centre
 Project Schedule Ref: JSL5268_752
 Drawing Reference: JSL5268_700 series
 Survey date: 03/01/2025

Surveyor: Elva Preston
 Status: For Information
 Revision: P01
 Notes: -



Ref. no	Species	Height (m)	Canopy Spread (m)				Crown Area (m ²)	Stem dia. (mm)	Stem no. at 1.5m	Height of crown clearance (m)	FSB Height (Direction)	Age class	Condition	General Observations Management Recommendations	Estimated remaining contribution (yrs)	Tree Quality Category (BS5837)
			N	E	S	W										
T1	Fraxinus excelsior (Ash)	16	6	6	5	7	0	1060	1	2	3.5 (E)	M	Fair	Significant bark tear wound to lower eastern stem leaving heartwood exposed. Remnant fungal fruiting body within wound. Another significant tear wound above this with bark stains beneath. Twin stemmed from 2m. Previously reduced to c.10m. Good vigour.	20+	B1
T2	Fraxinus excelsior (Ash)	14	6	7	6	7	0	1050	1	2	2 (S)	M	Fair	Multi stemmed from 2m. Previously reduced to c.10m. Good vigour. Large bark wounds at previous cut points. Central leader coved with Daldinia cintrica fungi suggesting internal decay. Limited future potential.	10+	C1
T3	Acer platanooides (Norway Maple)	5	2	2	2	2	0	200	1	1	2 (N)	SM	Good	Small landscape planting. Good form and vigour.	10+	C1
T4	Acer platanooides (Norway Maple)	6	3	3	3	3	0	110 300 90 160	4	2	2 (S)	SM	Good	Small landscape planting. Good vigour. Multi stemmed form. Base obscured by shrubby undergrowth.	10+	C1
T5	Alnus cordata (Italian Alder)	14	5	5	5	5	0	470	1	1	2 (W)	EM	Good	High amenity value tree with good form and vigour.	20+	B1
T6	Alnus cordata (Italian Alder)	10	4	4	4	4	0	370	1	2	2 (S)	EM	Good	High amenity value tree with good form and vigour.	20+	B1
T7	Prunus avium (Wild Cherry)	7	3	3	2	1	0	160	1	2	2 (E)	SM	Fair	Landscape planting.	10+	C1
T8	Catalpa bignonioides (Indian Bean Tree)	9	7	6	7	7	0	520	1	2	3 (S)	EM	Good	Hard standing in RPA to east and south. Exposed surface roots. Flush pruning wounds noted. Good form and vigour.	20+	B1
T9	Acer pseudoplatanus (Sycamore)	16	5	6	6	6	0	1000	1	3	3 (W)	M	Good	Measurements estimated as surveyed from public land to the south. Light ivy cover on stem. Epicormic growth on lower stem. Dense multi leadered crown from c.4m. Good vigour. Stands out from group beneath.	40+	A1

Note: This survey is based on a brief visual inspection from the ground.
 It is not intended as a full arboricultural inspection.
 # - indicates estimated/offsite tree. * - indicates off site tree. FSB - First Signifigant Branch.

Ref. no	Species	Height (m)	N	E	S	W	Crown Area (m ²)	Stem dia. (mm)	Stem no. at 1.5m	crown clearance (m)	FSB Height (Direction)	Age class	Condition	General Observations Management Recommendations	remaining contribution (yrs)	Quality Category (BS5837)
T10	Quercus robur (Common Oak)	13	7	7	7	7	0	900	1	2	3 (S)	M	Good	Measurements estimated as surveyed from public land to the south. Multi leadered from c.3m. Good form and vigour. Stands out from group beneath.	40+	A1
T11	Taxus baccata (Yew)	6	3	3	3	3	0	350	1	1	1 (N)	EM	Good	Measurements estimated as assessed from public land to the south. Dense ivy obscured inspection. Good form and vigour.	20+	B1
T12	Acer platanoides (Norway Maple)	8	3	3	2	3	0	200	1	2	3 (W)	SM	Good	Measurements estimated as assessed from public land to the south. Light ivy obscured inspection. Tall drawn form.	10+	C1
G1	Taxus baccata (Yew),Prunus avium (Wild Cherry),Ligustrum spp.	14	-	-	-	-	-	250 (avg.)	-	0	0 (N)	SM	Good	Small outgrown hedgerow group with one tall drawn cherry. Self seeded specimens within.	10+	C2
G2	Taxus baccata (Yew),Prunus spinosa (Blackthorn),Corylus avellana (Hazel),Acer pseudoplatanus (Sycamore),Crataegus monogyna (Hawthorn),Ligustrum spp.,Populus tremula (Aspen),Acer platanoides (Norway Maple)	15	-	-	-	-	-	400 (avg.)	-	0	0 (N)	EM	Fair	Understory shrub and taller mature specimens in group, mostly unmanaged and predominantly situated behind fence boundary in public land. Good screening value.	20+	B2
H1	Ligustrum spp.	2	-	-	-	-	-	70 (avg.)	-	0	0 (E)	SM	Fair	Maintained hedgerow scrub	10+	C2

Note: This survey is based on a brief visual inspection from the ground.

It is not intended as a full arboricultural inspection.

- indicates estimated/offsite tree. * - indicates off site tree. FSB - First Signifiant Branch.

Appendix A

Tree Constraints Plan

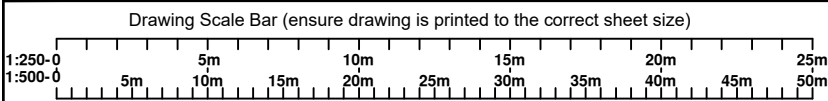
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Key

- Survey boundary.
- Tree with numbered reference.
Canopy spread and coloured BS5837:2012 tree quality category as shown below.
= Tree details estimate (inaccessible tree)
* = Tree in off site location
- Tree group plotted with individual stem locations and numbered reference. Canopy extents coloured to match BS5837:2012 tree quality category as shown below.
- Tree or Vegetation group with numbered reference. Canopy extents coloured to match BS5837:2012 tree quality category as shown below and dashed line to show indicative tree line.
- Hedge with numbered reference.
Canopy extents and coloured BS5837:2012 tree quality category as shown below and dashed line to show hedge centerline.

- BS 5837:2012 Tree Quality Categories - Table 1
- Category A - High quality
 - Category B - Moderate quality
 - Category C - Low quality
 - Category U - Unsuitable for retention

- Direction of first significant branch

- Root protection area (RPA)
Calculated in accordance with Section 4.6 - BS5837:2012

- Conservation Area designation.
Designated by North Herts Council Local Planning Authority.

NOTES:

- Refer to RPS Tree Survey Report & Schedule for further details.
- Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
- Plan produced in accordance with recommendations set out in BS 5837:2012 - 'Trees in Relation to design, demolition and construction'
- Due to the legal protection afforded to breeding birds vegetation removal should not take place during the bird nesting period, generally, although not restricted to, March - August inclusive.
- Survey based upon topographic survey (HSC-SBA-XX-XX-DR-A-00503-[P04]) Proposed Site Plan-DRAFT-241213) produced by Saunders Boston Architects in November 2024.

P03	Updated RLB	JN	DC	01.04.2025
P02	Updated layout	PL	DC	03.03.2025
P01	First Issue	EP	DC	06.01.2025
Rev	Description	By	Ckd	Date

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Client **Willmot Dixon Construction Ltd
on behalf of North Hertfordshire
District Council**

Project **Hitchin Swimming Centre**

Title **Tree Constraints Plan**

Status	Scale	Date Created
For Planning	1:250 @A1	06.01.2025
Task Team Manager	Information Author	Task Information Manager
EP	EP	DC

Document Number
794_PLN_LAN_5268_702_HSC

Project Code - Originator - Zone - Level - Type - Role - Drawing Number

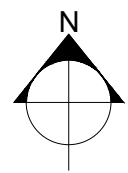
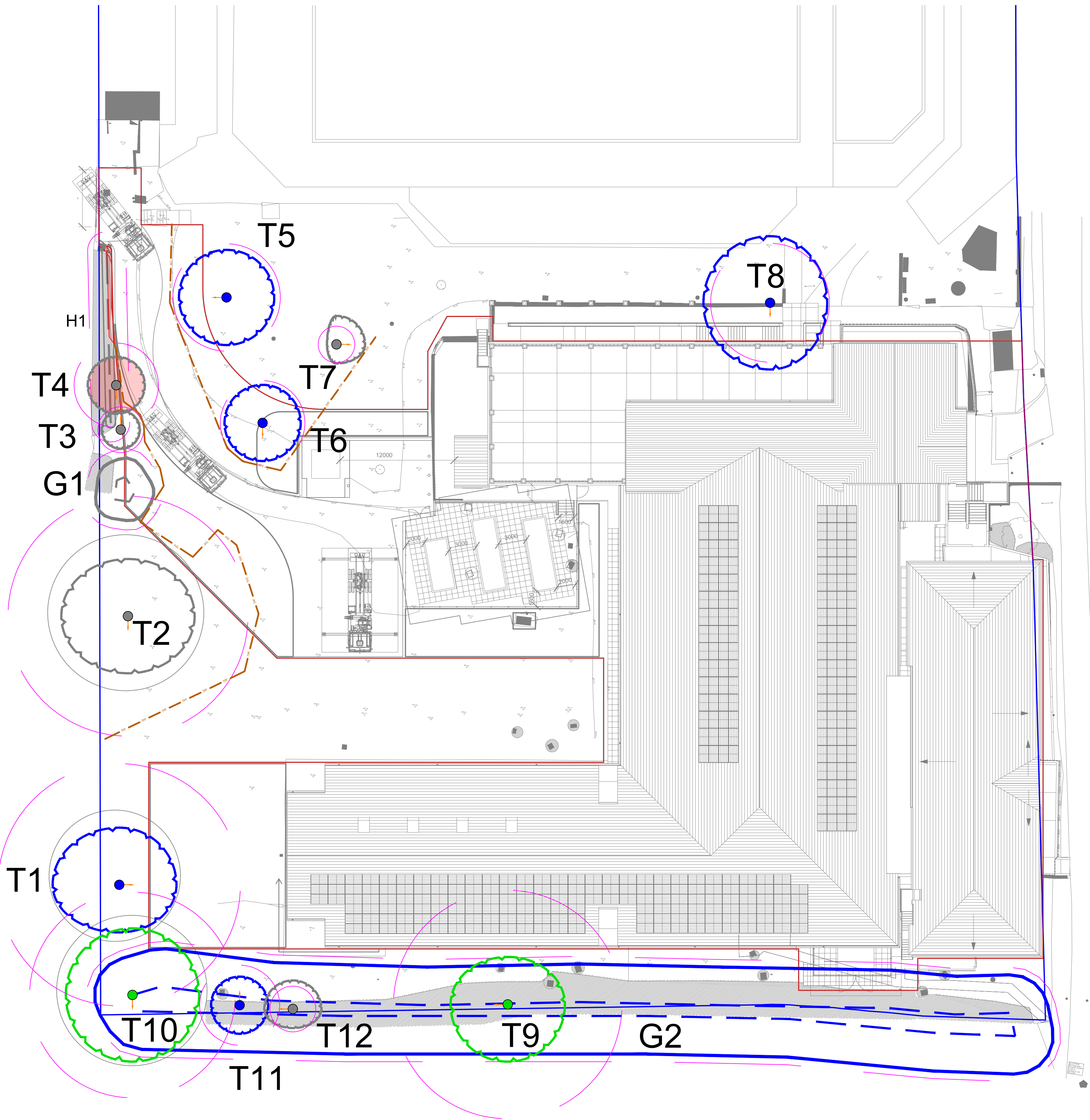
RPS Project Number	Suitability	Revision
794_PLN_LAN_5268_HSC	S3	P03

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Appendix B

Tree Removal & Protection Plan

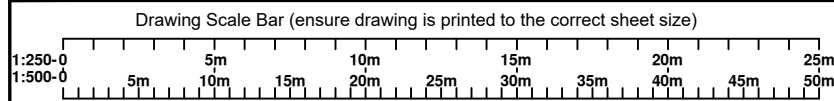
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Key

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= Tree details estimate (inaccessible tree)
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- Tree or Vegetation group with numbered reference. Canopy extents coloured to match BS5837:2012 tree quality category as shown below and dashed line to show indicative tree line.
- Hedge with numbered reference.
Canopy extents and coloured BS5837:2012 tree quality category as shown below and dashed line to show hedge centerline.

BS 5837:2012 Tree Quality Categories - Table 1

- Category A - High quality
- Category B - Moderate quality
- Category C - Low quality
- Category U - Unsuitable for retention

Direction of first significant branch

Root protection area (RPA) Calculated in accordance with Section 4.6 - BS5837:2012

Tree to be removed with numbered reference. Canopy spread and BS5837:2012 tree quality category.

Vegetation group or hedge to be removed with numbered reference. Canopy spread and BS5837:2012 tree quality category.

Temporary protective fencing in accordance with Section 6.2 - BS5837:2012. See inset details for example details.

NOTES:

- Refer to RPS Tree Survey Report & Schedule for further details.
- Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
- Plan produced in accordance with recommendations set out in BS 5837:2012 - 'Trees in Relation to design, demolition and construction'.
- Due to the legal protection afforded to breeding birds vegetation removal should not take place during the bird nesting period; generally, although not restricted to, March - August inclusive.
- Survey based upon topographic survey (HSC-SBA-XX-XX-DRA-00503-P04)-Proposed Site Plan-DRAFT (24.12.13) produced by Saunders Boston Architects in November 2024.

P03	Updated layout	JN	DC	26.03.25
P02	Updated layout	PL	DC	28.02.25
P01	First Issue	EP	DC	08.01.2025
Rev	Description	By	Ckd	Date

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District Council

Project Hitchin Swimming Centre

Title Tree Removals and Protection
Plan

Status	Scale	Date Created
For Planning	1:250 @A1	08.01.2025
Task Team Manager	Information Author	Task Information Manager
EP	EP	DC

Document Number
794_PLN_LAN_5268_712_HSC

Project Code - Originator - Zone - Level - Type - Role - Drawing Number

RPS Project Number	Suitability	Revision
794_PLN_LAN_5268_HSC	S3	P03

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Appendix C

Example Tree Protection Barriers (BS5837:2012 Fig 2 & 3)

Figure 2 Default specification for protective barrier

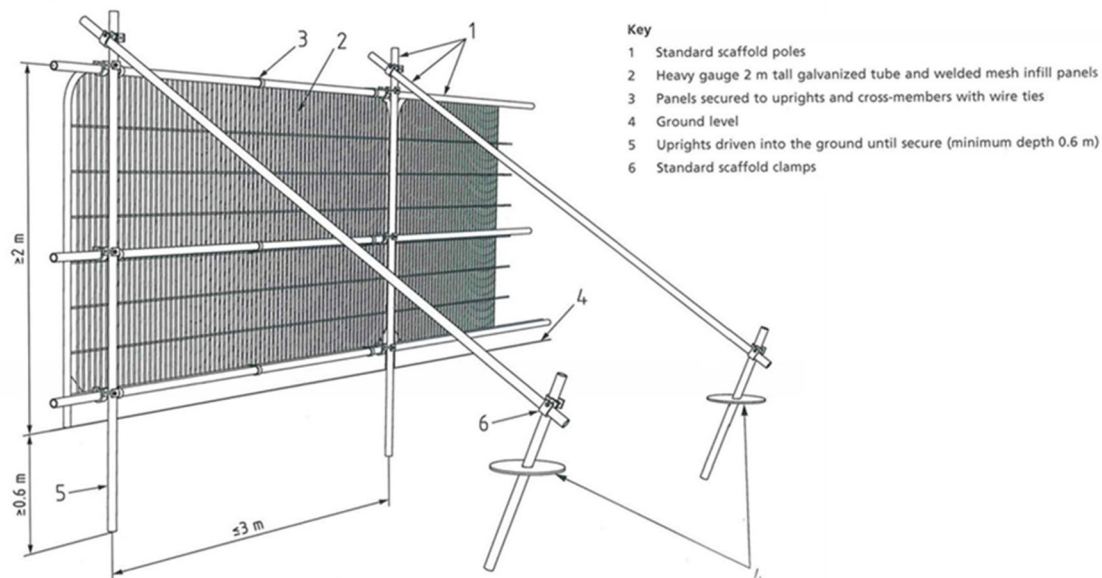
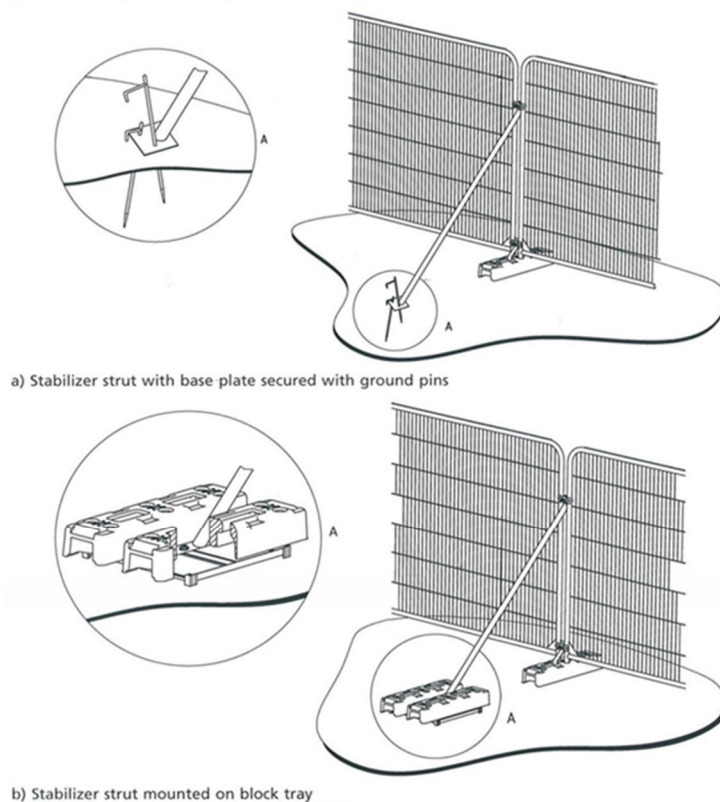


Figure 3 Examples of above-ground stabilizing systems



Appendix D

Construction Exclusion Zone (CEZ) Sign



Appendix E

Arboricultural Glossary

Age-class - A general classification of the tree into either - young, semi-mature, early mature, mature, over-mature, or veteran.

Apical Bud/Shoot – The apical bud, also known as the leading shoot, is responsible for shoot extension and is dominant.

Apical Dominance – A singular, leading shoot remains dominant.

Arboreal - In connection with, or in relation to, trees.

Arboriculturist – Person who has, through relevant education, training and experience, gained recognised qualifications and expertise in the field of trees in relation to construction.

Arboricultural Impact Assessment (AIA) – Study, undertaken by an arboriculturist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

Arboricultural Method Statement (AMS) – Methodology for the implementation of any aspect of development that has the potential to result in the loss of or damage to a tree. Note The AMS is likely to include details of an on-site tree protection monitoring regime.

Asymmetric crown- Crowns that have a morphological bias in a particular direction. This can give the tree an aesthetically unfavourable appearance but can also subject the tree to uneven wind- loading forces and potentially result in failure.

Basal – Referring to the bottom part of a tree's stem.

Basifugal mortality – A natural process seen in trees in an advanced life stage whereby the trees extremities die back, and the inner crown expresses new growth, in order to conserve energy reserves.

Bifurcated - A growth characteristic, where two stems of similar size grow from the same point. Can create an inherent weakness.

Branch union/junction - The point at which a branch joins a larger stem. Can be a point of weakness, especially in certain species.

Brown Rot- Decay caused by certain species of fungus which results in the affected wood becoming brittle and liable to suddenly 'break out', especially if in key structural areas.

Buttress flares – Extensions of the basal stem of a tree that provide additional structural support. See reaction wood.

TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

Bifurcated- A growth characteristic, where two or more stems of similar size grow from the same point.
Can create an inherent weakness.

Cable braces – Cable braces used to support the crown of a tree, reduce impacts caused by wind- throw oscillation.

Canker – A clearly defined area of dead and sunken or malformed bark, caused by bacteria or fungi. Can have a bearing on structural integrity of infected limb(s) depending on size and location.

Central leader- See apical dominance.

Chalara ash dieback- A disease affecting ash trees caused by the fungus *Hymenoscyphus fraxineus*. Usually fatal, the disease causes leaf loss and crown dieback in infected trees. It was first confirmed in Britain in 2012.

Chlorosis- yellowing of leaves which can be caused by a range of factors, often an indicator of nutrient deficiency.

Compaction - The compressing & hardening of soil around tree root systems, due to vehicular/pedestrian use etc. Loss of pore space between soil granules limits water movement and gaseous exchange and inhibits root growth.

Companion shelter- Shelter provided by neighbouring trees in groups to one another, factors such as wind throw are reduced due to supporting branches and interlocking root systems. Removing individual trees on the peripheries of such groups can expose neighbouring trees to environmental factors they have not previously been subjected to and can lead to individual failure.

Competent person – Person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached

Note 1 A competent person understands the hazards and the methods to be implemented to eliminate or reduce the risks that can arise. For example, when on site, a competent person is able to recognise at all times whether it is safe to proceed.

Note 2 A competent person is able to advise on the best means by which the recommendations of this British Standard may be implemented.

Condition – Assessment based on a visual and professional view giving consideration to many factors such as tree health, structural integrity and suitability of its position.

Conservation dead- wooding- Removal of deadwood using 'coronet cuts' that mimic the way a branch would naturally break off, maximising deadwood habitat availability for invertebrates.

Coppice - The method of managing trees by cutting the stems at between 1.0 inch and 1.0 foot from the ground level on a regular cycle, the cut stumps of the trees or shrubs are allowed to re-grow many new stems.

TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

Crown spread - Gives distances between extreme limits of the crown and the stem, usually along the four compass points. Helps to show crown symmetry.

Crown Reduction – The removal of branch ends to reduce the extreme limits of a tree's branch spread and height.

Crown Thin – The removal of selected branches within the crown to thin the internal branch structure.

D.B.H. - 'Diameter at Breast Height', an industry standard to gauge tree stem size and development. Within arboriculture, breast height is taken to be 1.5m above ground level.

Dieback - The reduction in crown vigour and extension growth progressing to death of distal parts; often associated with decline.

Epicormic growth - New growth from dormant buds that can often form tenuous attachments. Although some species readily form such shoots, it can be an indication of stress.

Form - A general assessment of the shape and position of the tree within its environment.

Hanger – Term used to describe a branch that has become detached and is being supported by other branches. Can be a hazard to persons and property below.

Hazard Beam – After the loss of a distal part, a limb concentrates growth upwards creating adverse end weights that can render the limb susceptible to failure.

Included bark – Growth characteristic usually caused when two or more stems/branches growing in close proximity 'fuse' together entrapping the bark from when the parts were separate in the middle, creating a structural weakness.

Invertebrate tower – Pollarding of a (usually dead) tree to a safe height that leaves part of the main stem as a deadwood habitat for invertebrate species.

Occlusion/Occluded – Normally used to describe the overgrowth of a wound. Also, immovable foreign objects in contact with a tree part can become encased or 'occluded' by the tree as it grows incrementally.

Pathogen - An agent that causes disease, especially a living microorganism such as a bacterium or fungus.

Phototropic growth – Growth responding to a light stimulus i.e. the sun. This can influence the form of a tree, particularly where other factors e.g. buildings or other trees, affect the amount/ direction light is received.

Pollard – The removal and subsequent regular re-removal of the crown of a tree above animal browsing height. Can be an effective method of controlling the size of trees in urban areas. This is ideally begun in the trees early stages and maintained throughout its life.

TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

Reaction wood - Essentially additional wood laid down by the tree to compensate for structural defects such as cavities.

Rhizosphere - The rhizosphere is the narrow region of soil that is directly influenced by root secretions and associated soil microorganisms. In particular, mycorrhizal fungi form a symbiotic relationship with trees and assist in the assimilation of phosphates essential to the tree's health.

Ring barking/Girdling – the removal of bark around the entire circumference of a stem or branch, causing the death of all distal parts.

Root Protection Area (RPA) – Layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m².

Scaffold limbs - The main structural branches within the crown.

Tree Removal & Protection Plan – scale drawing prepared by an arboriculturist showing the finalised layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement (AMS), which can be shown graphically.

U.L.E – 'Useful Life Expectancy' is an estimate based on currently known factors of the possible remaining life of the tree as an asset. AKA 'Estimated remaining contribution'.

Veteran tree – Tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned.

Vigour - A general classification, as to the present and future potential growth and development of a tree. A comment regarding the health status of the tree specific to its species.

White Rot - A type of decay caused by certain species of fungi which results in the affected wood becoming flexible with little compressive strength.