ARBORICULTURAL IMPACT ASSESSMENT

(INC. TREE SURVEY TO BS 5837:2012)

CLIENT -	C/O Twenty-Nine Architecture Ltd
PROJECT -	77 Hauxton Road
DOC. REF -	P2347-2–AIA01 V6
PLANNING REF -	n/a
CREATION DATE -	29/02/2024

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TABLE OF CONTENTS

PURPOSE OF DOCUMENT

This document assesses the anticipated impact that the proposed scheme will have on the surrounding tree population, and outlines possible technical design considerations and mitigation measures that should be implemented in order to minimise the overall arboricultural impact.

ARBORICULTURAL DOCUMENT REGISTER

Planning Documents		Version Issued	
Document	Ref.	Current Version	Document Date
Arb. Impact Assessment	P2347-2-AIA01	V6	29/02/2024
Arb. Site Plan (Existing)	P2347-2-ASP01	V4	18/04/2023
Arb. Site Plan (Proposed)	P2347-2-ASP02	V6	29/02/2024

1. SUMMARY

1.1 PROPOSED DEVELOPMENT

1.1.1 The demolition of the existing dwelling, detached garage and driveway, and the erection of 3 new dwellings with associated driveways.

1.2 TREE SURVEY

1.2.1 The following woody vegetation was considered to be of note in relation to any development of the site: 9 individual trees, and 2 hedges.

1.3 PROTECTION MEASURES

1.3.1 The implementation of tree protection measures will be required to ensure that the site's retained trees remain undamaged. Information as to the requirements of such can be found in *Section 3.9*.

1.4 TECHNICAL DESIGN CONSIDERATIONS

1.4.1 The design team must consider and implement the design advice provided in *Section 3.10* of this document.

1.5 PROVISION OF NEW TREE PLANTINGS

1.5.1 It is recommended that at least 1 tree planting and 1 mixed native species hedgerow should be included within the landscaping of the site so as to mitigate against the proposed tree removals.

1.6 CONCLUSION

1.6.1 The table below summarises the trees which will be lost, pruned, or protected by special measures during the development project.

	Tree Category			
	A	B	C	U
Trees/groups to be removed (* groups to have sections removed)	-	-	T6	-
Hedges/shrubs to be removed (* hedges to have sections removed)	-	-	H2	-
Trees/groups/hedges to be pruned	T1	T7, T8, T9	T5, H1	-

Trees to be subjected to RPA incursions (excl. no-dig techniques)	-	-	-	-
Trees to be protected through arboricultural measures / supervision (other than barriers and ground protection)	-	T7, T8, T9	-	
Trees requiring specialist design considerations (for purposes of minimising arboricultural impact)	-	T7, T8, T9	-	

1.6.2 Considering the anticipated arboricultural impact from the construction and demolition activities associated with the development of the site, and the implementation of the proposed mitigation measures outlined in this document, the proposed development's arboricultural impact is considered to be **low**.

2 GENERAL INFORMATION

2.1 BRIEF

2.1.1 Ligna Consultancy Ltd were instructed by the client, C/O Twenty-Nine Architecture Ltd, to undertake a tree survey in accordance with BS 5837:2012 and to prepare an arboricultural impact assessment for the proposed scheme at 77 Hauxton Road.

2.2 PROPOSED DEVELOPMENT

2.2.1 The demolition of the existing dwelling, detached garage and driveway, and the erection of 3 new dwellings with associated driveways.

2.3 SITE

2.3.1 The site discussed within this report is located at:

77 Hauxton Road
Little Shelford
Cambridge
CB22 5HJ

2.4 PROJECT CONTACT

Role	Name	Telephone	Email
Arboricultural Consultant	Jennifer Sinclair	01284 598008	jennifer@lignaconsultancy.co.uk

2.5 SCOPE OF REPORT

2.5.1 This report consists of the following:

- Appraisal of arboricultural impact
- Outline of tree protection & mitigation measures

2.5.2 Appendices included with this report are:

- Tree Survey
- Site Photos
- Arboricultural Site Plan (Existing) (P2347-2-ASP01 V4)
- Arboricultural Site Plan (Proposed) (P2347-2-ASP02 V6)

2.6 DOCUMENTS PROVIDED

2.6.1 The following documents were submitted to Ligna Consultancy Ltd for consideration:

- Topographical Survey
- Proposed Site Plan (Planning-A)

2.7 AUTHOR

2.7.1 Jennifer Sinclair is a technician member of the Arboricultural Association. She has worked in arboriculture for over twelve years, including supervisory roles undertaking both domestic and commercial arboricultural work. She possesses a level 3 extended diploma in arboriculture, LANTRA Professional Tree Inspection training and is currently furthering her academic knowledge by undertaking a level 6 professional diploma in arboriculture. A full CV and list of experience and CPD is available on request.

2.8 LIMITATIONS

2.8.1 Detailed inspections and recommendations relating to tree condition and health are not included within this report.

2.8.2 Any engineering solutions presented within this document are recommendations for their suitability from an arboricultural viewpoint. The architect and structural engineers should make the final decision on the suitability of the methods advised.

2.8.3 Information provided by third parties, considered in the creation of this report, is assumed to be correct.

2.9 PROTECTED TREES

2.9.1 Details of trees (if any) that are protected by Tree Preservation Orders (TPOs) or are situated within Conservation Area are available upon request.

2.9.2 It is the standard approach of Ligna Consultancy not to obtain this information from the LPA prior to an application, as the LPA will provide details of nearby protected trees as part of the consultation.

2.9.3 It should also be noted that granted planning permission that includes tree work specifications overrides Tree Preservation Orders and Conservation Area protections (approved works only).

2.10 NESTING BIRDS / BATS

2.10.1 Officially, the 'Bird Nesting Season' is between February and August (Natural England). During this time, it is recommended that vegetation works (tree or hedge cutting) or site clearance is avoided if there is a reasonable potential for the disruption of nesting birds.

2.10.2 All parties involved in the management and/or development of a site must actively avoid causing disturbance and disruption to nesting birds. Failure to do this may result in an infringement of the *Wildlife and Countryside Act 1981* and the *European Habitats Directive 1992 / Nesting Birds Directive*.

2.10.3 When tree or vegetation clearance work has to be undertaken during the nesting season, a pre works survey needs to be carried out by a suitably competent person.

2.10.4 Generally, it should be assumed that birds will be nesting in trees, and it is down to the site/project manager that any activities that have the potential to disturb nesting birds are assessed for their suitability and potential impact, and records are kept that show that any works carried out in the

management of trees and other vegetation have not disturbed nesting birds.

2.11 SUMMARY OF TERMS

Term	Definition
Species	The type of tree.
Stem	The main woody upright portion of a tree that is supported by the roots and supports the crown.
Branch Spread	The length of a tree's branches from stem to tip measured from the north, east, south and western sides of the crown.
BS 5837	The commonly used name for the official guidance document relating to trees and development *(BS 5837:2012 - Trees in relation to design, demolition and construction – Recommendations)*
Canopy / Crown	The branches, leaves, and reproductive structures extending from the trunk or main stems of a tree/trees.
DBH	Diameter of a tree's stem, measured as per BS 5837:2012
RPA	The root protection area (RPA) is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Facilitation Tree Works	Tree pruning/felling required in order to facilitate the implementation of the proposed development.
Tolerance	The relative tolerance the species can show to construction related activities such as root-loss, soil compaction and other development pressures.
Category (Cat.)	Categorisation of the tree's value based on the methodology shown in Appendix 1, A1.4. This rating takes into account the size, quality, condition, estimated remaining life expectancy and legal status of each tree.

2.12 COPYRIGHT

2.12.1 This report was prepared for use by the Clients and their contractors for planning purposes. The report and its appendices may not be copied, modified, or distributed beyond the necessary parties without the written consent of Ligna Consultancy Ltd.

3 ARBORICULTURAL IMPACT ASSESSMENT

ASSESSMENT & APPRAISAL OF IMPACTS

The following section lists and discusses any aspects of the proposed design and its implementation that has the potential to harm nearby trees, and outlines possible mitigation measures:

3.1 TREES TO BE REMOVED TO FACILITATE THE PROPOSED SCHEME

Affected Trees	Cat. C: - T6 (*Acer pseudoplatanus*)
Impact Appraisal & Mitigation	T6 requires removal as part of the proposed scheme due to its location within the proposed layout. Owing to its small size and low value, any amenity or arboricultural impact resulting from its loss is considered to be negligible. *However, to help offset the removal of this tree, 1 new tree (with a height of 3m+ at time of planting) will need to be included within the site's landscaping.*
Significance (with mitigation)	Negligible

3.2 HEDGES TO BE REMOVED TO FACILITATE THE PROPOSED SCHEME

Affected Trees	Cat. C: - H2 (Mixed group)
Impact Appraisal & Mitigation	As part of the proposed scheme H2 requires removal to facilitate the construction of the proposed driveway. Whilst the hedge is of a low value and low arboricultural contribution to the site, it does provide screening to the existing property, therefore, its removal requires offsetting through new plantings. *To offset the removal of H2 a new mixed native species hedgerow needs to be established to the front of the site to provide screening for the proposed dwellings.*
Significance (with mitigation)	Negligible

3.3 TREES TO BE PRUNED AS PART OF THE PROPOSED SCHEME

Affected Trees	Cat. A – T1 (*Fagus sylvatica f. purpurea*) Cat. B: - T7, T8 (*Fraxinus excelsior*), T9 (*Betula pendula*), Cat. C: - T5 (*Malus domestica*), H1 (*Fagus sylvatica*)
Impact Appraisal & Mitigation	T1 requires its tips lifting to provide 2.5m clearance with the ground to ensure adequate clearance below the canopy for use of the garden space. T7, T8 and T9 all require their tertiary branches to be lifted to provide 4.5m clearance with the ground to facilitate the construction of the proposed driveways below. T7 also requires its western crown reducing by 1.5-2m to provide clearance with the proposed dwelling and ensure minimal future contention between the house and tree. T5 requires an overall crown reduction of 1-1.5m to facilitate the construction of the proposed bike store and allow the demolition of the existing dwelling without the potential for the crown to be damaged during the process. H1 requires its western crown reducing by ~1m to allow for the installation of the proposed patio area. (See ASP02 for exact location)
Significance *(with mitigation)*	Negligible

3.4 DEMOLITION OF EXISTING DWELLING AND GARAGE

Affected Trees	Cat. C: - T5 (*Malus domestica*), H1 (*Fagus sylvatica*)
Impact Appraisal & Mitigation	The existing dwelling and garage are to be demolished as part of the proposed scheme. Whilst this activity is not likely to have any long-term impact on the health or vitality of T5 or H1 the process in which they are demolished has the potential to cause damage to the trees and their rooting areas. To ensure damage is not caused the following must be adhered to: *i) Prior to any works being carried out, tree protection barriers and temporary ground protection matting must be installed.* *ii) Any machinery required must operate externally to an RPA or from atop existing hard surfacing or temporary ground protection matting. The size of the machine must also take into consideration the surrounding tree canopies.* *iii) The roof and walls must be dismantled inwards within the same footprint.*

	iv) The foundations should be removed from the internal face with no excavations into any surrounding RPAs permissible.
Significance *(with mitigation)*	Negligible

3.5 REMOVAL OF EXISTING DRIVEWAY

Affected Trees	Cat. C: - T3 (*Cupressus spp.*)
Impact Appraisal & Mitigation	As part of the proposed scheme the existing driveway surfacing is to be removed from within the RPA of T3. This has the potential to cause damage to the tree and its rooting area if done incorrectly. To ensure damage is not caused, arboriculturally sensitive methods of removal are required, these must include: *i) Prior to any demolition works being undertaken, tree protection barriers and temporary ground protection matting must be installed.* *ii) Any machinery required must operate externally to an RPA or from atop existing hard surfacing or ground protection matting. The size of the machine must also take into consideration the surrounding tree canopies.* *iii) The upper surfacing must be broken up into manageable pieces and carefully scraped backwards out of the RPA.* *iv) Once the subbase has been reached, all mechanical excavations must halt in that area and manual techniques using hand tools must be used to remove the remaining subbase/ gravel layer.* *v) Any unearthed roots must be covered with topsoil within 72 hours of exposure.*
Significance *(with mitigation)*	Negligible

3.6 INSTALLATION OF SPECIALIST NO-DIG SURFACING

Affected Trees	Cat. B: - T7, T8 (*Fraxinus excelsior*), T9 (*Betula pendula*)
Impact Appraisal & Mitigation	As part of the proposed scheme, areas of new surfacing are to be installed within the RPAs of T7, T8 and T9, this has the potential to cause significant root loss and disturbance if traditional construction methods are used. Therefore, to avoid rooting area disturbance a specialist no-dig 3D cellular system (we recommend Cellweb TRP) with a minimum depth of 150mm is required as the subbase.

	This type of specialist surfacing retains any underlying tree roots whilst protecting against possible soil compaction damage, it also allows the continuation of gas and water exchange between soil and air. *Due to the nature of the no-dig surfacing the FSL will be increased by 150 mm, and this will need to be taken into consideration by the design team.* *A second sacrificial layer of the system will be required for the implementation of the proposed scheme to protect against heavy construction traffic from damaging the system below.*
Significance *(with mitigation)*	Negligible

3.7 IMPLEMENTATION OF PROPOSED SCHEME

Affected Trees	All retained trees
Impact Appraisal & Mitigation	During the construction process, all retained trees are susceptible to damage from general construction related activities. *In order to reduce the risk of construction damage to the site's retained trees, tree protection barriers and temporary ground protection must be installed before the commencement of any site works.*
Significance *(with mitigation)*	Negligible

TREE RELATED SHADING AND NUISANCES

3.8 LONG-TERM IMPACT OF RETAINED TREES ON PROPOSED SCHEME

3.8.1 Shading

3.8.1.1 None of the trees observed are considered to possess a significant potential for a negative shading impact on any of the proposed dwellings; any tree-related shading of property is expected to be minimal, transient and well within the recommended levels outlined in BRE 209 guidance.

Note - Shading arcs, as discussed in BS 5837, have not been included on the Arb. Site Plans owing to their poor accuracy, and the extreme unlikelihood that the shading will not be within tolerable levels. Ligna Consultancy Ltd have undertaken many detailed shading assessments, and in all situations, light levels have been shown to be well within acceptable levels (BRE 209). Situations where lighting levels may not be suitable are most likely to involve rows of large dense conifers near to dwellings.

3.8.2 Canopy Growth

3.8.2.1 The layout of the scheme has been designed with consideration of the location and growth potential of nearby trees. Owing to such, no noteworthy contention between tree canopies and property are anticipated.

3.8.3 Nuisances

3.8.3.1 Owing to the tree species present within and around the site, and the layout of the proposed scheme, additional unreasonable tree-related nuisances, such as leaf and fruit-fall, are not thought to exist beyond what might generally be considered as acceptable limits.

MITIGATION PROPOSAL

The following proposals, if approved, should be detailed within an arboricultural method statement and tree protection plan prior to the commencement of any development associated works:

3.9 PROTECTIVE MEASURES

3.9.1 Tree Protection Barriers

3.9.1.1 Barriers shall be erected, and a construction exclusion zone established, to protect all retained trees during the construction of the proposed scheme.

3.9.2 Temporary Ground Protection

3.9.2.1 Ground protection boards shall be installed within parts of the RPAs of T1, T3, T5, T7, T8 and T9 to protect them from soil compaction damage during the construction of the proposed scheme.

3.9.3 Arboriculturally Sensitive Removal of Surfacing

3.9.3.1 An area of existing surfacing is to be removed from within the RPA of T3. This has the potential to cause damage if done incorrectly.

3.9.3.2 The surfacing must be removed utilising hand/ pneumatic tools and manual techniques.

3.9.3.3 No additional excavations into the surrounding RPA are permissible.

3.9.4 Arboriculturally Sensitive Demolition

3.9.4.1 Prior to any demolition works being undertaken, tree protection barriers and temporary ground protection matting must be installed.

3.9.4.2 Any machines must operate externally to an RPA, or from atop existing hard surfacing or temporary ground protection matting. The size of the machine must also take into consideration the surrounding tree canopies.

3.9.4.3 The roof and walls should be dismantled inwards within the same footprint.

3.9.4.4 The foundations should be broken up and carefully scraped away from any RPAs with no additional incursions into an RPA permissible.

3.10 TECHNICAL DESIGN CONSIDERATIONS

3.10.1 Specialist No-Dig Surfacing

3.10.1.1 A 150 mm deep no-dig geocell system (we recommend Cellweb TRP) must be used for the new driveways within Root Protection areas.

3.10.1.2 Owing to the nature of no-dig surfacing, the FSL will likely be increased as a result of its use.]

3.10.1.3 A second sacrificial layer of the system is required for the implementation of the proposed scheme.

3.10.2 Routing and Installation of Utility Apparatus

3.10.2.1 Wherever possible, utility apparatus should be routed outside of any RPAs. Failing this, services should be routed together in common ducts, with any inspection chambers being located outside of the RPA.

3.10.2.2 Where it is necessary for underground services to intersect an RPA, specialist excavation methods should be used.

3.10.2.3 In such situations, the design team should consult with Ligna Consultancy in order to establish a suitable services route, and specify the specialist excavation method most suitable.

3.10.3 Potential for Subsidence & Heave

3.10.3.1 Where shrinkable sub-soils may be present, the potential for tree related subsidence and/or ground heave (resultant from proposed tree removals) must be considered by a structural engineer prior to the final specification of foundation depth/type.

3.11 PROVISION OF NEW TREE PLANTINGS

3.11.1 It is recommended that at least 1 tree planting and 1 mixed native species hedgerow should be included within the landscaping of the site so as to mitigate against the proposed tree removals.

CONCLUSION

3.12 SUMMARY OF THE DEVELOPMENT'S OVERALL IMPACT

3.12.1 The table below summarises the trees which will be lost, pruned, or protected by special measures during the development project.

	Tree Category			
	A	B	C	U
Trees/groups to be removed (* groups to have sections removed)	-	-	T6	-
Hedges/shrubs to be removed (* hedges to have sections removed)	-	-	H2	-
Trees/groups/hedges to be pruned	T1	T7, T8, T9	T5, H1	-
Trees to be subjected to RPA incursions (excl. no-dig techniques)	-	-	-	-
Trees to be protected through arboricultural measures / supervision (other than barriers and ground protection)	-	T7, T8, T9	-	
Trees requiring specialist design considerations (for purposes of minimising arboricultural impact)	-	T7, T8, T9	-	

3.12.2 Considering the anticipated arboricultural impact from the construction and demolition activities associated with the development of the site, and the implementation of the proposed mitigation measures outlined in this document, the proposed development's arboricultural impact is considered to be **low**.

4 APPENDICES

4.1 APPENDICES

4.1.1 The following appendices are included within this document:

Appendix	Document
1	Tree Survey
2	Site Photos
3	Arboricultural Site Plan (Existing) (P2347-2-ASP01)
4	Arboricultural Site Plan (Proposed) (P2347-2-ASP02)

APPENDIX 1
TREE SURVEY

APPENDIX 1 – TREE SURVEY

A1.1 SITE VISIT

i) A site visit was undertaken by Jennifer Sinclair of Ligna Consultancy, on the 13/05/2022.

A1.2 METHOD OF DATA COLLECTION

i) Data was collected using the recommendations laid out in British Standard 5837:2012 as a guide. All observations were from ground level without detailed or invasive investigations.

ii) Measurements have been calculated using a laser measurer and diameter tape/calipers. Where this was not possible or reasonably practical, measurements have estimated by eye.

iii) The trees were surveyed and assessed impartially and irrespective of the proposed development. Management recommendations should be implemented regardless of any proposed development for reasons of sound arboricultural management or safety.

iv) The method used for categorising the trees can be seen in section A1.3. This is an improved variation of the method suggested in BS 5837:2012.

v) BS 5837:2012 recommends that better quality (category A and B trees) are retained where possible. Planning permission overrides a Tree Preservation Order and Conservation Area. Furthermore, trees are a material consideration in the UK planning system irrespective of their legal status. Trees in land adjacent to the site are considered where they may be impacted by development; for example, when roots or branches encroach onto the site.

vi) Trees may be recorded as group or woodland where:

- The canopies touch.
- The trees have more group value than individual merit.
- They are part of a formal landscape feature like an avenue.
- It is impractical to record them individually.

vii) Trees within groups or woodlands etc. are recorded individually where it is necessary to distinguish them from others.

A1.3 SURVEY KEY & GLOSSARY OF TERMS

Term	Definition
Ref.	Tree reference number
Tag	Physical tag attached to some trees with unique identification number (not the same as Ref.)
Species	The trees' scientific and common name
Height	The measured/estimated height of the tree (measured in metres)
Branch Spread	The length of a tree's branches from stem to tip measured from the north, east, south and western sides of the crown.
Crown Clearance	Crown clearance is the measurement of height between the trees branches in the outer third of its crown and the floor. Crown clearance has only been recorded where it is considered to be of relevance to the proposed scheme. The height of the first significant branch is also generally recorded and is discussed where relevant.
DBH	Diameter of a trees' stem, measured as per BS 5837:2012
RPA	The root protection area (RPA) is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.
Life Stage	A quantification of a trees' state of physical maturity: • Young • Semi-mature • Early-Mature • Mature • Late-mature • Veteran • Dead
Structural	Summary statement relating to the structural condition of a tree: • Good (no apparent problems / normal optimal condition for a tree of its species.) • Fair (minor problems, no instabilities) • Poor (major problems, potential instabilities) • Unstable (extreme problems, likely to result in failure)
Vitality	Summary statement relating to the overall observed vitality of a tree: • Good (no apparent problems / normal optimal vitality for a tree of its species) • Fair (minor / temporary reduction in tree vitality) • Poor (major reduction in tree vitality, often with some branch dieback) • Dead / Dying (extreme / total reduction in tree vitality)
General Management Recommendations	Remedial tree works recommended regardless of whether the site is developed or not.
Facilitation Tree Works	Tree pruning/felling required in order to facilitate the implementation of the proposed development.
Development Related Tree Works	Tree works that are required as part of the proposed scheme.
Tolerance	The relative tolerance the species can show to construction related activities such as root-loss, soil compaction and other development pressures.
Cat.	Categorisation of the tree's value based on the methodology shown in A1.4. This rating takes into account the size, quality, condition, estimated remaining life expectancy and legal status of each tree.

A1.4 TREE CATEGORISATION METHODOLOGY

Category and definition	Criteria / Subcategories			Label on plan
	1 – Mainly arboricultural qualities	2 – Mainly landscape qualities	3 – Mainly cultural values/conservation	
Trees worthy of being a material constraint:				
Category A Trees of high quality, capable of providing a significant contribution to local amenity (usually large in size) and that generally possess an estimated remaining life expectancy of 40+ years.	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	Cat. A
Category B Trees of moderate quality and with an estimated remaining life expectancy of 20+ years, that are capable of providing a notable contribution to local amenity but are lacking the condition of category A trees (usually medium to large in size).	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage); or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	Cat. B
Trees worthy of material consideration:				
Category C Trees of a low quality, small size, or incapability to be protected within the legal framework. These trees generally possess an estimated remaining life expectancy of 10+ years.	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	Cat. C
Trees unsuitable for retention owing to condition:				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low-quality trees suppressing adjacent trees of better quality			Cat. U

A1.5 SUMMARY OF DATA

i) The following woody vegetation was considered to be of note in relation to any development of the site: 9 individual trees, and 2 hedges.

ii) The following tables show the category distribution and life stage of the trees distributed within the site:

	Tree Category			
	A	B	C	U
Individual Trees	1	3	5	-
Groups	-	-	-	-
Woodland Groups	-	-	-	-
Hedges	-	-	2	-
Shrubs	-	-	-	-

Table 1 - Table showing category distribution within site.

	Life Stage						
	Young	Semi-Mature	Early-Mature	Mature	Late-Mature	Veteran	Dead
Individual Trees	-	3	1	4	1	-	-
Groups	-	-	-	-	-	-	-
Woodland Groups	-	-	-	-	-	-	-
Hedges	-	1	-	1	-	-	-
Shrubs	-	-	-	-	-	-	-

Table 2 - Table showing life stage distribution within the site.

Ref.	Tag	Species	Height (m)	Crown (N/E/S/W)	Crown Clearance (m)	DBH (mm)	Life Stage	Structural	Vitality	Additional Notes	General Management Recommendations	Priority	Development Related Tree Works	Tolerance	RPA Radius (m)	RPA Area (m^2)	Cat.
T1		Fagus sylvatica f. purpurea (Copper beech)	17.5	10 / 10 / 9.5 / 9.5	0.5	750	Mature	Good	Good	Base to mid stem of tree engulfed in ivy obscuring survey.	Sever and remove 1m of ivy from base of tree.	Optional	Crown lift tips to provide 2.5m clearane with the ground.	-	9.0	254.5	A1
T2		Prunus spp. (Plum)	10	4 / 4 / 5.5 / 4	1	299	Mature	Good	Good	Stem engulfed in ivy obscuring survey.	Sever and remove 1m of ivy from base of tree.	Optional		Moderate - Good	3.6	40.4	C1
T3		Cupressus spp. (Cypresses)	13.5	1.5 / 1.5 / 1.5 / 1.5	0.5	170	Mature	Good	Good	Thinning upper crown.				Good	2.0	13.1	C1
T4		Prunus spp. (Plum)	9	1.5 / 4 / 1.5 / 1	1.5	130	Semi-Mature	Fair	Good	Dense ivy on base, stem and inner crown. Tree heavily leaning eastwards - low risk posed due to small size of tree.	Sever and remove 1m of ivy from base of tree.	Optional		Moderate - Good	1.6	7.6	C1
T5		Malus domestica (Apple)	9	3.5 / 3.5 / 3.5 / 3.5	1.8	253	Late-Mature	Good	Fair	Base engulfed in shrubs so obscuring survey. High presence of minor size deadwood throughout the crown - low risk posed.			Reduce overall crown by 1-1.5m	Good	3.0	29.0	C1
T6		Acer pseudoplatanus (Sycamore)	10.5	3 / 3 / 3 / 3	1.8	200	Early-Mature	Good	Good	Estimated dimensions used as unable to access tree.			Remove	Moderate	2.4	18.1	C1
T7		Fraxinus excelsior (Ash)	11.5	4.5 / 4.5 / 4.5 / 4.5		300	Semi-Mature	Good	Good	Estimated dimensions used as unable to access tree. Not sure on ownership. Moderate ivy on stems and inner crown - obscuring survey.	Sever and remove 1m of ivy from base of tree.	Optional	Crown lift tertiary branches and tips to provide 4.5m clearance with the ground. Reduce western crown by 1-2m.	Moderate	3.6	40.7	B2
T8		Fraxinus excelsior (Ash)	12	3 / 3 / 1.5 / 3	2.5	210	Semi-Mature	Good	Good	Stem and base of tree engulfed in ivy obscuring survey. Moderate amount of minor size deadwood throughout the crown - low risk posed.	Sever and remove 1m of ivy from base of tree.	Optional	Crown lift tertiary branches and tips to provide 4.5m clearance with the ground.	Moderate	2.5	20.0	B2
T9		Betula pendula (Silver birch)	10.5	4.5 / 4.5 / 4.5 / 4.5		350	Mature	Good	Good	Estimated dimensions used as unable to access tree. Stem engulfed in ivy obscuring survey.	Sever and remove 1m of ivy from base of tree.	Optional	Crown lift tertiary branches and tips to provide 4.5m clearance with the ground.	Poor - Moderate	4.2	55.4	B2
H1		Fagus sylvatica (Beech)	3.5	1.5 / 1.5 / 1.5 / 1.5		100	Mature	Good	Good	Well maintained hedge along boundary line.			Reduce western side by 1m.	Poor	1.2	4.5	C1
H2		Mixed group	2	0.5 / 0.5 / 0.5 / 0.5			Semi-Mature	Good	Good	Line of mixed species along boundary.			Remove	-			C3

APPENDIX 2
SITE PHOTOGRAPHS

Note - Below is a selection of site photographs intended for general site context. Should you require supplementary site/tree photographs please contact info@lignaconsultancy.co.uk:

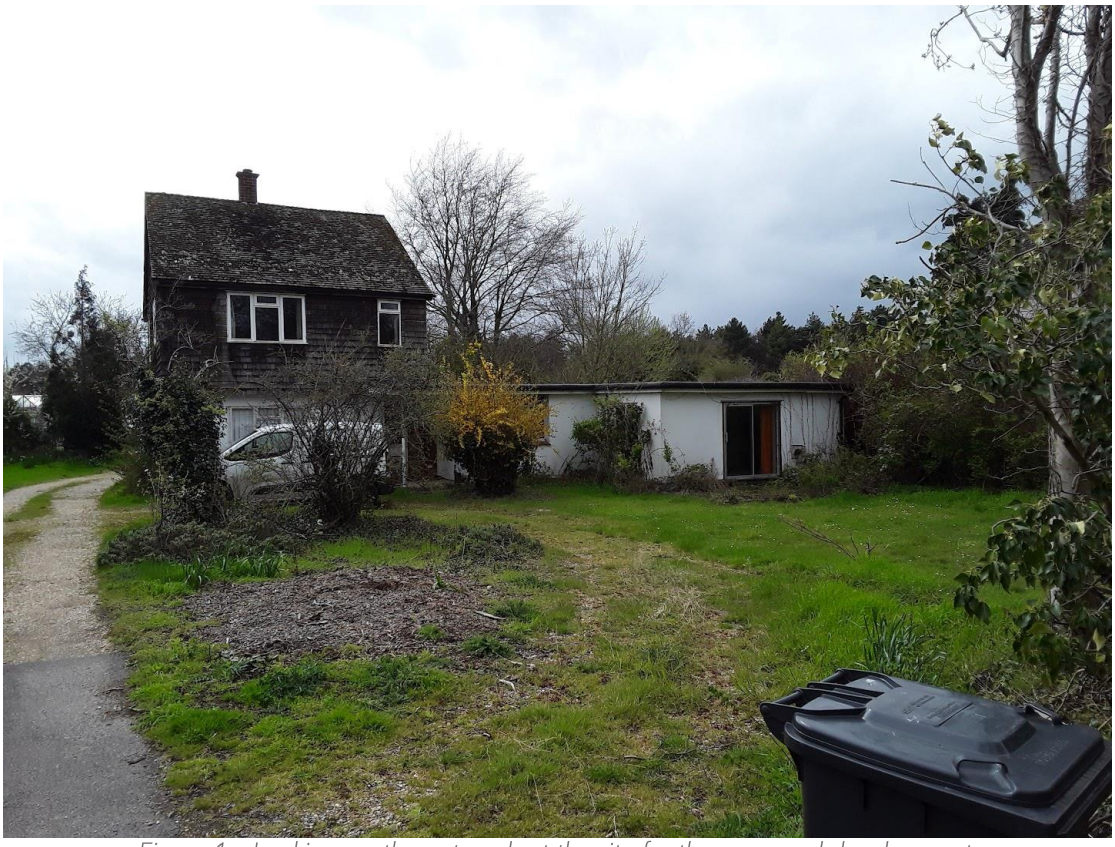


Figure 1 – Looking south westwards at the site for the proposed development.

APPENDIX 2 – SITE PHOTOGRAPHS

Figure 2 – Looking north westwards at the area for the proposed site entrance with T8 and T9.

APPENDIX 2 – SITE PHOTOGRAPHS

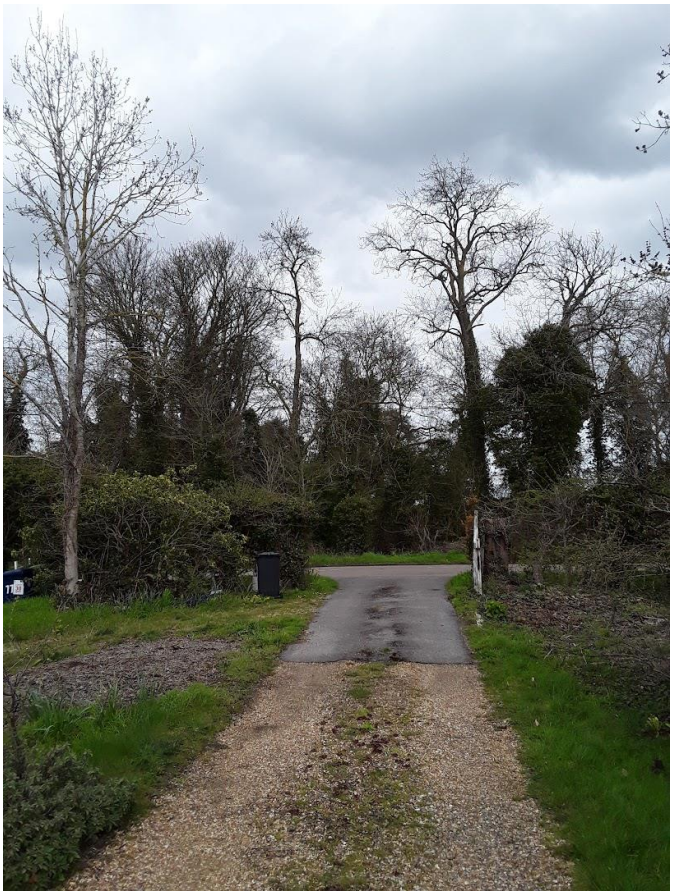
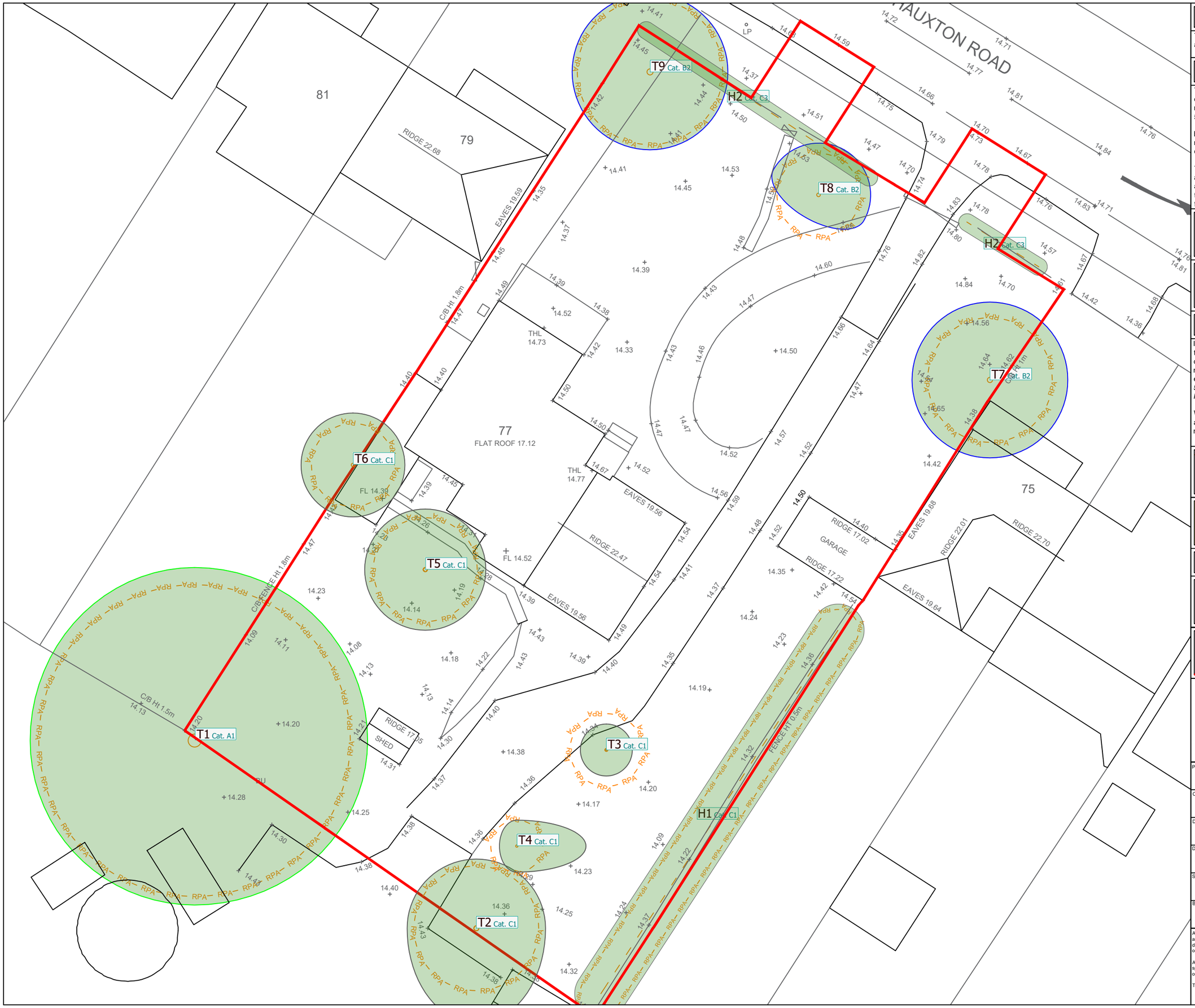


Figure 3 – Looking northwards at the existing site entrance.

APPENDIX 3
ARB. SITE PLAN (EXISTING)



Use of This Document

This document should be viewed in conjunction with the relevant arboricultural impact assessment and/or tree survey schedule.

Tree Categorisation & Numbering

The method used for categorising the trees can be seen in Appendix 1 of the Tree Survey/Arboricultural Impact Assessment. The categorisation method used is an improved variation of the method suggested in BS 5837:2012.

BS 5837:2012 recommends that better quality trees (Cat. A & B) are retained where possible. Trees in land adjacent to the site are considered where they may be impacted by development.

The trees considered significant within the context of the development are numbered and assigned a prefix of 'T' or 'G' to describe whether they are an individual or a group, and 'S' or 'H' for a shrub or hedge. Using this identification number, further information for each tree/group can be found within the survey schedule.

Cat. A	**Category A** : High or exceptional aboricultural, landscape or ecological value. (Worthy of being a material constraint.)
Cat. B	**Category B** : Moderate arboricultural, landscape or ecological value. (Worthy of being a material constraint.)
Cat. C	**Category C** : Low quality or small in size. (Not worthy of being a material constraint.)
Cat. U	**Category U** : Such poor quality or condition that renders it unsuitable for retention. (Not worthy of being a material constraint.)

Root Protection Areas

In order to avoid damage to the roots or rooting environment of retained trees, the Root Protection Areas (RPA's) should be plotted around each of the category A, B and C trees. This is a notional depiction of the minimum rooting area in m2 which should be left undisturbed around each tree. The RPA is calculated using the *British Standard BS 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'*, unless otherwise stated within the survey schedule.

Where there appears to be restrictions to root growth the root protection area is reshaped to more accurately reflect the likely distribution of the roots.

RPA	**Root Protection Area (RPA)**: The notional area around each tree which should be left undisturbed during the development of the site
	RPA Incursion: Anticipated incursion into the root protection area of a proposed tree which may result in root loss/damage.
	Arboriculturally Sensitive Demolition/ Removal): A structure or surfacing is to be removed using special methods to avoid damage to trees.
	Specialist Foundations: Low impact foundations to be used to preserve underlying tree roots.

Further Object Key

	Tree Stem / Stem line: Diameter of stem at ~1.5m
	Tree Removal: Trees designated for removal will comprise of a red filled canopy.
	Site Boundary: Extent of site boundary (illustrative only)
	Buildings/Surfacing to be Removed: Buildings or surfacing to be removed will generally be depicted with a dashed red line

Ligna Consultancy

Project:	77 Hauxton Road	
Client:	C/O Twenty-Nine Architecture Ltd	
Drawing:	Arboricultural Site Plan (Existing)	
Drawing Ref: P2347-2-ASP01	Rev: V4	Date: 18/04/2023
Scale: 1:200 - A3		Drawn By: J. Sinclair
Based on:	Topographical Survey	

APPENDIX 4
ARB. SITE PLAN (PROPOSED)

The proposed driveway must utilise a no-dig 3D Cellular system (we recommend Cellweb TRP) with a minimum depth of 150mm for its subbase to avoid significant RPA incursions for multiple trees.

This surfacing has been chosen due to its proven track record when installed within the RPA of a mature tree.This specialist surfacing retains any underlying tree roots whilst protecting against possible soil compaction damage, and allows the continuation of gas and water exchange between soil and air.

Due to the nature of the no-dig surfacing the FSL will be increased by 150mm and this will need to be taken into consideration by the design team.

During the implementation of the proposed scheme, a second sacrificial layer may be required to protect the 'base layer' below. Once the scheme has been implemented and all heavy construction traffic are finished on the site, the sacrificial layer may be removed and the finishing porous upper surfacing applied to the Cellweb.

Removal of H2 required. This will require mitigation planting to offset the loss. This should consist of a mixed native species hedgerow along the northern boundary to provide screening for the properties.

REINSTATE EXISTING DROPPED KERBS TO STANDARDS OF THE HIGHWAY AUTHORITY

NEW SHARED ACCESS POINT AND DROPPED KERB TO STANDARDS OF THE HIGHWAY AUTHORITY. ACCESS ROAD WITH FALLS TO CHANNEL DRAIN, SLOPING BACK INTO SITE (NO SURFACE WATER RUN OFF TO PUBLIC HIGHWAY)

Crown lift tertiary branches and tips of T7, T8 and T9 to provide 4.5m clearance with the ground.

FOUL AND SURFACE WATER DRAINAGE TO ENGINEERS DETAILS, REFER TO ENGINEERS DRAWINGS FOR MORE INFORMATION

EXISTING HOUSE TO BE DEMOLISHED TO MAKE WAY FOR THE PROPOSAL

Removal of T6 required as part of the proposed scheme. This removal will require offsetting through 1 new tree with a height of 3m+ at time of planting.

Reduce T7's western crown by 1-2m.

Arb. Sensitive demolition of existing dwelling and garage required to avoid damaging T5, H1 or their rooting areas, this must include:

i) Prior to any demolition works being undertaken, tree protection barriers and temporary ground protection matting must be installed.

ii)Any machinery required must operate externally to the RPA or from atop existing hard surfacing or temporary ground protection matting. The size of the machine must also take the surrounding tree canopies into consideration.

iii) The roof and walls must be dismantled inwards within the same footprint.

iv) The removal of the foundations must be achieved through excavations on the internal face with no additional foundations into the RPA permissible.

Reduce overall crown of T5 by 1-1.5m

Reduce western side of H1 by ~1m to allow for installation of patio area.

Arb. sensitive removal of existing surfacing required where the driveway is to be removed from within the RPA of T3. To avoid damaging the tree and its rooting area, the following must be adhered to:

i) Prior to any demolition works, tree protection barriers and temporary ground protection matting must be installed.

ii) Any machinery required must operate externally to the RPA or from atop existing hard surfacing or temporary ground protection matting.The size of the machine must also take the surrounding tree canopies into consideration.

iii) The upper layers of the surfacing should be broken up into manageable pieces and removed. Once the subbase has been reached all mechanical excavations in that are must halt.

iv) Manual techniques utilising hand/ pneumatic tools must be used to remove the subbase/ remaining gravel.Once the native layer of soil or roots has been reached, all excavations in that area must halt.

v) Any exposed roots must be covered with topsoil within 72 hours of exposure.

Crown lift tips of T1 to provide 2.5m clearance with the ground.

Use of This Document

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The trees considered significant within the context of the development are numbered and assigned a prefix of 'T' or 'G' to describe whether they are an individual or a group, and 'S' or 'H' for a shrub or hedge. Using this identification number, further information for each tree/group can be found within the survey schedule.

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Ligna Consultancy

Project:	77 Hauxton Road
Client:	C/O Twenty-Nine Architecture Ltd
Drawing:	Arboricultural Site Plan (Proposed)
Drawing Ref: P2347-2-ASP02	Rev: V6 — Date: 29/02/2024
Scale: 1:200 - A3	Drawn By: J. Sinclair
Based on:	Proposed Site Plan

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