

TOWN AND COUNTRY PLANNING ACT 1990

Land at Oakfields, Church Lane,
Bowling Bank, Wrexham, LL13 9RY.

BS5837 Tree Survey & Arboricultural Impact

COMMISSIONED BY:

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SURVEYED BY:

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DATED: 5th August 2020

Version 1

Tree Report In Support of a Planning Application

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Tree Survey Plan

Tree Protection Plan

DOCUMENT HISTORY

BS5837: 2012 Trees in relation to design, demolition and construction. Recommendations

This document has been issued and amended as follows:

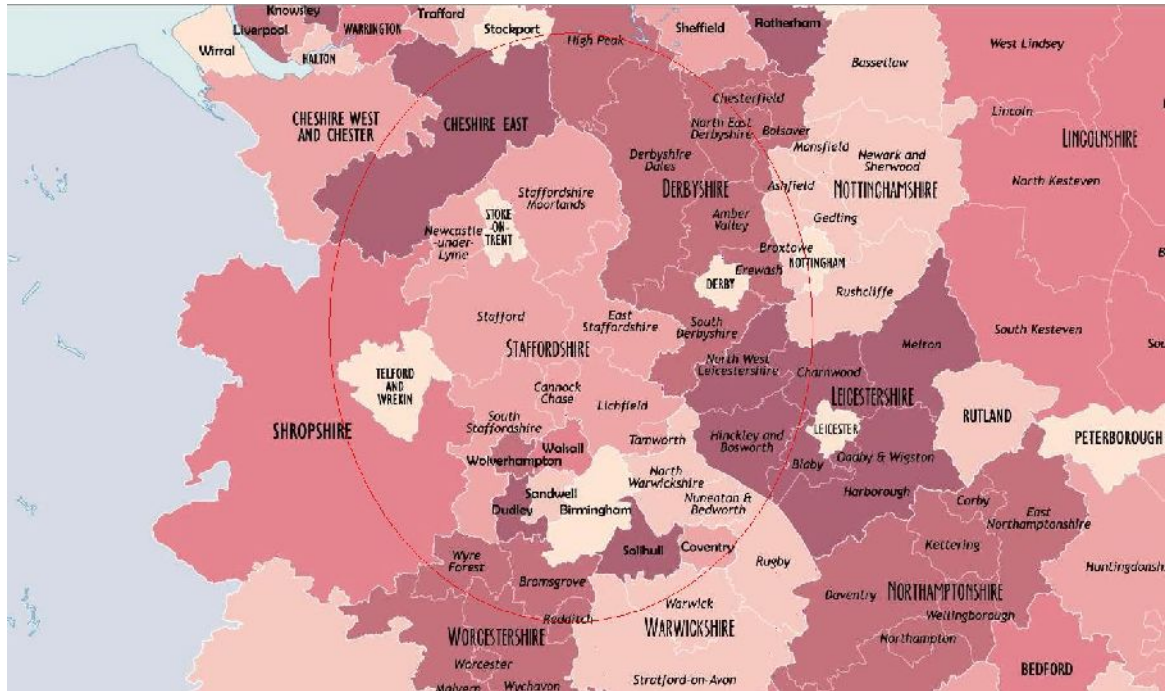
Version	Date	Description	Created by	Verified by	Approved by
1.0 - 2012	05/08/2020	V1	PEJ	PEJ	Bower Edleston

1.00 INTRODUCTION

- 1.01** My name is Peter Jackson. I am presently the Director of Design Construction Management Services; a Development Consultancy based in Stoke-on-Trent where we specialise solely in planning applications, landscape design, tree surveys, tree related planning applications, appeals and Public Inquiries. Prior to this I was Landscape Officer for Newcastle-under-Lyme Borough Council and Landscape Architect for RPS Landscape and Ecology Consultants in both Chester and Birmingham.
- 1.02** I have a Bachelor of Arts Degree (with Honours) in Landscape Design and a Diploma in Landscape Architecture both from Manchester Metropolitan University (formerly Manchester Polytechnic). I became an Associate of the Landscape Institute in 1994 and a registered practice of the Landscape Institute in 2012. I have worked additionally as a consultant for 27 years.
- 1.03** I am also a Professional member of the Arboricultural Association.
- 1.04** The BS 5837 arboricultural consultancy aims to provide a comprehensive, efficient and cost effective service incorporating all aspects of arboriculture and planning. We provide a consultancy service on all tree related issues involving a planning application for the private sector. We are committed to providing specialist expertise in BS 5837 arboriculture to meet our clients' requirements and where appropriate we will liaise with other professionals to provide structural engineering solutions to obtain planning permission.
- 1.05** We provide arboricultural advice to architects, planning consultants, developers and other professions associated with maximising land within a prospective development. Our surveyors are all Professional Members of the Arboricultural Association (M.Arbor.A) and therefore our reports are able to be given as proof of evidence in any appeal or Public Inquiry.
- 1.06** We specialise in BS 5837 arboricultural consultancy, rather than conducting any tree surgery work. However we can provide schedules of work and recommend suitably competent and qualified tree surgeons that will carry out any work to a high standard for us.

1.07 We offer a service for planning applications to the following local authorities in the following counties:-

Cheshire East, Cheshire West and Chester, Cheshire, Newcastle under Lyme, Stafford, Lichfield & Cannock Chase, Staffordshire, Stoke on Trent, South Derbyshire, North West Leicestershire & Melton, Leicestershire, Telford and Wrekin, Shropshire, Rugby & Warwick, Warwickshire, Walsall, Sandwell, Birmingham, Bromsgrove & Solihull, West Midlands, Worcestershire and other areas by special arrangement.



2.00 BACKGROUND

- 2.01** I have been instructed by Bower Edleston to comment upon 5 existing individual trees within a proposed development site and to provide a plan of protection for any trees to be retained according to the guidance laid out in BS5837: 2012 - Trees in relation to design, demolition and construction - Recommendations.
- 2.02** Vegetation adjacent to the site will be in a Construction Exclusion Zone, and estimated measurements have been taken from the trees closest to the area of proposed development to form a cell that complies with the British Standard. Works to the trees may be specified, but this report does not confirm that Wrexham County Borough Council has given any form of consent to undertake any works. No works should be undertaken to any trees on or adjacent to the site until the contractor has confirmed that full planning permission has been granted and the relevant conditions relating to retained trees, tree works, tree protection measures and levels have been discharged.
- 2.03** The area contains a number of mature trees in an urban location and as the trees have formed a natural association each individual tree is not debated on an individual basis. The purpose of this report is only to examine in detail the effect of a proposed future development of the land on the existing vegetation during the construction of the proposed development.
- 2.04** BS5837: 2012 gives recommendations and guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees, including shrubs, hedges and hedgerows, with proposed structures. It follows, in sequence, the stages of planning and implementing the provisions, which are essential to allow development to be integrated with trees.
- 2.05** The standard recognises that there can be problems with development close to existing trees which are to be retained, and of planting trees close to existing and new structures. The standard sets out to assist Local Planning Authorities (LPAs) to form balanced judgements. Where proposed development, including demolition, is to occur, the standard provides guidance on how to decide which trees are appropriate for retention, on the means of protecting these trees during development, including demolition, and on the means of incorporating new trees into the developed landscape.

2.06 Trees are a material consideration in the UK planning system and the British Standard is intended to provide consistency in decision-making with regard to existing and proposed trees in the context of design, demolition and construction. The standard therefore asks the local planning authority to consider the application in light of the following information.

Stage of process	Minimum detail	Additional information
Pre-application	Tree survey	Tree retention/removal plan (draft)
Planning application	Tree survey (in the absence of pre-application discussions) Tree retention/removal plan (finalized) Retained trees and RPAs shown on proposed layout Strategic hard and soft landscape design, including species and location of new tree planting Arboricultural Impact Assessment	Existing and proposed finished levels Tree Protection Plan Arboricultural method statement – heads of terms Details for all special engineering within the RPA and other relevant construction details
Reserved matters/ planning conditions	Alignment of utility apparatus (including drainage), where outside the RPA or where installed using a trenchless method Dimensioned tree protection plan Arboricultural method statement – Detailed Schedule of works to retained trees, e.g. access facilitation pruning Detailed hard and soft landscape design	Arboricultural site monitoring schedule Tree and landscape management plan Post-construction remedial works Landscape maintenance schedule

3.00 TERMS OF REFERENCE & INSTRUCTIONS

3.01 An application has been submitted to Wrexham County Borough Council for a replacement dwelling development. I am instructed to provide information on tree condition and make recommendations for good arboricultural practice for the suitability of the trees to be retained within and adjacent to a proposed residential redevelopment of the site.

3.02 The study will identify, evaluate and possibly mitigate the extent of direct or indirect impacts on existing trees that may arise as a result of the implementation of the site layout proposal.

3.03 The production of this arboricultural survey and report will comply with the following specification as set out in BS5837 2012 as follows: -

- a) sequential reference number (to be recorded on the tree survey plan);
- b) species listed by common name, with a key provided to scientific names;
- c) height;
- d) stem diameter
- e) branch spread, taken as a minimum at the four cardinal points, to derive an accurate representation of the crown (to be plotted on the tree survey plan);
- f) existing height above ground level of:
 - 1) first significant branch and direction of growth (e.g. 2.4-N);
 - 2) canopy,to inform on ground clearance, crown/stem ratio and shading;
- g) life stage (e.g. young, semi-mature, early mature, mature, over-mature);
- h) general observations, particularly of structural and/or physiological condition (e.g. the presence of any decay and physical defect), and/or preliminary management recommendations;
- i) estimated remaining contribution, in years (<10, 10+, 20+, 40+);
- j) category U or A to C grading to be recorded on the tree survey plan.

3.04 The trees referred to in this report are living entities and are therefore subject to natural processes. They will also be subject to changes in their natural environment caused by human activities and weather conditions. Therefore we cannot wholly guarantee the

safety of the trees commented upon beyond what can reasonably be assessed from the procedure used. Trees have not been aerially inspected. We recommend regular inspections and advise on the frequency and type of inspection. We would recommend that re inspections be carried out within one year or within specific stipulated timescales indicated in the survey.

- 3.05** No assessment has been made of soil conditions and the impact of soil conditions on tree cover/built environment. No assessment has been made for underground services, proposed or existing, unless otherwise stated. The contents of this report are valid for one year. This period of validity maybe reduced in case of any change in conditions to, or in proximity to, the trees.
- 3.06** This report is for the sole use of the client and refers only to those trees referred to within; use by any other person(s) in attempting to use the contents for any other purpose renders the report invalid for that purpose. The report has been written in accordance with BS5837, which is designed to allow planning officers to agree the juxtaposition of new development to existing trees. It should not however be used to design proposed foundations, as trees outside of the scope of a planning application (commonly up to 15 metres from the site boundary), may influence foundation design, depending on species, up to 30 metres from the site. These trees are often in third party ownership and will not be included in this report.

4.00 DEFINITIONS

4.01 Trees unsuitable for retention

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

Trees in this category will be shown Dark Red on the Tree Survey Plan.

4.02 Trees to be considered for retention

Category A

Trees of high quality with an estimated remaining life expectancy of at least 40 years

- Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)
- Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features
- Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)

Trees in this category will be shown Light Green on the Tree Survey Plan.

Category B

Trees of moderate quality with an estimated remaining life expectancy of at least 20 years

- Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation
- Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality
- Trees with material conservation or other cultural value

Trees in this category will be shown Mid Blue on the Tree Survey Plan.

Category C

Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm

- Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories
- Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits
- Trees with no material conservation or other cultural value

Trees in this category will be shown Grey on the Tree Survey Plan.

4.03 Life stage

Y – Young; Newly planted or early established tree less than 150mm

SM – Semi Mature; tree in first third of life expectancy

EM – Early mature; tree in second third of life expectancy

M – Mature; tree in final third of life expectancy

OM – Over Mature; tree in decline

4.04 Physiological condition

Good

- Those trees marked 'Good' can generally be classed as having good overall structural and physiological condition. Most usually specimens are in good/excellent condition. They generally have few and less significant arboricultural defects than those trees classed as 'B' or 'C'. Usually contribute significantly to the local or site amenity.

Fair

- Those trees marked 'Fair' can generally be classed as having reasonable structural and physiological condition. They may contain smaller areas of included bark within either major or minor fork junctions. They may be subject to single or multiple fungal invasions, bacterial or virus. In the case of fungal invasion or bacteria the Latin name of the species has been stated. They may be subject to minor crown dieback, unusually pale or smaller foliage or have been subjected to outside influences such as restriction of rooting spread, vandalism or mechanical damage, but should be viewed as in generally fair overall condition.

Poor

- Those trees marked 'Poor' can generally be classed as having poor overall structural or physiological condition. They may contain large areas of included bark either within major for junctions. They may be subject to single or multiple

fungal invasions, bacteria or virus. In the case of fungal invasion or bacteria the Latin name has been stated. They may contain splits or cracks throughout the branching structure. They may be subject to significant crown dieback or exhibit unusually pale or small foliage. They may be subject to outside influences such as restriction of rooting spread, vandalism or mechanical damage and costly to retain.

Dead

- Those trees marked 'Dead' have no visible foliage, brown cell structure under young bark.

4.05 Use of categorisation

The purpose of the tree categorisation method which has been applied by the surveyor, is to identify the quality and value of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained should development occur.

For a tree to qualify under any given category it should fall within the scope of the category's definition (U, A, B, C) and, for a tree in categories A – C, it should qualify under one or more of the three subcategories.

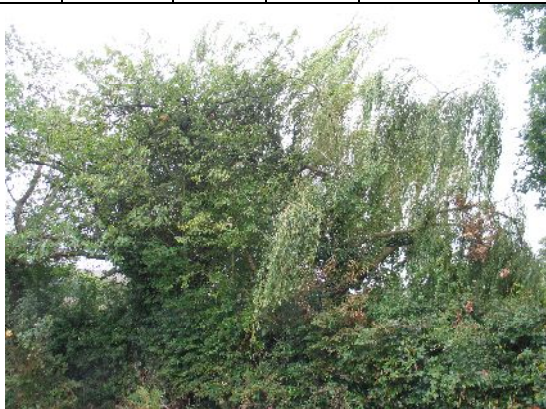
In the categories A, B, C, which together deal with trees that should be a material consideration in the development process, the subcategories are intended to reflect arboricultural, landscape and cultural values respectively. Category U trees are those which would be lost in the short term for reasons connected with their physiological or structural condition. For this reason, they should not be a consideration in the planning process.

5.00 INDIVIDUAL ARBORICULTURAL SURVEY SHEETS

	Tree/Group Reference No. on Plan	Species	Height in m	Branch Spread in m	Lowest significant first branch in m	Stem diameter at 1.5m in mm	Age Class	Physiological and Structural Condition and Comments	Preliminary Management Recommendations	Estimated remaining contribution Years	Retention Key	Protective fence distance in m from stem
5.1	T1	Cypress	7	N=2.5 E =2.5 S =2.5 W=2.5	0	400	M	- Poor overall condition - Low amenity value	Fell	10-20	C	N/A
		Additional Comments - This tree is in poor condition but will not need to be removed to allow the development. - This tree does not merit retention due to the fact that it does not attain categorization of class A or B. - This tree will not form a constraint to the site as it is intended that it will be removed prior to the commencement of development.										

	Tree/Group Reference No. on Plan	Species	Height in m	Branch Spread in m	Lowest significant first branch in m	Stem diameter at 1.5m in mm	Age Class	Physiological and Structural Condition and Comments	Preliminary Management Recommendations	Estimated remaining contribution Years	Retention Key	Protective fence distance in m from stem
5.2	T2	Oak	10	N=5 E =5 S =5 W=5	2	725	M	- Fair overall condition - High amenity value	Minor deadwood	20-40	B	See TPP
					Additional Comments - This tree is in good condition and will not need to be removed to allow the development. - This tree does merit retention due to the fact that it does attain categorization of class B. - This tree will form a constraint to the site as it is intended that it will be retained prior to the commencement of development. - Planning conditions are required.							

	Tree/Group Reference No. on Plan	Species	Height in m	Branch Spread in m	Lowest significant first branch in m	Stem diameter at 1.5m in mm	Age Class	Physiological and Structural Condition and Comments	Preliminary Management Recommendations	Estimated remaining contribution Years	Retention Key	Protective fence distance in m from stem
5.3	T3	Willow	7	N=2 E =2 S =5 W=2	2	400	M	- Poor overall condition - Low amenity value	Fell	10-20	C	N/A
		Additional Comments - This tree is in poor condition but will not need to be removed to allow the development. - This tree does not merit retention due to the fact that it does not attain categorization of class A or B. - This tree will not form a constraint to the site as it is intended that it will be removed prior to the commencement of development.										

	Tree/Group Reference No. on Plan	Species	Height in m	Branch Spread in m	Lowest significant first branch in m	Stem diameter at 1.5m in mm	Age Class	Physiological and Structural Condition and Comments	Preliminary Management Recommendations	Estimated remaining contribution Years	Retention Key	Protective fence distance in m from stem
5.4	T4	Cherry	7	N=2 E =2 S =5 W=2	2	400	M	- Poor overall condition - Low amenity value	Fell	10-20	C	N/A
									Additional Comments - This tree is in poor condition but will not need to be removed to allow the development. - This tree does not merit retention due to the fact that it does not attain categorization of class A or B. - This tree will not form a constraint to the site as it is intended that it will be removed prior to the commencement of development.			

	Tree/Group Reference No. on Plan	Species	Height in m	Branch Spread in m	Lowest significant first branch in m	Stem diameter at 1.5m in mm	Age Class	Physiological and Structural Condition and Comments	Preliminary Management Recommendations	Estimated remaining contribution Years	Retention Key	Protective fence distance in m from stem
5.5	T5	Cherry	7	N=2 E =2 S =5 W=2	2	400	M	- Poor overall condition - Low amenity value	Fell	10-20	C	N/A
									Additional Comments - This tree is in poor condition but will not need to be removed to allow the development. - This tree does not merit retention due to the fact that it does not attain categorization of class A or B. - This tree will not form a constraint to the site as it is intended that it will be removed prior to the commencement of development.			

6.00 CONSTRAINTS POSED BY EXISTING TREES

6.01 Following categorisation of trees on the development site, the influence that the trees will have on the layout has been plotted on a plan indicating the Root Protection Areas (RPAs). In order to avoid damage to the rooting environment of retained trees the RPAs have been plotted around each of the category A, B, C trees. The radius of the RPA is calculated as 12 times the stem diameter for single stem trees and adjusted for trees with more than one, but less than 6 stems.

6.02 The RPA, for each tree has been plotted on the proposals plan taking full account of the following factors, which may change its shape but not reduce its area whilst still providing adequate protection for the root system.

- (a) The likely tolerance of the tree to the root disturbance or damage based on factors such as species, age and condition and presence of other trees.
- (b) The morphology and disposition of the roots, when known to be influenced by past or existing site conditions (e.g. the presence of roads, structures and underground services).
- (c) The soil type and structure.
- (d) Topography and drainage.
- (e) Where any significant part of a tree's crown overhangs the provisional position of the tree protection area, these parts may sustain damage during the construction period. In such cases, it may be necessary to increase the extent of tree protection barriers to contain and thereby protect the spread of the crown. Protection may also be achieved by access facilitation pruning. The need for such measures, including the precise extent of pruning is described in the individual arboricultural survey sheets under preliminary management recommendations, where necessary.

7.00 ARBORICULTURAL IMPACT ASSESSMENT

7.01 The Arboricultural Impact Assessment (AIA) is a type of tree survey that considers how a proposed development and its associated trees will co-exist and interact in the present, during construction and in the future. AIA is a document that many Local Planning Authorities (LPA's) are now requesting as part of a planning application; as they need to satisfy themselves that factors such as root protection, changes in levels, access, cranes, installation of services, material storage, etc have been considered during the development layout and that these items will not prove detrimental to important trees. They also need to ensure that future issues, such as the long term effects of changing a surface level or the future need to prune or remove trees because they cast excessive shade or encroach upon property, are addressed and avoided.

7.02 Items considered are as follows: -

- Tree root protection (distances, area, RPA)
- Tree crown protection (access facilitation pruning)
- Tree protection measures during construction (BS5837 Figure 2 & Figure 3)
- Changes in levels in the RPA
- Changes in surfaces in the RPA
- Installation and layout of services in the RPA
- Demolition of existing buildings, removal of previous surfaces
- Exposure due to tree removal, wind throw
- Sunlight and shading
- Construction site access
- Construction site layout (compounds, offices, parking)

- Construction site materials storage (wash off)
- Planting (species selection e.g. thorns near footpaths)

7.03 Status of arboricultural implications

This statement can be included and issued as an induction to the principal contractor to undertake the works and can form part of the contract.

7.04 Root Protection Area. RPA

The Root Protection Area (RPA) is the area surrounding the tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m2.

In order to avoid damage to the roots or the rooting environment of retained trees the RPA should be plotted around each tree. The RPA is calculated as an area equivalent to 12 times the stem diameter for single stem trees, shown initially as a radius on Greenfield sites.

This information has been plotted on the site and a single line drawn outside of the RPA to demonstrate the position of the tree protection fencing which should be erected in accordance with BS5837 Figure 2 in a continuous line.

Barriers should protect all trees, which are being retained on site. Barriers should be erected before any machinery or materials are brought to site and before any demolition commences. Once erected, barriers should be regarded as sacrosanct and should not be removed without the prior approval of the Local Planning Authority. Signs should be erected to indicate why the barriers have been installed.

Chestnut pale and orange mesh is no longer acceptable under the British Standard.

7.05 Tree Felling

Tree felling needs to be undertaken to complete the proposed works. Recommendations have been made to improve the trees adjacent to the site and allow development. The work should be carried out by an Arboricultural Association Approved Contractor to BS3998 2010. 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 taken into account in dealing with planning applications. Where trees are statutorily protected, it is important to contact the local planning authority and follow the appropriate procedures before undertaking any works that might affect the protected trees.

7.06 Tree Protection Measures

Tree protection should be undertaken in accordance with BS5837. Trees in relation to construction 2012 Figure 2. Posters should be laminated and secured to the heras fencing. Below is an example of what the site should look like prior to the commencement of development.



7.07 Changes in Levels in the RPA

There are no changes in levels in the RPA, and specialist construction is not required.

7.08 Changes in surface in the RPA

There are alterations in the surface of the RPA, and specialist construction is required for patio paving. (See Geosynthetics)

7.09 Installation of services

There are new services to be installed through the RPA to complete the proposed works and hand digging will be required.

7.10 Demolition of existing buildings and structures

There is the need to demolish the existing building on the site. Tree protection fencing must be installed prior to demolition.

7.11 Exposure

N/A

7.12 Shading

N/A

7.13 Construction Site Access

The proposed access is via an existing drive. This will not result in the need to pass the retained trees on / adjacent to the site with plant and machinery over un made ground.

7.14 Construction site Layout

There should be a dedicated construction compound on the site that should not be located within the RPA of the trees surrounding the site.

7.15 Construction Site Materials

Additionally avoid washing out mixers within 10 metres around the edge of the RPA limit, where there is sloping ground towards the retained trees.

7.16 Planting

New tree planting will be undertaken in the form of a landscape scheme.

7.17 Design change advise

We have surveyed the trees on the site and recommended only T2 should be retained.

7.18 Tree Protection plan

A Tree Protection Plan is enclosed at Appendix 2.

7.19 Assessment of special surfacing

N/A

7.20 Assessment of supervisory requirements / Planning conditions

(a) The development shall be carried out in accordance with the scheme for the protection of the retained trees. No development or other operations shall take place except in complete accordance with the approved protection scheme.

(b) No operations shall be undertaken on site in connection with the development hereby approved (including any tree felling, tree pruning, demolition works, soil moving, temporary access construction and / or

widening or any operations involving the use of motorised vehicles or construction machinery) until the protection works required by the approved protection scheme are in place.

(c) No excavations for services except by hand dig, storage of materials or machinery, parking of vehicles, deposit or excavation of soil or rubble, lighting of fires or disposal of liquids shall take place within any area designated as being fenced off or otherwise protected in the approved protection scheme.

(d) Protective fencing shall be retained intact for the full duration of the development hereby approved and shall not be removed or repositioned without the prior written approval of the Local Planning Authority.

Prior to the commencement of development or other operations being undertaken on site in connection with the development hereby approved (including any tree felling, tree pruning, demolition works, soil moving, temporary access construction and / or widening, or any operations involving the use of motorised vehicles or construction machinery) a detailed Arboricultural Method Statement shall be submitted to and approved in writing by the Local Planning Authority. No development or other operations shall take place except in complete accordance with the approved Method Statement. Such Method Statement shall include full details of the following:

- a) Implementation, supervision and monitoring of the approved Tree Protection Scheme.
- b) A methodology for removal of existing building parts on the site avoiding damage to trees shown for retention on the approved site plan.
- c) Implementation, supervision and monitoring of all approved construction works within any area designated as being fenced off or otherwise protected in the approved Tree Protection Scheme.
- d) Timing and phasing of Arboricultural protection works in relation to the approved development.
- e) Contact details for the appointed supervising arboricultural consultant.

Appendix 1

Site signage



Appendix 2

Tree Survey Plan

Tree Protection Plan