

FORD LANE, YAPTON, ARUNDEL- ROAD ACCESS SECTION

TREE SURVEY & ARBORICULTURAL IMPACT ASSESSMENT



JSL3292_880
Tree Survey and
Arboricultural Impact
Assessment
-
10 March 2021

TREE SURVEY AND ARBORICULTURAL IMPACT ASSESSMENT

Quality Management

Quality Management

Version	Status	Authored by	Reviewed by	Approved by	Review date
-	For Planning	AB	DC	DC	March 2021

File/Model Location

Document location: P:\3200 Series\JSL3292 - Yapton\Report

Model / Appendices location:

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1 INTRODUCTION

- 1.1 This Tree Survey and Arboricultural Impact Assessment (AIA) has been prepared by RPS on behalf of Redrow Homes to support the planning application for proposed development on land accessed from Ford Lane, Yapton, Arundel. This report focuses specifically on the western boundary of the site where proposed temporary access vehicle swept path is to be constructed.
- 1.2 A tree survey of the application area was carried out by RPS on 9th May 2019 in accordance with the requirements of BS5837:2012. Refer to Tree Constraints Plan JSL3292_800 (Appendix B). The weather was heavy rain and light winds with some periods of sun.
- 1.3 This report has been prepared in broad accordance with the requirements set out in BS5837:2010 '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 Protection and Removal Plan to detail the proposed protective measures to be taken in respect of the trees during development of the site.
- 1.5 The Tree Protection and Removal Plan JSL3292_810 included at Appendix C identify the following:
- Trees to be retained;
 - Alignment and design of protective fence;
 - Root Protection Area (RPA) of trees;
- 1.6 The Tree Protection and Removal 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 with regard to 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.

2 SITE LOCATION

- 2.1 The survey covered an area of land located south of Ford Lane, Yapton, Arundel. Yapton is a small rural village in the Arun District of West Sussex, England. This report focuses on the western boundary of the main site, where the proposed temporary access vehicle swept path will be constructed.
- 2.2 The site is accessible via public footpaths from Ford Lane and Church Lane.
- 2.3 The survey site is situated to the north of Yapton comprises of agricultural land surrounded by hedgerows, shelter belt trees and screening trees in the adjacent residential and commercial properties.
- 2.4 The wider landscape comprises of the remainder of Yapton village, with a semi-rural character.
- 2.5 The superficial geology of the site is river terrace deposits – sand, silt and clay. The bedrock geology is Lewes nodular chalk foundation as describes in the British Geological Survey application version 5.0.4. No detailed analysis of the soil structure, composition or pH was undertaken.
- 2.6 The soilscape of the area typically consists of 'Freely draining, slightly acidic and loamy soils.'²

² *Magic.gov.uk*

3 SURVEY METHODOLOGY

- 3.1 This report has been authored by Alice Brown, an associate member of the Arboricultural Association and Graduate Arboriculturalist of RPS group and authorised by David Cox, a professional member of the Arboricultural Association and Chartered Landscape Architect of RPS Group. The tree survey was undertaken by Oliver Coleman, FdSc Arb, HND Arb and professional member of the Arboricultural Association.
- 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 recommendation 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 tree in relation to their structural condition, decay, and any other physical and pathogenic defects. However, a full post development tree inspection is recommended to establish that the trees retained during construction pose acceptable levels of risk once the development has been completed.
- 3.4 Trees were not climbed or inspected below ground level and inaccessible trees will have best estimates made about the location, physical dimension and characteristics.
- 3.5 The location of the trees is based on a topographic survey (Ref. 26436 R1) produced by MK Surveys in January 2019.
- 3.6 The survey assesses individual trees and groups of trees for quality and benefits within the contents 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 paragraph 3.8. These categories have been differentiated on the Tree Constraints Plan JSL329_800 by colours.
- 3.7 The survey information was recorded on the attached schedule (Appendix A) in general accordance with the guidance contained within Section 4 of BS 5837:2012 "Trees in Relation to Design, Demolition and Construction – Recommendations".
- 3.8 The information recorded is detailed in Table 3.1.

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Table 3.1 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 survey plan. # - denotes inaccessible trees (best estimates are made about the location, physical dimensions and characteristics.)			
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)		

3.9 It is recommended that further arboricultural assessments be undertaken in order to assess the full health and safety of all trees which may possess structural or pathogenic conditions.

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Limitations

- 3.10 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.
- 3.11 Trees and woody vegetation were not assessed for their potential impact upon future construction issues such as foundation designs (re: NHBC chapter 4.2)³. 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.
- 3.12 Trees are dynamic, living organisms and respond rapidly to changes in their environment. The tree conditions cannot be assumed to remain unchanged.
- 3.13 Newly planted crops in the fields limited access to public rights of way only. Trees along the eastern and western boundaries were viewed from site side only or were assessed from distance where they are located on private property.

³ NHBC. 'Chapter 4.2- Building Near Trees'. NHBC Standards 2016.

4 APPRAISAL AND RECOMMENDATIONS

Generally

- 4.1 This report focuses on the construction of the 'Temporary access vehicle swept path' which is located across the north-west boundary. The structural condition of applicable trees varied between fair and good. In the main, individual condition is largely consistent with expectation for the age, management, and species.
- 4.2 The applicable trees and tree groups consist of Common Hawthorn, Sycamore and Leyland Cypress. These trees add some amenity value to the area.
- 4.3 In the wider context of the site, the most significant trees surveyed are along the east of site, consisting of English oak and sycamore. The trees were noted to be predominantly mature and in varying condition. The trees along this boundary also have varying levels of deadwood, some of which are a significant size and could pose a hazard if the area is to be regularly populated. It is recommended that these trees should have the dead wood removed prior to work starting on site.

Planning considerations

- 4.4 The Arun District Council website confirmed that there are Tree Preservation Orders currently in place (reference TPO/Y/2/17), covering the majority of trees within the site. See Appendix E)
- 4.5 Trees covered by a Tree Preservation Order are protected under the Town and Country Planning Act 1990 (Trees Regulation 2012) and the local authority must be consulted, and permission sought for any works that may affect them.
- 4.6 None of the trees protected by TPO upon the site will be removed as part of the proposed development, nor will any protected trees be harmed by the development. All trees covered by TPO will be protected during the works.
- 4.7 The site is not within the Conservation Area.
- 4.8 Ancient woodlands: A desktop investigation using the Magic Maps application² confirmed that there are no ancient woodlands within or bordering the survey site.
- 4.9 The Hedgerows Regulations 1997 were made under Section 97 of the Environmental Act 1995 and came into operation in England and Wales on 1 June 1997. The regulations provide important protection by prohibiting the removal of most countryside hedgerows (or parts of them) without first notifying the local planning authority (LPA). Removal includes acts which could result in the destruction of a hedgerow.
- 4.10 Care is needed regarding the retention of large, mature trees which become enclosed within the new development. Where such trees are retained, adequate space should be allowed for their long-term physical retention and future maintenance.
- 4.11 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.

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- 4.12 Regarding a particularly valuable tree with serious structural faults it may be decided it be retained and the proximity of the target to the tree be reduced. This could be achieved by retaining or encouraging the formation of physical barriers (e.g. dense bramble or Holly understory) to deter direct access.
- 4.13 Trees can offer many benefits, including the provision of visual amenity, softening or complementing the effect of the built environment, and adding maturity to new developments 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.
- 4.14 Existing trees on development sites, if included into plan, can offer many benefits, including the provision of visual amenity, softening or complementing the effect of the built environment, and adding maturity and value to new developments.
- 4.15 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. Enough space should be provided for species with significant stature to grow out into maturity.
- 4.16 Trees may have the potential to provide valuable habitat for significant and/or/ protected species. It is therefore recommended that this report is read in conjunction with the ecology surveys for the site.

Design and Site Layout Considerations

- 4.17 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. Prior to any adjustment of the trees RPA zones the changes should be assessed by an arboriculturalist. During any site planning exercises the current and future growth potential of the trees should be considered.
- 4.18 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 (Annex C).
- 4.19 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.
- 4.20 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.
- 4.21 If some form of construction has to 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.

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- 4.22 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.
- 4.23 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 with regard to obstruction, shading, leaf fall and root action. These are problems that can be managed provided sufficient space is allowed for.

Services

- 4.1 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.
- 4.2 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 take into account 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 with regard to obstruction, shading, leaf fall and root action. These are problems that can be managed provided sufficient space is allowed for.
- 4.3 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 Arboriculturalist.
- 4.4 Further advice can be found in NJUG Volume 4- "Guidance for the planning, installation and maintenance of utility services in proximity of trees".

Trees and Management of Health and Safety

- 4.5 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 with regard to the Tree Protection measures detailed within this report.
- 5.6 In general, it can be seen that, by adopting appropriate methods of working, precautionary and protective measures, significant harm to retained trees can be avoided.
- 5.7 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.
- 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 report relates to the following:
- Temporary access vehicle swept path

Identified Tree Removal and Specific Works

- 5.11 In order for this development to be realised, removal of G5 and S2 is required.

Root Protection Areas

- 5.12 Following the erection of tree protective fencing, the proposed development will take place outside of the RPA of all the trees to be retained.

Outline methodology within Root Protection Areas

- 5.13 All new (and existing re-routed) services shall be routed outside the existing or potential RPA 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)⁴.
- 5.14 Details of Tree Protection Fencing and ground protection are detailed in the following section of this document.
- 5.15 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.
- 5.16 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.
- 5.17 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 take into account 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 with regard to obstruction, shading, leaf fall and root action. These are problems that can be managed provided sufficient space is allowed for.
- 5.18 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 3998:2010. 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.

⁴ <http://streetworks.org.uk/wp-content/uploads/4-Trees-Issue-2-16-11-2007.pdf>

6 TREE WORKS

Standard of Work

- 6.1 All tree works shall be carried out in accordance with BS3998:2010 and latest arboricultural best practice.
- 6.2 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.
- 6.3 All green and woody waste generated by the tree works shall be removed from site and disposed of in an environmentally sustainable manner.
- 6.4 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.
- 6.5 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.
- 6.6 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

- 6.7 All tree works, and tree protection measures shall be completed prior to commencement of any construction and enabling works on the site.
- 6.8 Selective pruning shall be undertaken with regard to the phenological cycle of trees, i.e. when energy reserves are highest; generally observed to be late winter before budburst (optimal), or mid-summer before leaf drop, dependent on species.
- 6.9 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.
- 6.10 Similarly bats and bat roosts are also protected by law and the advice of an ecologist should be sought prior to removing any trees. All works shall be timed to have regard to the phenological cycles of protected species that are associated with trees; notably birds and bats.

7 TREE PROTECTION MEASURES

Construction Exclusion Zone

- 7.1 The Construction Exclusion Zone (CEZ) shall be defined by the protection fence line as shown on the Tree Protection and Removal Plan JSL3292_810.
- 7.2 The tree protection fence shall be erected prior to any works commencing on site (including site clearance and enabling works) and shall remain in place until after all construction activities have been completed and then only with the prior approval of the arboricultural consultant.
- 7.3 This CEZ shall not be disturbed, and the protective fencing shall not be moved or taken down at any time. In order for the temporary access vehicle swept path to be constructed, fencing will be installed to protect the CEZ of T25 and G6.
- 7.4 This report focuses on the western boundary of the main site, where the will be constructed.
- 7.5 Within the Construction Exclusion Zone there must be no mechanical digging or scraping, no alteration to existing ground levels including soil stripping, no earthworks, no handling or discharge of any chemical substance, concrete washings or of any fuels.
- 7.6 Vehicular or pedestrian access and the storage of any materials is prohibited within the CEZ.
- 7.7 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

- 7.8 The tree protection fence shall be erected as shown on the Tree Protection and Removal Plan (JSL3292_810) included with is report.
- 7.9 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.
- 7.10 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 Plan.
- 7.11 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.
- 7.12 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.
- 7.13 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. During tree removal, no

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wheeled or tracked machinery is to enter the area previously encompassed by tree protective fencing as shown in the Tree Protection Plan.

- 7.14 Copies of the Tree Protection Plan shall be placed in the site office for reference by all site staff.
- 7.15 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 at Appendix D. Signs must be replaced as necessary should they be removed or become illegible.
- 7.16 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 Protection Plan and that any relevant arboreal conditions attached to the planning consent have been met.

Site Compounds and Materials Stores

- 7.17 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.
- 7.18 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.
- 7.19 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.

Reporting

- 7.20 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.

8 CONCLUSIONS

- 8.1 A comprehensive tree survey has been completed on the site and its immediate surroundings. The survey was completed in accordance with BS5837:2012.
- 8.2 In order for this development to be realised, removal of G5 and S2 is necessary.
- 8.3 Tree protection fencing will be installed to protect the Construction Exclusion Zone of T25 and G6.
- 8.4 From an arboreal perspective, subject to the satisfactory implementation of the recommendations contained within report, it is considered that the proposed scheme has minimal impacts.

APPENDICES

Appendix A

Tree Survey Schedule JSL3292_850

Table 1: Tree Data Schedule

Tree No.	Species	Diameter (mm)*	Height	Crown Spread				Crown Height above Ground	First Major Branch Direction	Branch Height above Ground	Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
				N	S	E	W								
1	Crataegus monogyna	250	6	1.5	1.5	1.5	1.5	2.0	West	2.0	M	Fair	10-20	Deadwood in the crown of moderate extent. Restricted inspection due to access and vegetation.	C1
2	Quercus robur	70	3	0.5	1.5	0.5	0.5	0.5	West	0.5	Y	Good	40+	Tree is leaning at a 10angle in a Southdirection. Restricted inspection due to vegetation.	C1
3	Quercus robur	1270	20	10.5	8.0	9.0	7.0	2.5	South	5.0	M	Good	40+	Stem cavity of moderate extent. Pruning wounds to stem and crown. Deadwood in the crown of major extent. Crown cavity formed at 8.0metres. Crossing branches in crown. Previous branch failures noted. Cavity at wound 8m east. Historic limb loss	A1
4	Quercus robur	70	3	0.5	0.5	0.5	0.5	0.5	South	0.5	Y	Poor	20-40	Browning foliage. Numerous galls within crown	C1
5	Quercus robur	940	12	8.0	8.0	6.0	6.0	4.0	South	4.0	M	Fair	20-40	Basal Cavity of minorextent. Bark damage. Deadwood in the crown of major extent. Branch dieback of minor extent. Basal cavity to West probed to around 6cm. Large amount of deadwood and sparse canopy. Potentially in decline.	B1
6	Quercus robur	1220	14	6.0	7.0	10.0	6.0	0.5	West	2.5	M	Good	40+	Bifurcated stem formed at 3.0metres. Deadwood in the crown of moderate extent. Restricted inspection due to vegetation.	A1

* Where the tree is multi-stemmed the conventions within BS5837:2012 are applied

Tree No.	Species	Diameter (mm)*	Height	Crown Spread				Crown Height above Ground	First Major Branch Direction	Branch Height above Ground	Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
7	Quercus robur	980	14	5.0	8.0	10.0	7.0	4.5	East	2.5	M	Good	40+	Stem wounds. Deadwood in the crown of moderate extent. Previous branch failures noted.	A1
8	Quercus robur	950	14	10.0	4.0	10.0	7.0	2.0	South	2.0	M	Good	40+	Deadwood in the crown of moderate extent.	A1
9	Quercus robur	850	13	5.5	6.0	9.0	6.0	0.5	West	2.0	M	Good	40+	Deadwood in the crown of moderate extent. Wasp galls within crown	A1
10	Acer platanoides	227	10	5.0	4.0	4.0	5.0	1.0	North	0.5	EM	Good	20-40	Included main stem union.	B1
11	Sorbus intermedia	360	7	4.0	4.5	5.0	3.5	1.5	NW	1.5	EM	Good	20-40	Included branch union in the crown.	B1
12	Acer pseudoplatanus	1020	8	5.0	4.5	5.0	5.0	1.0	South	1.0	EM	Good	40+	Trifurcated stem formed at 1.5 metres.	A1
13	Acer pseudoplatanus	90	5	1.0	1.0	1.0	1.0	0.5	South	0.5	Y	Good	40+		A1

* Where the tree is multi-stemmed the conventions within BS5837:2012 are applied

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Tree Data Schedule
Page 2 of 5

Tree No.	Species	Diameter (mm)*	Height	Crown Spread				Crown Height above Ground	First Major Branch Direction	Branch Height above Ground	Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
14	Acer pseudoplatanus	1000	12	6.5	5.0	6.0	5.0	1.0	North	1.0	M	Good	40+	Included main stem union. Crossing branches in crown. Included branch union in the crown.	B1
15	Quercus robur	850	13	4.5	5.5	7.0	6.0	1.5	West	2.0	M	Good	40+	Deadwood in the crown of moderate extent. Crown cavity formed at 6.0metres. Restricted inspection due to ivy. Small cavity at 6m to West. Consider reduction of this limb.	A1
16	Crataegus monogyna	150	5	2.0	2.0	2.0	2.0	0.5	West	1.0	Y	Good	20-40	Restricted inspection due to ivy and vegetation.	B1
17	Ulmus sp.	150	5	2.0	2.0	0.5	2.0	0.5	NW	0.5	SM	Good	10-20	Restricted inspection due to ivy and vegetation.	C1
18	Ulmus sp.	200	6	2.0	2.5	2.0	-	0.5	West	0.5	SM	Good	10-20	Restricted inspection due to ivy and vegetation.	C1
19	Ulmus sp.	150	6	2.5	1.5	2.5	2.5	0.0	South	0.0	SM	Dead	<10	Restricted inspection due to ivy. Dead standing	U
20	Tilia x europaea	1070	12	8.0	8.0	8.0	8.0	0.0	South	0.0	M	Good	40+	Epicormics growth on base & stem. Deadwood in the crown of moderate extent.	A1

* Where the tree is multi-stemmed the conventions within BS5837:2012 are applied

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Tree Data Schedule
Page 3 of 5

Tree No.	Species	Diameter (mm)*	Height	Crown Spread				Crown Height above Ground	First Major Branch Direction	Branch Height above Ground	Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
21	Juglans regia	400	10	7.0	7.0	6.0	6.0	4.5	East	0.0	EM	Good	40+	Restricted inspection due to off site. Possible multi stemmed tree. Newly planted crops and off site access limit observations.	A1
22	Juglans regia	650	14	9.5	4.0	9.0	9.5	2.5	East	5.0	M	Good	40+	Restricted inspection due to off site. Located off site.	A1
23	Juglans regia	600	15	4.0	9.5	9.0	8.0	2.0	South	4.0	M	Good	40+	Restricted inspection due to off site. Located off site.	A1
24	Sambucus nigra	250	7	2.5	1.0	3.0	3.0	0.5	West	0.5	EM	Good	10-20	Restricted inspection due to off site. Located off site.	C1
25	Acer pseudoplatanus	340	10	6.0	5.0	6.0	5.0	2.5	SW	2.0	EM	Good	40+	Trifurcated stem formed at 3.5 metres. Included branch union in the crown. Restricted inspection due to off site. Located off site.	B1
26	Eucalyptus gunnii	350	11	4.0	4.0	4.0	4.0	2.0	NE	2.5	SM	Good	40+	Restricted inspection due to off site. Located off site.	A1
27	Malus sp.	400	7	5.0	5.0	5.0	5.0	3.0	South	3.0	M	Good	20-40	Restricted inspection due to off site. Located off site.	B1

* Where the tree is multi-stemmed the conventions within BS5837:2012 are applied

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Tree Data Schedule
Page 4 of 5

Tree No.	Species	Diameter (mm)*	Height	Crown Spread				Crown Height above Ground	First Major Branch Direction	Branch Height above Ground	Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
28	Cedrus atlantica	400	12	5.0	5.0	5.0	5.0	2.0	South	2.0	EM	Good	40+	Restricted inspection due to off site. Located off site.	A1
29	Acer pseudoplatanus	400	12	6.0	6.0	6.0	6.0	3.0	NE	2.5	EM	Good	40+	Restricted inspection due to access. Located off site.	A1
30	x Cupressocyparis leylandii	350	12	3.0	3.0	3.0	3.0	5.0	South	4.5	EM	Good	20-40	Restricted inspection due to access and vegetation. Located off site.	B1
31	Juglans regia	300	10	3.0	4.0	4.0	4.0	4.0	South	3.0	EM	Good	40+	Restricted inspection due to access and vegetation. Located off site.	A1
32	Crataegus monogyna	250	6	2.5	2.0	2.5	2.0	0.0	North	0.0	SM	Good	20-40	Restricted inspection due to ivy and vegetation. lower growth flailed hard back from road	C1

* Where the tree is multi-stemmed the conventions within BS5837:2012 are applied

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Tree Data Schedule
Page 5 of 5

Table 1: Group Data Schedule

Group No.	Species	Min/Max Diameter (cm)*		Average Height (m)	Average Crown Spread	Ave. Crown Height	Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
G1	Crataegus monogyna	0	20	4	1.5	3.5	M	Fair	20-40	Included stem unions present. Deadwood present of minor extent, Crossing branches,	B2
	Sambucus nigra										
G2	Ulmus sp.	15	40	9	3	0.5	SM	Good	10-20	Restricted inspection due to ivy. No trees display signs of DED at present.	C2
G3	x Cupressocyparis leylandii Chamaecyparis lawsoniana	30	60	15	7	0	M	Good	20-40	Off site tree group. Restricted inspection due to off site.	B2
G4	Crataegus monogyna	10	20	5	2	0.5	EM	Fair	20-40	Included stem unions present. Deadwood present of moderate extent,	C2

* Where the tree is multi-stemmed the conventions within BS5837:2012 are applied

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Tree Data Schedule
Page 1 of 2

Group No.	Species	Min/Max Diameter (cm)*		Average Height (m)	Average Crown Spread	Ave. Crown Height	Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
G5	Crataegus monogyna	10	30	8	2	0	EM	Good	20-40	Restricted inspection due to vegetation.	B2
G6	x Cupressocyparis leylandii	20	40	7	2	0.5	M	Fair	20-40	Restricted inspection due to vegetation.	B2
G7	x Cupressocyparis leylandii	10	25	4	1.5	0.5	EM	Good	20-40	Restricted inspection due to vegetation.	B2
G8	x Cupressocyparis leylandii	20	40	12	3	0	EM	Fair	20-40	Restricted inspection due to vegetation.	B2
G9	x Cupressocyparis leylandii	15	30	4	1.5	0	EM	Good	20-40	Restricted inspection due to vegetation.	B2

* Where the tree is multi-stemmed the conventions within BS5837:2012 are applied

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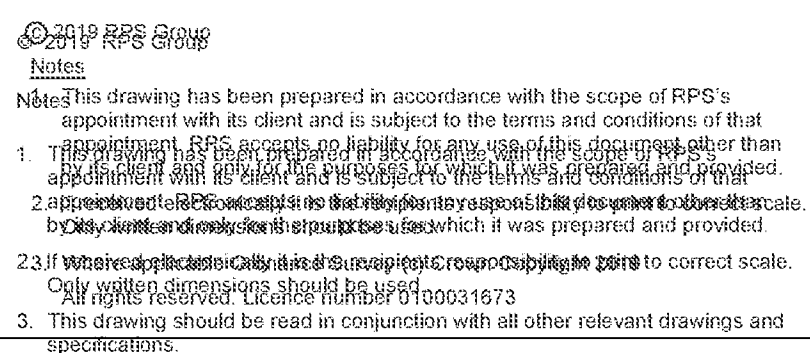
Tree Data Schedule
Page 2 of 2

Table 1: Woody Scrub / Individual / Hedge Areas

Section No.	Species	Height (m)	Comments
S1	Crataegus monogyna Rubus sp.	3.0	Hedgerow section.
S2	Rubus sp.	3.5	Bramble mass on boundary.
S3	Ulmus sp. Rubus sp.	4.0	Clump of elm and bramble in corner of field.
S4	Prunus laurocerasus	2.0	Laurel hedge section.
S5	Sambucus nigra	4.5	Elder hedgerow section.

Appendix B

Tree Constraints Plan JSL3292_800



 Tree with numbered reference.
 Canopy spread and BS5837:2012 tree quality category as shown below.

 Vegetation group with numbered reference.
 Canopy extents and BS5837:2012 tree quality category as shown below.

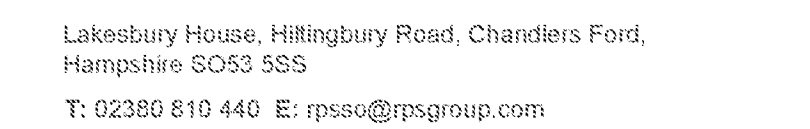
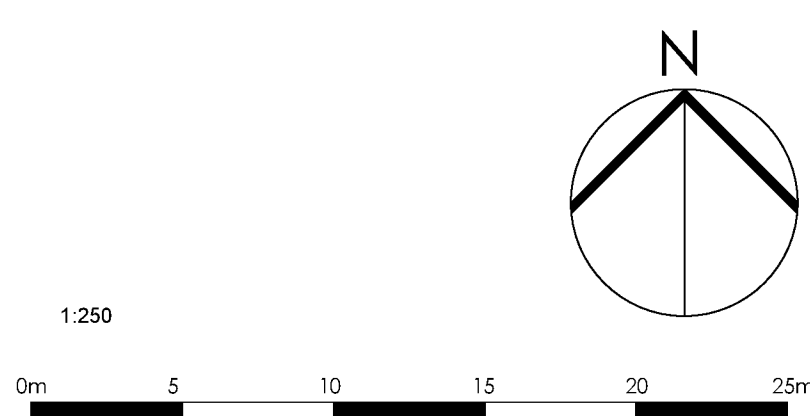
 Scrub/Hedge with numbered reference.

12 Tree Quality Categories - Table 1

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

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.
- Plans 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 produced by the MKSURveys in January, 2019.
- Tree Groups are shown as a graphical representation of tree area and density and do not purport to show tree positions on the ground and should be used as such.

Project Ford Lane
Yapton

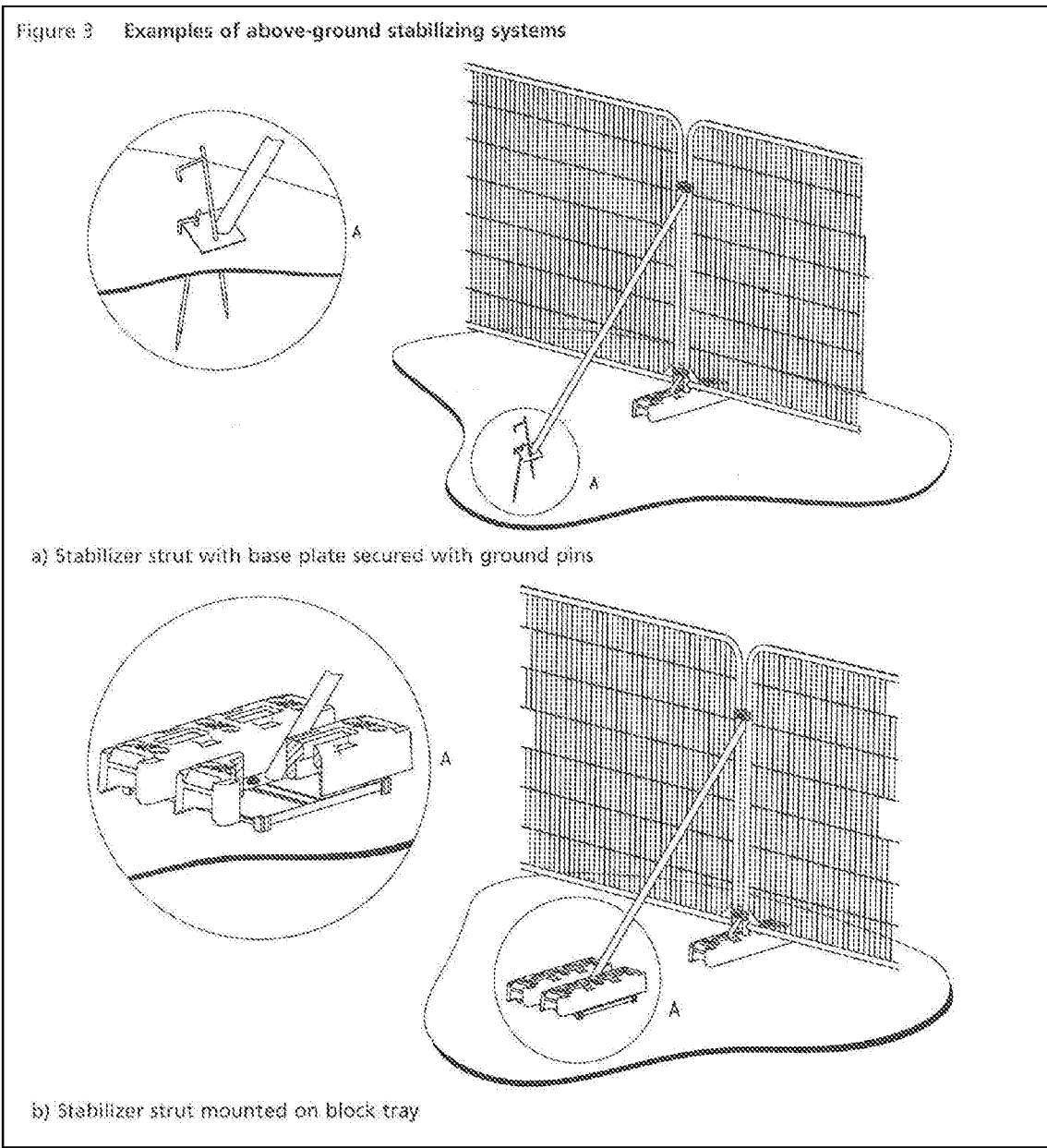
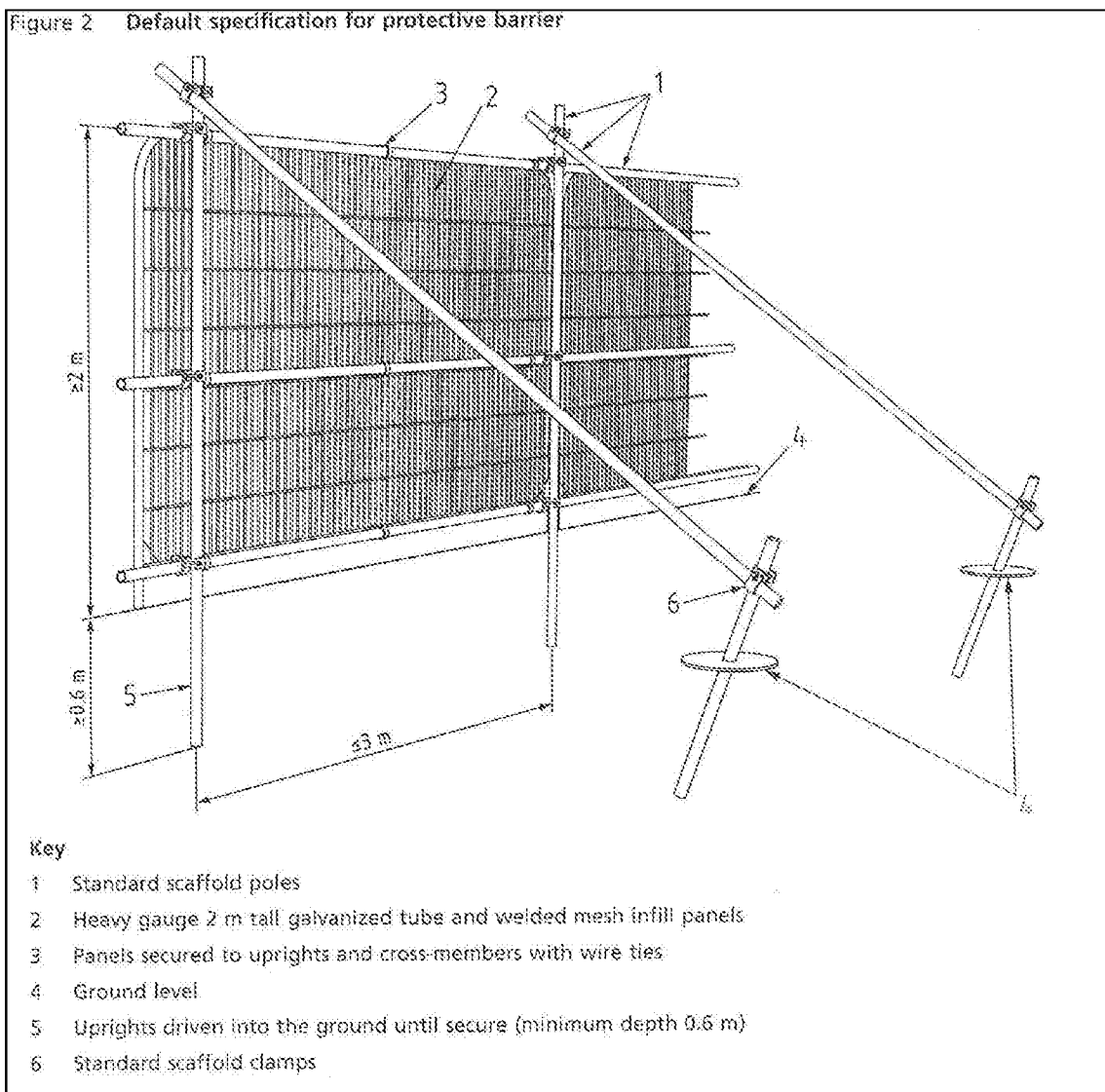
Status	Drawn By	PM/Checked by
For Information	AB	DC

RPS Drawing / Figure Number
800

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Appendix C

Tree Protection and Removal Plan JSL3292_810



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Notes

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Key

- Tree with numbered reference. Canopy spread and BS5837:2012 tree quality category as shown below.
- Vegetation group with numbered reference. Canopy extents and BS5837:2012 tree quality category as shown below.
- Scrub/Hedge with numbered reference.
- Tree with numbered reference to be removed to facilitate the development.
- Scrub/Hedge with numbered reference to be removed to facilitate the development.

BS 5837:2012 Tree Quality Categories - Table 1

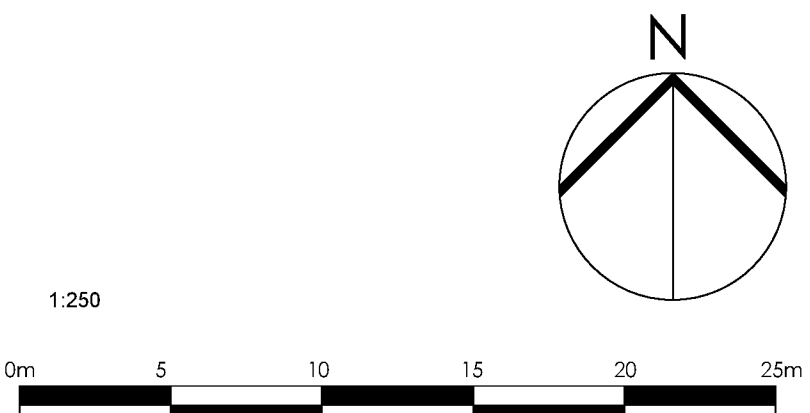
- Category A - High quality
- Category B - Moderate quality
- Category C - Low quality
- Category U - Unsuitable for retention

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

Temporary protective fencing in accordance with Section 6.2 - BS5837:2012. See inset details for example barriers. CR tree protection barrier provided by site hoarding fence.

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 produced by the MMSurveys in January 2019.
- Tree Groups are shown as a graphical representation of tree area and density and do not purport to show tree positions on the ground and should not be used as such.



Rev	Description	By	CB	Date
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Client **Redrow Homes Limited**

Project **Ford Lane Yapton**

Title **Tree Removal and Protection Plan**

Status **For Planning** Drawn By **AB** PM/Checked by **DC**

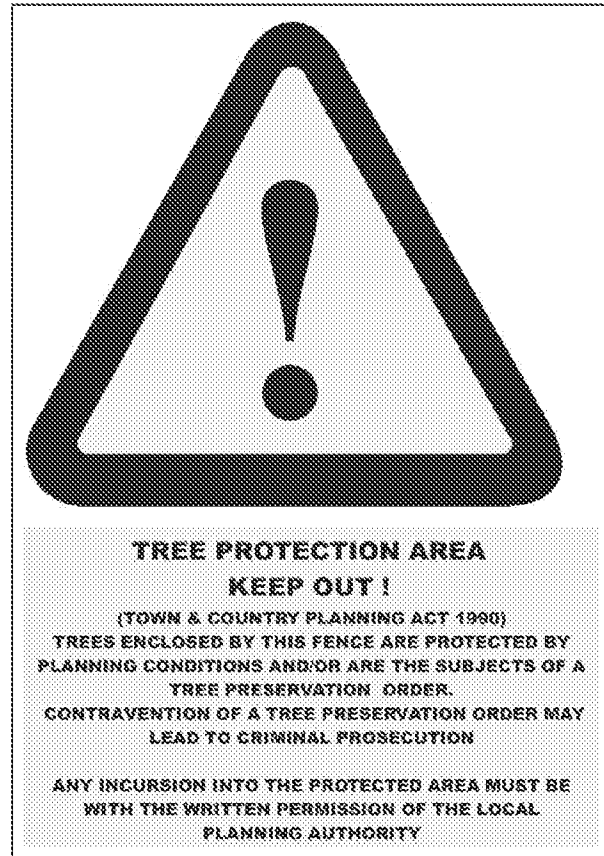
Job Ref **JSL3292** Scale @ **A0** Date Created **March 2021**

RPS Drawing / Figure Number **810** Rev

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Appendix D

Construction Exclusion Zone (CEZ) Signage



Arun DC: TPO details

