

ARUNDEL ROAD, ANGMERING

Tree Survey & Arboricultural Implications Appraisal



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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 Limited to support the application for development on a parcel of land located to the west of Arundel Road, Angmering.
- 1.2 A tree survey of the application area was carried out by RPS on 2nd February 2021. Refer to Tree Survey Plan JSL3924_700 (Appendix B). The weather conditions were bright and clear.
- 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 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 JSL3924_710 included at Appendix C identifies 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 INFORMATION

- 2.1 The survey covered a parcel of land west of Arundel Road, Angmering. The survey site is centred on OS grid reference TQ06500534.
- 2.2 Angmering is a village between Littlehampton and Worthing in West Sussex.
- 2.3 The survey site consists of an open paddock, bordered by scattered trees and hedgerows to the west and south. Part of the site consists of a mixture of light industrial and storage type units.
- 2.4 To the south of the site lies Angmering Sports & Social Club, and open fields to the west. A mature, mixed woodland forms the sites northern boundary. The site is located approximately 250m south of the A27 and 1.5 miles north of Angmering train station.
- 2.5 The soilscape of the area typically consists of 'Loamy soils with naturally high groundwater.'²

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

3 SURVEY METHODOLOGY

- 3.1 This report was authored by David Cox, a professional member of the Arboricultural Association and Chartered Landscape Architect of RPS Group.
- 3.2 The report and survey were carried out in general accordance with the requirements set out in BS 5837:2012 "Trees in Relation to Design, Demolition and Construction – Recommendations".
- 3.3 The tree survey involved a visual inspection from the ground of individual specimens and groups of trees in order to record their amenity value, management recommendations and dimensions. Where observed, the general condition of all trees has been noted. The survey does not constitute a full arboricultural condition assessment involving the detailed inspection of trees in relation to their structural condition, decay, and any other physical and pathogenic defects.
- 3.4 The locations of the trees were based upon topographic survey (ref: 2017-084) provided by the client in January 2021.
- 3.5 The survey assesses individual trees and groups of trees for quality and benefits within the context of proposed development. The quality of each tree or group of trees has been recorded by allocating it to one of four categories as described in table 3.1. These categories have been differentiated on the tree survey Drawing JSL3924_700 (Appendix B) by colours.
- 3.6 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".
- 3.7 The information recorded includes the following-

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	(Young)	OM (Over-mature)
		SM	(Semi-mature)	V (Veteran)
		EM	(Early-mature)	D (Dead)
		M	(Mature)	
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.

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 were not climbed or inspected below ground level and inaccessible trees will have best estimates made about the location, physical dimensions and characteristics. Where direct access to trees was difficult a '#' denotes this within the Tree Survey Schedule (JSL3924_750 - Appendix A).
- 3.12 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.

4 APPRAISAL AND RECOMMENDATIONS

Generally

- 4.1 In general, trees appear to be young, in good to fair health. 20nr. individual trees, 13nr. tree group, 2nr. hedges and 2nr. woodland was recorded. The majority of trees were located offsite or following the sites boundary.
- 4.2 There was some diversity in the site, with Common Ash, Lombardy Poplar and Goat willow being abundant.
- 4.3 The most significant arboreal featured surveyed was located across the northern boundary. This comprised a mature woodland, which provides much skyline presence and habitat value to the site.
- 4.4 Following the sites southern boundary, a mixture of middle-aged trees provided some screening and habitat value. This group includes Alder, Ash, Sycamore and Aspen. Mostly prominent were a mature group of Italian Poplar in the sites far south western corner.
- 4.5 Within the internal areas of the site the trees and vegetation largely consisted of low quality, scrubby vegetation including Elm, Ash, Elder and Hawthorn.
- 4.6 Two category A trees were recorded in this survey, these comprise two mature Oak, listed as T14 & T15.

Planning considerations

- 4.7 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 are not exempt from the regulations.
- 4.8 The survey site falls under the Arun District Council. It was confirmed by via their online mapping portal (https://arun.cloud.cadcorp.com/Webmap/Map.aspx?mapName=Public_TPO) that there is a TPO which lies along the site's western boundary (Reference TPO/A/2/19), this protects two individual oak trees (ref T14 & T15).
- 4.9 Using the Arun DC mapping portal was also confirmed that the site is not located within a Conservation Area.
- 4.10 A desktop investigation of this site using the 'magic maps application' confirmed that no trees within the site boundaries are identified as ancient woodland.
- 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. Particular 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.

- 4.12 Trees and Ivy 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

- 4.13 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.
- 4.14 The RPA for single stem trees broadly equates to a radius 12 times the stem diameter of the tree at 1.5m above ground level or the extent of canopy spread, whichever is the greater. For multi-stemmed, low branching trees or those with trunks with an irregular girth the point of stem diameter measurement is adjusted in consideration of these factors and in accordance with the illustrations in BS5837:2012 (Appendix C).
- 4.15 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.
- 4.16 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.
- 4.17 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.
- 4.18 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 trees larger roots.
- 4.19 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.

Services

- 4.20 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 trees larger roots.
- 4.21 Further advice can be found in NJUG Volume 4 - "Guidance for the planning, installation and maintenance of utility services in proximity of trees" ³.

³ <http://streetworks.org.uk/wp-content/uploads/V4-Trees-Issue-2-16-11-2007.pdf>

Trees and Management of Health and Safety

- 4.22 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, above and below ground, 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 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.
- 5.4 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.
- 5.5 In general by adopting appropriate methods of working, precautionary and protective measures, significant harm to retained trees can be avoided. 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.

Brief Description of Proposed Development

- 5.6 This report relates to the following:
- New residential housing and associated works
 - Public open space areas
 - Commercial area (in outline)

Identified Tree Removal and Specific Works

- 5.7 For this development to be realised a series of low-quality trees and shrub groups will require removal, including T1, T3#, T16, T17, T18, T19, T20#, G5, G6, G12 and G13. Additionally, partial removal of G11 is required.
- 5.8 W1 and G10 require minor crown lifting works to offer 4.0m headroom to provide construction space. The trees that are located offsite, however their canopies over sail the sites ownership boundary. The woodland which lies north of the site includes a number of individual trees with a shrubby understory. Many of the individual trees have a southerly bias to their canopies, so part of the works will seek to rebalance these crown forms. All works will seek to maintain a nature form to the trees.
- 5.9 The off-site group referenced as G9 will also be 'faced back' to provide clear construction space.
- 5.10 All works will be completed in accordance with BS3998:2020 Tree Works⁴.

⁴ <https://shop.bsigroup.com/products/tree-work-recommendations/standard>

Root Protection Areas

- 5.11 The root protection areas (RPA) of all retained trees will be protected via temporary protection fence. Some minor earthworks will extend into the outer limits of H1 and W1, however the extent of these earth works is minor in terms of the trees/hedgerows total retained RPA zones.
- 5.12 The construction of garden fences within the RPAs of retained trees will require hand dug post holes, lined with a non-permeable layer to prevent damage to roots by concrete leaching into the soil. If significant roots above 25mm in diameter are discovered, post holes are to be relocated locally to prevent damage. It can also be noted that the construction of these fences are to take place in the landscaping phase once the main construction has taken place and tree protection fencing has been removed and machinery is not present.

6 OUTLINE TREE PROTECTION MEASURES

Construction Exclusion Zone

- 6.1 The Construction Exclusion Zone (CEZ) shall be defined by the protection fence line as shown on the Tree Protection and Removal Plan JSL3924_710.
- 6.2 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.
- 6.3 This CEZ shall not be disturbed, and the protective fencing shall not be moved or taken down at any time.
- 6.4 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.
- 6.5 Vehicular or pedestrian access and the storage of any materials is prohibited within the CEZ.
- 6.6 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 tree's crown.

Tree Protection Fencing

- 6.7 The tree protection fence shall be erected as shown on the Tree Protection and Removal Plan (JSL3924_710) included with this report.
- 6.8 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.
- 6.9 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.
- 6.10 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 E.
- 6.11 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.
- 6.12 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 wheeled or tracked machinery is to enter the area previously encompassed by tree protective fencing as shown in the Tree Protection Plan.

- 6.13 Copies of the Tree Protection Plan shall be placed in the site office for reference by all site staff.
- 6.14 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.
- 6.15 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

- 6.16 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.
- 6.17 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.
- 6.18 Under no circumstances shall materials or plant be stored beneath the canopy or within or abutting the Root Protection Zone of any retained trees/hedges, whether fenced or not.

Monitoring

- 6.19 Following erection of the protective fencing and prior to commencement of the development an inspection of the site, by either the Council's Tree Officer and/ or the appointed Arboricultural Consultant, should be arranged to confirm fencing has been installed in accordance with the Tree Protection Plan JSL3924_710 and any relevant conditions that may be attached to a grant of planning consent for the development.
- 6.20 Further monitoring visits shall be carried out following implementation of the works on site, ideally on at least a monthly basis.

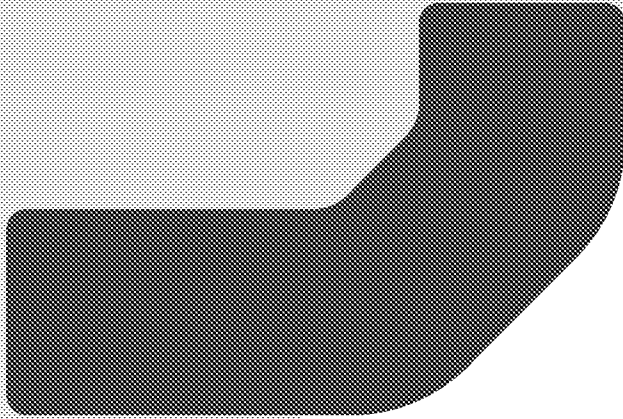
Reporting

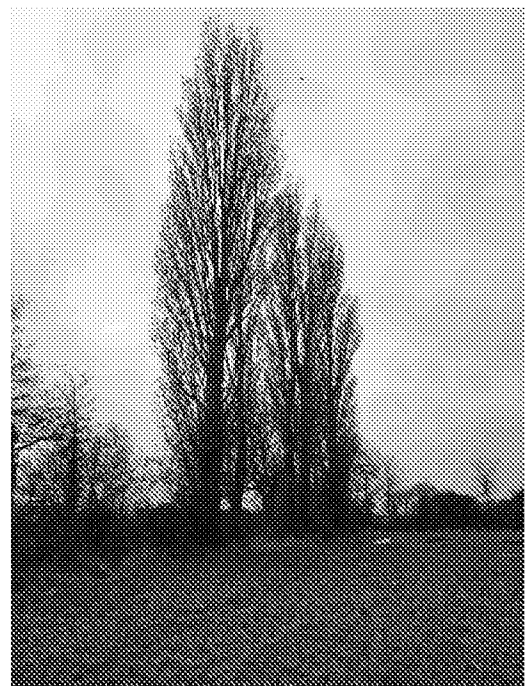
- 6.21 Should any arboricultural issues become apparent during the works the site manager should immediately contact the Arboricultural Consultant or the Council's Tree Officer for advice upon how to proceed.

8 CONCLUSIONS

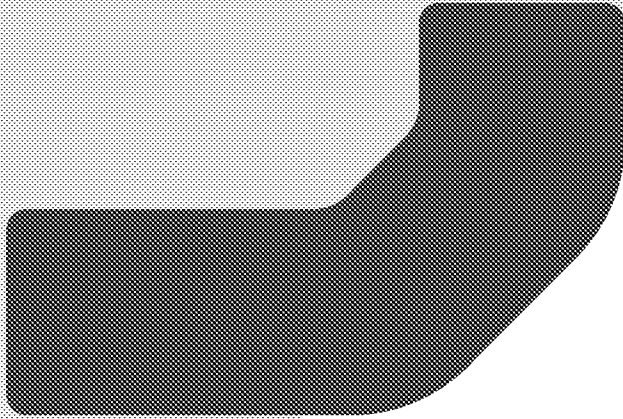
- 8.1 A comprehensive tree survey has been completed on the site and its immediate surroundings. The survey was completed in accordance with BS5837:2012.
- 8.2 For this development to be realised low quality trees and shrub group only will require removal. These all comprise Category C (BS5837: Table1) vegetation.
- 8.3 Partial removal of G11 is required.
- 8.4 W1 and G10 require minor crown lifting works to offer 4.0m headroom to provide construction space. These works will seek to retain a natural form to the trees and will be completed in accordance with recognised standards (B3998:2010).
- 8.5 Tree protection fencing will be installed to form a Construction Exclusion Zone around all retained vegetation.
- 8.6 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 on trees and woodlands.

SITE PHOTOGRAPHS





APPENDICES



Appendix A Tree Survey Schedule

Tree Survey Schedule

Site Land at Arundel Road, Angmering
 Project schedule ref: JSL3924_750
 Drawing reference: JSL3924_700
 Survey date: 02/02/2021

Surveyor: D Cox
 Status: For comment
 Revision: .
 Notes:



Ref no	Species	Height (m)	Crown spread (m)				Stem dia. (m)	Stem no. at 1.5m	Height of crown clearance (m)	Dir/ height	Age class	Structural condition	Physiological condition	General observations Management recommendations	Estimated remaining contribution (years)	Tree Quality Category (BS5837)
			N	E	S	W										
1	Fraxinus excelsior, Crataegus monogyna Common Ash, Common Hawthorn	5.0	2.0	3.0	2.0	3.0	0.20	Var	3.00	S	MA	Fair	Fair	Ash/thorn beside access road.	+ 20	C2
2	Fraxinus excelsior Common Ash	4.0	1.0	1.0	1.0	1.0	0.1 x2	2.00	2.00	-	Y	Good	Good	Young, twin stem Ash.	+ 10	C2
3	Fraxinus excelsior, Salix fragilis, Prunus sp. Common Ash, Crack Willow, Prunus sp.	3.0	1.0	1.0	1.0	1.0	Up to 0.1	1.00	-	-	Y	Good	Good	Small, unremarkable trees, self set.	+ 10	C2
4	Salix caprea Goat Willow	4.0	3.0	3.0	3.0	3.0	Ave 0.15	Var	1.00	-	M	Fair	Fair	Multistem, self set, scrubby.	+ 20	C3
5	Fraxinus excelsior Common Ash	5.0	5.0	3.0	2.0	3.0	Ave 0.15	Var	2.00	N	MA	Fair	Good	Self set , scrubby, ivy clad.	+ 10	C3
6	Populus nigra 'Italica' Lombarby Poplar	+20	2.0	4.0	2.0	2.0	0.70	1.00	2.00	-	M	Good	Good	Mature, skyline present, some ivy.	+ 20	B2
7	Populus nigra 'Italica' Lombarby Poplar	+18	2.0	2.0	2.0	2.0	0.40	1.00	2.00	-	MA	Good	Fair	Mature, skyline present, some ivy.	+ 20	B2
8	Quercus robur Pedunculate Oak	7.0	6.0	5.0	5.0	5.0	0.50	1.00	3.00	N	MA	Good	Good	Bifurcates at 1.6m.	+ 40	B2
9	Populus nigra 'Italica' Lombarby Poplar	+20	1.0	2.0	1.0	1.0	0.50	1.00	+4	-	MA	Good	Fair	Mature, skyline present.	+ 20	B2
10	Populus nigra 'Italica' Lombarby Poplar	+20	2.0	2.0	2.0	2.0	0.60	1.00	+4	-	MA	Good	Good	Mature, skyline present, some ivy.	+ 20	B2
11	Populus nigra 'Italica' Lombarby Poplar	+20	3.0	3.0	3.0	3.0	0.80	1.00	3.00	-	MA	Good	Good	Fine, mature tree, skyline present, some ivy.	+ 20	B2

Note: This survey is based on a brief visual inspection from the ground.
 It is not intended as a full arboricultural inspection.
 # - Indicates estimated tree. * - Indicates off site tree.

Tree Survey Schedule

Site Land at Arundel Road, Angmering
 Project schedule ref: JSL3924_750
 Drawing reference: JSL3924_700
 Survey date: 02/02/2021

Surveyor: D Cox
 Status: For comment
 Revision: .
 Notes:



Ref no	Species	Height (m)	Crown spread (m)				Stem dia. (m)	Stem no. at 1.5m	Height of crown clearance (m)	Dir/ height	Age class	Structural condition	Physiological condition	General observations Management recommendations	Estimated remaining contribution (years)	Tree Quality Category (BS4337)
			N	E	S	W										
12	Populus sp. Poplar sp.	14.0	4.0	4.0	4.0	4.0	0.20	1.00	2.00	-	Y	Good	Good	Younger Poplar in group	+ 20	C2
13	Salix caprea Goat Willow	5.0	4.0	4.0	3.0	3.0	0.30	1.00	1.00	-	M	Fair	Good	Low Willow, site on boundary.	+ 20	C3
14	Quercus robur Pedunculate Oak	6.0	6.0	5.0	7.0	5.0	0.5 0.6	2.00	3.00	E	M	Good	Good	Fine, low Oak. Ivy clad. Twin stem from ground level.	+ 40	A2
15	Quercus robur Pedunculate Oak	15.0	11.0	9.0	9.0	8.0	1.10	1.00	4.00	E	M	Fair/Good	Good	Superb, hedgerow Oak, recent bough failure, large branch laying on ground. Ivy clad. Some dead wood.	+ 40	A2/3
16	Fraxinus excelsior Common Ash	5.0	5.0	5.0	5.0	4.0	Ave 0.2	Est 5	1.00	-	MA	Good	Good	Multistem, set in rubble.	+ 10	C2
17	Fraxinus excelsior Common Ash	8.0	5.0	4.0	1.0	5.0	0.50	1.00	2.00	-	MA	Fair	Fair	Bias to north, lost leader.	+ 10	C2
18	Fraxinus excelsior x3 Common Ash	4.0	1.0	1.0	1.0	1.0	0.15	1.00	1.00	-	Y	Poor	Poor	Topped/hacked.	+ 10	C2
19#	Malus sp. Apple	5.0	4.0	4.0	4.0	5.0	0.2 0.25	2.00	1.50	-	M	Good	Good	Garden tree, low form.	+ 20	C3
20#	Thuja plicata, Quercus robur Western Red Cedar, Pedunculate Oak	12.0	6.0	6.0	6.0	6.0	Ave 0.2	-	-	-	M	Good	Good	Garden conifer group, Oak within centre.	+ 20	C2
G1	Ulmus, Fraxinus excelsior, Crataegus monogyna Elm, Common Ash, Common Hawthorn	5.0	See plan				Up to 0.25	Var	1.00	-	MA	Good	Fair	Scrubby group beside road, five larger Ash to western end.	+ 20	C2
G2	Fraxinus excelsior, Crataegus monogyna Common Ash, Common Hawthorn	6.0	See plan				Est 0.2	Var	2.00	-	MA	Good	Good	Off site group, scrubby.	+ 10	C2

Note: This survey is based on a brief visual inspection from the ground.
 It is not intended as a full arboricultural inspection.
 # - Indicates estimated tree. * - Indicates off site tree.

Tree Survey Schedule

Site Land at Arundel Road, Angmering
 Project schedule ref: JSL3924_750
 Drawing reference: JSL3924_700
 Survey date: 02/02/2021

Surveyor: D Cox
 Status: For comment
 Revision: .
 Notes:



Ref no	Species	Height (m)	Crown spread (m)				Stem dia. (m)	Stem no. at 1.5m	Height of crown clearance (m)	Dir/ height	Age class	Structural condition	Physiological condition	General observations Management recommendations	Estimated remaining contribution (years)	Tree Quality Category (BS5837)
			N	E	S	W										
G3	Prunus laurocerasus Cherry Laurel	3.0	See plan				Est 0.1	Var	0.00	-	MA	Good	Good	Laurel hedge.	+ 20	C2
G4	Fraxinus excelsior, Sambucus nigra, Ulmus sp., Populus tremula, Crataegus monogyna Common Ash, Elder, Elm sp., Aspen, Common Hawthorn	+15	See plan				Ave 0.2	Var	1.00	N	MA	Fair	Good	Off site, eastern bank on site boundary. Ash dominant, canopy over sails boundary area 5-6m. Screen value. Ivy clad.	+ 20	B2
G5	Fraxinus excelsior, Crataegus monogyna Common Ash, Common Hawthorn	4.0	See plan				Est 0.1	Var	0.00	-	M	Fair	Good	Scrubby thicket set beside fence.	+ 20	C3
G6	Acer pseudoplatanus, Crataegus monogyna, Cornus sanguinea Sycamore, Common Hawthorn, Common Dogwood	4.0	See plan				Ave 0.15	Var	0.00	-	M	Fair	Good	Scrubby group, Sycamore dominant, topped in past.	+ 20	C3
G7	Populus tremula, Fraxinus excelsior, Crataegus monogyna Aspen, Common Ash, Common Hawthorn	18.0	See plan				Up to 0.4	Var	2.00	N	M	Good	Good	Off site, skyline present, over sails boundary by 1-5m. Ivy clad.	+ 20	B2
G8	Alnus cordata Italian Alder	6.0	See plan				0.20	1.00	2.00	N	Y	Good	Good	Off site planted group, approx 3m centres	+ 40	B2
G9	Thuja plicata Western Red Cedar	8.0	See plan				Ave 0.3	Var	1.00	-	M	Good	Good	Off site conifer group.	+ 20	C2
G10	Eucalyptus gunnii Cider gum	20.0	See plan				Ave 0.4	Var	2.00	-	MA	Good	Good	Off site group, canopy arcs over boundary.	+ 20	C2
G11	Ulmus sp., Crataegus monogyna, Fraxinus excelsior Elm sp., Common Hawthorn, Common Ash	6.0	See plan				Est 0.15	Var	-	-	M	Fair	Fair	Scrubby, regeneration, Elm dominant.	+ 20	C3
G12	Ulmus sp., Prunus sp., Fraxinus excelsior, Salix caprea, Buddleja davidii Elm sp., Prunus sp., Common Ash, Goat Willow, Butterfly Bush	4.0	See plan				<0.1	-	-	-	M	Poor	Good	Dense, thicket and scrub.	+ 20	C3

Note: This survey is based on a brief visual inspection from the ground.
 It is not intended as a full arboricultural inspection.
 # - Indicates estimated tree. * - Indicates off site tree.

Tree Survey Schedule

Site Land at Arundel Road, Angmering
 Project schedule ref: JSL3924_750
 Drawing reference: JSL3924_700
 Survey date: 02/02/2021

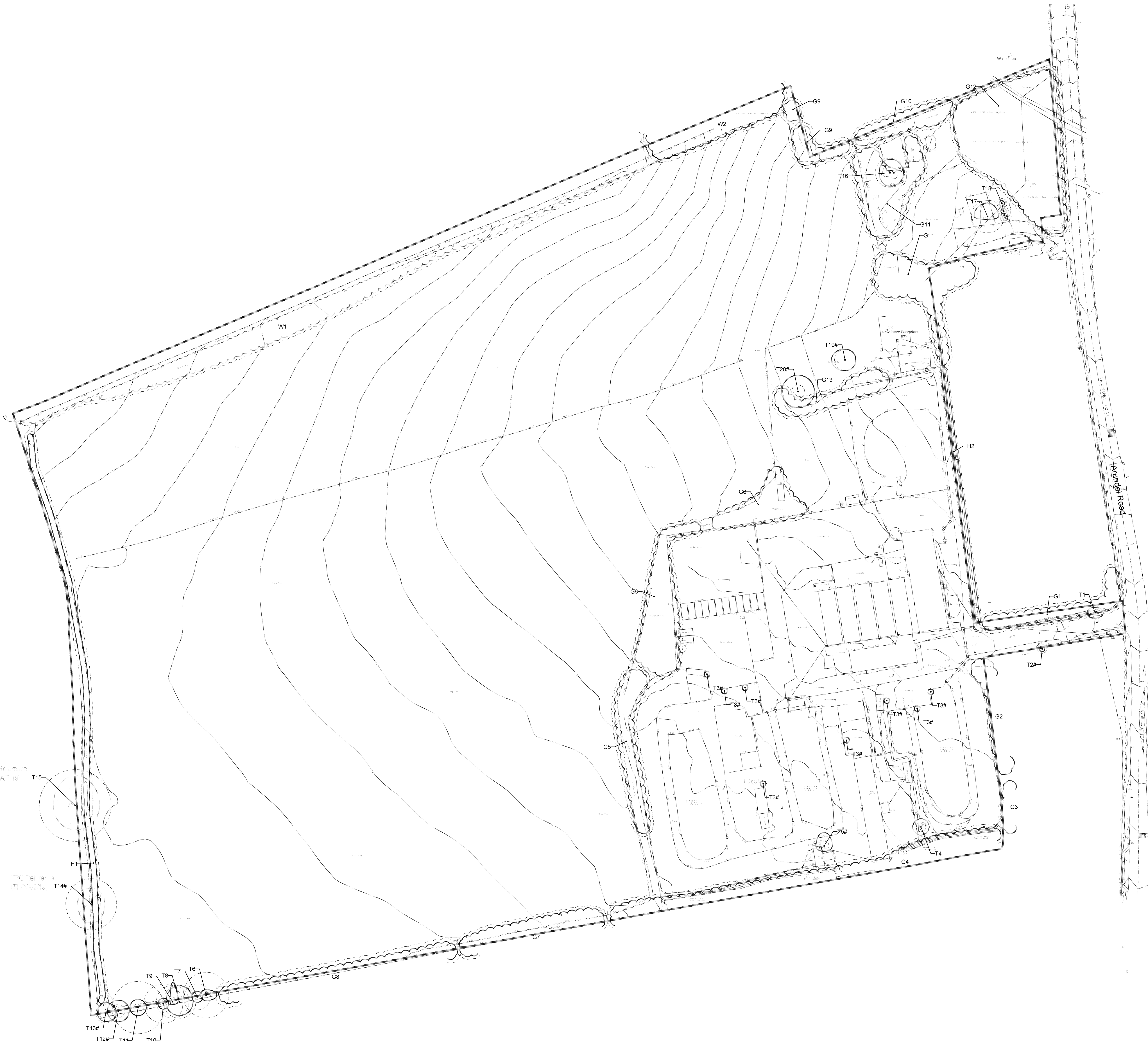
Surveyor: D Cox
 Status: For comment
 Revision: .
 Notes:



Ref no	Species	Height (m)	Crown spread (m)				Stem dia. (m)	Stem no. at 1.5m	Height of crown clearance (m)	Dir/height	Age class	Structural condition	Physiological condition	General observations Management recommendations	Estimated remaining contribution (years)	Tree Quality Category (BS5837)
			N	E	S	W										
G13	Prunus sp., Ulmus, Fraxinus excelsior Prunus sp., Elm, Common Ash	4.0	See plan				<0.15	-	-	-	M	Good	Good	Thicket by garden boundary.	+ 20	C2/3
H1	Crataegus monogyna, Quercus sp., Prunus sp. Common Hawthorn, Oak sp., Prunus sp.	3.0	See plan				Est 0.1	Var	-	-	M	Fair/Good	Good	Field hedge, broad, bramble dense at base.	+ 40	B2/3
H2	Thuja plicata, Fraxinus excelsior, Crataegus monogyna Western Red Cedar, Common Ash, Common Hawthorn	2.0	See plan				0.10	Var	.	-	M	Fair	Fair	Clipped hedge, some decline.	+ 10	C2
W1	Fraxinus excelsior, Quercus robur, Crataegus monogyna, Ilex aquifolium Common Ash, Pedunculate Oak, Common Hawthorn, Common Holly	20.0	See plan				Up to 0.8	Var	3.00	S	M	Fair/Good	Good	Fine, off site woodland, canopy bias over field. Ash in decline, some standing dead trees.	+ 40	A2/3
W2	Salix fragilis, Crataegus monogyna Crack Willow, Common Hawthorn	6.0	See plan				Ave 0.3	Var	0.00	-	M	Fair/Poor	Good	Willow copse, some in collapse.	+ 20	B3

Note: This survey is based on a brief visual inspection from the ground.
 It is not intended as a full arboricultural inspection.
 # - Indicates estimated tree. * - Indicates off site tree.

Appendix B Tree Survey Plan



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Notes:
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2. If received electronically it is the recipient's responsibility to print to correct scale. Only written dimensions should be used.
3. Where applicable Ordnance Survey (c) Crown Copyright 2021
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Key

- Survey boundary.
- Tree with numbered reference. Canopy spread and BS5837:2012 tree quality category as shown below.
- Tree (location estimated) with numbered reference. Canopy spread and BS5837:2012 tree quality category.
- Vegetation group with numbered reference. Canopy extents and BS5837:2012 tree quality category as shown below.
- Hedge with numbered reference. Width and BS5837:2012 tree quality category as shown below.

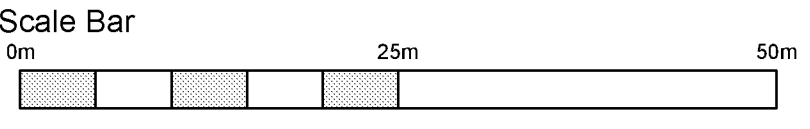
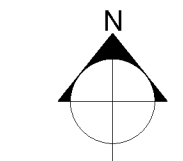
BS 5837:2012 Tree Quality Categories - Table 1

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

- Tree Preservation Order No.TPO/A/2. Bracketted number reference relates to the TPO Schedule.
- Root protection area (RPA) Calculated in accordance with Section 4.6 - BS5837:2012

NOTES:

- Notes 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 arboicultural 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 in 2020/21



Rev	Description	By	CB	Date
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MAKING COMPLEX EASY

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Client **Redrow Homes**

Project **Land at Arundel Road Angmering**

Title **Tree Survey**

Status	Drawn By	PMA/Checked by
Information	SH	DC

Job Ref	Scale @ A0	Date Created
JSL3924	1:500	Feb 2021

RPS Drawing / Figure Number	Rev
700	A

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01/02/2021 10:00:00

Appendix C

Tree Protection and Removal Plan



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Notes

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Key

- Survey boundary.
- Tree with numbered reference. Canopy spread and BS5837:2012 tree quality category as shown below.
- Tree (location estimated) 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.
- Hedge with numbered reference. Width and BS5837:2012 tree quality category as shown below.

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

- Tree Preservation Order No. TPO/A/2. Bracketed number reference relates to the TPO Schedule.
- 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.
- Temporary protective barrier, hi-vis mesh. See inset Detail C for an example of the barrier.
- Tree or vegetation group to be removed with numbered reference. Canopy spread and BS5837:2012 tree quality category as shown below.
- Vegetation to be 'faced back' to provide construction space, works to accord with BS3998:2010 - Tree Works
- Vegetation to be crown lifted to provide 4.0m headroom to provide construction space, works to accord with BS3998:2010 - Tree Works

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, Construction and Construction'.
- Due to the legal protection afforded to breeding birds, vegetation removal should not take place during the best nesting period, generally, although not restricted to, March - August inclusive.
- Survey based upon topographic survey produced in 08/2017

Scale Bar

0m 25m 50m

Figure 2: Detail specification for protective barrier

DETAIL A
Tree protection barrier
(Not to scale)

Key

- Standard scaffold pole
- Heavy gauge 2 m x 1 m galvanized tubes and curved mesh (not to scale)
- Pins secured to uprights and crossmembers with wire ties
- Ground level
- Scaffold secured into the ground until secure (minimum depth 500 mm)
- Standard scaffold clamp

Reproduced from BS5837:2012 (Fig. 2)

Figure 3: Examples of above-ground stabilizing systems

DETAIL B
Tree protection barrier
(Not to scale)

a) Stabilizer strut with base plate secured with ground pins

b) Stabilizer strut mounted on black tray

Reproduced from BS5837:2012 (Fig. 3)

DETAIL C
Secondary tree protection barrier
(Not to scale)

1. To identify trees and vegetation not immediately adjacent to construction works.
2. To identify trees and vegetation not immediately adjacent to construction works.
3. Erected using metal pins driven into the ground.

A	Updated to latest layout	JRL	DC	08/12/21
Rev	Description	By	Cb	Date

MAKING COMPLEX EASY

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Client: **Redrow Homes**

Project: **Land at Arundel Road Angmering**

Title: **Tree Removal & Protection Plan**

Status	Drawn By	PM/Checked by
Information	SH	DC

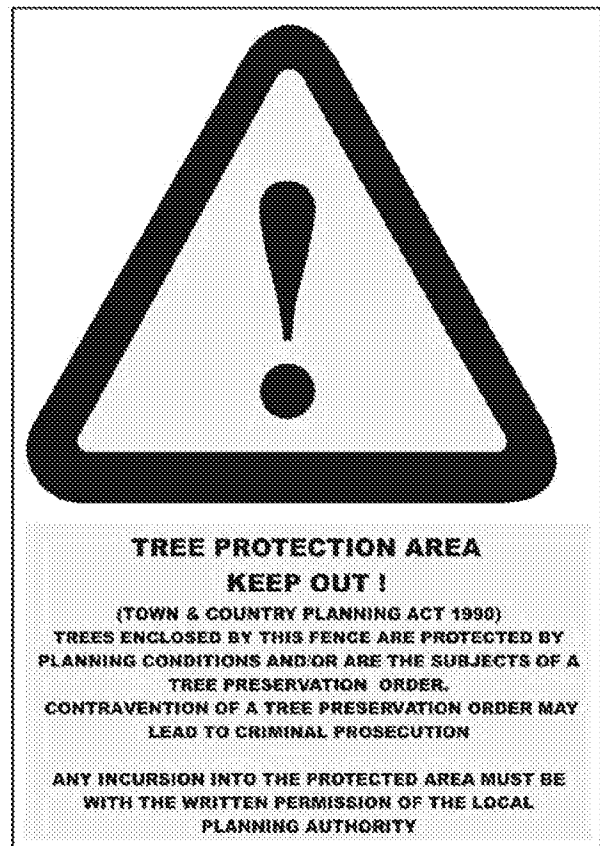
Job Ref: **JSL3924** Scale: **@ A0 1:500** Date Created: **Nov 2021**

RPS Drawing / Figure Number: **710** Rev: **A**

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Appendix D

Construction Exclusion Zone (CEZ) Sign (to be printed off and fixed to Tree Protective Fencing every 10m)



Appendix E

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

Figure 2 Default specification for protective barrier

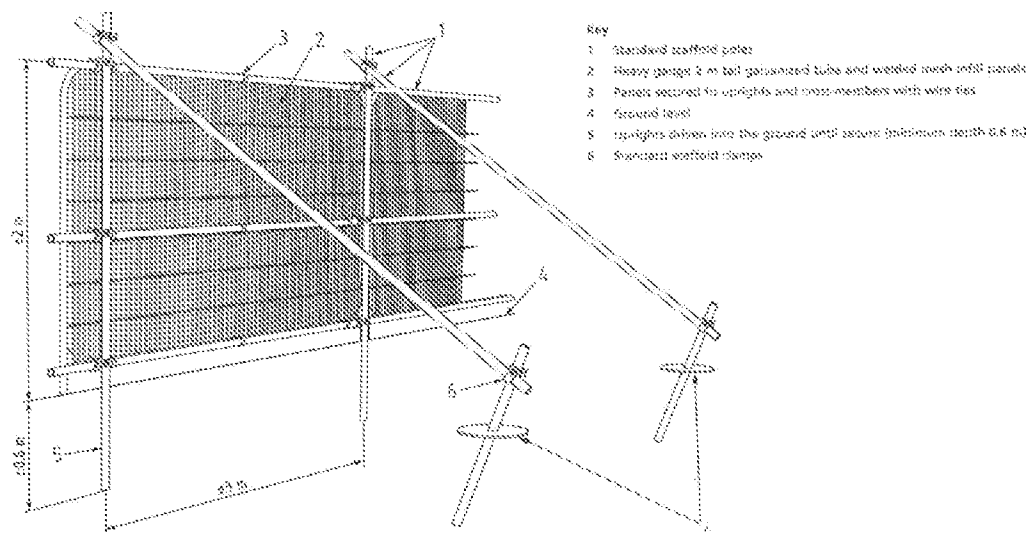


Figure 3 Examples of above-ground stabilizing systems

