



SA 21376 Hermitage Park, Lepton

ARBORICULTURAL SURVEY REPORT | BS 5837:2012

Revision D - July 2025

Document Check Sheet

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1. INTRODUCTION

1.1 *Survey details*

- 1.1.1 Smeeden Foreman Ltd has been appointed to undertake an arboricultural survey of trees at land off Hermitage Park, Lepton (see **Figure 1**).
- 1.1.2 The survey was undertaken on 10th October 2024 and was based upon topographical survey plan S10946 produced by Haycock & Todd. The trees have been surveyed in accordance with BS5837:2012. The limitations of survey techniques and analysis are included in Appendix A.
- 1.1.3 The site comprises farmland which falls steeply in places from north to south. The majority of trees within the site are located within field boundary hedgerows. Great Lepton Wood is a site of Ancient Woodland which is located adjacent to the eastern boundary.



Figure 1- Location Plan

1.2 **Legal status of trees on site**

1.2.1 The trees on site are protected by a **Tree Preservation Order (ref: TPO No.02/86 and TPO No.03/2021)**. Permission must be sought from the Local Authority before carrying out any works to protected trees. The site is not situated within a Conservation Area (Digital mapping provided by Kirklees Council, accessed 25.10.2023).

1.2.2 **Felling Licences** The Forestry Commission controls tree felling by issuing felling licences. A felling licence may be required, whether or not trees are covered by a TPO.

1.2.3 A felling licence is not required for all projects and there are various exemptions which are based on the location, type of tree work, the volume and diameter of the tree and other permissions already in place. For example, you do not need a licence to fell trees in gardens.

1.2.4 A licence is not required for tree felling for the purpose of carrying out development that is authorised by the approval of full planning permission, or is allowed as permitted development.

1.2.5 It is recommended to contact the nearest Forestry Commission area office before felling to check whether a licence is required.

1.3 **Trees and planning**

1.3.1 Local Planning Authorities have a statutory duty to consider the protection and planting of trees when granting planning permission for development. The effect of development on trees, whether protected (e.g. by a TPO or Conservation Area) or not, is a material consideration that is taken into account when considering planning applications.

1.3.2 Pre-emptive tree felling may adversely effect **Biodiversity Net Gain** calculations.

1.4 **Trees and ecology**

1.4.1 **Birds** - All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended) during breeding. Schedule 1 bird species are afforded additional protection from disturbance while breeding, with some species utilising mature trees for nesting purposes. It is therefore recommended that any vegetation clearance takes place outside the core bird nesting period (March – August inclusive) unless checks by an appropriately qualified ecologist find active nests to be absent immediately prior to clearance works.

1.4.2 **Bats** - Bats and their roosts are afforded full legal protection under both UK and European legislation. Prior to tree works, it is recommended that trees are subject to a ground level survey by an appropriately qualified ecologist to assess bat roost suitability. Further surveys may be recommended to determine presence/likely absence of roosting bats. If a bat roost is identified a European Protected Species Licence (EPSL) may be required prior to proposed tree felling/surgery works commencing.

1.5 **Ancient woodland**

1.5.1 Woodland W1 (Lepton Great Wood) is located adjacent to the eastern site boundary. The wood is identified on the Ancient Woodlands Inventory as a site of Ancient and Semi-Natural Woodland. See **Figure 2** which shows the site in relation to the Ancient Woodland.

1.5.2 The standing advice from Natural England and the Forestry Commission is to leave a minimum 15m buffer zone of semi-natural habitat between a proposed development and a site of Ancient Woodland. The proposal should have a buffer zone of at least 15 metres from the boundary of the woodland.

1.5.3 The woodland comprises predominantly oak and silver birch, with some areas colonised by sycamore. There are several large mature and veteran beech trees located in the woodland which are in close proximity to the site, with branches which overhang the boundary and Root protection Areas (RPA) which lie within the buffer zone.

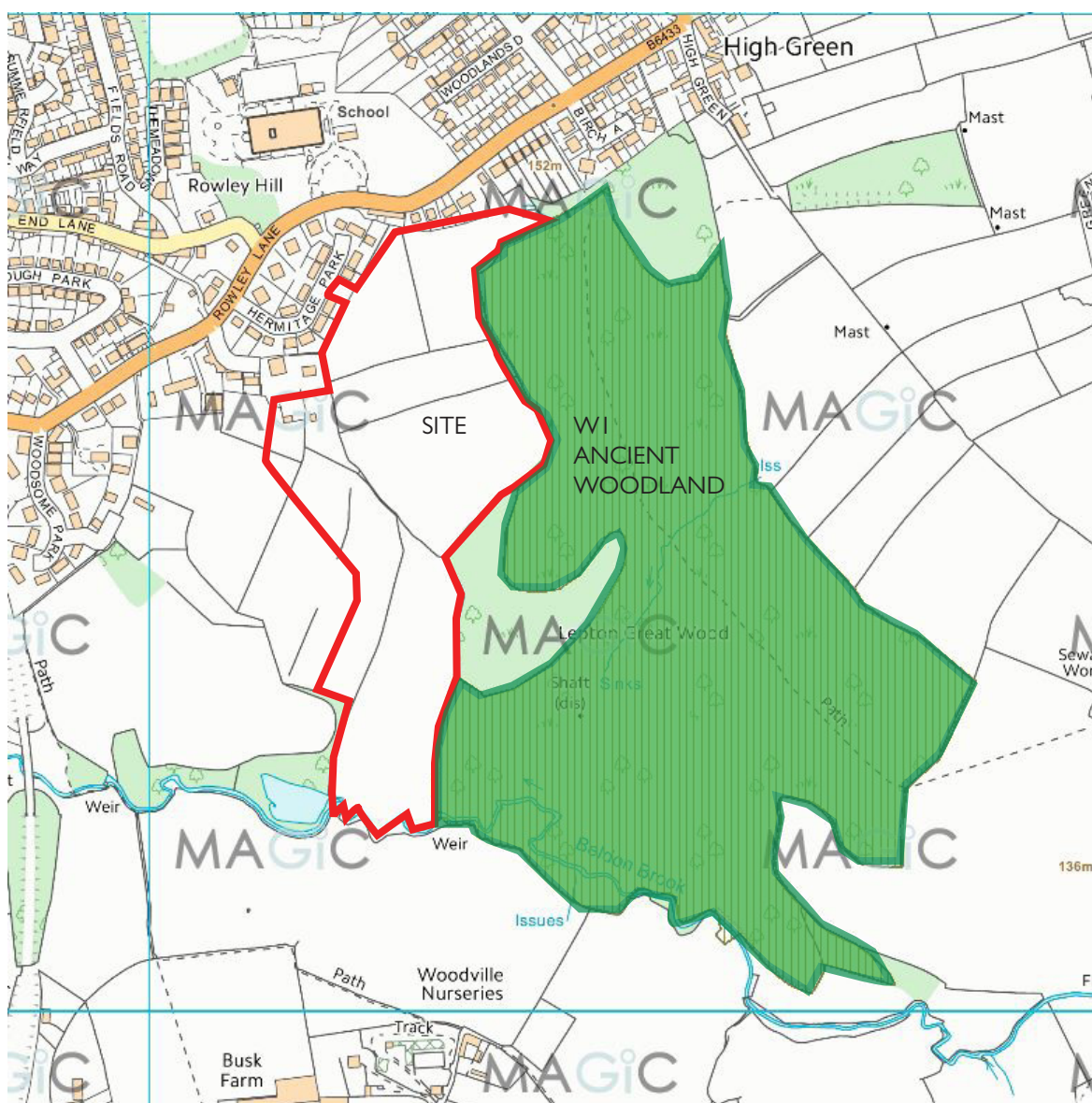


Figure 2- Extract from Ancient Woodlands Inventory adapted to show the site in relation to the Ancient Woodland.

2. AIMS AND METHODOLOGY

2.1 *Aims*

- 2.1.1 The aims of the survey are to undertake a non-invasive survey of the identified trees and any trees which have the potential to be affected by future works within the vicinity. The Tree Constraints Plan shows the location and category of the surveyed trees.

2.2 *Survey Methodology*

- 2.2.1 The survey was carried out to British Standard 5837:2012 using the categories explained below:
- 2.2.2 The trees were assessed visually from ground level. Where potential problems were identified, further inspection by tree climbing may be recommended. No digging or drilling methods were employed during this survey.
- 2.2.3 The tree numbers or group numbers within the schedules refer to the order in which the trees were recorded and shown on the tree survey plan.
- 2.2.4 The approximate height of each tree is measured from ground level to top of canopy using a clinometer;
- 2.2.5 The diameter of each tree is measured at 1.5m above ground level. Where a tree stem divides below 1.5m each stem is measured at 1.5m above ground level in accordance with Annex C of the British standard. The diameter of trees where the trunk was inaccessible have been estimated and marked as such within the schedules.
- 2.2.6 The age of each tree is based upon our experience and is divided into young, semi-mature, early-mature, mature, over-mature.
- 2.2.7 The water demand of each tree (As listed in table 12, appendix 4.2 – A, NHBC standard chapter 4.2) noted on or adjacent to the site is recorded. Shrinkable soils are subject to changes in volume as their moisture content is altered. Soil moisture content varies seasonally and is influenced by a number of factors including the action of tree roots. The resulting shrinkage or swelling of the soil can cause subsidence or heave damage to foundations, the structures they support or services.
- 2.2.8 Engineers should consider the soil condition and the potential impact of the species of the trees/hedges on and adjacent to the site when preparing building/structure design.
- 2.2.9 The condition of the tree is based upon our experience and is an assessment of the health and vigour of the tree.
- 2.2.10 Estimated remaining contribution and category/rating of each tree is based on our experience;
- 2.2.11 The retention category of each tree or group of trees is based upon the information detailed above using the following categories:
- A Trees of high quality and estimated remaining life expectancy of at least 40 years (Light green on plan)
 - B Trees of moderate quality and estimated remaining life expectancy of at least 20 years (Mid blue on plan)
 - C Trees of low quality and estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm (Grey on plan)
 - U Trees cannot realistically be retained as living trees in context of current land use for longer than 10 years (Dark red on plan)
- 2.2.12 The following subcategories have been used in rating tree value:
- 1 Mainly arboricultural value
 - 2 Mainly landscape value
 - 3 Mainly cultural values, including conservation

2.3 Key to Survey Schedules

Tree no.	Tree number as recorded on the plan: T1, T2 etc and for tree groups: G1, G2 etc. Hedges: H1, H2 etc. Woodland: W1, W2 etc.	
Species	Scientific name / Common name.	
Height	Overall estimated height of the tree in metres (rounded up to the nearest metre for trees over 10m high).	
Stem Diameter	Stem diameter measured in millimetres at 1.5m above ground (rounded to the nearest 10mm) in accordance with Annex C of BS5837:2012.	
Branch spread	Measured in metres (rounded up to the nearest half metre) along the four cardinal points: north, east, south and west to derive an accurate representation of the crown.	
Ht crown clearance	The existing height, measured in metres, above ground level of: the first significant branch and direction of growth and the canopy.	
Age class	Young (Y)	Recently planted or establishing tree. Typified by vigorous growth and distinct apical dominance (definite, discernible leader).
	Semi-mature (SM)	A tree in its first third of life span. Tree that has not reached its ultimate potential height. Phase includes girth thickening and the start of crown spreading.
	Early mature (EM)	A tree in its second third of life span. A tree that is reaching its ultimate potential height. The growth rate is slowing down but the tree, will still increase in stem diameter and crown spread.
	Mature (M)	A tree in its final third of life span. The tree has attained its largest proportions and has reached its ultimate height.
	Over-mature (OM)	The tree has attained its maximum height and growth rate slows considerably. Characterised by the loss of large limbs, large amounts of deadwood and decay.
Water Demand	High, Moderate, Low (As listed in table 12, appendix 4.2 – A, NHBC standard chapter 4.2).	
Condition	Physiological condition: Good, Fair, Poor, Dead.	
Comments	Including structural condition, overall form of tree, presence of any decay, any physical defects and observations.	
Recommendations	Including any further investigations required, wildlife habitat potential, management or pruning works.	
ERC	Estimated remaining contribution measured in years: <10, 10+, 20+, 40+.	
Category	Category U or A, B, C grading as defined in Table 1 BS 5837: 2012.	
Other abbreviations used:	RPA	Root protection area measured in square metres, calculated according to BS 5837:2012.
	N	North.
	S	South.
	E	East.
	W	West.
	OSB	Outside site boundary.

3. TREE SURVEY SCHEDULE

Tree No.	Species	Top Height (crown height) m	Branch Spread (m)				Stem Dia. (mm)	Age Class	Water Demand	Condition	Comments	ERC (years)	Recommendations	Category
			N	E	S	W								
T14	Fraxinus excelsior (Ash)	16(1.5)	7	10	4	7	675	EM	M	Poor	Ash dieback.	<10	Removal	U
T15	Fraxinus excelsior (Ash)	17(1)	6	5	6	8	850	M	M	Poor	Ash dieback.	<10	Removal	U
T16 TPO	Fraxinus excelsior (Ash)	12(1.5)	4	6	9	9	600	EM	M	Fair	Low vitality. Declining. Crown lifted - occluding pruning scars. Reinspect annually for ash dieback.	10+	Re-inspect annually for ash dieback.	C2
T19	Acer pseudoplatanus (Sycamore)	16(5)	6	5	4	5	502	SM	M	Good	Stem divides at ground level. Crown lifted- occluding pruning scars.	10+	No action required	C2
T20	Salix alba (White Willow)	10(10)	10	10	10	10	1000	M	H	Poor	OSB. Limited inspection. Broken branches in crown. Major storm damage/break out wound. Partially collapsed.	<10	Remove stems and retain coppice stool.	U
T22	Quercus robur (Common Oak)	10(2)	5	6	8	6	700	EM	H	Good	Crown lifted- occluding pruning scars.	40+	No action required	C2
T24	Quercus robur (Common Oak)	16(1)	7	8.5	9	9.5	880	EM	H	Good	Cavity with occluding wound wood. Epicormics on stem. Major deadwood in crown. Crown lifted- occluding pruning scars.	20+	No action required	B2
T25 TPO	Quercus robur (Common Oak)	10(1.5)	6	6	5	6	620	SM	H	Good	Epicormics on stem. Crown lifted- occluding pruning scars.	40+	No action required	A2
T26	Quercus robur (Common Oak)	10(2)	8	7	7	6	760	EM	H	Fair	Basal hollowing. Cavity with occluding wound wood.	10+	No action required	C2

<i>Tree No.</i>	<i>Species</i>	<i>Top Height (crown height) m</i>	<i>Branch Spread (m)</i>				<i>Stem Dia. (mm)</i>	<i>Age Class</i>	<i>Water Demand</i>	<i>Condition</i>	<i>Comments</i>	<i>ERC (years)</i>	<i>Recommendations</i>	<i>Category</i>
			<i>N</i>	<i>E</i>	<i>S</i>	<i>W</i>								
T27 TPO	Quercus robur (Common Oak)	16(1.5)	7	7	9	9	800	EM	H	Good	Crown lifted- occluding pruning scars.	40+	No action required	B2
T29 TPO	Quercus robur (Common Oak)	12(1.5)	7	11	8	10	800	EM	H	Good	Crown lifted- occluding pruning scars.	40+	No action required	A2
T30 TPO	Quercus robur (Common Oak)	15(8)	5	7	5	8	730	EM	H	Good	Crown lifted- occluding pruning scars.	40+	No action required	B2
T31 TPO	Quercus robur (Common Oak)	17(8)	9	8	8	9	1245	M	H	Good	Stem divides below 1.5m. Tension fork below 1.5m. Crown lifted- occluding pruning scars.	40+	No action required	A2
T32 TPO	Quercus robur (Common Oak)	14(3)	7	9	8	9	800	EM	H	Good	Crown lifted- occluding pruning scars.	40+	No action required	B2
T33 TPO	Quercus robur (Common Oak)	17(5)	9	7	8	9	850	EM	H	Good	Crown lifted- occluding pruning scars.	40+	No action required	B2
T34 TPO	Quercus robur (Common Oak)	11(5)	5	7	5	5	630	EM	H	Good	Crown lifted- occluding pruning scars.	20+	No action required	B2
T35 TPO	Quercus robur (Common Oak)	10(6)	5	6	4	5	460	SM	H	Good	Crown lifted- occluding pruning scars.	40+	No action required	B2
T36 TPO	Quercus robur (Common Oak)	8(6)	5	6	5	7.5	797	SM	H	Good	Crown lifted- occluding pruning scars.	10+	No action required	C2
T37	X Cupressocyparis leylandii Castlewellan Gold (Leyland Cypress)	9(1.5)	2	2	2	2	350	SM	H	Good	OSB. Limited inspection.	20+	N/A	B2

Tree No.	Species	Top Height (crown height) m	Branch Spread (m)				Stem Dia. (mm)	Age Class	Water Demand	Condition	Comments	ERC (years)	Recommendations	Category
			N	E	S	W								
T38	Quercus robur (Common Oak)	17(4)	2	3	9	5	640	EM	H	Good	Crown lifted- occluding pruning scars.	20+	N/A	B2
T39	Betula pendula (Silver Birch)	8(2)	3	3	3	3	250	SM	L	Good	OSB. Limited inspection.	20+	N/A	B2
T40	X Cupressocyparis leylandii Castlewellan Gold (Leyland Cypress)	5(0)	1.5	1.5	1.5	1.5	150	SM	H	Good	OSB. Limited inspection.	10+	N/A	C2
T41	Malus (Apple)	4(1)	3	3	3	3	250	EM	M	Fair	OSB. Limited inspection.	10+	Prune back to the boundary as required.	C2
T42	Fagus sylvatica (Beech)	4(1)	3	5	3	3	200	SM	M	Fair	OSB. Limited inspection.	10+	Prune back to the boundary as required.	C2
T44	Sorbus aucuparia (Rowan)	3.5(1.5)	2	2	2	2	100	SM	M	Fair	OSB. Limited inspection.	10+	N/A	C2
T46	Quercus robur (Common Oak)	7(2)	1	2	6	3	440	EM	H	Fair	Decay present on stem. Cavity with occluding wound wood. Unbalanced crown shape. Crown distorted due to group pressure. Crown lifted- occluding pruning scars.	10+	No action required	C2
T48	Betula pendula (Silver Birch)	10(5)	4	4	4	4	250	EM	L	Fair	OSB. Limited inspection.	20+	N/A	B2
T49	Salix caprea (Goat Willow)	10(3)	6	6	1	3	391	EM	H	Fair	OSB. Limited inspection. Stem divides below 1.5m. Unbalanced crown shape. Crown distorted due to group pressure.	10+	N/A	C2

Tree No.	Species	Top Height (crown height) m	Branch Spread (m)				Stem Dia. (mm)	Age Class	Water Demand	Condition	Comments	ERC (years)	Recommendations	Category
			N	E	S	W								
T50	Fraxinus excelsior (Ash)	7(1)	5	0	1	6	300	EM	M	Poor	Leaning West. Ash dieback.	<10	Remove tree and retain root.	U
T52	Acer pseudoplatanus (Sycamore)	10(2)	6	6	6	6	600	M	M	Fair	OSB. Limited inspection. Dieback in crown.	20+	N/A	B2
T53	Alnus glutinosa (Common Alder)	10(2)	8	8	8	8	450	M	M	Fair	OSB. Limited inspection. Dieback in crown.	10+	N/A	C2
T54	Acer pseudoplatanus (Sycamore)	16(1)	5	5	5	5	450	EM	M	Fair	OSB. Limited inspection.	20+	N/A	B2
T55	Salix fragilis (Crack Willow)	10(3)	6	6	6	6	711	M	H	Poor	Decay present on stem. Bark loss. Stem divides below 1.5m. Broken branches in crown. Major storm damage/break out wound.	<10	Remove stems and retain coppice stool.	U
T56	Acer pseudoplatanus (Sycamore)	16(5)	5	7	7	7	640	EM	M	Fair	Stem divides below 1.5m. Crown distorted due to group pressure.	20+	No action required	B2
T57	Fraxinus excelsior (Ash)	20(6)	9	9	9	9	800	M	M	Fair	OSB. Limited inspection. Ivy on tree. Unable to inspect stem due to Ivy. Broken branches in crown. Major storm damage/break out wound.	20+	N/A	B2
T58	Salix fragilis (Crack Willow)	3(0)	3	3	3	7	450	EM	H	Poor	Collapsed into site next to stile.	<10	Remove stems and retain coppice stool.	U
T59	Cedrus deodora (Deodar)	3(1)	3	3	3	3	250	SM	M	Fair	OSB. Limited inspection. Topped.	10+	N/A	C2
T62	Prunus (Prunus species)	5(3)	3	3	3	3	250	EM	M	Fair	OSB. Limited inspection. Crown lifted-occluding pruning scars.	10+	N/A	C2

<i>Tree No.</i>	<i>Species</i>	<i>Top Height (crown height) m</i>	<i>Branch Spread (m)</i>				<i>Stem Dia. (mm)</i>	<i>Age Class</i>	<i>Water Demand</i>	<i>Condition</i>	<i>Comments</i>	<i>ERC (years)</i>	<i>Recommendations</i>	<i>Category</i>
			<i>N</i>	<i>E</i>	<i>S</i>	<i>W</i>								
T63	X Cupressocyparis leylandii (Leyland Cypress)	3.5(0)	0.5	0.5	0.5	0.5	100	SM	H	Good	OSB. Limited inspection.	10+	N/A	C2
G2	Acer pseudoplatanus (Sycamore), Quercus robur (Common Oak), Salix alba (White Willow), Betula pendula (Silver Birch)	10(3)	6	6	6	6	450	EM	H	Good	Crown lifted- occluding pruning scars.	20+	No action required	B2
G3	Quercus robur (Common Oak)	14(2)	9	10	8	6	583	EM	H	Good	Multiple stems at ground level.	40+	No action required	B2
G4	Crataegus monogyna (Hawthorn)	5(0)	3	3	3	3	100	SM	H	Fair	Multiple stems at ground level.	10+	No action required	C2
G5	Alnus glutinosa (Common Alder), Acer pseudoplatanus (Sycamore)	8(2)	4	4	4	4	300	EM	M	Fair	Epicormics on stem. Crown lifted- occluding pruning scars.	10+	Remove 1 tree to facilitate proposed drainage.	C2
G8.1 TPO	Quercus robur (Common Oak)	15(3)	5.5	6	5	1	430	EM	H	Good	Unbalanced crown shape. Crown distorted due to group pressure. Crown lifted- occluding pruning scars.	40+	No action required	B2
G8.2 TPO	Quercus robur (Common Oak)	15(3)	6	5	6	4	500	EM	H	Good	Unbalanced crown shape. Crown distorted due to group pressure. Crown lifted- occluding pruning scars.	40+	No action required	B2

Tree No.	Species	Top Height (crown height) m	Branch Spread (m)				Stem Dia. (mm)	Age Class	Water Demand	Condition	Comments	ERC (years)	Recommendations	Category
			N	E	S	W								
G8.3 TPO	Quercus robur (Common Oak)	15(3)	5	5	8.5	6	750	EM	H	Good	Stem divides below 1.5m. Tension fork below 1.5m. Unbalanced crown shape. Crown distorted due to group pressure. Crown lifted- occluding pruning scars.	40+	No action required	B2
G9.1	Acer pseudoplatanus (Sycamore)	5(2.5)	2	1	3	2.5	170	SM	M	Fair	Epicormics on stem. Unbalanced crown shape. Crown distorted due to group pressure. Crown lifted- occluding pruning scars.	10+	No action required	C2
G9.2	Prunus avium (Wild Cherry)	8(3)	4	4	3	3	320	EM	M	Fair	Low vitality. Dieback in crown. Crown lifted- occluding pruning scars.	10+	Reinspect annually.	C2
G9.3	Tilia cordata (Small-leaved Lime)	7(3)	2	3	3	2	250	SM	M	Fair	Stem divides above 1.5m. Compression fork above 1.5m. Included bark present in fork. Epicormics on stem. Crown lifted.	10+	No action required	C2
G9.4	Prunus avium (Wild Cherry)	6(4)	3	2	3	1	200	SM	M	Poor	Declining. Dieback in crown. Low bud/ leaf density. Crown distorted due to group pressure.	<10	Removal.	U
G9.5	Quercus robur (Common Oak)	9(4)	3	4	4	3	300	SM	H	Good	Stem divides below 1.5m. Epicormics on stem. Crown distorted due to group pressure.	40+	No action required	B2
G9.6	Tilia cordata (Small-leaved Lime)	7(3)	3	2	2	0	212	SM	M	Fair	Compression fork below 1.5m. Included bark present in fork. Epicormics on stem. Unbalanced crown shape. Crown distorted due to group pressure.	10+	No action required	C2
G9.7	Prunus avium (Wild Cherry)	9(4)	3.5	3	4	3.5	280	EM	M	Fair	Crown lifted.	20+	No action required	B2

<i>Tree No.</i>	<i>Species</i>	<i>Top Height (crown height) m</i>	<i>Branch Spread (m)</i>				<i>Stem Dia. (mm)</i>	<i>Age Class</i>	<i>Water Demand</i>	<i>Condition</i>	<i>Comments</i>	<i>ERC (years)</i>	<i>Recommendations</i>	<i>Category</i>
			<i>N</i>	<i>E</i>	<i>S</i>	<i>W</i>								
G9.8	Tilia cordata (Small-leaved Lime)	9(3)	4	4	3.5	2	280	SM	M	Fair	Compression fork above 1.5m. Included bark present in fork. Crown distorted due to group pressure.	20+	No action required	B2
G9.9	Tilia cordata (Small-leaved Lime)	9(3)	4	2	4	3	280	SM	M	Fair	Compression fork above 1.5m. Included bark present in fork. Crown distorted due to group pressure.	20+	No action required	B2
G9.10	Quercus robur (Common Oak)	9(4)	1	0.5	4	2	200	SM	M	Good	Unbalanced crown shape. Crown distorted due to group pressure. Crown lifted- occluding pruning scars.	40+	No action required	B2
G9.11	Tilia cordata (Small-leaved Lime)	11(4)	5	2	4	3	350	SM	M	Fair	Compression fork above 1.5m. Included bark present in fork. Crown distorted due to group pressure.	20+	No action required	B2
G9.12	Prunus avium (Wild Cherry)	10(3)	4.5	2	4	2	250	EM	M	Fair	Crown distorted due to group pressure. Crown lifted- occluding pruning scars.	20+	Removal to facilitate development.	B2
G9.13	Tilia cordata (Small-leaved Lime)	10(4)	4	2	3.5	2	300	SM	M	Fair	Crown distorted due to group pressure.	20+	Removal to facilitate development.	B2
G9.14	Prunus avium (Wild Cherry)	9(4)	1	2	2	2	150	SM	M	Fair	Crown distorted due to group pressure.	10+	Reinspect annually.	C2
G9.15	Tilia cordata (Small-leaved Lime)	10(4)	0.5	2	3	2	250	SM	M	Fair	Crown distorted due to group pressure.	20+	No action required	B2
G9.16	Quercus robur (Common Oak)	9(2)	3	3	1	3	150	SM	H	Good	Crown distorted due to group pressure.	40+	No action required	C2
G9.17	Quercus robur (Common Oak)	9(3)	4	4.5	4.5	3	280	SM	H	Good	Crown distorted due to group pressure. Crown lifted- occluding pruning scars.	40+	Removal to facilitate development.	B2

<i>Tree No.</i>	<i>Species</i>	<i>Top Height (crown height) m</i>	<i>Branch Spread (m)</i>				<i>Stem Dia. (mm)</i>	<i>Age Class</i>	<i>Water Demand</i>	<i>Condition</i>	<i>Comments</i>	<i>ERC (years)</i>	<i>Recommendations</i>	<i>Category</i>
			<i>N</i>	<i>E</i>	<i>S</i>	<i>W</i>								
G9.18	Acer pseudoplatanus (Sycamore)	7(2)	3	2	3	2	200	SM	M	Good	Crown distorted due to group pressure.	20+	Removal to facilitate development.	B2
G9.19	Prunus avium (Wild Cherry)	5(3)	3.5	2	5	3	250	SM	M	Poor	Low vitality. Declining. Stem divides above 1.5m. Dieback in crown. Low bud/leaf density.	<10	Remove tree and retain root.	U
G9.20	Tilia cordata (Small-leaved Lime)	9(3)	4	3	4.5	2	350	EM	M	Good	Suckers around stem base. Stem divides above 1.5m. Included bark present in fork.	20+	Removal to facilitate development.	B2
G9.21	Acer pseudoplatanus (Sycamore)	5(2)	2	2	3	1	180	SM	M	Good	Crown distorted due to group pressure.	20+	Removal to facilitate development.	B2
G9.22	Quercus robur (Common Oak)	12(4)	5	4	5.5	3	400	EM	H	Good	Crown distorted due to group pressure.	40+	Removal to facilitate development.	B2
G9.23	Tilia cordata (Small-leaved Lime)	4(1)	2	2	2	2	100	SM	M	Fair	Crown distorted due to group pressure.	10+	No action required	C2
G9.24	Prunus avium (Wild Cherry)	7(3)	4.5	4	4	3.5	283	EM	M	Poor	Low vitality. Stem divides below 1.5m. Included bark present in fork. Dieback in crown.	<10	Removal.	U
G9.25	Acer pseudoplatanus (Sycamore)	3(2)	1	0	3	2	100	SM	M	Fair	Epicormics on stem. Minor deadwood. Unbalanced crown shape. Crown distorted due to group pressure.	10+	No action required	C2
G9.26	Prunus avium (Wild Cherry)	3(1)	1.5	1.5	1.5	1.5	75	Y	M	Fair	Low vitality.	10+	Reinspect annually.	C2

Tree No.	Species	Top Height (crown height) m	Branch Spread (m)				Stem Dia. (mm)	Age Class	Water Demand	Condition	Comments	ERC (years)	Recommendations	Category
			N	E	S	W								
G9.27	Tilia cordata (Small-leaved Lime)	5(0.5)	3	4	4	4	212	SM	M	Good	Stem divides at ground level.	20+	No action required	B2
G9.28	Acer pseudoplatanus (Sycamore)	5(1.5)	3	2	3	3	200	SM	M	Good	Crown distorted due to group pressure.	20+	No action required	B2
G9.29	Tilia cordata (Small-leaved Lime)	5(1)	3	4	4	2	250	SM	M	Good	Stem divides above 1.5m. Included bark present in fork.	20+	No action required	B2
G9.30	Acer pseudoplatanus (Sycamore)	4(2)	2	2	3	2.5	150	SM	M	Fair	Crown distorted due to group pressure.	10+	No action required	C2
G9.31	Acer platanoides (Norway Maple)	5(1.5)	3	3	3	2.5	180	SM	M	Good	-	20+	No action required	B2
G9.32	Acer platanoides (Norway Maple)	5(2)	2.5	3	3	1	150	SM	M	Good	Crown distorted due to group pressure.	20+	No action required	C2
G9.33	Prunus avium (Wild Cherry)	5(2)	4	3	4	2	250	EM	M	Fair	Crown distorted due to group pressure.	20+	No action required	B2
G9.34	Acer pseudoplatanus (Sycamore)	5(2)	3	2	4	3	150	SM	M	Fair	Crown distorted due to group pressure.	10+	No action required	C2
G9.35	Acer platanoides (Norway Maple)	4(2)	4	4	5	3	260	SM	M	Good	-	20+	No action required	B2
G9.36	Acer pseudoplatanus (Sycamore)	6(2)	3	3	4	3	300	SM	M	Good	Crown lifted- occluding pruning scars.	40+	No action required	B2
G9.37	Acer platanoides (Norway Maple)	6(2)	3.5	3.5	5	3	280	SM	M	Good	Compression fork above 1.5m. Included bark present in fork.	20+	No action required	B2

<i>Tree No.</i>	<i>Species</i>	<i>Top Height (crown height) m</i>	<i>Branch Spread (m)</i>				<i>Stem Dia. (mm)</i>	<i>Age Class</i>	<i>Water Demand</i>	<i>Condition</i>	<i>Comments</i>	<i>ERC (years)</i>	<i>Recommendations</i>	<i>Category</i>
			<i>N</i>	<i>E</i>	<i>S</i>	<i>W</i>								
G9.38	Acer pseudoplatanus (Sycamore)	7(2)	4	4	5	4	370	EM	M	Good	Crown lifted- occluding pruning scars.	40+	No action required	B2
G9.39	Prunus avium (Wild Cherry)	6(4)	0	2	3	0	250	EM	M	Poor	Low vitality. Decay present on stem. Broken branches in crown.	<10	Removal.	U
G10.1	Quercus robur (Common Oak)	16(4)	7	6	5	5	700	EM	H	Good	Crown lifted- occluding pruning scars.	40+	No action required	B2
G10.2	Quercus robur (Common Oak)	16(5)	7	6	7	5	600	EM	H	Good	Crown lifted- occluding pruning scars.	40+	No action required	B2
G11.1	Acer pseudoplatanus (Sycamore)	18(5)	4	3	6	5	400	SM	M	Fair	1 x MS.-Compression fork unions with included bark. Narrow crown spreads.	10+	No action required	C2
G11.2	Acer pseudoplatanus (Sycamore)	18(5)	4	3	6	5	300	SM	M	Fair	1 x MS.-Compression fork unions with included bark. Narrow crown spreads.	10+	No action required	C2
G43	Fraxinus excelsior (Ash),X Cupressocyparis leylandii (Leyland Cypress)	6(1)	4	4	4	4	150	SM	H	Fair	OSB. Limited inspection.	10+	N/A	C2
G45	Ilex aquifolium (Holly),X Cupressocyparis leylandii Castlewellan Gold (Leyland Cypress),Malus (Apple)	2.5(0)	2	2	2	2	150	SM	H	Fair	OSB. Limited inspection.	10+	N/A	C2

<i>Tree No.</i>	<i>Species</i>	<i>Top Height (crown height) m</i>	<i>Branch Spread (m)</i>				<i>Stem Dia. (mm)</i>	<i>Age Class</i>	<i>Water Demand</i>	<i>Condition</i>	<i>Comments</i>	<i>ERC (years)</i>	<i>Recommendations</i>	<i>Category</i>
			<i>N</i>	<i>E</i>	<i>S</i>	<i>W</i>								
G47	Salix caprea (Goat Willow)	7(2)	4	4	4	4	346	SM	H	Fair	OSB. Limited inspection. Multiple stems at ground level.	10+	N/A	C2
G51	Salix fragilis (Crack Willow)	15(8)	6	6	6	6	400	EM	H	Fair	OSB. Limited inspection. Multiple stems at ground level.	10+	N/A	C2
G61	X Cupressocyparis leylandii (Leyland Cypress)	4(0)	0.5	0.5	0.5	0.5	100	Y	H	Good	OSB. Limited inspection.	10+	N/A	C2
H1	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	1	3	3	3	3	150	-	H	-	Overgrown. Gaps.	-	Removal.	-
H3	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly), Sambucus nigra (Elder)		2	2	2	2	150	-	H	-	Overgrown.	-	No action required	-
H4	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	6(0)	2.5	2.5	2.5	2.5	250	-	H	-	Overgrown. Gaps.	-	No action required	-
H5	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	5	1.5	1.5	1.5	1.5	150	-	H	-	Overgrown. Gaps.	-	Hard prune as required to facilitate plots 55 to 57.	-
H6	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	4(0)	2	2	2	2	150	-	H	-	Overgrown. Gaps.	-	Remove 2m section of hedge for proposed road construction.	-

Tree No.	Species	Top Height (crown height) m	Branch Spread (m)				Stem Dia. (mm)	Age Class	Water Demand	Condition	Comments	ERC (years)	Recommendations	Category
			N	E	S	W								
H7	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	6	1	1	1	1	150	-	H	-	Remnant hedge with large gaps.	-	Remove 2m section of hedge for proposed road construction. Remove 4m section of hedge for proposed swale. Remove 10m section of hedge for proposed path and private drive.	-
H8	Crataegus monogyna (Hawthorn)	1	1	1	1	1	100	-	H	-	Gaps.	-	Remove 4m section of hedge for proposed path. Remove 2m section of hedge for proposed drainage. Hard prune as required to facilitate construction of plot 48.	-

Tree No.	Species	Top Height (crown height) m	Branch Spread (m)				Stem Dia. (mm)	Age Class	Water Demand	Condition	Comments	ERC (years)	Recommendations	Category
			N	E	S	W								
H9	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	2	1	1	1	1	50	-	H	-	Overgrown. Gaps.	-	Remove 18m section of hedge for proposed road construction. Remove 2m section of hedge for proposed drainage. Remove 4m section of hedge for proposed swale. Hard prune to facilitate construction of plots 8, 9 and 11.	-
H10	X Cupressocyparis leylandii (Leyland Cypress)	2	1	1	1	1	50	-	H	-	Garden boundary hedge.	-	Prune back to the boundary as required.	-
H11	X Cupressocyparis leylandii (Leyland Cypress)	2	1	1	1	1	50	-	H	-	Garden boundary hedge.	-	Prune back to the boundary as required.	-
H12	Fagus sylvatica (Beech), Ilex aquifolium (Holly), Crataegus monogyna (Hawthorn)	1.5	1	1	1	1	50	-	H	-	Garden boundary hedge.	-	No work required	-
H60	Ilex aquifolium (Holly)	1	0.5	0.5	0.5	0.5	Error	-	L	-	Garden boundary hedge.	-	No work required	-

<i>Tree No.</i>	<i>Species</i>	<i>Top Height (crown height) m</i>	<i>Branch Spread (m)</i>				<i>Stem Dia. (mm)</i>	<i>Age Class</i>	<i>Water Demand</i>	<i>Condition</i>	<i>Comments</i>	<i>ERC (years)</i>	<i>Recommendations</i>	<i>Category</i>
			<i>N</i>	<i>E</i>	<i>S</i>	<i>W</i>								
W1	Oak Sycamore Silver birch Beech Holly	20+	As plan	As plan	As plan	As plan	500 ave.	Y to M	High	Good	Ancient woodland. Diverse age range of trees. Predominantly oak/ birch woodland with holly under-story. Some areas of sycamore. Occasional large veteran beech trees in close proximity to the edge of the woodland.	40+	No action required	A3

4. TREE CONSTRAINTS

4.1 *Principles of design in relation to trees*

- 4.1.1 The extent to which a tree may represent a constraint to development will depend both upon the location of the trunk and size and nature of the canopy and also the extent of the roots below ground. The Tree Constraints Plan (SA 21376 TC01/2) plots the location, the true canopy spread and the Root Protection Area of the trees, through application of the calculation provided in section 4.6 of the BS5837:2012 Trees in relation to design demolition and construction – Recommendations.
- 4.1.2 The Arboricultural Impact Assessment identifies direct or indirect effects of the proposed design on trees and makes recommendations for mitigation as required.

4.2 *The Root Protection Area (RPA)*

- 4.2.1 The Root Protection Area (RPA) is the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability where the protection of the roots and soil structure is treated as a priority.
- 4.2.2 Trees have a relatively shallow but wide spreading root system; the majority of the root structure is found in the uppermost 600mm of the soil profile. The depth of roots may be varied by species and site conditions.
- 4.2.3 The RPA should represent the most likely spread of roots based on the existing site conditions. The circular shape of the RPA may be modified in pattern, although not overall area, by existing features such as structures and surfaces (section 4.6.2/3 of the BS5837:2012).
- 4.2.4 The default position should be that structures are located outside the RPA of retained trees.
- 4.2.5 Within the RPA, there should be a presumption against excavation, construction, changes in ground level, storage of materials and vehicular movement, unless consideration is given to the potential effects on the tree to be retained. Appropriate tree protection measures will be recommended to mitigate impacts to trees.

4.3 *Future Growth*

- 4.3.1 The potential for retaining trees on a development site includes the extent of the influence of the tree at the time of survey. Consideration is also given to the ultimate mature size of tree species and the effects of future growth within the context of the proposed development. Structures should be designed and located without the need for frequent remedial pruning or maintenance.

4.4 *Shading*

- 4.4.1 Shading by trees can affect buildings and gardens. The potential nuisance caused by shading to new buildings both after construction and also once trees reach their ultimate size is considered. For example, natural light will be shaded from a new house which is located too close to large trees on the boundary of a site. This may lead to future complaints and pressure to remove the trees. Garden space should also be considered and designed to receive sunlight for at least part of the day. If required, a tree shade diagram can be provided (as per the methodology described in 5.2.2 NOTE 1 BS5837:2012).

5. ARBORICULTURAL IMPACT ASSESSMENT

5.1 *Development proposals*

5.1.1 The proposals for the site as shown on drawing 22 5611-01 produced by Miller Homes are for a residential development.

5.1.2 The development proposals have been assessed in relation to the existing trees on drawing SA 21376 AIA01/2 (Appendix C).

5.2 *Proposed tree and hedge removal to facilitate development*

5.2.1 Trees and hedges proposed for removal to implement the design.

Tree No.	Species	Proposed Works	Category
T14	Ash	Removal	U
T15	Ash	Removal	U
G5	Alder/Sycamore	Remove one tree as indicated.	C
G9.12	Prunus avium (Wild Cherry)	Removal	B
G9.13	Tilia cordata (Small-leaved Lime)	Removal	B
G9.17	Quercus robur (Common Oak)	Removal	B
G9.18	Acer pseudoplatanus (Sycamore)	Removal	B
G9.20	Tilia cordata (Small-leaved Lime)	Removal	B
G9.21	Acer pseudoplatanus (Sycamore)	Removal	B
G9.22	Quercus robur (Common Oak)	Removal	B
G9.34	Acer pseudoplatanus (Sycamore)	Removal	C
H1	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Removal	-
H6	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Remove 2m section of hedge for proposed road construction.	-
H7	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Remove 2m section of hedge for proposed road construction. Remove 4m section of hedge for proposed swale. Remove 10m section of hedge for proposed path and private drive.	-
H8	Crataegus monogyna (Hawthorn)	Remove 4m section of hedge for proposed path. Remove 2m section of hedge for proposed drainage. Remove section of hedge as required to accommodate scaffold for plot 48.	-
H9	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Remove 18m section of hedge for proposed road construction. Remove 4m section of hedge for proposed swale. Remove 2m section of hedge for proposed drainage and footpath.	-

Total = 11 trees removed. 1 hedge removed. 4 hedges partially removed.

5.3 *Evaluation of proposed tree and hedge removal and new tree planting*

- 5.3.1 11 trees will require removal to implement the proposed development.
- 5.3.2 Trees G9.12 to G9.22 are category B; trees of moderate quality and value with a minimum 20 years life expectancy.
- 5.3.3 Trees G5 and G9.34 are category C; trees of low quality and value with a minimum 10 years life expectancy.
- 5.3.4 Trees T14 and T15 are category U. These trees will require removal to facilitate development and will also require removal due to poor condition (Ash dieback disease) and cannot realistically be retained in the context of the current land use for longer than 10 years.
- 5.3.5 Hedge H1 will be completely removed. Hedges H6, H7, H8 and H9 will have partial sections removed as indicated on the plan SA21376 AIA01/02.
- 5.3.6 The removal of trees and hedges will be mitigated with extensive new tree and hedge planting throughout the scheme, as indicated on the proposed layout.
- 5.3.7 Appropriate species selection will take account of the mature tree sizes and existing available space and site conditions. This will ensure new tree planting will successfully establish and will have sufficient space (above and below ground) and light requirements to attain a full term healthy life.

5.4 *Proposed tree removal due to poor condition*

- 5.4.1 The following trees are recommended to be felled for management reasons, irrespective of the development proposals. These trees are assessed as Category U, those in poor condition which cannot realistically be retained in the context of the current land use for longer than 10 years.

Tree No.	Species	Proposed Works	Category
G9.4	Prunus avium (Wild Cherry)	Removal	U
G9.19	Prunus avium (Wild Cherry)	Removal	U
G9.24	Prunus avium (Wild Cherry)	Removal	U
G9.39	Prunus avium (Wild Cherry)	Removal	U

Total = 4 trees.

5.5 *Proposed pruning works to facilitate development*

- 5.5.1 Tree and hedge pruning work required to implement the design.

Tree No.	Species	Proposed Works	Category
T41	Malus (Apple)	Prune back to the boundary as required.	C
T42	Fagus sylvatica (Beech)	Prune back to the boundary as required.	C
H5	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Hard prune as required to facilitate plots 53 to 57.	-
H8	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Hard prune as required to facilitate construction of plot 48.	-
H9	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Hard prune to facilitate construction of plots 8, 9 and 11.	-
H10	X Cupressocyparis leylandii (Leyland Cypress)	Prune back to the boundary as required.	-
H11	X Cupressocyparis leylandii (Leyland Cypress)	Prune back to the boundary as required.	-

5.6 *Impact in the Ancient Woodland buffer zone*

- 5.6.1 A shallow swale is proposed in the buffer zone as part of the sustainable drainage system. As the swale would require some excavation, it has been designed in relation to the Root Protection Areas within the buffer zone. Any machinery used in the swale excavation should be operated from outside the buffer zone to avoid compaction damage to the soil and roots.
- 5.6.2 The proposed boardwalk crossings for the swale will be located in the buffer zone. It is recommended to use driven posts to minimize the potential root disturbance in the buffer zone.

5.7 *Impact in the RPA - Proposed road and footpath between T31 and T32*

- 5.7.1 The proposed alignment of the road between tree T31 and T32 will be positioned to minimise the impact to both trees. The majority of construction would be outside the RPA and canopy spread of T32, which will allow this tree to be retained. The road and footpath would be constructed in the RPA of tree T31. The incursion would represent approximately 15% of the total RPA and would be located outside the canopy spread of the tree. In this location and at this distance from the tree, it is anticipated that any excavations for the road construction would only be likely to encounter small diameter roots. The proposed road will be constructed as close to existing ground level as possible to minimise any regrading into the RPA. In our assessment the tree could remain viable, and the area lost to encroachment be compensated with uninterrupted green space to the east, contiguous with the RPA which will continue to sustain the tree (as per the BS5837 section 5.3.1).

5.8 *Impact in the RPA - Proposed road adjacent to T29*

- 5.8.1 The proposed road adjacent to tree T29 will be constructed as close to existing ground level as possible to minimise any regrading into the RPA. Where fill is required in the RPA, it is recommended to use Cellweb (or similar approved).

5.9 *Impact in the RPA - Plot 14 in relation to trees T41 and T42*

- 5.9.1 The proposed construction of plot 14 would encroach the RPA of T42 and the canopy of trees T41 and T42. Both trees are located in a neighbouring garden, however the canopy and RPA partially overhang the site boundary. Pruning works will be required to accommodate the design. The incursion in the RPA must be managed with hand excavation and root pruning as required.

6. ARBORICULTURAL METHOD STATEMENT

6.1 *Schedule of Tree Protection Works*

6.1.1 Tree protection works will be completed as detailed and according to the following timetable.

Timescale	Action required	Site inspection notes (date/initial)
Pre-Development Works		
Stage 1	Pre-development tree works .	
Stage 2	Install tree protection fencing - type 1 before any construction work starts on site.	
Stage 3	Install tree protection fencing - type 2 before any construction work starts on site.	
Stage 4	Site inspection. Contractor must give notice to the Arboricultural Consultant that the fencing has been installed. Arboricultural Consultant to inspect fencing and report to LPA for approval before construction work starts on site.	
Works in the Buffer Zone		
Stage 5	No dig construction of footpath in buffer zone.	
Stage 6	Construction of boardwalk in buffer zone.	
Stage 7	Construction of swale in buffer zone.	

6.2 *Pre-Development Tree Works*

6.2.1 Carry out all tree and hedge removals and pruning work required to facilitate development, as per the work schedules in Chapter 5.

6.2.2 All tree works recommend within this report shall be carried out to existing trees on site and shall be in accordance with BS 3998:2010 Recommendations for Tree Work, industry best practice and in line with any works already agreed with the Local Authority.

6.2.3 The Tree Surgeon shall be chosen from The Arboricultural Association's Approved Contractor list and all work shall be undertaken at the appropriate time and with the consent and approval of the Site Agent who shall approve a programme of work.

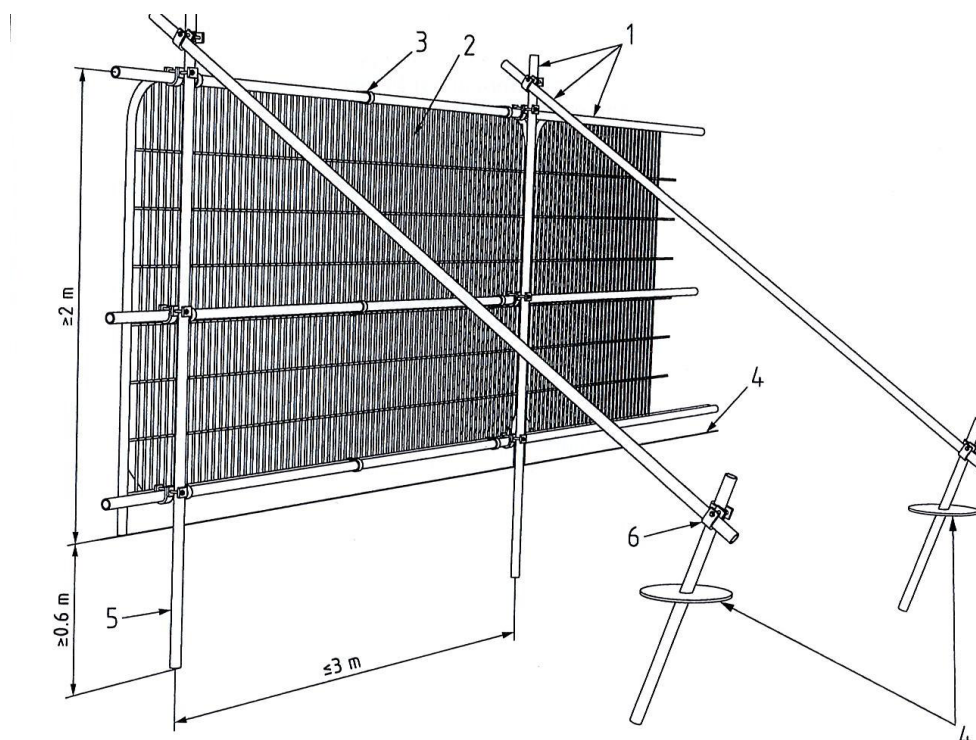
6.3 *Tree Protection Fencing*

6.3.1 Tree Protection Fencing Type 1 must be installed in the position as shown on the Tree Protection Plan SA21376 TPP01/2 (APPENDIX D) before any other works on site can be undertaken.

6.3.2 **Tree Protection Fencing Type 1** should be set out as per Section 6.2 of BS5837; 2012 and will comprise a scaffold framework, consisting of vertical and horizontal scaffolds with vertical tubes spaced at a maximum of 3m intervals and driven securely into the ground. Weld mesh (Heras or similar) panels will be securely fixed on to this framework with scaffold clamps. Tubes will be firmed into holes in the ground made with post hole boring equipment. Bracing poles will be fixed to the inside of the barrier to ensure maximum rigidity, and should be located to avoid contact with structural roots.

6.3.3 See **Figure 2** for details of the protective fencing to be employed in all circumstances, where existing site conditions allow. Fencing is to be erected as shown on the drawing. All fencing must be fixed in position with driven scaffold poles so that they cannot be moved during the construction period.

6.3.4 All-weather notices, A4 size, shall be attached to the tree protection fencing every 10m at 1.5m high with the words: 'Tree Protection Fence—strictly no access' - see **Figure 3**.

**Key**

- 1 Standard scaffold poles
- 2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
- 3 Panels secured to uprights and cross-members with wire ties
- 4 Ground level
- 5 Uprights driven into the ground until secure (minimum depth 0.6 m)
- 6 Standard scaffold clamps

Figure 2 - Tree Protection Fencing**Figure 3** - Tree Protection Fencing signage.

- 6.3.5 Tree Protection Fencing Type 2** must be installed in the position as shown on the Tree Protection Plan SA21376 TPP01/2 (APPENDIX D) before any other works on site can be undertaken.
- 6.3.6 Tree Protection Fencing Type 2**-An alternative specification is proposed given the limited construction traffic expected around the off-site works (swale and outfall). Orange plastic mesh barrier with metal fencing pins will be used to protect the buffer zone in this area of the site.
- 6.4 Footpath Construction in the Buffer Zone**
- 6.4.1 'No dig' construction techniques will be used for the construction of the gravel footpath. A cellular confinement system (Cell web, or similar approved) will be installed and backfilled with clean aggregate, to be finished with permeable gravel.
- 6.4.2 The required depth of the cellular confinement system is determined by the proposed loadings and the site ground conditions, therefore the final design of the system should be specified by the project engineer.
- 6.4.3 Where possible, the new surface must be established above the existing levels of the RPA.
- 6.4.4 Excavations or raising levels may be required to form an acceptable cross fall in some areas of the path.
- 6.4.5 Excavations to achieve the required cross fall must not exceed 100mm depth.
- 6.4.6 Level raising to achieve the required cross fall must not exceed 200mm depth.
- 6.4.7 Hand excavations will be undertaken carefully within the RPA using either hand tools or an 'air spade' (a compressed air powered tool). Hand digging will commence using a fork to loosen the surrounding soil and expose any tree roots that may be present. The extent of excavation is to be the absolute minimum required to facilitate the construction.
- 6.4.8 Hand excavation must be carried out under arboricultural supervision.
- 6.4.9 Any roots smaller than 25mm diameter, may be pruned back if required. A clean cut must be made, preferably to a side branch, using a proprietary cutting tool such as bypass secateurs or handsaws. Roots larger than 25mm must only be severed following consultation with an arborist, as they may be essential to the tree's health and stability.
- 6.4.10 Until such time as construction works in these areas are completed any severed roots, the ends of which may be exposed, are to be covered by dry, clean hessian sacking to prevent desiccation and to protect from rapid temperature changes. Prior to backfilling any hessian wrapping must be removed and retained roots will be surrounded with sharp sand (builder's sand must not be used due to its high salt content which is toxic to tree root), or other loose granular fill, before soil or other material is replaced.
- 6.4.11 A geo-textile membrane will be laid out in position (to allow drainage and separation and prevent pollution of roots. A Cellular Confinement System (CCS) will be pinned out in position, using road pins and taking care to avoid any roots. The CCS will be backfilled with non-leaching clean aggregate (no-fines stone to allow water percolation and gaseous exchange).
- 6.4.12 Machinery must not be tracked over any unprotected root protection areas.
- 6.4.13 The CCS must be infilled with machinery only running on proprietary ground protection boards placed on a compressible layer of bark mulch, or the filled CCS and not the exposed surface of the RPA, by starting work from outside the RPA, working inwards.
- 6.4.14 Construction will not be carried out during wet weather, and will be undertaken when the ground is driest and least prone to compaction.
- 6.4.15 Timber board edging will be used as edge supports above ground, held in place with soft wood pegs.
- 6.4.16 Where it is necessary to peg the timber edging in place, the pegs will be located clear of any major tree roots visible on the surface.

6.5 Construction of boardwalk in buffer zone

- 6.5.1 A boardwalk will be constructed over sensitive areas of the buffer zone, where excavation cannot be permitted e.g. within proximity of large structural roots near to stems.
- 6.5.2 A boardwalk will be constructed over sloping ground, in areas where excavation would otherwise exceed the 100mm threshold.
- 6.5.3 A boardwalk will be constructed over sloping ground, in areas where raising levels would otherwise exceed the 200mm threshold.
- 6.5.4 The precise locations and distances of the boardwalk is indicated on the Tree Protection Plan SA21376 TPP01/2 (APPENDIX D).
- 6.5.5 The board walk must comprise a rot resistant composite material.
- 6.5.6 The board walk must be installed using screw piles.
- 6.5.7 The pile type will be galvanised steel screw piles to protect the soil and roots from the toxic effects of uncured concrete. The smallest practical pile diameter will be selected to achieve the construction (as this will minimise root disturbance).
- 6.5.8 Hand excavation techniques will be used as a precautionary measure to check for the presence of any larger structural roots and ascertain the optimum position for each pile.
- 6.5.9 Hand excavations will be undertaken carefully within the RPA using either hand tools or an 'air spade' (a compressed air powered tool). Hand digging will commence using a fork to loosen the surrounding soil and expose any tree roots that may be present. The extent of excavation is to be the absolute minimum required to facilitate the construction.
- 6.5.10 Hand excavation must be carried out under arboricultural supervision.
- 6.5.11 Any roots smaller than 25mm diameter, may be pruned back if required. A clean cut must be made, preferably to a side branch, using a proprietary cutting tool such as bypass secateurs or handsaws. Roots larger than 25mm must only be severed following consultation with an arborist, as they may be essential to the tree's health and stability.
- 6.5.12 Until such time as construction works in these areas are completed any severed roots, the ends of which may be exposed, are to be covered by dry, clean hessian sacking to prevent desiccation and to protect from rapid temperature changes. Prior to backfilling any hessian wrapping must be removed and retained roots will be surrounded with sharp sand (builder's sand must not be used due to its high salt content which is toxic to tree root), or other loose granular fill, before soil or other material is replaced.
- 6.5.13 The contractor will use the smallest practical small tracked piling rig to sink the piles.
- 6.5.14 The piling rig must be operated from outside the RPAs of retained trees.
- 6.5.15 In instances where the piling rig must be operated from inside the RPA, then a temporary piling mat will be created using proprietary ground protection boards placed on a compressible layer of bark mulch.

6.6 Construction of Swale in buffer zone

- 6.6.1 The precise locations of the swale is indicated on the Tree Protection Plan SA21376 TPP01/2 (APPENDIX D).
- 6.6.2 Any machinery used in the swale excavation should be operated from outside the buffer zone to avoid compaction damage to the soil and roots.
- 6.6.3 The extent of excavation is to be the absolute minimum required to facilitate the construction.

APPENDIX A**TREE SURVEY NOTES****Tree survey to BS 5837:2012 -Trees in relation to design demolition and construction limitation notes**

This survey to BS 5837:2012 is a visual assessment undertaken from ground level without any physical investigation and should be regarded as a preliminary overview of the trees on site. 'This term [visual] describes a general approach to tree surveying using visual observation and recording, combined with experience and knowledge of tree biology and structure to draw conclusions about tree condition'p8[1]

Observations on structural condition, preliminary management recommendations, (e.g. pruning) and the estimated remaining contribution are based on visual indicators present at the time of inspection (i.e. a single point in time).

It should be noted that numerous potential defects may not be detectable dependent upon timing of inspection, in particular wood decay fungi which may only occasionally produce external fruitifications or may not provide external symptoms until an advanced state of invasion is achieved.

Trees are long lived organisms with a significant proportion of growth below ground, (in addition to what is evident above ground) that naturally lose branches and may potentially fail in many ways.

Risk Assessments

Whilst hazards may be identified in this document e.g. a defect 'that may cause harm'. The risk, (i.e. 'the chance high or low) that somebody could be harmed by these and other hazards, together with an indication of how serious the harm could be' is not assessed. [2]

Requirements for ongoing inspections (to monitor observed defects) and risk assessments will be suggested as necessary in the body of the report. The level and frequency of assessment required (in line with HSE advice) will depend on a range of factors for example 'the frequency of public access to the tree' p4 [3]. A balanced and proportionate approach to tree safety management is advocated in the National Tree Safety Group publication 'Common sense risk management of trees'. [4]

The health, (condition) and resulting safety of trees for a risk assessment should be checked on a cyclical basis, alternating between early and late seasons to ensure a full picture of the trees current health is established. Therefore the assessment of risk that trees present on a particular site would be additional to the scope of this BS 5837:2012 tree survey.

Arboricultural Impact Assessments, Tree Protection Plans, Method Statements, Tree Management Plans

These items are additional services identified relating to design demolition and construction in BS5837:2012 which may form part of a strategy to manage risks.

NHBC Guidelines

The technical requirements of the National House Building Council Chapter 4.2 Building near trees are not fully met under the requirements of BS BS5837:2012 in relation to shrinkable soils and 'vegetation surveys' (which include hedgerows and shrubs.). p4 [5]

References/ Further reading

[1] The Arboricultural Association Guidance Note 7 Tree Surveys: A Guide to good Practice.

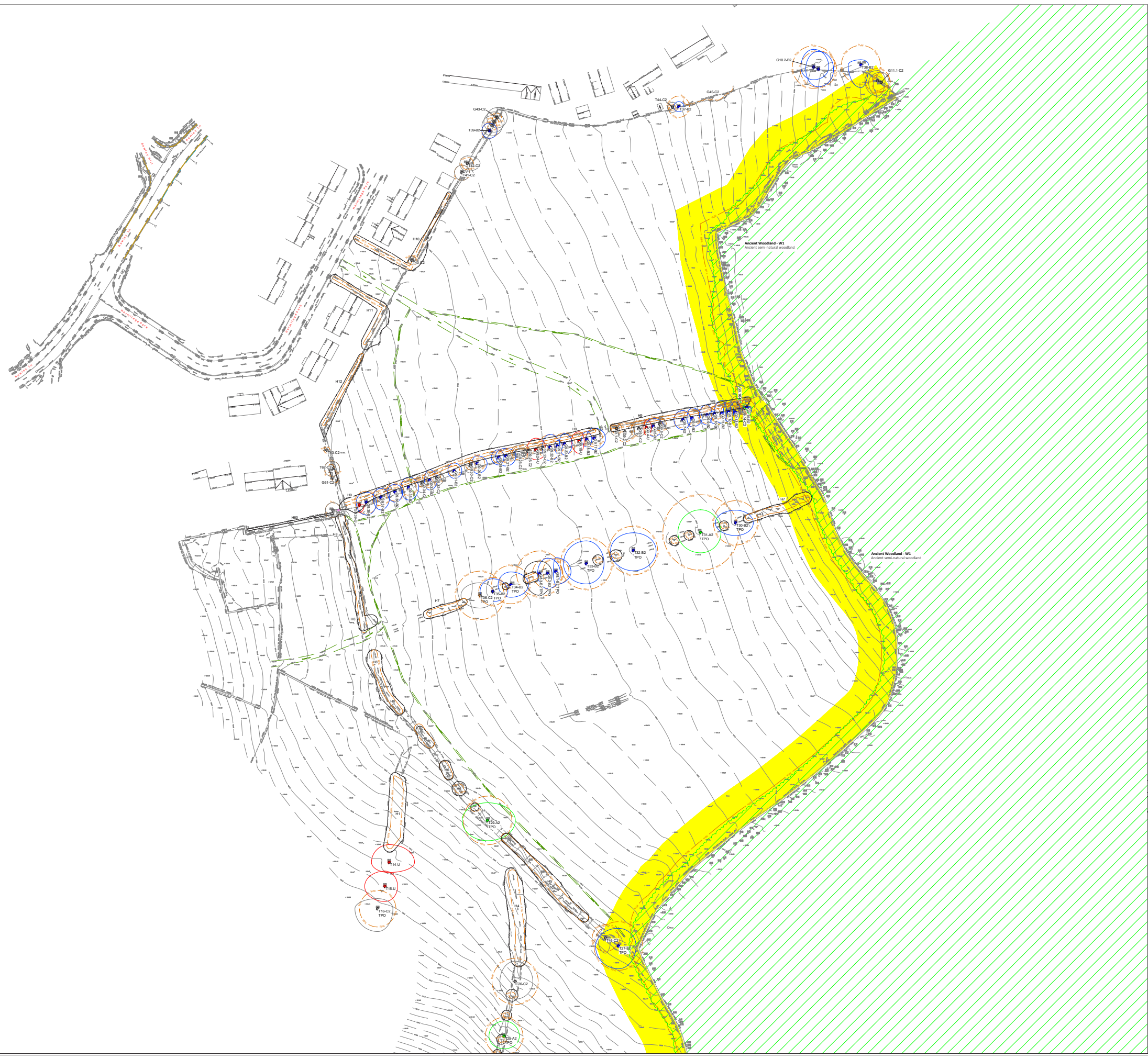
[2] Health and Safety Executive Guidance <http://www.hse.gov.uk/risk/risk-assessment.htm>

[3] HSE guidance on Tree Management SIM01/2007/05 Management of the risk from falling trees or branches.

[4] National Tree Safety Group Guidance – Common Sense Risk Management of Trees.

[5] National House Building Council Chapter 4.2 Building near trees (Part 4 Foundations).

APPENDIX B**TREE CONSTRAINTS PLAN**



Key

- Existing hedge
- Ancient Woodland - W1**
Ancient semi-natural woodland
- Ancient Woodland Buffer Zone**
Minimum 15m buffer from the boundary of the woodland
- Tree retention category A**
High quality with an estimated life expectancy of at least 40 years
- Tree retention category B**
Moderate quality with an estimated life expectancy of at least 20 years
- Tree Group/Woodland retention category B**
Moderate quality with an estimated life expectancy of at least 20 years
- Tree retention category C**
Low quality with an estimated life expectancy of at least 10 years, OR young tree with a stem diameter below 150mm
- Tree Group/Woodland retention category C**
Low quality with an estimated life expectancy of at least 10 years, OR young tree with a stem diameter below 150mm
- Tree category U**
Poor condition with an estimated life expectancy of less than 10 years
- RPA**
Minimum Root Protection Area

Trees have been surveyed and categorized as per the recommendations and guidance in BS 5837:2012 Trees in relation to design, demolition and construction.

This drawing is to be read in conjunction with the Arboricultural Survey report.

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Wakefield Manchester Milton Keynes Reading London Harrogate

Client
Miller Homes

Project Title
**Hermitage Park
Lepton**

Drawing Title
Tree Constraints Plan 1 of 2

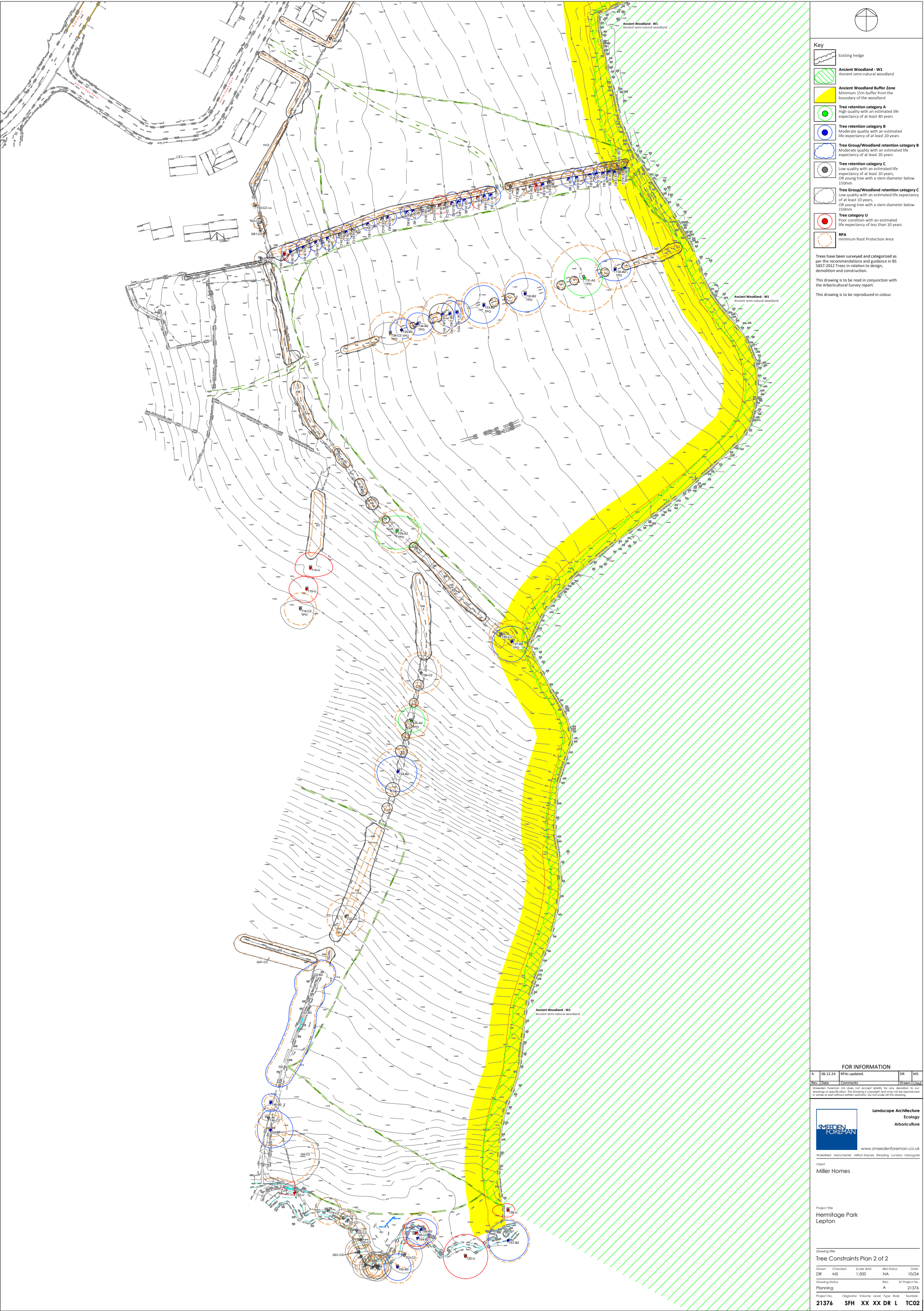
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Drawing Status	Rev	SP Project No
Planning	A	21376

Project No.	Originator	Volume	Level	Type	Role	Number
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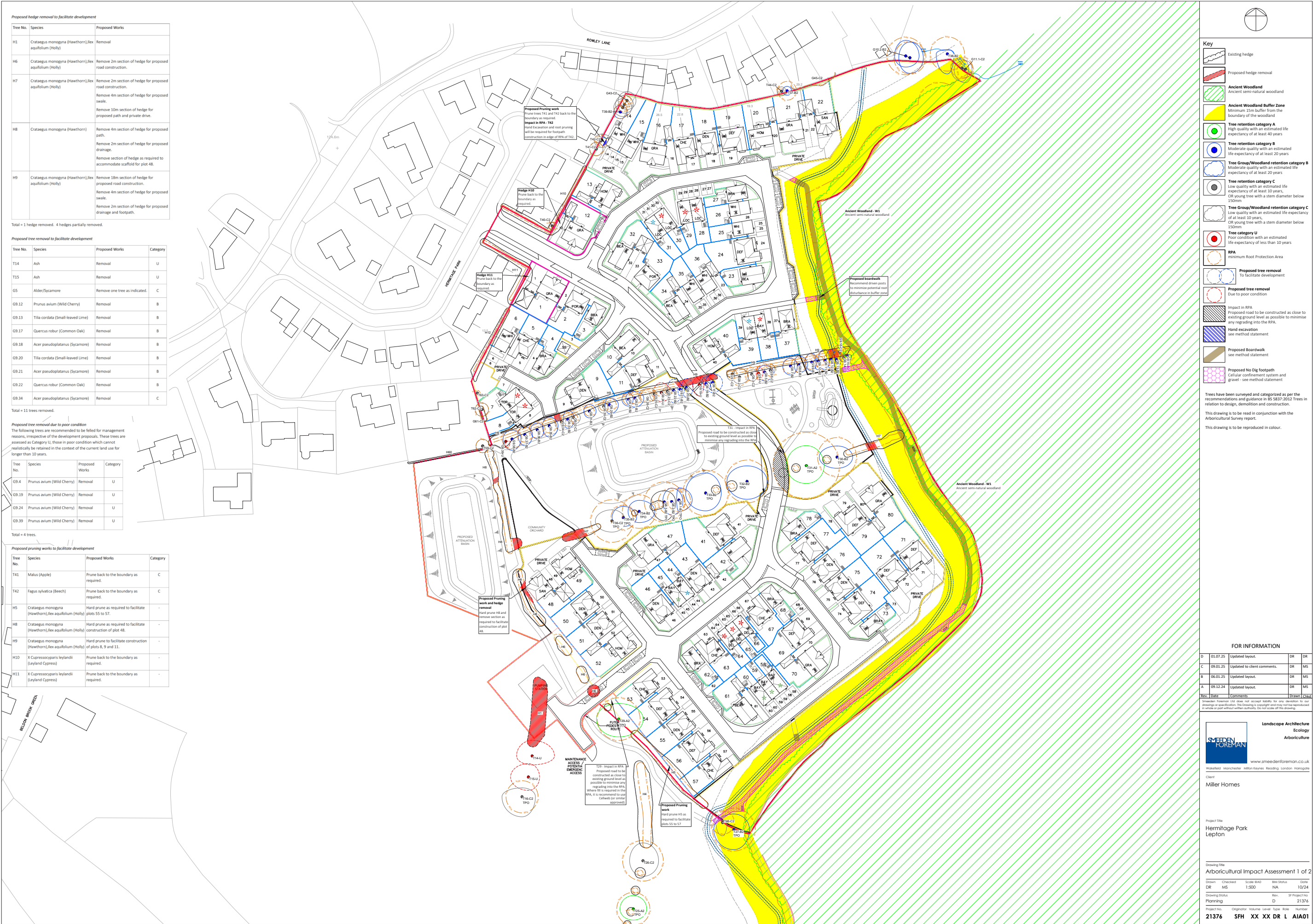
SA 21376 Hermitage Park, Lepton\Arboriculture

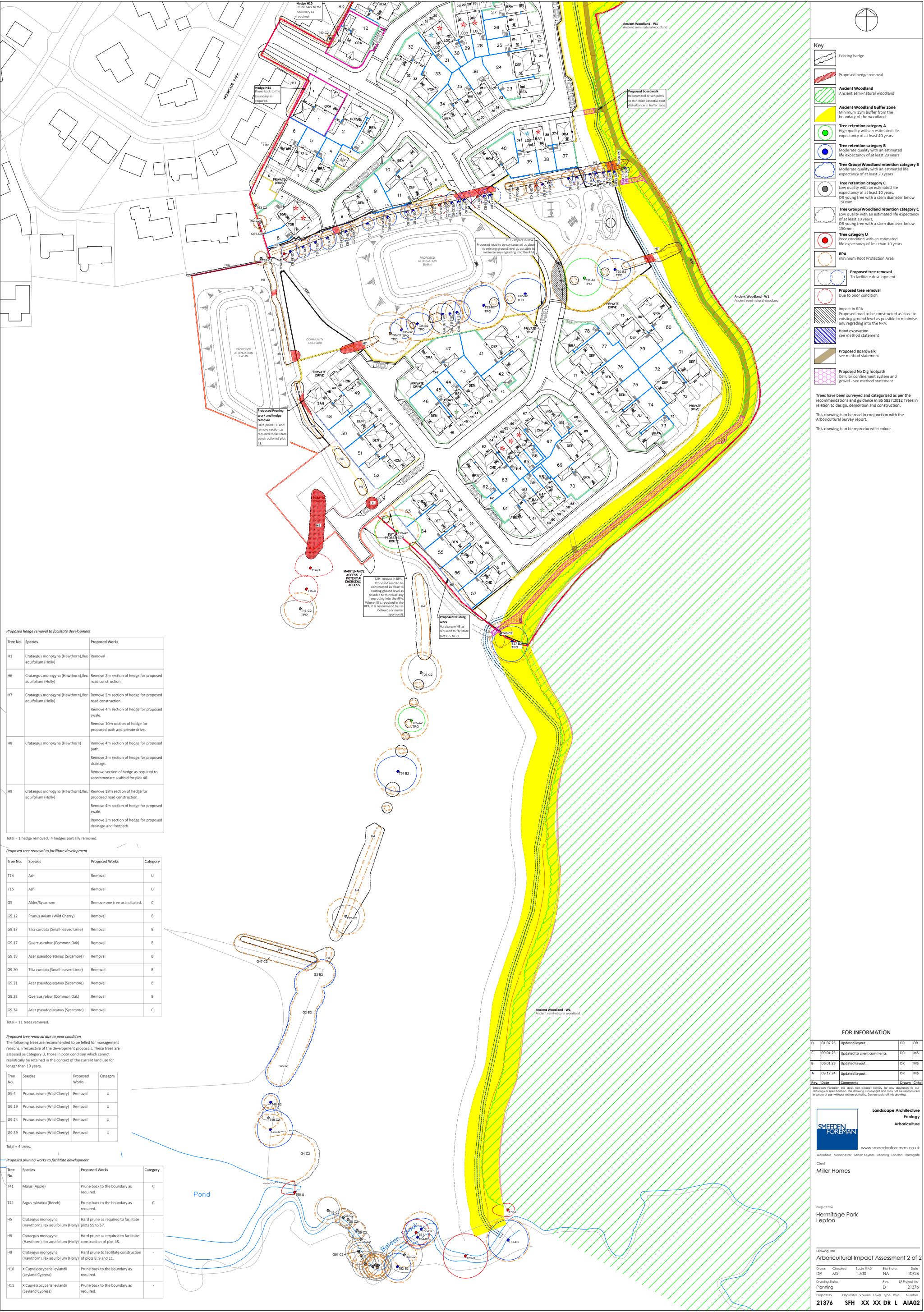
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APPENDIX C

ARBORICULTURAL IMPACT ASSESSMENT PLAN





Proposed hedge removal to facilitate development

Tree No.	Species	Proposed Works
H1	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Removal
H6	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Remove 2m section of hedge for proposed road construction.
H7	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Remove 2m section of hedge for proposed road construction. Remove 4m section of hedge for proposed swale. Remove 10m section of hedge for proposed path and private drive.
H8	Crataegus monogyna (Hawthorn)	Remove 4m section of hedge for proposed path. Remove 2m section of hedge for proposed drainage. Remove section of hedge as required to accommodate scaffold for plot 48.
H9	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Remove 18m section of hedge for proposed road construction. Remove 4m section of hedge for proposed swale. Remove 2m section of hedge for proposed drainage and footpath.

Total = 1 hedge removed. 4 hedges partially removed.

Proposed tree removal to facilitate development

Tree No.	Species	Proposed Works	Category
T14	Ash	Removal	U
T15	Ash	Removal	U
G5	Alder/Sycamore	Remove one tree as indicated.	C
G9.12	Prunus avium (Wild Cherry)	Removal	B
G9.13	Tilia cordata (Small-leaved Lime)	Removal	B
G9.17	Quercus robur (Common Oak)	Removal	B
G9.18	Acer pseudoplatanus (Sycamore)	Removal	B
G9.20	Tilia cordata (Small-leaved Lime)	Removal	B
G9.21	Acer pseudoplatanus (Sycamore)	Removal	B
G9.22	Quercus robur (Common Oak)	Removal	B
G9.34	Acer pseudoplatanus (Sycamore)	Removal	C

Total = 11 trees removed.

Proposed tree removal due to poor condition

The following trees are recommended to be felled for management reasons, irrespective of the development proposals. These trees are assessed as Category U, those in poor condition which cannot realistically be retained in the context of the current land use for longer than 10 years.

Tree No.	Species	Proposed Works	Category
G9.4	Prunus avium (Wild Cherry)	Removal	U
G9.19	Prunus avium (Wild Cherry)	Removal	U
G9.24	Prunus avium (Wild Cherry)	Removal	U
G9.39	Prunus avium (Wild Cherry)	Removal	U

Total = 4 trees.

Proposed pruning works to facilitate development

Tree No.	Species	Proposed Works	Category
T41	Malus (Apple)	Prune back to the boundary as required.	C
T42	Fagus sylvatica (Beech)	Prune back to the boundary as required.	C
H5	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Hard prune as required to facilitate construction of plots 55 to 57.	-
H8	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Hard prune as required to facilitate construction of plot 48.	-
H9	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Hard prune to facilitate construction of plots 8, 9 and 11.	-
H10	X Cupressocyparis leylandii (Leyland Cypress)	Prune back to the boundary as required.	-
H11	X Cupressocyparis leylandii (Leyland Cypress)	Prune back to the boundary as required.	-

APPENDIX D

TREE PROTECTION PLAN

NOTES:

TREE PROTECTION FENCING

Tree protection fencing must be installed in the position as shown on the Tree Protection Plan before any other works on site can be undertaken.

Tree Protection Fencing should be set out as per Section 6.2 of BS5837:2012 and will comprise a scaffold framework, consisting of vertical and horizontal scaffolds with vertical tubes spaced at a maximum of 3m intervals and driven securely into the ground. Weld mesh (hexas or similar) panels will be securely fixed on to this framework with scaffold clamps. Tubes will be fixed into holes in the ground made with post hole boring equipment. Bracing poles will be fixed to the inside of the barrier to ensure maximum rigidity, and should be located to avoid contact with structural roots.

See Detail 1 for details of the protective fencing to be employed in all circumstances, where existing site conditions allow. Fencing is to be erected as shown on the drawing. All fencing must be fixed in position with driven scaffold poles so that they cannot be moved during the construction period.

All-weather notices, A4 size, shall be attached to the tree protection fencing every 10m at 1.5m high with the words: 'Tree Protection Fence—strictly no access'.

MIXING AND STORAGE OF MATERIALS

All mixing and storage of cement and concrete will take place in a designated area, which will be located well outside the vicinity of the RPA.

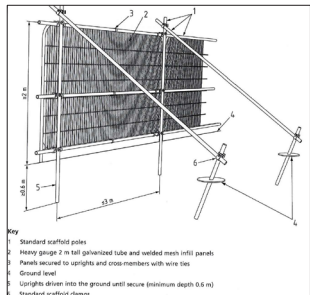
All mixing operations must take place with ground protection in place, which will comprise a tarpaulin and ground boards. A spill kit (which is adequately equipped to deal with the materials being held on site) must be kept on site at all times. A supply of water must also be available during mixing operations (to dilute any spillage).

HAND EXCAVATION AND ROOT PRUNING IN THE RPA

The impact in the RPA will be managed by hand digging and carrying out root pruning if required. The majority of the RPA of this tree will not be impacted by development (as it will be protected by fencing). Excavations will be undertaken carefully within the RPA using either hand tools or an 'air spade' (a compressed air powered tool). Hand digging will commence using a fork to loosen the surrounding soil and expose any tree roots that may be present. The extent of excavation is to be the absolute minimum required to facilitate the construction.

The diameter of roots tends to taper rapidly at a distance of 2-3m from the tree, until they are only 2-5cm in diameter. Any roots smaller than 25mm diameter, may be pruned back if required. A clean cut must be made, preferably to a side branch, using a proprietary cutting tool such as bypass secateurs or hand saws. Roots larger than 25mm must only be severed following consultation with an arborist, as they may be essential to the tree's health and stability.

Until such time as construction works in these areas are completed any severed roots, the ends of which may be exposed, are to be covered by dry, clean hessian sacking to prevent desiccation and to protect from rapid temperature changes. Prior to backfilling any hessian wrapping must be removed and retained roots will be surrounded with sharp sand (builder's sand must not be used due to its high salt content which is toxic to tree roots), or other loose granular fill, before soil or other material is replaced.



DETAIL 1 - Tree protection fencing - 1

Default specification BS5837:2012.



DETAIL 2 - Tree protection fencing - 2

Alternative specification. Orange plastic mesh barrier with metal fencing pins.

Proposed hedge removal to facilitate development

Tree No.	Species	Proposed Works
H1	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Removal
H6	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Remove 2m section of hedge for proposed road construction.
H7	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Remove 2m section of hedge for proposed road construction. Remove 4m section of hedge for proposed swale. Remove 10m section of hedge for proposed path and private drive.
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H9	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Remove 18m section of hedge for proposed road construction. Remove 4m section of hedge for proposed swale. Remove 2m section of hedge for proposed drainage and footpath.

Total = 1 hedge removed. 4 hedges partially removed.

Proposed tree removal to facilitate development

Tree No.	Species	Proposed Works	Category
T14	Ash	Removal	U
T15	Ash	Removal	U
G5	Alder/Sycamore	Remove one tree as indicated.	C
G9.12	Prunus avium (Wild Cherry)	Removal	B
G9.13	Tilia cordata (Small-leaved Lime)	Removal	B
G9.17	Quercus robur (Common Oak)	Removal	B
G9.18	Acer pseudoplatanus (Sycamore)	Removal	B
G9.20	Tilia cordata (Small-leaved Lime)	Removal	B
G9.21	Acer pseudoplatanus (Sycamore)	Removal	B
G9.22	Quercus robur (Common Oak)	Removal	B
G9.34	Acer pseudoplatanus (Sycamore)	Removal	C

Total = 11 trees removed.

Proposed tree removal due to poor condition

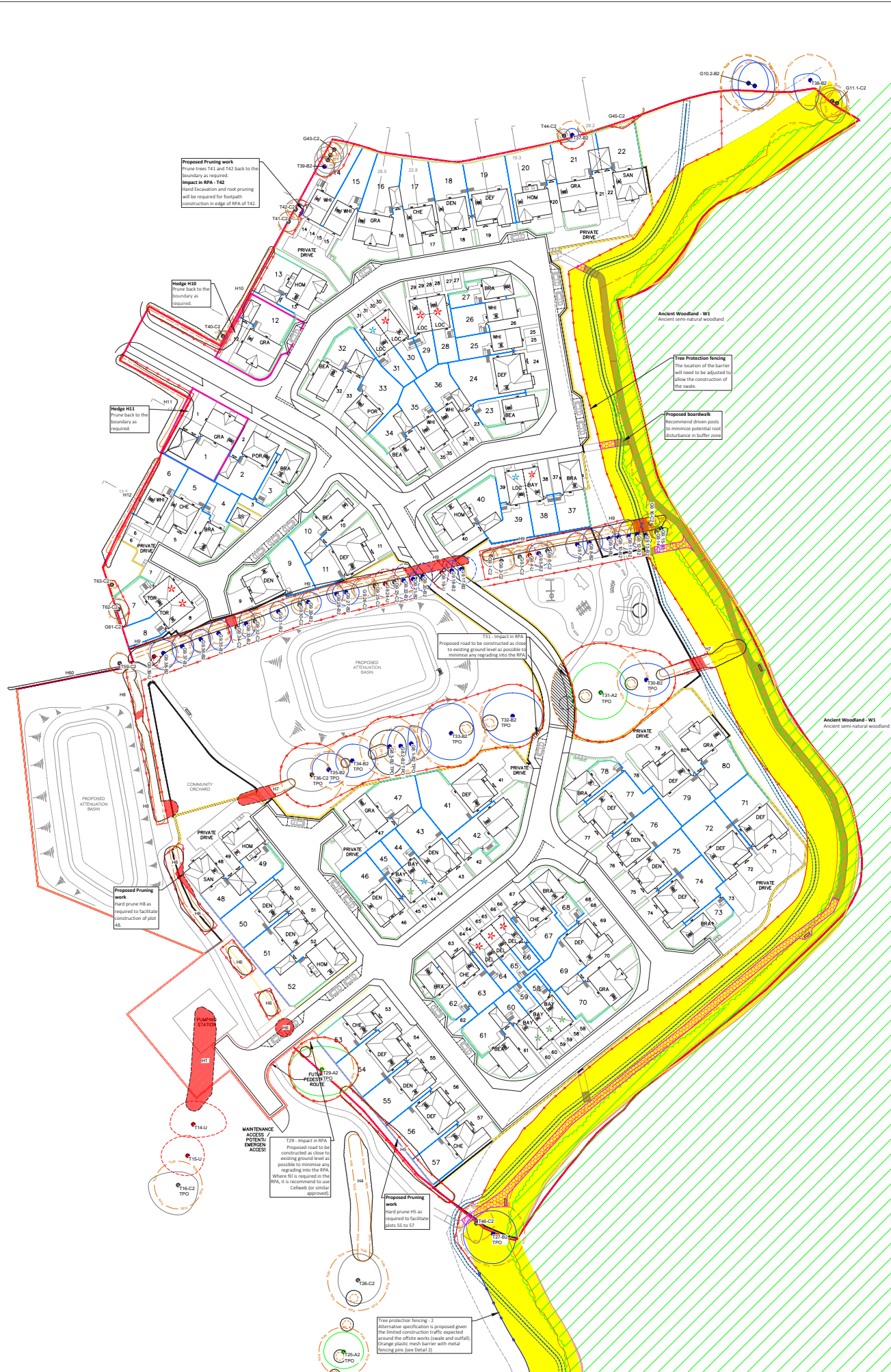
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Tree No.	Species	Proposed Works	Category
G9.4	Prunus avium (Wild Cherry)	Removal	U
G9.19	Prunus avium (Wild Cherry)	Removal	U
G9.24	Prunus avium (Wild Cherry)	Removal	U
G9.39	Prunus avium (Wild Cherry)	Removal	U

Total = 4 trees.

Proposed pruning works to facilitate development

Tree No.	Species	Proposed Works	Category
T41	Malus (Apple)	Prune back to the boundary as required.	C
T42	Fagus sylvatica (Beech)	Prune back to the boundary as required.	C
H5	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Hard prune as required to facilitate plots 55 to 57.	-
H8	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Hard prune as required to facilitate construction of plot 48.	-
H9	Crataegus monogyna (Hawthorn), Ilex aquifolium (Holly)	Hard prune to facilitate construction of plots 8, 9 and 11.	-
H10	X Cupressocypariss leylandii (Leyland Cypress)	Prune back to the boundary as required.	-
H11	X Cupressocypariss leylandii (Leyland Cypress)	Prune back to the boundary as required.	-



Key

- Existing hedge
- Proposed hedge removal
- Ancient Woodland
- Ancient semi-natural woodland
- Ancient Woodland Buffer Zone
- Minimum 15m buffer from the boundary of the woodland
- Tree retention category A
- High quality with an estimated life expectancy of at least 40 years
- Tree retention category B
- Moderate quality with an estimated life expectancy of at least 20 years
- Tree Group/Woodland retention category B
- Moderate quality with an estimated life expectancy of at least 20 years
- Tree retention category C
- Low quality with an estimated life expectancy of at least 10 years, OR young tree with a stem diameter below 150mm
- Tree Group/Woodland retention category C
- Low quality with an estimated life expectancy of at least 10 years, OR young tree with a stem diameter below 150mm
- Tree category U
- Poor condition with an estimated life expectancy of less than 10 years
- RPA
- minimum Root Protection Area
- Proposed tree removal
- To facilitate development
- Proposed tree removal
- Due to poor condition
- Impact in RPA
- Proposed road to be constructed as close to existing ground level as possible to minimise any regrading into the RPA.
- Hand excavation
- see method statement
- Tree protection fencing - 1
- Default specification BS5837:2012, see Detail 1 and method statement
- Tree protection fencing - 2
- Alternative specification: Orange plastic mesh barrier with metal fencing pins (see Detail 2)
- Proposed Boardwalk
- see method statement
- Proposed No Dig footpath
- Cellular confinement system and gravel - see method statement

Trees have been surveyed and categorized as per the recommendations and guidance in BS 5837:2012 Trees in relation to design, demolition and construction. This drawing is to be read in conjunction with the Arboricultural Survey report.

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Rev	Date	Comments	Drawn	Check
D	01.07.25	Updated layout.	DR	DR
C	09.01.25	Updated to client comments.	DR	MS
B	06.01.25	Updated layout.	DR	MS
A	10.12.24	Updated layout.	DR	MS

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Project Title
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Drawing Title Tree Protection Plan 1 of 2					
Drawn	Checked	Scale RAO	Scale BAA	BAA Status	Date
DR	MS	1:500	N/A	N/A	10/24
Drawing Status				Rev	SP Project No
Planning				D	21376
Project No.	Originator	Volume	Level	Type	Role
21376	SFH	XX	XX	DR	L
				TPP01	



