

Draft Arboricultural Implications Assessment

In accordance with

BS: 5837:2012

At

Willowbrook South

On the instructions of

Wates

Dated

10th August 2024

Written by Mr.V. Lewis. Tech.Cert.Arbor.A. M.ARBORA


Assessed & approved by Mr. S J Ambler. Tech.Arbor.A, Dip.Arb. (RFS). F.ARBORA.

Of

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Signed Steve Ambler	
Date	10 th August 2024

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INTRODUCTION, SCOPE AND BACKGROUND

This assessment is undertaken by Stephen Ambler, the Company founder, a professional arboriculturalist and a Fellow of the Arboricultural Association with over 40 years' experience in the arboricultural industry, serving 19 of those years in local government as a principal arboricultural and woodlands officer. His Consultancy Practice was established in 1999 and later expanded in 2006 with the launch of a specialist 'Tree Contracting Unit' under the revised name - Steve Ambler & Sons Tree Specialists Ltd. Stephen holds the relevant qualifications: -

- a) Certificate in Arboriculture (Royal Forestry Society)
- b) Professional Technician in Arboriculture (Arboricultural Association)
- c) Professional Diploma in Arboriculture (Royal Forestry Society)
- d) Fellow Member of the Arboricultural Association.

This Arboricultural Implications Assessment (AIA) is a study to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees because of the current proposal. It follows on to an earlier Tree Survey, Tree Categorisation, and Tree Constraints Plan¹ in which the trees were scored and assessed for their suitability for retention within any proposed development. The trees are clearly marked on the Tree, Removal, Retention, & Protection Plan (Draft) within the Appendices.

This assessment is carried out using information provided on drawings: –

- 2485-00(02)102 M- Tree Constraints Overlay
- 10156-GRY-XX-XX-DR-C-002-P3 - Drainage Strategy Layout (Civil 3D Export)
- 10156-GRY-XX-XX-DR-C-003-P3 - Indicative Proposed Levels (Civil 3D Export) cleaned-up
- LA.100[A] Landscape Strategy
- LA.103[A] Soil volumes for proposed trees

The boundary surrounding the proposed development site in which the trees are contained and form the contents of this Report is identified by plan at the rear of the Report and is hereafter referred to as 'the site' .

The provision and acceptance of this Report are subject to the general terms and conditions of Steve Ambler & Sons Tree Specialists Ltd.

All important notes are highlighted using grey background.

PLANNING CONDITIONS

None as yet

SITE DESCRIPTION

Ordnance National Grid Reference: ST 23409.08, 80643.32

¹ S. Ambler - Tree Survey, Tree Categorisation, and Tree Constraints Plan at Willowbrook South July 2024

Nearest Post Code: CF3 0PY

What3words: ///grape.object.slices

The site is located in the Saint Mellon' s district, to the eastern outskirts of Cardiff City in South Wales. The main survey area is located to the south-west of Willowbrook Drive.

The site comprises of Public Open Space surrounded by residential housing to the south and west with the most recent housing development being undertaken by Wates Residential, to the south. Across Willowbrook Drive lies the north section which is due to be developed for housing. Beyond the site, to the north lies Cath Cobb Woodland which is partially defined as Ancient Semi-Natural Woodland. The open green space is formed by amenity grassland, scrub, secondary broadleaved woodland and perhaps most importantly, ancient bank and ditch hedgerows, demarcating old field boundaries, with many mature standard oak trees. The site seems to be grazed occasionally by horses although there are no stock fences.

Most trees are native and typically occur as part of a larger feature such as hedgerows, secondary woodland and scrub.

IMPORTANT NOTE.

Group 1, Group 2, and Groups 3a & b are subject to protection under **Tree Preservation Order 68** (1975), Ref: A01, 'Part of Western Boundary of Site Alongside Trefaser Crescent' (Refer to TPO plan in Appendices).

White willow (*Salix alba*) was noted and its retention particularly in maturity needs careful consideration. Whilst it is important in terms of habitat and supports many associated species in the UK, it is inherently structurally weak and not deemed suitable for retention where the target occupancy will become high – very high, with a proposed housing development. Its retention in designed open spaces may be acceptable but in close proximity to housing it should be considered for removal with its stump treated to prevent coppice regrowth. Whilst coppicing could be considered on a cyclical basis, realistically this management option is likely to lapse over time and such unmanaged trees will often develop into structurally weak and large multi-stemmed specimens.

Category A Trees

No category A trees were identified on site.

Category B Trees

The following category B trees are recorded on the site, identified as – **G1, G3, G5a, G5f, T1, T5, T6, T7, T8, T10, T11, T12, T44, T45, T49, T50, T51, T53, T58, T60, T62, T65, T66, T67, and T68**. These are trees which are large and prominent in the locality and in general good health and condition with some minor defects, or groups which cohesively provide screening of views into or out of the site (or between parts of it).

The remaining trees are not considered to be of any particular arboricultural or visual merit, are below the threshold of 75-mm diameter when measured at 1.5 metres above ground level or are in poor condition and have been allocated retention categories C or U.

NOTE - Category C trees are of little merit and need not necessarily be a significant constraint on the site's potential as their loss may be mitigated through planting.

SPECIES RECORDED

Listed in alphabetical order -

- Common alder - *Alnus glutinosa*
- Common ash - *Fraxinus excelsior*
- Common dogwood - *Cornus sanguinea*
- Common hawthorn - *Crataegus monogyna*
- Common holly - *Ilex aquifolium*
- Elder - *Sambucus nigra*
- Field maple - *Acer campestre*
- Goat willow - *Salix caprea*
- Hazel - *Corylus avellana*
- Horse chestnut - *Aesculus hippocastanum*
- Pedunculate oak - *Quercus robur*
- White willow - *Salix alba*

ARBORICULTURAL IMPLICATIONS ASSESSMENT

The following matters are considered under this Arboricultural Implications Assessment -

- A) Site Designation - Tree Preservation Order and Conservation Area protection
- B) The above and below ground constraints.
- C) The construction of the proposed development
- D) Whether design can be modified to accommodate tree retention
- E) Infrastructure requirements, easements for above or below ground services: highway safety and visibility splays and other infrastructure provisions such as lighting, CCTV and signage.
- F) Whether tree losses from the development proposal can be mitigated
- G) A realistic assessment of the probable impact of the proposed development on the trees and vice versa with due allowances for their future growth and maintenance requirements.
- H) The relationship of windows to trees which may obstruct light considered.
- I) Large trees can sometimes cause apprehension to occupiers of nearby buildings especially during windy weather.

- J) Leaves of some species may cause problems, particularly in autumn by blocking gullies and gutters. Fruit can cause slippery patches, and the accumulation of honeydew may be damaging to surfaces and vehicles.
- K) The effects that development proposals may have on the amenity value of the trees both on and near the site.

TREE PRESERVATION ORDER AND CONSERVATION AREA PROTECTION

Group 1, Group 2, and Groups 3a & b are subject to protection under Tree Preservation Order 68 (1975), Ref: A01, 'Part of Western Boundary of Site Alongside Trefaser Crescent' (Refer to TPO plan in Appendices).

It must be recognised that during the construction phase, should injury or damage occur to any protected tree then an offence would have been committed which could result in prosecution. All parts of the tree are protected including the roots. If any person is found guilty upon prosecution of an offence, then fines of up to £20,000 can be implied and in some circumstances, sums in excess of this.

TREES - THE ABOVE AND BELOW GROUND CONSTRAINTS

The below ground constraint of any retained tree is equal to its required Root Protection Area (RPA) or, the crown spread of the tree, whichever is greater, and this distance for each tree or group is provided within the Tables in both the Tree Constraints Plan and Report ¹ and as reproduced below in Table 1. The distance is a radial measurement provided in the column highlighted yellow. This radial distance must be measured from the centre of the tree's stem.

In the attached Tree Constraints Plan (Appendices), the RPAs are shown as solid orange lines whilst the canopy spreads of the trees are shown as solid green, blue or grey lines (subject to their category rating).

Table Key.

- Root Protection Area = Yellow Infill
- Trees & Groups Lost to Development = Red infill
- Groups Partially Lost to Development = Orange Infill.
- Areas of Caution = Purple Infill

(Where development operations are within, or close to a Root Protection Area, or where there is currently inadequate detail to make an assessment on the potential impact of the operation. The Project Arborist must be consulted as the detailed designs emerge and be covered under an Arboricultural Method Statement).

IMPORTANT NOTE

IT IS ASSUMED THE EXISTING FOOTPATH THROUGH THE WESTERN SECTION OF THE SITE IS REQUIRED FOR USE AND HAS NOT BEEN ENCLOSED WITHIN THE TREE PROTECTIVE BARRIER FENCING ON THE TREE PROTECTION PLAN. HOWEVER, IT IS HIGHLY ANTICIPATED THAT THE TREE ROOTS EXTEND BEYOND THE FOOTPATH AND SO GROUND PROTECTION WILL BE REQUIRED WHERE THE RPAs EXIST. See red highlighted areas in the Plan extract below

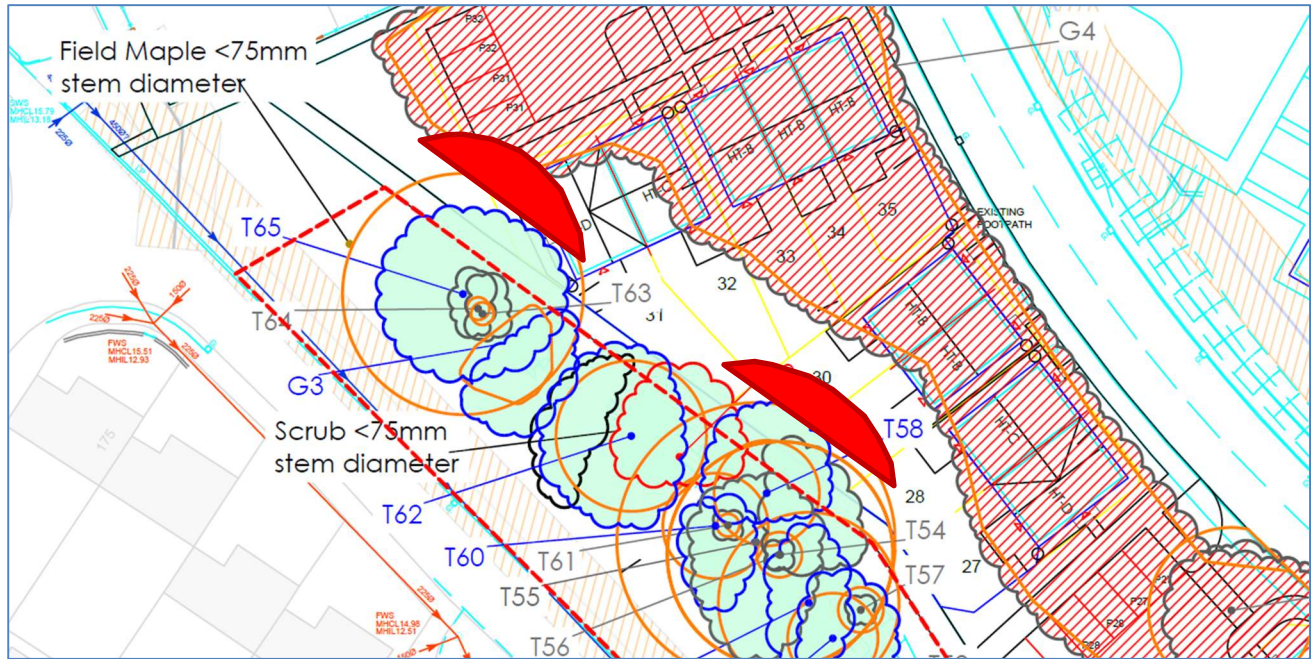


Table 1.

Tree Number	Tree Tag	Species	Height (M)	Effectual Diameter (mm)	Branch Spread (M)				1st Significant Branch (M)	Canopy Clearance (M)	Life stage	General Observations	Preliminary Management Recommendations	Remaining Contribution (years)	Retention Category	Root Protection Area (M ²)	Root Protection Radius	Photo Ref
					N	E	S	W										
G1	N/A	Hazel Common hawthorn Common ash	8	120	2	2	2	2	0	0	EM	A small woodland group made up of larger standard trees (recorded individually) amongst a dense scrubby, native broadleaf understory.	No action required at this time.	40+	B2	6	1.4	/
G2	N/S	Common hawthorn Hazel Pedunculate oak	10	130	2	2	2	2	0	0	EM	Unremarkable scrubby growth between larger standard trees (recorded individually).	No action required at this time.	20-40	C2	7	1.6	/
G3	N/A	Field maple Pedunculate oak	7	200	4	4	4	1	1.5	1.5	EM	Three trees of reasonable form. Somewhat suppressed by the dominant neighbouring tree to the west.	No action required at this time.	20-40	B2	18	2.4	/
G4	N/A	Common hawthorn Common dogwood Elder White willow	12	200	3	3	3	3	0	0	EM	Dense inaccessible group of mixed broadleaf scrub. Inaccessible due to dense occluding vegetation. Observed from a distance with all dimensions estimated. LOST TO DEVELOPMENT	Remove obstructing vegetation and re-inspect.	20-40	C3	18	2.4	/
G5a	N/A	Pedunculate oak	10	350	5	5	5	5	1	1	EM	Four trees of reasonable form.	No action required at this time.	40+	B2	55	4.2	/
G5b	N/A	White willow Common holly Common hawthorn Common dogwood Pedunculate oak	8	120	2	2	2	2	0	0	EM	Mixed native broadleaf scrub.	No action required at this time.	40+	C2	6	1.4	/

Tree Number	Tree Tag	Species	Height (M)	Effectual Diameter (mm)	Branch Spread (M)				1st Significant Branch (M)	Canopy Clearance (M)	Life stage	General Observations	Preliminary Management Recommendations	Remaining Contribution (years)	Retention Category	Root Protection Area (M2)	Root Protection Radius	Photo Ref
					N	E	S	W										
G5c	N/A	Common hawthorn Hazel White willow	7	100	2	2	2	2	0	0	EM	Native mixed broadleaf scrub growth. LOST TO DEVELOPMENT	No action required at this time.	40+	C3	4	1.2	/
G5d	N/A	Hazel	10	200	3	4	3	3	0	0	EM	Trees of reasonable form on the Eastern bank of the ditch.	No action required at this time.	20-40	C2	18	2.4	/
G5e	N/A	Pedunculate oak Goat willow Hazel Common dogwood	4	100	1	1	1	1	0	0	Y	Native broadleaf scrub growth.	No action required at this time.	20-40	C3	4	1.2	/
G5f	N/A	Pedunculate oak	10	300	4	4	4	4	1	1	EM	Three trees of reasonable form.	No action required at this time.	40+	B2	40	3.6	/
G5g	N/A	Pedunculate oak Goat willow Common hawthorn Common dogwood White willow Common holly	8	120	2	2	2	2	0	0	EM	Mixed native broadleaf scrub.	No action required at this time.	40+	C2	6	1.4	/
G13	N/A	Goat willow Hazel Common hawthorn	7	120	2	2	2	2	0	0	EM	A dense group of scrubby growth. Connected to G1 but containing no standard trees. Inaccessible due to dense occluding vegetation. Southern boundary of the group obstructs the adjacent pavement.	Prune to clear the pavement to the south of the group. Remove obstructing vegetation and re-inspect.	40+	C3	6	1.4	1

Tree Number	Tree Tag	Species	Height (M)	Effectual Diameter (mm)	Branch Spread (M)				1st Significant Branch (M)	Canopy Clearance (M)	Life stage	General Observations	Preliminary Management Recommendations	Remaining Contribution (years)	Retention Category	Root Protection Area (M2)	Root Protection Radius	Photo Ref
					N	E	S	W										
T1	1187	Horse chestnut	15	610	5	7	4	1	1.5	0.5	EM	Tree of below average form at the edge of G1. 45° stem lean and grossly asymmetrical crown offset to the east. The stem lean is likely attributable to the trees position at the edge of a culvert and at the edge of a woodland group rather than any stability issue, as the stem reverts to vertical at around 8m above ground level.	No action required at this time.	20-40	B2	168	7.3	2
T2	1579	White willow	18	680	7	7	7	5	3	1.5	M	A tree of poor form, multiple lateral limbs with hazard beam defects, a high volume of medium and large diameter deadwood and areas of sapwood dysfunction with peeling bark in the lower stem. Basic resonance testing with a sounding hammer provides evidence of decay though detailed inspection of the stem is not possible due to dense ivy cover.	Sever and remove ivy from the lower stem up to the main fork union 6m above ground level to allow for detailed inspection by a qualified arboriculturalist, to be instructed once visibility works are complete	10-20	C2	209	8.2	/
T3	-	White willow	0	None	0	0	0	0	0	0	None	Tree from the previous report, no longer in situ.	None	<10	-	0	0.0	/
T4	N/A	Common ash	18	400	5	3	5	6	4	4	EM	A multi-stemmed specimen of seemingly average form and good physiological condition.	No action required at this time.	20-40	C2	72	4.8	/
T5	1188	Pedunculate oak	16	490	5	4	5	5	1	1	EM	A tree of reasonably good form at the edge of G1	No action required at this time.	40+	B2	108	5.9	/
T6	1581	Pedunculate oak	15	650	4.5	4.5	6.5	4.5	4	4	M	A tree of reasonable form. The crown significantly overhangs the adjacent road with several pieces of medium to large diameter deadwood present.	Prune to achieve 5.2m clearance above the road, removing secondary branches only. Remove all deadwood <50mm in diameter over the road.	40+	B2	191	7.8	3

Tree Number	Tree Tag	Species	Height (M)	Effectual Diameter (mm)	Branch Spread (M)				1st Significant Branch (M)	Canopy Clearance (M)	Life stage	General Observations	Preliminary Management Recommendations	Remaining Contribution (years)	Retention Category	Root Protection Area (M2)	Root Protection Radius	Photo Ref
					N	E	S	W										
T7	1582	Pedunculate oak	15	600	6	6	7	6	4	4	M	A tree of reasonable form. The crown significantly overhangs the adjacent road with several pieces of medium to large diameter deadwood present.	Prune to achieve 5.2m clearance above the road, removing secondary branches only. Remove all deadwood <50mm in diameter over the road.	40+	B2	162	7.2	/
T8	1191	Pedunculate oak	15	600	8	4	6	8	7	3	M	A twin stemmed tree of reasonably good form. DRAINAGE IMPACTS ON Root Protection Area	No action required at this time.	20-40	B2	162	7.2	/
T9	N/A	White willow	20	540	5	7	7	5	5	5	M	Multi stemmed specimen-stemmed tree at the edge of G4, the only notably larger tree within the dense group that is visible from inspection around the edge of the group. Dense occluding vegetation restricts inspection, observed from a distance with all dimensions estimated.	Remove surrounding vegetation to allow for a detailed inspection to be carried out by a suitably qualified arboriculturalist, to be instructed once visibility works are complete.	20-40	C2	131	6.5	4
T10	N/A	Pedunculate oak	18	400	6	6	6	6	4	3	EM	A tree of reasonable form within G5, inaccessible due to dense scrub and bramble growth.	No action required at this time.	20-40	B2	72	4.8	/
T11	N/A	Pedunculate oak	18	400	6	6	6	6	4	3	EM	A tree of reasonable form within G5, inaccessible due to dense scrub and bramble growth.	No action required at this time.	20-40	B2	72	4.8	/
T12	N/A	Pedunculate oak	18	400	6	6	6	6	4	3	EM	A tree appears in reasonable form within G5, inaccessible due to dense scrub and bramble growth.	Remove obstructing vegetation and re-inspect.	20-40	B2	72	4.8	/
T42	1189	Pedunculate oak	12	460	3	2	4	6	1	0.5	EM	A tree of below average form with a 23° lean to the west and a significant area of decay affecting 27% of the circumference at the	Reinspect every 18 months to monitor the progression of decay.	20-40	C2	95	5.5	5

Tree Number	Tree Tag	Species	Height (M)	Effectual Diameter (mm)	Branch Spread (M)				1st Significant Branch (M)	Canopy Clearance (M)	Life stage	General Observations	Preliminary Management Recommendations	Remaining Contribution (years)	Retention Category	Root Protection Area (M2)	Root Protection Radius	Photo Ref
					N	E	S	W										
											surface on the tension side of the stem from ground level to approximately 1.5m. Currently very low target occupancy.							
T43	N/A	Hazel	10	120	2	2	2	2	0	0	EM	A multi-stemmed tree of average form among dense scrub and bramble growth.	Remove obstructing vegetation and re-inspect.	20-40	C2	6	1.4	/
T44	N/A	Pedunculate oak	13	400	2.5	5.5	4	2	2	2	EM	A tree appears in reasonable form. One of a pair of trees dependant on one another for wind dampening and with a shared rooting area. Crown is beginning to overhang the road to the south. Inaccessible due to dense occluding vegetation. Observed from a distance with all dimensions estimated.	Remove obstructing vegetation and re-inspect. Prune to achieve 5.2m clearance over the road, removing secondary branches only.	40+	B2	72	4.8	/
T45	N/A	Pedunculate oak	13	600	6	2.5	6	5.5	2	2	EM	A tree appears in reasonable form. One of a pair of trees dependant on one another for wind dampening and with a shared rooting area. Crown is beginning to overhang the road to the south. Inaccessible due to dense occluding vegetation. Observed from a distance with all dimensions estimated. DRAINAGE IMPACTS ON RPA	Remove obstructing vegetation and re-inspect. Prune to achieve 5.2m clearance over the road, removing secondary branches only.	40+	B2	162	7.2	/
T46	N/A	Pedunculate oak	7	120	1	1	2	1	1.5	1.5	Y	An unremarkable, self-seeded tree of average form, somewhat suppressed by larger neighbours.	No action required at this time.	40+	C2	6	1.4	/
T47	N/A	Hazel	10	120	2	2	2	2	0	0	EM	A multi-stemmed tree of average form amongst dense scrub and bramble growth.	Remove obstructing vegetation and re-inspect.	20-40	C2	6	1.4	/

Tree Number	Tree Tag	Species	Height (M)	Effectual Diameter (mm)	Branch Spread (M)				1st Significant Branch (M)	Canopy Clearance (M)	Life stage	General Observations	Preliminary Management Recommendations	Remaining Contribution (years)	Retention Category	Root Protection Area (M2)	Root Protection Radius	Photo Ref
					N	E	S	W										
T48	N/A	Pedunculate oak	12	500	3	3	3	3	3	3	EM	A tree of below average form amongst dense scrub and bramble growth adjacent to the road. Low crown density and 25% crown dieback I served, with numerous fractured and failed branches.	Remove surrounding vegetation and commission a detailed inspection of the base by a qualified arboriculturalist.	10-20	C2	113	6.0	6
T49	N/A	Pedunculate oak	15	300	1	3	6	2.5	5	3	EM	A tree of reasonable form adjacent to the road, somewhat suppressed by larger trees to the north. Branches overhanging the road are at risk from mechanical damage from tall vehicles.	Prune to achieve 5.2m clearance over the road, removing secondary branches only.	40+	B2	40	3.6	/
T50	N/A	Pedunculate oak	15	500	7	7	3	3	4.5	1.5	EM	A tree of seemingly good form amongst dense scrub and bramble growth. Observed from a distance with all dimensions estimated.	Remove obstructing vegetation and re-inspect.	20-40	B2	113	6.0	/
T51	1192	Pedunculate oak	15	310	5	5	5	2.5	3	3	EM	A twin stemmed tree of reasonably good form amongst dense scrub and bramble growth.	Remove obstructing vegetation and re-inspect.	20-40	B2	43	3.7	/
T52	N/A	Common hawthorn	5	120	2	2	2	2	0	0	EM	An unremarkable tree of average form amongst dense scrub and bramble growth.	Remove obstructing vegetation and re-inspect.	20-40	C2	6	1.4	/
T53	1193	Pedunculate oak	15	590	6	3	6	3	2	1.5	EM	A tree amongst dense scrub and bramble growth. Cavity at 1m above ground level, stem swelling and basic resonance testing with a sounding hammer suggests some degree of associated internal decay.	Remove obstructing vegetation and re-inspect. Reinspect every 18 months to monitor decay.	20-40	B2	157	7.1	7

Tree Number	Tree Tag	Species	Height (M)	Effectual Diameter (mm)	Branch Spread (M)				1st Significant Branch (M)	Canopy Clearance (M)	Life stage	General Observations	Preliminary Management Recommendations	Remaining Contribution (years)	Retention Category	Root Protection Area (M2)	Root Protection Radius	Photo Ref
					N	E	S	W										
												If target occupancy is to increase carry out intrusive investigations to determine sound wall thickness.						
T54	1194	White willow	18	750	9	6.5	1	1	3	3	M	A tree of poor form. Diverges into 2 stems at approximately 1.5m above ground level and further into 5 stems at approximately 2.5m above ground level. Eastern stem is extensively decayed between 1.5m and 2m above ground level. Developing compression fork noted on the western stem. Inherent structural weakness noted within this species. DRAINAGE IMPACTS ON RPA	Create a high coppice at 2.5m above ground level, leaving a clean finishing cut at a 20° angle.	10-20	C2	254	9.0	8
T55	1195	White willow	18	920	5	5	9	5	2	2	M	A large tree of reasonably good form for this species. DRAINAGE IMPACTS ON RPA	No action required at this time.	20-40	B2	382	11.0	/
T56	1196	Common hawthorn	10	140	1	1	1	1	1	1	EM	An unremarkable tree of average form.	No action required at this time.	20-40	C2	8	1.7	/
T57	N/A	Horse chestnut	10	140	1	1	1	1	1	1	EM	An unremarkable tree of average form.	No action required at this time.	20-40	C2	8	1.7	/
T58	N/A	Common alder	18	350	7	5	2	5	4	3	EM	A tree of average form amongst dense scrub and bramble growth. Observed from a distance with all dimensions estimated.	No action required at this time.	20-40	B2	55	4.2	/
T59	N/A	Common alder	18	350	7	5	2	5	4	3	EM	A multi-stemmed tree of poor form amongst dense scrub and bramble growth, observed from a distance with all dimensions estimated. >75% crown dieback observed.	Fell to ground level.	<10	U	0	0.0	9

Tree Number	Tree Tag	Species	Height (M)	Effectual Diameter (mm)	Branch Spread (M)				1st Significant Branch (M)	Canopy Clearance (M)	Life stage	General Observations	Preliminary Management Recommendations	Remaining Contribution (years)	Retention Category	Root Protection Area (M2)	Root Protection Radius	Photo Ref
					N	E	S	W										
T60	1196	Pedunculate oak	15	360	2	3	6.5	2.5	3	3	EM	A tree of reasonably good form amongst dense scrub and bramble growth. Somewhat suppressed by larger neighbouring tree.	Remove obstructing vegetation and re-inspect.	20-40	B2	58	4.3	/
T61	N/A	Common hawthorn	8	80	1	1	1	1	1	1	EM	An unremarkable tree of average form.	No action required at this time.	20-40	C2	2	1.0	/
T62	N/A	Pedunculate oak	15	500	7	4	7	7	4.5	1.5	EM	A tree of seemingly good form amongst dense scrub and bramble growth. Observed from a distance with all dimensions estimated.	Remove obstructing vegetation and re-inspect.	20-40	B2	113	6.0	/
T63	N/A	Hazel	4	80	3	2	2	1	1	1	Y	Unremarkable tree of average form beneath the crown of a larger dominant tree.	No action required at this time.	20-40	C2	2	1.0	/
T64	N/A	Hazel	4	80	3	1	2	2	1	1	Y	Unremarkable tree of average form beneath the crown of a larger dominant tree.	No action required at this time.	20-40	C2	2	1.0	/
T65	N/A	Pedunculate oak	10	800	6.5	8	6.5	6.5	4	1	M	A dominant tree amongst dense scrub and bramble growth. Observed from a distance with all dimensions estimated. DRAINAGE IMPACTS ON Root Protection Area	Remove obstructing vegetation and re-inspect.	20-40	B2	289	9.6	/
T66	N/A	Pedunculate oak	18	200	6	6	6	1	4	3	EM	A tree of reasonable form within G5, inaccessible due to dense scrub and bramble growth.	Remove obstructing vegetation and re-inspect.	20-40	B2	18	2.4	/
T67	N/A	Pedunculate oak	18	300	6	1	6	6	4	3	EM	A tree of reasonable form within G5, inaccessible due to dense scrub and bramble growth.	Remove obstructing vegetation and re-inspect.	20-40	B2	40	3.6	/
T68	N/A	Pedunculate oak	18	300	6	6	6	6	4	3	EM	A tree of reasonable form within G5, inaccessible due to dense scrub and bramble growth.	Remove obstructing vegetation and re-inspect.	20-40	B2	40	3.6	/

THE PROPOSED DEVELOPMENT FOOTPRINT AND TREE LOSSES

The following trees are lost to development. They are all c category trees, and their loss is considered negligible.

- Group 4 – C Category Common Hawthorn (*Crataegus monogyna*), Common Dogwood (*Cornus sanguinea*), Elderberry (*Sambucus nigra*), White Willow (*Salix alba*).
- Group 5c – young trees of C Category - Common hawthorn, Hazel (*Corylus avellana*), White willow.
- T9 – C Category – a mature white willow.

GROUND PROTECTION

This is required on this proposed scheme as root protection areas extend past the existing footpath which is kept open for use. The exposed elements of the RPAs must be protected from ground compaction using load spreaders. This will be discussed further within the emerging Arboricultural Method Statement.

Should the footpath not be required during the construction phase, then it is recommended the Tree Protective Barrier Fencing is extended outwards to enclose the RPAs and tree crowns, and thus avoiding the need for ground protection.

INFRASTRUCTURE REQUIREMENTS AND SERVICE SUPPLIES

Services - Mechanical Trenching

Mechanical trenching for the installation of underground apparatus and drainage severs any tree roots present which may adversely affect the health and stability of the affected tree/s. It can also change the local soil hydrology. Care should be taken in the routeing and methods of installation of all underground apparatus. The RPA therefore should be taken as a minimum constraint to the development with regards the installation of underground services and greater distances should be allowed where possible.

Where it is not possible to route services away from an RPA, detailed plans showing the proposed routeing should be drawn up in conjunction with the Project Arborist (PA). In such cases, trenchless insertion methods should be used (See Table 3 below), with entry and retrieval pits being sited outside the RPA, if roots can be retained and protected. Hand excavation might be acceptable for shallow service runs.

The trees crown is also a constraint to the development and should be considered when seeking to install services or when operating plant and equipment. Sometimes the crown of a tree exceeds the RPA. Both matters will be considered in detail within the Arboricultural Method Statement.

SITE LAYOUT

The positioning of the proposed building and its supporting infrastructure as highlighted using black arrows, conflicts with tree T65.

- **RECOMMENDATION** - If these conflicts cannot be designed out, then tree friendly construction techniques will be necessary, if ground levels can remain the same. Example a floating slab/raft or pile foundations.



TOILETS AND SITE ACCOMMODATION

- No information is provided at the time of writing.

CONTRACTORS CARPARKING

- No information is provided at the time of writing.

SECURE SITE STORAGE

- No information is provided at the time of writing.

STORAGE FOR SITE MATERIALS

- No information is provided at the time of writing.

WATER

- No information is provided at the time of writing.

GAS

- No information is provided at the time of writing.

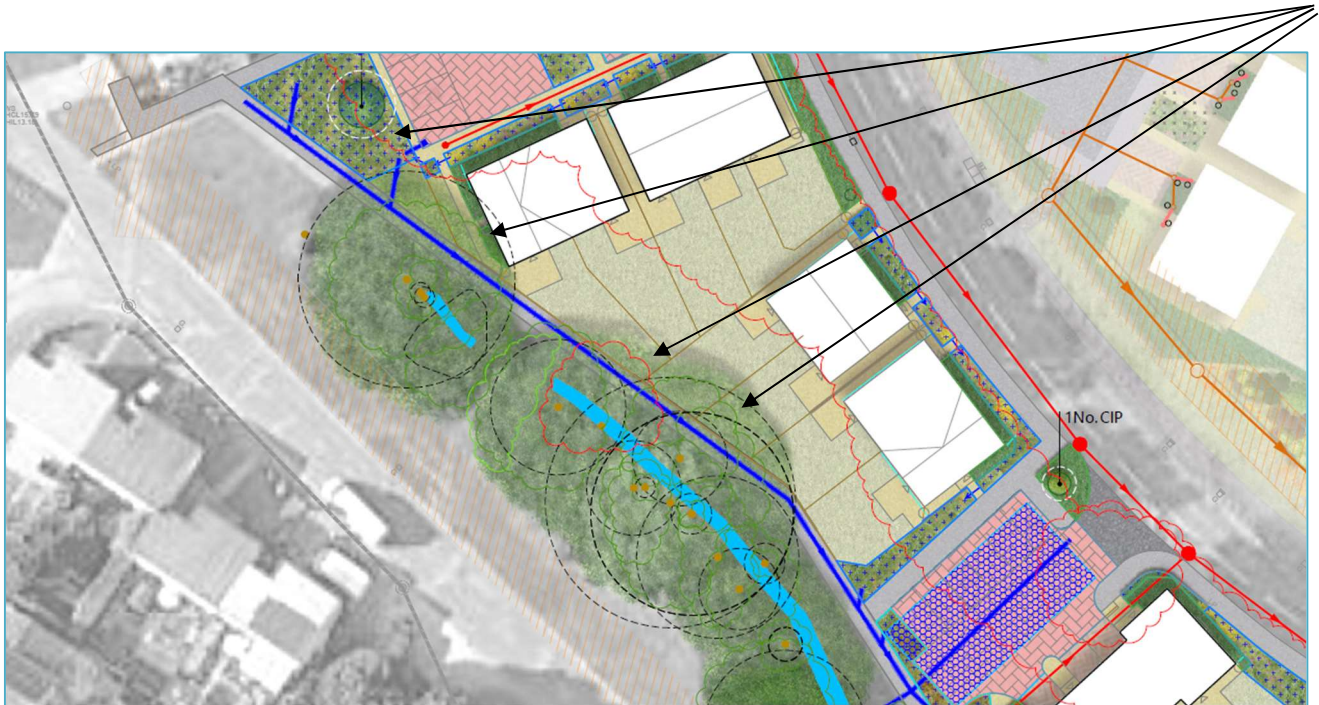
ELECTRICITY

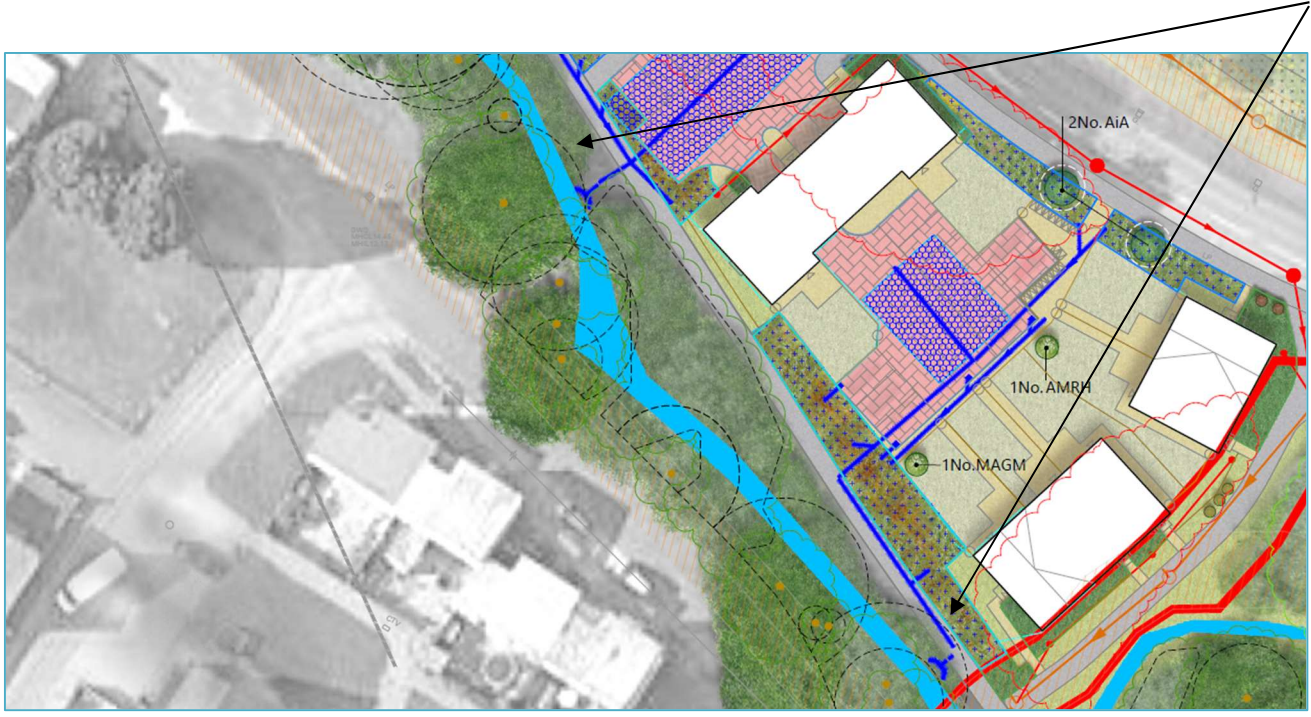
- No information is provided at the time of writing.

DRAINAGE

- Drainage is proposed through the RPA of T8(B Cat), T45(B Cat), T54(C Cat), and T55 and T65(B Category trees). The black arrows show the conflicts. Refer to mechanical trenching above which highlights the detrimental effects from trenching through RPAs.

- **RECOMMENDATION** alter line of drainage to avoid the RPAs





SUDS

- Other than the drainage mentioned above, there is no conflict with the SUDs scheme.

SWALES

- No information is provided at the time of writing.

DRAINAGE DITCHES

- No information is provided at the time of writing.

FOUL SEWER

- No information is provided at the time of writing.

SIGNAGE AND CCTV

- No information is provided at the time of writing.

VISON SPLAYS

- No information is provided at the time of writing.

LEVEL CHANGES

- The level drawings provided were cluttered with overlays and making it difficult to read. An email exchange with the client provides the following information - Generally no level changes except on east side of G3b where levels rise from existing adopted footpath (15.431m) to external level on proposed dwelling HT-D (15.650m) – a rise of 219mm over 1 at its worst.

NOTE.

The National Joint Utilities Guidance 4 (NJUG), which is a guide for utility companies when installing services, is not relevant under Planning Conditions and the more stringent protection measures under Section 7.7. of BS5837 Trees in relation to design, demolition, and construction – Recommendations (2012), apply. Utility companies must be instructed accordingly and follow the above-mentioned British Standard.

Table 3 – Trenchless Solutions

Method	Accuracy	Bore dia. ^{A)}	Max. sub. ^{B)} length	Applications	Not suitable for
	mm	mm	m		
Microtunnelling	<20	100 to 300	40	Gravity-fall pipes, deep apparatus, watercourse/ roadway undercrossings	Low-cost projects due to relative expense
Surface-launched directional drilling	≈100	25 to 1 200	150	Pressure pipes, cables including fibre optic	Gravity-fall pipes, e.g. drains and sewers ^{C)}
Pipe ramming	≈150	150 to 2 000	70	Any large-bore pipes and ducts	Rocky and other heavily obstructed soils
Impact moling ^{D)}	≈50 ^{E)}	30 to 180 ^{F)}	40	Gas, water and cable connections, e.g. from street to property	Any application that requires accuracy over distances in excess of 5 m

^{A)} Dependent on strata encountered.
^{B)} Maximum subterranean length.
^{C)} Pit-launched directional drilling can be used for gravity fall pipes up to 20 m subterranean length.
^{D)} Impact moling (also known as thrust-bore) generally requires soft, cohesive soils.
^{E)} Substantial inverse relationship between accuracy and distance.
^{F)} Figures given relate to single pass: up to 300 mm bore achievable with multiple passes.

WHETHER DESIGN CAN BE MODIFIED TO ACCOMMODATE TREE RETENTION

- Design modification is required to ease the conflicts with trees T8, T54, T55 and T65,

WHETHER TREE LOSSES FROM THE DEVELOPMENT PROPOSAL CAN BE MITIGATED

- The proposed tree planting as mitigation is considered acceptable

Tree losses occurring as a direct result of this scheme are detailed on the proposed landscape drawing number - TC22017 WBS.LA100-104[A].dwg (Tir Collective)

Mitigation is offered in the emerging landscape scheme in proposed landscape drawing number - TC22017 WBS.LA100-104[A].dwg (Tir Collective).

IMPACT ASSESSMENT OF DEVELOPMENT ON TREES.

A realistic assessment of the probable impact of the proposed development on the trees and vice versa with due allowances for their future growth and maintenance requirements.

The scheme is set within a treed setting and the trees are considered important for visual amenity providing a mature landscape theme. They are of mixed demography and whilst the mature section will not increase in size, the younger element will. Maintenance of the trees and wooded groups will become necessary as the target occupancy rating increases from its current rating of low through to high. Trees do sometimes cause apprehension to occupiers of nearby houses however, as the trees are considered important, the existing TPO should be upheld with consideration by the LPA to expanding it.

With regards to potential damage occurring to any proposed development because of existing trees, this would consider several types of potential damage which are (a) indirect damage through subsidence or heave (a matter related to geology), (b) Direct damage, physical damage caused by incremental growth, (c) The disruption to underground services, (d) Displacement, lifting or distortion, (e) The impact on branches on the super structure or (f) Structural failure of a tree. These are discussed below -

- a) **Indirect Damage.** The likelihood of damage occurring to the structure as a result of ground movement occurring through soil swelling and shrinking is dependent on local geological conditions and the presence of shrinkable clay soils beneath the foundations. This report has not considered the soil type in any detail or undertaken a laboratory soil analysis as part of this brief. The potential for direct damage should be taken into consideration throughout the design and construction process. For guidance on avoiding indirect damage by trees to structures, refer to NHBC Chapter 4.2.
- b) **Direct Damage.** This can sometimes occur through the annual incremental growth of the trunk or root buttresses through a process called 'secondary thickening'. The greatest risk of direct damage occurs when trees are close to building structures and occur with the expanding growth of the main trunk and roots although any likelihood of such damage diminishes rapidly with distance. Table A.1 of BS:5837 is produced below and provides advice on minimum distances to avoid damage.
- c) **Displacement, lifting or distortion.** This can occur where lightweight structures are within influencing distance of trees and annual incremental growth of roots and buttresses have the ability to disturb paving, walls, porches, and garages. Advice in Table A1 should be followed (see below) when planting new trees or controlling seedling growth.

Erecting buildings and structures near trees can result in conflicts and minimum distances are advised below in

Table A1.

BRITISH STANDARD **BS 5837:2012**

Allowance needs to be made for the swaying of stem and branches during storm conditions. Branches which are liable to strike the structure need to be removed or pruned back to a suitable branching point as appropriate (see BS 3998:2010).

Table A.1 Minimum distance between young trees or new planting and structure to avoid direct damage to a structure from future tree growth

Type of structure	Minimum distance between young trees or new planting and structure, in metres (m)		
	Stem dia. <300 mm ^{A1}	Stem dia. 300 mm to 600 mm ^{A1}	Stem dia. >600 mm ^{A1}
Buildings and heavily loaded structures	—	0.5	1.2
Lightly loaded structures such as garages, porches etc.	—	0.7	1.5
Services			
<1 m deep	0.5	1.5	3.0
>1 m deep	—	1.0	2.0
Masonry boundary walls	—	1.0	2.0
In-situ concrete paths and drives	0.5	1.0	2.5
Paths and drives with flexible surfaces or paving slabs	0.7	1.5	3.0

^{A1} Diameter of stem at 1.5 m above ground level at maturity

A.1.3 Allowance for future growth

Where the installation of paths or light structures such as walls is unavoidable near to trees, the design and construction specification needs to take account of future growth.

If it is necessary to build a wall or similar structure over a root greater than 50 mm diameter, provision for future diameter growth needs to be made by surrounding the root with uncompacted sharp sand, void-formers, or other flexible fill materials, and by laying an adequately reinforced lintel or raft over the surface.

- d) **The impact of branches on the super structure.** Where development occurs close to trees and branches interfere or could interfere at a later date due to their growth, can cause the LPA problems with repeated requests for trees to be trimmed. Here, the development appears to be mainly of sufficient distance away from any retained trees. Furthermore, woodland management operations will be required regularly and during these operations, problematic trees may be selected for removal to address any minor issues.

Wind Dynamics. As far as wind dynamics are concerned, the following matters are noted. Air deflected over or around such solid structures will be locally accelerated to create turbulence. The proposed development is within influencing distance of the trees as buildings or solid structures can influence leeward wind patterns for a distance more than 30 times their height², although the effects of the more damaging² wind turbulence in respect of trees is much shorter than this with the more dramatic influence being at least twice the height of the structure. It is usually a problem where retained trees have thin stems without adequate stem taper, and which have usually resulted where they have developed at close spacing² and under mass shelter and particularly where a number of those trees have been removed.

² Patch.D. Trees, Shelter and Energy Conservation. Arboricultural Research and Information Note 145/ARB/98

Large trees can sometimes cause apprehension to occupiers of nearby buildings especially during windy weather. Whilst this is true in some instances, structural failure amongst trees is most common where a specimen is diseased or structurally defective or a stand is undermanaged. Well managed trees offer little risk to residences where under routine arboricultural inspections and providing remedial works recommended during such inspections are carried out by a competent tree surgeon.

The current site designation will afford tree protection under statute law and all perspective purchasers will be advised of any TPO' s through the Land Search process. The LPA can consider applying further TPO' s at any time where trees are considered under threat.

The level of risk exposure (target occupancy) for these trees will increase and impose a ³duty upon landowners to manage the trees. However, this is a reasonable expectation of any perspective landowner and should not be seen as detrimental to the health or long- term future of the trees or to the outcome of the application. Appropriate tree management under the guidance of an Arboriculturalist should be beneficial: it may however suggest that management is required from time to time.

Leaves and fruits of some species may cause problems, and the accumulation of honeydew may be damaging to surfaces and vehicles. Here, the species of oak is noted which is associated with low level aphid activity and the production of honeydew excretions, although situated within the treed area to the west and not in proximity to car parking facilities, should not be a major issue.

Falling leaves are likely to impact on this development and Gutter Guards should be built into the scheme to prevent gutters from becoming blocked. There are no species found on this site that produce large fruits.

The relationship of windows to trees which may obstruct light need to be considered.

Whilst no plot numbers are provided, those existing trees to the west will provide shade to the gardens during the mornings whilst those to the north of the proposed development will provide shade through mid-day and late afternoon

THE EFFECTS THAT DEVELOPMENT PROPOSALS MAY HAVE ON THE AMENITY VALUE OF THE TREES

Relates to both trees on and near the site.

Some visual amenities will undoubtedly be lost as Group G4 and G5c are removed. However, each group comprises of young developing scrub of C Category only which is generally considered of negligible importance, and this is prime developable land where the relevant British Standards suggest c category trees should not form any constraint.

³ Failure Criteria for Solitary non-decayed trees Arboricultural Journal Volume 26 Number 1 April 2002.

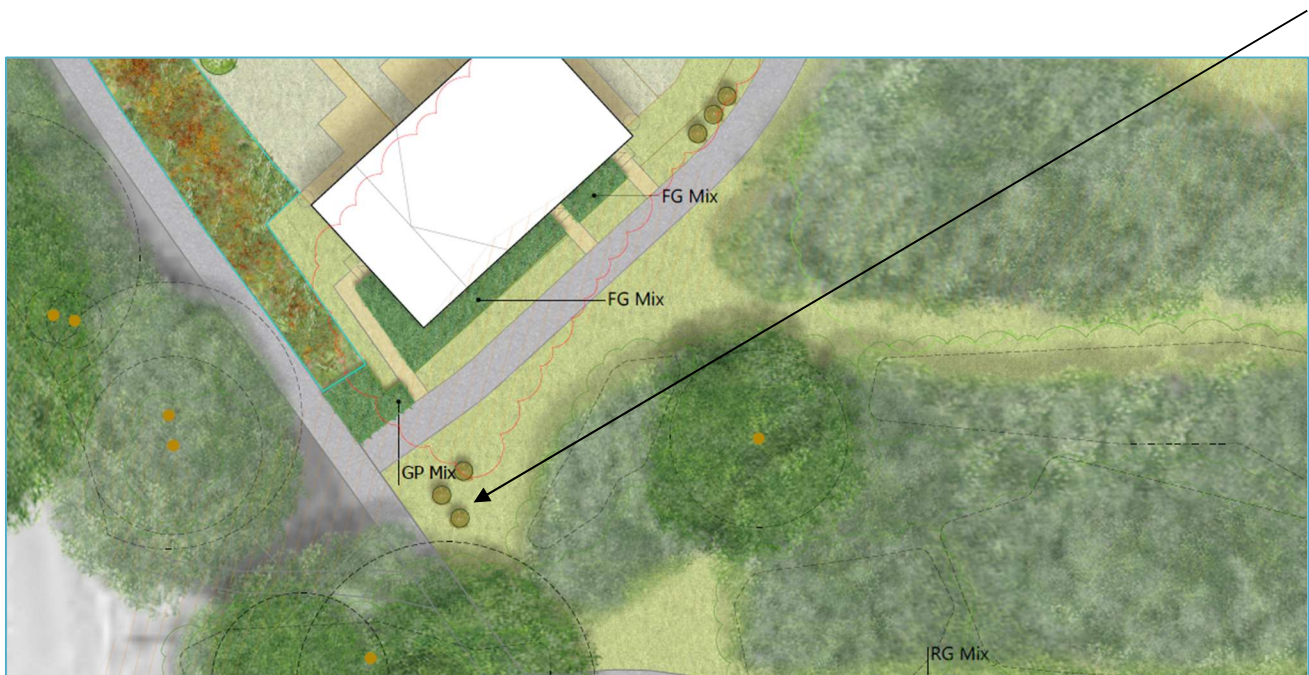
PREPARATORY WORKS FOR NEW LANDSCAPING

The ground preparation required for seeding and planting operations are harmful to trees as their roots occupy the uppermost 300-mm of soil surface. Therefore, rotavation and cultivation of soils in preparation will cause damage to not only finer roots but structural roots as well. This is frowned upon by most LPAs nowadays and therefore it should be avoided within the RPAs of retained trees. It is preferable to undertake overseeding and upgrade of existing grassland where possible.


The proposed landscaping is largely away from all the RPAs of trees apart from some proposed grass seeding of Amenity grass / species rich grassland. Species rich grass is recommended within public spaces where there is some conflict with the RPAs of retained trees.

In the screenshot below, it is unclear if there is a proposal here for seeding within the RPA of this tree. Refer to black arrow in screen shot below.

- **Recommendation** – no seeding within RPAs. Note inserted on landscape plan to reflect this.
- **Recommendation** – The Root Protection Area of retained trees should be excluded from all landscaping activities.

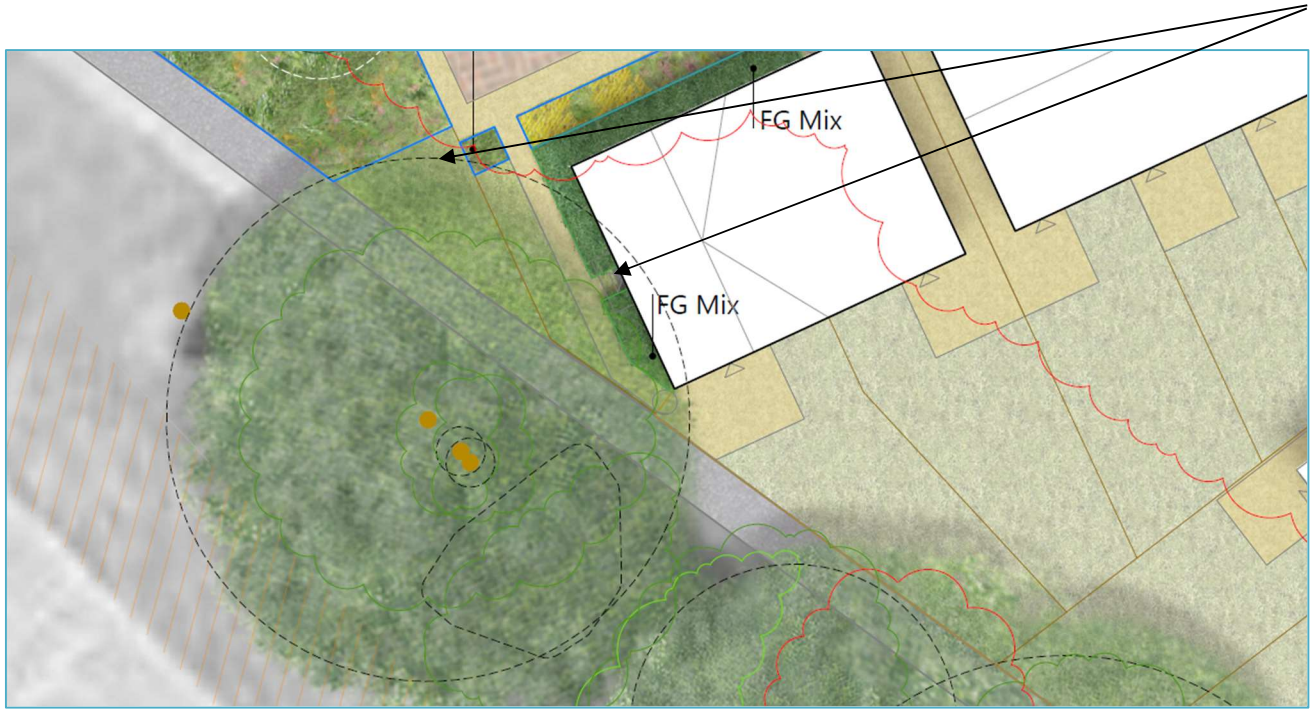


KEY

-  Amenity grass / species rich grassland. Species rich grass to be used in public spaces

Refer to screen shot below. Planting is proposed within the RPA of tree T65. Planting is harmful to roots and is not permitted generally by Planning Authorities so suggest it is removed from all RPAs.

- Recommendation – no seeding or planting within RPA of T65, T1 and T2. Landscape plan to be amended to remove this element.



New Tree Planting

The surface around newly planted and existing trees should allow for adequate infiltration of water and free gas exchange, reduction of water evaporation and the retention of an open soil structure to encourage root growth. Care should be taken therefore to ensure grass or weed growth does not compete with young root growth by intercepting available water and nutrient supply. Care should also be taken to avoid the risk of damage to the stems of young trees from future strimming or mowing operations. An area with a radius of at least 500-mm from the stem of newly planted trees should therefore be kept free from competing vegetation by chemical weed control or by the more environmentally friendly option of mulching.

As a general rule the following loamy soil volumes should be provided for newly planted trees. Multiple factors need consideration including climate, size, species, proposed management and soil type.

- Small sized tree (Mature size with a stem diameter of <150mm = >10m³)
- Medium sized tree (Mature size with stem diameter <300mm)= >20m³
- Large sized tree (Mature size with stem diameter >450mm) = >30m³

Top soiling over and above the root-plate of tree' s is detrimental to their health even as little as 75-mm or above and where turf is added.

Often following completion of construction works, soil management and grass seeding, or turfing is carried out and this can also be damaging to trees and therefore provide some general advice relating to landscaping near retained trees...

Laying turf or grass seeding within the RPAs of trees is generally frowned upon and should be avoided. Many LPAs do not allow it, whilst some do. Where it is considered important for turfing or grass seeding within a landscape plan, the following method must be followed: -

Where turfing or grass seeding is proposed, the following method must be followed-

NOTE - Soft landscape finishes, including mulch and cultivated beds, will generally provide more favourable conditions for young tree establishment than most hard surfaces or grass. The use of ground-cover shrubs with an appropriate organic mulch is particularly beneficial: this treatment suppresses weeds, reduces maintenance, discourages intrusion and maintains a permeable open soil structure.

Soil Compaction and Remediation Measures

Soil that has been compacted will not provide suitable conditions for the survival and growth of vegetation, whether existing or new, and is a common cause of post-construction tree loss on development sites. Compacted soil will adversely affect drainage, gas exchange, nutrient uptake, and organic content, and will seriously impede or restrict root growth. The risk of soil compaction is greatest in soils with significant clay content and in wet conditions. It can result from temporary or short-term loadings, such as the passage of a single vehicle, or from longer-term construction activities, including materials storage.

Soil compaction should be avoided in RPAs and areas where new planting or seeding is proposed which contain suitable ground conditions (fertile soil). Where soil compaction has occurred in RPAs or proposed planting areas, arboricultural advice should be taken before carrying out any remedial works. Remedial works may include sub-soil aeration using compressed air, and the addition of other materials, preferably of a bulky, organic nature (but excluding peat), to improve structure.

Use of Mulch

Open soil and shrub planting areas around newly planted trees should be mulched to inhibit weed growth, reduce groundwater evaporation, resist, and mitigate soil compaction and reduce maintenance requirements, whilst allowing gas exchange and water penetration to roots. The mulch material should be weed-free, easy to apply, containable within the area of application and readily available. The choice of material will be informed by local availability of materials, site characteristics and aesthetic requirements. The mulch should be periodically replenished as it decomposes so that it does not become depleted, and ideally when the soil is warm and moist.

The materials that may be used for mulching include coarsely divided plant matter, such as well-composted wood chip, pulverized bark, leaf mould or green waste conforming to PAS 100, and these may be combined with well-rotted

animal manure. If the sole intention is to conserve moisture, a layer of gravel or well-secured sheets of material such as permeable geotextile fabric may be used and may be covered for cosmetic purposes. Any such sheets should be maintained to avoid damage to the tree (e.g., by clogging, weed growth, restriction of air movement or constriction of the stem).

The mulched area should extend over as much of the root system as can be allowed by other site-usage requirements. The depth of organic mulch should not be so much as to inhibit aeration of the root system (normally no more than 100 mm). The area around the tree should be well-watered prior to the application of mulching material and the mulch should be periodically replenished as it decomposes, so that it does not become depleted.

Mulches should be kept away from direct contact with the bark of the stem, or of major roots since this might encourage infection by pathogens by maintaining wet conditions.

NOTES

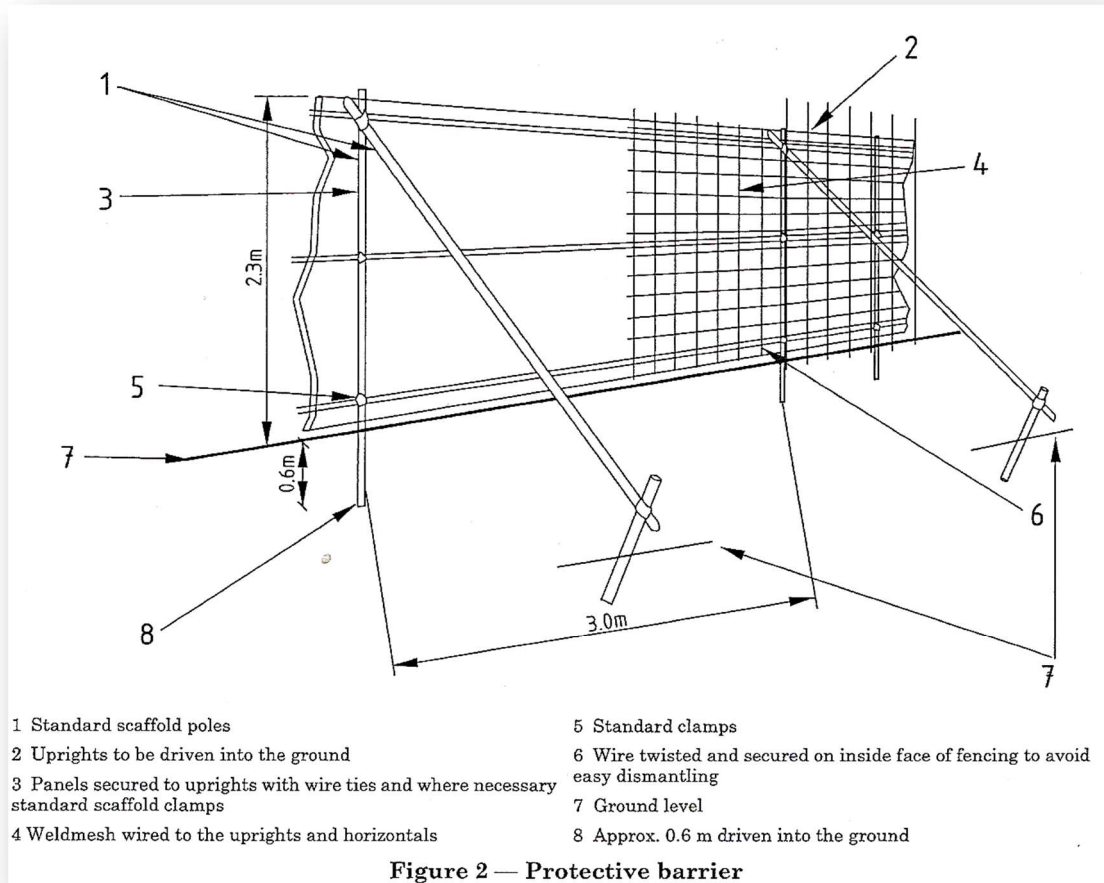
1. Mulches that retain water encourage the development of roots near the soil surface and within the mulch itself. This can become a disadvantage owing to desiccation if the mulch is removed or not replenished.
2. Although, by improving the soil texture and acting as a buffer for rainfall, mulches generally help to prevent extremes of soil wetness and dryness, they can prolong waterlogging on sites where drainage is seriously impeded. This in turn can harm tree roots and make them more susceptible to certain pathogens such as *Phytophthora* spp.
3. Further guidance on mulching is given in BS 3998:2010.

GENERAL COMMENTS AND OBSERVATIONS

Any construction work can have a negative effect on tree health and stability if their underground parts, which are frequently ignored, are damaged or severed. Above ground parts may also become injured and broken through impact/collusion damage. Retained trees will require physical protection from such injury during the development phase from the onset. Barrier fencing must be installed to create a Construction Exclusion Zone around the trees and enclose the necessary Root Protection Area and crown spread, whichever the greater. Its location and design must follow an approved ⁴ Tree Protection Plan. The type of barrier fencing recommended for this proposal is produced below in Figure 2 below and is taken from the British Standard. The positioning and suitability of the protective fencing must be assessed and signed off by the Project Arborist prior to all works commencing (enabling tree works may be excluded).

Figure 2

⁴ Approved by the Local Planning Authority



FURTHER ARBORICULTURAL INPUT

During the planning and development process, further information will be required. (1) An **Arboricultural Method Statement (AMS)** will be necessary to help guide tree friendly techniques and along with a (2) **Tree Protection Plan (TPP)** which **must** be followed rigorously during construction. It is strongly recommended that (3) a 'Project Arborist' is engaged for the duration of the construction period to undertake **Arboricultural Watching Brief** visits, to oversee tree protection matters, be on hand to provide any arboricultural advice and maintain a level of communications between the client and Local Planning Authority's Tree Officer through submission of monthly progress reports.

RECOMMENDATIONS

- Recommendation Re-evaluate the proposal once the missing information is available and update this draft Arboricultural Implications Assessment or if design is final then proceed to an Arboricultural Method Statement.
- RECOMMENDATION - If these conflicts cannot be designed out, then tree friendly construction techniques will be necessary, if ground levels can remain the same. Example a floating slab/raft or pile foundations.
- Recommendation – alter line of drainage to avoid the RPAs of T8(B Cat), T45(B Cat), T54(C Cat), and T55 and T65(B Category trees).
- Level increases around G3b will require design of an aeration system to allow the tree to respire via its root system. This will be covered within any emerging Arb Method Statement.
- Recommendation – no seeding within RPAs of T1, T2 and T65 or any other RPA. Note to be inserted on landscape plan to reflect this.
- Recommendation –no planting to occur within the RPA of T65. Landscape plan to be amended to remove this element.
- Recommendation – no landscape activities to be proposed within any RPA.
- Recommendation – Once the design is complete, commission an Arboricultural Method Statement and Tree Protection Plan to advise on precautions to safeguard the health and stability of any retained trees during the construction phase. (it is most likely the Arboricultural Implications Assessment, Arboricultural Method Statement, Tree Removal & Retention Plan, Tree Protection Plan and Arboricultural Watching Brief will be considered within the Green Infrastructure Strategy and a Construction Environmental Management Plan, as applicable).
- Recommendation – Appoint a Project Arborist for the duration of the development to monitor and advise on tree protection and liaise with the Local Planning Authority where required.
- Recommendation – Enter the trees into annual routine tree safety inspections once the scheme is complete or when target occupancy increases.

REPORT LIMITATIONS

It must be stressed that this arboricultural impact assessment is not a risk assessment or a detailed report on the health and condition of the trees. It has been produced as a desktop review.

Every attempt has been made to provide a realistic and accurate assessment of the impact of the development on the trees. No liability can be accepted for any tree related issue or tree and building interactions in the absence of information or where information is unclear or misleading.

This report is based on the tree circumstances and condition at the time of the original tree survey. It must be recognised that the circumstances may be altered radically over the course of time and any development process and that such changes cannot be accurately predicted. The report does not provide any specific long-term tree management recommendations.

The effect this new development may have on localised wind turbulence has not been assessed during this inspection. As trees grow, they respond and mechanically adapt to their surroundings and exposure limits. With the erection of dwellings near existing trees, new turbulence is created. The author accepts no liabilities to any failure subsequent upon such new imposed, artificial conditions.

This report does not consider **indirect** damage resulting from the extraction of moisture from shrinkable clay soils by tree roots causing **subsidence** or by **heave** occurring through soil rewetting following removal of trees on this site. Such problems are almost entirely restricted to areas of shrinkable clay soils and as I have **not** considered a soil analysis as part of my present brief, this aspect is **not** addressed at this time.

LEGAL CONSTRAINTS

The legal constraints of any site should be considered in early planning and well before any work commences on site. Such legal constraints should be fully considered from the outset to avoid time delays. The legal constraints referred to here are general constraints relating to arboriculture only and not any other legal matter that may arise.

Tree Preservation Orders and Conservation Area Status in Wales

In Wales, the law on TPOs is in Part V111 of the Town and Country Planning Act 1990 Town and Country Planning (Trees) Regulations 1999. When any tree/s are protected by a TPO or are situated within a Conservation Area, it is an offence (1) cut down (2) uproot (3) top (4) lop (5) wilfully damage or (6) wilfully destruct a tree without the express written permission from the Local Planning Authority (LPA), there are exceptions. An LPA may grant permission, if considered reasonable following the submission of an application for consent to undertake the works, or where in accordance with an Approved Planning Application or under the exemptions within the Town and Country Planning Act 1990 of dead, dying, or dangerous. It is advisable to consult the LPA and an Arborist prior to conducting any tree works under these exemptions.

Felling Licence

A Felling Licence may be required in certain felling operations, and these are administered by the Forestry Commission where more than five cubic metres of wood are felled in one calendar quarter and when selling more than two cubic metres. There are exceptions, and these are in the Forestry Act 1967 and Regulations made under this Act. Contravention of the felling licence controls can incur substantial penalties. Tree felling forming part of a Local Authority Planning Approval is exempt.

Tree work operations have the potential to impact on protected species, most notably birds and bats. **The Wildlife and Countryside Act 1981** is the primary legislation which protect birds in the UK, and it is an offence, with certain exceptions, to intentionally kill, injure or take any wild bird, or intentionally take, damage or destroy the nest of any wild bird while it is in use or being built or take or destroy an egg of any wild bird. Certain species of bird are afforded additional protection, whereby it is an offence to intentionally or recklessly disturb any wild bird included on Schedule 1 of the Act, while it is nest building or at a nest containing eggs or young or disturb the dependent young of such a bird.

It is not an offence to fell trees during the bird nesting period (which is generally considered to be between mid-February and September inclusive) providing it is done so without breaching the legislation detailed above.

Caution must be aired if tree works are programmed during the nesting season as there is the potential for delay if nesting birds are found to be on site. Should nesting birds be present then all but essential works must be postponed. If in undertaking essential works a nest or nests are found to be present, then further advice must be sought from the statutory nature conservation authority, which in Wales is Natural Resources Wales and in England is Natural England, or from an appropriately qualified ecologist. The penalty for disturbing or destroying one bird or nest can be an unlimited fine and up to six months in prison, or both.

Bats...Summary of Current Relevant Legislation

Bats are also generally associated with trees and can be impacted by tree work operations. There are some 17 species of bat which are known to breed in the British Isles, all are insectivorous and depend to some extent on habitat in which trees are a significant element. Bats are a protected species and are in decline both globally and nationally. Therefore, they are to be fully considered before any tree work commences and particularly if the trees are mature. All species of bats are afforded **full** protection under the **Conservation of Habitats and Species Regulations 2017 (as amended)** and **partial** protection under the **Wildlife and Countryside Act 1981 (as amended)**. It is an offence (with limited exceptions) to deliberately take, injure, or kill a bat, intentionally or recklessly disturb a bat in its roost or deliberately disturb a group of bats, deliberately damage or destroy a place used by bats for breeding or resting (roosts) (even if bats are not occupying the roost at the time) or intentionally or recklessly obstruct access to a bat roost.

Therefore, bats are to be fully considered before any tree work commences and particularly if trees contain veteran features (which can occur in young trees as well as older trees). This can include all work on trees whether it is surgery, felling, the covering, or filling of cavities or the installation of rod braces and flexible cable braces. If a bat roost is known to be in any tree that is to be removed or worked on, or if any work is to take place adjacent to a known bat roost that may result in disturbance to that bat/s, then a license must be obtained from Natural Resources Wales or Natural England before work can take place.

Arboricultural Implications Assessment at Willowbrook South
Dated 10th August 2024

Where there is the risk of a bat roosts being present, it is incumbent upon the owner or manager to commission a specialist bat survey to identify bat roosts before instructing tree surgery to commence. Failure to do so and in the event of breaching the legislation detailed above is an offence.

Maximum penalties for committing offences relating to bats or their roosts can amount to imprisonment for a term not exceeding six months or to fines of up to Level 5 on the standard scale under the Criminal Justice Act 1982/ 1991 (i.e., £5000 in April 2001) per roost or bat disturbed or killed, or to both.

NOTE - This is a simplified summary of the legal position relating to bats and birds and is intended for guidance purposes only. If further assistance is required, the primary legislation should be referred to. It may also be necessary to see legal advice or the advice of an appropriately qualified ecologist.

In the event of disturbing a roost site or injuring any bats is an offence. Maximum penalties for committing offences relating to bats or their roosts can amount to imprisonment for a term not exceeding six months or to fines of up to Level 5 on the standard scale under the Criminal Justice Act 1982/ 1991 (i.e., £5000 in April 2001) per roost or bat disturbed or killed, or to both.

Statute and Common Law – for Tree Inspections.

A landowner or land manager should be aware that both statute and common law dictates regular inspections of trees on land in their control are necessary where such trees could cause injury or damage in the event they should fall or shed any parts. A person suitably qualified in arboriculture should undertake such routine inspections and any remedial tree works recommended should be carried out within the time constraints specified, to prevent injury or damage occurring. A landowner should retain records of all inspections and any remedial tree works that have resulted from such inspections. Arboricultural Association, the Malthouse, Stroud Green, Standish, Stonehouse, Gloucestershire, GL10 3DL. Telephone 01242 522152. www.trees.org.uk can provide advice on suitably qualified persons or indeed suitable qualifications a person should hold to undertake qualified inspections.

GLOSSARY OF TERMS

Adventitious: Latent or dormant bud on stem or root often invisible until stimulated into growth which occurs from an unusual place i.e., not a twig, leaf or bud.

Arboriculture: the culture and management of trees as groups and individuals, primarily for amenity and other non-forestry purposes.

Arboriculturalist: person who has, through relevant education, training, and experience, gained recognised qualifications and expertise in the field of trees in relation to construction.

Architecture: in a tree, a term describing the pattern of branching of the crown or root system.

Arboricultural Implication Assessment (AIA) study, undertaken by an arboriculturalist, to identify, evaluate and possibly mitigate the extent of direct and indirect impact on existing trees that may arise because of the implementation of the site layout.

Arboricultural Method Statement: methodology for the implementation of any aspects of development that has the potential to result in loss of or damage to a tree.

Assessment: in relation to tree hazards, the process of estimating the risk which a tree or group of trees poses to persons or property (THIS INVOLVES A VISUAL INSPECTION FOR DEFECTS AND CONTRIBUTORY SITE FACTORS, AND SOMETIMES ALSO A DETAILED INVESTIGATION OF SUSPECTED DEFECTS).

Bole: (trunk) the main stem of a tree below its first major branch.

Branch: a limb extending from the main stem or parent branch of a tree.

Buttress zone: the region at the base of a tree where the major lateral roots join the stem, with buttress-like formations on the upper sides of the junctions.

Canopy: the topmost layer of twigs and foliage in a woodland, tree, or group of trees.

Construction Exclusion Zone: this is an area established where construction is not permitted and usually correlates to the Root Protection Area.

Crown: in arboriculture the main foliage-bearing portion of a tree.

Defect: in relation to tree hazards, any feature of a tree that detracts from the uniform distribution of mechanical stress, or which makes the tree mechanically unsuited to its environment.

Diameter (DBH) The diameter for each tree is in millimetres based on the diameter or circumference of the trunk measured at a height of approximately 1.5 metres above ground level, unless otherwise stated. All measurements are approximate.

Dysfunction: in woody tissues, the loss of physiological function, especially water conduction.

Energy: the capacity to do work (THROUGH PHOTOSYNTHESIS, GREEN PLANTS ABSORB ENERGY FROM SUNLIGHT AND STORE IT IN THE FORM OF CHEMICAL COMPOUNDS WHICH ARE USED IN ENERGY-DEPENDANT PROCESSES SUCH AS GROWTH).

Failure: in connection with tree hazards, a partial or total fracture within woody tissues or loss of cohesion between roots and soil. (IN TOTAL FAILURE THE AFFECTED PART SNAPS OR TEARS AWAY COMPLETELY. IN PARTIAL FAILURE, THERE IS A CRACK OR DEFORMATION WHICH RESULTS IN AN ALTERED DISTRIBUTION OF MECHANICAL STRESS)

Group: the term 'group' is intended to identify trees that form cohesive arboricultural features either aerodynamically (e.g., trees that provide companion shelter), visually (e.g., avenues or screens) or culturally including for biodiversity (e.g., parkland or wood pasture).

Heave: in relation to a shrinkable clay soil, expansion due to re-wetting, sometimes after the felling or root severance of a tree which was previously extracting moisture from the deeper layers: also, in relation to root growth, the lifting of pavements and other structures by radial expansion: also, in relation to tree stability, the lifting of one side of a wind-rocked root plate.

Leader: in a tree, a topmost shoot that has apical dominance.

Preventive action: in a tree hazard management, action that helps to prevent injury to persons or damage to property.

Pruning: the removal or cutting back of twigs, branches, or roots: in some contexts, applying only to twigs or small branches only, but more often used to describe all kinds of work involving cutting.

Retained Tree: a tree that has been considered suitable by an Arborist for retention and which during the design stage is selected for retention and incorporated within the development.

Risk: the likelihood of the potential harm from a particular hazard becoming actual harm.

Root Protection Area: this is a protection area established around the base of each tree to prevent physical, chemical or compaction damage occurring. Protection to the RPA is achieved through the erection of fencing or another suitable barrier.

Soil heave: see heave.

Special Precaution Area: this is an area, usually within the root protection area, where construction or other activity may be permitted but only under the direction of a 'Arboricultural Method Statement' and the supervision of an Arborist.

Species The species is the given name of the tree which is usually provided in both the common and scientific names.

Arboricultural Implications Assessment at Willowbrook South
Dated 10th August 2024

Subsidence: in relation to soil or structures resting in or on soil, a sinking due to shrinkage when clay soils dry out, sometimes due to extraction of moisture by tree roots.

Subsidence: in relation to branches of trees, a term that can be used to describe a progressive downward bending due to increasing weight.

Targets: in a tree hazard assessment (and with somewhat incorrect terminology), persons or property or other things of value, which might be harmed by mechanical failure of the tree or by objects falling from it.

Tree: a woody plant, which typically has a single main stem and, in maturity, attains a height of at least four metres and a stem diameter at breast height of at least 75-mm.

Tree Constraint Plan (TCP): plan prepared by an Arboriculturalist for the purpose of layout design showing the RPA and representing the effect that the mature height and spread of retained trees will have on layouts through shade dominance, etc.

Tree Preservation Order: in Great Britain, an order made by a local authority, whereby the authority's consent is generally required for the cutting down, topping, or lopping of specified trees.

Tree Protection Plan: scale drawing prepared by an arboriculturalist showing the final layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement (AMS), which can be shown graphically.

Trunk: the single main stem of a tree.

Vigour: in tree assessment, an overall measure of the rate of shoot production, shoot extension or diameter growth (cf. vitality).

Visual Tree Assessment (VTA): in addition to the literal meaning, a system expounded by Mattheck & Breloer (1995) to aid the diagnosis of potential defects through visual signs and the application of mechanical criteria.

Wind exposure: the degree to which a tree or other object is exposed to wind, with regard both to duration and velocity.

Wind pressure: the force exerted by wind on a tree or other object.

Wind snap: the breaking of a tree stem by wind.

Windthrow: the blowing over of a tree at its roots.

REFERENCES

1. BS 5837: 2012 Trees in Relation to Design, Demolition and Construction - Recommendations
2. Ambler SJ – Tree Survey, Categorisation & Constraints Report Willowbrook South Dated July 2024

APPENDICES

FLOW DIAGRAM – PLANNING FOR TREES IN DEVELOPMENT.

BS 5837:2012

BRITISH STANDARD

**Annex B
(informative)**

Trees and the planning system

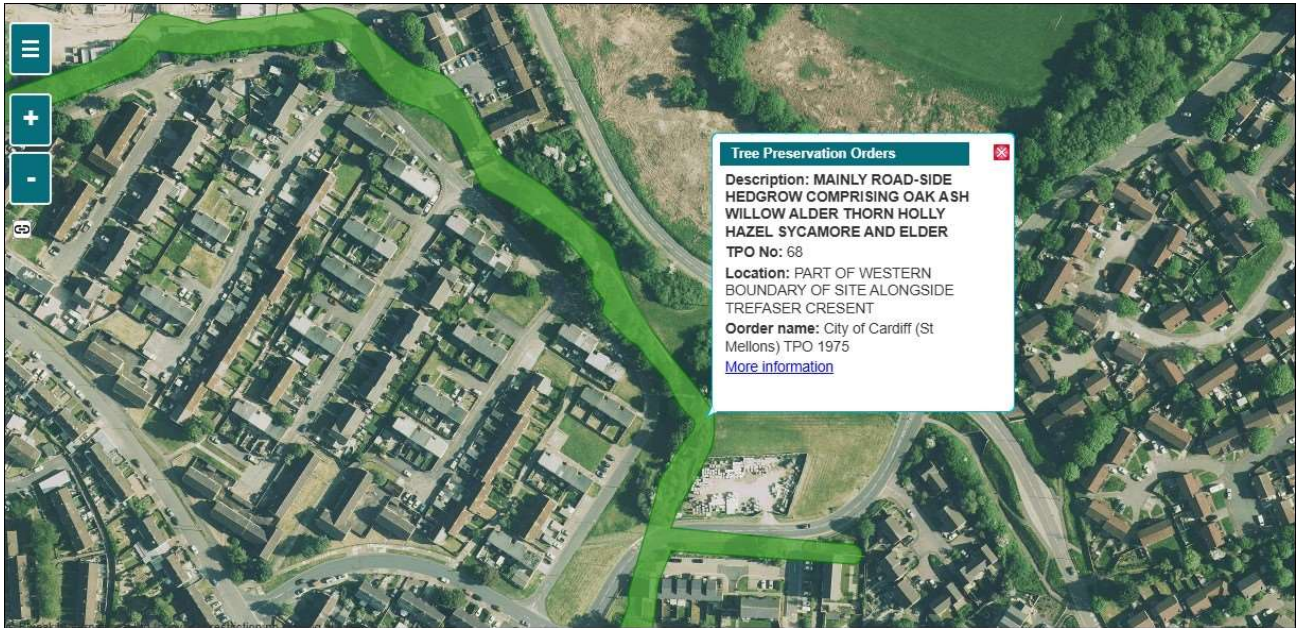
Under the UK planning system, local authorities have a statutory duty to consider the protection and planting of trees when granting planning permission for proposed development. The potential effect of development on trees, whether statutorily protected (e.g. by a tree preservation order or by their inclusion within a conservation area) or not, is a material consideration that is taken into account in dealing with planning applications. Where trees are statutorily protected, it is important to contact the local planning authority and follow the appropriate procedures before undertaking any works that might affect the protected trees.

The nature and level of detail of information required to enable a local planning authority to properly consider the implications and effects of development proposals varies between stages and in relation to what is proposed. Table B.1 provides advice to both developers and local authorities on an appropriate amount of information. The term “minimum detail” is intended to reflect information that local authorities are expected to seek, whilst the term “additional information” identifies further details that might reasonably be sought, especially where any construction is proposed within the RPA.

Table B.1 Delivery of tree-related information into the planning system

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

TREE PRESERVATION ORDER



TREE CONSTRAINTS PLAN



TREE, REMOVAL, RETENTION, & PROTECTION PLAN (DRAFT)



Ref	Tree Tag	Species	Height (m)	Effective Diameter (mm)	Remaining Contribution (years)	Retention Category	Root Protection Area (sqm)	Root Protection Radius (m radius)
G1	N/A	Hazel Common hawthorn Common ash	8	120	40+	B2	6.5	1.4
G2	N/S	Common hawthorn Hazel Pedunculate oak	10	130	20-40	C2	7.6	1.6
G3	N/A	Field maple Pedunculate oak	7	200	20-40	B2	18.1	2.4
G4	N/A	Common hawthorn Common dogwood Elder White willow	12	200	20-40	C3	18.1	2.4
G5a	N/A	Pedunculate oak	10	350	40+	B2	55.4	4.2
G5b	N/A	White willow Common holly Common hawthorn Common dogwood Pedunculate oak	8	120	40+	C2	6.5	1.4
G5c	N/A	Common hawthorn Hazel White willow	7	100	40+	C3	4.5	1.2
G5d	N/A	Hazel	10	200	20-40	C2	18.1	2.4
G5e	N/A	Pedunculate oak Goat willow Hazel Common dogwood	4	100	20-40	C3	4.5	1.2
G5f	N/A	Pedunculate oak Pedunculate oak Goat willow Common dogwood White willow Common holly	10	300	40+	B2	40.7	3.6
G5g	N/A	Common hawthorn Common dogwood White willow Common holly Goat willow	8	120	40+	C2	6.5	1.4
G13	N/A	Hazel Common hawthorn	7	120	40+	C3	6.5	1.4
T1	1187	Horse chestnut	15	610	20-40	B2	168.3	7.3
T2	1579	White willow	18	680	10-20	C2	209.2	8.2
T3	-	White willow	-	-	-	-	-	-
T4	N/A	Common ash	18	400	20-40	C2	72.4	4.8
T5	1188	Pedunculate oak	16	490	40+	B2	108.6	5.9
T6	1581	Pedunculate oak	15	650	40+	B2	191.1	7.8
T7	1582	Pedunculate oak	15	600	40+	B2	162.9	7.2
T8	1191	Pedunculate oak	15	600	20-40	C2	162.9	7.2
T9	N/A	White willow	20	540	20-40	C2	131.9	6.5
T10	N/A	Pedunculate oak	18	400	20-40	B2	72.4	4.8
T11	N/A	Pedunculate oak	18	400	20-40	B2	72.4	4.8
T12	N/A	Pedunculate oak	18	400	20-40	B2	72.4	4.8
T42	1189	Pedunculate oak	12	460	20-40	C2	95.7	5.5
T43	N/A	Hazel	10	120	20-40	C2	6.5	1.4
T44	N/A	Pedunculate oak	13	400	40+	B2	72.4	4.8
T45	N/A	Pedunculate oak	13	600	40+	B2	162.9	7.2
T46	N/A	Pedunculate oak	7	120	40+	C2	6.5	1.4
T47	N/A	Hazel	10	120	20-40	C2	6.5	1.4
T48	N/A	Pedunculate oak	12	500	10-20	C2	113.1	6.0
T49	N/A	Pedunculate oak	15	300	40+	B2	40.7	3.6
T50	N/A	Pedunculate oak	15	500	20-40	B2	113.1	6.0
T51	1192	Pedunculate oak	15	310	20-40	B2	43.5	3.7
T52	N/A	Common hawthorn	5	120	20-40	C2	6.5	1.4
T53	1193	Pedunculate oak	15	590	20-40	B2	157.5	7.1
T54	1194	White willow	18	750	10-20	C2	254.5	9.0
T55	1195	White willow	18	920	20-40	C2	382.9	11.0
T56	1196	Common hawthorn	10	140	20-40	C2	8.9	1.7
T57	N/A	Horse chestnut	10	140	20-40	C2	8.9	1.7
T58	N/A	Common alder	18	350	20-40	B2	55.4	4.2
T59	N/A	Common alder	18	350	<10	U	0.0	0.0
T60	1196	Pedunculate oak	15	360	20-40	B2	58.6	4.3
T61	N/A	Common hawthorn	8	80	20-40	C2	2.9	1.0
T62	N/A	Pedunculate oak	15	500	20-40	B2	113.1	6.0
T63	N/A	Hazel	4	80	20-40	C2	2.9	1.0
T64	N/A	Hazel	4	80	20-40	C2	2.9	1.0
T65	N/A	Pedunculate oak	10	800	20-40	B2	289.5	9.6
T66	N/A	Pedunculate oak	18	200	20-40	B2	18.1	2.4
T67	N/A	Pedunculate oak	18	300	20-40	B2	40.7	3.6
T68	N/A	Pedunculate oak	18	300	20-40	B2	40.7	3.6

(Please check all RPA's on site.)

This plan should be read in conjunction with the Willowbrook Drive (South) the Arboricultural Implications Assessment and Arboricultural Method Statement (Ambler SJ August 2024)

The original of this drawing was produced in colour. A monochrome copy should not be relied upon.

Key
Trees to be considered for retention.

- A - High
- B - Moderate
- C - Low
- Root Protection Area

Trees unsuitable for retention.

- U - Fell

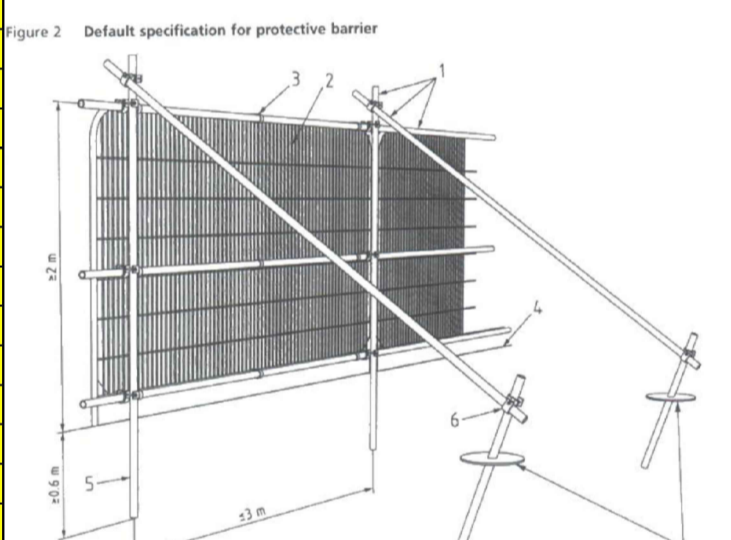
Tree Key

- Crown Spread. Measured in North, South, East and West side of tree.
- T1 Tree number. (T - Individual Tree, G - Group, A - Tree area, W - Woodland, H - Hedgerow)

Root Protection Area (RPA)
A layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.

Tree Protective Fence

AREA OF SPECIAL PRECAUTION - REFER TO ARB METHOD STATEMENT FOR NECESSARY GROUND PROTECTION.



- 1 Standard scaffold poles
- 2 Heavy gauge 3m galvanealised 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 0.6m)
- 6 Standard scaffold clamp



Steve Ambler & Sons Tree Specialists Ltd
Tec.Arbor.A., Dip.Arb.(RFS), F.ARBOR.A.

Client	Wates Residential
Surveyed by	SJA
Date surveyed	July 2024
Drawn by	BC
Scale	1:450 when printed at A1
OS Grid Ref	ST234806

INDICATIVE ONLY. PLEASE REFER TO ROOT PROTECTION TABLE. DO NOT SCALE FROM THIS DRAWING. CHECK ALL DIMENSIONS ON SITE

REF. DRAWINGS SS-1151_2D
WILLOWBROOK DRIVE ST MELLONS Topographical Survey

TITLE
Tree Retention/Removal and Protection Plan Willowbrook Drive (South)

DRAWING No: **24-052**