

Land off Paul Lane,
Flockton Moor
WF4 4BP

Arboricultural Impact Assessment

November 2024

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1 Introduction

1.1 *Introduction and Background*

- 1.1.1.1 This report contains an Arboricultural Impact Assessment in support of an application for development at the site of land by Paul Lane, Flockton Moor, Wakefield WF4 4BP. The study area is approximately 0.428 hectares (ha) and is centred on grid reference SE 21613 14961.
- 1.1.1.2 This report has been produced to support a full planning application for the development of an agricultural building.
- 1.1.1.3 The proposed development plan is shown in the Tree Assessment Plans (TAP) at Appendix 2.
- 1.1.1.4 A tree survey of the site in accordance with BS5837:2012 was carried out in October 2024 by Quants Environmental Ltd with the results outlined in the following report:
- 1.1.1.5 *Land off Paul Lane, Flockton Moor, WF4 4BP, Arboricultural Survey* dated November 2024
- 1.1.1.6 The above report was produced to support the design of the proposed development. As part of this survey the relevant qualitative tree data was recorded in order to assess the condition of the existing trees, their constraints upon the prospective development and the necessary protection and construction specifications required to allow their retention as a sustainable and integral part of the completed development. Information is given on condition, age, size and indicative positioning of all the trees, both on and affecting the site. This is in accordance with the British Standard 5837:2012 Trees in relation to design, demolition and construction – Recommendations.

1.2 *Aims*

- 1.2.1.1 The Arboricultural Impact Assessment will provide information and advice on potential conflicts between the existing trees on site and the proposed development. The information contained in this assessment has been drawn from the current design layout.
- 1.2.1.2 Possible mitigation measures will be outlined where the proposed development comes into conflict with retained trees and vice versa.

1.3 *Trees Within the Site*

- 1.3.1.1 The survey results are shown in Appendix 2 (Tree Survey Results – Table 1) and Appendix 3 (Tree Constraints Plan). The trees included within this survey comprise of 36 individual trees, 3 groups of trees and one woodland
- 7 individual trees were classified as Category A;
 - 1 woodland was classified as Category A;
 - 7 individual trees were classified as Category B;
 - 21 individual trees were classified as Category C;
 - 3 tree groups were classified as Category C; and
 - 1 individual tree was classified as Category U.

2 Arboricultural Impact Assessment

2.1 *Introduction*

- 2.1.1.1 The Arboricultural Impact Assessment will outline the potential impact this development will have on the trees which are to be retained. The implications will be discussed in terms of below ground constraints and above ground constraints. Possible remedial actions will be discussed where the development impacts significantly on retained trees.

2.2 *Trees to be Removed*

- 2.2.1.1 Due to direct conflict with the proposed agricultural buildings, T14 and G2 are proposed to be removed. Both trees have been classified as Category C due to low value in comparison to other trees on site.
- 2.2.1.2 Due to the small size and average form of the trees to be removed, it is recommended that a 1:1 replacement ratio will be sufficient to replace the trees which are removed. Replacement with standard trees will allow replacement of longer-lived trees.

2.3 *Excavation within the RPA*

- 2.3.1.1 For the proposed entrance into the field to the east, a section of the bund will need to be removed, which also encroaches into the RPA of T5. The encroachment is minimal and provided careful root pruning is completed within this area; it is concluded to be acceptable regarding the retention of T5.
- 2.3.1.2 It is considered that hand digging of the bund removal will be significantly demanding and manual handling intensive and should therefore be avoided.
- 2.3.1.3 Reduction of the ground level will require careful works under supervision. It is considered the most appropriate option will be the use of small (≥ 2 tonne), mini digger/excavator with a flat edge bucket. The vegetation and soil should be carefully scraped away in layers removing the soil from the RPA under the guidance of a banksman and supervising arboriculturist.
- 2.3.1.4 The soils must be inspected for signs of rooting, where roots are found work should stop and assessment of the roots can take place. Where roots are small and in low quantity, pruning may occur, and the work may continue to the required levels. Where significant rooting is identified, work must stop, and a decision must be made upon the impact severance of roots would have on affected trees.

2.4 *Hard Surface Installation*

- 2.4.1.1 The proposed gravel track will start from the entrance of the site and encroaches into the RPAs of trees within the W1. It is concluded that provided this section of the track does not require excavation, with the gravel surface installed on top, that this would not cause significant impact on the trees within the woodland area.
- 2.4.1.2 Removal of the turf layer may be acceptable, although this must be completed under arboricultural supervision to monitor for any roots which may have grown in proximity to this top layer. There may be scope to reduce the ground level further if no roots are discovered during the scraping back of vegetation and soil.
- 2.4.1.3 All construction of hard surfacing must be planned to allow for construction to occur from outside the RPA working in towards the tree so that machinery and workers only pass over installed protection measures.
- 2.4.1.4 Use of a porous surface material to allow water ingress into the rooting area will be required, as well as appropriate ground contact edging such as wooden boards with wooden pegs or metal strip edging being used. This will prevent the need for excavation for conventional pin kerbs.

2.5 Soil Compaction Within the RPA

- 2.5.1.1 Tree protection fencing should be used along the RPA's of retained trees around the perimeter of the main development and around trees which are likely to be impacted by ground works to prevent machinery access to the soft landscape within the RPA's of retained trees.
- 2.5.1.2 Fencing should be installed around trees in close proximity to the proposed footpaths to prevent construction machinery damaging soft ground within the RPA of trees where the paths are located within the RPA.
- 2.5.1.3 Construction methods for the footpaths through the RPA must be carried out in a roll out method, ensuring construction machinery, passes over installed protection measures.
- 2.5.1.4 Under no circumstances must construction machinery pass over unprotected soils within the RPA of retained trees.
- 2.5.1.5 Compaction of soil reduces oxygen and water movement through the soil which can lead to the suffocation and the eventual death of roots.

2.6 Changes to Soil Condition

- 2.6.1.1 It is vital that current soil condition is maintained within the RPA of retained trees and areas of proposed tree planting. Effects on bulk density on the soil from construction activity and the quality of the soil can impact on the trees severely as roots have adapted to the current conditions.

2.7 Underground Utilities/Service Provision

- 2.7.1.1 Underground service provision is currently unknown, although it is expected to avoid any RPAs on site where possible.
- 2.7.1.2 Where any requirement for service installation within the RPA of retained trees occurs, this must be constructed in accordance with the guidance provided in the National Joint Utilities Guidance document NJUG 4 and no service shall be positioned within 1m of the tree's stem.

2.8 Access Facilitation Pruning

- 2.8.1.1 No pruning is considered necessary for access due to sufficient height clearance along the track through the woodland.
- 2.8.1.2 Should any other pruning requirements be identified on site during the development, advice will need to be sought by a qualified arboricultural consultant and the relevant LPA should be consulted.

2.9 Construction Access and Activities

- 2.9.1.1 Access to the site for the proposed development will be via the existing access from Paul Lane.
- 2.9.1.2 The location of site cabins and compounds is currently unknown, although there is plenty of space to avoid RPAs of retained trees.
- 2.9.1.3 Consideration should be included within an Arboricultural Method Statement for the storage of materials as accidental spillage may cause damage to the surrounding trees. Spillage kits and neutral emergency bunding aggregate should be appropriate to the amount of material stored on site i.e. fuel oil or liquid chemicals.
- 2.9.1.4 All storage areas, cement mixing and washing points must be outside RPAs unless otherwise agreed with the Local Planning Authority.

2.10 *Post Development Pressures*

- 2.10.1.1 The processes of construction are unlikely to have a detrimental effect upon the health of the retained trees assuming recommendations made within this Arboricultural Impact Assessment and the subsequent Method Statement are adhered to at all times by the contractor, e.g. the positioning of a suitable fence between the retained trees and construction activities prior to commencement of works and that the fence remains intact and in position throughout the duration of the project.

Appendix 1. Tree Constraints Table

Tree / Group ref.no	Species	Height (m)	Crown Spread (m)				Crown clearance (m)	Stem diameter (mm)	Age class	Phys. Condition	Struct. Condition	Comments	Recommendations	ERC	Cat Grade	Radius of Nominal Circle (m)	RPA SqM
			N	E	S	W											
T1	Silver Birch	7	2	4	4	2	0	200,200	EM	G	G	Unable to inspect stem due to undergrowth. Stem divides below 1.5m.bottom of bund by field boundary	No Recommendations	10+	C2	3.4	36.23
T2	Hawthorn	2	1	1	1	1	0	100	Y	G	F	Suppressed form due to adjacent tree.	No Recommendations	10+	C1	1.2	4.52
T3	Silver Birch	6	4	2	3	4	0	210	EM	G	G	Situated at bottom of bund	No Recommendations	10+	C1	2.5	19.95
T4	Silver Birch	12	2	4	4	4	1	310	EM	G	G	Situated at bottom of bund	No Recommendations	10+	C1	3.7	43.47
T5	Silver Birch	12	5	4	2	3	1	350	EM	G	G	Stem divides below 1.5m.bottom of bund	Reduce ground level of bund	10+	C1	4.2	55.42
T6	Silver Birch	12	4	4	4	4	1	340	EM	G	G	Situated at bottom of bund	No Recommendations	20+	B1	4.1	52.30
T7	Silver Birch	10	4	5	4	4	1	200,200,290	EM	G	G	Stem divides above 1.5m.top of bund	No Recommendations	20+	B1	4.9	74.20
T8	Hawthorn	3	2	2	2	1	1	160	EM	G	G	Suppressed form due to adjacent tree.	No Recommendations	10+	C1	1.9	11.58
T9	Goat Willow	12	2	5	4	4	1	210,180,230	EM	G	F	Stem divides below 1.5m. Broken branches in crown. Small volume of deadwood in crown.	Remove broken/damaged branches.	10+	C1	4.3	58.63
T10	Beech	10	6	6	6	4	0	250,250,250,250,250	EM	G	G	Multiple stems below 1.5m.interesting form	Reduce ground level of bund	20+	B1	6.7	141.36
T11	Beech	10	6	7	6	4	0	270	EM	G	G	Multiple stems below 1.5m.interesting form	Reduce ground level of bund	20+	B1	6.5	131.92
T12	Oak	3	0.5	0.5	0.5	0.5	0	80	Y	G	G	Suppressed by leaning tree	Reduce ground level of bund	10+	C1	1	2.90
T13	Silver Birch	7	6	2	2	2	0	200	EM	P	P	windblown tree resting on adjacent trees	Remove	<10	U	2.4	18.10

Tree / Group ref.no	Species	Height (m)	Crown Spread (m)				Crown clearance (m)	Stem diameter (mm)	Age class	Phys. Condition	Struct. Condition	Comments	Recommendations	ERC	Cat Grade	Radius of Nominal Circle (m)	RPA SqM
			N	E	S	W											
T14	Sycamore	12	5	6	5	5	1	320,360	EM	F	G	Stem divides below 1.5m. Small volume of deadwood in crown.	Reduce ground level of bund	10+	C1	5.8	105.10
T15	Oak	15	4	3	1	3	0	190,110,190	EM	G	G	Multiple stems at ground level. Natural bracing of stems occurring	Reduce ground level of bund	10+	C1	3.5	38.05
T16	Sycamore	4	4	3	3	1	1	130	Y	F	F	Stem divides above 1.5m. Suppressed form due to adjacent tree.	Reduce ground level of bund	10+	C1	1.6	7.65
T17	Sycamore	15	5	3	5	4	0	300	EM	G	G	Unbalanced crown shape. Small volume of deadwood in crown.	Reduce ground level of bund	10+	C1	3.6	40.72
T18	Sycamore	12	4	3	4	2	1	190	EM	F	F	Major bark wounding on stem. Included bark present in fork.	Reduce ground level of bund	10+	C1	2.3	16.33
T19	Sycamore	12	3	2	1	1	1	120	EM	F	F	Suppressed form due to adjacent tree.	Reduce ground level of bund	10+	C1	1.4	6.51
T20	Sycamore	12	6	3	2	2	1	220,150	EM	F	F	Stem divides below 1.5m. Small volume of deadwood in crown.	Reduce ground level of bund	10+	C1	3.2	32.01
T21	Sycamore	12	4	3	0	3	1	100,100	EM	F	F	Stem divides below 1.5m. Small volume of deadwood in crown. Suppressed form due to adjacent tree.	Reduce ground level of bund	10+	C1	1.7	8.99
T22	Sycamore	15	7	5	6	5	1	280,280,210	EM	F	F	Unbalanced crown shape. Squirrel damage in crown. Small volume of deadwood in crown.	Reduce ground level of bund	10+	C1	5.4	90.80
T23	Sycamore	12	5	0	3	3	1	120,150	EM	F	F	Unbalanced crown shape. Squirrel damage in crown. Small volume of deadwood in crown.	Reduce ground level of bund	10+	C1	2.3	16.68

Tree / Group ref.no	Species	Height (m)	Crown Spread (m)				Crown clearance (m)	Stem diameter (mm)	Age class	Phys. Condition	Struct. Condition	Comments	Recommendations	ERC	Cat Grade	Radius of Nominal Circle (m)	RPA SqM
			N	E	S	W											
T24	Sycamore	12	4	2	3	5	1	310	EM	F	F	Unbalanced crown shape. Squirrel damage in crown. Small volume of deadwood in crown.	Reduce ground level of bund	10+	C1	3.7	43.47
T25	Oak	15	6	6	6	6	1	440	EM	G	F	Stem divides above 1.5m.limb tear out	No Recommendations	20+	B1	5.3	87.58
T27	Goat Willow	4	2	4	2	1	0	130,100,110,170	Y	G	G	Stem divides at ground level.	No Recommendations	10+	C1	3.1	30.82
T28	Goat Willow	3	1	1	1	1	0	100,70	Y	G	G	Stem divides at ground level.	No Recommendations	10+	C1	1.5	6.73
T29	Oak	18	4	7	7	2	1	570	M	G	G	Tree leaning south over adjacent third-party garden	No Recommendations	40+	A1	6.8	146.98
T30	Oak	18	1	2	7	2	1	300	M	G	G	Tree leaning south over adjacent third-party garden	No Recommendations	40+	A1	3.6	40.72
T31	Oak	18	1	2	7	3	1	330	M	G	G	Tree leaning south over adjacent third-party garden	No Recommendations	40+	A1	4	49.27
T32	Oak	18	1	7	7	5	1	400	M	G	G	Third party tree	No Recommendations	40+	A1	4.8	72.38
T33	Oak	18	6	3	6	6	1	450	M	G	G	Third party tree	No Recommendations	40+	A1	5.4	91.61
T34	Oak	19	6	10	5	6	3	600	M	G	G	Small volume of deadwood in crown.	No Recommendations	40+	A1	7.2	162.86
T35	Beech	19	7	12	7	7	3	840	M	G	G	Small volume of deadwood in crown.	No Recommendations	40+	A1	10.1	319.21
T36	Sycamore	13	8	6	5	2	0	530	SM	F	G	Tree adjacent to roadside. Utility pruning has occurred resulting in irregular form	No Recommendations	20+	B1	6.4	127.08
T37	Beech	16	5	4	1	4	0	390	SM	F	G	Tree adjacent to track. Utility pruning has occurred resulting in irregular form	No Recommendations	20+	B1	4.7	68.81
G1	Bay Laurel	4	4	4	4	4	0	130	EM	G	G	Two evergreen trees with dense canopies	No Recommendations	10+	C2	1.6	7.65
G2	Goat Willow, Silver Birch	5	3	3	3	3	0	130	Y	G	G	Clump of self-sown trees on bund with irregular forms due to adjacent trees	No Recommendations	10+	C2	1.6	7.65

Tree / Group ref.no	Species	Height (m)	Crown Spread (m)				Crown clearance (m)	Stem diameter (mm)	Age class	Phys. Condition	Struct. Condition	Comments	Recommendations	ERC	Cat Grade	Radius of Nominal Circle (m)	RPA SqM
			N	E	S	W											
G3	Goat Willow	4	1	1	1	1	0	80	Y	G	G	Self-sown trees in a line on bund.	No Recommendations	10+	C2	1	2.90
W1	Silver Birch, Sycamore, Oak	18	4	4	4	4	5	200 - 650	M	G	G	Woodland area known as Cock Hat Wood. Wide range of species providing excellent value to area.	No Recommendations	40+	A2	7.8	191.13

Key:

Tree/ Group Ref No. – tree/group number, to be recorded on tree survey plan where necessary.

Species – common and scientific names where possible.

Height – overall height of tree in metres.

Stem Dia – stem diameter, in millimetres at 1.5m above adjacent ground level (on sloping ground to be taken on the upslope of the tree base) or immediately above the root flare for multi-stemmed trees.

Branch spread – in meters taken at the four cardinal points to derive an accurate representation of the crown (to be recorded on the tree survey plan where necessary).

Height of cc – height of crown clearance – in meters above adjacent ground level to inform on ground clearance, crown stem ratio and shading.

Age class – young (Y), young mature (YM), mature (M), over mature (OM) and veteran (V).

Physiological condition – e.g. good (G), fair (F), poor (P) and dead (D).

Structural condition – e.g. collapsing, the presence of decay and any physical defect.

Management recommendations – including further investigations of suspected defects that require more detailed assessment and potential wildlife habitat.

ERC – estimated remaining contribution – in years e.g. less than 10, 10-20, 20-40, more than 40.

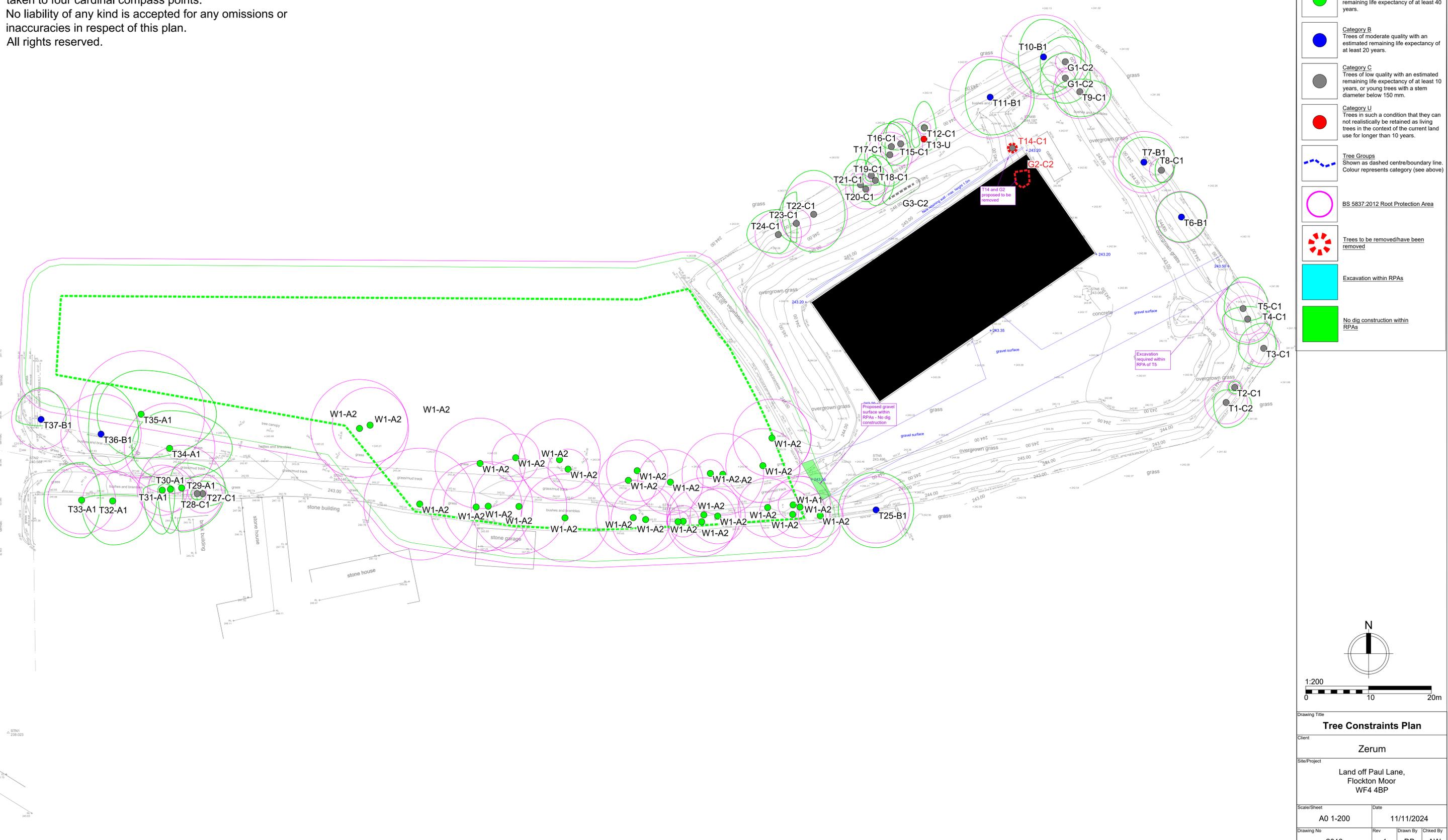
Cat grade – category grade – U or A to C, to be recorded in plan on the tree survey plan where possible.

RPA – Root protection area calculated from BS5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations in sq/m. Where indicated, dimensions of radius of circle or sides of square based around centre point of trunk calculated for design purposes.

Appendix 2. Tree Assessment Plan

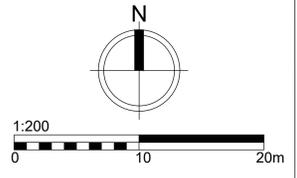
Notes

Do not scale off drawing - refer to the tree data schedule for accurate crown spread measurements.
 Depictions of tree canopies are based on measurements taken to four cardinal compass points.
 No liability of any kind is accepted for any omissions or inaccuracies in respect of this plan.
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Key

-  Trees
Showing Canopy extents, category colour and tag number (with category).
-  Category A
Trees of high quality with an estimated remaining life expectancy of at least 40 years.
-  Category B
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.
-  Category C
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm.
-  Category U
Trees in such a condition that they can not realistically be retained as living trees in the context of the current land use for longer than 10 years.
-  Tree Groups
Shown as dashed centre/boundary line. Colour represents category (see above)
-  BS 5837:2012 Root Protection Area
-  Trees to be removed/have been removed
-  Excavation within RPAs
-  No dig construction within RPAs



Drawing Title			
Tree Constraints Plan			
Client			
Zerum			
Site/Project			
Land off Paul Lane, Flockton Moor WF4 4BP			
Scale/Sheet	Date		
A0 1-200	11/11/2024		
Drawing No	Rev	Drawn By	Chkd By
2013	1	DB	AW

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