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ENVIRONMENT - ARBRICULTURE

Avant Homes
Land at Moorthorpe Way
Owlthorpe
Sheffield
Arboricultural Report

BWB

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Sheffield
Arboricultural Survey

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Limitations

The assessments and interpretation have been made in line with legislation and guidelines in force at the time of writing, representing best practice at that time.

All of the comments and opinions contained in this report, including any conclusions, are based on the information obtained by BWB during our investigations.

There may be other conditions prevailing on the site which have not been disclosed by this investigation and which have not been taken into account by this report. Responsibility cannot be accepted for conditions not revealed by the investigation.

Except as otherwise requested by the Client, BWB is not obliged and disclaims any obligation to update the report for events taking place after:

a) the date on which this assessment was undertaken; and

b) the date on which the final report is delivered.

BWB makes no representation whatsoever concerning the legal significance of its findings or to other legal matters referred to in the following report.

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APPENDICES

1. INTRODUCTION

Instruction

1.1 BWB Consulting (BWB) was instructed by the client to carry out an Arboricultural Survey on land at Owlthorpe, Sheffield (hereafter referred to as 'the site'). The scope of work comprised a survey of trees on site in line with BS5837:2012 undertaken on 20th February 2019, 28th May 2019 and 22nd November 2019; together with a supplementary survey on 09th December 2020.

Site Description

1.2 The site is situated approximately 4.6m to the South East of the city of Sheffield and approximately 0.5m from the residential area of Owlthorpe. The site is on land of approximately 7.53 hectares (Ha) and is centred on grid reference SK 41584 82661.The site is situated within an area of open access grass pasture land which is intersected with wooded areas, scrubland and sporadic groups of trees. To the North of the site is residential built up areas with small residential development plots located to the East and South. Land of similar use is located to the West of the site. The site gently rises from East to West and lies approximately between 100-130m above ordnance datum (AOD).

Objectives

1.3 The objectives of this report are to complete an Arboricultural Survey of the site to inform the design and mitigation for the development.

1.4 An Arboricultural Impact Assessment and associated Tree Protection Plans have also been produced and should be read in conjunction with this report.

2. METHOD

Arboricultural Survey

2.1 The arboricultural survey covers those trees or groups of trees which are considered relevant for the brief. During the survey, all relevant individual trees and groups of trees located within and close to the boundary of the site were assessed. Trees with an estimated stem diameter of 75mm or more that overhang the site or are located within a distance of up to 12 times their estimated stem diameter were included in the survey.

2.2 The objective of the survey was to collect tree data relevant to the proposed works at the site and to categorise individual trees or tree groups and hedgerows in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction – Recommendations' , based on their condition, quality and future potential.

2.3 The purpose of the categories within BS 5837:2012 is not to determine whether retention of trees is desirable, 'The purpose of the tree categorization method, which should be applied by the arboriculturist, is to identify the quality and value (in a non-fiscal sense) of the existing tree stock, allowing informed decisions to be made concerning which trees should be removed or retained in the event of the development occurring.' (BS 5837:2012, Section 4.5.2). This survey should therefore be regarded as an initial appraisal with observations recorded for trees within and adjacent to the study area. Remedial tree works, foundation design and material specification are not covered within this report.

2.4 The locations for the trees on the site are shown on Figure 1 - Tree Constraints Plan and are based on the supplied topographical survey drawing. To maintain good practice, it is recommended that all measurements be checked on site prior to works commencing. A detailed inspection of the trees with respect to decay, defects and hazard is not included with this report.

2.5 Site surveys were conducted on 20th February 2019 and 28th May 2019, and 09th December 2020 by James Stacey M.Arbor.A. Further visits were undertaken on 22nd November 2019 by James Stacey and Matthew Smurthwaite TechArborA, and by James Stacey and Mark Topping on 27th November 2020. These consultants have significant experience of working in the arboricultural industry as an arborists, surveyors, arboricultural contract manager, and consultants and are members of the Arboricultural Association/ Landscape Institute.

2.6 Information collected during the survey included species, height, stem diameter, branch spread, height of crown clearance, age class, physiological condition, structural condition, estimated remaining contribution and category grade.

2.7 The survey was undertaken from ground level using visual assessment of the tree canopy and stem. No removal of vegetation, digging or drilling was undertaken during the survey and parts of the stems of some trees remained partly obscured by vegetation. The weather conditions at the time of the survey were acceptable. All parts of the site were fully accessed and there were no significant survey limitations.

2.8 No liability can be accepted in respect of the trees or for events which happen after the time of the survey.

3. RESULTS

Arboricultural Survey

3.1 The tree survey results are shown in Table 1 (Tree Survey Schedule) and Appendix 1(Tree Constraints Plan), which provides details of canopy spreads and Root Protection Areas (RPAs) of the trees included within the survey. The RPAs have been calculated in accordance with Section 4.6 of BS 5837:2012. Although the RPA attempts to identify the area of each tree's root system which should be protected, the simplistic circles do not take account of constraints such as buildings, land form, walls etc. which may have restricted or influenced root development. Circular RPAs are considered to provide a reasonable guide to the extent of the likely rooting areas which should ideally be protected.

3.2 A check for Tree Preservation Orders and Conservation area designations was carried out through Sheffield City Council on 18th February 2019 who confirmed there were no TPOs on site and that the site was not within a Conservation Area. The woodland to the North of the site is a designated as priority habitat for deciduous woodland. There are no other statutory designations within the proposal site. There are no recorded ancient woodlands on the site, however veteran and ancient trees have recently been recorded on the Ancient Tree Inventory website managed by the Woodland Trust.

3.3 The trees included within this survey comprised of 49 individual trees and 51 tree groups.

- 2 tree groups were classified as Category A trees.
- 1 individual tree was classified as Category A.
- 5 individual trees were classified as Category B trees.
- 8 tree groups were classified as Category B trees.
- 43 individual trees were classified as Category C trees.
- 41 tree groups were classified as Category C trees.
- There were no Category U trees.

4. CONCLUSIONS AND RECOMMENDATIONS

Recommendations

4.1 Trees and woody vegetation are located across all areas of the site. There are areas of woodland cover and mature trees located along the northern boundary of the site with smaller younger trees located adjacent to the site boundaries. The central area of the site has been colonised by self-sown trees and shrubs as a result of no management of the area allowing the succession of vegetation to occur up to the growth of trees.

4.2 Woodland located along the northern boundary (G15 and G16) is a large area of mature oak (*Quercus robur)* trees providing an area of significant canopy cover within the local landscape and is considered to be BS5837:2012 category A2. This woodland also provides the area with a source of natural woodland habitat. G15 and G16 are located along the boundary fence line with the majority of stems located on the adjacent land side and its retention would be required. Consideration of the RPA;s of these groups must be taken into account during the design process to ensure significant construction and excavation is not required within the RPA area. Although the woodland is not recorded as Ancient woodland, a number of veteran and ancient trees have recently been identified and recorded on the Woodland Trusts Ancient Tree Inventory. Designs will need to minimise construction in proximity to these trees.

4.3 Along the northern boundary there are a number of groups of younger and smaller trees which form an area of younger canopy cover and also form a natural screen along an existing footpath. These include G7a-G7f, G8a-G8e and G9a-G9b. Each sub group together forms a larger area of trees, however for accuracy of stem diameter and tree conditions, these have been broken down into smaller groups. Trees within G7a-f and G8a-e are in the most part small self-sown young trees which are interspersed with larger multi stemmed willow which exhibit poor form and condition through basal damage and poor union formation. Each sub group has been classified as Category C due to the small stem diameter (<150mm) and poor conditions, however when combined as a whole these groups provide a screen along the existing footpath. Where possible, young trees which exhibit good health and form should be retained to maintain this screening value for the footpath and to provide longevity of canopy along the woodland edge. Poor quality trees which exhibit poor union formation and damage are not likely to provide significant contributable lifespan and where possible removal and management will be required.

4.4 G9a and G15a consist of a mix of larger trees which in the majority are oak, alder and birch forming single stemmed trees, with a small number of multi stemmed poorer willow. These trees form an extension to the woodland group of G15 and are therefore considered to be Category B. Retention of these trees will allow a continuation of the woodland canopy and provide longevity for future canopy. G9b is a sub group of small young trees with stem diameters of <150mm and under BS5837:2012 are therefore considered Category C. Most are under stress due to heavy competition from dense bramble understorey.

4.5 G11a, G11b, G12 and G29 are groups of young to semi mature trees of a mix of native species such as oak (*Quercus robur)*, ash (*Fraxinus excelsior)* and birch (*Betula pendula)*. These groups of trees form a band of trees which act as a connecting link between the woodland of G15 and an avenue of mature trees in the southern area outside of the proposal site. All are considered to be BS5837:2012 Category B2. As these trees mature, they will provide a connecting corridor of mature canopy between the 2 areas. It is recommended that designs for the site take the future potential of these trees into account and to retain as much of the group as possible.

4.6 There are a number of juvenile trees, which exhibit good condition and form and are close to semi mature status (T16, T17, T18, T23, T29 and T41). Retention of these trees will provide a diverse range of age categories of trees across the site and provide continuity of mature canopy. Where any designs may impact upon these trees, consideration should be given to transplanting these trees into new locations within the development or providing replacement trees of the same species (or similar). This will ensure a continued mix of canopy age across the site and maintain the trees in their existing environment. These trees are considered to be BS5837:2012 Category B.

4.7 An area of dense self-sown willow, G18, is located to the east of the site and provides a dense area of mature canopy. The trees within this group exhibit better condition and form than similar groups in other areas of the site and are likely to provide better longevity of continuous canopy cover within the site than groups with poorer form and condition, which have a lower life expectancy. This group is considered to be BS5837:2012 Category B.

4.8 All remaining trees are generally located within the central areas of the site and are self-sown trees, which have colonised the site through a lack of management. Nearly all trees are willow (*Salix caprea)* and are all multi stemmed trees from the base. Most trees exhibit poor unions within the basal area and due to the growth form and habit they are prone to potential failure of stems as the trees develop in size. Many trees exhibit damage throughout the stems in terms of failed limbs, cavities through decay or bark loss from animal damage. The retention of these trees is not considered suitable for any development which would result in high level public access created adjacent to the trees or groups as the trees are not in a suitable condition. It is considered that removal of these trees for any development areas followed by suitable re planting programmes would improve the quality and longevity of trees within the site.

Summary

4.9 Category A trees located along the northern boundary of the site provide high amenity, landscape and habitat value and will require retention, along with sensitive design in relation to the RPA of these trees and any newly categorised veteran trees. This should be considered during the design process.

4.10 Younger tree groups along the northern boundary should be retained where possible to provide an avenue of trees along the existing informal path and provide increasing tree canopy cover in this area.

4.11 Trees within G11a, G11b and G12 should be retained where possible to allow for a connecting link between areas of existing mature tree canopy.

4.12 Young and juvenile Category B trees of suitable form and condition should be retained where possible to ensure continued future longevity of mature tree canopy across the site. Where development is likely to conflict with these trees, transplanting and relocation should be taken into consideration, alongside replacement mitigation planting to ensure retention of existing young/juvenile trees within the existing environment.

4.13 Trees exhibiting poor structural form and condition should ideally be removed where development is likely to take place as their condition is not suitable for retention within a development. Appropriate planting schemes will improve the quality and longevity of trees within the site.

4.14 The loss of any trees and groups will need to be mitigated for as part of a detailed landscape scheme appropriate to the new development and should aim to enhance long term tree cover and maintain important landscape attributes.

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
INDIVIDUAL TREES																
T1	Birch	SM	6	3	3	3	3	0.4	140	G	G	20+	Self set birch, no concerns, slight lean to East, no damage. Small tree.	Retain or remove as per development plans	C2	1.68
T2	willow	M	10	4	4	4	4	0.5	4 stems 220, 240, 220, 200	F	F	10+	Multi stem self sown willow, various damage to stems throughout, multi stem from base,	Retain or remove as per development plans	C2	4.4
T3	willow	M	8	3.5	3.5	3.5	3.5	0.5	3 stems 180, 220, 230	F	F	10+	Multi stem self sown willow, various damage to stems throughout, multi stem from base, poor form	Retain or remove as per development plans	C2	3.7
T4	willow	SM	7	3	3	3	3	0.2	4 stems 150	F	F	20+	Small multi stem self sown willow from base. various damage and poor firm	Retain or remove as per development plans	C2	2.6
T5	birch	SM	8	2	2	2	2	0.3	140	G	G	20+	Self sown birch, twin stem from 0.3, tall narrow crown. No concerns	Retain or remove as per development plans	C2	1.68

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
T6	willow	M	8	4	4	4	4	1	4 stems 170	F	F	10+	Multi stem from base, self sown, multiple inclusions in base.	Retain or remove as per development plans	C2	3.4
T7	willow	M	10	3.5	3.5	3.5	3.5	1.1	4 stems 300, 200, 200, 170	F	F	10+	Large multi stemmed from base, self sown, various damage and cankerous lesions. Poor form	Retain or remove as per development plans	C2	4.5
T8	birch	SM	9	3	3	3	3	0.2	2 stems 150, 150	G	G	20+	Self sown birch, twin stem from base, no obvious defects	Retain or remove as per development plans	C2	2.1
T9	willow	M	10	4	4	4	4	0.5	2 stems 440, 410 @ base	F	F	10+	2 self sown multi stem willow trees, poor form, multiple inclusions at base. various damage throughout.	Retain or remove as per development plans	C1	6
T10	willow	M	10	5	5	5	5	0.3	4 stems 190	F	F	10+	Multi stem self sown willow, wide spread between stems, multiple inclusions in base, unions will weaken as tree grows. Poor form.	Retain or remove as per development plans	C2	3.8

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
T11	Cherry	SM	9	4	4	4	2	1.5	2 stems 130	F	F	20+	Juvenile cherry adjacent to footpath. Twin stemmed from base with inclusion at union. Potential for failure of weaker stem kerb path as tree grows.	Retain or remove as per development plans.	C2	1.8
T12	goat Willow	SM	9	4	4	4	1	1	200	F	P	10+	Small self sown willow, multiple damaged section S on main stem, inclusions in unions throughout crown.	Retain or remove as per development plans.	C2	2.4
T13	goat Willow	M	10	5	5	5	5	1.5	4 stems 320, 230, 240, 230	F	F	20+	Mature multi stemmed willow from base. Inclusion in main base union. Self sown tree with dense crown and dense understorey, unmanaged.	Retain or remove as per development plans.	C2	5.2
T14	goat Willow	Y	5	2	2	2	2	0.5	2 stems 130, 120	F	F	20+	Young self sown willow, twin stemmed from base with poor growth form in an attempt to reach light. Result of unmanaged ground.	Retain or remove as per development plans.	C2	1.8
T15	goat willow	M	8.5	5.5	5.5	5.5	5.5	1	580 basal	F	F	20+	Multi stemmed willow with large wide crown. Dense growth and very dense understory. Self sown tree as a result of unmanaged land.	Retain or remove as per development plans.	C2	5.8

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
T16	Ash	Y	7.5	2	3	3	3	1	170	G	G	40+	Young ash with no obvious defects or signs of ill health. Good form with only 1 minor inclusion.	Retain and formative prune to remove crossing/touching limbs to strengthen unions.	B2	2.04
T17	Maple	Y	7.5	3.5	3.5	3.5	3.5	1.5	220	G	G	40+	Young maple with no obvious defects. Low hanging crown with dense foliage. Good quality tree.	Retain and formative prune to improve overall form	B2	2.64
T18	Hawthorn	M	6	4	4	4	4	0.3	200	F	F	30+	Self sown hawthorn growing adjacent to T11. Dense growth and low crown and very dense understorey.	Retain or remove as per development plans.	C2	2.4
T19	Willow	M	10	4	4	4	4	0.2	460 basal	F	F	20+	Self sown mature multi stemmed willow. Inclusions identified in main unions. Habit of multi stemmed growth and species likely to lead to future failure of unions. Result of lack of land management.	Retain or remove as per development plans.	C2	4.6
T20	willow	M	7	4	4	4	4	0.5	350 basal	F	P	10+	Multi stemmed from base with dense crown. Failed union at base due to inclusion where movement has opened union causing cracking to base, Weakened union will fail as weight in crown increases.	Remove if development is planned with proximity of tree.	C2	3.5

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
													a poor unions with inclusions throughout, typical of self sown nature of species.			
T21	willow	SM	6	3.5	3.5	3.5	3.5	0.5	240 basal	F	F	20+	Young self sown multi stemmed tree. Inclusion in lower base union. Dense crown.	Retain or remove as per development plans.	C2	2.4
T22	willow	M	9	5.5	5.5	5.5	5.5	0.3	560 basal	F	F	20+	Self sown mature multi stemmed willow. Inclusions identified in main unions. Habit of multi stemmed growth and species likely to lead to future failure of unions. Result of lack of land management.	Retain or remove as per development plans.	C2	5.6
T23	oak	Y	6	2	2	2	2	1.5	160	G	G	40+	Young oak tree with good form and habit of growth.	Retain	B2	1.92
T24	Hawthorn	M	5	2.5	2.5	2.5	2.5	0.3	150	G	G	40+	Small mature hawthorn. Self sown tree with very dense crown.	Retain or remove as per development plans.	C2	1.8
T25	ash	Y	5.5	2.5	2.5	2.5	2.5	0.5	130	G	G	40+	Young ash with good form and shape to crown. No obvious defects identified.	Retain	C2	1.56

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
T26	ash	Y	6.5	2	2	2	2	0.5	130	G	G	40+	Young ash with tall narrow form. Some minor dieback in outer crown and low epicormic growth.	Retain and monitor condition	C2	1.56
T27	Hawthorn	M	6	2.5	2.5	2.5	2.5	0.2	130	G	G	30+	Self sown mature hawthorn, no obvious defects identified.	Retain or remove as per development plans.	C2	1.56
T28	willow	M	6.5	4	4	4	4	0.3	420 basal	F	F	20+	Mature multi stemmed willow with wide crown. Self sown tree in unmanaged landscape. Multiple unions with minor inclusions.	Retain or remove as per development plans.	C2	4.2
T29	ash	Y	7	3.5	3.5	3.5	3.5	1	190	G	G	40+	Young ash with good form and growth habit, No obvious defects identified.	Retain	B2	2.28
T30	Willow	M	8	3	3	3	3	0.3	320 basal	F	F	20+	Mature willow, with narrow crown. Multi stemmed from base with multiple inclusions.	Retain or remove as per development plans.	C2	3.2
T31	Goat willow	M	11.5	4	4	4	4	0	250	G	G	20+	Willow standing alone close to path. Multi stemmed from approx 0.5m. No obvious defects.	Retain or remove as per development plans.	C1	3

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
T32	Goat willow	M	7.5	4	4	4	4	0.5	200	G	G	20+	Willow standing alone close to path. Multi stemmed from approx. 1m. No obvious defects.	Retain or remove as per development plans.	C1	2.4
T33	Goat willow	Y	5	3	3	3	3	0.3	150	G	G	20+	1 small willow near road. Multi stemmed from low down with bark inclusion. Minimal landscape contribution.	Retain or remove as per development plans.	C1	1.8
T34	Goat willow	Y	8	3	3	3	3	0.5	120	G	G	20+	2 trees grown close together, multi stemmed from 0.5m. No obvious defects. Minimal landscape contribution.	Retain or remove as per development plans.	C1	1.44
T35	Goat willow	Y	8	4	4	4	4	0.3	150	G	F	20+	Willow multi stemmed from 0.3m. Bark inclusion low down would inevitably lead to breakage. Minimal landscape contribution.	Retain or remove as per development plans.	C1	1.8
T36	Goat willow	Y	8	3	3	3	3	0.5	100	G	G	20+	Willow multi stemmed from low down. Minimal landscape contribution.	Retain or remove as per development plans.	C1	1.2
T37	Goat willow	SM	9	4	4	4	4	0.5	150	G	F	20+	Willow multi stemmed from low down. Minimal landscape contribution.	Retain or remove as per development plans.	C1	1.8

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
T38	Goat willow	Y	5.5	3	3	3	3	0.5	100	G	G	20+	Willow, multi stemmed from low down. No obvious defects. Minimal landscape contribution.	Retain or remove as per development plans.	C1	1.2
T39	Goat willow	SM	8	4	4	4	4	0	150	G	G	20+	Willow, multi stemmed from low down. No obvious defects. Minimal landscape contribution.	Retain or remove as per development plans.	C1	1.8
T40	Goat willow	SM	7.5	2.5	4	4	4	0.5	150	G	G	10-20	Willow, multi stemmed from low down. No obvious defects. Minimal landscape contribution. Roots causing cracking to adjacent path.	Retain or remove as per development plans.	C1	1.8
T41	Oak	SM	6	2	2	2	2	0.3	175	G	G	40+	Young oak standing alone and is well established. Exhibiting good health, form & vitality and with significant future contribution as a native tree species.	Retain if possible	B1	2.1
T42	Goat willow	SM	8	4	4	4	4	0	180	G	F	20+	Willow, multi stemmed from low down. No obvious defects. Minimal landscape contribution.	Retain or remove as per development plans.	C1	2.16

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
T43	Ash	Y	6	1	1	1	1	1	80	G	G	30+	Young ash with good form, health and condition. Minimal landscape contribution.	Retain or remove as per development plans.	C1	0.96
T44	Goat willow	Y	7	2.5	2.5	2.5	2.5	0.5	80	G	G	20+	Young willow, multi stemmed from base. No obvious defects. Minimal landscape contribution.	Retain or remove as per development plans.	C1	0.96
T45	Hawthorn	SM	5	2	2	2	2	0	100	G	G	30+	Small hawthorn with good berry crop. Native. Wildlife. No obvious defects. Minimal landscape contribution.	Retain or remove as per development plans.	C1	1.2
T46	Hawthorn	SM	4.5	2	2	2	2	0.3	80	G	G	30+	Small hawthorn with good berry crop. Native. Wildlife. No obvious defects. Minimal landscape contribution.	Retain or remove as per development plans.	C1	0.96
T47	Willow	SM	7	3	3	3	3	0	100	G	G	20+	Willow, multi stemmed from base with small hawthorn growing close to east of main stem. No obvious defects. Minimal landscape contribution.	Retain or remove as per development plans.	C1	1.2
T48	Oak	M	14	5	7	10	9	2.5	600	F	F	30+	Large oak in top of bank, potential veteran tree	Retain	A3	7.2

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
T49	willow	EM	10	6	6	6	6	0	610	P	P	10+	Multi stemmed willow from base, stems have failed due to poor unions.		C2	7.3
GROUPS OF TREES																
G1	Willow	EM	6	3	3	3	3	0.3	190	G	G	20+	Small group of young willow, all self sown and multi stemmed	Retain or remove as per development plans	C2	2.28
G2	willow	M	12	5	5	5	5	0.5	480 @ base	F	F	10+	Group of 2 multi stemmed willow, various damage through out stems to bark. Multi stemmed from base. Self sown trees.	Retain or remove as per development plans	C2	5.76
G3	willow	M	9	5.5	5.5	5.5	5.5	0.7	490	F	F	10+	Group of self sown willow, all multi stem from base, various damage to bark throughout.	Retain or remove as per development plans	C2	5.88
G4	willow, alder	M	8-10	4	4	4	4	0.2	300-500	P	P	10+	Group of mixed species, all self sown trees with multiple stems, multiple inclusions in unions throughout. The weakened unions exhibit potential for multiple failures.	Retain or remove as per development plans	C2	4.8

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
G5	willow	M	10	3.5	3.5	3.5	3.5	0.3	200-500	P	P	10+	Multi stemmed self sown willow group. Various damage, all have poor unions with multiple inclusions, damage to bark throughout, potential for failure. Poor conditions and form.	Retain or remove as per development plans	C2	4.2
G6	willow, alder	M	10-12	5	5	5	5	0.4	200-500	P	P	10+	Mixed self sown multi stemmed, poor unions with multiple inclusions, damage to stems throughout, poor form and condition throughout, potential for failures.	Retain or remove as per development plans	C2	4.2
G7a	Birch, oak, willow, hawthorn, hazel	Y-SM	2-8	2	2	2	2	0.3	50-100	G	G	20+	Eastern end of G7. Predominantly young oak and multi stemmed willow, with sporadic birch, hawthorn. Willow in poor condition, with damage to bark and multi stemmed from base.	Retain or remove as per development plans.	C2	1.2
G7b	Willow	M	10-12	3	3	3	3	0.5	500 basal	G	F	10-20	Row of predominantly 3 x willow coppice stools with other smaller willow, ash and hawthorn saplings between. Forms boundary to footpath.	Retain or remove as per development plans.	C2	5

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
G7c	Willow, hawthorn, ash, birch, alder	Y-M	10-12	2	2	2	2	0.5	80-150	G	F	20+	Area of mixed species with multi stemmed willows and smaller, young mixed species undergrowth.	Retain or remove as per development plans.	C2	1.8
G7d	Willow, oak, hawthorn, birch	Y-SM	5-10	2	2	2	2	0.5	80-120	G	F	10-20	South west section of G7. Dominated by willow, then birch and alder with understory of younger oak, hawthorn and ash. Willows are multi stemmed and not in particularly good condition.	Retain or remove as per development plans.	C2	1.44
G7e	Willow, oak, alder, hawthorn	Y-SM	5-8	1	1	1	1	0.5	75	G	F	10-20	South-central section of G7. Predominantly young oak, willow and hawthorn. Some specimens better than others.	Retain or remove as per development plans.	C2	0.9
G7f	Willow, oak, hawthorn	Y-SM	2-8	1	1	1	1	0.5	75-120	G	F	10-20	A continuation of previous group G7e. Little to distinguish between them. Willows carry defects and all other trees are young.	Retain or remove as per development plans.	C2	1.44
G8a	Alder, willow	SM	10-12	3	3	3	3	0.5	100-180	F	F	10-20	Area of predominantly alder & willow. Most is multi stemmed from base. Base is obscured by dense ground vegetation. Product of past coppice management. Forms boundary to path and	Retain	C2	2.16

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
													woodland edge. Management required.			
G8b	Willow, oak, hawthorn, alder	Y-M	8-12	3	3	3	3	0.5	80-200	F	F	10-20	Area of predominantly willow at west end of G8. Multi stemmed from base and multiple defects throughout. Unlikely to have significant future contribution.	Retain/ coppice/ remove	C2	2.4
G8c	Ash, alder, willow	Y	5-8	2	2	2	2	0.5	100	F	G	20+	Area along southern edge of G8. Mostly young ash within very dense ground vegetation.	Retain or remove as per development plans.	C2	1.2
G8d	Willow, alder, hawthorn	M	10-12	4	4	4	4	0.5	100-180	F	P	10+	Area of willow, all multi stemmed from base. Many in poor condition and lacking management. Some have collapsed, some have decay and bark missing. Minimal contribution to surroundings. Management required.	Retain/ coppice/ remove	C2	2.16
G8e	Willow, alder, ash, hawthorn	Y-M	5-10	3	3	3	3	0.5	80-150	F	F	10-20	Area of trees at eastern end of G8. Predominantly willow and alder, which is multi stemmed and requires management. Small, young ash and	Retain or remove as per development plans.	C2	1.8

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
													hawthorn along edge of group.			
G9a	alder, oak, willow, hazel,	SM-M	10-12	3.5	3.5	3.5	3.5	0.5	200	F	F	20+	Mixed group of trees, dense growth with very dense undergrowth, mostly small narrow trees as pioneer species, some damage found throughout willow trees.	Retain	B2	2.4
G9b	Oak, ash, hazel,	Y	max 6	3	3	3	3	0	Max 90	G	G	20+	All young trees which are self sown and in very high stem density, heavy competition creating poor growth form in places. Oaks beginning to dominate. Ash exhibit signs of ash die back, hazel is creating very dense understorey intertwined with bramble.	Retain or remove as per development plans.	C2	1.08
G10a	3 goat willow, 3 oak	SM	Max 8.5	4	2	4	3	0	max basal 350	F	F	20+	Group of self sown tree with willow and oak. Willow are multi stemmed all with tight included unions which are likely to fail as stem size increases. Oak are young only small canopies, very dense	Retain or remove as per development plans.	C2	3.5

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
													ground vegetation making access difficult.			
G10b	Goat willow, alder	SM	max 10.5	3	3.5	3.5	2.5	0	max 150	F	F	20+	Dense group of Alder and willow, high stem density leading to tall slender growth with narrow high crowns. Multi stemmed in places and all exhibit poor tight included unions, with potential for future failure as temp develop.	Retain or remove as per development plans.	C2	1.8
G11a	3 oak, 1 ash, 1 hawthorn	Y - SM	max 9	4.5	4.5	4.5	5	1	max 250 ranging from 90	G	G	30+	Group of mostly oak which are dominant trees, 2 sm and one young, with understorey and saplings of hawthorn and ash. Oaks exhibit good form with no obvious defects or signs of ill health identified. Add to linking canopy which will develop into good future mature canopy.	Retain	B2	3
G11b	5 Oak, 4 ash	SM	10 ranging from 7	4.5	3	3	4	0	Max 280 ranging	G	G	30+	Group of young to semi mature oak and ash, all exhibit good condition with no obvious defects or signs of ill health identified. Most are in	Retain	B2	3.36

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
									from 90				good growth form, having dominated their space. Provides an a good link of developing future canopy between 2 woodland areas.			
G11c	8 hawthorn	SM	max 6	2.5	2	2	3	0	max 150 ranging from 100	F	F	20+	Group of self sown hawthorn, all multi stemmed from base and intertwine growth, generally poor growth form due to light competition, adjacent to larger oaks which area suppressing height growth. All located along a ridge line, possible old disused boundary.	Retain or remove as per development plans.	C2	1.8
G11d	1 alder 4 ash, 1 hawthorn	SM	max 8.5	2.5	2	4	3.5	0.5	max 140 ranging from 50	F	F	20+	Group of self sown trees, alder is largest dominant tree, though is faster growing. Ash saplings all exhibit signs of ash dieback with tip ends dying.	Remove infected ash.	C2	1.6
G12	16 trees 9 Oak, 5 ash, 2 hawthorn	SM	Max 8	Max 4	Max 4	Max 4	Max 4	1	Max 310, ranging from 100	G	G	40+	Group of young trees with very dense understorey shrub growth. Forms a band of young canopy which will develop to provide a canopy link from the woodland in the North to a belt of mature	Retain	B2	3.7

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
													canopy in the South. All exhibit good condition, no obvious defects identified. There area a number of smaller trees (5) with the canopies of larger neighbours which are suppressed and exhibit poor growth due to trophic influences.			
G13a	Willow, oak, hawthorn	Y-SM	2-8	3	3	3	3	0.5	75-200	G	F	20+	North corner of G13. Edge of woodland group and dense canopy, which is inaccessible on foot.	Retain or remove as per development plans	C2	2.4
G13b	Willow, ash, sycamore, elder, oak, birch, hawthorn,	Y-SM	2-10	3	3	3	3	0.5	75-200	G	G	20+	West boundary of very dense woodland group of mixed species. Most are relatively young but form a dense area of canopy cover with some slightly bigger multi stemmed willow towards the top of the bank.	Retain or remove as per development plans.	C2	2.4
G13c	Willow, ash, sycamore, elder, oak, birch, hawthorn,	Y-SM	2-12	3	3	3	3	0.5	75-200	G	G	20+	Area of dense, young woodland canopy in centre of group. Unable to access due to very dense ground vegetation but similar species,	Retain or remove as per development plans.	C2	2.4

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
													size and age range to outer edges.			
G13d	Willow, hawthorn, ash, oak, hazel, elder	Y-SM	3-8	2	2	2	2	0.5	75-200	G	G	20+	Area of very dense ground vegetation with overgrown hedging and trees beyond, which are inaccessible on foot. Forms the western most boundary to T13.	Retain or remove as per development plans.	C2	2.4
G14	willow	SM-M	8	3.5	3.5	3.5	3.5	0.3	150-200	F	F	10+	Group of small willow, all multi stemmed from base with multiple inclusions. All self sown trees with generally poor form due to lack if management.	Retain or remove as per development plans	C2	2.1
G14a	Goat willow	M	7	3	3	3	3.5	0	basal 300	F	F	10+	Stand alone willow, adjacent to G14 near turning head, multi stemmed fro base with multiple tight inclusions. Self sown tree with very dense understorey ground vegetation. Low quality tree.	Retain or remove as per development plans.	C2	3
G15	oak	M	15-20	9	9	9	9	2	500	F	F	40+	Woodland group of large mature trees, mostly oak, provide a large area of mature tree canopy cover, high value	Retain	A2	6

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
													landscape and habitat value. provides screen from neighbouring land use and large power line. woodland is on bank on adjacent side of fence in most part.			
G15a	Alder, oak,	SM	max 15	4	1	3.5	3.5	0	max 240 ranging from <75mm	F	F	30+	Woodland edge self sown trees all are in juvenile state, predominantly alder throughout group which are short lived species, all talk, slender trees due to high stem density. Small area of hawthorn understorey with oak interspersed Difficult to access due to dense ground vegetation.	Retain as screen	B2	2.9
G15b	6 oak, 6 ash, 14 alder	SM	max 10	3	3.5	3.5	4	0	220 ranging from <75	F	F	30+	Group of mix species consisting of oak, alder and ash predominantly alder. All self sown woodland edge trees with high stem density leading to mostly tall slender growth. All oaks exhibit dead upper stems from bark stripping and are in poor for, remaining trees are all short	Remive damages and diseased trees	C2	2.6

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
													lived, ash exhibit signs of ash dieback.			
G16	Oak, hawthorn	M	14	7.5	7.5	7.5	7.5	1.5	450-500	G	G	40+	Woodland group of trees located on bank as ground falls away from site levels on North of public footpath. No obvious defects. Forms a continuation of mature canopy cover along the Northern boundary from G15. Valuable woodland feature within the local landscape.	Retain	A2	6
G17	ash	Y	6	2	2	2	2	0.5	150	G	G	40+	Young trees, self sown and twin stemmed. No obvious defects or signs of ill health identified.	Retain	C2	1.8
G18	Willow	M	6-9	5	5	5	5	0.3	380 basal	F	F	20+	Dense group of mature willow, all are multi stemmed from base and exhibit multiple inclusion in lower unions throughout group. Dense area of mature canopy. Though short lived species with potential for multiple failures	Retain or remove as per development plans.	B2	3.8

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
													as trees increase in size and weight.			
G19	Willow, hawthorn	M	6-8	4	4	4	4	0.5	200-400	F	F	20+	Multiple groups of mixed species, predominantly willow. All self sown trees which are multi stemmed and exhibit dense crowns. Multiple inclusion throughout all trees.	Retain or remove as per development plans.	C2	4.8
G20	Willow	Y	5-7.5	3	3	3	3	0.3	150	G	G	20+	3 x small willows, all multi stemmed from low down. Little contribution to landscape.	Retain or remove as per development plans.	C2	1.8
G21	Goat willow	SM	9	4	4	4	4	0	150	G	F	10-20	Group of willows. Multi stemmed from low down. Unlikely to have significant future contribution.	Retain or remove as per development plans.	C1	1.8
G22	Hazel, willow	SM	4	2	2	2	2	0	80	G	G	20+	Area of mostly coppiced hazel in generally good condition. Wildlife/ habitat value. Minimal landscape contribution.	Retain or remove as per development plans.	C2	0.96

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
G23	Hazel, willow, oak, holly	SM	4-7	2	2	2	2	0	150	G	G	20+	Area of mostly coppiced hazel in generally good condition. Wildlife/ habitat value. Minimal landscape contribution. Valuable woodland edge.	Retain or remove as per development plans.	C2	1.8
G24	Willow, hawthorn, ash, oak	Y-SM	4-9	3	3	3	3	0.5	150	G	G	20+	Area of mostly multi stemmed willow with some small oak, ash and hawthorn spaced between. Good health & condition. No obvious defects. Minimal landscape contribution.	Retain or remove as per development plans.	C2	1.8
G25	Hawthorn, willow, ash	SM	2-8	2	2	2	2	0.3	120	G	G	20+	Area of sparsely growing trees. Predominantly hawthorn and willow. Mostly small. No obvious defects. Minimal landscape contribution.	Retain or remove as per development plans.	C2	1.44
G26	Hawthorn, ash, hazel, willow, oak	Y-SM	2-10	3	3	3	3	0.5	75-200	G	G	20+	Area of trees along boundary. Inaccessible due to dense ground vegetation but generally good condition. Forms a green boundary between site and adjacent housing estate and also a continuation of canopy cover	Retain	B2	2.4

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
													from mature woodland to the east. Wildlife & habitat value.			
G27	Oak, hazel, willow, holly	Y	10	3	3	3	3	0	150	F	F	20+	Dense area of young trees, mixed species, many showing signs of damage. All have tall slender growth due to dense stocking. High competition.	Retain and thin out group to improve,	C2	1.8
G28	Ash, oak	Y	max 10	3	3	3	3	0	max 150	F	F	10+	Area of Sporadic self sown ash trees with smaller oak self sets interspersed. Very dense bramble scrub throughout ground.	Retain or remove as per development plans	C2	1.8
G29	Oak	EM	max 10	3.5	3.5	3.5	3.5	1.5	250	G	G	30+	Young oak trees along fence line boundary to wildlife site.	Retain	B2	3
G30	Ash, oak	Y	max 10	3	3	3	3	0	max 150	F	F	10+	Area of Sporadic self sown ash trees with smaller oak self sets interspersed. Very dense bramble scrub throughout ground.	Retain or remove as per development plans	C2	1.8
H1	hazel, holly, hawthorn, elder	M	max 6	max 4				0	max 200	F	F		Gappy hedgerow which has not been managed. Evidence of former laying works but no management since. Very	Retain or remove as per development plans	C2	2.4

No.	Species (common name)	Age class	Height	Crown spread				Crown clearance	Stem dia. (mm)	Physiological condition	Structural condition	Estimated Remaining contribution	Comments	Recommendations	Ret. Cat. (sub cat.)	RPA (m)
				W	N	S	E									
													overgrown with bramble dominating			

Key:

- Tree/ Group Ref No. – tree/group number, to be recorded on tree survey plan where necessary.
- Species – common and scientific names where possible.
- Age class – young (Y), young mature (YM), middle mature (MM), mature (M), over mature (OM).
- Height – overall height of tree in metres.
- Crown 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).
- Crown clearance – in meters above adjacent ground level to inform on ground clearance, crown stem ratio and shading.
- Stem Dia – stem diameter, in millimetres at 1.5m above adjacent ground level (on sloping ground to the taken on the upslope of the tree base) or immediately above the roof flare for multi-stemmed trees.
- 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.
- Estimated remaining contribution – in years e.g. less than 10, 10-20, 20-40, more than 40.

- Management recommendations – including further investigations of suspected defects that require more detailed assessment and potential wildlife habitat. All tree work is based on current tree condition and the existing land use and will include work such as hazard abatement, encroachment pruning, thinning of groups/woods and good arboricultural practice.
- 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.

APPENDICES

APPENDIX 1: Tree Constraints Plan

N

WOODLALE DRIVE

WOODLALE GARDENS

WOODLALE CROFT

BROADLANDS CLOSE

Surgery

Drain

Ochre Dike

ETL

FB

Existing offsite vegetation to be retained

Existing offsite Woodland to be retained in full

MOORTHORPE RISE

MOORTHORPE DELL

Path (um)

Path (un)

EH=99.64
RH=105.89
MEDICAL CENTER

KEY

- Site Boundary
- **Category A tree as defined by BS5837:2012** HIGH Quality/ value
- **Category B tree as defined by BS5837:2012** MODERATE Quality/ value
- **Category C tree as defined by BS5837:2012** LOW Quality/ value
- **UNCATERGORISED VEGETATION** As defined by topographical survey or estimated on site
- **RPA** (Root protection area)
- Existing Ancient-Veteran trees to be Retained
- 15m x stem diameter of ancient/veteran trees
- Existing Boundary Fence

0 5 10 15 20 25 30 35 40 45 50m

SCALE 1:500

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Client: Avant Homes

Project: Owlthorpe, Sheffield.

Drawing Title: Tree Constraints Plan

Scale	Date	DB	CB
1:500 A0	Dec 2020	CS	JS

Drawing Number: 050_BWB_tcp_6_aaa

Rev: 7

APPENDIX 2: Site Photographs

Photo 1: Looking North West towards mature woodland of G15

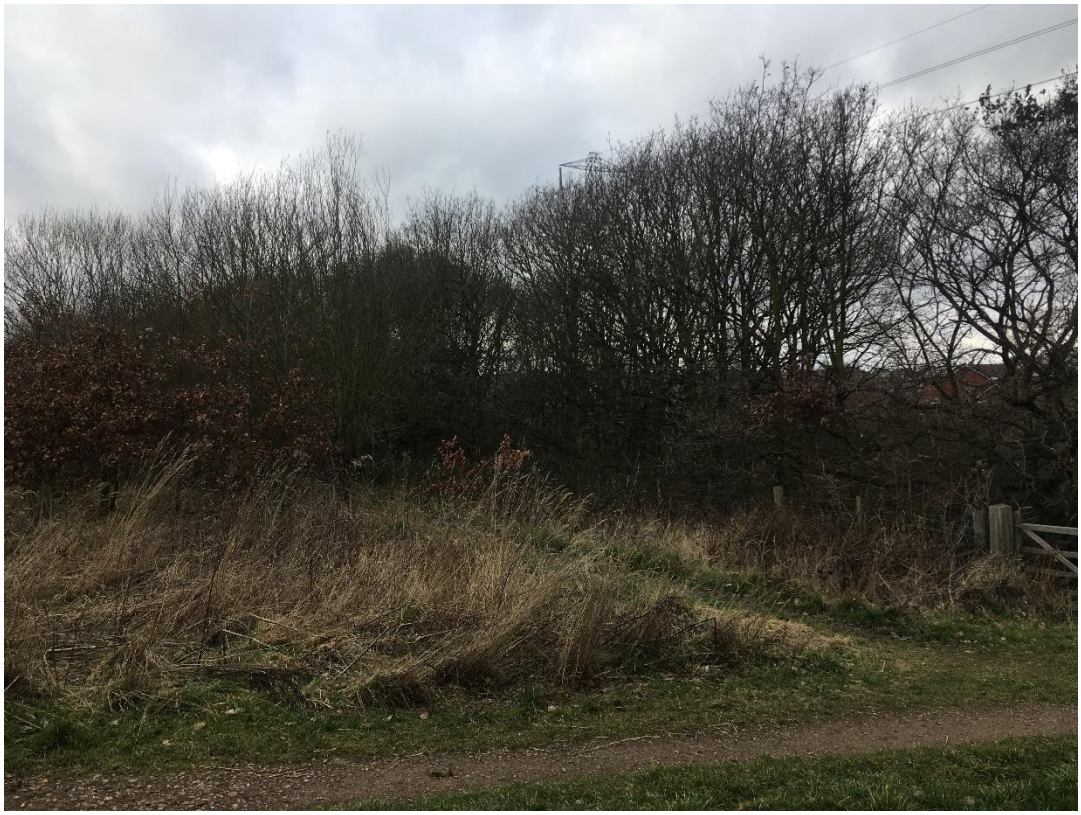


Photo 2: Looking North along trees within G12

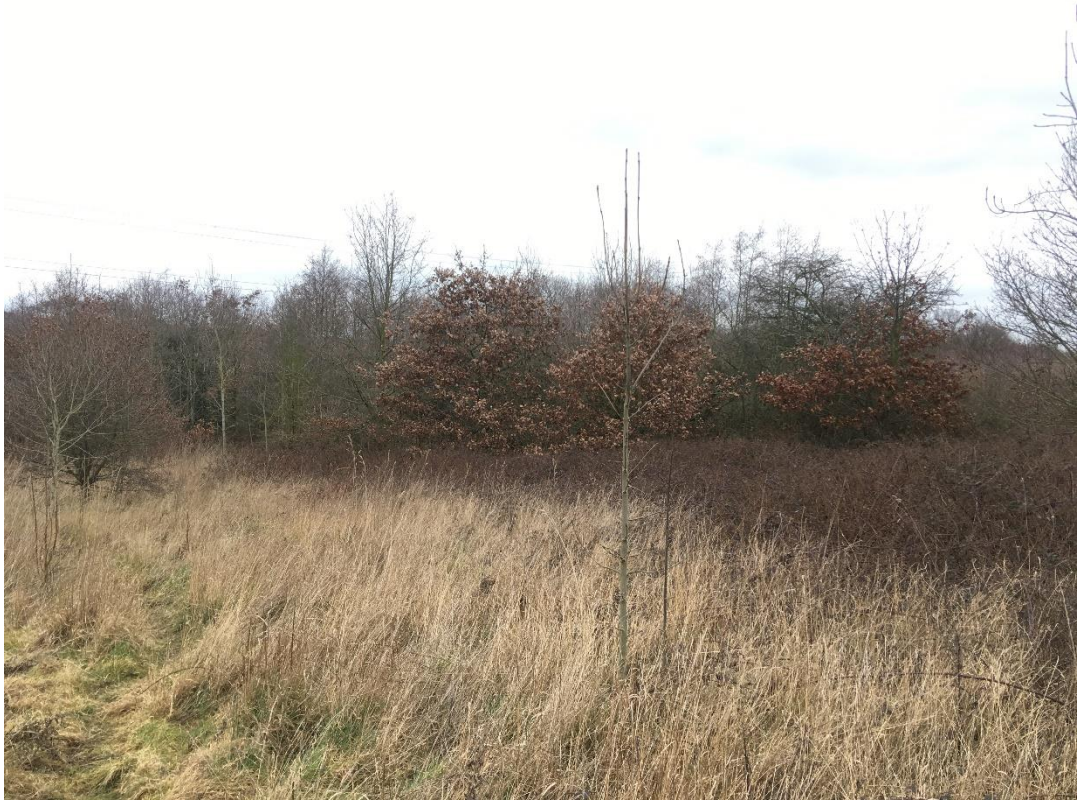


Photo 3: Looking South to self sown individual trees

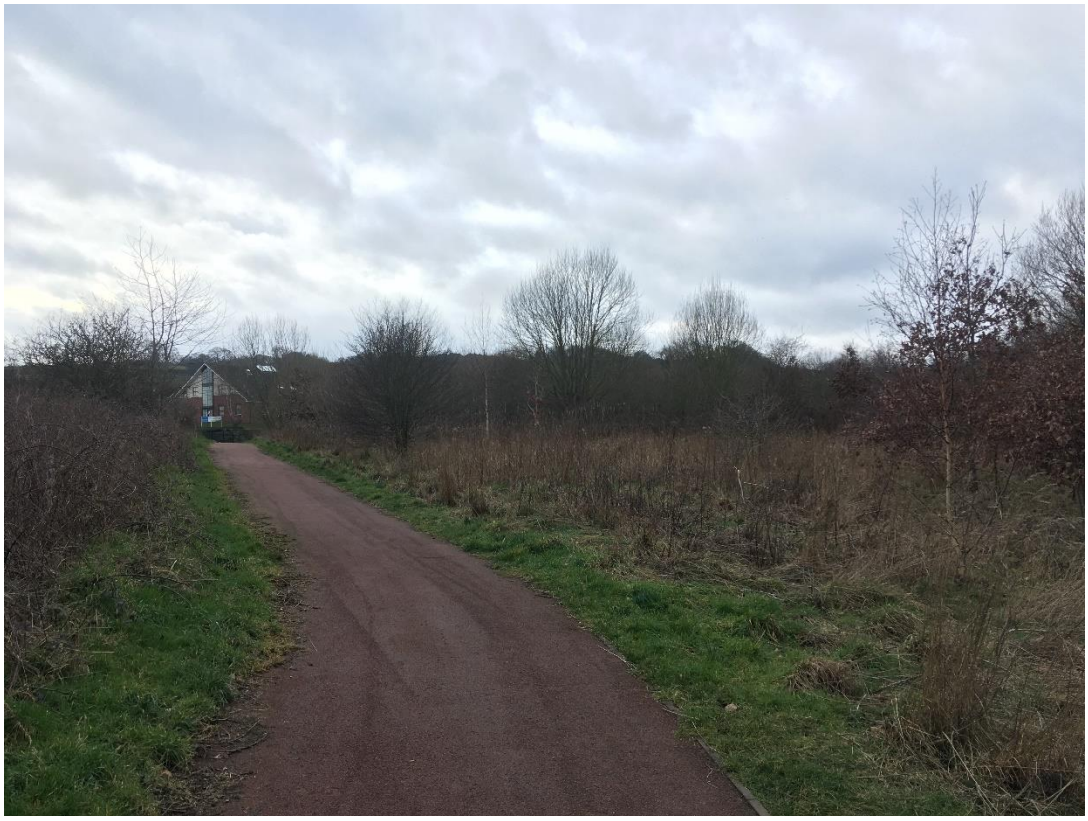
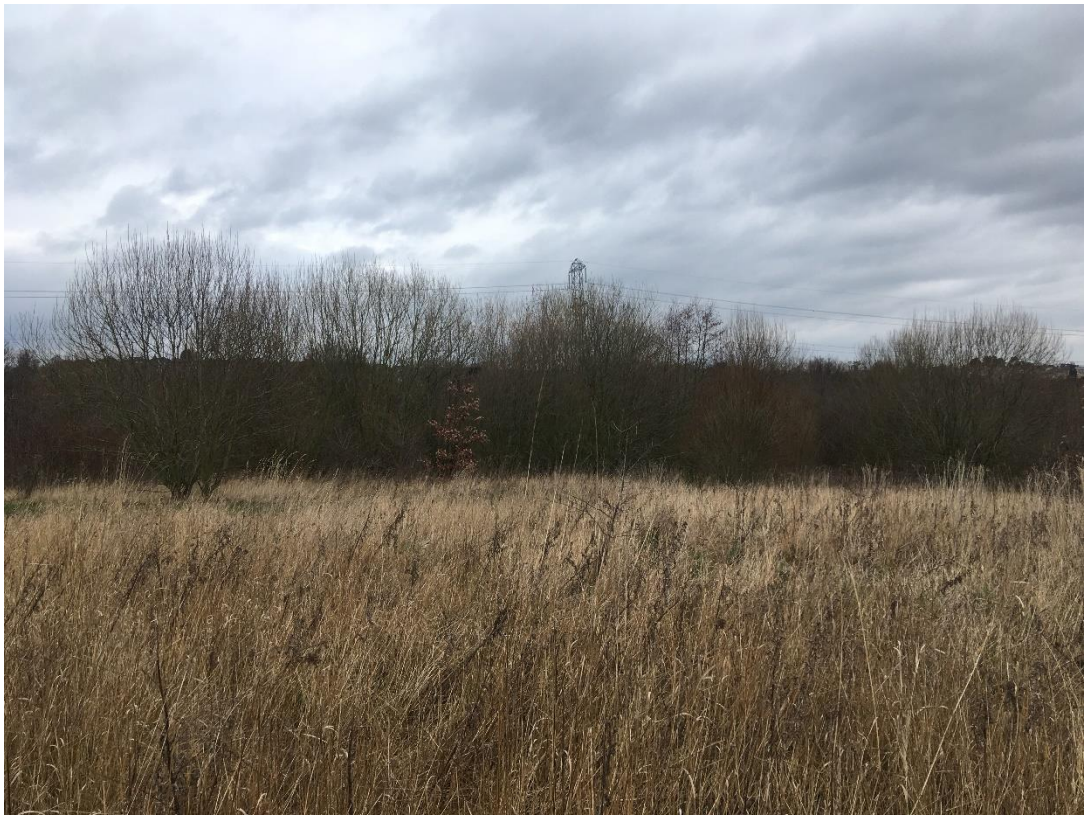


Photo 4: Looking North across centre of site to self sown groups of trees



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