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INFRASTRUCTURE | BUILDINGS

Axis 50, near Willington

Arboricultural Survey & Impact Assessment

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Arboricultural Survey & Impact Assessment

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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.

Any diagram or opinion of the possible configuration of the findings is conjectural and given for guidance only and confirmation of intermediate ground conditions should be considered if deemed necessary.

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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1.0 INTRODUCTION

Instruction

- 1.1 BWB Consulting (BWB) was instructed to carry out an Arboricultural Survey on land located at Axis 50, near Willington (herein referred to as 'the Site').
- 1.2 The assessment included a Tree Constraints Survey and an Arboricultural Impact Assessment.

Proposed Development

- 1.3 The Arboricultural Survey was commissioned to inform the proposed plans for the Site which are to include 11no. commercial/industrial units with associated access and landscaping. Refer to Appendix 3 for design plans.

Scope of Works & Aims

- 1.4 The scope of work at the Site included an arboricultural survey of all the trees within the Site and any trees outside the site boundary potentially affected by the proposed development. All survey works have been completed in accordance with BS 5837:2012 '*Trees in relation to design, demolition and construction – Recommendations*'.
- 1.5 The aim of the survey is to determine the condition, amenity levels and future potential of the existing trees and, where applicable, which trees will have a potential impact on the proposed development.
- 1.6 The Arboricultural Impact Assessment will provide information and advice in relation to potential conflicts between the proposed development and the existing trees within the Site, based on the current layout design of the scheme.

2.0 THE SITE

Site Location

- 2.1 The Site is located to the north of the village of Willington and currently comprises a series of agricultural fields to the west of Etwall Road (B5008). Burton Road (A38) runs adjacent to the western boundary of the Site with the A50 to the north. A railway line runs along the southern boundary of the Site.
- 2.2 The Site is centred at approximate national grid reference (NGR) SK 291 293. The Site is triangular in shape and extends to approximately 31.1 hectares in size.
- 2.3 The Site falls within the administrative area of the South Derbyshire District Council.
- 2.4 Agricultural farmland is located to the west, south and east of the Site beyond the boundary features (Burton Road, Etwall Road and the active railway line). The Derby Southern Bypass (A50) and associated infrastructure is located to the north of the Site.
- 2.5 The wider area is dominated by agricultural farmland to the west, east and south with the extensive Toyota Motor Manufacturing facility to the north, beyond the A50.

Site Description

- 2.6 The Site includes a series of agricultural fields under active management for livestock grazing. The agricultural fields are typically bound by hedgerows with standard trees.
- 2.7 There is a small cluster of agricultural buildings in the south-west region of the Site; these are accessed via a single vehicle width gravel track that links to Etwall Road (B5008).
- 2.8 The landform of the site is flat and lies at approximately 59 metres Above Ordnance Datum (AOD).

3.0 METHODS

Arboricultural Survey

- 3.1 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 75 mm 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.
- 3.2 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 in accordance with BS 5837:2012 *'Trees in relation to design, demolition and construction – Recommendations'*, based on their condition, quality and future potential¹.
- 3.3 BS 5837:2012 (Section 4.5.2) states that, *'the purpose of the tree categorisation 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'*. 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.
- 3.4 Locations for the trees on the site are shown on **Appendix 2** (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 hazards is not included with this report. The locations of tree groups G1 and G2 were not shown on the topographical figure and as such their locations should be checked on site prior to works commencing.
- 3.5 The site survey was conducted on 12th March 2018 by Thomas McQuillan MCIEEM and Gemma Longman ACIEEM in accordance with the BS 5837:2012 methodology. The surveyor has considerable experience of arboricultural surveys and has completed training in BS 5837:2012 survey methodology. 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.
- 3.6 No liability can be accepted in respect of the trees or for events which happen after the time of the survey.
- 3.7 The survey did not include a search via the Local Planning Authority for trees holding Tree Preservation Orders on or surrounding the Site.

¹ British Standards Institution (BSI) BS 5837:2012. Trees in relation to design, demolition and construction – Recommendations. Published by BSI Standards Limited 2012. ISBN 978 0 58069917 7

4.0 RESULTS

Tree Schedule - Overview

- 4.1 The tree survey results are shown in **Appendix 1** (Tree Schedule) and **Appendix 2** (Tree Constraints Plan), which provides details of canopy spreads and Root Protection Areas (RPAs) of the trees included within the survey.
- 4.2 The trees included within this survey comprise of 22 individual trees, 2 tree groups and 7 hedgerows. All trees subject to survey were located within the Site or in close proximity to the Site boundary.
- 4.3 There are eleven BS 5837:2012 Category "B" (features of modest quality) trees on or associated with the Site. These being T1, T8, T10, T14, T15, T16, T17, T18, T19, T20 and T21.
- 4.4 There is one BS 5837:2012 Category "B" (features of modest quality) tree group associated with the Site. This feature is denoted as G2.
- 4.5 There is one BS 5837:2012 Category "B" (features of modest quality) hedgerow associated with the Site. This feature is denoted as H6.
- 4.6 There are ten BS 5837:2012 Category "C" (low quality features or young/small trees) trees on or associated with the Site. These being T2, T3, T4, T5, T6, T7, T9, T11, T12 and T13.
- 4.7 There is one BS 5837:2012 Category "C" (low quality features or young/small trees) tree groups on or associated with the Site. This feature denoted as G1.
- 4.8 There are six BS 5837:2012 Category "C" (features of modest quality) hedgerows associated with the Site. These being H1, H2, H3, H4, H5 and H7.
- 4.9 One BS 5837:2012 Category "U" (unsuitable for retention) tree was recorded within the Site. This being T22.

Individual Trees

- 4.10 The trees included within this survey comprise of 22 individual trees.
- 4.11 Species include hawthorn *Crataegus monogyna*, willow *Salix sp.*, ash *Fraxinus excelsior*, hybrid black poplar *Populus x Canadensis* (possibly black poplar *Populus nigra*), English oak *Quercus robur* and sycamore *Acer pseudoplatanus*.
- 4.12 T1 is a mature English oak *Quercus robur* tree located at the northern point of H3. Whilst this tree is moving towards the end of its life cycle it was considered to be of landscape value within an agricultural setting. The tree considered to be Category "B" (features of modest quality) under BS 5837:2012. Tree T1 has a height of 6 m with a slight lean to the east.
- 4.13 T4, T5 and T7 are all sycamore *Acer pseudoplatanus* trees positioned with hedgerows on the Site. T4 and T5 are both positioned in within H6 on the eastern boundary of the Site, with T7 located within H1. T4, T5 and T7 were each considered to be Category "C" under BS 5837:2012.
- 4.14 Tree T2 is a mature Category "C" ash *Fraxinus excelsior* tree positioned within H4. This tree has a height of 12 m with notable deadwood in the canopy, typical of the species.
- 4.15 T3 is a mature Willow *Salix sp.* tree located in H6 in the south-east corner of the Site. T4 is a sycamore *Acer pseudoplatanus* tree 45 m to the north of T3 and is also located within H6. Both T3 and T4 were each considered to be Category "C" trees.
- 4.16 T8 and T14 are both mature hybrid black poplar *Populus x Canadensis* trees. These were both significant trees (height 14 m to 16 m) with T8 located within H2 on an east facing slope and T14 within H6. Typical of the species, notable collapse and re-growth was noted in T14, which also had a hollow main stem. T8 and T14 were possibly black poplar *Populus nigra*, although this could not be confirmed during the survey.
- 4.17 T6 is a mature hawthorn *Crataegus monogyna* tree located in the northern region of the Site. This tree was Category C3 (low value tree of cultural/conservation value). The tree is of a significant age and is likely to be the remaining section of a now lost hedgerow.
- 4.18 T11 and T12 are both located within H6 on the eastern edge of the Site. T11 is a multi-stemmed ash *Fraxinus excelsior* (Category C2), with a height of 8 m. T12 is a middle-aged sycamore *Acer pseudoplatanus* tree with a height of 9 m.
- 4.19 Trees T10, T13, T15, T16, T17, T18, T19, T20 and T21 are mature English oak *Quercus robur* trees located on the north-eastern boundary of the Site within H6. Apart from T13, these trees were considered to be Category "B" (features of modest quality). With a notable southwards lean due to competition with T14, T13 was considered to be a Category "C" (features of low quality) tree. These trees were of a similar age (mature), height (9.5 m – 12 m) and condition (fair to good condition with minor deadwood, typical of species). Holly *Ilex aquifolium* and English bluebells *Hyacinthoides non-scripta* were noted around Trees T16-T21.
- 4.20 Tree T22 is a dead Category "U" (unsuitable for retention) ash *Fraxinus excelsior* tree located within hedgerow H7 on the northern boundary of the Site.

Tree Groups

- 4.21 Tree Group G1 is located outside of the application Site along the railway embankment to the south. Species include hawthorn *Crataegus monogyna* and elder *Sambucus nigra*. This group is of low landscape value and includes scattered encroaching scrub habitat along the railway ballast embankment. Similar vegetation, on the western section of the railway line to the south of the site had recently been cleared as part of on-going railway embankment management. Tree Group G1 was classified as Category C2 and was considered to be of negligible arboricultural value.
- 4.22 Tree Group G2 is located outside of the application Site between the timber fence on the western boundary of the Site and Burton Road. Species include hawthorn *Crataegus monogyna*, ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus* and elder *Sambucus nigra*. This group is of moderate landscape value and provides a vegetated buffer between the Site and Burton Road to the west. Group 2 is a solid linear feature, widening at the southern part and containing no gaps. Where Group 2 covers the steep embankments of the Burton Road / railway line junction, to the south-west of the Site, mature poplar *Populus sp.* trees are located in a regimented/plantation formation. There was no evidence of regular management for Tree Group G2. Overhanging vegetation from Tree Group G2 over the application Site was limited to approximately 2 m. Tree Group G2 was classified as Category B2 and was considered to be of moderate arboricultural value as a landscape screen/buffer.

Hedgerows

- 4.23 The hedgerows within and bordering the Site were typical of agricultural field boundary hedgerows. Species composition within hedgerows H1 – H7 was dominated by hawthorn *Crataegus monogyna*, with occasional elder *Sambucus nigra* and holly *Ilex aquifolium*. Hedgerow H6 also included ash *Fraxinus excelsior*, English oak *Quercus robur* and sycamore *Acer pseudoplatanus*.
- 4.24 Several of the hedgerows including H1 and H6 displayed evidence of historic management (hedge laying), although recently the hedgerow management was limited to mechanical flailing. Hedgerows H2, H3 and H4 were gappy (not stock proof) with their value reduced due to a lack of management.
- 4.25 The hedgerows had a typical height of 2-3 m, although hedgerows such as H7 and H6 had a height of up to 5-6 m due to lack of management.

Root Protection Area

- 4.1 The RPA's 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 RPA's are considered to provide a reasonable guide to the extent of the likely rooting areas which should ideally be protected. When considering the layout of the site and the retention of trees, proposals should generally be kept outside of both the RPA and the canopy spread. However, it may be possible to encroach into the RPA assuming the existing ground levels can be maintained and the appropriate construction methods are used.

5.0 ARBORICULTURAL IMPACT ASSESSMENT

Overview

- 5.1 BS 5837:2012 provides a methodology for determining the above and below ground constraints presented by trees on and adjacent to the site. These constraints are shown on the Tree Constraints Survey Plan (Appendix 2) and the appended tree survey table (Table 1).
- 5.2 The Arboricultural Impact Assessment considers the development proposals and how they relate to the trees on the Site. Any tree and design conflicts are highlighted and possible remedial action suggested if appropriate. The proposed design and impact plan is shown within Appendix 3.

Development Proposal

- 5.3 The development proposals concern the construction of large industrial/commercial units (11 in total) on the Site. Site access will be created in the north-east corner of the Site linking to Etwall Road. As part of the proposal large car-parking areas are proposed along with extensive landscaping. Works will include the demolition of the existing agricultural buildings on the Site. Refer to Appendix 3.

Trees to be Removed

- 5.4 The following trees, tree groups and hedgerows would be removed based on the proposed design plan.
- 5.5 Trees T1 and T2, and hedgerows H3, H4 and H5 would be removed to allow for the construction of commercial unit 8 and associated landscape/hard-landscape features.
- 5.6 Tree T8 and hedgerow H2 would be removed to allow for the construction of commercial units 1 and 10.
- 5.7 The proposed site access does not allow for the retention of T15, a mature oak tree (Category B). T15 would be felled under the development proposal. A section of H6 would also be removed to allow for the construction of the Site access.
- 5.8 Under the proposed plans there is scope to retain T6 as part of the landscape design plan. This would allow for the retention of a mature tree near to the Site entrance.
- 5.9 No impact to any other trees or groups of trees within the site is envisaged as a result of the development works.

Below Ground Considerations

- 5.10 The proposed commercial unit No. 1 and associated works (landscape and hard landscape) would encroach marginally into the Root Protection Area for T16, T17, T18, T19, T20 and T21; it is considered that such encroachment is within the acceptable tolerance (< 20 %).
- 5.11 Landscape works have the potential to encroach into the RPA for trees T6, T7, T9, T10, T11, T12, T13, T14 and hedgerows H1, H6
- 5.12 Before any works take place within the Site, full BS5837 fencing will be used to ensure the safeguard of the tree RPAs, until there is no risk from damage from the construction activity.

Above Ground Considerations

- 5.13 There may be a requirement for selective pruning of some low canopy branches to facilitate the construction of the site depending on construction methods; this can be addressed within the Method Statement for the site.
- 5.14 The canopies of most of the retained trees can be protected with barriers, but where this is not possible arboricultural methodology will be required to control nearby works to prevent collision.

Construction Access and Activities

- 5.15 Details for the location of construction access and associated activities were not available at the time of writing. These should be addressed within the Arboricultural Method Statement and Tree Protection Plan.
- 5.16 Consideration should be included within the Arboricultural Method Statement for the storage of materials as accidental spillage would 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.
- 5.17 All storage areas, cement mixing and washing points must be outside RPAs unless otherwise agreed with the Local Planning Authority.
- 5.18 Particular care should be taken when working on or close to sloping ground to avoid unintentional runoff into the RPA of retained trees.
- 5.19 The Arboricultural Method Statement and Tree Protection Plan should also cover level changes on Site and any proposed earth works.

Service Provision

- 5.20 At present the exact location of new underground services is unknown. However, in the event that trenches are required they will be constructed in accordance with the guidance provided in the National Joint Utilities Guidance document NJUG 4. No service shall be positioned within 1 m of the tree stem.
- 5.21 Where possible, it is proposed to use the existing services into the site and keep all services outside the RPA. Where this is not possible, trenchless installation should be the preferred option for service installation. However if this is not feasible, any excavation must be carried out by hand in accordance with the guidance provided in the National Joint Utilities Guidance document NJUG 4.

Post Development Pressures

- 5.22 The proposed buildings have been designed around the existing trees, ensuring that the relationship is acceptable and will not cause future conflict. Accordingly, there will not be post-development pressures to heavily prune or remove trees in the future.

Next Steps

- 5.23 In order to protect the retained trees, it is recommended that a Tree Protection Plan and Method Statement is completed prior to any works commencing on the site.
- 5.24 The processes of construction are unlikely to have a detrimental effect upon the health of the retained trees assuming recommendations made within the Tree Protection Plan and 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.

6.0 CONCLUSIONS & RECOMMENDATIONS

Conclusions

- 6.1 During the survey 22 individual trees, 2 tree groups and 7 hedgerows were surveyed (refer to **Table 1** and **Figure 1**). All trees subject to survey were located within the Site or in close proximity to the Site boundary.
- 6.2 There are eleven individual trees (T1, T8, T10, T14, T15, T16, T17, T18, T19, T20 and T21), one tree group (G2) and one hedgerow (H7) classified as BS 5837:2012 Category "B" (features of modest quality) within the Site in close proximity to the Site boundary.
- 6.3 There are ten individual trees (T2, T3, T4, T5, T6, T7, T9, T11, T12 and T13), one tree group (G1) and six hedgerows (H1, H2, H3, H4, H5 and H7) classified as BS 5837:2012 Category "C" (low quality features or young/small trees) within the Site or in close proximity to the Site boundary.
- 6.4 One BS 5837:2012 Category "U" (unsuitable for retention) tree was recorded within the Site. This being T22.
- 6.5 The Arboricultural Impact Assessment identified that based on the proposed design plan the following would be removed:
- BS 5837:2012 Category "B" – T1, T8, T15 and a small section of H6
 - BS 5837:2012 Category "C" – T2, H2, H3, H4 and H5
- 6.6 The Arboricultural Impact Assessment identified that based on the proposed design plan there would be incursion on the RPAs of the following:
- BS 5837:2012 Category "B" – T10, T16, T17, T18, T19, T20, T21 and H6
 - BS 5837:2012 Category "C" – T6, T7, T9, T11, T12, T13, T14 and H1
- 6.7 The Arboricultural Impact Assessment identified that based on the proposed design plan there is scope for the retention of the following:
- BS 5837:2012 Category "B" – T10, T14, T16, T17, T18, T19, T20, T21, majority of H6 and G2.
 - BS 5837:2012 Category "C" – T3, T4, T5, T6, T7, T9, T11, T12, T13, H1, H7 and G1.

Recommendations

- 6.8 An Arboricultural Tree Protection Plan and Working Method Statement should be produced prior to works commencing on Site. This should be informed by the Arboricultural Impact Assessment based on the approved Site layout.
- 6.9 The Arboricultural Tree Protection Plan and Working Method Statement should cover detailed methods for construction and operation within any of the RPAs in order to minimise the potential for adverse effects on these trees, e.g. digging using hand tools and supervision by a suitably qualified arboriculturist, in accordance with BS5837:2012. During supervised work within the RPAs and canopies, if trees are considered to become unsafe (e.g. due to unavoidable severance of significant roots), such trees may need to be felled by a qualified tree surgeon. Any such loss of trees should be mitigated where practicable with replacement tree planting on site, to be agreed with the Local Planning Authority.
- 6.10 The Arboricultural Tree Protection Plan and Working Method Statement should cover compensation planting as required.
- 6.11 Where appropriate, all the trees to be retained should be protected with a tree protection fence in line with BS5837:2012 current recommendations.
- 6.12 Any new landscaping should be maintained to promote longevity and the trees should be given the best possible chance of establishment.
- 6.13 The loss of any trees should be mitigated where practicable with replacement tree planting on site, to be agreed with the Local Planning Authority. Any new landscaping should be maintained to promote longevity.

APPENDIX 1: TREE SCHEDULE AND EXPLANATORY NOTES

Tree Ref No.	Species	Height	Crown Spread (m)				Stem diameter (mm)	Physical condition	Age class	Structural condition	ERC (years)	Cat Grade	RPA Sq.m	RPA Circle of Radii/ m
			N	S	E	W								
T1	Oak	6	4	4	6	4	810	F	M	Mature tree in decline. 50% of bark on main trunk missing. Sections of phoenix growth to the east. Minor deadwood in canopy, no ivy. BRP, bird nest in tree ecology value	40 +	B2	290	9.5
T2	Ash	12	8	8	7	8	680	F	M	Hedge tree with 4 stems. No ivy. Break in main stem plus mature re-growth.	20 +	C2	206	8.10
T3	Willow sp.	11	8	12	2	6	1020	F	OM	Multi-stemmed willow tree adjacent to ditch. Evidence of past management. Leans to the west with 7 stems. No ivy. Evidence of collapse then regrowth pattern.	20 +	C2	475	12.3
T4	Sycamore	8	4.5	6	3	4	350	F	M	Outgrown hedge tree, minor deadwood typical of species.	20 +	C2	55	4.2
T5	Sycamore	7	2	2	2	2	230	F	MA	Outgrown hedge tree, minor deadwood typical of species. Next to ditch.	20 +	C1	23	2.7
T6	Hawthorn	5	3	3	3	3	250	G	M	Old hawthorn tree surrounded by grazed grassland. No ivy. Grazed understory. Old remnant hedge tree.	40 +	C3	28	3.0
T7	Sycamore	11	7	7	7	6	580	F	M	Outgrown hedge tree, minor deadwood typical of species. Next to ditch.	20 +	C2	150	6.9
T8	Hybrid black poplar (possible black poplar)	14	10	10	10	9	1300	F/G	M	Significant tree in hedgerow, no ivy. Historic pollard, with 6 large stems from main stem, minor deadwood. Large canopy spread. Ground on east facing slope.	20 +	B2	707	15

T9	Ash	13	6	6	6	7	848	F	M	8 stems, at ~30 cm each. Hedge tree. Minor deadwood typical of species.	20 +	C2	327	10.2
T10	Oak	14	8	8	8	9	820	G	M	Mature oak tree in hedge. Leans to the east, no ivy. Minor deadwood.	40 +	B2	308	9.9
T11	Ash	8	4	4	4	4	220	F	M	5 stems ~10 cm each. Hedge tree. Minor deadwood typical of species.	20 +	C2	23	2.7
T12	Sycamore	9	4	4	4	4	260	F	MA	Outgrown hedge tree, no ivy. Low value.	20 +	C2	28	3.0
T13	Oak	12	0	9	5	5	450	F/P	M	Major lean to south due to H14. Minor deadwood. No ivy.	20 +	C2	92	4.5
T14	Hybrid black poplar (possible black poplar)	16	7	7	5	7	2300	F	M	Significant tree in hedgerow, no ivy. Numerous sections of deadwood (ecological value), large hollow on main stem. Re-growth is mature with height of 16 m. Significant limb loss to east (over road).	20 +	B2	707	15
T15	Oak	10	7	8	7	7	725	F	M	Mature tree in hedge adjacent to ditch with no ivy. Minor deadwood typical of species.	40 +	B2	238	8.7
T16	Oak	9.5	8	9	8	8	720	F/G	M	Mature tree in hedge adjacent to dry-ditch with no ivy. Minor deadwood typical of species. Minor damage to main stem.	40 +	B2	238	8.7
T17	Oak	9.5	6	7	7	7	520	F/G	M	Slight lean to north. Mature tree in hedge adjacent to dry-ditch with no ivy. Minor deadwood typical of species.	40 +	B2	124	6.3
T18	Oak	12	7	8	8	8	738	F/G	M	2 stems at 350 mm and 650 mm. Ivy clad. Minor deadwood in canopy. Holly at base.	40 +	B2	255	9.0

T19	Oak	12	7	7	7	7	720	F/G	M	Mature tree in hedge adjacent to dry-ditch. Minor deadwood typical of species.	40 +	B2	238	8.7
T20	Oak	11	8	9	9	9	743	G	M	2 stems at 500 mm and 550 mm. Mature tree in hedge adjacent to dry-ditch. Minor deadwood typical of species.	40 +	B2	255	9.0
T21	Oak	9.5	9	8	8	9	750	G	M	Mature tree in hedge adjacent to dry-ditch. Minor deadwood typical of species.	40 +	B2	255	9.00
T22	Ash	6	1	3	4	3	300	Dead	M	Dead	-	U	-	-
H1	Hawthorn, holly	2	2	2	2	2	150	G	M	Intact hedge adjacent to farm track. Dense section of holly. Failed.	40 +	C2	10	1.8
H2	Hawthorn, elder	2	1.5	1.5	1.5	1.5	150	G	M	Intact hedge (few gaps), failed.	40 +	C2	10	1.8
H3	Hawthorn	4	2	2	2	2	150	G	M	Hedge on south facing slope. Grazed understory. No recent management.	40 +	C2	10	1.8
H4	Hawthorn, elder	3	2	2	2	2	150	G	M	Gappy hedge. Grazed understory. No recent management.	40 +	C2	10	1.8
H5	Hawthorn	3	2	2	2	2	150	G	M	Intact hedge. Grazed understory. No recent management.	40 +	C2	10	1.8
H6	Hawthorn, holly, ash, oak, sycamore	5	3	3	3	3	200	G	M	Mature hedge on edge of site. Provides a landscape feature adjacent to the road. Few gaps. Ditch flows south adjacent to hedge. Failed in places.	40 +	B2	18	2.4
H7	Hawthorn	4	2	2	2	2	150	F/G	M	Intact hedge. Grazed understory. No recent management.	40 +	C2	10	1.8
G1	Hawthorn, elder	4	2	2	2	2	150	G	M	Defunct group of scrub.	40 +	C2	10	1.8
G2	Hawthorn, elder, ash, sycamore, poplar	4	2	2	2	2	150	G	M	Mature tree group on western boundary of site. No gaps. Screening value.	40 +	B2	10	1.8

Key:

Height (m): Tree height measured in metres

Stem Diameter (mm): Stem diameter in millimetres measured at 1.5m above ground level. Where the stem is divided below 1.5m, measurement is taken as directed by BS 5837 Annex C.

Branch Spread (m): Radial crown spread in metres, measured for each of the four cardinal points of the compass from the centre of the trunk.

Life Stage:

- NP Newly planted
- YM Young Mature
- MA Middle-aged
- M Mature
- OM Over Mature
- V Veteran

Physiological Condition:

- GOOD a tree in a healthy condition with no significant problems
- FAIR a tree generally in good health with some problems that can be remediated
- POOR a tree in poor health with significant problems that can't be remediated
- DEAD a tree without sufficient live material to sustain life

Structural Condition:

- GOOD a tree in a safe condition with no significant defects
- FAIR a tree in a safe condition at present but with defects or with significant defects that can be remediated
- POOR a tree with significant defects that can't be remediated

Estimated Life Expectancy:

- <10 Tree is dead or dying and unlikely to contribute beyond 10 years
- 10+ Tree is assessed as being able to contribute to the site for 10+ years
- 20+ Tree is assessed as being able to contribute to the site for 20+ years
- 40+ Tree is assessed as being able to contribute to the site for 40+ years

Quality and Value Category Grade:

Quality & Value grade classification according to BS5837:2012 (see attached extract from BS5837:2012 Table 1 - Cascade Chart for Tree Quality Assessment) -

- **U** Trees that cannot be realistically retained
- **A** Those trees of HIGH quality to retain
- **B** Those trees of MODERATE quality to retain
- **C** Those trees of LOW quality to retain

Cascade Chart for the Quality Assessment

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years.	Trees that have serious, irremediable, structural defect, such that their early loss is expected due to collapse including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning). Trees that are dead or are showing signs of significant, immediate or irreversible overall decline. Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality. <i>Note: Category U trees can have existing or potential conservation value which it might be desirable to preserve.</i>			See Figure 1
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue).	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran or trees or wood pasture).	See Figure 1
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	Trees that might be included in Category A, but were downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation.	Trees present in numbers, usually growing groups or woodlands, such that they attract a higher collective rating than they might attract as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	Trees with material conservation or other cultural value.	See Figure 1
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter of <150mm.	Unremarkable trees of very limited merit or such impaired condition that they not qualify in higher categories.	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural value.	See Figure 1

APPENDIX 2: TREE CONSTRAINTS PLAN

BS5837:2012 Tree Categories

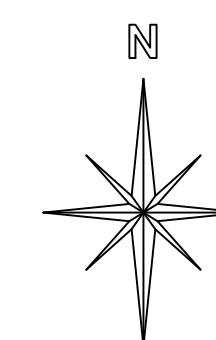
- Tree/Group/Hedge numbering: T1-T22, H1-H7, G1

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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APPENDIX 3: ARBORICULTURAL IMPACT ASSESSMENT

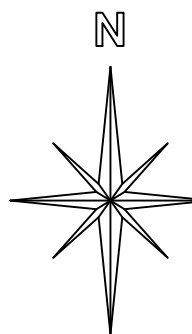
Tree Assessment Plan
proposed scheme with
showing tree categories
and root protection zones.

BS5837:2012 Tree Categories

- Category A**
Trees of high quality with an estimated remaining life expectancy of at least 40 years. Groups shown as hatched shapes.
- Category B**
Trees of moderate quality with an estimated remaining life expectancy of at least 20 years. Groups shown as hatched shapes.
- 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 75 mm. Groups shown as hatched shapes.
- Category D**
Trees in such a condition that they cannot reliably be retained as living trees in the context of the current land use for longer than 10 years. Groups shown as hatched shapes.
- BS 5837:2012 Root Protection Area**
- Tree**
Showing Canopy extent, category (colour and tag number with category).
- Tree group**
Shown as dashed circle line. Colour represents category (see above).

TreeGroupHedge numbering: T1-T22, H1-H7, G1-G22

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. All rights reserved.



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