



BS 5837:2012 Arboricultural Impact Assessment

Atlas Business Park, Wythenshawe

**Presented to: Ridge and Partners LLP c/o AVIVA
Investors**

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Report Details

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Quality Assurance

Issue No.	Status	Issue Date	Comments	Author	Technical Review	Authorised
4	Final	28 th June 2023		 Henry Bates Senior Arboriculturist	 Gareth Meadows Associate Arboriculturist	 Peter Morrell Principal Arboriculturist

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1.0 Introduction

1.1 Purpose and Scope of the Survey

Delta-Simons Ltd was instructed by Ridge and Partners LLP c/o AVIVA Investors (the 'Client') to produce an updated Arboricultural Impact Assessment (AIA) to British Standard (BS) 5837:2012. The update was carried out to reflect the design proposals, which were revised to allow for the retention of four trees on site that are covered by a Tree Preservation Order (TPO). The AIA was undertaken of an area of land at Atlas Business Park, Simonsway, Wythenshawe, Manchester M22 5PR (hereafter referred to as 'the Site'). The assessment was undertaken in order to inform a planning application for redevelopment of the Site.

The aims of the AIA were to:

- Detail foreseeable tree related issues within this Report to inform the Local Planning Authority (LPA);
- Provide an initial analysis of the impacts that the proposed development is projected to have on trees both within the Site and, where considered pertinent and where practicable, on land immediately adjacent to its boundaries; and
- Provide guidance on suitable retained tree management and mitigation for projected losses, along with advice on appropriate tree protection measures in the context of the proposed development in accordance with current guidance.

1.2 Site Description

The Site is centred at Ordnance Survey (OS) grid reference SJ 83825 86003, to the southeast of the town of Wythenshawe. The Site covers an area of approximately 11 hectares (ha) and currently comprises an approximately rectangular shaped parcel of land which is disused.

The furthest western part contains a car park surrounded by metal fencing, the western and central area of site contains a large stockpile of demolition rubble from the previous Site buildings. The eastern area of Site is vegetated land covered with grass, trees, and bushes. The Site layout and area surveyed is shown in Figure 1.

1.3 Proposed Development

It is understood that the Site is to undergo development for the construction of 381,300sq. ft of B8 type use with ancillary offices, associated parking, vehicular access, landscaping and associated works.

1.4 Site Visit, Data Collection and Tree Plans

Further to the completion of a Tree Survey of the Site by Delta Simons on the 7th of September 2022, all tree data collected from the Site is set out in the attached tabulated Tree Survey Schedule (TSS) at Appendix B and shown on the Tree Constraints Plan (TCP) (Figure 1).

The survey identified 15 trees and 22 groups of trees (prefixes 'T' and 'TG' respectively). The surveyed vegetation has been numbered accordingly on the TCP and Tree Impact Plan (TIP), as appended (see Figure 1 and Figure 3, respectively). The TCP details the existing Site with the readily definable tree constraints, whilst the TIP also has an overlay of the development proposals along with associated projected tree related impacts. The plans are based on topographical survey of the existing and proposed Site plans that were provided in electronic format by the Client, and for the purpose of this Report, it is assumed that these are accurate.

A document titled "Land at Atlas Business Park sealed order" forwarded on by the client on 27/02/23 indicate that four trees on site (T10, T13, T14 and T17) and a single tree located within tree group TG16 are covered by Tree Preservation Order (TPO) 2023. None are within a Conservation Area.

2.0 Legislation

2.1 Tree Preservation Orders and Conservation Area Designations

The Town & Country Planning Act (1990) (the Act) and associated Regulations empower LPAs to protect trees in the interests of amenity by making TPOs. The Act also affords protection for trees of over 75 mm diameter that stand within the curtilage of a CA. Subject to certain exemptions, an application must be made to the LPA in question to carry out works upon or remove trees that are subject to a TPO, whilst six weeks' notice of intention must be given to carry out works upon or remove trees within a CA that are not protected by a TPO.

2.2 Protected Species

2.2.1 Nesting Birds

Nesting birds are afforded statutory protection under the Wildlife & Countryside Act (1981, as amended) and their potential presence should, therefore, be considered when trimming hedges, removing climbing plants and pruning and removing trees. The breeding period for nesting birds runs from March to late July, inclusive. Hedges provide valuable nesting sites for many birds and management should, therefore, be avoided during this period. Trees, hedges and ivy should be inspected for nests by a suitably qualified ecologist prior to pruning or removal, and any work likely to destroy or disturb active nests should be avoided until the young have fledged.

2.2.2 Bats

All bats and their roosts are protected under Section 9 of the WCA 1981 (as amended) and Annex IV of the Habitats and Species Regulations 2017.

It is an offence, either deliberately or recklessly, to destroy, damage or obstruct access to any bat roost, or to disturb a bat using such a place. It should be noted that a roost is protected whether or not bats are present and any activity or works affecting a roost, even when bats are absent, are likely to require a Natural England European Protected Species Licence.

2.3 Felling Licences

Subject to certain exemptions the Forestry Act (1967) requires that a 'Felling Licence' be obtained to remove growing trees amounting to more than five cubic metres of timber in a calendar quarter. Felling Licences are administered by the Forestry Commission and contravention of the associated controls can incur substantial penalties. A Felling Licence is, however, not required where tree removals are required for the purpose of implementing a development authorised by detailed (i.e. full) planning permission granted under the Act (1990).

3.0 The Tree Population

The Site is described in Section 1.0 of this Report.

As noted previously, 15 trees and 22 groups of trees were surveyed for the purpose of this appraisal. The trees on this site are mainly either planted woodland groups or naturally regenerated woodland groups.

All trees present within the Site range from young to over-mature. None of the trees within the Site boundary show signs of past management. Most on-Site groups of trees appear to be in fair condition except for groups TG3, TG6, TG7, TG33, TG37 and trees T18, T19, T35 which were classified as Category U, due to their poor condition.

In respect to the TSS, it should be noted that tree quality is categorised within the existing Site context without taking any development proposals into account. However, recommendations for works included in the TSS takes both current Site usage into consideration and the proposed Site development where there are definable development related issues with regards to specific trees.

The TSS includes a column ('Cat. Grade') listing the trees' respective retention values, where they are rated either 'A', 'B', 'C' or 'U', as per BS5837:2012 Table 1 (Appendix B). 'A' category trees are those considered to be of 'high quality' and, accordingly, the most suitable for retention, whilst 'B' category trees are those considered to be of 'moderate quality'. As detailed in Table 1 (below), six trees were categorised as high quality ('A'), five trees and four tree groups were categorised as moderate quality ('B'), and one tree and 13 tree groups were assessed as being of low quality ('C'). Three trees and five tree groups were categorised as being of poor quality ('U').

Table 1: BS5837-2012 Retention Categories of the Surveyed Trees

Tree Quality	Ret. Cats.	Tree/Group Numbers	Totals
Those of a moderate or high quality that should be afforded appropriate consideration in the context of development	'A'	T10, T13, T14, T17, T20, T21	6 Trees
	'B'	TG1, TG11, TG15, TG36, T28, T30, T31, T32, T34	5 Trees and 4 Tree Groups
Those of a low quality that should not be considered a material constraint to development	'C'	TG2, TG5, TG8, TG9, TG12, TG16, TG22, TG23, TG24, TG25, TG26, TG27, TG29, T4	1 Tree and 13 Tree Groups
Those that should be removed for management reasons regardless of site proposals	'U'	TG3, TG6, TG7, TG33, TG37, T18, T19, T35	3 Trees and 5 Tree Groups
Totals			15 Trees and 22 Tree Groups

It is understood that the Site is to undergo development for the construction of 381,300sq. ft of B8 type use with ancillary offices, associated parking, vehicular access, landscaping and associated works. Accordingly, the TCP has been overlaid on the development plan provided by the Client in order to appraise the projected impacts that the development will potentially have on the Site vegetation, as detailed on the TIP.

3.1 Projected Arboricultural Losses Relating to the Proposal

As detailed in Table 2, below, and on the TIP, implementation of the proposed development as it stands is projected to require the removal of four trees and partial removal of two tree groups of moderate quality, four tree groups and partial removal of seven tree groups of low quality, and three trees and five groups of poor quality. The remainder of on-Site trees are to be retained and protected.

Table 2: Arboricultural Impacts of Proposed Development and Tree Removal Proposals

Tree Quality	Ret. Cats.	Removals Necessary to Implement Development	Tree Protection Methods Necessary to Implement Development	Pruning Necessary to Implement Development	Total Number of Tree Removals	Total Number of Trees Requiring Protection
Those of a moderate or high quality that should be afforded appropriate consideration in the context of development	'A'	-	T10, T13, T14, T17, T20, T21	T10, T13, T14, T20	-	6 Trees
	'B'	TTG11 (partial), TG15 (partial), T28, T30, T31, T32	TG1, TG11, TG15, TG36, T34	TG1	4 Trees and Partial removal of 2 Tree Groups	4 Tree Groups and 1 Tree
Those of a low quality that should not be considered a material constraint to development	'C'	TG2, TG5 (partial), TG8, TG9, TG12, TG16 (partial), TG22 (partial), TG24 (partial), TG25 (partial), TG26 (partial), TG27 (partial).	TG5, TG16, TG22, TG23, TG24, TG25, TG26, TG27, TG29, T4	-	4 Tree Groups plus partial removal of 7 Tree Groups	9 Tree Groups and 1 Tree
Those that should be removed for management reasons regardless of Site proposals	'U'	TG3, TG6, TG7, T18, T19, TG33 T35, TG37	-	-	3 Trees and 5 tree groups	3 Tree Groups
Totals					7 Trees, 9 Tree Groups and partial removal of 9 Tree Groups	8 Trees and 16 Tree Groups

3.2 Mitigation for Projected Tree Losses as Part of Site Landscaping

A landscaping plan has been proposed within the Site as shown in Drawing 2. The proposals include provision for new tree planting within the Site centre and within areas of retained trees, which are projected to mitigate for the necessary development related tree losses.

4.0 Summary and Conclusions

The Site is located at Atlas Business Park, Wythenshawe, Manchester. A total of 15 trees and 22 groups of trees were surveyed in respect of the proposed development of the Site. It is understood that the Site is to undergo development for the construction of 381,300sq. ft of B8 type use with ancillary offices, associated parking, vehicular access, landscaping and associated works.

Six trees were categorised as high quality ('A'), five trees and four tree groups were categorised as moderate quality ('B'), and one tree and 13 groups were assessed as being of low quality ('C'). Three trees and five tree groups were categorised as being of poor quality ('U').

The development has gone through a design revision, to enable the retention of the recently assigned TPO trees; T10, T13, T14 and T17.

An evaluation of the proposed development in the context of the existing Site has indicated that it will be necessary to remove: four trees and partial removal of two tree groups of moderate quality ('B'), four tree groups and partial removal of seven tree groups of low quality ('C'), and three trees and five tree groups of poor quality ('U').

Within the RPAs of TG1, T10, T13, T14, T20; there will be changes to ground levels. A method statement, to include details of specialised construction methods along with an arboricultural watching brief, shall be required for proposed ground level changes within the root protection areas of these trees. In addition, these trees will require crown lifting and/or pruning of their lateral branches to facilitate the proposals.

In consideration of the above findings, it is concluded that, from the details provided to date, the Site in question can be developed as proposed, whilst retaining the majority of individual trees and tree groups around the boundaries and, in turn providing new tree planting within the Site. This should provide a varied age range within the tree stock and allow retained trees to grow to maturity while providing younger trees space to grow. However, in order to ensure successful existing tree preservation, it is essential that the retained trees are protected in strict accordance with current Government guidance and the recommendations included herein.

5.0 Recommendations for Successful Tree Retention in the Context of Development

5.1 Root Protection Areas and Construction Exclusion Zones

Adequate protection of the Root Protection Areas (RPAs) of retained trees during construction is essential to ensure their long-term viability. RPAs, which are calculated through a method provided in BS5837:2012, are ground areas that must be protected by temporary protective fencing (Specification given in Appendix C) as Construction Exclusion Zones (CEZs) throughout the development process, thereby keeping the trees' root zones free from disturbance, including compaction. Consequently, the RPA distances, as detailed in the TSS, and included on the TCP and TIP indicate the likely on-Site below-ground constraints in respect of tree roots, whilst assisting in planning for appropriate tree retention in relation to feasible development. In certain situations, such as at this Site, there is a limited degree of flexibility in the CEZ positioning, as discussed below.

The TSS includes two columns listing the RPAs of the individually surveyed trees and, where applicable, the largest of the trees in any surveyed groups as overall areas in square metres and as radial distances. The radial RPAs are indicated as blue coloured circles on the TCP and TIP. With regard to CEZs the design, materials and construction of the fencing should be appropriate for the intensity and type of site construction works and should conform to at least section 6.2 of BS5837:2012, and should be secured by the imposition of a suitably worded planning condition. A default Temporary Protective Fencing Specification is included at Appendix C.

5.2 Underground Utilities

The installation of underground utilities in close proximity to trees can cause serious damage to their roots. As such, it is essential that utilities be routed outside RPAs unless there is no other available option, and specifics regarding these routes should be included as part of a detailed planning application. Where RPAs cannot be avoided then guidelines set out in the National Joint Utilities Group publication '*Volume 4: NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2) - Operatives Handbook*' should be followed (e.g. trenches of a very limited width to be hand dug or the use of directional drilling).

5.3 Arboricultural Method Statement and Tree Protection Plan

Government guidance recommends that, where considered practical by the LPA, an Arboricultural Method Statement (AMS) and a Tree Protection Plan (TPP) be prepared detailing mitigation for trees during the construction process. Essentially, the AMS and TPP describe and detail the procedures, working methods and protective measures to be used in relation to retained trees in order to ensure that they are adequately protected during the construction process.

6.0 Other Recommendations

6.1 Non-Development Related Tree Works and Recommendations

Any general management pruning works for retained trees that are stated to be non-development related, as detailed in the TSS, are recommended in accordance with prudent arboricultural management and should, therefore, be carried out regardless of any development proposals and potential changes in land usage associated with the Site. All tree works should be carried out in accordance with BS3998:2010 - Tree Work – Recommendations.

6.2 Tree Work Related Consents

No tree pruning nor removal works should commence on-Site until necessary consents have been obtained from the LPA.

6.3 Arboricultural Contractors

All tree works should be carried out by suitably qualified and experienced arboricultural contractors carrying appropriate public liability insurance cover and be implemented to the minimum current UK industry standards and in accordance with industry codes of practice. Only certificated personnel should, in accordance with The Control of Pesticides Regulations, apply any pesticides.

6.4 Contractors and Subsequently Identified Tree Defects

Tree contractors should be made aware that, should any significant tree defects become apparent during operations that would not have been immediately obvious to the surveyor, then such defects should be notified immediately to the Client and subsequently confirmed to the consultant within five working days.

6.5 New Tree Planting

All tree planting at the Site should be carried out in accordance with BS4428:1989 - Code of Practice for General Landscape Operations, BS3936-1:1992, Nursery Stock – Part 1: Specification for Trees and Shrubs and BS4043:1989, Transplanting Root-Balled Trees where applicable, or any ensuing superseding guidance where applicable.

6.6 Retained Tree Management

Any tree risk management appraisals and subsequent recommendations made in this report were based on observations and Site circumstances at the time of the survey. It should be noted that trees are dynamic living organisms with constantly changing structures, and even those evidently in good condition can succumb to damage and/or environmental stress. In this respect, it should be noted that, under the Occupiers' Liability Act (1957 & 1984), Site occupants have a duty of care to take reasonable steps to prevent or minimise the risk of personal injury and/or damage to property from any tree located within the curtilage of the land they occupy. It is accepted that these steps should normally include commissioning a qualified and experienced arboriculturist to survey their trees in order to identify any risk of harm to persons or damage to property that they may present and, where unacceptable risks are identified, taking suitable remedial action to negate those risks.

7.0 Limitations of the Arboricultural Impact Assessment

The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 1.0 of this Report, exercising the duty of care required of an experienced Environmental Consultant.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1.1 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

Figure A - CEZ Warning Sign

CEZ Warning Sign

– TREE PROTECTION AREA – KEEP OUT!

(TOWN & COUNTRY PLANNING ACT 1990)

THE TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING
CONDITIONS, THE CONTRAVENTION OF WHICH MAY LEAD TO CRIMINAL
PROSECUTION.

THE FOLLOWING MUST BE OBSERVED BY ALL PERSONNEL:

- △ THE PROTECTIVE FENCING MUST NOT BE MOVED
- △ NO PERSON SHALL ENTER THE CONSTRUCTION EXCLUSION ZONE
- △ NO MACHINE, PLANT OR VEHICLES SHALL ENTER THE EXCLUSION ZONE
- △ NO MATERIALS SHALL BE STORED IN THE EXCLUSION ZONE
- △ NO SPOIL SHALL BE DEPOSITED IN THE EXCLUSION ZONE
- △ NO EXCAVATION SHALL OCCUR IN THE EXCLUSION ZONE
- △ NO FIRES SHALL BE LIT IN THE EXCLUSION ZONE

ANY INCURSION INTO THE EXCLUSION ZONE MUST BE WITH THE
WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

Figure 1 - Tree Constraints Plan

Figure 2 – Tree Impact Plan



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Client:

h
ARCH
220 Level
Project:
Atlas
Manu
Drawing

Drawing 1 - Proposed Development Plan



01020304050

N

Notes:
Please refer to bea Landscape Design Ltd's
"Soft Landscape Proposals" drawing 22-103-P-102

Gross Internal Areas:

UNIT 1 (GIA)
Warehouse (incl. office Undercroft)
Office (FF)
Office (SF)
Car parking spaces (inc EV: 9 active/18 passive)
Cycle parking spaces

84,100ft²
77,700ft²
3,200ft²
3,200ft²
78
17

UNIT 2 (GIA)
Warehouse (incl. office Undercroft)
Office (FF only)
Car parking spaces (inc EV: 4 active/ 8 passive)
Cycle parking spaces

37,300ft²
34,700ft²
2,600ft²
35
08

UNIT 3 (GIA)
Warehouse (incl. office Undercroft)
Office (FF only)
Car parking spaces (inc EV: 5 active/10 passive)
Cycle parking spaces

49,500ft²
46,900ft²
2,600ft²
46
10

UNIT 4 (GIA)
Warehouse (incl. office Undercroft)
Office (FF)
Office (SF)
Car parking spaces (inc EV: 8 active/ 16 passive)
Cycle parking spaces

74,200ft²
66,000ft²
4,100ft²
4,100ft²
69
15

UNIT 5 (GIA)
Warehouse (incl. office Undercroft)
Office (FF)
Office (SF)
Car parking spaces (inc EV: 16 active/ 29 passive)
Cycle parking spaces

136,200ft²
128,000ft²
4,100ft²
4,100ft²
125
29

TOTAL (GIA)
Total Scheme Car Spaces
(inc 42 active & 81 passive EV spaces)
Total Scheme Cycle Spaces

381,300ft²

353
079

Area: Gross External

UNIT 1 (GEA)
Warehouse
Office (FF)
Office (SF)

8,086m²
7,391m²
347m²
347m²

UNIT 2 (GEA)
Warehouse
Office (FF only)

3,621m²
3,331m²
289m²

UNIT 3 (GEA)
Warehouse
Office (FF only)

4,785m²
4,495m²
289m²

UNIT 4 (GEA)
Warehouse (incl. office Undercroft)
Office (FF)
Office (SF)

7,214m²
6,325m²
444m²
444m²

UNIT 5 (GEA)
Warehouse (incl. office Undercroft)
Office (FF)
Office (SF)

13,000m²
12,126m²
437m²
437m²

TOTAL (GEA)

36,706m²

K	Unit 5 revised. Minor adjustments to yards.	09.05.2022	PL	HA
J	Issued as Design Freeze	07.12.2022	PL	HA
H	EV charging bays added. Parking bay configurations adjusted	11.11.2022	PL	HA
G	Drawing revised	03.11.2022	PL	HA
F	Radii of internal junction amended	17.10.2022	PL	HA
E	Parking numbers adjusted	07.10.2022	PL	HA
D	3m wide cycle track added	30.09.2022	PL	HA
C	Unit 5 HGV entrance widened	12.08.2022	PL	HA
B	Gate swing & unit 2 yard revised	09.08.2022	PL	HA
A	Drawing revised and renumbered PL201	02.08.2022	PL	HA
-	First issue	24.02.2022	PL	HA

Client:

hale

ARCHITECTURE | DESIGN MANAGEMENT

22c Leathermarket Street, London, SE1 3HP

Project:

Atlas Business Park
Manchester

Drawing Title:

Proposed Site Plan
(Ground Level)

Project No:
20071

Scale @ A1
1:1000

Drawing No:
20071-PL 201

Revision:
K

Drawing 2 - Proposed Landscaping Plan

Appendix A - References

References

BS4428:1989 - Code of Practice for General Landscape Operations. BSI British Standards, London.

BS3936-1:1992, Nursery Stock – Part 1: Specification for Trees and Shrubs. BSI British Standards, London.

BS3998:2010 - Tree Work - Recommendations. BSI British Standards, London.

BS4043:1989 - Transplanting Root-Balled Trees. BSI British Standards, London.

BS5837:2012 - Trees in Relation to Design, Demolition and Construction – Recommendations. BSI, London.

National House Building Council (2008). NHBC Standards Chapter 4.2 - Building Near Trees. NHBC, Amersham.

National Joint Utilities Group (2007). Volume 4: NJUG Guidelines for the Planning.

Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2) – Operatives Handbook.

Appendix B - BS5837:2012 Tree Schedule

Table 1 - BS 5837:2012 Tree Schedule

Tree Number	Species Common Name	Height (m)	Stem Diameter (mm)	Branch spread (m)				Crown Clearance (m)	Life stage	Physiological condition	Structural condition	Observations	Recommendations	Estimated Remaining contribution (years)	Category grading	RPA radius (m)	RPA (sq m)
				North	East	South	West										
TG1	Lombardy poplar	25	470	-	-	-	-	1	Mature	Fair	Fair	A linear group of single stem trees. No major apparent defects but this species is not long lived.	Remove deadwood and monitor	20+	B1	5.6	98.52
TG2	Mixed	5	120	-	-	-	-	0	Young	Fair	Fair	A group of mostly goat willow. Young trees with no major apparent defects. Not significant trees.	Remove to facilitate proposals	10+	C1	1.4	6.16
TG3	Hybrid willow	11	420	-	-	-	-	1	Early mature	Poor	Poor	A group of mostly willow with some elm. All elm trees have died - probably because of Dutch elm disease. The willows are in a state of collapse, with several large and heavy broken limbs.	Remove	<10	U	5.0	78.54
T4	Red Norway maple	8	220	3.0	3.0	2.0	3.0	2	Semi mature	Fair	Fair	A single stem tree with a twin stem crown. No major apparent defects.	No action at present	20+	C1	2.6	21.24
TG5	Mixed	7	90	-	-	-	-	0	Young	Fair	Fair	A mix of mostly beech and ash. An abandoned and overgrown hedge.	Partial removal to facilitate proposals	20+	C1	1.1	3.80
TG6	Ash	12	380	-	-	-	-	2	Semi mature	Poor	Poor	A group of ash trees badly affected by ash die-back.	Remove	<10	U	4.6	66.48

TG7	Ash	12	380	–	–	–	–	2	Semi mature	Poor	Poor	A group of ash trees badly affected by ash die-back.	Remove	<10	U	4.6	66.48
TG8	Mix	11	340	–	–	–	–	1	Young	Fair	Fair	A group of mostly ash and willow. Multi-stem trees with tight unions. Ash die-back affecting ash trees throughout.	Remove to facilitate proposals	10+	C1	4.1	52.81
TG9	Mix	6	140	–	–	–	–	0	Young	Fair	Fair	A mix of birch, whitebeam, willow and oak. No major apparent defects. Not significant trees.	Remove to facilitate proposals	20+	C1	1.7	9.08
T10	Oak	16	1100	8.0	8.0	9.0	9.0	2	Mature	Fair	Fair	A single stem tree with no major apparent defects.	No action at present	40+	A1	13.2	547.39
TG11	Mix	12	270	–	–	–	–	1	Semi mature	Fair	Fair	A group of sycamore, willow and London plane. No major apparent defects. Not fully inspected because of restricted access.	Partial removal to facilitate proposals	20+	B1	3.2	32.17
TG12	Willow	10	180	–	–	–	–	1	Young	Fair	Fair	A group of multi-stem trees. No major apparent defects.	Remove to facilitate proposals	10+	C1	2.2	15.21
T13	Oak	15	870	7.0	8.0	7.0	7.0	2	Mature	Fair	Fair	A single stem tree with no major apparent defects.	No action at present	40+	A1	10.4	339.79
T14	Oak	16	890	8.0	6.0	7.0	8.0	2	Mature	Fair	Fair	A single stem tree with no major apparent defects.	No action at present	40+	A1	10.7	359.68

TG15	Lombardy poplar	24	460	–	–	–	–	1	Mature	Fair	Fair	A linear group of single stem trees. No major apparent defects but this species is not long lived. One tree has fallen and is hung up in its neighbour - this is shown in red on the tree constraints plan and labelled as G15.1.	Partial removal to facilitate proposals	20+	B1	5.5	95.03
TG16	Willow	13	430	–	–	–	–	1	Early mature	Fair	Fair	A group of multi-stem trees, many with tight unions.	Partial removal to facilitate proposals	10+	C1	5.2	84.95
T17	Oak	15	750	6.0	7.0	7.0	6.0	2	Mature	Fair	Fair	A single stem tree with no major apparent defects.	No action at present	40+	A1	9.0	254.47
T18	Oak	8	860	3.0	3.0	5.0	3.0	1	Over mature	Poor	Poor	A single stem tree with major deadwood and die-back throughout. The tree is in decline.	Remove	<10	U	10.3	333.29
T19	Oak	6	840	2.0	3.0	3.0	3.0	2	Over mature	Dead	Poor	A single stem dead tree.	Remove	<10	U	10.1	320.47
T20	Oak	15	900	7.0	8.0	7.0	8.0	2	Mature	Fair	Fair	A single stem tree with no major apparent defects.	No action at present	40+	A1	10.8	366.44
T21	Oak	17	1100	8.0	7.0	7.0	8.0	2	Mature	Fair	Fair	A single stem tree with no major apparent defects.	No action at present	40+	A1	13.2	547.39
TG22	Mix	15	320	–	–	–	–	0	Early mature	Fair	Fair	A group of mostly multi-stem willow with some weeping beech. No major apparent defects. Not fully inspected because of restricted access.	Partial removal to facilitate proposals	10+	C1	3.8	45.36
TG23	Willow	9	350	–	–	–	–	0	Semi mature	Fair	Fair	A group of multi-stem trees. Not fully inspected because of restricted access.	No action at present	10+	C1	4.2	55.42
TG24	Willow	9	410	–	–	–	–	0	Early mature	Fair	Fair	A group of multi-stem trees. No major apparent defects. Not fully inspected because of restricted access.	Partial removal to facilitate proposals	10+	C1	4.9	75.43

TG25	Mix	7	150	–	–	–	–	0	Young	Fair	Fair	A group of oak and birch. No major apparent defects. Not significant trees.	Partial removal to facilitate proposals	10+	C1	1.8	10.18
TG26	Mix	8	180	–	–	–	–	0	Young	Fair	Fair	A group of mostly oak, ash and birch. Not fully inspected because of restricted access.	Partial removal to facilitate proposals	10+	C1	2.2	15.21
TG27	Mix	5	120	–	–	–	–	0	Young	Fair	Fair	A group of young trees. No major apparent defects. Not fully inspected because of restricted access.	Partial removal to facilitate proposals	10+	C1	1.4	6.16
T28	Ash	15	390	7.0	6.0	5.0	6.0	2	Semi mature	Fair	Fair	A single stem tree with a multi-stem crown. No major apparent defects. Not fully inspected because tree is located in neighbouring property.	No action at present	20+	B1	4.7	69.40
TG29	Mix	6	70	–	–	–	–	1	Young	Fair	Fair	A group of two oak and one sweet chestnut. No major apparent defects. Not significant trees.	No action at present	20+	C1	0.8	2.01
T30	Ash	11	380	7.0	7.0	6.0	7.0	2	Semi mature	Fair	Fair	A single stem tree with a multi-stem crown. No major apparent defects. Not fully inspected because tree is in neighbouring property.	Remove to facilitate junction access and visibility splays	20+	B1	4.6	66.48
T31	Lime	10	360	6.0	6.0	5.0	6.0	2	Semi mature	Fair	Fair	A single stem tree with a multi-stem crown. No major apparent defects. Not fully inspected because tree is located in neighbouring property.	Remove to facilitate junction access and visibility splays	20+	B1	4.3	58.09
T32	Oak	9	270	5.0	5.0	5.0	4.0	2	Semi mature	Fair	Fair	A single stem tree with a multi-stem crown. No major apparent defects. Not fully inspected because tree is located in neighbouring property.	Remove to facilitate junction access and visibility splays	20+	B1	3.2	32.17

TG33	Cherry	4	180	–	–	–	–	2	Semi mature	Poor	Poor	Two trees, both single stem. Both in a states of decline. Not significant trees.	Remove	<10	U	2.2	15.21
T34	Lime	12	340	5.0	5.0	4.0	5.0	2	Semi mature	Fair	Fair	A single stem tree with a multi-stem crown. No major apparent defects. Not fully inspected because tree is located in neighbouring property.	No action at present	20+	B1	4.1	52.81
T35	Sorbus	9	310	5.0	5.0	3.0	4.0	2	Semi mature	Poor	Poor	A single stem leaning tree with basal bark damage. Not fully inspected because tree is located in neighbouring property.	Remove	<10	U	3.7	43.01
TG36	Mix	12	380	–	–	–	–	2	Semi mature	Fair	Fair	A mixed broadleaf group of trees. Generally in reasonable condition. Not fully inspected because tree is located in neighbouring property. Group includes ash, maple and oak.	No action at present	10+	B1	4.6	66.48
TG37	Cherry	8	220	–	–	–	–	1	Semi mature	Poor	Poor	A group of two trees. Both are almost dead.	Remove	<10	U	2.6	21.24

Table 2 - Key to Tree Schedule

BS 5837: 2012 Tree Survey Key to Terminology		
Term	Explanation	Notes
Tree Ref.	Sequential reference number for individual tree or distinct tree in hedgerow	The measurement conventions are as follows. Height, crown spread, and crown clearance are recorded to the nearest half metre (crown spread is rounded up) for dimensions up to 10 m and the nearest whole metre for dimensions over 10 m Stem diameter is recorded in millimetres, rounded to the nearest 5 mm Estimated dimensions (e.g. for off-site or otherwise inaccessible trees where accurate data cannot be recovered) should be clearly identified as such (e.g.suffixed with a "#") RPA_r – Radius of nominal circle of Root Protection Area in metres from centre of tree stem. Figures used originate from Annex D BS5837: 2012 (p.40). Provided as a minimum distance and calculated in accordance with section 4.6 BS5837: 2012 (p.10) RPA_{m2} – Extent of root protection area * signifies dimensions have not been recorded
Common Name	Tree species listed by common name	
Height	Overall tree height measured in metres (m)	
Branch Spread	Taken as a minimum at the four cardinal points (North, South, East & West) to derive a representation of the crown spread	
Stem Diameter	Diameter of single stem trees on level ground measured at 1.5m above ground level. Diameters of other commonly encountered tree stems should be measured in accordance with Annex C (BS5837 2012 p39)	
Existing Height Above Ground Level – FSB/DG	Height of first significant branch (FSB) and its direction of growth (DG) identified as height in metres and direction of growth (e.g. 2.4-N)	Measurements taken to provide information relating to ground clearance, crown/stem ratio and shading of site
Life Stage	Young (Y)	Tree within the first one quarter of life expectancy
	Semi mature (SM)	Tree in second quarter of life expectancy
	Early mature (EM)	Tree in third quarter of life expectancy
	Mature (M)	Tree in final quarter of life expectancy

	Over mature (OM)	Tree having reached the anticipated maximum height and spread typical for its species and setting and which has entered a period of stasis where physiological processes maintain a functional status quo.
	Veteran tree (V)	Tree that, by recognized criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. NOTE: These characteristics might typically include a large girth, signs of crown retrenchment and hollowing of the stem. Veteran trees may be subject to a tree preservation order (TPO). Clients are responsible for determining whether a TPO is present.
General Observations	To provide information on the structural and/or physiological condition (e.g. the presence of any decay and physical defects), and/or preliminary management recommendations	
Physiological Condition - An assessment of the physiological condition (i.e. health/vitality) of the tree	GOOD FAIR POOR DEAD	Tree in a healthy condition with no significant problems Tree generally in good health with some problems that can be remediated Tree in poor health with significant problems that can't be remediated Tree without sufficient live material to sustain life
Structural Condition - An assessment of the structural/safe condition of the tree	GOOD MODERATE POOR	Tree in a sound condition with no significant defects Tree in a sound condition at present but with defects or with significant defects that can be remediated Tree with significant defects that can't be remediated
Notes related to both physiological and structural condition follow the categorisation in order support	the statement and give greater detail on the true quality and value of the tree	
Preliminary Management Recommendations	These may include further investigations for the presence or extent of decay or climbed inspections, ivy removal or pruning works when access is a nonmoveable aspect etc. (NB this is not intended to be a specification for	

	tree work and further advice maybe required prior to implementation). Trees assessed as being in apparently immediately hazardous condition will be notified to the client separately as soon as practicable	
Estimated remaining contribution (yrs)	An estimate of the remaining life contribution in years that the tree or group of trees is expected to have based on species, condition on the site in its current context	<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
Category grading	Category of tree in accordance with BS5837 2012 Cascade Chart (Source BS5837 2012 p9)	'U' Unsuitable for retention, within the context of the current land user 'A' Trees of high quality with 40yr remaining lifespan 'B' Trees of moderate quality and remaining lifespan of at least 20yrs 'C' Trees of low quality with an estimated remaining lifespan of at least 10 yrs or young trees with a stem diameter below 150mm Categories A-C are further classified as 1 (mainly arboricultural qualities), 2 (mainly landscape qualities), 3 (mainly cultural values, including conservation). For further details refer to Cascade Chart in BS 5837 2012 p. 9

Appendix C – Temporary Protective Fencing Specification

Temporary Protective Fencing Specification

Temporary Protective Fencing Specification

- **Construction Exclusion Zones (CEZs)**, enclosed by **Temporary Protective Fencing**, as detailed below and to be agreed with the Local Planning Authority (LPA), shall:
- Be retained in place throughout the development process, as specified in the 'Temporary Protective Fencing Construction' section below and detailed in BS5837:2012 ;
- Be sited in the area(s) defined by the Root Protection Areas or, if applicable, the CEZ, as detailed on the associated Tree Plan;
- Be erected prior to any construction, demolition or excavation works and remain in place for the duration of the project;
- Preclude any delivery of site accommodation and/or materials and/or plant machinery;
- Preclude all construction related activity, with the sole exception of specified arboricultural works and any other works to be carried out under supervision that have been agreed by all parties; and
- Preclude the storage of all development related materials and substances including fuels, oils, additives, cement and/or any other deleterious substance. Any incursion into CEZs must be by prior arrangement, following consultation with the LPA.

Temporary Protective Fencing Construction

- Temporary protective fencing panels shall be weldmesh "Heras" panels of at least 2.0 m in height;
- The panels shall butt together and be securely fixed to a scaffold framework, as per 3 to 5 below;
- The scaffold framework shall comprise of upright poles of at least 3.0 m in length driven no less than 0.6 m into the ground at maximum 3.0 m centres with horizontal and diagonal poles fixed to the uprights, as per 4 to 5 below;
- The two horizontal rail poles shall be attached to the uprights at heights of 0.6 and 1.8 m with 3 no. clamps to each joint;
- The diagonal scaffold pole struts be clamped to the top rail of the scaffold framework at a 45° angle and extend back into the CEZ and clamped to a 0.7 m length of scaffold tube that shall be driven no less than 0.5 m into the ground;
- No fixing shall be made to any tree and all possible precautions shall be taken to prevent damage to tree roots when locating posts;
- A 600 mm x 300 mm warning sign reading "TREE PROTECTION AREA KEEP OUT" (see Figure A, below) shall be fixed to every 10 m length of protective fencing; and
- On completion and prior to any demolition or construction works, site preparation, excavation or delivery of plant and materials, the LPA shall inspect and approve the Temporary Protective Fencing.