Dinting Vale Business Park
Glossop

Amdec Industrial Products

TREE SURVEY REPORT

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1.0 Introduction

1.1 Trevor Bridge Associates Ltd (TBA) have been instructed by Amdec Industrial Products to undertake a pre-development arboricultural survey of trees and significant vegetation. The pre-development tree survey should be read in conjunction with the accompanying ***Tree Survey & Root Protection Area drawing*** ref: 5604.01.

1.2 A site visit to the site was carried out in November 2017.

1.3 This pre-development tree survey should be considered the first part of a process in identifying trees that are to be retained and protected. A key part of the pre-development survey is the identifying of Root Protection Areas (RPA's). In Addition to the pre-development survey the following documents may be required to fully support a planning application:

i) An Arboricultural Impact Assessment - This will assess the impact on trees of a proposed development.

ii) An Arboricultural Method Statement - This provides specific details on how a development should proceed in such a manner that avoids damage to trees being retained. It is accompanied with a tree protection plan.

1.4 The following information was provided for reference for the purposes of undertaking this pre-development survey.

- Survey Systems Ltd drawing*: Topographical Survey. Drawing no. SSL:13670C:200:1:1:TOPO. Date: May 2017.*

1.5 This report has been undertaken by Mike Gregory HND Arb. M. arbor A. Mike has extensive experience working as a tree surgeon and has several years experience as a tree officer. He has provided advice and consultancy to the public sector for over 15 years. He is highly experienced in tree and development issues, having provided reports on over 600 development sites.

2.0 Scope and Limitations of the Report

2.1 This report has been prepared to inform the design layout of potential development and be submitted with a planning application.

2.2 Due to the changing nature of trees – and possibly other site circumstances – this report and recommendations are limited to a two year period. Similarly, this report could be invalidated if any alterations are made to the site that could change the conditions as seen at time of inspection.

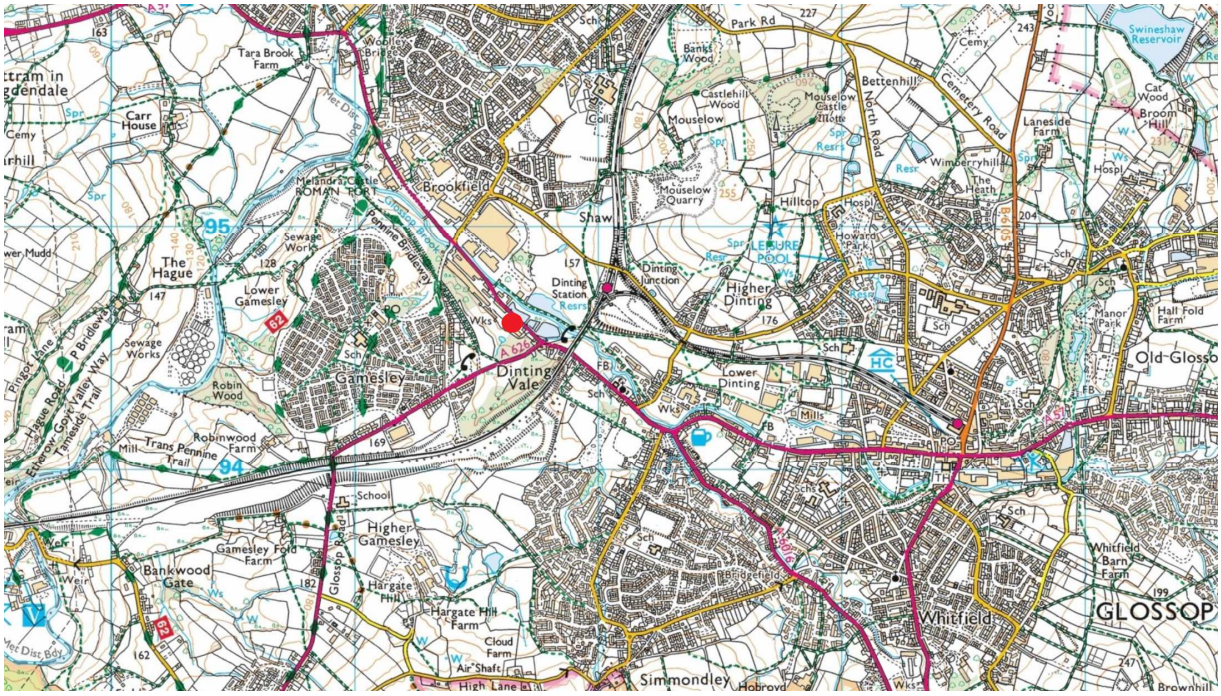
2.3 Under certain circumstances, roots can affect foundations, drains and other underground services. These issues have not been addressed by this report.

2.4 Trees are dynamic structures that can never be guaranteed 100% safe; even those in good condition can suffer occasional damage under only average weather conditions. A lack of recommended work does not imply that a tree will never suffer damage.

3.0 Site Location

3.1 The site comprises a section of the grounds of Dinting Vale Business Park. The majority of trees surveyed are woodland edge trees that are situated within mixed deciduous woodland to the south-west of the business park.

3.2 The location of the site is marked in red circle within the plan extract below:



3.3 The grid reference of the site is SK 01704 94558.

3.4 The full details of the tree cover is included within the tree survey schedule within section 10.0 of this report, and within the accompanying Tree Survey & Root Protection Area drawing.

4.0 Tree Survey Schedule - Methodology

4.1 This survey complies with British Standard 5837:2012 *Trees in relation to design, demolition and Construction - Recommendations*. All significant trees or groups within the site have been inspected, identified and detailed.

4.2 Site. The survey was carried out from ground level and without the use of special diagnostic equipment (unless otherwise stated). Lower-grade material may been treated as numbered groups, for example where in rows or dense groupings.

4.3 Schedule. The following information is given in the schedule:

- **Tree reference No**: A sequential number sequence post-fixed with a T for Trees, G for groups, H for hedges and W for Woodlands.
- **Tree Species**. Common name of Species.
- **Height** (metres). An electronic hypsometer is used to measure tree heights. Tree heights are only measured where it is possible to gain a clear unobstructed view of the tree, otherwise the height is estimated.
- **Trunk diameter** (millimetres). This is a key measurement for calculating the Root Protection Areas of trees. Measurements are taken at 1.5m, height above ground level. If trees are assessed as a group or woodland feature, the trunk diameter of the largest tree within the group or woodland is estimated and used.
- **Crown spread** (metres**):** The maximum lateral spread of the canopy as measured from the cardinal compass points (NESW). Spreads are measured either by pacing or laser where access is available, otherwise estimated.
- **Crown clearance** (metres): The height of the lowest section of canopy measured from cardinal compass points.
- **Age class.** A classification of the age of the tree. In the case of woodlands and groups this is based in the oldest tree.

Y – Young:	Recently planted trees less than ¼ life expectancy.
SM – Semi-Mature:	Established trees less than 1/3rd predicted life expectancy.
EM – Early mature:	Trees between 1/3rd and 2/3rd predicted life expectancy.
M - Mature:	Trees over 2/3rd predicted life expectancy.
V - Veteran:	A tree of significant age (with a large girth) which provides cultural, landscape or ecological value.

- **Physiological condition:** (Good, Fair, Poor, Dead). An assessment of the tree's health and vitality reflecting the tree's potential longevity as well as its capacity for withstanding environmental stresses (such as pests and diseases).
- **Structural Condition:** (Good, Fair, Poor, Dead): A consideration of the structural integrity of the physical structure of the tree.
- **Life Expectancy**: Estimated remaining contribution (years, 0-10 10-20 20-40 40+).
- **Root Protection Area**: As calculated via BS 5837: 2012 (area in square metres and as a radius in metres). This is the basis of the Root Protection Area marked as a circle on the Tree Survey (may have been modified in light of site circumstances). This is generally the minimum position for protective fencing.
- **Retention Category:**
  Trees are categorised using the criteria shown in the table below. The purpose of the categorisation is to apply a non fiscal value to tree stock to allow informed decisions on which trees should be retained or removed within the context of development.

TREES UNSUITABLE FOR RETENTION:			
'U' – [Marked red on plan] **Trees of such a condition that they can not be realistically 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 which will become unviable after the removal of other category U trees (where for what ever reason, the loss of companion shelter can not be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *Note Category U trees can have existing or potential conservation value which might be desirable to preserve*		
TREES TO BE CONSIDERED FOR RETENTION:			
	1. Mainly arboricultural values	**2. Mainly landscape values**	**3. Mainly cultural values, including conservation**
'A' – [Marked green on plan] **Trees of high quality with an estimated life expectancy of at least 40 years**	Trees that are particularly good examples of their species, especially if rare or unusual, or essential components of groups, or of formal or semi-formal arboricultural features (eg the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (eg veteran trees or wood pasture)
'B' – [Marked blue on plan] **Trees of moderate quality with a remaining life expectancy of at least 20 Years**	Trees which may be in the A category but are down graded due to their impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such they are unlikely to be suitable for retention for beyond 40 years; trees lacking the special quality necessary to merit category A designation	Trees that are in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	Trees with clearly identifiable conservation or other cultural benefits
'C' – [Marked grey on plan] **Trees of low quality with an estimated life expectancy of at least 10 years, or young trees with a stem diameter below 150mm**	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them any greater collective landscape value ; and/or trees offering low or only temporary /transient landscape benefits	Trees with no material conservation or other cultural value

- **Observations**: This provides general information regarding the trees, providing details regarding defects, or points of merit.
- **Preliminary Recommendations:** Any management works that should be carried out. Recommendations for management works are only recommended sparingly, generally where there is a significant safety concern, or long term benefit for the tree. Works are considered within the context of the site at the time of survey. Works that are required in relation to new development proposals are considered separately (such as part of a method statement).

5.0 Trees and Construction – General Issues

5.1 Typically, about 80% of roots will be found in the upper half metre of soil and often extending well beyond the canopy spread. The threat to the trees by development comes from:

(a) root severance or fracture
(b) compaction of the soil, preventing gaseous exchange and moisture percolation
(c) possible change to moisture gradients due to surface water run-off or interception
(d) physical damage to low branches and trunk.
(e) Damage from chemical run-off from construction activities

The consequences for the tree of such damage are:

(i) instability, if severe enough
(ii) entry points for pathogenic fungi at wounds / fractures
(iii) loss of vitality due to reduced oxygen, mineral and moisture take-up; all leading to
(iv) root death, and
(iv) a general decline or possible death of the tree.

6.0 Tree Constraints

6.1 Constraints imposed by trees during development, both above and below ground need to be considered within the site layout design.

Protection is afforded to the tree by defining a Root Protection Area (RPA) within which no development activity should take place. The size of the RPA is defined in the British Standard and relates to trunk diameter. The RPA is normally the minimum position for placement of protective fencing.

6.2 Nominally the RPA is represented by a circle around the tree. The area of the RPA may however, subject to the consideration of the arboricultural consultant, and be altered to a polygon in order to reflect the site conditions and requirements. For example, existing hard surfaces and foundations are likely to restrict or limit root growth while good quality soil may promote and extend root growth.

6.3 Root Protection Areas primarily relate to below ground constraints (root protection). Other constrains that must be considered include:

- The current as well as ultimate height and spread of a tree.
- Large trees close to a building, particularly a dwelling, can cause apprehension to owners/occupiers that result in pressure for tree removal or inappropriate pruning. Buildings should be sited allowing for the species height, spread and overall habit.
- Species characteristics; i.e. density of foliage, fruit-fall, susceptibility to honeydew drip, or branch drop. Trees are shedding organisms. The leaves of some species may cause problems with blocking of gullies and gutters. Fruit may cause slippery patches and honeydew drop can affect surfaces (particularly cars). If conflicts may arise detailed design may address such issues, such as non-slip paths, use of car-ports, provision of leaf guards or grilles etc.
- The potential impact on direct and diffuse light of a particular location of land; shading of buildings by trees can be a problem, especially where rooms require natural light, in addition open spaces such as gardens and sitting areas should be designed to meet requirements for direct sunlight (for at least part of the day).
- Infrastructure requirements in relation to trees e.g. easements for underground or above ground apparatus and visibility splays.
- Space for the provision of new planting or landscaping.
- The proposed end use of space within Root Protection Areas.
- The requirement to protect overhanging canopies of trees that overhang or extend beyond Root Protection Areas.

7.0 Structures within the Root Protection Areas of Trees.

7.1 In the development layout design structures should be positioned outside of RPAs. In some exceptional instances there may be an overriding justification for construction within the RPA. In such cases technical solutions may be available to minimise (to an acceptable level) disturbance to the tree/s. Where such technical solutions may be relied upon full details will need to be included within a method statement. Advice must be sought from a suitably qualified arboriculturalist in such matters.

7.2 In some cases it may be unavoidable to place permanent hard surfacing within an RPA (for example the placement of an access driveway or parking area). In such cases the following should apply:

- No excavation of the soil should take place, other than scraping of the turf/vegetation layer
- Any design must avoid compaction, allowing even distribution of weight.
- New hard surfacing should not exceed 20% of any existing unsurfaced ground within the RPA.
- If the proposed surface is likely to require de-icing salt then run-off should be directed away from the RPA.

- Permeable hard surfacing can result in soil moisture saturation for long periods (resulting in root death). Where there is a risk of water-logging a design should incorporate land drainage.

7.3 Appropriate sub-base options for new hard surfacing include three-dimensional cellular confinement systems. Piles, pads or elevated beams can support bridges over RPAs. In all cases full specifications and methodology must be included within a supporting method statement.

8.0 Wildlife Issues and Timing of Operations

8.1 Bats. Under current legislation it is an offence to 'intentionally or recklessly disturb a bat' or 'damage, destroy or block access to the resting place of any bat'. For further details consultation must be made with the Statutory Nature Conservancy Organisation (Natural England, 0300 060 1842, www.naturalengland.org.uk). Where relevant any current ecological surveys for the site will take precedence in this matter.

8.2 Birds. It is an offence to kill, injure or take any wild bird; or take, damage or destroy the nest of any wild bird while it is in use or being built. Therefore work likely to disturb nesting birds must be avoided from late March to August.

8.3 The pruning of some species should avoid specific times. *Prunus* species (eg flowering and fruiting Cherry, Plum, Almond etc) should only be pruned during June – August in order to minimise the risk of infection by Silver Leaf disease. *Acer* (Maples including Sycamore), *Betula* (Birches) and, *Morus* (Mulberry) should not be pruned February – June due to sap bleeding; also *Juglans* (Walnut) should not be pruned from December – June.

9.0 Tree Preservation Orders and Conservation Areas

9.1 Prior to the undertaking of any tree works it is recommended that the local planning authority is contacted to check if trees within the site are subject to TPO's or Conservation Areas.

9.2 Works to protected trees require consent from the local planning authority. In the case of TPO's an application must be made. In the case of conservation areas a notification must be made. TPO applications take up to eight weeks, conservation area notifications take six weeks.

9.3 Certain exemptions apply; for example the removal of deadwood. In the case of dangerous trees 5 days written notice should be given to the local authority (in the cases of immediate danger the work should proceed, but the local authority contacted as soon as possible afterwards).

9.4 Planning consent overrides protected trees, where the works or removal are necessary for development to proceed.

Tree Group Hedge	Common Name	Age Class	Height (m)	No. of Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	> 5 stems	Root Protection Area (Radius, m)	N	E	S	W	N(H)	E(H)	S(H)	W(H)	Physiological Condition	Structural Condition	Life Expectancy	Future Growth Potential	Retention Category	Comments & Observations	Preliminary Work recommendations
1G	Ash and Elm	Early-Mature	15	6						200	4.9	5	7	5	7	5	5	5	5	Good	Fair	20+	Moderate	C2	A Elm with suppressed Ash growing in close proximity. The Elm, the dominant tree of the two, is likley to succmb to Dutch Elm Disease at some time in the future.	No work required.
2T	Sycamore	Mature	16	2	360	370					6.3	8	9	4	3	8	5	4	4	Good	Fair	40+	Moderate	B2	Slightly suppressed form.	No work required.
3T	Ash	Mature	34	1	1170						14.1	11	11	11	8	9	8	11	11	Good	Fair	40+	Low	A3	Very large dominant specimen of Ash. The canopy has been subject to previous selective branch reduction to lessen end weight.	No work required.
4T	Elm	Early-Mature	11	1	250						3	7	3	0	7	5	4		7	Good	Fair	30+	Moderate	C3	Suppressed form. It is likely that this tree will succumb to Dutch Elm Disease in the future.	No work required.
5T	Sycamore	Mature	18	1	630						7.5	5	8	8	5	8	7	7	3	Good	Fair	40+	Moderate	B2	Slightly asymmetric canopy form.	No work required.
6T	Sycamore	Mature	19	1	510						6	7	3	4	3	5	11	8	5	Good	Fair	40+	Moderate	B2	Slightly asymmetric canopy form.	No work required.
7T	Sycamore	Early-Mature	14	1	230						2.7	3	2	2	3	2	3	3	2	Good	Good	40+	High	C1		No work required.
8T	Ash	Mature	27	1	760						9	4	4	11	12	13	12	11	10	Good	Fair	40+	Low	B2	Large prominent specimen that has developed a slight lean due to suppression.	No work required.
9T	Elm	Early-Mature	9	1	240						3	5	0	3	6	4		5	3	Good	Fair	20+	Moderate	C3	Suppressed form. This tree is likley to succumb to Dutch Elm Disease at some time in the future.	No work required.
10T	Elm	Early-Mature	10	1	270						3.3	4	0	2	6	2		8	1	Good	Fair	10+	Moderate	C3	Suppressed form. Longitudinal bark wound at Some 1.5m to south.	No work required.

Tree Group Hedge	Common Name	Age Class	Height (m)	No. of Stems	Stem 1	Stem 2	Stem 3	Stem 4	Stem 5	> 5 stems	Root Protection Area (Radius, m)	N	E	S	W	N(H)	E(H)	S(H)	W(H)	Physiological Condition	Structural Condition	Life Expectancy	Future Growth Potential	Retention Category	Comments & Observations	Preliminary Work recommendations
11T	Elm	Early-Mature	11	1	290						3.6	7	0	4	7	2		8	5	Good	Fair	<10	Moderate	U	Suppressed form. Bark wound and dead bark on lower trunk to east with some ingress of Honey Fungus. This tree is likely to succumb to Dutch Elm Disease at some time in the future.	Fell to near ground level.
12T	Elm	Early-Mature	14	1	310						3.6	7	3	7	8	7	10	6	6	Good	Fair	10+	Moderate	C3	Slightly asymmertric form. This tree is likley to succumb to Dutch Elm Disease at some time in the future,	No work required.
13T	Ash	Mature	23	1	820						9.9	9	5	7	8	9	14	14	9	Good	Fair	20+	Low	B2	Large prominent specimen. Previous branch fracture at some 8m to north.	No work required.
14T	Sycamore	Mature	17	1	500						6	9	5	4	5	2	7	8	2	Good	Fair	40+	Moderate	B2		No work required.
15T	Sycamore	Mature	17T	1	410						4.8	3	4	6	3	3	5	3	5	Fair/Poor	Fair	20+	Moderate	C3	Ivy cover on trunk. Some dieback in upper canopy. Possibly the result of former squirrel damage.	No work required.
16T	Sycamore	Mature	17T	1	530						6.3	5	4	5	4	5	8	6	4	Good	Good	40+	Moderate	B2	Ivy cover on trunk.	No work required.
17T	Ash	Veteran	32	1	1440						15	12	11	12	13	16	5	6	8	Fair	Fair/Poor	30+	Low	A3	High value due to the unusually large trunk diameter. Potential for the tree to become a valuble veteran in the future, though longer term management of the tree would be required such as canopy reduction.	No work required at present.
18G	3x Sycamore	Early-Mature	15	1	200						2.4									Fair	Fair	40+	High	U	Remove to prevent future damage to retaining wall and provide increased light to encourage re-generation of lower branches within neighbouring veteran Ash (17T).	Fell to near ground level.