

DOCKFIELD ROAD, SHIPLEY

Arboricultural Impact Assessment

JSL3873

Dockfield Road, Shipley
1

4 January 2021

REPORT
Document status

Version	Purpose of document	Authored by	Reviewed by	Approved by	Review date
1	For Planning	BW	TF	BW	04/01/21

Approval for issue

Brian Wallis



4 January 2021

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Prepared by:

RPS

Brian Wallis

Technical Director - Arboriculture

Matlock, Derbyshire

T +44 1908 302690

E brian.wallis@rpsgroup.com

Prepared for:

Chris Wright Road Planing Limited

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E

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1 INTRODUCTION

RPS were instructed in November 2020, by Chris Wright Road Planing Limited, to undertake a Tree Survey and prepare an Arboricultural Impact Assessment in relation to the proposed development of land off Dockfield Road, Shipley for commercial buildings and yards.

The purpose of the report is to:

- Record the current condition of the trees found on the site and categorise them using criteria outlined in BS5837 - Trees in Relation to Design, Demolition and Construction- Recommendations 2012.
- Provide a Tree Constraints Plan (Figure 700) that identifies any constraints to works presented by the trees to include root protection areas for the trees as described in BS5837 - Trees in Relation to Design, Demolition and Construction.
- Provide guidance detailing arboricultural constraints to works and factors to be considered during the proposed works at the hospital.
- Specify measures for the protection of trees throughout the works and identify any necessary tree removals and additional tree works required to achieve the proposals.
- Provide additional arboricultural information and advice in relation to the protection of trees throughout the works on the site, including a proposed Tree Protection Plan (Figure 710).

The survey and assessment was undertaken by Brian Wallis, Technical Director, a Chartered Forester, Chartered Environmentalist, Fellow of the Arboricultural Association and holder of the Professional Diploma in Arboriculture, Member of the Landscape Institute, of RPS Group PLC.

2 SITE INFORMATION

The site under consideration is land at Dockfield Road, Shipley, West Yorkshire BD17 7AD. The areas under consideration are two sections of brownfield land north and south of Dockfield Road, with an underpass link between the two. The site is centred on Ordnance Survey Grid Reference SE 15157 37878.

The trees surveyed are found to both sides of the site and almost exclusively to the site boundaries and mostly adjacent to water features (River Aire and the Leeds and Liverpool Canal). The sites are accessed off Dockfield Road.

The site has no building located within the redline site boundaries currently and extensive demolition works have taken place. Much of the site was covered in base material with areas of ground disturbance.

Tree positions were placed by the surveyor using a plan supplied by the client. Where tree positions were not shown on the plan, so they have been plotted by eye and by measurements off known points.

Only off- site trees that could possibly have root protection areas (RPA) extending into the works area were considered within the survey.

A Tree Preservation Order (TPO) check was made with the City of Bradford Metropolitan District Council and no trees are cover by a TPO within the site being considered and it is not located within a Conservation Area.

The following plans were used within the production of this report:

- 06 -Proposed Full Site Plan. (pdf/dwg)
- 4934JF-2D – Topographical Site Plan. (dwg)

3 TREE QUALITY ASSESSMENT

Retention Values

All trees inspected were categorised using BS5837:2012 and the attached Tree Constraints Plan (Figure 700) shows tree positions, numbers and retention categories. Trees have been recorded as individuals and as groups.

Trees have been surveyed as groups where they can be considered as forming a group as they form cohesive features either aerodynamically (i.e. they form a discrete group feature providing companion), culturally (i.e. they are composed of trees of a similar size, age and species subject to the same management) or visually (i.e. where the value of the trees within the group is as a whole rather than individually).

Where trees have been surveyed as groups the details recorded with respect to condition and retention value intend to represent an average tree within the group; however, on occasion, it must be noted that there will be exceptions within any group that do not conform to the typical character of that group.

The initial stage of a tree survey in accordance to BS5837:2012 looks at the trees on the site in terms of life expectancy and condition. Trees are then categorised according to their retention value.

Category A trees are those that have been assessed as being of a **high** quality and value; significant amendments to the proposed scheme should be considered in preference to their removal. These trees are shown in Green on the Tree Constraints Plan.

Category B trees are those that have been assessed as being of a **moderate** quality and value; amendments to the proposed scheme should be considered in preference to their removal. These trees are shown in Blue on the Tree Constraints Plan.

Category C trees are those that have been assessed as being of a **low** quality and value; the loss of these specimens should not be considered as a constraint to development. These trees are shown in Grey on the Tree Constraints Plan

Category U trees are those that have been assessed as having **no** retention value; these trees should not be a material consideration in the planning process. These trees are shown in Red on the Tree Constraints Plan.

A total of nineteen individual trees recorded during the survey. Of the individual trees, one was category B, fourteen category C and four category U.

In addition six groups were recorded of which five were category C and one category U.

Physiological Condition

Trees considered to be in a good physiological condition are those with crown density and shoot extension growth levels within the expected ranges for their age and species. Generally, these trees, subject to being of a suitable structural condition, can be expected to make a lasting contribution to the site. Additionally, trees within the good condition class are likely to tolerate changes within their growing environment that occur as a result of development; as such their successful retention will be easier to achieve.

Trees considered to be in a fair physiological condition are those specimens exhibiting lower shoot extension growth and reduced crown density than would typically be expected. These specimens have a lower life expectancy than those within the good condition class and will not tolerate significant changes as a result of development as well as those in the good condition class.

Trees considered to be in a poor physiological condition are those exhibiting crown and shoot dieback and significantly reduced crown density. Trees of a poor physiological condition are not likely to make a lasting contribution to the site and whilst their retention in the short term may be beneficial such retention will only be achievable if the trees are fully protected throughout development as they will not tolerate changes in their growing environment.

Thirteen individual trees were considered to be of a fair and six poor physiological condition. One group was considered to be of good condition and five fair.

Structural Condition

The trees had variations in their structural condition, but these were largely consistent with expectations for the age, management and species of the tree.

The trees were found exclusively to the site boundary of the site. It would be fair to assume that they were nearly all self-set individuals that have colonised the river/canal banks. Little tree management has been undertaken and where ivy has been allowed to encroach on to the main stem and crown this has led to decline and branch death.

The quality of the trees is generally poor with multi stemmed for and in the older specimens of willow signs of collapse and general decline. The trees form a green boundary to the site but have little long term value particularly with the life expectancy associated with species such as ash and willow.

Besides the minor defect of small amounts of deadwood, there were a few trees with some significant structural issues. These were all associated with decay in stem unions and general decline.

Age Class Distribution

Trees assessed as being young (Y) in age are those considered to be less than 10 years old. These trees can generally be considered to have the potential for rapid and significant future growth. Whilst these specimens are not likely to make a substantial contribution to the landscape character of the site at present they will, if retained, provide succession for the eventual removal of mature or over-mature trees as a result of declining physiological or structural condition.

Trees assessed as being semi-mature (SM) are those of more than 10 years old but having attained less than 40% of the maximum lifespan expected for the species. These trees will generally make some contribution to the current landscape character and appearance of the site and their retention will provide more immediate succession of mature trees. As with young trees these specimens will have the potential for rapid and significant future growth.

Early-mature trees (EM) are those considered to have reached between 40% and 70% of their ultimate life expectancy. These trees are generally not considered to have a significant potential for future growth though they will increase in size at a slower rate than young and semi-mature trees.

Mature trees (M) are those considered to have reached between 70% and 100% of their species life expectancy. These trees will have little future growth potential and they have generally reached their maximum expected size for the location. These trees will generally make the highest contribution to the landscape character of the site at this time; however, a tree stock over dominated by mature trees will require careful management to ensure that continuation of canopy cover can be achieved.

Over-mature trees (OM) are those considered to have existed for longer than typical of their species. They do not have the potential to increase in size and may in fact reduce in size as their crowns begin to break up. These trees will often make a significant contribution to the landscape character of the site and are likely to have ecological value. However, the retention of these trees within new development must be carefully planned as they are approaching the end of their useful life expectancy and they will often have structural defects. Where over-mature trees are to be retained in new development it is essential that access is available for their eventual removal.

Veteran trees (V) are those that show features of biological, cultural or aesthetic value that are characteristic of an individual surviving beyond the typical age range for the species. These trees have negligible potential to increase in size. Veteran trees are usually of a high ecological value and they will require sensitive management where they are to be retained in new development. As such it is again essential that they are located in areas where access is available to undertake management operations and where there is a reduced risk of harm occurring from failure of the trees.

The individual trees surveyed were considered to be four semi-mature, eight early-mature, six mature and one over-mature for their species and location. These trees will not generally respond well to changes in their growing environment that may occur as a result of development but is dependent on vigour and condition. The groups were one young and five semi-mature, these trees should be able to adapt to changes locally in their environment.

Species Distribution

The species recorded during the survey are listed in Appendix D of this report.

4 DEMOLITION/CONSTRUCTION REQUIREMENTS

The development of the site at Dockfield Road, Shipley will not require the removal of any further existing structures as most these have been removed prior to the survey, Sections of hard surfaces to the north and south of the site have been in the main retained and these areas are likely to be used during the development of the site. The tree protection measure will need to be installed prior to and further hard surface removal.

It is intended to carry out development within parts of the site, providing workshop buildings and general yard facilities.

Access will be required for equipment to:

- Removal of some existing hard surfacing
- Installation/upgrading of services and utilities
- Foundation construction will be required
- Access for scaffolding to be erected
- Installation of boundary structures
- Installation of new vehicle/pedestrian footways and access points

The construction process will need to be monitored during its progress and this Arboricultural Method Statement should be used as the document provided to guide the construction process.

During the development of the site tree protection will need to be considered and this will form part of this Arboricultural Method Statement. Currently no tree pruning has been assessed as being required for the development, or to install tree protection fencing, if however, required this should be provided following assessed by the site manager and discussed with a landscape professional before any works are undertaken. All tree works should be completed prior to start of construction work.

5 ARBORICULTURAL IMPACT ASSESSMENT

Introduction

Trees have finite energy reserves, developed each year throughout the growing season, which are utilised for biological processes such as growth and defence against pests or diseases throughout the following year.

Any development in proximity to trees has the potential to cause harm to those trees unless control measures are identified and acted upon; as such it is essential to consider the relationship between the proposed development and the retained trees to identify what precautions are necessary, proportionate and appropriate.

Development has the potential to impact upon the above ground and below ground parts of trees.

Whilst some damage that can occur, such as physical damage to the trees stems and branches from machinery movements, is clearly visible the impact from other aspects of work common on development sites which can have a significant effect upon the continued health of trees are not always immediately evident.

Damage that is not immediately evident, but which can cause long term harm to retained trees includes things such as damage to the soil structure by compaction causing root damage and levels changes altering the water table and affecting moisture availability.

To minimise the potential for harm to occur to retained trees all works should be carried out with regard to the Tree Protection Measures detailed within this report.

In general, it can be seen that, by adopting appropriate methods of working, precautionary and protective measures, significant harm to retained trees can be avoided.

In particular the establishment of a Construction Exclusion Zone (CEZ) by erection of Tree Protection Fencing will minimise the potential for harm to occur to retained trees.

Brief Description of Proposed Development

It is intended to carry out development within the site, providing a yard and depot, including workshop buildings.

Tree Removal

No further trees will require removal due to development. However, four individuals and one group surveyed were considered to be of no retention value due to their condition, these trees should be removed within the next 10 years with, or without development.

Whilst the loss of any tree is unfortunate, this will be compensated by landscape planting within the site providing greater species diversity and improving the age structure locally.

Arboricultural Implications

To ensure that the trees selected for retention can be successfully integrated within the proposed development the following factors have been considered or require consideration.

Root Protection Areas

Root Protection Areas for each tree surveyed have been determined in accordance with BS5837:2012 Section 4.6 Root protection area (RPA) in the Standard and a schedule of Root Protection Areas is attached to this report as Table 2.

Initial Root Protection Areas for the trees were plotted onto the Tree Constraints Plan - (Figure 700) and has been used to produce all relevant tree plans in this statement.

Areas where retained trees are shown have been identified and the RPA information used in the design of the tree protection.

Existing Canopy Spreads

Where the Root Protection Areas for retained trees do not extend to the edge of existing canopy spreads it is possible that those parts of the trees extending beyond the RPA fencing may sustain damage during construction.

To minimise the potential for harm to occur to retained vegetation a Construction Exclusion Zone (CEZ) will be created, by the erection of protective fencing as detailed on the Tree Protection Plan (Figure 710).

Any canopy pruning should comply with the specification contained in this report.

Level Changes

The effect of level changes across the site would need to be assessed prior to the start of any works. This will prevent harm occurring to retained trees due to level changes. When this occurs within the Construction Exclusion Zone (CEZ) works should be identified and discussed with the Local Authority Tree Officer prior to commencement.

At this time no such changes have been indicated or appear to be notable in the areas of the works.

Building Foundations

Any structures built on the site should comply with the foundation depths for buildings near or adjacent to trees and allow for the potential size of the trees at maturity. The soil types throughout the site will need investigating and appropriate measures taken.

Appropriate foundation designs should be adopted.

If trees are removed across the site, the potential for soil heave should be assessed and foundations designed accordingly. (NHBC Chapter 4.2, 2007)

Service Runs

All service runs, utilities and similar infrastructure should take note of trees and allow for working methods that will minimise damage to trees by referring to documents such as NJUG Volume 4 - Guidelines for the planning, installation and maintenance of utility services in proximity to trees. (National Joint Utilities Group 2007).

Due to the nature of the site and layout no such issues are currently envisaged.

Drainage

Drainage throughout the development will need to be assessed so that it is clear that no additional drainage pipes are located in the RPA of retained trees.

6 PRE-DEVELOPMENT WORKS

Predevelopment Tree Pruning Works

Any specified tree pruning works should be undertaken prior to commencement of the proposed development. Pruning requirements should be identified at the pre-start meeting with the site manager and the consultant arboriculturist.

Standard of Work

All tree works should be carried out in accordance with BS3998:2010 Tree Work - Recommendations and latest arboricultural best practice.

All tree work should be carried out by suitably qualified, competent and insured arboricultural contractors.

All green and woody waste generated by the tree works shall be removed from site and disposed of in an environmentally sustainable manner.

Timing of Works

All tree works shall be completed prior to commencement of any construction works on the site.

All works shall be timed to have regard to the phenological cycles of protected species that are associated with trees; notably birds and bats.

Tree Protection Barriers

All tree protection fencing should be erected to its final position during the pre-development periods of construction. Protective fencing shall be erected as shown on the Tree Protection Plans (Figure 710). To ensure successful tree protection during this process all operatives should be briefed on the need to pay regard the existing trees and all operations adjacent to trees be properly supervised. This will ensure the works will not affect adversely the trees.

Once the protective barriers are in place they must remain in situ throughout the course of the development until the completion of all building works.

Copies of the Tree Protection Plans shall be placed in the site office for reference by all site staff.

The protective fencing barrier is to be constructed in accordance with the specification detailed at Appendix E.

Signs detailing the purpose of the protective fencing shall be attached to the fencing at 10m intervals. Such signs should be weatherproof and shall be substantially in the form of the specimen provided at Appendix F. Signs must be replaced as necessary should they be removed or become illegible.

Following erection of the protective fencing and prior to commencement of the development it is recommended that an inspection of the site, by either the Council's Tree Officer or the Arboricultural Consultant, is arranged to confirm fencing has been installed in accordance with the Tree Protection Plans and any relevant conditions that may be attached to a grant of planning consent for the development.

7 CONSTRUCTION WORKS

Construction Exclusion Zone

The Construction Exclusion Zone (CEZ) as defined by the protective fence line shall be regarded as sacrosanct, and the protective fencing shall not be moved or taken down at any time.

Within the Construction Exclusion Zone there must be No mechanical digging or scraping, No alteration to existing ground levels including soil stripping, No earthworks, No handling or discharge of any chemical substance, concrete washings or of any fuels.

Furthermore, vehicular or pedestrian access and the storage of any materials is prohibited within the Construction Exclusion Zone.

Additionally, no materials that may contaminate the soil such as concrete mixings, diesel oil and vehicle washings shall be discharged within 10m of the stem of any tree and no fires shall be lit within 10m of the maximum extent of a trees crown.

Site Compounds and Materials Stores

Activities related to the establishment of a temporary site compound have the potential to impact upon retained trees by various means. In particular the storage and mixing of chemicals and materials such as concrete can have a damaging effect on tree health if precautions are not taken.

To prevent harm occurring to trees provision for materials storage, site offices, deliveries and other related activities should be made available in areas away from retained trees.

The offices, parking of site and contractor vehicles, along with secure storage will be provided in various areas away from retained trees and these areas will be directly controlled by the site manager who will seek advice from the site landscape manager before allocating the area for these purposes.

Monitoring

Following erection of the protective fencing and prior to commencement of the construction phase an inspection of the site, by either the Council's Tree Officer or the Arboricultural Consultant, should be arranged to confirm fencing has been installed in accordance with the Tree Protection Plan (Figure 710) and any relevant conditions that may be attached to a grant of planning consent for the development.

Further monitoring visits shall be carried out following implementation of the works on site, ideally on at least a monthly basis.

It is envisaged that following a period of four successive inspections finding no non-compliances that the frequency of inspections can be reduced to a bi- monthly basis.

Reporting

The Client Site Manager will be responsible for providing copies of the tree protection inspection reports to the Council if required and for notifying the Council of any issues with the trees should they occur.

During the construction phase of the development the Site Manager will be responsible for liaising with the Council Tree Officer on all arboricultural issues.

Should any arboricultural issues become apparent during the works the site manager should immediately contact the appointed Arboricultural Consultant or the Council's Tree Officer for advice upon how to proceed.

8 CONCLUSIONS

A tree survey and arboricultural assessment has been carried out at brownfield sites off Dockfield Road, Shipley, West Yorkshire to consider the impacts of the proposed development of the sites.

Following the survey, no trees have been identified as requiring removal to achieve the proposed development as illustrated on the Proposed Development Plan made available. Four trees were identified at the time of the survey as Category U within the survey area and these trees are of no retention value and would die or be removed within the next ten years with or without development.

Whilst any loss of trees is unfortunate it should be compensated for by landscape planting within the site providing greater species diversity and improving the age range structure.

Tree Protection Plan (Figure 710) have been produced to provide guidance on the protection of trees that will be required during the development and to indicate where tree protection fencing should be located to protect the retained trees and to create construction exclusion zones.

Guidelines contained within BS5837:2012 Trees in Relation to Design, Demolition and Construction should be followed when dealing with trees in these situations. Working methods and specifications should be followed to limit potential damage to trees throughout the works proposed.

If any arboricultural issues relating from works being carried out occurs, then they should be reported to the main contractor immediately.

Tables

Table 1: Tree Survey Data

Key to Inspection Report Form

Species	Genus and variety
Height	Measured Clinometer Reading or Estimated Height in Metres
Girth (dbh @ 1.5m)	Diameter measured in cms, or estimated, Where multi stemmed below 1.5m the diameter is taken as that just above the root flare
Spread (m)	Canopy height estimated in metres above ground level
Canopy height (m)	Crown Spread, radius estimated in metres
Physiological Condition	Good, Fair, Poor, Dead
Age Class	Y – Young MA – Maturing (Middle Aged) M – Mature OM - Overmature V – Veteran
Useful Life Expectancy (years)	10, 10-20, 20-40, 40+
BS Categorization	See Cascade Appendices 2

Table 1: Tree Data Schedule

Tree No.	Species	Diameter (mm)*	Height	Crown Spread				Crown Height	First Branch Direction	Branch Height above Ground	Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
				N	S	E	W								
1	Acer pseudoplatanus	280	8	3.0	2.5	2.0	3.0	0.5	West	0.0	SM	Fair	10-20	Included main stem union.Pruning wounds to stem.Deadwood in the crown of moderate extent.Crossing branches in crown.General poor form to tree.Located off site.Not plotted on land survey plan. Previous stem removal at base.	C2
2	Salix alba	390	9	4.0	2.5	3.0	3.5	0.0		0.0	EM	Fair	10-20	Included main stem union.Pruning wounds to crown.Multi stemmed stem formed at 0.0 metres.Deadwood in the crown of minor extent.Crossing branches in crown.Included branch union in the crown.Restricted inspection due to access.Located off site.Not plotted on land survey plan.Tree has no long term potential.	C2
3	Acer pseudoplatanus	250	8	1.5	2.5	2.5	3.0	0.5	West	0.0	SM	Fair	10-20	Included main stem union.Deadwood in the crown of minor extent.Crossing branches in crown.Restricted inspection due to access.Not plotted on land survey plan.	C1
4	Salix alba	360	7	3.5	2.5	3.0	3.5	0.0		0.0	EM	Fair	10-20	Included main stem union.Pruning wounds to crown.Multi stemmed stem formed at 0.0 metres.Deadwood in the crown of minor extent.Crossing branches in crown.Included branch union in the crown.Restricted inspection due to access.Not plotted on land survey plan.Tree has no long term potential.	C2
5	Fraxinus excelsior	690	9	4.0	3.5	4.5	5.0	0.0	East	2.0	EM	Fair	10-20	Included main stem union.Deadwood in the crown of moderate extent.Crossing branches in crown.Previous branch failures noted.Restricted inspection due to access.General poor form to tree.	C2
6	Fraxinus excelsior	390	8	4.0	2.5	3.0	2.0	0.5	East	2.0	EM	Fair	10-20	Included main stem union.Trifurcated stem formed at 0.0 metres.Deadwood in the crown of moderate extent.Crossing branches in crown.Previous branch failures noted.Restricted inspection due to access.General poor form to tree.Tree has no long term potential.	C2
7	Salix caprea	450	5	2.0	2.0	3.0	2.0	0.0		0.0	EM	Poor	10-20	Included main stem union.Multi stemmed stem formed at 0.0 metres.Deadwood in the crown of moderate extent.Crossing branches in crown.Previous branch failures noted.Restricted inspection due to access.General poor form to tree.Tree has no long term potential.	C2
8	Acer pseudoplatanus	200	7	2.0	1.0	2.5	1.5	1.0	NW	2.0	SM	Fair	10-20	Deadwood in the crown of moderate extent.Restricted inspection due to access.Grey Squirrel damage noted to tree.Not plotted on land survey plan.Tree has no long term potential.	C2
9	Betula pendula	450	13	2.0	2.0	2.5	3.0	1.0	South	0.5	M	Fair	20-40	Deadwood in the crown of minor extent.Restricted inspection due to access. Growing in bank .	B2
10	Betula pendula	350	8	3.0	0.5	2.5	2.5	0.0	North	2.0	M	Fair	10-20	Tree is leaning at a 20angle in a Northdirection.Asymmetric formed crown.Heavily suppressed crown.Restricted inspection due to access. Growing in bank .	C2

* Where the tree is multi-stemmed the conventions within BS5837:2012 are applied

Tree No.	Species	Diameter (mm)*	Height	Crown Spread				Crown Height	First Branch Direction	Branch Height above Ground	Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
				N	S	E	W								
11	Salix caprea	660	5	3.5	2.0	4.0	3.0	0.0	North	0.0	OM	Poor	<10	Included main stem union.Multi stemmed stem formed at 0.0 metres.Deadwood in the crown of moderate extent.Crossing branches in crown.Previous branch failures noted.Restricted inspection due to access.General poor form to tree.Tree has no long term potential.	U
12	Acer pseudoplatanus	730	10	3.0	3.0	5.0	4.0	0.0	North	0.0	EM	Fair	10-20	Growing off old stump.Included main stem union.Multi stemmed stem formed at 1.0 metres.Deadwood in the crown of moderate extent.Crossing branches in crown.Previous branch failures noted.Restricted inspection due to access.Compaction around base of tree.Building/structure located in RPA.Tree has no long term potential. Growing on steep bank, decay formed at base / stump.	C1
13	Salix caprea	600	9	6.0	2.5	2.5	6.0	3.0	North	2.5	M	Poor	<10	Included main stem union.Splits and cracks tostem.Multi stemmed stem formed at 2.5 metres.Deadwood in the crown of moderate extent.Crossing branches in crown.Previous branch failures noted.General poor form to tree.Tree has no long term potential. Decay formed in wounds around base.	U
14	Salix caprea	720	12	6.0	2.5	2.5	6.0	0.0	North	0.0	M	Poor	<10	Splits and cracks tostem.Asymmetric formed crown.Multi stemmed stem formed at 0.5 metres.Deadwood in the crown of moderate extent.Previous branch failures noted.Included branch union in the crown.Fused limb/branches.Tree has no long term potential. Decay formed in wounds around base.	U
15	Salix caprea	310	11	1.0	2.5	2.0	2.5	3.0	South	1.5	EM	Poor	<10	Signs of root plate instability.Splits and cracks tostem.Asymmetric formed crown.Deadwood in the crown of moderate extent.Previous branch failures noted.Tree has no long term potential. Decay formed in wounds around base. exposed root plate.	U
16	Betula pendula	260	12	3.0	3.0	3.0	2.0	2.0	East	2.5	M	Fair	10-20	Deadwood in the crown of minor extent.Building/structure located in RPA. Swept stem.	C2
17	Salix caprea	500	8	3.5	3.0	3.0	3.5	0.0	South	0.0	M	Fair	10-20	Included main stem union.Multi stemmed stem formed at 0.0 metres.Deadwood in the crown of minor extent.Restricted inspection due to access.Compaction around base of tree.Tree has no long term potential.	C2
18	Acer pseudoplatanus	200	9	1.0	2.5	2.5	1.0	1.0	South	1.5	SM	Poor	10-20	Stem wounds.Stem cavity of moderateextent.Asymmetric formed crown.Deadwood in the crown of minor extent.Crossing branches in crown.Grey Squirrel damage noted to tree.Not plotted on land survey plan.	C2
19	Salix caprea	500	6	3.5	2.5	3.0	3.5	0.0	West	0.0	EM	Fair	10-20	Multi stemmed stem formed at 0.0 metres.Deadwood in the crown of minor extent.Crossing branches in crown.Previous branch failures noted.Restricted inspection due to access.Compaction around base of tree.Building/structure located in RPA.Not plotted on land survey plan.	C2

* Where the tree is multi-stemmed the conventions within BS5837:2012 are applied



Table 1: Group Data Schedule

Group No.	Species	Min/Max Diameter (mm)		Average Height (m)	Average Crown Spread	Ave. Crown Height	Max. Age Class	Vigour	Life Expectancy	Structural Condition/Comments	BS5837 Category
G1	Acer pseudoplatanus Fraxinus excelsior	5	15	5	1.5	0.5	SM	Fair	10-20	Tree not plotted on topographical survey. Group is of no long term potential. Restricted inspection due to no access. Self set trees mostly ash,	C2
G2	Acer pseudoplatanus	10	15	6	2.5	0.5	SM	Fair	<10	Included stem unions present. Deadwood present of minor extent,Squirrel damage, Group is of no long term potential. Recent level change adjacent to trees.	U
G3	Acer pseudoplatanus Fraxinus excelsior	15	20	7	2.5	1	SM	Fair	10-20	Deadwood present of minor extent,Previous branch failure, Restricted inspection due to access.Group of general poor form, On river bank, self set suppressed by adjacent ash trees.	C2
G4	Acer pseudoplatanus	15	20	8	2.5	1	SM	Fair	10-20	Deadwood present of minor extent,Squirrel damage, Group is of no long term potential. Restricted inspection due to no access.Group of general poor form, Self set.	C2
G5	Acer pseudoplatanus	10	20	9	2.5	1.5	SM	Fair	20-40	Building within root area. Deadwood present of minor extent,Squirrel damage, Tree not plotted on topographical survey. Self set trees around pipe.	C2
G6	Betula pendula Buddleia sp.	5	10	5	1.5	0.5	Y	Good	20-40	Off site tree group. Tree not plotted on topographical survey.	C2

Table 1: Woody Scrub / Shrubs / Hedge / Saplings

Section No.	Species	Height (m)	Comments
S1	Salix caprea	4.5	Multi stemmed.
S2	Salix caprea Acer pseudoplatanus	Quercus robur 4.5	Multi stemmed form, on bank.

Table 2: Root Protection Areas

Table 2: Tree Root Protection Areas

Tree No.	Species	BS5837 Category	RPA Radius (m)	RPA Area (m2)	RPA Square Side Length (m)
T1	Acer pseudoplatanus	C2	2.8	24.6	5
T2	Salix alba	C2	3.9	47.8	6.9
T3	Acer pseudoplatanus	C1	2.5	19.6	4.4
T4	Salix alba	C2	3.6	40.7	6.4
T5	Fraxinus excelsior	C2	6.9	149.6	12.2
T6	Fraxinus excelsior	C2	3.9	47.8	6.9
T7	Salix caprea	C2	4.5	63.6	8
T8	Acer pseudoplatanus	C2	2.4	18.1	4.3
T9	Betula pendula	B2	5.4	91.6	9.6
T10	Betula pendula	C2	4.2	55.4	7.4
T12	Acer pseudoplatanus	C1	7.3	167.4	12.9
T16	Betula pendula	C2	3.12	30.6	5.5
T17	Salix caprea	C2	5	78.5	8.9
T18	Acer pseudoplatanus	C2	2.4	18.1	4.3
T19	Salix caprea	C2	5	78.5	8.9

Table 2: Tree Root Protection Areas - Groups


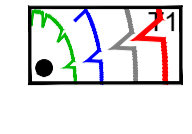
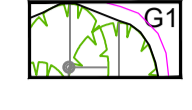
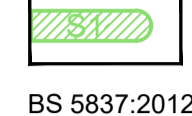




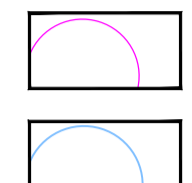
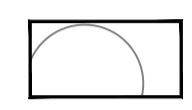
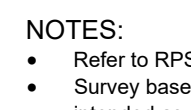
Group No.	Species	BS5837 Category	RPA Radius (m)
G1	Acer pseudoplatanus Fraxinus excelsior	C2	1.8
G2	Acer pseudoplatanus	U	1.8
G3	Acer pseudoplatanus Fraxinus excelsior	C2	2.4
G4	Acer pseudoplatanus	C2	2.4
G5	Acer pseudoplatanus	C2	2.4
G6	Betula pendula Buddleia sp.	C2	1.2

Figures

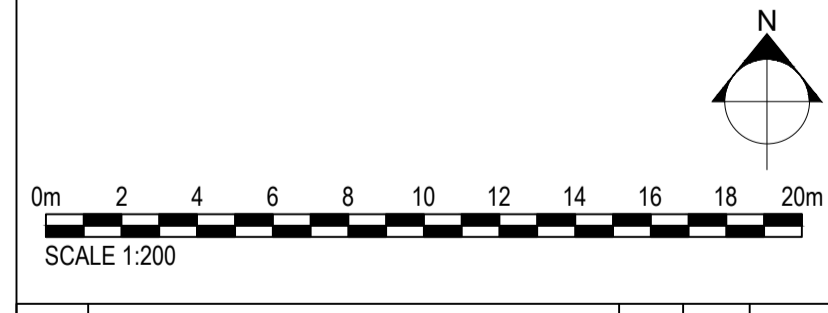
Figure 700: Tree Constraints Plan

Figure 710: Tree Protection Plan

Key

-  Site boundary.
-  Tree with numbered reference. Canopy spread and BS5837:2012 tree quality category as shown below.
-  Vegetation group with numbered reference. Average canopy extent and BS5837:2012 tree quality category as shown below.
-  Scrub/Hedge/Shrub/Saplings with numbered reference.
- BS 5837:2012 Tree Quality Categories - Table 1
 -  Category A - High quality
 -  Category B - Moderate quality
 -  Category C - Low quality
 -  Category U - Unsuitable for retention
-  Root protection area (RPA) calculated in accordance with Section 4.6 - BS5837:2012
-  Maximum Canopy Spread Estimated as a Displacement of Current Canopy
-  Approximate shade cast by tree

NOTES:
 • Refer to RPS Tree Schedule for further details.
 • Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
 • Plan produced in accordance with recommendations set out in BS 5837:2012 - "Trees in Relation to design, demolition and construction".
 • Due to the legal protection afforded to breeding birds, vegetation removal should not take place during the bird nesting period, generally, although not restricted to, March - August inclusive.
 • Survey carried out using Topographical Survey information provided by the Client (Dec 2020).



Rev	Description	By	CR	Date



Lakebury House, Hittingbury Road, Chandlers Ford, Hampshire SO53 5SS
 T: 02380 810 440 E: rps@rpsgroup.com

Client **Chris Wright Road Planning Limited**

Project **Dockfield Road, Shiple**

Title **TREE CONSTRAINTS PLAN**

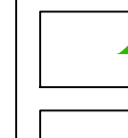


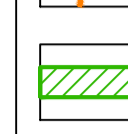
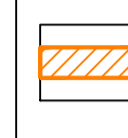
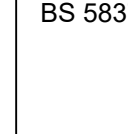
Status **For Information** Drawn By **BW** PM/Checked by **TF**

Job Ref **JSL3873** Scale @ **A0** Date Created **December 2020**

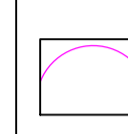
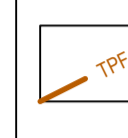


RPS Drawing / Figure Number **700** Rev **P01**

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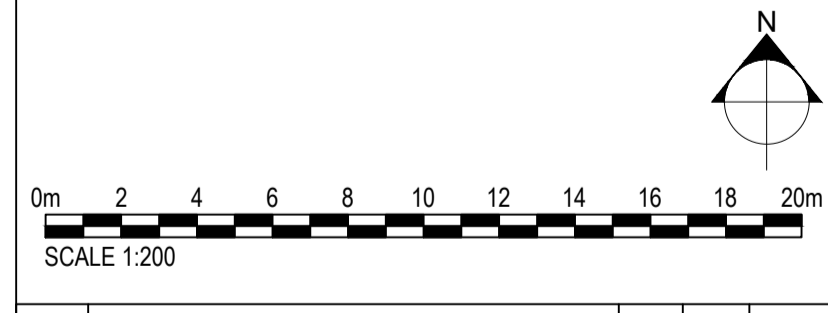
Key

-  Tree with numbered reference. Canopy spread to be Retained.
-  Tree with numbered reference. Canopy spread to be Removed.
-  Vegetation group with numbered reference. Canopy extends to be Retained.
-  Tree to be removed with numbered reference. Canopy spread to be Removed.
-  Retained Vegetation or Hedge with numbered reference.
-  Removed Vegetation or Hedge with numbered reference.

- BS 5837:2012 Tree Quality Categories - Table 1
- Category A - High quality
 - Category B - Moderate quality
 - Category C - Low quality
 - Category U - Unsuitable for retention

-  Root protection area (RPA) Calculated in accordance with Section 4.6 - BS5837:2012
-  Temporary protective fencing in accordance with Section 6.2 - BS5837:2012. See inset details for example barriers.
-  Proposed Building Outline
-  Area designated as potential hard surface.

- NOTES:**
- Refer to RPS Tree Survey Report & Schedule for further details.
 - Survey based on a visual inspection from the ground and is not intended as a full arboricultural inspection.
 - Plan produced in accordance with recommendations set out in BS 5837:2012 - 'Trees in Relation to design, demolition and construction'.
 - Due to the legal protection afforded to breeding birds vegetation removal should not take place during the bird nesting period, generally, although not restricted to, March - August inclusive.
 - Survey based upon topographic survey produced by SSL in 2019. Pedestrian vehicular emergency access routes to be maintained at all times.
 - All protective fencing to be completed and approved by LPA / CA prior to commencement of any site works.
 - All works to conform with requirements of:
 BS 3998:2011 - Tree Works
 BS 5837:2012 - Trees in relation to design, demolition and construction



Rev	Description	By	CB	Date



Lakebury House, Hittingbury Road, Chandlers Ford, Hampshire SO53 5SS
 T: 02380 810 440 E: rpsso@rpsgroup.com

Client: Chris Wright Road Planning Limited

Project: Dockfield Road, Shipley

Title: TREE PROTECTION PLAN

Status: For Information
 Drawn By: BW
 PM/Checked by: TF

Job Ref: JSL3873
 Scale: @ A0
 Date Created: January 2021

RPS Drawing / Figure Number: 710
 Rev: P01

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Appendix A

Methodology

General

Trees were inspected from ground level during a site visit. All data was recorded electronically within a ESRI ArcPad project and then upon return to the office it was imported into an MS Access database. Individual tree numbers and locations were plotted by eye on to a drawing at the time of the survey. Tree positions were then related to a Topographical survey of the site provided, where not shown on the topographical survey tree positions have been plotted by eye only and require confirmation. Colour coded versions of the drawings form part of this report. (Figure 1).

The data recorded includes:

- Height - data gathered using a Suunto optical clinometer PM - 5/1520. Where access to the tree was not possible the Heights were estimated.
- Diameter - measurements taken at 1.5 metres above ground level (or where multiple stems exist complying with requirements for BS5837).
- Tree crown spread – estimated measurement of the four cardinal points to provide information to be used with the arboricultural constraints plan
- Tree Crown Clearance – crown height above ground level
- Tree Condition - judged visually using the guidelines produced in the report. The condition is indicated with the appropriate colour on the map found in the report. (see Figure 1)
- Age class - estimated from an examination of the tree in question.

Age Classification

The following classification is employed:

Y - Young: Saplings and young trees under 10 years of age

SM – Semi-Mature: Trees older than 10 years but less than 40% of the life expectancy of their species.

EM – Early-Mature:	Trees between 40% and 70% of the life expectancy of their species.
M - Mature:	Trees between 70% and 100 of the life expectancy of their species.
OM - Overmature:	Trees considered to be beyond the normal life expectancy of their species.
V – Veteran:	Trees that show features of biological, cultural or aesthetic value that are characteristic of an individual surviving beyond the typical age range for the species.

Estimated Remaining Contribution in Years

The estimated remaining contribution in years is an estimate based on currently known factors of the possible remaining life of the tree as an asset. Clearly, it is impossible to predict changes in condition which may occur in the future and this reflects what is considered reasonable under existing circumstances. The following classification is employed:

Death or removal is likely within less than 10 years

Death or removal is likely within 10+ years.

Death or removal is likely within 20+ years.

Death or removal is likely beyond 40 years

The estimated remaining contribution in years will be dependent on the interaction of the typical longevity of the species, its current age and condition with prevailing environmental factors. The estimated remaining contribution in years also dependent on future tree management that can extend useful life in some instances.

Tree Condition.

The tree survey assessed the individual condition of all trees identified on the site. The assessment of condition is based on a visual and professional view.

The categories considered for Physiological Condition are good, fair, poor and dead.

Structural Condition is also commented on and this will include such items of presence of decay and physical defects.

Trees are living organisms and their condition can change rapidly in response to environmental variables. Condition remarks refer to the date of survey and cannot be assumed to remain unchanged. While there is no such thing as a safe tree, regular inspection of trees is recommended to reduce the foreseeable risks associated with trees. There is currently no published guidance from the UK insurance industry on the frequency of tree inspections. In the

German courts a bi-annual routine inspection is normally expected for older street trees, giving an indication of the rapidity of change in condition that can occur.

Preliminary Management Recommendations

Recommendations are given where it is felt by the arborist that further investigations are required due to suspected defects and work recommendations for pre construction tree work.

Tree Categorisation Using BS 5837 Methodology

The trees surveyed were categorised using the method explained in BS5837:2012. This method categorizes individual trees, groups and woodlands in a systematic way. Each tree, group or woodland is identified on an attached plan.

Groups are identified as those trees forming a single arboricultural feature with trees that provide companion shelter, are avenues or screens or cultural.

Initially the surveyor will determine if the tree should be regarded as a U category tree. U category trees are those that are low value trees that have little future due to physiological and structural condition.

Other trees are graded A, B or C. The initial category should reflex the trees value in making an important contribution to the amenity of the site over a period of time. The higher the category the longer the perceived time period.

A sub category is included 1, 2 or 3. This sub category reflects the type of value the surveyor feels the tree presents in regards its value to 1 – arboricultural, 2 – landscape, 3 – cultural or conservation.

The cascade chart used is included as Appendix 3 of this report.

Appendix B

The Tree Constraints Plan

The Tree Constraints Plan (Figure 1) is designed to show the influence that the trees have upon the site by virtue of their size and position. The plan seeks to act as a design tool that shows both the above and below ground constraints presented by the trees.

The information provided within this section of the report is to assist in the interpretation of the Tree Constraints Plan and aims to ensure that those trees selected for retention can be successfully integrated within the proposed development.

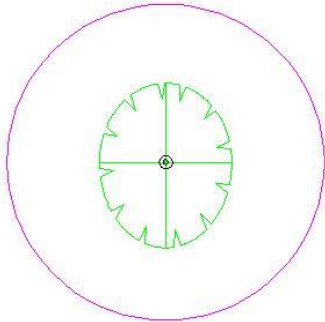
It should be noted that some of the tree positions shown on the plan have been plotted by eye to an Ordnance Survey base map and as such should be considered to be of a provisional nature.

Below Ground Constraints

Root Protection Areas

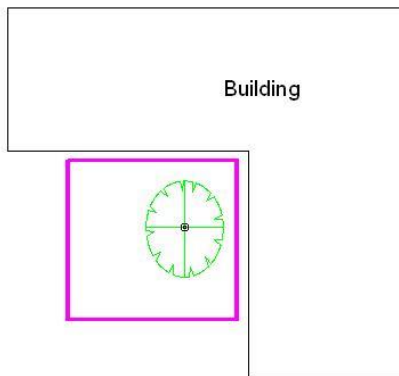
Root Protection Areas for each tree and group of trees surveyed have been determined in accordance with BS5837:2012 and a schedule of Root Protection Areas is attached to this report as Table 2.

As shown below Root Protection Areas (RPA's) for the trees, where no significant constraints to root development are considered to be present, have been plotted onto the Tree Constraints Plan as circles, with the tree located centrally, extending to encompass the area of ground, and thus the rootable soil volume, required for protection.



Where tree root spread is considered to have been influenced by site conditions the trees RPA's have been plotted to the Tree Constraints Plan as a polygon. The plotted polygon is of the same area as it would be as a circle and its shape reflects an arboricultural assessment of likely root distribution.

An example of a polygonal RPA, considered appropriate due to the presence of a building in close proximity to a tree, is shown below.

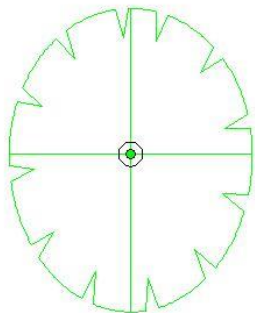


Where possible all development, including new hard landscaping, shall be situated outside of the retained trees designated Root Protection Areas.

Above Ground Constraints

Existing Canopy Spreads

The existing canopy spreads of the trees on site are shown on the Tree Constraints Plan as depicted below.



The current spread of the tree is a constraint due to its dominance, size and movement in strong winds.

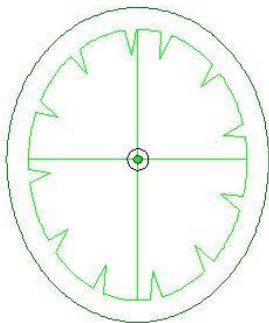
It will typically be unacceptable to design any built development within the current spread of a tree.

Where built development is proposed in close proximity to existing trees consideration should be given to the amount of working space required to allow its construction.

Future Tree Growth

Some of the trees surveyed are not yet mature and they have the potential for future growth. Where these are to be retained consideration to their ultimate crown spread should be given as future branch growth may result in interference with proposed development, damage to branches and the need for a tree pruning regime.

To facilitate assessment of future tree growth maximum expected canopy spreads have been marked on the Tree Constraints Plan (Figure 1) as shown below.



The area of mature tree spread is estimated by the arboriculturist and is their best judgement of mature crown spread based on experience and with regard to the current tree growth observed on the site.

Within the area of maximum branch spread construction activities should be restricted for the long-term health and vigour of the trees.

In this respect it is considered that within the area of maximum branch the construction of utility buildings, such as single storey garages or sheds and the installation of hard surfaces would generally be an appropriate form of construction, however should car parking be proposed beneath the ultimate spread of trees the likelihood of fruit fall, leaf litter or sap exudate causing a nuisance must be considered.

In addition it is important to consider the likelihood of damage to trees or structures that may be caused by continuous whipping of branches in windy conditions. In such circumstances branches may have to be repeatedly cut back which will introduce wounds in the tree and may spoil its form or shape. In general terms trees should not be retained upon the basis that their ultimate branch spread can be significantly controlled by periodic pruning.

Canopy Height / Clearance

The height and growth direction of the lowest branch of each tree is recorded in the Tree Data Schedule contained within this report as Table 1. Additionally the vertical clearance of the trees canopy above ground level is recorded within the Tree Data Schedule.

The two figures can be used to inform the extent to which a trees crown may be at risk of damage during development as a result of vehicular or plant movements within the site and to assess the need for additional protective measures to be implemented to protect low branches.

In particular it should also be noted that where the Root Protection Areas for retained trees do not extend to the edge of existing canopy spreads it is possible that those parts of the trees extending beyond the RPA fencing may sustain damage during construction.

Where this occurs there are two primary options available to manage and minimise the potential for damage to tree canopies to occur during development and these may be used singularly or in combination.

The first option is to create a Construction Exclusion Zone (CEZ), by the erection of protective fencing, around the full extent of the trees. The second is to undertake pre-development pruning works to the trees to reduce the potential for branch damage to occur.

Shading

It should be appreciated during the design of the development that trees can cause shading and obstruction of daylight and sunlight. It should be recognised that the extent of shading likely will vary with tree species, canopy shape and size, foliage density, time of year and sun elevation and that such shading will often be seasonal and diffuse.

Shading has been shown on the constraints plan, but this is a very basic shade pattern and it should not be considered as a definitive pattern. Shade and its affects/benefits to residential buildings should be considered by the designers within the overall site appraisal for the building layout.

Appendix C

BS5837 Cascade Chart for Tree Quality Assessment

REPORT

Table 1 Cascade chart for tree quality assessment				
Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
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	<input type="checkbox"/> Trees that have a 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) <input type="checkbox"/> Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline <input type="checkbox"/> 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; see 4.5.7.</i>			Dark Red
	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 trees or wood-pasture)	Light Green
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 are 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 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 material conservation or other cultural value	Mid Blue
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	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 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	Grey

Appendix D

Botanical and Common Names of Trees on Site

Botanical Name	Common Name
<i>Acer pseudoplatanus</i>	Sycamore
<i>Betula pendula</i>	Birch
<i>Buddleia sp.</i>	Butterfly Bush
<i>Fraxinus excelsior</i>	Ash
<i>Quercus robur</i>	English Oak
<i>Salix alba</i>	White Willow
<i>Salix caprea</i>	Goat Willow

Appendix E

Tree Protection Barriers

Root Protection Area Barrier Details

Protective Barrier Specifications

Since trees are living organisms which interact with their immediate environment any changes made to their surroundings may have a bearing on that trees future. Developing a site will undoubtedly place any trees within close proximity under some level of stress, which could predispose them to infection. The aim of this method statement is to limit the amount of stress induced by introducing protection measures.

The most effective way of offering protection is by erecting protective barriers set at a distance from the tree stem using the methods given within BS 5837: 2012 Trees in Relation to Design, Demolition and Construction. Barriers should be braced and constructed to resist impacts; see figures 1 & 2 below for barrier specifications. Barriers can be of an alternative specification to that within the BS5837:2012 provided it is approved by the Local Planning Authority Tree Officer.

Barriers should be erected before any works commence on site with the exception of recommended tree work. Areas of retained and future structure planting should be similarly protected.

All personnel should be made aware of the protected areas and instructed to keep them free of materials, waste and excess soil. Soil disturbance should be prohibited and travel of any kind, including foot traffic should also be excluded within the root protection area (RPA) unless previously agreed and adequate ground protection has been installed. Where foot traffic is agreed within the RPA, single thickness scaffold boards laid over a compressible material on a geotextile, or supported by scaffold should suffice. Where vehicular access through the RPA is agreed an engineer should be consulted to design adequate ground protection methods.

Suggested Barrier Specification (as per BS5837: 2012)

Figure 1

Figure 2 Default specification for protective barrier

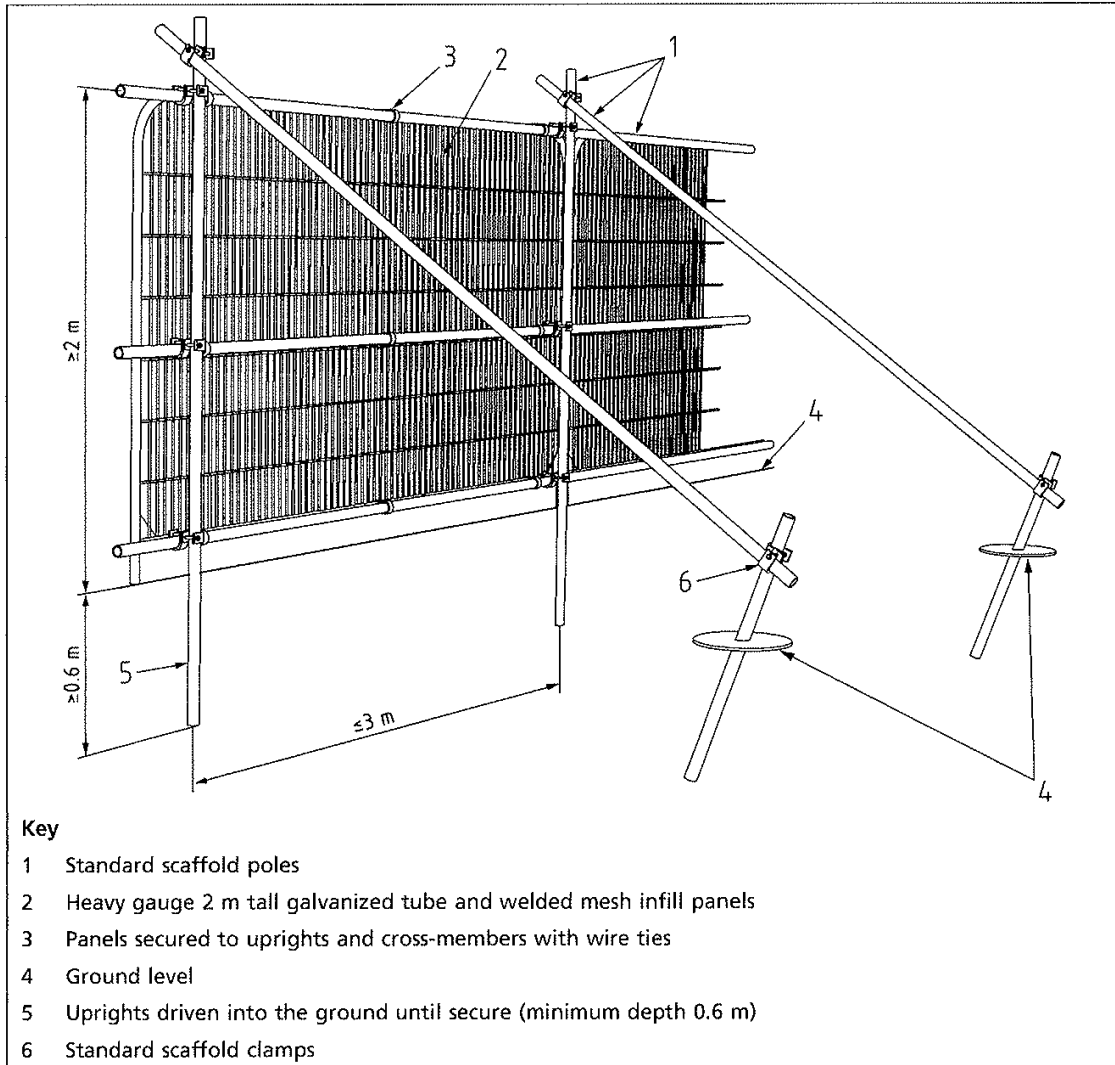
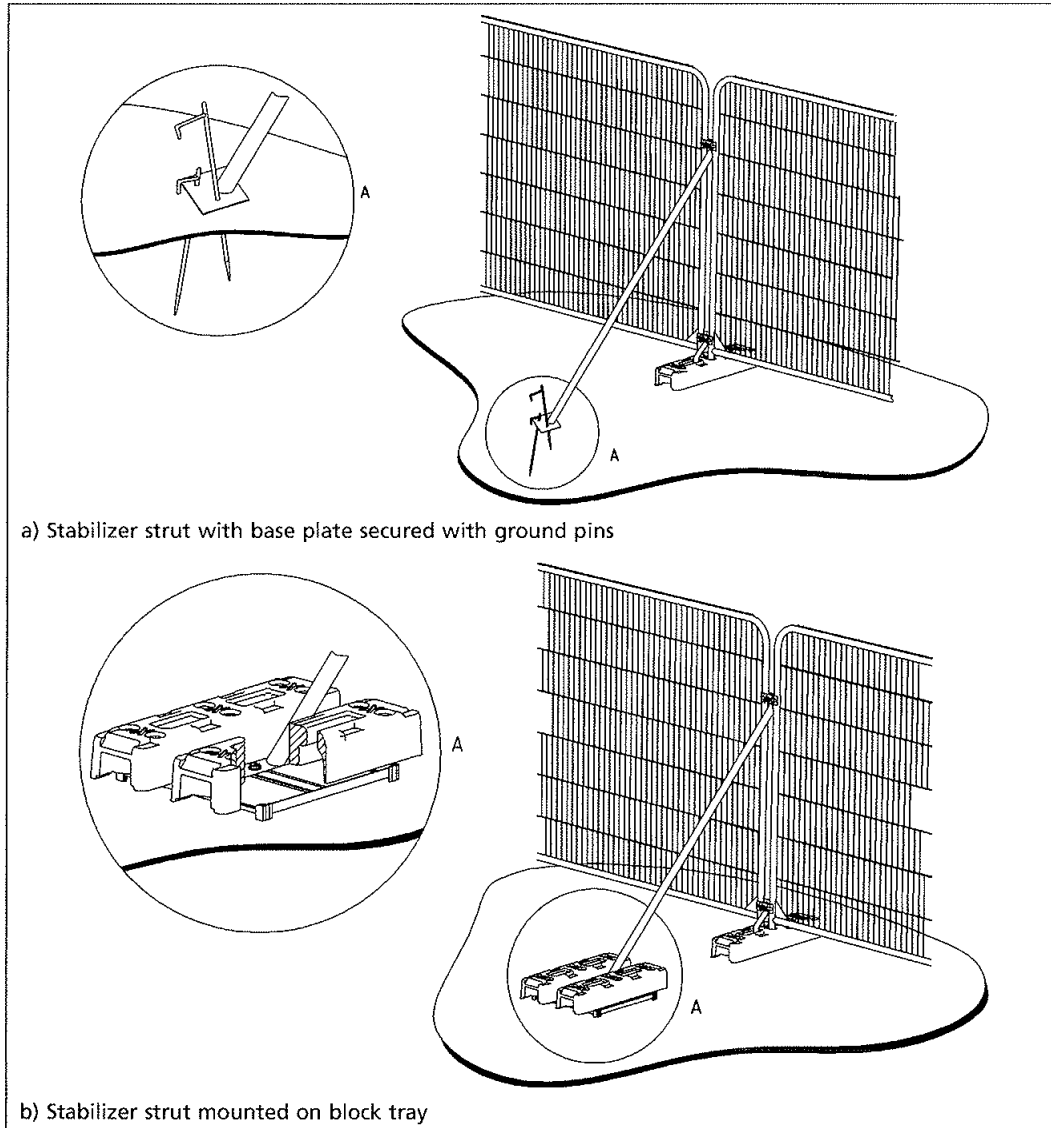


Figure 2.

Figure 3 Examples of above-ground stabilizing systems



Appendix F

Construction Exclusion Signage - Example



**PROTECTIVE FENCING. THIS
FENCING MUST BE
MAINTAINED IN ACCORDANCE
WITH THE APPROVED PLANS
AND DRAWINGS FOR THIS
DEVELOPMENT.**



**TREE PROTECTION AREA
KEEP OUT !**

**(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A
TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY
LEAD TO CRIMINAL PROSECUTION**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE
WITH THE WRITTEN PERMISSION OF THE LOCAL
PLANNING AUTHORITY**

Appendix G

Arboricultural Glossary

Abiotic Factors - Nonliving factors of the environment, including temperature & wind.

Age-class - A general classification of the tree into either - young, semi-mature/maturing, mature, over-mature, or senescent.

Apical Bud/Shoot – The apical bud, also known as the leading shoot, is responsible for shoot extension and is dominant.

Apical Dominance – A singular, leading shoot remains dominant.

Arboreal - In connection with, or in relation to, trees.

Arboriculturalist – Person who has, through relevant education, training and experience, gained recognised qualifications and expertise in the field of trees in relation to construction.

Arboricultural Implications Assessment (AIA) – Study, undertaken by an arboriculturalist, to identify, evaluate and possibly mitigate the extent of direct and indirect impacts on existing trees that may arise as a result of the implementation of any site layout proposal.

Arboricultural Method Statement (AMS) – Methodology for the implementation of any aspect of development that has the potential to result in the loss of or damage to a tree. Note The AMS is likely to include details of an on-site tree protection monitoring regime.

Biotic factors - Living factors. For example, animals and pathogens.

Bottle Butt – Term used to describe shape of stem base, usually associated with an internal defect – refer to 'Reaction Wood' below.

Branch union/junction - The point at which a branch joins a larger stem. Can be a point of weakness, especially in certain species.

Cambium - A lateral meristem (see below) in vascular plants located just beneath the bark responsible for secondary growth, e.g. production of annual growth rings.

Canker – A clearly defined area of dead and sunken or malformed bark, caused by bacteria or fungi. Can have a bearing on structural integrity of infected limb(s) depending on size and location.

Chlorosis/Chlorotic – Abnormal yellow or yellow-green coloration of usually green leaves. Essentially a reduction of chlorophyll levels often as a result disease or nutrient deficiency.

Co-dominant stems - A growth characteristic, where two or more stems of similar size grow from the same point. Can create an inherent weakness.

Compaction - The compressing & hardening of soil around tree root systems, due to vehicular/pedestrian use etc. Loss of pore space between soil granules limits water movement and gaseous exchange, and inhibits root growth.

Competent person – Person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached

Note 1 A competent person understands the hazards and the methods to be implemented to eliminate or reduce the risks that can arise. For example, when on site, a competent person is able to recognise at all times whether it is safe to proceed.

Note 2 A competent person is able to advise on the best means by which the recommendations of this British Standard may be implemented.

Condition – Assessment based on a visual and professional view giving consideration to many factors such as tree health, structural integrity and suitability of its position.

Construction Exclusion Zone – Area based on the RPA (in m²), identified by an arboriculturalist, to be protected by development, including demolition and construction work, by the use of barriers and/or ground protection fit for purpose to ensure the successful long-term retention of a tree.

Coppice - The method of managing trees by cutting the stems at between 1.0 inch and 1.0 foot from the ground level on a regular cycle, the cut stumps of the trees or shrubs are allowed to re-grow many new stems.

Crown spread - Gives distances between extreme limits of the crown and the stem, usually along the four compass points. Helps to show crown symmetry.

Crown Reduction – The removal of branch ends to reduce the extreme limits of a trees branch spread and height.

Crown Thin – The removal of selected branches within the crown to thin the internal branch structure.

D.B.H. - 'Diameter at Breast Height', an industry standard to gauge tree stem size and development. Within arboriculture, breast height is taken to be 1.5m above ground level.

Dieback - The reduction in crown vigour and extension growth progressing to death of distal parts; often associated with decline.

Epicormic/adventitious growth - New growth from dormant buds that can often form tenuous attachments. Although some species readily form such shoots, it can be an indication of stress.

Feathered Whip – Size of tree for planting, usually ranging from 1.25m to 2.5m in height.

Form - A general assessment of the shape and position of the tree within its' environment.

Frass – Debris such as bore dust left by wood boring insects.

Hanger – Term used to describe a branch that has become detached and is being supported by other branches. Can be a hazard to persons and property below.

Hazard Beam – After the loss of a distal part, a limb concentrates growth upwards creating adverse end weights that can render the limb susceptible to failure.

Heavy Standard – Size of tree for planting, usually above 3.5m in height.

Included bark – Growth characteristic usually caused when two or more stems/branches growing in close proximity 'fuse' together entrapping the bark from when the parts were separate in the middle, creating a structural weakness.

Meristem - The undifferentiated plant tissue from which new cells are formed, such as that at the tip of a stem or root.

Meristematic Disorder – A growth disorder caused by a disruption of the meristem (see above) from any of a number of biotic factors (see above). Manifests as growths such as 'Witches Brooms' & 'Galls'.

Necrosis/Necrotic – Death of tissues usually characterised by a blackening in colour.

Occlusion/Occluded – Normally used to describe the overgrowth of a wound. Also, immovable foreign objects in contact with a tree part can become encased or 'occluded' by the tree as it grows incrementally.

Pathogen - An agent that causes disease, especially a living microorganism such as a bacterium or fungus.

Plasticity index - The table used to calibrate the shrinkability of a clay soil.

Pollard – The removal and subsequent regular re-removal of the crown of a tree above animal browsing height. Can be an effective method of controlling the size of trees in urban areas. This is ideally begun in the trees early stages and maintained throughout its life.

Reaction wood - Essentially additional wood laid down by the tree to compensate for structural defects such as cavities.

Ring barking/Girdling – the removal of bark around the entire circumference of a stem or branch, causing the death of all distal parts.

Root Protection Area (RPA) – Layout design tool indicating the area surrounding a tree that contains sufficient rooting volume to ensure the survival of the tree, shown in plan form in m².

Saprophyte – An organism which exists on dead plant material.

Scaffold branches - The main structural branches within the crown.

Services – Any above ground and piped and/or ducted underground infrastructure including water main, electricity supply, gas supply, fibre optic utilities, telecommunications cabling, storm and foul water drainage, including temporary storage for run-off, pumping stations, interceptors and other allied buried structures.

Shrinkable clay – Clay soil which alters in volume depending on moisture content. Property sited on shrinkable clay can suffer subsidence damage due to soil desiccation; this can be due to the water uptake of nearby vegetation, including trees.

Special engineering – design of a structure with the physiological requirements of trees as the priority.

Standard – Size of tree for planting, usually ranging from 2m to 3.5m in height.

Structure – Man-made object, such as a building, carriageway, path, wall, services, and built and excavated earthworks.

Transplant – (1) size of tree for planting, usually ranges from 0.2m to 0.9m in height (2) the relocation of a tree or shrub including a given portion of the root system.

Tree Constraints Plan (TCP) – Plan prepared by an arboriculturalist for the purposes of layout design showing the RPA and representing the effect that the mature height and spread of retained trees will have on layouts through shade, dominance, etc.

Tree protection plan – scale drawing prepared by an arboriculturalist showing the finalised layout proposals, tree retention and tree and landscape protection measures detailed within the arboricultural method statement (AMS), which can be shown graphically.

U.L.E – ‘Useful Life Expectancy’ is an estimate based on currently known factors of the possible remaining life of the tree as an asset.

Veteran tree – Tree that, by recognised 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.

Vigour - A general classification, as to the present and future potential growth and development of a tree. A comment regarding the health status of the tree specific to its species.

Water Demand - A generic classification of the water demand of specific species as outlined by the NHBC (National House Building Council).

Whip – Size of tree for planting, usually ranging from 1m to 1.75m in height.