Arboricultural ASSOCIATION
Professional Member

Arboricultural Report

Impact assessment and method statement

66 Grove Road
Coombe Dingle
Bristol

4th October 2021

Compiled for:

Newham Land and Build Ltd

By

Phil Dye

BSc (hons) Arb, Cert Arb L4 (ABC), BA (Hons), MArborA

Ref: WTC_816.01

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Validation statement for LPA registration

This report is submitted to Bristol City Council to accompany a planning application. The report contains tree information relating to the proposal for two 5-bed detached dwellings.

For local planning authority (LPA) validation purposes, this report contains the following:

- A full tree survey compliant to the requirements of BS5837:2012 'Trees in relation to design, demolition and construction – recommendations' undertaken by a competent and qualified arboriculturist.
- A suitably scaled plan with a north point showing the site boundaries and the tree survey information.
- An assessment of the impacts of the proposed development on the existing trees. This includes recommendations of which trees should be removed/retained and the proposed protection measures.
- An arboricultural method statement outlining appropriate methods of tree protection and any specific technical construction methods needed to implement the design proposals with minimal detriment to retained trees.

Summary

1 B category field maple remains on site although recent tree removals are evident. These will require mitigation tree planting in line with Bristol City Council's Tree Replacement Standard (BTRS). The field maple will be fenced off and protected throughout the course of the build.
With works being carried out in accordance with this tree report the overall impact on the trees is considered to be low.

NOTE

Contents

1.0 INTRODUCTION

1.1 **Instruction:** I am instructed by Newham Land and Build Ltd, to inspect the trees that could affect or be affected by the development proposal at the land known as 66 Grove Road. This report, in compliance with BS5837:2012 'Trees in relation to design, demolition and construction - recommendations' is required to accompany the submission of a planning application for the proposal for two 5-bed detached dwellings. My instruction is to prepare the following information:

- A schedule of the relevant trees including tree data and condition assessment.
- A tree constraints plan.
- An arboricultural impact appraisal.
- An arboricultural method statement.
- A tree protection plan.

1.2 **Documents provided:** Drawings WTC_816.02 (tree constraints plan), WTC_ 816.04 (tree protection plan) and WTC_816.05 (tree planting plan) are derived from the following drawings which were supplied to me by Dave Tarr:

- Rosewall Design Associates drawing – *Existing Site Layout Plan* – Dwg. No 04 – Dated: June 21

- Rosewall Design Associates drawing – *Proposed Site Layout Plan* – Dwg. No SK1 – Dated: September 21

1.3 I am a consulting arboriculturist with Wotton Tree Consultancy Ltd. I have a BSc (hons) Arboriculture and the AA Technicians Certificate in Arboriculture (Cert Arb L4 (ABC)). I am a LANTRA qualified Professional Tree Inspector. I am a professional member of the Consulting Arborists Society, a professional member of the Arboricultural Association, an associate member of the Institute of Chartered Foresters and a licensed user of Quantified Tree Risk Assessment (QTRA) - license no. 2278. I am trained in valuing amenity trees using the Capital Asset Value for Amenity Trees (CAVAT) system. I have been a consulting arborist since 2006.

1.4 Limitations:

1.4.1 My survey was a preliminary assessment undertaken from ground level and observations have been made solely from visual inspections for the purposes of assessment in terms relevant to planning and development. Only binoculars, mallet and a probe have been used to aid tree assessment. No invasive or non-invasive internal decay detection devices have been used in assessing tree condition.

1.4.2 The recommendations and conclusions in this report relate only to the conditions found on this site at the time of the site visit and inspection. The recommendations contained within this report are valid for a period of 12 months from the date of this report. Any significant alteration to the site that may affect the trees that are present or have planning implications (level changes, additional tree works, post extreme weather events, hydrological changes) and will necessitate a re-assessment of the trees and the site.

1.4.3 The tree survey that forms part of this report is not a tree safety inspection. The survey has been carried out in order to inform the planning process. Where obvious risks have been observed, they have been addressed in the 'preliminary management recommendations' (see Appendix 1 – Tree Schedule). Potential hazards and levels of risk are likely to change as the site usage changes during and post development.

1.5 Ecological Constraints: The Wildlife and Countryside Act 1981 and amendments made within and subsequent to the Countryside and Rights of Way act 2000 provides statutory protection to bats, birds and other species that inhabit or use trees. The protection afforded to these species could impose significant constraints on the use of a particular site as well as significantly restrict the timing of any works that may be necessary. Any restrictions are in addition to the tree restriction highlighted in this report. Whilst I have some working knowledge of these potential issues they are outside my area of expertise and you must seek advice from a qualified ecologist to ascertain if any further restrictions apply.

1.6 Tree preservation orders and/or conservation area protection:
I have contacted Bristol City Council to enquire whether trees at the address are subject to a tree preservation order. I have been informed that T1 is subject to a Tree Preservation Order (ref 1440). The site does not sit within a Conservation Area.

Any tree works recommended for trees subject to a TPO or within a Conservation Area may need to be applied for (or notified to the council in the case of a conservation area) separately unless full planning permission is granted and this report constitutes an approved document with the main planning application.

2.0 SITE VISIT AND DATA COLLECTION

2.1 Site Visit: I visited the site on 27th September 2021. All observations were made from ground level (aided by the Visual Tree Assessment method – Mattheck and Breloer, 1994) and all measurements except stem diameter were estimated unless otherwise stated in the tree schedules. The weather at the time of the visit was cool and overcast; these conditions in no way hindered my ability to view the trees.

2.2 Site Description:

The site consists of the buildings and grounds of 66 Grove Road.

2.3 Data collection: Each tree or group was inspected and allocated an identification number as indicated in the tree schedule (appendix 1) and tree survey plan. For each tree the following information was collected:

- species
- height (m)
- stem diameter (mm)
- average radius of crown to 4 cardinal points (m)
- height and orientation of first significant branch
- average height of canopy clearance
- life stage
- observations regarding condition
- preliminary management recommendations
- safe useful life expectancy

As encouraged in BS5837:2012, each tree or group was allocated to one of four categories (A,B,C or U), which reflects its suitability for retention in context of the development. Please see table 1 for explanation of the criteria for tree categorisation.

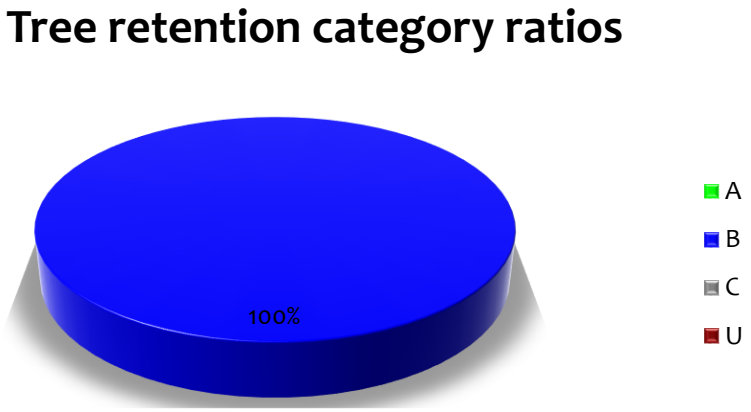
Table 1: cascade chart for tree assessment, adapted from Table 1 of BS5837:2012

Category & definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention				
Category U Trees in such a condition that they cannot realistically be retained as living trees in the context of current land use for >10 yrs	• 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 • Trees that are dead or showing signs of significant, immediate and irreversible decline • Trees infected with significant pathogens affecting health or safety, or very low quality trees suppressing trees of better quality *NOTE: these trees can having existing or potential conservation value making retention desirable*			**DARK RED**
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values incl conservation**	
Trees to be considered for retention				
Category A Trees of high quality with an estimated remaining life expectancy of >40 yrs	Particularly good examples of their species, esp if rare or unusual. Those that are essential components of groups or formal or semi-formal arboricultural features	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	**LIGHT GREEN**
Category B Trees of moderate quality with an estimated remaining life expectancy of >20 yrs	Trees that might be included in category A but are downgraded because of impaired condition such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit category A designation.	Trees present in numbers, usually growing as groups or woodlands such that they attract a higher collective rating that they might as individuals. Trees occurring as collectives but situated so as to make little visual contribution to the area.	Trees with material conservation or other cultural value	**MID BLUE**
Category C Trees of low quality with an estimated remaining life expectancy of >10 years, or young trees with a stem diameter <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 significantly greater collective landscape value; and/or trees offering low or only temporary landscape benefits.	Trees with no material conservation or other cultural value.	**GREY**

2.4 **Interpretation of data:** Section 4.6 of BS5837:2012 recommends that the trunk diameter measurement is used to calculate the RPA which can then be interpreted to identify the design constraints of a particular site. Once the design principal has been established the construction exclusion zone and location of protective measures can be identified.

3.0 ARBORICULTURAL OVERVIEW

3.1.1 A total of 1 item was surveyed within and adjacent to the development site. This item comprised 1 individual trees. The chart below shows the ratio of tree retention categories on the site.



3.1.2 T1 is a B category, multi-stemmed and mature field maple. It has been historically crown reduced and is a good landscape feature. Its RPA has been amended to reflect the existing house and footpaths. The house is to be retained and extended to the south, away from the tree, therefore avoiding disruption to the roots.

Plate 1: T1 – B category field maple for retention and protection

3.1.3 There have been multiple tree removals on site which will require mitigation through the Bristol Tree Replacement Standard. This is detailed is para 4.5 below.

Plate 2: Stumps from recently removed trees

4.0 ABORICULTURAL IMPACT ASSESSMENT

4.1 Below ground constraints

4.1.1 Below ground constraints refer to tree roots. These are easily overlooked during construction operations as they are unseen and often little is understood about their importance. It is essential to ensure that roots are not damaged during building operations as they are the life blood of each tree, providing structural stability by anchoring the tree to the ground and providing transportation of water and nutrients from the soil to the foliage.

4.1.2 In reality the spread of roots for trees in an urban environment will rarely be distributed in a perfect circle as the environment below ground level is highly variable. The presence of structural foundations, pipes, impermeable surface coverings and differing soil conditions mean that tree roots will extend in to areas that offer a preferential environment; where water is most available and the soil is least compacted.

4.1.3 Root protection areas (RPAs) are shown as a circle centred on the base of the stem unless site conditions such as nearby structures indicate that the shape of the rooting area deviates from this format.

4.1.4 No trees have RPA conflicts with the proposals.

4.2 Above ground constraints

4.2.1 Trees in close proximity to buildings can provide some constraints, both actual and perceived. Actual constraints may be where low branches conflict with new elevations either at the time of building or in the future. Future growth of young trees should be accommodated in building design. Other constraints include shade, leaf litter and damage from falling branches.

4.2.2 Large tree canopies close to buildings can also cause 'post-development pressure' by way of requests for tree removal or pruning as a result of resident anxiety.

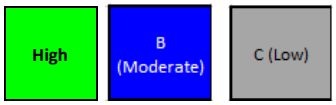
4.2.3 The tree canopy has been historically pruned away from the existing building. As the elevations of the house in proximity to the tree are to be retained the tree is likely to require further, periodic pruning to clear the property.

4.2.4 As the retained tree is to the north of the property no shading issues are anticipated.

4.2.5 It is possible that leaf fall could block gutters and downpipes. This can be mitigated through regular maintenance of the guttering or by installing a proprietary gutter guard.

4.3 ARBORICULTURAL IMPACT CASCADE CHART

4.3.1 Tree **Values** are taken from BS: 5837 and comprise of the following:



4.3.2 The **Impacts** comprise of 6 elements:

4.3.3 Causes of impacts comprise of 6 factors: ***'None', 'To facilitate development', 'Due to poor condition', 'Direct disturbance to roots', 'Pruning required'*** **and** ***'Possible future pruning pressure due to shade and other factors'***.

4.3.4 Comments are also included providing more information where necessary.

	REMOVAL	PARTIAL REMOVAL	HIGH	MODERATE	LOW
TO FACILTATE DEVELOPMENT	Tree / group requires removal.	Partial removal of group is required. I.e., 'a section of hedge may require removal to allow a new access road'.	N/A	N/A	N/A
DUE TO POOR CONDITION	Tree or group require removal due to poor structural and / or physiological condition.	Part of group require removal due to poor structural and / or physiological condition.	N/A	N/A	N/A
DIRECT DISTURBANCE TO ROOTS	N/A	N/A	In many case this will result in the loss of tree/s - refer to '**TO FACILITATE DEVELOPMENT**'. In rare cases a Tree/s may be retained but damage will occur to the roots. Up to 30% of total RPA area affected.	Disturbance will be caused to roots of a tree/s that are likely to result in some physiological and structural dysfunction. The extent of damage does not require trees to be felled. Remedial actions may be taken in some cases that would help mitigate against damage but site topography, tree age, condition and species condition may result in disturbance being considered **MODERATE** as opposed to **LOW.** Up to 20% of total RPA area affected.	Activity will occur within the root protection area of trees which will have a low impact, or can be mitigated by special measures. Up to 10% of total RPA area affected.
PRUNING REQUIRED	N/A	N/A	Pruning that may retain a tree but will have a potential impact on the tree condition and visual appearance	Pruning is required that is acceptable within recommendations within BS3008:2010, but would require a material alteration to the tree/group affected.	Pruning is required that will have little impact to the structural, physiological and visual amenity of a tree or group.
POSSIBLE FUTURE PRUNING PRESSURE DUE TO SHADE OR OTHER FACTORS	Removal of tree/s required as retention is unsustainable and/or undesirable within the context of development. i.e. fast growing tree in small garden.	Partial removal of tree/s required as retention is unsustainable and/or undesirable within the context of development. i.e. fast growing tree in small garden.	Tree/s likely to cause significant shading. i.e. small garden areas with dense mature trees to south.	Some level of shade or other inconvenience will occur. Not highly oppressive, but some residents may seek management of trees in long term.	Some level of shading / overhang will occur.

Table and cascade chart courtesy of Mike Gregory (2021)

Arboricultural Impact Table

Ref No.	Species	Value	Impact	Impact Cause	Management Options / Comments	Other
T1	Field maple	B (Moderate)	Low	**Working area required within the Root Protection Area**	Protective fencing and ground protection to be installed.	n/a

4.3 Trees to be retained

4.3.1 Of the 1 tree surveyed, 1 tree is proposed to be retained.

4.3.2 Tree protection on development sites is of paramount importance if trees are to be retained successfully. The inevitable stress caused by development near an existing tree can, if provision for adequate protection is not made, be a strain that can severely damage the trees or even result in their death. Although the trees appear healthy during and on completion of the development, the full effects may not come apparent for up to five or more years after works have finished.

4.4 Trees to be removed

4.4.1 No trees are proposed for removal as a result of this development.

4.5 Bristol City Council's tree compensation standard

Policy DM17 within Bristol City Council's Local Plan adopted July 2014 details provision for tree replacement on development sites where trees are to be removed or have been removed in past 18 months..

4.5.1 The policy states:
Where tree loss or damage is essential to allow for appropriate development, replacement trees of an appropriate species should be provided, in accordance with the tree compensation standard below:

Table 2: BCC's Tree compensation standard as per Policy DM17

Trunk Diameter of tree lost to development (cm measured at 1.5 m)	Number of replacement trees
<15	0-1
15-19.9	1
20-29.9	2
30-39.9	3
40-49.9	4
50-59.9	5
60-69.9	6
70-79.9	7
80+	8

4.5.2 If there is no space to plant a replacement tree within the site, a financial contribution is required towards street tree planting on BCC highways or open space land.

Depending on whether the tree is to be planted in soft ground or hard standing the following financial contributions are required:

- Tree in open ground (no tree pit required) £765.21
- Tree in hard standing (tree pit required) £3,318.88

4.5.3 The following table shows the number of replacement trees required for each tree felled in accordance with BCC's tree compensation standard.

Table 3: Replacement trees required

Trees removed in last 18 months	Stem diameter(s)	Number of replacement trees
Horse chestnut	450	4
Horse chestnut	500	5
Ash	350	3
Cherry	350	3
Sycamore	200	2
Total replacement trees		**17**

5.0 ARBORICULTURAL METHOD STATEMENT

5.1.1 Control measures for construction works in or near to the root protection zone are detailed in this chapter. This will form the method statement of works and will be the exact principle/methodology utilized during construction periods.

5.2 Tree works prior to construction

5.2.1 Following the approval of Bristol City Council's appointed Tree officer**,** all tree works will be carried out to BS 3998 "*Recommendations for Tree Work"* (2010) *or* BS 5837 *"Trees in relation to design, demolition and construction - Recommendations"* (2012) or as modified by more recent research. Tree works will be undertaken before commencement of other site operations.

5.3 Protective fencing

5.3.1 Before the commencement of any works on site protective fencing shall be erected to the dimensions shown on the accompanying drawing 'tree protection plan'. Individual root protection areas at the measured m² will be erected for the duration of the development around retained trees. Although these protection measures will be in place for the duration of the development on site monitoring will allow for the successful retention of the subject trees.

5.3.2 Tree protection fencing will be constructed to the specification as set out in Appendix 5 of this report. It is imperative that the fencing is constructed in such a way that it cannot be easily moved or opened during construction work.

5.3.3 Signs will be affixed to the fencing to inform on-site contractors of the importance of the fencing barriers (Appendix 6).

5.3.4 The construction exclusion zones (CEZs) are to be treated as sacrosanct and the following guidelines must be followed:

- NO mechanised excavations
- NO movement of construction traffic or parking of vehicles
- NO storage of building materials
- NO storage of chemicals or fuels
- NO fires to be lit in close proximity to trees

5.3.5 Fences must only be removed following a site visit from the Local Authority officer to confirm on-site construction activity has been completed.

5.4 Site access

5.4.1 The site shall be accessed via Grove Road.

5.5 Contractors car parking

5.5.1 No vehicles shall be parked on un-surfaced ground within the RPA of retained trees.

5.6 Site huts and storage

5.6.1 Any storage required for materials, spoil, plant or welfare facilities shall be positioned outside the RPA of retained trees. Mixing of cement shall be in a designated area where runoff will not enter the RPAs of retained trees. Ground protection in the form of a geotextile membrane will ensure no leaching of mixings enters the soil and kick boards around the perimeter will ensure that runoff is contained.

5.7 Service installation

4.7.1 I have not been supplied with details of the routing of underground services that may affect the trees on site. The provision of underground services must be led by the site's tree constraints. Should the routing of services cause conflict with the specified RPAs, a detailed and specific method of work will be provided in writing to the LPA for approval prior to installation of services.

5.8 Ground level changes

4.8.1 There shall be no changes in ground levels within the RPAs of retained trees during the construction.

5.9 Ground protection

5.9.1 Where access is required within the RPA to facilitate construction activity, ground protection is required to avoid compaction of the rooting area. This should be capable of supporting any traffic entering or using the site without being distorted.

5.9.2 Ground protection has been specified to the west and south of the property to facilitate access. Depending upon traffic type access the RPA one of the 3 methods below will be employed:

5.9.3 For pedestrian use only single thickness scaffold boards on top of a compression resistant layer such a s 100mm woodchip, laid on top of a geotextile membrane.

5.9.4 For plant up to a gross weight of 2 t, proprietary inter-linked, ground protection boards placed onto a compression resistant layer (150mm woodchip) laid on top of a geotextile membrane.

5.9.5 Plant machinery exceeding 2 t gross weight requires an alternative system to an engineering specification designed in conjunction with arboricultural advice to accommodate the likely loading it will incur.

5.10 Foundations within Root Protection Areas

5.10.1 There shall be no foundations within RPAs of retained trees.

5.11 Hard surfaces within Root Protection Areas

5.11.1 There shall be no hard surfaces within RPAs of retained trees.

5.12 Tree planting

5.12.1 GENERAL

5.12.1.1 All tree planting to be undertaken in accordance with British Standards publication BS8545:2014 Trees: from nursery to independence in the landscape – Recommendations.

5.12.1.2 The methodology contained within this report is to facilitate the required tree replacement planting as per Bristol's Tree Replacement Standard.

5.12.2 GROUND PREPARATION

5.12.2.1 Prior to planting, any tree stumps must be ground out and the planting area treated with an appropriate Glyphosate based systemic herbicide. Please check the current list of approved herbicides and follow the manufacturer's instructions.

5.12.2.2 Lightly cultivate the soil removing large stones (>75mm dia), rubbish, concrete, metal and glass.

5.12.3 TREE PLANTING METHOD

5.12.3.1 Trees to be root-balled standards (8-10cm girth, 2-3m height).

5.12.3.2 Planting pit to be 1.5 times the diameter of the root ball. For root balled standards this is generally 600 x 600 x 600mm. The hole should be square with the sides and base scarified to avoid root girdling. The top soil and sub soil should be separated.

5.12.3.3 Remove stones and any other items that may inhibit root growth.

5.12.3.4 Two 600mm rounded softwood stakes with top diameter of 50mm to be driven vertically into the pit using either a hammer or drivel so as to be equidistant from the root ball. The top of the stake to be at the height of 1/3 of the clear stem of the tree when planted.

5.12.3.5 Remove plastic packaging from root ball. Any hessian or mesh should be left intact.

5.12.3.6 Position tree to ensure it is vertical and that branches are not impeded by the stake.

5.12.3.7 Back fill with mix of top soil from pit excavation and good quality peat free tree planting compost, in successive layers, working plant up and down between each layer to ensure a distribution of soil between all roots and an intimate contact between roots and soil particles. Plant up to the nursery line.

5.12.3.8 A buckle and strap tree tie is to be nailed to the top of the stakes and attached to the tree at 1/3 of the clear stem.

5.12.3.9 100mm deep layer of a suitable mulch such as woodchip to be spread at the base of the trees at a minimum of 1m radius from the tree trunk.

5.12.3.10 Trees to be well watered in.

5.12.4 AFTERCARE

5.12.4.1 The following covers a 10-year programme of aftercare to ensure the establishment of the trees and hedgerow.

Figure 1: 10 year aftercare matrix

TASK	Yr1	Yr2	Yr3	Yr4	Yr5	Yr6	Yr7	Yr8	Yr9	Yr10
Top up mulch	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Check tree ties and stakes (quarterly visits per annum)	✓	✓								
Remove ties and stakes			✓							
Prune off any broken, diseased or dead branches	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Remove basal suckers	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Top dress with general fertiliser with a ratio of 10:6:6 NPK at the rate of 70gm per square metre.		✓		✓		✓		✓		✓
Water well, especially during dry periods	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Beat up – replace any plants that have failed with that of the same size and species.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Check tree stability. Firm up trees that have suffered frost heave or are affected by strong winds. (quarterly visits per annum)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Remove weeds by hand (quarterly visits per annum)	✓	✓	✓	✓	✓					
Review aftercare plan					✓					

5.13 Soft landscaping within exclusion zones

5.13.1 Soft landscaping must respect the rooting areas of retained trees. Removal of spoil and the import of materials must be outside the specified RPAs.

5.13.2 No level changes or disturbance to the soil will take place within RPAs of retained trees. This includes in particular any rotavating of the ground. Should the soils require cultivating, the use of an airspade can be employed under an arboricultural watching brief.

5.14 Responsibilities

5.14.1 It will be the responsibility of the main contractor to ensure that any planning conditions attached to planning consent are adhered to at all times and that a monitoring regime in regards to tree protection is adopted on site.

5.14.2 The main contractor will be responsible for contacting the Local Planning Authority at any time issues are raised related to the trees on site.

5.14.3 If at any time pruning works are required permission must be sought from the Local Planning Authority first and then carried out in accordance with BS 3998 Recommendations for Tree Works 2010.

5.14.4 The main contractor will ensure the build sequence is appropriate to ensure that no damage occurs to the trees during the construction processes. Protective fences will remain in position until completion of ALL construction works on the site.

5.14.5 The fencing and signs must be maintained in position at all times and checked on a regular basis by an onsite person designated that responsibility.

5.15 Arboricultural supervision

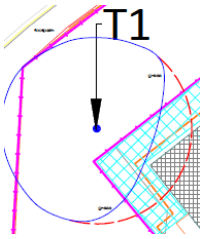
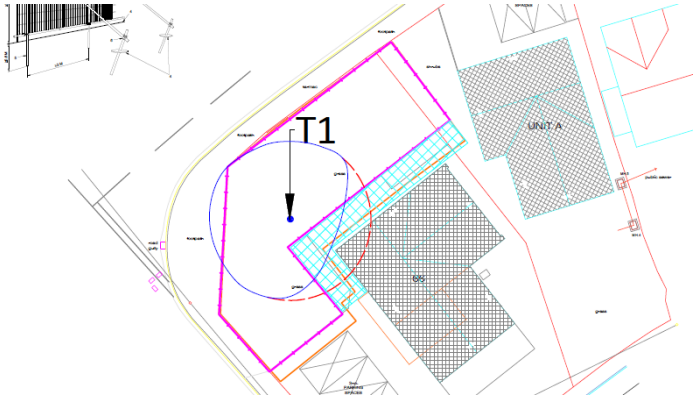
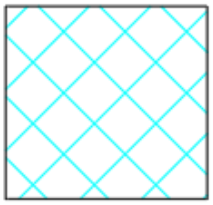
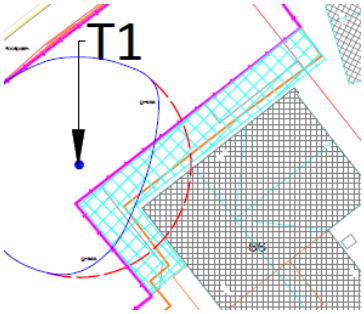
5.15.1 It is recommended a number of short inspections of the subject trees should be undertaken by the project arboriculturist familiar with BS5837:2012 operations during the extent of the project to ensure that methods of works are in accordance with this method statement.

5.15.2 Any works required within the RPA of retained trees that is not covered in this document can only be done so with the written permission of the Local Planning Authority, in accordance with a detailed arboricultural method statement and under an arboricultural watching brief.

Phil Dye - BSc (hons) Arb, Cert Arb L4 (ABC), BA (Hons), MArborA

4th October 2021

Phasing of arboricultural works

Phase	Requirements	Method
1 Prior to any construction works on site	Tree pruning and Erection of protective fencing:  Pruning indicated by red dashed line 	T1 is to be pruned away from the property. All pruning works to be undertaken to BS3998:2010 Protective fencing is to be erected in accordance with 4.2 **of this report**. The fencing must comply with the positions shown in the Tree Protection Plan and agreed at the pre-commencement site meeting. No works, no storage of materials, no access, or any ground disturbance is to take place within the Tree Protection Barrier Fencing. **Fenced areas are to be treated as Construction Exclusion Zones.** Warning signs to be placed on all protective fencing. For large sections of fencing the signs must be placed at 15m intervals. Signs must be laminated and securely attached at all corners. Two signs are to be placed side by side; copies of whicare attached within **Appendix 6**. 
2 After installation of protective barriers and prior to any site works	Installation of temporary ground protection for a special working area within a Root Protection Areas: 	The installation of special working area. The installation of the special working area must be undertaken <u>immediately after</u> the placement of protective fencing and prior to the commencement of construction works. The temporary access routes must comprise: • Proprietary, inter-linked ground protection boards placed atop a compression – resistant layer (100mm depth of woodchip), laid onto a geo-textile membrane. The special working area is for pedestrian access and erection of scaffolding only. 

Phase	Requirements	Method
3 Start of development	Commencement of development	Protective fencing to remain in situ during development phase.
4 Completion of main construction and undertaking of landscaping	Landscaping and Dismantling of tree barrier protective fencing. Tree planting	It is essential that ground levels within the root protection areas are not altered, either by raising or lowering soil levels; even at the landscaping stage. Landscaping operations must be undertaken in a manner that will not impact trees. Landscaping within the root protection area of trees must be undertaken using hand tools only in line with any approved Landscaping management plans Tree planting to be in accordance with the approved tree planting plan (WTC_816.05) and the with the method statement supplied is section 4 of this report.
5 Completion of main construction and installation of boundary treatments	Garden and perimeter fencing within RPA of retained trees	In addition to the points addressed in 7 above, within RPAs of retained trees the wooden fencing shall be installed as follows: 1. Hand tools only 2. Exploratory post holes to be dug. Any roots encountered less than 2.5cm diameter should be cleanly cut back. 3. Roots in excess of 2.5cm can only be removed once arboricultural advice has been sought. 4. Where roots in excess of 8cm are encountered, an alternative location for the post hole is required. 5. Prior to the pouring of concrete a non-permeable membrane must fully line the post hole.

APPENDIX 1: Tree schedule

Tree ID	Species	Ht (m)	Stem Dia. (mm)	Spread (m)				Avg. Canopy Height (m)	Life Stage	Health & vitality	Struct. cond.	General Observations	Preliminary Recommendations	Estimated safe useful life expectancy (Years)	BS5837: 2012 Category	RPA Radius (m)	RPA m²
				N	E	S	W										
T1	Field maple	7	770	6	6	6	6	1	Mature	Good	Good	Previously crown reduced. Multi stemmed from base	Prune away from existing property to allow for 2m clearance	20+	B2	9.2	268

APPENDIX 2: Tree constraints plan

WTC_ 816.02

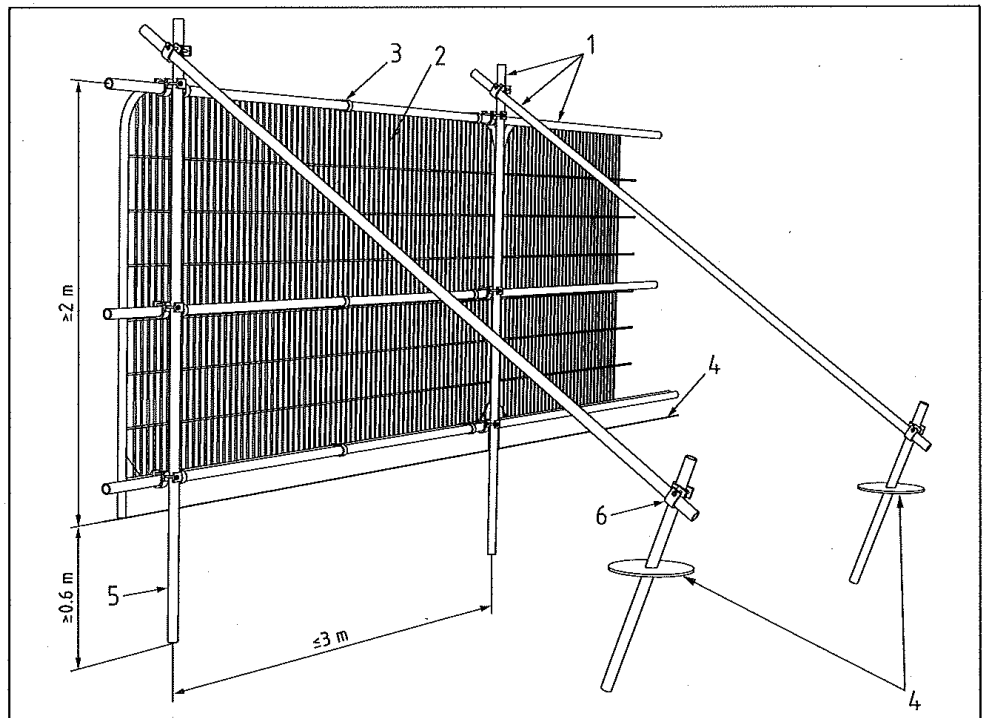
APPENDIX 3: Tree protection plan

WTC_ 816.04

APPENDIX 4: Tree planting plan

WTC_ 816.05

APPENDIX 5: Tree protection fencing (source: BS5837:2012)

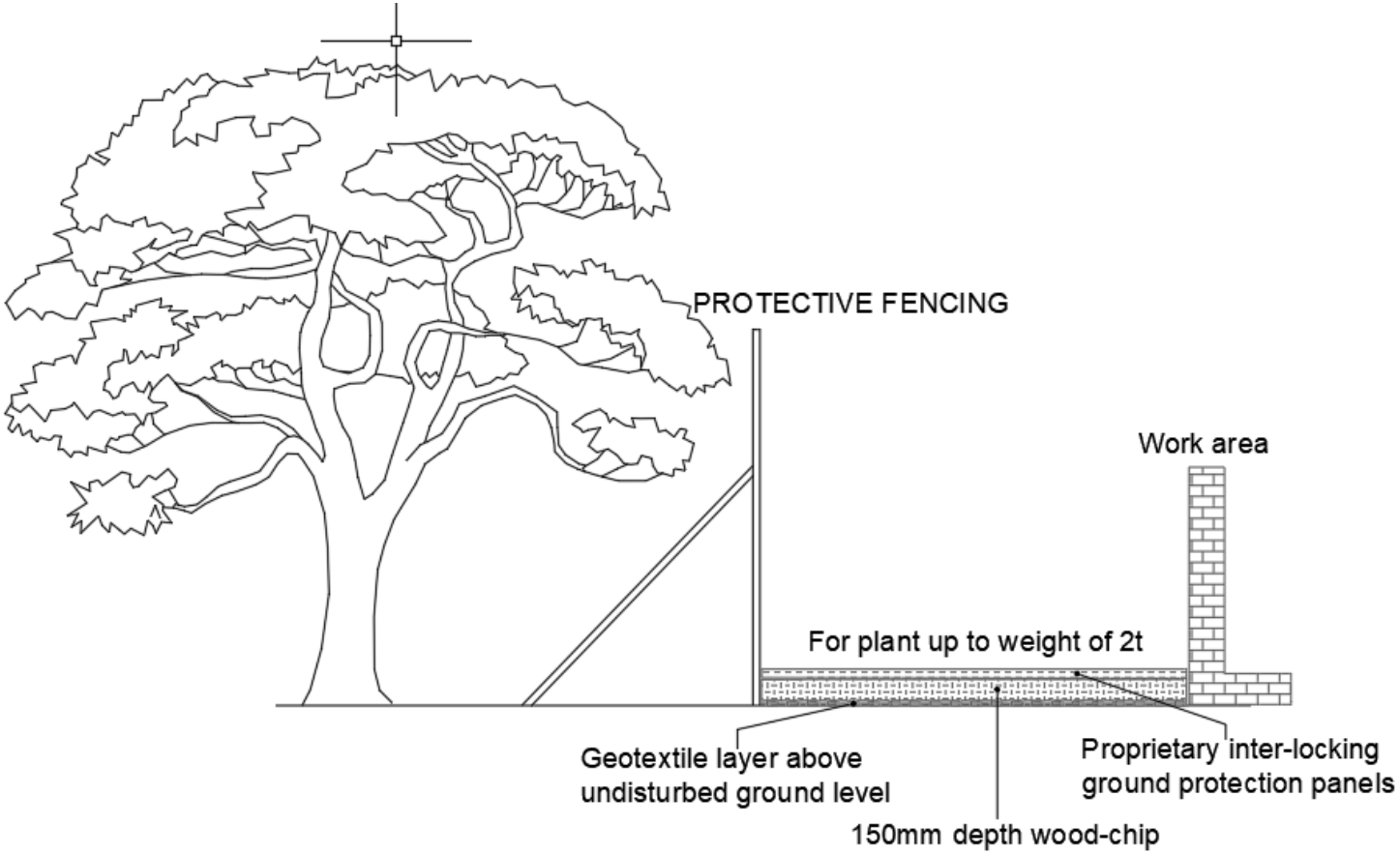


Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

APPENDIX 6: Tree protection fencing signs

APPENDIX 7: Ground protection



APPENDIX 7: Ground protection boards

DuraMatt Single Sided Access Mat - 2400mm x 600mm x 10mm - 17kg

Product Code: DURA-240060017SS

MAX 15-20 tonnes

MultiMatts are the market leading provider of temporary access and ground protection solutions. Temporary Access and Ground Protection Mats are now an essential requirement for the construction, civil engineering and groundwork industries, although they're also used extensively within the festival and outdoor event sectors.

Our DuraMatt - Light/Medium Duty Access Mat is manufactured from 100% recycled Low Density Polyethylene (LDPE) and weigh just 17kg. DuraMatt is ideal for both short and long term projects and can be used in a variety of applications.

DuraMatt is capable of taking weights of 15-20 tonnes* depending on the ground conditions, they've also been designed with a connection hole in each corner should the mats need to be connected together.

DuraMatt has a unique diamond pattern "non-slip" surface on one side, the other side has been left smooth for working on hard standing areas and sensitive grass, it also allows contractors to use the mat as a spoil board for construction materials. It's flexible nature allows the mats to follow the contours of the ground to deliver highly effective access over undulating or sloping terrain.

Standard colour option is Grey – Please contact us for other colours or customisation.

Key Applications

- Ground Work Spoil Boards
- Temporary Roadways and Car Parks
- Pedestrian Walkways
- Heritage sites; Eco-Sensitive areas
- Sports and Leisure Events
- Golf Course and Sports Field Maintenance
- Ground Protection
- Emergency Access Routes
- Utilities
- Infrastructure Maintenance

Key Features and Benefits

- 2.4m x 0.6m x 10mm - Weight 17kg
- Maximum Weight loading approx. 15-20 tonnes*
- Unique diamond pattern "non-slip" surface for optimal grip
- Avoids health and safety issues
- Avoids property, heritage and environmental damage and reinstatement
- Avoids vehicles becoming bogged down
- Low transportation and handling costs
- Various connection options for different ground conditions and equipment
- Premium 100% recycled (LD) polyethylene which is 100% recyclable

References

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