



Arboricultural Impact Assessment and Arboricultural Method Statement

In relation to proposed development at:

Hartwell Garage Site
Newbridge Road
Bath
BA1 2PP

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EXECUTIVE SUMMARY

This Arboricultural Impact Assessment and Method Statement has been prepared in order to provide Bath and North East Somerset Council (**BANES**) with arboricultural information in support of an outline planning application for development proposals on the site currently occupied by Hartwell Garage on Newbridge Road in Bath.

The information within is compliant with *BS5837: 2012 Trees in Relation to Design, Demolition and Construction – Recommendations* and contains details of the direct and indirect impacts of the proposals on trees on and adjacent to the site.

Two trees, one tree group and two trees from a further tree group are proposed for removal in order to facilitate the proposals and one dead tree is proposed for removal for arboricultural reasons. Edge trees from three tree groups require minor crown lifting and clearance of overhanging branches in order to provide clearance from a proposed cycle path and parking spaces.

Root pruning is proposed where minor encroachments are required into the root protection area (RPA) of several retained trees for the construction of foundations and for a parking space. Further RPA encroachments for parking spaces can be accommodated due to existing hard standing providing protection for underlying roots.

Protective barriers will be used to prevent construction activity from compacting soil within vulnerable areas of RPA and from causing physical damage to the above ground parts of retained trees.

The area of the site to the east of Osbourne Road lies within the limits of a conservation area although the remainder of the site does not. There are no trees on the site that are the subject of a Tree Preservation Order (TPO).

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1.0 INTRODUCTION

This Arboricultural Impact Assessment and Method Statement has been prepared in order to provide Bath and North East Somerset Council (**BANES**) with arboricultural information in support of an outline planning application for development proposals on the site currently occupied by Hartwell Garage on Newbridge Road in Bath.

1.1 VALIDATION STATEMENT

This report has been prepared in accordance with *BS5837: 2012 Trees in Relation to Design, Demolition and Construction – Recommendations* (**BS5837: 2012 hereafter**) and contains:

- Tree survey including trees on and adjacent to the site with potential to be impacted by the proposals;
- Arboricultural Impact Assessment (AIA) detailing the impacts of development proposals on trees on and adjacent to the site;
- Arboricultural Method Statement (AMS) with a specification for protective measures for retained trees throughout the development process;
- Tree Protection Plan detailing the extent and location of specified tree protection measures;
- Tree work schedule with details of trees to be removed and any recommended tree works.

1.2 DOCUMENTS PROVIDED

Document	Reference	Supplied by
Existing site plan	2924 – 010	Walsingham Planning
Proposed Site Plan with segregated cycle route	AWW_A_DWG_NEW	Walsingham Planning

Table 1: Documents provided

1.3 TREES INCLUDED IN THE SURVEY

Trees have been awarded category ratings in accordance with the BS5837:2012 Cascade chart for tree quality assessment, a rating of A, B, C or U is allocated based on the condition of a tree or group of trees in its/their current surroundings. A full account of the tree survey methodology including the categorisation criteria for retained trees can be found at Appendix C.

A category trees	B category trees	C category trees	U category trees
0	4	16	1
A category groups	B category groups	C category groups	U category groups
0	3	5	0

Table 2: Tree categorisation quantities

1.4 ROOT PROTECTION AREAS

Root Protection Areas (**RPAs**) for all trees on site have been calculated in accordance with BS5837:2012. The RPA is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure should be treated as a priority. The RPAs have been plotted onto the tree survey plans as a circle centred on the base of each tree stem with a radius of 12 times stem diameter measured at 1.5m above ground level.

For tree groups the RPA has been calculated using the tree with the largest stem diameter in the group.

BS5837:2012 requires that where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically the RPA should be modified to produce a polygon of an equivalent area. Table 3 contains details of trees for which the RPA has been modified due to site conditions.

Tree/group No.	Species	Reason for modification
Tree 08	Sycamore	RPA amended away from the overbridge foundation which will have prevented root growth beneath.
Tree 12	Norway maple	RPA modified away from existing site access to the west which will have prevented root growth beneath
Tree 13	Norway maple	RPA modified away from existing site access to the east which will have prevented root growth beneath
Group 19	Mixed species	RPA modified to west away from existing site access as it is unlikely that the trees which are growing in an elevated position on the raised bank to the west will be rooting beneath the access road to the Hanson concrete facility which is constant use by HGVs.
Group 20	Mixed species	
Group 21	Mixed species	

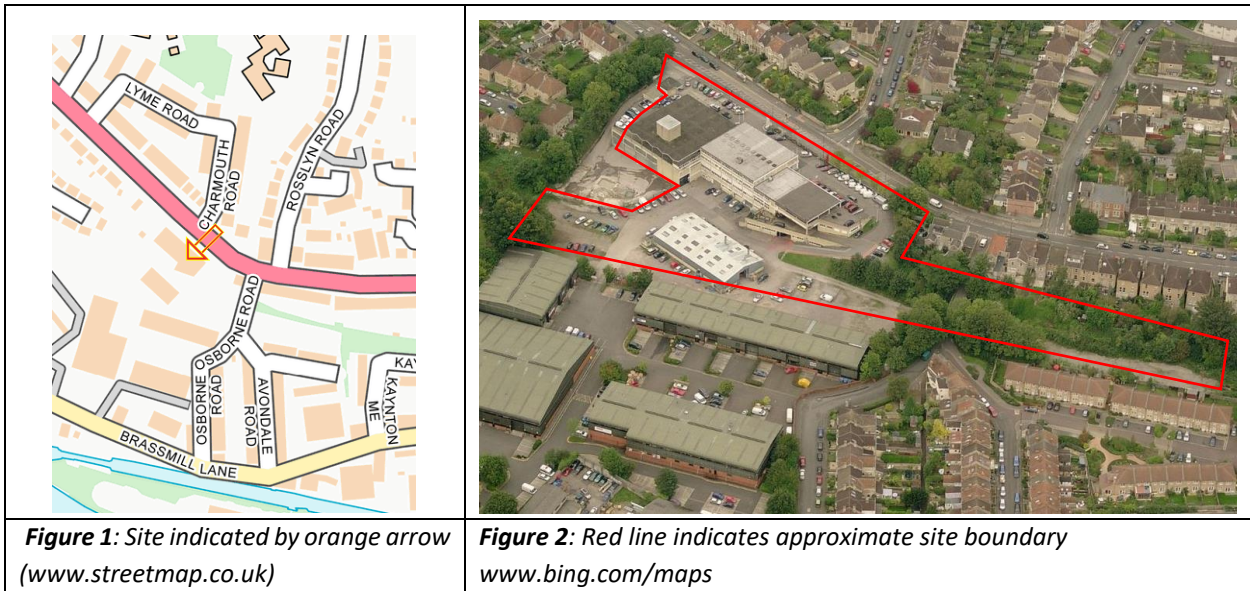
Table 3: Trees for which RPAs have been amended due to site conditions

1.5 STATUTORY CONSTRAINTS

A check of on-line resources (<https://isharemaps.bathnes.gov.uk/atmycouncil.aspx>) confirms that the area of the site to the east of Osbourne Road lies within the limits of a conservation area, although the remainder of the site does not, and that there are no trees on the site that are the subject of a Tree Preservation Order (TPO). Currently permission is not required from BANES in order to prune or remove trees on the site to the west of Osbourne Road and any works on trees to the east of Osbourne Road require a Conservation Area notification to BANES.

If this report is submitted in support of a full planning application and consent is granted by the LPA then any tree works detailed within may be carried out without the requirement for further permission from the LPA regardless of statutory designations.

1.6 SITE LOCATION



1.7 SITE DESCRIPTION

The application site is located to the south of Newbridge Road in Bath covering approximately 1.33 hectares and is primarily comprised of the Hartwell Garage car sales, servicing and storage site but also includes a Hanson concrete facility to the west. There is a section of the site to the east, beyond the Osborne Road over bridge, which is fringed by embankments leading up to adjacent houses and gardens, to the south is The Maltings Industrial Estate.

1.8 SITE IMAGES

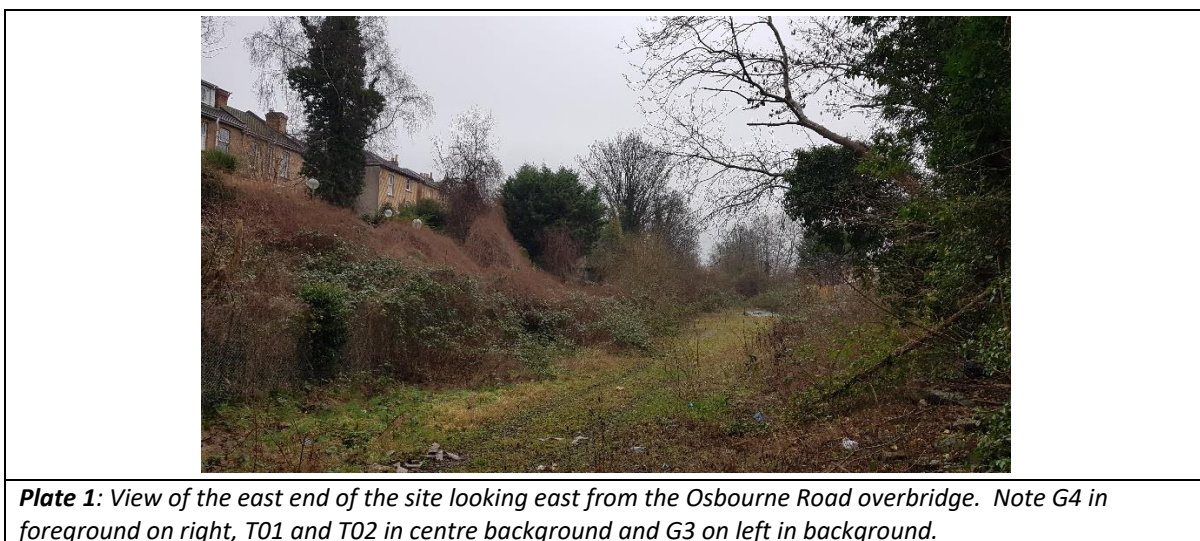




Plate 2: View east from the centre of the site looking towards Osbourne Road overbridge with G5 on the right and T7 to G9 on the left.



Plate 3: View of the south and east boundary looking west, with T10 to T14 on left behind boundary fence and T15 to G19 in background on west site boundary.



Plate 4: View of tree groups on the west site boundary, the RPA of the groups has been modified away from the access road.

2.0 ARBORICULTURAL IMPACT ASSESSMENT

2.1 THE PROPOSAL

The proposal involves the demolition of all existing site buildings and the construction of a new residential development including single and multi-storey buildings along with associated infrastructure, access roads, parking, integrated cycle routes and site landscaping.

2.2 TREE REMOVALS

Two trees, one tree group and two trees from a further tree group are proposed for removal in order to facilitate the proposals and one dead tree is proposed for removal for reasons of safety as detailed in Table 4.

Tree/group number	Species	Retention category	Impact on visual amenity
Tree 06	Robinia	C1	Moderate
Group 09 (2 trees from west end)	Sycamore	B2	Minor
Tree 16	Ash (dead)	U	Minor
Tree 23	Whitebeam	C2	Minor
Group 28	Mixed species	B2	Significant

Table 4: Proposed tree removals

Tree 06 is a large Robinia on a steep bank on the north site boundary adjacent to the Osborne Road overbridge which it partially overhangs. It has developed a crown and rooting bias to the south and the root-plate has progressively moved downslope between the initial inspection in 2014 and the 2019 inspection. The encroachment into the RPA for proposed parking combined with the crown and root bias to the south and the progressive movement at the root-plate makes the retention of this tree unfeasible and undesirable. As the tree is visible from the overbridge its loss will have a moderate impact on the overall visual amenity of the area. The removal of T23 is required to facilitate a new bus shelter.

Group 9 has been recorded as a B2 in recognition of the collective landscape value of the group although the individual trees within are C2 when assessed as individuals. 2 trees are proposed for removal from the west end of the group to facilitate the proposals, the removals will have a minor impact on the group as a whole or on the overall visual amenity of the site.

Tree 16 is dead and should be removed regardless of development proposals.

Group 28 is dominated by a single semi-mature sycamore surrounded by smaller understory trees. The retention of group 28 is unfeasible as it directly conflicts with a proposed residential parking access on the north site boundary. As this group is located on the site boundary with Newbridge Road the loss will have a significant impact on the overall visual amenity of the area.

2.3 MITIGATION

BANES operate a tree replacement standard (BTRS) which requires any trees lost to development to be replaced. The number of replacement trees required relates to the stem diameter of the trees being removed, as per table 5. Note trees categorised as U do not require replacement under BTRS.

Trunk diameter in cm @1.5 metres above ground level	Number of replacement trees required by BTRS	Number of trees removed to facilitate proposals	Replacement trees required on site
Less than 15	0-1	0	
15 - 19.9	1	5 (5 from G28)	5 trees
20 - 29.9	2	2 (T23 and 1 from G28)	4 trees
30 - 39.9	3	3 (2 from G9 and 1 from G28)	9 trees
40 - 49.9	4	0	
50 - 59.9	5	0	
60- 69.9	6	0	
70 - 79.9	7	1 (T06)	7 trees
80+	8	0	
Total number of replacement trees required			25 trees

Table 5: Tree replacement requirements for trees lost to development

Replacement planting will be delivered through a comprehensive landscape strategy prepared by Nicholas Pearson Associates which includes tree planting in numbers that exceed the requirements of the BANES tree replacement standard.

2.4 ARBORICULTURAL WORKS

Trees from the northern edge of groups 04 and 05 require minor crown lifting works over the proposed cycle path to the north to allow 3 metres clearance. Scrub and overhanging branches on the east side of G18 on the west site boundary will require pruning back in order to provide clearance from the proposed parking spaces to the east.

Tree 08 is a sycamore at the top of an embankment on the north site boundary in close proximity to Osborne Road. The crown has been overwhelmed by prolific arboreal ivy making inspection of the base and trunk impossible. The ownership of T08 was unclear during the survey but if it is within the site limits the ivy should be severed at the base of the tree.

2.5 POTENTIAL BELOW GROUND IMPACTS

General potential impacts

The most common below ground impact in a development scenario arises from the compaction of soil within the rooting area of a tree. Soil compaction prevents water ingress, creates poor drainage and reduces the availability of oxygen to roots resulting in impaired root growth or even root death. Soil compaction can arise through vehicle movements or through the storage of heavy materials on vulnerable ground such as grass.

Further below ground impacts arise through the severance of roots in order to construct foundations, install services or alter ground levels. In order to avoid compaction and/or root severance construction activity must be excluded from the Root Protection Area (RPA) of retained trees through the use of robust physical barriers. If construction access is required within the RPA barriers need to be set back and ground protection used in order to prevent soil compaction. Existing hard surfacing such as tarmac can be used as ground protection.

Site specific potential impacts

Trees 01 and 02 and northern edge trees from G04 and G05 have RPA's extending into the overflow gravel parking area and proposed cycle track. As this area is currently hard standing and no excavations are proposed, any underlying roots will be protected by the existing surface and physical barriers will be required to prevent construction access to the areas of RPA which are vulnerable to compaction.

The proposed overflow parking on the west side of the Osborne Road overbridge requires a minor encroachment into the RPA of T7, the encroachment is tolerable provided any roots encountered are pruned in accordance with the provided arboricultural method statement.

Parking is proposed within 9% of the RPA of T15, this area is currently hard standing used for parking cars and any underlying roots will be protected by the existing surface. Physical barriers will be required to prevent construction access to the remainder of the RPA which is vulnerable to compaction.

The RPA of trees 22-27 on the north site boundary extends into the proposed development area to the south. The majority of the exposed RPA will be protected by the existing Tarmac surface with protective barriers set back to the edge of the planting beds the trees are growing in. A minor percentage of the RPAs to the south conflict with the footprint of the proposed 3-5 storey building. This encroachment is tolerable for the trees provided any roots encountered are pruned in accordance with the provided arboricultural method statement.

We have not been provided with details of underground services. If services are required within the RPA of a retained tree then works must be carried out in accordance with National Joint Utilities Group (NJUG) Guidelines for installing and maintaining services close to trees (NJUG Vol 4). If there is any doubt regarding the application of the NJUG guidance then the project arboriculturalist must be consulted.

2.6 POTENTIAL ABOVE GROUND IMPACTS

Robust physical barriers erected in accordance with BS5837:2012 will prevent physical damage to the above ground parts of retained trees. Trees on the west site boundary are large enough to cast significant shade over the development although the west end of the development is primarily access and parking so there will be little impact on residential areas. Leaf fall over the adjacent access and parking areas will constitute a minor on-going maintenance requirement.

On completion of the development cyclic tree hazard inspections will be required on all boundary trees as there will be a significant increase in the frequency of use and value of their target areas.

3.0 ARBORICULTURAL METHOD STATEMENT

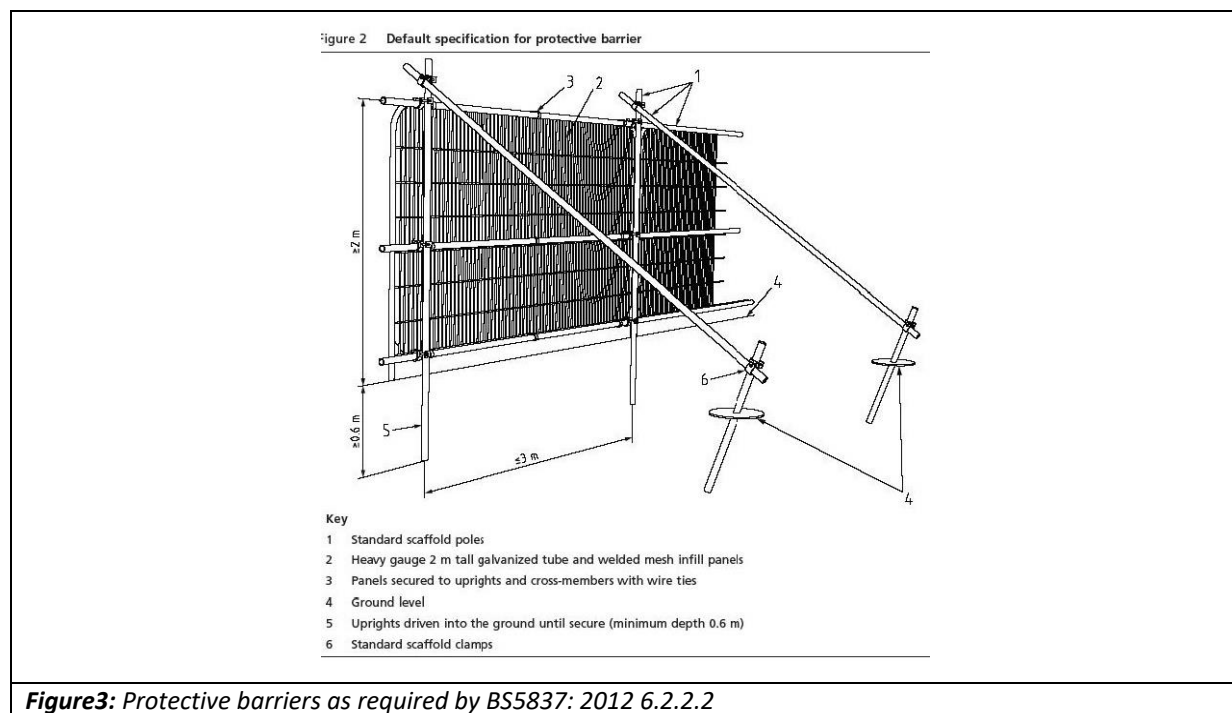
This arboricultural method statement (AMS) provides details and specifications for all tree protection measures and arboricultural related operations for the duration of the development process. Copies of this AMS must be kept on site and it will be the responsibility of the site manager to communicate the contents to all staff and contractors with duties that involve working near trees or have the potential to impact retained trees.

3.1 TREE PROTECTION

Before the commencement of any works on site protective barriers will be installed in the positions shown on the Tree Protection Plan.

The barriers must be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s).

The barriers shall be erected in accordance with BS5837: 2012 6.2.2.2 figure 2, and consist of a vertical and horizontal framework, well braced to resist impact. The vertical tubes should be spaced at a maximum interval of 3 metres and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed (figure 3 and Appendix D).



The protective barriers will create a Construction Exclusion Zone (CEZ) in order to prevent construction activity of any kind, including the storage of materials, within the unprotected RPA of retained trees. The barriers will remain in place for the duration of the demolition works unless otherwise specified within this AMS. **The barriers must not be moved or altered in any way without the written consent of BANES.** If site constraints require the alteration of the barriers then the project arboriculturalist must first be consulted who will take the necessary steps to obtain appropriate consent.

All weather protective barrier site notices, similar to that reproduced below in Appendix G, will be attached to the exterior of the protective fencing at 3 metre intervals to clearly identify the purpose of the barriers as tree protection that must not be moved or altered.

3.2 WORKS WITHIN ROOT PROTECTION AREAS

Minor encroachments are proposed into the RPAs of trees 07 for excavations associated with the creation of a parking space and trees 22-27 for excavations associated with foundations for a 3-5 storey building. Excavations must take place under the supervision of a banksman who must watch for roots. If any roots are encountered mechanical excavations must stop immediately, the roots must be fully exposed by hand digging and pruned back to the tree side of the working area, making a clean cut, with a suitable sharp tool such as a handsaw or secateurs.

A proposed parking area to the south west of the site encroaches on a minor percentage (9%) of the RPA of T15. The area of encroachment is currently a gravel surface used as a parking area so is unlikely to have significant underlying roots that are vulnerable to compaction. As a precaution there must be no excavations within the exposed RPA of T15 in order to create a parking area, any surfacing must be laid directly onto existing ground conditions and must receive a porous wearing course.

3.3 ADDITIONAL PRECAUTIONS OUTSIDE OF THE PRECAUTIONARY ZONE

Fires will not be lit near any retained tree, any materials whose accidental spillage would cause damage to a tree must be stored and handled well away from the outer edge of its RPA, no equipment, machinery, structure, notice boards, telephone cables or other services shall be attached to or supported by a retained tree.

Planning of site operations must take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Such contact can result in serious damage to the trees and might make their safe retention impossible. Consequently, any transit or traverse of plant in proximity to trees must be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times.

3.4 ACCESS FOR CONSTRUCTION WORKS

Construction traffic will enter the site from the existing site entrance from Newbridge Road and will not require access to the unprotected RPA of any retained tree. Site huts, construction compounds, welfare facilities and contractor car parking will be located outside of construction exclusion zones (CEZs).

3.5 SUPERVISION AND MONITORING

Tree Research Ltd will be responsible for the monitoring of all tree protection measures and compliance with this Arboricultural Method Statement, a certificate of compliance will be issued for the following operations:

1	Erection of protective barriers in the position shown on the Tree Protection Plan
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Table 6: Operations for which certificate of compliance will be issued

3.6 CONTINGENCY PLANS

The occurrence of any unforeseen incidents that may adversely impact retained trees must be reported to Tree Research as soon as practicable following the incident. Tree Research will then advise on the appropriate course of action and will produce and maintain a record of any such incidents including any subsequent measures taken.

3.7 CONTACT DETAILS

Contact	Address	Telephone number / email address
Local Planning Authority	Bath & North East Somerset Council Lewis House Manvers Street Bath, BA1 1JG	T: 01225 394041 E:development_management@bathnes.gov.uk
Project designers	AWW inspired environments Rivergate House 70 Redcliff Street Bristol BS1 6LS	Phone: +44 (0) 117 923 2535 Email: info@aww-uk.com
Project Arboriculturalist	Stuart Roberts Tree Research Ltd. Hatherley Cottage Cold Ashton Chippenham SN14 8JU	Telephone: 01225 891614 E-mail: stuart@treeresearch.co.uk


Table 7: Relevant contacts

3.8 PROGRAMME OF WORKS

PRE-DEVELOPMENT		
01	Pre-development site meeting	<p>Pre-commencement site meeting between Tree Research and site manager to discuss:</p> <ul style="list-style-type: none"> • Position, specification and method of installation of tree protection barriers • Trees to be removed or pruned • Requirement for root pruning
02	Tree works	<ul style="list-style-type: none"> • Removal of tree 06, 2 trees from west end of group 09, tree 16, tree 23 and group 28. • Crown lifting of groups 4, and 5 over proposed cycle track • Clearing of scrub and branches from G18 that are overhanging proposed adjacent car parking spaces
03	Installation of tree protection	<ul style="list-style-type: none"> • Installation of tree protection barriers in the position shown on the Tree Protection Plan
04	Certificate of compliance	<ul style="list-style-type: none"> • Tree Research to visit site and issue certificate of compliance to the client following the installation of tree protection measures in accordance with this arboricultural method statement
DURING DEVELOPMENT		
05	Main works phase	<ul style="list-style-type: none"> • Demolition of existing buildings • Main construction phase • Root pruning of T07 and trees 22-27 during excavations if required • Hard landscape works
POST DEVELOPMENT		
06	Removal of tree protection	<ul style="list-style-type: none"> • Removal of protective barriers • Soft landscape works including mitigation tree planting

Table 8: Programme of works

APPENDIX A: TREE SURVEY SCHEDULE

Tree Survey Schedule																		
Project: Heartwells Site, Bath																		
Location: Lower Bristol Road, Bath																		
Surveyor: Stuart Roberts																		
Survey date: 16 th January 2019																		
Tree Number	Single/ Group	Tree Name (species)	Height (m)	Calculated Stem Diameter (mm)	Number of Stems	Crown Clearance (m)	North (m)	South (m)	East (m)	West (m)	Age Class	Physiological Condition	Structural Condition	Condition Notes	Preliminary Management Recommendations	Estimated Remaining Life Contribution	BS Category	Root Protection Area (Radius, m)
01	S	Sycamore	16	630	1	1	7	7	5	3	M	G	F	Off-site tree on north east site boundary, no access for basal inspection, prolific arboreal Ivy.	None.	40+	B2	7.6
02	S	Sycamore	18	680	1	3	8	7	7	7	M	G	F	Off-site tree on north east site boundary, no access for basal inspection, prolific arboreal Ivy.	None.	40+	B2	8.2
03	G	Ash, sycamore, yew, horse chestnut and cypress	6	250	1	0	See associated plans				Y	F	F	Off-site tree group on north site boundary consisting of self-seeded trees and re-growth from cut stumps.	None.	40+	C1	3.0
	20																	
04	G	Ash and sycamore	15	350	1	0	See associated plans				Sm	F	F	Dense stand of single stem ash and sycamore on embankment on south site boundary, attenuated form with edge trees forming a severe lean away from the group, prolific arboreal Ivy.	Crown lift over proposed cycle track to north to allow 3 metres clearance.	40+	C2	4.2
	50																	
05	G	Ash and sycamore	15	220	1	0	See associated plans				Sm	F	F	Dense stand of single stem ash and sycamore on embankment on south site boundary to west of bridge support arches. Attenuated form with edge trees forming a severe bias away from the group, prolific arboreal Ivy throughout.	None. Crown lift over proposed cycle track to north to allow 3 metres clearance.	40+	C2	2.6
	60																	



Tree Number	Single/ Group	Tree Name (species)	Height (m)	Calculated Stem Diameter (mm)	Number of Stems	Crown Clearance (m)	North (m)	South (m)	East (m)	West (m)	Age Class	Physiological Condition	Structural Condition	Condition Notes	Preliminary Management Recommendations	Estimated Remaining Life Contribution	BS Category	Root Protection Area (Radius, m)
06	S	Robinia	16	707	2	0	0	7	7	6	Om	P	P	Large robinia on embankment on the north site boundary, twin stem from 1 metre, prolific arboreal Ivy, crown partially overhangs the public road to the east. Crown bias south, progressive, if gradual, movement to the south at root-plate.	Fell tree.	10+	C1	
07	S	Sycamore	14	536	4	5	0	7	4	4	Sm	F	F	Sycamore on embankment on north site boundary, multi stem from base from narrow forks with bark inclusion, prolific arboreal Ivy, suppressed by adjacent robinia.	None.	20+	C1	6.4
08	S	Sycamore	10	450	1	0	3	3	4	3	Sm	P	P	Small sycamore, possibly off-site, with severe and prolific arboreal Ivy.	Sever Ivy.	10+	C1	5.4
09	G 20	Sycamore	14	320	1	1	See associated plans				Sm	F	F	Stand of self-seeded sycamore on embankment in centre of site.	Remove 2 x trees from west end to facilitate proposals.	40+	B2	3.8
10	S	Norway maple	12	350	1	2	4	4	3	4	Sm	G	G	Off-site tree in verge on south site boundary.	None.	40+	C2	4.2
11	S	Ash	9	210	1	2	2	3	2	3	Y	G	G	Off-site tree in verge on south site boundary.	None.	40+	C2	2.5



Tree Number	Single/ Group	Tree Name (species)	Height (m)	Calculated Stem Diameter (mm)	Number of Stems	Crown Clearance (m)	North (m)	South (m)	East (m)	West (m)	Age Class	Physiological Condition	Structural Condition	Condition Notes	Preliminary Management Recommendations	Estimated Remaining Life Contribution	BS Category	Root Protection Area (Radius, m)
12	S	Norway maple	8	220	1	2	3	3	3	2	Y	G	F	Off-site tree in verge on south site boundary, restricted rooting environment with surface root to the south breaking out of planting pit.	None.	20+	C2	2.6
13	S	Norway maple	9	160	1	2	3	3	2	3	Y	G	G	Off-site tree in verge on south site boundary.	None.	40+	C2	1.9
14	S	Ash	9	297	3	2	3	2	3	3	Sm	F	P	Off-site tree in verge on south site boundary, multi stem from ground level from narrow unions with bark inclusion.	None.	40+	C2	3.6
15	S	Oak	20	1,210	1	4	4	8	9	9	Om	G	F	Large oak in south west site corner, multi stem from 3 metres, ivy established on main stem, crown bias to the south, major dead wood on north side of crown with ecological value.	None.	40+	B3	14.5
16	S	Ash	10	400	1	4	1	1	1	1	Sm	D	D	Dead ash on eastern edge of tree group in south west site corner.	Fell tree.	<10	U	
17	S	Ash	15	420	1	5	8	1	2	4	Sm	F	F	Ash in tree group in south west site corner, crown bias to the north due to suppression by adjacent mature Oak.	None.	40+	C2	5.0



Tree Number	Single/ Group	Tree Name (species)	Height (m)	Calculated Stem Diameter (mm)	Number of Stems	Crown Clearance (m)	North (m)	South (m)	East (m)	West (m)	Age Class	Physiological Condition	Structural Condition	Condition Notes	Preliminary Management Recommendations	Estimated Remaining Life Contribution	BS Category	Root Protection Area (Radius, m)
18	G	Sycamore, ash and elm	10	150	1	1	See associated plans				Y	F	F	Group comprised of self-seeded young trees in south west site corner.	Clear scrub and overhanging branches to east over proposed parking spaces.	40+	C1	1.8
	20																	
19	S	Ash	15	550	1	0	5	4	4	4	M	F	F	Ash on bank on west site boundary, no access to base for inspection, prolific arboreal Ivy and climbing plants.	None.	40+	B2	6.6
20	G	Cypress	14	250	1	0	See associated plans				Sm	F	F	Cypress group on a steep bank on the west site boundary adjacent Hanson yard access road.	None.	20+	C2	3.0
	10																	
21	G	Ash and sycamore	14	350	1	0	See associated plans				Sm	G	G	Group predominantly comprised of ash on a steep bank on the west site boundary adjacent access to Hanson yard access road.	None.	40+	B2	4.2
	100																	
22	S	Whitebeam	8	280	1	2	4	3	3	3	Sm	G	G	Amenity tree in planting bed on north site boundary on road frontage.	None.	40+	C2	3.4
23	S	Whitebeam	8	250	1	2	2	3	2	3	Sm	G	G	Amenity tree in planting bed on north site boundary on road frontage.	Fell to facilitate bus shelter	40+	C2	
24	S	Whitebeam	7	230	1	2	3	3	3	3	Sm	G	G	Amenity tree in planting bed on north site boundary on road frontage.	None.	40+	C2	2.8
25	S	Whitebeam	7	210	1	2	3	3	3	2	Sm	G	G	Amenity tree in planting bed on north site boundary on road frontage.	None.	40+	C2	2.5



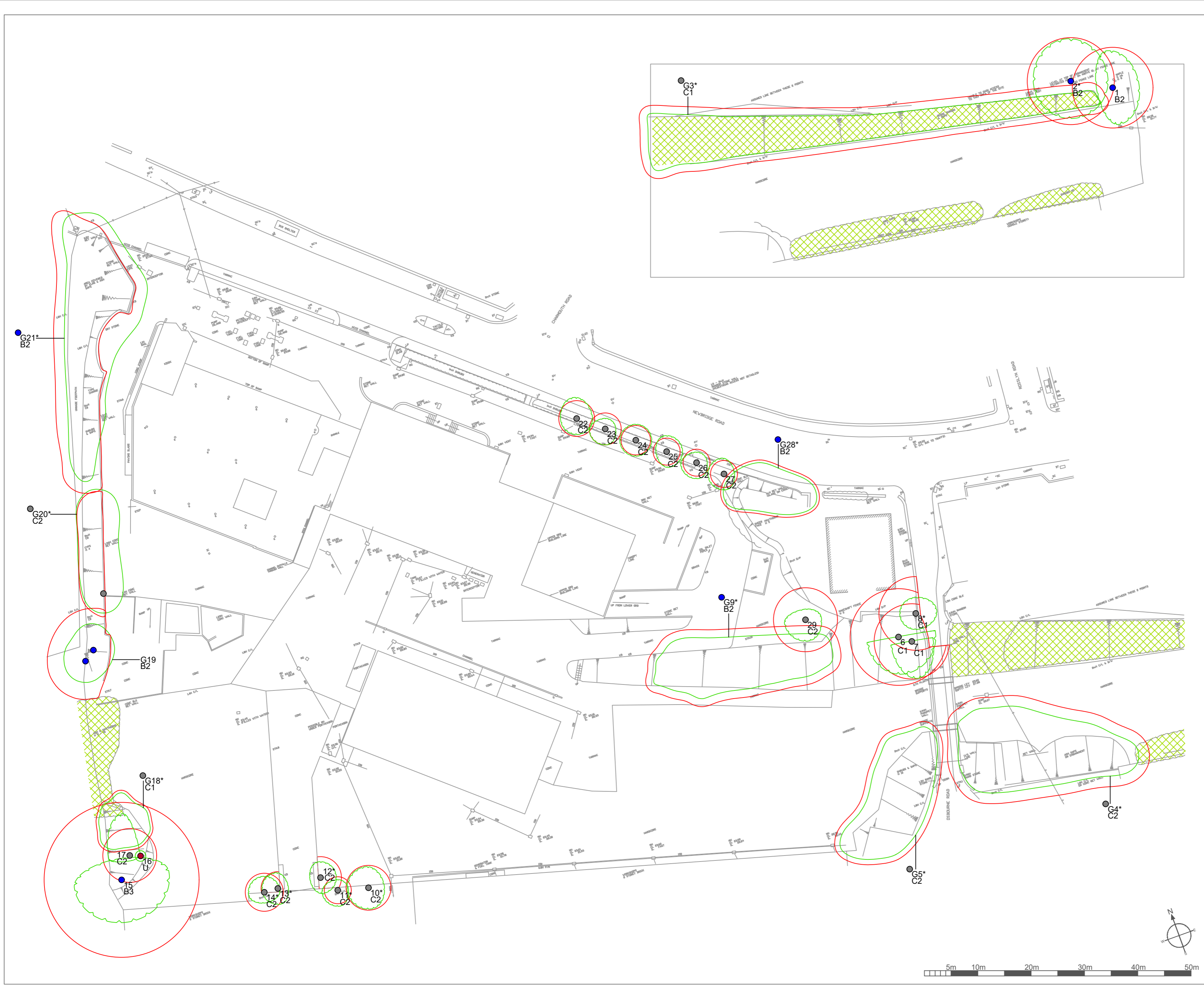
Tree Number	Single/ Group	Tree Name (species)	Height (m)	Calculated Stem Diameter (mm)	Number of Stems	Crown Clearance (m)	North (m)	South (m)	East (m)	West (m)	Age Class	Physiological Condition	Structural Condition	Condition Notes	Preliminary Management Recommendations	Estimated Remaining Life Contribution	BS Category	Root Protection Area (Radius, m)
26	S	Whitebeam	6	210	1	2	2	3	2	3	Sm	G	G	Amenity tree in planting bed on north site boundary on road frontage.	None.	40+	C2	2.5
27	S	Whitebeam	6	210	1	2	3	3	2	3	Sm	G	G	Amenity tree in planting bed on north site boundary on road frontage.	None.	40+	C2	2.5
28	G	Sycamore, hawthorn and ash	10	320	1	0	See associated plans				Sm	G	G	Group of predominantly sycamore in a raised bed on north site boundary, prolific arboreal Ivy throughout group.	None.	40+	B2	3.8
	8																	
29	S	Sycamore	12	500	1	2	2	4	3	4	M	F	F	Sycamore on north site boundary, prolific arboreal Ivy.	None.	40+	C2	6.0



Table Heading	Definition
Tree Number	Tree numbers as they appear in the Tree Schedule and are marked on the Tree Protection Plan drawings
Single or group	S for a single tree and G is for a group, the number of trees in a group appears in a separate box below the G
Species	The common name of the tree
Height (m)	In meters measured with a laser clinometer
Calculated stem diameter (mm)	Calculated diameter of the stem(s) measured in millimetres at 1.5 meters from ground level
Number of stems	Indicates the number of stems measured to inform the Root Protection Area
First branch height (m)	The height in metres of the first significant branch and beneath indicated by letters the direction of that branch
Crown clearance (m)	Height in metres of crown clearance above adjacent ground level
Crown spread (m)	The spread of the crown measured in metres, taken at the four cardinal points from the trunk
Age class	(Y) Young, (SM) Semi-Mature, (M) Mature, (A) Ancient or (V) Veteran
Physiological condition	Good – tree has good health and vitality. Fair- tree has minor health and vitality problems. Poor- tree has low vitality and significant health problems. Dead- dead tree.
Structural condition	G-good P- poor F- Fair D-dead
Condition notes	Specific notes relating to the condition of the tree
Preliminary management recommendations	Recommendations for tree surgery based on any physical defects found or for further investigation of defects that require a more detailed assessment
Estimated remaining contribution	In years <10, 10+, 20+ or 40+
RPA (Root Protection Area) Radius (m):	The radius of the area in square metres that will need to be protected during construction with a protective fence and/or load bearing surface
Category grading Category	Category A: Trees of high quality with an estimated remaining life expectancy of at least 40 years Category B: Trees of moderate quality with an estimated remaining life expectancy of at least 20 years 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 150mm Category U: Trees 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

TREE SURVEY SCHEDULE KEY

APPENDIX B: TREE CONSTRAINTS PLAN AND TREE PROTECTION PLAN



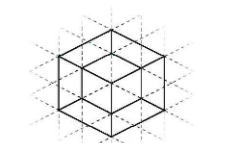
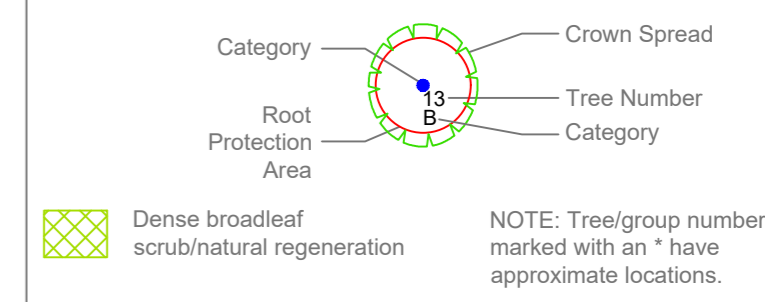
Key

- Categories:
- Category A Trees - High Quality
 - Category B Trees - Moderate Quality
 - Category C Trees - Low Quality
 - Category U Trees - Poor Quality / Remove

- Sub Categories:
- Sub category 1 trees are those with other 'arboricultural value'
 - Sub category 2 trees are those with 'landscape value'
 - Sub category 3 trees are those with 'cultural or conservation value'

These subcategories do not infer any hierarchy of value. For example a category B1 tree should not necessarily be considered any more valuable than a category B3 tree.

NOTE: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

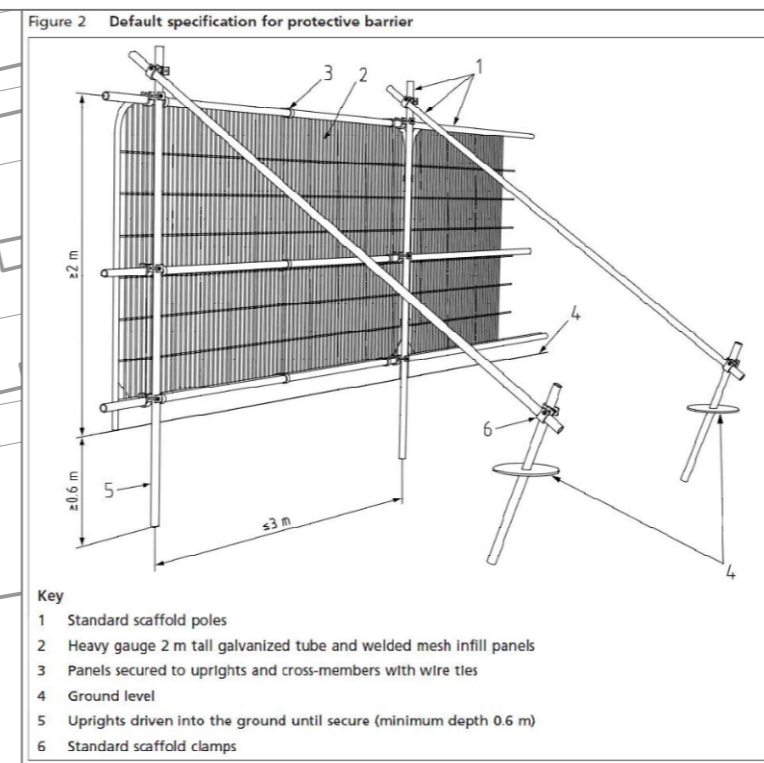
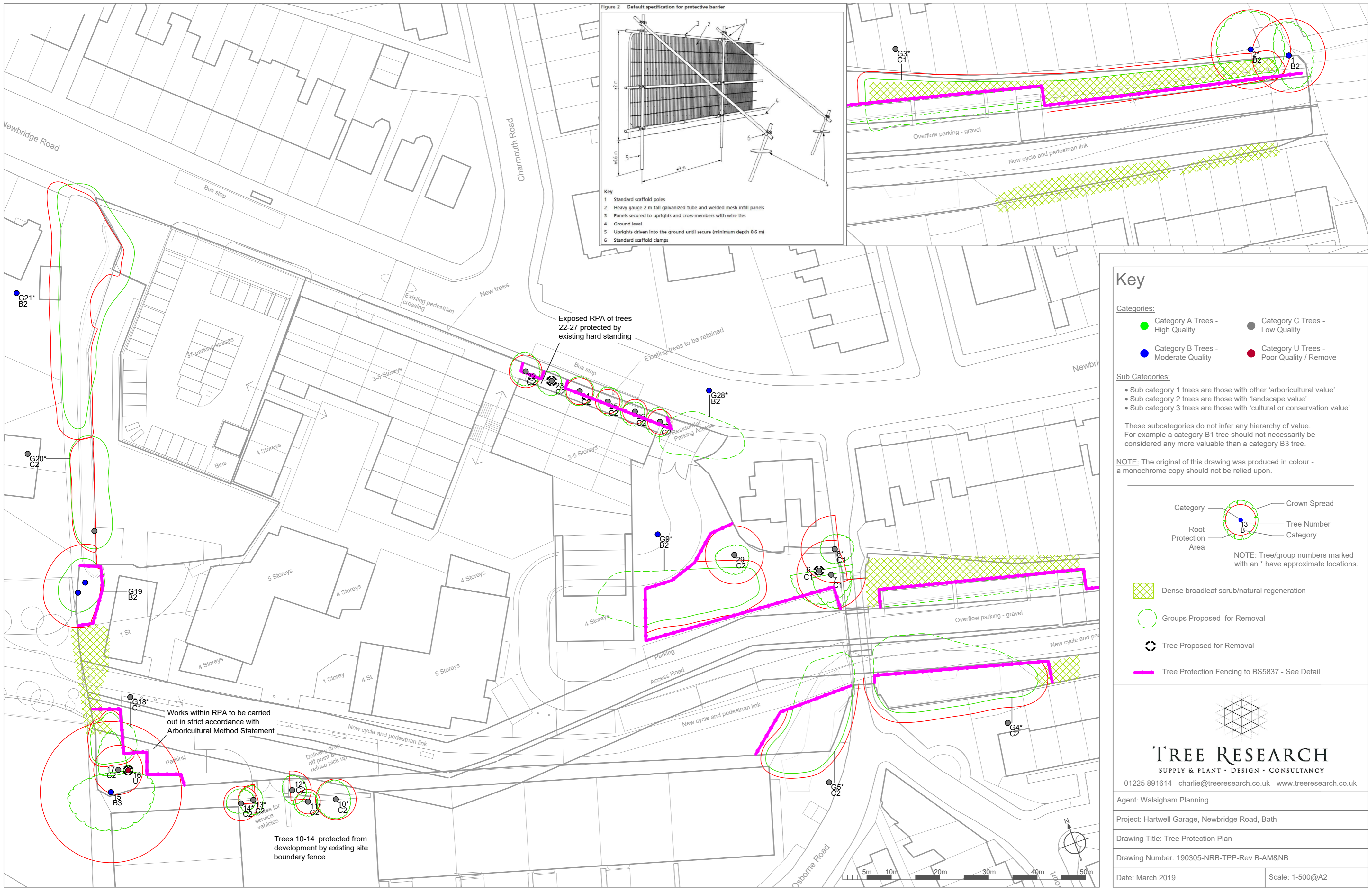


TREE RESEARCH

SUPPLY & PLANT • DESIGN • CONSULTANCY

01225 891614 - charlie@treeresearch.co.uk - www.treeresearch.co.uk

Agent: Walsingham Planning	
Project: Hartwell Garage, Newbridge Road, Bath	
Drawing Title: Tree Constraints Plan	
Drawing Number: 190123-NRB-TCP-RevA-AM&NB	
Date: January 2019	Scale: 1-500@A2



Key

Categories:

- Category A Trees - High Quality
- Category B Trees - Moderate Quality
- Category C Trees - Low Quality
- Category U Trees - Poor Quality / Remove

Sub Categories:

- Sub category 1 trees are those with other 'arboricultural value'
- Sub category 2 trees are those with 'landscape value'
- Sub category 3 trees are those with 'cultural or conservation value'

These subcategories do not infer any hierarchy of value. For example a category B1 tree should not necessarily be considered any more valuable than a category B3 tree.

NOTE: The original of this drawing was produced in colour - a monochrome copy should not be relied upon.

Category (indicated by color)

Root Protection Area (indicated by circle)

Crown Spread (indicated by dashed circle)

Tree Number (indicated by number)

Category (indicated by letter)

NOTE: Tree/group numbers marked with an * have approximate locations.

- ▨ Dense broadleaf scrub/natural regeneration
- Groups Proposed for Removal
- ⊗ Tree Proposed for Removal
- Tree Protection Fencing to BS5837 - See Detail

Works within RPA to be carried out in strict accordance with Arboricultural Method Statement

Exposed RPA of trees 22-27 protected by existing hard standing

Trees 10-14 protected from development by existing site boundary fence

TREE RESEARCH
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Agent: Walsingham Planning

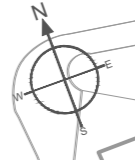
Project: Hartwell Garage, Newbridge Road, Bath

Drawing Title: Tree Protection Plan

Drawing Number: 190305-NRB-TPP-Rev B-AM&NB

Date: March 2019

Scale: 1-500@A2



APPENDIX C: TREE SURVEY METHODOLOGY

The National Planning Policy Framework (NPPF)⁶ seeks to ensure sustainable development and highlights the importance of Green Infrastructure, of which trees are an integral part, aims to protect and enhance landscapes and achieve a net gain in biodiversity. Within (NPPF)⁶ veteran and ancient trees and woodland are recognised as highly valuable and irreplaceable habitat that should be retained.

Local Planning Authorities (LPAs) in the UK have a statutory duty to maintain and enhance green infrastructure when considering planning applications and many LPAs have Supplementary Planning Documents (SPDs) with further detail in this regard. The potential impact of development on all trees, regardless of statutory designation, is therefore a material consideration within the planning process.

'BS5837:2012 Trees in relation to design demolition and construction – Recommendations (BS5837) provides a framework which sets out how trees should be considered within the development process.

The BS5837 methodology requires that a tree survey is undertaken by an arboriculturalist of all trees on and adjacent to the site with a stem diameter greater than 75mm when measured at 1.5 metres from ground level. The survey should collect details of the constraints presented by the trees such as crown spreads and root protection areas (RPAs). The identified constraints should be presented on a Tree Constraints Plan (TCP) and used to inform the site design which should seek to retain the higher value trees on the site.

Following on from the final site design an Arboricultural Impact Assessment (AIA) must be produced with details of the impact the development will have on the trees and the impact retained trees may have post development.

Potential adverse impacts identified within the AIA must then be mitigated within an Arboricultural Method Statement (AMS) which should contain a clear specification for all tree protection measures and include a Tree Protection Plan that clearly identifies all tree protection. The AMS can be issued in full in support of the site planning application or may be presented as a heads of terms document at the end of the AIA, in this case a detailed AMS is likely to be conditioned by the Local Planning Authority (LPA) as part of consent. Many LPAs like to receive the AMS in full in support of the site planning application so that they can condition compliance with individual aspects such as tree protection or arboricultural supervision.

It should be noted that although BS5837 represents industry best practice, it is a guidance document only and planning applications must be presented in accordance with the planning policy of the relevant Local Planning Authority.

BASELINE SURVEY

A site visit was undertaken by qualified arboriculturalist Stuart Roberts. The inspection took place from ground level and employed the Visual Tree Assessment method (Mattheck and Breloer, 1994).

Category ratings: In accordance with the BS5837:2012 Cascade chart for tree quality assessment, a rating of A, B, C or U is allocated based on the condition of a tree or group of trees in its/their current surroundings. No consideration is given to any specific development proposal when allocating category ratings, category definitions are detailed in Table 2.

Category	Criteria
A	<i>Those trees or groups which have high quality and value, are in good structural and physiological condition and are expected to have a useful life expectancy of at least another 40 years- indicated in green on the associated plans</i>
B	<i>Those trees or groups which would be considered as category A trees but which are of lower value, poorer structural condition, or which are expected to have a useful life expectancy of a minimum of 20 years- indicated in blue on the associated plans</i>
C	<i>Those trees or groups which are of low quality and value, trees currently in adequate condition to remain until new planting is established or are young trees with a stem diameter less than 150mm. Category C trees are expected to have a life expectancy of a minimum of 10 years- indicated in grey on the associated plans</i>
U	<i>Trees or groups in such a condition that any existing value would be lost within ten years and which should, in the current context, be removed for reasons of sound arboricultural management- indicated in red on the associated plans</i>

BS5837:2012 Tree categorisation criteria

Sub categories are awarded in accordance with the following criteria:

Sub category 1	<i>Trees with arboricultural value</i>
Sub category 2	<i>Trees with landscape value</i>
Sub category 3	<i>Trees with cultural or conservation (ecological) value</i>

BS5837:2012 Tree sub-category criteria

ROOT PROTECTION AREAS

Below ground constraints or Root Protection Areas (**RPAs**) for all trees on site have been calculated in accordance with BS5837:2012. The RPA is a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure should be treated as a priority. The RPAs have been plotted onto the Tree Constraints Plan and Tree Protection Plan as a circle centred on the base of each tree stem with a radius of 12 times the trees stem diameter measured at 1.5 metres above ground level.

BS5837:2012 requires that where pre-existing site conditions or other factors indicate that rooting has occurred asymmetrically the RPA should be modified to produce a polygon of an equivalent area. Any trees on site with identified as requiring a modification to their RPA have been indicated within the AIA.

DATE PRESENTATION

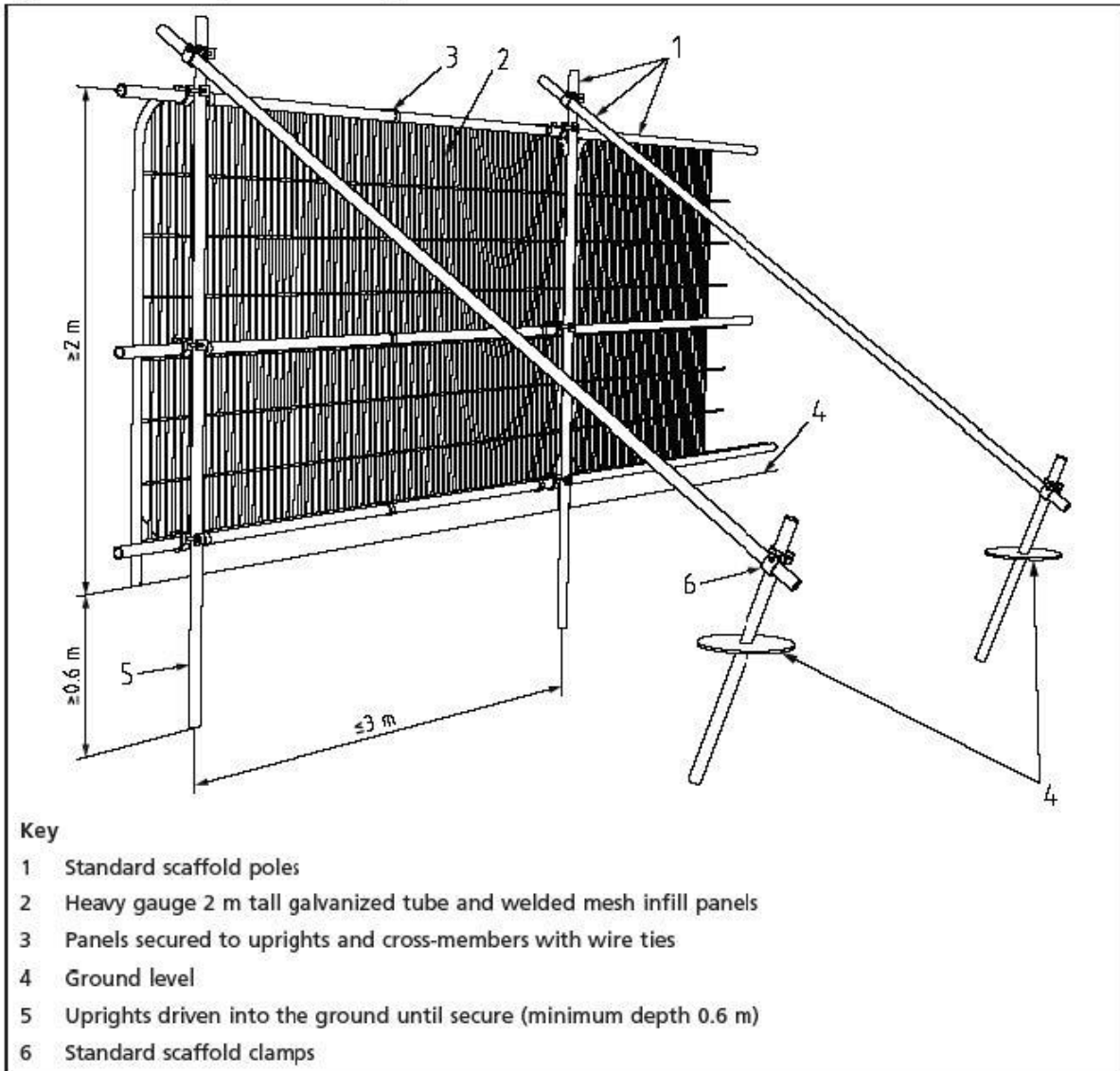
Data collected regarding the individual trees or groups is presented in the Tree Survey Schedule in Appendix A in accordance with BS5837: 2012. Trees have not been physically tagged but have been assigned individual numbers that are used to identify a tree, group or hedgerow throughout the report, within the Tree Survey Schedule and on the associated plans.

The following information has been collected for each tree in the survey:

- Tree or group number
- Single or group category
- Common and scientific name of species
- Height in metres
- Number of stems
- Stem diameter
- Clearance of crown from ground level in metres
- Radius of crown
- Age class
- Physiological condition
- Estimated remaining contribution in years
- Structural condition
- Preliminary management recommendations
- Tree categorisation
- **Root Protection Area (RPA)**

APPENDIX D: PROTECTIVE FENCING SPECIFICATION

Figure 2 Default specification for protective barrier



Barriers must be fit for the purpose of excluding construction activity and appropriate to the degree and proximity of work taking place around the retained tree(s).

Barriers shall be erected in accordance with BS5837: 2012 6.2.2.2, and consist of a vertical and horizontal framework, well braced to resist impact. The vertical tubes should be spaced at a maximum interval of 3 metres and driven securely into the ground. Onto this framework, welded mesh panels should be securely fixed.

APPENDIX E: REPORT LIMITATIONS

The tree survey is a preliminary assessment from ground level and observations have been made solely from visual inspection for the purposes of assessment in terms relevant to planning and development. Only binoculars have been used to aid tree assessment. No decay detection equipment has been used in assessing trunk condition.

The conclusions relate to conditions found at the time of inspection. The recommendations contained within this report (see Appendix 1.0 - Tree Survey Schedule) are valid for a period of 12 months only. Any significant alteration to the site that may affect the trees that are present or have a bearing on the planning implications (including level changes, hydrological changes, extreme climatic events or other site works) will necessitate a re-assessment of the trees.

It should be noted that this survey is not a tree safety inspection, it is carried out in order to inform the planning process. Where clear and obvious hazards have been observed, these have been addressed in the recommendations of the Tree Survey Schedule (Appendix 1.0). A full assessment of the levels of risk posed by trees would be informed by considering site usage together with hazards present within a tree. Changes in site use are likely to occur, during and as a result of, any proposed development. In the light of these changes, regular tree risk assessments are advised.

This report does not provide advice or recommendations in relation to building subsidence. If shrinkable clay soils are present on the site then the guidance provided in the National House Building Council (NHBC) chapter 4.22 should be followed in order to prevent future tree related subsidence issues.

This report is solely for the use of the developers and the planning authority, any other use renders it invalid for that purpose.

APPENDIX F: STATUTORY DESIGNATION RESTRICTIONS

TREE PRESERVATION ORDERS

Local planning authorities can make tree preservation orders (TPOs) to protect trees in the interests of amenity. TPOs can protect individual trees as well as woodlands. The orders have the effect of preventing the cutting down, topping, lopping, uprooting, wilful damage or wilful destruction of trees, except in certain circumstances, other than with the consent of the local planning authority. The relevant local planning authority can be contacted for further information.

CONSERVATION AREAS

In conservation areas, trees of a diameter greater than 75 mm, measured at a height of 1.5m, are automatically protected. Except in certain circumstances, notice of intent is required to be given to the local planning authority before work is carried out. The relevant local planning authority can be contacted for further information.

Even when no specific legal protection exists, it might be necessary to obtain a felling licence or consent under the Hedgerow Regulations 1997 [57]. Felling licences are required (except in certain circumstances) if the volume of timber to be felled exceeds specified amounts.

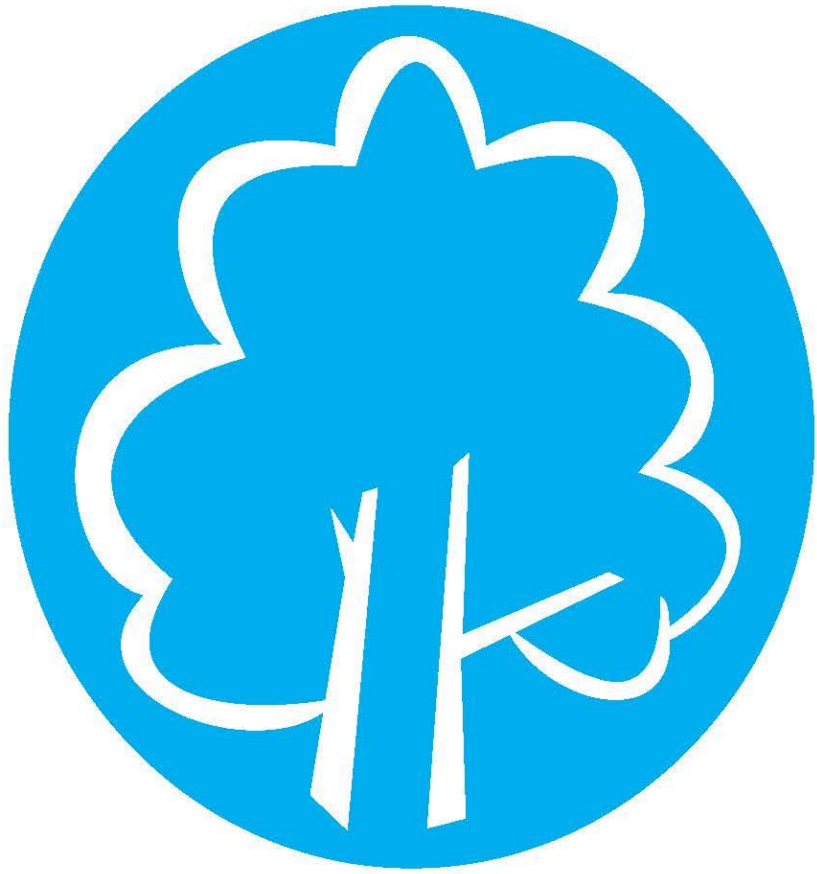
If this report is submitted in support of a full planning application, if consent is granted by the LPA, then any tree works detailed within may be carried out without the requirement for further permission from the LPA.

WILDLIFE, HABITAT AND PLANT HEALTH

Legislation protects species of flora (e.g. lichens) and fauna, including bats and birds. Where there is evidence that bats, birds or other protected species are present, the statutory nature conservation organization needs to be consulted before starting any work. General advice on bats can be obtained from the Bat Conservation Trust (www.bats.org.uk) and on birds from the Royal Society for the Protection of Birds (www.rspb.org.uk).

Orders can occasionally be made, under the Plant Health Act 1967 [42] 3) (for Northern Ireland: Plant Health Act (NI) 1967 [60]), to control the spread of specified pests and pathogens. Orders can control the movement of plants and material and impose fees for certain work. For up-to-date information, refer to the websites of the Plant Health Service (www.fera.defra.gov.uk/plants/plantHealth/).

APPENDIX G: EXAMPLE TREE PROTECTION WARNING SIGN



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