Tree Constraints Plan
Arboricultural Implications Assessment
Arboricultural Method Statement
Tree Protection Plan
For the proposed development of 192 Haverstock Hill, Camden, London.

Prepared by

Stuart Roberts Dip Arb (RFS) 21st March 2012

Prepared for

Mandip Singh Sahota
Nicholas Taylor and Associates
128 Southwark Street
London
SE1 0SW

GREENMAN ENVIRONMENTAL MANAGEMENT
Unit B, Heather Farm, Lansdown Lane, Bath, BA1 4NA. Tel 01225 466663 Fax 01225 421331.

CONTENTS

Report summary

This report contains the assessment findings of a tree survey conducted in accordance with BS5837:2005 Trees in Relation to Construction – Recommendations around a site proposed for development at 192 Haverstock Hill, Camden London.

The proposal is for a five storey building with a ground floor shop / restaurant and basement beneath.

There are three trees within the zone of influence 2 x Sycamore (T1 and T2) and 1 x Copper Beech (T3). The Sycamores are low value with one of them (tree 1) having a significant defect. The copper beech is an offsite tree in the pavement to the south west of the site and is a high value B category tree.

The proposed development will have a minor impact on the Root Protection Area of the Beech. This encroachment can be safely carried out under the supervision of an arboricultural consultant.

The mitigation for the scheme is proposed in the form of the planting of a Copper Beech to enhance the existing line of Copper Beeches at the front of the development.

1.0 Instructions

1.0.1 This report has been prepared by Greenman Environmental Management (GEM) on behalf of Mandip Singh Sahota of Nicholas Taylor and Associates. The scope was outlined in a fee proposal provided to Adam Cook of Adam Cook Landscape Planning and Design on the 15th March 2012 and accepted by Mandip Singh Sahota on behalf of Nicholas Taylor and Associates on the 15th March 2012.

1.0.2 GEM has been instructed by Mandip Singh Sahota to undertake a tree survey and to prepare and provide an arboricultural report and associated plans in accordance with the methodology outlined in BS5837:2005 Trees in Relation to Construction – Recommendations. Specifically, GEM has been instructed to provide a Tree Constraints Plan (TCP) an Arboricultural Implications Assessment (AIA) and following final design decisions a Tree Protection Plan (TPP) and an Arboricultural Method Statement (AMS) for the site at 192 Haverstock Hill, Camden, London.

1.1 Purpose of the Report

1.1.1 To assess the arboricultural, landscape and cultural (conservation) value of the trees on the site in accordance with the methodology set out in BS5837:2005 Trees in Relation to Construction – Recommendations in order to supply information essential to inform the design process

1.1.2 To accompany the project Planning Application as a document supporting the application and demonstrating that the implications of the proposed development on the arboricultural, landscape and cultural (conservation) value of the trees on the site have been fully considered during the design process.

1.1.3 Specifically, this report and the accompanying information is supplied in order to:

- Identify trees that are of sufficient arboricultural, landscape and cultural (conservation) value to constitute a material consideration during the design phase of the development project. These are trees that should be considered for retention in the final site layout design.

- Identify trees that should not be considered to be a constraint to the site layout of a development due, primarily, to their low arboricultural value. Such trees are those that are recommended for removal regardless of any development proposals.

- Present information regarding the above ground constraints (crown spread) and below ground constraints (Root Protection Areas – RPAs) in a Tree Schedule and on a Tree Constraints Plan (TCP).

- Identify trees to be removed and trees to be retained and protected during the site clearance, demolition and construction phases of the project.

- Recommend remedial tree works to be undertaken to trees that will be retained prior to commencement of the site clearance, demolition and construction phases of the project.

- Present information regarding the location of protective barriers or fencing and ground protection (Construction Exclusion Zones- CEZ) on a Tree Protection Plan (TPP).

- Identify special engineering, excavation or protection measures intended to minimise the impact on trees to be retained of breaches of Root Protection Areas, (RPAs) where this is required in the site layout design.

- Provide an Arboricultural Method Statement (AMS) for the recommended works related to trees to be retained during and after the development.

1.2 Limitations

1.2.1 This 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, trowel, mallet and fine manual metal probe have been used to aid tree assessment. No invasive or other detailed internal decay detection devices have been used in assessing trunk condition.

1.2.2 The conclusions relate to conditions found at the time of inspection. The recommendations contained within this report (Appendix 1.0 - Tree Schedule) are valid for a period of one year 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 and the site.

1.2.3 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 preliminary recommendations (Appendix 1.0 - Tree Schedule). A full assessment of the levels of risk posed by trees would be informed by considering site use together with hazards present within a tree. Changes in site use are likely to occur during, and result from, the proposed development. In the light of these changes, regular tree risk assessments are advised.

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

1.2.5 The positions of all of the trees were provided on the site topographical survey plan and, from site observation, appear to be reasonably accurate Tree 3 however was not present on the supplied DWG topographical survey and has been plotted as accurately as possible.

1.3 Documents provided

- DWG Topographical Survey Job title 192 Haverstock Hill, drawing title Site Survey
- Outline design Location Plan
- Outline design Basement, 1st, 2nd, 3rd and 4th floor plan
- Outline design Front and side elevations
- Outline design Section Plan
- Outline design Schedule of accommodation
- Outline design Perspective view

1.4 Site Visit and Tree Assessment

1.4.1 A site visit was undertaken on the 20th March 2012 by qualified arboriculturalist Stuart Roberts. The inspection took place from ground level aided by the Visual Tree Assessment method (Mattheck and Breloer, 1994).

1.4.2 The survey considered trees identified on the Topographical Survey together with any additional trees within the site not identified on this plan as well as those trees outside the site boundary where feasible and when considered relevant.

1.4.3 While this appraisal is not a tree risk assessment it nonetheless takes into account observed structural defects of the inspected trees in order to inform conclusions with regard to their retentive worth.

1.4.4 Recommendations that have been provided are intended to address immediate tree hazards and to manage trees within the context of the site becoming a work area and a proposed development site.

1.5 Data Collection

1.5.1 Data collected includes the following information: (further explanations of which are included in the Tree Schedule - appendix A)

- Tree or group number
- Single or group category
- Scientific name of specie
- Height in Metres
- Number of stems
- Stem or base diameter (dependant on single or multi stem specimen)
- Clearance of crown from ground level in metres
- Radius of crown (estimated or taken form provided topographic survey)
- Age class
- Physiological condition
- Estimated remaining contribution in years
- Structural condition

- Preliminary management recommendations
- Tree categorisation
- RPA – The radius of the **R**oot **P**rotection **A**rea in metres

1.5.2 All measurements presented are metric, see the Key at the rear of the tree Schedule (Appendix 1.0) for an explanation of the measurements and codes presented.

1.5.3 Category ratings:

Category ratings are allocated based on the condition of a tree in its current surroundings. No consideration is given to any specific development proposal when allocating category ratings.

Category A: Those trees 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 Tree Constraints Plan (TCP).

Category B: Those trees 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 Tree Constraints Plan and schedule.

Category C: Those trees 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 Tree Constraints Plan and schedule.

Category R: Trees 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 Tree Constraints Plan and schedule.

1.5.4 Sub categories:

Sub categories of 1, 2 or 3 are included in the tree schedule and plans and are defined as follows:

Sub category 1 trees are those with 'arboricultural value'

Sub category 2 trees are those with 'landscape value'

Sub category 3 trees are those with 'cultural or conservation (ecological) value.

1.6 Presentation of the Data Collected

1.6.1 Data collected regarding the individual trees or groups is presented in the Tree Schedule - appendix A. in accordance with ***BS5837:2005 Trees in Relation to Construction, Recommendations***

1.6.2 All other relevant information is presented in the main body of this report

1.6.3 Trees have not been physically tagged, but have been allocated an individual tree number. This number is used to identify an individual or a group of trees throughout the report, within the schedule and the Tree Constraints Plan and Tree Protection Plan Appendix B.

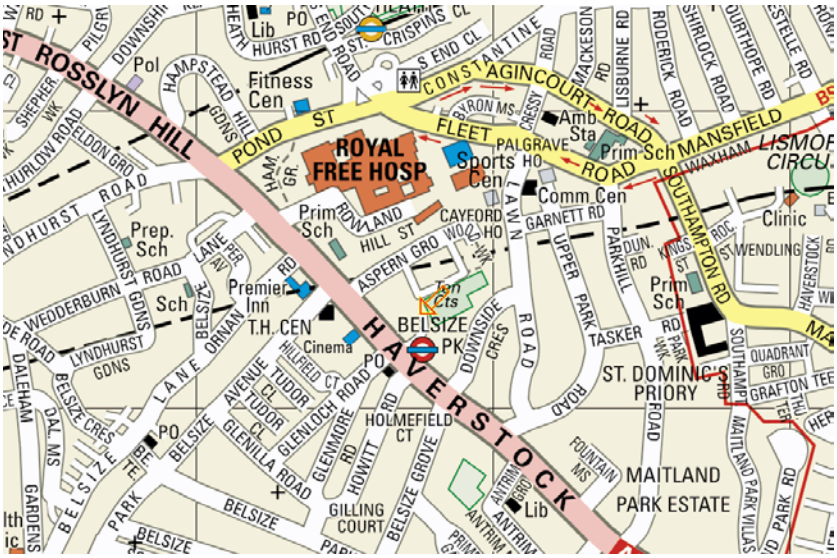
1.7.0 Arboricultural Implications Assessment

1.7.1 Site Description

1.7.2 The site is occupied by a single storey building currently used as a florist. There are multi storey buildings to the north, the south aspect is separated from Belsize Park Underground Station by an access road. To the east is a private car park used by a tennis club and serviced by the access road to the south. The west aspect is open to Haverstock Hill, the road frontage benefits from and is characterised by a row of mature Copper Beach trees. Three trees have recently been removed and their stump locations are shown on the tree constraints plan.

1.7.3 Access to the site is via the road frontage at Haverstock Hill, there is an access road to the south of the site.

1.8.0 Site location



www.streetmap.co.uk

OS X (Eastings)	527375
OS Y (Northings)	185158
Nearest Post Code	NW3 2AJ
Lat (WGS84)	N51:33:03 (51.550942)
Long (WGS84)	W0:09:51 (-0.164291)

1.9.0 Statutory and Non-Statutory Constraints

1.9.1 No contact has been made with the Local Planning Authority to determine the presence or absence of Tree Preservation Orders or Conservation Area status on the site. **Before any works recommended in this report are undertaken, a search must be made carried out with the local planning authority for these statutory restrictions and the necessary permissions sought prior to work commencing.**

2.0 Proposal and Arboricultural Constraints

2.0.1 The proposed development is for a five storey building with a basement, a shop / restaurant at ground level and residential units above.

2.0.2 There are three trees within the zone of influence of the proposed development. There are two low value Sycamores to the east of the development and there is a high value Copper Beech (off site) within the pavement to the west. The Tree Constraints Plan (Appendix 2.0) shows the Root Protection Areas (RPAs) for the three trees, this represents the minimum area in m^2 which should be left undisturbed around each tree were it to be retained. The TCP also shows a representation of the crown spread of each tree measured in four cardinal directions. The RPA has been calculated in accordance with Table 2 in Section 5.2.2 of BS5837:2005.

Number	Single or group	Species	Contribution	Retention category	RPA
001	S	Sycamore	<10	C1	83.66
002	S	Sycamore	20-40	C1	95.74
003	S	Copper Beech	40+	B1	173.92

Table 1: Summary of Records:

2.1.0 Implications of Proposed Development

2.1.1 Direct Loss of trees -It is not proposed to remove any of the three trees to facilitate the development of the site. We have no information as to the reason for the recent removal of the three trees to the east.

2.1.2 Tree 2 has a significant wound on the east side of the main stem from 2-4 metres with moderate decay present. The tree crown has a bias to the west due to competition with an adjacent tree (now removed). The erection of the 5 storey building will result in a loss of light for this tree reducing its ability to resist the decay. Although the tree is presently safe it is likely that in its current situation it will decline to a level that will warrant removal within the next 10 years. With the change of environment brought about by the proposed development that decline is likely to be accelerated.

2.2 Below ground constraints.

2.2.1 Below ground protection measures, based on the RPAs presented in the Tree Constraints Plan will involve the erection of tree protection barriers as discussed in Section 7.5.

2.2.2 As tree 3 is planted in a well used public highway erection of standard tree protection around this tree will not be possible. Discussions will need to take place with the local authority arboricultural officer regarding appropriate methods of protection.

2.3 Service runs

2.3.1 Details of any service runs in association with the proposed development have not been provided. However, any service runs in proximity to the retained trees will be excavated in accordance with National Joint Utilities Group (NJUG) Guidelines for installing and maintaining services close to trees (NJUG Vol 4) (Appendix G) so there will be no resulting root severance within the RPA / exclusion zone. All such works will be guided by specifications given in a Detailed Arboricultural Method Statement.

2.4 Changes in Ground Level

2.4.1 There is a proposed basement approximately 4 metres deep beneath the entire footprint of the proposed development and extending under the pavement area to the south west. This change in ground level will encroach on the RPA of tree 03 by7.5%. Although this is a relatively minor incursion any works within the RPA of tree 03 will be the subject of a Detailed Arboricultural Method Statement (DAMS) once planning approval is granted.

2.5 Structures within Exclusion Zones

2.5.1 There are no above ground structures or construction activities proposed within the construction exclusion zones and there will be no resulting root severance or ground compaction within the RPA / exclusion zone.

2.5.2 The RPA of tree 01 includes an area of hard standing / parking bay and kerbstone to the south. The removal of this paving and kerbstone within the RPA using traditional methods will result in root severance impacting on the trees health through wounding and loss of nutrient uptake. For this reason works to remove hard surfacing within the RPA of tree 01 shall be carried out under supervision of the Arboricultural Consultant as detailed in the Arboricultural Method Statement in 8.0 below.

2.6 Above ground constraints

2.6.1 The Sycamore (tree 01) will have a crown spread within close proximity to the proposed dwelling to the east with the potential to shade the ground floor windows.

Plate 1- Tree 01 (left) and tree 02 (right)

Plate 2- Tree 03 (foreground)

Plate 3- Planting pit around tree 03 with proposed development site behind

Plate 4- Proposed development site with trees 1 and 2 behind building to right and crown of tree 3 at the top left of the picture

2.7 Mitigation and Recommendations

2.7.1 Mitigation for the impact of the development is proposed in the form of planting a Copper Beech in the pavement area to the south west to enhance the benefits already provided by the existing row of Copper Beeches. Options for the specification for the design of the planting pit (GR1007 and GR1018) in accordance with Camden Council's, Streetscape Design Manual, s.1.09 can be found in appendix 6.0.

2.8.0 Arboricultural Method Statement

2.8.1 General

2.8.2 Introduction

2.8.3 This section is an outline, Preliminary Arboricultural Method Statement highlighting the issues that will be considered in the final Detailed Arboricultural Method Statement and the sequence of operations that will be undertaken. The final Detailed Arboricultural Method Statement (DAMS) will be prepared and supplied to the Local Planning Authority and the Site Agent/Manager prior to commencement of *any works on site* and following approval of the Planning Application.

2.9 General

2.9.1 This section sets out the basis of the methodology for all proposed works in relation to the proposed new development in proximity to trees located within the development site boundary and for those trees outside the development site boundary where they overhang the site or where their RPAs extend into the site.

2.9.2 Copies of the Detailed Arboricultural Method Statement document will be available for inspection on site and will form the basis of the management of all works relating to the trees on the site for the Site Agent/Manager following commencement of the project.

2.9.3 The developer will inform the Local Planning Authority of the Arboricultural Consultant charged with overseeing and monitoring the works related to the trees retained on site and will notify the Local Planning Authority within twenty-four hours if the Arboricultural Consultant is replaced.

3.0 Site Location

192 Haverstock Hill
Camden
London
NW3 2AJ

3.0.1 Arboricultural Consultants

Greenman Environmental Management
Unit B
Heather Farm
Lansdown Lane
Bath
BA1 4NA

01225 466663
S.roberts@tree.org.uk
www.tree.org.uk

3.1 Tree Protection Fencing – The Tree Protection Plan

3.1.1 The Tree Protection Plan is presented in Appendix 2.0.

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

3.1.3 The Local Planning Authority will be notified in writing once the barriers are in place.

3.1.4 The protective barriers will consist of a scaffold framework in accordance with Figure 2 of BS5837:2005 Trees in Relation to Construction - Recommendations (Appendix 4.0), *"…comprising a vertical and horizontal framework, well braced to resist impacts, with vertical tubes spaced at a maximum interval of 3m. On to this weldmesh panels should be securely fixed with wire or scaffold clamps"*.

3.1.5 The protective barriers will remain in place until completion of the main construction phase and will then only be removed with the written consent of the Local Planning Authority.

3.1.6 Tree protection will be undertaken in accordance with the specific method statement relating to the approved design details. Such operations will be undertaken with the close monitoring by the appointed Arboricultural Consultant and together with liaison with the Local Planning Authority Tree Officer.

3.1.7 Other than works detailed within this method statement or approved in writing by the Local Planning Authority, no works (including the storage or dumping of materials, or the storage or operation of machinery or plant) shall take place within the Construction Exclusion Zones defined by the protective barriers or ground protection measures.

3.1.8 Protective barrier site notice similar to that reproduced below in appendix 4.0 will be attached to the exterior of the protective fencing where they can be easily read by site personnel.

3.2 Additional precautions outside of the Construction Exclusion Zone

3.2.1 No materials that are likely to have an adverse effect on tree health will be stored or discharged within 10 metres of the trunk of a tree that is to be retained. Consideration will be given to the implications of storing materials upslope of this exclusion zone in order to avoid the risk of potential spillages leaching down-slope and contaminating the Root Protection Area of a tree.

Such materials include:

- Oil
- Bitumen
- Cement

3.2.2 No fires will be lit within 20 metres of the trunk of any tree that is to be retained.

3.2.3 Concrete mixing will not take place within 10 metres of the trunk of any tree.

3.2.4 Care must be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights can operate without coming into contact with retained trees.

3.2.5 Notice boards, telephone cables or other services must not be attached to any part of the tree.

3.3 Access for Construction Works – Plant and Machinery

3.3.1 Details of the type and number of machines and plant to be used on the site will be submitted in writing to the Local Planning Authority prior to the commencement of any works on site.

3.3.2 Areas for the safe storage and manoeuvring of plant and machinery within the development site will be indicated on a plan and submitted to the Local Planning Authority for approval in writing before any construction works commence on site.

3.4 Access for Construction Works – Site Hut and Contractors' Compound

3.4.1 Prior to the commencement of any construction works on site the developer will submit to the Local Planning Authority details and appropriate drawings of all temporary structures and surfacing for approval in writing.

3.4.2 The position, dimensions and method of erection of the site hut(s) should be included in the submission described in 3.4.1 together with the location of temporary services and the location and nature of welfare facilities.

3.4.3 Also included in the submission described in 3.4.1 should be details of the position, capacity and method of construction of parking for facilities for contractors' and visitors' vehicles.

3.5 Arboricultural Works

3.5.1 The schedule of works presented in the Tree Schedule in Appendix 1.0 set out the proposed works to trees both within the proposed development site and those overhanging and adjacent to the site.

3.5.2 These will be carried out before commencement of other site operations including the erection of protective barriers.

3.5.3 No vehicles will be allowed to enter the areas protected by barriers.

3.5.4 All works will be carried out in accordance with BS3998:2010 Tree Work-Recommendations.

3.6 Works within Root Protection Areas

3.6.1 Works to create the basement level of the proposed development will encroach on the RPA of tree 03 by 7.5%. These works will be carried out under the supervision of the arboricultural consultant. The methodology for the works will be detailed in the Detailed Arboricultural Method Statement following planning approval.

3.7 Hard landscaping

3.7.1 If the hard standing within the RPA of tree 01 is to be removed then the removal shall be carried out under the supervision of the arboricultural consultant. The methodology for the removal will be detailed in the Detailed Arboricultural Method Statement following planning approval.

3.8 Supervision and monitoring

3.8.1 An Arboricultural Consultant will be responsible for monitoring of all operations relating to arboricultural issues and will issue a certificate of practical completion for the following operations:

- Remedial tree works as recommended in the Tree Schedule (Appendix A)
- The erection of protective barriers around the retained trees in accordance with the Tree Protection Plan (Appendix C)
- The installation of all ground protection measures
- The excavation of trenches for any services
- The excavation of any foundations within the identified Root Protection Areas
- The construction of all new hard surfaces within the Construction Exclusion Zones as marked on the tree protection plan (Appendix C)
- The construction of any new structures within the identified Root Protection Areas

3.9 Contingency Plans

3.9.1 In the event of unforeseen incidents occurring, that may adversely affect or threaten the welfare or security of the trees, the resident Site Agent/Manager shall inform the Arboricultural Consultant at the earliest opportunity and not more than one working day following the incident.

3.9.2 The Arboricultural Consultant will visit the site to inspect and assess the circumstances and make any appropriate recommendations. The Local Planning Authority Tree Officer will be informed by the Arboricultural Consultant of such incidents and recommendations will submitted for approval by the Local Planning Authority, initially verbally, and then in writing.

3.9.3 A record of any emergency incidents and works shall be maintained by the Arboricultural Consultant.

3.9.4 Incidents which may merit such contingency plans include:

- Accidental / unauthorised damage to the limbs, roots or trunk of trees
- The spillage of chemicals within or adjacent to a Root Protection Area
- The discharge of toxins / waste within or adjacent to a Root Protection Area

- The un-scheduled breaching of a tree protective barrier or Construction Exclusion Zone.

4.0 Programme of Works

4.0.1 Prior to the commencement of any works on site a provisional programme of works shall be submitted to the Local Planning Authority for approval in writing.

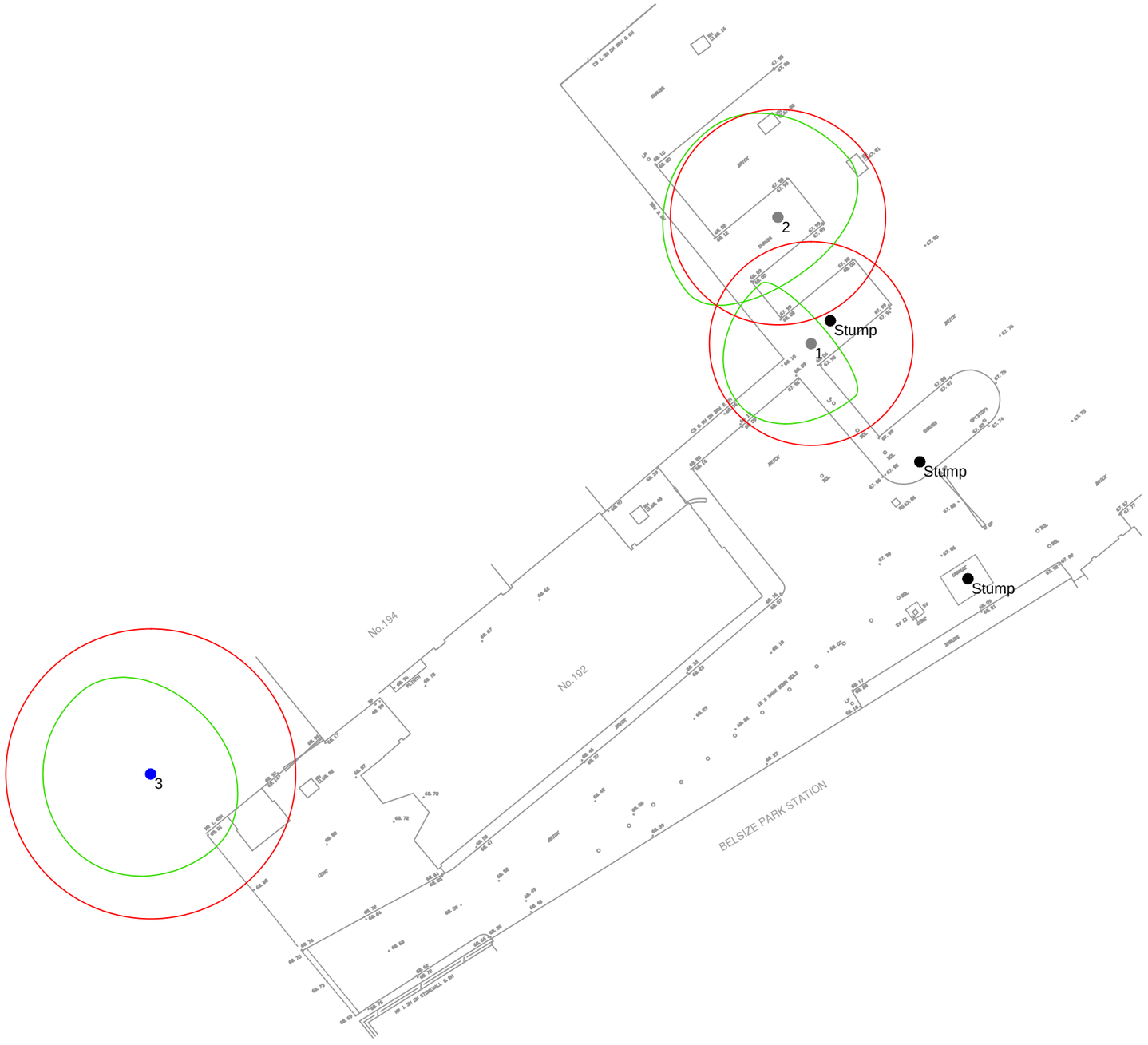
4.0.2 This programme of works shall include:

- Arboricultural works
- Erection of protective barriers
- Installation of ground protection measures
- Excavation of any trenches for services
- Excavation of any foundations within the identified Root Protection Areas
- Construction of any new structures within the identified Root Protection Areas

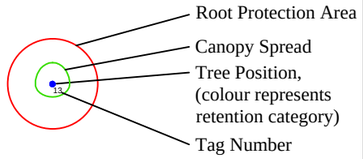
Appendix 1.0 – Tree schedule and key

Tree Number	Tree numbers in the Tree Schedule relate to those marked on the Tree Constraints Plan and Tree Protection Plan drawings.
Species	Common name and scientific names are presented.
Single or group	S for a single tree and G for a group of trees
Height	In meters measured with a laser clinometer
Number of stems	1 indicates a tree with a single stem at 1.5m, 2 or more indicates that the tree is multi-stemmed at 1.5m and the diameter has been measured at the base as described below.
Stem diameter	Diameter of stem measured at 1.5 meters from ground level, on trees with multiple stems the measurement is taken just above the root flare
Crown clearance	Height in metres of crown clearance above adjacent ground level
Branch spread	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	An assessment of any physical defects or problems
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, 20-40 or >40
Category grading	Category R- trees in such condition that any existing value will be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management (Marked in red on the plan). Category A -trees of high quality and value in such a condition as to be able to make a substantial contribution for a minimum of 40 years (Marked in green on the plan). Category B - trees of moderate quality and value in such a condition as to be able to make a significant contribution for a minimum of 20 years (Marked in blue on the plan). Category C- trees of low quality and value in adequate condition to remain until new planting could be established or young trees with a stem diameter of less than 150mm (Marked in Grey on the plan).
RPA (Root Protection Area)	The area in square metres that will need to be protected during construction with a scaffold framework protective fence and/or load bearing surface

Tree number	Species	Single or group	Height (m)	No. of stems	Stem or basal Diameter (mm)	Height of crown clearance (m)	Branch Spread (m)				Age class	Physiological condition	Structural condition	Preliminary management recommendations	Estimated contribution	Category	RPA (m2)
							North	South	East	West							
01	Sycamore (*Acer pseudoplatanus*)	S	15	1	430	3.4	1	4.8	3.5	4	M	P	Wound from 2-4m north east side with moderate decay present Crown bias south due to removal of tree 1m north	None	<10	C1	83.66
02	Sycamore (*Acer pseudoplatanus*)	S	15.4	1	460	3.8	4.7	6	3	5.7	M	F	Fork 3m with moderately poor union with excessive reaction growth on south side	None	2-40	C1	95.74
03	Copper beech (*Fagus sylvatica* Purpurea)	S	15.7	1	620	4	4	5.5	5	5.5	M	G	Pruning wounds from crown lifting with good occlusion	None	40+	B1 B2	173.92



Symbol Guide

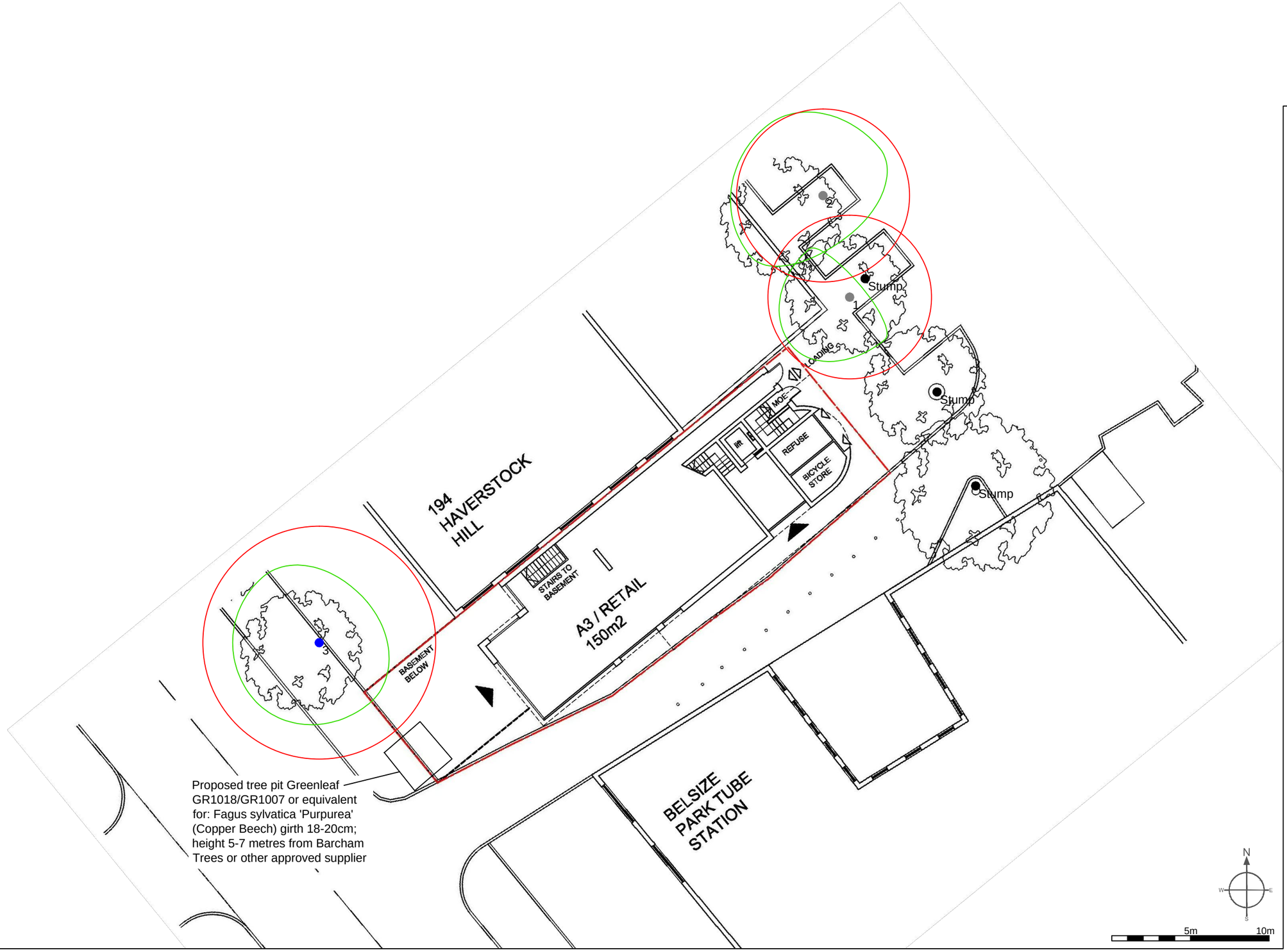


BS5837:2005 - Tree Category

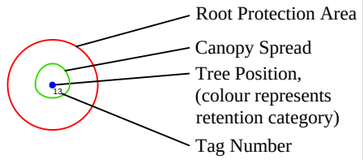
- Category A Trees — High Quality
- Category C Trees — Low Quality
- Category B Trees — Moderate Quality
- Category R Trees — Poor Quality/Remove

GREENMAN ENVIRONMENTAL MANAGEMENT
Estr. 1994

Project Name:	192 Haverstock Hill, Camden, London
Drawing Title:	Tree Constraints Plan
Drawing Number:	120412-192HH-TCP-Rev A-AM
Client:	Mandip Singh Sahota
Agent:	Nicholas Taylor and Associates
Date:	April 2012
Scale:	1-250@A3



Symbol Guide



BS5837:2005 - Tree Category

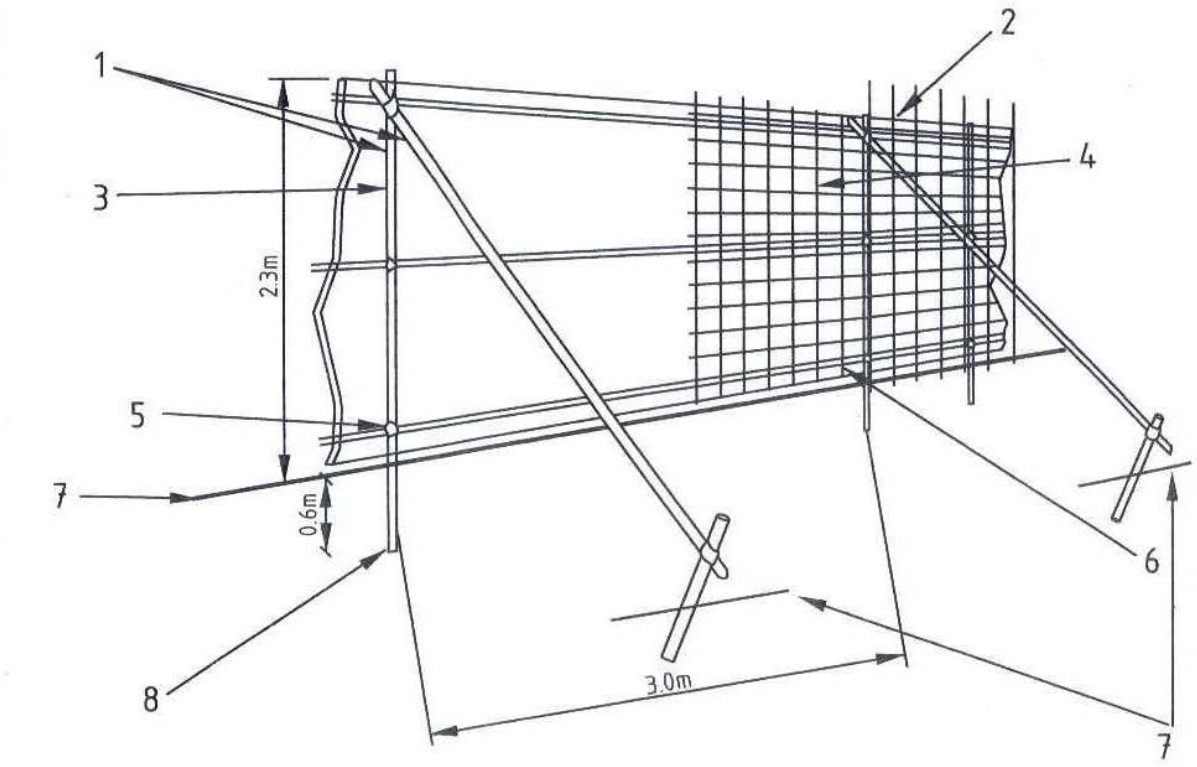
- Category A Trees — High Quality
- Category C Trees — Low Quality
- Category B Trees — Moderate Quality
- Category R Trees — Poor Quality/Remove

GREENMAN ENVIRONMENTAL MANAGEMENT Est: 1994

Project Name:	192 Haverstock Hill, Camden, London
Drawing Title:	Tree Protection Plan
Drawing Number:	120412-192HH-TPP-Rev A-AM
Client:	Mandip Singh Sahota
Agent:	Nicholas Taylor and Associates
Date:	April 2012
Scale:	1-250@A3

Appendix 4.0 Protective Barrier and Ground Protection

Figure 2 taken from BS5837:2005 Trees in Relation to Construction – Recommendations illustrating the systems to be employed for ensuring an adequate Construction Exclusion Zone about retained trees



1 Standard scaffold poles

2 Uprights to be driven into the ground

3 Panels secured to uprights with wire ties and where necessary standard scaffold clamps

4 Weldmesh wired to the uprights and horizontals

5 Standard clamps

6 Wire twisted and secured on inside face of fencing to avoid easy dismantling

7 Ground level

8 Approx. 0.6 m driven into the ground

Figure 2 — Protective barrier

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 6.0

Feasability observations for re-use of existing tree pits at 192 Haverstock Hill, Camden, London.

There are two areas previously used for tree planting to the north of the proposed development at 192 Haverstock hill. They are either side of the entrance gate to the adjacent tennis club.

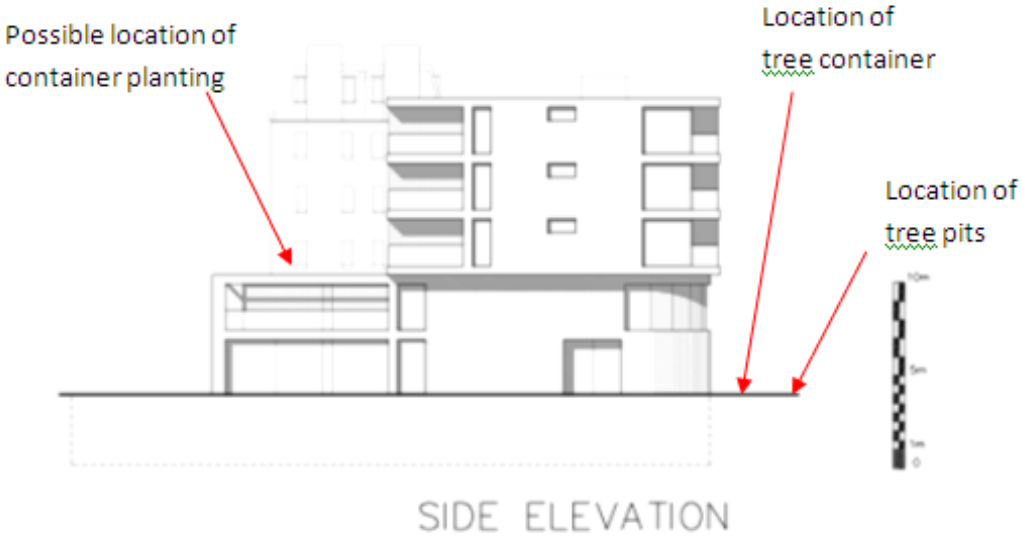
In 2008 the tree pit to the south supported a semi mature broadleaf tree that appears (from the photograph below) to be in reasonable physological condition.

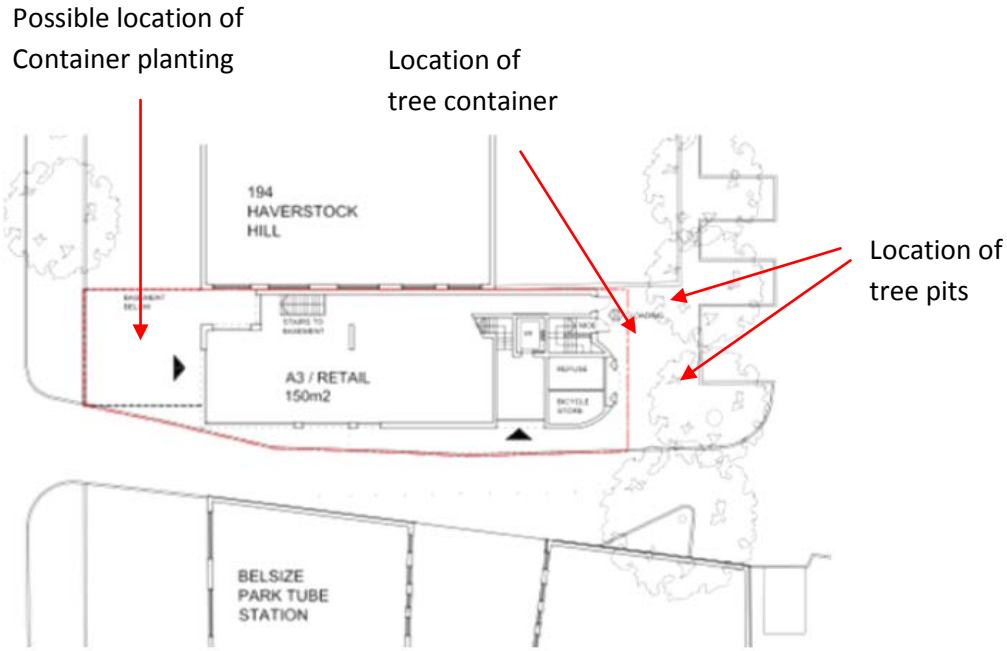
The tree pit to the north supported a broadleaf tree that had very little crown, supported prolific arboreal Ivy and was in poor physological condition.

Tree pit north tree pit south

At the time of our assessment for the proposed development both trees had been removed, the stump of the tree in the south pit had been ground out whilst the stump of the tree in the north pit remains and clearly shows decay consistent with the poor physiological condition in 2008.

Decay in stump in tree pit north


Possible location of
container planting
Location of
tree container
Location of
tree pits
SIDE ELEVATION


Possible location of
Container planting
Location of
tree container
Location of
tree pits
194
HAVERSTOCK
HILL
A3 / RETAIL
150m2
BELSIZE
PARK TUBE
STATION

Tree pit south observations

- The tree pit is clearly capable of supporting at least a semi-mature tree
- There appears to have been only minor lifting of the block paving around the edge of the pit
- It is not possible to be certain about the amount of rooting available for a new tree planting but it is likely that the rooting will extend beyond the tree pit and under the adjacent block paving
- Even with the required rooting being available the tree will be in very close proximity to the adjacent building resulting in a crown bias to the north and over time possible damage to the adjacent structure
- As the tree matures the likelihood of lifting the block paving will increase
- There are underground services in close proximity with a man hole cover to the west
- It is unlikely that the planting pit has been constructed in line with current best practice i.e. with root trainers and structured soils

Tree pit north observations

- The tree pit is clearly capable of supporting at least a semi-mature tree
- It is not possible to be certain about the amount of rooting available for a new tree planting but it is likely that the rooting will extend beyond the tree pit and under the adjacent block paving
- As the tree matures the likelihood of lifting the block paving will increase
- Any new planting will be in close proximity to the proposed development
- It is unlikely that the planting pit has been constructed in line with current best practice i.e. with root trainers and structured soils

Species selection

It was indicated that Sycamore was being considered for planting in both pits, Sycamore is easy to establish and very tolerant of urban environments however they are essentially a large woodland tree capable of reaching great heights and girths and will require a lot of space above and below ground. They can also cause a nuisance during summer months as they often get aphid infestations the excretions of which lead to honey dew, a sticky substance that covers anything left beneath the tree such as cars or gates. They are also prone to Tar Spot of Sycamore (*Rhytisma acerinum*) that can be unsightly and undermine the amenity value of the tree.

If the tree pits are suitable for re-use then we could suggest several alternatives if Sycamore is not decided upon that would be more suited the restricted environment such as Chanticleer Pear (*Pyrus Calleryana* Chanticleer).

It has also been indicated that a container will be provided for planting at the rear of the development with Holy (*Ilex aquifolium*) as the intended end use species. The container will be in a shaded area and Holy, being shade tolerant, is a suitable selection. Other possible species for a shaded container planting may include *Ulmus Glabra* 'Camperdownii' , *Cornus Mas* (Cornelian Cherry), *Amelanchier Ballerina* (Juneberry) or *Corylus Avellana Zellernus* (Red Filbert).

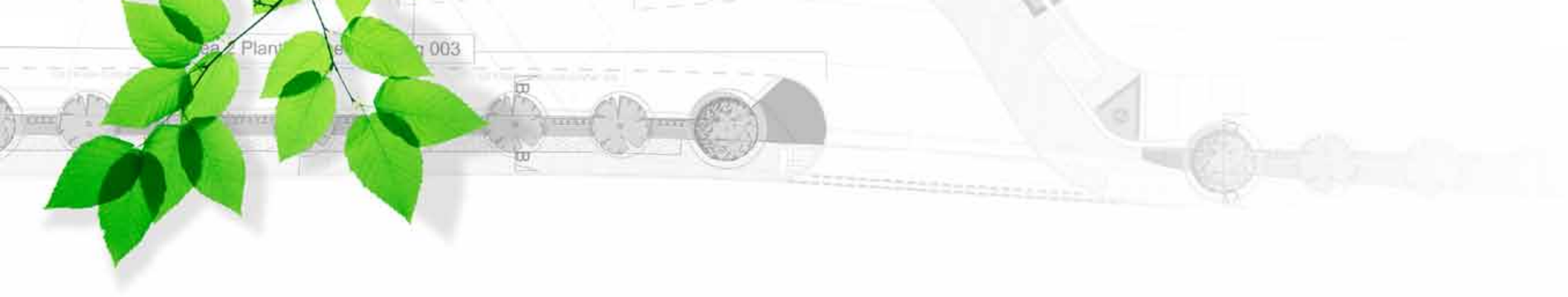
Recommendation

We recommend that the planting pits are excavated to determine the depth, available rooting and proximity to underground services.

The pits should then be re-instated using best practice techniques determined by the requirements of the intended tree species with root trainers, underground anchorage systems, irrigation systems and structured soils. Two examples of the type of recommended tree pits (GR1007 and GR1018) are detailed below.

Summary

With the right preparation and maintenance the two pits should be capable of supporting the right tree to maturity, the right tree being one that is chosen taking into account the rooting constraints posed by the pits.



GR1007

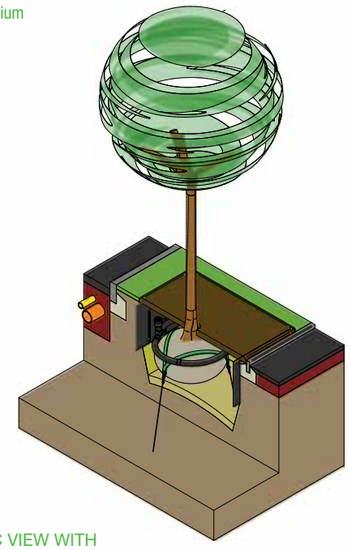
Highway planting strip corridors with root protection on two sides and underground guying.

Tree pit system installation

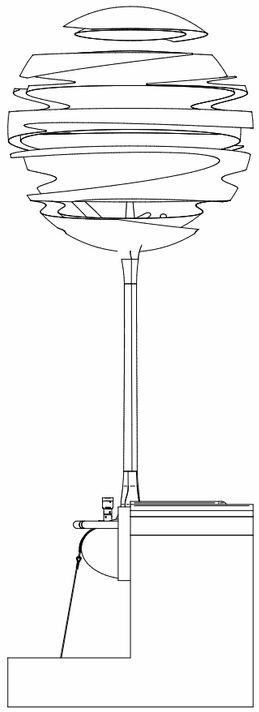
Package includes:

- RRURB1A RootRain Urban aeration/ irrigation system
- RER600A ReRoot 600 ribbed root barrier
- SASMP Arborguy strapped anchor system – Medium

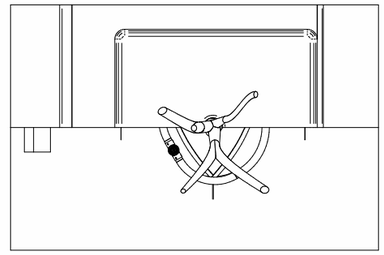
Note:
Special drive rod required for SASMP installation



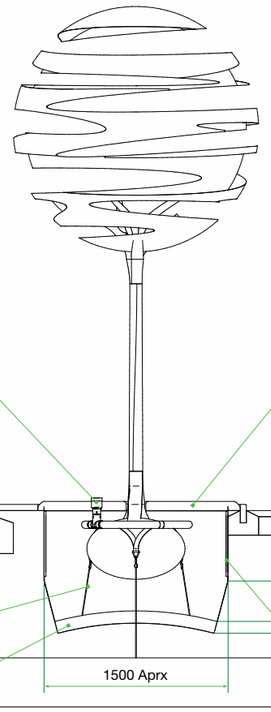
ISOMETRIC VIEW WITH CUT-AWAY TO SHOW PRODUCTS



SIDE VIEW



PLAN VIEW WITH CANOPY HIDDEN



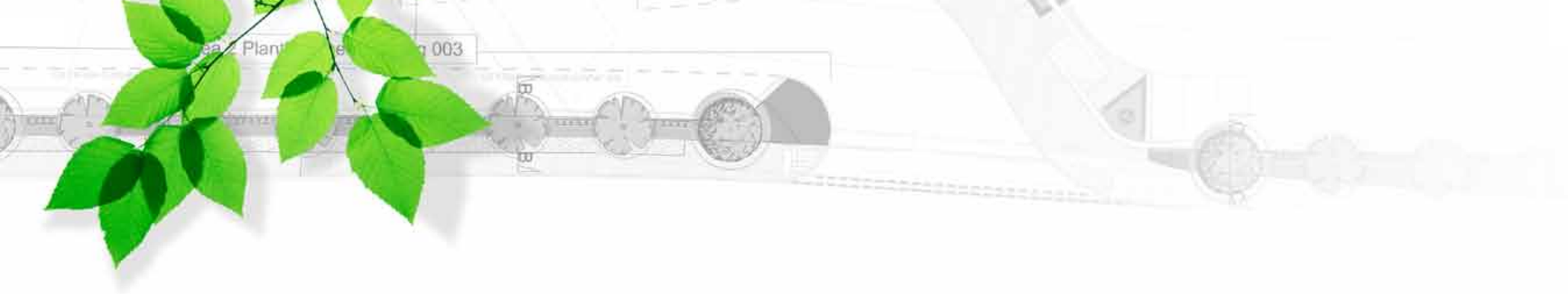
FRONT VIEW

These drawings are available on CAD CD and can enlarge to show further detail.

For more information or to order your GR1007 package, please contact us to discuss your precise requirements.

Greenleaf

Sales and service: 01424 717797
Technical assistance: 01424 433233
Sales Fax line: 01424 533003
Email: enquiries@greenleaftrees.co.uk
Website: greenleaftrees.co.uk



GR1018

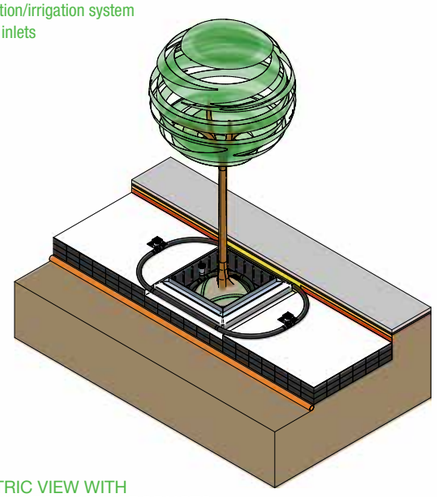
Tree pit incorporating complete Arborsystem. Includes root protection, irrigation, aeration, guying, structural root zone, resin bonded stone surface/tree grille and option of tree guard.

Tree pit system installation

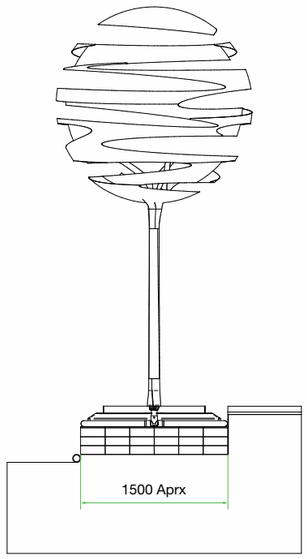
Package includes:

- GLRCMA RootCells, 292 No. 250mm x 250mm x 90mm
- RER300A ribbed root deflecting barrier – 5m
- RERJTA ReRoot joint tape – 1 roll
- RRPREC1C RootRain Precinct single inlet aeration/irrigation system with cast inlet
- RRARBVDI3C Arborvent double inlet aeration/irrigation system with cast inlets
- GLTWGNA twinwall geonet – 10 Sq. m
- SASLP Arborguy strapped anchor system – Large

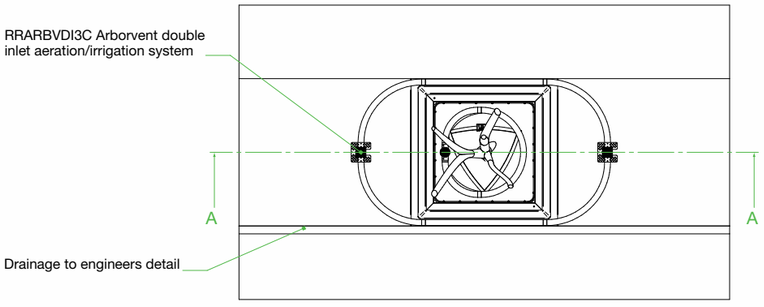
Note:
Special drive rod required for SASLP installation.



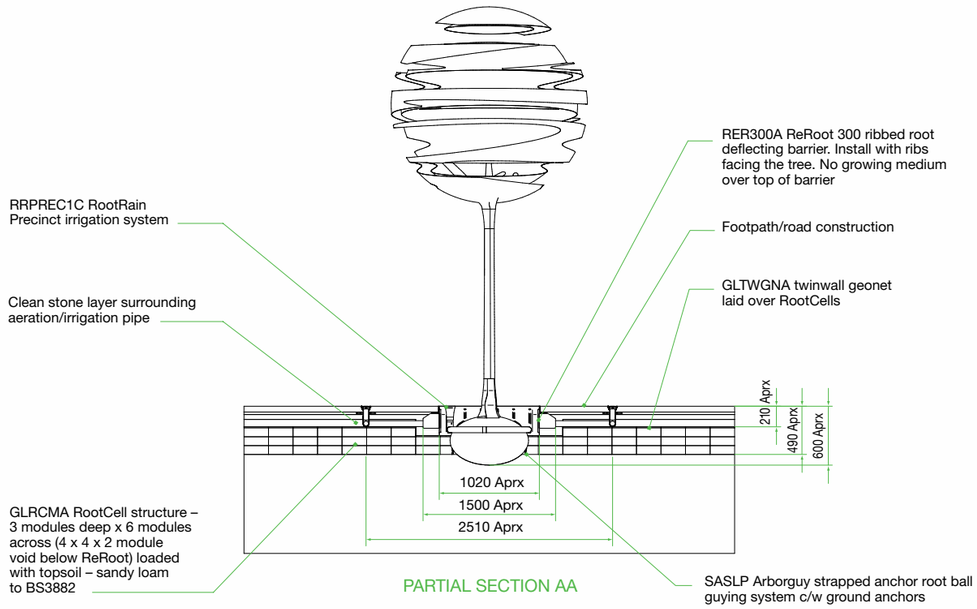
ISOMETRIC VIEW WITH
CUT-AWAY TO SHOW PRODUCTS



SIDE VIEW



PLAN VIEW WITH CANOPY HIDDEN



PARTIAL SECTION AA

These drawings are available on CAD CD and can enlarge to show further detail.

For more information or to order your GR1018 package, please contact us to discuss your precise requirements.

Greenleaf

Sales and service: 01424 717797
Technical assistance: 01424 433233
Sales Fax line: 01424 533003
Email: enquiries@greenleaftrees.co.uk
Website: greenleaftrees.co.uk

Appendix 7.0 REFERENCES

Mattheck, C. and Breloer, H. (1995). The Body Language of Trees: A handbook for failure analysis. Research for Amenity Trees **4**. HMSO, London, 240pp.

STANDARDS PUBLICATIONS

Trees in Relation to Construction – Recommendations. (BS5837), British Standards Institution, London (2005).

Recommendations for Tree Work. (BS3998), British Standards Institution, London (1998).

Town & Country Planning Act 1990

Town & Country Planning (Trees) Regulations 1999

Health & Safety at Work Act 1974

Construction (Design & Management) Regulations 1994

National Joint Utilities Group Publication No.4