



Arbssystem

**Arboricultural Impact Assessment and Method Statement**  
as per BS5837:2012 Trees in relation to design demolition and construction- Recommendations  
at

**135 Burbage Road,  
Dulwich,  
London,  
SE21 7AF**



File Ref: AIAMS159.1

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## **1. Summary**

### **1.1 Instruction**

**1.1.1** Arbssystem were instructed to carry out an Arboricultural Survey and prepare an Arboricultural Impact Assessment (AIA) and Arboricultural Method Statement (AMS) by Nicholas Jacob, at 135 Burbage Road, Dulwich, London. This report contains:

### **1.2 Arboricultural Survey (AS)**

**1.2.1** A tree survey as per the requirements for BS5837:2012 was carried out. Existing significant trees within 135 Burbage Road, and neighbouring land that were deemed necessary for consideration, were recorded within the Arboricultural survey (AS). The results of the survey are presented within this report.

### **1.3 Arboricultural impact assessment (AIA)**

**1.3.1** The Arboricultural Impact Assessment (AIA) examines the relationship between trees and adjacent features (present & proposed). It examines how the trees and features will interact, influence and impact each other.

**1.3.2** The purpose of the AIA study is to determine whether the proposed development will adversely affect the established trees and whether these trees will be the cause of nuisance to the proposed development.

### **1.4 Arboricultural method statement (AMS)**

**1.4.1.** A method statement has been created to incorporate the proposed development and prevent or minimise impact from the proposed development and the construction process upon the retained trees.

## **2. Introduction**

### **2.1 Development proposals**

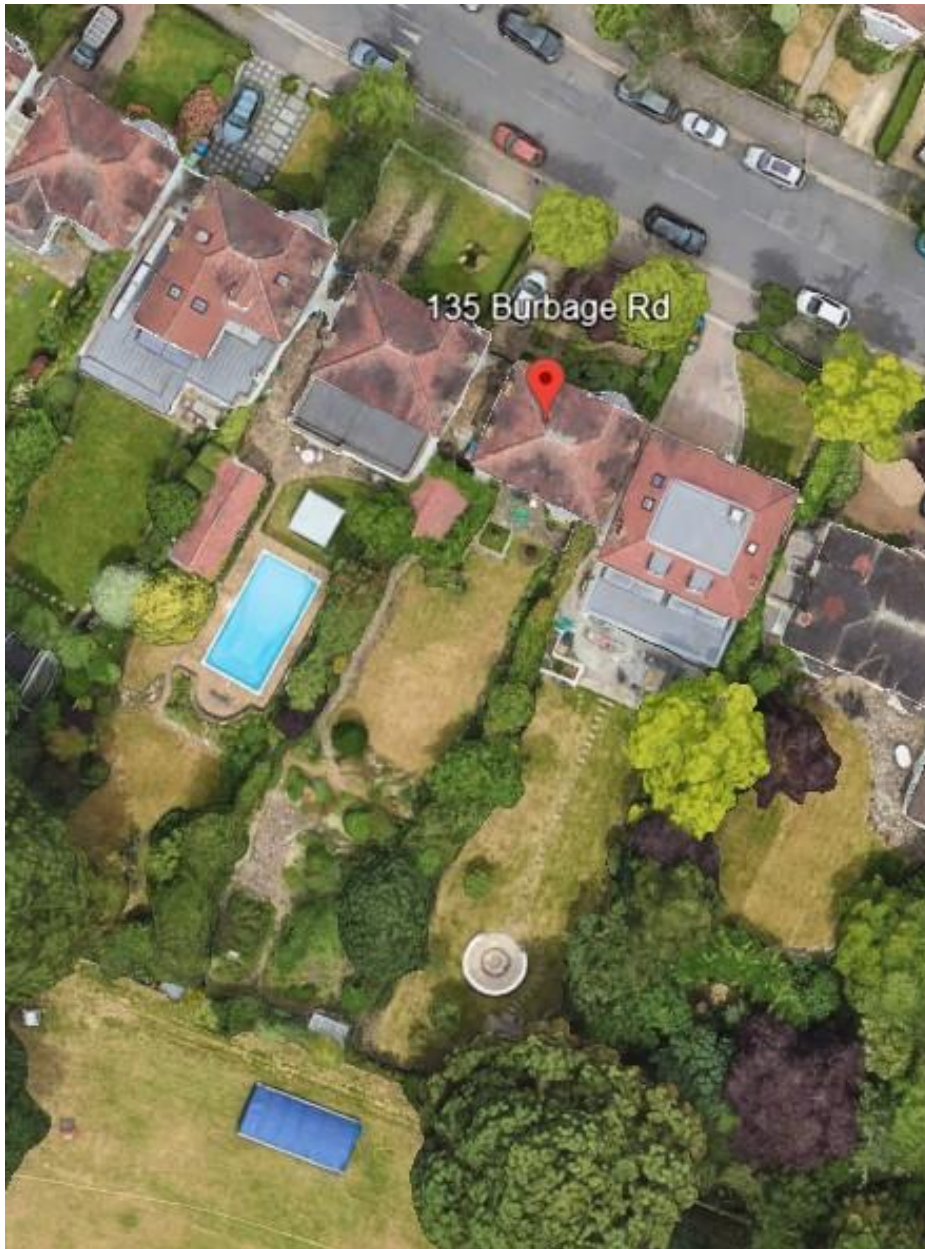
**2.1.1** It is understood the proposals are initially the addition of a detached building in the rear garden at 135 Burbage Road, followed by an alteration of the driveway in the front garden.

### **2.2 Site, location and details**

**2.2.1** The site comprises a detached dwelling, a front garden and driveway in the Northeast section of site and a private rear garden to the Southwest.

**2.2.2** The site is within Dulwich, London, and within the London borough of Southwark.





*Figure 1. Aerial view of 135 Burbage Road (Google Earth 2022)*

**2.2.3** The area immediately surrounding the site is suburban in character.

**2.2.4** The site is within the Dulwich Village Conservation Area.

**2.2.5** From the information provided in Southwark’s interactive map, there are no trees within or immediately next to 135 Burbage Road that are protected by a TPO.

**2.2.6** This site is not a site of specific scientific interest.

**2.2.7** The site is within The Dulwich estate.

**2.2.8** The Geology of Britain viewer <https://geologyviewer.bgs.ac.uk/> has been used to check the prevailing soil type in the area. This indicates that the underlying bedrock comprises of clay, silt and sand– London Clay Formation. No superficial deposits are recorded.

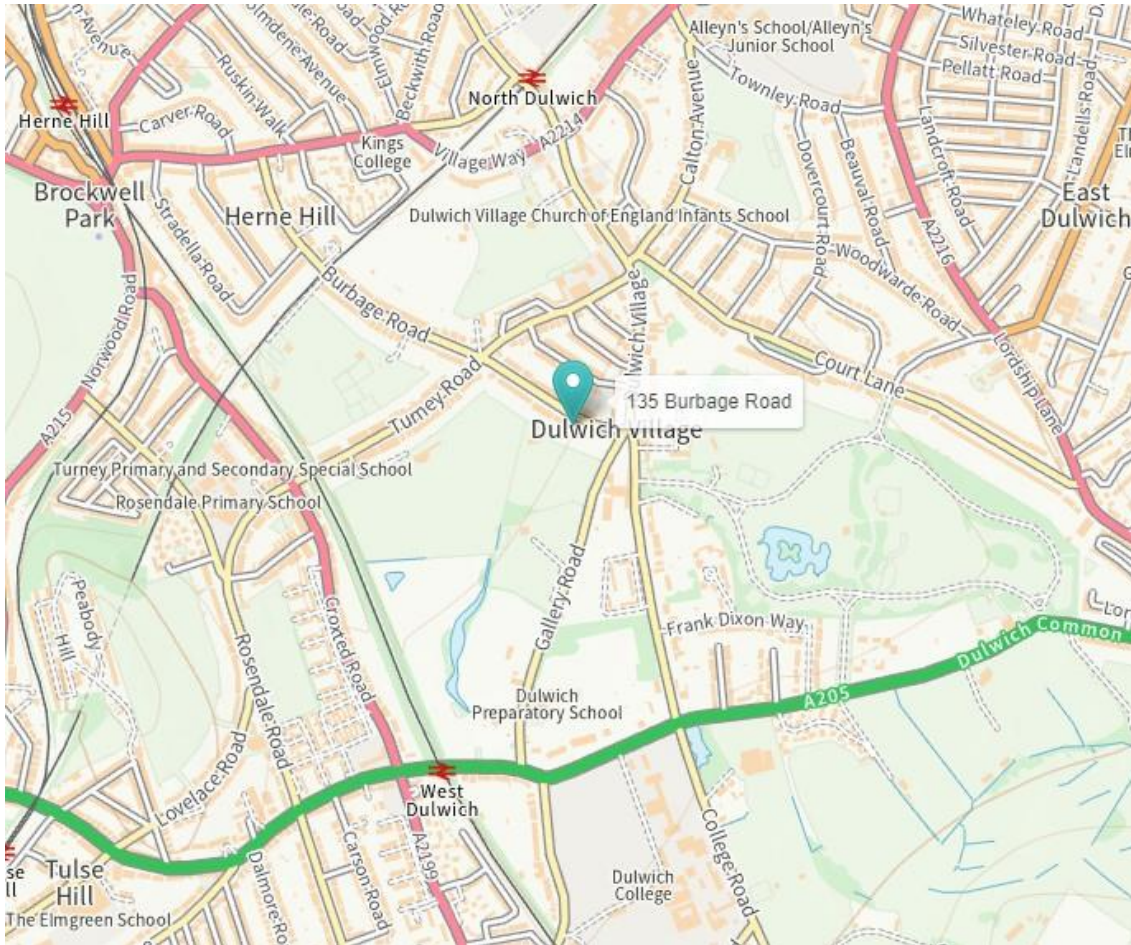


Figure 2. 135 Burbage Road and the surrounding area (ordnance Survey 2023)

## 2.3 Planning status

**2.3.1** It is understood that this report is in support of a planning application to add a detached building to the rear garden. Furthermore, this report is in support of an alteration to the driveway, that will be subject to a separate planning application.

## 2.4 Scope of this study and limitations

**2.4.1** The purpose of this report is to assess the trees in and around the site and to consider the proposals in relation to those trees, both in regard to the initial proposed detached building and the alteration of the front driveway. This report aims to enable appropriate planning to ensure a well-considered approach to the design and implementation processes is achieved regarding the trees.

**2.4.2** This report is not concerned with the health and safety risks these trees could pose, other than determining the categorisation and establishing acceptable levels of risk for the proposed land use, nor is it to decide whether planning permission should or should not be granted.

**2.4.3** The surveying was carried out from ground level. No aerial inspections, decay detection or further arboricultural testing has taken place at the time of writing this report.





**2.4.4** No ecological or soil surveys have taken place.

**2.4.5** The trees within neighbouring land- N001 to N005 have not been inspected. The trunk measurements and therefore RPAs of N001, N002, N004 and N005 have been estimated and the trees have not been categorised. Photos showing the dbh and lower trunk of N003 (Cherry) were taken and provided to the AC to better inform the RPA of this tree.

**2.4.6** The topographical survey carried out did not locate the individual trees in or around the site. During the survey the trees were plotted with GPS and extra measurements were taken to ensure the positioning of the trees were as accurate as possible with the limitations of the method of surveying. Therefore, the measurements for the positioning of the proposed building and the tree protection fencing should be carefully taken on site and using the measurements of the RPA diameters to ensure appropriate distances from the trees are maintained.

## **2.5 Abbreviations used in this report**

**2.5.1** Abbreviations - General abbreviations used in this report:

- RPA (root protection area).
- DBH (diameter at breast height- which is classified as 1.5m above ground level).
- agl (above ground level).
- TPO (tree preservation order).
- AC (Arboricultural consultant- an appointed consultant who oversees the tree related matters)
- N, E, S, W (compass point direction and combination of points i.e. NE= North east).
- G001- identifier of group of trees.
- N001- identifier of individual tree within neighbouring land.
- T001- identifier of individual tree.

## **3. Arboricultural survey**

### **3.1 Methodology**

**3.1.1** The trees were inspected from ground level by consultant arboriculturalist Ross Fountain on 24<sup>th</sup> of September 2023.

**3.1.2** Categorisation was made, and measurements were taken in accordance with the recommendations set out in *BS5837:2012*. Canopy spreads were measured and plotted to the four compass points. Where direct access was not possible measurements have been estimated.

**3.1.3** The surveyed trees are colour coded on the accompanying tree survey drawing according to their relevant BS category.

**3.1.4** The tree data collected was used to show the current canopy spread of the surveyed trees and to calculate the standard Root Protection Area (RPA). These are plotted on the accompanying plans (AIAMS159- M01 and M02).

**3.1.5** The standard RPA used is defined by the formula in paragraph 4.6 from the BS 5837:2012 and may be refined by considering current on-site constraints to root activity such as buildings, underground structures, earthworks, and hard paving.



## 3.2 Survey results- summary

**3.2.1** The detailed results of the tree survey are provided in the Tree Survey Data (Appendix).

**3.2.2** There were 13 individual trees surveyed within or near to the site.

**3.2.3** In general the trees and woody plants were of moderate to low quality or value, with the majority classified in category B. The 5 trees within neighbouring land- N001- N005 have not been classified as a full inspection of these trees has not been carried out. Photos showing the dbh and lower trunk of N003 (Cherry) were taken and provided to the AC to better inform the RPA of this tree.

**3.2.4** Some minor pruning has deemed necessary to lift the low canopy of N003 (Cherry) to enable the development.

## 3.3 The Survey Key

**3.3.1** Ref – The identification number given to the tree. The previous numbers assigned by the topographic data has also been provided.

**3.3.2** Species – Common/English and botanical name of the tree.

**3.3.3** Feature – type of feature, including: tree, group, hedge and number of stems where applicable.

**3.3.4** Measurements:

- Height – Height of each tree in metres
- Stem diameter – Diameter of the stem at 1.5 metres above ground level
- Spread – Crown spread in four compass points
- Crown clearance – height in metres above ground level of the lowest part of the canopy
- Lowest branch – height and direction of the lowest branch.
- Life stage – maturity
- Remaining Contribution – considered life expectancy in years

**3.3.5** General observations – observations recorded during the survey

**3.3.6** RPA – Radius in metres and full **R**oot **P**rotection **A**rea in square metres

**3.3.7** Physiological condition – the condition in relation to the functions of the tree as an organism

**3.3.8** Structural condition – the condition in relation to the structure of the tree and structural integrity

**3.3.9** Recommendations – Recommendations based upon findings

**3.3.10** Category – categorisation of the tree as per BS5837:2012, with colours presented on the tree survey map in the appendix (ASIAMS139-M01):

- **A - Tree of high quality with an estimated life expectancy of at least 40 years**
- **B – Tree of moderate quality with an estimated life expectancy of at least 20 years**
- **C – Tree of low quality with an estimated life expectancy of at least 10 years**
- **U – Tree of low quality that is in such a condition that it cannot be retained as a living tree for longer than 10 years and therefore may be unsuitable for retention.**



In addition to the categorisation letter, a number is attributed to category A, B and C trees. These numbers relate to the following qualities and values:

- 1- Mainly arboricultural qualities
- 2- Mainly landscape qualities
- 3- Mainly cultural values, including conservation

## **4. Arboricultural impact assessment (AIA)**

### **4.1 Objectives**

**4.1.1** To assess the proposals in relation to the trees in and around site, particularly where works are proposed to be carried out in close proximity to the retained trees.

**4.1.2** To determine whether the proposed works can be carried out successfully without adversely affecting the trees, both in the short and long term.

**4.1.3** To determine whether the trees will have adverse impacts on the proposed development, both in the short and long term.

**4.1.4** To assess if any alterations to the design or mitigation is necessary due to conflicts between retained trees and the proposed development.

### **4.2 Items for consideration**

**4.2.1** Direct impacts from tree losses, in terms of direct visual impact, environmental impact and impact on the landscape character of the area.

**4.2.2** Root disturbance caused by demolition, excavation & construction.

**4.2.3** Installation of services in close proximity to the retained trees and associated damage.

**4.2.4** Grade/ground level and surface alterations that may have implications for tree root systems.

**4.2.5** New planting- design of the scheme and associated landscape operations

**4.2.6** Sunlight shading of buildings or exterior amenity areas (such as gardens, patios etc.), which may lead to pressure to prune or fell.

**4.2.7** Physical encroachment by roots, tree stems and branches. Allowance for future tree growth.

**4.2.8** Likelihood of indirect damage to the proposed development caused by retained trees.

**4.2.9** Health, safety and nuisance items e.g. leaves, fruit and residues, which may lead to pressure to prune or fell.

**4.2.10** Location of welfare/office buildings & materials storage.

**4.2.11** Likelihood of damage to retained trees caused by the likely development activities and prevention through tree protection measures.





**4.2.12** Whether access pruning is required prior to enable access and prevent damage to retained trees.

**4.2.13** Other tree works required to reduce risk to suitable levels given the proposed land use.

### **4.3 Results of Analysis- Summary**

**4.3.1** There are no tree losses necessary to enable the proposals.

**4.3.2** Although there is some risk of root disturbance caused by demolition, excavation, construction and service installation, the construction methods and prohibitions and precautions within RPAs as set out in the AMS means the risk of impact will be controlled and at a suitable level.

**4.3.3** The proposed alteration to the driveway is not considered to cause negative impact. In fact, it is considered the proposals will mean a positive impact on the trees, particularly regarding increased water availability and reduced future compaction.

**4.3.4** A scheme to provide the methodology and guidance to minimise or prevent potential impacts on retained RPAs or above ground tree structures, is set out in the Arboricultural method statement (AMS).

### **4.4 Results of Analysis- general**

**4.4.1** There are no tree losses necessary to enable the proposals.

**4.4.2** There is some risk of root disturbance caused by demolition, excavation and construction. The main consideration is the construction of the proposed building and the potential root disturbance and damage to nearby N003 (cherry). As the proposals included some incursion to the RPA of N003, some careful excavation with hand tools has taken place to assess rooting activity. This trial excavation revealed limited rooting activity in general. One significant root was found at the north end of the trial excavation, that was assumed to be from N003 and had a diameter of around 30mm. Another smaller root was found at the south end of the excavated area. There was very little rooting activity found between these roots. Due to the findings, the design has been altered to ensure the root at the north end of the trial excavation can be retained without pruning. It is considered that the root at the south end of the excavation can be appropriately pruned. Therefore, it is considered that the proposals can be implemented without significant impact on N003. Furthermore, the construction methods, prohibitions and precautions within RPAs and tree protection measures as set out in the AMS means the risks of impact through the construction of the proposed building, installation of services and driveway alteration will be suitably controlled. The trial excavation is shown in pictures 1-4 in the appendix.

**4.4.3** New services will be required to connect the proposed building, including electricity and water supply, and waste drainage from the toilet. No service plans have been supplied at this point. If the guidance, prohibitions and precautions for the installation of new services that is provided in the AMS is followed, the impact of service installation is expected to be low.

**4.4.4** The most significant landscaping or surfacing changes within the RPAs of retained trees is the alteration of the driveway. The new driveway will be altered with a no dig, anti-compaction, permeable, cellular confinement system, such as Cellweb® TRP system. The existing driveway make-up is 2 sections of paving with most of the remaining area being gravel on top of a membrane. The proposals are considered to not have a negative impact upon the retained trees. In fact, it is considered the proposals will mean a positive impact on the trees, particularly regarding increased water availability and reduced future compaction. Details of the method and build-up of the proposed driveway is shown in the AMS in **5.3.4.1 - 5.3.4.5** and the appendix in figures 5 and 6.



**4.4.5** No new planting scheme has been supplied as no tree removals have been deemed necessary.

**4.4.6** Shading by the existing trees within the proposed development is considered to create insignificant impact given the position of the trees in relation to the proposals.

**4.4.7** The impact of physical encroachment by parts of the retained trees upon the proposed development is considered to be low. The pruning of the low canopy of tree N003 will ensure that the branches will not encroach on the new building and this clearance will be straight forward to maintain. The risk of encroachment and potential impact from root expansion is not a concern due to the distance from the retained trees and the proposed building. Ensuring a gap of 500mm between the base of T001 and T002 and the cellular confinement system will provide adequate space for growth and movement.

**4.4.8** Given the recorded soil type comprising of clay, silt and sand (underlying bedrock), the trees in the area of the development and the proposals, the risk of indirect impact is possible but considered to be low. It is expected the project engineer will provide suitable foundation specifications accordingly. Therefore, any potential risk of impact from shrinkable soil is considered to be manageable.

**4.4.9** There will be some minor impact on the proposed development by health and safety nuisances. Falling leaves and debris from N003 (cherry) may cause minor impact through built up material on the roof and within the water collection system. However, this impact can be minimised through periodic cleaning and leaf/ gutter guards. Leaves and fruit may also fall into the sunken courtyard. This impact can be minimised using non-slip surfacing, that is also resistant to discolouration, or is dark in colour. Therefore, it is expected the pressure to prune or fell due to health and safety nuisances is low.

**4.4.10** There is some space for storage of materials and welfare facilities outside the RPAs of the retained trees. These should be located as per the prohibitions and precautions within RPAs. If a skip or other waste removal method is required, this can be located in the front driveway or at the highway on Burbage Road. Further details are provided in the AMS.

**4.4.11** The likelihood of damage cause by the development to the retained trees is considered to be low and protection measures are provided in the AMS.

**4.4.12** Minor pruning has been recommended to N003 to enable access and prevent damage to this tree.

**4.4.13** No tree work has been recommended to surveyed trees as mitigation to reduce risk to suitable levels given the proposed land use.

## **4.5 Conclusions of AIA**

**4.5.1** There is no significant impact expected upon the retained trees through the proposed development.

**4.5.2** If the conditions and prohibitions in the AMS are followed the likelihood of indirect or direct damage to the retained trees is considered to be low. Therefore, it is considered the proposed works can be carried out successfully without adversely affecting the trees, both in the short and long term.

**4.5.3** It is considered the retained trees will not have adverse effects on the proposed development.

**4.5.4** A minor alteration has been made to the design to minimise impact on N003. Following the pre-planning submission trial excavations, the proposed building was redesigned to ensure the root uncovered at the north corner of the building could be retained without pruning. No additional alterations or additional mitigation has been recommended as it has been considered a low impact scheme. Protection measures have been provided in the AMS.



## 5. Arboricultural Method Statement (AMS)

### 5.1 Overview

**5.1.1** The key protection issues associated with this project in relation to the existing trees, in the short, medium, and long term, are the requirement for:

- The protection of tree habitat
- The protection of the retained trees from damage to the above and below ground structures
- The protection of the soil structure and prevention of damage to tree root systems by chemicals and other noxious substances/materials.
- The protection of the proposed built structures from impacts caused by the retained trees

### 5.2 Introduction

**5.2.1** The AMS sets out the management and protection details in support of the planning proposal, and they must be implemented to ensure successful tree retention.

**5.2.2** The AMS provides guidance on the typical range of processes that are involved during development and attempts to ensure that suitable methods of implementation are carried out.

**5.2.3** The AMS also aims to provide an overview of the development process and attempts to address any potential issues and conflicts that may arise and provide acceptable solutions, resolving them in line with current industry best practices.

**5.2.4** An arboricultural sequencing of events schedule is provided in the appendix of this report and is to be used in conjunction with the AMS to ensure continued tree protection, to avoid potential breaches of planning and delays to the development. The arboricultural sequencing of events and site monitoring should be integrated into the planning of the development.

### 5.3 Development methodology and mitigation

**5.3.1** As no tree removals are necessary to enable the proposals, no mitigation has been provided.

**5.3.2.1** As the proposed building is located within the RPA of N003 specific methodology is required. Although the trial excavation has taken place and shown limited rooting activity, careful excavation is still required. Mechanical excavation is acceptable in most of the excavation, providing the machinery is not driven on unprotected ground within RPAs of retained trees. However, excavation is still required in the 1m of ground to be excavated closest to tree N001. This excavation must be carried out through careful loosening of the ground with forks to ensure no damage of roots or through soil displacement tools such as air spades. This excavation must be supervised by the project AC. Exposed roots should be immediately wrapped with hessian to prevent desiccation or rapid temperature changes. Roots under 25mm may be pruned using a sharp hand tool by the project AC or by an approved contractor following written consent from project AC. Excavated soil must not be stored on unprotected RPA's and backfilling shall be carried out with the uncontaminated soil from the excavation. Any backfilling should be carefully carried out to avoid direct damage to roots and excessive compaction of the soil around them.



**5.3.2.2** In the proposed building construction phase where concrete, cement or other substances harmful to tree roots are to be used on the edge of the building closest to N003, a protective barrier must be used to prevent leaching into the soil. This barrier must be a clean, undamaged, non-permeable membrane such as thick plastic sheeting.

**5.3.2.3** In the front garden the paving must be demolished with hand tools and hand power tools (such as pneumatic breakers) within RPAs, rather than excavation machinery, that would risk damaging tree roots and soil structure below.

**5.3.2.4** It is likely that the construction of the altered front boundary will require new support. Where new support is required, these should be carried out with screw piles or with sleeved concrete foundations following trial excavation to assess rooting activity. The trial excavation should be supervised and carried out with enough time in advance of the purchase/ manufacture so that the fence can be designed to work with the support locations. Alternatively, if there is not much time between the trial excavations and the boundary installation, this should be designed with some flexibility so the position of the supports can be altered without affecting the overall design.

**5.3.3.1** No service drawings have been provided at the time of this report; however, it is understood that new services will be required to connect to the studio, including electricity and water supply, and waste drainage from the toilet. It is considered there is adequate space to avoid the RPAs of retained trees, however there will need to be some careful routing around RPAs and T005 and T006 in particular.

**5.3.3.2** The service installation route and method must be verified and approved by the project AC before implementation. The options for the installation are as follows and in preference order for techniques used: a) trenchless, b) Broken trench (hand-dug) and c) Continuous trench (hand-dug) as per the NJUG guidelines- *Volume 4, NJUG Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.*

**5.3.4.1** A significant landscape and surfacing change is the redesigned driveway. To ensure the impacts of this change are minimised, a cellular confinement system, such as Cellweb ®TRP will be used to provide a no dig, anti-compaction driveway. The specification of the Cellweb ® TRP system is detailed in **5.3.4.2**. This specification includes 150mm deep units with a weight limit of 16,000 Kg or 16 Tonnes. This will provide protection for construction and storage of up to 16t during the construction and long-term protection against compaction of vehicles using the driveway, including delivery vans sized vehicles. If the final use will only be for domestic cars and the waste management process during the construction period can reduce loading to below 3,000Kg or 3t, the depth of the cellular confinement units can be reduced to 100mm. In this scenario the existing hardstanding will be used as temporary ground protection and retained until all loading over 3t connected with the construction of the proposed detached building in the rear garden has taken place. A suitable alternative root protection system can also be used if agreed in writing by the project AC.

**5.3.4.2** The specification of the permanent system includes a geotextile layer, 150mm deep Cellweb ®TRP, filled and 25mm overfilled with type 4/20 clean angular stone, a second geotextile layer and a permeable top surface to allow continued permeation of water and gaseous exchange between the tree rooting environment and atmosphere. If the final use will only be for domestic cars and the waste management process during the construction period can reduce loading to below 3,000Kg or 3t, the depth of the cellular confinement units can be reduced to 100mm. An example of some suitable configuration is shown in *Figure 5*. in the Appendix. Where the Cellweb ® TRP system is being used as temporary ground protection, the stone overfill depth required is 50mm. Track mats can be used above the 50mm stone overfill if required. The 50mm overfill depth of stone can then be redistributed or the excess removed to achieve the final overfill depth required of 25mm.





**5.3.4.3** Within the driveway build-up the natural gradients within the RPAs will be maintained, with build-up of lower areas being minimised and no lowering of higher areas. The change in levels from the public footpath to the driveway build up can be reduced by adding a narrow section of 75mm deep Cellweb to create a slope, if necessary. The width of this section of cellweb should be minimised and less than 1m to prevent a vehicle overloading its weight capacity of 1,000Kg with partial loading of the footpath and the 150/ 100mm deep cellular confinement units.

**5.3.4.4** The cellular confinement units must be a minimum of 500mm from the basal flare of T001 and T002 to allow for growth and movement. Also, the ground levels within any planting borders can't be increased without specific protection measures within the RPAs of T001 and T002. If the difference in levels between the driveway buildup and the planting border needs to be reduced, then mulch can be added within the planting area. This will increase the level by up to 75mm and can be topped up when this depth reduces, through breakdown into the soil. If further increase in the level of the bed is required then cellular confinement units and be used, as long as they leave a 500mm gap around the base of the trees. A configuration including mulch top surface is shown in *Figure 6* in the Appendix.

**5.3.4.5** Planting units filled with grass and growing medium, such as Golpa units from Geosynthetics will be used as a top surface in part of the front driveway. The combined area of the grass filled planted units and the planting beds will ensure that at least 50% of the total front garden will be planted to maintain the green and traditional character of the Estate. An example of a suitable configuration is shown in *Figure 5* in the Appendix.

**5.3.5** No new planting is proposed; therefore no methodology or mitigation has been provided.

**5.3.6** Shading by the existing trees to the proposed development is considered to create insignificant impact given the position of the trees, the nature of the proposals and the proposed land use. Therefore, no methodology or mitigation has been provided.

**5.3.7** Pruning of the low canopy of tree N003 trees will ensure that the branches will not encroach on the new building. This pruning is specified in **5.8 Access pruning**. The risk of encroachment and potential impact from root expansion has been minimised by trial investigation digging to assess rooting activity prior to the planning submission.

**5.3.8** Given the recorded soil type comprising of clay, silt and sand (underlying bedrock), the trees and woody plants in the area of the development, it is expected the project engineer will provide suitable foundation specifications accordingly.

**5.3.9** The potential nuisance of leaf drop causing issues with the rainwater collection system will be mitigated using equipment such as leaf guards/ gutter guards or similar. Non-slip surfacing will be used in the sunken terrace to minimise the potential slip hazard caused by fallen leaves and fruit. Surfacing that is also resistant to discolouration or dark in colour will also minimise any perceived nuisance due to fallen debris and cleaning requirement and therefore should be considered.

**5.3.10.1** There is some space for storage of materials and welfare facilities on site and outside the RPAs of the retained trees. These should be located as per the prohibitions and precautions within RPAs.

**5.3.10.2** If a skip is required on site, or another form of loading which requires significant head clearance, it is likely that this access will only be possible at a new access point between T001 and T002. This is because of the relatively low clearance below the leaning trunk of T002 which is likely to prevent skip truck loading and unloading on the existing driveway for example. Ground protection must be installed before this or any other loading to RPAs outside the existing hardstanding. Additional space for a skip is available on the highway of Burbage Road if necessary.



## **5.4 Prohibitions and precautions within RPAs**

**5.4.1** No linear mechanical excavation without prior written agreement from the AC.

**5.4.2** No excavation, including soil displacement or hand digging without a written method statement from the main contractor having first been approved in writing by the AC

**5.4.3** No excavation without arboricultural site monitoring unless agreed by the AC.

**5.4.4** No lowering of or raising of soil levels unless agreed in writing with the AC.

**5.4.5** No construction of a sealed hard surface.

**5.4.6** No storage of plant or materials, unless on ground protection or the driveway hardstanding. This excludes storage of potentially harmful substances which cannot be stored on ground protection or hardstanding unless with prior planning and written agreement from the AC.

**5.4.7** No storage or handling of any chemicals including cement washings, unless the AC approves site-specific protection and mitigation.

**5.4.8** No vehicular access or machinery outside areas of ground protection without prior written agreement from the AC.

**5.4.9** No fire lighting.

**5.4.10** If any other investigative excavation is required within or near to RPAs of retained trees that is not covered in this report, this should be planned and agreed with the AC. Trial excavations can be carried out through careful hand digging or soil displacement. Exposed roots should be immediately wrapped with hessian to prevent desiccation or rapid temperature changes. Roots under 25mm may be pruned using a sharp hand tool following consultation and subsequent approval from the AC. Management of roots over 25mm, or equivalent sized clumps of roots require consultation with the AC.

## **5.5 Further precautions when working near retained trees**

**5.5.1** Any mixing or storage of cement and other substances injurious to tree health, must be at least 10 metres from the RPAs unless specific mitigation is agreed before works go ahead.

**5.5.2** All site operations shall be carefully planned to prevent any contact with any parts of the trees retained.

## **5.6 Tree Protection fencing**

**5.6.1** The proposed scheme involves construction activities near retained trees.

**5.6.2** Tree protection fencing has been specified to create construction and storage exclusion zones. The position of the fencing is shown.

**5.6.3** Although it is not practicable to install tree protection fencing around all trees, and notably N003, the same restrictions apply to all trees and RPAs as set out in *5.4 Prohibitions and precautions within RPAs* of this report.



## 5.7 Ground protection measures

**5.7.1** Temporary ground protection will be provided by either the existing hardstanding in the front driveway, or cellular confinement system. If using the cellular confinement system this must be installed at the start of the development process or as soon as the hardstanding has been removed to ensure RPA protection.

**5.7.2** Ground protection should be positioned in the location shown in the Tree Protection Plan, ref: AIAMS159- M02 in the Appendix.

**5.7.3** The loading capacities of the ground protection system specified should be carefully observed and not exceeded throughout the development.

**5.7.4** Potentially harmful substances should not be stored or mixed on RPAs, including RPAs covered by the existing driveway or ground protection without planning, protection measures (such as bunded areas and run off precautions being followed, to avoid soil contamination) and prior written agreement with the AC.

## 5.8 Pruning

**5.8.1** Access pruning has been deemed necessary to N003. This tree should be lifted to 3m above ground level on the side of the development- the E/SE side only. These recommendations are provided in *I. Tree survey data* in the appendix.

**5.8.2** Any changes to the project that require pruning may only be conducted following written consent from the AC and a notification of works to the LPA if live wood requires pruning on a tree over 75mm in diameter at 1.5m above ground level. All tree work must be undertaken in accordance with BS3998:2010 and current best arboricultural practices.

**5.8.3** Under no circumstances may construction contractors prune any trees. All tree pruning must be undertaken by suitably qualified and insured arboricultural contractors, under the guidance of the AC.

## 5.9 Other precautions and mitigation

**5.9.1** None anticipated

## 5.10 Contingency plans

**5.10.1** A general contingency plan for this project should be prepared by the main contractor for controlling such things as chemical/fuel spillage, runoff from cement washings, sewage or water leaks, site collisions and emergency access into or adjacent to tree protection areas. The plan must be agreed by the project AC before commencement.

## 6. Enquiries

Any enquiries relating to this report should be addressed, in the first instance, to Ross Fountain, Arbssystem, Kelvedon House, Guildford Road, London, SW8 2DN.

## 7. Appendix



## 1. Tree Survey data

Ref.	Species	Feature	Measurements	General Observations	RPA	Phys. Cond	Struct. Cond	Recommendations	Ret. Cat.
T001	Box Elder Maple ( <i>Acer negundo</i> )	Tree	Height (m): 8 Stem Diam(mm): 340 Spread (m): 3N, 4E, 3.5S, 2.5W Crown Clearance (m): 2 Lowest Branch (m): 2.5(E) Life Stage: Early Mature Rem. Contrib.: 20+ Years	Epicormic growth to trunk and throughout mid canopy. Slightly asymmetrical crown distribution biased towards the E/SE. Previously reduced with 2 levels of reduction visible. Slightly sparse canopy with minor deadwood throughout canopy and less average vitality.	Radius: 4.1m. Area: 53 sq m.	Fair	Good		B1
T002	Box Elder Maple ( <i>Acer negundo</i> )	Tree	Height (m): 7.5 Stem Diam(mm): 230 Spread (m): 4N, 2.5E, 2.5S, 3.5W Crown Clearance (m): 2.5 Lowest Branch (m): 3(NW) Life Stage: Early Mature Rem. Contrib.: 20+ Years	Epicormic growth to trunk and mid canopy. Base close to driveway paving. 3 wounds to trunk with cavity formation. Cavity with opening to the S probed to approx. 25cm (longitudinally down trunk). Reaction growth around the cavity. Slightly asymmetrical crown distribution biased towards the N/. Previously reduced with 2 levels of reduction visible. Cavity in mid to upper N section of canopy at elbow of primary limb. Slightly sparse canopy with minor deadwood throughout the canopy and less average vitality.	Radius: 2.8m. Area: 25 sq m.	Fair	Good		B1
T003	Apple ( <i>Malus sp.</i> )	Tree	Height (m): 4.5 Stem Diam(mm): 340 Spread (m): 3N, 2.5E, 2.5S, 2.5W Crown Clearance (m): 1.5 Lowest Branch (m): 1.5(SW) Life Stage: Mature Rem. Contrib.: <10 years	Epicormic growth to trunk and lower to mid canopy. Various wounds and cavities, including wound at 2m agl, which has previously been used as a propping point. This prop has since decayed and is not providing support. The tree has grown around the top of the prop. No large cavities of imminent structural concern. Tree appears to have been regularly reduced, with a limited but spreading canopy. Starting of a woodpecker hole. FFBs with the appearance of inonotus hispidus on the ground, likely to have fallen from this tree. Upper central canopy has poor vitality, tree is likely to decline given its condition and the likely fungal colonisation.	No RPA due to Retention Category of U.	Fair	Decaying		U
T004	Apple ( <i>Malus sp.</i> )	Tree	Height (m): 3 Stem Diam(mm): 210 Spread (m): 1.5N, 1E, 2S, 1.5W Crown Clearance (m): 1.5 Lowest Branch (m): 1.5(N) Life Stage: Early Mature Rem. Contrib.: 10+ Years	2 trunk wounds with the cavity at the upper wound at 1.5m agl extending to lower wound at 1.2m agl. Central leading stem has previously been removed. Limited remaining canopy. Some leaf chlorosis.	Radius: 2.5m. Area: 20 sq m.	Fair	Fair		C1
T005	Yew ( <i>Taxus sp.</i> )	Multi-Stemmed 4 stems	Height (m): 2 4 stems (mm): 30,40,50,50 Spread (m): 1N, 1E, 1S, 1W Crown Clearance (m): 0 Lowest Branch (m): 0(N) Life Stage: Early Mature Rem. Contrib.: 20+ Years	Multi stemmed yew in domed form. No live growth at the top, at time of surveying.	Radius: 1.0m. Area: 3 sq m.	Fair	Fair		B1

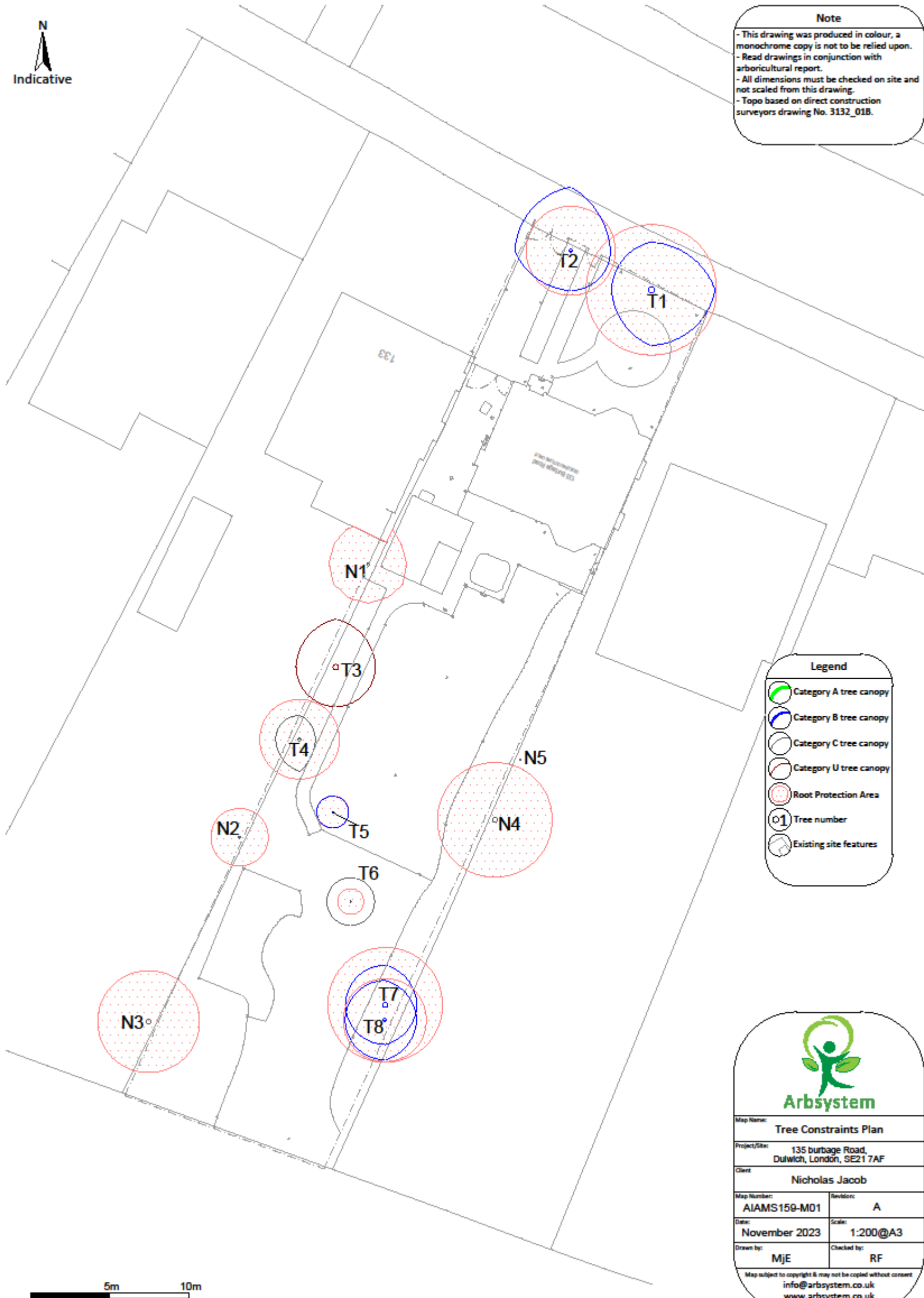
Ref.	Species	Feature	Measurements	General Observations	RPA	Phys. Cond	Struct. Cond	Recommendations	Ret. Cat.
T006	Cherry ( <i>Prunus sp.</i> 'Cherry')	Tree	Height (m): 3 Stem Diam(mm): 70 Spread(m):1.5N, 1.5E, 1.5S, 1.5W Crown Clearance (m): 1.5 Lowest Branch (m): 1(SE) Life Stage: Young Rem. Contrib.: 20+ Years	Young tree in a planted bed. Minor deadwood in mid to upper canopy, which is relatively sparse.	Radius: 0.8m. Area: 2 sq m.	Fair	Good		C1
T007	Apple ( <i>Malus sp.</i> )	Tree	Height (m): 4.5 Stem Diam(mm): 300 Spread (m): 2.5N, 2E, 2.5S, 2.5W Crown Clearance (m): 1.5 Lowest Branch (m): 1.5(NE) Life Stage: Mature Rem. Contrib.: 30+ Years	Minor root surfacing. Good form and reasonable vitality. Has been repeatedly reduced.	Radius: 3.6m. Area: 41 sq m.	Good	Good		B1
T008	Apple ( <i>Malus sp.</i> )	Tree	Height (m): 3.5 Stem Diam(mm): 220 Spread (m): 2.5N, 2E, 2.5S, 2.5W Crown Clearance (m): 1.5 Lowest Branch (m): 1.5(NE) Life Stage: Mature Rem. Contrib.: 30+ Years	Minor root surfacing and root damage. Trunk is leaning towards the E/SE. The canopy is asymmetrically distributed due to light requirements and the larger neighbouring tree. Minor epicormic growth at trunk and lower canopy. Reasonable vitality. Has been repeatedly reduced.	Radius: 2.6m. Area: 21 sq m.	Fair	Fair		B1
N001	Apple ( <i>Malus sp.</i> )	Tree	Height (m): 3 Stem Diam(mm): 200	Neighbouring apple tree. Not surveyed and measurements estimated. Wisteria growing through the canopy.	Radius: 2.4m. Area: 18 sq m.				uncat.
N002	Plum ( <i>Prunus domestica</i> )	Tree	Stem Diam(mm): 150	Neighbouring espalier plum tree. Not surveyed and measurements estimated. Tree growing around a metal rod, likely previously added as support.	Radius: 1.8m. Area: 10 sq m.				uncat.
N003	Cherry ( <i>Prunus sp.</i> 'Cherry')	Tree	Stem Diam(mm): 310	Neighbouring cherry tree. Not surveyed. Photos and measurements provided.	Radius: 3.7m. Area: 43 sq m.			Tip lift low canopy to 3m above ground level on the side of the development- the E/SE side only	uncat.
N004	Crab Apple ( <i>Malus sylvestris</i> )	Tree	Stem Diam(mm): 300	Neighbouring apple tree. Not surveyed and measurements estimated.	Radius: 3.6m. Area: 41 sq m.				uncat.
N005	Pear ( <i>Pyrus sp.</i> )	Tree	1 stem	Neighbouring pear tree. Not surveyed and measurements estimated. Covered in ivy with deadwood throughout the canopy.	No RPA.				uncat.

## 2. Tree constraints plan



**Note**

- This drawing was produced in colour, a monochrome copy is not to be relied upon.
- Read drawings in conjunction with arboricultural report.
- All dimensions must be checked on site and not scaled from this drawing.
- Topo based on direct construction surveyors drawing No. 3132\_01B.



**Legend**

- Category A tree canopy
- Category B tree canopy
- Category C tree canopy
- Category U tree canopy
- Root Protection Area
- Tree number
- Existing site features

**Arbssystem**

Map Name: Tree Constraints Plan	
Project/Site: 135 burbage Road, Dulwich, London, SE21 7AF	
Client: Nicholas Jacob	
Map Number: AIAMS159-M01	Revision: A
Date: November 2023	Scale: 1:200@A3
Drawn by: MJE	Checked by: RF

Map subject to copyright & may not be copied without consent  
 info@arbssystem.co.uk  
 www.arbssystem.co.uk  
 tel: 0207 193 9614

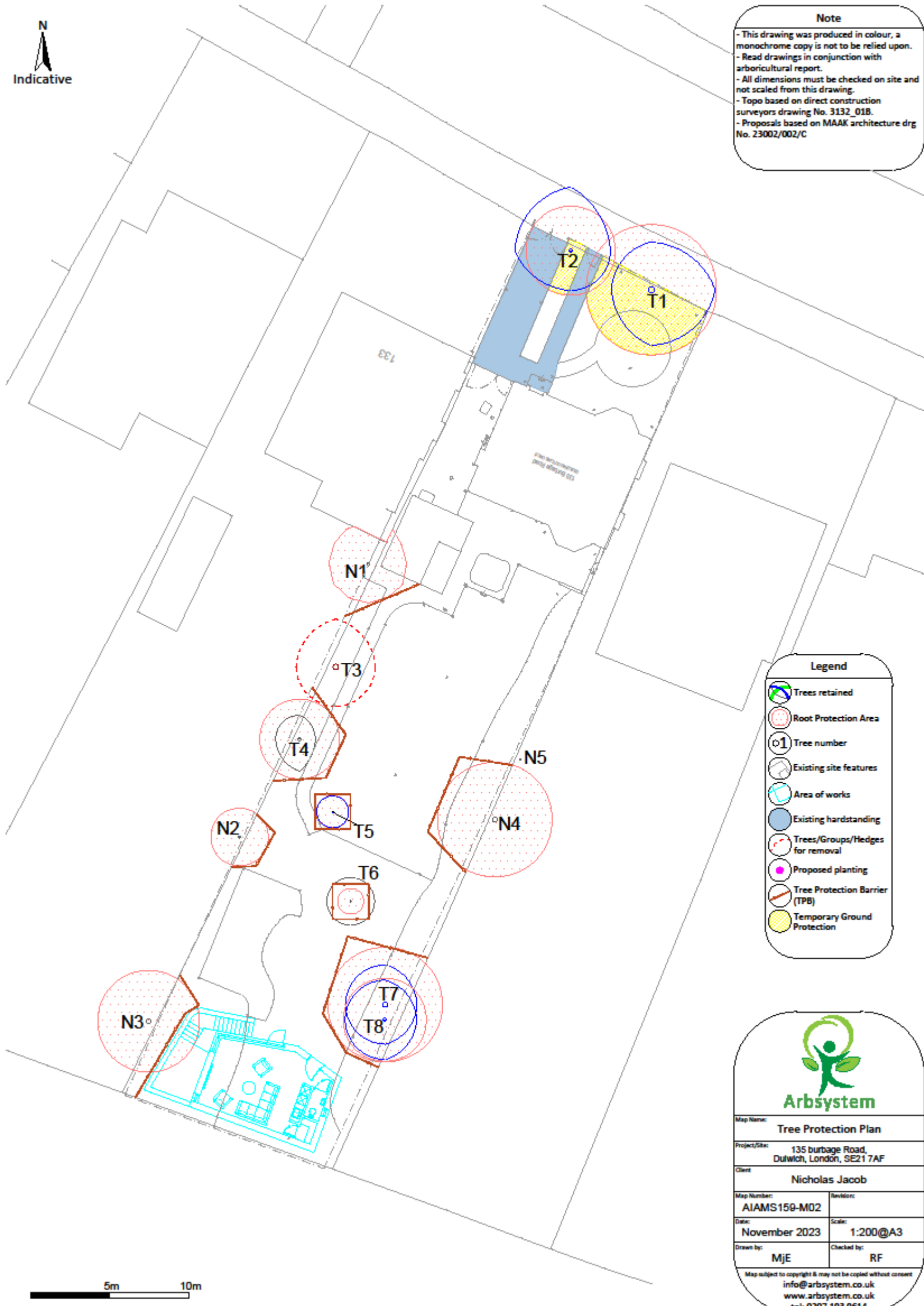
Tree constraints plan- AIAMS159-M01

### 3. Tree Protection Plan



**Note**

- This drawing was produced in colour, a monochrome copy is not to be relied upon.
- Read drawings in conjunction with arboricultural report.
- All dimensions must be checked on site and not scaled from this drawing.
- Topo based on direct construction surveyors drawing No. 3132\_01B.
- Proposals based on MAAK architecture drg No. 23002/002/C



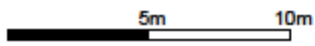
**Legend**

- Trees retained
- Root Protection Area
- Tree number
- Existing site features
- Area of works
- Existing hardstanding
- Trees/Groups/Hedges for removal
- Proposed planting
- Tree Protection Barrier (TPB)
- Temporary Ground Protection

**Arbssystem**

Map Name: <b>Tree Protection Plan</b>	
Project/Site: 135 burbage Road, Dulwich, London, SE21 7AF	
Client: <b>Nicholas Jacob</b>	
Map Number: <b>AIAMS159-M02</b>	Revision:
Date: <b>November 2023</b>	Scale: <b>1:200@A3</b>
Drawn by: <b>MJE</b>	Checked by: <b>RF</b>

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info@arbssystem.co.uk  
www.arbssystem.co.uk  
tel: 0207 193 9614



**Tree protection plan- AIAMS159- M02**



#### 4. Tree Protection fencing and signage

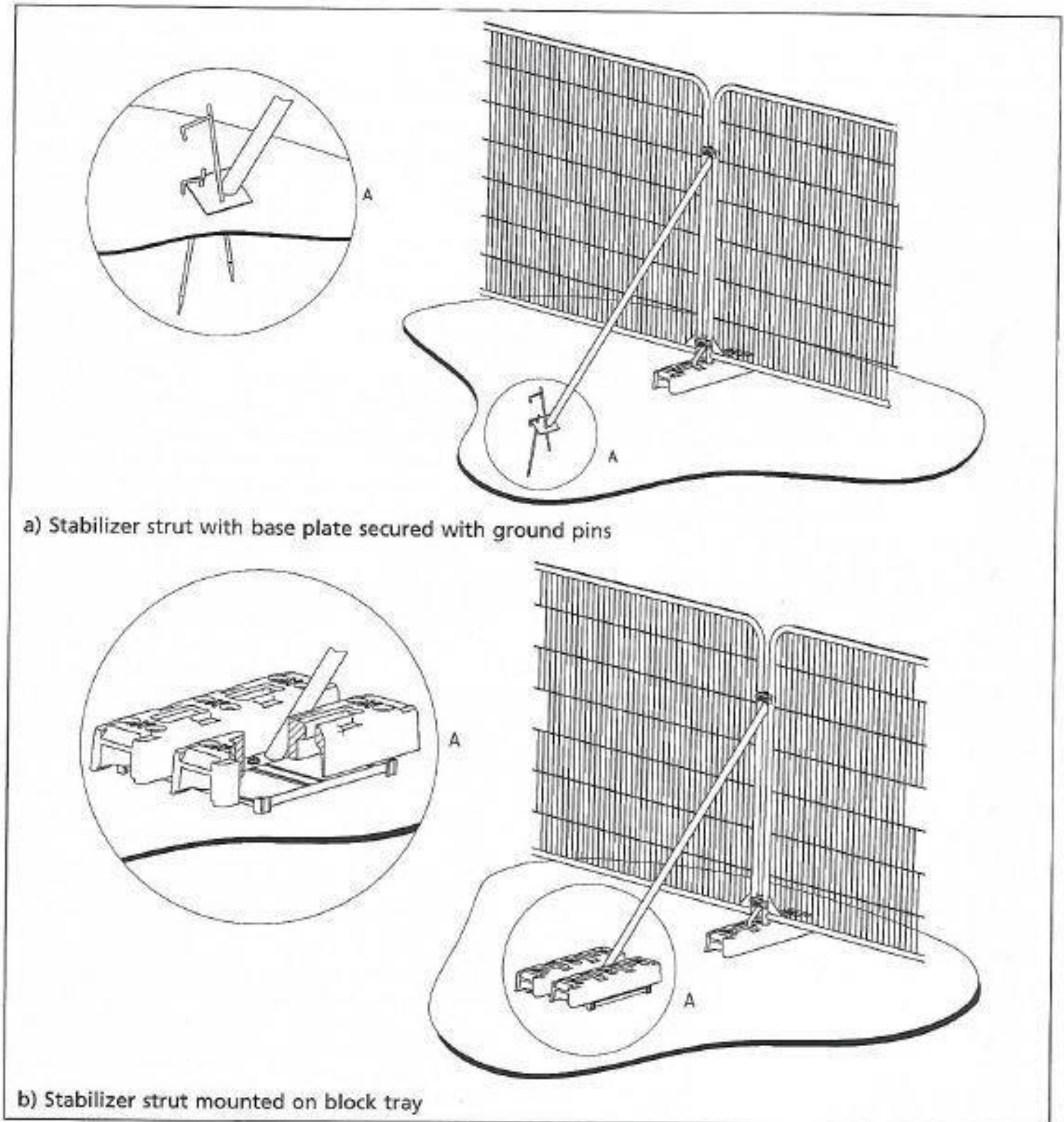


Figure 3- type of tree protection fencing required (from BS5837:2012 – 6.2.3) and shall remain in place until completion of the project.



## **Tree Protection Area Keep Out!**

**This fence must be maintained in accordance with  
the approved plans and drawings for this  
development**

*Figure 4- Example of signage to be affixed to the tree protection fencing at intervals of 4 metres and shall remain in place until completion of the project.*

## 5. Cellular confinement system build-up examples

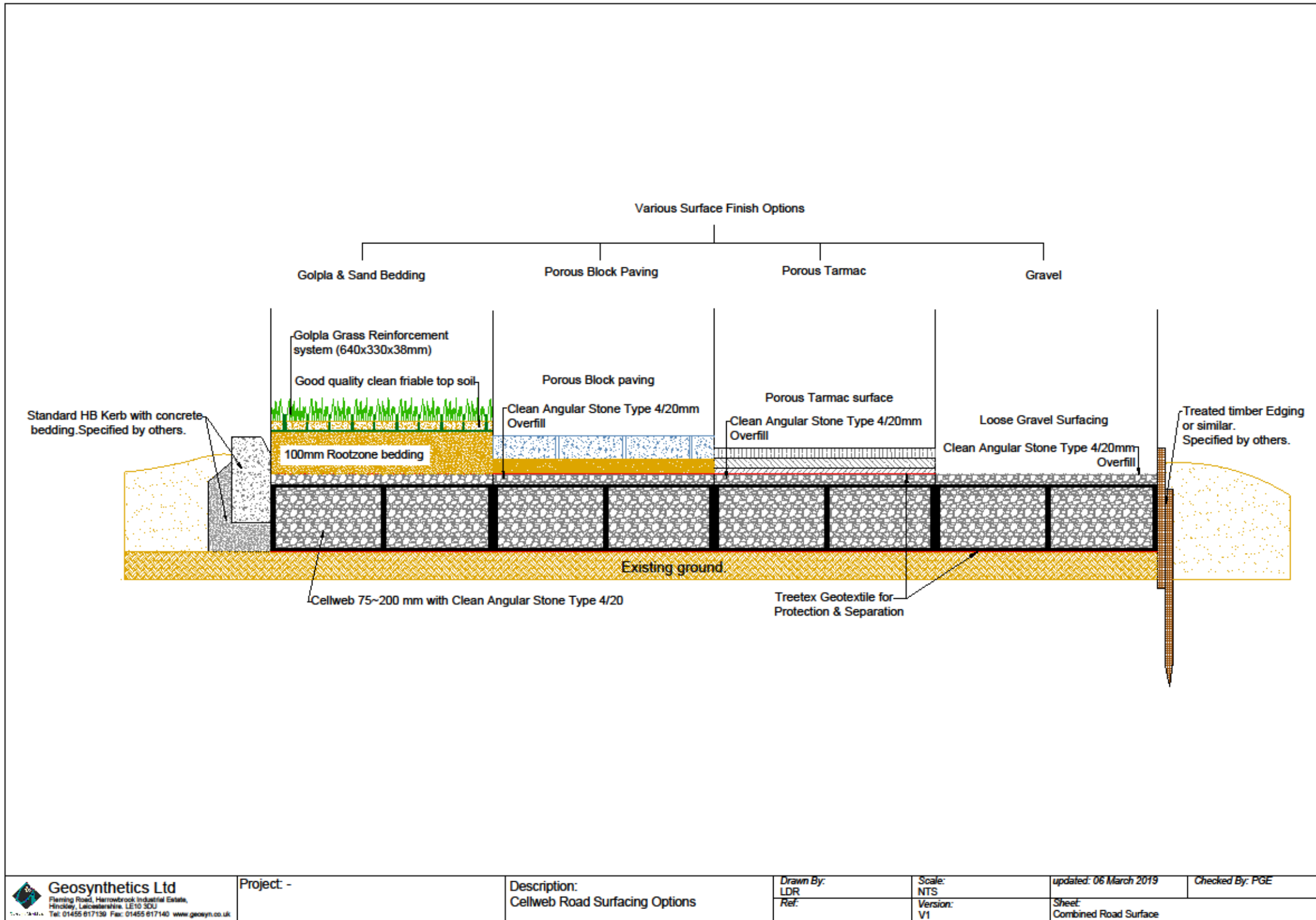
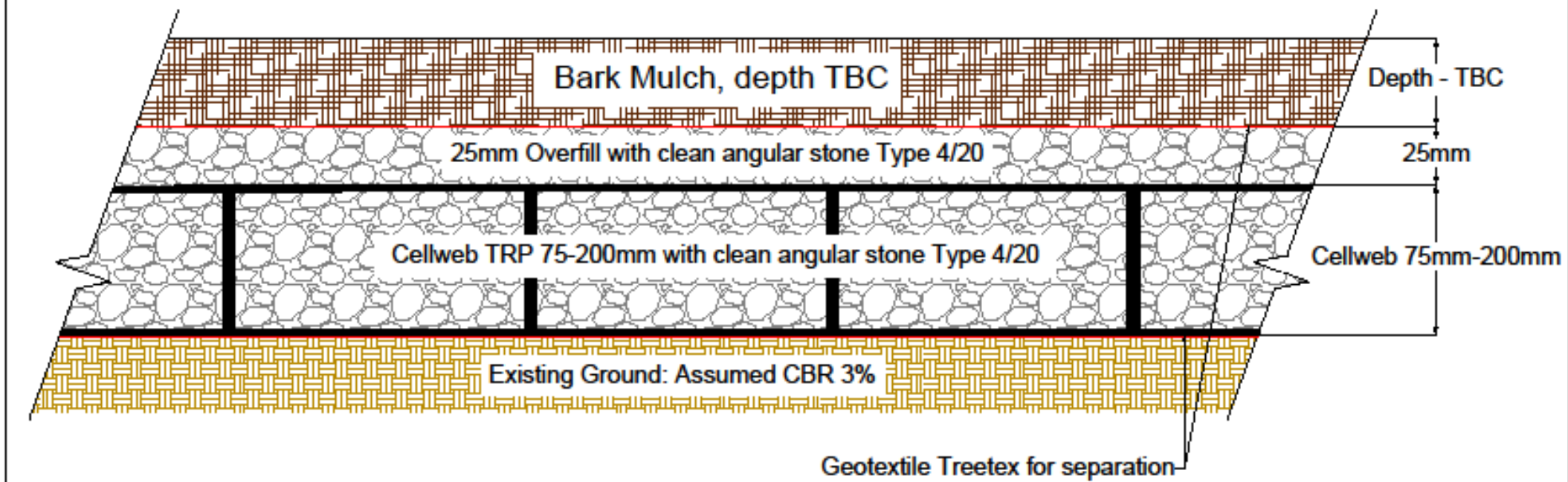


Figure 5- Build up with Various surfacing.

## INDICATIVE CROSS SECTION OF CELLWEB TRP SYSTEM



 <b>Geosynthetics Ltd</b> Planning Road, Harroldbrook Industrial Estate, Harrold, Leamington Spa, CV32 2JQ, Warwickshire, CV32 2JQ Tel: 01452 611700 Fax: 01452 611100 www.geosyn.co.uk	<b>Project:</b> Cross Section of Cellweb Over TRP Area Bark Mulch Surfacing	<b>Drawn By:</b> AR PSE	<b>Scale:</b> NTS Version: V1	<b>Date:</b> 12 July 2019 <b>Sheet:</b> 1/1	<b>Checked By:</b> PGE

Figure 6- Build up with mulch upper surface.



## 6. Arboricultural sequencing of events and site monitoring

Stage	Event
Stage 1	Project arboricultural consultant (AC) appointed
Stage 2	Tree works to be carried out once planning permission granted, or prior to planning with appropriate notification given to LPA (for pruning of live wood).
Stage 3	Main contractor supplied with arboricultural report AIAMS159.1. Main contractor to supply report to secondary contractors and brief as necessary. Main contractor to prepare contingency plan and provide to AC
Stage 4	Site set-up as per tree protection plan AIAMS159 M-02. A copy of the TPP should be available on site for the reference of all contractors
Stage 5	Once tree protection measures are in place, and prior to works beginning, a site visit by the AC is required. This site visit and any subsequent AC site visit should use an auditable system of site monitoring which should be made available to the landowner on request.
Stage 6	Following the initial site visit by the AC works can commence. Following this commencement an AC visit is required to oversee the hand excavation within the RPA of N003 and the installation of the cellular confinement system. In addition to supervision of these works a site visit by the project AC is required every 2 months until completion of the project. This is in order to ensure continuous tree protection, avoid potential breaches of planning and delays to the development
Stage 7	When works are complete, and machinery and stored materials are removed the tree protection measures can be removed.
Stage 8	Final visit from AC to provide final audit and sign off project.

**Note: If at any point during the development any changes to the project involving the trees and woody plants- including but not excluding others: tree protection measures, pruning, excavation within or near to RPA's- consultation must be made with the AC in writing. The AC will advise on the matter and a site visit to oversee operations may be required.**



## 7. Pictures



*Picture 1 (top left)- showing the trial excavation trench and the root identified for retention at the North end. Very little other rooting activity, with lighter coloured roots not from tree N003.*

*Picture 2 (top right)- Root identified for retention, initially growing perpendicular to the fence, and then heading northwards.*

*Picture 3 (bottom left)- Root diameter approximately 3cm in trial excavation area.*







*Picture 4 (left)- showing smaller root of 15mm diameter at southern end of trench which can be pruned.*



## 8. Reference material

BS5837:2012 Trees in Relation to Design, Demolition and Construction - Recommendations.

BS3998:2010 Tree work. Recommendations.

Tree Preservation Orders: A Guide to the Law and Good Practice.

NJUG 10 - Guidelines for the planning, installation and maintenance of Utility Services in relation to trees.

BS8206: Part 2: 2008 Code of Practice for Daylighting.

Site Layout Planning for Daylight and Sunlight. A Guide to Good Practice.

CIBSE: Daylighting and window design, lighting guide LG 10: 1999.