PP 11

Planning Conditions: Discharge submission

Planning Permission: 14387/APP2020/4128
& Associated
Listed Building Consent: 14387/APP2020/4126

For Barn type extension at:

The Six Bells
Duck Hill Road
Ruislip
HA4 7TP

Condition 11 Pre Demolition & Commencement

30th March 2021

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BS 5837:2012 Tree Survey, Arboricultural Impact Assessment, Arboricultural Method Statement & Tree Protection Plan

The Six Bells
Ducks Hill Road
Ruislip
HA4 7TP

27/04/2021

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Appendices

1. Instruction

Usherwood Arboriculture have been instructed to provide a tree survey, arboricultural impact assessment, arboricultural method statement and tree protection plan with regards to the proposal to provide overnight B & B style accommodation bedrooms within the previously approved Barn type structure space, at The Six Bells, Ducks Hill Road, Ruislip, HA4 7TP. The survey has been carried out in accordance with BS5837:2012, Trees in relation to design, demolition and construction-Recommendations.

Drawing No.	Title	Drawn/Written by
VSA20 03- 001	Existing Site Plan	Vernon Smith & Associates
VSA20 03-006	Proposed Site Plan	Vernon Smith & Associates

Table 1. Drawings and documents supplied for consideration within this report

2.Executive Summary

This document takes into account the potential impact of development upon trees both within and In close proximity to the application site. For completeness, a total of 40 trees have been surveyed, although, the proposal will only impact upon eight individual trees, including the removal of three category C specimens. The remaining impacts will be in the form of additional parking spaces installed upon the root protection areas of retained trees, while these will be installed as part of a no dig construction. Details within the arboricultural method statement and tree protection plan will ensure that all remaining trees are afforded maximum protection throughout the development.

3.The Site

The application site is located on the west side of Ducks Hill Road and within an area of designated Green Belt. The site is largely level and arboreal in nature, surrounded by continuous canopy cover made up primarily of mature Oak and Ash to the north and west of the pub and restaurant car park.

Soil conditions.

The British Geological Survey, Geology of Britain viewer describes the local bedrock geology as Lambeth Group- clay, silt and sand, and the superficial layer as Alluvium-Clay, silt, sand and gravel.

Legal Constraints

Trees can sometimes be the subject of a Tree Preservation Order (TPO) or a property may be situated within a designated conservation area. Both a TPO and conservation area designation require the owner/occupier or those wishing to work on trees to seek the Council's consent or provide written notice prior to carrying out any works. It is a criminal offence to carry out any works to protected trees without the Council's consent. I have been informed by Hillingdon Council that the site is not subject to a tree preservation order.

Aerial image courtesy of Google Maps with site outlined in red.

4. Tree Survey

Trees were assessed in accordance with recommendations and guidelines contained within British Standard 5837:2012 - 'Trees in relation to design, demolition and construction-Recommendations' henceforth referred to as BS5837. The survey was carried out in relation to the condition and quality of trees growing either within or near the boundary of the site. Where details have been omitted including the heights of crown break and the direction of the first major lateral branch, these details were not seen as being relevant to this application. Where access allowed, tree heights were measured with a Haglof electronic clinometer and trunk diameters with a diameter tape measure. Crown spreads were measured with a tape measure at the four cardinal points.

All trees were assessed from the ground utilizing the Visual Tree Assessment method as developed by Mattheck and Breloer (The Body Language of Trees, Research for Amenity Trees No 4 Department of the Environment).

This tree survey should not be treated as a hazard assessment, it has been carried out to inform the planning process with regards to the appropriate retention and protection of trees as visual and ecological assets within the landscape. However, where clear and obvious defects have been observed, the relevant parties have been informed.

Tree Assessment and Categorization

Tree quality ratings have been assessed in accordance with BS5837's Table 1, Cascade chart for tree quality assessment.

U= Trees in such a condition that any existing value would be lost within 10 years and which should in the current context, be removed for reasons of sound arboricultural management. (Trees that have serious, irremediable structural defects, such that their early loss is expected due to collapse or ill health including trees that will become at risk due to the loss of other U category trees).

A = Trees of high amenity quality and value in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).
1) Trees that are particularly good examples of their species if rare, unusual or essential components of groups or formal or semi-formal arboricultural features.
2) Trees, groups of trees or woodland which provide a definite screening or softening effect to the locality in relation to views in or out of the site, or those of particular visual importance.
3) Trees groups or woodlands of significant conservation, historical, Commemorative or other value (e.g. veteran tree or wood pasture).

B = Trees of moderate quality and amenity value: those in such a condition as to be able to make a significant contribution (a minimum of 20 years is suggested).
1) Trees that might be included in the high category but are down-graded because of impaired condition (e.g. remediable defects).
2) Trees, groups of trees or woodland that form distinct landscape features but do not form essential components of the landscape.
3) Trees with clearly identifiable conservation or other cultural benefits.

C = Trees of low quality and amenity value currently in adequate condition to remain until new planting is established (a minimum of 10 years is suggested) or trees under 150 mm stem diameter.
1) Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.
2) Trees presenting groups or woodlands but not with a significantly higher landscape value and or offering low or temporary/transient screening benefit.
3) Trees with no conservation or other cultural benefits.
Note: Category C trees are the least suitable for retention, where they would impose a significant constraint on the development their removal for development purposes may be considered acceptable by the LPA.

5.Tree Survey Data & Appraisal

This survey concerns 40 individual trees, full details of the survey data can be found in the Tree Survey Schedule at **Appendix 1**. An explanation of Tree Quality category ratings is set out on the previous page.

Category A individual trees and groups of trees.
No individual trees were graded as category A (trees of high quality) as part of this survey.

Category B individual trees and groups of trees.
21 individual trees and were graded as category B (trees of moderate quality) as part of this survey.

Category C individual trees and groups of trees.
17 individual trees were graded as category C (trees of low quality) as part of this survey.

Category U individual trees and groups of trees.
Two individual trees were graded as category U (trees unsuitable for retention) as part of this survey.

Seven tree species were recorded as part of this survey, there common and botanical names are set out within the table below.

Common Name	Botanical Name
Common Ash	Fraxinus excelsior
Dawyck Beech	Fagus sylvatica 'Dawyck'
Field Maple	Acer campestre
Hazel	Corylus avellana
Pedunculate Oak	Quercus robur
Norway Maple	Acer platanoides
Plum	Prunus domestica

Table 2. Tree species recorded on site and their botanical names

T3, Common Ash


Photos above of T3, a mature Common Ash.

T3 Ash is a mature category C tree that will remain alongside the proposed development. The tree divides into two stems at 3 metres and currently provides support for festoon lighting in the pub garden. The overall condition of T3 suggests the early stages of Chalara Ash dieback.

T4 Hazel


Photos above of T4, a mature multi-stem Hazel encased in a wooden planter. T5, an Ivy-clad dead Ash tree can be seen to the right and will be removed due to its hazardous condition.

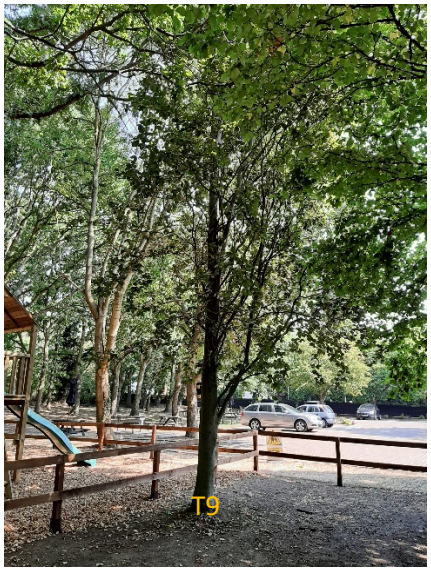
T4 Hazel is a mature category C multi-stemmed tree of limited merit. The tree originates at ground level having had a raised planter with additional soil retrofitted around its base. T4 will be removed to facilitate the proposed development.

T6, T7 & T8 Pedunculate Oaks and multi-stemmed Hazel.

Photo above shows T6, T7 & T8, two category B Oaks and a category C Hazel.

T8 Hazel is an unremarkable mature, multi-stemmed category C Tree. T8 will be removed in order to facilitate the installation of additional parking.

T9 Dawyck Beech



Photos above showing T8 Hazel and T9 Dawyck Beech.

T9 is an upright form of beech known as Dawyck Beech. The tree has a very asymmetrical canopy, suppressed by the larger and more mature trees around it. T9 is another unremarkable category C tree in the early mature stage of its life and will be removed in order to facilitate the installation of additional parking.

T10 Common Ash

Photos above of T10, category C Ash and T11 category B Oak.

T10 Ash is an early mature category C tree in poor structural condition. T10 exhibits basal decay and vertical cracking on its main stem before dividing into two stems at 2 metres where the cracks or cankers continue. As with T3, the overall crown condition suggests the early signs of Chalara Ash dieback. T10 will be retained and integrated within the proposed additional parking area.

Chalara Ash Dieback-

Ash dieback is a relatively recent disease to arrive in the UK. The disease originated from Asia before arriving in Europe where it is currently devastating the European Ash (Fraxinus excelsior) population. The disease more correctly known as Hymenoscyphus fraxineus could kill a large proportion of the UK's Ash trees, with younger trees showing a higher vulnerability to the disease. A number of Ash trees throughout the site are exhibiting crown dieback associated with this disease in its various stages and should be carefully monitored.

6.Arboricultural Impact Assessment

The term Arboricultural Impact Assessment is self-explanatory. It sets out the potential risks and threats associated with proposed construction to trees both within and near to an application site and seeks to minimise those risks through the implementation of a sound and recognised methodology set out within an arboricultural method statement.

Construction and development in general can impact trees in a number of ways, the most notable being damage to the tree's root system leading to decline and potential structural instability. BS5837 recognises this and accordingly sets out recommendations to minimise damage associated with the effects of soil compaction and root severance.

The proposal to construct a barn style building with associated additional parking will have a minimal impact upon the arboreal nature of the site. A total of three category C trees of low quality are proposed for removal and a no dig solution will be specified as part of the landscape details to provide additional car parking spaces to the south-west of the existing block paved car park.

Trees to be removed

BS5837:2012 Category	Tree & Group Number	Reasons for removal
A	None	
B	None	
C	T4, T8, T9	T4 Will be on the edge of the footprint for the proposed development whilst T8 and T9 will be beneath the area chosen for additional parking.
U	T5, T16	Remove for sound arboricultural reasons.

Table 3: Trees to be removed for development.

Root Protection Areas

BS 5837 describes the root protection area (RPA) as a layout design tool indicating the minimum area around a tree deemed to contain sufficient roots to maintain the tree's viability, and where the protection of the roots and soil structure is treated as a priority.

The **Root Protection Areas (RPA)** have been calculated in accordance with Table D1 of BS5837:2012. Notional RPA's are plotted on the arboricultural impact assessment plan at **appendix 3**. The RPA is defined by the formula in paragraph 4.6 from the British standard and may be refined by considering current on-site constraints to root activity such as buildings, walls, earthworks, hard paving and services.

Root Systems and compaction

Root systems can easily be damaged during construction works, leading to the sometimes-rapid decline of valuable trees. The biggest problem for trees on or close to construction sites is the compaction of soil caused by inappropriate vehicular movement and storage of materials especially where the site is founded on a compressible clay.

Numerous surveys have shown that a significant proportion of a tree's roots proliferate in the top 600-1000mm of soil. There will of course be roots that may go down to depths of 3 metres or more although these will be in the minority. Roots in the upper soil surface find it far easier to intercept moisture, acquire oxygen and perform gaseous exchange. You also find that as soil depth increases so does its strength or compaction, making it harder for roots to elongate with new extension growth.

Root morphology differs from species to species and is largely dependent on the soil type and ground conditions, however the fine roots responsible for moisture and nutrient uptake

can last anything from 10 days to over a year (Eissenstat and Yanai, 1997), with the tree producing new fine roots on a regular basis. The larger and more structural roots are a permanent feature of the tree and convey moisture and nutrients from the soil via the fine roots, into the trunk and canopy. The larger roots are of course responsible for the tree's stability as well as being areas of carbohydrate storage. Younger trees are more able to adapt to change and have more potential energy to explore alternative rooting environments whereas more mature trees are slower to react to a changing soil environment and are adapted to expend their energy on other important functions.

The National Geology of Britain Viewer advises that the local soil comprises of a superficial layer of clay- silt, sand and gravel over Lambeth Clay. therefore the risk of soil compaction is considered to be moderate with regards to the installation of additional parking spaces.

Root severance

As mentioned above, the roots are responsible for a number of functions including stability and the transport of water and nutrients. Studies have shown that trees can withstand and recover from the loss of a proportion of their root systems, especially where those roots have been removed in a single direction. It is not expected that major roots will be encountered as sufficient distance has been allowed between the RPA's of retained trees and the proposed barn construction. It is also unlikely that any major roots will be compromised during the installation of additional parking.

Construction of Barn

T6 Oak may incur an incursion of up to 21m^2 or 16% of its RPA. Incursion will be from the construction of a paved terrace at the western edge of the barn and the south-east corner of the additional parking area.

The paved area will be set upon existing ground with no requirement for excavation, the additional car parking will be of a non-invasive design due to its location beneath a number of established trees.

Installation of additional parking

The finished surface is still under discussion, with full details to follow as part of the landscape submission. however, the criteria will be for a robust, porous and non-invasive product that blends with the natural setting

Usherwood Arboriculture has previously used Cellpave 40 from Groundtrax
https://www.groundtrax.com/cellpave-ap/

Installation of bin and Cycle stores

A bin and cycle store will be erected upon a concrete slab on the northern corner of the site and within the root protection areas of **T15 Ash, T17 & T18 Oaks**.

BS5837, clause 7.5.3 recommends that where a slab for a minor structure is to be formed within the RPA of a retained tree, it should bear on existing ground level not exceeding an area greater than 20% of the existing unsurfaced ground.

The following ingress from the slab construction is expected –

T15= 3.2m^2 or 1.7%, **T17**= 23.4m^2 or 15%, **T18**= 1.3m^2 or 1.2%.

The impact of the slab construction is expected to be negligible, with a standard concrete base set atop a non-permeable membrane and poured within shuttering.

Installation of services

All services including power, water and foul sewage will be routed away from the RPA's of all retained trees.

7.Arboricultural Method Statement (AMS)

The arboricultural method statement sets out a precautionary approach towards tree protection. Any operations including access, proposed within the RPA (or crown spread where this is greater) should be described within an arboricultural method statement, to demonstrate that the operations can be undertaken with minimal risk of adverse impact to retained trees.

The methodology will provide sufficient protection to the rooting environments of all trees within the vicinity of the proposed construction throughout the duration of works.

Prior to the start of **any** works on site, a pre-start meeting will be held between the project arboriculturalist, site manager and LPA representative.

The meeting will ensure that the site manager is aware of their obligations with regards to the protection of trees within the site. The arboricultural method statement and tree protection plan will be discussed in detail with any construction related issues raised that may conflict with the approved arboricultural documents.

Phase 1-Access facilitation and pre-start tree works.

- Project arboriculturalist to mark out locations for tree protective fencing.
- Project arboriculturalist to meet with tree surgeons and mark up trees T4, T5, T8 & T9 for removal.
- Tree surgeons to carry out tree felling works including the removal of all stumps with a mechanical grinder.

Phase 2- Installation of protective fencing.

- Erect protective barrier fencing in locations shown on the tree protection plan at appendix 4. Tree protection positions will have already been marked out by the project arboriculturalist during phase 1. A protective fencing diagram can be found at appendix 5. Barriers will consist of a heras type panel inserted into rubber 'elephants feet'and reinforced with a stabelizer strut. Two anti-tamper clamps set 1 metre apart at either end of each section will ensure the area within the fence (CEZ) remains out of bounds to demolition activities throughout the duration of works.

Photos above show protective fencing installed as per BS5837:Fig 3A with rubber feet and stabilizer struts.

- Project arboriculturalist to visit site making sure that all tree protective fencing is in place and secured as per the approved arboricultural method statement and tree protection plan.

Phase 3- Construction of barn

- Once the tree protection measures have been implemented, construction works may commence in the standard manner.

- Construction materials will be delivered and stored upon the existing hard surfacing of parking bays set aside for this purpose.

- Excavation spoil will also be stored upon the hard surfacing of parking bays prior to being carted away from site.

Phase 4- Installation of additional parking spaces

- Additional spaces are to be installed upon the existing ground level.

- Any hollows or undulations are to be back filled with sharp sand, prior to the laying of a porous geotextile membrane.

- Refer to the installation specification for the chosen product, to be confirmed.

- All works are to be carried out by hand and there will be no requirement for the use of tracked or mechanical construction machinery, other than the use of a whacker plate to consolidate a type 3 open aggregate sub base if required.

Phase 5- Installation of bin and Cycle stores

- The bin and cycle store will be installed within the RPA's of T15, T17 & T18.

- The base of the store will consist of a standard cast concrete base, formed within shuttering set upon a non permeable sheet.

- Grass vegetation may be carefully stripped off by hand and any undulations made good with sharp sand prior to laying the slab.

- No further excavation may take place within this area.

General measures to be adopted in proximity to trees-

- All tree protection measures will be set in place prior to commencement of any works relating to the approved planning consent.
- No bonfires on site.
- No storage of products or mixing of materials within the RPA's of trees.
- No materials are to be stored within the confines of the protective fencing (CEZ).

- Storage of materials on soft ground in proximity to any other trees and hedges away from construction is to be avoided.
- No discharging of any products associated with construction near trees or hedges
- No refueling/topping up of hydraulic fluids etc. on plant machinery within or close to the RPA of trees.

- There will be no lowering or raising of soil levels within the root protection areas of retained trees except where specified and agreed by the LPA.

- There will be no excavation or trenching for the installation of services within the root protection areas of retained trees.

Dealing with exposed roots

- In the unlikely event that roots from existing and retained trees are encountered, the following protocol should be observed.

If any tree roots are encountered during the excavation process, roots up to 25mm shall be cut back with a sharp pair of by-pass loppers, except where they occur in clumps. Roots occurring in clumps or of 25mm diameter and over should be severed only following consultation with the project arboriculturalist or Local Authority tree officer.

If substantial tree roots are to be left exposed for any length of time, these must be covered with a damp hessian rap to minimize desiccation. Hessian should be removed immediately prior to backfilling with a suitable soil or sharp sand, not builders sand which contains sodium, detrimental to tree roots.

Box 1. Dealing with tree roots found during excavation works.

8. Conclusion

Provided the measures set out within this document are adhered to, there should be no adverse impacts upon the arboreal character of the site or the health of any individual trees, other than those proposed for removal. I therefore suggest that this document should be regarded as being arboriculturally acceptable.

9. Qualifications & Experience

I have been involved in the horticultural and arboricultural industries for over 35 years, firstly as a contractor and for the 15 years as a Local Authority tree officer and consultant. I hold the AA Tech cert arb, and ND Arb (RFS) as well as being a Lantra accredited Professional Tree Inspector. I am also a technical member of the Arboricultural Association and professional member of the Consulting Arborists Society.

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CAS

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Appendix 1: Tree Survey Schedule

Trees have been listed on the schedule with both their common and scientific names.

Tree height is normally measured and rounded up to the nearest metre for trees above 10 metres in height using a Haglof electronic clinometer.

Stem or trunk diameters were measured using a diameter tape in mm at 1.5 metres above ground where access allowed, otherwise diameters have been estimated.

Crown spread has been measured in metres from the trunk to the tips of the live lateral branches taken at the four-cardinal points N-E-S-W using a ground tape.

Age Class
Young - Trees in the first fifth of full life expectancy
Semi-mature - Trees in the second fifth of full life expectancy
Early-mature - Trees in the third fifth of full life expectancy
Mature - Trees in the fourth fifth of full life expectancy
Post-mature – Trees having reached full life expectancy and trees in natural decline
Veteran - Trees of interest biologically, culturally and aesthetically due to certain features and/or age.

ERCY-The estimated remaining contribution in years calculated considering the tree's species, location, current age and physiological and structural condition at the time of the survey.

BS5837 Survey Data

Ref.	Species	Measurements	General Observations	Category	Recommendations
T001	Field Maple (Acer campestre)	Height (m): 7 Stem Diam (mm): 210 Spread (m): 2N, 2E, 2S, 2W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 2.5m. Area: 20 sq m.	
T002	Field Maple (Acer campestre)	Height (m): 7 Stem Diam (mm): 190 Spread (m): 2N, 2E, 2S, 2W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 2.3m. Area: 17 sq m.	
T003	Common Ash (Fraxinus excelsior)	Height (m): 14 Stem Diam (mm): 430 Spread (m): 5N, 5E, 5S, 5W Life Stage: Mature Rem. Contrib.: 10+ Years		C2 RPA Radius: 5.2m. Area: 85 sq m.	
T004	Hazel (Corylus avellana)	4 stems, diam(mm): 170, 250, 170, 180 Spread (m): 4N, 5E, 5S, 4W Life Stage: Mature Rem. Contrib.: 10+ Years		C2 RPA Radius: 4.7m. Area: 69 sq m.	
T005	Common Ash (Fraxinus excelsior)	Life Stage: Dead		U RPA None - due to Retention Category of U.	

Ref.	Species	Measurements	General Observations	Category	Recommendations
T006	Pedunculate Oak (Quercus robur)	Height (m): 14 2 stems, diam(mm): 380, 380 Spread (m): 5N, 5E, 5S, 4W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 6.4m. Area: 129 sq m.	
T007	Pedunculate Oak (Quercus robur)	Height (m): 14 Stem Diam (mm): 290 Spread (m): 2N, 3E, 5S, 5W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 3.5m. Area: 38 sq m.	
T008	Hazel (Corylus avellana)	Height (m): 7 13 stems, diam(mm): 100, 100, 100, 100, 100, 100, 100, 100, 100, 100, 100, 100, 100 Spread (m): 5N, 4E, 4S, 5W Life Stage: Mature Rem. Contrib.: 10+ Years		C2 RPA Radius: 4.3m. Area: 58 sq m.	
T009	Dawyck Beech (Fagus sylvatica 'Dawyck')	Height (m): 15 Stem Diam (mm): 240 Spread (m): 2N, 2E, 2S, 2W Life Stage: Early Mature Rem. Contrib.: 10+ Years		C2 RPA Radius: 2.9m. Area: 26 sq m.	
T010	Common Ash (Fraxinus excelsior)	Height (m): 15 Stem Diam (mm): 400 Spread (m): 3N, 4E, 3S, 3W Life Stage: Early Mature Rem. Contrib.: 10+ Years		C2 RPA Radius: 4.8m. Area: 72 sq m.	
T011	Pedunculate Oak (Quercus robur)	Height (m): 14 Spread (m): 5N, 4E, 5S, 3W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA too small to calc.	
T012	Field Maple (Acer campestre)	Height (m): 7 Stem Diam (mm): 270 Spread (m): 3N, 3E, 3S, 3.5W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 3.2m. Area: 32 sq m.	

Ref.	Species	Measurements	General Observations	Category	Recommendations
T013	Field Maple (Acer campestre)	Height (m): 7 Stem Diam (mm): 230 Spread (m): 3N, 3E, 3S, 3.5W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 2.8m. Area: 25 sq m.	
T014	Field Maple (Acer campestre)	Height (m): 7 Stem Diam (mm): 220 Spread (m): 3N, 3E, 3S, 3.5W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 2.6m. Area: 21 sq m.	
T015	Common Ash (Fraxinus excelsior)	Height (m): 18 Stem Diam (mm): 650 Spread (m): 8N, 7E, 5S, 5W Life Stage: Mature Rem. Contrib.: 10+ Years		C2 RPA Radius: 7.8m. Area: 191 sq m.	
T016	Plum (Prunus domestica)	Life Stage: Mature Rem. Contrib.: <10 years		U RPA None - due to Retention Category of U.	
T017	Pedunculate Oak (Quercus robur)	Height (m): 14 2 stems, diam(mm): 390, 450 Spread (m): 2N, 6E, 9.5S, 3W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 7.1m. Area: 158 sq m.	
T018	Pedunculate Oak (Quercus robur)	Height (m): 14 Stem Diam (mm): 490 Spread (m): 2N, 8E, 5S, 3W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 5.9m. Area: 109 sq m.	
T019	Pedunculate Oak (Quercus robur)	Height (m): 14 Stem Diam (mm): 450 Spread (m): 2N, 3E, 7S, 3W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 5.4m. Area: 92 sq m.	

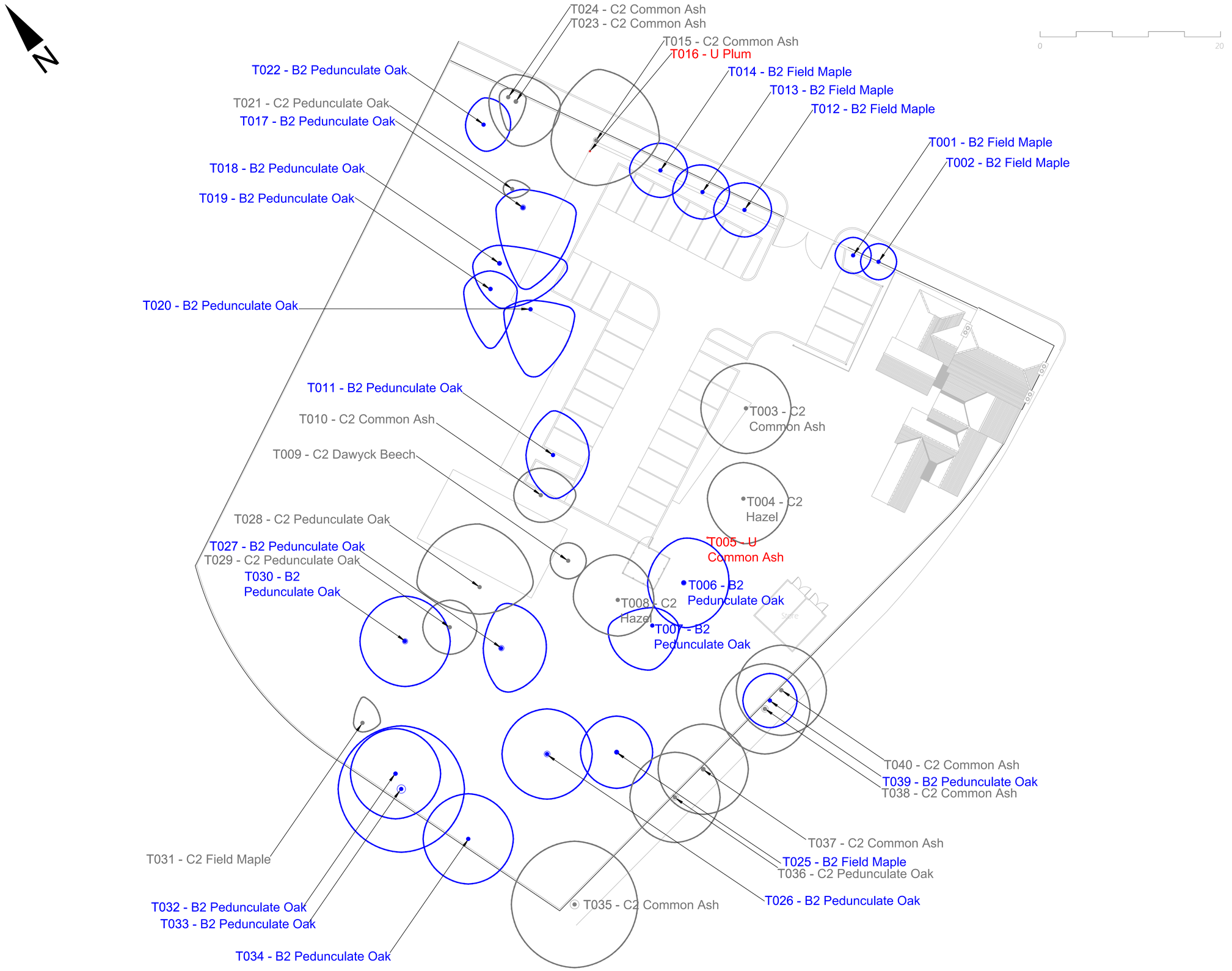
Ref.	Species	Measurements	General Observations	Category	Recommendations
T020	Pedunculate Oak (Quercus robur)	Height (m): 13 Stem Diam (mm): 430 Spread (m): 1N, 5E, 8S, 3W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 5.2m. Area: 85 sq m.	
T021	Pedunculate Oak (Quercus robur)	Height (m): 13 Stem Diam (mm): 240 Spread (m): 1N, 2E, 1S, 1W Life Stage: Early Mature Rem. Contrib.: 20+ Years		C2 RPA Radius: 2.9m. Area: 26 sq m.	
T022	Pedunculate Oak (Quercus robur)	Height (m): 14 2 stems, diam(mm): 320, 180 Spread (m): 3N, 3E, 3S, 2W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 4.4m. Area: 61 sq m.	
T023	Common Ash (Fraxinus excelsior)	Height (m): 14 Stem Diam (mm): 480 Spread (m): 3N, 5E, 5S, 3W Life Stage: Mature Rem. Contrib.: <10 years		C2 RPA Radius: 5.8m. Area: 106 sq m.	
T024	Common Ash (Fraxinus excelsior)	Height (m): 14 2 stems, diam(mm): 180, 180 Spread (m): 1N, 2E, 4S, 1W Life Stage: Early Mature Rem. Contrib.: <10 years	Structurally poor specimen	C2 RPA Radius: 3.1m. Area: 30 sq m.	
T025	Field Maple (Acer campestre)	Height (m): 14 4 stems, diam(mm): 280, 210, 250, 250 Spread (m): 4N, 4E, 4S, 4W Life Stage: Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 6.0m. Area: 113 sq m.	
T026	Pedunculate Oak (Quercus robur)	Height (m): 14 Stem Diam (mm): 660 Spread (m): 5N, 5E, 5S, 5W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 7.9m. Area: 196 sq m.	

Ref.	Species	Measurements	General Observations	Category	Recommendations
T027	Pedunculate Oak (Quercus robur)	Height (m): 17 Stem Diam (mm): 610 Spread (m): 5N, 5E, 5S, 2W Life Stage: Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 7.3m. Area: 167 sq m.	
T028	Pedunculate Oak (Quercus robur)	Height (m): 15 Spread (m): 7N, 6E, 3S, 7W Life Stage: Mature Rem. Contrib.: 10+ Years		C2 RPA too small to calc.	
T029	Pedunculate Oak (Quercus robur)	Height (m): 12 Stem Diam (mm): 370 Spread (m): 3N, 3E, 3S, 3W Life Stage: Early Mature Rem. Contrib.: 20+ Years		C2 RPA Radius: 4.4m. Area: 61 sq m.	
T030	Pedunculate Oak (Quercus robur)	Height (m): 17 Stem Diam (mm): 590 Spread (m): 5N, 5E, 5S, 5W Life Stage: Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 7.1m. Area: 158 sq m.	
T031	Field Maple (Acer campestre)	Height (m): 8.5 Stem Diam (mm): 280 Spread (m): 3N, 2E, 1S, 1W Life Stage: Mature Rem. Contrib.: 10+ Years		C2 RPA Radius: 3.4m. Area: 36 sq m.	
T032	Pedunculate Oak (Quercus robur)	Height (m): 12 Stem Diam (mm): 450 Spread (m): 5N, 5E, 5S, 5W Life Stage: Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 5.4m. Area: 92 sq m.	
T033	Pedunculate Oak (Quercus robur)	Height (m): 18 Stem Diam (mm): 940 Spread (m): 7N, 7E, 7S, 7W Life Stage: Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 11.3m. Area: 401 sq m.	

Ref.	Species	Measurements	General Observations	Category	Recommendations
T034	Pedunculate Oak (Quercus robur)	Height (m): 13 2 stems, diam(mm): 300, 290 Spread (m): 5N, 5E, 5S, 5W Life Stage: Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 5.0m. Area: 79 sq m.	
T035	Common Ash (Fraxinus excelsior)	Height (m): 18 Stem Diam (mm): 1000# Spread (m): 7N, 7E, 7S, 7W Life Stage: Mature Rem. Contrib.: <10 years		C2 RPA Radius: 12.0m. Area: 452 sq m.	
T036	Pedunculate Oak (Quercus robur)	Height (m): 14 3 stems, avg.(mm): 400 Spread (m): 5N, 5E, 5S, 5W Life Stage: Early Mature Rem. Contrib.: 20+ Years		C2 RPA Radius: 8.3m. Area: 216 sq m.	
T037	Common Ash (Fraxinus excelsior)	Height (m): 14 3 stems, diam(mm): 10, 350, 350 Spread (m): 5N, 5E, 5S, 5W Life Stage: Mature Rem. Contrib.: 10+ Years		C2 RPA Radius: 5.9m. Area: 109 sq m.	
T038	Common Ash (Fraxinus excelsior)	Height (m): 15 5 stems, diam(mm): 330, 330, 330, 330, 330 Spread (m): 5N, 5E, 5S, 5W Life Stage: Early Mature Rem. Contrib.: 10+ Years		C2 RPA Radius: 8.9m. Area: 249 sq m.	
T039	Pedunculate Oak (Quercus robur)	Height (m): 14 Stem Diam (mm): 300 Spread (m): 3N, 3E, 3S, 3W Life Stage: Early Mature Rem. Contrib.: 20+ Years		B2 RPA Radius: 3.6m. Area: 41 sq m.	

Ref.	Species	Measurements	General Observations	Category	Recommendations
T040	Common Ash (Fraxinus excelsior)	Height (m): 14 5 stems, diam(mm): 200, 200, 200, 200, 200 Spread (m): 5N, 5E, 5S, 5W Life Stage: Mature Rem. Contrib.: 10+ Years		C2 RPA Radius: 5.4m. Area: 92 sq m.	

Appendix 2: Tree Survey Plan



Site Plan: As Existing

1:200

KEY

Existing Trees:

- Category B Tree
- Category C Tree
- Category U Tree

This drawing must be printed and used in colour

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FOR PLANNING

Client: Vernon Smith Associates

Project: Six Bells, Ruislip

Drawing Title: Tree Survey Plan

On base by: MVS Associates

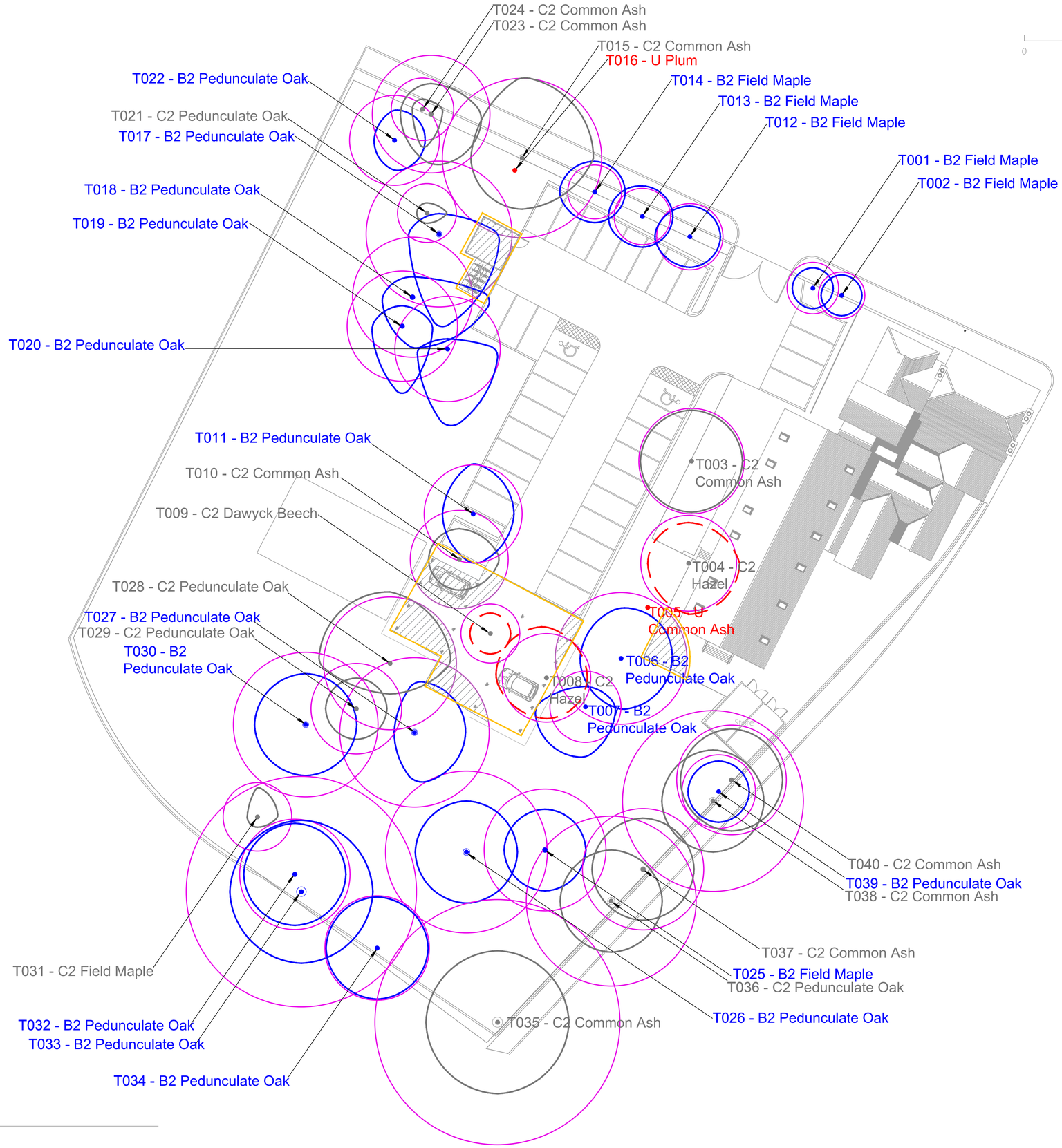
Dwg No: UA/TSP1 | Scale: 1:200@A1

Drawn By: MP | Checked By: LU

Date:24/04/21

NOT FOR CONSTRUCTION

Appendix 3: Arboricultural Impact Plan



Site Plan: As Proposed

1:200

KEY

Existing Trees to be retained:

- Category B Tree
- Category C Tree
- Category U Tree

Trees to be removed:

- Category C Tree
- Category U Tree
- Root Protection Area
- RPA Incursion
- Refer to Arboricultural Method Statement

This drawing must be printed and used in colour

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FOR PLANNING

Client: Vernon Smith Associates

Project: Six Bells, Ruislip

Drawing Title: Arboricultural Implications Assessment

On base by: MVS Associates

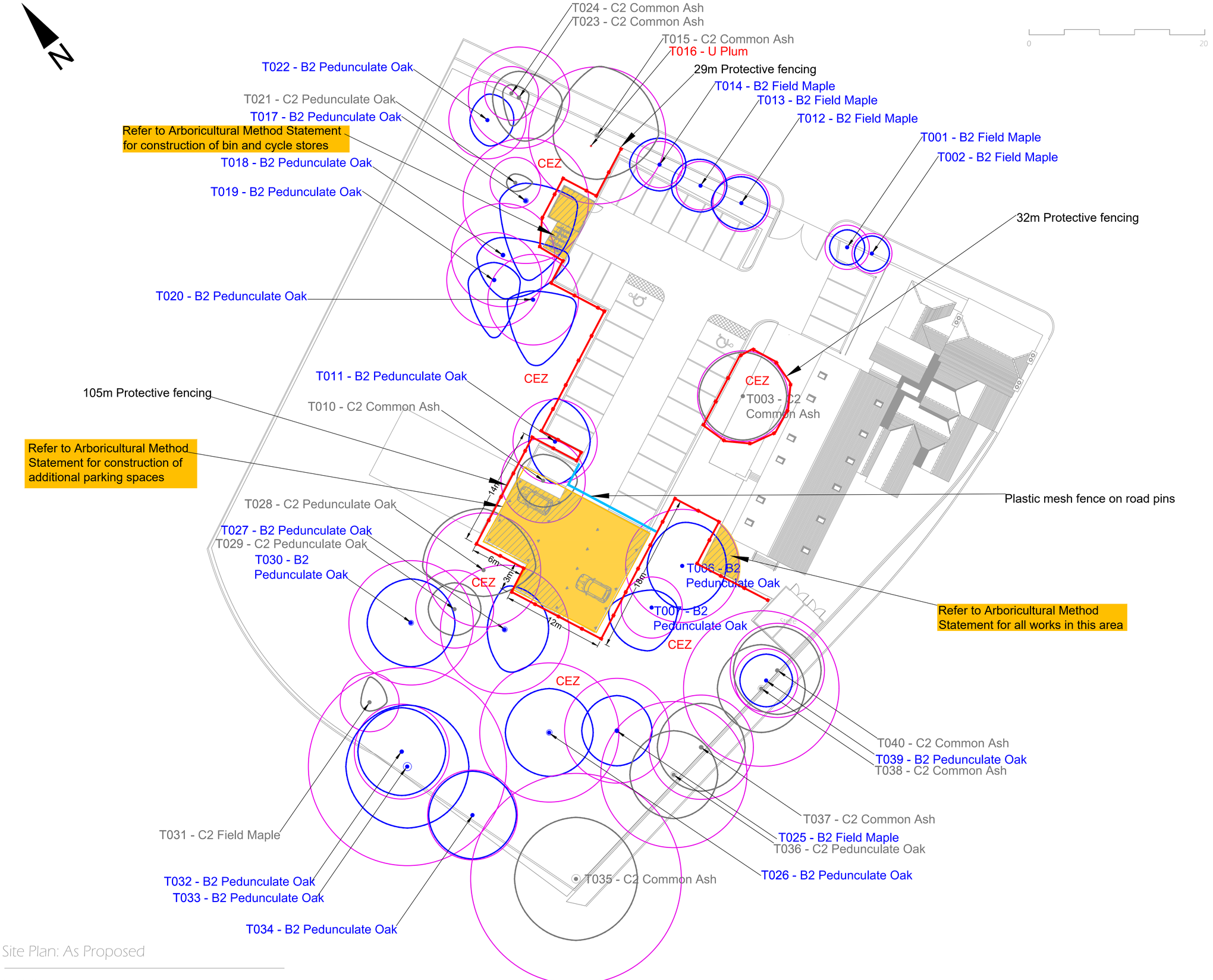
Dwg No: UA/AIA1 | Scale: 1:200@A1

Drawn By: MP | Checked By: LU

Date:24/04/21

NOT FOR CONSTRUCTION

Appendix 4: Tree Protection Plan



Site Plan: As Proposed

1:200

KEY

Existing Trees to be retained:

- Category B Tree
- Category C Tree
- Root Protection Area
- RPA Incursion
- Refer to Arboricultural Method Statement
- Protective fence to BS5837:2012 Section 3b
- Plastic mesh fence 1.0m high on road pins
- CEZ — Construction Exclusion Zone

This drawing must be printed and used in colour

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FOR PLANNING

Client: Vernon Smith Associates

Project: Six Bells, Ruislip

Drawing Title: Tree Protection Plan

On base by: MVS Associates

Dwg No: UA/TPP1 | Scale: 1:200@A1

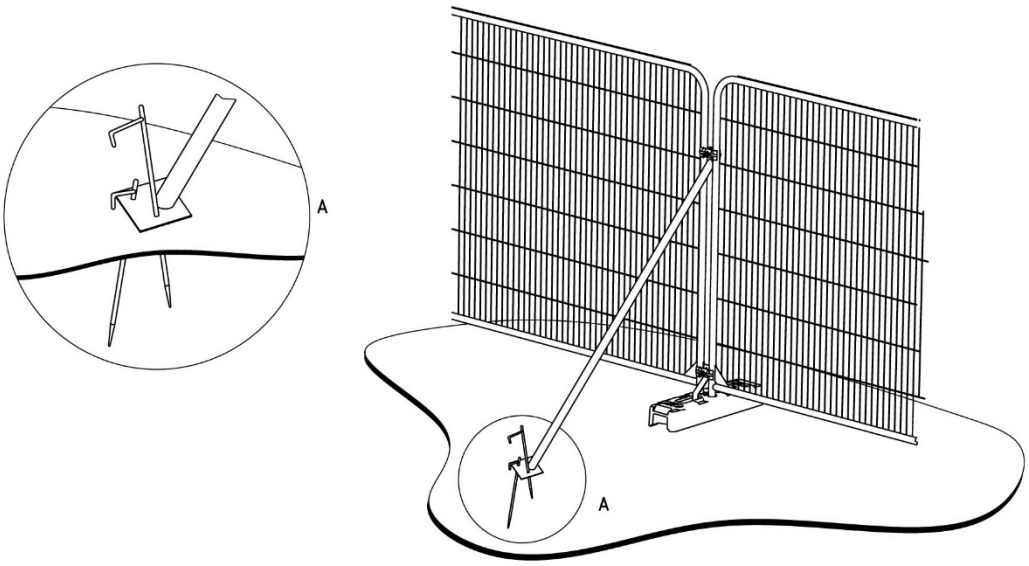
Drawn By: MP | Checked By: LU

Date:22/04/21

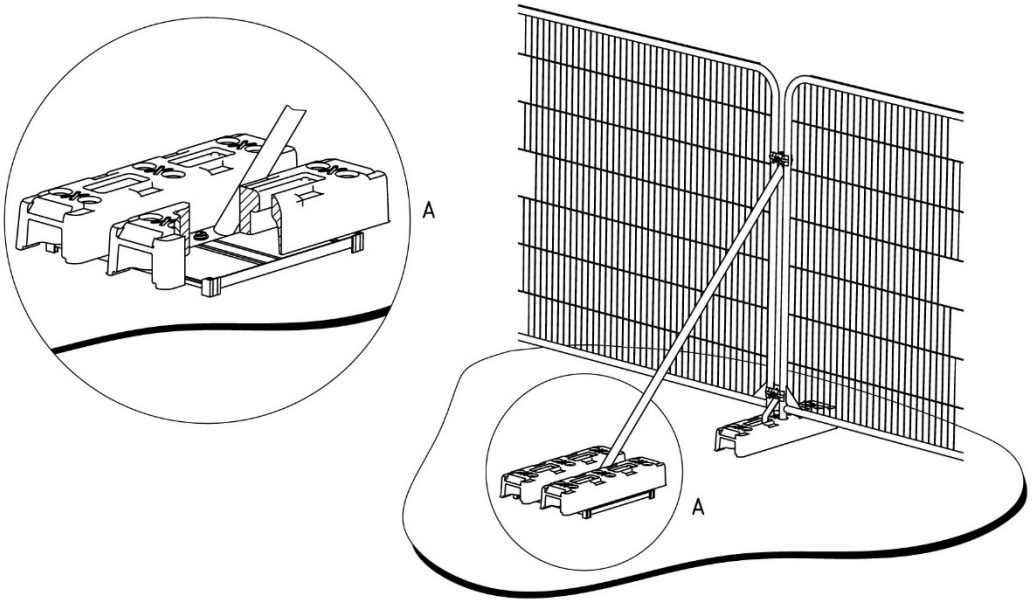
NOT FOR CONSTRUCTION

Appendix 5: Tree Protective Fencing

Figure 3 **Examples of above-ground stabilizing systems**

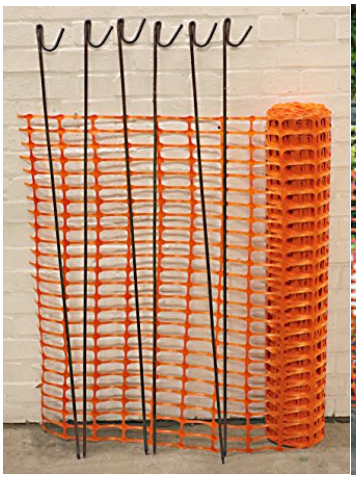


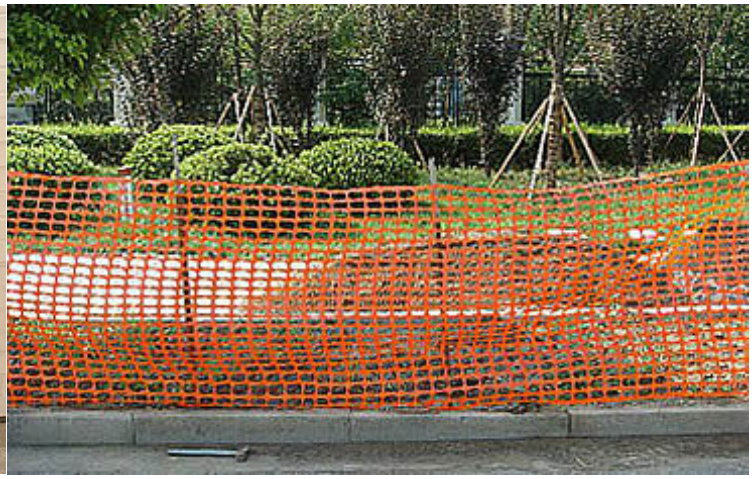
a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

Protective fencing with stabilizers as per fig 3 (a).





Plastic mesh fencing held in place with road pins.