



BS 5837 Report

42 High St, Teddington

Unico Developments Ltd

July 2023

1	Instructions and scope of this report	2
2	Background	2
2.1	Site features.....	2
2.2	Designations	2
2.3	Development proposals	3
3	BS 5837 Tree Survey	3
3.1	Survey.....	3
3.2	Limitations.....	3
4	Arboricultural Impact Assessment	3
4.1	Root protection.....	3
5	Method Statement for Protecting Retained Trees	4
5.1	Introduction	4
5.2	Status.....	5
5.3	Preparatory works prior to construction	5
5.3.1	Tree works.....	5
5.3.2	Protective measures: tree protection fencing	5
5.3.3	Protective measures: ground protection	6
5.4	Inspection prior to start of works	6
5.5	Works during Construction	6
5.5.1	Storage and use of materials	6
5.5.2	Lifting, excavating and handling equipment	6
5.5.3	Operations.....	6
5.6	Tree protection within the tree's RPA and at all stages of the project including landscaping after removal of the Tree Protection Crate.....	8
6	Consultant Arboriculturist.....	9
6.1	Removal of protective fencing	9
6.2	Site visits and supervision	9
	Appendix A - Findings of Tree Survey and Plan SR1	10
	Appendix B – Plan SR2	13
	Appendix C – Tree Protection Notes for Contractors	15
	Appendix D – Tree Crate Drawing	17

1 Instructions and scope of this report

- 1.1 I received my instructions by email on 20 June 2023 from Ms Haya AlRawaf, Unico Developments Ltd c/o Chandler Browne Architects Ltd., Mayerling, Black Hill, Lindfield, Haywards Heath, West Sussex RH16 2HF.
- 1.2 My instructions are to undertake a BS 5837 survey of a street tree adjacent to 42 High Street Teddington, TW11 8EW and to provide a report commenting on the general condition of the tree; a tree survey schedule; tree survey plan; an arboricultural impact assessment; tree protection plans; and a method statement for protecting the tree.
- 1.3 I have not been provided with a topographical survey.
- 1.4 The tree was surveyed by Raphael Skerratt.
- 1.5 The plans were drawn by Jonathan Terry for Sylvan Resources; the report and plans were reviewed for obvious errors by Yewa Holiday.

2 Background

2.1 Site features

- 2.1.1 42 High Street Teddington is a redundant building on the junction of Teddington High Street and Cedar Road. It is a brick building with pitched and flats roofs. At its rear, an external staircase gives access to its first floor which does not extend across the whole of the building's ground floor. The ground floor was previously occupied by a branch of HSBC Bank. To the rear of the building, fronting onto Cedar Road, is a small car park.
- 2.1.2 The underlying geology is London Clay Formation. Superficial deposits are sands and gravels.

2.2 Designations

- 2.2.1 The site falls within the Teddington High Street Conservation Area. Enquires to determine if the tree is protected by a Tree Preservation Order have not been made. The Conservation Area status affords protection to the tree. As such, it cannot be wilfully harmed or damaged.

2.3 Development proposals

- 2.3.1 Demolition of the existing building and its replacement with a basement, ground floor retail unit with three floors of flats above is proposed.

3 BS 5837 Tree Survey

3.1 Survey

- 3.1.1 The tree was surveyed in accordance with *British Standard (BS) 5837: 2012 Trees in Relation to Design, Demolition and Construction - Recommendations*. This Standard applies to trees whose diameters exceed 75mm measured 1.5 metres from the ground. The findings of the survey are appended at **Appendix A**. They should be read in conjunction with **Plan SR1** (also at **Appendix A**) which indicates the location of the tree, the extent and shape of its crown and the BS 5837 category into which it has been placed. The survey method is described in BS 5837: 2012.
- 3.1.2 The tree is a young/early mature sycamore (*Acer Pseudoplatanus*) identified as **Tree 1** on **SR1**. It is situated in the pavement adjacent to the building's elevation fronting onto Cedar Road.

3.2 Limitations

- 3.2.1 A detailed inspection of the tree with respect to decay, defects and hazards was not made. No investigations were made to determine the impact of the tree on existing structures both within and outside the site's boundaries. Such inspections and surveys fall outside the scope of BS 5837: 2012.

4 Arboricultural Impact Assessment

4.1 Root protection

- 4.1.1 BS 5837 describes a Root Protection Area (RPA) and the tree it encloses as concentric circles. The Standard specifies that:
- the radius of a single-stemmed tree's RPA will normally be twelve times the diameter of its stem.

- the RPA radius of a multiple-stemmed tree is normally derived from the square root of the squared sum of its stem diameters.
- irrespective of these rules, the Standard indicates that the radius of an RPA should rarely (if ever) exceed 15 metres.
- the area and shape of an RPA may be changed if local conditions dictate, the tree has more than five stems or the tree's condition indicates that a larger zone is required.

4.1.2 The tree is growing in the pavement between the site and the highway. As shown on **SR1**, the tree's RPA, calculated in accordance with BS 5837 (12 x its stem diameter), has a radius of 3.72m. In my opinion, the hard and impermeable surface of the road and the compacted ground beneath it make it a hostile rooting environment. Accordingly, I have redrawn the tree's RPA as a rectangle running parallel with the pavement. I have shown the revised RPA as extending into the site by 1.2m. This ground is also likely to be hostile to tree roots since it is paved with impermeable concrete blocks likely laid over a compacted base material. The revised RPA is shown on the tree protection drawing **SR2** (at **Appendix B**).

4.1.3 The following sections detail methods for protecting the tree while the site is developed.

5 Method Statement for Protecting Retained Trees

5.1 Introduction

5.1.1 This method statement sets out measures for the tree in relation to the proposed demolition and building works.

5.1.2 The measures contained in this method statement are based on BS 5837: 2012: *Trees in relation to design, demolition & construction – Recommendations*.

5.2 Status

- 5.2.1 This method statement forms part of the building contract and its requirements are an integral part of the contract specification and schedule of works.
- 5.2.2 A copy of the method statement must be available for inspection on site for the duration of the construction works.
- 5.2.3 All persons working on site should be aware of the importance of avoiding damage to trees and should observe the necessary precautions. A tree protection note for contractors is included at **Appendix C**.

5.3 Preparatory works prior to construction

5.3.1 Tree works

- 5.3.1.1 The tree's crown shall be pruned back to the edge of the site boundary.
- 5.3.1.2 This work shall be completed in accordance with BS3998 (2010) Recommendations for Tree Work. Arisings shall be removed from site.

5.3.2 Protective measures: tree protection fencing

- 5.3.2.1 The extent and location of tree protection fencing is shown as a purple line on the appended Tree Protection Plan **SR2 (Appendix B)**. This line encloses the segment of the RPA (shaded orange) which overlaps the site of the proposed building.
- 5.3.2.2 The tree protection fence shall be erected before any site works take place. It is important that no demolition, soil stripping, breaking out of existing hard surfaces, re-grading or other excavation takes place before protective fencing has been erected.
- 5.3.2.3 Tree protection fence shall comprise Heras type fencing or 2400mm high plywood panels attached to 100mm square, unbraced, dug-in supporting posts set in concrete footings at no more than 3m intervals.

- 5.3.2.4 The tree's stem shall be protected from damage by enclosing it in a crate built in accordance with the drawing in **Appendix D**.

5.3.3 Protective measures: ground protection

- 5.3.3.1 The hard surface over the RPA segment which overlaps the site shall remain in situ and act as a ground protection layer.

5.4 Inspection prior to start of works

- 5.4.1 The Consultant Arboriculturist shall inspect the protective fencing and ground protection before work starts.

5.5 Works during Construction

5.5.1 Storage and use of materials

- 5.5.1.1 Phytotoxic materials will be stored at least 10m from the stem of the tree.
- 5.5.1.2 Phytotoxic liquids (diesel, for example) will be stored in a double-bunded container to prevent damage from accidental spillage.
- 5.5.1.3 Inert materials shall be stored on areas of existing hard surfacing.

5.5.2 Lifting, excavating and handling equipment

- 5.5.2.1 Lifting, excavating and handling equipment must be located so that, when in use, no part extends into the crown of the tree. Its crown limits (spread and height clearance) are specified in the appended Tree survey schedule (**Appendix A**).
- 5.5.2.2 Within the RPA of any retained tree, the use of heavy lifting and handling equipment will be directed by a banksman.

5.5.3 Operations

- 5.5.3.1 This section refers to the segment of the RPA breached by the proposed building. It should be read in conjunction with the structural engineering specifications relevant to:
- Working areas

- Piling.

5.5.3.2 Before work begins, the Tree Protection Fence shall be removed.

5.5.3.3 Where there is a variance between the tree protection measures specified in the engineering specification and those set out in this method statement, the method statement requirements will take precedence.

5.5.3.4 **Demolition:** Demolition of structures by machine or hand must be away from the tree protection fence. During demolition, water jets shall be used to suppress dust if it threatens to settle into the canopy of the tree.

5.5.3.5 **Excavation to reduced levels:** Reduction in levels will not take place below the existing hard surface and its sub-base within the RPA segment overlapped by the footprint of the proposed new building. Elsewhere levels may be reduced to below the sub-base and the levels of the existing buildings foundations.

5.5.3.6 Equipment used for excavation will not exceed a ground bearing pressure of 0.3kgf/cm².

5.5.3.7 **Installation of services:** Services shall be installed outside the tree's RPA. If they can only be connected to existing services within its RPA, they shall be laid in hand dug trenches. Roots exposed by digging shall be protected by wrapping them in damp hessian. These wrappings shall remain in situ until the trenches are backfilled. Backfill shall comprise clean sub and topsoil. Areas around preserved roots shall be back filled with sharp sand.

5.5.3.8 The segment of the building which overlaps the tree's RPA shall be constructed off a beam framework resting on its basement walls and piles inserted into the ground outside the RPA boundary.

5.6 Tree protection within the tree's RPA and at all stages of the project including landscaping after removal of the Tree Protection Crate

- 5.6.1 This section specifies protection of the RPA at the pre- and post-development stages.
- 5.6.2 Care shall be taken to avoid disturbing existing ground levels within the RPA.
- 5.6.3 Contaminants, for example, concrete mixings, diesel oil and vehicle washings, shall not be discharged within 10m of trees or where they may leach into the RPA.
- 5.6.4 Fires shall not be lit on sites where flames and smoke may be carried to within 5 metres of a tree's foliage, branches and stems.
- 5.6.5 Notice boards, telephone cables or other services shall not be attached to trees.
- 5.6.6 Existing ground cover vegetation shall be killed using an appropriate non-residual contact herbicide.
- 5.6.7 Tree surgery shall be done at the pre-development stage of the project. It shall comply with BS 3998: 2010. Arisings shall be removed from site.
- 5.6.8 Vehicles and machinery shall not cross the tree's RPA.
- 5.6.9 Excavations within the tree's RPA are not envisaged. If, later, they are found to be necessary, they shall be undertaken only after consultation with the Supervising Arboriculturist. Digging shall be done by hand, to avoid damaging larger roots. Exposed roots shall be wrapped in dry, clean hessian sacking and protected from temperature changes. Roots smaller than 25 mm diameter may be pruned back, preferably to a side branch, using a sharp tool (e.g. secateurs or handsaw) to make a clean cut and leaving as small a wound as possible.
- 5.6.10 Roots larger than 25 mm should only be severed following consultation with an Arboriculturist. If roots are accidentally damaged, the Supervising Arboriculturist must be notified. Prior to backfilling, any hessian wrapping shall be removed. Before soil or other material is replaced the retained roots shall be surrounded with a sharp sand and topsoil mix or other approved, loose, inert, granular fill. Fill material shall be free of contaminants and other foreign objects potentially injurious to tree roots.

5.6.11 Water levels shall remain unchanged within the RPA. Permeable surfaces may be used where surface water is unlikely to be contaminated by materials toxic to trees. If contamination is likely, an impermeable surface may be specified. Land drainage may be required if excess water is likely to accumulate but drains shall not be located within root protection areas.

6 Consultant Arboriculturist

6.1 Removal of protective fencing

6.1.1 The Consultant Arboriculturist will authorise the removal of temporary protective fencing and the barrier around the tree as works progress.

6.2 Site visits and supervision

6.2.1 The work shall be overseen by the Supervising Consultant Arboriculturist. The number and scope of site visits shall be agreed with the planning authority and a pre commencement site meeting.

J C Terry MSc, MICFor, MRICS, CEnv, MArborA, MEWI, MAE
Sylvan Resources Ltd.

11 July 2023

Appendix A - Findings of Tree Survey and Plan SR1

Findings of Tree Survey

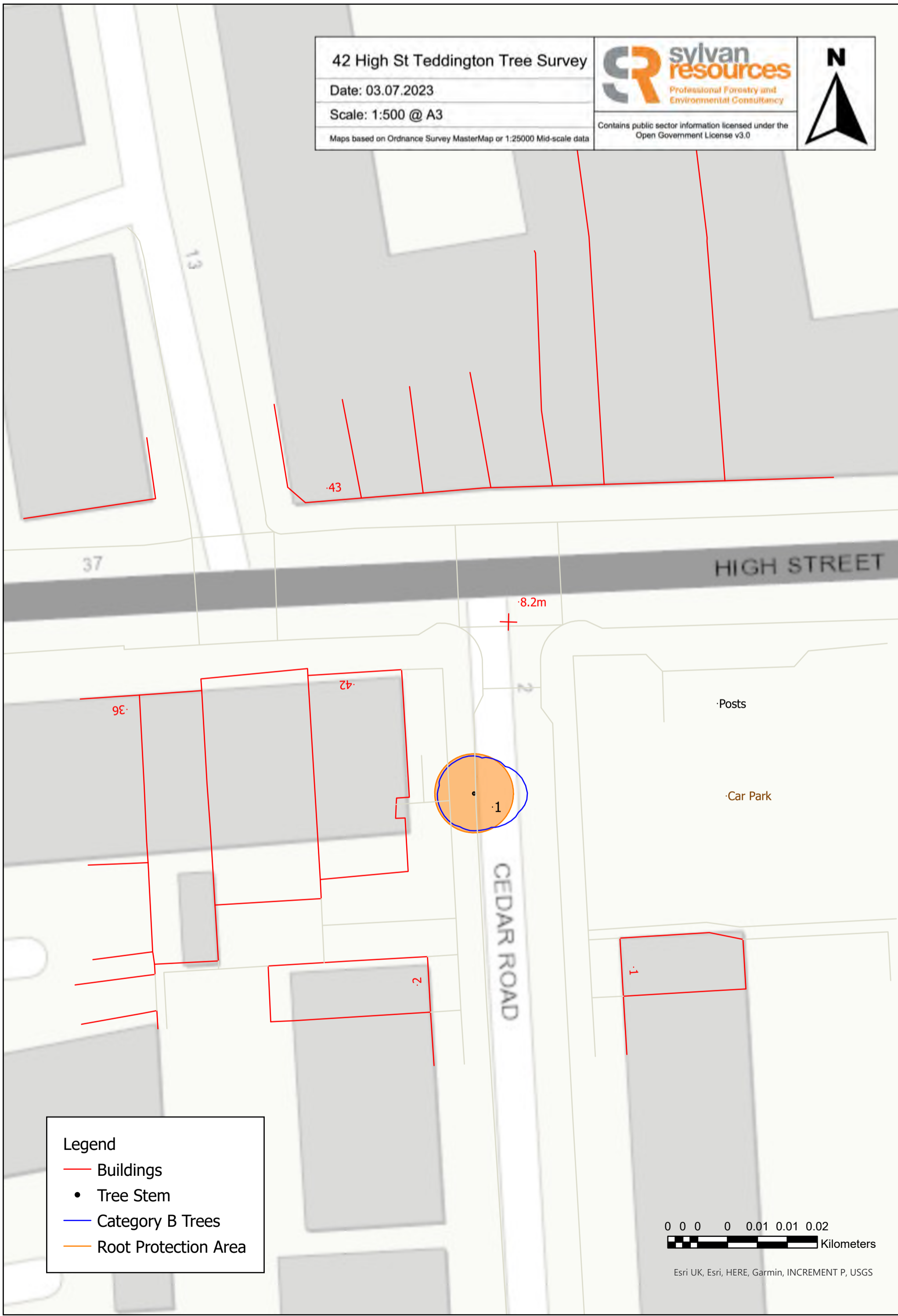
Tree No.	Species	Height (m)	Diam (cm)	Crown Spread (m)				Crown Height (m)	BS Category	Life Expectancy	Physiological condition	Structrual condition
				N	E	S	W					
001	Sycamore (<i>Acer pseudoplatanus</i>)	11	310	3.5	3.5	3.5	2.5	3/4	B	25yrs+	Fair	Fair

42 High St Teddington Tree Survey
 Date: 03.07.2023
 Scale: 1:500 @ A3
 Maps based on Ordnance Survey MasterMap or 1:25000 Mid-scale data



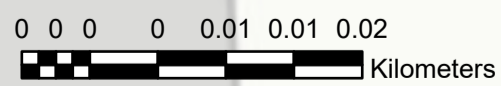
Professional Forestry and Environmental Consultancy

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Legend

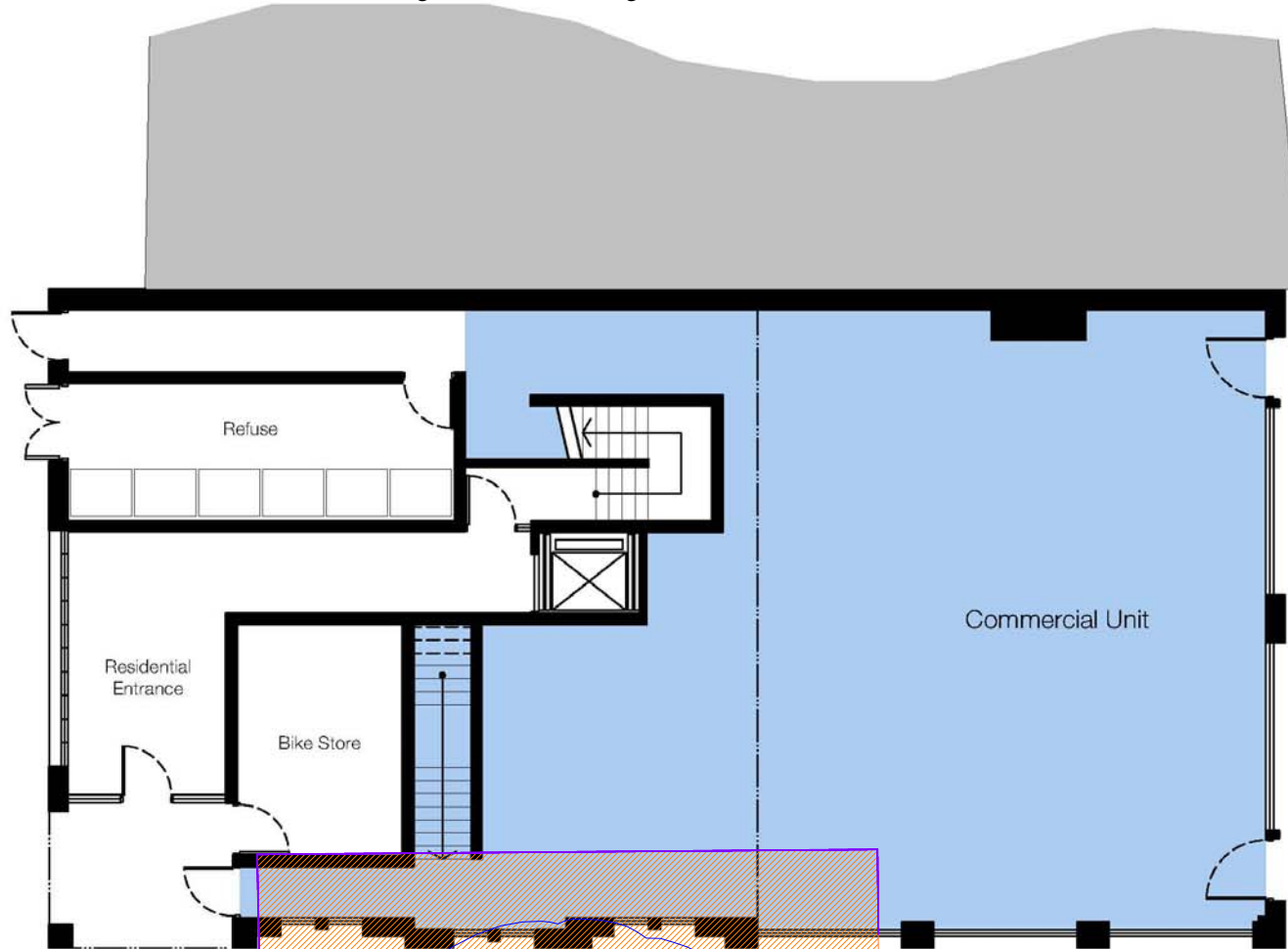
- Buildings
- Tree Stem
- Category B Trees
- Root Protection Area



Esri UK, Esri, HERE, Garmin, INCREMENT P, USGS

Appendix B – Plan SR2

14 High Street Teddington SR2 Tree Protection





Option A

Do not scale from
this drawing

AREAS

 Commercial Unit
175.1sqm

	RPA
	Tree protection boundary fence

Appendix C – Tree Protection Notes for Contractors

TREE PROTECTION NOTES FOR CONTRACTORS

Trees are thin skinned and easily damaged

Their roots spread widely and run close to the ground surface.

All of the following can cause serious damage:

- Heavy traffic over and the storage of heavy materials above tree roots
- Direct damage to stems and branches from badly handled construction equipment,
- Root damage caused by unnecessary excavation
- Leakage of toxic liquids and powders above roots and close to tree stems.

Please keep the trees on site safe by following these simple rules carefully and in full.

There is a protective fence round each retained tree. These fenced-off areas are CONSTRUCTION EXCLUSION ZONES (CEZ). Don't enter any CEZ unless authorised to do so

In Construction Exclusion Zones

- Don't store any materials
- Don't use heavy machinery
- Don't handle toxic materials
- Stick to the planned work programme. Don't undertake unscheduled variations
- Don't light fires
- Report any damage to protective fencing to the Site Manager

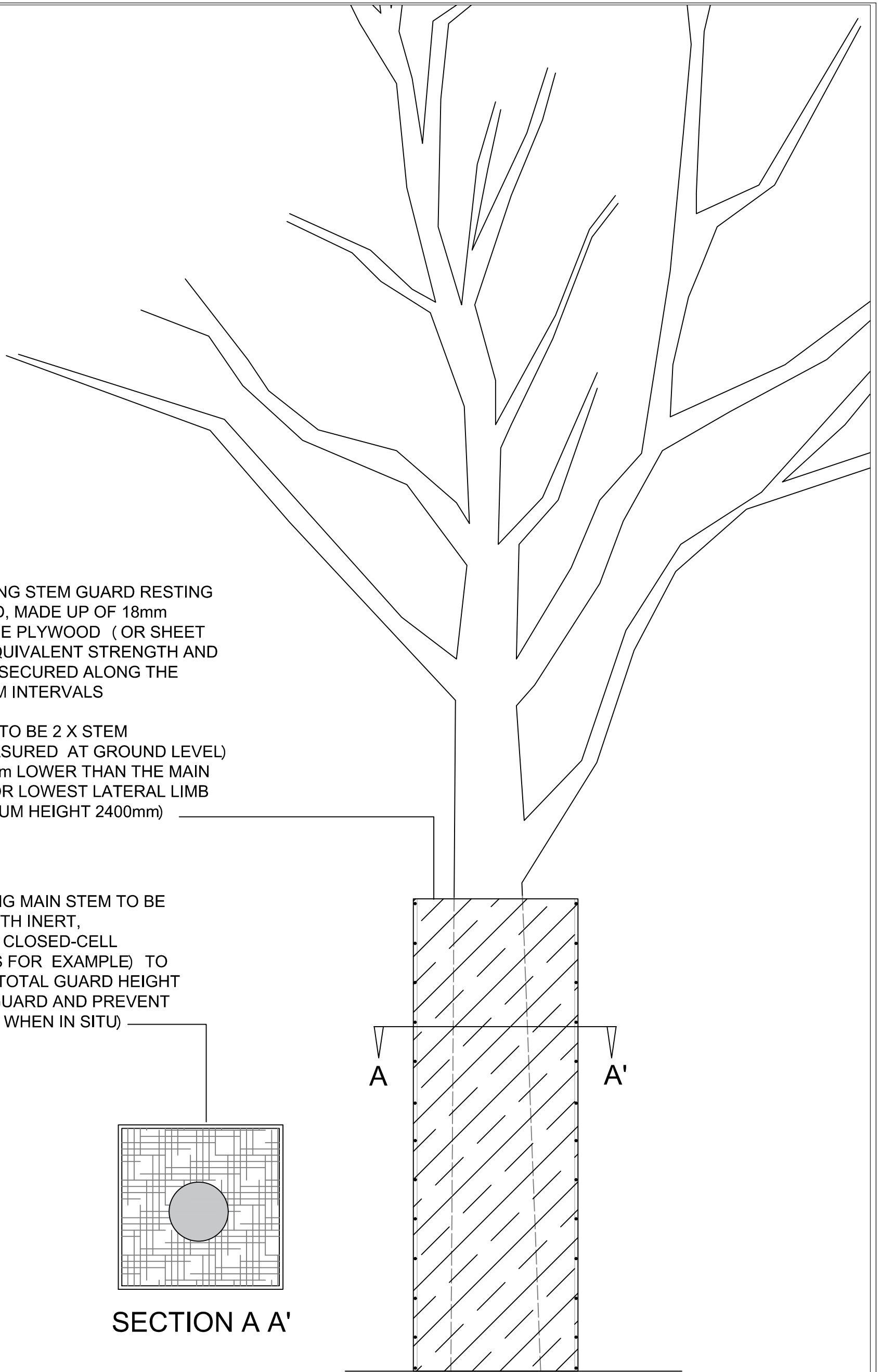
Work Planning

Plan your work so that construction machinery does not come into contact with and cause damage to branches and stems of retained trees.

Appoint someone to supervise movement of machinery and equipment close to CEZs

Tell the Site Manager if tree pruning is needed to get machinery in, out or around the site. Don't do it yourself

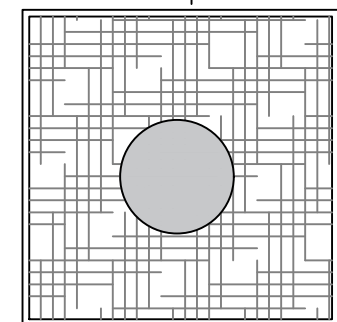
Appendix D – Tree Crate Drawing




SELF-SUPPORTING STEM GUARD RESTING ON THE GROUND, MADE UP OF 18mm EXTERIOR GRADE PLYWOOD (OR SHEET MATERIAL OF EQUIVALENT STRENGTH AND ROBUSTNESS) SECURED ALONG THE EDGES AT 200MM INTERVALS

GUARD PANELS TO BE 2 X STEM DIAMETER (MEASURED AT GROUND LEVEL) WIDE AND 200mm LOWER THAN THE MAIN BRANCH FORK OR LOWEST LATERAL LIMB (UP TO A MAXIMUM HEIGHT 2400mm)

CAVITY SURROUNDING MAIN STEM TO BE LOOSELY PACKED WITH INERT, WATERPROOF FILL (CLOSED-CELL POLYSTYRENE CHIPS FOR EXAMPLE) TO A MINIMUM OF HALF TOTAL GUARD HEIGHT (TO STABILISE THE GUARD AND PREVENT LATERAL MOVEMENT WHEN IN SITU)



SECTION A A'

Client: UNICO DEVELOPMENTS LTD	Drawing Title: INDIVIDUAL TREE STEM PROTECTION GUARD (TREES UP TO 400MM STEM DIAMETER (MEASURED AT 1.5m ABOVE GROUND LEVEL)		<div style="text-align: center;">  </div> <hr/> 33 GREENWOOD PLACE, LONDON NW5 1LB +44 (0)7768 398776
Job Title: 42 HIGH STREET TEDDINGTON TW11 8EW	Date: 541.05.00	Scale: 1:20 (A3)	
Drawing Number: 04.04.17	Drawn by: RS		



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