Report for London Borough of Camden

Arboricultural Method Statement
Godwin and Crowndale Estate
22 April 2022

ARBORICULTURAL REPORT

temple

Prepared for:

Spencer Nichol

Goody Demolition Ltd

Wilcox Close
Aylesham Industrial Estate
Aylesham
Kent
CT3 3EP

Tel +01304 840126
Email spencer@goodydemolition.co.uk

ww.goodydemolition.co.uk

Prepared by:

Wesley Rawson FdSc BSc (Hons) MArborA

Assistant Arboricultural Consultant

Temple Group Limited
3rd Floor
The Clove Building
4 Maguire Street
London SE1 2NQ

Tel +44 (0)20 7394 3700
wesley.rawson@templegroup.co.uk

www.templegroup.co.uk

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Date	Author	Approved
22/04/2022	Wesley Rawson	Fearghus Gage

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Executive Summary

Temple Ltd was commissioned by Goody Demolition Ltd to produce an arboricultural method statement for the development of land at Godwin and Crowndale Estate NW1 1NW London (the 'Proposed Development'). An arboricultural survey and arboricultural impact assessment was previously produced by Arbeco (2019) which informed the arboricultural method statement detailed in this report. A qualitative assessment of each tree was carried out according to British Standard BS 5837:2012, Trees in Relation to Design, Demolition and Construction– Recommendations, focusing on arboricultural values (categories A1, B1, C1)1, landscape values (categories A2, B2, C2) and cultural values (A3, B3, C3) [2].

The main findings of the survey are as follows:

- There were 39 individual trees in and adjacent to the proposed development site each described in Appendix 1 of this report.
- Of the trees surveyed, three individuals were attributed Category A status, 22 individuals were attributed Category B status, 13 individuals were attributed Category C status and one individual was attributed Category U status.
- A tree constraints check was carried out with the London Borough of Camden and it was confirmed that no trees located adjacent to or in the proposed development site were subject to Tree Preservation Order or Conservation Area restrictions.
- Root protection areas were calculated in accordance with BS 5837:2012 for each of the surveyed trees and ranged from 6.5m^2 to 587.9m^2 for T18 and T6 respectively.
- Of the trees surveyed, a total of four individuals will require removal to facilitate development.
- T10 should be removed to prevent further damage to the retaining wall.
- Of the trees to be removed, one individual was attributed Category A status, two individuals were attributed Category B status and one individual was attributed Category C status.

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[1] Categorisation grading in accordance with BS 5837 2012. Trees suitable for retention: - Category A. Trees of high quality with an estimated remaining life expectancy of at least 40 years.
Category B. Trees of moderate quality with an estimated life expectancy of at least 20 years.
Category C. Trees of low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm.
Category U. Trees of very low quality normally with a life expectancy of less than 10 years or requiring immediate removal due to health and safety concerns.

[2] British Standard BS 5837 2012 recommends that these categories may be further broken down into sub categories A1 A2 A3 pertaining to Arboricultural, Landscape or Cultural values respectively.

- Any work to trees should consider the potential presence of protected species, including breeding birds and roosting bats. Any relevant ecological reports pertaining to the site should be consulted prior to the commencement of works.

1 Introduction

BACKGROUND

1.1 Temple was further commissioned by Goody Demolition Ltd on 21 April 2022 to undertake an arboricultural method statement to ensure the safe protection of retained trees on site and to include specialist demolition and construction methodology. Prior to this, Arbeco Ltd was commissioned on 19 February 2019 by the London Borough of Camden to carry out an arboricultural survey and impact assessment of trees at Godwin and Crowndale Estate and provide a report to inform future design proposals and tree protection. The survey is required to assess the condition of trees that could be affected by future development of the site and provide sufficient information for the development of site layouts and construction exclusion zones to enable the protection of existing trees.

SCOPE OF REPORT

1.2 This report has been produced in accordance with British Standard BS 5837:2012 Trees in Relation to Design, Demolition and Construction – Recommendations (hereafter referred to as BS 5837:2012). It provides information on the current condition of trees at the site, their suitability for retention, and the above and below ground constraints to development.

1.3 Any clear flaws or hazards have been identified in the Schedule of Trees provided in Appendix 1. Preliminary recommendations for the management of retained trees are provided, but a full hazard risk assessment comprising a more comprehensive analysis of tree condition and potential risk to target areas is beyond the scope of this report. Any recommendations relating to the management of potentially hazardous trees should be carried out as soon as possible[3].

SITE CONTEXT AND STATUS

1.4 The site is situated in the London Borough of Camden, 140m west of Goldington Crescent Gardens and 300m east of Mornington Crescent tube station. The site comprises the external areas of the Godwin & Crowndale Estate and measures 1.3ha in extent. The site's northern boundary is formed by Crowndale Road, with commercial buildings to the east, Charlton Street to the south and Oakley Square to

[3] All tree works should be undertaken by a suitably qualified Arboricultural Contractor. No arboricultural works to trees subject to planning constraints shall be carried out without the written consent of the relevant Local Planning Authority (LPA). Any proposed tree works should be undertaken in accordance with British Standard BS 3998:2010 Treework - Recommendations. Works to trees that are the subject of a Tree Preservation Order or within a Conservation Area which are deemed to be dangerous under Regulation 14 of the Town and Country Planning (England) (Regulations) 2012 may under certain circumstances be undertaken without needing to seek the prior written consent of the LPA.

the west. The Ordnance Survey National Grid reference for the centre of the site is TQ 29484 83419.

DESCRIPTION OF THE PROPOSALS

1.5 The proposals comprise the construction of a new residential housing block and the redesign of the existing garden areas with the addition of an outdoor play area and gym area.

2 Methodology

TREE SURVEY

2.1 The tree survey was conducted in accordance with BS 5837:2012 the results of which are presented in the Schedule of Trees (Appendix 1) and include a sequential numbering of each tree, species listed by common name; tree dimensions including overall height, canopy spreads measured against the cardinal compass points; crown height; age class; physiological condition; structural condition, life expectancy; root protection areas and preliminary management advice.

2.2 Each tree has been assigned a category grade in accordance with BS 5837:2012 categories A, B, C and U ranging from high to low quality. Definitions of tree quality are provided in Table 2 Appendix 1.

2.3 For the purposes of this report, arboricultural as well as landscape sub-categories have been used in the Schedule of Trees. BS 5837:2012 points out that each sub-category should be given equal weighting when grading trees against these criteria.

2.4 A tree constraints plan is presented in Appendix 2 showing the recommended root protection areas (RPA) for all surveyed trees. Each grading category has been highlighted using the colour key system as described in BS 5837:2012.

2.5 The site was visited on 8 March 2019, weather conditions were dry and sunny.

2.6 All trees likely to be affected by works inside the red line boundary of the site were visually assessed using the Visual Tree Assessment Method (VTA) (Mattheck and Breloer, 1994).

2.7 Stem diameters were measured using diameter tape. Canopy spreads were estimated by pacing and where possible, verified using a laser range finder. Height measurements were taken using a laser clinometer.

2.8 Formal assessments of topography, drainage, service conduits and soil conditions including specific laboratory investigations of soil properties (i.e. plasticity index, moisture content, suction pressure) were not undertaken and are beyond the scope of this report.

DESK STUDY

2.9 A tree constraints check was undertaken with London Borough of Camden to search for Tree Preservation Order and Conservation Area restrictions to tree works in and adjacent to the site.

SUPPORTING DOCUMENTS

2.10 Drawing Reference: J18464_01 (Spatial Dimensions, 2019) and LUC-LD-SKE-190322A (LUC, 2019) were provided for the purposes of compiling this report. They include the layout of existing site features, along with a footprint overlay of the proposed development.

PERSONNEL

2.11 The tree survey was carried out by Alex Page Level 3 National Cert in Forestry and Arboriculture, an arboriculturalist with over 10 years' experience in the industry.

2.12 The arboricultural impact assessment was written by Stefan Harrison BSc (Hons), TechArborA, an Assistant Arboricultural Consultant with over 3 years' experience writing arboricultural reports and conducting arboricultural surveys.

2.13 The arboricultural method statement was written by Wesley Rawson FdSc BSc (Hons) MArborA an assistant arboricultural consultant with over 7 years' experience working as both a private consultant and contractor.

LIMITATIONS

2.14 Only preliminary recommendations for tree management are provided. A full hazard risk assessment comprising a more comprehensive analysis of the condition and potential risk to target areas is beyond the scope of this report.

2.15 The trees were inspected at ground level and no decay detection equipment was used. There is therefore a risk that any internal decay that may be present has gone undetected.

2.16 Of the trees surveyed, T2 was situated in an area where access to the main stem was not possible. As such, assumptions have been made relating to dimensions of the main stem, and the overall condition is based upon the visible parts of the tree only.

2.17 Trees are living organisms and their health and condition change with time. Therefore, this assessment remains valid for 12 months from the date of inspection, or until a severe storm is experienced, after which time a new inspection is required. For the purpose of this report, a severe storm is defined as a period of violent weather, involving rain, hail, wind, snow, lightning or any combination of these, likely to cause damage to trees.

3 Results

TREE SURVEY

3.1 The results of the tree survey are provided in the Schedule of Trees in Appendix 1. A Tree Constraints Plan illustrating the BS 5837:2012 categories of each tree, their crown spread and RPA is presented in Appendix 2.

3.2 The survey recorded 39 individual trees which could potentially be affected by future development. These comprised: common ash *Fraxinus excelsior*, common hawthorn *Crataegus monogyna*, common lilac *Syringa vulgaris*, common walnut *Juglans regia*, common whitebeam *Sorbus aria*, crab apple *Malus sylvestris*, crack willow *Salix fragilis*, false acacia *Robinia pseudoacacia*, Italian alder *Alnus cordata*, London plane *Platanus* x *acerifolia*, Norway maple *Acer platanoides*, silver birch *Betula pendula*, silver maple *Acer saccharinum*, small leaved lime *Tilia cordata*, sycamore *Acer pseudoplatanus* and wild cherry *Prunus avium*.

3.3 The numbers of each species are provided in Table 1.

Table 1: Species key and site frequency for trees potentially affected by development

Species	Frequency
	Tree
Common ash	2
Common hawthorn	1
Common lilac	1
Common walnut	1
Common whitebeam	1
Crab apple	2
Crack willow	1
False acacia	1
Italian alder	3
London plane	10
Norway maple	1
Silver birch	4
Silver maple	3
Small leaved lime	1

Table 1: Species key and site frequency for trees potentially affected by development

Species	Frequency
	Tree
Sycamore	5
Wild cherry	2

3.4 Physiological and structural condition[4] of the majority of surveyed trees was consistent with Category B status (22 individuals), with three individuals assigned Category A status, 13 individuals assigned Category C status and one individual assigned Category U status.

3.5 Of the trees surveyed, 28 individuals were classified to be at a mature life stage[5], eight individuals were classified as early mature and three individuals were classified as semi mature. No trees were found to be in the young or over mature classification.

3.6 A summary of the number of trees surveyed corresponding to BS 5837:2012 tree quality assessment definitions is provided in Table 2.

Table 2: Grade Classifications

BS 5837:2012 Grades A to U	Trees attributed to each grade	Frequency
		T
A	T1, T6, T25	3
B	T2, T4, T7, T13, T14, T15, T16, T17, T19, T20, T21, T23, T24, T26, T27, T28, T29, T30, T32, T34, T36, T39	22

[4] Physiological and structural condition are terms used to differentiate between a trees physiological condition i.e. annual growth, vigour, presence of disease etc. as opposed to structural condition relating to branch formation, mechanical strength and integrity.

[5] Young. Establishing; usually with good vigour, but as of limited significance within the landscape.
Semi-Mature. Established; normally vigorous and increasing in height. Of increasing landscape significance.
Early Mature. Fully established trees around the middle half of their life span retaining good vigour. Not yet achieved full height and retaining apical dominance.
Mature. Fully established trees retaining moderate vigour. Apical dominance lost but crown still spreading.
Over Mature. Fully mature trees in the last quarter of their usual life expectancy; vigour declining.

Table 2: Grade Classifications

BS 5837:2012 Grades A to U	Trees attributed to each grade	Frequency
		T
C	T3, T5, T8, T9, T11, T12, T18, T22, T31, T33, T35, T37, T38	13
U	T10	1

DESK STUDY

3.7 It was confirmed that no trees situated in or adjacent to the site were subject to Tree Preservation Order or Conservation Area restrictions.

ARBORICULTURAL IMPACT ASSESSMENT

3.8 Based on Drawing Reference: *LUC-LD-SKE-190322A* (LUC, 2019) received from the client on the 26 March 2019, the impact of the proposal on the existing trees has been assessed and all trees that will potentially be affected by the development are listed in Table 3. Tree numbers in the table correspond to the Schedule of Trees in Appendix 1 and Tree Constraints Plan described in Appendix 2.

3.9 It has been assumed that the height of all construction traffic or goods vehicles accessing the site will be within the standard minimum carriageway clearance of 5m (HSE, 2017).

Table 3: Summary of trees possibly affected by the development

Impact	Reason	BS Cat A	BS Cat B	BS Cat C
Trees to be removed	Located within development footprint	T25	T26, T27	T22
Trees which could sustain damage to RPA	Installation of hardstanding	T1	T21, T23, T28, T30, T32	T31
	Installation of foundations	T1	T21	-
	Soil compaction through construction traffic access	T1	T21, T23, T28, T30, T32	T31

Table 3: Summary of trees possibly affected by the development

Impact	Reason	BS Cat A	BS Cat B	BS Cat C
Trees which could sustain damage to stem or canopy	Impact by construction traffic	T1	T20, T21, T23, T28, T30, T32	T31
Trees to be pruned	Access facilitation	T1	T20, T21, T23, T30, T32	T31

Tree removal and pruning

3.10 Based on the design proposal, a total of four individual trees will require removal to facilitate development works.

3.11 Of the trees to be removed, one was attributed Category A status, two were attributed Category B status and one individual was attributed Category C status.

3.12 The proposed building line will encroach into the northern canopy extents of T1, the south-western canopy extents of T21 and the southern canopy extents of T23. All three trees will require minor pruning of lateral branches in order to facilitate construction.

3.13 Trees T1, T20, T21, T23, T30, T31 and T32 will require the crown lifting of their canopies to facilitate construction traffic access.

Trees which could potentially sustain damage to stem, canopy or RPA.

3.14 Development proposals have the potential to indirectly impact the stem, canopy or RPAs of eight trees scheduled for retention, as displayed in Table 3. In order to ensure that these features are successfully retained during the proposed works, recommendations for tree protection have been provided in Section 4 of this report.

3.15 Tree T1 is situated directly adjacent to the southern site boundary and the south west corner of the proposed building. There is the potential for the tree to sustain damage to its stem and canopy from impact by construction traffic. There is also the potential for soil compaction from construction traffic access within the tree's RPA.

3.16 Tree T20 is situated adjacent to the eastern end of the proposed building and there is the potential for the tree to sustain damage to its stem and canopy from impact by construction traffic.

3.17 Tree T21 is situated directly adjacent to the north-east corner of the proposed building. There is the potential for the tree to sustain damage to its stem and canopy

from impact by construction traffic. There is also the potential for soil compaction from construction traffic access within the tree's RPA.

3.18 Tree T23 is situated directly adjacent to the northern end of the proposed building. There is the potential for the tree to sustain damage to its stem and canopy from impact by construction traffic. There is also the potential for soil compaction from construction traffic access within the tree's RPA.

3.19 Tree T28 is situated on the eastern side of the site of the proposed play area and outdoor gym. There is the potential for the tree to sustain damage to its stem and canopy from impact by construction traffic. There is also the potential for soil compaction from construction traffic access within the tree's RPA.

3.20 Trees T30, T31 and T32 are situated on the western side of the site of the proposed play area and outdoor gym. There is the potential for the trees to sustain damage to their stems and canopies from impact by construction traffic. There is also the potential for soil compaction from construction traffic access within the trees' RPAs.

Incursions into RPA of trees effected by the development proposal.

3.21 The proposed development will encroach into the RPAs of nine trees to be retained. As displayed in Table 4.

Table 4: Proposed incursions in RPAs of trees to be retained.

Tree ID	Activity	Total RPA (m^2)	Area of incursion (m^2)	Area of Incursion (%)
T1	Hardstanding	452.4	26.9	5.9
T1	Foundation	452.4	8.5	1.9
T21	Hardstanding	68.8	9.9	14.4
T21	Foundation	68.8	1.6	2.3
T23	Hardstanding	221.7	40.4	18.2
T23	Foundation	221.7	6.5	2.9
T28	Hardstanding	254.5	80.0	31.4
T30	Hardstanding	234.5	0.9	0.4
T31	Hardstanding	141.9	7.4	5.2
T32	Hardstanding	179.6	39.3	21.9

3.22 The incursion by the foundations of the proposed residential block inside the RPA of T1 was calculated to be 1.9% of the total RPA. The incursion by the proposed hardstanding inside the RPA of T1 was calculated to be 5.9% of the total RPA, this

added to the incursion of the foundations equals a total incursion of 7.8% of the total RPA. This RPA incursion is unlikely to impact the health of the tree and as such, specialist root protection measures for the RPA of T1 will not be required.

3.23 The incursion by the foundations of the proposed residential block inside the RPA of T21 was calculated to be 2.3% of the total RPA. The incursion by the proposed hardstanding inside the RPA of T21 was calculated to be 14.4% of the total RPA, this added to the incursion of the foundations means a total incursion of 16.7% of the total RPA. This RPA incursion is likely to impact the health of the tree and as such, specialist root protection measures for the RPA of T21 will be required.

3.24 The incursion by the proposed hardstanding inside the RPA of T23 was calculated to be 18.2% of the total RPA. The incursion by the foundations of the proposed residential block inside the RPA of T1 was calculated to be 2.9% of the total RPA, this added to the incursion of the hardstanding equals a total incursion of 21.1% of the total RPA. This RPA incursion is likely to impact the health of the tree and as such specialist root protection measures for the RPA of T23 will be required.

3.25 The incursion by the proposed hardstanding inside the RPA of T28 was calculated to be 31.4% of the total RPA. Best practise limits RPA incursions to 20% and as such exceeding this will likely impact the health of the tree. While this would usually be a requirement for removal consideration has been given to the tree species, amenity value and its surrounding rooting environment. Retainment of this tree is proposed with the requirement of specialist root protection measures and soil amelioration within the RPA.

3.26 The incursions by the proposed hardstanding into the RPAs of T30 and T31 were calculated to be 0.4% and 5.2% of the total RPAs respectively. These RPA incursions are unlikely to impact the health of the trees and as such, the RPAs of the trees will not require specialist root protection measures.

3.27 The incursion by the proposed hardstanding inside the RPA of T32 was calculated to be 21.9% of the total RPA. This RPA incursion is likely to impact the health of the tree and as such, the RPA of T32 will require specialist root protection measures.

Impact on visual amenity and local character

3.28 Tree T25 was attributed Category A status. Without appropriate mitigation, as recommended in section 4 of this report, its removal would represent a significant impact on local visual amenity.

3.29 Trees T26 and T27 were both attributed Category B status. Without appropriate mitigation, as recommended in section 4 of this report, their removal would represent a considerable impact on local visual amenity.

3.30 While tree T22 was attributed Category C status and therefore considered to be of low visual amenity value, it is understood that the proposed landscaping scheme will address the minor loss to visual amenity as a result of its removal.

4 Recommendations

SITE SPECIFIC ISSUES

4.1 All Category A and B trees as described in Table 2 should be given priority consideration for retention during any future development which should take full account of above and below ground constraints, as shown on the Tree Constraints Plan (Appendix 2).

4.2 It is recommended that a geotechnical specialist/structural engineer undertake a detailed soil investigation to determine the underlying geology and plasticity index which may then inform foundation design.

4.3 At the time of this report, finalised layouts for electricity, water and gas services had not been confirmed. It is recommended that the locations of the proposed services be carefully planned in consultation with the Arboricultural Consultant and wherever possible, existing service pipes and trenches are re-used to avoid the need for excavations inside the RPAs of trees to be retained.

4.4 It is recommended that upon completion of construction works, all trees to be retained are subject to soil amelioration works inside the soft landscaped areas of their RPAs, as displayed in the Tree Protection Plan (Appendix 4). Soil amelioration works should include the decompaction of the soil, combined with the inoculation of a mix of beneficial mycorrhizal fungi and plant nutrients to stimulate future fibrous root growth.

TREE WORKS

4.5 Based on the current design proposal the following tree pruning and removal operations would need to be undertaken in order to facilitate development works.

- Trees T22, T25, T26 and T27 require removal.
- T1 should have its canopy raised to a height of 5m and have the lateral branches in its northern canopy quadrant reduced by 3m.
- T38 should have the lateral branches in its southern canopy quadrant shortened in length by 1m.
- T45 should have the lateral branches in its northern canopy quadrant shortened in length by 1m.

4.6 Although not specifically required for the purposes of evaluating design proposals and layouts, preliminary recommendations for tree management are provided below.

- Further evaluation and a full hazard risk assessment of trees T11, T16, T17, T19, T26, T27, T28, T30 and T33 should be undertaken, to establish the extent of decay, weakness or defects present, if it is progressive and whether immediate intervention such as canopy reduction or removal are necessary.
- T5 should have its canopy reduced by 1m on all side to reduce the stress on the stem.

- T10 should be removed to prevent further damage to the retaining wall.
- T31 should have its crown reduced and two leading branches removed while having its cable brace replaced by a dynamic cable bracing system (cobra or equivalent). The installation of the system should be assessed and undertaken by a trained and competent arboricultural contractor.
- T36 should have all deadwood over 100mm diameter in its canopy removed due to health and safety concerns.

4.7 All tree works should give due consideration to the potential presence of protected species, including breeding birds and roosting bats. Any relevant ecological reports pertaining to the site should be consulted prior to the commencement of works.

4.8 Arisings from tree works (e.g. wood piles and standing dead trunks) can provide valuable habitats for wildlife. As such, consideration should be given to their retention on site in areas unlikely to cause issues to public health and safety.

4.9 All tree pruning should be carefully planned and undertaken in accordance with BS 3998: 2010 Recommendation for Tree Works.

4.10 Any recommendations highlighting the management of potentially hazardous trees should be reviewed as soon as is practically possible.

MITIGATION

4.11 Although the removal of Category A trees cannot be adequately mitigated it is recommended that a scheme of soft landscaping is submitted, including tree planting details which address the loss of visual public amenity where tree removal is unavoidable. The tree selection should be appropriate to the site and chosen from a species palette in accordance with local tree planting policies.

4.12 The design of any new planting and landscaping proposals should be based upon a soil analysis which considers pH and any nutrient deficiencies or imbalances

4.13 The planting detail should be considered and planned at an early stage of the design process and feed into the wider landscape design proposal. Ideally, species selected should be native and/or of proven ecological value.

4.14 Often the need for future remedial pruning or tree removal can be avoided through careful species selection and planning during the design of the mitigation planting scheme.

4.15 The positioning of mitigation planting in relation to new or existing buildings should take full account of the final canopy height and spread of all trees included in the planting scheme. Buildings should ideally be located a sufficient distance from the predicted canopy line and RPA to avoid future pressure to undertake remedial pruning or tree removal.

4.16 It is recommended that specifications on aftercare and maintenance, including irrigation, as well as protection and formative pruning during establishment are included as part of the finalised tree planting strategy. Recommendations should be appropriate to the proposed planting and should be in compliance with Section 11 of BS 8545:2014 Trees from nursery to establishment in the landscape- Recommendations.

ISSUES FOR THE ARBORICULTURAL METHOD STATEMENT

4.17 The positioning of new buildings should take into consideration the maximum canopy height and width of all trees to be retained. Buildings should ideally be located beyond the RPAs of the trees to be retained and allow sufficient distance from the existing canopy line to avoid future pressure to undertake remedial pruning or tree removal. Where the location of buildings inside the RPA is unavoidable, special engineering of foundations will be required and presented in a future method statement.

4.18 In order to minimise disturbance in the RPAs of retained trees, excavation into the soil or soil regrading should not be a requirement of finalised construction layouts, existing levels should remain intact and should be protected from overloading to prevent soil compaction.

4.19 Protective fencing should be installed in accordance with figure 2 of BS 5837:2012 to enable the safe retention of trees to be retained. The positioning of tree protection and the establishment of construction exclusion zones (CEZ) should initially be based upon the root protection areas as described in Appendix 1, and should be in place prior to the commencement of works.

4.20 All works should be undertaken from outside the RPA wherever possible. Where working in an RPA is unavoidable, ground protective measures fully compliant with section 6.2 of BS 5837: 2012 and agreed by the consulting arboriculturalist should be used.

4.21 Where construction of new buildings or hardstanding inside RPAs is likely to significantly impact a trees physiological or structural condition, specialist methods of construction should be developed and specified as part of the Arboricultural Method Statement.

5 Arboricultural Method Statement

5.1 This Arboricultural Method Statement details how existing trees to be retained should be protected during the demolition and construction phase of site development. The advice is specific to this site and should be read in conjunction with the Tree Protection Plan in Appendix 4.

Site monitoring and supervision

5.2 An arboricultural consultant or competent person should be appointed to advise on tree protection for the site.

Suggested Sequencing of Site Management

5.3 It is recommended that the following arboricultural input regarding on site management of trees provided in Table 3 is required, which should form the basis of the auditable schedule of inspection.

Table 6: Sequencing of site management and input.

Activity	Level of arboricultural input
Pre-commencement site meeting with site manager and the Local Planning Authority Tree Officer.	Initial site meeting. Review of tree protection measures. Agree frequency of site supervision and reporting. Agree any amendments to tree protection measures.
Preliminary tree works.	Discuss and review works schedule with contractor.
Erection of protective barriers and ground protection measures.	Preparation of amended plans and specifications for formal agreement with the Local Planning Authority Tree Officer. On-going discussion and advice during installation until completion of works.
Removal of existing MUGA and hardstanding inside RPA's of T1, T21 and T23.	Pre-works on site briefing with contractor and direct on site supervision by arboricultural consultant. Periodic inspection during demolition works.
Commencement of ground works including excavations for installation of gym and play park equipment and new hardstanding.	Pre-works on site briefing with contractor and direct on site supervision by arboricultural consultant. Periodic supervision during foundation/Hardstanding construction inside the RPAs of trees T1, T21, T23, T28, T31 and T32.
Removal of protective fencing and ground protection measures after completion of construction works.	Pre-commencement on site briefing with contractor and ongoing site supervision at agreed intervals until completion.

Table 6: Sequencing of site management and input.

Activity	Level of arboricultural input
Carrying out of mitigation tree planting and soft and hard landscaping.	Pre-commencement on site briefing with landscape contractor check and agree planting specification. Site meeting with contractor following completion of works to check compliance with agreed specifications, maintenance and aftercare.

GENERAL PRECAUTIONS TO BE TAKEN ON SITE

5.4 The following precautions should be maintained at all times:

- All retained trees should be protected by the erection of protective barriers and or ground protection prior to the commencement of any works and should remain in place during the entire course of the development.
- No fires should be lit within 10m of the canopies of trees to be retained.
- Designated Construction Exclusion Zones (CEZ) should be suitably identified and maintained to ensure that trees remain protected. Storage or stockpiling areas, temporary road access, accommodation and other facilities are to be located outside of RPAs, inside designated sites away from retained trees and all care must be taken to prevent the leakage or spilling of harmful materials into the soil.
- No excavations or soil stripping or general disturbance and compaction of the existing soil strata should be carried out within the RPA of any tree to be retained.
- All scheduled tree works should be carried out prior to the commencement of any site works and before the erection of tree protection measures.
- A copy of the Method Statement and accompanying Tree Protection Plan should be made available and retained on site at all times and should be included in the site induction for all contractors and visiting personnel so that they are familiar with its content and requirements.

PRE- COMMENCEMENT SITE MEETING

5.5 Prior to any site works being undertaken, a pre-commencement meeting on site between the Site Manager, Arboricultural Consultant and Local Planning Authority Tree Officer should be carried out in order to understand and agree key stages for the implementation of tree protection measures and operations and to allow any aspect of the process to be discussed.

5.6 If the Tree Officer is unable to attend, details of discussions and agreements made in the meeting can be presented in writing by the Arboricultural Consultant, if required by the Local Planning Authority.

PRELIMINARY TREE WORKS

5.7 All tree works as described in Section 4 of this report should be carried out in accordance with BS 3998:2010 and should be undertaken prior to the commencement of any works. It should be the responsibility of the site owners and tree contractor to ensure that no tree works are carried out without the necessary prior written consents from the Local Planning Authority.

5.8 Prior to the removal or pruning of any trees on site, an on-site briefing between the Site Manager, the Arboricultural Consultant and the Local Planning Authority Tree Officer should be undertaken in order to understand the scope of the tree removal and the requirements of tree pruning for access facilitation.

5.9 All trees to be removed should be clearly marked with an X on their main stem. Marking of trees should be supervised by the Local Planning Authority Tree Office and the Arboricultural Consultant.

5.10 All tree pruning for access facilitation should be supervised by the Arboricultural Consultant, to ensure that specifications laid out in the Arboricultural Method Statement are followed and that trees are left in an acceptable state, with minimal loss in amenity value.

ERECTION OF PROTECTIVE BARRIERS AND GROUND PROTECTION MEASURES

5.11 The Tree Protection Plans shows the approximate locations of tree protection fencing to be erected prior to the commencement of works to form Construction Exclusion Zones (CEZs). Protective barriers should remain in place through the entire course of the development and only moved with the prior written consent of the Local Planning Authority Tree Officer, in consultation with the appointed arboricultural consultant. The barrier will be a 2m high fence robust enough to withstand impact from plant machinery supported by a system of vertical and horizontal scaffold tubes and supporting back stays as specified in Figure 2 of BS 5837:2012.

5.12 Weather proof signage should be attached to the barrier in locations clearly seen by contractors and site operatives indicating that the CEZ area is protected and should not be accessed. Examples of warning notices are provided in Appendix 5.

5.13 Once the barriers have been placed into position, they are not to be removed or altered in any way until the conclusion of all site construction works.

5.14 In areas where CEZs will experience heavy traffic or activity, the protective fencing employed should be as specified in Figure 1 of Appendix 4. In areas experiencing light traffic with little or no works activity, it may be appropriate to employ fencing as specified in Figure 2 of Appendix 5. This must be agreed upon by a consulting arboriculturalist and/or the Local Planning Authority Tree Officer.

REMOVAL OF EXISTING BUILDINGS AND HARDSTANDING

5.15 Prior to the removal of any existing buildings and/or hardstanding, an on-site briefing between the Site Manager, the Arboricultural Consultant and the Local Planning Authority Tree Officer should be carried out in order to understand appropriate methods of demolition of hardstanding and buildings in the vicinity of RPAs.

5.16 During the demolition process, all works carried out in the vicinity of RPA should be supervised by an arboricultural consultant.

5.17 All works should be undertaken from outside the RPA wherever possible. Where working within an RPA is unavoidable, ground protection measures fully compliant with section 6.2 of BS 5837:2012 and agreed by a consulting arboriculturalist should be used.

5.18 All excavation work should be carried out so as to draw the removed materials away from the tree and out of the RPA where they can be moved and loaded so as not to present a risk to any part of the trees to be retained.

5.19 Where possible, any hard surface close to trees should be left and re-used as a base for any new surfacing which may be located in the same position. Where the removal of hard surfacing in the RPA is a necessity, works should be carried out using only hand held machinery, in such a way as to minimise any disturbance on the underlying soil or roots.

5.20 Any roots exposed through excavation activities should immediately be covered with good quality topsoil, and/or prevented from drying by rapping in hessian sheeting or similar. Any damaged roots should be cut cleanly by secateurs or handsaw.

5.21 Operational arcs of excavators should be kept clear of crowns or stems of retained trees to help prevent accidental damage.

COMMENCEMENT OF GROUND WORKS INCLUDING EXCAVATIONS FOR FOUNDATIONS, INSTALLATION OF SERVICES AND NEW HARDSTANDING

5.22 Prior to the commencement of any ground works, an onsite briefing between the Site Manager, Arboricultural Consultant and Local Planning Authority Tree Officer should be carried out in order to understand appropriate methods of excavation

within the vicinity of RPAs and to explain best practice procedures should any roots be disturbed by excavation activities. During the excavation process, all works likely to impact trees should be supervised by the consulting arboriculturalist.

5.23 Prior to the commencement of works, the locations of and excavation methods for the installation of any proposed services should be fully agreed upon by the site manager, Local Planning Authority Tree Officer and Arboricultural Consultant. Excavations for the installation of new services inside the RPAs of any trees to be retained should not be a requirement of finalised construction layouts.

5.24 Any trenching required for the installation of foundations or retaining walls inside or directly adjacent to the RPAs of trees to be retained should be carefully lined with a non-permeable membrane and supervised by an Arboricultural consultant in order to prevent chemical leeching into adjacent soils.

5.25 The first 750mm of excavation within RPAs of retained trees should be carried out using hand tools or compressed air spades and is to be undertaken under the supervision of the consulting arboriculturalist.

5.26 Exposed roots (woody and fibrous) should be initially covered over using hessian sheeting pegged in and kept damp and prevented from drying out. A geotextile permeable terram may be used on the tree side of any trenching to protect soil/root environment from desiccation or contamination.

5.27 Any damaged roots of a diameter of 25mm or less should be cleanly severed using secateurs or hand saw. Cut ends should be treated as above.

5.28 Prior to back filling, retained roots should be surrounded with topsoil, uncompacted sharp sand or other loose, inert granular fill. Builders' sand should not be used due to its high salt content. The backfill material should be free from contaminants or foreign objects potentially damaging to the roots.

REMOVAL OF PROTECTIVE FENCING AND GROUND PROTECTION MEASURES AFTER COMPLETION OF CONSTRUCTION WORKS

5.29 Prior to the removal of any protective fencing or ground protection, an onsite briefing between the Site Manager, Arboricultural Consultant and Local Planning Authority Tree Officer should be carried out in order to understand appropriate methods of removal. During the removal process, the site should be subjected to ongoing visits at regular intervals by a consulting arboriculturalist until the conclusion of the works.

CARRYING OUT OF MITIGATION TREE PLANTING AND SOFT AND HARD LANDSCAPING

5.30 Prior to the commencement of any mitigation planting or landscaping, an onsite briefing between the Landscaping Contractor, Arboricultural Consultant and Local

Planning Authority Tree Officer should be carried out in order to understand and agree on planting specifications. Upon the completion of planting and landscaping works, a meeting should be held between the Landscaping Contractor, Arboricultural Consultant and Local Planning Authority Tree Officer in order to ensure works were carried out in compliance with agreed specifications and to agree appropriate aftercare and maintenance levels.

5.31 All landscaping should avoid soil re-grading and disturbance within the RPAs of all retained trees. Raising levels should be achieved through the use of gas and water permeable granular material.

5.32 Any new surface constructed within tree RPAs should be permeable and should not impede gaseous and aqueous exchange between the soil and atmosphere.

5.33 All tree planting undertaken should be in accordance with BS 8545:2014 Trees: from nursery to independence in the landscape – Recommendations.

5.34 Upon completion of the development, all trees to be retained on site should be subject to soil amelioration works as displayed in the Tree Protection Plan: Construction (Appendix 4b).

SITE SPECIFIC RECOMMENDATIONS

5.35 Protection measures specified on site should be phased between demolition and construction works in order to ensure minimal impacts on trees to be retained. Specific protective measures for both demolition and construction phases are detailed below.

DEMOLITION

5.36 Prior to the commencement of demolition works, protective fencing in accordance with Figure 2 of BS 5837:2012 should be erected to form CEZs around all trees to be retained as displayed in the Tree Protection Plan: Demolition (Appendix 4a).

5.37 The removal of all existing hardstanding, artificial grass and other surfaces inside the RPAs of trees to be retained should be conducted using hand tools only. CEZs should only be accessed under full arboricultural supervision. Numbers of personnel accessing CEZs should be kept to a minimum and should be at the discretion of the consulting arboriculturalist.

5.38 Once all surfaces within the RPAs of trees to be retained have been removed. No further access into CEZs should be permitted until the completion of the demolition works unless confirmed in writing by the Local Planning Authority Tree Officer.

5.39 It is necessary for demolition works to be undertaken within the RPA's of and in proximity to the stems and canopies of T1, T21 and T23. All demolition and

excavation work in the vicinity of T1, T21 and T23 should follow methodologies laid out in section 5.15 to 5.21 of this report.

5.40 During demolition works, access inside the RPA's of T1, T21 and T23 should be kept to a minimum. Where access for plant or personnel is unavoidable ground protection measures in full compliance with section 6.2 of BS 5837:2012 should be utilised to protect the existing ground from damage or overloading.

5.41 As soon as the necessary demolition works surrounding T1, T21 and T23 have been completed, protective fencing around the stem of the tree should be adjusted as shown in the Tree Protection Plan: Demolition and should remain in place until all further demolition works are completed.

CONSTRUCTION

5.42 Prior to the commencement of construction works, the condition of retained trees and their protection measures should be reviewed by the consulting Arboriculturalist and Local Planning Authority Tree Officer. Any remedial tree works or alterations to existing protection measures should be agreed on and carried out prior to the commencement of construction operations.

5.43 Installation of the proposed paving inside the RPA's of T21, T23, T28, T31 and T32 should follow specifications in section 5.22 to 5.28 of this report to minimise final impacts on the RPA of the tree and should be done under direct Arboricultural supervision. During ground preparations for the paving, protective fencing surrounding the tree should be adjusted to the location specified in the Tree Protection Plan: Construction (Appendix 4b).

5.44 During the construction of the proposed play area and outdoor gym inside the RPAs of trees T28 and T32, existing tree protection fencing should be adjusted to finalised layouts as displayed in the Tree Protection Plan: Construction (Appendix 4b). The proposed play area and outdoor gym should comprise a build-up of a porous, load bearing cellular confinement system (Cellweb or equivalent) as displayed in Appendix 5 Figure 3. The system should be to an engineered specification and should be installed under direct Arboricultural supervision.

5.45 During the construction of the proposed play area and outdoor gym inside the RPAs of trees T28 and T32, any installation of play or gym equipment should avoid the need for trenching or strip foundations. The design should include mini-pile foundations and be installed under direct Arboricultural supervision. No plant should access the trees RPA without the installation of appropriate ground protection as specified in section 6.2.3 of BS 5837:2012.

5.46 It is recommended that soil amelioration works be undertaken within the RPA's of retained trees and be undertaken by a trained and experienced arboricultural contractor following the below methodology:

- Soils inside tree RPAs should initially be de-compacted using an air lance or Teravent system to break up compacted top or subsoil layers.
- Once soil has been de-compacted, a beneficial mixture of mycorrhizal fungi inoculum and nutrients to stimulate healthy root growth should be injected into the soil using a Teravent or GeoInjector.
- Finally, a 100mm layer of well-rotted bark mulch should be applied to soft landscaped areas within the RPAs of all trees retained. The mulch layer will regulate soil temperature, moisture content and pH as well as mitigate against potential future soil compaction.

CONTACT DETAILS

5.47 This method statement is accompanied by a list of known contact details for all relevant parties and is included in Table 7.

Table 7: List of contact details for all relevant parties

Contact	Name	Company or Local Authority name	Contact Number	Report Issued Yes/No
Client	Spencer Nichol	Goody Demolition Ltd	01304 840126	Yes
LPA Tree Officer	Planning	London Borough of Camden	-	No
Assistant Arboricultural Consultant	Wesley Rawson	Temple Ltd	07766411267	Yes

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Spatial Dimensions (2019). J18464_01

Town and Country Planning Act 1990 (as amended).

Town and Country Planning (Tree Preservation) (England) Regulations 2012.

Appendix 1: Schedule of Trees

* See Table 3 for key to terms

** See Table 2 for definitions of categories

Table 1: Schedule of Trees and Tree Quality Assessment*

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr. Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm ^{2}	RPA *r*
					N	S	E	W										
T1	London plane	20	1	1000	10	12	10	9	3.5	M	Good	Good	Landmark tree, retention very desirable, root lifting curb stone to north.	No immediate remedial works.	40+	A1	452.4	12.0
T2	Silver birch	10	1	300	6	3	5	3	2	SM	Fair	Good	Access to base restricted in private amenity space.	No immediate remedial works.	10-20	B1	40.7	3.6
T3	Silver birch	10	1	230	4	2	4	5	4	EM	Fair	Fair	Suppressed by neighbours.	No immediate remedial works.	10-20	C1	23.9	2.8
T4	Silver birch	13	1	300	5	8	8	4	3	EM	Fair	Good	Inclusion at first fork.	No immediate remedial works.	10-20	B1	40.7	3.6
T5	Common hawthorn	7.5	1	450	4	4	5	5	4	M	Poor	Good	Cavity at 1m on south side to north side.	Reduce canopy by 1m.	0-10	C1	91.6	5.4
T6	London plane	22	1	1140	14	9	7	7	3	M	Good	Good	Soil stripped around tree, prominent buttress, damage to nearby retaining walls.	No immediate remedial works.	40+	A2	587.9	13.7
T7	Sycamore	16.5	1	635	7	5	8	8	5	M	Fair	Fair	Codominant stem at 2m union good, located in fenced planting bed.	No immediate remedial works.	20-40	B1	182.4	7.6

Table 1: Schedule of Trees and Tree Quality Assessment*

* See Table 3 for key to terms

** See Table 2 for definitions of categories

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr. Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm ^{2}	RPA *r*
					N	S	E	W										
T8	Sycamore	16.5	2	530; 530	4	5	8	8	5	M	Fair	Fair	Heavily topped.	No immediate remedial works.	10-20	C1	254.2	9.0
T9	Sycamore	16	1	500	7	0	8	8	5	M	Fair	Fair	Codominant at 2m inclusion on second fork, heavily topped.	No immediate remedial works.	10-20	C1	113.1	6.0
T10	Sycamore	11.5	1	450	6	6	5	7	4	M	Good	Good	Tree roots compromising retaining wall, potential risk of failure into intersection.	Remove.	10-20	U	91.6	5.4
T11	Crab apple	5	1	300	3	3	3	3	2	M	Poor	Fair	Cavity at 1m close to retaining wall.	Hazard Risk Assessment.	0-10	C1	40.7	3.6
T12	Wild cherry	4.5	1	210	3	2	0	3	2	EM	Poor	Good	Signs of canker at first fork.	No immediate remedial works.	0-10	C1	20.0	2.5
T13	Wild cherry	6	1	370	5	3	3	4	3	M	Good	Good	-	No immediate remedial works.	20-40	B1	61.9	4.4
T14	Crab apple	8	1	400	6	5	6	5	3	M	Good	Good	-	No immediate remedial works.	10-20	B1	72.4	4.8

* See Table 3 for key to terms

** See Table 2 for definitions of categories

Table 1: Schedule of Trees and Tree Quality Assessment*

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr. Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm ^{2}	RPA *r*
					N	S	E	W										
T15	Silver maple	18	1	570	9	7	10	3	1	M	Fair	Fair	Growing in tarmac some old root damage on north side.	No immediate remedial works.	10-20	B1	147.0	6.8
T16	Silver maple	16	1	540	1	5	9	2	6	M	Poor	Good	Growing in tarmac lifting root damage moulded over edge, cavity at 1m on north side significant.	Hazard Risk Assessment.	10-20	B1	131.9	6.5
T17	London plane	20	1	720	5	11	10	11	3	M	Poor	Good	Significant cavity at 2m on west side examine, large surface root to east lifting parking spaces.	Hazard Risk Assessment/ Decay Detection.	10-20	B2	234.5	8.6
T18	Common Lilac	3	2	85; 85	1.5	1.5	1.5	1.5	1	M	Poor	Poor	-	No immediate remedial works.	0-10	C2	6.5	1.4

Table 1: Schedule of Trees and Tree Quality Assessment*

* See Table 3 for key to terms

** See Table 2 for definitions of categories

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr. Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm ^{2}	RPA *r*
					N	S	E	W										
T19	Silver maple	17.5	1	750	5	8	4	7	5	M	Poor	Good	Significant cavity at 1m west side examine, in planting bed historic canopy reduction, lifting hardstanding and first fork cup shaped union with cavity below.	Hazard Risk Assessment/ Decay Detection.	10-20	B2	254.5	9.0
T20	Italian alder	12	1	395	5	6	5	4	3.5	EM	Fair	Good	Lean to south.	No immediate remedial works.	20-40	B1	70.6	4.7
T21	Italian alder	12.5	1	390	5	5	5	5	3.5	EM	Good	Good	-	No immediate remedial works.	20-40	B1	68.8	4.7
T22	Common ash	15	1	320	6	8	6	0	4.5	M	Fair	Fair	Minor deadwood in canopy stubs from previous reduction.	No immediate remedial works.	10-20	C1	46.3	3.8
T23	London plane	19	1	700	4	9	6	6	3.5	M	Good	Good	Historically reduced, minor lean to south, codominant canopy.	No immediate remedial works.	40+	B1	221.7	8.4
T24	Silver birch	16	1	240	4	4	4	4	3.5	EM	Good	Good	-	No immediate remedial works.	20-40	B2	26.1	2.9

Table 1: Schedule of Trees and Tree Quality Assessment*

* See Table 3 for key to terms

** See Table 2 for definitions of categories

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr. Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm ^{2}	RPA *r*
					N	S	E	W										
T25	London plane	22	1	840	7	8	5	7	6	M	Good	Good	Minor occluded cavity on southwest 2m, historically reduced.	No immediate remedial works.	40+	A2	319.2	10.1
T26	Italian alder	21	1	450	5	8	9	3	2	M	Good	Good	Lean to south over school play area.	Hazard Risk Assessment.	20-40	B1	91.6	5.4
T27	False acacia	16	1	370	5	5	4	5	3.5	M	Fair	Fair	Fault at 2.5m above ground, on south side.	Hazard Risk Assessment.	20-40	B1	61.9	4.4
T28	London plane	20.5	1	750	8	7	7	4	7	M	Fair	Good	Occluded cavity on western side of stem at 1m, trifurcated at 2.5m with bark inclusion, historically reduced.	Hazard Risk Assessment.	20-40	B2	254.5	9.0
T29	London plane	9.5	1	170	3	3	3	3	3	SM	Good	Good	-	No immediate remedial works.	40+	B1	13.1	2.0
T30	London plane	20.5	1	720	5	10	13	5	4	M	Fair	Good	Large significant cavity on north side, moderate lean to south-east.	Hazard Risk Assessment.	40+	B1	234.5	8.6

* See Table 3 for key to terms

** See Table 2 for definitions of categories

Table 1: Schedule of Trees and Tree Quality Assessment*

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr. Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm ^{2}	RPA *r*
					N	S	E	W										
T31	London plane	17.5	1	560	5	5	7	4	4	M	Poor	Good	Due to poor cable bracing management, main leaders now ringbarking,	Re assess/adjust cable bracing.	10-20	C1	141.9	6.7
T32	London plane	19.5	1	630	8	10	12	12	3	M	Good	Good	Historically reduced, surface root to south extending 2.5m.	No immediate remedial works.	40+	B1	179.6	7.6
T33	Small leaved lime	14	1	510	4	6	4	6	5	M	Fair	Good	Previously reduced, cavity at 1m east side and minor root damage on north, central stem in upper canopy in decline.	Hazard Risk Assessment.	10-20	C1	117.7	6.1
T34	Common ash	22	1	560	6	8	10	4	4.5	M	Fair	Fair	Lean to east, occluded wound to west at 1m.	No immediate remedial works.	20-40	B2	141.9	6.7
T35	Common whitebeam	9	1	250	5	3	3	5	2	EM	Fair	Good	Severe lean to west.	No immediate remedial works.	10-20	C1	28.3	3.0
T36	Norway maple	12	1	400	6	5	5	5	3.5	M	Good	Good	Moderate retained deadwood in canopy.	Remove deadwood.	40+	B1	72.4	4.8
T37	Common walnut	10	1	260	4	4	4	4	2	EM	Fair	Good	Grown into fence and lifting paving.	No immediate remedial works.	10-20	C2	30.6	3.1

Table 1: Schedule of Trees and Tree Quality Assessment*

* See Table 3 for key to terms

** See Table 2 for definitions of categories

No	Species	Ht.	S	St. 1.5m	Canopy Spread				Cr. Cl	Ls	SC	PC	Comments /Observation	Preliminary Management Advice	LE	Cat **	RPAm ^{2}	RPA *r*
					N	S	E	W										
T38	Crack willow	4.5	2	110; 110	1	1	2	2	2	SM	Poor	Fair	Located in planting bed.	No immediate remedial works.	0-10	C1	10.9	1.9
T39	Sycamore	20	1	600	7	7	7	7	4	M	Fair	Fair	Extensive surface roots to south, historically reduced.	No immediate remedial works.	20-40	B2	162.9	7.2

Table 2: BS: 5837 2012 Tree Quality Assessment Definitions

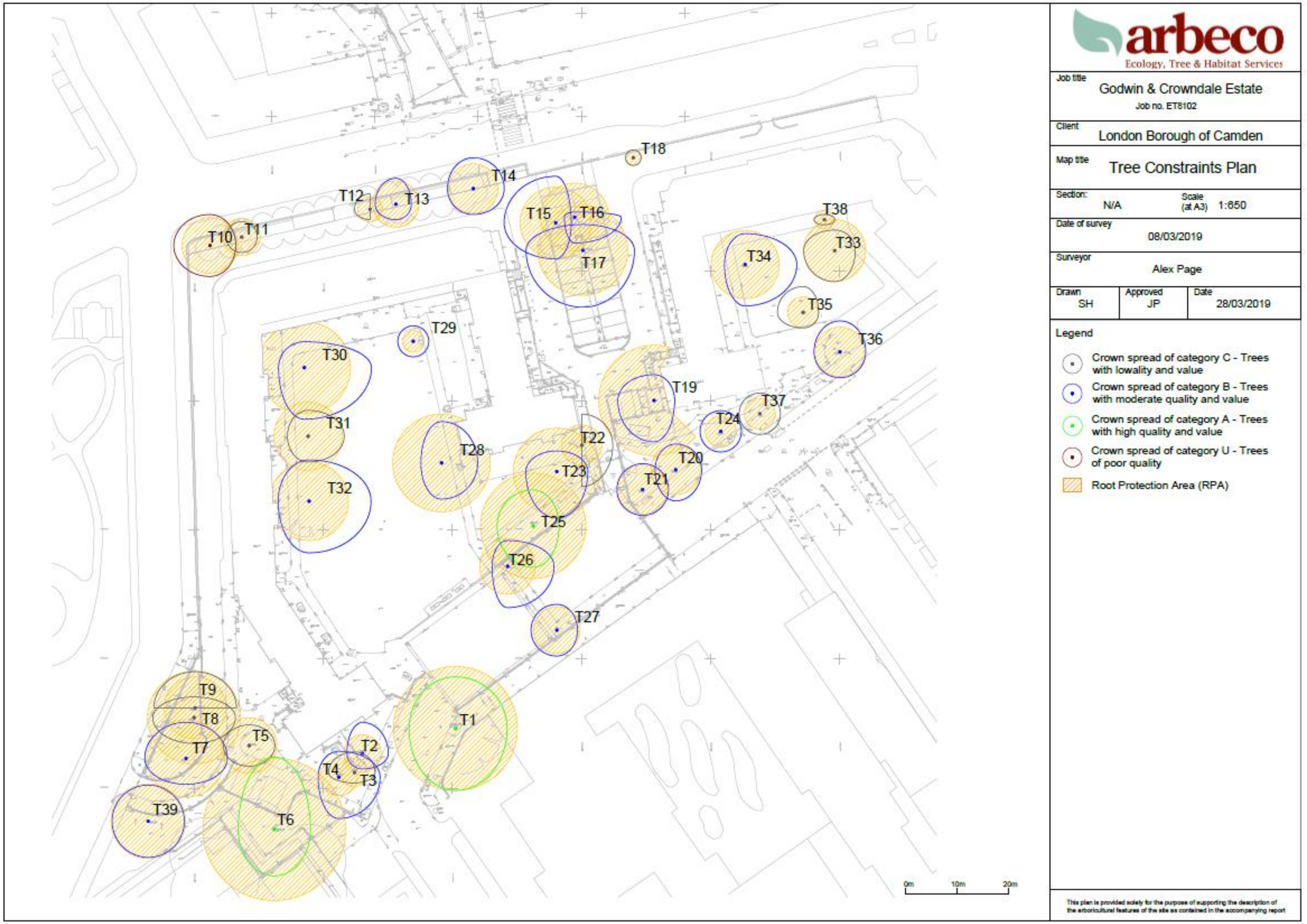
TREES FOR REMOVAL		
Category & Definition	**Criteria**	**Identification on Plan**
Category U Those in such a condition that they cannot realistically be retained as a living tree in the context of the current land use for longer than 10 years.	• Trees that have a serious, irremediable structural defect such that their early loss is expected due to collapse, including those that will become unviable after removal of other U category trees (i.e. Where for whatever reason the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant immediate or irreversible overall decline. • Trees infected with pathogens of significance to the health and or safety of other trees nearby by or very low quality trees suppressing adjacent trees of better quality.	RED

TREES TO BE CONSIDERED FOR RETENTION				
Category & Identification	**1 Mainly arboricultural values**	**2 Mainly landscape values**	**3 Mainly cultural values including conservation**	**Identification on plan**
Category A Trees of High Quality with an estimated remaining life expectancy of at least 40 years	Trees that are a particularly good example of their species, especially if rare or unusual, or essential components of groups or of formal or semi-formal arboricultural features e.g. the dominant and/or principal trees in an avenue)	Tree groups or woodlands of particular visual importance as arboricultural and/or landscape features.	Tree groups or woodlands of significant conservation historical, commemorative or other value (e.g. veteran trees or wood pasture)	GREEN
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.	Trees that might be included in the high category but are downgraded because of impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage).	Trees present in numbers, usually as groups or woodlands such that they attract a higher collective rating than they might as individuals: or trees occurring as collectives but situated so as to make little visual contribution to the wider locality.	Trees with material conservation or other cultural benefits.	BLUE
Category C Trees of a low quality with an estimated remaining life expectancy of at least 10 years or young trees with a stem diameter below 150mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories.	Trees present in groups or woodlands but without this conferring on them significantly greater landscape value and/or trees offering low or only temporary/transient landscape benefits.	Trees with no material conservation or other cultural benefits.	GREY

Table 3: Key Schedule of Trees

Column Heading	Explanation
Tree No	Sequential number corresponding to number on plan.
Species	English names.
Ht.	Height in metres.
S	Number of main stems.
St. 1.5 (Stem Diameter)	Stem diameter when measured in accordance with Annex C of BS 5837:2012.
NSEW	Crown radius in metres to cardinal points of the compass.
Cr. Cl. (Crown Clearance)	Height in metres between the ground and underside of canopy.
Ls.	Life stage definitions. Y= Young. SM = Semi-mature. EM = Early mature. M = Mature. OM = Over mature.
SC	Brief description of structural condition.
PC	Brief description of physiological condition.
Preliminary Advice	Preliminary tree works advice and recommendations.
LE	Estimated remaining useful life contribution in years. <10, 10+, 20+ and 40+ yr.
Cat. (Category)	Categorisation grading in accordance with BS 5837 2012. Trees suitable for retention: - Category A trees of high quality and amenity value. Category B trees of moderate quality and amenity value. Category C trees of low quality or amenity value. British Standards BS 5837:2012 recommends that these categories may be further broken down into sub-categories A1 A2 A3 pertaining to Arboricultural, Landscape or Cultural values respectively.
RPA m^2	Root Protection Area (RPA). Indicative area around a tree measured in m^2 and calculated in accordance with Annex C of BS 5837:2012 deemed to contain sufficient rooting volume to maintain the viability of a tree and where the protection of roots and soil structure is treated as a priority.
RPA *r*	Root Protection Area (RPA) radius calculation centred on the base of the tree and calculated in accordance with Annex C of BS 5837:2012

Appendix 2: Tree Constraints Plan



arbeco
Ecology, Tree & Habitat Services

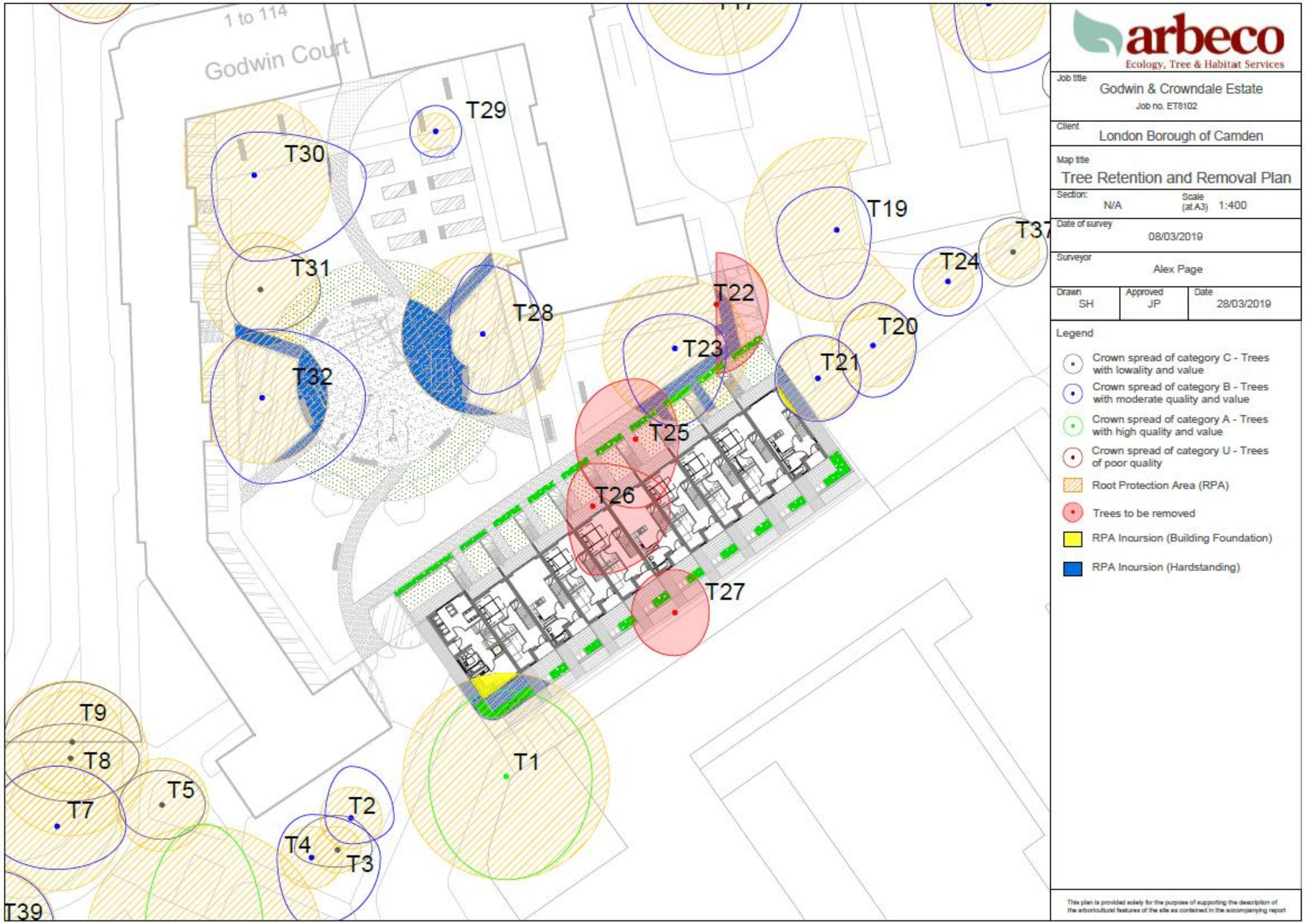
Job title	Godwin & Crowndale Estate Job no. ET8102
Client	London Borough of Camden
Map title	Tree Constraints Plan
Section: N/A	Scale (at A3) 1:650
Date of survey	08/03/2019
Surveyor	Alex Page
Drawn: SH / Approved: JP / Date: 28/03/2019	

Legend

- Crown spread of category C - Trees with lowality and value
- Crown spread of category B - Trees with moderate quality and value
- Crown spread of category A - Trees with high quality and value
- Crown spread of category U - Trees of poor quality
- Root Protection Area (RPA)

This plan is provided solely for the purpose of supporting the description of the arboricultural features of the site as contained in the accompanying report

Appendix 3: Tree Retention and Removal Plan


1 to 114
Godwin Court
T29
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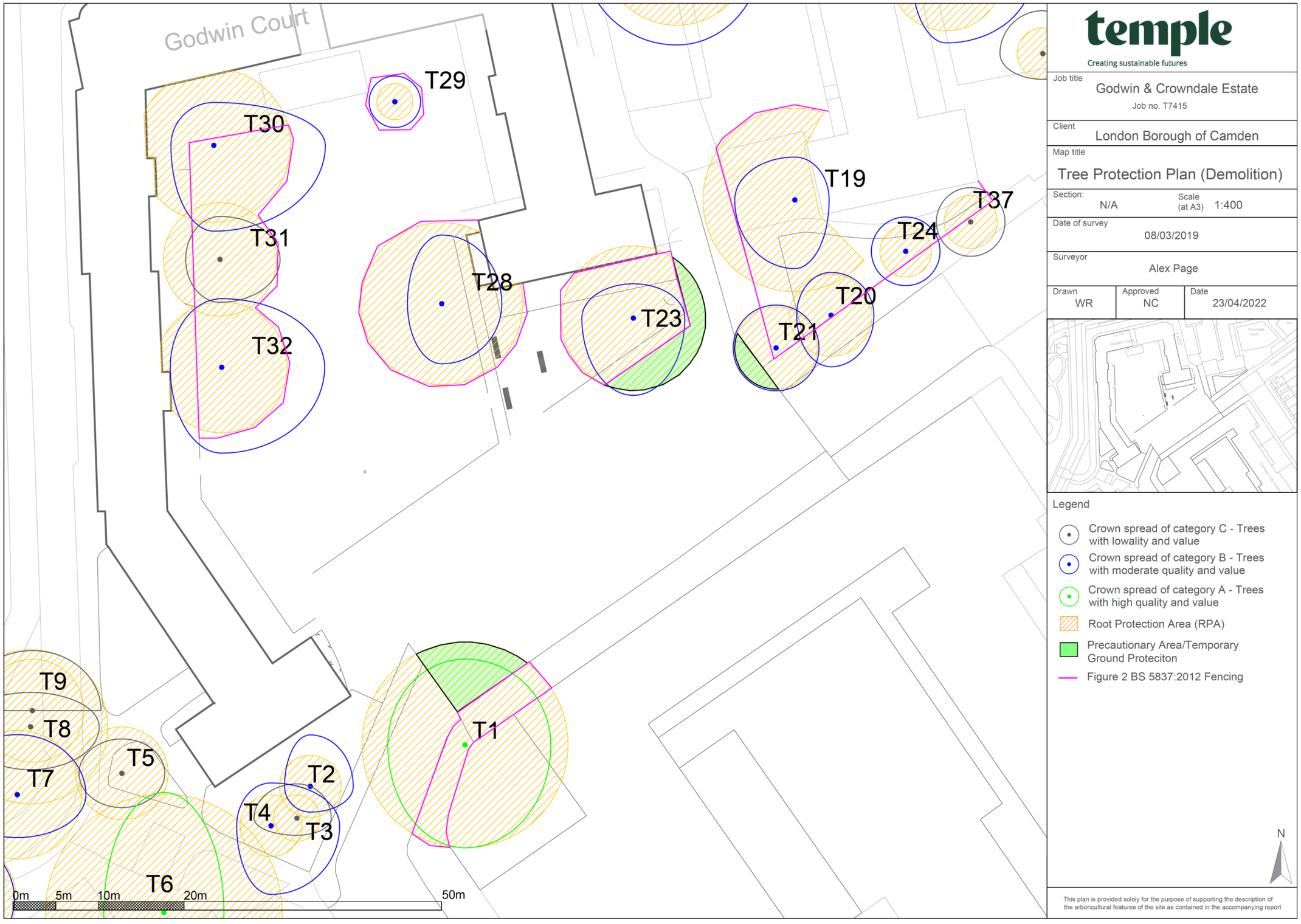
T2
T4
T3
T1
T39
arbeco
Ecology, Tree & Habitat Services
Job title
Godwin & Crowndale Estate
Job no. ET8102
Client
London Borough of Camden
Map title
Tree Retention and Removal Plan
Section:
N/A
Scale (at A3)
1:400
Date of survey
08/03/2019
Surveyor
Alex Page
Drawn
SH
Approved
JP
Date
28/03/2019
Legend
Crown spread of category C - Trees with lowality and value
Crown spread of category B - Trees with moderate quality and value
Crown spread of category A - Trees with high quality and value
Crown spread of category U - Trees of poor quality
Root Protection Area (RPA)
Trees to be removed
RPA Incursion (Building Foundation)
RPA Incursion (Hardstanding)
This plan is provided solely for the purpose of supporting the description of the arboricultural features of the site as contained in the accompanying report

Appendix 4a: Tree Protection Plan: Demolition



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Job title
Godwin & Crowndale Estate
Job no. T7415

Client
London Borough of Camden

Map title
Tree Protection Plan (Demolition)

Section: N/A
Scale (at A3) 1:400

Date of survey
08/03/2019

Surveyor
Alex Page

Drawn	Approved	Date
WR	NC	23/04/2022

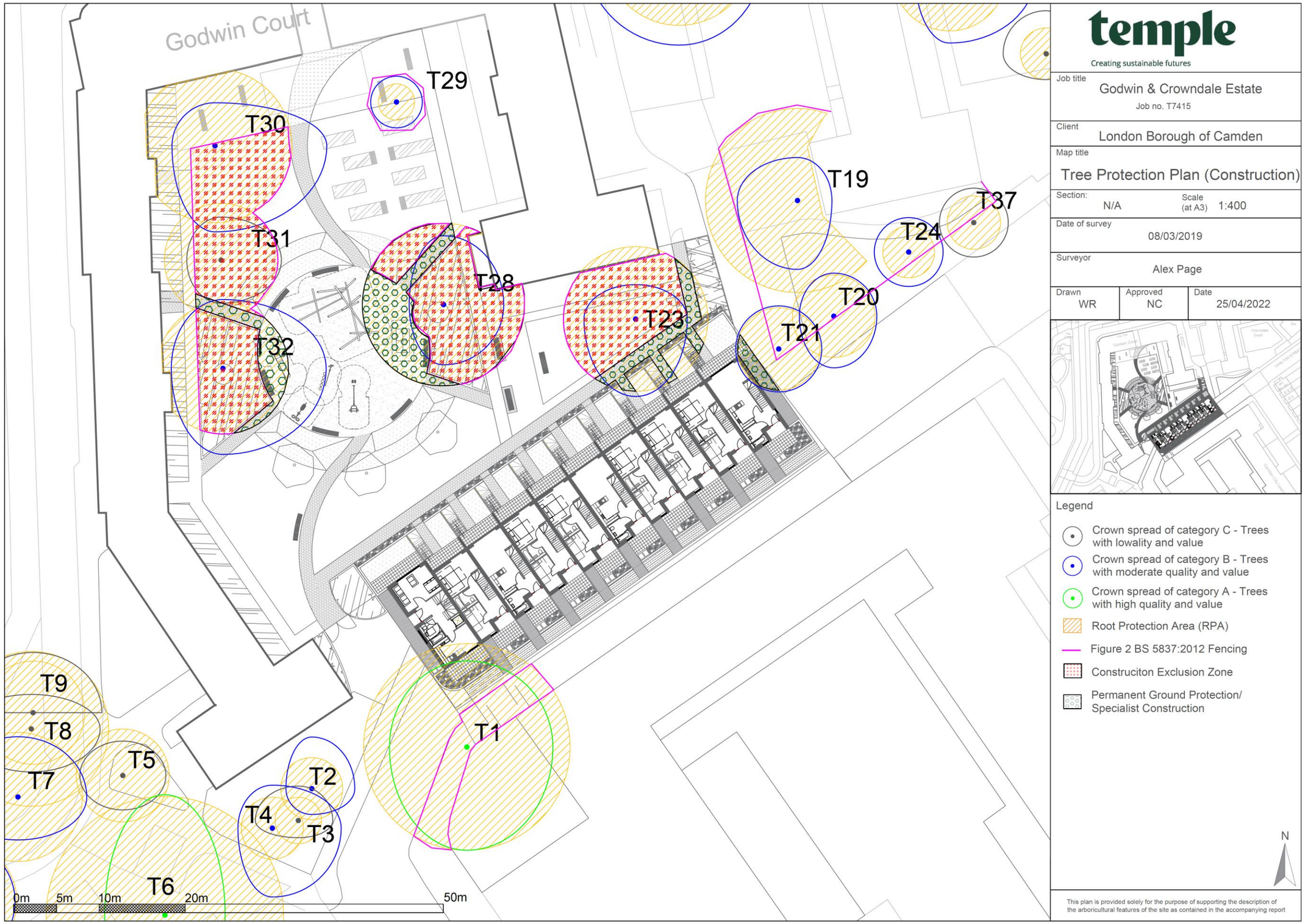
Legend

- Crown spread of category C - Trees with lowality and value
- Crown spread of category B - Trees with moderate quality and value
- Crown spread of category A - Trees with high quality and value
- Root Protection Area (RPA)
- Precautionary Area/Temporary Ground Proteciton
- Figure 2 BS 5837:2012 Fencing

N

This plan is provided solely for the purpose of supporting the description of the arboricultural features of the site as contained in the accompanying report

Appendix 4b: Tree Protection Plan: Construction



temple
Creating sustainable futures

Job title: Godwin & Crowndale Estate
Job no. T7415

Client: London Borough of Camden

Map title: Tree Protection Plan (Construction)

Section: N/A
Scale (at A3): 1:400

Date of survey: 08/03/2019

Surveyor: Alex Page

Drawn	Approved	Date
WR	NC	25/04/2022

Legend

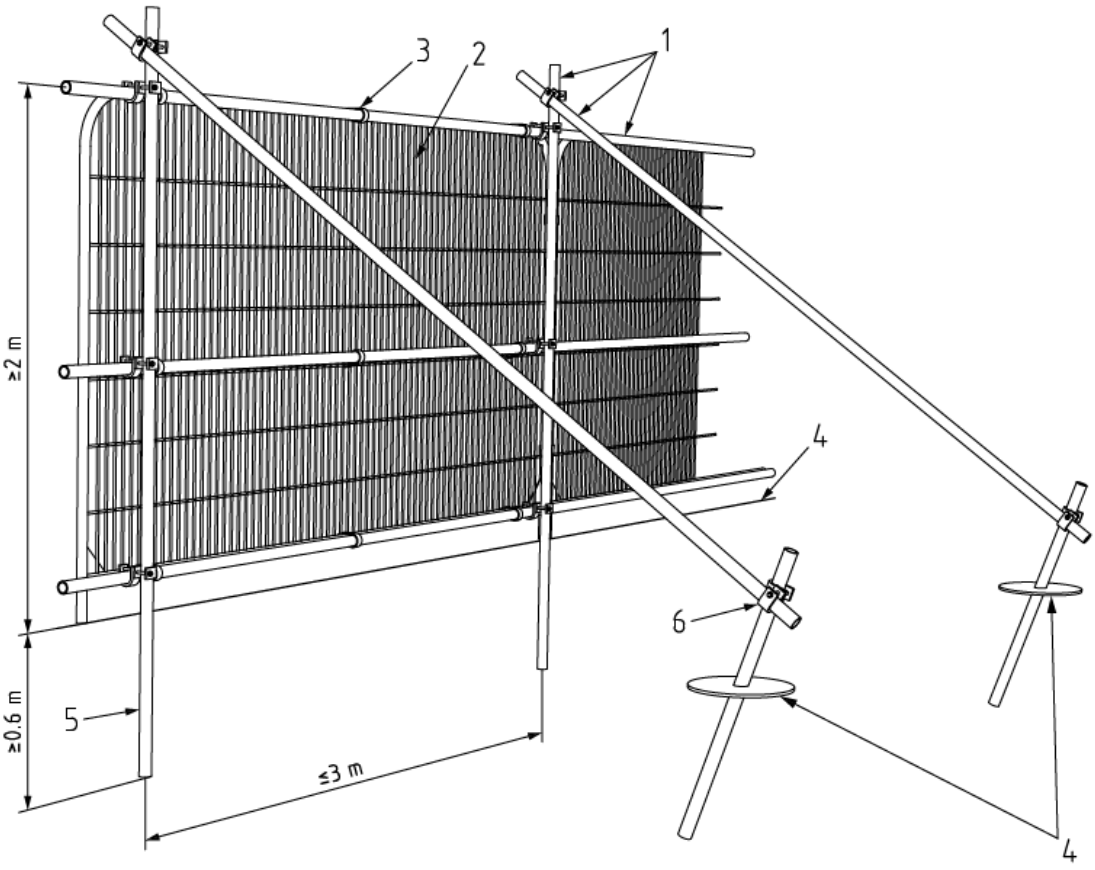
- Crown spread of category C - Trees with lowality and value
- Crown spread of category B - Trees with moderate quality and value
- Crown spread of category A - Trees with high quality and value
- Root Protection Area (RPA)
- Figure 2 BS 5837:2012 Fencing
- Construciton Exclusion Zone
- Permanent Ground Protection/ Specialist Construction

N

This plan is provided solely for the purpose of supporting the description of the arboricultural features of the site as contained in the accompanying report

Appendix 5: Tree Protection Fencing and Ground Protection

Figure 1. Default specification barrier (BS 5837:2012 figure 2)



Key

1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Figure 2. Alternative 'above-ground' barrier system (BS 5837:2012 figure 3)

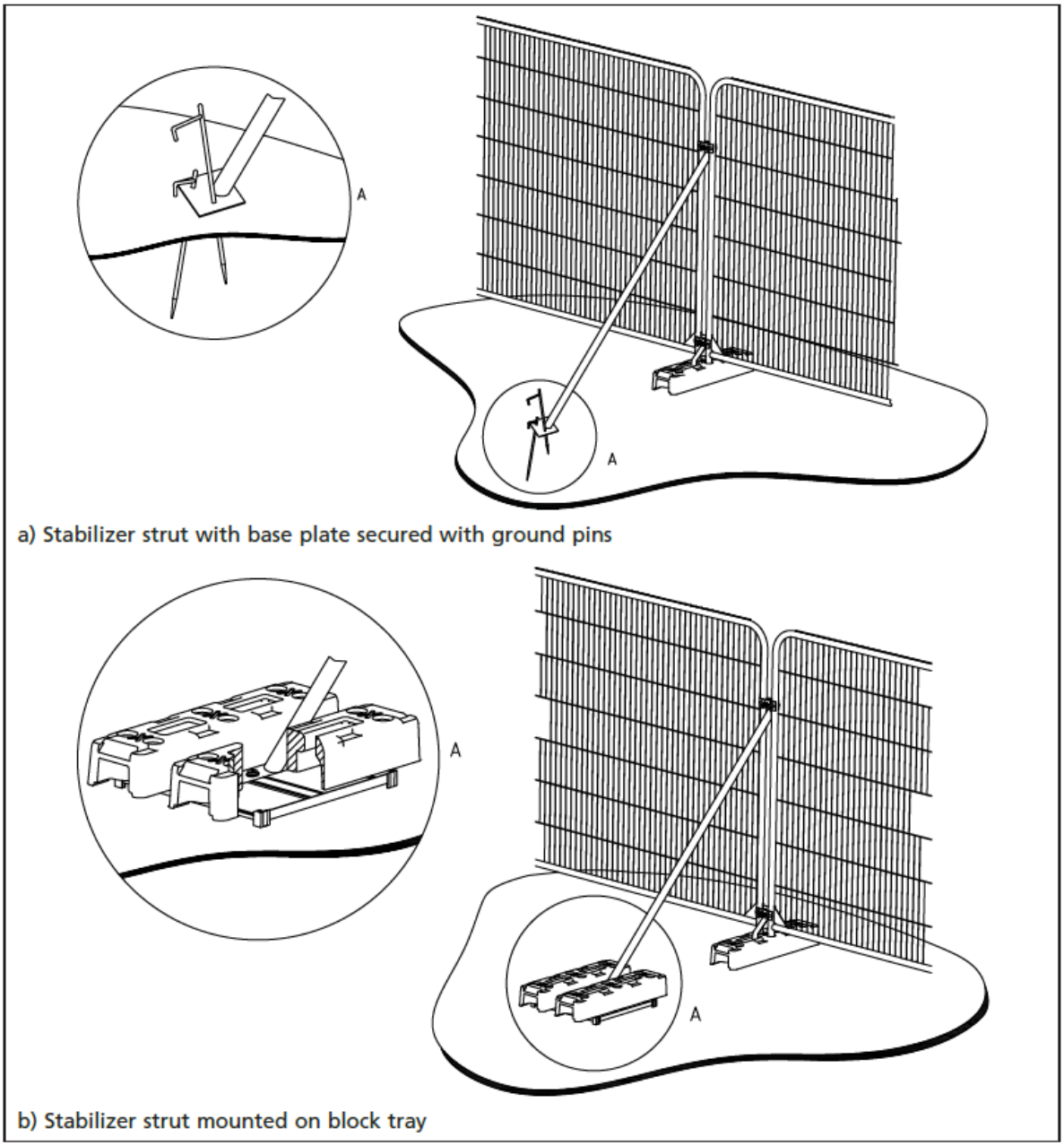
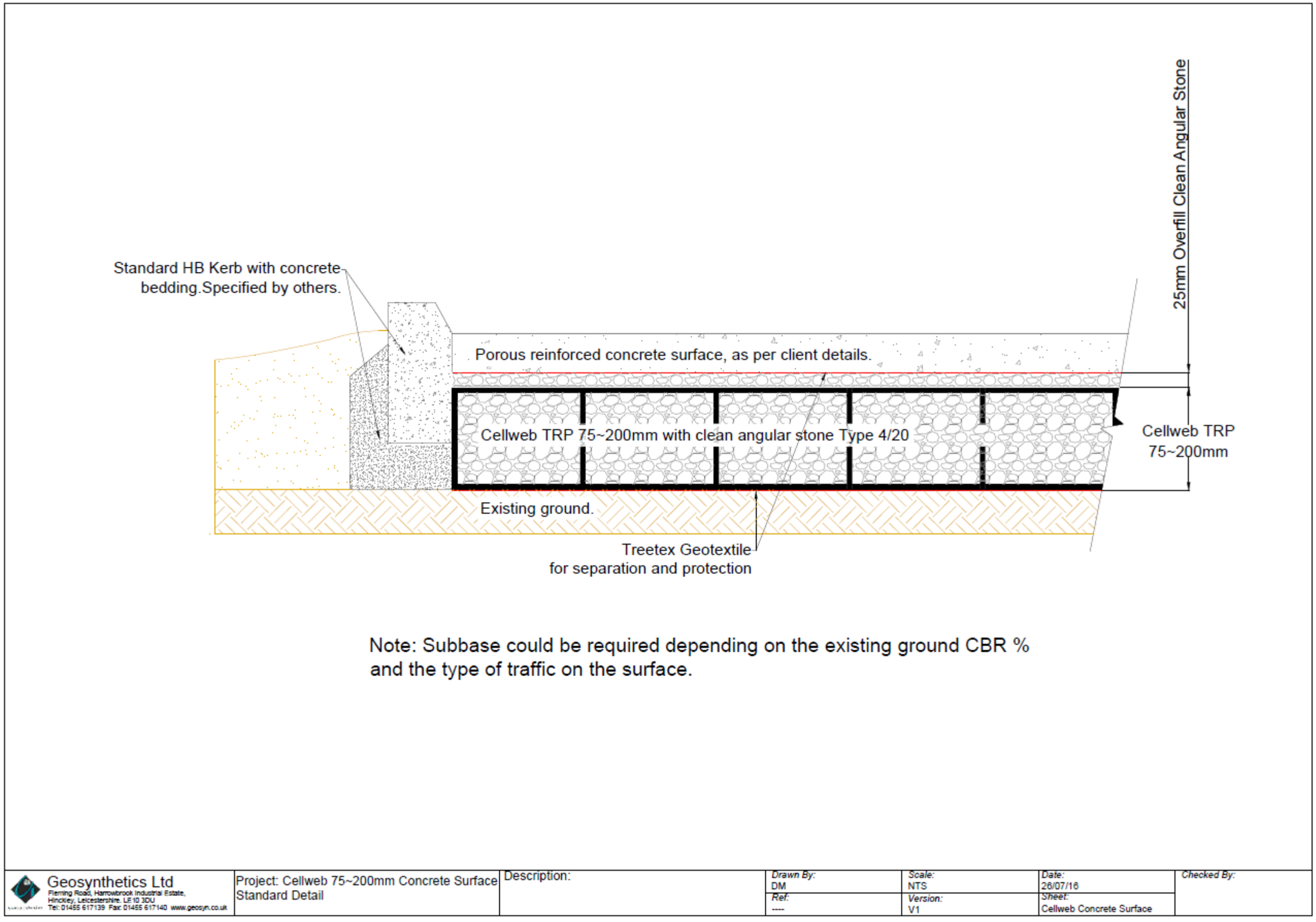


Figure 3. Load bearing cellular confinement system (Cellwebb) with porous concrete surface (Geosynthetics, 2016)



Appendix 6: Signage


PROTECTIVE FENCING. THIS FENCING MUST BE MAINTAINED IN ACCORDANCE WITH THE APPROVED PLANS AND DRAWINGS FOR THIS DEVELOPMENT.


TREE PROTECTION AREA
KEEP OUT !
(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION
ANY INCURSION INTO THE PROTECTED AREA MUST BE WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY

Appendix 7: Glossary of Terms

Glossary of Terms

Term	Explanation
Arboricultural Impact Assessment (AIA)	Evaluation of direct and indirect effects of a proposed design and/or construction.
Arboricultural Method Statement (AMS)	Methodology for the implementation of any aspect of development that is in the root protection area or has the potential to result in the loss of or damage to a tree to be retained.
Branch structure	Qualitative description of formation of main framework of limbs and branches.
Canopy face	Orientation of canopy relative to cardinal points of the compass
Canopy radius	A measurement taken from the centre of a tree to the furthest radial extension of tree canopy relative to the cardinal points of the compass.
Competent Person	Person who has training and experience relevant to the matter being addressed and an understanding of the requirements of the particular task being approached.
Conservation Area	Local Planning Authority special designation generally prohibiting tree works without 6 weeks prior written notification.
Construction Exclusion Zone (CEZ)	Area based upon the calculated root protection area prohibiting access.
Cavity	Open and exposed aperture where wood tissue has internally degraded.
Constraints check	Formal search of local authority records to determine legal and statutory constraints on tree works.
Crown lifting	Removal of lower branches to achieve a stated vertical clearance above ground level or other surface.
Crown reduction	Pruning of a trees canopy in both height and width.
Decay	Deterioration and breakdown of tree wood fibres resulting in structural and/or physiological dysfunction of a tree.
Dieback	Continual decline and death of wood tissue including twigs and branches.
Epicormic growth	Growth that emerges from dormant buds along the trunk and branches of a tree.
Failure	Description of structural failure or wood fibres including fracture of branches, limbs and main stems.
Fork	Area or point of union between one or more limbs or branches.

Glossary of Terms

Term	Explanation
Hazard Risk Assessment	Qualitative and quantitative appraisal of the potential for tree failure and the possible risk of harm or damage to persons or property.
Local Planning Authority	Body responsible for the administration of Statutory duties relating to Development Management.
Multi-stem	A single tree formed from 2 or more codominant main stems
Occlusion	Wood development enclosing an extant wound or pruning cut.
Pruning	The targeted removal of branches or limbs using saws or other tools.
Physiological Condition	Observation relating to a trees physiology for example vigour, leaf area, growth rate, the presence of pests or disease.
Root Protection Area	Root Protection Area (RPA). Indicative area around a tree deemed to contain sufficient rooting volume to maintain the viability of a tree.
Shelter belt	A wind break normally made up of one or more trees planted in such a way to provide cover from the wind.
Structural Condition	Observation relating to a trees structural integrity and the presence of any physical defects.
Suppressed	Where a trees development has been influenced or effected by the presence of competing vegetation.
Tree Constraints Plan	A scaled plan indicating above and below ground constraints relating to the protection of trees
Tree Preservation Order	A legal order made by the local planning authority protecting specific trees in the interests of amenity.
Visual Tree Assessment (VTA)	A method of assessment based upon the research developed to recognise dynamic responses of a tree to its surroundings.
'V' Shaped Branch Union	The union point between two branches that have grown at a tight angle, forming the 'V' shape. This structure is inherently weaker than the 'U' shaped union.
'U' Shaped Branch Union	The union point between two branches that have grown at a wider angle, forming the 'U' shape. This structure is considered to be the strongest and most optimised shape that a union can form.

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CREATING SUSTAINABLE FUTURES

London
3rd floor
The Clove Building
4 Maguire Street
London
SE1 2NQ

+44 (0)20 7394 3700
enquiries@templegroup.co.uk
templegroup.co.uk

Haywards Heath Lewes Lichfield Manchester Norwich Wakefield