



Services Ltd

**Arboricultural Report
(BS: 5837 2012)**

For Proposed Development at

**Flat 39
20 Blythwood Park
Blyth Road
Bromley
Kent
BR1 3TN**

CLIENT:	Mr R Pooke
TREELINE REF:	26820
CONSULTANT:	Joseph Blackwell ND. Arb
REPORT DATE:	April 2015

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1.0 Introduction

1.1 The following Arboricultural Report has been commissioned by Mr R Pooke to inform a planning application for development of the identified area of the site.

1.2 The issues to be addressed in this report include the following

- The condition and amenity value of the trees within the site.
- The impact of the proposed development on the tree resource.

1.3 This report relates to the following layout drawing:

Drawing No.	Drawing Name	Date
2444-15-PL001	Proposed New Access & Parking	March 2015

1.4 The proposed development is for the construction of a new vehicle access off Bracken Hill Lane into the identified site with access ramp, parking for two vehicles and turning area.

2.0 Site & Tree Description

2.1 The designated site is near to the A21, a main route into London and located less than half a mile north west of Bromley.

2.2 At present there is no vehicular access to the site and the site is only accessible via a pedestrian gated entrance off Bracken Hill Lane.

2.3 To the north, east and south the site is bordered by residential properties some of which are multi storey. To the west the site is bordered by Bracken Hill Lane, with further residential properties beyond.

2.4 The tree resource within the identified red line site overall was considered to have moderate to high amenity / landscape value. Views into the site and of the surveyed trees however are generally limited to those residents living in the immediate vicinity. Bracken Hill Lane is only accessible via Highland Road and leads to a 'dead-end', therefore views into the site by the general public are considered low.

2.5 The tree species within the identified red line site comprised native and non-native / or cultivated broadleaved species. No coniferous species were recorded within the remit of the survey. Most notable was T1 a mature Lime located close to the western boundary of the site, the tree is well formed and the most visible to the site and surroundings.

2.6 Further mature trees of significant value were also recorded at the site most of which are located to the northern extent.

- 2.7 None of the trees surveyed were considered worthy of 'A' category status in relation to retention, the highest category that can be awarded in respect of BS: 5837 2012.
- 2.8 Six of the surveyed trees were awarded 'B' category status, including T1 Lime, whereby retention is ultimately desirable. The remainder were awarded 'C' category status and should be retained where possible.
- 2.9 No trees were awarded 'U' category status which relates generally to trees unsuitable for retention or with significant structural / biological defects that render them a current / future risk health and safety risk.
- 2.10 The site and land adjacent is not within a Conservation Area. It has been determined however that some trees within and / or adjacent to the site are currently subject to TPO (Tree Preservation Order) status.

3.0 Arboricultural Considerations

- 3.1 The design and layout of the proposals has taken the Arboricultural constraints into account and the proposed entrance, access ramp and parking have been located in an area of the site beyond the extent of root protection areas (RPA's) for the majority of mature high amenity trees.
- 3.2 No tree removals are proposed or required to facilitate the development in its entirety.
- 3.3 The proposed development provides some opportunity to improve the age and species diversity, quality, amenity and bio-diversity value of the tree resource within the site.
- 3.4 Any potential impact to the retained tree stock will be limited to the construction / installation of the proposed retaining walls and hardstanding in proximity to trees T6, T9, T10, T11, T12 and T13.
- 3.5 We have no detail as to the exact dimensions or construction required to install the proposed retaining walls but would assume it will follow typical / traditional construction methods. Given that these works are proposed to take place just outside the RPA's the risk to the retained trees will likely be minimal.
- 3.6 Roots encountered if at all are likely to be fibrous so any excavation required if undertaken carefully, combing soil away from the RPA's will cause minimal disturbance. Any pulled back soil should be reused where possible as back fill behind these retaining structures.
- 3.7 The identified access ramp and its camber is outside of the RPA's of the retained trees so no specialised excavation / construction is required in this area.

- 3.8 The proposed parking and turning area falls slightly within the RPA's of a small number of the retained trees, and although not ideal these intrusions are considered minimal if specialised construction techniques are employed.
- 3.9 To reduce the impact of the proposed hardstanding in this area, we recommend that the area be constructed using No-Dig specification to minimise the impact on the retained trees root systems and to allow for the future growth of roots (Please see Appendix 4 for specification).
- 3.10 The tree resource within the site consists of a number of mature trees subject to protection under Tree Preservation Order (TPO). None of these trees require pre-construction / facilitation works and all will be retained with their protection along with all retained trees being paramount.
- 3.12 During construction works storage space at the site will be very limited however provided the site is organized correctly with respect to logistics and material delivery there will be little risk posed to trees. Some materials may require off site storage and batched delivery. Any stored materials or parking should be a minimum of 1m away from the RPA's.
- 3.13 We do not have any detail pertaining to proposed landscaping or planting at the site and given the existing trees / vegetation and site aspect we see no identified need. Our client has however suggested he may undertake future planting to the western boundary to improve screening.
- 3.14 The tree protection measures can be secured by use of a standard planning condition. In the following section of this report we have provided a summary of the tree protection measures necessary to protect retained trees.

4.0 Summary of Tree Protection Measures

4.1 Arboricultural Site Inspection & Monitoring Schedule.

4.2 In order to ensure that the principals of tree protection set out in this report are adhered to, it is important to set out communication details for key individuals and tasks that require supervision. These details will be retained by all relevant parties and made available on site at all times with the Arboricultural Supervisors contacts details on display in the site office. Relevant parties will be advised of any changes in personnel or contractor during the development process.

4.3 To ensure that the construction process is undertaken with minimal disturbance to the retained tree stock, the appointed Arboricultural consultant will undertake a small number of site inspections during the following stages of the development:

- Erection of Tree Protection Barriers
- Installation of Retaining Features & No-Dig Hardstanding
- Dismantling of Tree Protection Barriers
- Practical completion

4.4 These inspections will serve to identify any damage to the Tree Protection Fencing, poor working practices, potential problems and points of conflict between the construction process and the health of the trees.

4.5 During these visits any changes to the proposed works will be discussed, their impact assessed and recommendations for best practice will be outlined. The remedial action undertaken will be recorded on the next visit.

4.6 To prevent the proposals impacting on the health, stability or longevity of the retained trees the main requirement is the installation of suitable tree protection, to protect the above and below ground part of the trees, and serve to prevent compaction of the open ground within the Root Protection Area.

4.7 The Tree Protection Fencing will be installed as per the Tree Protection Plan a copy is included in Appendix 2 of this report. The tree protection plan will be agreed with the Local Authority Tree Officer.

4.8 Prior to commencing any enabling or ground works, the tree protection measures will be inspected by the appointed consultant as detailed.

- 4.9 Within the fenced off Tree Protection Area;
- No excavation by any means
 - No level changes + or -
 - No storage of plant or materials
 - No storage or handling of any chemical including cement washings
 - No Pedestrian, Machinery or Vehicular Access
 - Underground service routes will be located outside the Fenced off area
 - No fires within 15m of any retained trees
- 4.10 Clear notices are to be fixed to the outside of the fencing with words such as 'TREE PROTECTION AREA – NO ACCESS OR WORKING WITHIN THIS AREA'.
- 4.11 The site agent, all contractors and other relevant personnel are to be informed of the role of the Tree Protection Fencing and their importance. A copy of the Tree Protection Plan will be displayed on site at all times during construction.
- 4.12 Prior to any works commencing on site the Tree Protection Fencing will be erected. During all works only the main site access will be in use. Any plant or vehicles engaged in the works will operate outside the fenced off Tree Protection Areas.
- 4.16 The location of storage areas needs to be confirmed but this will be located outside the Root Protection Area (RPA).
- 4.19 Dismantling the protection barriers will be required to allow completion of final landscaping. Supervision of this exercise will be administered by the appointed Arboricultural Supervisor.
- 4.20 The removal of the Tree Protection Fencing is not an opportunity for machinery to access the previously fenced off area. No further excavation will be carried out during this process and soils levels will not be raised above that existing and not at all within 2m of the trunk.

5.0 Conclusion

- 5.1 No tree removals are proposed or required to facilitate the proposed development.
- 5.2 Specialised techniques can be employed to minimise any below ground impact imposed by development.
- 5.3 We are of the opinion that provided the site works are undertaken following our guidelines and advice, the development can be constructed without adversely impacting on the root systems, overall health and long-term future of the retained trees.
- 5.4 The proposed development has been carefully designed as not to prejudice the surrounding tree resource.
- 5.5 The protection of retained trees on this site during the proposed development works can be achieved by continuing to follow the guidance outlined in this report, the recommendations in BS5837:2012 and by use of standard planning conditions.

Joseph Blackwell
Treeline Services Ltd
19th April 2015

Appendix 1
Tree Condition Survey
Tree Constraint Plan



Services Ltd

**Pre-Development Tree Condition Survey
(BS: 5837 2012)**

For

**Flat 39, 20 Blythwood Park
Blyth Road
Bromley
Kent
BR1 3TN**

CLIENT:	Mr R Pooke
TREELINE REF:	26403
CONSULTANT:	Joseph Blackwell ND. Arb
REPORT DATE:	January 2015

1.0 Introduction

- 1.1 We are instructed by Mr Robert Pooke to undertake a pre-development tree assessment at 39 Blythwood Park in accordance with BS 5837:2012 'Trees in relation to design, demolition and construction- Recommendations'.
- 1.2 We attended site in January 2015 for the purpose of undertaking the pre-development tree assessment, further attached within this document is the individual tree assessment.
- 1.3 We have been provided with a survey drawing of the site prepared by Ellis Associates which we have used to compile a tree constraints plan (TCP) the numbers within the pre-development tree assessment correspond to those on this plan.

2.0 Scope & Objectives

- 2.1 The scope of this assessment is limited to an appraisal of the existing trees, tree groups and hedges on site and those directly adjacent.
- 2.2 The brief is to appraise the trees in relation to British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'.
- 2.3 This is not an assessment of 'Tree Risk' or a 'Hazard Evaluation' assessment; therefore use of the assessment as such will invalidate it.
- 2.4 Our assessment has been carried out from ground level only using the Visual Tree Assessment (VTA) method. No detailed inspection of any part of the tree above, or below ground has been undertaken. No assessment of decay or the internal structure of the trees has been undertaken with the use of mechanical and / or computerised apparatus, be it invasive or non-invasive.
- 2.5 Any recommendations or revised recommendations within our assessment are limited to a period of three years due to the ever changing nature of trees and the climatic conditions to which they are exposed. Trees are dynamic structures that can never be guaranteed 100% safe therefore regular inspections should be undertaken with regard to tree risk and tree risk management.

- 2.6 Other than the recommended removal of category 'U' trees, tree works recommendations will be confirmed upon receipt of the proposed site layout, should a tree be deemed as 'imminently dangerous' and require immediate attention this will clearly be identified within the assessment.
- 2.7 Tree dimensions were measured using a combination of a set of 'Sunto' Clinometers and a Richter Diameter tape where possible. All instruments were used in accordance with appropriate user guides.
- 2.8 Treeline Ltd and / or its associates except no responsibility for any legal matters that may arise from this assessment. Furthermore any adjustment, alteration or deletion of its content will make it invalid.

3.0 Site Description

- 3.1 The site comprises land situated to the rear of 20 Blythwood Park and is occupied by an existing two storey property of typical brick and tile construction estimated to have been built circa 1980.
- 3.2 The site was found to be rectangular in shape and generally level immediately around the property. Away from the property and toward the southern extent the land was found to be un-level. The land also sloped gently toward the southern boundary and a level difference of approximately 1m was noted between the site and Bracken Hill Lane to the west.
- 3.3 The tree stock was found to be low to high in quality and slightly varied in species, age, and size. The majority of trees surveyed were found to be located on or around the site boundaries with a minority located more central to the site. All of the trees surveyed are within the confines of the site and are under the ownership of Mr Pooke.
- 3.4 Overall the trees were found to be in average health and vigour at the time of inspection. A small number were found to have low vigour, indifferent or poor form, structural defects and decay. The most significant trees surveyed at the site were the larger mature trees nearest the northern extent.

Table 1 – Pre-Development Tree Assessment

Tree No.	Species	Hgt (m)	Dia. @ 1.5m (mm)	No of Stems	CS N (m)	CS E (m)	CS S (m)	CS W (m)	Bra Ht (m)	ERLS (Yrs)	Vig.	Form	Age Class	Description	Recommendations	BS Cat
T1	Lime	16	850	1	6	6.5	5.5	7	3.5	40>	A	G	M	Moderate amenity / landscape value Moderate dead and diseased wood Asymmetric crown area Dense crown area Old pruning wounds to scaffold / stem Branch cavity with decay Twin stemmed tree at 11.5m Epicormic growth on stem Basal growth on buttress roots Tree appears to be causing direct damage to adjacent retaining wall A mature tree of above average merit growing near to the north west corner of the site. The tree has good form, few visible defects, has a long remaining life expectancy and long term potential	No works	B1
T2	Holly	7.5	230	1	2.5	2	2	3	2	40>	A	A	EM	Moderate amenity / landscape value Minor dead and diseased wood Asymmetric crown area Tree leaning at 10 degrees Overgrown basal growth An early mature tree of no particular merit growing near to the north west corner of the site. The tree has average form, provides screening, has a moderate remaining life expectancy and some potential	No works	C1

Tree No.	Species	Hgt (m)	Dia. @ 1.5m (mm)	No of Stems	CS N (m)	CS E (m)	CS S (m)	CS W (m)	Bra Ht (m)	ERLS (Yrs)	Vig.	Form	Age Class	Description	Recommendations	BS Cat
T3	Sycamore	6.5	120	1	2	1	1	3.5	2.5	40>	A	A	SM	Low amenity / landscape value Minor dead and diseased wood Asymmetric crown area Suppressed by adjacent vegetation Twin stemmed tree at 2.5m An early mature tree of no particular merit growing near to the north west corner of the site. The tree has average form, provides screening, has a moderate remaining life expectancy and some potential	No works	C1
T4	Horse Chestnut	13.5	110	1	7	6.5	7.5	6.5	2.5	40>	A	A/P	M	Moderate amenity / landscape value Minor dead and diseased wood Asymmetric crown area Tree reduced in the past Branch cavities wound with decay Branch cavity with decay Twin stemmed tree at 3.5m Twin stemmed tree at 2m included Stem cavity with decay A mature tree of above average merit growing near to the northern boundary of the site and near to the existing property. The tree has indifferent form, but a moderate remaining life expectancy and moderate to long term potential	No works	B1

Tree No.	Species	Hgt (m)	Dia. @ 1.5m (mm)	No of Stems	CS N (m)	CS E (m)	CS S (m)	CS W (m)	Bra Ht (m)	ERLS (Yrs)	Vig.	Form	Age Class	Description	Recommendations	BS Cat
T5	Sweet Chestnut	10.5	910	1	3	5.5	6.5	2.5	4.5	30-40	A/L	A/P	M	Moderate amenity / landscape value Minor dead and diseased wood Asymmetric crown area Tree reduced in the past Branch wound with decay Branch stubs around crown Twin stemmed tree at 5m Stem cavity with decay 2 x Stem wounds with decay Epicormic growth on stem Basal growth on buttress roots A mature tree of average merit growing near to the northern boundary of the site and near to the existing property. The tree has been significantly cut back from the property leaving it asymmetric and has suffered wounding to its stem. The tree has indifferent form some remaining life expectancy and some potential	No works	B3
T6	Oak	10	560	1	5	7.5	2	5.5	3.5	40>	A	A/P	EM	Moderate amenity / landscape value Minor dead and diseased wood Asymmetric crown area Suppressed by adjacent vegetation Branch wound with decay Tree leaning at 15 degrees 2 x Bark wound with decay An early mature tree of average merit growing almost central to the site and near to the existing property. The tree has indifferent form, appears to have been suppressed in the past, but a moderate remaining life expectancy and moderate to long term potential	No works	B3

Tree No.	Species	Hgt (m)	Dia. @ 1.5m (mm)	No of Stems	CS N (m)	CS E (m)	CS S (m)	CS W (m)	Bra Ht (m)	ERLS (Yrs)	Vig.	Form	Age Class	Description	Recommendations	BS Cat
T7	Acacia	10	350	1	3	5	4	2.5	3	40>	A	G	EM	Low amenity / landscape value Moderate dead and diseased wood Asymmetric crown area Old pruning wounds to scaffold / stem Twin stemmed tree at 5.5m An early mature tree of no particular merit growing near to the eastern boundary of the site and near to the existing property. The tree has good form, provides some screening, has a moderate remaining life expectancy and moderate potential	No works	C1
T8	Sycamore	7.5	220	1	3	4.5	4	3.5	2.5	40>	A	G	SM	Low amenity / landscape value Minor dead and diseased wood Asymmetric crown area Old pruning wounds to scaffold / stem Twin stemmed tree at 2.5m A semi mature tree of no particular merit growing near to the south east corner of the site. The tree has good form, provides some screening, has a moderate remaining life expectancy and moderate potential	No works	C1
T9	Hazel	5	500*	MS	3	3	1	1	1.5	40>	A	A/P	EM	Low amenity / landscape value Minor dead and diseased wood Asymmetric crown area Dense crown area Multi stemmed tree at ground level included Epicormic growth on stem Basal growth on buttress roots Full visual tree assessment (VTA) not possible due to tree location, dense vegetation, ivy or a combination of these factors An early mature tree of no particular merit growing near to the south east corner of the site. The tree has indifferent form, provides some screening, has a moderate remaining life expectancy and some potential	No works	C1

Tree No.	Species	Hgt (m)	Dia. @ 1.5m (mm)	No of Stems	CS N (m)	CS E (m)	CS S (m)	CS W (m)	Bra Ht (m)	ERLS (Yrs)	Vig.	Form	Age Class	Description	Recommendations	BS Cat
T10	Holly	7.5	450*	2	3.5	7.5	1.5	0.5	3	20-30	A	P	EM	Low amenity / landscape value Minor dead and diseased wood Asymmetric crown area Dense crown area Tree leaning at 45 degrees Tree appears to have subsided in past Epicormic growth on stem Basal growth on buttress roots An early mature tree of limited merit growing along the southern boundary of the site. The tree has poor form, provides some screening, has some remaining life expectancy and some potential	No works	C2
T11	Holly	7.5	390	2	3	5.5	3	2.5	3	30-40	A	A/P	EM	Low amenity / landscape value Minor dead and diseased wood Tree appears to have subsided in past Asymmetric crown area Dense crown area Tree leaning at 45 degrees Epicormic growth on stem Basal growth on buttress roots An early mature tree of limited merit growing along the southern boundary of the site. The tree has indifferent form, provides some screening, has some remaining life expectancy and some potential	No works	C2

Tree No.	Species	Hgt (m)	Dia. @ 1.5m (mm)	No of Stems	CS N (m)	CS E (m)	CS S (m)	CS W (m)	Bra Ht (m)	ERLS (Yrs)	Vig.	Form	Age Class	Description	Recommendations	BS Cat
T12	Sycamore	9	500	1	3.5	5	6	4	5	20-30	L	A/P	M	<p>Moderate amenity / landscape value Minor dead and diseased wood Tree appears in decline Sparse crown extremities / short shoots Old pruning wounds to scaffold / stem Branch stubs around crown Stem cavity with decay Twin stemmed tree at 1m Dead ivy on scaffold / stem Full visual tree assessment (VTA) not possible due to tree location, dense vegetation, ivy or a combination of these factors</p> <p>A mature tree of average merit growing almost centrally along the southern boundary. The tree has average form, but appears in decline suggesting only some remaining life expectancy and limited long term potential</p>	No works	B3
T13	Horse Chestnut	12	750	1	6	7	6	6.5	3.5	30-40	A	A	M	<p>Moderate amenity / landscape value Minor dead and diseased wood Asymmetric crown area 2 x Stem cavity with decay Twin stemmed tree at 2m Epicormic growth on stem Basal growth on buttress roots Full visual tree assessment (VTA) not possible due to tree location, dense vegetation, ivy or a combination of these factors</p> <p>A mature tree of above average merit growing in the south west corner of the site. The tree has average form but moderate decay in both stems suggesting only some remaining life expectancy and limited long term potential</p>	No works	B2

Tree No.	Species	Hgt (m)	Dia. @ 1.5m (mm)	No of Stems	CS N (m)	CS E (m)	CS S (m)	CS W (m)	Bra Ht (m)	ERLS (Yrs)	Vig.	Form	Age Class	Description	Recommendations	BS Cat
TG1	Mixed Species Group	7.5	160	4	3	3	3	3	2	<10 & 40>	A	A	SM	Low amenity / landscape value Minor dead and diseased wood Asymmetric crown area Epicormic growth on stem Basal growth on buttress roots No signs of 'Dutch Elm Disease' (DED) Species include: Sycamore x 1 & Elm x 3 A mixed species semi mature group of limited merit growing near to the south east corner of the site. The trees have average form, the Sycamore has a moderate remaining life expectancy and some potential, but the 3 x Elms have only some remaining life expectancy with limited potential	No works	C2/C3
TG2	Elm x 2	6	150	1	2	2	2	2	3	10-20	A	A/P	SM	Low amenity / landscape value Minor dead and diseased wood Asymmetric crown area Old pruning wounds to scaffold / stem No signs of 'Dutch Elm Disease' (DED) A semi mature group of limited merit growing near to the southern boundary of the site. The trees have indifferent form, some remaining life expectancy but limited long term potential	No works	C3

Table 1 Cascade chart for tree quality assessment

BS 5837 (2012) 'Trees in relation to design, demolition and construction – Recommendations'.

Trees unsuitable for retention (See Note)				
Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	<ul style="list-style-type: none"> 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 category U trees (e.g. 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, and irreversible overall decline Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality <p>NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.</p>			Red
Trees to be considered for retention				
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands See Table 2 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 category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing 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 value	Blue
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*	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 collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	Grey

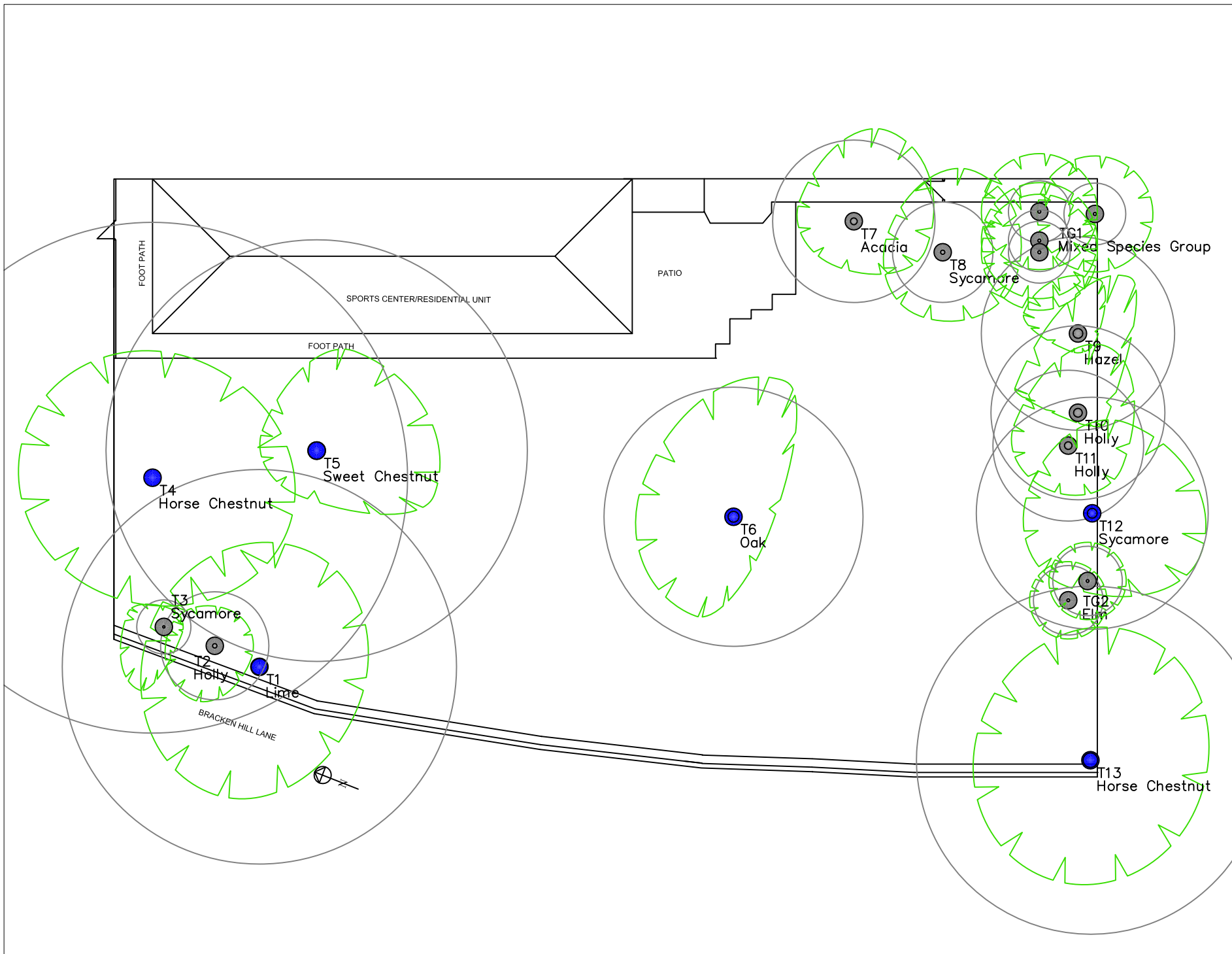
Table 2 - Pre-Development Tree Assessment KEY

No.	Individual tree number attached to each (T) tree, (H) hedge, (TG) group or (W) woodland.	
Species:	Common Name	
Hgt (m)	Height of tree (measured in metres)	
Dia (m)	Diameter of stem/trunk measured at 1.5 metres above ground level (or immediately above the root flare for multi-stemmed trees). Where stem diameters have to be estimated a (*) will follow the numerical figure. (E.g. 450mm*)	
No. of stems	Number of Stems (1 / 2 / MS = Multi Stemmed)	
Crown Spread	Maximum branch extent measured to North (N) / East (E) / South (S) / West (W)	
ERLS:	Estimated Remaining Life Span (Years)	
Vigour	G	Good
	A	Fair
	L	Low
	D	Dead
Form	G	Good
	A	Fair
	P	Poor
	D	Dead
Age Class	Y	Young
	SM	Semi-mature
	EM	Early mature
	M	Mature
	OM	Over Mature
	V	Veteran
BS Category	See Table 1 Cascade chart for tree quality assessment From BS 5837 (2012) Trees in relation to design, demolition and construction – Recommendations	

Table 3 – Root Protection Areas

Tree No.	Common Name	Radius (m)	Area (m²)
T1	Lime	10.2	326.9
T2	Holly	2.8	24.6
T3	Sycamore	1.4	6.2
T4	Horse Chestnut	13.2	547.4
T5	Sweet Chestnut	10.9	373.3
T6	Oak	6.7	141
T7	Acacia	4.2	55.4
T8	Sycamore	2.6	21.2
T9	Hazel	5	78.5
T10	Holly	4.5	63.6
T11	Holly	3.9	47.8
T12	Sycamore	6	113.1
T13	Horse Chestnut	9	254.5
TG1	Mixed Species Group	1.6	8
TG2	Elm x 2	1.8	10.2

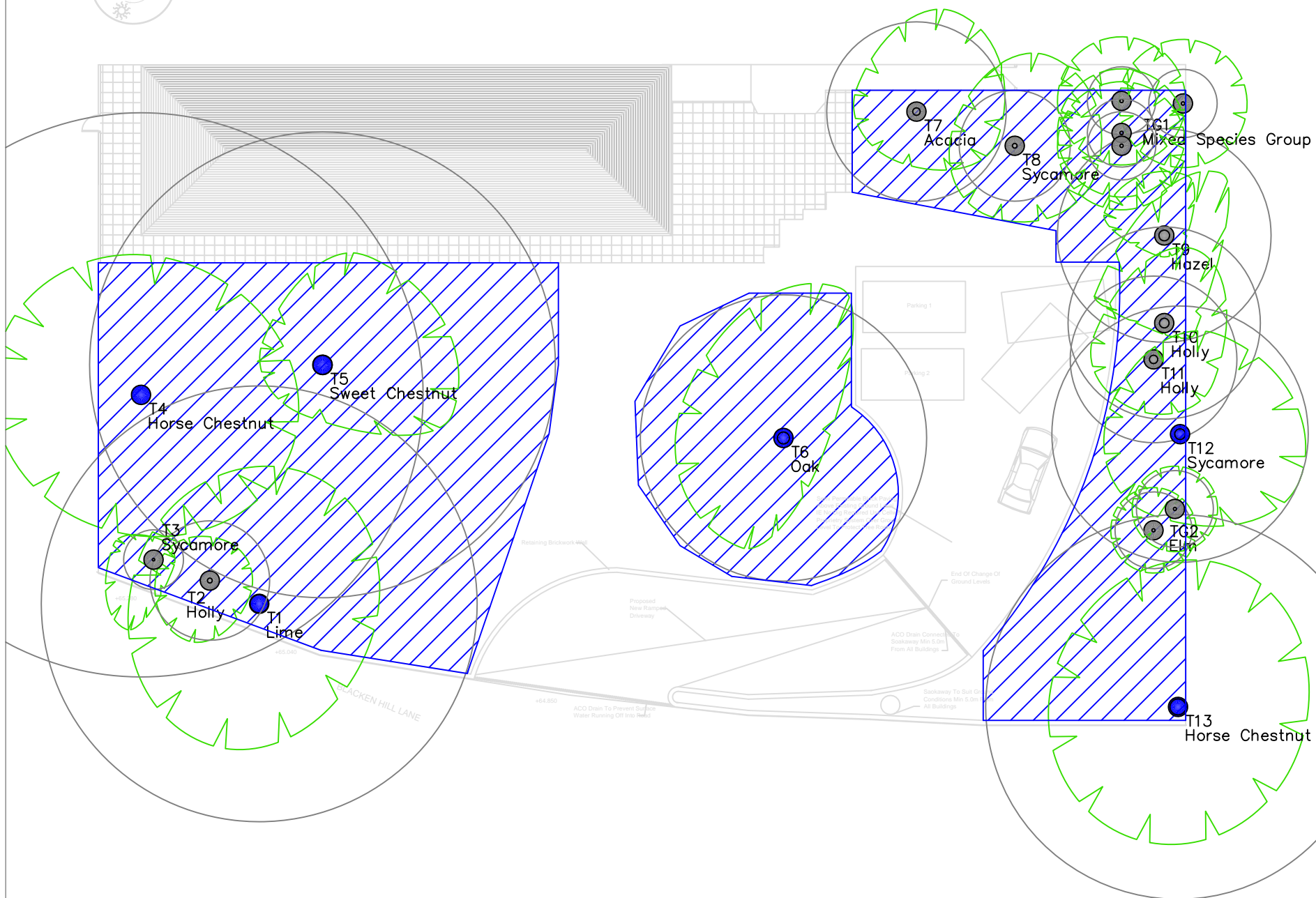
Tree Constraint Plan (TCP)



Tree Survey Key 	
RPS RPS2 Category (See Tree Survey for further details)	
Category A1: Red Stem Tree Those 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.	
Category A2: Green Stem Tree Those of high quality and value - in such a condition as to be able to make a substantial contribution (a minimum of 40 years is suggested).	
Category B1: Blue Stem Tree Those of moderate quality and value - those in such a condition as to make a significant contribution (a minimum of 20 years is suggested).	
Category C: Grey Stem Tree Those of low quality and value - currently in adequate condition to remain until new planting could be established (a minimum of 10 years is suggested), or young trees with a stem diameter below 100 mm.	
39 Blythwood Park, Blyth Road, Bromley, Kent, BR1 3TN	
Tree Constraint Plan (TCP)	
Treeline Services Ltd 	
01300 741 800 info@treeline.co.uk www.treeline.co.uk	
Scale: NTS @ A0 Date: 23/01/2015 Project No: 26403 Dwg. No: TCP 1	Drawn by: JB Checked by: JJ

Appendix 2

Tree Protection Plan



Tree Protection Plan Key

- Tree to be removed
- Tree to be retained
- Tree Protection Zone
- No-Dig Handovering to be installed as per Arboricultural Method Statement.

Royal Russell School
Coombe Lane, Croydon
Surrey, CR9 5BX

Tree Protection Plan For Royal Russell School

Treeline Services Ltd
01203 741 800
info@treeline.co.uk
www.treeline.co.uk

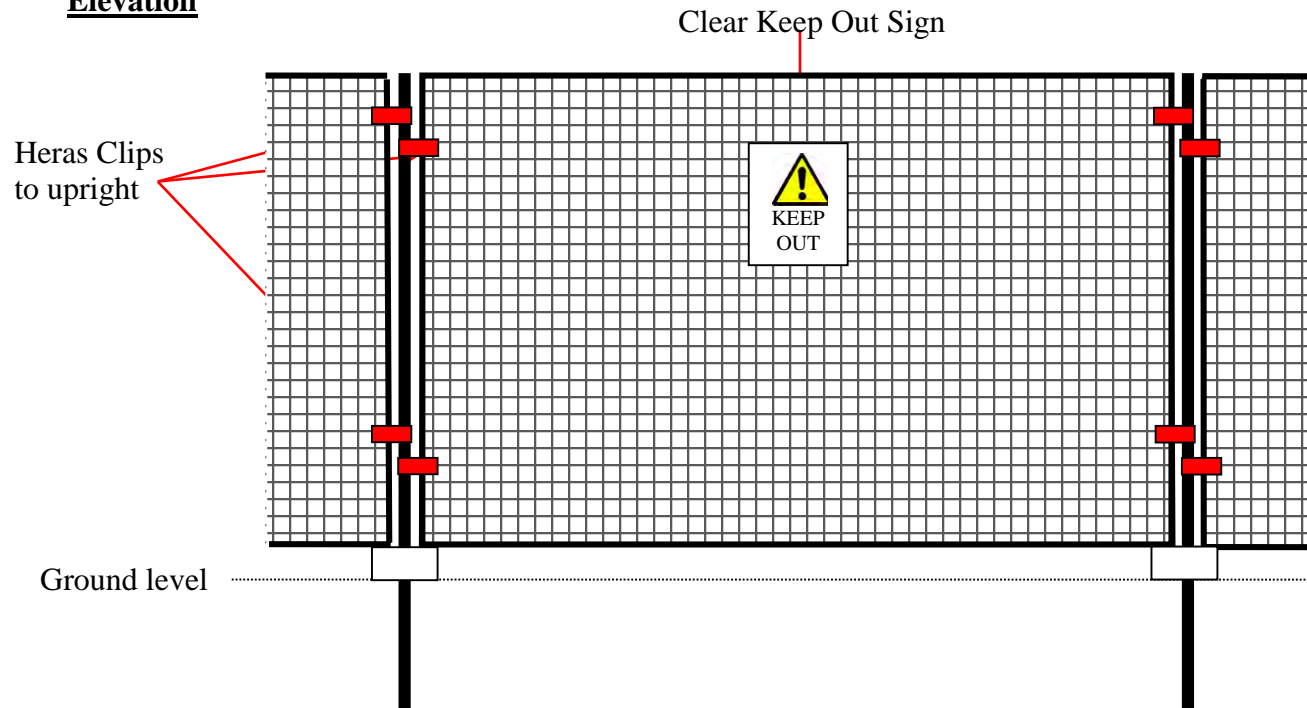
Scale: NTS@A1
Date: 19/04/2015
Project No: 26820
Draw. No: TPP01

Drawn by: JB
Checked by: JJ

Appendix 3
Tree Protection Fencing Specification
Tree Protection Fencing Notice

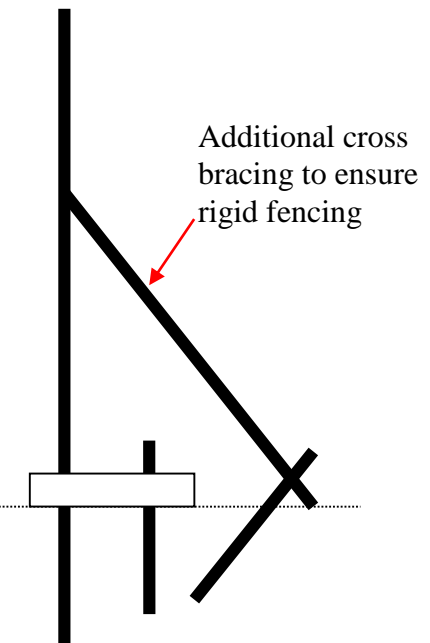
Tree Protection Fencing Specification

Elevation



Tree Protection Fencing should be erected as per the Tree Protection Plan prior to any works commencing or materials being delivered to site.

Section



If concrete or rubber feet are used these must be pinned to the ground to prevent movement.

TREE PROTECTION AREA



PLEASE KEEP OUT

The trees in this fence-off area are protected by a Statutory Protection and or Planning Conditions. Any works in this fenced off area may result in damage to the above ground parts or root system of these trees. Damage to these trees may lead to a criminal prosecution.

Any works in this area must be undertaken as per the Arboricultural Method Statement or with permission from the Local Planning Authority Tree Officer.

Appendix 4

No-Dig Specification ('Cellweb')

Method Statement for the
Installation of Hard-Standing in Proximity to Trees

The risk of damage to retained trees on construction sites is numerous and successful projects require pre-planning arboricultural input and site supervision throughout the construction process.

Many factors must be considered on development sites where trees are present, Treeline Services Ltd can assist with all planning applications and construction projects that involve trees and provide a, cost effective consultancy service and a contracting service to ensure that the recommendations are followed on site.

When considering construction of hard standing in close proximity to trees, the risk of damage to the long-term health of the trees is an important issue that requires site specific arboricultural input. The recommendations are dependent on a number of factors including the past use of the site, the soil type, the proposed development, the age, size health, past management and species of the trees

The following document gives general guidance on the construction of hard-standing using the 'Cellweb' Cellular Confinement System which is supplied by Geosynthetics Limited. Please note other techniques and materials are available and we can advise on the most appropriate solution for each site.

The risk of damage to trees during construction of hard standing may result from:

- Physical damage to roots and trees
- Changing ground levels
- Compaction of subsoil
- Creating an impermeable surface, preventing the infiltration of water and gaseous exchange associated with healthy root growth
- Contamination of subsoil
- Location of service trenches

1. Compaction

When looking at site conditions and use, the following information should be considered to enable a load bearing structure capable of supporting traffic to be proposed:

- Californian Bearing ratio (CBR) – Standard test method for measuring soil strength
- Soil types
- Water table
- Maximum load (vehicles)
- Acceptable rut depth
- Reinforcement type Cellweb Cellular Confinement
- Type and Depth of engineered Clean, angular. Usually 20mm to 40mm.
infill material

2. Dig (site strip)

Site stripping does damage some root structure prior to construction; however, the use of no-dig construction elevates the access road requiring edge protection.

3. No dig

3.1. Remove surface vegetation

Use a suitable herbicide suitable for the specific vegetation and not harmful to the tree root system

3.2. Remove any existing hard standing

Using light machinery located on the hard-standing

3.3. Place geotextile separation filtration layer

Use a Fibretex F4M non woven Geotextile over the prepared sub-grade. Overlap dry joints by 300mm.

3.4. Cellular Confinement System

The three dimensional cell structure, is formed by ultrasonically welding polyethylene (perforated) strips / panels together to create a three dimensional network of interconnecting cells. A high degree of frictional interaction is developed between infill and the cell wall, increasing the stiffness of the system

3.5. Edge restraint

A treated timber edging is usually acceptable.

4. Cellular Confinement and Backfill Material.



Expand the 50mm minimum Cellweb base layer. Pin the Cellweb panels with staking pins to anchor open the cells and staple adjacent panels together to create a continuous mattress. Infill the Cellweb with a no fines angular granular fill (typically 20-40mm) within each open cell. The use of cellular confinement reduces the bearing pressure on the subsoil by stabilising aggregate surfaces against rutting under wheel loads. Comparisons between cellular confinement and traditional aggregate and geogrid-reinforced structures demonstrate a 50% reduction in construction thickness of the granular material.

5. Surfacing Options

Block Paving:

- 5.1. Lay second layer of Fibretex F4M Geotextile separation fabric over the infilled Cellweb sections
- 5.2. Lay sharp sand bedding layer compacted with a vibro compaction plate to recommended depth.
- 5.3. Place block paviors as per manufacturers instructions.

Tarmac: Place 25mm surcharge of the granular material above the Cellweb system and lay the bitumen base and wearing courses.

Loose Gravel:

5.4. Place second layer of Fibretex F4M Geotextile separation fabric over the in filled Cellweb sections

5.5. Place decorative aggregate to required depth

NOTE: A treated timber edge should be provided to restrict gravel movement.

