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ARBORICULTURAL TREE SURVEY

& Impact Assessment
BS5837:2012

Client: Kent Design Partnership
Site Address: Dandale Stable, Chequers Road, ME12 3SH.
Dated: 17/09/2019
Version: Planning V01
Tree surveyor: P Pritchard
Qualifications: Dip Arb, MArbor A
Report author: L Rowbottom
Checked: D Pearson
Approved: 10/10/2019
FellGrove ref: 1796

Contents

Contacts

Name	Company	Position	Telephone Number
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Report Caveats

The trees have been surveyed in accordance with the criteria set in the BS: 5837: Trees in Relation to Design, Demolition and Construction 2012. A full hazard assessment of the trees (including assessment of decay or their defects and their implications) has not been undertaken as this is considered beyond the scope of this report. Any obvious hazards and defects have been identified were relevant in the Tree Survey Schedule and appropriate relating works have been recommended. Where relevant, trees not located within the legal property of the owner have been included and any works would be subject (where relevant by law, Statue and Common) to the owner's permission. Where appropriate further investigative works to be undertaken have been detailed and recommended. This may include climbing inspections, below ground exploratory investigations and the use of specialist decay detection equipment. Detailed ecological considerations are also beyond the scope of this report. UK and European Wildlife Legislation may affect the timing and even prohibit the enhancement of works and operations described in this report. Most of the information regarding wildlife can be found in the Wildlife and Countryside Act 1981 & updated 1994. This includes information of wild birds, bats, badgers and some insects. Bats in particular are afforded particular protection and a specialist is required to determine if bats are present or may be affected when carrying out tree works. Further information is available from Natural England

It is accepted that this document may need to be updated and more detailed information added throughout the planning and development process. However this document will be the main documentation for reference in the event of disputes.

1 Introduction

Fellgrove have been appointed to provide advice on the arboricultural issues relating to the proposed development of: Dandale Stable, Chequers Road, Minster-on-Sea.

We undertook a Tree Condition Survey (see Appendix 3), on 17rd September 2019. This survey assessed the condition of the tree resource, categorised the trees and provided the Root Protection Area (RPA) information according to the BS5837:2012 "Trees in relation to design, demolition and construction – Recommendations".

The tree numbers used in this report refer to the tree numbers used in our Tree Condition Survey.

Following preparation of our Tree Condition Survey we received a copy of the following documents:

- 2472_001.pdf

A detailed TPO check with the Local Planning Authority was carried out prior to the survey and no Tree preservation orders are present on site. The site does not fall within a conservation areas.
Information obtained from a phone conversation with Mid Kent planning support team.

2 Executive Summary

The site is currently an equestrian stables facility.

The trees surveyed consist primarily of mature and early mature species. The trees have a moderate amenity value within the wider tree scape and a low amenity value within the site. All of the trees surveyed are outside of the proposed development area, they have been included in the tree survey as they will have an influence on any future development of the site.

Trees T011 – T15 inclusive are showing signs of possible early failure.

T04, T05, T06 and T07 have been identified as requiring removal to facilitate the proposed site entrance. It is considered that the retention of the remaining trees, combined with future replacement planting is suitable mitigation for the loss, and would provide a net gain in biodiversity and the amenity benefits of the site now and into the distant future.

Summary of Tree removal to facilitate the proposed development can be found below and in appendix 3

Tree No	Species	Required work	Reason
T004	Ash	Removal	
T005	Norway Maple	Removal	
T006	Sycamore	Removal	To facilitate the proposed site access.
T007	Norway Maple	Removal	

Tree Works schedule can be found in appendix 3 (tree survey schedule)

This report seeks to assess the tree stock in accordance with BS5837:2012 "trees in relation to design, demolition and construction – Recommendations". The survey and report will identify those trees most suitable to be retained and those that can be removed and replaced, as part of any future landscaping scheme for the site. This will provide information for the architect / developer to design a layout within the parameters of the development window with the retention of the best trees where possible.

3 Scope of Tree Survey

To carry out a tree condition survey on the trees immediately effected by the proposed development, identifying any hazard trees and making recommendations for those trees to be retained and low amenity value and hazardous trees to be replaced.

To undertake the tree survey in accordance with the principles of BS5837: 2012 'Trees in relation to design, demolition and construction – Recommendations'.

To produce tree protection plan (TPP), showing the location of surveyed trees, their BS5837: 2012 categorisation, the theoretical Root Protection Areas (RPA). A tree protection plan showing the location of protection fencing / Measures.

If the guidelines and principles outlined in this report are not adhered to, as with all development sites there is a risk that the construction activities will result in damage to and potentially the death of the retained trees. Damage to the trees will significantly increase the risk of their health declining and may increase the risk of their complete or partial failure.

4 Terms of Reference

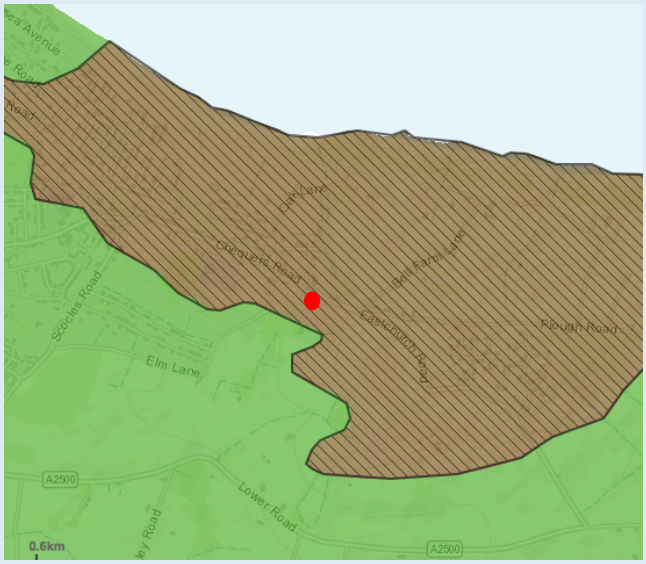
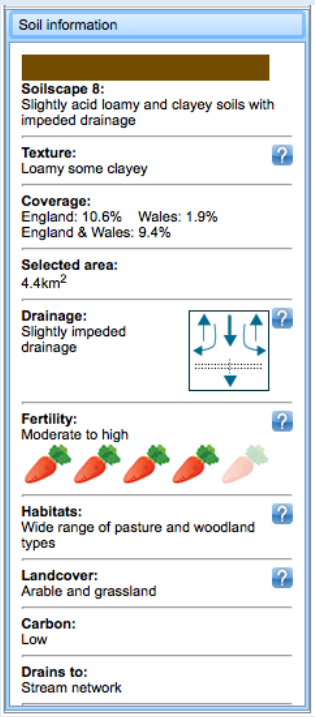
Reference Documents:

- BS5837:2012 'Trees in relation to design, demolition and construction – recommendations'
- BS3998:2010 'Tree work – recommendations'
- NJUG 4 – National Joint Utilities Group "Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees. Volume 4, issue 2. London: NJUG 2007"
- Information from the Chatham Council local plan and website
- BGS Open Source Soil Data http://www.bgs.ac.uk/nercsoilportal/maps.html

5 Description of Site and Proposed Works

The immediate landscape character is within the residential / semi-rural setting of Minster-on-Sea.

The general topography of the land on which the trees are located is slopping from North to South.

Site Location Soilscape 8 (red mark indicates site location)	Site Location Legend
	

LandIS.org.uk Soilcapes has identified the soil as Soilscape 8, which is slightly acid loamy and clayey soils with impeded drainage.
All comments regarding soils should be verified with onsite geotechnical investigations and laboratory testing with foundation depth and design undertaken by a structural engineer in accordance with the requirements of NHBC Chapter 4.2.

6 The Trees

The information gathered during the tree survey is recorded within this report and can be found in Tree Survey (appendix 3) along with any recommendations. The trees surveyed have been broken down into categories set out in BS5837 2012, which are also explained in Cascade Chart for Quality Tree Assessment (appendix 2).
A total number of fifteen trees are subject to this report. The trees surveyed consist primarily of mature and early mature species. The trees have a moderate amenity value within the wider tree scape and a low amenity value within the site. All of the trees surveyed are outside of the proposed development area, they have been included in the tree survey as they will have an influence on any future development of the site

The survey of the trees has been carried out in accordance with the guidance provided in Annexe C of BS5837. In summary this requires that any tree on the site with a stem diameter of over 75mm at 1.5m above ground level is recorded. Stem diameter measurements were taken using Haglof diameter callipers and are recorded to the nearest full unit or in accordance with Annexe D of BS5837. Where access to the base of the tree was not possible for any reason, the diameter has been estimated. Height measurements are estimated and recorded to the nearest full metre. Crown spread dimensions have been paced and are recorded to the nearest full metre for all four cardinal points. The Survey Schedule of trees can be found in Appendix 3. The locations of the trees have been plotted on the attached Tree Location Plan (TLP). The trees have been categorised in an order defined in table 1 of BS5837, a copy of which can be seen in Appendix 1, but which can be summarised as:

A summary of the assessment of the quality of these trees is shown in the table below.

Category A	Category B	Category C	Category U
0	4	11	0

Using the Helliwell system we are able to place an amenity value on trees. Below we are able to demonstrate how replacement trees will mitigate against the above loss and benefit the sites amenity value.

Helliwell: Amenity Valuation of trees and woodlands.

Tree No	Size	Expected duration	Position	Other trees	Relation to setting	Form	Score	Value (£)
T04	1	2	1	1	1	1	8	£175.00
Replacement	1	3	2	1	3	1.5	27	£675.00

To demonstrate how we could mitigate against the loss of a single tree from T04 we have shown 1 replacement tree (Field Maple, 4 meters in height with a diameter of 100mm) on our Helliwell table. The proposed development has a large portion of open and amenity space available for replacement planting. With a robust allocation for tree planting. For every tree removed we anticipate being able to replace with 1 tree of equivalate native species planted in suitable locations using tree pits to ensure future longevity.

7 Arboricutural Impact Assessment

Please see appendix 4 impact assessment plan for details.

8 Recommendations

The preliminary tree works recommendations are included in the tree survey schedule contained within this report (appendix 3). Prior to the construction phase, following current consultation with the site arboriculturalist adequate provision is made for the protection of existing trees on site and the areas to be planted with new trees and shrubs (see appendix 4 tree protection plan and appendix 6 tree protection specifications). By liaison with the council tree officer, formal agreement should be sought regarding the pruning requirements and tree protection methods employed to protect retained trees. Pre-commencement site meetings should be arranged to discuss the recommendations in this and subsequent reports and method statements. Copies of all relevant Arboricutural reports should be available on site. Details of site inspection / supervision visits by the site arboriculturalist are recorded and sent to the council tree officer with copies retained by the site manager. Provisions are made for the replanting of replacement trees; this can be via a landscape plan.

To ensure all recommendations are followed we have been commissioned to produce a site-specific method statement (SSMS) after adequate consultation with the architect and main contractor has taken place we believe the SSMS will be covered under a planning condition. The reason for this is to ensure an accurate working method can be understood and previsions made for all future construction requirements.

The SSMS will include

- Any anti-compaction measures taken
- The specific location of services trenches where possible to avoid excavations within RPAs, or if necessary to be undertaken by hand dig only
- Specific methods for construction of site access routes and new drainage ditches close to or within retained trees RPAs
- Specifications for replacement replanting, locations, recommended species and planting methods.

9 Conclusion

Providing all recommendations set out within this and preceding reports are followed, a pragmatic methodology has been proposed that retains those trees of good amenity value, allowing the approved development to be implemented.

Appendix

Appendix 1 – Key to tree survey sheets

BS 5837 Cat	Description
A	Those of high quality and value: in such a condition as to be able to make a substantial contribution (> 40 years)
B	Those trees of moderate quality and value: those in such a condition as to make a significant contribution (> 20 years)
C	Those trees of low quality and value: currently in adequate condition to remain until new planting could be established (> 10 years)
U	Those in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed regardless of development

Note: Sub categories are denoted in the tree survey data (A1, B1, C2 etc.). You are referred to the BS for further detail if required.

Tree No.	T (tree), G (group), H (hedge), W (woodland) + Ref No.
Species	Common and Botanical Name
Ht (m)	Measured height in metres
DBH (mm)	Diameter at 1.5m above ground level
Branch Spread	In m to all four cardinal points
Cr Ht Clearance (m)	Overall height of lowest branches from the ground level on side of proposed development
Life Stage	Young, Semi-Mature, Early-Mature, Mature, Over-Mature
General Observations	Observations on the condition of the tree(s)
Tree Work Specification	Proposed tree works in accordance with BS3998
BS Cat	See above
Life Exp	Estimated remaining contribution in years.
RPA Radius(m)	Radius of the trees Root Protection Area measured from the trunk to the edge of the RPA circle in metres
RPA (m2)	Overall Root Protection Area in m2
*	Indicates where tree data may have been estimated as tree was offsite / restricted access / dense vegetation hindering full inspection

Appendix 2 – Cascade chart for Quality tree assessment.

TREES FOR REMOVAL		
Category and Definition	**Criteria**	**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	□ 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, and irreversible overall decline. □ Trees infected with pathogens of significance to the health and/or safety of other trees nearby) e.g. Dutch elm disease), or very low quality trees suppressing adjacent trees of better quality.	**DARK RED** RGB code127-000-000

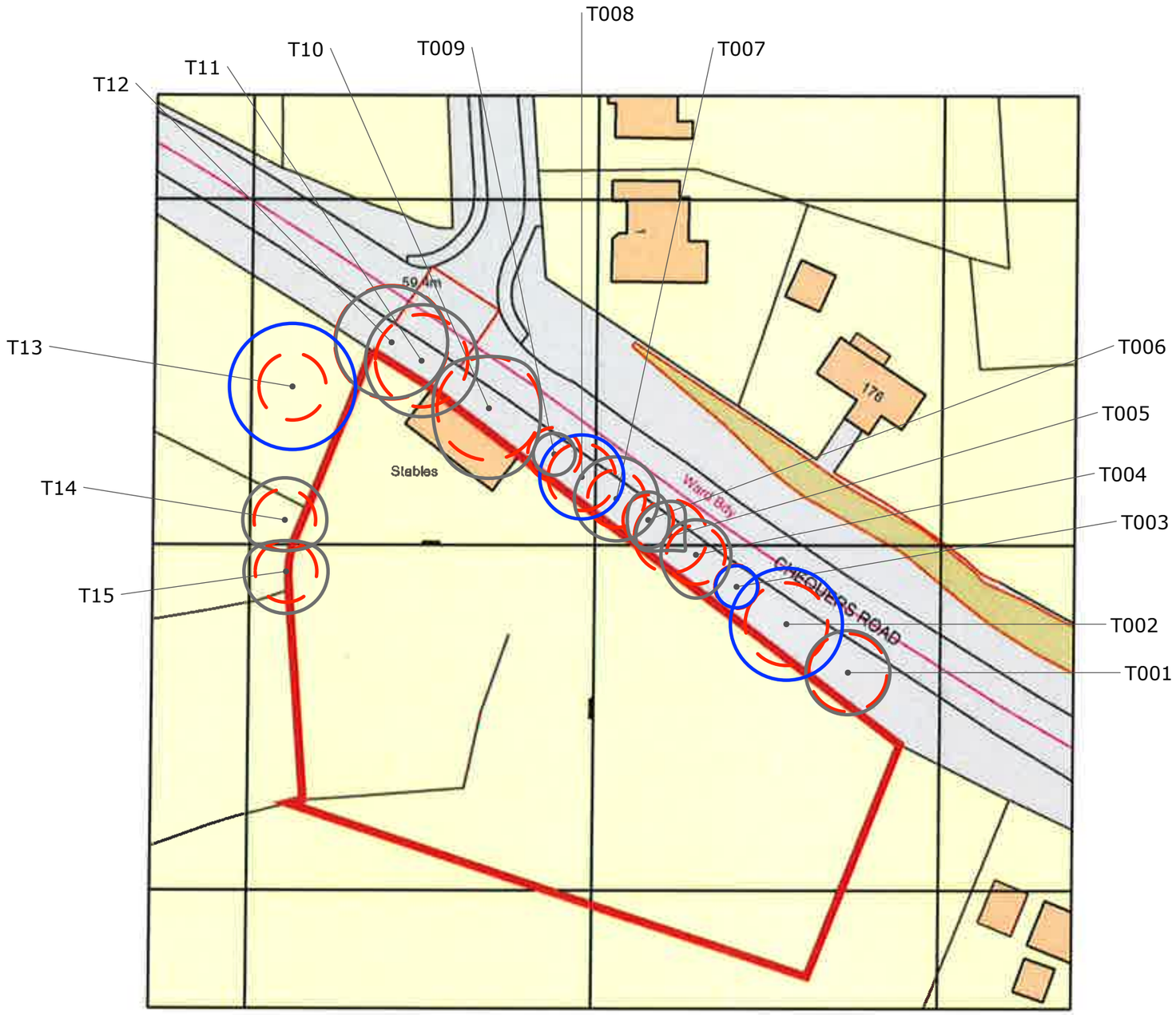
TREES TO BE CONSIDERED FOR RETENTION				
Category and Definition	**Criteria Subcategories**			**Identification on Plan**
	1, Mainly arboricultural values	**2. Mainly landscape values**	**3. Mainly cultural values, including conservation**	
Category A **Trees of high quality**: with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species especially if rare or unusual, or essential components of groups, or of 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 of significant conservation, historical commemorative or other value (e.g. veteran trees or wood-pastures)	**LIGHT GREEN** RGB code 000-255-000
Category B **Those 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	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 area	Trees with clearly identifiable conservation or other cultural benefits	**MID BLUE** RGB code 000-000-255
Category C **Those 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 the 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 screening benefit.	Trees with no material conservation or other cultural value	**GREY** RGB code 091-091-091

Appendix 3 Tree survey schedule

Ref	Species	Full Structure	Height (m)	Stem Diam (mm)	Combined Stem Diam	Life Stage	Rem. Contrib.	Comments	General Observations	Retention Category	Spread	Crown Clearance (m)	Lowest Branch (m)	RPA	Physical Condition	Recommendations
T001	Lime, Broad-Leaved (Tilia platyphyllos)	Tree 3 stems	14	340, 130, 290,	465	Mature	30+ Years	The surfacing and levels in the RPA should not be altered if RPA within influencing distance of redevelopment of the site.	Three stemmed tree located out with site 4m from North Eastern boundary fence. Tree within formally maintained grass verge between site boundary and Chequers Road. Crown overhanging road 3m on Northern side, and 3 phase of LV cables on the South side Ivy previously severed.	C1	N:6 E:6 S:6 W:6	2	3	Radius: 5.6m. Area: 99 sq m.	Fair	Pre construction: No action required. During construction: Protect trees with protective barriers - as shown on plans if proposals within influencing distance of redevelopment of the site.
T002	Ash, Common (Fraxinus excelsior)	Tree	15	490	490	Mature	40+ Years	The surfacing and levels in the RPA should not be altered if RPA within influencing distance of redevelopment of the site.	Tree located out with site 3m from North Eastern boundary fence. Tree within formally maintained grass verge between site boundary and Chequers Road. Crown overhanging road 6m on Northern side, and ABC LV cables on the South side.	B1	N:8 E:8 S:8 W:8	2	3	Radius: 5.9m. Area: 109 sq m.	Good	Pre construction: No action required. During construction: Protect trees with protective barriers - as shown on plans if proposals within influencing distance of redevelopment of the site.
T003	Maple, Norway 'Purple' (Acer platanoides 'Crimson King')	Tree	10	260	260	Early Mature	40+ Years	The surfacing and levels in the RPA should not be altered if RPA within influencing distance of redevelopment of the site.	Tree located out with site 3m from North Eastern boundary fence. Tree within formally maintained grass verge between site boundary and Chequers Road. Crown overhanging road 1m on Northern side, and encroaching onto ABC LV cables on the South side.	B1	N:3 E:3 S:3 W:3	3	3	Radius: 3.1m. Area: 30 sq m.	Good	Pre construction: No action required. During construction: Protect trees with protective barriers - as shown on plans if proposals within influencing distance of redevelopment of the site.
T004	Ash, Common (Fraxinus excelsior)	Tree	15	350	350	Mature	30+ Years	Removve tree to facilitate the proposed site access	Tree located out with site 1m from Northern boundary fence. Tree within scrub verge between site boundary and Chequers Road. Crown overhanging road 2m on Northern side, and significantly encroaching onto ABC LV cables on the South side. Branches overhanging site boundary 5m on South side. Low branches over site. Ivy previously severed.	C1	N:5 E:5 S:5 W:6	2	2	Radius: 4.2m. Area: 55 sq m.	Fair	Remove to facilitate the proposed site access
T005	Maple, Norway 'Purple' (Acer platanoides 'Crimson King')	Tree 5 stems	15	80, 170, 210, 230, 240,	436	Mature	30+ Years	Removve tree to facilitate the proposed site access	Multi stemmed tree located out with site 1m from Northern boundary fence. Tree within scrub verge between site boundary and Chequers Road. Crown overhanging road 2m on Northern side and significantly encroaching onto ABC LV cables on the South side. Branches overhanging site boundary 4m on South side. Low branches over site. Ivy previously severed.	C1	N:5 E:2 S:2 W:5	2	2	Radius: 5.2m. Area: 85 sq m.	Fair	Remove to facilitate the proposed site access
T006	Sycamore (Acer pseudoplatanus)	Tree	15	300	300	Early Mature	30+ Years	Removve tree to facilitate the proposed site access	Tree located out with site immediately adjacent Northern boundary fence. Tree within raised scrub verge between site boundary and Chequers Road. Tree 1m from ABC LV conductors and 1m from LV pole. Branches overhanging site boundary 3m on South side. Low branches over site. Ivy previously severed.	C1	N:1 E:3 S:4 W:3	2	3	Radius: 3.6m. Area: 41 sq m.	Fair	Remove to facilitate the proposed site access
T007	Maple, Norway 'Purple' (Acer platanoides 'Crimson King')	Tree	14	340	340	Early Mature	30+ Years	Removve tree to facilitate the proposed site access	Tree located out with site 3m from Northern boundary fence. Tree within scrub verge between site boundary and Chequers Road. Crown overhanging road 3m on Northern side and significantly encroaching onto ABC LV cables on the South side. Ivy previously severed.	C1	N:6 E:6 S:6 W:6	2	2	Radius: 4.1m. Area: 53 sq m.	Fair	Remove to facilitate the proposed site access

Ref	Species	Full Structure	Height (m)	Stem Diam (mm)	Combined Stem Diam	Life Stage	Rem. Contrib.	Comments	General Observations	Retention Category	Spread	Crown Clearance (m)	Lowest Branch (m)	RPA	Physical Condition	Recommendations
T008	Maple, Norway (Acer platanoides)	Tree	15	400	400	Mature	40+ Years	The surfacing and levels in the RPA should not be altered if RPA within influencing distance of redevelopment of the site.	Tree located out with site 1m from Northern boundary fence. Tree within raised scrub verge between site boundary and Chequers Road. Crown encroaching onto ABC LV cables on the North side. Branches overhanging site boundary 3m on South side. Low branches over site. Ivy previously severed.	B1	N:6 E:6 S:6 W:7	2	2	Radius: 4.8m. Area: 72 sq m.	Fair	Pre construction: Reduce lateral branches overhanging site if required Crown lift to 5.2 metres for vehicle access if required. During construction: Protect trees with protective barriers - as shown on plans if proposals within influencing distance of redevelopment of the site.
T009	Sycamore (Acer pseudoplatanus)	Tree	13	320	320	Early Mature	20+ Years	The surfacing and levels in the RPA should not be altered if RPA within influencing distance of redevelopment of the site.	Tree located out with site 3m from Northern boundary fence. Tree within scrub verge between site boundary / stables and Chequers Road. Crown overhanging road 2m on Northern side and significantly encroaching onto ABC LV cables on the South side. Misshapen crown. Ivy on main stem.	C1	N:3 E:3 S:3 W:3	2	2	Radius: 3.8m. Area: 45 sq m.	Fair	Pre construction: No action required. During construction: Protect trees with protective barriers - as shown on plans if proposals within influencing distance of redevelopment of the site.
T010	Sycamore (Acer pseudoplatanus)	Tree 2 stems	15	420, 450,	616	Mature	30+ Years	The surfacing and levels in the RPA should not be altered if RPA within influencing distance of redevelopment of the site.	Twin stemmed tree located out with site 2m from Northern boundary fence. Tree within scrub verge between site boundary / stables and Chequers Road. Crown overhanging road 6m on Northern side and significantly encroaching onto ABC, 3 phase LV cables and pole on the Southern and Western sides. Southern stem leaning over site / stables 25 degrees from vertical with crown overhanging into site 8m. Ivy previously severed.	C1	N:8 E:8 S:10 W:5	2	2	Radius: 7.4m. Area: 172 sq m.	Fair	1. Remove South stem over site with permission. 2. Remove lateral growth back to boundary from South stem. During construction: Protect trees with protective barriers - as shown on plans if proposals within influencing distance of redevelopment of the site.
T011	Sycamore (Acer pseudoplatanus)	Tree 3 stems	18	400, 350, 140,	550	Mature	30+ Years	This tree is showing signs of possible earlier failure. Located outside the proposed development area.	Twin stemmed tree located out with site 1m from Northern boundary fence. Tree within scrub verge between site boundary / stables and Chequers Road. Crown overhanging road 5m on Northern side and significantly encroaching onto ABC conductors on the Southern side. Tree 3m from gate and access to the site. Ivy previously severed.	C1	N:8 E:8 S:8 W:8	3	3	Radius: 6.6m. Area: 137 sq m.	Fair	1. Remove South stem over site with permission. 2. Remove lateral growth back to boundary from South stem if no permission. During construction: Protect trees with protective barriers - as shown on plans if proposals within influencing distance of redevelopment of the site.
T012	Sycamore (Acer pseudoplatanus)	Tree 2 stems	18	450, 500,	673	Mature	20+ Years	This tree is showing signs of possible earlier failure. Located outside the proposed development area.	Twin stemmed tree located out with site immediately adjacent Northern boundary fence. Tree within scrub verge between site boundary / stables and Chequers Road. Crown overhanging road 8m on Northern side and significantly encroaching onto ABC conductors on the Northern and Southern side. Tree immediately adjacent gate and access to site. Crown significantly encroaching over and into site. Prolific ivy	C1	N:8 E:8 S:8 W:8	3	3	Radius: 8.1m. Area: 206 sq m.	Fair	1. Remove lateral growth over site. During construction: Protect trees with protective barriers - as shown on plans if proposals within influencing distance of redevelopment of the site.
T013	Sycamore (Acer pseudoplatanus)	Tree	15	400	400	Early Mature	40+ Years	This tree is showing signs of possible earlier failure. Located outside the proposed development area.	Tree located out with site 10m from North Western boundary fence. Tree within formally maintained grass verge between site boundary and Chequers.	B1	N:9 E:9 S:9 W:9	3	3	Radius: 4.8m. Area: 72 sq m.	Good	Pre construction: No action required. During construction: Tree will not form a constraint to the redevelopment of the site.
T014	Sycamore (Acer pseudoplatanus)	Tree	15	370	370	Early Mature	10+ Years	This tree is showing signs of possible earlier failure. Located outside the proposed development area.	Tree located out with site immediately adjacent North Western boundary fence. Prolific Ivy throughout entire tree. Ivy limiting DBH and stem..	C1	N:5 E:6 S:5 W:6	3	3	Radius: 4.4m. Area: 61 sq m.	Poor	Remove tree - Misplaced within formal re-development of the site (permission required)

Ref	Species	Full Structure	Height (m)	Stem Diam (mm)	Combined Stem Diam	Life Stage	Rem. Contrib.	Comments	General Observations	Retention Category	Spread	Crown Clearance (m)	Lowest Branch (m)	RPA	Physical Condition	Recommendations
T015	Sycamore (Acer pseudoplatanus)	Tree	15	370	370	Early Mature	20+ Years	This tree is showing signs of possible earlier failure. Located on the site boundary. Fell asnd remove oif the proposal requires.	Tree located within site,immediately adjacent North Western boundary fence. Deadwood throughout crown. Basal cavity. Significant bark wound to 2m.	C1	N:5 E:6 S:5 W:6	3	3	Radius: 4.4m. Area: 61 sq m.	Poor	Remove tree - Poor condition. Potential hazard. Misplaced within formal re-development of the site



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Status

Preliminary

Project

Dandale Stables

Drawing title

Tree location plan - Appendix 4

Rev	Description	Date
-	-	-
-	-	-
-	-	-

Scale	Date	Drawing Number	Rev
NTS	09/10/19	1796_01	V01

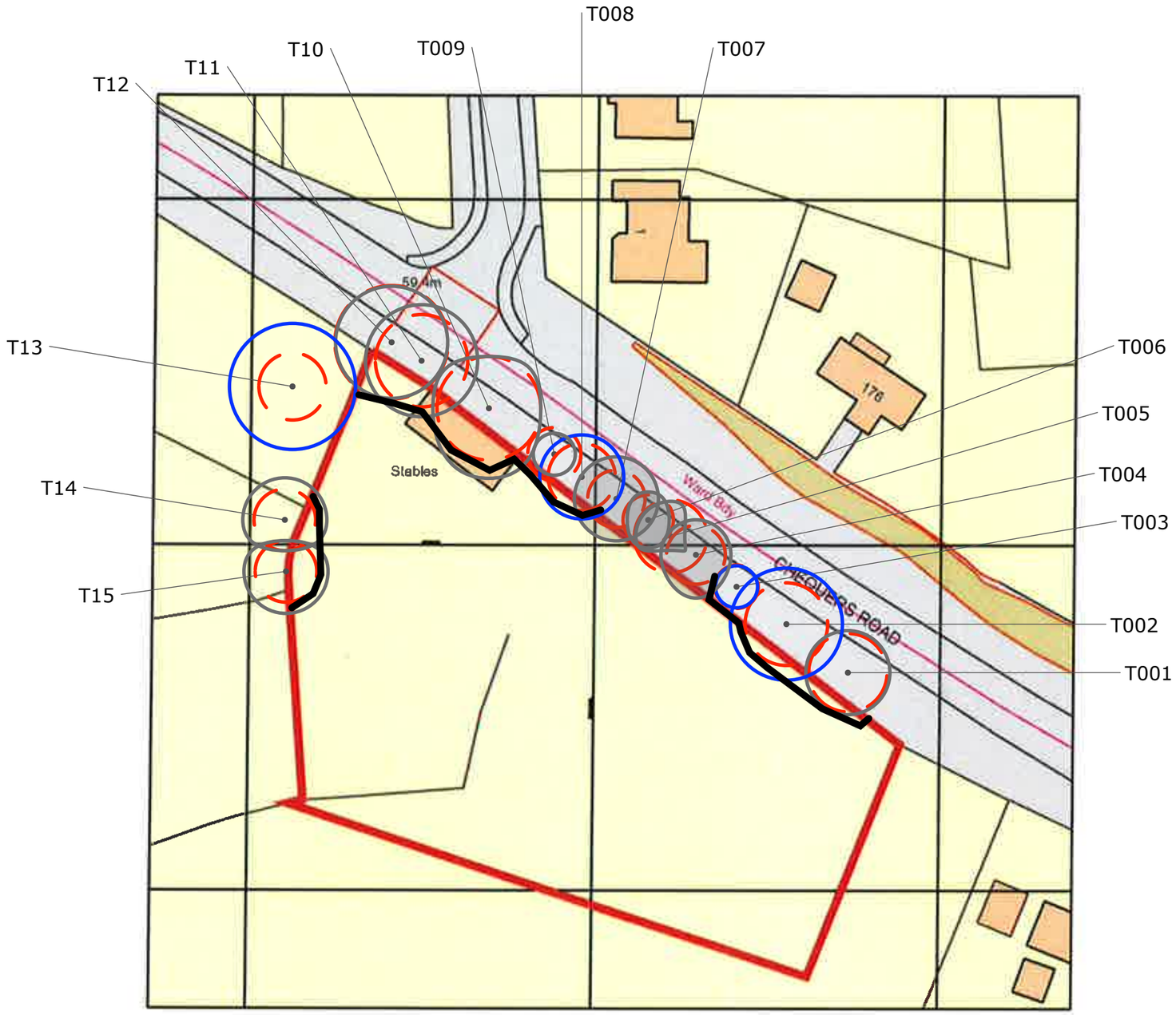
BS Category of Condition

- Category A
- Category B
- Category C
- Category U

Paced Crown spread - In category colour

BS Calculated Root Protection area - Adjusted to site conditions.

Location of retaining walls.



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Drawing title

Tree protection plan - Appendix 4

Rev	Description	Date
-	-	-
-	-	-
-	-	-

Scale	Date	Drawing Number	Rev
NTS	09/10/19	1796_02	V01

Crown spread

Root protection area

Protection fencing

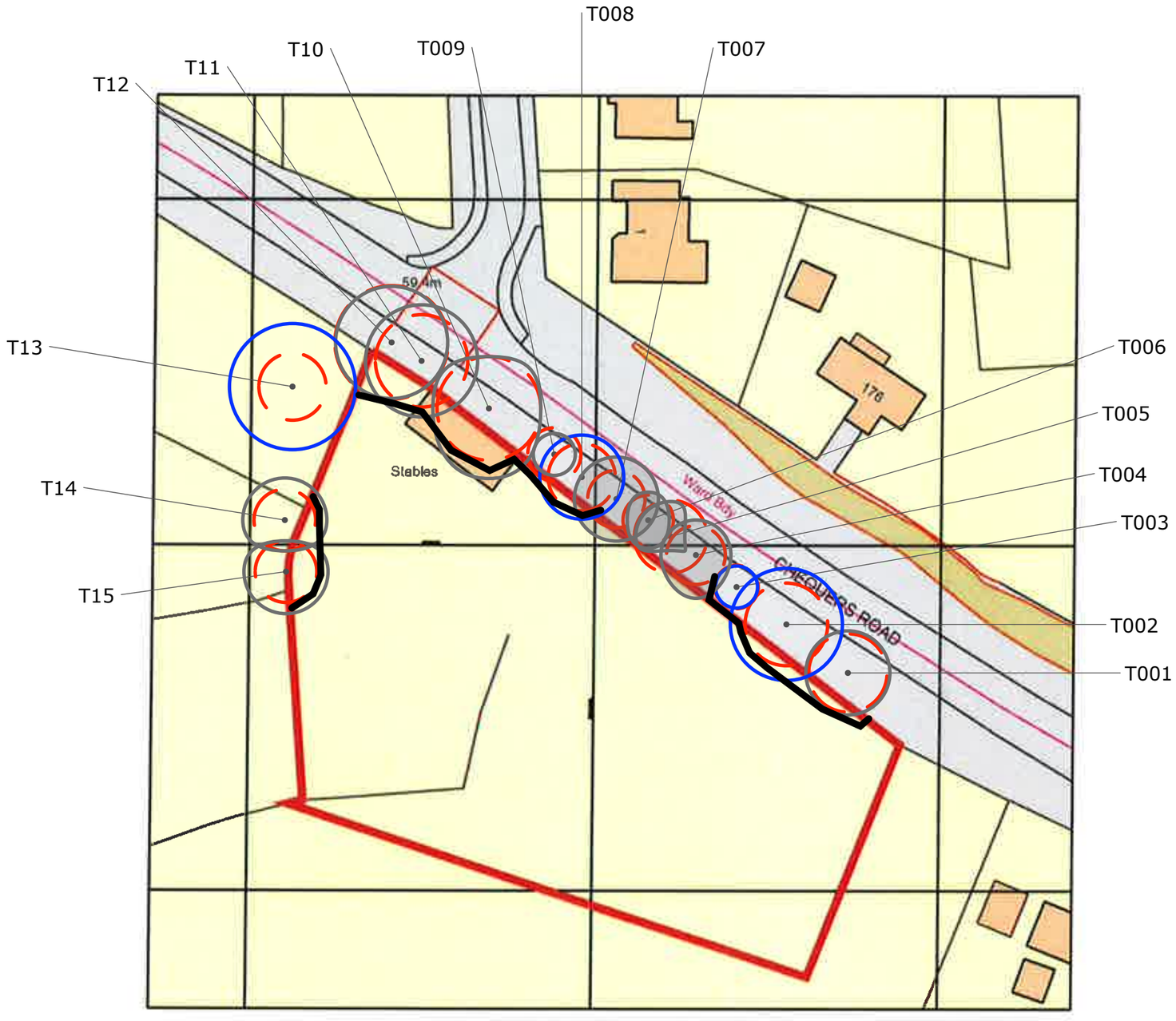
Proposed removals - T04, T05, T06 and T07. To facilitate the proposed site access.

Root protection Areas - We have adjusted the RPA spread to suit site conditions.

The development proposal will have no impact to the retained trees RPA providing all new foundations, surfaces and service routes remain outside of the tree protection fencing and RPA's.

During the demolition of the Stables building we recommend that the current ground level is left in place. Any foundations remain in place and are not removed unless absolutely necessary.

If foundations do need removing to accommodate the proposed development. We recommend this be undertaken while the site arborist in present. A site specific method statement will need to be adhered to while removing any foundations within the retained tree RPA's.



Services - No services will impact on the retained trees RPA.

Ground levels - No ground level changes will impact on the retained trees RPA.

Shading - No shading issues will be encountered

Leaf litter - Leaf litter will be encountered around the proposal, to mitigate against this and prevent the need to future pruning we recommend none slip paving and guards on gutters and gullies be installed.

Above ground constraints - At this stage no above ground constraints will be encountered.

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Status

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Dandale Stables

Drawing title

Impact assessment - Appendix 4

Rev	Description	Date
-	-	-
-	-	-
-	-	-

Scale	Date	Drawing Number	Rev
NTS	09/10/19	1796_03	V01

Arboricultural Impact Assessment.

The overall impact of the proposal on the localised tree population is negligible with 4 trees recommended removal to facilitate the proposal. Management recommendation can be found in Appendix 3 tree schedule. The current site conditions have no impacted the root systems of retained trees. It is our opinion that the proposed development will allow the local authority to ensure the local tree scape is maintained into the future by having a robust replanting schedule accompany the planning application.

In order to preserve tree stocks and minimise impacts to root systems tree protection is required. These measures are known to limit the impact to acceptable levels with little discernible impact to the trees health in the short or long term. As indicated on impact assessment map (appendix 4) retained trees will need to receive some level of protection. This includes trees which are outside of the build area but may be affected by general site activities.

Development proposals can impact trees by causing them to be removed either immediately or in the future. It does this by adversely affecting their potential for rendition either through disturbance to the root protection area (RPA) or through the need for pruning.

Below ground constraints.

The RPA is defined as a minimum area (in m2) around the tree that is deemed to contain sufficient roots and rooting volume to maintain the tree's viability, where the protection of the roots and soil structure is treated as a priority. Section 4.6.2 & 4.6.3 of BS5837:2012 allows for the shape of the RPA to be changed for the likely spread of the roots. An example of this is trees which are close to concrete foundations, road verges or trees growing on steep banks. Foundations will cause the RPA spread to adapt and can drastically change the shape of the projected RPA. Banks and changes in ground level are also known to have the same effect on the projected RPA.

Surfaces / Access.

The proposed site access will require the removal of low category trees with no impact tot retained trees.

Foundations.

The proposals foundations will no impact on the retained trees RPA

Appendix 5 – Site Inspection & Monitoring Schedule

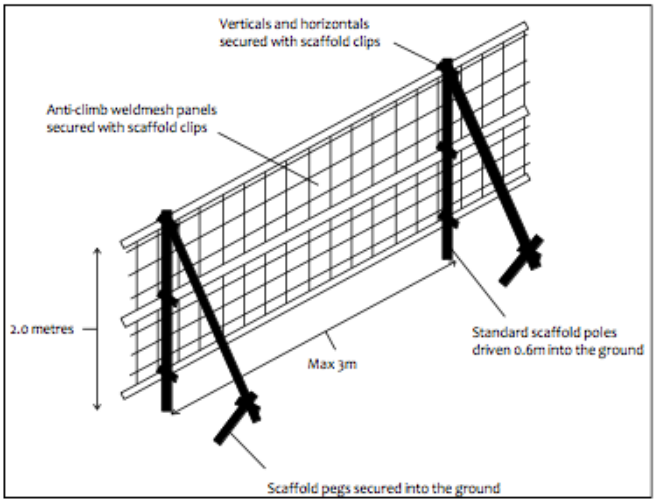
In order to ensure that the principals of tree protection are adhered to, it is important to set out communication details for key individuals and tasks that require supervision. Any on-going monitoring and site supervision shall be agreed with the local tree officer where required.

It should be noted that these visits will only be undertaken if a written instruction is received from the client prior to commencement of works on site.

Inspection	Attendees	Comments
Pre-start Too occur prior to any works taking place on site	Site manager, appointed arborist, architect, site owner	Site manager to study this method statement & contact the appointed arborist to agree all protection measures on site and install.
Pre-construction meeting After tree works completed & all protection measures installed. Prior to any other activity	Site manager, appointed arborist	Tree protection fencing locations & specifications checked. Additional ground protection measures checked. Further protection measures/restriction agreed
Excavation in restricted zone	The appointed arborist shall be invited to oversee any excavations in this zone	At least one week's notice shall be given prior to commencing excavations
Intermediate reporting Thought-out the entire project. At least once per month	The site manager shall report back to the appointed arborist. Appointed arborist to complete site checks once a month if required.	Site manager to liaise with the appointed arborist regarding any issues which may affect trees. General site photos indicating tree protection measures to be provided monthly
Post-Construction meeting Post construction activity but prior to removal of fencing & Landscaping operations	Site manager, appointed arborist	Retained trees inspected, Further landscape operation and restrictions to be agreed.

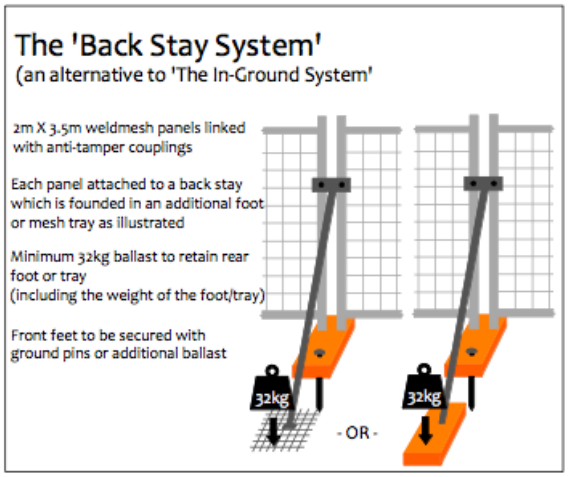
Appendix 6 –Tree and Ground Protection Specification

The In-ground system



This system may be installed where indicated by a solid purple line on the Tree Protection Plan. It should be robust enough to withstand occasional knocks by plant machinery and, once installed, shall remain in place throughout the entire construction phase. Vertical scaffold poles are driven into the ground, onto which are affixed horizontal scaffold poles and diagonal bracing struts. Weldmesh panels (or similar – e.g. Heras type fencing panels, or 18mm+ plywood boards) are secured to this scaffold framework using sturdy clips e.g. standard scaffold clips. The system is illustrated in the diagram to the right and is based on BS 5837 guidelines.

The Back-stay system



This system may be installed where indicated by a solid or dashed purple line on the Tree Protection Plan. It is more practical over existing hard surfaces or where the fencing needs to be moved to enable permitted activities within the RPA. This system should be able to withstand occasional knocks by machinery and should not be relocated except with the consent of the site manager and the approval of the site arborist. Within this system, weldmesh fencing panels (minimum height 2m) are affixed into rubber or concrete feet and clipped together with anti-tamper couplers. Where topography permits, two couplers should be used, spaced at least 1m apart. Alternate panels should be attached to a diagonal back stay connected to an additional foot or baseplate secured with ground pins or additional ballast. Where ground pins are not used, the total weight of the foot/plate plus ballast should total not less than 32kg.

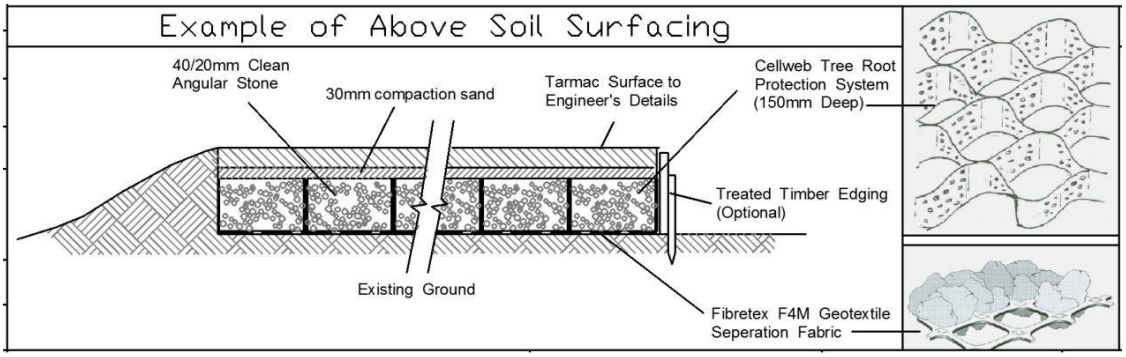
Appendix 7 – Ground Protection Specifications

Ground protection measures

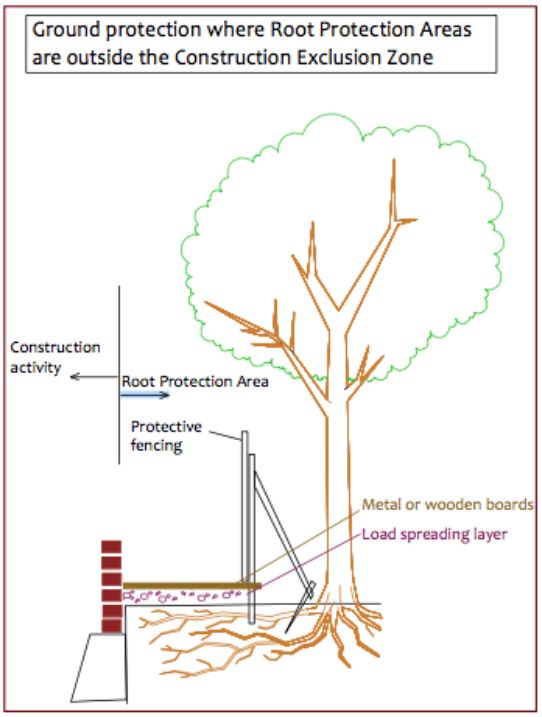
Where indicated on the Tree Protection Plan ground protection measures shall need to be installed over any soft landscaping. The purpose of the ground protection is to prevent soil compaction and contamination where it is not practicable to fence off Root Protection Areas because access is required. Where vehicles or machinery are required to operate within the Restricted Zone, a geotextile fabric shall be installed followed by a compression resistant layer such as 150mm of

compressible material (e.g. woodchip) or a 3D cellular confinement system in- filled with 7 – 40mm angular gravel (e.g. *Cellweb*^{TM}).

Either system shall act to spread the load of any vehicles passing through the restricted zone. Above this load spreading layer, 25mm wooden boards or 12mm road plates shall be secured. Plant machinery shall be limited to 2 tonnes.



If only pedestrian access is required, then 25mm wooden boards, e.g. scaffold boards firmly affixed together and laid directly onto the ground shall suffice. If the ground is uneven, then it shall first be made even using sand or soil to ensure the boards distribute loads over a large area of ground. Boards shall be appropriately weighted or pinned to prevent movement. Alternatively scaffold boards may be supported above ground on a scaffold framework



Where existing hard surfacing is to be retained throughout the entire project it shall not be necessary to install additional ground protection measures. However, the hard surfacing must be firm enough to spread the load of any traffic passing overhead. Paving slabs shall need to be reinforced with scaffold boards or similar if vehicles or machinery are to be used in this area.

The ground protection measures shall be installed and approved before commencement of demolition and construction activity and before the arrival of plant machinery or materials. They shall remain in place until all heavy construction activity is complete or until they are due to be replaced with a new hard surface.