



ARBORICULTURAL IMPACT ASSESSMENT

Site:

**49-83 Impington Lane
Histon
Cambridge
CB24 9NJ**

Presented to:

Bidwells LLP

By

**Landscape Planning Limited
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Wyncolls Road
Colchester
CO4 9PE**

October 2013

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EXECUTIVE SUMMARY

The site covers 3.29ha (8.14 acres) and is situated in a semi-rural location in the village of Histon, Cambridgeshire. Histon is situated just north of Cambridge with the main bulk of the settlement being separated from the city by the A14 road. The immediate environment is characterised by arable land to the north, and ribbon development along Impington lane, to the east and west.

Tree cover on site comprises 22 trees, 10 groups and 5 hedgerows, mostly around the site boundaries and dissecting through the centre. It should be noted that accuracy of plotted trees cannot be guaranteed, as a topographical survey plan was not available. It should also be noted that the impenetrable nature of some tree groups made ground level inspections difficult. Such limitations are detailed in the tree tables at Appendix 3.

The proposal sketch plan shows a layout which has been developed with trees in mind, with all key arboricultural features retained. The layout makes use of the considerable available space in the core of the site, and shows significant promise to improve landscape character value and visual amenity through the creation of public open space, and re-planting.

Farm buildings on the eastern boundary are planned for demolition and are in close proximity to retained trees T9, T10 and T13-T15 and G6-G9. These trees could be retained subject to appropriate controls and careful demolition procedures, however, on balance, it may be more practical to fell and replace these trees.

The proposals show access roads punched through H1, H4 and H5. This will involve minor tree losses and will create gaps through existing hedgerows. Such changes to the landscape will have negligible impact on visual amenity and any tree losses can be easily mitigated post development.

Overall, any tree losses are far outweighed by the scope for enhancement on this site. The focus should be on ensuring all retained trees can be adequately protected throughout site works through the use of tree protective fencing, and implementing a replacement planting scheme appropriate to the site and context.

Once the layout is fixed, further detail may be required in relation to tree protection, levels and services. These should be detailed within an Arboricultural Method Statement that should be submitted to and agreed in writing by the Local Planning Authority prior to the commencement of the development as a condition of any consent.

REPORT PROCEDURES

This Report has been prepared in accordance with Landscape Planning Ltd's quality system procedures as follows:

Methodology relating to Arboricultural Impact Assessments

File creation, field survey, data capture procedures and report production follows the specific methodologies, technical approach and quality systems of Landscape Planning Ltd. The aim is to provide "*fit for purpose*" deliverables based on the client brief. Our approach broadly follows the guidance contained in "Trees in relation to Demolition, Design and Construction – Recommendations" (BS 5837:2012). However, the use of any terms or concepts contained therein does not imply Landscape Planning Ltd.'s acceptance of their accuracy or scientific validity and the use of any section or concept contained within the standard is on the principle of its advisory status as guidance.

Report and Findings

The Report and Findings have been prepared and/or quality checked by a Principal Consultant prior to issue to the client.

Signed

Michael Lawson
Principal Consultant
Landscape Planning Ltd

Dated: 16 August 2013

PREFACE

Landscape Planning Ltd has surveyed the key trees on and adjacent to the site and has provided guidance within this report on the measures necessary to ensure successful tree retention during any development with recommendations for tree removal and / or tree works as necessary.

The Brief:

1. To visit the site and complete a survey of trees, shrubs, hedgerows and other vegetation that may materially be of interest relative to development proposals.
2. To assess the likely impacts of the development on the trees and make 'in principle' recommendations relating to tree removals, tree retention and tree protection during development.
3. To make any other observations or recommendations as required based on the survey.

Plans and Reference Documents

No plans supplied by client – Ordnance survey base plan used.

Stage in the Planning Process

Sketch Development Framework Plan S7779500004-01

Purpose

The purpose of this report is to: collate the tree related information; inform proposal design and layout; and make preliminary recommendations for the protection of trees during development.

DISCUSSION AND ANALYSIS

The Proposal

The proposal is for residential development.

The Site Survey

A tree survey was undertaken on 30th July 2013 by Gemma Holmes of Landscape Planning Limited.

- The survey data is contained in the Tree Tables at APPENDIX 3.
- Selected photographs from the survey are at APPENDIX 4.
- The Tree Survey plan is at APPENDIX 5 and shows the trees' locations in relation to the existing layout of the site.
- A draft tree protection plan is included as APPENDIX 6.
- The Concept Development Framework Plan is included as APPENDIX 7.

Tree cover on site consists mostly of species poor intact hedgerows, some with larger constituent trees leaving a large developable space in the centre. Some third party trees overhang various parts of the site.

Tree Specific Issues

The Concept Development Framework Plan shows all principal arboricultural features retained, and considerable replanting in the public open space (POS) in the north of the site.

The constraints are as follows:

- Proposals show the creation of access roads through the site, which will require the removal of parts of H1, H4 and H5.
- Proposals involve the demolition of farm buildings in close proximity to trees T9, T10 and T13-T15
- All retained trees will need protecting throughout.

Enabling Tree Works

- A small section of H1 and H4 will need to be removed to accommodate access roads.
- Part of H5 and potentially one or more constituent trees will need to be removed to accommodate an access road.
- Trees T9, T10 and T13-T15 and groups G6-G9 may need removing to facilitate demolition.

Any required works to off-site trees will require the written consent of the tree owner.

Tree works for aesthetic / health purposes are detailed within the Tree survey Tables at APPENDIX 3.

The majority of works are of low landscape significance and can be adequately mitigated as part of the overall landscaping of the site.

Tree Protective Fencing

A draft tree protection plan is included as APPENDIX 6.

Site Access

The site will be accessed from the middle of the southern boundary, and from the south eastern corner.

Within the site it is assumed that construction traffic will not be allowed to circulate other than via the main access; that all vehicles, deliveries and site huts etc. will deliver in the appropriate area; that all exiting vehicles, equipment and site paraphernalia will only use the approved routes; and that the tree protective fencing will be maintained as illustrated on the plans that accompany this report.

Site Facilities

All site huts, parking, delivery and storage areas, welfare facilities, cement/plaster mixing areas etc., should be sited outside of the RPAs of trees to be retained.

Demolition

Demolition of existing structures should take care not to cause damage to adjacent trees. This is particularly in respect of G7-G9 and T9, T10 and T13-T15 which if retained cannot be adequately protected by fencing prior to demolition. If they are to be retained, fencing in the vicinity of these trees should be erected at the earliest opportunity following removal of the adjacent structures. Machinery shall be restricted to operating from areas outside of the RPAs of trees to be retained. Care shall be taken to ensure vehicle cabs and hydraulic arms etc., do not cause impact damage to adjacent trees. Where appropriate, this may require the use of a banksman.

Where practicable, existing buildings should be demolished onto their own footprints in order that there is no compaction of the RPAs of trees to be retained. Where possible, any existing foundations within the RPAs of trees to be retained should be retained in order to avoid disturbance of roots. However, where removal of foundations within the RPAs of trees to be retained is required, care shall be taken to limit the extent of disturbance to surrounding soil. Suitable techniques include removal using hand tools or use of micro-diggers fitted with toothless buckets and supervision of works by a suitably competent arboriculturist.

Services

Where possible, all services should be located outside of the RPAs of trees to be retained. If services are proposed to pass through the RPAs of trees to be retained, the guidance available in “Volume 4: NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees (Issue 2)” (NJUG, 2007, www.njug.org.uk/publication/51/) should be followed.

Levels & Surfaces

The site is relatively level and it is anticipated that finished levels are likely to match current finished levels.

However, where existing hard surfaces within the RPAs of trees to be retained are to be replaced, they should be removed by controlled methods to avoid compaction of the underlying ground and avoid direct damage to roots.

Ideally, the profile of new surfaces within the RPAs of trees to be retained should be kept within the depth of profile for existing surfaces. Where existing profile depths are insufficient or there is no existing hard surface, the depth of sub-base to hard surfaces might be minimised by use of cellular confinement systems, e.g. CellWeb, details of which are included at APPENDIX 9.

CONCLUSIONS AND RECOMMENDATIONS

We have surveyed the trees on the site to consider the impact of demolition and the likely impacts of any redevelopment.

The Concept Development Framework Plan shows a layout which has been developed with trees in mind, with all key arboricultural features retained. The layout makes use of the considerable available space in the core of the site, and shows significant promise to improve landscape character value and visual amenity through the creation of public open space, and re-planting.

Given the proposed use of the centre of the site for development, conflicts between the site layout and trees are limited.

A small number of minor trees, and small sections of hedgerows will need to be removed to accommodate access roads. Such losses are of low landscape significance and can be easily mitigated post development through replacement planting.

Trees T9, T10 and T13-T15 and G6-G9 lie close to the buildings planned for demolition. Such trees and groups could be retained subject to appropriate controls, but given their age, condition, and proximity to demolition on balance it is recommended they are felled and replaced.

All remaining trees can be retained protected in accordance with BS 5837, to avoid undue harm throughout the life cycle of the development.

Once the layout is fixed, further detail may be required in relation to tree protection, levels and services. These should be detailed within an Arboricultural Method Statement that should be submitted to and agreed in writing by the Local Planning Authority prior to the commencement of the development as a condition of any consent.

APPENDIX 1

Disclaimers

General - Trees

Unless otherwise stated tree observations have been undertaken from ground level and using non-invasive techniques only.

Unless otherwise specified, no checks have been carried out in respect of statutory controls that may apply, e.g. Tree Preservation Orders, Conservation Areas or planning conditions. In addition, prior to undertaking any tree works, it is necessary to ensure due diligence is followed in respect of protected species and habitats.

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Not a Design Statement or Method Statement

This report has been prepared in respect of development impacts on trees. The report provides details and makes in principle recommendations relating to tree protection, which may have implications for design, construction, materials and methods to be employed in the development. Any such recommendations should be approved by the relevant designer / competent person.

APPENDIX 2

Generic Tree Protection Advice

The following provides key principles and sequencing for operations based on development proceeding and the key assumptions in relation to authority

Tree works: All enabling tree works should be carried out as the first operation on site, in accordance with the specification in the Tree Tables. Tree work is a hazardous occupation. All tree work contractors should be required to provide evidence that they are competent to undertake the required works and are adequately insured. The contractor should also be asked to provide a site specific risk assessment prior to commencement of any tree works. All tree works should be in accordance with “Tree Work – Recommendations” (BS 3998: 2010) or current best practise.

Tree Protective Fencing: Prior to commencement of development, tree protective fencing should be erected in accordance with the approved plans and documents. Fencing shall be sufficiently robust to withstand impacts from development traffic and fixed such that they cannot be casually moved. The area within the Tree Protective Fencing is known as the Tree Protection Area, within which all development activity is prohibited unless otherwise specifically authorised. This includes prohibition of all excavations, cultivation, level changes and storage of materials. No mixing of cement, plaster, additives, chemicals, fuels, tar or other oil based materials, or wash-out areas should be sited within 10m of any Tree Protection Area. No fires should be lit within 20m of any Tree Protection Area. Tree Protective Fencing should be clearly marked with signs to the effect of: “Tree Protection Area - no access without authorisation”. (In certain circumstances and subject to approval by a suitably qualified arboriculturalist, it is possible to undertake works within Tree Protection Areas without compromising successful tree retention. All such works should be undertaken in accordance with an agreed method statement). The Tree Protective Fencing should not be removed, breached or altered without prior written authorisation from the local planning authority or client arboriculturist, but shall remain in a functional condition throughout the entire development, until all development related machinery and materials have been removed from site. If such protection measures are damaged beyond effective functioning then works that may compromise the protection of trees shall cease until the protection can be repaired or replaced with a specification that shall provide a similar degree of protection.

Toolbox Talks: Commonly, the main contractor on site may change as the development phase moves from demolition, to ground work to construction. At each stage, a site meeting should be held between the arboricultural consultant and current contractor to discuss the required tree protection measures and site operations that have implications for trees. It is the responsibility of the current site manager / foreman to inform all employees, contractors and sub-contractors visiting and or working on the site of the tree protection requirements so as to avoid causing damage to retained trees.

Site Supervision: Regular site visits by an Arboricultural Consultant to monitor tree protection during development provides a means by which: the Client and the Local Planning Authority can be kept informed of compliance with tree protection conditions; and the contractor can raise practical issues of tree protection as they arise.

Ground protection: On occasions existing hard surfaces around trees tree can be retained during development in order to protect the ground from disturbance. Alternatively soft surfaces can by ground protection, the aim of which should be to avoid or minimise disturbance, compaction and contamination.

Protection/prevention of damage to retained tree canopies during construction: Installation of above ground services, lighting columns and the construction of roofs require the use of cranes, which can cause damage to the crowns of retained trees. The tree protective fencing will be securely positioned to resist intrusion into the Tree Protection Area at ground level, but damage can still occur to the aerial parts of the tree. Care should be taken when operating cranes, excavators or installing above ground services so as to avoid impact damage or the need for pruning. The use of a banksman to oversee works close to trees may be necessary.

Services location and excavations: No details of the type and route of underground utilities are available at this stage. All other excavations shall accord to "Volume 4: NJUG Guidelines for the Planning, Installation and Maintenance Of Utility Apparatus in Proximity to Trees (Issue 2)" (NJUG, 2007).

Earthworks and site levelling (storage of topsoil): Unless specifically agreed, no excavations will occur within the RPAs of trees to be retained. Storage of removed topsoil should be located outside of the RPAs of retained trees and away from those parts of the site allocated for soft landscaping.

Site finishing: The tree protection measures shall not be dismantled until all construction related machinery and materials have been removed from site and not without written authorisation from the local planning authority or client arboriculturist. Once authorisation has been given the protection measures can be removed by hand and transported off site. During which time, no machinery or vehicles shall enter the area previously protected. No excavations, storage of materials, soil stripping, the raising or lowering of levels or the laying of hard surfacing without prior approval of the arboricultural consultant and / or the local planning authority.

APPENDIX 3

**ARBORICULTURAL IMPLICATIONS ASSESSMENT
TREE SURVEY TABLES**
 Surveyor: Gemma Holmes
 Date Surveyed: 16th August 2013



Tree No.	Species (English) Latin if any doubt	Age Range	Condition	Height (m)	Crown Spread (m)				Stem Diam @ 1.5m (m)	Comments (incl. Structural condition)	Recommendations
					N	S	E	W			
G1	Cypress	EM	F	10-12	N/A				est 175-250	Off site	May require a canopy reduction back to boundary.
H1	Dogrose, Elder, Sycamore, Hawthorn, Ash, Apple, Variegated Sycamore, Bramble, Norway Maple and Hornbeam	M	F	10-15	N/A				m/s	Continuous hedgerow with some trees. Some deadwood. Low canopies. Impenetrable and inaccessible in places.	Some trees may require deadwood removal and crown lifts dependent on proposals. Part of the hedgerow will need removing to accommodate an access road.
T1	Sycamore	M	F	14	5	5	5	5	est 350	In H1 some ivy cover, low canopy	Retain and protect
G2	4 x Ash	M	F	14+16	5	5	5	5	est 250-350	In H1 some canopies low and deadwood present	Retain and protect
G3	3 x Ash	M	f	13	7	7	7	7	2 X 400 (est)	In H1 included union. Ivy on stem, low crown.	Retain and protect
T2	Hornbeam	EM	F	12	4.5	4.5	4.5	4.5	2 x 250 and 200	In H1 healthy	Retain and protect
T3	Sycamore	M	F	15	6	6	6	6	est 300	In H1 low crown	Retain and protect
T4	Ash	M	F	15	7	7	7	7	est 300	In H1 low crown, could not access base	Retain and protect
T5	Norway Maple	EM	F	12	5	5	5	5	est 350	In H1 could not access stem	Retain and protect
G4	4 x Ash	M	F	13-14	N/A				est 300	Stems totally obscured by dense understorey	Retain and protect

**ARBORICULTURAL IMPLICATIONS ASSESSMENT
TREE SURVEY TABLES**

Surveyor: Gemma Holmes

Date Surveyed: 16th August 2013



Tree No.	Species (English) Latin if any doubt	Age Range	Condition	Height (m)	Crown Spread (m)				Stem Diam @ 1.5m (m)	Comments (incl. Structural condition)	Recommendations
					N	S	E	W			
T6	Variegated Sycamore	M	F	16	5.5	5.5	5.5	5.5	est 545	Within H1	Retain and protect
T7	Walnut	M	F	15.5	10	10	10	10	est 100	Offsite. Canopy overhangs site by 8 metres	Retain and protect
T8	Sycamore	M	F	20	8	8	8	8	est 450	Offsite. Canopy overhangs site by 4 metres	Retain and protect
G5	8 x Cypress - 1 offsite	M	F	17	3	3	3	3	200-300	Offsite	Retain and protect
H2	Cypress	M	F	19	N/A				300-350	Managed hedgerow along access driveway	Retain and protect
T9	Horse Chestnut	EM	F	15	6	6	6	6	3 x 190	Multiple stems	Fell for the development.
G6	Cypress	M	F	16-18	N/A				1 x 100 2 x 450	3 stems	Fell for the development.
T10	Sycamore	M	F	16	7	7	7	7	est 350	Dimensions estimated due to location behind building.	Canopy touching building. Fell for the development.
G7	Cypress	M	F	15	N/A				est 250-350	17 stems. Stem diameter taken as an average.	Canopy touching building. Fell for the development.
T11	False Acacia	M	F	12	4	4	4	4	est 280	Offsite beyond wet ditch.	Protect
T12	False Acacia	M	F	15	5	5	5	5	est 350	Offsite beyond wet ditch.	Protect
T13	Field Maple	M	F	13	8	8	8	8	490	Canopy touching warehouse.	Canopy touching building. Fell for the development.
T14	Horse Chestnut	M	F	14	4	4	4	4	3 x 200	3 stems	Canopy touching building. Fell for the development.
T15	Ash	M	F	15	5	5	5	5	3 x 200	3 stems	Canopy touching building. Fell for the development.

**ARBORICULTURAL IMPLICATIONS ASSESSMENT
TREE SURVEY TABLES**
 Surveyor: Gemma Holmes
 Date Surveyed: 16th August 2013



Tree No.	Species (English) Latin if any doubt	Age Range	Condition	Height (m)	Crown Spread (m)				Stem Diam @ 1.5m (m)	Comments (incl. Structural condition)	Recommendations
					N	S	E	W			
G8	Mixed species	SM	F	8	N/A				m/s	Mixed group of broadleaved and coniferous trees.	Canopies touching building. Fell for the development.
G9/H3	Ash, Sycamore, Norway Maple, Variegated Sycamore, Horse Chestnut	M	F	up to 15	N/A				200-400	Continuous hedgerow group made up of similar aged trees with Hawthorn, Blackthorn and Apple understorey	Retain and protect
H4	Walnut, Hawthorn, Hazel, Bramble, Blackthorn	SM	F	4-6m	N/A				m/s	Uniform height Hawthorn with individual Walnut and Hazel trees	Part of H4 will need to be removed to accommodate an access road.
T16	Weeping Willow	M	F	14	7	7	7	7	est 300	Dense Bramble understorey	Retain and protect
H5	Hawthorn, Blackthorn, Bramble	M	F	10	N/A				m/s	Continuous Hedgerow	Retain and protect
T17	Ash	EM-M	F	13-14	4	4	4	4	est 250	Overhanging wet ditch	Retain and protect
G10	Hazel, Ivy, Ash	SM	F/P	5-7	N/A				m/s	Small low value group of trees.	Retain and protect

Key to Tabulated Data

Age Range	YO	Trees from seedling, up to Advanced Nursery Stock size (14/16cm girth)
	SM	More than 10 years post-establishments but capable of being moved using a large tree spade (up to 22/24cm diameter).
	EM	Early indicators of maturity in bark tissue, reproductive tissue, leaf and crown morphology may be present. (Notably, excurrent shoot growth, not readily transplantable and still likely to increase significantly in size).
	MA	Strong indicators of maturity in bark tissue, reproductive tissue, leaf and crown morphology will be present. Shoot growth decurrent. (Middle aged phase of growth when the tree has effectively reached up to 90% of its ultimate size for the species and location).
	FM	Bark tissue, reproductive tissue, leaf and crown morphology will all exhibit mature characteristics. Strongly decurrent shoot growth and reduced shoot extension. No specific signs of senescence. (A tree that has now achieved over 90% of its ultimate life for the species and location).
	OM	Trees in senescence. Although not directly in decline from disease, decay, root death, structural or stability. Problems are primarily resulting from old age. (Senescence is an age related category, i.e. a younger tree subject to disease and decay because of, for example, an impact injury would not be senescent. Characteristically, senescent trees are likely to be reducing in mass and becoming stag headed).

Key to Tree Survey Tables Continued

Condition	G	Good	A tree that is, by form, function and physiology, in optimum condition for the species (this may vary according to previous or existing management regimes, e.g. pollarding). No obvious defects.
	F	Fair	A tree with minor defects of no significant biological or hazard significance, which can be managed by application of proper arboricultural practice.
	P	Poor	A tree with significant defects that require management intervention to ensure tree health, viability or for safety reasons. Or a tree with significant defects that cannot be adequately addressed by management intervention to enable its appropriate and/or safe retention
	D	Dead, Dying or Dangerous	An imminently hazardous tree that required management intervention as soon as contractually possible to make the tree safe.

APPENDIX 4



Photograph 1.

H1 with larger constituent trees.



Photograph 2.

G8 adjacent to farm buildings.




Photograph 3.

G5 and G7 cypress creating a potential access constraint.

APPENDIX 5



KEY  Surveyed vegetation

REVISIONS

No	Description	By	Date	Chkd



ISSUE: -

CLIENT: Bidwells

LOCATION: Impington Lane Impington

DRAWING TITLE: Tree Survey

SCALE: 1:1000 @ A3

DATE: July 2013

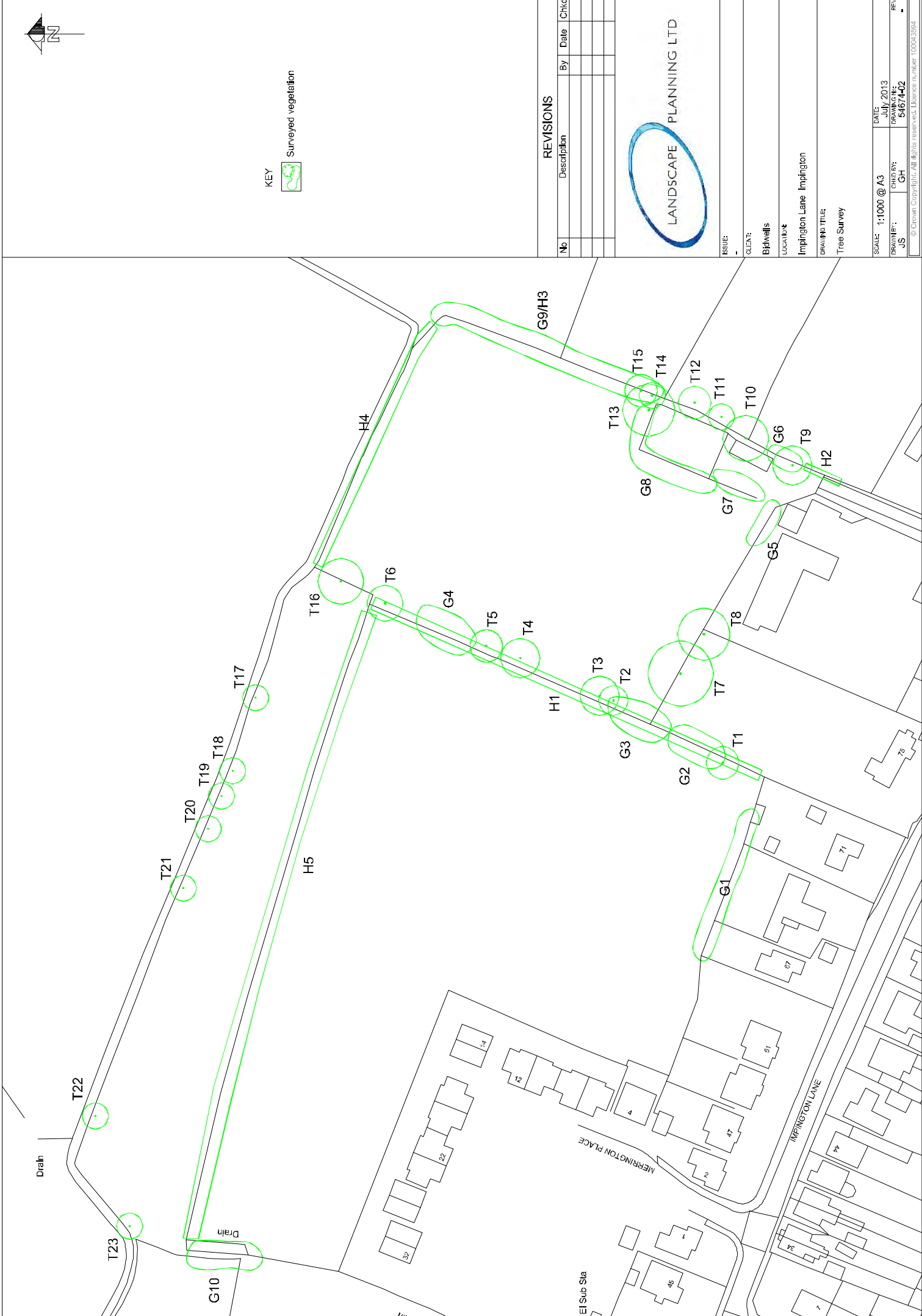
DRAWN BY: JS

DATE: 5/6/14

CHKD: JS

REF: -

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APPENDIX 6

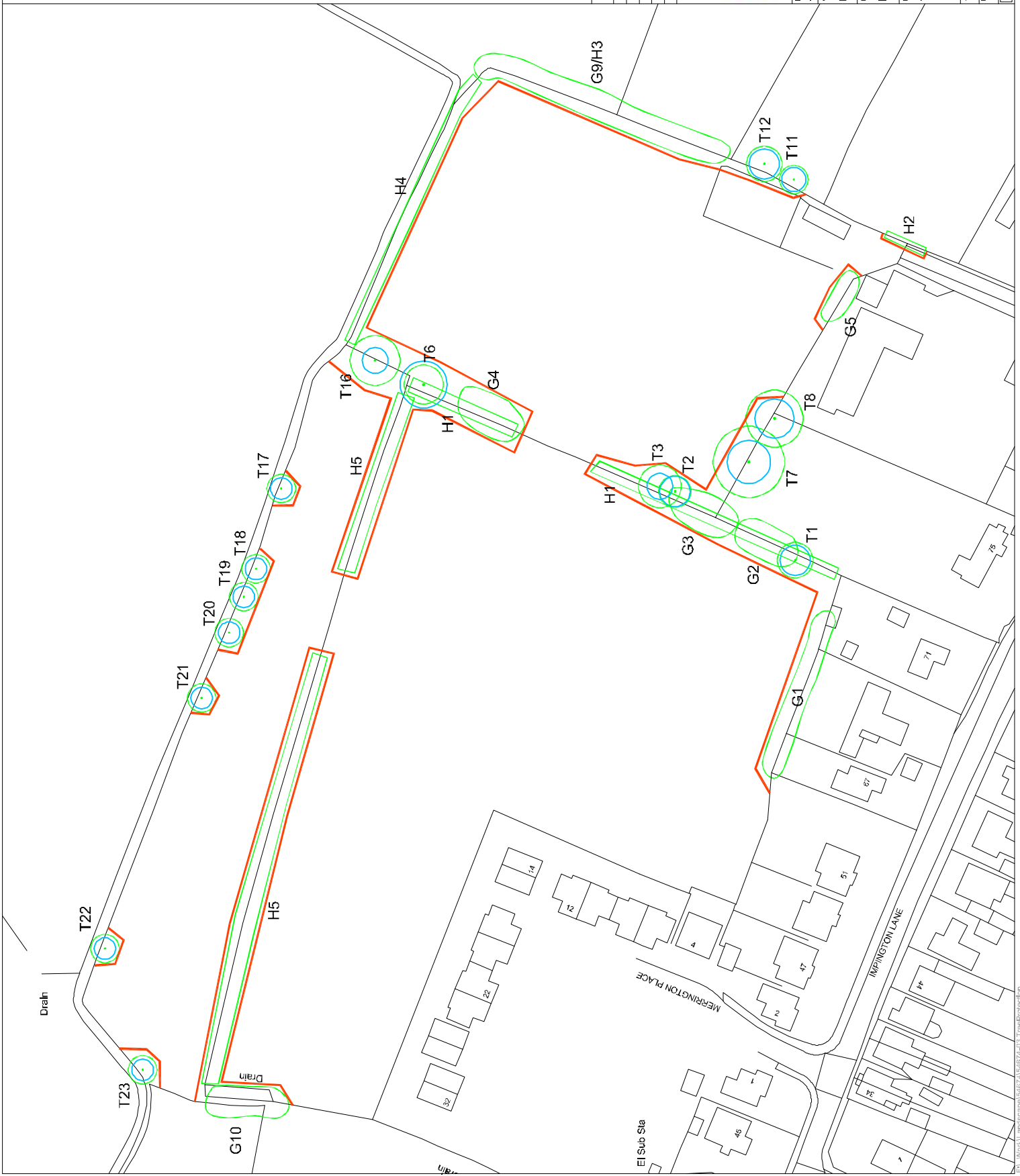


- KEY**
-  Surveyed vegetation
 -  Location of Protective Fencing
 -  RPA using the formula in accordance with BS5837:2012 Trees in relation to design, demolition and construction. Recommendations

REVISIONS		
No	Description	By Date Chkd



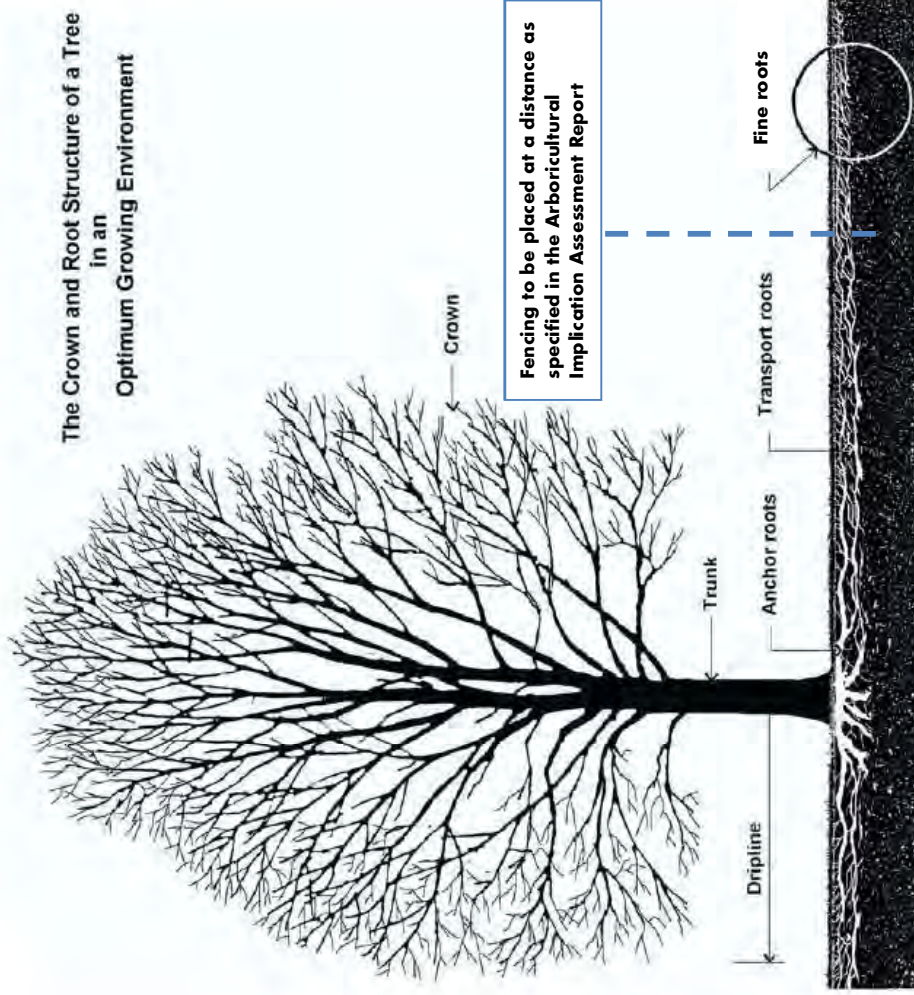
ISSUE: -
 CLIENT: Bidwells
 LOCATION: Impington Lane Impington
 DRAWING TITLE: Tree Protection
 SCALE: 1:1000 @ A3
 DATE: August 2013
 DRAWN BY: JS
 CHECKED BY: CH
 REV: 5461403
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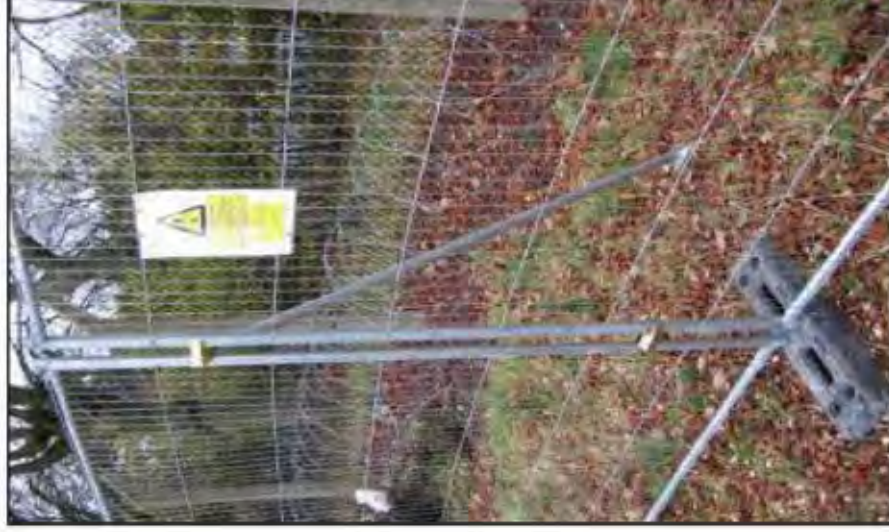
APPENDIX 7

APPENDIX 8

The Crown and Root Structure of a Tree in an Optimum Growing Environment



Fencing to be placed at a distance as specified in the Arboricultural Implication Assessment Report



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 PROJECT ARBORICULTURIST
 CONTACT: Landscape Planning (South) Limited
 TELEPHONE: 01296 782539

Title Box

Feb 2012

Principles of Tree Protection

Version 1

Landscape Planning Ltd

© 2012

Design of Weld Mesh Type Tree Protection Barrier

Specifications:

Tree Protective barriers shall be 2m high x 3m in length

As 'Heras' type fencing can be easily moved, it must therefore be diagonally braced into the ground and clamped in order to provide semi-permanent protection using scaffold poles secured with 'U' bolts / clamps.

Location:

The barriers shall be positioned on the perimeter of the Root Protection Area to define a Construction Exclusion Zone and will be further identified by Tree Protection warning signs (see photograph). A full size warning sign is supplied for reproduction and laminating.

APPENDIX 9

CI/SfB

Common Arrangement R12

Uniclass
L81208/L81210

CellWeb™



Tree Root Protection System



Geosynthetics

CellWeb™

Tree Root Protection System



The CellWeb™ TRP cellular confinement system protects tree roots from the damaging effects of compaction and desiccation, while creating a stable, load-bearing surface for vehicular traffic.

CellWeb™ offers an alternative to the traditional methods of constructing roadways and building foundations that involve excavation, which can result in tree root severance and soil compaction from the passage of vehicles. Such damage can severely influence tree health, and in extreme cases leads to death. CellWeb™ can be sensitively installed close to and under the canopies of trees without negative effects.

Trees are valuable landscape features and a vital environmental resource. Increasingly, contractors are being required to ensure the health and survival of trees during and beyond the construction period. Although this is enshrined in BS 5837: Trees in Relation to Construction: Recommendations (2005) and Tree Preservation Order legislation, it presents several issues when implementing construction projects near to trees:

- Root severance caused by excavation, leaving trees open to decay, less stable and with a diminished capacity to utilise soil water and nutrients.
- Destruction of soil structure and compaction due to the passage of heavy vehicles, restricting the flow of water and air to tree roots.
- Need for construction access, new roadways and hard surfaces that require engineering-standard load-bearing foundations that meet building regulations.
- Need for high-performance, cost-effective driveways and roadways in the vicinity of tree roots.



Potential loss of existing tree due to poor construction techniques.

The CellWeb™ system overcomes these issues and helps contractors to comply with tree health guidelines by creating a load-bearing base that is water-permeable, stable and durable.

With no need for excavation, the system is quick and easy to install, reducing construction time and saving costs and making it suitable for temporary and permanent solutions.



Glynebourne Wood.

Pedestrian path to recreational woodland built using a CellWeb™ foundation which was covered with DuoBlock and then filled with woodchip to create a porous surface.

Product features



CellWeb™ comprises an expandable cellular mattress that is then filled with a clean stone sub-base and above a Treetex T300 Geotextile.

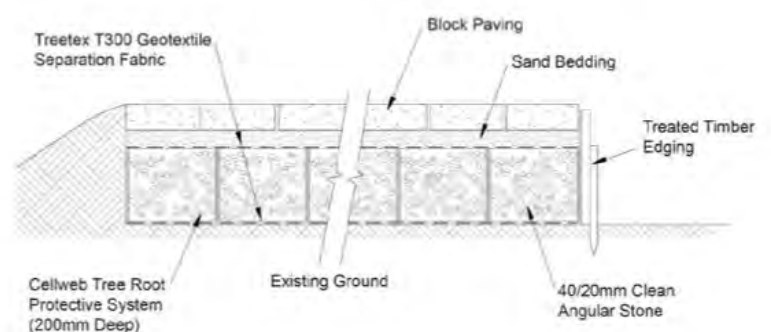
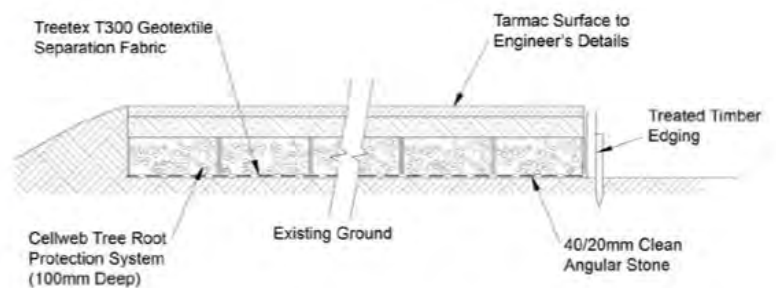
The honeycomb-like structure is made of robust high-density polyethylene (HDPE) that is simply stretched out and filled with clean angular material. Just like traditional roadways, the strength of the structure comes from the binding together of the infill, but with CellWeb™ this is achieved without compaction and without reduction in permeability.

Perforated cell walls allow the angular infill to bind with the contents of the adjacent cell, but with sufficient space for the movement of water and air to nearby tree roots. As the infill contains no fines and the geotextile layers prevent clogging from particles washing into the system, the structure remains permeable to water over time and protects the roots for the lifetime of the tree.

As well as being quick and easy to install, CellWeb™ also dramatically cuts down the depth of sub-base required, in most cases by as much as 50%, further reducing costs. CellWeb™ significantly reduces surface rutting, increasing the long-term performance of the finished surface and ensuring that tree roots remain protected from vertical loads.

CellWeb can be used as a permanent solution or alternatively the system can be used in a temporary situation. In a temporary application the system can be used for the required period of time, then removed for use on another site or recycled, thereby adding to CellWeb's green credentials.

- No excavation – Soil structure remains undisturbed; risk of root damage minimised.
- Porous infill – Allows tree roots to conduct moisture and gas exchange.
- No compaction – No need to compact the infill to achieve a load-bearing structure.
- Lateral stability – Structure remains rigid to vertical loads.



**Please call
01455 617 139**

or email sales@geosyn.co.uk
for further information.

Wide
product
range

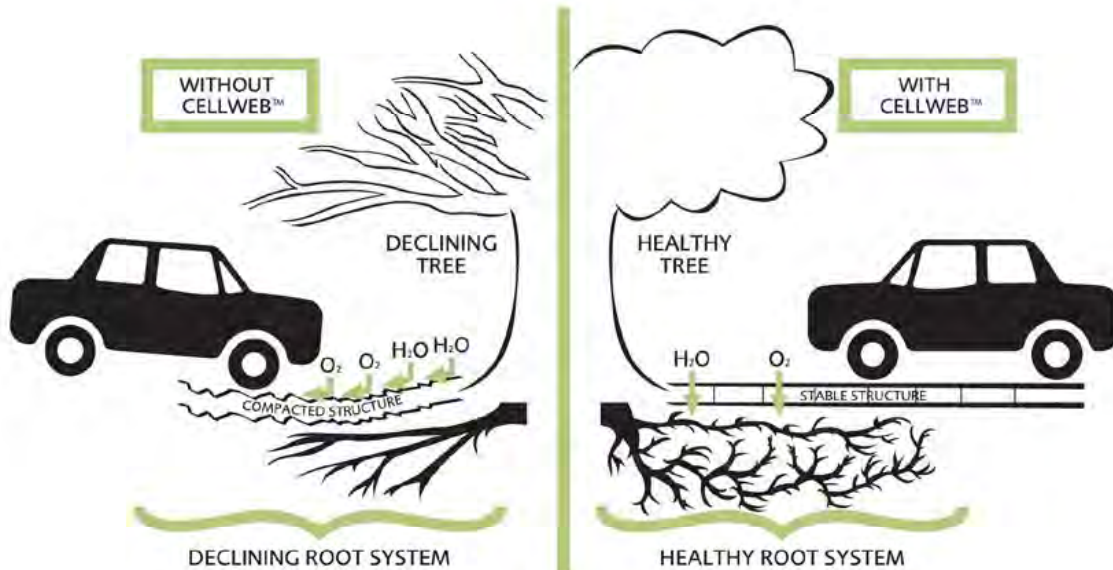
Large
stock
holding

Next day
delivery

Hydrological benefits

Water is a shrinking resource in the urban environment. As the extent of the built environment increases, more and more ground is being covered by impermeable hard surfaces that repel rainwater runoff, preventing it from reaching the roots of vegetation, and in particular trees. Rapid water runoff stretches the capacity of stormwater drains and frequently results in drainage management issues that are rarely resolved in favour of adjacent trees.

Using CellWeb™ mitigates these issues by promoting both the vertical and the lateral movement of water, whether the system is installed above or below ground. The 'pores' that are created by the spaces between the infill stones and the cell perforations even allow water to flow to adjacent tree roots that are effectively 'trapped' under areas of impermeable hard standing. CellWeb™ therefore helps to promote root growth and allows roots to continue to grow within areas of hard surfacing.



Design
service

Onsite
support



Geosynthetics



Design & installation

Final surfacing

The benefits of the CellWeb™ system to trees can only be maintained if a suitably porous final surface is selected. An ideal surfacing is the DuoBlocks grass reinforcement and gravel retention system, a visually attractive surface that has the advantage of being fully porous. Alternatives include block paviors, porous asphalts and loose or bonded gravel.

Call the Geosynthetics sales team on 01455 617 139 for more advice on surfacing options and other products and systems.

Advice and product selection

Geosynthetics Limited has been supplying the CellWeb™ system for many years and has acquired solid experience in its application. No two contracts are the same, and we understand the factors that need to be taken into account to specify the right CellWeb™ product.

We provide a FREE consultation, design and advisory service to find the solution that is most cost-effective and beneficial for your site. Our service includes product selection, CAD drawings and full instructions to help you from project conception to completion.

Call our sales office on 01455 617 139 for specification details and project-specific design assistance.

CellWeb™ in action:

Access road for the Lake District National Parks Authority.



Site before construction pictured above.



Installation of the CellWeb™ system.



Four years later.

Technical specification

Product Specifications

Properties	Standard Cell
Material	Virgin HDPE
Wall thickness	1.25mm
Seam welding	Ultrasonic to 100% of seam length
Cell depth	75, 100, 150, 200 and 300mm
Width of expanded panel	2.56m
Length of expanded panel	8.1m
Cell diameter (expanded)	259 x 224mm

Certified Quality

CellWeb™ is manufactured in accordance with the ISO 9001 Quality Management System in a comprehensive range of cell diameters and depths.



Geosynthetics Ltd



Geosynthetics

Geosynthetics Limited

Fleming Road, Harrowbrook Industrial Estate
Hinckley, Leicestershire LE10 3DU.

Tel: 01455 617 139

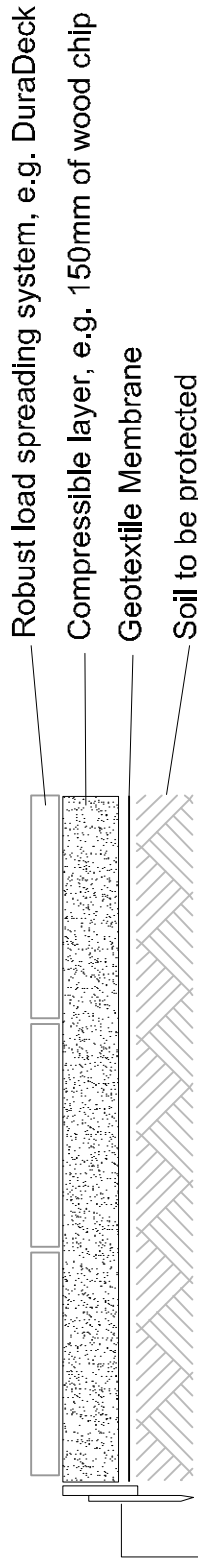
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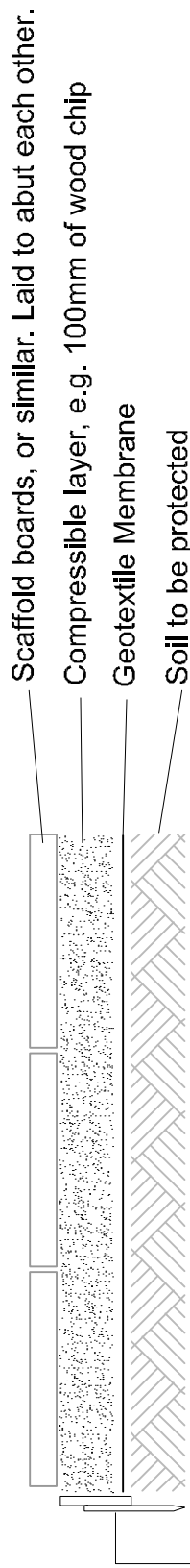
APPENDIX 10

Ground protection for vehicular traffic within Root Protection Areas of Trees to be retained



Robust load spreading system, e.g. DuraDeck
 Compressible layer, e.g. 150mm of wood chip
 Geotextile Membrane
 Soil to be protected
 Edge detail: retaining board, fixed in position with wooden pegs driven into ground and nailed to board

Ground protection for pedestrian traffic and beneath scaffolding within Root Protection Areas of Trees to be retained,



Scaffold boards, or similar. Laid to abut each other.
 Compressible layer, e.g. 100mm of wood chip
 Geotextile Membrane
 Soil to be protected
 Edge detail: retaining board, fixed in position with wooden pegs driven into ground and nailed to board

REVISIONS

No	Description	By	Date	Chkd



ISSUE: _____

CLIENT: _____

Generic LPL Detail

LOCATION: _____

Generic LPL Detail

DRAWING TITLE: _____

Indicative Designs for Ground Protection within the Root Protection Areas (RPAs) of trees to be retained

SCALE: 1:xxx @ A3

DATE: July 2012

DRAWN BY: OK

CHECKED BY: OK

PROJECT NO: L107

REV: _____

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