



ARBORICULTURAL REPORT (BS 5837:2012)

FOR
PROPOSED DEVELOPMENT

AT

FORMER WATERSIDE PUB
KAY STREET
SUMMERSEAT
BURY

December 2018

Job Number 4014

DEP Landscape Architecture Ltd | 0161 241 9878 | info@dep.co.uk

www.dep.co.uk

TABLE OF CONTENTS

Contents	Page No.
1.0 INTRODUCTION	3
1.1 Professional Details	3
1.2 Tree Survey	3
2.0 FINDINGS	4
2.1 The Site	4
2.2 The Soils	4
2.3 The Trees	4
2.4 Standard of Work	4
2.5 Statutory Controls	4
2.6 Wildlife	5
3.0 DISCUSSION	5
4.0 ARBORICULTURAL IMPLICATIONS ASSESSMENT	6
5.0 MITIGATING PROPOSALS	8
5.1 Tree Losses and Replacement Planting	8
5.2 Development	8
6.0 METHOD STATEMENT	9
6.1 Tree Works	9
6.2 Protective Fencing	9
6.3 Additional Precautions Outside Fenced Areas	11
6.4 Methodology for the Construction of Permanent and Temporary Hard Surfaces within Root Protection Area's	11
6.5 Site Buildings	12
6.6 Services	13
6.7 Summary of Methodology for the Protection Trees	13
6.8 Conclusion	13
APPENDIX A – Glossary of Terms and Table 1 of BS 5837:2012	
APPENDIX B – Arboricultural Data	
APPENDIX C – Key References	
APPENDIX D - NJUG 10 Section 4.0	
APPENDIX E – Site Notice for Protective Fencing	
APPENDIX F – Example of Special Surface Construction	
APPENDIX G – Site Plans	

Disclaimer

The tree(s) referred to in this report are living entities and are therefore subject to natural processes. They will also be subject to changes to their environment caused by human's activities and to exceptional weather conditions. The inspection undertaken by our qualified staff relies on visual attributes of tree health and structure which can be assessed from a ground based inspection. Hidden defects which are not readily visible may not be detected. We therefore cannot wholly guarantee the condition and safety of the trees inspected beyond what can be reasonably assessed from the procedure used. We would recommend that the trees are regularly inspected and our staff will advise on the suitable frequency of these inspections.

1.0 INTRODUCTION

1.1 Professional Details

- 1.1.1 My name is Peter Murray and I have been working and studying in the Arboricultural Industry since 1989. I have many years practical and consulting experience as a Local Authority arboriculturalist and more recently as a private sector practitioner.
- 1.1.2 I so far hold the Higher National Diploma in Arboriculture and am a professional member of the Arboricultural Association. I keep up to date with the latest research and best practice by attending relevant courses and seminars.

1.2 Tree Survey

- 1.2.1 We were recently instructed by Kingsley Properties to carry out a site visit at the former Waterside Pub, Summerseat, Bury and survey all significant trees that may be affected by development proposals in accordance with *BS 5837:2012 trees in relation to design, demolition and construction – Recommendations*.
- 1.2.2 The survey on which the findings of this report are based was undertaken on Wednesday 26th September 2018 and the weather was dry and bright.
- 1.2.3 This report should be read in conjunction with the attached Arboricultural Data and Site Plans of Appendix B and G.
- 1.2.4 The trees were inspected from ground level only and all comments and recommendations made have taken into account their location, surroundings and likely impact on persons or property.
- 1.2.5 The limitations of this report are restricted to the persons, time, information made available and purpose for which this report has been prepared. This report does not deal with any existing tree root/building conflicts and no information has been provided regarding soil type and no analysis undertaken by this company.

2.0 FINDINGS

2.1 The Site

2.1.1 The site in question was a former pub, which recently collapsed into the river. The site has now been cleared save for several tree trunks and branches.

2.1.2 The proposal is for a residential apartment building.

2.2 The Soils

2.2.1 The soil of the site is described at <http://www.landis.org.uk/soilscapes> as being 'Loamy and clayey floodplain soils with naturally high groundwater'.

2.3 The Trees

2.2.1 A total of twenty individual trees and four groups were surveyed and plotted in order to assess their health and dimensions in accordance with the British Standard and the results are clearly detailed within the Appendices of this report.

2.2.2 In general the trees within the site were found to be in moderate condition for their age and species. Any works identified within the data tables should take place regardless of development in line with best practice. The quality rating for the trees on or affecting this site can be summarised as follows:

U – 2 trees (T14 & T15)

A – 0 trees/groups

B – 6 trees/groups (T1, T3, T6, T10, T13 & G3)

C – 16 trees/groups (T2, T4, G1, T5, T7, G2, T8, T9, T11, T12, T16, T17, T18, T19, T20 & SH1))

2.4 Standard of Work

2.4.1 Any tree work undertaken should be done in accordance with British Standard 3998:2010 and by competent contractors insured with public liability cover of at least two million pounds.

2.5 Statutory Controls

2.5.1 If the trees on site are subject to any Tree Preservation Orders (TPO's) or are encompassed within a Conservation Area then statutory permission from the Local Planning Authority (LPA) will be required before any tree works take place. A recent check on Bury Councils Online Mapping service revealed that none of the trees are protected by a TPO but the site is within the Brooksbottoms, Rowlands Conservation Area.

2.6 Wildlife

- 3.5.1 All operations should take account of wildlife needs and be planned to take advantage of weather conditions and time of year for minimum damage and disturbance. If any protected species or nesting birds are present or discovered while the works are taking place all work should cease until contact has been made with Natural England for further advice. Natural England can be contacted on 0300 060 3900 or by e-mail to: enquiries@naturalengland.org.uk. Specific consideration should be given to the possible presence of roosting bats, which are protected by the Wildlife and Countryside Act 1981 (schedule 5) and included in schedule 2 of the Conservation Regulations 1994. Ideally, a survey should be carried out to identify any potential roost sites and if bats are found to be present advice should be sought from a person qualified and experienced in handling such matters and fully conversant with the implications of the Act.

3.0 DISCUSSION

- 3.1 The majority of the root system, of a tree, is in the surface 600mm of the soil, extending radically for distances frequently in excess of the trees height. Beyond the main structural roots (close to the base of the trunk), the root system rapidly sub-divides into smaller diameter roots: off this main system, a mass of fine roots develops.
- 3.2 The shape of the main structural roots develops in response to the need for the tree to have physical stability. Beyond these major roots, root growth and development is influenced by the availability of water and nutrients. Unless conditions are uniform around the tree, which would be unusual, the extent of the root system will be very irregular and difficult to predict. It will not generally show the symmetry seen in the branch system.
- 3.3 The parts of the root system, which are active in water and nutrient uptake, are very fine, typically less than 0.5mm diameter. They are short lived, developing in response to the needs of the tree, with the majority dying each winter. It is *essential* that conditions in the soil remain conducive to the healthy growth of these fine roots so that the water and nutrients necessary for healthy tree growth can be absorbed.
- 3.4 All parts of the root system, but especially the fine roots, are vulnerable to damage. Once they are damaged, water and nutrient uptake will be restricted until new roots have regenerated. Vigorous young trees will be capable of rapid regeneration but over mature trees will respond slowly, *if at all*.
- 3.5 In order to live and grow, roots need oxygen from the soil. Respiration by the roots and other soil organisms depletes this oxygen and increases carbon dioxide levels in the soil; a correct balance of these gases is normally maintained by diffusion between the soil and the atmosphere. Anything, which disturbs this balance, will affect the condition of the root system.

- 3.6 The factors that most commonly affect this diffusion adversely, and therefore damage roots, are the following: -
- a) Compaction of the ground, which reduces the space between soil particles. This is particularly important on clay soils. A single passage by heavy equipment on clay soils or storage of heavy materials can cause significant damage.
 - b) Changing soil levels, even for a few weeks.
 - c) Covering the root area with impervious surfaces.
 - d) A rise in the level of the water table. Roots can tolerate submersion for short periods. But a permanent rise will deplete the soil of oxygen.
- 3.7 Serious damage is often caused during preliminary site works by stripping the topsoil. For this reason, such works should be avoided until protective fencing has been erected.
- 3.8 Excavations in the rooting area can sever roots. As the majority of roots are in the surface 600mm, even shallow excavations can cause damage.
- 3.9 Excavations for foundations, landscaping or service trenches are usually sufficiently deep to sever most of the roots, and it should therefore be assumed that all parts of the root system beyond the excavation would no longer serve the tree.
- 3.10 Excavation or soil stripping which sever or damage the roots may impair the stability of the tree and make it dangerous.

4.0 ARBORICULTURAL IMPLICATIONS ASSESSMENT

- 4.1 The purpose of this section is to assess the implications, if any, the proposed development will have on the trees identified in the Tree Survey of 26th September 2018 carried out by DEP (see Appendix B & G) and advise on arboricultural measures, which would be likely to mitigate any damage resulting from the proposals.
- 4.2 The Site Layout Plan within Appendix GF identifies the trees in relation to the proposed development.
- 4.3 In order to fully assess the impact of the proposals an Implications Table has been created, which gives details of the proximity of the associated works to the trees.
- 4.4 The below Implications Table details the Root Protection Area (RPA) in accordance with the British Standard 5837:2012 *Trees in relation to design, demolition and construction – Recommendations*. This is an area that should be left undisturbed in order to provide adequate rooting area for retained trees. This is also illustrated on the Site Plan of Appendix G.

4.5 This information can then be used to determine whether the development will have a detrimental impact on the health of the trees. Once this has been determined remedial measures can be detailed to reduce the impact the proposals will have.

4.6 Implications Table: -

Tree No.	Root Protection Area (m ²)	Circle Radius (m)	Distance to any proposed construction or surfacing (m)	Can the Tree be Successfully Retained
T1	91.61	5.40	n/a	Yes
T2	76.05	4.92	n/a	Yes
T3	55.42	4.20	2.0	Yes see 5.0
T4	14.66	2.16	Remove for development	
G1	<4.52	<1.20	Part remove for development	
T5	79.80	5.04	Remove for development	
T6	95.73	5.52	Remove for development	
T7	104.23	5.76	2.0	Yes see 5.0
G2	<113.10	<6.00	n/a	Yes
T8	117.67	6.12	Remove for development	
T9	72.38	4.80	n/a	Yes
T10	152.18	6.96	10.0	Yes
T11	136.85	6.60	7.0	Yes
T12	104.23	5.76	7.0	Yes
T13	99.93	5.64	n/a	Yes
T14	127.08	6.36	Remove for condition	
T15	104.23	5.76	Remove for condition	
G3	<113.10	<6.00	n/a	Yes
T16	40.72	3.60	Remove for condition	
T17	21.90	2.64	n/a	Yes
T18	72.38	4.80	n/a	Yes
T19	91.61	5.40	Remove for development	
T20	68.81	4.68	Remove for development	
SH1	<6.51	<1.44	Remove for development	

- 4.8 To assess the implications of the proposed development each tree can be categorised in the following way: -

	Trees to be Retained		Trees to be removed	
	With No Impact	With Impact within RPA	Due to Condition	Due to Development
Tree No.	T1, T2, G2, T9, T10, T11, T12, T13, G3, T17 & T18	T3 & T7	T14, T15 & T16	T4, G1 (partial), T5, T6, T8, T19, T20 & SH1

5.0 MITIGATING PROPOSALS

5.1 Tree Losses and Replacement Planting

- 5.1.1 The loss of any tree is always regrettable although in this instance out of the eight trees/groups affected only one tree is rated higher than the C rating (T6).
- 5.1.2 It is considered that these losses can be adequately compensated for within a new landscape scheme providing new tree, hedge and shrub planting.

5.2 Development

- 5.2.1 As shown above, the Implications Table identifies that T3 & T7 could be affected by the development proposals as new surfacing is shown to be within their Root Protection Area's (RPA's).
- 5.2.2 However, with regard to T3 (Sycamore) the proposed surfacing affects less than 20% of its overall RPA and affects one side of the tree only. In addition the majority of roots encountered will no doubt belong to T4, which is to be removed. The new surfacing is considered far enough away from the buttress not to cause structural damage.
- 5.2.3 There is new surfacing proposed within the RPA of T7 (Goat Willow). In this area it is proposed to employ the use of geo-textile materials, such as 'Geoweb' and 'Cellweb' to construct a permanent 'no dig' surfacing. In this instance the existing levels should allow this type of construction to be used. An example of this can be found in Appendix F of this report.
- 5.2.4 The construction of the proposed building is positioned fairly close to the RPA's of T10, T11 & T12. However, within these areas of construction there is existing hard surfacing left over from the previous development, which would mean that root activity would be limited in this area and would act as ground protection during construction.

5.2.5 There will be some shading to the building particularly at the eastern end due to T11, T12 & G3. However, provided that living accommodation is carefully designed to be at the north side of the building this shouldn't be a problem. In addition if it does become an issue the removal of T11 & T12 would improve the situation as they are one sided edge trees. Their removal would not significantly affect the overall amenity of the area as G3 located on the bank is the main amenity and the main body of trees.

5.2.6 A clear tree works specification and details of all tree protective measures can be found in the following Arboricultural Method Statement (Section 6.0).

6.0 METHOD STATEMENT

Before any form of development commences on the site the following works should be undertaken: -

6.1 Tree Works

Tree No.	Proposed Works
T4, G1 (partial), T5, T6, T8, T14, T15, T16, T19, T20 & SH1	Fell to ground level and remove stumps where necessary.
T1	Crown clean.
T3	Fill in holes within surrounding area with top soil.
T9	Cut to form Coppice.

Recommended works should be carried out to the *British Standard Recommendations for Tree Work, BS 3998:2010*

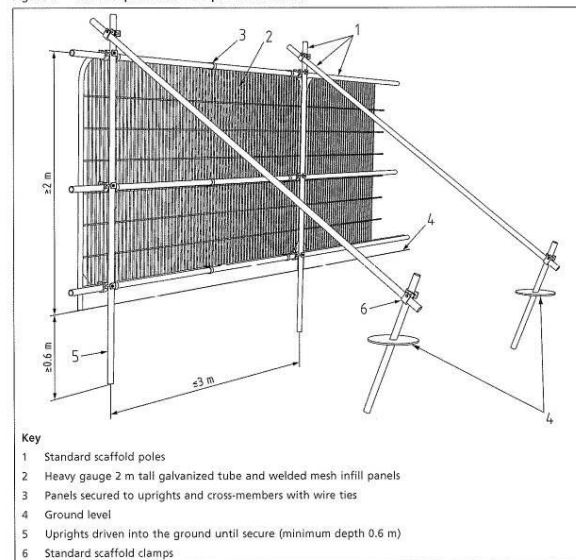
6.2 Protective Fencing

6.2.1 All fencing used on the site should fully comply with *BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations*.

6.2.2 The fencing should be strong and suitable for local conditions. It should also take into account the degree of construction activity on the site.

6.2.3 In this circumstance the location for the protective fencing should be as shown on the Tree Protection Plan of Appendix G and of the following specification:

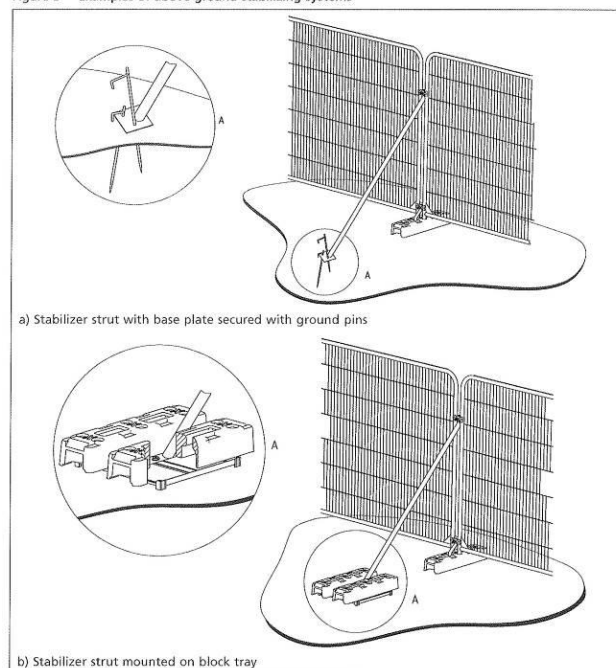
Figure 2 Default specification for protective barrier



Or

Heras type temporary fencing can sometimes be acceptable with the bases pinned to the ground securely. This needs be checked with the Local Planning Authority.

Figure 3 Examples of above-ground stabilizing systems



6.2.4 No storage of materials or any construction operations should occur within the fenced area. Additionally, when designing the site layout, account should be taken of the route/installation method of underground services/drains and, the route/construction method of new access roads/driveways in relation to the retained trees. It would be advisable to mark out the optimum position of the protective fencing on the ground prior to finalisation of any design proposal.

- 6.2.5 Notices should also be erected on the fencing stating 'Protected Area - No operations within fenced area'. An example can be found in Appendix E, which should be laminated and attached to the fencing at regular intervals.
- 6.2.6 The positioning of the protective fencing is also very important and should be erected in the proposed location identified on the site plan of Appendix G. Once the fence has been erected it should never be crossed and particular care should be taken not to store any materials or soil within the protected area.

6.3 Additional Precautions Outside Fenced Areas

- 6.3.1 Oil, bitumen, cement or other material likely to cause damage to the tree will not be stacked or discharged within 10m of the trees stem or within the protective area. Also materials in general will not be stacked or discharged within the exclusion zone.
- 6.3.2 Concrete mixing and washing will not be carried out within 10m of any retained trees.
- 6.3.3 Fires will not be lit beneath the foliage or in a position where the flames could extend to within 5m of the foliage, branches or trunk. If the fire is large then this may necessitate a distance of at least 20m.
- 6.3.4 Trees that are to be retained will not be used as anchorage for equipment.
- 6.3.5 Notice boards, telephone cables, or other services will not be attached to any part of the retained tree.
- 6.3.6 Care should be taken when using cranes or other equipment near the canopy of the retained trees. Also any trees to be felled in proximity to the retained trees should be done so with particular care.

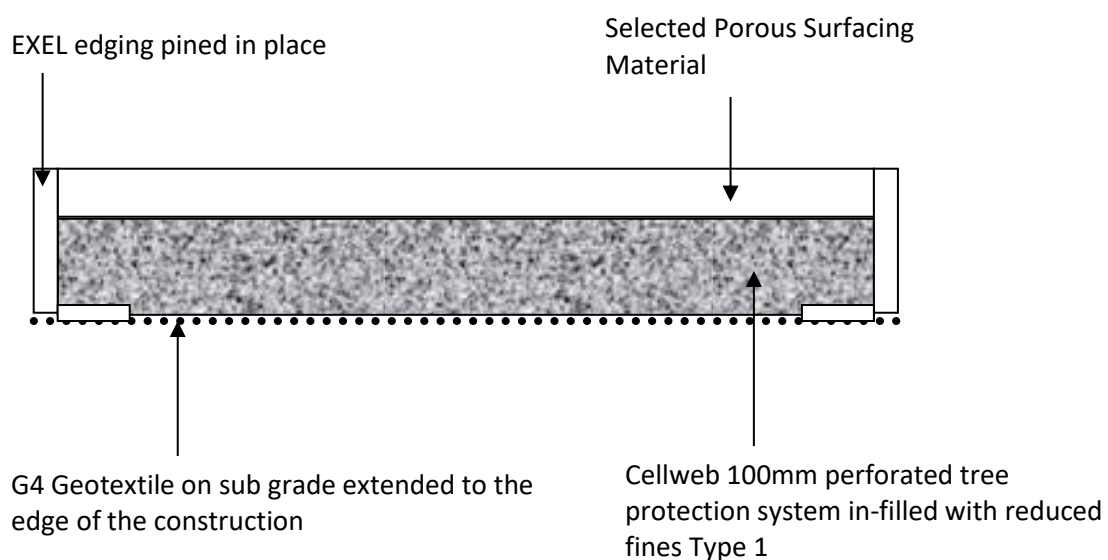
6.4 Methodology for the Construction of Permanent and Temporary Hard Surfaces within Root Protection Area's

The following methodology supports the below drawing indicating the construction of the proposed 'no dig' surfaced area as mentioned in section 5.2.3 above with regard to T7 (see Appendix F and G). The methodology is prepared on the basis of the sequence of operations necessary to complete the construction of the hard surfaces with the minimum damage to the trees proposed for retention.

- Surface layer to be scrapped off by no more than 50-100mm. This can be done either by hand or by very small machinery but may not be needed at all in this instance.
- Spread a sub grade material over the areas to fill any small ruts.
- Lay G4 Geotextile over area to be surfaced.

- Position EXEL metal edging pinned in place. This may also not be necessary for a temporary surface.
- Extend the Cellweb 100mm perforated tree root protection system over the area to be surfaced.
- Fill the voids within the Cellweb with reduced fines Type 1 material working into the site over the top of the Cellweb.
- Surface over the Cellweb such that the construction binds itself together.

CELLWEB BASED SPECIAL SURFACE CONSTRUCTION – (INDICATIVE ONLY)



6.5 Site Buildings

- 6.5.1 Site cabins, compounds and welfare should all be placed outside of the protection areas of retained trees.
- 6.5.2 Where this is not possible further advice should be sought from the appointed arborist and in some circumstances it may be possible to construct temporary ground protection and adjust fencing but this is only to be considered as a last resort.
- 6.5.3 On larger sites of more intensive development where this is little open spaces for site buildings then alternative arrangements off site should be considered or part of the site should remain undeveloped until the final stages when less site storage is needed.

6.6 Services

- 6.6.1 Where possible all service trenches should be dug outside of the Root Protection Area.
- 6.6.2 Should this not be possible then the guidelines within 'NJUG 10' *Guidelines for the Planning, Installation and Maintenance of Utility Services in Proximity to Trees* should be adopted, in particular Section 4.0, which is included within Appendix D of this report.

6.7 Summary of Methodology for the Protection Trees

- 1. Remedial tree works carried out in accordance with this report and by a competent and fully insured arboricultural contractor and in accordance with BS 3998:2010.**
- 2. Erection of Protective Fencing in accordance with this Method Statement and plan of Appendix G and to be checked by the appointed arboriculturalist before commencement of works.**
- 3. The installation of the 'no dig' surfacing adjacent to T7 as outlined above and within Appendix F and G. This is to be done under the supervision of the appointed arboriculturalist.**
- 4. The construction of the new development.**
- 5. The removal of Protective Fencing is only to be done with the agreement of a competent arborist or the LPA.**
- 6. New landscaping including tree, hedge and shrub planting.**

6.8 Conclusion

Provided that all the above measures are put into practice this development should not have a detrimental effect on the amenity of the area in terms of tree cover as the majority of significant trees can be retained.

Signed

A handwritten signature in black ink, appearing to read 'P. Murray'.

Peter Murray (HND. ARB, M, Arbor A)
Arboricultural Consultant for DEP Landscape Architecture Ltd

Blackfriars House
Parsonage
Manchester
M3 2JA

Tel: 0161 241 9878

17th December 2018

APPENDIX A - Glossary of Terms & Table 1 of BS 5837:2012

The following terms are concurrent with best Arboricultural practice and within the guidelines set by the International Society of Arboriculture (ISA), the Arboricultural Association (AA) and the British Standards Institute (BSI).

Dbh: Diameter at Breast Height is measured at 1.5m and recorded in millimetres. Where a tree becomes multi-stemmed below 1.5m the diameter of each stem is measured at 1.5m and added together. Where a tree has low branching or has swelling the stem is measured at the narrowest point below.

Height: Height was estimated and recorded in metres.

Age Range: Age is site specific and categorised:

Young (Y)	Out-planted trees that have not yet established.
Semi-Mature (SM)	Established trees up to 1/3 of expected height and crown.
Early Mature (EM)	Between 1/3 and 2/3 of expected height and crown.
Mature (M)	Between 2/3 and full expected height and crown.
Fully Mature (FM)	Full expected height and crown.
Over Mature (OM)	Crown beginning to break-up and decrease in size.
Senescent (S)	Crown in advanced stage of break-up.

Crown Spread: Measured in metres at four cardinal points (N, E, S & W).

Crown Clearance: Measured in metres from the ground to the first branch tip on development side only.

Condition - Assessment of current physiological condition and structural morphology incorporating vigour and vitality and categorised:

- A - Tree needing little, if any attention
- B - Tree with minor, but rectifiable defects, or in the early stages of physiological stress
- C - Tree with significant structural and physiological flaws and/or extremely stressed
- D - Tree that is dead, biologically/physically moribund or dangerous

Desirability To Retain – As Outlined in Table 1 of BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations (see below).

Definition of Physiological & Morphological Terms

Adaptive Growth - The process whereby wood formation is influenced both in quantity and in quality by the action of gravitational force and mechanical stresses on the cambial zone.

Bifurcation – Forked or divided union.

Brown Rot - Form of decay where cellulose is degraded, while lignin is only modified.

Cankers (target or tumorous) - A localised area of dead bark and cambium on a stem or branch, caused by fungal or bacterial organisms, characterised by woundwood development on the periphery. This may be annual or perennial.

Cavity - An open wound, characterised by the presence of extensive decay and resulting in a hollow.

Chlorotic Leaf - Lacking in chlorophyll, typically yellow in colour.

Compartmentalisation - The physiological process that creates the chemical and mechanical boundaries that act to limit the spread of disease and decay organisms.

Coppicing - Is an ancient form of woodland management that involves repetitive felling on the same stump, near to ground level, and allowing the shoots to re-grow from that main stump. (Also known as the coppice stool).

Crack - Longitudinal spilt in stem or branch, involving bark and/or underlying wood. These may be vertically and horizontally orientated.

Decay - Process of degradation of woody tissues by fungi and bacteria through decomposition of cellulose and lignin.

Deadwood - Deadwood is often present within the crown or on the stems of trees. In some instances it may be an indication of ill health, however, it may also indicate natural growth processes. If a target is present beneath the tree, deadwood may fall and cause injury or damage and should be removed, otherwise deadwood can remain intact for conservation purposes (insects, fungi, birds etc.).

End Weight - The concentration of foliage at the distal ends of stems and deficient in secondary branches.

Girdling Root - Root which circles and constricts the stem or roots causing death of phloem and/or cambial tissue.

Hazard Beam - An upwardly curved branch in which strong internal stresses may occur without the compensatory formation of extra wood (longitudinal splitting may occur in some cases).

Included Bark Union - Pattern of development at branch junctions where bark is turned inward rather than pushed out. Potential weakness due to a lack of a woody union.

Ivy Growth - Ivy growth may ascend into the tree's crown, increasing wind resistance, concealing potential defects and reducing the tree's photosynthetic capacity. Ivy growth is often acceptable in woodland areas as a conservation benefit.

Live Crown Ratio - The relative proportion of photosynthetic mass (leaf area) to overall tree height.

Reaction Wood - Specialised secondary xylem, which develops in response to a lean or similar mechanical stress, attempting to restore the stem to the vertical.

Root Plate Lift - The physical movement of the rooting plate causing soils to shift and crack. May occur during adverse weather conditions. Trees may become unstable.

Structural Defect - Internal or external points of weakness, which reduce the stability of the tree.

Suppressed - Trees which are dominated by surrounding vegetation and whose crown development is restricted from above.

Topping - A highly disfiguring practise, likely to cause severe xylem dysfunction and decay in major structural parts of the wood.

White Rot - Form of decay where both cellulose and lignin are degraded.

Wound - Any injury, which induces a compartmentalisation response.

Woundwood - Wood with atypical anatomical features, formed in the vicinity of a wound and a term to describe the occluding tissues around a wound as opposed to the ambiguous term "callus."

Woodland Structure - The vertical and horizontal arrangement of trees within a group or woodland i.e. Dominant - trees with a crown above the upper layer of the canopy, Co-dominant trees that define the general upper edge of the canopy, Intermediate trees that have been largely overgrown by others, Suppressed trees that have been overgrown and occupy an under storey position and grow slowly, often severely asymmetrical.

Note: The definitions described above, may not necessarily be included within the Arboricultural Survey Data.

Table 1 – Cascade chart for tree quality assessment

Category and definition	Criteria (including subcategories where appropriate)		
Trees unsuitable for retention (see note)			
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 Note – Category U trees can have existing or potential conservation value which it might be desirable to preserve; see 4.5.7.		
	1 Mainly arboriculture qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation
Trees to be considered for retention			
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 arboriculture 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 pasture)
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 minor 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 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
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 150 mm	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	Tree with no material conservation or other cultural value

APPENDIX B – Arboricultural Data

Arboricultural Data Sheet: Former Waterside Pub, Kay Street, Summerseat, Bury										Date of Survey: 26/09/18		Surveyor: PM			
Crown C = Crown Clearance; Cond R = Condition Rating; ERC (Yrs) = Estimated Remaining Contribution; TQRA = Tree Quality Category Rating; RPA (m ²) = Root Protection Area (m ²) Recommended works should be carried out to the <i>British Standard Recommendations for Tree Work, BS 3998:2010</i>															
Tree No.	Species	Dbh (mm)	Height (m)	Age	Crown Spread				Crown C	Cond R	Comments and Preliminary Management Recommendations	ERC (Yrs)	TQCR	RPA (m ²)	RPA Circle Radius (m)
					N	E	S	W							
T1	Hornbeam	450	11	EM	6	5	6	6	2	B/C	A co-dominant specimen within small group of planting. Reasonable form. Deadwood present and slight crown decline. - Crown clean.	20+	B2	91.61	5.40
T2	Cherry	410	7	M	6	6	4	6	1.5	B	A co-dominant specimen within small group of planting. Some crown suppression and branch stubs present from previous pruning. Several stem wounds and minor cavities.	10+	C2	76.05	4.92
T3	Sycamore	350	11	EM	5	5	6	4	2	B	A reasonable specimen located on boundary forked at 3m. Large soil holes around base with exposed roots possibly due to previous flood damage. - Fill in holes with top soil.	20+	B2	55.42	4.20
T4	Bird Cherry	180	6	EM	5	4	3	2	1	B	A suppressed specimen within dense shrubbery. Heavy stem lean.	10+	C2	14.66	2.16
G1	Group - Cypress, Laurel, Berberis & Hawthorn	<100	<5	SM-EM	3	3	3	3	0	C	A linear group of mainly shrub planting located on boundary on edge of existing car park.	10+	C2	<4.52	<1.20
T5	Norway Maple	420	12	EM	5	4	4	7	2	B/C	A co-dominant specimen located in planting pit within existing car park arrangement. Exhibits major asymmetry and several stem wounds form previous pruning that are becoming decayed. Some decline in crown and stem and branch damage.	10+	C2	79.80	5.04
T6	Norway Maple	460	11	EM	5	7	6	5	4	B	A co-dominant specimen located in planting pit within existing car park arrangement. Exhibits minor asymmetry and several stem wounds form previous pruning. Some lower branch damage within crown due to recent flood works.	20+	B2	95.73	5.52
T7	Goat Willow	480 comb	11	M	7	7	8	4	3	B/C	A multi-stemmed specimen forked near base located at bottom of steep bank area. Typical scrub form.	10+	C2	104.23	5.76
G2	Group - 4 Goat Willow, 1 Ash & 1 Hawthorn	<500	<12	M	7	7	7	7	2	B/C	A scrub bank area with self-sown specimens pre-dominantly multi-stemmed Willow. Future coppicing would be beneficial.	10+	C2	<113.10	<6.00
T8	London Plane	510	14	EM	6	7	8	6	2	B	A co-dominant specimen located in planting pit within existing car park arrangement. Exhibits minor stem lean and several stem cavities form previous failures. Likelihood of further failure.	10+	C2	117.67	6.12

Arboricultural Data Sheet: Former Waterside Pub, Kay Street, Summerseat, Bury											Date of Survey: 26/09/18		Surveyor: PM		
Crown C = Crown Clearance; Cond R = Condition Rating; ERC (Yrs) = Estimated Remaining Contribution; TQRA = Tree Quality Category Rating; RPA (m ²) = Root Protection Area (m ²) Recommended works should be carried out to the <i>British Standard Recommendations for Tree Work, BS 3998:2010</i>															
Tree No.	Species	Dbh (mm)	Height (m)	Age	Crown Spread				Crown C	Cond R	Comments and Preliminary Management Recommendations	ERC (Yrs)	TQCR	RPA (m ²)	RPA Circle Radius (m)
					N	E	S	W							
T9	Goat Willow	400	10	M	6	2	0	7	0	C	A scrub poor specimen located on bottom of bank area. Previous failures and low potential. - Cut to form Coppice.	10+	C2	72.38	4.80
T10	Sycamore	580	15	M	9	7	6	6	5	B	A large dominant specimen located on higher ground exhibiting minor crown asymmetry and good vigour. Minor deadwood and branch stubs present.	20+	B2	152.18	6.96
T11	Sycamore	550	15	EM	6	6	4	7	3	B/C	A multi-stemmed self-sown specimen with poor structural form located on edge of bank area.	10+	C2	136.85	6.60
T12	Sycamore	480	15	EM	8	5	4	4	2	B	A self-sown one sided specimen with poor forked at 2m located on bottom edge of bank area.	10+	C2	104.23	5.76
T13	Sycamore	470	15	EM	6	5	4	5	2	B	A co-dominant specimen located on edge of slope and copse with minor crown asymmetry. Forked at 2m with reasonable union.	20+	B2	99.93	5.64
T14	Sycamore	530	15	EM	6	4	3	5	2	C	A co-dominant specimen with severe stem damage possibly due to previous fire. - Fell or remove crown to make safe.	5-10	U	127.08	6.36
T15	Sycamore	480	14	EM	5	4	3	3	2	C	A co-dominant specimen with severe stem damage possibly due to previous fire. - Fell or remove crown to make safe.	5-10	U	104.23	5.76
G3	Group - Sycamore, Hawthorn & Elm	<500	<15	EM	4	4	4	4	1	B	A self -sown group on bank area pre-dominantly Sycamore. Slight overhang into site. Some future minor thinning would be beneficial to improve light to the bank area.	20+	B2	<113.10	<6.00
T16	Sycamore	300	11	EM	4	4	2	3	1.5	B	A minor specimen growing at base of wall of steps. Reasonable vigour but low potential.	10+	C2	40.72	3.60
T17	Ash	220	8	SM	3	4	0	3	5	B	Located in raised planting area with major lean on river side. Self-sown scrub really.	10+	C2	21.90	2.64
T18	Ash	400	8	SM	4	4	4	4	2	B	A self-sown scrub tree forked at base located on retaining wall.	10+	C2	72.38	4.80
T19	Lawson Cypress	450	10	EM	2	2	2	2	2	B	Exhibits reasonable form located just to rear of retaking wall. Forked at base. Previously crown lifted.	10+	C2	91.61	5.40
T20	Lawson Cypress	390	10	EM	2	2	2	2	2	B	Exhibits reasonable form located just to rear of retaking wall. Previously crown lifted.	10+	C2	68.81	4.68
SH1	Shrubs - Laurel & Berberis	<120	5	M	2.5	2.5	2.5	2.5	0	B	Mature shrub planting on river boundary rear of retaining wall. Multi-stemmed form	10+	C2	<6.51	<1.44

APPENDIX C – Key References

1. *British Standard BS 5837: (2012) Trees in relation to design, demolition and construction - Recommendations. ISBN 978-0-580-69917-7*
2. *Lonsdale, D. (199) Principles of tree hazard assessment and management, Research for amenity trees NO. 2. HMSO, London. ISBN 0-11-753355-6*
3. *Mattheck, C. and Belier, H. (1994) The body language of trees. Research for amenity trees No. 4. HMSO, London. ISBN 0-11-753067-0*
4. *Shigo, A. L. (1989a) A new tree biology. Shigo and Trees Associates, Durham, New Hampshire ISBN 0-943563-04-6*
5. *Stouts R. G. and Winter T. G. (1994) Diagnosis of ill-health in trees, Research for amenity trees No. 2. HMSO, London. ISBN 0-11-752919-2*
6. *British Standard BS 3998: (2010) Tree Work-Recommendations. ISBN 978-0-580-53777-6*

APPENDIX D

NJUG 10 Section 4.0

NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees

Telecommunications Code (Schedule 2). Paragraph 19 of the Telecommunications Code enables operators to require the lopping of trees which overhang the street and obstruct or interfere with the working of their lines.

4. HOW TO AVOID DAMAGE TO TREES

This section gives general guidance on methods of work to minimise damage to trees. The local authority (or for privately owned trees, the owner or their agent), should be consulted at an early stage prior to the commencement of any works. This will reduce the potential for future conflict between trees and apparatus.

4.1 Below Ground

Wherever trees are present, precautions should be taken to minimise damage to their root systems. As the shape of the root system is unpredictable, there should be control and supervision of any works, particularly if this involves excavating through the surface 600mm, where the majority of roots develop.

4.1.1 Fine Roots

Fine roots are vulnerable to desiccation once they are exposed to the air. Larger roots have a bark layer which provides some protection against desiccation and temperature change. The greatest risk to these roots occurs when there are rapid fluctuations in air temperature around them e.g. frost and extremes of heat. It is therefore important to protect exposed roots where a trench is to be left open overnight where there is a risk of frost. In winter, before leaving the site at the end of the day, the exposed roots should be wrapped with dry sacking. This sacking must be removed before the trench is backfilled.

4.1.2 Precautions

The precautions referred to in this section are applicable to any excavations or other works occurring within the Prohibited or Precautionary Zones as illustrated in Figure 1 – ‘Tree Protection Zone’.

4.1.3 Realignment

Whenever possible apparatus should always be diverted or re-aligned outside the Prohibited or Precautionary Zones. Under no circumstances can machinery be used to excavate open trenches within the Prohibited Zone.

NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees

The appropriate method of working within the Precautionary Zone should be determined in consultation with the local authority (or for privately owned trees the owner or their agent) and may depend on the following circumstances;

- the scope of the works (e.g. one-off repair or part of an extensive operation)
- degree of urgency (e.g. for restoration of supplies)
- knowledge of location of other apparatus
- soil conditions
- age, condition, quality and life expectancy of the tree

Where works are required for the laying or maintenance of any apparatus within the Prohibited or Precautionary Zones there are various techniques available to minimise damage.

Acceptable techniques in order of preference are;

a) Trenchless

Wherever possible trenchless techniques should be used. The launch and reception pits should be located outside the Prohibited or Precautionary Zones. In order to avoid damage to roots by percussive boring techniques it is recommended that the depth of run should be below 600mm. Techniques involving external lubrication of the equipment with materials other than water (e.g. oil, bentonite, etc.) must not be used when working within the Prohibited Zone. Lubricating materials other than water may be used within the Precautionary Zone following consultation and by agreement.

b) Broken Trench - Hand-dug

This technique combines hand dug trench sections with trenchless techniques if excavation is unavoidable. Excavation should be limited to where there is clear access around and below the roots. The trench is excavated by hand with precautions taken as for continuous trenching as in (c) below. Open sections of the trench should only be long enough to allow access for linking to the next section. The length of sections will be determined by local conditions, especially soil texture and cohesiveness, as well as the practical needs for access. In all cases the open sections should be kept as short as possible and outside of the Prohibited Zone.

NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees

c) Continuous Trench - Hand-dug

The use of this method must be considered only as a last resort if works are to be undertaken by agreement within the Prohibited Zone. The objective being to retain as many undamaged roots as possible.

Hand digging within the Prohibited or Precautionary zones must be undertaken with great care requiring closer supervision than normal operations.

After careful removal of the hard surface material digging must proceed with hand tools. Clumps of roots less than 25mm in diameter (including fibrous roots) should be retained in situ without damage. Throughout the excavation works great care should be taken to protect the bark around the roots.

All roots greater than 25mm diameter should be preserved and worked around. These roots must not be severed without first consulting the owner of the tree or the local authority tree officer / arboriculturist. If after consultation severance is unavoidable, roots must be cut back using a sharp tool to leave the smallest wound.

4.1.5 Backfilling

- Any reinstatement of street works in the United Kingdom must comply with the relevant national legislation (see: **Volume 6 – ‘Legislation and Bibliography’**). In England this relates to the requirements of the code of practice – ‘Specification for the Reinstatement of Openings in Highways’ approved under the New Roads and Street Works Act 1991. Without prejudice to the requirements relating to the specification of materials and the standards of workmanship, backfilling should be carefully carried out to avoid direct damage to roots and excessive compaction of the soil around them.
- The backfill should, where possible, include the placement of an inert granular material mixed with top soil or sharp sand (not builder’s sand) around the roots. This should allow the soil to be compacted for resurfacing without damage to the roots securing a local aerated zone enabling the root to survive in the longer term.
- Backfilling outside the constructed highway limits should be carried out using the excavated soil. This should not be compacted but lightly “tamped” and usually left slightly proud of the surrounding surface to allow natural settlement. Other materials should not be incorporated into the backfill.

NJUG Guidelines for the Planning, Installation and Maintenance of Utility Apparatus in Proximity to Trees

4.1.6 Additional Precautions near Trees

- Movement of heavy mechanical plant (excavators etc.) must not be undertaken within the Prohibited Zone and should be avoided within the Precautionary Zone, except on existing hard surfaces, in order to prevent unnecessary compaction of the soil. This is particularly important on soils with a high proportion of clay. Spoil or material must not be stored within the Prohibited Zone and should be avoided within the Precautionary Zone.
- Where it is absolutely necessary to use mechanical plant within the Precautionary Zone care should be taken to avoid impact damage to the trunk and branches. A tree must not be used as an end-stop for paving slabs or other materials nor for security chaining of mechanical plant. If the trunk or branches of a tree are damaged in any way advice should be sought from the local authority tree officer / arboriculturist.

See TABLE 1 –‘Prevention of Damage to Trees Below Ground’ below for summary details regarding causes and types of damage to trees and the implications of the damage and the necessary precautions to be taken to avoid damage.

APPENDIX E

Site Notice For Protective Fencing



TREE PROTECTION AREA KEEP OUT!

TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY PLANNING CONDITIONS AND ARE SUBJECTS OF A
TREE PRESERVATION ORDER
(TOWN & COUNTRY PLANNING ACT 1990)

CONTRAVENTION OF TREE PRESERVATION ORDER MAY LEAD TO CRIMINAL PROSECUTION

THE FOLLOWING MUST BE OBSERVED BY ALL PERSONS:-

- THE PROTECTIVE FENCING MUST NOT BE REMOVED
- NO PERSON SHALL ENTER THE PROTECTED AREA
- NO MACHINE OR PLANT SHALL ENTER THE PROTECTED AREA
- NO MATERIALS SHALL BE STORED IN THE PROTECTED AREA
- NO SPOIL SHALL BE DEPOSITED IN THE PROTECTED AREA
- NO EXCAVATION SHALL OCCUR IN THE PROTECTED AREA

**ANY INCURSION INTO THE PROTECTED AREA MUST BE
WITH THE WRITTEN PERMISSION OF THE LOCAL PLANNING AUTHORITY**

APPENDIX F

Example of Special Surface Construction



CellWeb TRP[®]



Tree Root Protection Guaranteed



Geosynthetic

www.geosyn.co.uk

CellWeb TRP® System

Tree Root Protection System



The Consequences Of Tree Root Damage During Construction

It is an offence to cut down, lop, uproot, top, wilfully damage or destroy a protected tree without authorisation. Trees can be protected under the Town and Country Planning Act 1990 and the Town and Country Planning (Trees) Regulations 1999. Trees are protected when they are the subject of Tree Preservation Orders (T.P.O) or within Conservation Areas, subject to certain exemptions. Retention and protection of trees on development sites is also secured through the use of planning conditions.

On a construction site all trees with a Tree Preservation Orders need to be managed in accordance with BS5837 2005 (Trees in relation to construction); failure to comply with these orders can be a costly affair as many parties have discovered.



Fishponds, Ketton

There are two offences which apply equally to trees protected by Tree Preservation Orders and those within Conservation Areas:

- Firstly, anyone who cuts down, uproots or wilfully destroys a tree, or who lops, tops or wilfully damages it in a way that is likely to destroy it is liable, if convicted in the Magistrates Court, to pay a fine of up to £20,000. If the person is committed for trial in the Crown Court, they are liable on conviction to an unlimited fine. The Courts have held that it is not necessary for a tree to be obliterated for it to be "destroyed" for the purposes of the legislation. It is sufficient for the tree to have been rendered useless as an amenity.
- Secondly, anyone who carries out works on a tree that are not likely to destroy it is liable, if convicted in the Magistrates Court, to a fine of up to £2,500. In addition to directly carrying out unauthorised works on protected trees, it is an offence to cause or permit such works.

Developers and building contractors are often completely unaware that 'compaction of soils within the Root Protection Area (RPA)' constitutes wilful damage to the tree. When vehicular or pedestrian access within the RPA is necessary, either for the construction operation or final site access, the effects of this activity must be addressed and the ground must be protected. When tracked or wheeled traffic movements are involved, the ground protection system should be designed by an engineer and take into account the loading involved.



Shelton Road, Shewsbury

The Solution:

Geosynthetics CellWeb TRP® System



The Solution According to BS 5837:2012

"Appropriate sub-base options for new hard surfacing include three-dimensional cellular confinement systems"

(BS 5837 2012 section 7.4.2 Note 1)

The CellWeb TRP® Solution

CellWeb TRP® is the market leader in the United Kingdom and Ireland for tree root protection. 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 TRP® complies with BS 5837:2005 and APN 1. It provides a no-dig solution, is tried and tested having been used successfully since 1998. It is the only tree root protection system which has been independently tested and it is the only tree root protection system which is guaranteed for 20 years. See page 6 for the full terms and conditions of the guarantee.



Fishponds, Ketton

Field Trials

Geosynthetics Limited are the only company in the UK and Ireland to carry out live, completely independent field tests on the performance of a 3 dimensional cellular confinement system when used in a no-dig tree root protection system application. The results prove that CellWeb TRP® significantly reduces the compaction of sub-soils within the root growth limiting parameters established by K D Coder, 'Soil damage from compaction'. University of Georgia. July 2000. A copy of the report is available upon request.

CellWeb TRP® Product Guarantee

Geosynthetics Limited prides itself on a providing a reliable, consistent service; including technical advice, on site support and installation guidance. Geosynthetics Limited provides a 20 year guarantee for the CellWeb TRP® tree root protection system. This guarantee gives the client, the tree officer and arboricultural consultant the confidence that the designed system will perform as intended without damaging the health of the tree.

See page 6 for the full terms and conditions of the guarantee.

CellWeb TRP® System

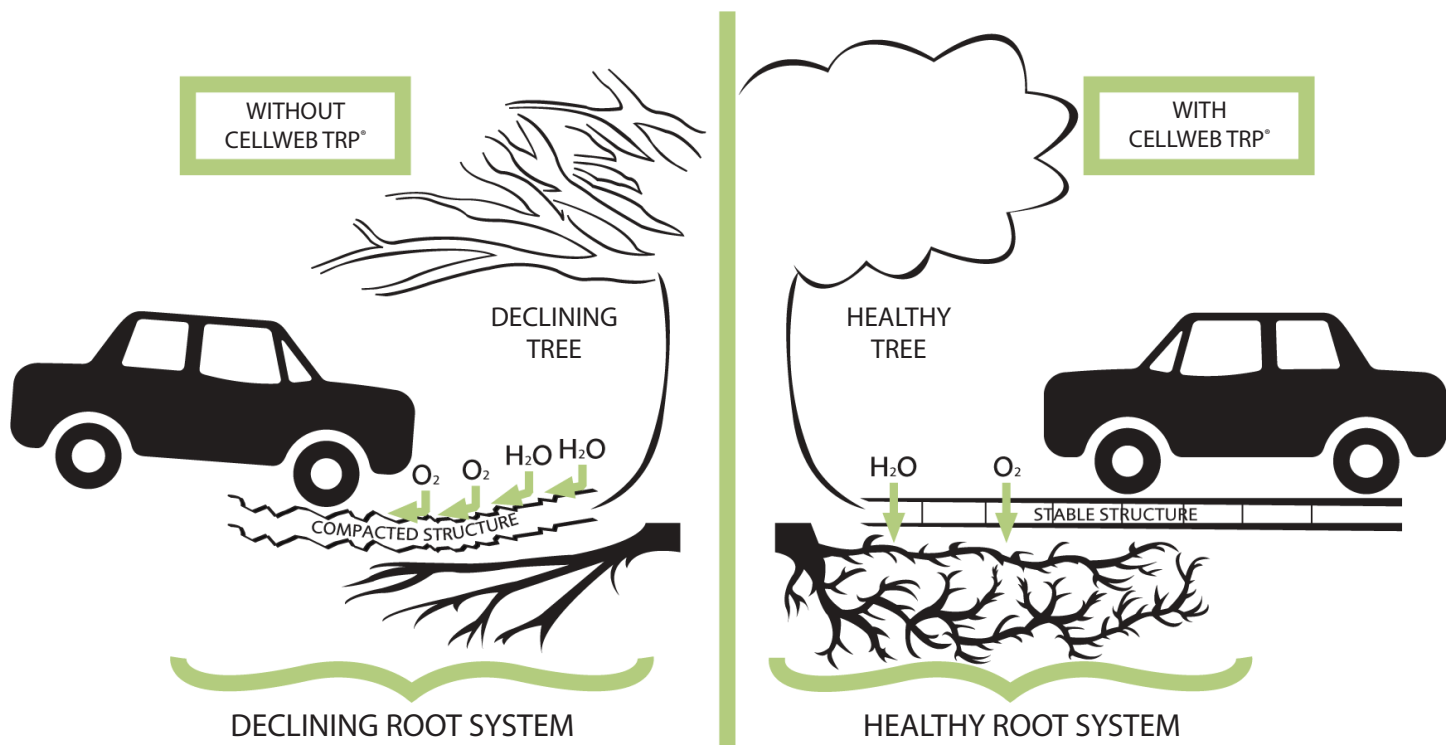
How the System Works



How CellWeb TRP® Works

CellWeb TRP® is a cellular confinement system that confines aggregate materials and makes them stronger, thus increasing the bearing capacity of the sub base materials. Research shows that CellWeb TRP® acts as a stiff raft to distribute wheel loads and reduce their magnitude at the base of the construction, thus maintaining the soil bulk density at levels that are suitable for tree root growth.

CellWeb TRP® is used around the world to provide cost effective hard surface construction over tree roots and is the system of choice for Tree Officers and Arboriculturists. For more information on this subject see CellWeb TRP® Fact Sheet No 1.



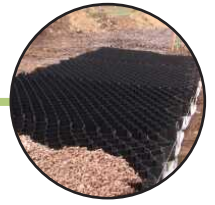
Water and Oxygen Transfer Through the CellWeb TRP® System

The CellWeb TRP® system is constructed using open aggregate infill and CellWeb TRP® has perforated cell walls. The pore spaces between the aggregate particles are greater than 0.1mm in diameter. This open structure is far more permeable than typical soils and allows the free movement of water and oxygen so that supplies to trees are maintained.

For more information on this subject see CellWeb TRP® Fact Sheet No 2.

CellWeb TRP® and Pollution

How CellWeb TRP® Deals With Catastrophic Oil Spills



How CellWeb TRP® Deals With Pollution

Where possible a permeable pavement system should always be constructed above the CellWeb TRP® system. The effective removal of pollution from runoff by permeable pavements is well known. Worldwide research has shown runoff that has passed through permeable pavements has low concentrations of pollutants.

Small spills of oil will be dealt with within the joints between the paving blocks and in the aggregate used within the system. However, large catastrophic spills are a different matter.

For more information on this subject see CellWeb TRP® Fact Sheet No 3.



Castle Gardens



Ambleside Lake District



Harcourt Aboretum

The Treetex® geotextile used in the CellWeb TRP® system has two functions. Treetex® separates the sub base aggregates from the soil beneath and it traps oil within its structure and allows it to degrade aerobically within the pavement construction. The structure, thickness and weight of Treetex® creates the perfect environment for this to happen. Most importantly tests prove that Treetex® will absorb 1.7 litres of oil per square metre, this is 4 times more effective than standard geotextiles.

Treetex® is an intrinsic part of the CellWeb TRP® system; and must be in conjunction with the CellWeb TRP® in order to guarantee the success of the system.

Please see page 6 for full details of the guarantee.

Geosynthetics CellWeb TRP® System:

A Proven No Dig Solution



Advice, Design and Product Selection

Geosynthetics Limited has been supplying the CellWeb TRP® system since 1998 and has vast 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 correct CellWeb TRP® 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, engineering calculations, CAD drawings and full instructions to help you from project conception to completion.



Fallbarrow Park, Windermere:
Prior to CellWeb TRP® Installation



Fallbarrow Park, Windermere:
CellWeb TRP® Installation



Fallbarrow Park, Windermere:
Completed CellWeb TRP® Installation

Final Surfacing

The benefits of the CellWeb TRP® system can only be maintained if a suitably porous final surface is selected. An ideal surfacing is the Golpla 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.

Always Use CellWeb TRP®

The CellWeb TRP® system is the only research backed system of its kind in the UK with a 100% success rate. CellWeb TRP® has been specifically developed for the Tree Root Protection market. The system is supported by 15 years of data and thousands of installations making it the system of choice for the majority of Tree Officers and Arboriculturists in the UK.

CellWeb TRP® is uniquely identifiable. It is manufactured with a bright green panel on each side. When installed the green panels are laid adjacent, creating a green band across the construction.



Woodcock Hall, Yorkshire

We hereby guarantee CellWeb TRP® against the death of any tree caused by a failure of CellWeb TRP® which its installation was intended to protect for a period of 20 years starting from the date of this guarantee.

Conditions of Guarantee

1. The details set out below must be correct in all respects.
2. We can only guarantee CellWeb TRP® where its installation has been carried out to high standards. Therefore our guarantee will only be applicable where:
 - (a) we have provided the designs in relation to the installation,
 - (b) the installation has been carried out by suitably proficient contractors,
 - (c) the installation has been carried out strictly in accordance with the installation specification/method statement available at the time of the installation,
 - (d) CellWeb TRP® has been incorporated into the installation above (and where specified as necessary, below) a Treetex® T300 Geotextile (or such updated replacement product as we may recommend), and
 - (e) the installation has been carried out using pins and panel staplers purchased from us or using similar products which are of the same or a higher quality.
3. If you experience any problems with the installation, you must tell us immediately. You must allow us onto the site at all reasonable times so that we can inspect the site and the installation to determine whether the CellWeb TRP® has failed.
4. As we need to determine whether the CellWeb TRP® has failed or whether the tree has been killed or damaged by another cause, you must not allow anyone else to examine the installation before we have the opportunity to inspect it as damage could be caused to the installation by any other inspection. If you do let third parties onto the site or you or your agents interfere with the installation this guarantee will lapse.
5. Your use of the surface and the traffic flow over the installation must be (and at all times have been) in accordance with the information provided to us at the time of the design of the installation. We can only provide designs based on the information you give to us and will have recommended the relevant CellWeb TRP® product according to that information.
6. This guarantee is for the benefit of the landowner of the site from time to time provided that you give us notice of the new owner on any transfer of ownership. We suggest you provide a copy of this guarantee to your solicitor when transferring the property.
7. Where a tree which was intended to be protected by the installation dies and we conclude that this was caused by a failure of CellWeb TRP® then we shall:
 - replace the dead tree with a tree as close to the dead tree (as available generally in the marketplace) as possible subject to a maximum replacement cost of £10,000; and
 - replace the CellWeb TRP® which has failed (but not any other part of the installation where the CellWeb TRP® has not failed) subject to a maximum replacement cost of £50,000.
8. Our total liability to you under the terms of this guarantee shall be limited to our obligations set out above and our liability to you for any other losses you may suffer is excluded to the fullest extent permitted by law. For the avoidance of doubt, we shall have no liability to you whatsoever for any damage to trees or a CellWeb TRP® installation caused by anything reasonably beyond our control, including for instance pollution.

Copyright © 2012 Geosynthetics Limited

All reproduction or transmission of all or any part of this leaflet, whether by photocopying or storing in any medium by electronic means or otherwise, without the written permission of the owner, is prohibited.

Geosynthetics Limited

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

Tel: 01455 617139 Fax: 01455 617140

Email: sales@geosyn.co.uk

Web: www.geosyn.co.uk



Please call 01455 617 139

or email sales@geosyn.co.uk for more technical advice.

Visit our website www.geosyn.co.uk for further information.

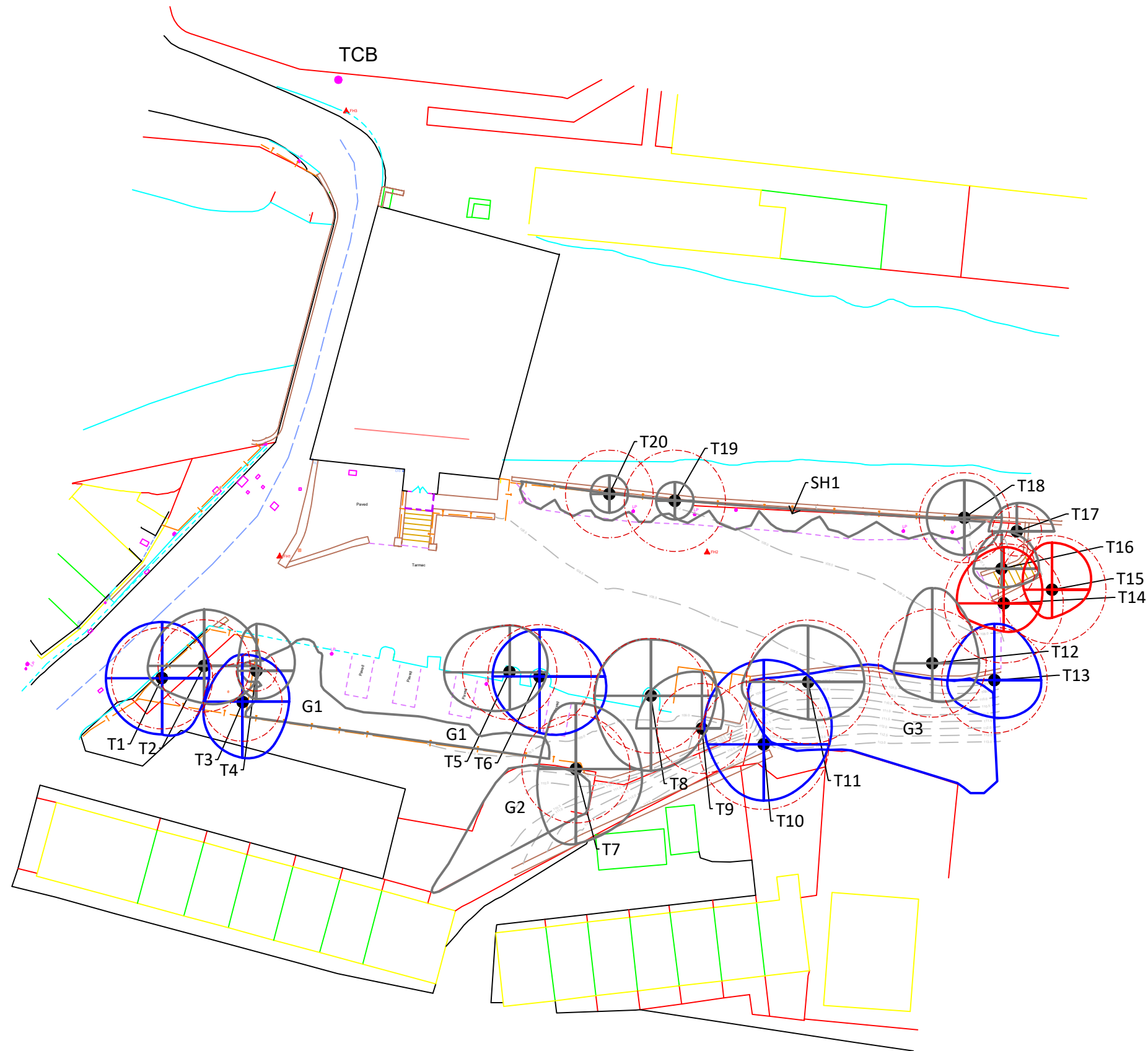
This brochure is produced to give an example of the products we supply and how, subject to your own testing, our products may be used. Nothing in this brochure shall be construed so as to make any ascertain or give any warranty as to the fitness for purpose of any of our products in respect of any specific job. You should satisfy yourself through your own testing as to the suitability of our products for any specific purpose and rely solely on such testing and/or the advice of any professional(s) you commission. While we ensure as far as is possible that all information given in this brochure is accurate at the time of print, information and examples given in this brochure are by way of illustration only and nothing contained in this or any other promotional literature produced by us shall in any way constitute an offer or contract with you or shall be relied upon by you as a statement or representation of fact.

APPENDIX G – Site Plans

Trees Constraints Plan

Development Layout Plan

Tree Protection Plan



KEY

TREE SURVEY

T1

Retention Category A trees and groups of high quality

T1

Retention Category B trees and groups of moderate quality

T1

Retention Category C trees and groups of low quality

T1

Category U trees and groups of poor quality

Root Protection Areas: Calculated inline with BS5837:2012 to show a circular RPA which does not take into consideration site conditions

Tree Protection Fencing

Areas of no Dig Construction



DEP LANDSCAPE ARCHITECTURE LTD

BLACKFRIARS HOUSE, PARSONAGE
MANCHESTER, M3 2JA
T: 0161 2419878
E: info@dep.co.uk
W: www.dep.co.uk

Client
Kinglsey Properties

Project
Former Waterside Pub, Summerseat

Description
Tree Constraints Plan

Status
PLANNING

Scale
1/500@A3

Drawn
PM

Job number
4014

Drawing number
01

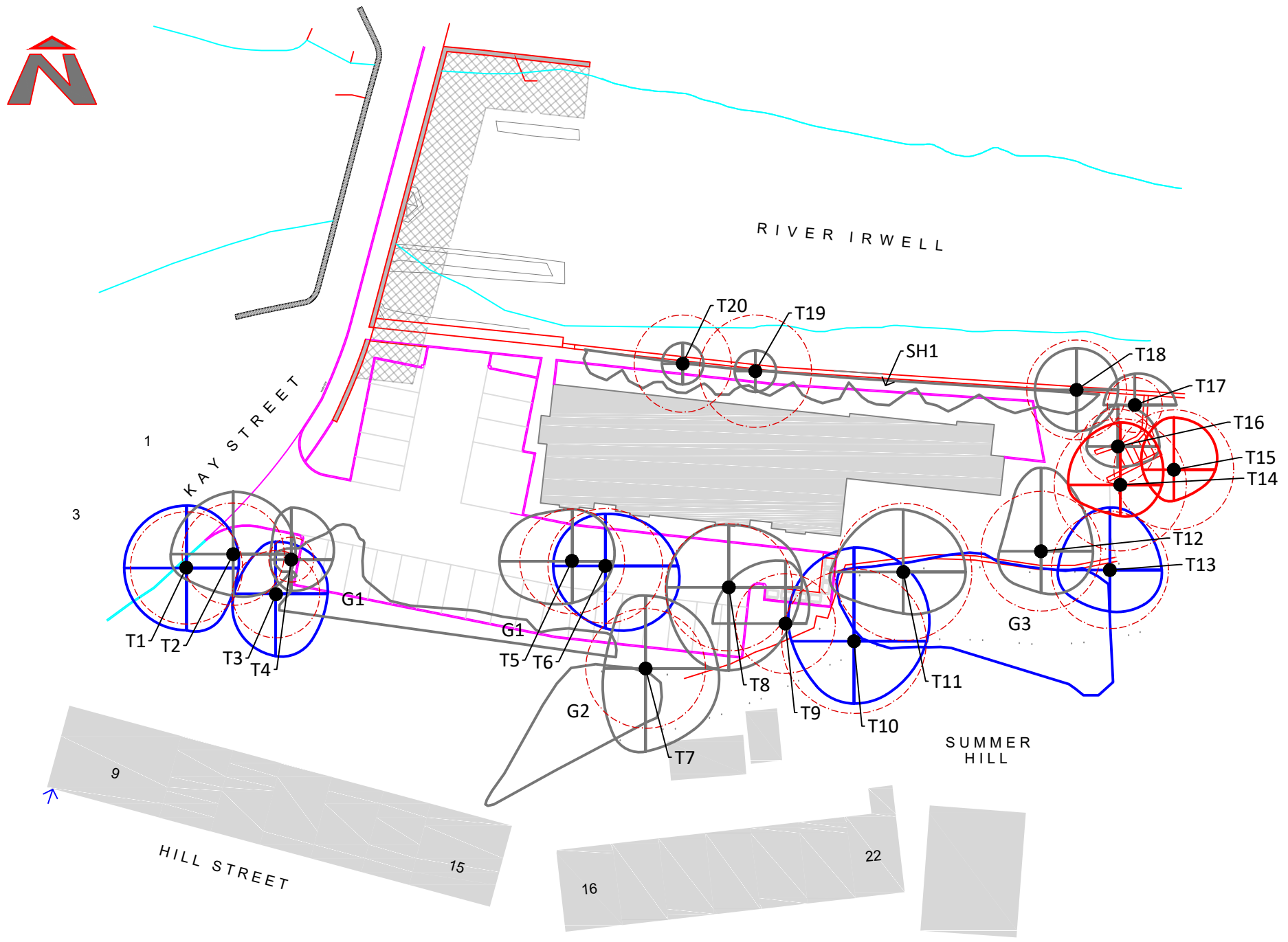
Date
17.10.18

Revision
x

Copyright DEP Landscape Architecture Ltd

All levels and dimensions to be checked on site by contractor prior to commencement. Any variations to be reported to the client. This drawing is to be read in conjunction with all others relating to the project and all information derived accordingly; any anomalies to be reported to the client. Do not scale from this drawing. Use figured dimensions only. Work shown on this drawing to be carried out in accordance with current British Standards and Codes of Practice.

© Copyright to DEP Landscape Architecture Limited. The information shown on this drawing shall not be reproduced or copied in any form without prior written consent from DEP Landscape Architecture Limited.



KEY

TREE SURVEY

T1

Retention Category A trees and groups of high quality

T1

Retention Category B trees and groups of moderate quality

T1

Retention Category C trees and groups of low quality

T1

Category U trees and groups of poor quality

Root Protection Areas: Calculated inline with BS5837:2012 to show a circular RPA which does not take into consideration site conditions

dep

DEP LANDSCAPE ARCHITECTURE LTD

BLACKFRIARS HOUSE, PARSONAGE
MANCHESTER, M3 2JA
T: 0161 2419878
E: info@dep.co.uk
W: www.dep.co.uk

Client

Kinglsey Properties

Project

Former Waterside Pub, Summerseat

Description

Development Layout Plan

Status

PLANNING

Scale

1/500@A3

Drawn

PM

Job number

4014

Drawing number

02

Date

12.12.18

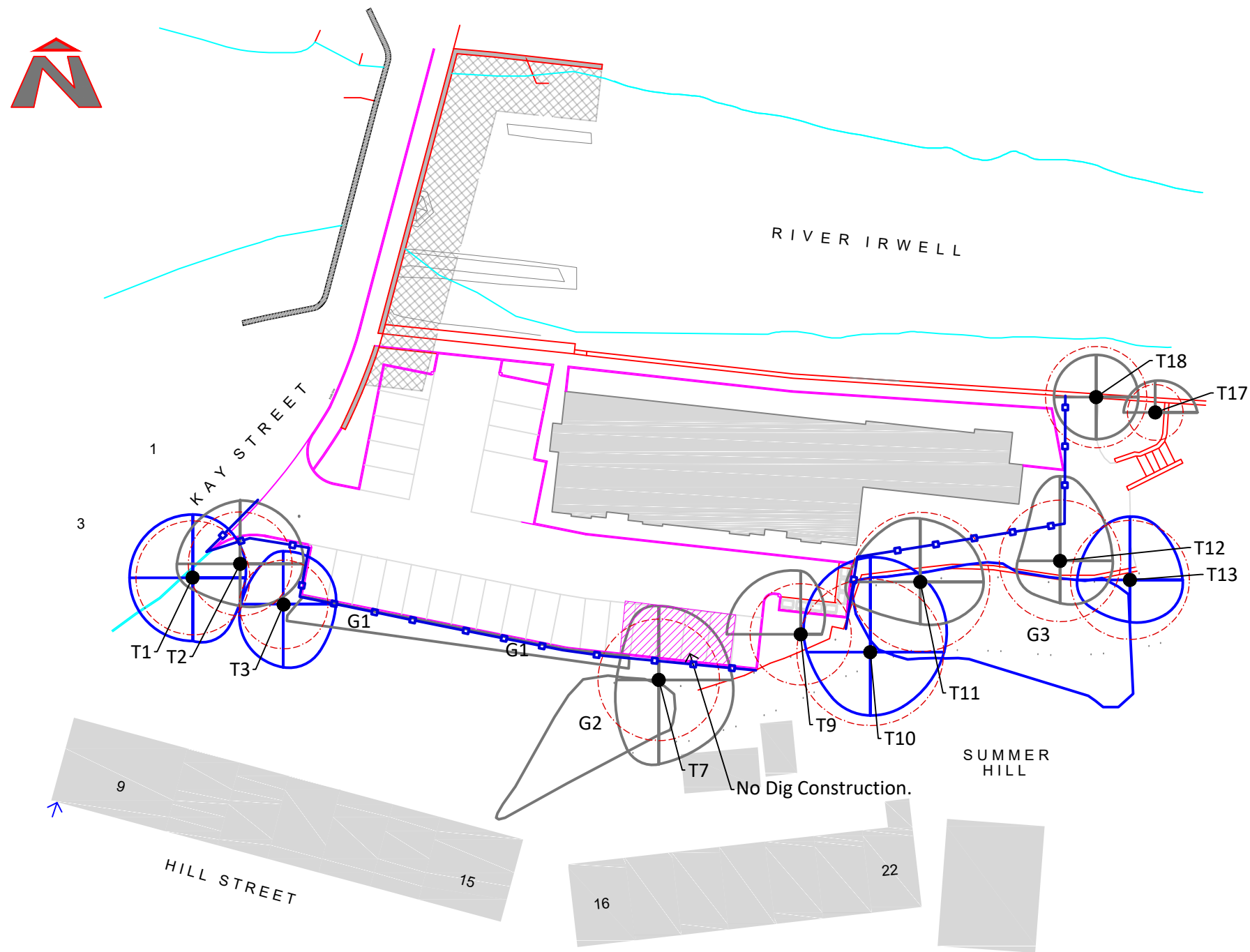
Revision

x

Copyright DEP Landscape Architecture Ltd

All levels and dimensions to be checked on site by contractor prior to commencement. Any variations to be reported to the client. This drawing is to be read in conjunction with all others relating to the project and all information derived accordingly; any anomalies to be reported to the client. Do not scale from this drawing. Use figured dimensions only. Work shown on this drawings to be carried out in accordance with current British Standards and Codes of Practice.

© Copyright to DEP Landscape Architecture Limited. The information shown on this drawing shall not be reproduced or copied in any form without prior written consent from DEP Landscape Architecture Limited.



KEY

TREE SURVEY

T1

Retention Category A trees and groups of high quality

T1

Retention Category B trees and groups of moderate quality

T1

Retention Category C trees and groups of low quality

T1

Category U trees and groups of poor quality

Root Protection Areas: Calculated inline with BS5837:2012 to show a circular RPA which does not take into consideration site conditions

Tree Protection Fencing

Areas of no Dig Construction



DEP LANDSCAPE ARCHITECTURE LTD
BLACKFRIARS HOUSE, PARSONAGE
MANCHESTER, M3 2JA
T: 0161 2419878
E: info@dep.co.uk
W: www.dep.co.uk

Client
Kinglsey Properties
Project
Former Waterside Pub, Summerseat

Description
Tree Protection Plan

Status
PLANNING

Scale	1/500@A3	Drawn	PM
Job number	4014	Drawing number	03
		Date	12.12.18
		Revision	x

Copyright DEP Landscape Architecture Ltd
All levels and dimensions to be checked on site by contractor prior to commencement. Any variations to be reported to the client. This drawing is to be read in conjunction with all others relating to the project and all information derived accordingly; any anomalies to be reported to the client. Do not scale from this drawing. Use figured dimensions only. Work shown on this drawings to be carried out in accordance with current British Standards and Codes of Practice.
© Copyright to DEP Landscape Architecture Limited. The information shown on this drawing shall not be reproduced or copied in any form without prior written consent from DEP Landscape Architecture Limited.

Protective Fencing

All fencing used on the site should fully comply with BS 5837:2012 Trees in relation to design, demolition and construction - Recommendations. The fencing should be strong and suitable for local conditions and should also take into account the degree of construction activity on the site.

In this circumstance the location for the protective fencing should be as shown on this Tree Protection Plan and of the below default specification taken from the British Standard (figure 2). However, 'Heras' type temporary fencing can sometimes be acceptable with the bases pinned to the ground securely (figure 3). The use of this type of fencing needs to be checked with the Local Planning Authority. The installation of the fencing needs to be checked by the appointed arborist before commencement of any works including demolition or ground works.

No storage of materials or any construction operations should occur within the fenced area including soil storage. Notices should also be erected on the fencing stating 'Protected Area - No operations within fenced area'. An example can be found within the Appendices of the Tree Report, which should be laminated and attached to the fencing at regular intervals.

Figure 2 Default specification for protective barrier

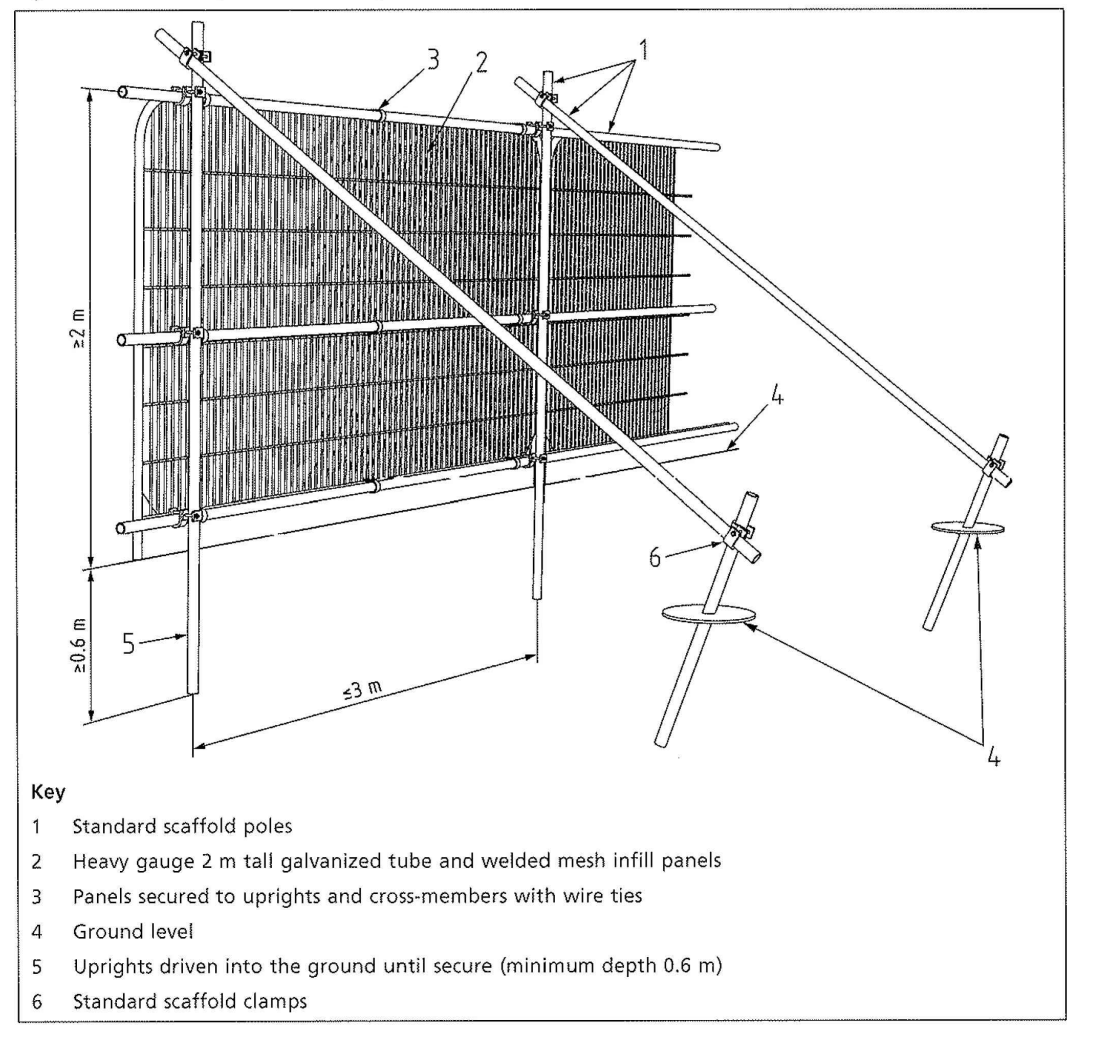


Figure 3 Examples of above-ground stabilizing systems

