### Jon Oliver Arboriculture

Proposed development - Land adjacent to Church Raike, Old Hive, Chipping

Prepared for: Janet Seed

Croftlands Broadmeadow Chipping Preston PR3 2GH

Prepared by: Jon Oliver BSc(hons), Cert Arb. (RFS)

Prepared by:
Jon Oliver
Jon Oliver Arboriculture
65 Ullswater Rd
Lancaster
LA1 3PS
01524 555889
07963 584873

email: jonoliver65@yahoo.com

#### 1.0 Instructions

1.1 I have been instructed by Janet Seed to prepare a tree report with regards to a planning application to be made in respect of 3 dwellings and garages. This report includes a tree survey and tree protection plan (TPP)

#### 2.0 Site Meetings/Visits

2.1 An unaccompanied site visit was made on 21<sup>st</sup> March 2014.

#### 3.0 Introduction

- 3.1 A tree survey was carried out on 21<sup>st</sup> March 2014. The trees and hedges are all on the perimeter of the site. T1 and T4, both Sycamores, (*Acer pseudoplatanus*) should cause no significant problem to the siting of the proposed dwellings. T2 Lime (*Tilia x europaea*) and T3 Sycamore (*Acer pseudoplatanus*) will require special consideration with respect to the location of the proposed garages within in the root protection area (RPA). See appendix 2, TPP and drawings showing proposed location of dwellings and garages and Old Hive TPP.pdf
- 3.2 I was provided with a topographical survey of the site, this was used to prepare the TPP, and a drawing showing the proposed location of the buildings.
- 3.3 The scope of this report is to carry out a tree survey within the site in accordance with BS5837:2012, collect data in order to advise the development designer of key issues relating to trees and provide options and strategies. To prepare a report with associated data, site plans and imagery as required. This will allow for the consideration of issues relating to trees for the proposed development and any existing structures.
- 3.4 Caveats: This report is only concerned with trees in relation to construction. It includes a detailed assessment based on the site visit and the documents provided. All my observations were from ground level without detailed investigations. Ariel tree inspection, invasive procedures and sub soil investigations are outside the scope of the report. Should further assessment involving any of these be required it will be highlighted in the report.

#### 4.0 Tree Preservation Orders and Conservation Areas

4.1 It is my understanding that there are no Tree Preservation Orders covering any of the trees on the site of the proposed dwellings and it is not within a conservation area. Confirmation of this would need to be sought prior to any works being undertaken.

#### 5.0 Tree Constraints – Above and below ground

- 5.1 No installation of any services is to take place within the RPA of any trees.
- 5.2 T1 and T4 will be unaffected by the proposed development whereas T2 and T3 will require special consideration with respect to the siting of the garages within the RPA.

This will necessitate special construction techniques to avoid damage to the roots of both trees. The trees will also require crown lifting to provide sufficient clearance for the garages. A suitable building construction technique would be the use of micro pilings for the foundations and a suspended slab floor, which may need to be cantilevered, to ensure that no piles were causing damage to major roots. Additionally, the floor would need to be vented and water would need to be harvested from the garage roof and diverted to irrigate the ground covered by the garage. A suitable method is detailed in BS5837: 2012 Section 7.5 (appendix 4).

The professional advice of a structural engineer would need to be sought to assess the viability of this method within this location.

The work would require access to the RPA and appropriate measures would need to be taken to avoid soil compaction or root damage within the RPA.

#### 6.0 Tree loss/new planting

6.1 It is recommended that the old hedging specimens that make up the hedge line are coppiced to encourage new growth and the hedge line is planted with a native hedging mix, which could be laid in the future.

#### 7.0 Proposed Tree Surgery Work

- 7.1 T2 and T3 crown lift and T3 crown clean. This would need completing prior to construction work and erection of tree protection fencing.
- 7.2 T4 crown clean. The recommendations for work to this tree could be carried out after construction but it would seem prudent to complete this work prior to construction.
- 7.3 H1 coppicing. The recommendations for work to this hedge could be carried out after construction but it would seem prudent to complete this work prior to construction. The additional planting would have to take place during the dormant season (end of November to the end of March). It would seem prudent that this takes place after construction is completed.

#### 8.0 Protective fencing

- 8.1 A protective fence needs to be erected prior to the commencement of any site works to create a Construction Exclusion Zone (CEZ). It shall remain in situ throughout the construction phase and will not be removed until the completion of all construction works. It will have signs attached stating 'Tree Protection Area Keep Out'.
- 8.2 The protective fencing is to be a robust barrier capable of excluding construction vehicles from root protection areas. An example of suitable fencing can be found in appendix 5.
- 8.3 The fence is to be sited in accordance with the TPP

#### 9.0 Additional considerations

- 9.1 No storage of materials, lighting of fires will take place with the CEZ. No mixing or storage of materials will take place up a slope where they may leak into a CEZ.
- 9.2 No fires will be lit within 20m of any tree stem and will take into account fire size and wind direction so that no flames come within 5m of any foliage.
- 9.3 If there is a requirement to use cranes or high sided vehicles during the construction process then appropriate action must be taken to ensure no damage takes place to trees in the CEZ.
- 9.4 No notice boards, cables or services will be attached to any tree.
- 9.5 Materials which may contaminate the soil will not be discharged within 10m of any tree stem. When undertaking the mixing of materials it is essential that any slope of the ground does not allow contaminants to run towards a tree root area
- 9.6 No cement mixing/washing out to take place within 10m of any retained trees
- 9.7 No chemicals, bitumen etc to be stored within 10m of any retained trees
- 9.8 Any underground services required should be routed outside the CEZ. If routing is required within the rooting zone of trees for retention then appropriate sub surface or hand trenching methods should be used. See BS3857:2012

#### 10.0 Conclusions

10.1 It is possible to retain the 4 trees detailed in this report without compromising the trees future viability provided that advice is sought from a structural engineer, with respect to T2 and T3, and all recommendations in this report and BS5837:2012 are followed.

Appendix 1 Tree Schedule

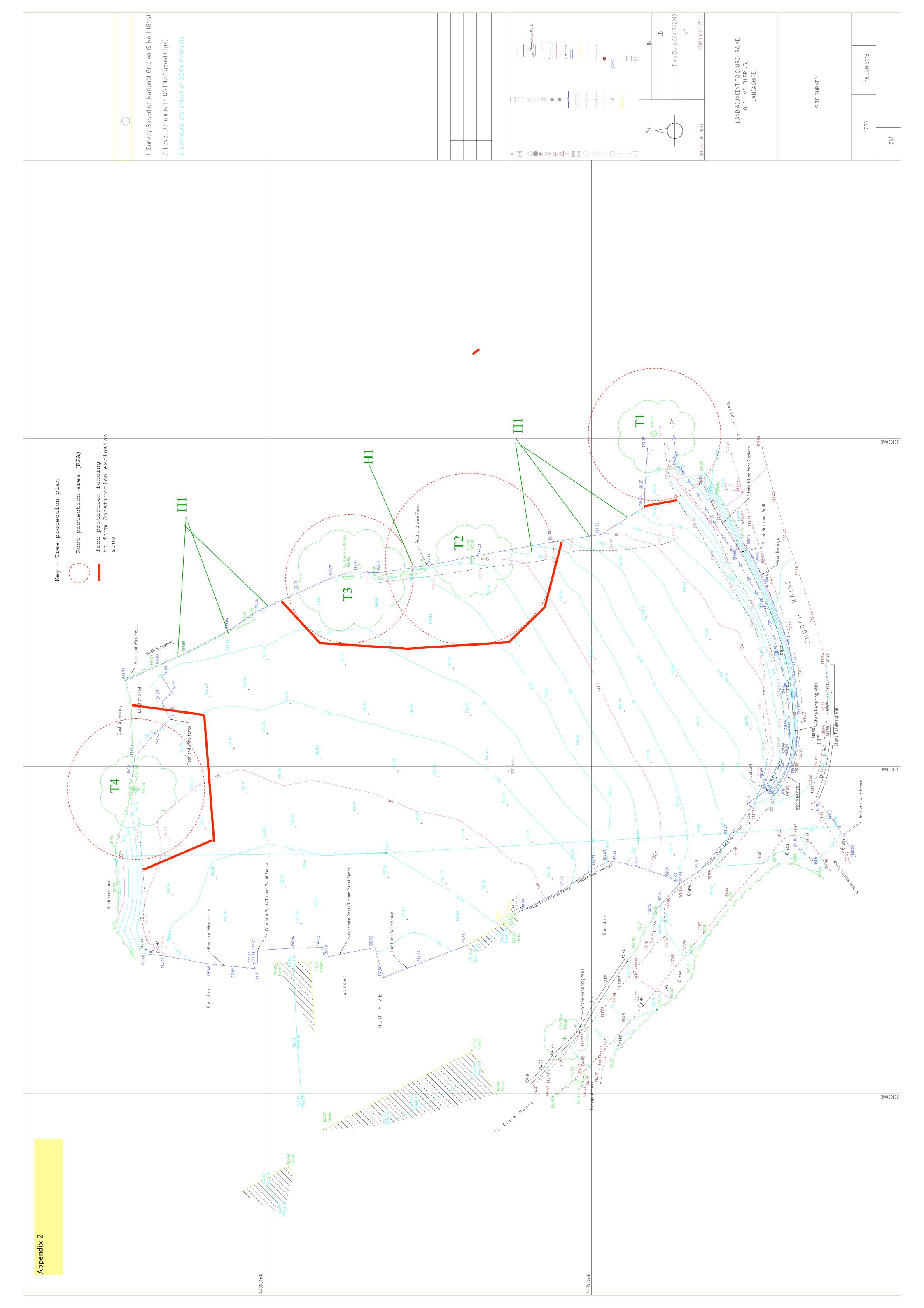
Site: Land adjacent to Old Hive, Church Raike, Chipping

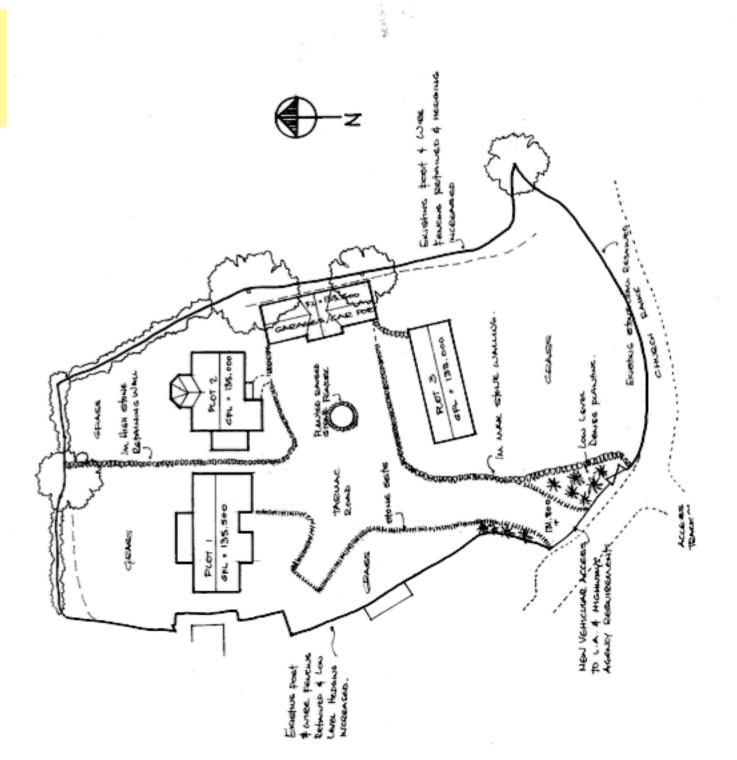
Tree		Height (m)	$S_{\Gamma}$	DBH	Age	Phys.	Structural condition	Preliminary	Retention
Ref.	Species	(est)		(mm)	class	cond.		management recommendations	catagory
Т1	Sycamore	22	.9:9:9:9	904	Mature	Good	Main stem divides at	Monitor included bark	A2
							2m. Included bark	union regularly	
	Acer						union. Well		
	pseudoplatanus						developed "ears"		
							providing strength		
							(appendix 3)		
T2	Lime	18	7.7.5.4.	1140	Mature	Good	Main stem divides at	None required	A2
							1.7m. Epicormic		
	Tilia $x$						growth in crown		
	europaea						consistent with		
Ī							species (appendix 3)		
Т3	Sycamore	18	5.7.4.3.	S1 =	Mature	Good	Twin stem. Nothern	Crown clean to remove	A2
				742			most stem leaning in	single hanging branch	
	Acer						a NE direction	and deadwood.	
	pseudoplatanus			S2=			(appendix 3).		
				200			Evidence of good		
							reaction wood.		
							Small amount of		
							deadwood in crown		

Retention catagory	B1	Ω
Preliminary management recommendations	Crown clean to remove 2 lower crossing branches and deadwood. Monitor decay cavities regularly. Removal of old building materials from base.	No longer suitable for laying. Coppice and replant with native hedging species to complete the hedgerow
Structural condition	Main stem divides at 4m. Evidence of squirrel damage to topside of branches. 2 lower crossing branches and evidence of decay cavities from wounds. (appendix 3)	Old hedge line. Large gaps between trees. Old and many with significant decay. Trimmed with little or no growth other than at the top (appendix 3)
Phys. cond.	Good	Fair
Age class	Mature	Over Mature
DBH (mm)	939	N/A
Spread (m) (est) NSEW	7.7.7.	N/A
Height (m) (est)	21	N/A
Species	Sycamore Acer pseudoplatanus	Hawthorn Cratgeus monogyna
Tree Ref.	T4	HI

ACCESSES TO SEC
公にでして
0 tro
ナナのこ
o poses
7 0 0

Category and definition	Criteria (including subcategories where a	ppropriate)		のでは、これのこのでは、このでのことでは、このでは、このでは、このでは、このでは、このでは、このでは、このでは、この
Trees unsuitable for retention	(see Note)			
0 1	s that have a serious, irremediab ading those that will become unv on, the loss of companion shelte	e, structural defect, such that their early loss iable after removal of other category U trees cannot be mitigated by pruning)	is expected due to collapse, s (e.g. where, for whatever	See Table 2
se retained as living tree	<ul> <li>Trees that are dead or are showing s</li> </ul>	signs of significant, immediate, and irreversible	e overall decline	
the context of the current land use for longer than	<ul> <li>Trees infected with pathogens of sign quality trees suppressing adjacent tre</li> </ul>	nificance to the health and/or safety of other es of better quality	trees nearby, or very low	
	NOTE Category U trees can have existing see 4.5.7.	or potentia	ght be desirable to preserve;	
	1 Mainly arboricultural qualities	2 Mainly landscape qualities	3 Mainly cultural values, including conservation	
Trees to be considered for rete				
of hig ated r ars	s that or un or un or in or un cipal t	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)	See Table 2
Category B  Trees of moderate quality with an estimated remaining life expectancy of at least 20 years	To a co	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
	tree of yery :	20100	2	C aldet abs
Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below		nferring on themeater collective land rees offering low or sient landscape ben	onservation or othe ultural value	מבר ומחוב ל







SIE LAND ADJACEUT TO CHURCH BLAKE OLD HATE CHIPPING Drawing Title papeperson Brys. Purad. Date JAME Soils Dewn SP

Dat Ne. Sok of

Seale: 1: 500



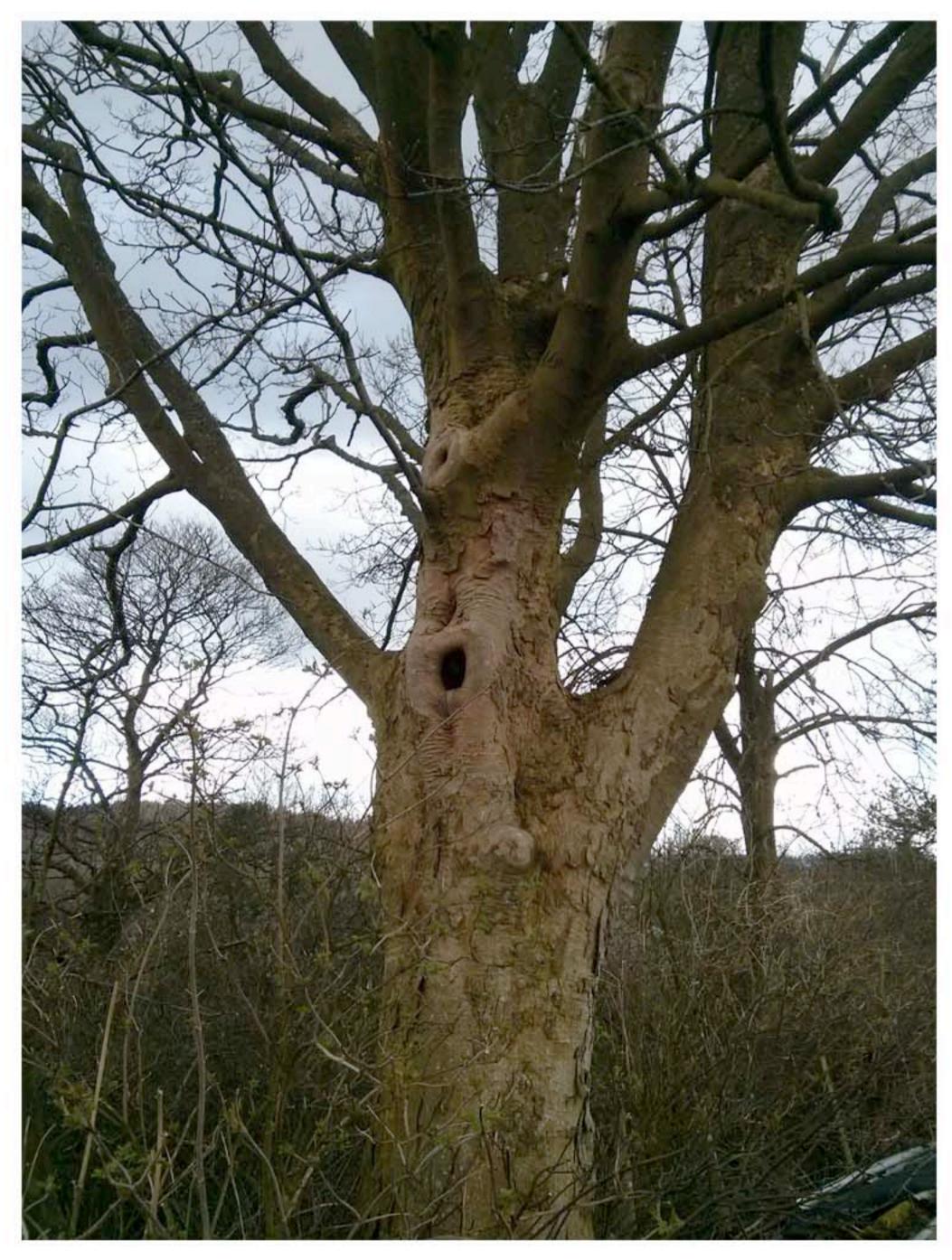
T1 Included union. Well developed ears



T2 Common Lime. Epicormic growth.
Typical for this species



T3 Sycamore. Leaning stem away from development. Good reaction wood.



T4 Sycamore. Decay cavities from old wounds



H1 Large gaps and in generally poor condition. Over trimmed with most of the resultant growth from the tops only.

7.4.2.8 When designing the hard surface, account should be taken of finished levels in relation to adjacent structures, including damp-proof courses, garage slabs and links to existing vehicular cross-overs.

NOTE Attention is drawn to the Building Regulations 2010 [8], the Building (Scotland) Regulations 2004, as amended [9] and the Building Regulations (Northern Ireland) 2000 [10], in respect of the need for accessible thresholds.

7.4.2.9 If a permeable surface is to be used by construction traffic, this should be protected with a temporary sacrificial surface laid over a geotextile separator to ensure that its permeability is retained (i.e. interstices should not become blocked during construction).

#### 7.4.3 Edge supports

The excavation needed for the placement of kerbs, edgings and their associated foundations and haunchings can damage tree roots, Within the RPA, this should be avoided either by the use of alternative methods of edge support or by not using supports at all.

NOTE For example, where kerbing is required for light structures, such as footpaths, above-ground peg and board edging might be acceptable. Where areas of hard surface require edge support, the use of sleepers (pinned in place where required), gabions or other non-invasive ground-contact structures, including the use of proprietary products, can provide appropriate solutions.

#### 7.4.4 Precautions

- 7.4.4.1 The soil structure including the area beneath the proposed new hard surface should be protected from compaction during installation. This may be achieved by:
- a) the use of temporary ground protection in accordance with 6.2.3 to safeguard the working area;
- constructing the new surface with machinery working forward from the surface as it is constructed (known as "rolling out").
- 7.4.4.2 Where a herbicide is used to control vegetation prior to construction of hard surfacing, the manufacturer's guidance should be strictly followed and care should be taken to avoid any damaging effects on trees or other vegetation to be retained.
- NOTE The use of appropriate geotextiles can provide a barrier that inhibits weed growth but allows water and gases to pass freely.
- 7.4.4.3 The ground should not be skimmed to establish the new hard surface at the former ground level. Loose organic matter and/or turf should be removed carefully using hand tools. The new surface should then be established above the soil.
- 7.4.4.4 Raising levels should be achieved by use of a granular material which remains gas- and water-permeable throughout its design life.
- 7.4.4.5 Due to the highly alkaline leachate produced during the curing of wet concrete, concrete should not be poured within the RPA unless an impermeable liner has been installed.

#### 7.5 Special engineering for foundations within the RPA

7.5.1 The use of traditional strip footings can result in extensive root loss and should be avoided. The insertion of specially engineered structures within RPAs may be justified if this enables the retention of a good quality tree that would otherwise be lost (usually categories A or B). Designs for foundations that would minimize adverse impact on trees should include particular attention to existing levels, proposed finished levels and cross-sectional details. In order to arrive at a suitable solution, site-specific and specialist advice regarding foundation design should be sought from the project arboriculturist and an engineer. In shrinkable soils, the foundation design should take account of the risk of indirect damage (see A.1.4).

7.5.2 Root damage can be minimized by using:

- piles, with site investigation used to determine their optimal location whilst avoiding damage to roots important for the stability of the tree, by means of hand tools or compressed air soil displacement, to a minimum depth of 600 mm;
- beams, laid at or above ground level, and cantilevered as necessary to avoid tree roots identified by site investigation.
- 7.5.3 Where a slab for a minor structure (e.g. shed base) is to be formed within the RPA, it should bear on existing ground level, and should not exceed an area greater than 20% of the existing unsurfaced ground.
- 7.5.4 Slabs for larger structures (e.g. dwellings) should be constructed with a ventilated air space between the underside of the slab and the existing soil surface (to enable gas exchange and venting through the soil surface). In such cases, a specialist irrigation system should also be employed (e.g. roof run-off redirected under the slab). The design of the foundation should take account of any effect on the load-bearing properties of underlying soil from the redirected roof run-off. Approval in principle for a foundation that relies on topsoil retention and roof run-off under the slab should be sought from the building control authority prior to this approach being relied on.
- 7.5.5 Where piling is to be installed near to trees, the smallest practical pile diameter should be used, as this reduces the possibility of striking major tree roots, and reduces the size of the rig required to sink the piles. If a piling mat is required, this should conform to the parameters for temporary ground protection given in 6.2.3. Use of the smallest practical piling rig is also important where piling within the branch spread is proposed, as this can reduce the need for access facilitation pruning. The pile type should be selected bearing in mind the need to protect the soil and adjacent roots from the potentially toxic effects of uncured concrete, e.g. sleeved bored pile or screw pile.

#### 7.6 Subterranean construction within the RPA

- 7.6.1 Where it is proposed to form subterranean structures, e.g. basement extensions, within the RPA, it is essential to avoid excavating down through rootable soil if trees are to be retained. In some cases, it might be technically possible to form the excavation by undermining the soil beneath the RPA.
- 7.6.2 The following factors should be taken into account, in light of site-specific and specialist arboricultural, engineering and geotechnical advice:
- the future growth potential of the tree;
- the minimum depth of overburden (i.e. that overlying the roof of the proposed structure) required for retention in situ to ensure the survival of the tree and its stability against the wind;
- the potential for vibration-induced granular flow within the retained overburden, caused by the undermining process, to destabilize the tree through reduced root adhesion;
- the mass of the tree and of the retained overburden:

on retained hard surfacing or it is otherwise unfeasible to use ground pins, e.g. due to the presence of underground services, the stabilizer struts should be mounted on a block tray (Figure 3b).

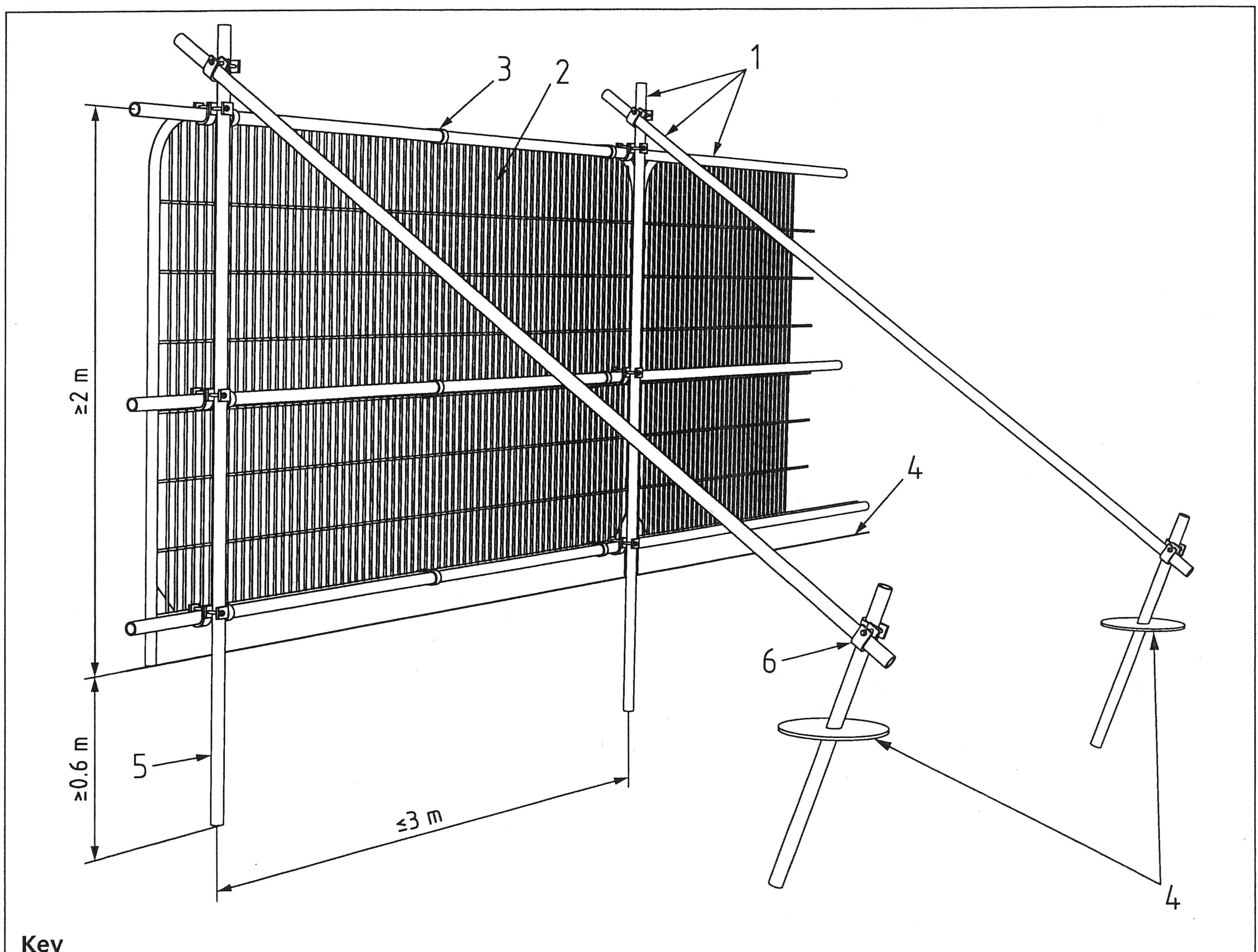
NOTE 1 Examples of configurations for steel mesh perimeter fencing systems are given in BS 1722-18.

NOTE 2 It might be feasible on some-sites to use temporary site office buildings as components of the tree protection barriers, provided these can be installed and removed without damaging the retained trees or their rooting environment.

6.2.2.4 All-weather notices should be attached to the barrier with words such as:

"CONSTRUCTION EXCLUSION ZONE - NO ACCESS".

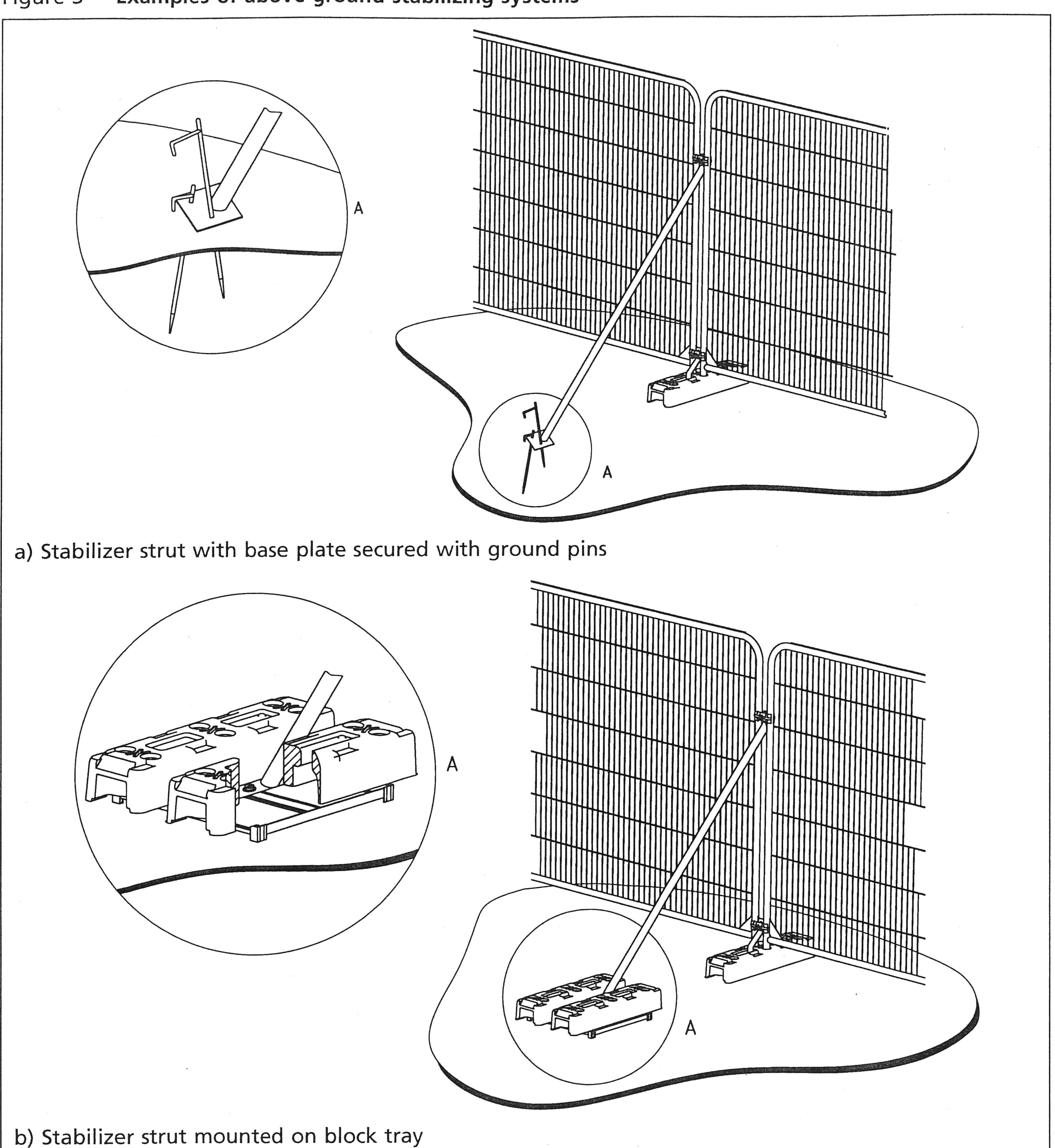
Default specification for protective barrier



## Key

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

Figure 3 Examples of above-ground stabilizing systems



# 6.2.3 Ground protection during demolition and construction

**6.2.3.1** Where construction working space or temporary construction access is justified within the RPA, this should be facilitated by a set-back in the alignment of the tree protection barrier. In such areas, suitable existing hard surfacing that is not proposed for re-use as part of the finished design should be retained to act as temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for this purpose should be evaluated by the project arboriculturist and an engineer as appropriate.