Appendix 5 – Tree Works Schedule

NOTE: All tree works to be undertaken in accordance with BS 3998:2010 'Tree work - Recommendations'. All pruning cuts to be made at suitable growing points, in line with the principles of natural target pruning. *<(In accordance to the current proposed design layout provided>).*

Tree Works Schedule

Tree No.	Species	Proposed Tree Works	Reason	BS Cat
TG1	Ash. Elm. Elder and Hawthorn.	Cut back to boundary line, and remove all dead elm trees.	Poor form, shape and condition. Unable to inspect due to restricted access. Offsite boundary tree with overhanging branches. Hedgerow standard tree. Self-set, pioneer tree. Dead Elms	C2
TG2	Ash, Sycamore, Elm, Elder and Hawthorn.	Cut back to boundary line, and remove all dead elm trees.	Poor form, shape and condition. Unable to inspect due to restricted access. Offsite boundary tree with overhanging branches. Hedgerow standard tree. Self-set, pioneer tree. Dead Elms	C2
TG3	Hawthorn, Elder, Elm and Prunus sp	Remove all dead elms	Poor form, shape and condition. Offsite boundary tree with overhanging branches. Dead Elms	C2
TG4	Hawthorn, Elder, Elm, Ash and Prunus sp	Remove all dead elms	Poor form, shape and condition. Dead Elms	C2
T12	Hornbeam	Cut branches back from fence by 2m	Average form, shape and condition. No significant recent crown management. Co-dominant tree with major stem included union. Damaged bark with sound woo exposed. Multiple pruning wounds on main stem with minor decay.	C1
T13	Hornbeam	Cut branches back from fence by 2m	Average form, shape and condition. No significant recent crown management. Co-dominant tree with included union. Multiple pruning wounds on main stem with minor decay.	C1
T17	Hornbeam	Cut branches back from fence by 2m	. No significant recent crown management. Co-dominant tree with included union. Multiple pruning wounds on main stem with minor decay. Poor form (Asymmetric canopy), shape and condition. Soil heavily compacted within rooting zone.	C1
T18	Hornbeam	Cut branches back from fence by 2m	. No significant recent crown management. Co-dominant tree with included union. Multiple pruning wounds on main stem with minor decay. Poor form (Asymmetric canopy), shape and condition. Soil heavily compacted within rooting zone.	C1
T19	Hornbeam	Cut branches back from fence by 2m	. No significant recent crown management. Co-dominant tree with included union. Multiple pruning wounds on main stem with minor decay. Poor form (Asymmetric canopy), shape and condition. Soil heavily compacted within rooting zone.	C1
T21	Sycamore.	Cut back from fence by 2mSever ivy at 2m from ground level and remove section.	Poor form (Asymmetric canopy), shape and condition. No significant recent crown management. Ivy clad crown and stem unable to fully inspect.	C2
T22	Norway Maple.	Sever ivy at 2m from ground level and remove section. Remove dead wood >5cm diameter throughout the crown / overhanging site.	Poor form (Asymmetric canopy), shape and condition. No significant recent crown management. Ivy clad crown and stem unable to fully inspect. Dense crown, major crown deadwood.	C2
T24	Goat Willow.	Remove basal vegetation and re-inspect root crown.	Poor form, shape and condition. No significant recent crown management. Co-dominant tree with included unions. Hedgerow standard tree. Unable to inspect due to restricted access.	C2
T25	Goat Willow.	Remove basal vegetation and re-inspect root crown.	Poor form, shape and condition. No significant recent crown management. Co-dominant tree with included unions. Hedgerow standard tree. Unable to inspect due to restricted access.	C2
T26	Sycamore.	Sever ivy at 2m from ground level and remove section.	Poor form (Asymmetric canopy), shape and condition. Unable to inspect due to restricted access. Ivy clad crown and stem b32unable to fully inspect.	C2
T28	Lime.	Sever ivy at 2m from ground level and remove section.	Average form, shape and condition. No significant recent crown management. Ivy clad crown and stem unable to fully inspect.	B1
T30	Rowan.	Tag 1424	Average form, shape and condition. No significant recent crown management. Sparse crown showing signs of stress with crown retrenchment. Tree located on bomb shelter	C1
T32	Sycamore.	Remove dead wood >5cm diameter throughout the crown / overhanging site.	Average form, shape and condition. Dense crown, moderate/major crown deadwood. No significant recent crown management.	B2

Tree No.	Species	Proposed Tree Works	Reason	BS Cat
T33	Sycamore.	Sever ivy at 2m from ground level and remove section. Remove basal vegetation and re-inspect root crown.	Poor form, shape and condition. Unable to inspect due to restricted access. Ivy clad crown and stem unable to fully inspect. Co-dominant tree with included unions. Dense crown, moderate/major crown deadwood.	C2
T34	Sycamore.	Sever ivy at 2m from ground level and remove section. Remove basal vegetation and re-inspect root crown.	Poor form, shape and condition. Unable to inspect due to restricted access. Ivy clad crown and stem b33unable to fully inspect. Co-dominant tree with included unions. Dense crown, moderate/major crown deadwood.	C2
T35	Sycamore.	Sever ivy at 2m from ground level and remove section. Remove basal vegetation and re-inspect root crown.	Poor form, shape and condition. Unable to inspect due to restricted access. Ivy clad crown and stem unable to fully inspect. Co-dominant tree with included unions. Dense crown, moderate/major crown deadwood.	C2
T36	Whitebeam.	Climbing inspection to measure the extent of branch decay.	Average form, shape and condition. No significant recent crown management. Central leader lost in past stag-headed crown, naturally reducing. Fiber buckling on stem at 6m. Decay cavity at base of stem major decay.	C2
T37	Sycamore.	Remove dead wood >5cm diameter throughout the crown / overhanging site.	Poor form (Asymmetric canopy), shape and condition. No significant recent crown management. Dense crown, low/moderate crown deadwood.	C2
T43	Sycamore.	Remove dead wood >5cm diameter throughout the crown / overhanging site.	Average form, shape and condition. No significant recent crown management. Dense crown, moderate/major crown deadwood.	B1
T44	Whitebeam.	Climbing inspection to measure the extent of decay	Average form, shape and condition. No significant recent crown management. Decay branches on central stems with moderate\major decay.	B1
T45	Sycamore.	Remove dead wood >5cm diameter throughout the crown / overhanging site.	Average form, shape and condition. No significant recent crown management. Dense crown, moderate/major crown deadwood. Multiple pruning wounds on main stem with moderate decay cavities.	C1
T46	Whitebeam.	Climbing inspection to measure the extent of decay	Average form, shape and condition. No significant recent crown management. Decay branches on central stems with moderate\major decay.	B1
T47	Whitebeam.	Climbing inspection to measure the extent of decay	Average form, shape and condition. No significant recent crown management. Decay branches on central stems with moderate\major decay.	B1
T51	Whitebeam.	Climbing inspection to measure the extent of decay	Average form, shape and condition. No significant recent crown management. Decay branches on central stems with moderate\major decay.	B1
T54	Laburnum.	Remove dead wood >5cm diameter throughout the crown / overhanging site.	Average form, shape and condition. No significant recent crown management. Multiple pruning wounds and stem cracking on main stem. Dense crown, low/moderate crown deadwood.	C2
T57	Beech	Insert flexible restraint system between co-dominant stems. Re-inspect in 6months to confirm if ustulina.	Average form, shape and condition. No significant recent crown management. Twin stemmed tree at 2.4m with moderate included union. Possibly ustulina at base.	B2
T58	Beech	Insert flexible restraint system between co-dominant stems.	Average form, shape and condition. No significant recent crown management. Multiple stemmed tree at 3.2m with moderate included union. Natural grafting in crown.	B2
T60	Beech	Insert flexible restraint system between co-dominant stems. Remove dead wood >5cm diameter throughout the crown / overhanging site.	Average form, shape and condition. No significant recent crown management. Twin stemmed tree at 6.4m with moderate included union. Dense crown, moderate/major crown deadwood.	B2
T61	Beech	Insert flexible restraint system between co-dominant stems.	Average form, shape and condition. No significant recent crown management. Twin stemmed tree at 1.1m with moderate included union.	B2
T63	Sycamore.	Remove dead wood >5cm diameter throughout the crown / overhanging site.	Average form, shape and condition. No significant recent crown management. Twin stemmed tree at 1.6m with moderate included union. Dense crown, moderate/major crown deadwood.	B2
T65	Sycamore.	Remove dead wood >5cm diameter throughout the crown / overhanging site.	Average form, shape and condition. No significant recent crown management. Dense crown, moderate/major crown deadwood.	B2
T66	Silver Birch.	Sever ivy at 2m from ground level and remove section.	Average form, shape and condition. Ivy clad crown and stem b33unable to fully inspect.	C2
T67	Sycamore.	Remove dead wood >5cm diameter throughout the crown / overhanging site.	Average form, shape and condition. No significant recent crown management. Dense crown, moderate/major crown deadwood. Ivy clad crown and stem unable to fully inspect.	B2

Tree No.	Species	Proposed Tree Works	Reason	BS Cat
		Sever ivy at 2m from ground level and remove section.		
T68	Norway Maple.	Remove dead wood >5cm diameter throughout the crown / overhanging site.	Average form, shape and condition. Dense crown, low/moderate crown deadwood. No significant recent crown management.	B2
T69	Whitebeam.	Climbing inspection to measure the extent of decay	Average form, shape and condition. No significant recent crown management. Decay branches on central stems with moderate\major decay.	B1

To Be Removed

Tree No.	Species	Proposed Tree Works	Observations	BS Cat
TG8	Sycamore. Elm. Elder.	Fell to ground level.	Poor form, shape and condition. Self-set, pioneer tree. Young newly established tree. Dead elms	C2
T5	Elm.	Fell to ground level.	Poor form (Asymmetric canopy), shape and condition. Dutch elm disease	U
T31	Silver Birch.	Fell to ground level.	Poor form (Asymmetric canopy), shape and condition. Sparse crown showing signs of stress with crown retrenchment. Cavity between buttress roots with early/moderate decay.	U
T41	Sycamore.	Fell to ground level.	Poor form (Asymmetric canopy), shape and condition. Dense crown, moderate/major crown deadwood. Sparse crown showing signs of stress with crown retrenchment. Cavity between buttress roots with moderate/major decay. Decay cavity on main stem.	U
T52	Whitebeam.	Fell to ground level.	Sparse crown showing signs of stress with crown retrenchment. Tree colonised by fungi thought to be Innotus sp.	U

Appendix 6 – Site Inspection & Monitoring Schedule

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

To ensure that the construction process is undertaken with minimal disturbance to the retained tree stock, we recommend that an experienced Environmental Services arboricultural consultant be appointed to undertake regular inspections of the site according to a site inspection / supervision schedule below.

It is our experience that a mix of scheduled and unannounced site visits are appropriate these unannounced inspections will serve to identify any damage to the Tree Protection Fencing, poor working practices, potential problems and points of conflict between the construction process and the health of the trees. These reports will include recommendations for remedial action.

During these visits any changes to the proposed works will be discussed, their impact assessed and recommendations for best practice will be outlined. After each of these visits a copy of the report should be sent to the Site Agent, Local Authority Tree Officer and Client. The remedial action undertaken will be recorded on the next visit.

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

With reference to relevant published guidance, the methodology of this statement follows a logical sequence essential to the efficacy of the protection measures. References may include: British Standard 5837:2012 'Trees in relation to design, demolition and construction - Recommendations'; British Standard 3998:2010 'Tree Work - Recommendations' and National Joint Utilities Group 'Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees, Volume 4' 2007.

It is essential to the successful implementation of the principals set out in this document that effective supervision and enforcement are implemented from the outset as detailed in the following construction phases.

Constraints Item	Site Supervision required	Number of Visits Expected	Timing of Site Visits	Actual Visit Date
Tree works operations	Optional	Visit 1	Prior to construction	TBC
Pre-commencement meeting between relevant parties informing Council of development start date	Yes	Visit 2	Prior to site clearance	TBC
Establishment & protection of Root Protection Areas (RPA) for retained trees to 'sign off' installed tree protection fencing and temporary ground protection	Yes	Visit 2	Prior to site clearance	TBC
Changes in soil levels in close proximity to retained trees – retaining walls	Yes	Visit 3	During site clearance phase	TBC
Location of temporary access route through / adjacent to the retained trees and for access for construction vehicles and avoidance of compaction to the RPA of retained trees	Yes	Visit 3	During construction phase	TBC
Protection and prevention of damage to retained tree canopies during construction	Yes	Visit 3	During construction phase	TBC
Installation of 'Reduced / No-dig' special surfacing within / through retained tree RPAs	Yes	Visit 4	During construction phase	TBC
Excavation of services trenches in close proximity to retained trees	Possible	Visit 5	During construction phase	TBC
Generic construction site constraints: **1 Site office / Welfare unit location** **2 Temporary toilets** **3 Siting of bonfires** **4 Location of contaminant storage and washout areas** **5 Location of stripped topsoil**	Yes	Visit 3	During construction phase	TBC
Post construction site assessment for any required remedial treeworks operations recommendations.	Yes	Visit 6	Post construction	TBC

Appendix 7 – BS5837: 2012 Tree Constraints & Protection Methods

Phase 1 Pre-Construction Meeting

Prior to commencement of the works an onsite meeting will be held with all relevant parties including the site agent and appointed Environmental Services arboricultural consultant of works. The purpose of this meeting is to record site features including tree condition, agree tree works (See Tree Works Schedule, location of site storage and welfare facilities and the location of tree protection measures.

Phase 2 Tree Protection Measures

Subject to planning the Tree Protection Measures outlined in this report will be revisited in detail based on the working drawings, construction programme and method statement to be prepared.

Tree protection fencing should be installed prior to any demolition or ground-works commencing, remain in place throughout construction and be removed only after completion.

The provision of tree protection and light tree surgery will reduce the risk of direct damage to the retained trees. The demolition and construction process should not be commenced until the tree surgery works has been completed and the protective areas have been fenced off.

Tree protection will be installed as per the Tree Protection Plan which will be agreed with the Local Authority Tree Officer and with reference to the British Standard 5837 2012 'Trees in relation to design, demolition and construction – Recommendations'. Prior to commencing any demolition or construction works, the fencing will be inspected by the appointed Environmental Services Arboricultural consultant.

Within the fenced zone, no materials or chemicals should be stored at any time, no fires should be lit, no pedestrian or vehicle traffic, and level changes within these areas should be kept to an absolute minimum. Every effort should be taken to protect a maximum possible area of the root system.

Within the Root Protection Area no level changes or excavation within the RPA should be undertaken without the consent of the LPA Tree Officer.

Clear notices are to be fixed to the outside of the fencing with words such as 'TREE PROTECTION AREA – NO ACCESS OR WORKING WITHIN THIS AREA'. See Appendix 8.

The site agent, all contractors and other relevant personnel are to be informed of the role of the Tree Protection Fencing and their importance. A copy of the Tree Protection Plan will be displayed on site at all times during construction.

Phase 3 Demolition and Enabling Works

Prior to any works commencing on site the Tree Protection Fencing will be erected. During demolition programme and enabling works the existing front access will be in use. Any plant or vehicles engaged in the demolition works will operate outside the fenced off No-Dig / Root Protection Areas.

Phase 4 Locations of Site Offices Compound and Storage Area

The site office, welfare facilities, storage yard and contractors parking area need to be located within an area of the site that is outside the Root Protection Area (RPA). The compound will remain at least 1 metre outside the RPA with access from the main access road.

All fuel storage and loose cement / sand to be batched and stored in the compound area.

Phase 5 Groundworks, Level Changes, Foundations and Services

All spoil, including excavated soil and demolition material will be removed from site or stored in a location remote from any tree protection barriers.

With regard to the drawings provided the construction of foundations for the new build is located beyond the Root Protection Area (RPA) of retained trees, therefore with regard to the health of the retained trees no specialised foundation design is required. If the subsoil is found to be plastic, the foundations will be specified to take into account the potential influence of the vegetation on the moisture content and volume of the subsoil.

We recommend that all drainage and underground service routes are located beyond the RPA of all the retained trees. If the service runs are to be located within the RPA, we recommend that this matter is dealt with by method statement secured by planning condition. If services are located within the RPA special implementation techniques such as moleing, airspade, or hand digging may be required by the LPA. In the majority of cases, however, careful excavation with a low tonnage mechanical excavator supervised by the Environmental Services consultant arboriculturist can adequately undertake services excavations. When tree roots are encountered, hand digging and root protection can then be undertaken as and when they are observed.

Phase 6 Dismantling Protection Barriers

Dismantling the protection barriers around retained trees may be required to allow completion of final surface treatments and landscaping. Supervision of this exercise and control of the landscaping thereafter will be administered by the appointed Environmental Services arboricultural consultant. The removal of the Tree Protection Fencing is not an opportunity for machinery to access the previously fenced off area.

No further excavation will be carried out during this process and soils levels will not be raised above that existing by greater than 100mm and not within 2m of the trunk. Any removal of existing structures within the Root Protection Area including gardens type walls or paths will be carried out by hand.

Appendix 8 – Tree and Ground Protection Specification

BS 5837:2012 **BRITISH STANDARD**

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).

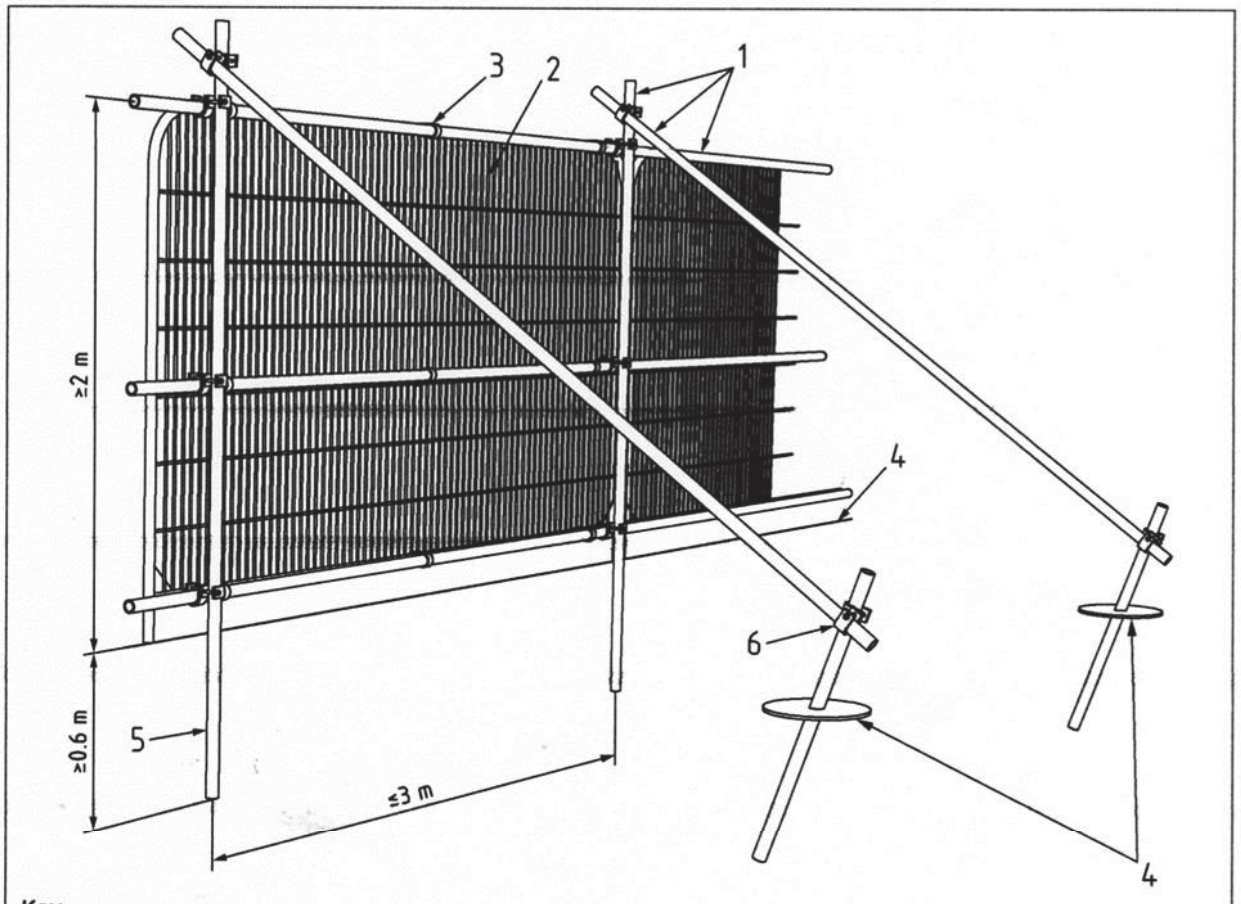
NOTE 1 Examples of configurations for steel mesh perimeter fencing systems are given in BS 1722-18.

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".

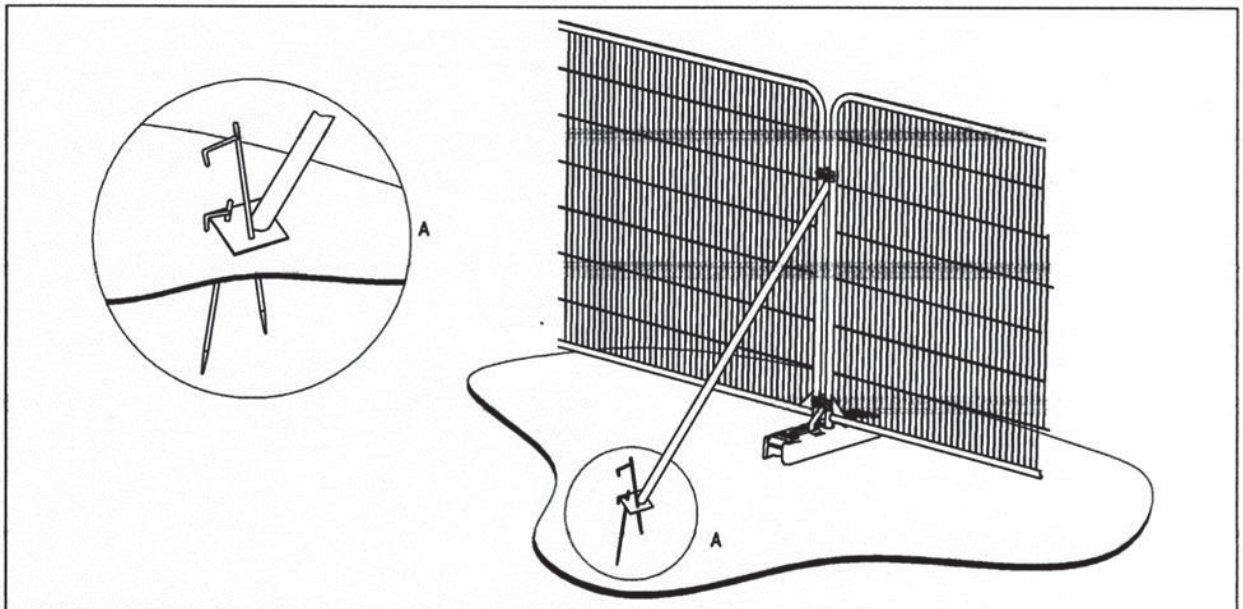
Figure 2 **Default specification for protective barrier**



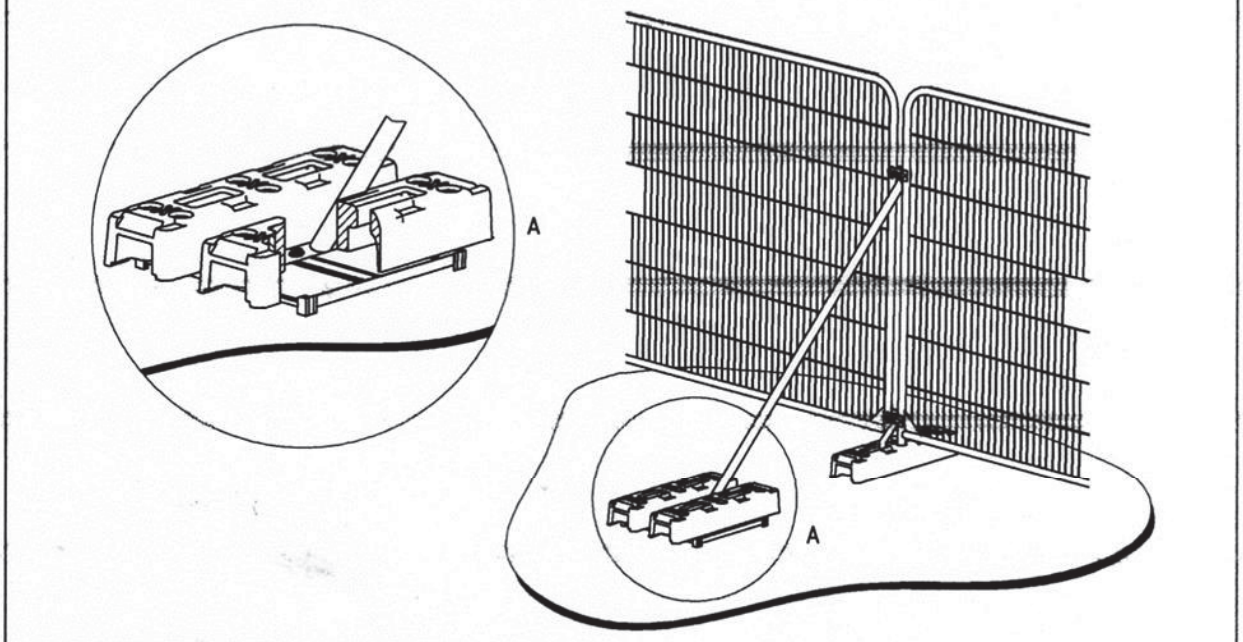
Key

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

Figure 3 **Examples of above-ground stabilizing systems**



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

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.

Suggested protective fencing warning sign format

TREE PROTECTION AREA

KEEP OUT

(TOWN & COUNTRY PLANNING ACT 1990)

THE VEGETATION PROTECTED BY THIS FENCE IS PROTECTED BY PLANNING CONDITIONS AND/OR IS THE SUBJECT OF A TREE PRESERVATION ORDER.

IF YOU REQUIRE ACCESS INTO THIS AREA PLEASE CONTACT

planning@innovation-environmental.co.uk

T: +44 (0)330 380 1036

Appendix 9 – Temporary Ground Protection Specification

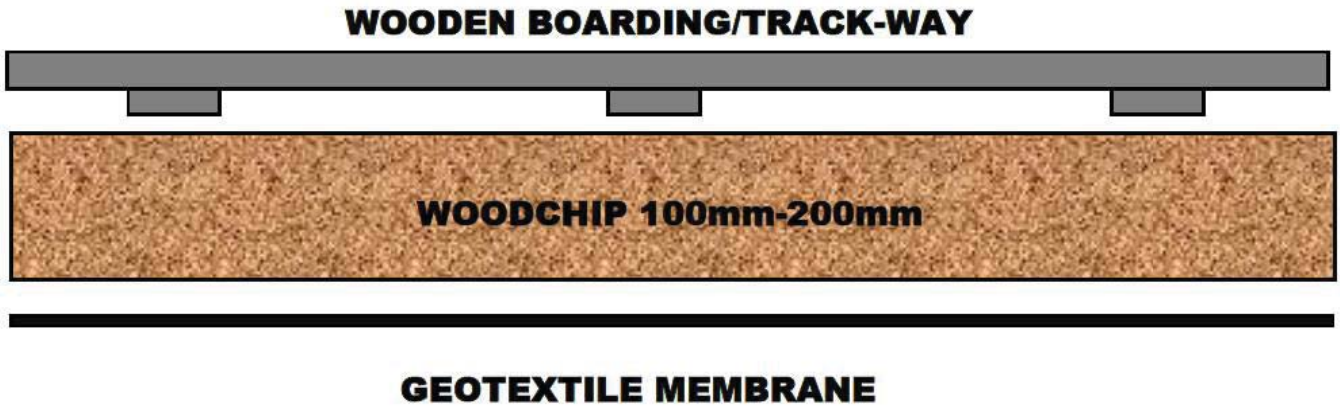
BS5837 recognizes that incursions in to the construction inclusion zones will be required at times during some developments.

The objective is to minimize soil compaction

Example 1 - *for pedestrian movements only, a single thickness of scaffold boards places either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g.) 100mm depth of woodchip), laid on to a geotextile membrane.*

Example 2 - *For pedestrian-operated plant up to a gross weight of 2 t, proprietary inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150mm depth of woodchip), laid onto a geotextile membrane;*

Example 3 - *For wheeled or tracked construction traffic exceeding 2 t gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.*



Appendix 10 – Photographs

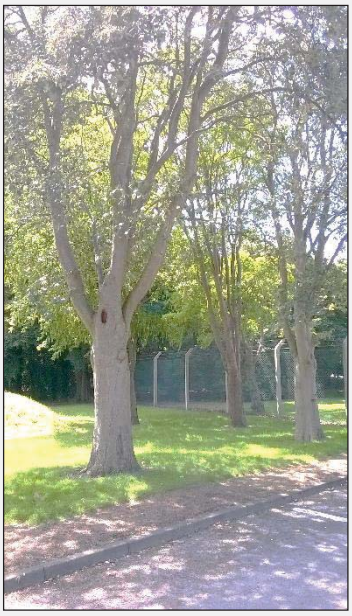
W1

Main Site Entrance

TG8

T68

W1 Boundary



T40 Whitebeam

TG1 – TG2

TG5