

KNOWSLEY IMAGE BUSINESS PARK LTD

SITE 3, IMAGES BUSINESS PARK, KNOWSLEY

**ARBORICULTURAL METHOD STATEMENT
TO BS 5837:2012**



our ref:	2180 / EH / AMS001
date:	7 th September 2021
prepared by:	E.C.H
checked by:	T.G-W

address: 132A The Westlands, Compton Road, Wolverhampton, WV3 9QB
tel: 01902 424 950 / 01902 425 001
email: info@bealandscape.co.uk
web: www.bealandscape.co.uk

arboricultural method statement



our ref: 2180/EH/AMS001

project: Site 3. Knowsley Image Business Park

date: 07/09/2021

1.0 Context

- 1.1 The works included within this arboricultural method statement are part of the redevelopment of the Knowsley Business Park proposed for Knowsley Image Business Park Ltd as described within the Design & Access Statement.
- 1.2 As part of the planning application a tree survey was carried out for the area affected by the works (refer to Tree Survey 2180/EH/TR001. The tree survey includes the Tree Constraints Plan 21-80-02 which identifies the root protection areas of the surveyed trees.
- 1.3 The Arboricultural Impact Assessment (refer to 2180/EH/AIA001) identifies those trees to be removed and those to be retained (refer to the Tree Retention & Removal Plan 21-80-03) including the need for special construction techniques required to mitigate for the proposed development.
- 1.4 This method statement refers to the protection of those trees in proximity of the works to be retained as part of the proposals T01, T02, T03, T04, T05, T06, T07, T08, T09, T10, T11, T12, T13, T14, T16, T18, T19, T20, T22, T23, T24, T27 & T28 and provides details of the special construction techniques outlined within the Arboricultural Impact Assessment.

2.0 Tree Protection Informative:

- 2.1 Trees that are in good health have grown and adapted to their surroundings. Any building works or construction activity which affects their surrounding could affect their vigour, future growth and safety.
- 2.2 The tree root system is the most susceptible to damage and can affect the health, growth, life expectancy and safety of the tree. Damage to the trunk and branches of a tree is not usually sufficient to kill the tree, but it can affect the shape and growth potentially making a tree unsafe.
- 2.3 Tree roots are typically concentrated within the uppermost 600mm of the existing ground level and form a network of small diameter woody roots (typically less than 1cm or pencil thickness) with mass of finer roots. These tree roots can extend for a distance much greater than the height and spread of the tree, except where prevented by unfavourable surroundings or obstructions. These fine roots are essential for the continued health and vitality of the tree and are dependent on the existing soil conditions being maintained.
- 2.4 All parts of the root system, but especially the fine roots, are vulnerable to damage from uncontrolled activities. It is also known that mature trees recover slowly, if at all, from damage to their roots, whilst younger trees with good vitality do have a chance to adapt.



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tel: 01902 424 950 / 01902 425 001
email: info@bealandscape.co.uk
web: www.bealandscape.co.uk

directors: T Grantham-Wright BA(Hons), DipLA, CMLI, Cert Arb. E Hobday BA(Hons), BLA, CMLI, DipArb L4, TechArborA.
consultants: Dr N E Haycock Bsc, D.Phil (Oxon) Hydrology. Registered in England as Bea Landscape Design Ltd, number 04707914.

3.0 Construction Proposals

- 3.1 The project includes for the construction of a 120,000 square foot light industrial unit with associated service yard, car parking and ancillary structures. The existing buildings have been demolished to ground level.

4.0 Tree Protection & Ground Protection

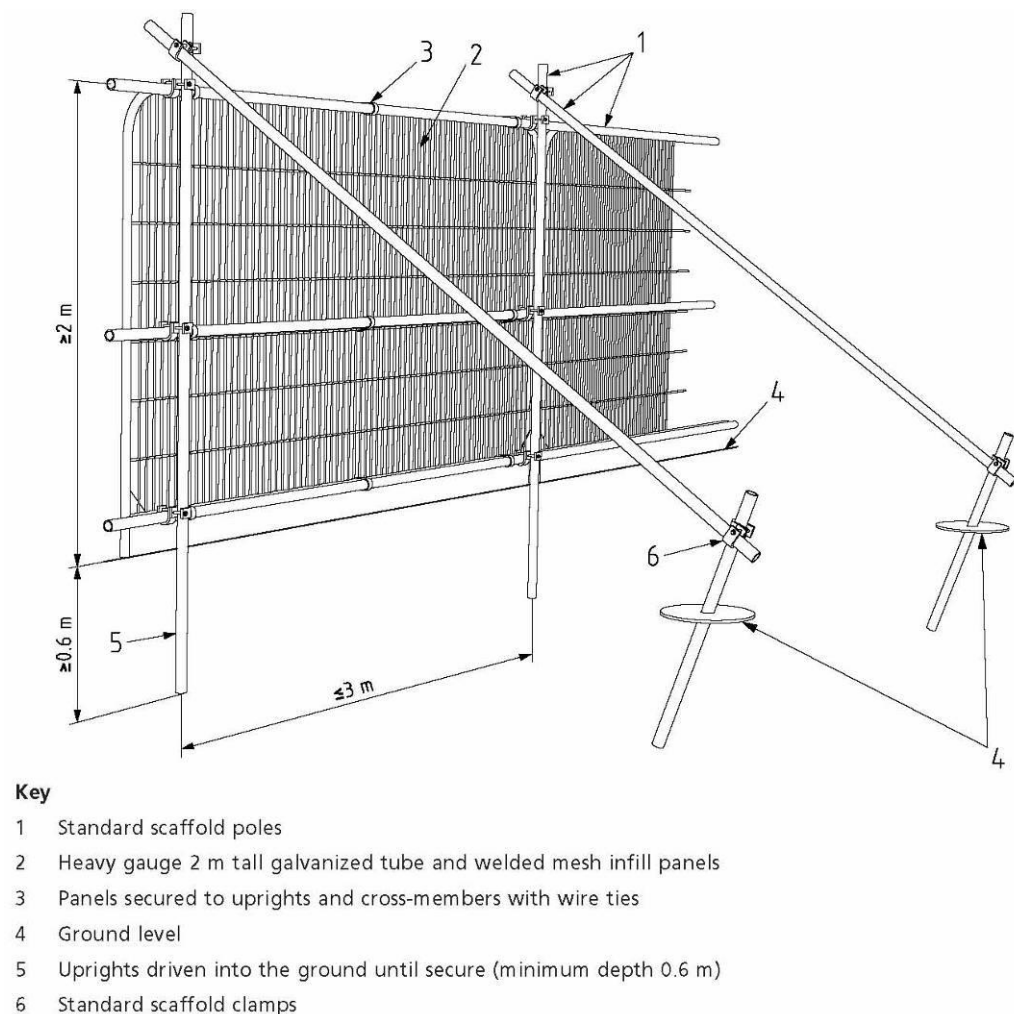
- 4.1 All trees that are being retained on site are to be protected by barriers and/or ground protection prior to any site activity and before any materials or machinery are brought onto the site, before any demolition, development or stripping of soil commences. Where all activity can be excluded from the RPA, vertical barriers are to be erected to create a construction exclusion zone. The default barrier specification is to be in accordance with Figure 2. of BS 5837:2012 'Trees in Relation to Design, Demolition and Construction - Recommendations' as illustrated below and identified within the Tree Protection Plan 21-80-04.
- 4.2 The protected area is to be regarded as sacrosanct, and, once installed, barriers and ground protection is not to be removed or altered without prior recommendation by the project arboriculturalist and, where necessary, approval from the local planning authority.
- 4.3 All weather tree protection posters as detailed below are to be securely fixed to the tree protection fencing at 10 metre centres in plain view.



- 4.4 The retained offsite trees T01, T03, T04, T05, T06, T07, T08, T09, T10, T11, T13, T14, T16, T18, T19, T20, T23, T24 are to be protected during construction by the existing 1.8 metre high chainlink fence which is to be retained as part of the redevelopment of the site (refer to photograph below).
- 4.5 The tree protection fencing to the retained trees T02, T12, T16, T18, T22, T27 & T28 is to be erected as detailed above and on the Tree Protection plan 21-80-04 and maintained in place until the completion of the project subject to the mitigation set out below.

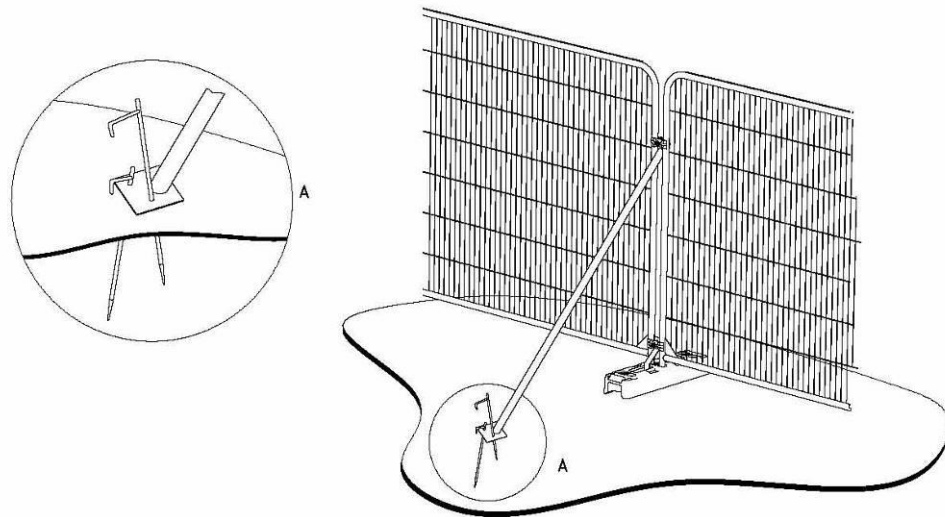


- 4.6 In order to protect T02, T12, T22, T27 & T28 during the proposed works there are two phases of tree protection fencing. During Phase 1 full BS 5837 Figure 2 fencing will protect the trees during the initial site clearance and main construction activities associated with the works including any required excavations. On completion of these works this fencing is to be removed with the existing chainlink fence acting as the Tree Protection fence.

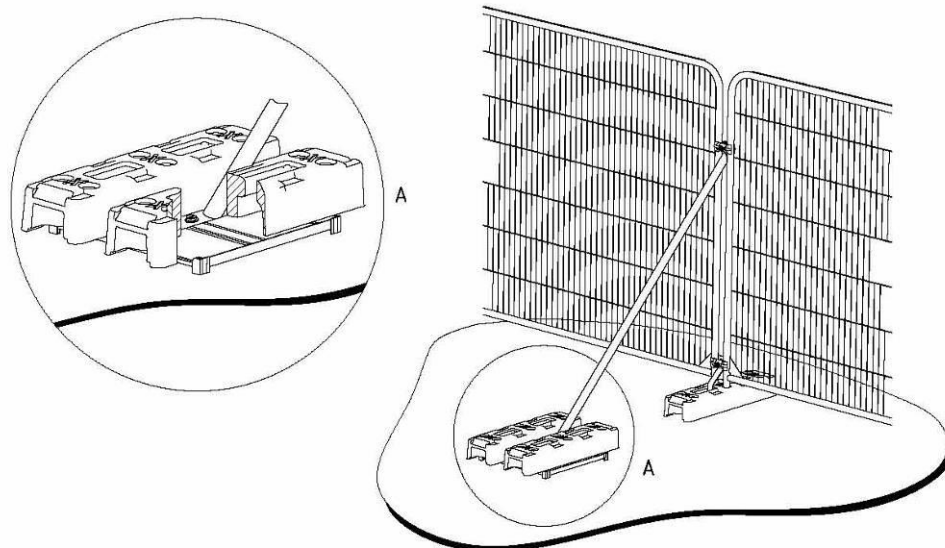


BS 5837 Figure 02; Default Specification for protective barrier

- 4.7 Care is to be exercised when locating the vertical poles to avoid underground services and, in the case of the bracing poles, also to avoid contact with structural roots. If the presence of underground services precludes the use of driven poles, an alternative specification that provides an equal level of protection is to be prepared in conjunction with the project arboriculturalist as illustrated within Figure 3 of BS 5837:2012 below.



a) Stabilizer strut with base plate secured with ground pins



b) Stabilizer strut mounted on block tray

BS 5837 Figure 03; Examples of above-ground stabilising systems

5.0 Site Compound and Working Area

- 5.1 The site compound area is to be located on the existing hard surfacing, outside of the Construction Exclusion Zones of the retained trees and accessed from the existing industrial estate access roads. All contractors staff car parking is to be contained within the existing or proposed hard standing areas.

6.0 Haul Routes

- 6.1 The route for the haulage of materials and deliveries within the site is to be along the line of the existing internal estate roads.
- 6.2 The planning of site operations is to take sufficient account of wide loads, tall loads and plant with booms, jibs and counterweights (including drilling rigs), in order that they can operate without coming into contact with retained trees. Any transit or traverse of plant in proximity to trees are to be conducted under the supervision of a banksman, to ensure that adequate clearance from trees is maintained at all times. Access facilitation pruning is to be undertaken as specified to maintain this clearance.

7.0 Temporary Topsoil Storage

- 7.1 The stripped topsoils are to be stored in temporary mounds outside of the construction exclusion zones of the retained trees. In accordance with BS 4428 topsoil heaps should not exceed 3m in height.

8.0 Demolition

- 8.1 The proposals require the demolition of the existing building footprints to level the site for redevelopment including the removal of the existing estate road to the Western boundary.
- 8.2 Prior to the demolition / levelling works tree protection fencing is to be erected as specified above and detailed on the Tree Protection Plan 21-80-04.

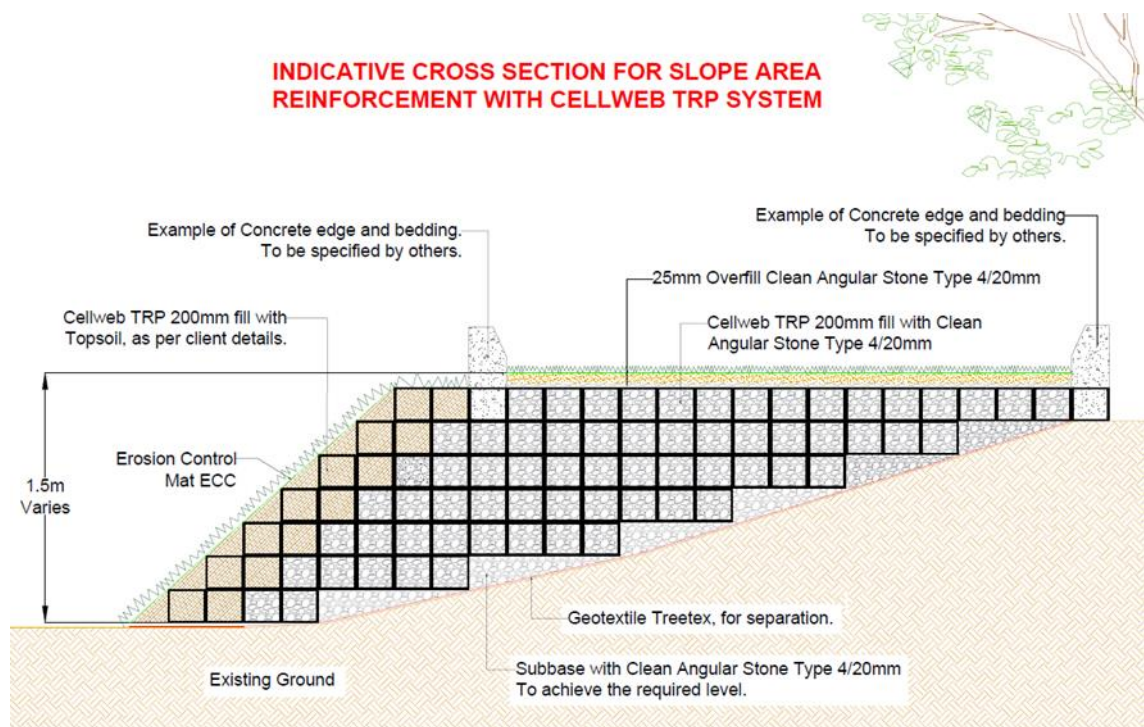
9.0 Removal Of Existing Hard Surfacing

- 9.1 Prior to the removal of the existing tarmac roadway at the edge of the RPA of the retained trees appropriate tree protection fencing is to be installed to protect the existing trees in accordance with BS 5837:2012.
- 9.2 Care is to be taken not to disturb tree roots that might be present beneath the existing surfacing. Hand-held tools or appropriate pedestrian operated machinery is to be used to remove the existing surface, working backwards over the area, so that the machine is not moving over the exposed ground
- 9.3 Any exposed tree roots are to be treated in accordance with section 7.2 of BS5837:2012 and as detailed in below:
 - 1) Exposed roots are to be immediately wrapped or covered to prevent desiccation and to protect them from rapid temperature changes. Any wrapping are to be removed prior to backfilling, which is to take place as soon as possible.
 - 2) Roots smaller than 25 mm diameter may be pruned back, making a clean cut with a suitable sharp tool (e.g. bypass secateurs or handsaw), except where they occur in clumps.
 - 3) Roots occurring in clumps or of 25 mm diameter and over are to be severed only following consultation with an arboriculturalist.

- 4) Prior to backfilling, retained roots are to be surrounded with topsoil or uncompacted sharp sand (builders' sand is not to be used), or other loose inert granular fill.
- 5) Soils or other suitable material are then to be replaced. This material should be free of contaminants and other foreign objects potentially injurious to tree roots and approved by the project arboriculturalist.

10.0 Cellweb Reinforced Slope

- 10.1 The construction of reinforced slope within the root protection areas of T12, T22 & T28 is to be of design that does not require excavation into the soil, including through lowering of levels and/or scraping, other than the removal, using hand tools, of surface vegetation in accordance with Clause 7.4.2 of BS5837:2012.
- 10.2 The slope is to be designed to avoid localized compaction utilising a three dimensional cellular confinement system such as Cellweb TRP to act as a load suspension layer infilled with clean angular stone to maintain a permeable and porous surface. The upper layer of the slope is to be infilled with topsoil and protected from erosion with an erosion control mat in accordance with the principles of the typical detail below.



Typical Cellweb TRP slope reinforcement detail.

11.0 Soft Landscape Implementation

- 11.1 The proposals require wildflower seeding within and at the edge of the RPA of trees T02, T12, T22 & T28 and therefore careful consideration is required to ensure the existing trees are protected during implementation including how the areas are to be seeded whilst causing minimal damage to the trees.

- 11.2 To limit the risk of ground compaction, access to the planting areas is to be from the existing hard standing to the with the preparation and cultivation works carried out after the completion of the main construction activities.
- 11.3 To avoid unnecessary root damage, no cultivation of the topsoil is to be carried out within the Tree Protection Areas of the retained trees.
- 11.4 The soft landscape areas outside of the construction exclusion zones / RPAs of the retained trees are to be set out, cultivated and planted as required prior to the removal of the tree protection fencing. The landscape works within the construction exclusion zones area to be carried out by hand only.

12.0 Arboricultural Supervision

- 12.1 The erection of the Tree Protection fencing is to be inspected and approved by Bea Landscape Design prior to the commencement of demolition and construction.
- 12.2 The installation of the reinforced cellweb slope is to be installed under arboricultural supervision to engineers details and to an approved contractors method statement .
- 12.3 Tree surgery recommendations are to be approved with the local authority tree officer and carried out prior to construction. Where appropriate access facilitation pruning is to be carried out to trees T01, T12 & T22 to prevent any damage during construction. Tree works are to be carried out by a Arboricultural Association registered Tree Surgeon, refer to the Schedule of Tree Works.

Appendix A: Technical Definitions

Access Facilitation Pruning:	One off tree pruning operation, the nature and effects of which are without significant adverse impact on tree physiology or amenity value, which is directly necessary to provide access for operations on site.
Arboricultural Impact Assessment	An evaluation of the direct and indirect effects of the proposed design on the trees identified within the Tree Survey, where necessary recommending mitigation or amendments to the design.
Arboricultural Method Statement	Methodology for the implementation of any aspect of development that is within the root protection area, or has the potential to result in loss of or damage to a tree to be retained.
Construction Exclusion Zone	An area based on the root protection area from which access is prohibited for the duration of a project
Root Protection Area (RPA)	The minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree's viability, and where the protection of the roots and soil structure is considered a priority
Tree Protection Plan	A scale drawing informed by descriptive text where necessary, based upon finalised proposals, showing trees for retention and illustrating the tree and landscape protection measures.

Appendix B: References

1. BSI (2012) '*British Standard 5837:2012 Trees in relation to design demolition and construction – recommendations*' British Standards Institution, London
2. NJUG Volume 4 (2007) '*Guidelines for the planning, installation and maintenance of utility apparatus in proximity to trees.*' The National Joint Utilities Group
3. BSI (2010) '*Tree work – Recommendations*' British Standards Institution, London
4. AA (2020) '*The Use of Cellular Confinement Systems Near Trees: A Guide to Good Practice*' Guidance Note 12. Arboricultural Association.

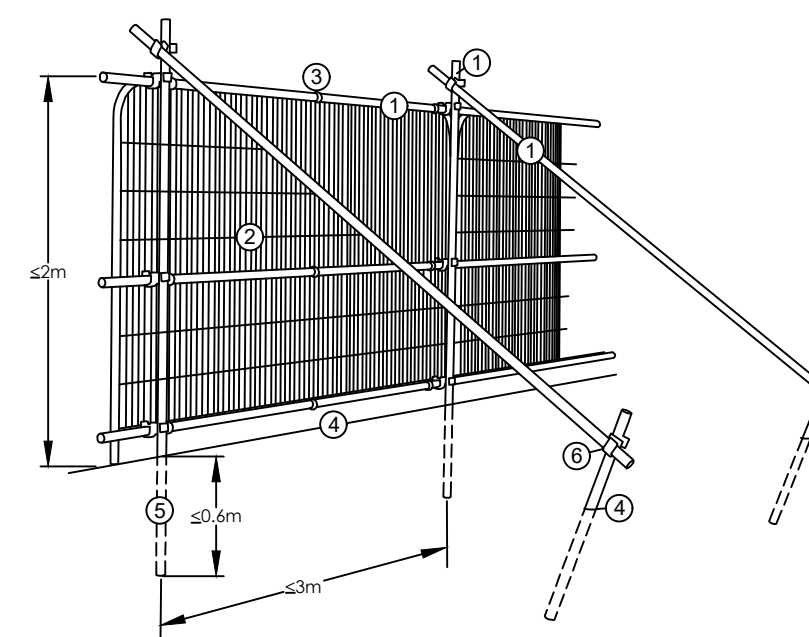
LEGEND: TREE PROTECTION TO BS 5837:2012

- TREE PROTECTION FENCE: to be constructed in accordance with BS5837 prior to commencement.
- CONSTRUCTION EXCLUSION ZONE: to be protected from construction in accordance with BS5837.
- REINFORCED SLOPE: slope adjacent to existing trees to be constructed using Cellwax TRP complete with topsoil and erosion control matting to engineers details.
- DEMOLISHED BUILDING FOOTPRINT
- EXISTING HARD SURFACING
- DIMENSIONS: setting out dimensions from trunk of retained trees or other existing site features.
- TREES TO BE RETAINED: with root protection zone illustrated.
- TREE REMOVAL: trees to be removed to enable construction.

ARBOCULTURAL METHOD STATEMENT: refer to the Arboricultural Method Statement 2.180 / EH / AMS001 for more detailed information.

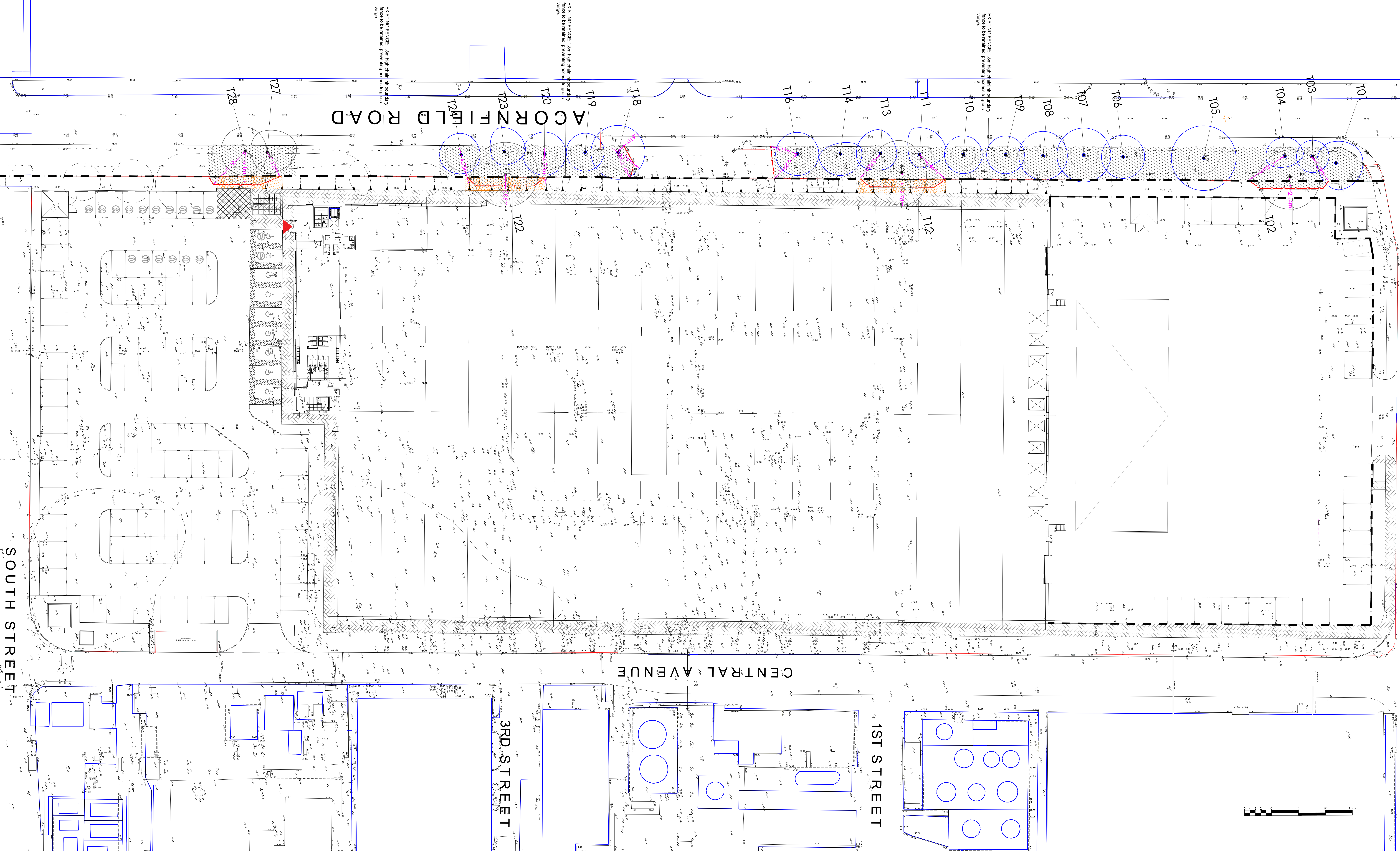
TREE PROTECTION NOTES:
"Trees in relation to design demolition and construction" BS5837:2012

- 1.0 PRIOR TO COMMENCEMENT OF WORKS:
- 1.1 PRIOR TO COMMENCEMENT: all trees that are being retained onsite shall be protected by barriers and / or ground protection before any materials or machinery are brought onto the site, and before any demolition, development or stripping of soil commences. The "Root Protection Area" (RPA) associated with existing trees designated for retention shall be protected from damage by erection of scaffold framework barriers in accordance BS 5837:2012 Figure 2 including where specified appropriate ground protection.
- 1.2 EXTENT OF ROOT PROTECTION AREA (RPA): as shown on the Tree Protection Plan (TPP) the RPA is generally to be in accordance with Annex D, Table D.1 "Root Protection Area", as an area equivalent to a circle radius 12 times the stem diameter (single stem trees) or based on the combined stem diameter for multi-stem trees (trees with more than one stem arising below 1.5m above ground level) refer to Clause 4.6.
- 1.3 TREE PROTECTION BARRIER: a vertical and horizontal scaffold framework, well braced to resist impacts as illustrated below (refer to Figure 2 of BS5837:2012). The vertical tubes should be spaced at a maximum interval of 3 metres and driven securely into the ground. Care should be taken to avoid underground services and contact with structural roots. In the presence of underground services, retained hard surfacing or where special circumstances dictate an alternative specification as illustrated in Figure 3 of BS5837:2012 may be acceptable subject to agreement with the project arboriculturalist and the local planning authority.
- All weather site notices should be attached to the barrier with words such as "CONSTRUCTION EXCLUSION ZONE - NO ACCESS". Once installed barriers and ground protection shall be not be removed or altered without prior approval of the project arboriculturalist and where necessary approval from the local planning authority.



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

- 2.0 ADDITIONAL PRECAUTIONS:
- 2.1 Planning of site operations should take sufficient account of wide or tall loads, or plant with booms, jibs or counterweights (including drilling & piling rigs) in order that they can operate without coming into contact with retained trees. The transit or traverse of plant in proximity to trees shall be conducted under supervision of a banksmen to ensure adequate clearance from trees is maintained at all times. Access facilitation proving as agreed with the project arboriculturalist and/or local authority should be undertaken where necessary to maintain clearance. NB Works to trees protected by a Tree Preservation Order or within a Conservation Area will need approval by the local authority.
- 2.2 Any materials whose accidental spillage would cause damage to a tree should be stored and handled well away from the outer edge of its RPA e.g. concrete mixings, diesel oil and vehicle wastings. Allowances shall be made for sloping ground to avoid damaging materials running towards retained trees.
- 2.3 Fires on sites should be avoided. Where they are unavoidable, they should not be lit in a position where heat could affect foliage or branches. The potential size of a fire and direction should be taken into account when determining its location, and should be attended at all times until safe to leave.
- 2.4 Trees are not to be used as anchorages for equipment, or for other purposes. Notice boards, telephone cables, or other services should not be attached to any part of the tree.
- 2.5 The dumping of spoil or rubbish, placing of temporary accommodation and storage of materials within the root protection area is prohibited.
- 2.6 The change of ground level, excavating, stripping or disturbing topsoil within the RPA is prohibited.



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bea
landscape design ltd

client: KNOWSLEY IMAGE
BUSINESS PARK LTD

project:
SITE 3, IMAGE BUSINESS PARK
KNOWSLEY

title:
TREE PROTECTION PLAN

status:
PLANNING

date: AUG/21	drawn: E.C.H.	number: 21-50-04
scale:9A0: 1:250	checked: T.G-W	revision: (-)

Beo Landscape Design Ltd
132A The Westlands, Compton Road,
Wolverhampton, WV5 9QB
T: 01902 424 950 / 01902 423 901
E: info@beolandscapedesign.co.uk
W: www.beolandscapedesign.co.uk

Landscape
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landscape architects - arboricultural consultants
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address:

132A The Westlands
Compton Road
Wolverhampton
WV3 9QB

tel: 01902 424 950

email: info@bealandscape.co.uk

web: www.bealandscape.co.uk