

CANMOOR

GRIMSHAW LANE, MANCHESTER

ARBORICULTURAL METHOD STATEMENT
TO BS 5837:2012



our ref: 2093 / EH / AMS001A
date: 11th February 2021
prepared by: E.C.H
checked by: T.G-W

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A	11 th February 2021	Site area extended.	E.H

arboricultural method statement



our ref: 2093/EH/AMS001A

project: Grimshaw Lane, Manchester

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1.0 Context

- 1.1 The works included within this arboricultural method statement are part of the detailed application for the re-development of the former Mathers Foundry for 11 industrial units for Canmoor at Grimshaw Lane, Manchester 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 2093/EH/TR001). The tree survey includes the Tree Constraints Plan 20-93-02 which identifies the root protection areas of the surveyed trees.
- 1.3 This method statement refers to the protection of those trees in proximity of the works to be retained as part of the proposals G05, T47, T52, T53, T55, T56, G57, G58, G59, G60, G62, T65, T66, T67, T68, T69 & G71 during the construction phase of the project.

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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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 construction proposals include the demolition of the remains of the foundry buildings and the construction of 11 industrial units with associated service yards, parking and ancillary structures.

4.0 Tree 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 20-93-04.

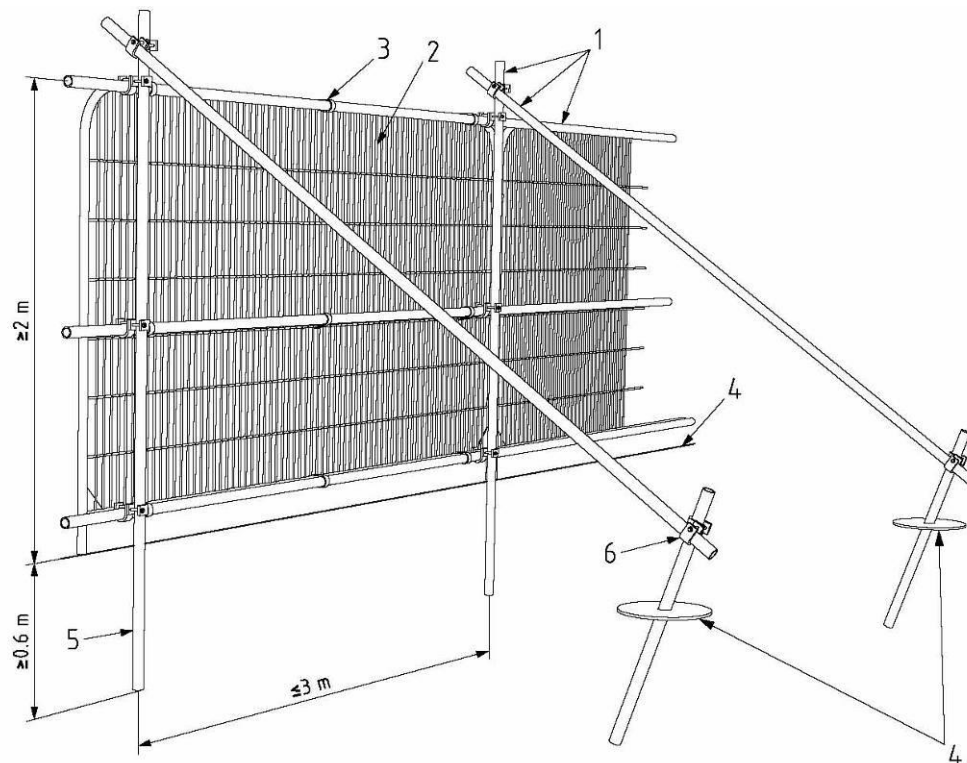
4.2 The protected area is to be regarded as sacrosanct, and, once installed, barriers and ground protection is not to be removed or altered without prior recommendation by the project arboriculturalist and, where necessary, approval from the local planning authority.

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 tree protection fencing to the retained G05, T47, T52, T53, T55, T56, G57, G58, G59, G60, G62, T65, T66, T67, T68, T69 & G71 is to be erected as detailed above and on the Tree Protection plan 20-93-04 and maintained in place until the completion of the project.

4.5 In order to protect T52 during the proposed works two phases of tree protection fencing are to be installed. The initial fence position, Phase 1, 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 relocated to the secondary fence line, Phase 2 .



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

BS 5837 Figure 02; Default Specification for protective barrier

- 4.6 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.

6.0 Site Compound

- 6.1 The site compound area for welfare and materials delivery and storage is to be located on the areas of existing hard surfacing to the front of the proposed units on areas of proposed hard standing outside of the construction exclusion zones and areas of proposed soft landscaping. Accessed from the existing tarmac road off Grimshaw Lane, all contractors staff car parking is to be contained within the existing hard standing areas.

7.0 Haul Routes

- 7.1 The route for the haulage of materials both into and out of the site is to be along the line of the existing tarmac access road and the proposed central access road which is to be formed in advance of construction to facilitate access to the individual Units.
- 7.2 The planning of site operations should 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 should 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.

8.0 Temporary Topsoil Storage

- 8.1 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.

9.0 Demolition

- 9.1 The redevelopment of the former foundry require the demolition of the remaining walling and surfaces in proximity to the root protection zones and canopies of the trees G57, T55, T56 & G58.
- 9.2 Prior to the demolition works tree protection fencing is to be erected as specified above and detailed on the Tree Protection Plan 20-93-04. All plant and vehicles engaged in demolition works are to either operate outside the RPA.
- 9.3 Where trees stand adjacent to structures to be removed, the demolition should be undertaken inwards within the footprint of the existing building (often referred to as "top down, pull back").
- 9.4 Where existing boundary retaining walls are present adjacent to the RPA of the retained trees the walls are to be retained insitu subject to inspection and approval by the project structural engineer. It is preferable to leave such structures in situ, as their removal could damage adjacent tree roots and undermine the ground.

10.0 Retaining Wall Construction:

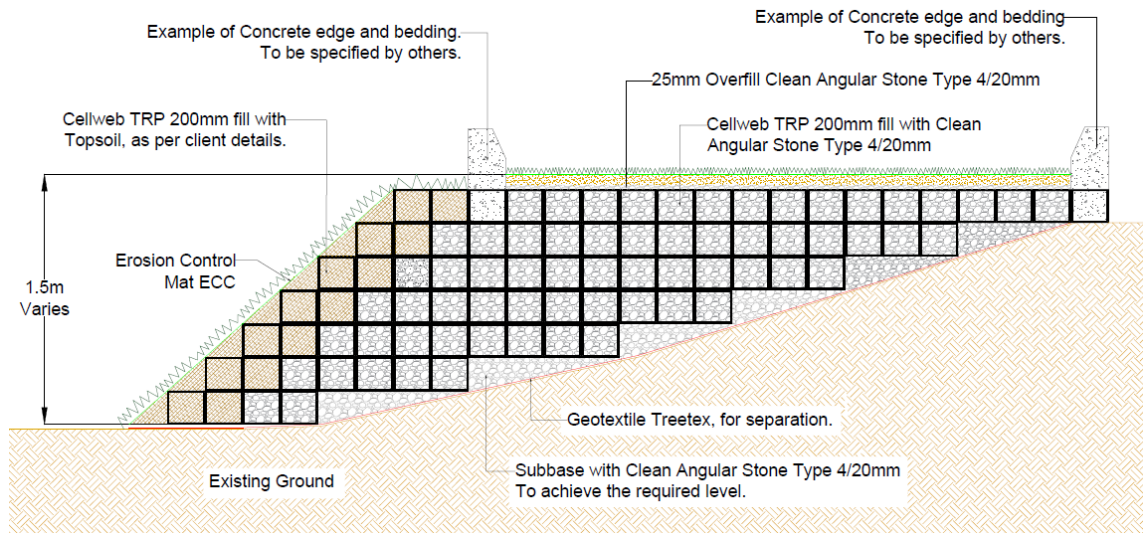
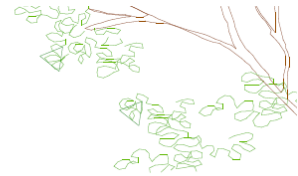
- 10.1 The proposed development requires the construction of retaining walls in close proximity to the root protection zone of the trees G05 & T60.
- 10.2 The proposed retaining walls and associated foundations therefore require careful consideration including how the existing trees are to be protected during construction and how the retaining walls are to be constructed whilst causing minimal damage to the retained trees.

- 10.3 Prior to commencement of the retaining wall construction, the extent of the RPA and the line of the proposed retaining wall are to be demarcated onsite and the surplus soils outside of the RPA is to be removed by machine. The soil at the outer edge of the root protection area is to be excavated using hand-held tools or compressed air soil displacement in accordance with clause 7.2 of BS 5837:2012 with the exposed roots treated as set out below.
- a) 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.
 - b) 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.
 - c) Roots occurring in clumps or of 25 mm diameter and over are to be severed only following consultation with an arboriculturalist.
 - d) Prior to backfilling, retained roots are to be surrounded with topsoil or uncompacted sharp sand (builders' sand is not be used), or other loose inert granular fill.
 - e) 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.
- 10.4 The retaining wall is to be located outside of the RPA of the retained trees and sheet piled to the project engineers specification to prevent the need for excavations into the RPA of the retained trees.
- 10.5 In accordance with clause 5.5.6 BS 5837:2012 all construction operations undertaken in the vicinity of trees need to be planned to avoid disturbance to the physical protection and the tree. Additional precautions outside of the construction exclusion zone include planning site operations to ensure that wide or tall loads or plant with booms or jibs and counterweights can operate without coming into contact with the retained trees. This is of particular relevance to the pouring of the insitu concrete foundations.

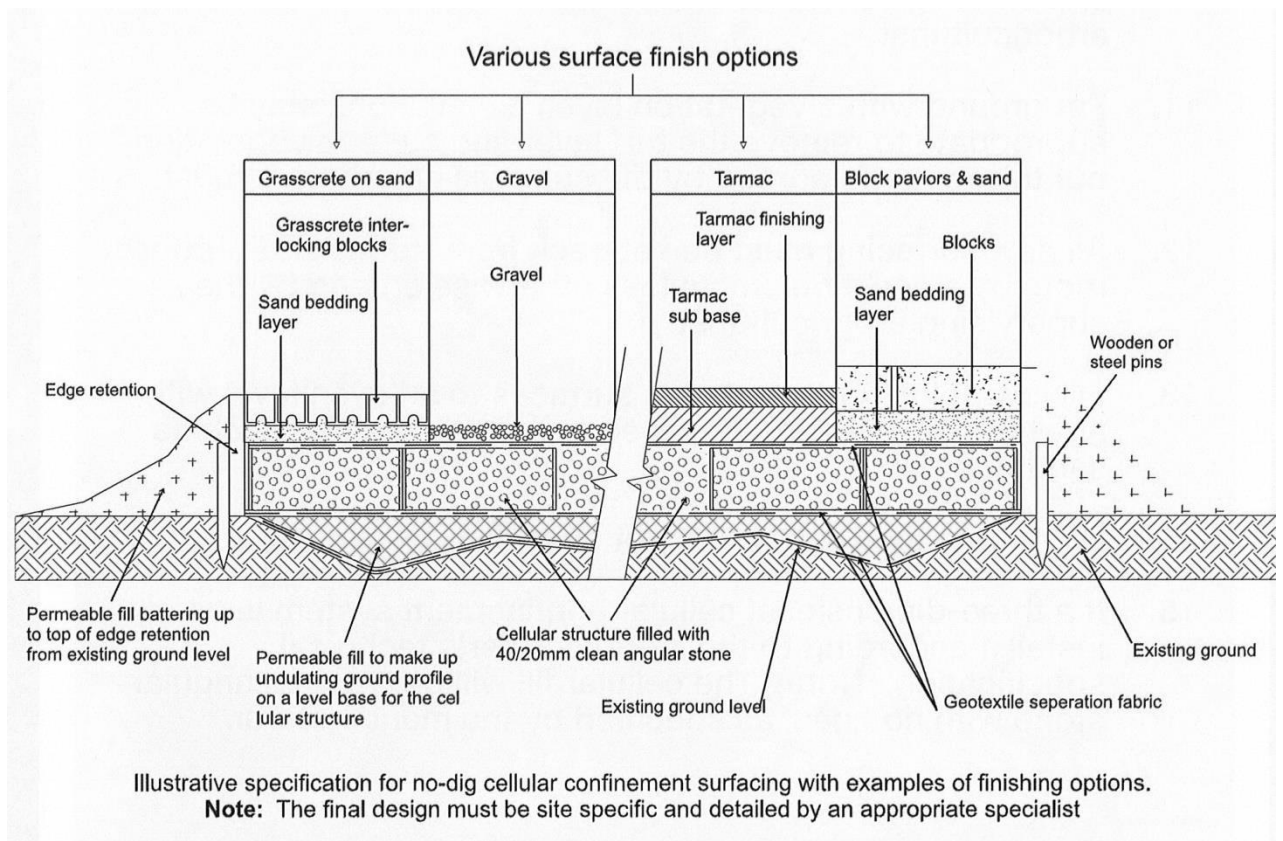
11.0 Reinforced Slope

- 11.1 The construction of reinforced slope within the root protection area of T52 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.
- 11.2 The slope is to be designed to avoid localized compaction utilising a three dimensional cellular confinement system such as Cellweb TRP 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 matt in accordance with the principles of the typical detail below.

INDICATIVE CROSS SECTION FOR SLOPE AREA REINFORCEMENT WITH CELLWEB TRP SYSTEM



Typical Cellweb TRP slope reinforcement detail.



No Dig, porous surfacing - typical section

12.0 New Permanent Hard Surfacing Construction

- 12.1 The construction of new permanent hard surfaced footpath within the root protection area to G59 & G60 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 any turf layer or other surface vegetation in accordance with Clause 7.4.2 of BS5837:2012.
- 12.2 The structure of the footpath is to be designed to avoid localized compaction by evenly distributing the loading over the width of the path by incorporating a three dimensional cellular confinement system such as Cellweb TRP or similar within the subbase to act as a load suspension layer.
- 12.3 The materials and edgings are to conform with clause 7.4 and Annex A1.5 of BS5837:2012 to local authority approval. The hard surface above the granular material is to be permeable and gas porous open graded porous tarmac with non invasive pegged timber boards edgings as per the principles within the typical section above.

13.0 Boundary fence installation:

- 13.1 The proposals require the installation of new fencing within the RPA of trees G05, T47, T52, T53, T65, T66, T67, T68 & T69 and therefore careful consideration is required to ensure the existing trees are protected during removal of the existing fencing and installation of the new fence whilst causing minimal damage to the tree.
- 13.2 To limit ground compaction access to the fencing locations is to be from the proposed or existing hard standing as far as possible, utilising temporary ground protection where it is not possible and carried out on completion of the main works.
- 13.3 The proposed locations fencing posts are to be set out in advance of installation and a site investigation carried out to determine their optimal location whilst avoiding damage to roots considered important for the stability of the adjacent trees, by means of hand tools to a minimum depth of 600 mm. The fence panels are to be cut to suit the adjusted post locations.
- 13.4 In accordance with clause 5.5.6 BS 5837:2012 all construction operations undertaken in the vicinity of trees need to be planned to avoid disturbance to the physical protection and the tree. Additional precautions outside of the construction exclusion zone include planning site operations to ensure that wide or tall loads or plant with booms or jibs and counterweights can operate without coming into contact with the retained trees
- 13.5 Reference is also made to materials which could contaminate the soils e.g concrete mixings, concrete washings and mortar which are not be discharged within 10m of the tree stem. Accordingly the materials should not be mixed or prepared within the Root Protection Area or on an area sloping towards the tree.
- 13.6 On completion of the works all surplus materials are to be collected and disposed of offsite, any temporary ground protection removed and the affected areas made good.

14.0 Soft Landscape Implementation

- 14.1 The proposals require the installation of hedge and native shrub planting within and at the edge of the RPA of trees G05, T47, T52, T53, T65, T66, T67, T68 & T69 and therefore careful consideration is required to ensure the existing trees are protected during implementation including how the shrubs are to be planted whilst causing minimal damage to the trees.
- 14.2 To limit the risk of ground compaction, access to the planting areas is to be from the existing or proposed hard standing, with the preparation, cultivation and planting works carried out after the completion of the main construction activities.
- 14.3 To avoid unnecessary root damage, no cultivation of the topsoil is to be carried out within the Tree Protection Areas of the retained trees. Hedging and Shrub transplants are to be pit planted.
- 14.4 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.
- 14.5 Prior to planting within the RPA the proposed locations of the transplants are to be set out in advance and trial pit investigations using handheld tools to a maximum depth of 150 mm are to be carried out. Where large roots (greater than 25mm in diameter) are exposed the planting locations are to be changed to avoid damaging the roots.
- 14.6 During planting the following guidance should be followed:
- 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 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.

15.0 Arboricultural Supervision

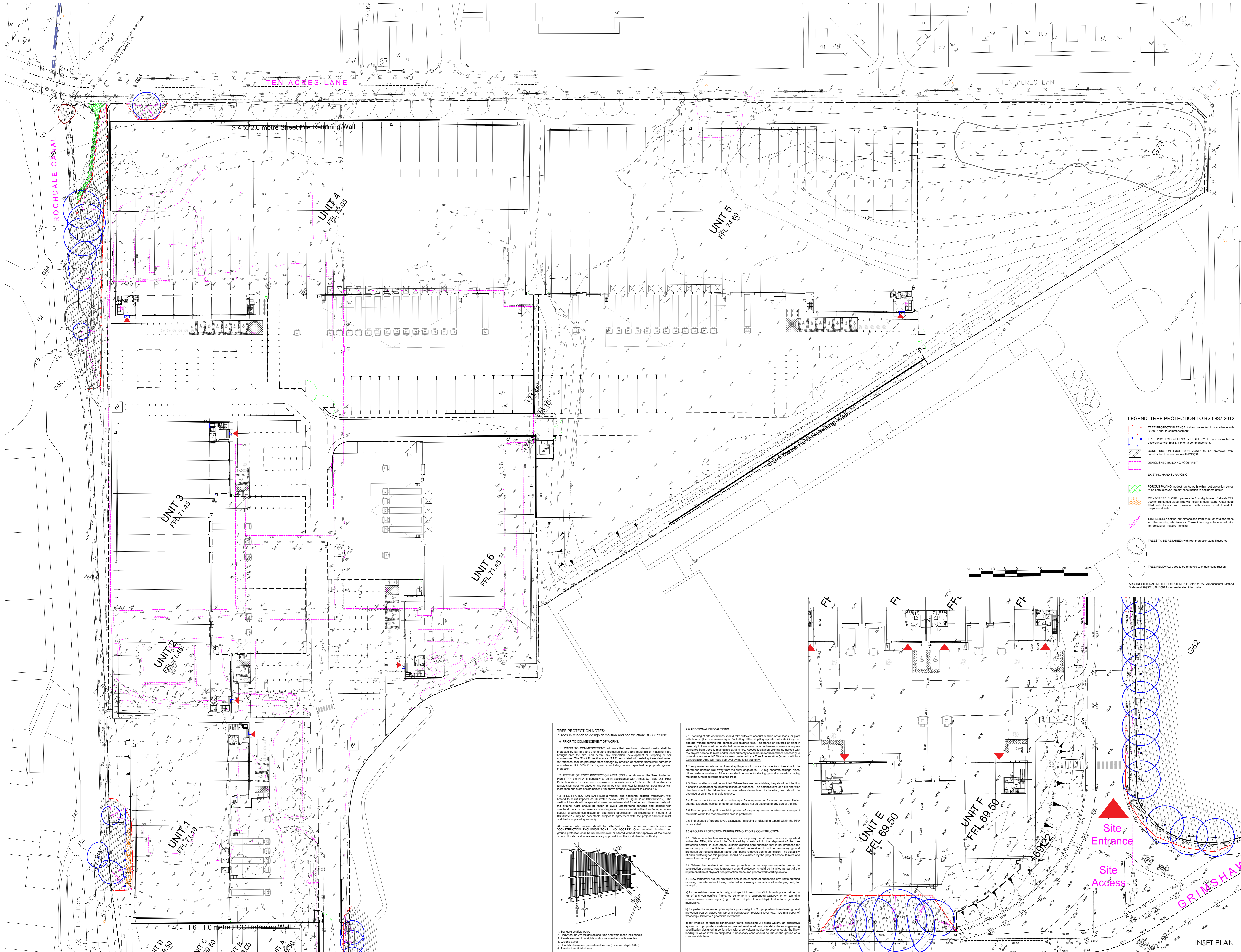
- 15.1 The erection of the Tree Protection fencing is to be inspected and approved by Bea Landscape Design prior to the commencement of demolition and construction.
- 15.2 All excavation works within close proximity of the construction exclusion zones / root protection areas of those trees to be retained are to be supervised by Bea Landscape Design.
- 15.3 Tree surgery recommendations are to be approved with the local authority tree officer and carried out prior to construction. Access facilitation pruning is to be carried out to tree T67 to prevent any damage during construction. Tree works are to be carried out by a Arboricultural Association registered Tree Surgeon.

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



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rev	date:	amendments:	alt:
A	11/02/2021	Site area extended.	E.H.

LEGEND: TREE PROTECTION TO BS 5837:2012

- TREE PROTECTION FENCE - to be constructed in accordance with BS5837 prior to commencement.
- TREE PROTECTION FENCE - PHASE 02 to be constructed in accordance with BS5837 prior to commencement.
- CONSTRUCTION EXCLUSION ZONE - to be protected from construction in accordance with BS5837.
- DEMOLISHED BUILDING FOOTPRINT
- EXISTING HARD SURFACING
- POROUS PAVING: pedestrian footpath within red protection zones to be porous paved to 500mm depth to BS5837:2012.
- REINFORCED SLOPE: permeable / no silt layered Calveo TRP 200mm minimum depth with 100mm aggregate. Outer edge filled with riprap and protected with erosion control mat to erode-free state.
- DIMENSIONS: setting out dimensions from trunk of retained trees or other existing site features. Phase 2 fencing to be erected prior to removal of Phase 01 fencing.
- TREES TO BE RETAINED: with root protection zone illustrated.
- TREE REMOVAL: trees to be removed to enable construction.

AGRICULTURAL METHOD STATEMENT: refer to the Agricultural Method Statement 2005(EHAM500) for more detailed information.

TREE PROTECTION NOTES:
 These 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 outside 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 site works are commenced. The Root Protection Area (RPA) associated with retained trees designated for retention shall be protected from damage by erection of scaffold framework barriers in accordance with 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 D1 'Root Protection Area' - as an area equivalent to a circle radius 12 times the stem diameter (large stem trees) or based on the combined stem diameter for medium stem trees with roots not more than 150mm from the stem (small stem trees) (see Clause 4.1).

1.3 TREE PROTECTION BARRIERS: vertical and horizontal scaffold framework, wall braced to meet impacts as illustrated below (refer to Figure 2 of BS5837:2012). The vertical bracing should be spaced at a maximum interval of 2 metres and driven securely into the ground. Care should be taken to avoid underground services and contact with structural steel. In the presence of underground services, retained barrier bracing where special circumstances dictate an alternative specification as illustrated in Figure 3 of BS5837:2012 may be acceptable subject to agreement with the project arboricultural and the local planning authority.

1.4 weather site notices should be attached to the barrier with details such as 'CONSTRUCTION EXCLUSION ZONE - NO ACCESS'. Once installed barriers and ground protection shall not be removed or altered without prior approval of the project arboricultural and where necessary approval from the local planning authority.

2.0 ADDITIONAL PRECAUTIONS:

2.1 Planning of site operations should take sufficient account of risks to soil, trees, or plant with booms, jibs or overweights (including drilling & piling rigs) in order that they can operate without coming into contact with retained trees. The level or traverse of plant in proximity to trees shall be controlled under supervision of a barrierman to ensure adequate clearance from trees to a minimum of all times. Access to retention areas shall be controlled by the project arboricultural and local authority should be undertaken where necessary to maintain clearance. BS 5837:2012 to be followed by a Tree Characteristics Data or other a Conservation Area will need approval by the local authority.

2.2 Any materials, where unavoidable damage would occur, damage to a tree should be stored and handled well away from the outer edge of its RPA e.g. concrete masonry, dust or all vehicle machinery. Alternatively, it should be made for taking ground to avoid damaging materials running towards retained trees.

2.3 Trees on sites should be avoided. Where they are unavoidable, they should not be left in a position where they could affect drainage or be struck. The potential size of the root and wind direction should be taken into account when determining its location, and should be addressed 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 changing of soil or rubble, 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.

3.0 GROUND PROTECTION DURING DEMOLITION & CONSTRUCTION

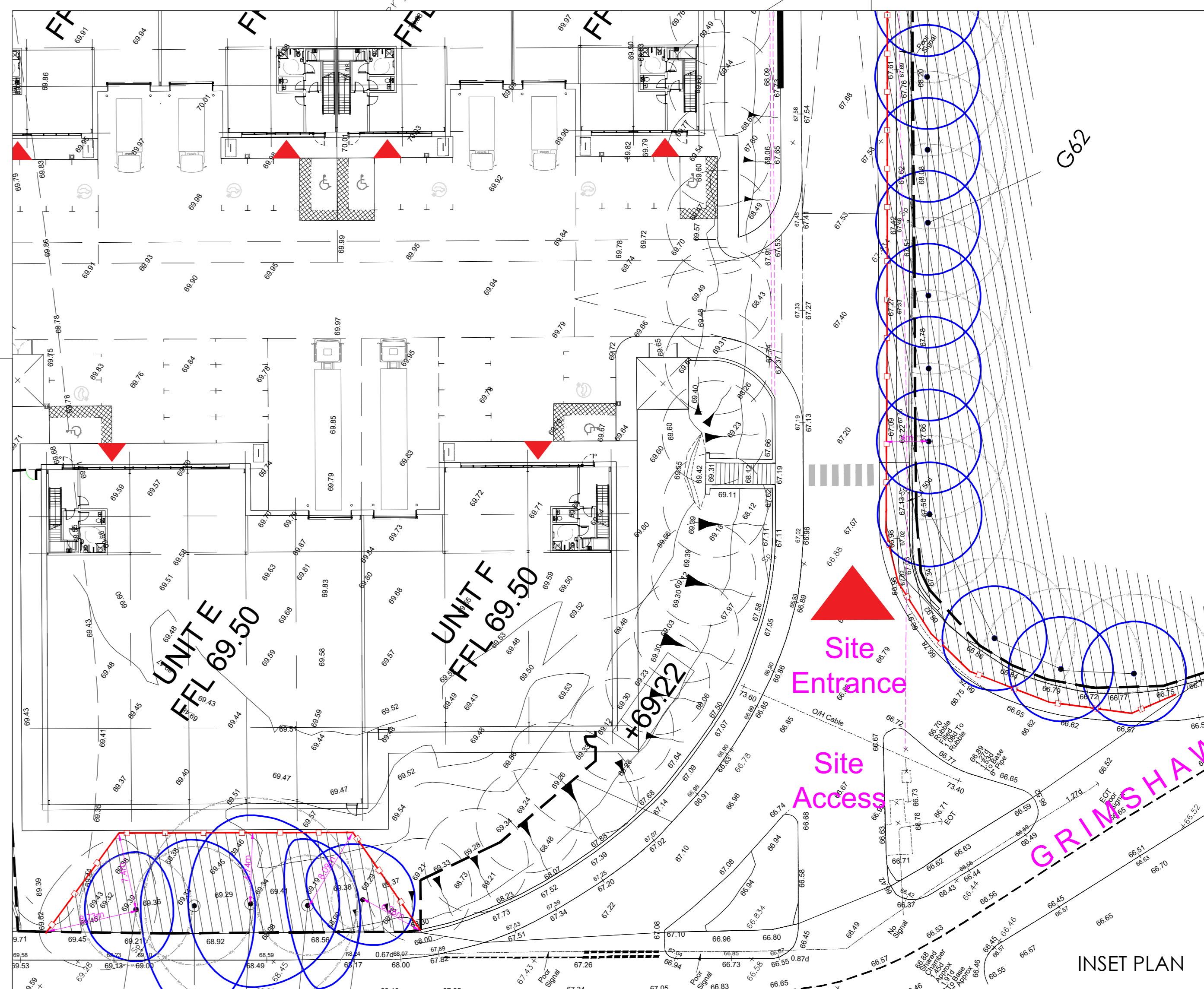
3.1 Where construction working space or temporary construction access is specified within the RPA, the ground to be retained by a scaffold in the alignment of the tree protection barrier in such areas, suitable existing hard surfacing that is not proposed for reuse as part of the retained range should be retained to an temporary ground protection during construction, rather than being removed during demolition. The suitability of such surfacing for the purpose should be evaluated by the project arboricultural and an engineer as appropriate.

3.2 Where the setback of the tree protection barrier exposes unmade ground to construction damage, new temporary ground protection should be installed as part of the retention of physical tree protection measures prior to work starting on site.

3.3 New temporary ground protection should be capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil, for example:

- a) for pedestrian movements only, a single thickness of scaffold boards placed either on top of a driven scaffold frame, or as to form a suspended walkway, or on top of a compression-resistant layer (e.g. 100 mm depth of geotextile, laid onto a geotextile membrane).
- b) for pedestrian suspended (not on a gross weight of 2.5 person weight, an alternative system (e.g. proprietary systems or precast reinforced concrete slabs) to an engineering specification designed in consultation with arboricultural advice, in accordance with the loading to which it will be subjected. If necessary sand should be laid on the ground as a compression layer.

3.4 For wheeled or tracked construction traffic exceeding 2.5 person weight, an alternative system (e.g. proprietary systems or precast reinforced concrete slabs) to an engineering specification designed in consultation with arboricultural advice, in accordance with the loading to which it will be subjected. If necessary sand should be laid on the ground as a compression layer.



bea landscape design ltd

client:
CANMOOR

project:
GRIMSHAW LANE,
MANCHESTER

title:
TREE PROTECTION PLAN

status:
PLANNING

date: OCT20	drawn: E.C.H.	number: 20-73-04
scale: 1:500	checked: T.G-W	revision: A

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