
8th October 2021

Base, Manchester
Science Park

Arboricultural Impact Assessment and Method Statement

Report Number: 12260_R05e_GDT_CW

Author: Greg Douglas-Thorne, BA
(Hons)

Reviewed: Jack Jewell, BA (Hons),
MLA, CMLI



Tyler Grange

Birmingham • Cotswolds • Exeter • London • Manchester

Contents

Section 1: Introduction	1
Section 2: Arboricultural Impact Assessment	4
Section 3: Arboricultural Method Statement	9

Appendices

Appendix 1: Tree Survey Explanatory Notes

Appendix 2: Tree Survey Schedule

Appendix 3: BS 5837:2012 Cascade Chart for Tree Quality Assessment

Appendix 4: Planning Policy

Plans

Tree Constraints Plan (12260/P02b)

Tree Retention and Removal Plan (12260/P04d)

Tree Protection Plan (12260/P05d)

This report, all plans, illustrations and other associated material remains the property of Tyler Grange until paid for in full. Copyright and intellectual property rights remain with Tyler Grange.

The contents of this report are valid at the time of writing. Tyler Grange shall not be liable for any use of this report other than for the purposes for which it was produced. Owing to the dynamic nature of ecological, landscape, and arboricultural resources, if more than twelve months have elapsed since the date of this report, further advice must be taken before you rely on the contents of this report. Notwithstanding any provision of the Tyler Grange Terms & Conditions, Tyler Grange shall not be liable for any losses (howsoever incurred) arising as a result of reliance by the client or any third party on this report more than 12 months after the date of this report.

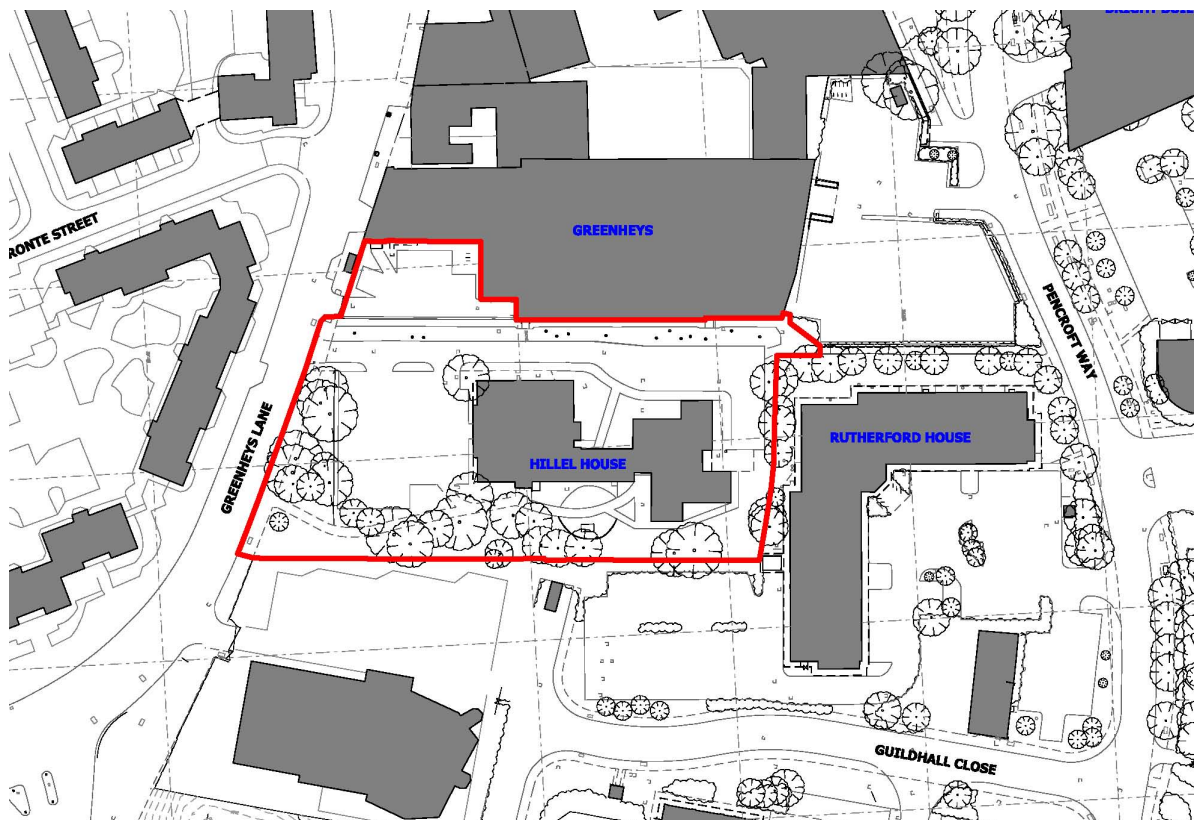


Section 1: Introduction

- 1.1. This report has been prepared by Tyler Grange Group Ltd (TG) on behalf of Bruntwood Sci-Tech Ltd in respect of the existing Base building at Manchester Science Park (centred at approximate grid reference SJ842962), hereafter referred to as the 'site'.
- 1.2. This report sets out the findings of a tree quality survey which has been undertaken in accordance with British Standard 5837:2012 'Trees in Relation to Design, Demolition and Construction – Recommendations' (hereafter BS5837:2012).
- 1.3. An Arboricultural Impact Assessment is included at Section 2, detailing the extent of tree removal proposals, development impacts in relation to retained tree cover and associated mitigation. An Arboricultural Method Statement is included at Section 3 of this report to set out a tree protection strategy for the construction phase of the proposed development of a new 5 storey commercial building with internal mezzanine floor, together with provision of co-working and open "maker" workshop space on the ground floor, and associated disabled car and cycle parking and public realm.

Site Context and Arboricultural Baseline

- 1.4. The site (demarcated in blue in the plan extract below) covers an area of approximately 0.5 ha. in total and is accessed off and bounded by Greenheys Lane to the west. Beyond Greenheys Lane there are existing residential properties within the Hulme ward. The site is positioned between Greenheys Business Centre, which occupies the land immediately north of the site, and Ahmadiyya Mosque, which is located to the south and separated from the site by a large surface car park. Rutherford House, a four storey office building is also positioned directly to the east of the site.



- 1.5. The site is currently occupied by the Base building (formerly known as Hillel House), which ranges from one to three storeys in height. The existing Base building is accessed off and serviced via Greenheys Lane. Adjacent to the buildings there is an existing surface car parking of 53 spaces, located mostly to the west and adjacent to Greenheys Lane. The Base building is proposed to be demolished under separate prior notification of demolition application.
- 1.6. TG undertook a baseline tree survey in accordance with BS5837:2012 in April 2019, with subsequent site meetings completed on 4th June 2019 and 16th July 2019 to review the scheme proposals and baseline tree stock with the project team, with a further site walkover completed in October 2021 to review the tree stock and proposed ground works. A total of 33 individual trees and 4 tree groups were surveyed as shown on the **Tree Constraints Plan** (ref. 12260/P02b) located to the rear of this report.
- 1.7. A number of broadleaf trees were scattered around the areas of amenity grassland within the site. The species present predominately comprise sugar maple *Acer saccharum*, alder *Alnus glutinosa*, cherry *Prunus sp.*, silver birch *Betula pendula* and lime *Tilia x europaea*.
- 1.8. In accordance with BS5837:2012, the survey methodology includes a review of the structural and physiological condition of existing trees within influence of the site and the measuring of tree stems and canopy heights to ascertain the baseline arboricultural context and associated technical development implications in order to inform the proposed development. The tree survey included all trees within the site boundary that were over 75mm diameter at breast height (dbh). Topographical survey data was used to inform the tree survey; however, some areas of denser tree planting have been approximately placed within groups that form cohesive arboricultural features either aerodynamically, visually, culturally or in biodiversity terms.
- 1.9. The survey involved ground level examination of the external features of the trees. Growing conditions were noted together with any obvious signs of physical or structural defects such as the presence of dead branch wood and die-back or obvious signs of decay. Measurements were taken using a stem diameter tape and a digital clinometer app. Where this was not possible or reasonably practical, measurements have been estimated by eye. Definitions and criteria for assessing a tree's physiological, structural condition and age are included in the **Tree Survey Explanatory Notes at Appendix 1**.
- 1.10. Findings for each of the individual trees, groups and hedgerows surveyed are set out within the **Tree Survey Schedule at Appendix 2**. The quality and value of each tree or group of trees has been recorded in accordance with the Cascade Chart for Tree Quality Assessment included at **Appendix 3**.

Tree Preservation Orders and Planning Policy

- 1.11. As confirmed via email by the Technical Support Team (Planning) at Manchester City Council, none of the surveyed trees are covered by a Tree Preservation Order (TPO). The site does not lie within a Conservation Area.
- 1.12. A summary of applicable planning policy is included at **Appendix 4** to the rear of this report.

Limitations and Un-assessable Risks

- 1.13. Any recommendations made for management of the trees (e.g. tree works) prior to the proposed development are not a detailed 'specification' for tree work and should not be considered as such. These recommendations are proposed on the basis that they are advised and undertaken by a



qualified arboricultural contractor working in accordance with best practice as, for instance, embodied in BS3998:2010 Recommendations for Tree Work, or in the European Tree Pruning Guide, published in 2001 by the Arboricultural Association and who should be listed in the Arboricultural Association's Approved Contractors Directory www.trees.org.uk.

- 1.14. No tree is entirely safe, given the possibility that exceptionally strong winds could damage or uproot even a mechanically 'perfect' specimen. It is therefore usually accepted that hazards are only recognisable from distinct defects or from other failure-prone characteristics of the tree or the site. A lack of recommended work for the wider tree stock does not imply that a tree does not pose an unacceptable level of risk and, likewise, it should not be implied that a tree will present an acceptable level of risk following the completion of any recommended work.
- 1.15. The comments made are based on observable factors present at the time of inspection and are based on maximising the trees' safe life expectancy given their existing context. Although the health and stability of trees in their current context is an integral part of their suitability for retention, it must be stressed that this report is not a tree risk assessment and should not be construed as such. While every attempt has been made to provide a realistic and accurate assessment of the trees' condition at the time of inspection, it may have not been appropriate, or possible, to view all parts or all sides of every tree to fulfil the assessment criteria of a risk assessment. Assessment of the potential influence of trees upon buildings or other structures resulting from the effects of trees upon shrinkable load-bearing soils or the effects of incremental root or branch growth, are specifically excluded from this report. Any alteration to the application site or development proposals could change the current circumstances and may invalidate this report and any recommendations made.
- 1.16. The Wildlife and Countryside Act (WCA) 1981 (as amended) makes it an offence to disturb nesting birds or recklessly endanger a bat or its roost. Bats are also a European protected species and are additionally protected under the Conservation (Natural Habitats &c) Regulations 1994 and 2010 (as amended).



Section 2: Arboricultural Impact Assessment

- 2.1. This Arboricultural Impact Assessment (AIA) has been undertaken to address the development impacts in relation to on-site tree cover. The assessment is informed by a composite overlay of the Tree Constraints Plan and the proposed layout.
- 2.2. The proposed development relates to the erection of a five storey building comprising offices (Use Class B1) and ancillary workshop and maker space, together with associated disabled car and cycle parking, landscaping, provision of plant and servicing and related access and highway's works, and other associated works

Tree Quality and Condition

- 2.3. The purpose of categorising surveyed trees based on their arboricultural quality and value was to ensure that the emerging design considered the presence of important trees on the site so informed decisions are made concerning the removal or retention of trees as a result of the proposals. The quality of the trees is described by reference to BS5837 categories for tree classification. In accordance with the recommended survey assessment criteria found in **Appendix 3**, a synopsis of the surveyed tree stock is provided below.
- 2.4. No trees of high arboricultural value (Category A), including trees of particular maturity, such as ancient trees and / or veteran trees, were identified during the tree survey of the site.

Category B trees

- 2.5. Category B specimens signify those that provide moderate arboricultural quality and value to the site. These have been considered as important and / or desirable to retain within the scheme where possible. Category B trees are denoted by a Blue tree canopy outline as illustrated on the TCP, and include several of the larger mature trees to the south and western site boundaries (T1 – T4, T13, T19, T22, T24) as well as T33 which is a mature Cherry located within the site towards the central northern edge. The trees are densely planted and from mutual crowns as a result, however they demonstrate fair to good overall physiological condition, serving as high canopy tree cover for the site.

Category C trees

- 2.6. Category C trees represent specimens of low arboricultural quality and value. Category C stock is denoted by a Grey tree canopy outline as illustrated on the **TCP**. Such trees represent unremarkable examples of the species or younger tree stock, and provide limited or transient benefits in the existing site context which may be readily replaced. The integration of Category C trees into the design has been recognised as beneficial where practicable as they contribute to the overall tree cover within the site vicinity, nonetheless, they are of less priority for retention.
- 2.7. Several of the larger or mature Category C trees (T6 – T9, T11, T12, T14, T17, T18, T20, T21, T23, T25 - T32) are graded as low value due to exhibiting stunted forms, influenced by existing root barriers / hardstanding or canopy conflicts with adjacent larger trees or buildings owing to the density of planting around the site boundaries. Largely unsympathetic past management has also hampered the structural condition of many of the Category C trees and these have limited their future potential.

- 2.8. T26 was included in the original baseline survey but has since been removed following ground investigation works which highlighted the presence of several shallow roots in the vicinity of unavoidable civil works required to the immediate area. Proposed mitigation planting prepared by BDP for the planning submission highlights the opportunity for new southern boundary planting in the vicinity of T26 to compensate for the removal. This ensures the retention of a tree lined site boundary in the long term, despite the recent removal of T26.

Proposed Tree Removals

- 2.9. In accordance with BS5837, proposed tree removals to accommodate the development are illustrated on the **Tree Retention and Removal Plan (Ref. 12260/P04d)** located to the rear of this report.
- 2.10. A separate application for Prior Approval of the Proposed Demolition of the existing Base building was submitted in August 2019 in advance of the full planning application for the site. The demolition phase submission included for the removal of the following trees on-site:

Tree No.	Notes / Description of Loss
T18	Removal of two mature Cherry trees due to proximity and extent of adjacent demolition and associated ground works.
T33	

- 2.11. Proposed tree removals as part of this planning submission are listed in the table overleaf:

Tree Number	Description of Loss	Mitigation Opportunities
T10 - Norway Maple (Category C)	Southern RPA conflicts with new hardstanding / proposed access arrangement.	The proposed new landscaping arrangement, prepared by BDP sets out the proposed new planting on-site as a means to improving the Green Infrastructure of the on-site public realm, with improvements to species diversity and habitat connectivity. 48 new tree are proposed, which exceeds a 3:1 tree replacement ratio. New planting will comprise a mix of avenue trees and multi-stemmed specimens, with new hedgerows and shrub beds which will incorporate a range of ornamental and sensory planting initiatives. The zonal design approach provides a mix of tree species and styles with a blend of formal and ornamental, naturalised and fruiting stock as users traverse the site. Planting will include silver birch, Snowy Mespilus, betula utilis jaquemontiii and Gleditsia triacanthos 'Sunburst' and a mix of ornamental cherry trees, including White Cherry.
T11 – Italian Alder (Category C)	Direct conflicts with proposed internal access arrangement / new hardstanding.	
T12 – Italian Alder (Category C)		
T13 – Black Alder (Category B)		
T14 – Lime (Category C)		
T16 – Lime (Category B)	Trees are in direct conflict with new building footprint.	
T17 – Cherry (Category C)		
T19 – Lime (Category B)		
T22 – Lime (Category B)		
T27 – Sugar Maple (Category C)	Proximity to new hardstanding and building line requires the removal of T27.	

T31 – Honey Locust (Category C)	Proposed for removal due to its proximity to seating walls on the eastern site boundary.	A green corridor of native and flowering trees and hedges proposed for the northern site boundary. This space will incorporate retained and translocated G4 tree stock, and a mix of fruiting trees to include apple, pear, cherry and plum trees. The commitment to replacement planting suggests that arboricultural betterment (including a net-gain in tree cover, species diversity and management) could be achieved. To mitigate the loss of southern boundary trees specifically, a review has been undertaken to assess how many new trees can be accommodated comfortably, without overcrowding. Previously it was proposed to have 6No. proposed trees along the southern boundary, plus 4No. small trees relocated from the current site. The new proposal can accommodate 13No. proposed trees along the southern boundary. The relocated trees have been positioned elsewhere in the BASE Building site. This is to create a more uniform appearance to the southern boundary.
T21 – Cherry (Category C)	T21 is a Category C (Low value) southern boundary Cherry, the RPA of which extends into an area of the site where an extended pathway is required in order to improve access around the building for high level maintenance. Such works will result in additional ground works to the site-side RPA of the Cat.C specimen tree is mature, but otherwise largely unremarkable, influenced by the surrounding developed context and forming part of the previous ornamental planting. The need for the proposed removal of T21 is a result of onsite monitored ground investigation works has been deemed that the extent of root loss required to facilitate the additional works would be detrimental to the structural integrity of the tree, and as such this is deemed unsuitable for retention.	
T23 – Italian Alder (Category C)	Proximity to new access path and building line also requires the removals of T23, T24 and T25.	
T24 – Ash (Category B)	A detailed review of site levels along the southern boundary line was carried out between TG and BDP to determine the potential risk of root damage to a number of existing trees intended to be retained in this location. This review highlighted that the existing trees were on a mound of earth which was intending to be reduced in height as part of the MBS BASE Building construction, to align with the building FFL.	
T25 – Alder (Category C)	It was deemed that the extent of root loss required to facilitate the development would be detrimental to the structural integrity of the trees, and as such are deemed unsuitable for retention. The recommendation therefore is for the existing trees to be removed and replaced with new tree planting at a suitable size and spacing, and suitable species appropriate to the location.	

2.12. In terms of the retained tree cover, the following implications are identified:



Retained Tree Number	Development Impact	Proposed Construction Mitigation <i>(in addition to the use of tree protection fencing)</i>
T1 – Sugar Maple (Category B)	Removal of surface layer of existing hardstanding to north and east of stem, implementing new landscaping and Kellen Paving.	Sensitive working measures, including manual excavation under arboricultural supervision and retention of existing subbase where possible. A cellular confinement system will be needed if the sub-base of existing hardstanding within the RPAs is to be removed. Target pruning across lower eastern and northern canopy to ensure a ground clearance of 3m is maintained.
T2 – Sugar Maple (Category B)	No change.	n/a
T3 – Sugar Maple (Category B)	Removal of surface layer of existing hardstanding to east of stem, implementing new Concrete Block Paving / parking bays.	Sensitive working measures, including manual excavation under arboricultural supervision and retention of existing subbase where possible. A cellular confinement system will be needed if the sub-base of existing hardstanding within the RPAs is to be removed. Target pruning across lower eastern canopy to ensure a ground clearance of 3m is maintained.
T4 and T5 – Sugar Maple (Category B), T6 – Sugar Maple, T7, T9, T15, T20 – (Category C)	No change.	n/a
T8 – Cherry (Category C)	Removal of existing tarmac surface layer to east of stem, implementing new Concrete Block Paving / parking bays.	Sensitive working measures, including manual excavation under arboricultural supervision and retention of existing subbase where possible. A cellular confinement system will be needed if the sub-base of existing hardstanding within the RPAs is to be removed. Target pruning across lower eastern canopy to ensure a ground clearance of 3m is maintained.
T28 – Rowan and T29 – Cherry (Category C)	No change.	n/a

Retained Tree Number	Development Impact	Proposed Construction Mitigation (in addition to the use of tree protection fencing)
G1, G2, G3 – Mixed species (Category C / B)		
T30 – Silver Birch (Category C)	Implementing new landscaping and Natural Stone Paving and seating area to western edge of RPA in areas of existing hardstanding.	Sensitive working measures, including manual excavation under arboricultural supervision and retention of existing subbase where possible. Target pruning across lower western canopies to ensure a ground clearance of 3m is maintained.
T32 – Cherry (Category C)		
G4 – Cherry, Amelanchier (Category C)	Translocation of 13no. young planted trees along the northern boundary due to conflicts with proposed hardstanding. 11 of the translocated trees will be replanted on-site. The remaining 2no. translocated trees will be replanted nearby, within the Manchester Science Park wider campus.	

Section 3: Arboricultural Method Statement

- 3.1. The purpose of this Arboricultural Method Statement (AMS) is to safeguard the retained trees on site during the construction phase of the development process. The following information sets out the methodology and approach for all proposed works that could affect such trees.
- 3.2. Compliance with this AMS will be a requirement of all relevant contractors associated with the construction phase. Copies of this report will be available for inspection on site and all personnel shall be made aware of the key implications of the AMS, namely to ensure that during the construction phase of the development:
- The site manager and all other personnel are provided with this document;
 - All requirements of this Tree Protection Scheme are adhered to;
 - The Site Manager and site personnel are updated of any approved changes or variations to this document (approval for alterations must be obtained in writing from the LPA);
 - Site personnel must work in accordance with this document at all times, or in accordance with any approved variation; and
 - The tree protection measures are left in place until the demolition phase of development is completed, except with the written consent of the LPA.

Tree Removals

- 3.3. The extent of tree removal works required in relation to the proposed development is illustrated on the **Tree Retention and Removal Plan (Ref. 12260/P04d)** contained to the rear of this report, and detailed at paragraph 2.11 of this report.
- 3.4. Works to remove trees must be carried out in accordance with the 'advance works' provisions set out above and in line with BS 3998:2010. Care should be taken during the removal vegetation to minimise damage to retained trees and disturbance to Root Protection Areas (RPAs).

Tree Protection Plan

- 3.5. The retained trees must be protected from unnecessary damage during the demolition phase of the development. Robust tree protection on development sites is of paramount importance if existing vegetation is to be retained successfully. The inevitable stress caused by demolition works near existing trees can, if provision for adequate protection is not made, be a strain that can severely damage the trees or even result in their failure.
- 3.6. Tree protection measures are illustrated on the **Tree Protection Plan (re. 12260/P05d)** included to the rear of this report. The procedures and working methods are outlined further below.

Tree Pruning Works

- 3.7. Target pruning of the lower northern crown of T1, the eastern lower canopies of T1, T2 and T8, the northern lower laterals of T26, and the western lower canopies of T28 – T32 will be undertaken, pruning back to existing unions where possible, to maintain a clearance of 3m above ground level over new parking areas and pedestrian routes.
- 3.8. During target pruning of lower canopies, all equipment in use must be serviced and fully operational. All operatives must be trained to use specific machinery or equipment and is to wear relevant safety



equipment and clothing, holding relevant qualifications. If correct pruning techniques are not adopted then irreparable damage can be caused. Pruning cuts must be made at a fork or at the main stem union to avoid stubs. Stubs can lead to dieback and finishing cuts are to be kept as small as possible. Removal of larger branches must be undertaken in stages to minimise the risk of splitting and tearing the tissues which will cause irreparable damage. It is desirable to avoid pruning operations when deciduous trees are coming into leaf and in the autumn when they are losing their foliage as the trees ability to close wounds is depleted and the tree can lose valuable energy reserves.

General Site Precautions

3.9. The following points must be observed during both advanced works and the construction process:

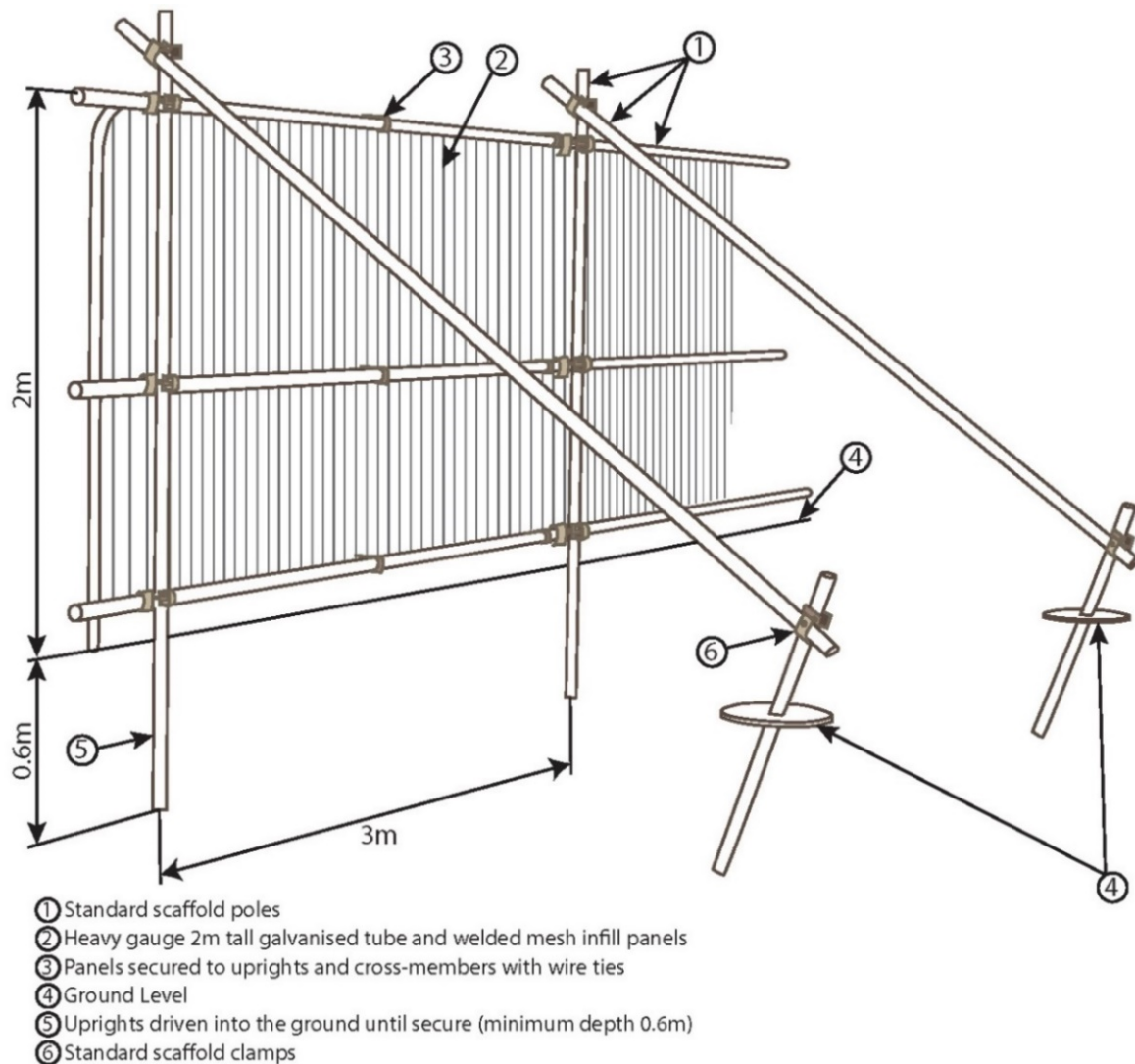
- *No fires will be lit on site;*
- *Cutting down, uprooting, damaging or otherwise destroying any tree that is proposed for retention is prohibited;*
- *No access will be permitted inside tree protection / non-intervention areas (unless authorisation is obtained in writing from the LPA or overseen by project arborist). Appropriate signage will also be implemented along the tree protection fencing to highlight to contractors the need for careful working methods and importance of establishing construction exclusion zones;*
- *No materials, equipment or debris will be stored within the RPA at any time, unless existing hard standing is in place;*
- *If during demolition or construction there are any excessive levels of dust build-up on retained trees then trees must be hosed down immediately with a clean water supply;*
- *All construction or tree management works must be undertaken sensitively and with regard to the RPAs and canopies of adjacent retained trees. Any roots encountered which are smaller than 25mm in diameter can be pruned back, preferably to a side branch using a proprietary cutting tool. Roots larger than 25mm diameter should only be severed following on-site agreement with an arboricultural consultant, as they may be essential to the tree's health and stability;*
- *Prior to undertaking tree works, all risks associated with the work should be identified by carrying out a site-specific risk assessment. All works must be undertaken in accordance with BS3998:2010 (refer to BS 3998:2010 – Section 7) which provides recommendations for site management, best practice guidance for tree works and safety planning;*
- *Notice boards, telephone wires or other services must not be attached to any part of retained trees;*
- *Materials which will contaminate the soil (e.g. concrete, cement, chemical toilets, diesel oil, vehicle washings etc.) must not be permitted within, or close to RPAs of retained trees unless required in order to implement the permanent plot boundary fencing. To avoid any associated damage or injury occurring to the trees as a direct result of contact with contaminants, works including cement mixing, re-fuelling and tool or machine washing will not be permitted within 20m uphill of any retained tree; and*
- *Planning of on-site operations must take sufficient account of wide or tall loads in order that they can operate without coming into contact with retained trees. If deliveries or construction plant is required in close proximity to the southern site boundary any transit or traverse of plant prior to the erection of tree protection fencing must be conducted under the supervision of a banksman to ensure that adequate clearance from trees is maintained at all times. The banksman must have the ability to observe and communicate directly to operatives of machinery in close proximity to trees to reduce conflicts. The presence of trees should be considered in any Risk Assessment undertaken by the operators of site machinery.*

Watching Brief Requirements / Site Supervision

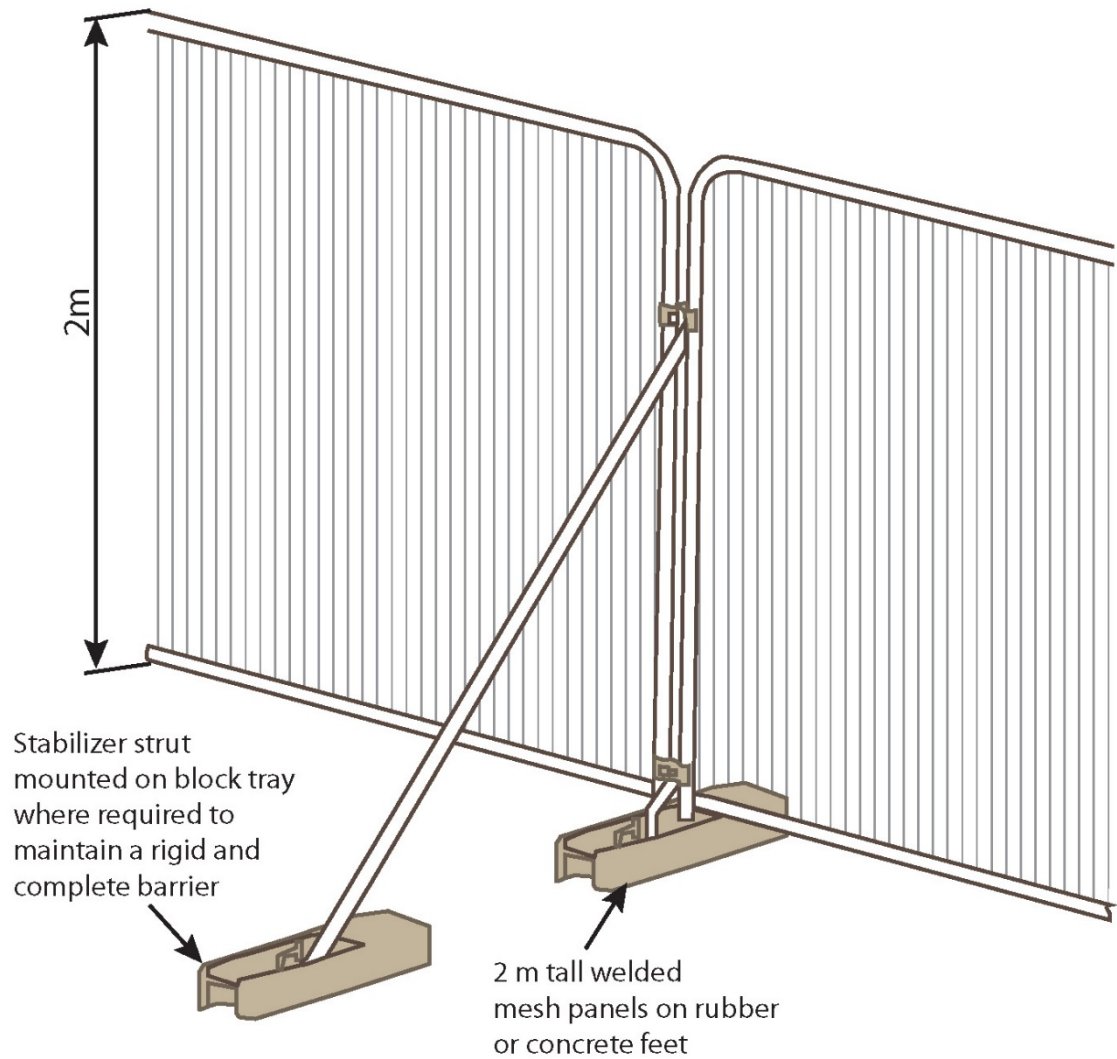
- 3.10. The engagement of an Arborist to perform a 'Watching Brief' is an essential component of the construction or demolition phases of a development to help ensure the successful retention of trees. It is suggested that the Watching Brief should entail regular site visits by the appointed Arborist for the duration of the demolition phase, with the frequency of visits to be agreed in writing with the LPA. Such visits should involve regular 'drop-in' visits by the appointed Arborist who will be responsible for monitoring tree protection measures and providing general tree advice when needed.
- 3.11. A written record of such visits must be maintained to include photographic evidence of events, issues and responses throughout the construction phase. Such a brief would establish a level of communication between the Local Authority Tree Officer, Client, Site Manager, Arborist and or other appointed staff and Site Operatives. Any advice issued in respect of such visits will be forwarded to both the Client and Developer being reported through the Site Manager.
- 3.12. For this scheme, site monitoring by a project Arborist must be undertaken during all key work stages, namely to oversee:
- *To spray mark consented tree removal works;*
 - *Prior to severing any tree roots that are larger than 25mm diameter if excavation works using hand tools within the RPAs are required;*
 - *During manual excavation works to alter the hard standing areas within the RPAs; and*
 - *Following implementation of BS5837 Tree Protection Fencing, including during any temporary removal and re-instatement of such fencing.*

Tree Protection Fencing

- 3.13. Once the consented tree removal has been undertaken, protective fencing will be erected in accordance with BS 5837 (2012), as illustrated on the **Tree Protection Plan** contained to the rear of this report. The protective fencing must remain in position for the duration of the site-wide construction activities.
- 3.14. The fencing consists of a scaffold framework, well braced to resist impacts, with vertical tubes spaced at a maximum of 3m to add further stability. Onto this, weldmesh panels will be securely fixed with wire or scaffold clamps (see extract of BS 5837 below).



- 3.15. Special attention is essential in maintaining the protective barrier during the demolition and construction phases, ensuring that it remains rigid and complete as well as fit for the purpose intended. In order to avoid disturbances to the protective barrier once it is installed, it should be inspected frequently, including during site visits by the project Arborist. Repairs shall be made immediately where required. The protective fencing will remain in position for the duration of the site-wide demolition and construction activities.
- 3.16. The stabilizing system for tree protection fencing which will traverse existing hard surfacing will need to be positioned on rubber block trays (in accordance with BS5837 Figure 3 as extracted below) to ensure that the fencing scaffolds are not required to be driven into the final wearing courses or existing surface.



- 3.17. All-weather notices will be attached to the barriers with words such as 'Construction Exclusion Zone – No Access' (see signage examples below).



Excavation Works within the RPAs

3.18. Where excavation works are proposed within the RPAs, namely to remove the existing surface layer (tarmac) to implement new paving and parking areas, the appointed arborist will first be notified so that a Watching Brief visit can be arranged (if deemed necessary). The following measures will also need to be adhered to:

- All excavation works within the RPAs of retained tree stock must be carried out under direct supervision, or following the advice of, an appropriately qualified Arboriculturist;
- Excavation within the RPAs will be carried out using hand-held tools or by compressed air displacement;
- A light weight machine will only be used where completely necessary and at the discretion of the appointed Arboriculturist (typically for the displacement hard surfacing and imbedded rocks/rumble); and
- Single roots smaller than 25mm will be cleanly pruned back using a suitable sharp hand tool. Roots found over 25mm and where occurring as clumps will be not be immediately pruned back, the appointed supervising Arboriculturist will record the size and nature of the root, determine its significance to tree health, and specify proceedings accordingly. Exposed roots will be covered with top soil or a hessian sack to avoid root desiccation.

‘Cellular Confinement System (CCS)

3.19. The Tree Protection Plan highlights areas of proposed ground works within the site-wide RPAs of retained tree stock. Such areas are occupied by existing hardstanding which is to be removed and replaced with a mixture of slabs and block work as part of the new pedestrian areas and car parking spaces. To implement this work, the tree protection fencing will be moved, by hand, to expose the

areas of working. Movement of tree protection fencing will be undertaken following the advice of the project arborist and in accordance with the Tree Protection Plan included at the rear of this report.

- 3.20. The existing hard surfacing (largely tarmac) is to be broken up using hand tools under direct arboricultural supervision. The existing sub-base (if within the RPA) is to be left in situ wherever practical. The objective should be to avoid compaction of the soil, which can arise from the single passage of a heavy vehicle, especially in wet conditions, so that tree root functions remain unimpaired. If the sub-base is to be removed, this too must be broken up and disposed of utilising hand tools. The replacement sub-base will utilise a **75mm** Cellweb Tree Root Protection system (for areas where only pedestrians and cyclists will use) and **100mm** depth Cellweb for parking spaces. A separation fabric, using the Treetex T-300 Geotextile (Geosynthetics Ltd), will be laid directly onto the ground as a separation and filtration layer. Treetex T-300 also acts as a pollution control layer, trapping oil spills within its fibres to protect the soils beneath. A 100mm layer of clean, angular 40/20mm stone will then be laid as a sub-base to allow for variable levels and soil conditions within the site. The Cellweb Tree Root Protection system will then be laid and filled with the same stone as infill to provide a load-bearing and structure. The cellular design and perforated cell walls, reduces the vertical load pressure on sub soils to tree roots and prevents damage.
- 3.21. During the construction phase of the development a temporary wearing course will likely need to be maintained (including the topping up of stone or woodchip as required). Once construction works have been completed the temporary wearing course will be removed and the final wearing course / paving will be applied to the CCS.

Protection of Areas of Proposed Landscaping

- 3.22. Principal areas of proposed planting and structural landscaping can also be safeguarded during the construction phase by secured plastic mesh fencing as this will still offer protection and a visual barrier to any construction works. This will protect proposed planting areas from soil structure damage, ensuring that the ground can be kept in an adequate condition for growth during the construction phase.

Amendments and Procedures for Incidents

- 3.23. Issues can arise on development Sites which require amendments to the previously agreed tree protection details. Any amendments to the AMS will be discussed with the Arboricultural Consultant and agreed in writing with the LPA prior to being implemented. Copies of paperwork relating to any amendments shall be attached to the site AMS to provide a definitive record of what has been approved.
- 3.24. If any breach of the approved tree protection measures occurs (*including any accidental / unauthorised damage to the limbs, roots or trunk of trees, the discharge / spillage of toxins and waste within the RPAs, or unauthorised breaching / failure to implement a tree protection barrier or construction exclusion zone or prescribed arboriculturally sensitive working methodology*):
- The site manager must be informed immediately;
 - The Local Planning Authority Tree officer (or other Planning Officer) and project Arborist;
 - Swift action must be taken to halt the breach and prevent any further breach; and
 - All preventative action and details of agreed remedial works must be recorded by the project Arborist and reported to the LP



Appendix 1: Tree Survey Explanatory Notes



Appendix 1: Tree Survey Explanatory Notes

Tree Numbers

'T' prefixes have been used to identify individual trees and commence with 'T1'.

'G' prefixes have been used to identify groups of trees.

Species

- A1.1 Species are listed by their common name, both in the schedule and in the report text.

Height and Stem Diameter

- A1.2 The stem diameter of single stemmed trees is measured at 1.5m above ground level and given in millimetres (mm). The diameter measurement of multi-stemmed trees is taken immediately above the root flare. Tree heights are measured in metres (m).

Crown Spread and Height of Crown Clearance

- A1.3 Radial crown spread is measured in metres and is listed for each of the four cardinal points. The canopy shape for individually surveyed trees depicted on the accompanying plans accurately represents the canopy spread as measured on-site.
- A1.4 The height crown clearance is measured above ground in metres from the attachment point of the first significant branch, or the height to which the lowest (living) branch reaches; whichever is the lower.

Age Class

- A1.5 The age of each tree is defined as follows:

Young - within the first third of life expectancy;

Young-Mature - within the second third of life expectancy;

Mature - within the last third of life expectancy;

Over mature - Tree in decline; and

Veteran – tree that, by recognised criteria, shows features of biological, cultural or aesthetic value that are characteristic of, but not exclusive to, individuals surviving beyond the typical age range for the species concerned. For the purpose of this report the term 'ancient tree' and 'veteran tree' are interchangeable.

Physiological and Structural Condition

- A1.6 The physiological or structural condition of each tree is defined as either; good, fair, poor or dead. For each tree, where appropriate, notes on the structural integrity are provided on form, taper, forking habit, storm damage, decay, fungi, pests, etc.
- A1.7 An assessment of a tree's physiological condition is defined as:

Good – fully functioning biological system showing expectant vitality for the species i.e. normal bud growth, leaf size, crown density and wound closure.

Fair – fully functioning biological system showing below average vitality i.e. reduced bud growth, smaller leaf size, lower crown density and reduced wound closure



Poor – a biological system with limited functionality showing clear physiological decline, disease or significantly below average vitality i.e. limited bud growth, small and chlorotic leaves, low crown density and limited wound closure.

A1.8 An assessment of a tree's structural condition is defined as:

Good – no significant structural defects.

Fair – structural defects which could be alleviated through remedial tree surgery or arboricultural management practices

Poor – structural defects which cannot be alleviated through tree surgery or arboricultural management practices.

Estimated Remaining Contribution (ERC) in Years

A1.9 The Estimated Remaining Contribution (ERC) for each tree is based on species and existing and apparent physiological and structural condition of the tree. The ERC may affect the proposed development layout, since the longer the tree is likely to live the greater the contribution it will make and the greater the need for retention.

<10 - Unsuitable for retention

10 - 20 - Can be retained in the short term

20 – 40 - Will continue to offer benefits for the foreseeable future

40+ - Good longevity potential



Appendix 2: Tree Survey Table



Tree Number	Common Species Name	Height (m)	Trunk Diameter (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Physiological Condition	Structural Condition	BS5837 Category	Comments/Preliminary Management Recommendations	RPA Radius (m)	Root Protection Area (m2)
				N	E	S	W								
T1	Sugar Maple	11m	480	6.50	7.50	2.50	4.50	3.00	Mature	Good	Fair	B.2	Located on grass verge to front of site. Crown lifted to 3m, suppressed to South and West by T2. Hard standing from footpath and access road to West and East. Car park in RPA. Highly viewable in street scene.	5.8	104
T2	Sugar Maple	10m	380	3.00	3.50	6.00	6.50	3.00	Mature	Good	Good	B.2	Located on grass verge to front of site. Crown lifted to 3m. Hard standing from footpath and access road to West and East. Car park in RPA. Highly viewable in street scene. Suppressed to North by T1. Suppressed to East by T3.	4.6	65
T3	Sugar Maple	12m	520	5.00	7.00	6.50	5.00	3.00	Mature	Good	Good	B.2	Suppressed to North and West by T1 and T2. Car park hard standing in RPA. Bluebell and wild garlic understorey on grass verge.	6.2	122
T4	Sugar Maple	12m	Multi x5. 310, 210, 170, 200, 280	8.00	9.50	2.00	8.00	3.00	Mature	Good	Fair	B.2	Suppressed to South by T5 and to East by T3. Hard surface of road and footpath in RPA to West. Roadside tree. Poor structure due to being suppressed.	6.4	129
T5	Sugar Maple	13m	Multi x5. 360, 350, 250, 180, 370	4.00	6.50	6.50	7.00	3.00	Mature	Good	Good	B.2	Multi-stemmed (possible pollard at 1.5m). Roadside tree. Crown lifted over road and path to 3m. Typical of age and species. Suppressed to North by T4.	8.3	219
T6	Sugar Maple	12m	350	1.50	6.00	6.50	6.00	3.00	Mature	Good	Fair	C.2	Heavily suppressed to North by T5. Unbalanced crown to East. Flash cuts at base with poorly occluded wounds. Roadside tree.	4.2	55

Tree Number	Common Species Name	Height (m)	Trunk Diameter (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Physiological Condition	Structural Condition	BS5837 Category	Comments/Preliminary Management Recommendations	RPA Radius (m)	Root Protection Area (m2)
				N	E	S	W								
T7	Cherry	11m	240	2.50	4.50	4.00	3.00	6.00	Mature	Fair	Poor	C.2	Heavily suppressed resulting in poor form. No foliage up to 7m. Located on top of grass verge.	2.9	26
T8	Cherry	10m	Multi x 4. 340, 250, 260, 190	5.00	6.50	6.00	4.00	3.00	Mature	Good	Fair	C.2	Located on edge of car park. Suppressed to West by T7. Unbalanced crown over car park. Inclusions at base and poor flash cuts.	6.4	127
T9	Cherry	9m	170	5.50	4.50	3.00	2.00	3.00	Mature	Good	Poor	C.2	Heavily suppressed crown from surrounding trees resulting in poor form. Located in grass verge. Hard standing in RPA.	2.0	13
T10	Norway Maple	5m	200	2.50	2.00	4.00	4.00	2.00	Early Mature	Good	Good	C.2	Typical of age and species. Located in grass verge on edge of path.	2.4	18
T11	Italian Alder	9m	Multi x 3. 200, 200, 180	3.00	3.00	3.00	3.00	3.00	Mature	Good	Good	C.2	Located on edge of car park in grass verge. Typical of age and species. Crown lifted to 2m.	4.0	51
T12	Italian Alder	7m	210	3.50	2.00	2.00	3.00	-	Mature	Good	Poor	C.2	Dense epicormic growth and basal decay. Previously failed co-dominance stem to South. Located in grass verge.	2.5	20
T13	Black Alder	14m	Multi x 3. 370, 300, 340	7.50	6.00	5.50	7.00	3.00	Mature	Good	Good	B.2	Located on grass verge. Overhangs car park. Mower damage to base and included bark. Crown lifted to 3m.	7.0	154

Tree Number	Common Species Name	Height (m)	Trunk Diameter (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Physiological Condition	Structural Condition	BS5837 Category	Comments/Preliminary Management Recommendations	RPA Radius (m)	Root Protection Area (m2)
				N	E	S	W								
T14	Lime	12m	Co-dominant. 320 and 240	4.00	2.50	4.00	4.50	3.00	Mature	Good	Good	C.2	Poorly crown lifted/reduced back to 4m. Poorly occluded wounds at base to 2m. Inclusion at 0.5m.	4.8	72
T15	Cherry	3m	Multi x 20x up to 40	2.00	2.00	2.00	2.00	N/A	Young	Good	Poor	C.2	Coppiced Cherry regenerative growth on grass mound.	2.1	14
T16	Lime	12m	510	5.00	3.00	3.50	4.00	3.00	Mature	Good	Good	B.2	Located in grass mound next to path. Inclusion at 2m. Typical of age and species.	6.1	118
T17	Cherry	13m	Multi x5. 190, 370, 260, 300, 240	6.50	7.00	7.50	4.00	2.00	Mature	Good	Fair	C.2	Numerous inclusions at 1.5m. Girdled and raised roots with mower damage. Gummosis on stem and associated exudates. Suppressed to West by T16.	7.5	177
T18	Cherry	13m	480	4.00	6.00	5.00	7.50	3.00	Mature	Good	Good	C.2	Raised roots with mower damage. Located in grass adjacent to building and footpath/car park. Roots damaging hard surface. Poor crown lifting wounds to 2.5m. Crown reduced back from building to North.	5.8	104
T19	Lime	13m	Multi x 5. 380, 450, 250, 270, 340	6.00	5.00	7.50	6.00	3.00	Mature	Good	Good	B.2	Raised roots with mower damage. Crown lifted to 3m. Numerous inclusions at 0.5m.	9.3	272
T20	Cherry	3m	Co-dominant. 150 and 130	1.00	1.00	1.00	1.00	0.00	Mature	Poor	Poor	C.2	Coppiced Cherry stool on Southern boundary. Poor form.	2.4	18

Tree Number	Common Species Name	Height (m)	Trunk Diameter (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Physiological Condition	Structural Condition	BS5837 Category	Comments/Preliminary Management Recommendations	RPA Radius (m)	Root Protection Area (m2)
				N	E	S	W								
T21	Cherry	10m	230	4.00	4.00	4.00	4.00	2.50	Mature	Good	Good	C.2	Ornamental Cherry located on Southern boundary. Typical of age and species.	2.8	24
T22	Lime	12m	Multi x 5. 330, 380, 310, 210, 370	6.00	6.00	5.00	3.00	3.00	Mature	Good	Good	B.2	Suppressed to West by T19, located on edge of footpath in grass verge. Numerous inclusions at base. Typical of age and species.	8.7	238
T23	Italian Alder	11m	Multi x 3. 150, 300, 240	5.00	3.00	5.00	4.50	3.00	Mature	Good	Fair	C.2	Inclusions at base. Poor form. Suppressed to West by T22. Raised roots with mower damage.	4.9	75
T24	Ash	11m	Co-dominance. 270 and 380	7.50	7.00	7.00	4.00	3.00	Mature	Good	Good	B.2	Raised roots on grass mound. Mower damage. Suppressed crown to West from T23. Inclusion at 1m.	5.6	98
T25	Alder	9m	320	4.00	4.00	3.00	1.50	2.00	Mature	Good	Poor	C.2	Heavily suppressed to West by T24 resulting in poor form. Poor crown lifting works to East and North. Raised roots with mower damage.	3.8	46
T26	Sugar Maple	8m	470	4.00	3.00	7.00	7.50	4.00	Mature	Good	Fair	C.2	Poor form and sparse crown. Heavily crown lifted to 4m. Inclusion at 2m. Bacterial canker noted on western side of stem.	5.6	100
T27	Sugar Maple	10m	Multi x 3. 410, 400, 340	6.00	7.50	7.00	5.00	4.00	Mature	Good	Good	C.2	Numerous large limbs removed to 3m. Bleeding canker on stem at 1m. Inclusions at 0.5m. Located in grass verge.	8.0	201

Tree Number	Common Species Name	Height (m)	Trunk Diameter (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Physiological Condition	Structural Condition	BS5837 Category	Comments/Preliminary Management Recommendations	RPA Radius (m)	Root Protection Area (m2)
				N	E	S	W								
T28	Rowan	7m	360	3.50	1.00	3.00	4.00	3.00	Mature	Poor	Fair	C.2	Heavily pruned back from adjacent building. Hard surfacing to South, West and North in RPA. Poor vigour. Poor pruning wounds to 2.5m.	4.3	59
T29	Cherry	10m	430	6.00	5.00	5.00	7.00	3.00	Mature	Good	Fair	C.2	Located in grass verge. Car park hard standing in influence of RPA to West. Typical of age and species. Crown lifted/reduced back from building.	5.2	84
T30	Silver Birch	10m	360	6.00	3.50	5.00	7.00	3.00	Mature	Good	Good	C.2	Located on edge of car park. Crown lifted to 2.5m. Suppressed to East by G3 and T31. Mower damage to buttresses and stem.	4.3	59
T31	Honey Locust	10m	340	6.00	4.00	3.00	5.00	3.00	Mature	Fair	Poor	C.2	Located in grass verge. Heavily suppressed to West and South by G3 and T30. Poor form.	4.1	52
T32	Cherry	7m	520	6.50	7.00	4.00	6.00	2.00	Mature	Good	Poor	C.2	Heavily reduced. Historical pruning works resulting in open wounds to South. Topped at 7m resulting in poor form. Located on edge of access road. Hard standing in RPA in all directions.	6.2	122
T33	Cherry	10m	470	5.00	5.50	3.00	6.50	2.00	Mature	Fair	Fair	B.1	Car park edge mature Cherry within grass verge. Canopy lifted to south east over adjacent building. Leader removed from base to south east. Kerb line to west and north of stem - car park bays and access road. Pruning wounds across stem and lower crown.	5.6	100
G1	Hazel, Maple, Cherry, Silver Maple	4m av	120 av	as topo				N/A	Early Mature	Good	Fair to Good	C.2	Ornamental, off-site landscape planting. Poor quality as individuals.	-	-

Tree Number	Common Species Name	Height (m)	Trunk Diameter (mm)	Crown Spread (m)				Height of Crown Clearance (m)	Age Class	Physiological Condition	Structural Condition	BS5837 Category	Comments/Preliminary Management Recommendations	RPA Radius (m)	Root Protection Area (m2)
				N	E	S	W								
G2	Alder x3, Rowan	8m	380 x3, 150	4.50	4.50	4.50	4.50	2.00	Mature	Good	Fair	C.2	Ornamental landscape planting adjacent to building. Heavily suppressed crowns due to density. Shrub understorey.	-	-
G3	Honey Locust, Rowan, Silver Birch, Pine, Cherry	8m av	300 av	4.00	4.00	4.00	4.00	N/A	Mature	Fair to Good	Fair to Good	B.2	Off-site ornamental boundary trees. Densely planted. Suppressed crowns.	-	-
G4	Cherry, Amelanchier	3m	60 av	0.50	0.50	0.50	0.50	N/A	Young	Fair	Good	C.2	Newly planted trees with formal landscape shrub planting understorey.	-	-

Appendix 3: BS 5837:2012 Cascade Chart for Tree Quality Assessment



Appendix 3: BS 5837:2012 Cascade Chart for Tree Quality Assessment

TREES FOR REMOVAL					
Category and Definition		Criteria		Identification on Plan	
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years		- Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (i.e. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning). - Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline. - Trees infected with pathogens of significance to the health and/or safety of other trees nearby or very low quality trees suppressing adjacent trees of better quality. (NOTE: Category U trees can have existing or potential conservation value which it might be desirable to preserve)		DARK RED	
TREES TO BE CONSIDERED FOR RETENTION					
Category and Definition		Criteria - Subcategories			Identification on Plan
		1. Mainly Arboricultural Values	2. Mainly Landscape Values	3. Mainly Cultural Values, including Conservation	
Category A Trees of high quality with an estimated remaining life expectancy of at least 40 years		Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	LIGHT GREEN
Category B Trees of moderate quality with an estimated remaining life expectancy of at least 20 years		Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remedial defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually 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 benefits.	MID BLUE
Category C Trees of low quality with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150mm		Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or temporary/transient landscape benefit.	Trees with no material conservation or other cultural value.	GREY

Appendix 4: Arboricultural Planning Policy Context



Appendix 4: Arboricultural Planning Policy Context

- A4.1 Under the Town and Country Planning Act 1990 (as amended) the requirement to consider trees as part of development is a material planning consideration and will be taken into account in the determination of planning applications. Applicable arboricultural planning policy that relates to the site is set out below at a National and Local level.

National Planning Policy Framework (NPPF)

- A4.2 The consideration for existing trees and woodlands in relation to planning and new development is set out within Sections 12 and 15 of the NPPF published in July 2021.
- A4.3 Section 12, paragraph 131 states that *“Trees make an important contribution to the character and quality of urban environments and can also help mitigate and adapt to climate change. Planning policies and decisions should ensure that new streets are tree-lined, that opportunities are taken to incorporate trees elsewhere in developments (such as parks and community orchards), that appropriate measures are in place to secure the long-term maintenance of newly planted trees, and that existing trees are retained wherever possible. Applicants and local planning authorities should work with highways officers and tree officers to ensure that the right trees are planted in the right places, and solutions are found that are compatible with highways standards and the needs of different users.”*
- A4.4 Section 15, paragraph 174 states that *“Planning policies and decisions should contribute to and enhance the natural and local environment by: Subsection B; “recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland”*
- A4.5 Section 15, paragraph 180 states that *“When determining planning applications, local planning authorities should apply the following principles:” Subsection C; “that development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists”.*

Local Planning Policy - Manchester City Council Core Strategy

- A4.6 **Policy EN9 Green Infrastructure** states that:
- “New development will be expected to maintain existing green infrastructure in terms of its quantity, quality and multiple function. Where the opportunity arises and in accordance with current Green Infrastructure Strategies the Council will encourage developers to enhance the quality and quantity of green infrastructure, improve the performance of its functions and create and improve linkages to and between areas of green infrastructure. Where the benefits of a proposed development are considered to outweigh the loss of an existing element of green infrastructure, the developer will be required to demonstrate how this loss will be mitigated in terms of quantity, quality, function and future management.”*
- A4.7 The policy adds that *“The encouragement of green roofs, green walls, tree planting and other forms of green infrastructure to allow for the adaption to climate change in heavily urbanised areas”.*



- A4.8 The policy also states that *“New green infrastructure provision should be an exemplar of best practice and innovation in terms of both its design and management.”*
- A4.9 **Policy EN15 Biodiversity and Geological Conservation** states that *“Developers will be expected to identify and implement reasonable opportunities to enhance, restore or create new biodiversity, either on-site or adjacent to the site, contributing to linkages between valuable or potentially valuable habitat areas where appropriate”.*
- A4.10 **Policy DM1 Development Management** sets out specific issues which all development should have regard to. This includes effects relating to biodiversity and landscape, as well as Green Infrastructure.



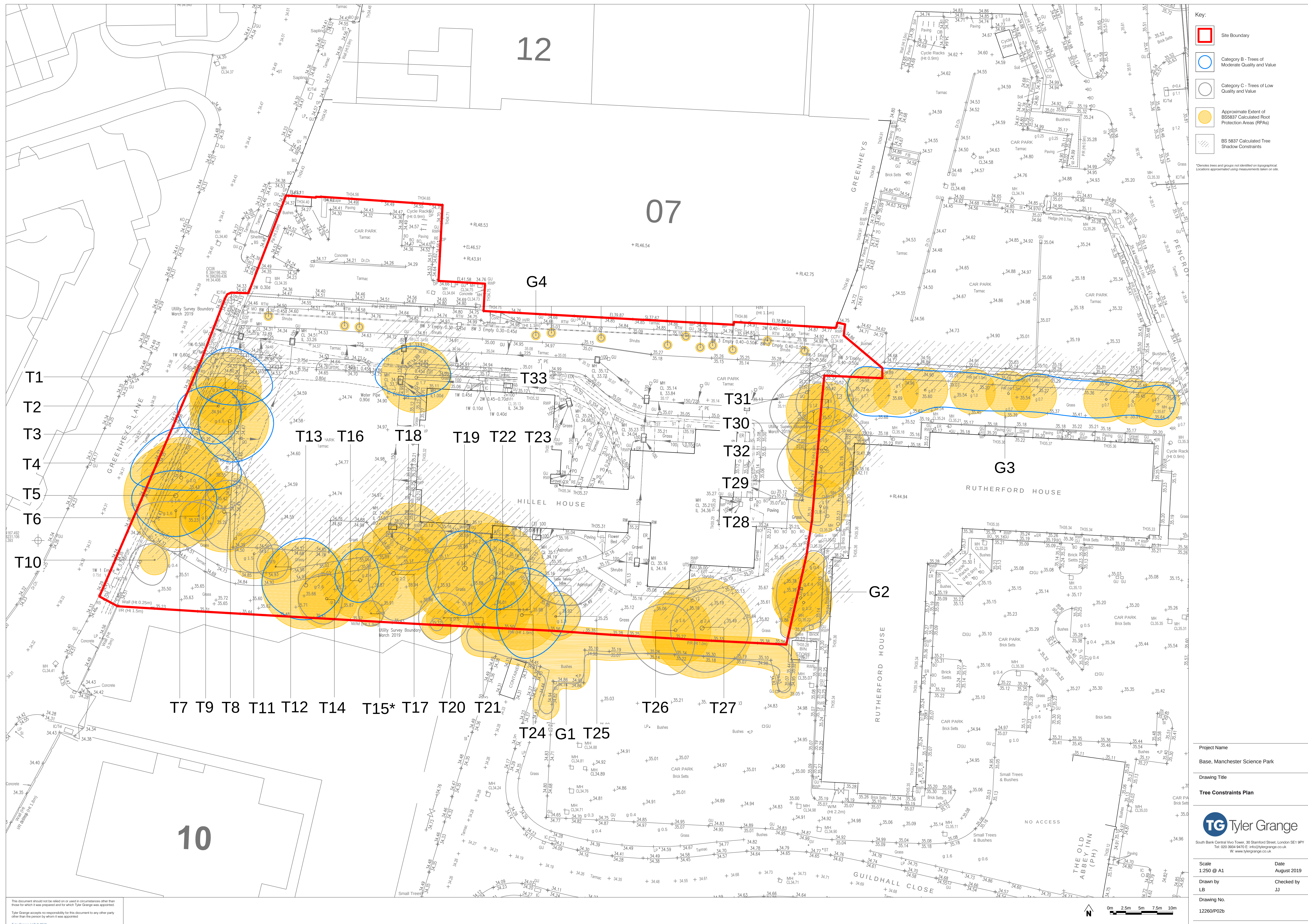
Plans

Tree Constraints Plan (12260/P02b)

Tree Retention and Removal Plan (12260/P04d)

Tree Protection Plan (12260/P05d)





Key:

- Site Boundary
- Category B - Trees of Moderate Quality and Value
- Category C - Trees of Low Quality and Value
- Approximate Extent of BS5837 Calculated Root Protection Areas (RPAs)
- BS 5837 Calculated Tree Shadow Constraints

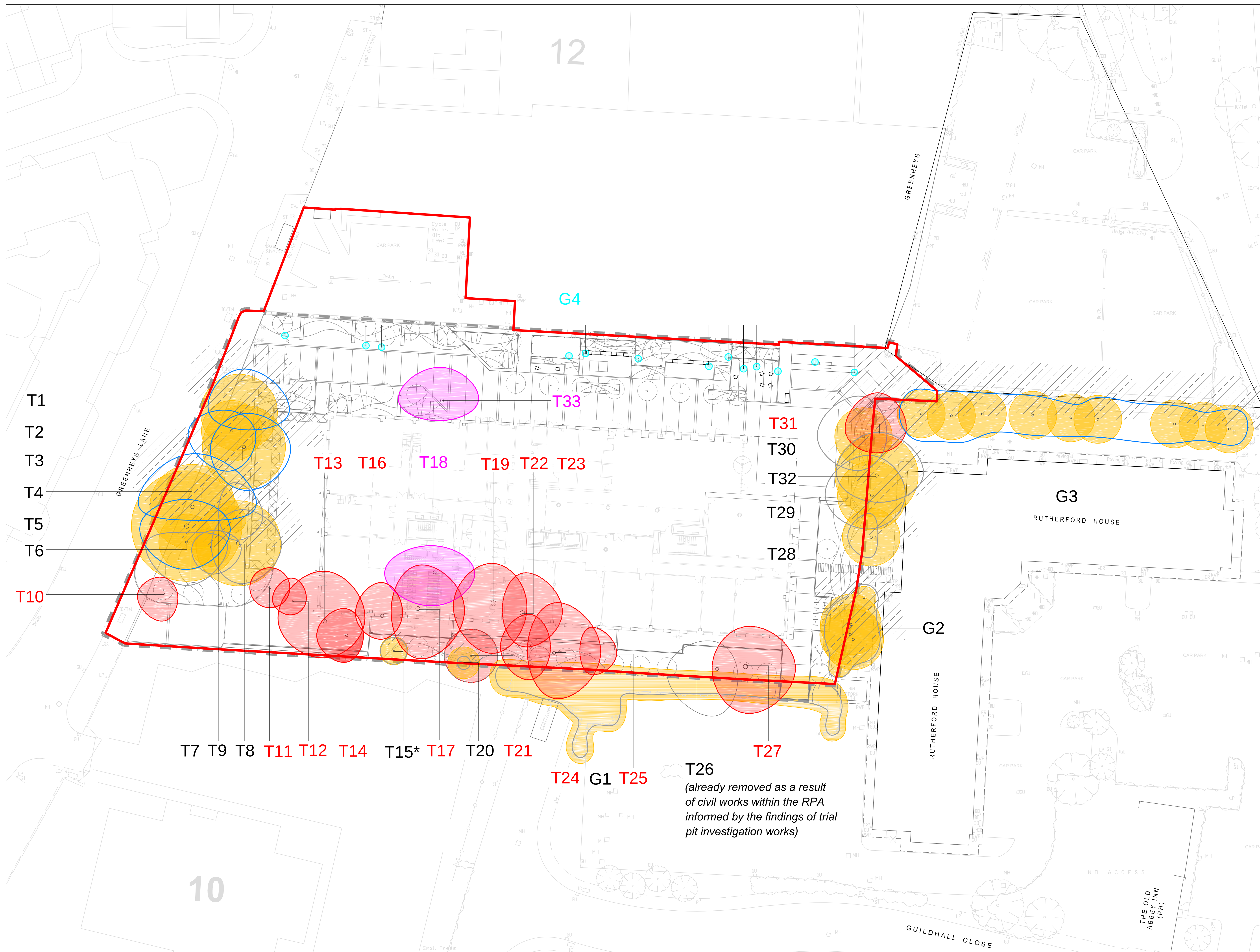
*Denotes trees and groups not identified on topographical. Locations approximated using measurements taken on site.

Project Name
Base, Manchester Science Park

Drawing Title
Tree Constraints Plan

TG Tyler Grange
South Bank Central Vivo Tower, 30 Stamford Street, London SE1 8PY
Tel: 020 3934 9470 E: info@tylgrange.co.uk
W: www.tylgrange.co.uk

Scale 1:250 @ A1	Date August 2019
Drawn by LB	Checked by JJ
Drawing No. 12260/P02b	



Key:

- Site Boundary
- Category B - Trees of Moderate Quality and Value
- Category C - Trees of Low Quality and Value
- Approximate Extent of BS5837 Calculated Root Protection Areas (RPAs)
- Trees proposed for removal as part of separate application for Prior Approval of the Proposed Demolition of the existing Base building
- Trees proposed for removal to implement development layout
- Young tree planting within G4 to be translocated and replanted on and adjacent to the site
- BS 5837 Calculated Tree Shadow Constraints

*Denotes trees and groups not identified on topographical. Locations approximated using measurements taken on site.

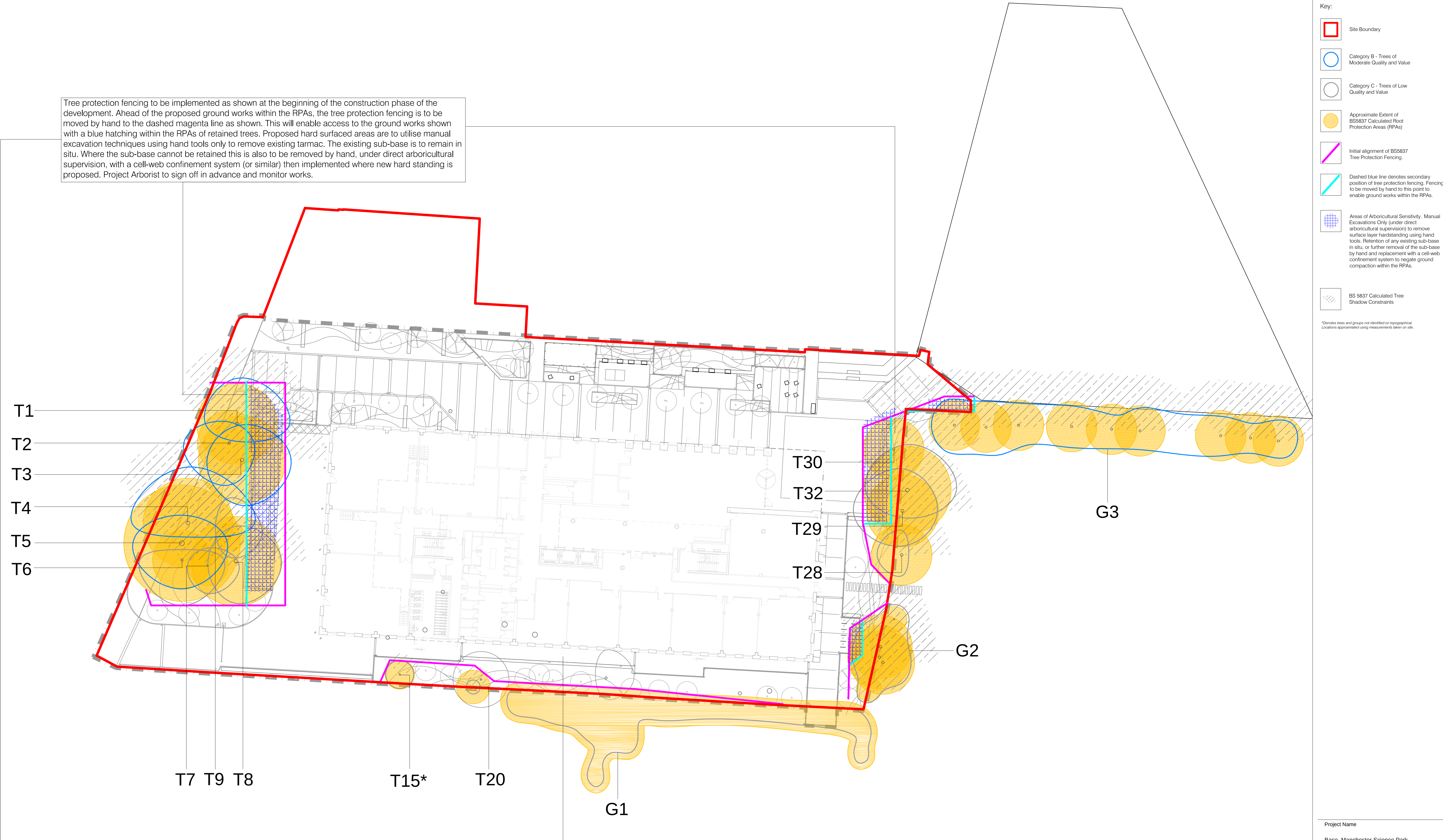
Project Name	
Base, Manchester Science Park	
Drawing Title	
Tree Retention and Removal Plan	



South Bank Central Vivo Tower, 30 Stamford Street, London SE1 9PY
Tel: 020 3934 9470 E: info@tylgrange.co.uk
W: www.tylgrange.co.uk

Scale 1:250 @ A1	Date September 2021
Drawn by LB	Checked by JJ
Drawing No. 12260/P04d	

Tree protection fencing to be implemented as shown at the beginning of the construction phase of the development. Ahead of the proposed ground works within the RPAs, the tree protection fencing is to be moved by hand to the dashed magenta line as shown. This will enable access to the ground works shown with a blue hatching within the RPAs of retained trees. Proposed hard surfaced areas are to utilise manual excavation techniques using hand tools only to remove existing tarmac. The existing sub-base is to remain in situ. Where the sub-base cannot be retained this is also to be removed by hand, under direct arboricultural supervision, with a cell-web confinement system (or similar) then implemented where new hard standing is proposed. Project Arborist to sign off in advance and monitor works.



Key:

- Site Boundary
- Category B - Trees of Moderate Quality and Value
- Category C - Trees of Low Quality and Value
- Approximate Extent of BS5837 Calculated Root Protection Areas (RPAs)
- Initial alignment of BS5837 Tree Protection Fencing.
- Dashed blue line denotes secondary position of tree protection fencing. Fencing to be moved by hand to this point to enable ground works within the RPAs.
- Areas of Arboricultural Sensitivity. Manual Excavations Only (under direct arboricultural supervision) to remove surface layer hardstanding using hand tools. Retention of any existing sub-base in situ, or further removal of the sub-base by hand and replacement with a cell-web confinement system to negate ground compaction within the RPAs.
- BS 5837 Calculated Tree Shadow Constraints

*Denotes trees and groups not identified on topographical. Locations approximated using measurements taken on site.

Project Name
Base, Manchester Science Park

Drawing Title
Tree Protection Plan

TG Tyler Grange
South Bank Central Vivo Tower, 30 Stamford Street, London SE1 9PY
Tel: 020 3934 9470 E: info@tylergrange.co.uk
W: www.tylergrange.co.uk

Scale 1:250 @ A1	Date September 2021
Drawn by LB	Checked by JJ
Drawing No. 12260/P05d	