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Report Verification

Report Version	Date	Completed by:	Checked & Approved by:
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Declaration of Compliance

This study has been undertaken in accordance with British Standard 5837:2012 '*Trees in Relation to Design, Demolition and Construction – Recommendations*'.

Disclaimer

Middlemarch accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared. It should be noted that, whilst every effort is made to meet the client's brief, no site investigation can ensure complete assessment or prediction of the natural environment.

Validity of Data

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified and experienced arboriculturist to assess any changes to the trees, groups, and hedgerows on site and to inform a review of the conclusions and recommendations made.

It should be noted that trees are dynamic living organisms that are subject to natural changes as they age or are influenced by changes in their environment. As such following any significant meteorological event or changes in the growing environment of the trees they should be re-assessed by a suitably qualified and experienced arboriculturist.

This Arboricultural Method Statement has been produced following a review of a fixed approved development layout for the site, based on data provided by the client. The methods of work described herein will be a requirement of all relevant contractors associated with the development proposals.

On Site Monitoring Regime & Contact Details

All operations detailed within this AMS will be monitored by the Principal Contractor. The Principal Contractor will ensure that specifications within this document are followed (this will be built into the contract specification) and that the Project Arboriculturist will be contacted for advice in relation to works near to retained trees. The Project Arboriculturist for the site is:

Name: Luke Webb

Position: Senior Arboricultural Consultant

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Action	Project Arboriculturist Attendance Required
	✓ ✗
Pre-commencement site meeting / toolbox talk / induction	✓
Audit timetable	✓
RIBA Stage 5 - Enabling Works (Demolition)	
Tree Surgery	✓
Site set up and logistics	✓
Establishment of Demolition Exclusion Zone	✗
Topsoil Stripping / Subsoil Regrading	✓
Demolition of Structures and Removal of Hard Surfaces	✗
RIBA Stage 5 - Main Works (Construction)	
Establishment of Construction Exclusion Zone (CEZ)	✓
Permanent and Temporary Ground Protection Measures	✓
Construction of Structures within the RPA / CEZ	✓
Working space to construct new buildings within RPAs	✗
Installation of utilities within RPAs	✗
RIBA Stage 6 – Handover and Close Out	
Removal of tree protection measures	✓
Tree Safety Assessment for handover	✓

Responsibilities

It is the responsibility of the Principal Contractor to ensure that the planning conditions attached to the planning consent are always adhered to and that a monitoring regime regarding tree protection is adopted on site.

The Principal Contractor will be responsible for contacting the Local Planning Authority should any issues are raised related to the trees on site.

If pruning works to trees beyond the agreed scope within this Method Statement are required at any time, then permission must be sought from the Local Planning Authority prior to commencement. All tree surgery works must be carried out in accordance with BS3998.

The Principal Contractor will ensure the build sequence is appropriate to ensure that no damage occurs to retained trees during the construction processes. Protective measures will remain in position until completion of the construction phase of development and will only be removed to allow the commencement of soft landscaping works.

The protection measures and signs will always be maintained in position and checked daily by a designated person on site under the responsibility of the Principal Contractor.

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1. Introduction

1.1 Project Background

This Arboricultural Method Statement was commissioned by adp architecture to accompany a planning application for a development project at Bruce Grove Youth Centre in Haringey. A survey of the trees on site and within influencing distance of the boundaries was undertaken on 2nd December 2022 as part of a Preliminary Arboricultural Assessment (PAA) to aid design and avoid unnecessary tree removal.

An Arboricultural Impact Assessment (AIA) was subsequently undertaken to identify the potential impact of the development on the existing trees surveyed during the PAA in accordance with British Standard 5837:2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*' (hereafter referred to as BS5837).

This Arboricultural Method Statement has been compiled to provide the information necessary to discharge conditions 4 and 6 associated with the planning application to ensure the development is undertaken in accordance with BS5837 and address the requirements of RIBA Stages 5 & 6 including:

- Tree protection plan
- Audit schedule
- Specific tree protection measures
- Specific tree-friendly construction operations
- Tree pruning specification
- Arboricultural Clerk of Works (ACoW) supervision

1.2 Site Description, Drawings and Appendices

Attribute	Description
National Grid Reference	TQ 33641 90168
Topography	Generally flat with slight decline to the main entrance
Tree Cover	High, medium and low-quality individual trees and groups of trees located within and outside of the survey area
Drawings attached	Tree Survey Plan – C158887-01-01-RevB Tree Retention Plan – C161900-02-01 Tree Protection Plan – C161900-03-01
Appendices	Appendix A: Tree Schedule Appendix B: Tree Protection Barrier Sign Appendix C: Tree Protection Barrier Diagram Appendix D: Arboricultural Impact Assessment (RT-MME-158887-RevB)

Table 1.1: Summary of Site and Surroundings

1.3 Proposed Development

The proposed development of the site includes the re-landscaping of the garden using both soft and hard materials to produce a multi-use outdoor space combining a memorial garden, outdoor gymnasium area, grow zone, outdoor workbench and bike workshop area as well as a foraging trail and fire pit.

1.4 Documentation Provided

This assessment is based upon the information provided by the client in addition to information collected by Middlemarch during the Preliminary Arboricultural Assessment, as detailed below.

Author	Document	Drawing Number	Date
adp architecture	Soft Landscape Plan	ADP-00-00-DR-L-1903 REV S4 P3	01.06.2023
adp architecture	Proposed Site Plan	ADP-00-00-DR-L-1900 REV S0 P8	15.12.2023
KJ Tait	Electrical Services Site Plan External	KJT-ZZ-00-DR-E-6001 REV S4 P01	13.10.2023

Table 1.2: Documentation Provided

2. Statutory Designation

2.1 Tree Preservation Order and Conservation Area Protection

A desk-based study was undertaken to identify if any of the trees present within or near the site are affected by statutory constraints as detailed below.

Statutory Constraint	Present ✓ ✗	Source	Details
TPO	✓	London Borough of Haringey	Trees onsite are affected by TPO legislation by the following orders: TPO 2014/1516 - Poplar TPO 2014/1518 - Lime TPO 2014/1520 - Sycamore TPO 2014/1521 - Yew TPO 2014/1521 - Holly Refer to Tree Survey Plan for locations
Conservation Area	✓	London Borough of Haringey website	The entire site is located within the THRC/ Bruce Grove Conservation Area
Ancient Woodland	✗	Multi Agency Geographical Information for the Countryside (MAGIC)	N/A

Table 2.1: Summary of Statutory Constraints that Affect the Site

Where a tree preservation order, conservation area or ancient woodland applies to trees within the assessment area, statutory constraints will apply to the development in respect of trees.

No works must be undertaken on the protected trees without prior permission from the Local Authority unless authorised as part of an approved planning application. Works include pruning, topping, lopping, uprooting or wilful damage or wilful destruction of these trees. Any proposed pruning works not currently approved will need to be fully specified and agreed within a future planning application.

2.2 Protected Species

Bats

Mature trees often contain cavities, hollows, peeling bark or woodpecker holes which provide potential roosting locations for bats. Bats and the places they use for shelter or protection (i.e. roosts) receive European protection under The Conservation of Habitats and Species

Regulations 2017 (Habitats Regulations 2017)¹. They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981², as amended. Consequently, causing damage to a bat roost constitutes an offence.

Generally, should the presence of a bat roost be suspected whilst completing works on any trees on site then an appropriately licensed bat worker should be consulted for advice.

Birds

Trees offer potential habitat for nesting birds which are protected under the Wildlife and Countryside Act (WCA) 1981, as amended. Some species (listed in Schedule 1 of the WCA) are protected by special penalties. This legislation makes it an offence to intentionally or recklessly damage or destroy an active bird nest or part thereof.

As the trees on, and adjacent, to the site provide potential habitat for nesting birds all tree work should ideally be completed outside the nesting bird season (Generally March to September).

If this is not possible then the vegetation should be subject to a nesting bird inspection by a suitably experienced ecologist prior to commencement of works. If any active nests are identified then the vegetation, and a defined buffer zone, will need to remain in place until the young have naturally fledged.

¹ HM Government – The National Archives (2017) [online] The Conservation of Habitats and Species Regulations 2017. Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

² HM Government – The National Archives 2017. *Wildlife and Countryside Act 1981*. [online] Available at: <http://www.legislation.gov.uk/ukpga/1981/69/contents>

3. Arboricultural Method Statement

3.1 Introduction

The following sections of this report detail the specific protection measures, working methodologies and pruning requirements to be adopted as part of the demolition and construction phases of the project.

The principal contractor must ensure that they read and understand all of the following sections prior to commencement of site occupation.

Pre-commencement site meeting and site inductions

A pre-commencement site meeting involving the Project Arboriculturist and Principal Contractor should be undertaken at the beginning of the Enabling Works Phase, Main Construction Phase, Post Construction Phase.

Details of tree protection and methods of working around trees will be included within site inductions to new members of site staff. A copy of this document and the related Tree Protection Plan will be kept on site and referred to by operatives working near retained trees.

Monitoring/Audits

An inspection audit will be implemented by the Project Arboriculturist once the protective measures have been installed to ensure they provide the level of protection required for retained trees. Feedback will be provided to the Local Planning Authority Arboricultural Officer on completion of this visit and monthly audits of the tree protection measures will be undertaken by the Project Arboriculturist to ensure they remain in position and fit for purpose.

Use of Subcontractors

The Principal Contractor will be responsible for ensuring sub-contractors do not carry out any process or operation that is likely to adversely impact upon any retained tree. If any issues arise in relation to the retained trees the Project Arboriculturist will be contacted for advice.

Vulnerability of trees during construction period

Although the proposed site layout and landscape proposals take into consideration the retained trees at the site, construction activities will still have the potential to have a significant detrimental impact on the trees if a robust tree protection strategy is not implemented throughout the construction phases. The purpose of the tree protection strategy will be as follows:

- To protect the above ground parts of trees from physical damage such as contact with plant machinery.
- To prevent compaction of the soil within root protection areas resulting from activities such as the movement of plant machinery or the storage of construction materials.
- To prevent contamination of the rooting medium resulting from the storage and handling of harmful chemicals such as cement/cement washings, builders' sand or fuel within root protection areas.
- To prevent physical damage to trees whilst existing structures or hard standing are removed from within root protection areas.
- To specify sympathetic construction methodology for specific activities that will occur within root protection areas.

3.2 Enabling Works

Tree Work

All tree work should conform to BS3998:2010 and pruning should be undertaken by removing/reducing secondary or tertiary growth where feasible and minimising pruning cuts. All tree works are recommended to be completed prior to the installation of the tree protection measures and site occupation by demolition or construction contractors.

Tree/ Group/ Hedgerow Reference	Species	BS5837 Category	Retained ✓ ✗	Existing Canopy Clearance	Comments
G8	Field maple, buddleia	C	✗	0.0m	Remove group to enable construction of pergola
H1	Privet	C	✗	0.0m	Remove section of hedgerow to enable construction of decking and workshop area
G2*	Mixed species	C	✓	0.0m	Partial removal of stems within group to facilitate the installation of foraging trail and woodchip pathway.
T2	Ash	C	✓	0.5m	Tying back (if possible) or minor pruning of lower branches (only if required) to facilitate the erection of protection barriers and installation of proposed woodchip pathway.
T4	Hybrid black poplar	U	✓	2.0m	Tying back (if possible) or minor pruning of lower branches (only if required) only where sufficient working space is required to enable the construction of proposed decking and workshop area.
G5	European lime	B	✓	3.0m	Tying back (if possible) or minor pruning of lower branches (only if required) to facilitate the erection of protection barriers and installation of proposed memorial garden.
T10	Sycamore	C	✓	2.0m	Tying back (if possible) or minor pruning of lower branches (only if required) to facilitate the erection of protection barriers.
T11	Apple	C	✓	2.0m	Tying back (if possible) or minor pruning of lower branches (only if required) to facilitate the erection of protection barriers and footpath resurfacing works.

Tree/ Group/ Hedgerow Reference	Species	BS5837 Category	Retained ✓ ✗	Existing Canopy Clearance	Comments
T12	Elder	C	✓	2.0m	Pruning of overhanging canopy back to boundary to enable understory planting.

Table 3.1: Trees to be Removed or Pruned

Tree Pruning

All tree pruning works that are required to implement the proposed development will be completed in accordance with the current best practice guidance set out within *BS3998:2010 "Tree Work – Recommendations"* by suitably competent, qualified, and insured arboricultural contractors. The extent of pruning will be identified to contractors in a pre-commencement site meeting as part of enabling works and will be undertaken under supervision by the Project Arboriculturist to ensure compliance with the agreed pruning specification.

BS3998:2010 "Tree Work – Recommendations" states '*In order to help ensure that the tree has enough energy and remains sufficiently intact to resist disease and decay satisfactorily, the amount of leaf-bearing twig structure removed and the size of pruning cuts – both individually and collectively – should be kept to the minimum required to achieve the objectives*' and '*Wherever feasible, pruning should be avoided at times when the disease- and decay-resistance of the tree is likely to be impaired by physiological stress induced by previous tree work, construction damage, or seasonal or weather-related factors, e.g. during or soon after a drought or when starch reserves have been depleted by spring flushing and flowering*'³

Where specified it is recommended that the overhanging branches of trees are tied back to allow construction access beneath canopies where required without branch removal, which will allow the trees to retain their form. This should be conducted under arboricultural supervision and once the works have been completed, branches must be untied, which may require arboricultural supervision.

The branches to be pulled back from the proposed development are highlighted on the Tree Protection Plan but should also be clearly identified in a pre-commencement site meeting prior to any works commencing.

Aside from the specified tree removals which have been proposed in order to implement the development, all other tree pruning works that are specified in Table 3.1 are considered to be of a minor extent. As such it is not considered that they will have a significant impact upon the long-term health, or visual quality, of the trees. However, the extent of the work required would be best determined during a pre-commencement site meeting.

Access Facilitation Pruning

Trees expected to require access facilitation pruning to enable the proposed construction works (based on the information currently available) are summarised in Table 3.1 and highlighted on the Tree Protection Plan.

³ British Standards Institution. (2010). *British Standard 3998:2010, Tree Work – Recommendations*. British Standards Institution, London.

Based on the information currently available, it is anticipated that the crowns of all remaining retained trees will be located a sufficient distance from proposed construction activities and expected construction access routes so as not to require access facilitation pruning.

Any additional requirements for access facilitation pruning that cannot be predicted at this stage in the design process (e.g., for movement of large or specialist plant machinery) shall be discussed at the pre-commencement meeting with the project arboriculturist and the contractor and agreed with the local authority arboricultural officer.

Site Setup, Compound, Materials Storage and Vehicle Parking

At the time of writing, the location of the site compound had not been formally identified, however, sufficient space is present within the site to accommodate the compound outside of Construction Exclusion Zones and its establishment is unlikely to result in harm to retained trees.

Materials will only be stored on areas of hardstanding outside of the RPAs of retained trees and the existing footpath shall be used to transport all materials, tools and plant through the site to avoid compaction to the root systems of trees onsite.

Topsoil Stripping / Subsoil Regrading

Topsoil stripping and regrading of subsoils will not occur within the RPA of any retained tree unless otherwise agreed with the Project Arboriculturist. Stored soil created from topsoil stripping will not be stored within any Construction Exclusion Zone.

No regrading works are to be carried out within the RPAs of retained trees, any top soil stripping such as for proposed planting arrangements must be supervised by the Project Arboriculturist. No machinery must be located or stored within the RPAs of retained trees and all work must be carried out from the perimeter of RPA, working towards the trees where necessary in a precautionary manner. The spoil created from these works will not be stored within the RPA. Uncovered roots need to be assessed by the Project Arboriculturist. If deemed necessary, minor roots (<25 mm in diameter) uncovered by the works shall be pruned using clean, sterilised pruning saw or secateurs, leaving as small a pruning wound as possible. If a major root (>25 mm in diameter) is found, then works will be redesigned to accommodate any large roots found.

Demolition of Structures and Removal of Hard Surfaces

There are no structures or hard surfaces that require demolition or removal within Exclusion Zones and no impact upon the existing trees is therefore anticipated.

Hard Surfacing within RPAs of Retained Trees

Areas of hardstanding to the southeast and northwest of the site as well as the existing footpath that runs through the site are made up of a tarmac surface which will be utilised as a form of ground protection for the transport of materials through the site.

Although resurfacing works will be required to form the new resin-bound surface, this work will be completed on top of the existing sub-base and so it is not expected that the RPAs of retained trees will be impacted. This work will only be completed in consultation with the Project Arboriculturist to ensure that a BS5837 compliant methodology is followed under Arboricultural Supervision.

3.3 Main Works (Construction)

Construction Exclusion Zone

Protective barriers will be positioned to define the Construction Exclusion Zone (CEZ). Signs will be installed on the barriers to inform site contractors of the importance of the tree protection measures and no works that cause physical damage to retained trees, compaction of the soil or severance of tree roots will occur within any exclusion zone. The extent of the CEZ encompasses the Root Protection Area (RPA) and / or tree canopy, whichever is the greatest.

No works, including storage of construction materials shall take place within the Construction Exclusion Zone as defined by the protective barriers.

The proposed location of the protective barriers surrounding the CEZ is identified on the Tree Protection Plan attached. The barriers will remain in place until completion of the demolition phase and will be adjusted as required to form the Construction Exclusion Zone (CEZ) prior to the next phase.

It is recommended that additional phase 1 sections of fencing are installed at the start of the project to afford additional protection to the RPAs T2, T5 and G9 whilst the hardscaping works are completed. Once the major works including the footpath resurfacing and workshop area have been completed then the phase 1 section of fencing can be removed under guidance and supervision of the Project Arboriculturist to allow the commencement of works to the memorial garden and foraging trail area. All Tree Protection Barriers and their locations are identified on the Tree Protection Plan.

Hard Surface Design within Root Protection Areas

Wherever it is intended to construct new hard surfaces within the Root Protection Areas of trees, precautions must be taken to maintain the condition and health of tree roots. The use of a three-dimensional cellular confinement system should be considered as they provide load-spreading of point pressure over a wide area thus reducing compaction on the underlying soils.

- Works shall be completed with care to prevent physical damage to roots during demolition or construction, such as soil compaction or root severance. Contamination of soils by demolished material shall be avoided through the use of geotextile material.
- Provision for water and oxygen to reach the roots must be made and the soil structure must not be disturbed.
- Provision must be made for future root growth and precautions taken to ensure that such root growth does not cause damage to the finished construction.
- The soil must not be compacted, and soil bulk density must be maintained at suitable levels for tree root growth and function. In this respect a soil bulk density of over 1.8 g/cm³ is likely to impede root growth and function.

To achieve the above requirements for tree root growth and function the proposed new hard surfaces shall be designed so that:

- No excavation of virgin ground is required for their installation; to ensure that physical root damage does not occur.
- The load spreading system can be installed without compaction of the existing soils; thus, ensuring damage to the soil structure does not occur.
- The surface is permeable; thus, ensuring that oxygen and water can reach the root system and that CO₂ can diffuse vertically out of the soil as high concentrations can cause root asphyxiation.

Hard Surfacing within the RPAs of Retained Trees

Areas of existing hardstanding will be utilised to provide ground protection for the RPAs of G9 G10 and T12 throughout all project phases and will be retained as shown on the Tree Protection Plan. Other areas of existing hard standing and a footpath are located to the rear of the site and afford protection to the RPAs of G8, T11, T10, T7, T8, T2 and T4. Although resurfacing works will be required to these sections of hard surfacing to install a new resin bound surface, this work will be completed on top of the existing sub-base and so it is not expected that the RPAs of retained trees will be impacted. The resurfacing works will only be completed in consultation with the Project Arboriculturist to ensure that a BS5837 compliant methodology is followed under Arboricultural Supervision.

The installation of the workshop area and associated decking will need to be slightly elevated from the existing ground level, so excavation of the sub-base does not impact on the roots of the trees. Where possible, the existing sub-base from the original tarmac surface will be reused (augmented as required) for the new surface.

An existing tarmac surface located within the root protection area of T2 will be removed and replaced with soft landscape. This should be beneficial to the condition of the rooting medium by improving gaseous diffusion and moisture ingress into the soil, providing the existing surface is removed sensitively.

Ground Protection Measures within the RPAs of Retained Trees

Additional ground protection measures will be required within the RPAs of T1, T5, G5 and G8 to allow the installation of proposed areas of hard landscaping without causing long-term effects to the retained trees. The RPAs of T1, T5 and G5 are affected by a proposed woodchip footpath, soft landscape features and a memorial garden, whilst the RPA of G8 is affected by a small area of landscaping.

Temporary Ground Protection Measures

Temporary ground protection will be utilised to protect areas of the RPAs of the retained trees T1, T5, G5 and G8 whilst construction works are ongoing. This is to ensure that no damage is caused to the root zone of the retained trees as a result of construction activities. All temporary ground protection shall support the expected loads in accordance with Structural Engineers recommendations to avoid permanent compaction and soil.

It should be noted that any ground protection must be capable of supporting and spreading the expected loads to avoid compaction and damage to the soil. The following examples provide adequate load spreading within the RPA of retained trees:

- Ground Protection for Pedestrians: a single thickness of scaffold boards placed either on top of a driven scaffold frame, so as to form a suspended walkway, or on top of a compression-resistant layer (e.g., 100 mm depth of woodchip), laid onto a geotextile membrane is sufficient to prevent soil compaction or poaching.
- Ground Protection for pedestrian-operated plant up to a gross weight of 2 t: proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane is sufficient to prevent soil compaction or poaching.
- Ground Protection for wheeled construction traffic weighted between 2 t and 60 t gross weight: Load spreading cellular confinement system to manufacturers specification to accommodate the likely loading to which it will be subjected.

Temporary Ground Protection Installation

A flexible, bolt together track mat system made from ultra-high-molecular-weight polyethylene is to be used for temporary ground protection where necessary. The ground protection should be installed in accordance with any manufacturer's recommendations and should be supervised by the Project Arboriculturist to the following methodology:

1. Prior to commencement of the works the location of the ground protection will be marked out and the existing ground cover and vegetation present within the area will be carefully stripped / trimmed using hand tools.
2. The exposed soil will be covered with a permeable geotextile membrane where necessary. The geotextile layer shall be laid with overlaps of 300 mm beyond the edge of the proposed extent of the ground protection and it shall be temporarily retained with pins, stakes, or weights.
3. A 200 mm deep layer of woodchip shall then be placed over the geotextile membrane, any plant equipment used to facilitate this must only operate from areas of existing hard standing outside the Root Protection Areas of retained trees.
4. The edges of the woodchip filled area shall be retained by timber boards staked into place with road pins or similar to prevent lateral movement.
5. The track mat system shall then be installed on top of the woodchip layer. The track mats shall be transported to the working area from the existing areas of hard standing outside the Root Protection Areas of retained trees. Where plant equipment is required to assist in placing the track mats, it must only operate from ground outside the Root Protection Areas of retained trees.

Temporary Ground Protection Removal

The ground protection should be removed in accordance with the manufacturer's recommendations and should be supervised by the Project Arboriculturist to the following methodology:

1. The works shall be planned so that the ground protection is removed in stages with works progressing out of the Root Protection Areas of retained trees.
2. Working from the ground protection the first section of the installed track mat shall be unbolted and removed.
3. The underlying woodchip shall be mechanically removed from the area beneath the removed track mat using an excavator with a smooth bucket. No soil disturbance will occur.
4. These works shall be completed sequentially until all sections of the ground protection to be removed have been lifted.
5. The underlying geotextile fabric will then be rolled up and removed. Only pedestrian access into the Root Protection Areas of retained trees will be permitted during removal.

Upon completion of the removal of the ground protection measures, tree protection barriers must be installed to prevent access to any areas of unprotected ground within the Root Protection Areas of retained trees.

Construction of Structures within the RPA/Construction Exclusion Zone

The following details will be adhered to for the excavation of foundation trenches, erection of fencing and the construction of boundary walls within the Root Protection Areas of retained trees.

Decking Construction

To avoid significant harm to tree root systems the new elevated decked area being installed within the RPAs of T3 and T4 is to be constructed on top of the existing hard surfacing where possible. To minimise the potential for harm to tree roots as a result of these works the following precautions are to be adhered to:

1. Care should be taken to avoid soil compaction surrounding the decked area by ensuring temporary ground protection measures are in place around the working area during its construction.
2. The footprint and supporting pad foundation of the decked areas shall be set out on site by the Site Engineer and the area investigated by the Project Arboriculturist to determine if any surface roots that require protection during the works are present.
3. The existing hard surface will be used to support the decking wherever possible, if any pad foundations are required for support, then these will be excavated mechanically under supervision of the Project Arboriculturist.
4. Where roots of less than 25 mm in diameter are encountered, they may be pruned back to the edge of the excavation, using clean, sharp tools. Where roots of greater than 25 mm in diameter are encountered, the proposed foundation location should be adjusted, if possible, to avoid the roots present.
5. Where the foundation location cannot be moved any roots of greater than 25 mm in diameter must be retained and protected during the works. In this respect they initially should be wrapped in damp hessian sacking to prevent desiccation and to minimise the risk of mechanical damage as foundation excavation is completed. Following this any retained roots shall be encased in a suitably sized plastic pipe filled with a compressible inert material, to permit future expansion growth, which will then be wrapped with an impermeable membrane.
6. Once the final foundation locations have been established the supporting foundation beams shall be installed and fixed into place. All excavated holes should be lined with an impermeable membrane to prevent concrete leaching into surrounding soils. Heave precautions should be installed if required.
7. The elevated deck framework shall then be transported to the working area using the temporary ground protection measures and installed in place.

Foundations within RPAs

The construction of some proposed landscape features such as the memorial garden will require foundation construction within the RPAs of retained trees. Temporary tree protection fencing,

and ground protection measures as detailed on the Tree Protection Plan, will be required during the works to prevent soil compaction.

Foundation Installation Methodology

1. The location of the proposed features within RPAs including foundations shall be set out by the Site Engineer and the areas investigated to establish if any large roots are present in the presence of the Project Arboriculturist.
2. Temporary ground protection measures shall be installed adjacent to the proposed foundations as shown on the Tree Protection Plan to prevent soil compaction and contamination of the ground through the spilling of concrete or mortar. Materials for the wall construction are to be brought to the working area using the temporary ground protection. All works involved in the construction shall be undertaken from the installed ground protection and no materials are to be transported, loaded, or stored on areas of unprotected ground within the Root Protection Areas of retained trees.
3. The foundations will be excavated by hand where possible under supervision of the Project Arboriculturist. Where roots of less than 25 mm in diameter are encountered, they may be pruned back to the edge of the excavation, using clean, sharp tools. Where roots of greater than 25 mm in diameter are encountered, the proposed foundation location should be adjusted, if possible, to avoid the roots present.
4. Where the foundation location cannot be moved, any roots of greater than 25 mm in diameter must be retained where possible and protected during the works. In this respect they initially should be wrapped in damp hessian sacking to prevent desiccation and to minimise the risk of mechanical damage as foundation excavation is completed. Following this any retained roots shall be encased in a suitably sized plastic pipe filled with a compressible inert material, to permit future expansion growth, which will then be wrapped with an impermeable membrane.
5. The foundation shall then be lined with an impermeable membrane and suitable heave precautions installed (if required) prior to installation of concrete and the remaining structure.

Construction of Fencing within the RPA/Construction Exclusion Zone

The following details will be adhered to for the erection of fencing within the Root Protection Areas of retained trees.

The following guidance will be adhered to for any fencing works undertaken within the site:

1. The exact route of the proposed fencing shall be marked out in conjunction with the Project Arboriculturist avoiding all significant trees on note.
2. The location of fence posts will be carefully considered, to ensure the potential for root damage to the adjacent trees is minimised. Particular attention will be given to the location of all fence posts to ensure that no fence posts are sited within 2.0 m of the stem of any retained tree.
3. Excavation for the fence post holes within the RPA of any retained tree will be completed manually using handheld tools. Care should be taken not to damage tree roots that may be present to avoid ingress of decay.

4. If large roots (>25 mm) are identified, then the fence post location will be relocated where possible to avoid damage and / or severance of roots. Special construction techniques may be used where fence posts are likely to sever significant roots to 'bridge' these areas and avoid severance of any significant roots.
5. If any roots are damaged during the excavation for the fence posts, they will be cut using sharp cutting tools such as bypass secateurs or handsaws to leave a clean wound with as small a surface area as possible. No roots of greater than 25 mm in diameter will be cut without the agreement of the Project Arboriculturist.
6. The holes excavated for the fence posts shall be lined with an impermeable membrane to prevent concrete leaching into the surrounding soil.
7. The fence posts and panels shall be installed, and the post holes backfilled with concrete. All fence posts and other materials will be brought to the working area by hand

All works to install new fencing within the RPAs of retained trees should be carried out under supervision of the Project Arboriculturist.

Installation of Woodchip Pathway

The woodchip pathway that is located towards the southwest of the site will require a build-up methodology in order to avoid damage to the RPAs of retained trees. The following methodology shall be adhered to for the installation of the woodland walkway:

1. Prior to commencement of the works the route of the main access track will be marked out and investigated to identify if any existing services are present.
2. The existing ground cover and vegetation present within the area will be carefully stripped / trimmed using hand tools.
3. The exposed soil will be covered with a permeable geotextile membrane. The geotextile layer shall be laid with overlaps of 300 mm beyond the edge of the proposed path construction, and it shall be temporarily retained with pins, stakes, or weights.
4. The edges of the geotextile layer shall be retained by timber boards to form an edging board for the proposed pathway and will be supported by wooden stakes or similar.
5. The retained path structure will then be filled with the specified woodchip with the manufacturer's recommendations.
6. All works involved in filling the footpath to the appropriate level with woodchip will occur using hand tools such as wheelbarrows and will be completed from areas of ground protection or on top of the filled system.

Soft Landscaping within RPAs

Soft landscaping works will be undertaken on site within the Root Protection Areas (RPAs) of several retained trees. Where excavations are required within or in close proximity to the RPAs of retained trees, they are expected to be shallow and unlikely to result in significant impact to retained trees. Where excavation is required, the following working methodology shall be adhered to:

1. Existing ground cover and vegetation shall be carefully stripped or strimmed using handheld tools as required.
2. Topsoil will then be excavated to the desired depth using handheld tools.
3. Uncovered roots less than 25 mm in diameter may be severed, making clean cuts with suitably sharp tools such as secateurs. Exposed roots larger than 25 mm in diameter must not be severed and should be wrapped or covered with damp hessian or similar material, as soon as possible, to prevent desiccation and to protect them from rapid temperature changes.
4. Prior to backfilling all root coverings shall be removed and retained roots shall, where possible, be surrounded with topsoil and compacted sharp sand, or other loose inert granular fill, before soil or other suitable material is replaced into the excavated area. The fill material shall be free of contaminants and other foreign objects potentially injurious to tree roots.
5. Post-development tree planting, if required, shall proceed according to the guidance detailed in British Standard 8545:2014 Trees: from nursery to independence in the landscape -Recommendations.

Installation of utilities within RPAs

Details of the routing of services for the proposed development are not currently available. All underground services should be located outside the root protection areas of retained trees and above ground services should be located outside the anticipated mature crown spreads. Sympathetic methodology to enable the installation of services within root protection areas (in certain instances) is available, however there will always be a potential arboricultural impact and arboricultural advice must be sought regarding the suitability of these methods before they are relied upon. If it is achievable, root protection areas should always be completely avoided.

Once details of the routing of new services become available, prior to commencement, these shall be reviewed by the project arboriculturist. The arboriculturist shall then confirm either that no works will be carried out within root protection areas or provide details of the methodology required to ensure the works are carried out in accordance with *NJUG Vol 4 'Guidelines for the planning, installation, and maintenance of utilities in proximity to trees'* and BS5837: 2012.

If any subterranean utility installation is proposed, then the Project Arboriculturist must be consulted, and the proposed excavation works will be completed using an Airspade and soil vacuum excavator to prevent damage to root systems of retained trees.

The following methodology must be adhered to:

1. The route of the proposed trench shall be determined in discussion with the Project Arboriculturist and marked out on site.

2. Pruning of lower branches to provide clearance for the vacuum excavator will be undertaken by a suitably qualified and experienced tree surgeon under supervision of the Project Arboriculturist prior to commencement of the works.
3. Upon commencement of the works, the aim will be to excavate the soil along the route of the proposed service trench to a suitable depth to permit the installation of new pipes beneath the network of retained roots (typically 750 mm below ground level) whilst retaining as many tree roots as feasible.
4. Whilst roots smaller than 25 mm in diameter may be pruned back to permit access for the vacuum excavator nozzle / utilities, roots larger than 25mm in diameter will be retained.
5. All exposed roots must be wrapped or covered with damp hessian or similar material, as soon as possible, to prevent desiccation and to protect them from rapid temperature changes.
6. Once the trench is complete the proposed service can be inserted into the trench through or below the network of retained tree roots.
7. Prior to backfilling all root coverings shall be removed and retained roots shall, where possible, be surrounded with topsoil and lightly compacted sharp sand, or other loose inert granular fill, before soil or other suitable material is replaced into the excavated area. The fill material shall be free of contaminants and other foreign objects potentially injurious to tree roots.

Works will not occur where the ambient air temperature is less than +4 °C. Roots shall be temporarily recovered with soil where the ambient temperature exceeds 14 °C or completion of the works is not foreseen within 24 hours of the finished excavation.

Manual Excavation:

If there is an area where vacuum excavation is not viable due to access constraints and then the area the route will be hand-dug under arboricultural supervision. The following methodology must be adhered to:

1. The route of the proposed trench shall be determined in discussion with the Project Arboriculturist and marked out on site.
2. Where required, pruning of lower tertiary branches to provide clearance for the excavator and other plant will be undertaken by a suitably qualified and experienced tree surgeon under supervision of the Project Arboriculturist prior to commencement of the works. The type of machinery needs to be confirmed before works commence to confirm extent of pruning works.
3. Whilst roots smaller than 25 mm in diameter may be pruned back to permit access for the excavator and laying of the new pipeline, roots larger than 25 mm in diameter will be retained unless otherwise agreed by the Project Arboriculturist.

4. All exposed roots to be retained must be wrapped or covered with damp hessian or similar material, as soon as possible, to prevent desiccation and to protect them from rapid temperature changes.
5. All spoil will be stored away from retained trees and on existing hard surfacing.
6. Once the trench is complete, the proposed pipeline can be inserted into the trench, and if roots are present, below the network of retained tree roots.
7. Prior to backfilling all root coverings shall be removed and retained roots shall, where possible, be surrounded with topsoil and lightly compacted sharp sand, or other loose inert granular fill, before soil or other suitable material is replaced into the excavated area. The fill material shall be free of contaminants and other foreign objects potentially injurious to tree roots.

Works will not occur where the ambient air temperature is less than +4 °C. Roots shall be temporarily recovered with soil where the ambient temperature exceeds 14 °C or completion of the works is not foreseen within 24 hours of the finished excavation.

Arboricultural Supervision/ Site Audits

It should be noted that all works to be completed within the RPAs of retained trees will be done under the supervision of the Project Arboriculturist and in accordance with the methodologies specified in this document.

It is recommended that the Tree Protection features that have specified for this project are routinely checked by the Project Arboriculturist to ensure compliance with BS5837 and the conditions set out by the Local Planning Authority. Site audits will comprise of a site visit to assess the position, integrity and suitability of protection features. Evidence of each visit will be documented in a report consisting of a written and photographic record which will be provided to the LPA within 5 working days of the site visit. The frequency of visits is recommended to be once every 6 weeks, commencing after all enablement works, protection features, and Exclusion Zones have been established and will continue until the project has been completed, unless otherwise specified by the LPA.

3.4 Post Construction Works

Removal of Protective Barriers

Protective barriers will be removed once all external main construction works have been completed to allow the completion of hard and soft landscaping. Barriers shall be removed carefully to ensure no damage to retained trees occurs.

Hard Landscaping

Hard landscaping works that have the potential to cause physical damage to retained trees, compaction of the soil or severance of tree roots shall not occur within the precautionary zones (RPA / canopy) unless under supervision of the Project Arboriculturist. Any hard landscaping works taking place within the precautionary zones surrounding retained trees should be completed in accordance with this AMS following advice from the Project Arboriculturist.

No unsupervised works or storage of hard landscaping construction materials shall occur within the Precautionary Zones (former CEZ).

Soft Landscaping

All soft landscaping within the exclusion zone will be undertaken by hand and in accordance with BS8545⁴.

A 500 mm radius from any tree stem will remain uncovered by turf or other planting to allow penetration of water and air into the soil. A propriety mulch will be applied to a depth of 100mm to inhibit weed and growth, reduce groundwater evaporation, resist and mitigate soil compaction, reduce maintenance requirements and act as a slow release fertiliser.

Tree Planting

Any proposed tree planting should be conducted in accordance with BS8545:2014. Planting within RPAs will only happen during winter and will be completed after all other construction activities have been finished. Planting will only be completed by hand and follow best practice recommendations.

Where any planting is proposed within the RPAs of retained trees it should be completed in consultation with the Project Arboriculturist to ensure that the root systems of existing trees are not damaged.

Post-development tree planting shall proceed according to the guidance detailed in British Standard 8545:2014 Trees: from nursery to independence in the landscape - Recommendations.

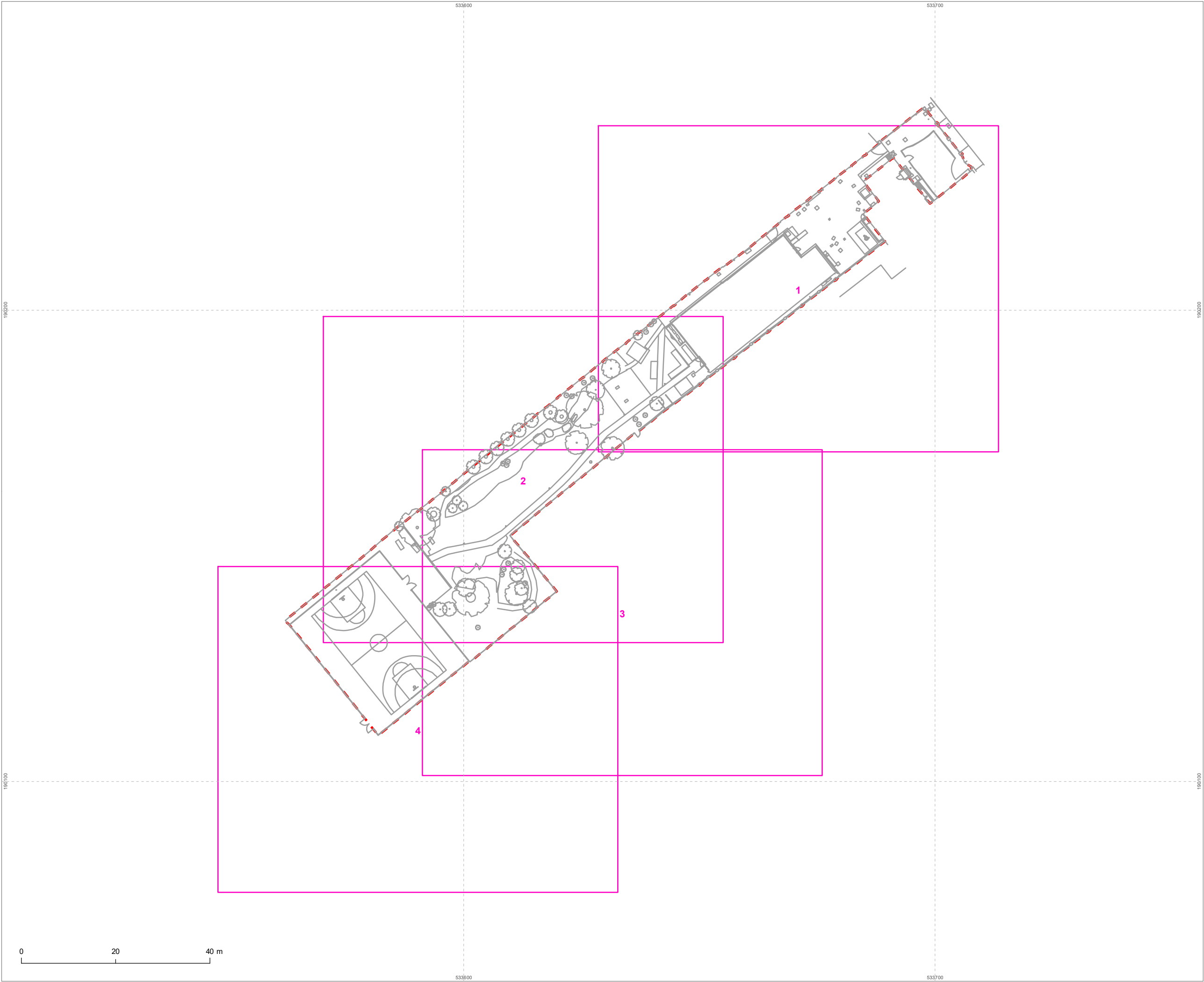
3.5 Handover and Close Out

Tree Safety Assessment

A tree safety assessment will be required prior to handing over the site to the client for final site use to ensure all retained trees are in good condition and any potential hazards are mitigated sufficiently. All retained trees should positively contribute to the new development and should be included as part of a management plan to ensure the long-term safety of site users.

This BS5837:2012 survey is not a full or thorough assessment of the health and safety of the trees on or adjacent to the site; and therefore, it is recommended that detailed tree inspections are undertaken on a regular basis with the express purpose of complying with the landowner's duty of care to satisfy health and safety requirements.

⁴ British Standards Institution. (2014). *British Standard 8545:2014, Trees: from nursery to independence in the landscape – Recommendations*. British Standards Institution, London.



C158887-01-01

Legend

Survey extent

NOTES

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The positions of trees and their current crown spread, root protection area and shade pattern (where appropriate) have been shown on the Tree Survey Plan.

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Further survey work would be required for calculating foundation depths in accordance with current Building Regulations requirements.

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Project

Bruce Grove Youth Centre,
London Borough of Haringey

Drawing

Tree Survey Plan - Overview

Client

ADP Architecture

Drawing Number

C158887-01-01

Revision

00

Scale @ A3

1:750

Date

December 2022

Approved By

DM

Drawn By

JR

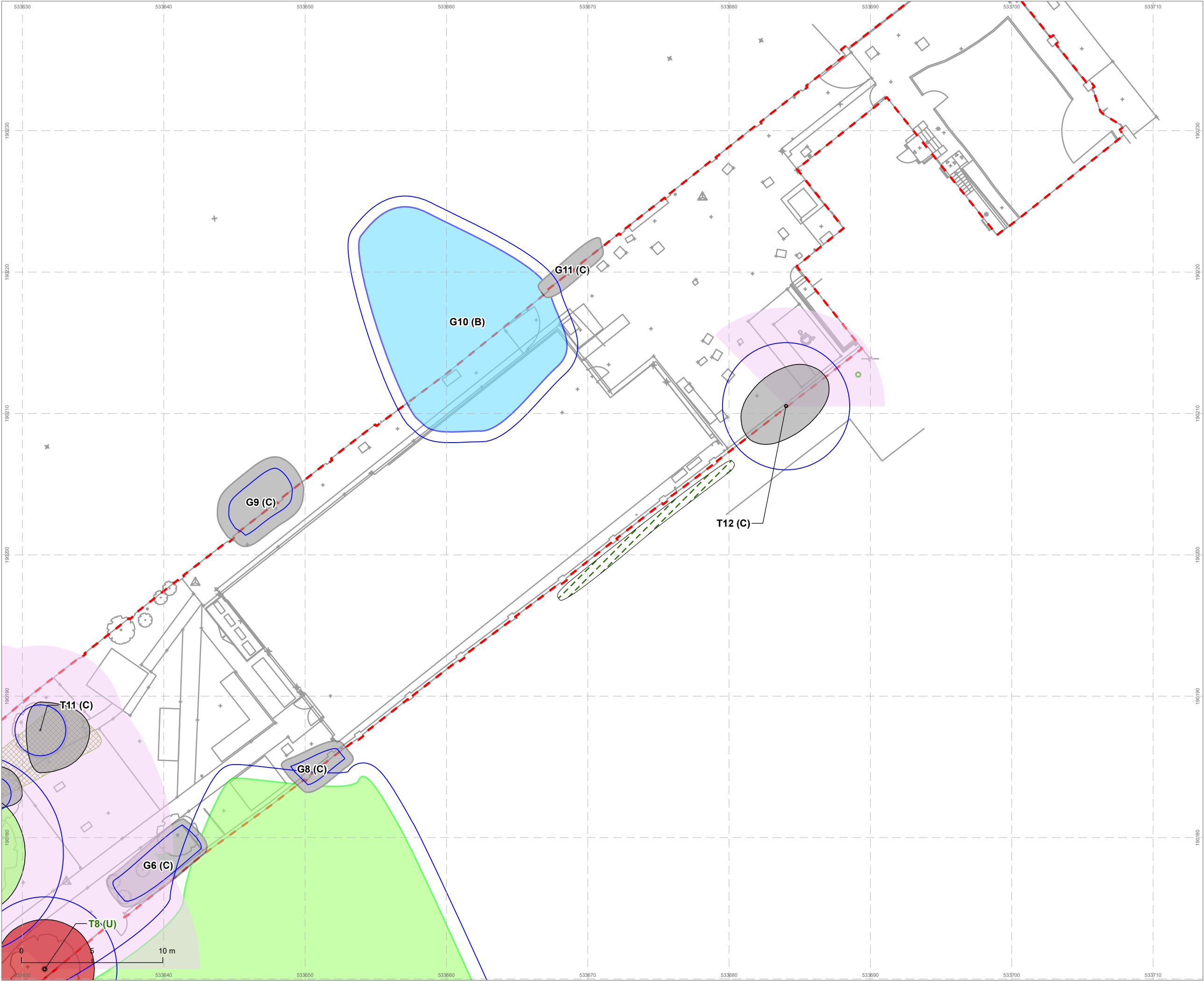


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C158887-01-01

Legend

●

Tree location and stem diameter

Category A

Category B

Category C

Category U

Root Protection Area

Current canopy extent

Indicative tree shadow

●

Self-set tree

⊕

Stump

Self-set trees

Shrub bed

Survey extent

00

Tree subject to Tree Preservation Order (TPO)

NOTES

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Project

Bruce Grove Youth Centre,
London Borough of Haringey

Drawing

Tree Survey Plan

Client

ADP Architecture

Drawing Number

C158887-01-01

Revision

Rev B

Scale @ A3

1:250

Date

February 2024

Approved By

LW

Drawn By

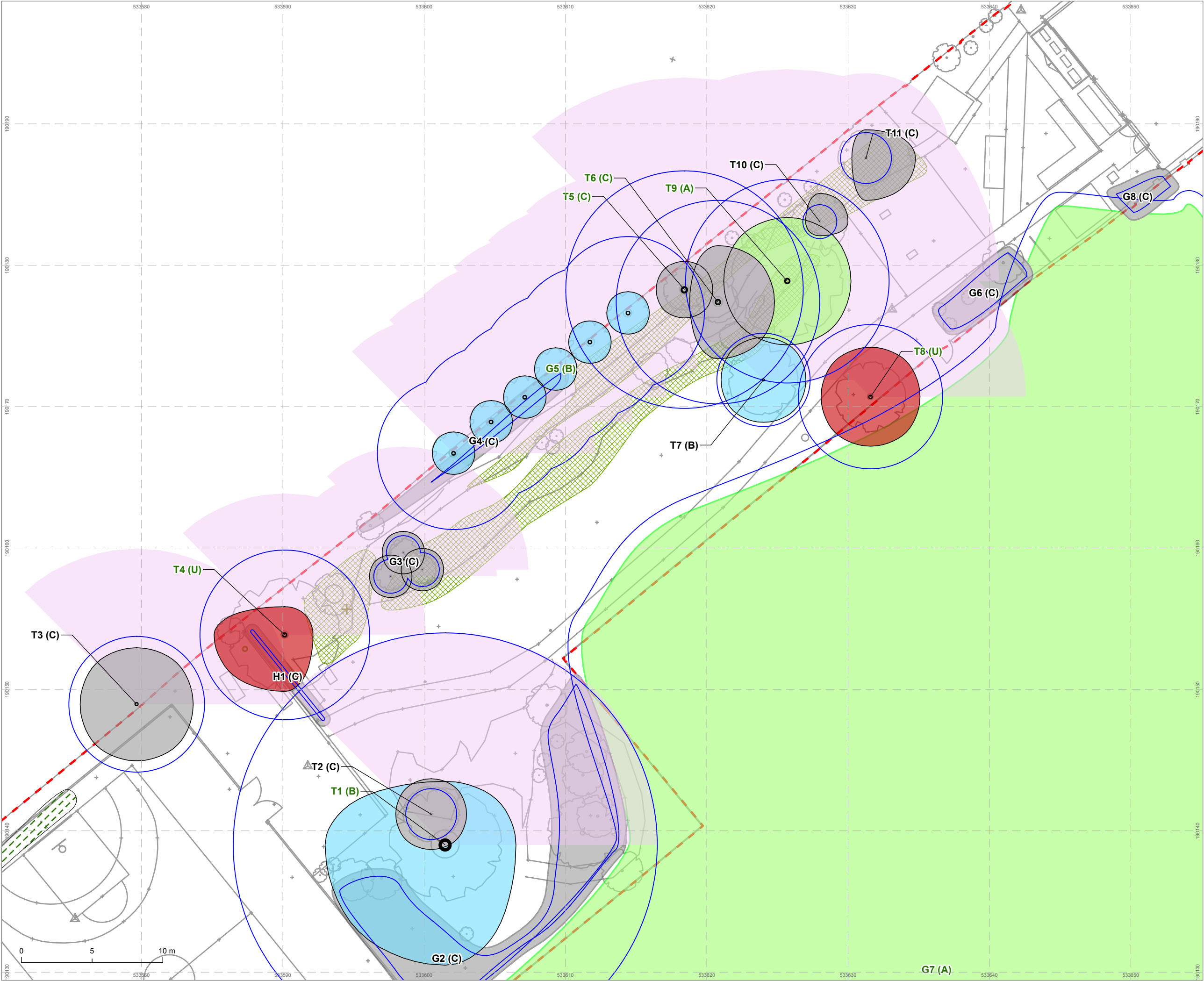
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C158887-01-01

Legend

●

Tree location and stem diameter

Category A

Category B

Category C

Category U

Root Protection Area

Current canopy extent

Indicative tree shadow

○

Self-set tree

⊕

Stump

Self-set trees

Shrub bed

Survey extent

00

Tree subject to Tree Preservation Order (TPO)

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Project

Bruce Grove Youth Centre,
London Borough of Haringey

Drawing

Tree Survey Plan

Client

ADP Architecture

Drawing Number

C158887-01-01

Revision

Rev B

Scale @ A3

1:250

Date

February 2024

Approved By

LW

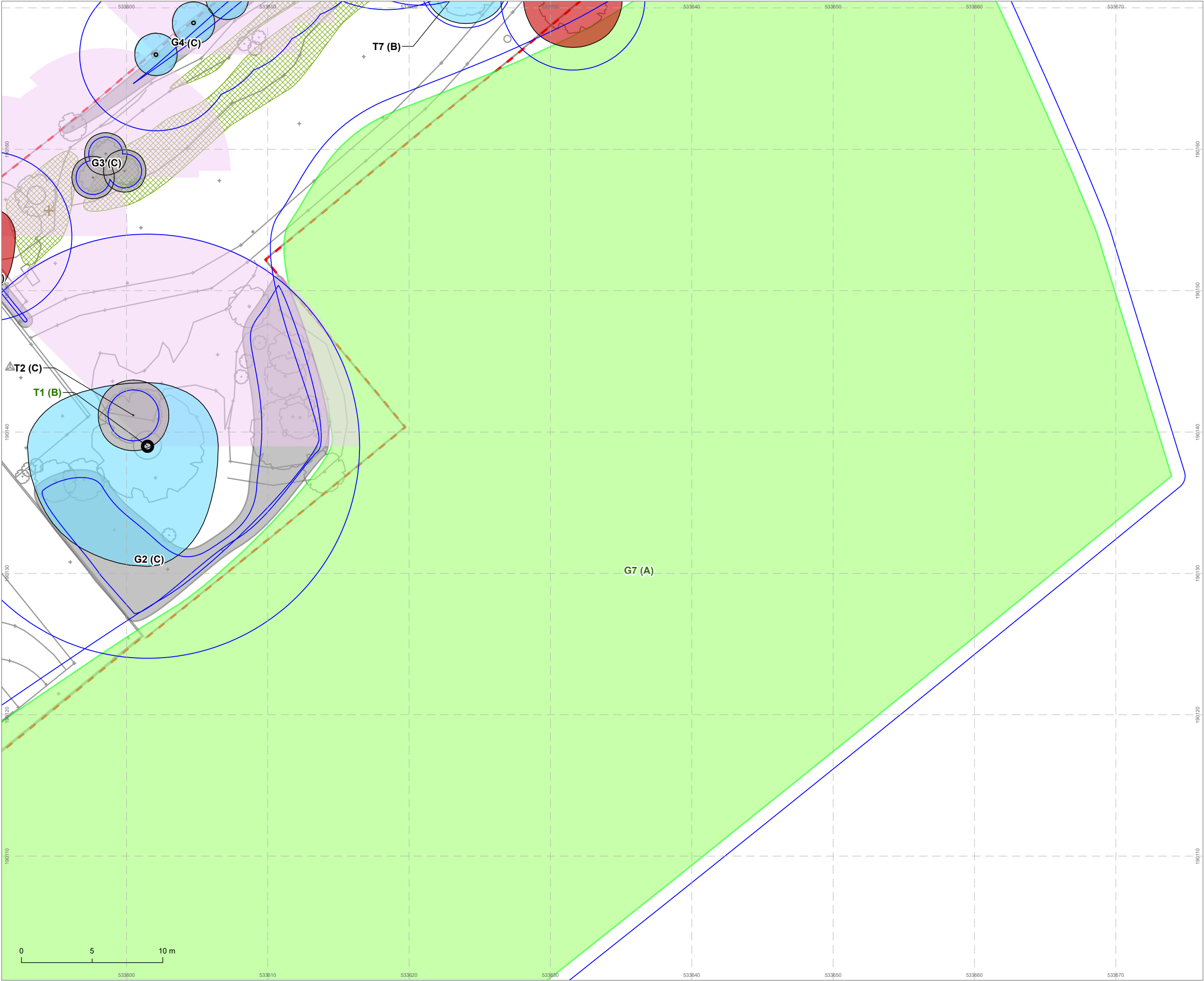
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C158887-01-01

Legend

Tree location and stem diameter

Category A

Category B

Category C

Category U

Root Protection Area

Current canopy extent

Indicative tree shadow

Self-set tree

Stump

Self-set trees

Shrub bed

Survey extent

00

Tree subject to Tree Preservation Order (TPO)

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Project

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London Borough of Haringey

Drawing

Tree Survey Plan

Client

ADP Architecture

Drawing Number

C158887-01-01

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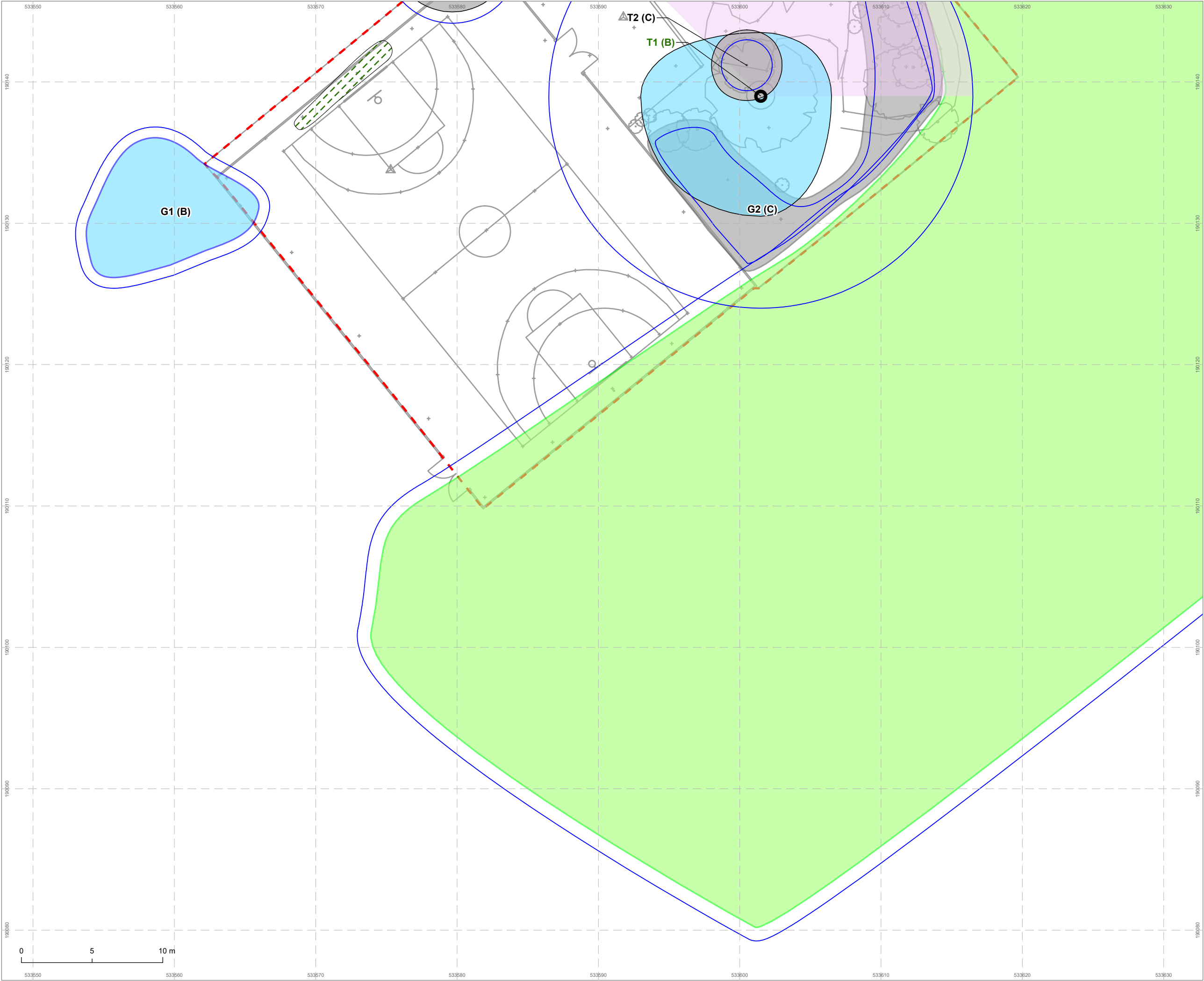
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Legend

●

Tree location and stem diameter

Category A

Category B

Category C

Category U

Root Protection Area

Current canopy extent

Indicative tree shadow

○

Self-set tree

⊕

Stump

Self-set trees

Shrub bed

Survey extent

00

Tree subject to Tree Preservation Order (TPO)

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Project

Bruce Grove Youth Centre,
London Borough of Haringey

Drawing

Tree Survey Plan

Client

ADP Architecture

Drawing Number

C158887-01-01

Revision

Rev B

Scale @ A3

1:250

Date

February 2024

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Drawn By

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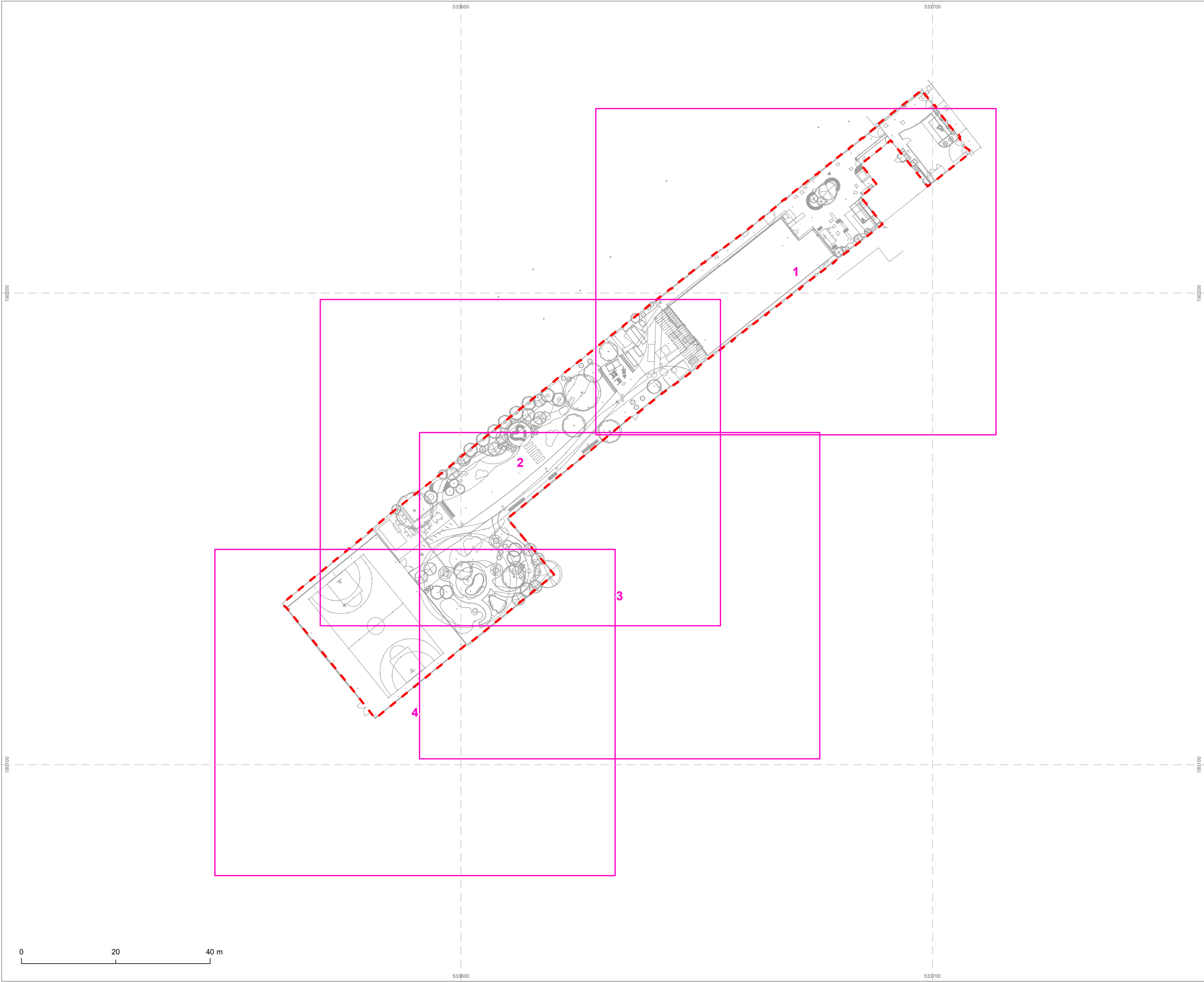
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C161900-01-01

Legend

Survey extent

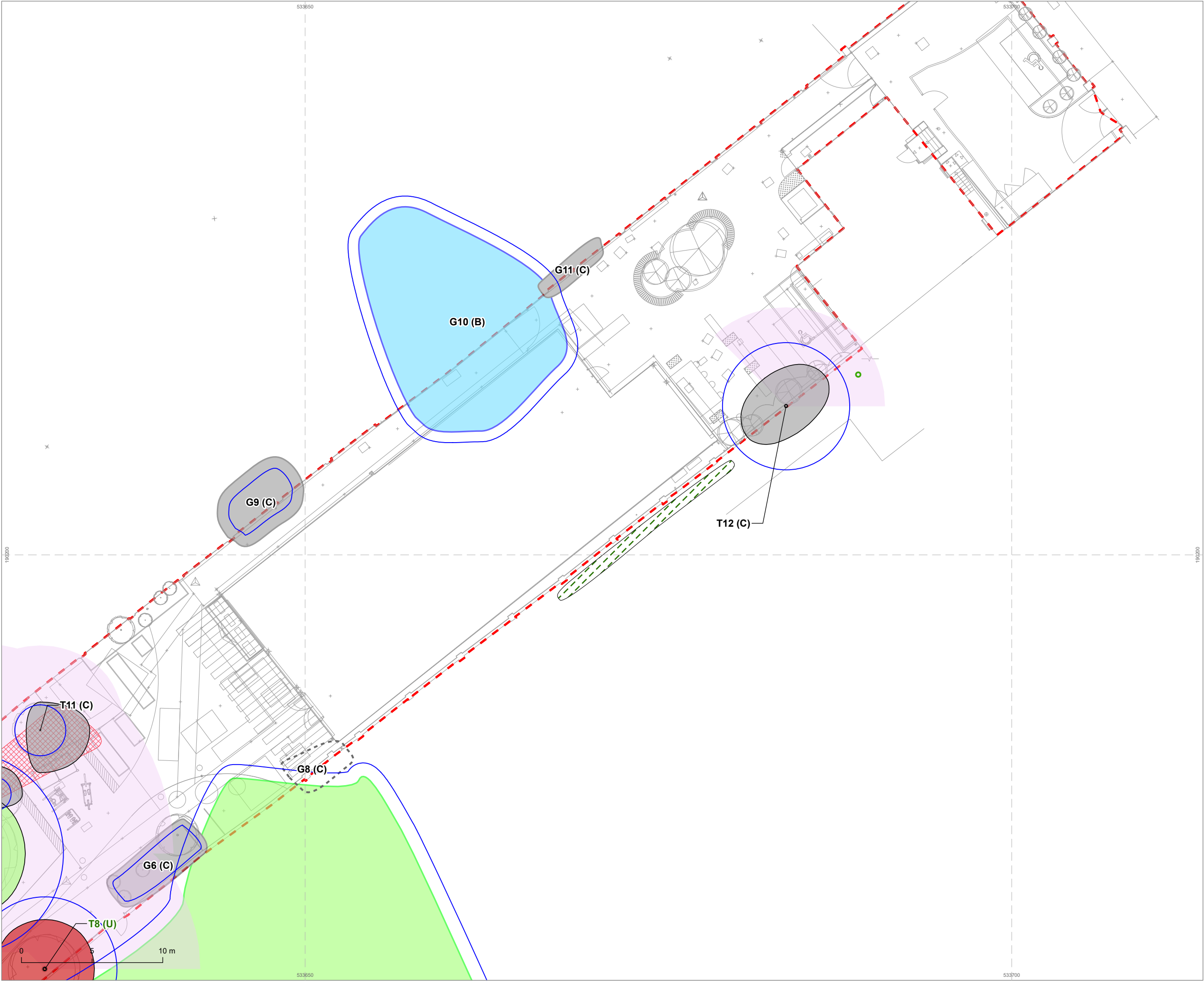
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Project	Bruce Grove Youth Centre, London Borough of Haringey		
Drawing	Tree Retention Plan - Site Overview		
Client	ADP Architecture		
Drawing Number	C161900-01-01	Revision	00
Scale @ A3	1:750	Date	February 2024
Approved By	LW	Drawn By	BD/AW



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C161900-01-01

Legend

●

Tree location and stem diameter

Category A

Category B

Category C

Category U

Category C group to be removed

Current canopy extent

Root Protection Area

●

Self-set tree

⊕

Stump

Indicative tree shadow

Self-set trees

Shrub bed to be removed

Survey extent

00

Tree subject to Tree Preservation Order (TPO)

NOTES

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Project

Bruce Grove Youth Centre,
London Borough of Haringey

Drawing

Tree Retention Plan - Page 1 of 4

Client

ADP Architecture

Drawing Number

C161900-01-01

Revision

00

Scale @ A3

1:250

Date

February 2024

Approved By

LW

Drawn By

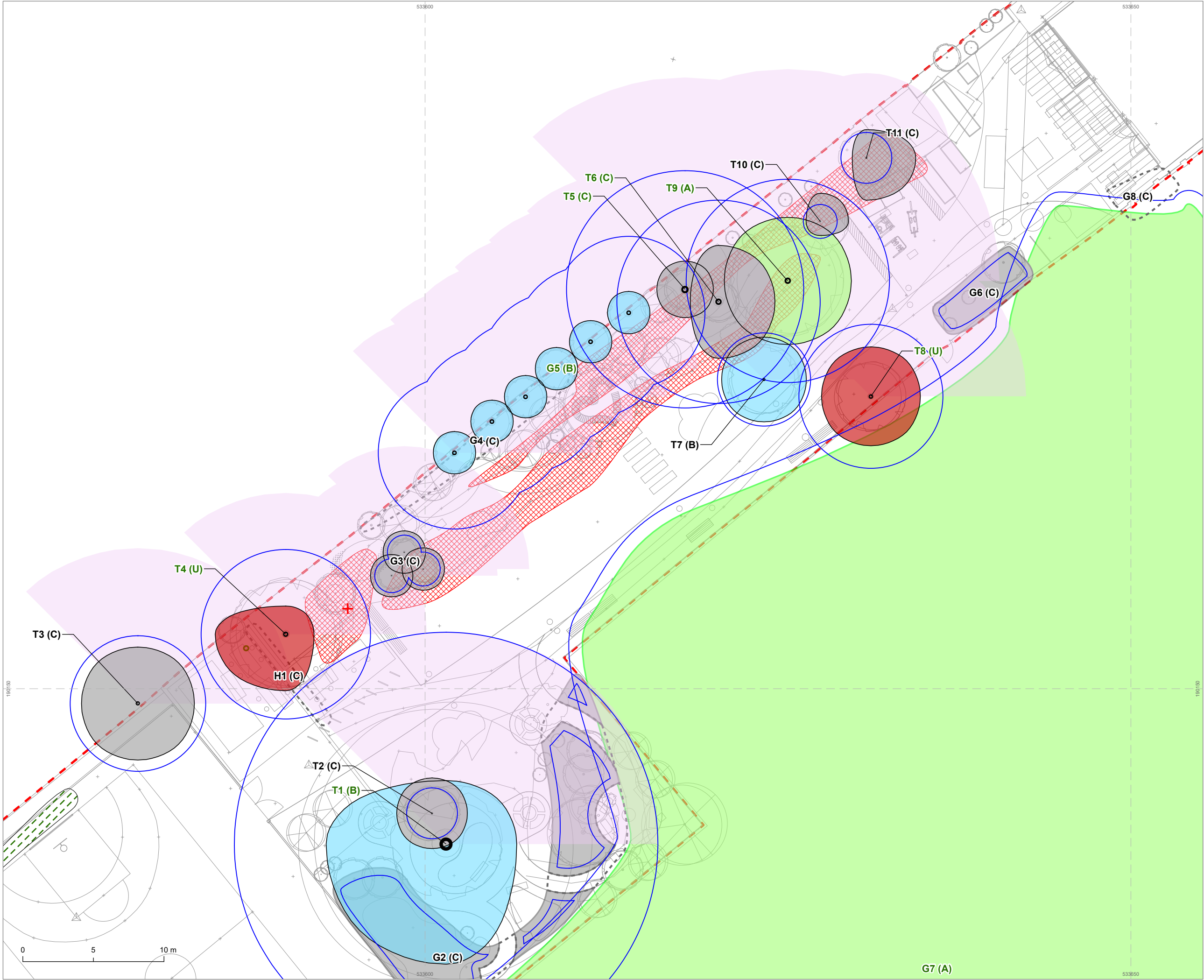
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C161900-01-01

Legend

●

Tree location and stem diameter

Category A

Category B

Category C

Category U

Category C group to be removed

Current canopy extent

Root Protection Area

●

Self-set tree

+

Stump

Indicative tree shadow

Self-set trees

Shrub bed to be removed

Survey extent

00

Tree subject to Tree Preservation Order (TPO)

NOTES

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London Borough of Haringey

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Tree Retention Plan - Page 2 of 4

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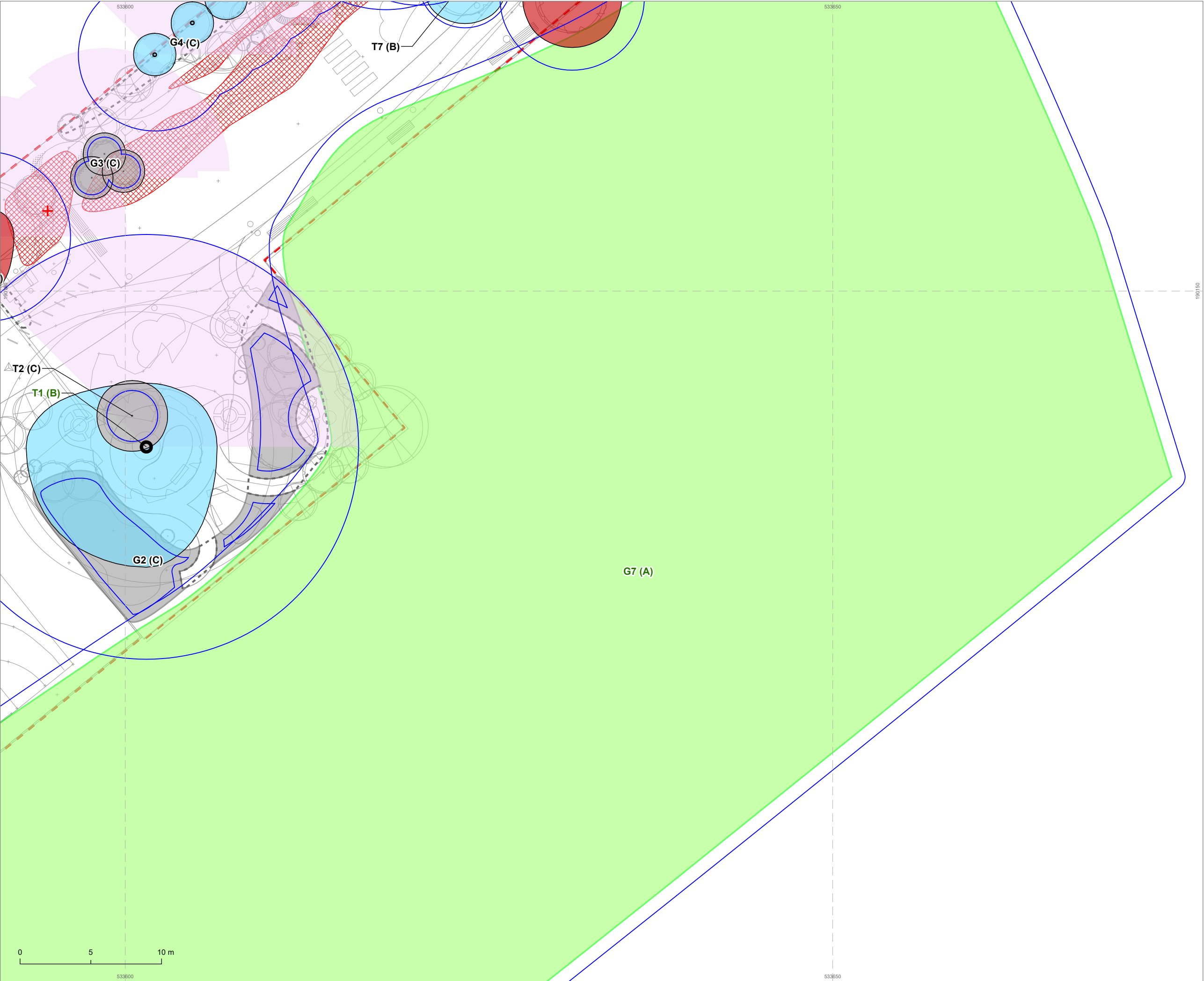
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C161900-01-01

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Tree location and stem diameter

Category A

Category B

Category C

Category U

Category C group to be removed

Current canopy extent

Root Protection Area

Self-set tree

Stump

Indicative tree shadow

Self-set trees

Shrub bed to be removed

Survey extent

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London Borough of Haringey

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Tree Retention Plan - Page 3 of 4

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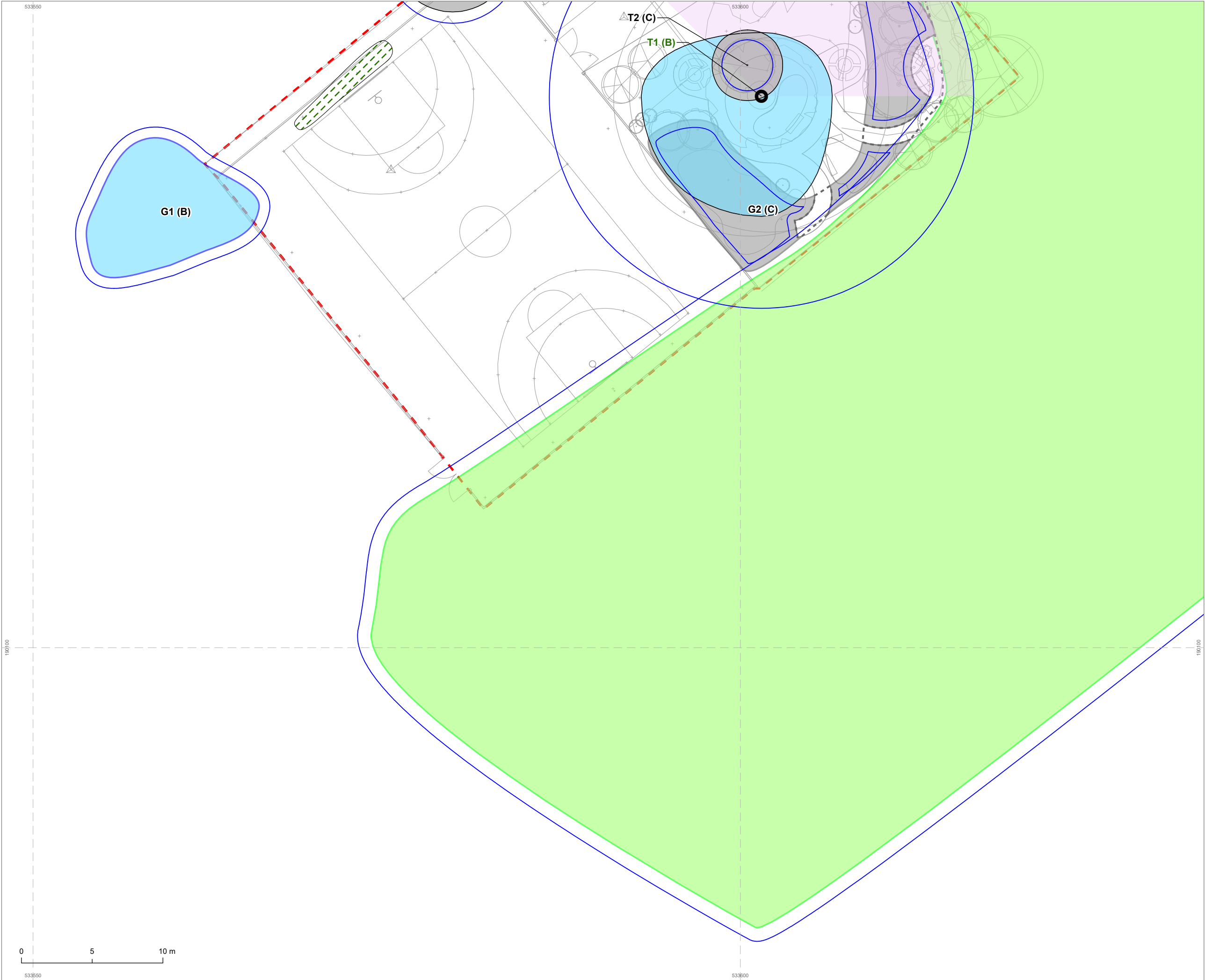
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C161900-01-01

Legend

Tree location and stem diameter

Category A

Category B

Category C

Category U

Category C group to be removed

Current canopy extent

Root Protection Area

Self-set tree

Stump

Indicative tree shadow

Self-set trees

Shrub bed to be removed

Survey extent

Tree subject to Tree Preservation Order (TPO)

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Project

Bruce Grove Youth Centre,
London Borough of Haringey

Drawing

Tree Retention Plan - Page 4 of 4

Client

ADP Architecture

Drawing Number

C161900-01-01

Revision

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Scale @ A3

1:250

Date

February 2024

Approved By

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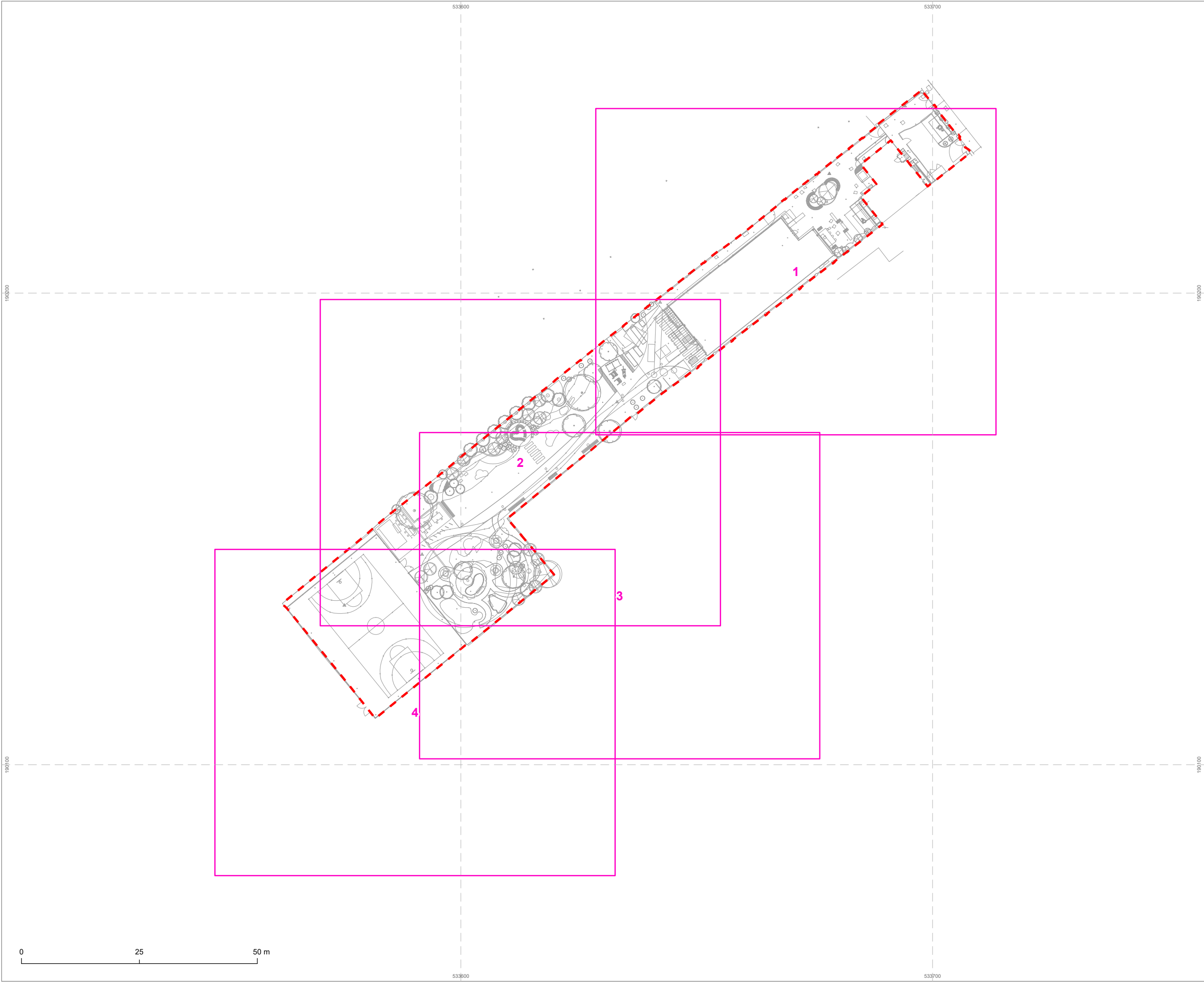
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C161900-01-01

Legend

Survey extent

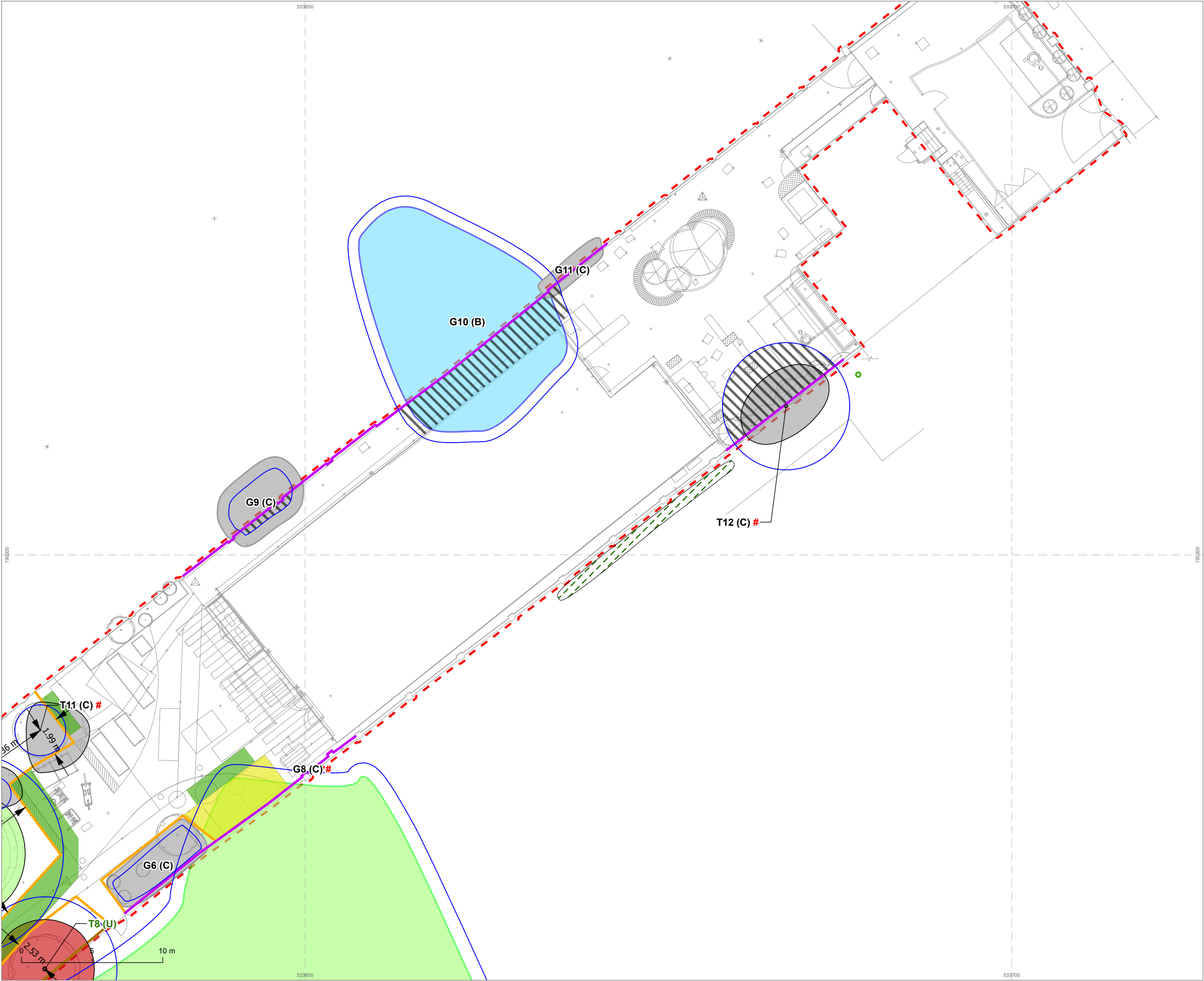
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Project	Bruce Grove Youth Centre, London Borough of Haringey		
Drawing	Tree Protection Plan - Site Overview		
Client	ADP Architecture		
Drawing Number	C161900-03-01	Revision	00
Scale @ A3	1:750	Date	February 2024
Approved By	LW	Drawn By	AW



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C161900-03-01

Legend

Tree location and stem diameter

Category A

Category B

Category C

Category U

Root Protection Area

Current canopy extent

Self-set tree

Tree protection barrier (BS5837:2012)

Phase 1 section of fencing to be removed once hardscaping works are complete

Existing boundary fenceline to be used as tree protection barrier

Replacement fencing within RPAs to be installed under arboricultural supervision

Sections of resin bonded paths within RPAs to be constructed using build-up methodology

Decked area to be installed using BS5837 compliant methodology

Landscape features within RPAs to be installed under arboricultural supervision

Excavation of memorial garden to be conducted under arboricultural supervision

Area of temporary ground protection

RPAs covered by existing hardstanding

Survey extent

00

Tree subject to Tree Preservation Order (TPO)

#

Tree pruning works required

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Project

Bruce Grove Youth Centre,
London Borough of Haringey

Drawing

Tree Protection Plan - Page 1 of 4

Client

ADP Architecture

Drawing Number

C161900-03-01

Revision

00

Scale @ A3

1:250

Date

February 2024

Approved By

LW

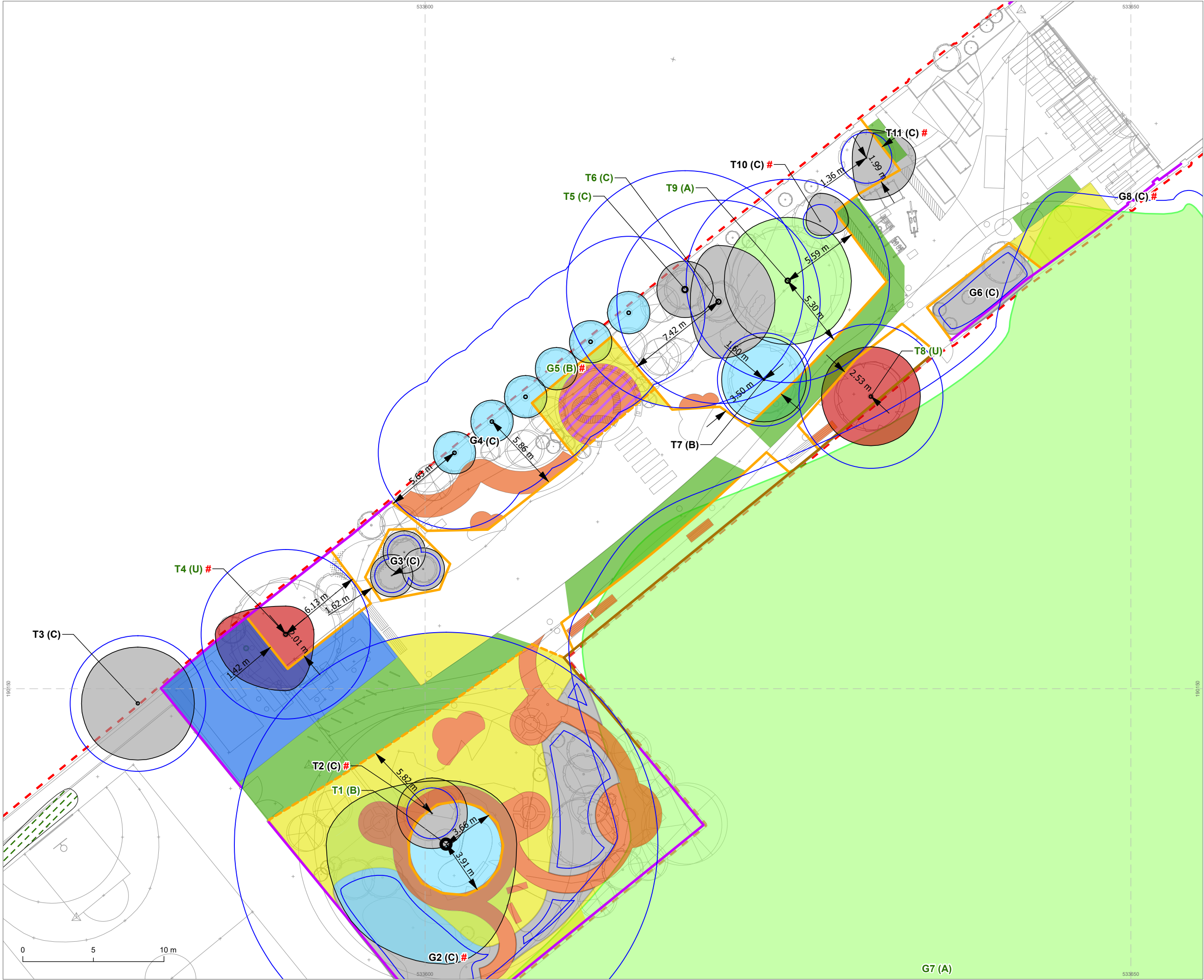
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C161900-03-01

Legend

Tree location and stem diameter

Category A

Category B

Category C

Category U

Root Protection Area

Current canopy extent

Self-set tree

Tree protection barrier (BS5837:2012)

Phase 1 section of fencing to be removed once hardscaping works are complete

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Area of temporary ground protection

RPAs covered by existing hardstanding

Survey extent

00

Tree subject to Tree Preservation Order (TPO)

#

Tree pruning works required

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Project

Bruce Grove Youth Centre,
London Borough of Haringey

Drawing

Tree Protection Plan - Page 2 of 4

Client

ADP Architecture

Drawing Number

C161900-03-01

Revision

00

Scale @ A3

1:250

Date

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Approved By

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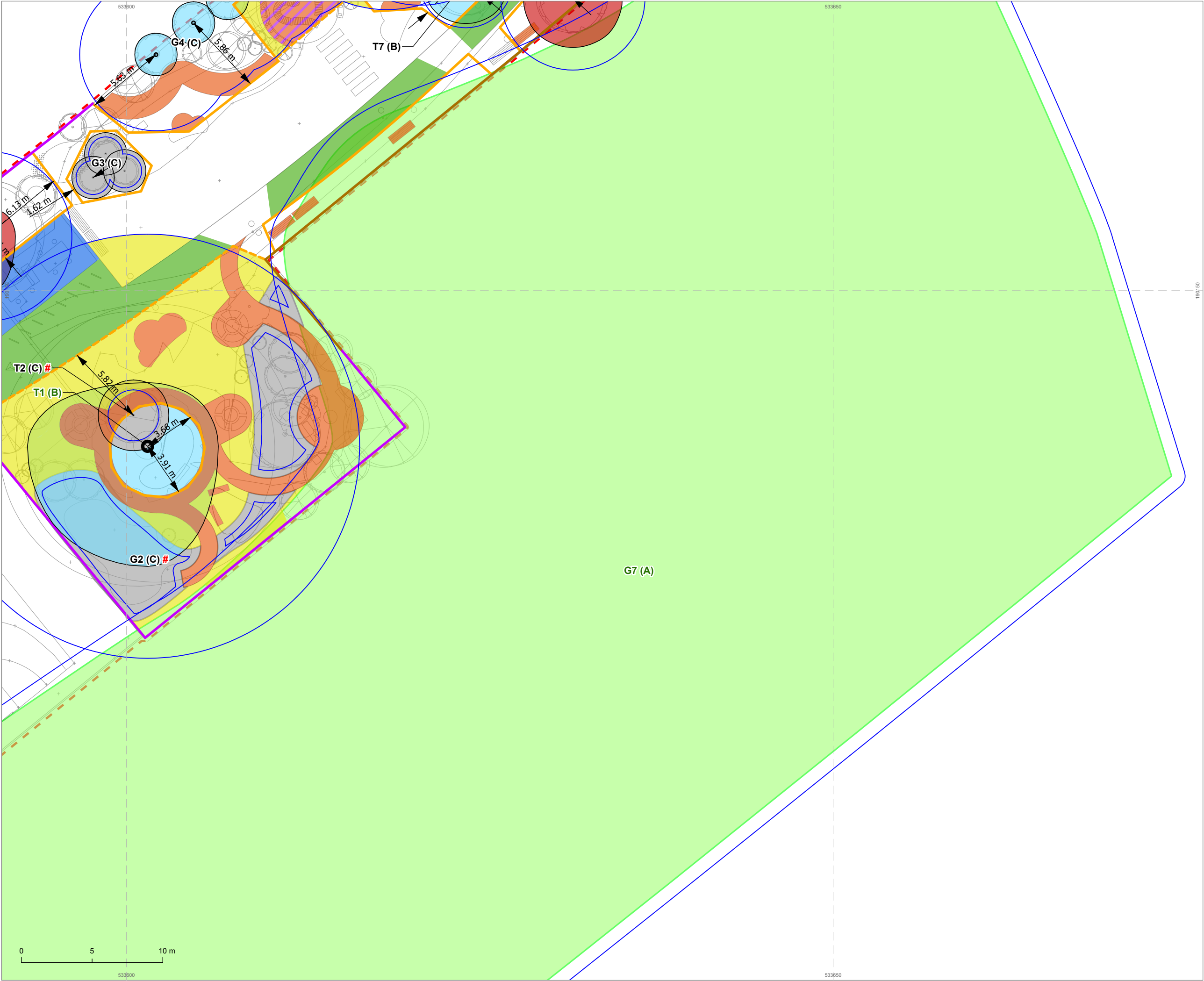
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C161900-03-01

Legend

Tree location and stem diameter

Category A

Category B

Category C

Category U

Root Protection Area

Current canopy extent

Self-set tree

Tree protection barrier (BS5837:2012)

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Area of temporary ground protection

RPAs covered by existing hardstanding

Survey extent

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Tree subject to Tree Preservation Order (TPO)

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Tree pruning works required

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Project

Bruce Grove Youth Centre,
London Borough of Haringey

Drawing

Tree Protection Plan - Page 3 of 4

Client

ADP Architecture

Drawing Number

C161900-03-01

Revision

00

Scale @ A3

1:250

Date

February 2024

Approved By

LW

Drawn By

AW

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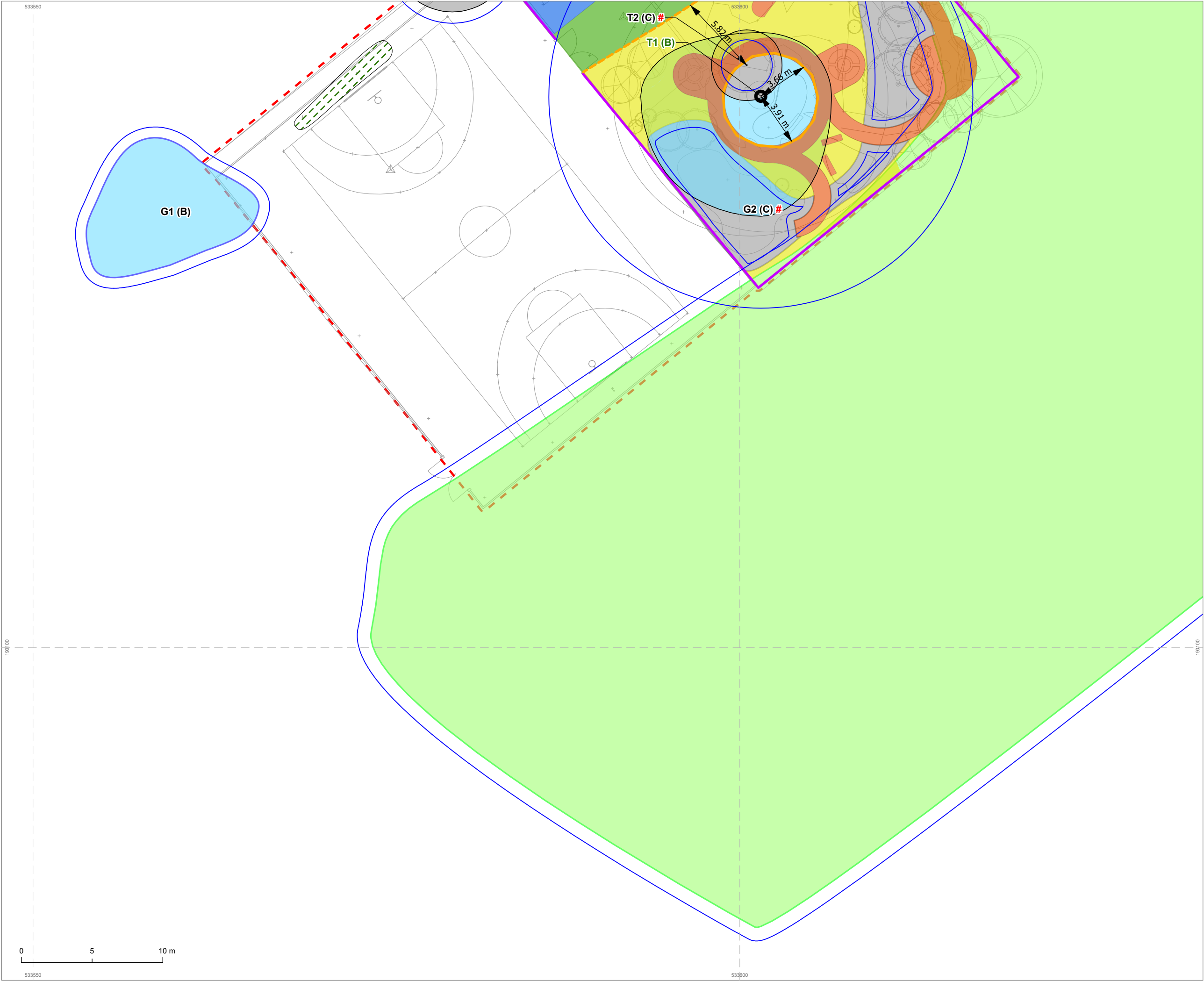
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C161900-03-01

Legend

●

Tree location and stem diameter

Category A

Category B

Category C

Category U

Root Protection Area

Current canopy extent

Self-set tree

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Area of temporary ground protection

RPAs covered by existing hardstanding

Survey extent

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Tree subject to Tree Preservation Order (TPO)

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Tree pruning works required

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Project

Bruce Grove Youth Centre,
London Borough of Haringey

Drawing

Tree Protection Plan - Page 4 of 4

Client

ADP Architecture

Drawing Number

C161900-03-01

Revision

00

Scale @ A3

1:250

Date

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Approved By

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Appendix A - Tree Schedule

Measurements	Age Class	Overall Condition	Root Protection Area (RPA)
Height - measured from ground level at base of stem/s (m).	YNG: Juvenile trees that have been recently planted.	G - Good: Trees with only a few minor defects and in good overall health needing little, if any attention.	• The RPA column gives the required area (m²). • The RPA Radius column gives the radius (m) of an equivalent circle. • The RPA is calculated using the formulae described in paragraph 4.6.1 of British Standard 5837: 2012 and is indicative of the required rooting area in order for a tree to be retained.
Stem Dia. - Diameter measured (mm) in accordance with Annex C of the BS5837.	SM: Semi-mature, trees upto 1/3 life expectancy.	F - Fair: Trees with minor, but rectifiable, defects or in the early stages of stress from which it may recover.	
Crown - crown spread estimated radially from the main stem (m).	EM: Early mature, trees 1/3 – 2/3 life expectancy.	P - Poor: Trees with major structural and/or physiological defects such that it is unlikely the tree will recover in the long term.	
Abbreviations Est - Estimated stem diameter Avg - Average stem diameter Max - Maximum stem diameter	M: Mature trees, upto 2/3 life expectancy.	D - Dead: Trees no longer alive. This could also apply to trees that are dying and unlikely to recover.	
	OM: Over mature, declining or moribund trees of low vigour.	In the assessment, of the BS category, particular consideration has been given to the following • The health, vigour and condition of each tree • The presence of any structural defects in each tree and its future life expectancy • The size and form of each tree and its suitability within the context of a proposed development • The location of each tree relative to existing site features e.g. its screening value or landscape features	
	V: Veteran, tree possessing certain attributes relating to veteran trees.	• Age class • Life expectancy	

Structural Condition

The following has been considered when inspecting structural condition:

- The presence of fungal fruiting bodies around the base of the tree or on the stem, as they could possibly indicate the presence of possible internal decay.
- Soil cracks and any heaving of the soil around the base.
- Any abrupt bends in branches and limbs resulting from past pruning.
- Tight or weak 'V' shaped forks and co-dominant stems.
- Hazard beam formations and other such biomechanical related defects (as described by Claus Mattheck, Body Language of Trees HMSO Research for Amenity Trees No. 4 1994).
- Cavities as a result of limb losses or past pruning.
- Broken branches or storm damage.
- Canker formations.
- Loose or flaking bark.
- Damage to roots.
- Basal, stem or branch / limb cavities.
- Crown die-back or abnormal foliage size and colour.
- Any changes to the timing of normal leaf flush and leaf fall patterns.

Quality Assessment of Retention Category

Category U - Trees 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.

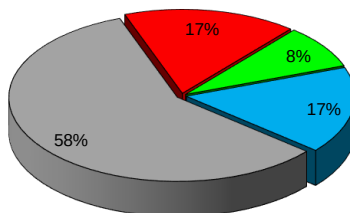
Category A - Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B - Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

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.

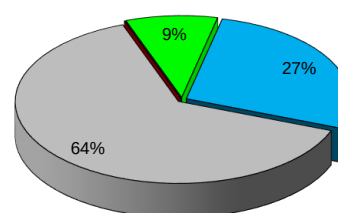
Sub-categories: (i) - Mainly arboricultural value
 (ii) - Mainly landscape value
 (iii) - Mainly cultural or conservation value

BS5837 category: Individuals



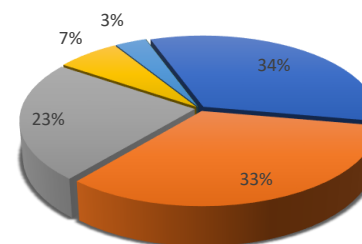
■ Category U ■ Category A
■ Category B ■ Category C

BS5837 category: Groups of trees



■ Category A ■ Category B ■ Category C

Age distribution of tree stock



■ Young ■ Semi Mature ■ Early Mature
■ Mature ■ Over Mature

Appendix A - Summary

	Individual Trees	Totals	Tree Groups	Totals
Category U	T4, T8	2		0
Category A	T9	1	G7	1
Category B	T1, T7	2	G1, G5, G10	3
Category C	T2, T3, T5, T6, T10, T11, T12	7	G2, G3, G4, G6, G8, G9, G11	7
	Total	12	Total	11

	Hedgerows	Totals	Woodlands	Totals
Category U		0		0
Category A		0		0
Category B		0		0
Category C	H1	1		0
	Total	1	Total	0

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
T1	Hybrid black poplar	15.0	4.0	1	1490	4.5	5.0	8.5	8.5	OM	F	G	707	15.0	B 1	Pruning wound through pollarding responding well No obvious defects observed
T2	Ash	4.5	0.5	6	130	2.5	2.5	2.5	2.5	SM	F	F	10	1.8	C 1	Branch socket cavity observed Conservation value Tree has been copparded at 1.0 Generally a poor specimen with limited contribution
T3	Ash	11.0	3.0	1	380	4.0	4.0	4.0	4.0	SM	F	F	72	4.8	C 1	Limited inspection due to access Tree is located off site but overhangs the study area Dense ivy on the stem Limited inspection due to ivy Minor deadwood in the crown
T4	Hybrid black poplar	10.0	2.0	6	490	2.0	2.0	4.0	5.0	EM	P	F	113	6.0	U	Apical dieback Branch socket cavity observed Branch stubs observed Exposed heartwood Hard surfaces within the rooting area Lateral dieback observed Major deadwood in the crown Minor deadwood in the crown Pruning wounds observed Tree is showing signs of decline Tree has been copparded at 1.0 Extensive decay present at this location, Tree offers a limited contribution
T5	Sycamore	15.0	5.0	1	690	2.0	2.0	2.0	2.0	EM	F	G	222	8.4	C 1	Pruning wound through pollarding responding well Branch stubs observed Exposed heartwood Branch socket cavity observed Squirrel damage in canopy
T6	Sycamore	14.5	2.5	1	580	4.0	4.0	4.0	2.0	EM	F	F	163	7.2	C 1	Branch socket cavity observed Branch stubs observed Pruning wound through pollarding responding well Squirrel damage observed in canopy

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
T7	Golden holly	11.0	3.0	1	260	3.0	3.0	3.0	3.0	SM	F	F	34	3.3	B 1	Scarring on main stem
T8	Holly	11.0	3.0	1	420	3.5	3.5	3.5	3.5	EM	P	F	81	5.1	U	Branch socket cavity observed Included unions observed Minor deadwood in the crown Tree has an historical wound on main stem, Tree is not going to fully recover and will always be a weak spot
T9	Yew	15.0	3.0	1	600	4.5	4.5	4.5	4.5	M	F	G	163	7.2	A 1	Branch stubs observed Epicormic growth on the main stem Exposed heartwood Typical crown form
T10	Apple	5.0	2.0	1	100	2.0	2.0	1.0	1.0	Y	F	G	5	1.2	C 1,3	No obvious defects observed
T11	Apple	6.0	2.0	1	150	2.0	3.5	3.0	1.0	Y	F	G	10	1.8	C 3	No obvious defects observed
T12	Elder	7.0	2.0	4	180 200 190 120	2.5	3.5	2.0	3.5	M	F	P	64	4.5	C 1,3	Apical dieback Branch stubs observed Building within the rooting area Exposed heartwood Hard surfaces within the rooting area Minor deadwood in the crown Tree is showing signs of decline

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
G1	Lawson cypress Tree of Heaven	13.0	3.0	-	480	5.0	5.0	5.0	5.0	SM EM	F	G	113	6.0	B 3	Group is located off site but overhangs the study area Limited inspection due to access No obvious defects observed Provides screening
G2	Apple Crack willow Elder Holly Hazel Ash Yew	5.0	0.0	-	80	1.5	1.5	1.5	1.5	Y SM	F	F	5	1.2	C 3	Dead and dying trees present Hard surfaces within the rooting area Included unions observed Self seeded trees present Wildlife conservation value
G3	Himalayan birch	7.5	2.0	-	100	1.5	1.5	1.5	1.5	Y	G	G	5	1.2	C 1,2	No obvious defects observed
G4	Elder Goat willow Ash Cherry laurel	6.0	8.0	-	80	1.5	1.5	1.5	1.5	Y SM	G,F	G,F	5	1.2	C 3	Group is sparse in areas Included unions observed Provides screening Self seeded trees present Wildlife conservation value
G5	European lime	10.0	3.0	-	440	1.5	1.5	1.5	1.5	EM	F	G	92	5.4	B 1,2,3	Pruning wounds through pollarding
G6	Elder Dogwood	4.0	0.0	-	50	1.0	1.0	1.0	1.0	Y	G	G	3	0.9	C 3	No obvious defects observed
G7	Ash Elder Goat willow Holly Privet Sycamore Yew	16.0	0.0	-	580	6.0	6.0	6.0	6.0	Y SM EM M	G,F	G,F	163	7.2	A 1,2,3	Group is located off site but overhangs the study area Limited inspection due to access Provides screening
G8	Field maple Budellea	5.0	0.0	-	80	1.5	1.5	1.5	1.5	Y	F	F	5	1.2	C 3	Building within the rooting area Conjoined canopy Hard surfaces within the rooting area Included unions observed

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
G9	Elder	5.0	0.0	-	100	2.0	2.0	2.0	2.0	Y SM	F	F	5	1.2	C 3	Group is located off site but overhangs the study area Limited inspection due to access
G10	Sycamore	14.0	0.0	-	480	5.0	5.0	5.0	5.0	SM EM	G,F	G,F	113	6.0	B 1,2,3	Group is located off site but overhangs the study area Limited inspection due to access
G11	Field maple	7.0	2.0	-	140	2.5	2.5	2.5	2.5	SM	F	F	10	1.8	C 1,2	Group is located off site but overhangs the study area Limited inspection due to access

Tree No	Species	Height (m)	Crown Clearance (m)	No. of Stems	Stem Dia. (mm)	Crown Radius				Age Class	Structure	Vigour	RPA (m)	RPA Radius (m)	Cat	Comments
						N	E	S	W							
H1	Privet	1.5	0.0	-	10	0.5	0.5	0.5	0.5	Y	G	G	3	0.9	C 3	Managed



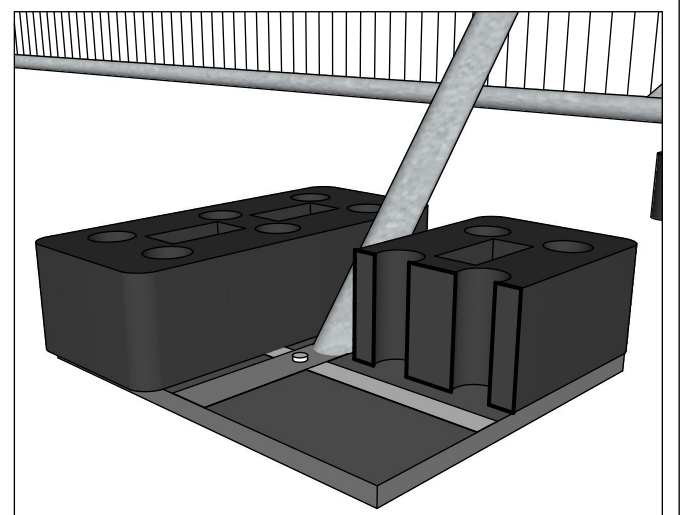
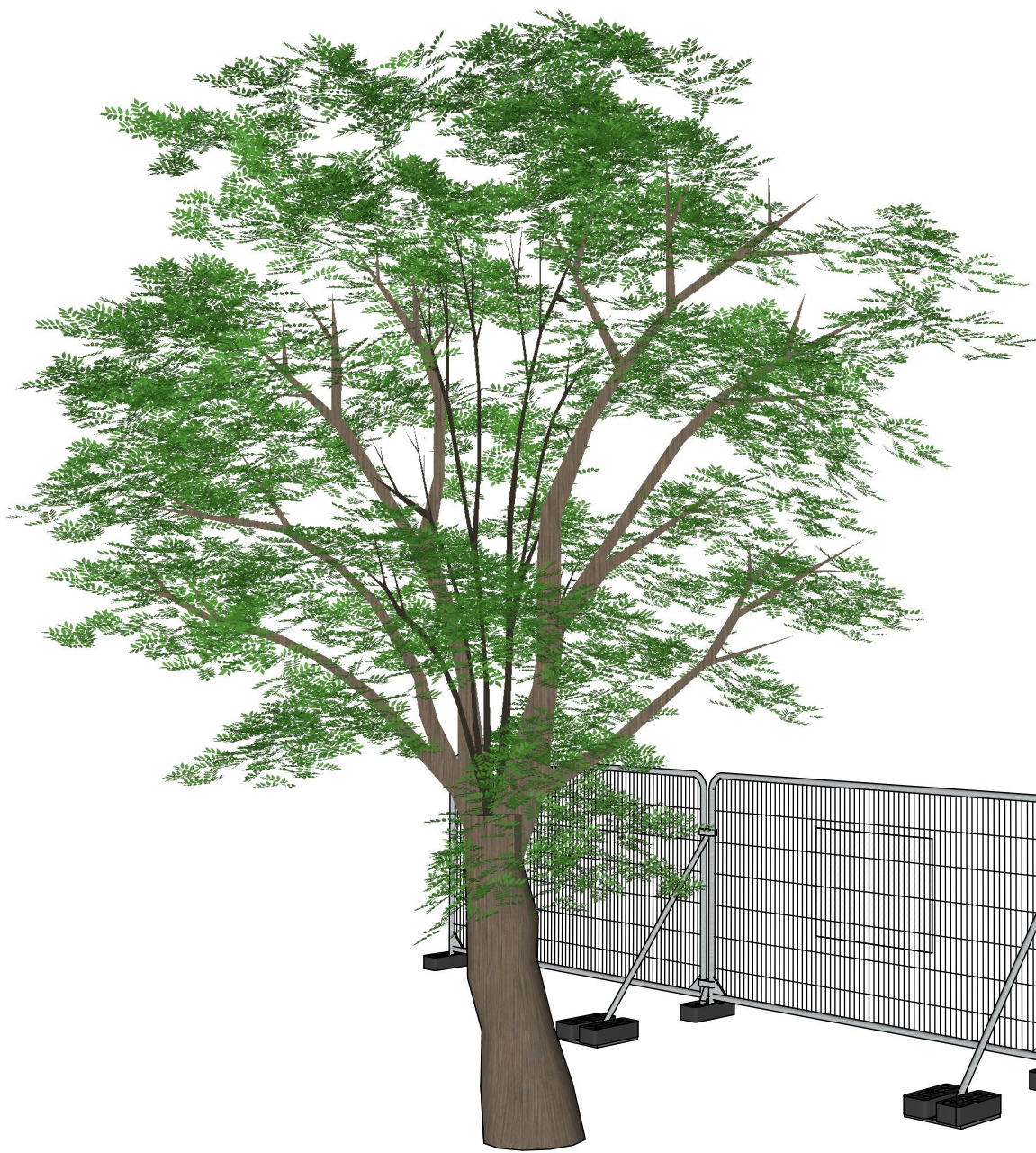
**PROTECTIVE FENCING. THIS
FENCING MUST BE
MAINTAINED IN ACCORDANCE
WITH THE APPROVED PLANS
AND DRAWINGS FOR THIS
DEVELOPMENT.**



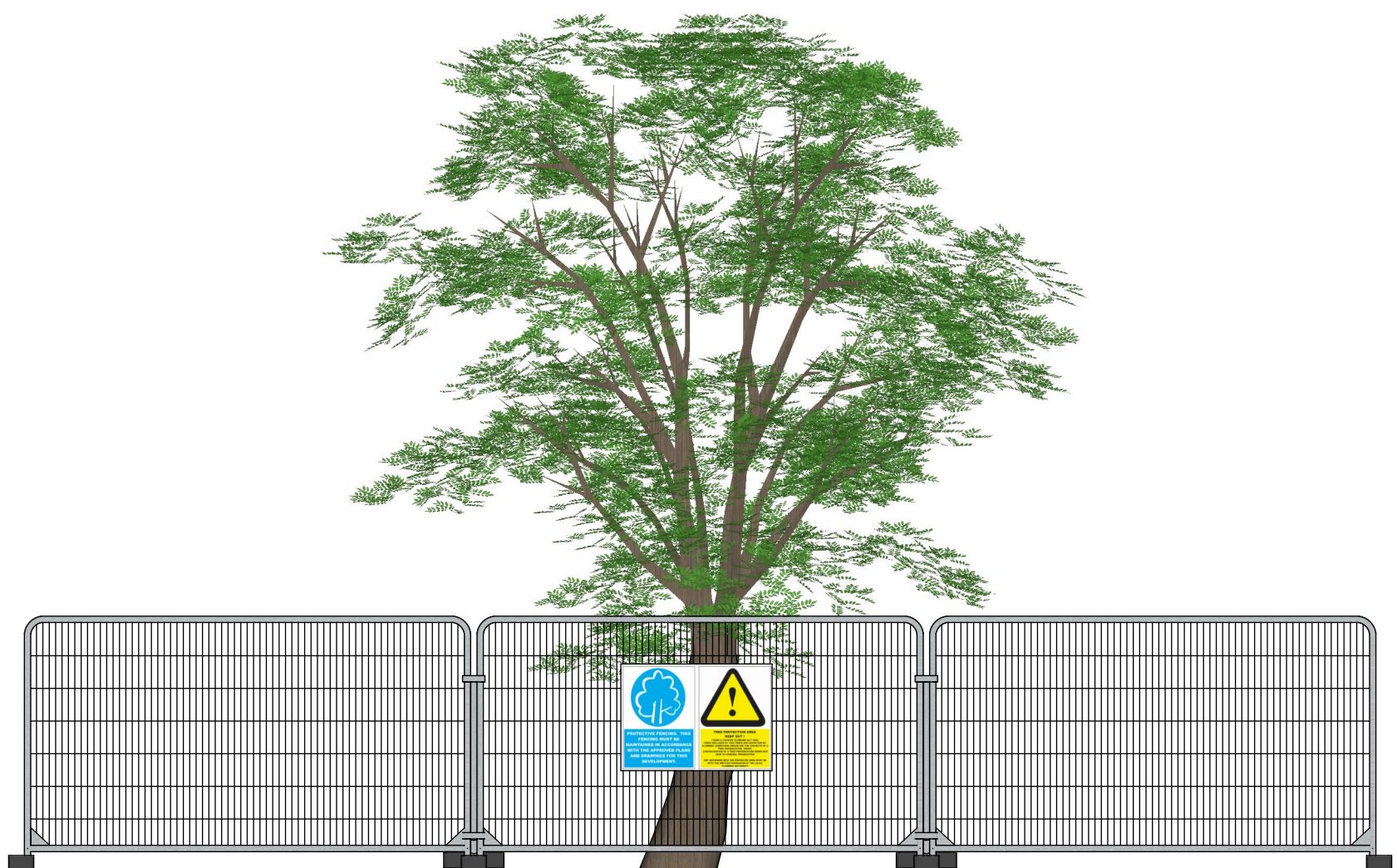
**TREE PROTECTION AREA
KEEP OUT !**

**(TOWN & COUNTRY PLANNING ACT 1990)
TREES ENCLOSED BY THIS FENCE ARE PROTECTED BY
PLANNING CONDITIONS AND/OR ARE THE SUBJECTS OF A
TREE PRESERVATION ORDER.
CONTRAVENTION OF A TREE PRESERVATION ORDER MAY
LEAD TO CRIMINAL PROSECUTION**

**ANY INCURSION INTO THE PROTECTED AREA MUST BE
WITH THE WRITTEN PERMISSION OF THE LOCAL
PLANNING AUTHORITY**



Block tray and block cross-section



Tree Protection Barrier in Accordance with BS 5837:2012 Figure 3b.

Tree protection barrier consists of 2 metre tall meshed panels that span up to 3 metres wide. The panels are supported with stabilizer struts mounted on block trays.



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Arboricultural Impact Assessment

Bruce Grove Youth Centre, 10 Bruce Grove, London Borough of Haringey

A Report To: adp architecture

Report Number: RT-MME-158887-02 Rev B

Date: February 2023



Report Verification

Report Version	Date	Completed by:	Checked and Approved by:
Final	21/12/2022	Dean Moore Dip Arb TechArborA Senior Arboricultural Consultant	Duncan Smith BSc (Hons) MArborA Arboricultural Manager
Revision A	01/02/2023	Stefan Harrison BSc (Hons) MArborA Arboricultural Consultant	Duncan Smith BSc (Hons) MArborA Arboricultural Manager
Revision B	28/02/2024	Luke Webb BSc (Hons) MArborA Arboricultural Consultant	Stefan Harrison BSc (Hons) MArborA Arboricultural Consultant

Declaration of Compliance

This study has been undertaken in accordance with British Standard 5837:2012 '*Trees in Relation to Design, Demolition and Construction – Recommendations*'.

Disclaimer

The contents of this report are the responsibility of Middlemarch. It should be noted that, whilst every effort is made to meet the client's brief, no site investigation can ensure complete assessment or prediction of the natural environment.

Middlemarch accepts no responsibility or liability for any use that is made of this document other than by the client for the purposes for which it was originally commissioned and prepared.

Validity of Data

The findings of this study are valid for a period of 12 months from the date of survey. If works have not commenced by this date, an updated site visit should be carried out by a suitably qualified and experienced arboriculturist to assess any changes to the trees, groups, and hedgerows on site and to inform a review of the conclusions and recommendations made.

It should be noted that trees are dynamic living organisms that are subject to natural changes as they age or are influenced by changes in their environment. As such, following any significant meteorological event or changes in the growing environment of the trees they should be re-assessed by a suitably qualified and experienced arboriculturist.

This Arboricultural Impact Assessment has been produced following a review of a proposed development layout for the site based on data provided by the client. Should the development proposals change, this report will need to be updated to assess the impact of the amended development.

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1. Introduction

1.1 Project Background

This Arboricultural Impact Assessment was commissioned by adp architecture to accompany a planning application for development at Bruce Grove Youth Centre. A survey of the trees on site and within influencing distance of the boundaries was undertaken on the 2nd December 2022 as part of a Preliminary Arboricultural Assessment to aid design and avoid unnecessary tree removal.

This Arboricultural Impact Assessment has been carried out in accordance with British Standard 5837:2012 '*Trees in Relation to Design, Demolition and Construction - Recommendations*'⁹ (hereafter referred to as BS5837).

The purpose of this report is to:

- Review the relationship between the proposed development and the existing trees and hedgerows identified during the Preliminary Arboricultural Assessment.
- Provide a Tree Retention Plan to determine trees and hedgerows to be retained and removed in the context of the proposed development.
- Identify mitigation to offset any tree or hedgerow loss as part of the development proposals.
- Identify all areas where specific working methods are required to ensure protection of retained trees and hedgerows as part of an Arboricultural Method Statement.

1.2 Site Description, Drawings and Appendices

Attribute	Description
National Grid Reference	TQ 33641 90168
Topography	Generally flat with slight decline to the main entrance.
Tree Cover	High, medium and low-quality individual trees and groups of trees located within and outside of the survey area.
Drawings attached	Tree Survey Plan – C158887-01-01-RevA Tree Retention Plan – C161900-01-01
Appendices	Appendix A – Tree Schedule

Table 1.1: Summary of Site and Surroundings

⁹ British Standards Institution. (2012). *British Standard 5837:2012, Trees in relation to design, demolition, and construction – Recommendations*. British Standards Institution, London.

1.3 Development Proposals

The proposed development of the site includes the relandscaping of the garden using both soft and hard materials to produce a multi-use outdoor space combining a memorial garden, outdoor gymnasium area, grow zone, outdoor workbench and bike workshop area as well as a foraging trail and fire pit.

1.4 Documentation Provided

This assessment is based upon the information provided by the client in addition to information collected by Middlemarch during the Preliminary Arboricultural Assessment, as detailed below.

Author	Document	Drawing Number	Date
adp architecture	Soft Landscape Plan	ADP-00-00-DR-L-1903 REV S4 P3	01.06.2023
adp architecture	Proposed Site Plan	ADP-00-00-DR-L-1900 REV S0 P8	15.12.2023
KJ Tait	Electrical Services Site Plan External	KJT-ZZ-00-DR-E-6001 REV S4 P01	13.10.2023

Table 1.2: Documentation Provided

2. Survey Methodology

2.1 Survey Scope

To determine the status of the trees within the site, a full arboricultural survey has been undertaken, assessing the species and status of all trees present. This survey has been carried out in accordance with BS5837.

All individual trees with a stem diameter greater than 75 mm are shown on the Tree Survey Plan and have been assigned a unique reference number. Trees were visually assessed and a schedule prepared listing:

- Tree number
- Species
- Tree height
- Minimum crown clearance
- Stem diameter
- Crown spread
- Age class
- Vigour
- Structural condition

Measurements for tree height, minimum crown clearance and crown spread were taken to an accuracy of 0.5 m. Stem diameter measurements were recorded to the nearest 10 mm. Any specific observations were also noted. All observations and measurements are included in Appendix A Tree Schedule.

Trees were assessed and assigned one of the following categories:

Category U:

Trees 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.

Category A:

Trees of high quality with an estimated remaining life expectancy of at least 40 years.

Category B:

Trees of moderate quality with an estimated remaining life expectancy of at least 20 years.

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 150 mm.

Categories A, B and C have further sub-categories with regards to the reasons for tree retention:

- Mainly arboricultural qualities.
- Mainly landscape qualities.
- Mainly cultural values, including conservation.

N.B. Certain trees considered unsuitable to retain in their current context (Retention Category U) may possess existing or potential conservation value which make them desirable to preserve in the context of wildlife habitat (e.g. areas with limited public access).

2.2 Root Protection Area (RPA)

To avoid damage to the roots or rooting environment of retained trees, the RPA has been calculated for each of the Category A, B and C trees in accordance with section 4.6 of BS5837. BS5837 recommends this as the minimum area around a tree that contains sufficient roots and rooting volume to maintain viable tree vigour and structure. Where groups of trees have been assessed, the Root Protection Area has been shown based on the maximum sized tree stem in each group and so may exceed the Root Protection Area required for some of the individual specimens within the group. Further detailed inspection of the individual trees forming a group may be required where development impacts upon individual trees forming the combined group.

Protection of the roots and soil structure within the RPA should be treated as a priority. These figures have been calculated utilising the formulas within Section 4.6 and Annex D of BS5837.

2.3 Tree Schedule

Appendix A details the individual trees, groups, hedgerows, and woodlands (where present) and includes the relevant information for each at the time of inspection. General observations of any structural and physiological condition and the presence of any decay or physical defects have also been included.

2.4 Assessment Limitations

This survey has been undertaken in accordance with BS5837 and trees with a stem diameter of less than 75mm and the specific location of species within a hedgerow have not been identified in accordance with the guidance. It may therefore be necessary during detailed design to undertake further assessment and accurate positioning of juvenile trees or woody species within hedgerows and tree groups to assist structural calculations for foundation design of structures in accordance with current building regulations and NHBC Chapter 4.2 *Building near Trees*¹⁰.

For the purposes of this assessment, a hedgerow is described as a line of trees or shrubs with canopies less than 5m wide which is regularly managed through pruning. Where trees are present within a hedgerow that are significantly different in character from the remainder, these have been identified and recorded separately. A tree survey in accordance with BS5837 does not assess hedgerows against the Hedgerow Regulations 1997¹¹ or from an ecological perspective.

The exact position of individual trees or species included as part of a tree group, hedgerow or woodland should be checked and verified on site prior to any decisions for foundation design, tree operations or construction activity being undertaken.

¹⁰ National House Building Council. (2022). *NHBC Standards 2022: Chapter 4.2 - Building Near Trees*. NHBC, Milton Keynes.

¹¹ Department of the Environment, Transport, and the Regions: London. (1997). *The Hedgerows Regulations 1997: A Guide to the Law and Good Practice*.

2.5 Conditions of Tree Survey

The survey was completed by a suitably qualified and experienced Arboriculturist from ground level and from within the boundary of the site. Aerial tree inspections or the internal condition of the stem/s or branches was not undertaken at this stage. Evaluation of tree condition given within this assessment applies to the date of survey and cannot be assumed to remain unchanged. It may be necessary to review these within 12 months, in accordance with sound arboricultural practice.

All survey data is based on a topographical survey where possible, supplied by the client. Where topographical information has not identified tree positions or Ordnance Survey mapping has been utilised, trees and hedgerows have been positioned using GPS and aerial photography to provide approximate locations in relation to existing surrounding features. Further confirmation of tree and hedgerow locations through a topographical survey of the site is recommended to ensure future design accuracy.

2.6 Tree Survey Plan

The Tree Survey Plan identifies the existing trees including above and below ground constraints which should be considered during the design process.

2.7 Tree Retention Plan

The Tree Retention Plan identifies which trees and hedgerows are to be retained and incorporated as part of the site development and which are to be removed.

3. Statutory Protection

3.1 Tree Preservation Order and Conservation Area Protection

A desk-based study was undertaken to identify if any of the trees present within or near the site are affected by statutory constraints as detailed below.

Statutory Constraint	Present		Source	Details
	✓	✗		
TPO	✓		London Borough of Haringey	Trees onsite are affected by TPO legislation by the following orders: TPO 2014/1516 - Poplar TPO 2014/1518 - Lime TPO 2014/1520 - Sycamore TPO 2014/1521 - Yew TPO 2014/1521 - Holly Refer to Tree Survey Plan for locations
Conservation Area	✓		London Borough of Haringey website	The entire site is located within the THRC/ Bruce Grove Conservation Area
Ancient Woodland		✗	Multi Agency Geographical Information for the Countryside (MAGIC)	N/A

Table 3.1: Summary of Statutory Constraints that Affect the Site

Where a tree preservation order, conservation area or ancient woodland applies to trees within the assessment area, statutory constraints will apply to the development in respect of trees.

No works must be undertaken on the protected trees without prior permission from the Local Authority unless authorised as part of an approved planning application. Works include pruning, topping, lopping, uprooting or wilful damage or wilful destruction of these trees. Any proposed pruning works not currently approved will need to be fully specified and agreed within a future planning application.

3.2 Protected Species

Bats

Mature trees often contain cavities, hollows, peeling bark or woodpecker holes which provide potential roosting locations for bats. Bats and the places they use for shelter or protection (i.e. roosts) receive European protection under The Conservation of Habitats and Species

Regulations 2017 (Habitats Regulations 2017)¹². They receive further legal protection under the Wildlife and Countryside Act (WCA) 1981¹³, as amended. Consequently, causing damage to a bat roost constitutes an offence.

Generally, should the presence of a bat roost be suspected whilst completing works on any trees on site then an appropriately licensed bat worker should be consulted for advice.

Birds

Trees offer potential habitat for nesting birds which are protected under the Wildlife and Countryside Act WCA 1981 (as amended). Some species (listed in Schedule 1 of the WCA) are protected by special penalties. This legislation makes it an offence to intentionally or recklessly damage or destroy an active bird nest or part thereof.

As the trees on, and adjacent, to the site provide potential habitat for nesting birds all tree work should ideally be completed outside the nesting bird season (Generally March to September).

If this is not possible then the vegetation should be subject to a nesting bird inspection by a suitably experienced ecologist prior to commencement of works. If any active nests are identified then the vegetation, and a defined buffer zone, will need to remain in place until the young have naturally fledged.

¹² HM Government – The National Archives (2017) [online] *The Conservation of Habitats and Species Regulations 2017*. Available at: <https://www.legislation.gov.uk/uksi/2017/1012/contents/made>

¹³ HM Government – The National Archives 2017. *Wildlife and Countryside Act 1981*. [online] Available at: <http://www.legislation.gov.uk/ukpga/1981/69/contents>

4. Results Summary

4.1 Preliminary Arboricultural Assessment

The assessment identified twelve individual trees, eleven groups of trees and one hedgerow as detailed in Appendix A Tree Schedule and Table 4.1 below.

BS5837:2012 Category	Tree/ Group/ Hedgerow Reference
U	T4, T8.
A	T9, G7.
B	T1, T7, G1, G5, G10.
C	T2, T3, T5, T6, T10, T11, T12, G2, G3, G4, G6, G8, G9, G11, H1.

Table 4.1: Summary of Trees, Groups and Hedgerows in BS5837:2012 Categories

The survey area included the curtilage of Bruce Grove Youth Space. A youth centre that promotes health lifestyles and activities, which also promotes inclusion of young people with SEND. To the rear of the main building was an area of soft landscaping which was being used as a fruit and vegetable growing area, a nature trail and a Multi-Use Games Area (MUGA) which abuts a children's nursery.

Generally, the tree stock was in a fair to good condition, with many of the trees being regularly maintained. The trees present were typical tree species found in and around the Tottenham area. Only one tree (T9) and one group (G7) were considered high retention value and offered lasting landscape value to both the site and neighbouring properties.

Category U

Two trees were considered unsuitable to retain during the assessment. T4 was a hybrid black poplar, that had been copparded at 1.0 m above ground level. The regrowth displayed good extension growth however the historic wound of the coppard exhibited extensive decay and was no longer structurally sound. T8 was an early mature holly tree that initially seemed in good health and had no obvious structural defects, however, during the assessment, it was confirmed that this tree was structurally poor and is unlikely to recover sufficiently to allow the trees retention. Historically, T8 grew over a wall or fence and where these had made contact with the stem the bark had been lost and decay was present limiting the trees future potential contribution to the site.

Category A

One tree and one group of trees were assessed as high-quality and offered an estimated remaining life beyond 40 years. T9 was a mature English yew that was generally defect free, which exhibited a typical form of a yew that age. During the assessment damage was observed on the main stem which is occluding through the development of reactive wood. The wound did not appear to have affected the trees structural stability or integrity, however, further investigation through either Resistograph or sonic tomography is recommended to determine the true extent of damage to confirm the trees long term viability.

G7 was an offsite tree group which abutted the southern boundary, though this group was located off site the canopy overhung the boundary and its roots were within influencing distance. It was not possible to undertake a detailed inspection of this group due to its position, however,

G7 offered conservation value to the local wildlife and if possible, trees should be planted nearby to enhance this green feature and extend the existing green network.

Category B

Two trees and three groups of trees have been assessed as moderate value specimens and therefore considered as Retention Category B.

T1 was an overmature hybrid black poplar that stood approximately 15.0 m in height and had recently undergone pollarding from which the tree displayed a strong response. No obvious defects were observed on T1 which was otherwise characteristic of its age and type of management used. This tree was an impressive specimen and was noteworthy due to its size.

T7 was a semi mature golden holly that was considered fair in both structural and vigour. Other than scarring on the main stem, T7 presented no obvious defects and was generally considered to be a good specimen.

Category C

The remaining trees and hedgerow were considered low-quality specimens and deemed as unremarkable, offering limited contribution to the site. During the assessment trees T10 and T11 and groups G2, G3, G4, G6, G8, G9 and G11 did not have a stem diameter that exceeded 150 mm, however, over time, these trees and groups of trees may offer a higher, moderate value as they mature. At time of the assessment these specimens were too juvenile to qualify for a higher retention.

T5 and T6 were both early mature sycamore trees that has recently undergone pollarding, from which both trees were responding well. Both trees exhibited squirrel damage on their branches and had exposed heartwood and generally, these trees were in fair to poor condition and considered as poor specimens. The current management regime has reduced the potential for branch failure and major tear out of limbs which had been damaged through squirrel damage.

5. Arboricultural Impact Assessment

5.1 Introduction

This section of the report details the potential impacts that the proposed development may have upon the site's tree stock. The assessment has been based upon the documents detailed in Table 1.1 with reference to the results of the Preliminary Arboricultural Assessment.

5.2 Tree Retention and Removal

The trees to be removed are detailed below and are identified on the Tree Retention Plan. All trees, groups and hedgerows not featured within the table below, are to be retained within the proposed development.

Tree/ Tree Group / Hedgerow Reference	Species	Retention Category	Reason for Removal
G8	Field maple, buddleia	C	Within footprint of proposed pergola
H1	Privet	C	Within footprint of proposed bike workshop area and decking
G2*	Mixed species	C	Within footprint of proposed foraging trial woodchip pathway
Key *: Partial removal of trees within group or hedgerow			

Table 5.1: Tree Removal

The proposed development will ensure the retention and incorporation of the vast majority of trees across the site alongside new tree planting as part of the wider landscape strategy. However, the proposed development will require the removal of one small group of trees, one section of hedgerow and the partial removal of stems within an additional group of trees.

Two trees (T4, T8) were considered to be unsuitable for retention (Retention Category U) during the Preliminary Arboricultural Assessment meaning they are expected to contribute to the site for less than 10 years due to their poor condition. Therefore, it is recommended that the removal of these trees should be considered, irrespective of the proposed development.

It should be noted that the retention of any Category U trees as part of the proposed development could pose a health and safety risk to site users and as such they should be thoroughly inspected as part of a Tree Safety Assessment

All trees that are to be removed or partially removed were considered to be of a low value (Retention Category C) during the Preliminary Arboricultural Assessment. The proposed removal of these trees should be considered acceptable as new tree planting of higher quality trees more suited to the new development will make a lasting contribution to the visual amenity value and canopy coverage of the site.

5.3 Works within Root Protection Areas (RPA)

Some aspects of the proposed development will require works within the RPAs of retained trees as detailed below.

Tree/ Tree Group/ Hedgerow Reference	Species	Retention Category	Proposed Works
T1	Hybrid black poplar	B	Foraging trail, woodchip pathway, soft landscaping, planting and replacement timber fence line
T2	Ash	C	Woodchip pathway
T3	Ash	C	New decking area and bike workshop
T4	Hybrid black poplar	U	New decking area and bike workshop
T5	Sycamore	C	Memorial garden and planting
T7	Golden holly	B	Resurfaced resin pathway
T8	Holly	U	Resurfaced resin pathway
T9	Yew	A	Resurfaced resin pathway and planting
T11	Apple	C	Resurfaced resin pathway
G2	Mixed species	C	Woodchip pathway and planting
G5	European lime	B	Memorial garden and planting
G8	Field maple, Buddleia	A	Resurfaced resin pathway and replacement timber fence line

Table 5.2: Works in RPAs

It should be noted that the RPAs affected by works to construct the new resin bound footpath are already hard-surfaced and root development from the surrounding trees in the affected areas may have been restricted. The potential for significant impact upon the trees as a result of the proposed works is therefore unlikely, however, further investigation through the use of trail pits or root radar may be required to inform decision-making.

New footpaths and other hard surfacing are proposed within the RPAs of several retained trees. All new hard surfacing within the RPAs of retained trees should be constructed according to a no-dig methodology in order to minimise the likelihood of the trees being negatively impacted. Where new hard surfaces are proposed within areas of RPAs which are already hard surfaced, these can be installed without the need for a no-dig methodology subject to the retention of the existing subbase.

All works within the RPAs or beneath the canopies of retained trees should be detailed as part of an Arboricultural Method Statement to ensure the method of construction is suitably considered.

5.4 Trees and Foundations

Any structures built on the site should comply with current building regulations and NHBC Chapter 4.2 - *Building near Trees* (2022)¹⁴. Foundation depths for buildings near or adjacent to trees should consider the potential size of the trees at maturity and their subsequent water demand. The soil types throughout the site should be fully investigated and appropriate measures taken. If trees are removed across the site, the potential for soil heave should be assessed and foundations designed accordingly.

This survey has been undertaken in accordance with BS5837 and further assessment in accordance with current building regulations will be required to inform foundation design.

5.5 Tree Pruning

Pruning of mature trees should only be undertaken where essential, to prevent open wounds that allow the ingress of decay and provide opportunity for fungal spores to infect the tree. Pruning works should ideally be undertaken during the winter months when the tree is dormant or during the summer months when the tree is fully active. Autumn pruning (when fungal spores are abundant in the surrounding atmosphere) should be avoided if possible. Juvenile trees should be formatively pruned in their early years to reduce the presence of potential defects into maturity that would reduce their lifespan.

All tree pruning works should be detailed as part of an Arboricultural Method Statement and completed in accordance with the current best practice guidance set out within BS3998:2010 *“Tree Work – Recommendations”*¹⁵ by suitably competent, qualified, and insured arboricultural contractors. The extent of pruning should be identified to contractors in a pre-commencement site meeting as part of enabling works.

5.6 Shading

The shade from trees can be considered both a constraint and opportunity and therefore its effect upon the new development should be fully considered to ensure a harmonious and sustainable relationship can be achieved.

5.7 New Tree Planting

As part of the development proposals, an adequate quantity of tree planting has been demonstrated on the Landscape General Arrangement plan (Drawing Reference: ADP-00-00-DR-L-1902 REV S0 P3). The purpose and function of the new tree planting should be carefully considered so that key objectives from a wildlife habitat and landscape perspective can also be achieved.

¹⁴ National House Building Council. (2022). *NHBC Standards 2022: Chapter 4.2 - Building Near Trees*. NHBC, Milton Keynes.

¹⁵ British Standards Institution. (2010). *British Standard 3998:2010, Tree Work – Recommendations*. British Standards Institution, London.

6. Conclusion

6.1 Summary of Impacts

The proposed development of the site is unlikely to significantly impact the visual amenity of the local area as there will only be minor removals of low quality trees that are not visible from outside of the site.

Whilst some works are to be undertaken within the RPAs of retained trees, the nature of those works are such that they can be completed without causing significant impact, subject to the adoption of appropriate working practices as detailed in a future Arboricultural Method Statement following approval of the current planning application.

7. Arboricultural Method Statement

7.1 Introduction

An Arboricultural Method Statement will be required for the site as various aspects of the proposed development affect retained trees. The purpose of an Arboricultural Method Statement is to ensure that all site operations occur with minimal risk of adverse impact upon trees that are to be retained.

In relation to this development the Arboricultural Method Statement should address the following:

Action	Required
Tree Surgery	✓
Site set up and logistics	✓
Building demolition and removal of hard surfaces within RPAs	✗
Working space to construct new structures within RPAs	✓
Installation of utilities within RPAs	✗
Site access, material storage contractor's parking and site compound location	✓
Protective barrier and ground protection location and specification	✓
Pre-commencement site meeting	✓
Arboricultural Clerk of Works supervision	✓
Audit timetable	✓