APPENDIX 8.3: ARBORICULTURAL IMPACT ASSESSMENT

Ham Close Regeneration

Planning Application:

Arboricultural Impact Assessment and Method Statement

Author: Greengage

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Client: Hill Residential

Project: Ham Close Estate

Report: Arboricultural Impact Assessment and Method Statement

QUALITY ASSURANCE

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1.0 EXECUTIVE SUMMARY

Greengage Environmental Ltd was commissioned by Hill Residential to undertake a Tree Survey and prepare an Arboricultural Impact Assessment and Arboricultural Method Statement at a site known as Ham Close Estate within the London Borough of Richmond upon Thames., to the BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations[1] methodology.

This document presents the findings of the tree survey and has been produced to support a planning submission for the site which seeks the demolition of existing buildings on-site and phased mixed-use development comprising 452 residential homes (Class C3) up to six storeys; a Community/Leisure Facility (Class F2) of up to 3 storeys in height, a "Maker Labs" (sui generis) of up to 2 storeys together with basement car parking and site wide landscaping.

The purpose of this survey is to provide an assessment of the arboricultural value of the trees based on their current quality and to provide recommendations, to help inform site layout considerations.

A visit was made to the site on 20th September 2021 to survey trees, hedges and vegetation following guidance in BS5837. The crowns and stems were inspected from the ground using the 'Visual Tree Assessment' (VTA) method; no invasive techniques were used at this stage.

The Tree Schedule (Appendix B) contains details of all surveyed trees falling within the scope of this report, with a summary of the BS5837 tree categories given in Table 1.1.

Table 1.1 Category mix

Category	Individual Trees	Tree Group/Hedge	Total
A	4	0	4
B	38	0	38
C	21	0	21
U	5	0	5
Total	68	0	68*

**Whilst there are a total of 87 trees within the red line boundary of the Site, the pre-application consultation comments from the LBRuT suggested that a number of them should be discounted from the impact assessment, given they are unlikely to be impacted by the development proposals or construction. This leaves a total of 68 trees detailed and assessed in this report. Furthermore, whilst the locations of these trees are indicated on the Tree Constraints Plans and Tree Protection Plan, they have been greyed out to make clear this distinction.*

An assessment of the potential below and above ground impacts of the proposed development and recommendations to help avoid, minimise or compensate for these impacts is outlined within this report.

Of the 68 trees within and along the boundary of the site development area, the proposed development requires the removal of 1 Category A, 25 Category B, 11 Category C and 5 Category U trees. All other surveyed trees are proposed for retention within the context and layout of this development.

In recognising the need to mitigate the identified tree removals as a result of the proposed development, the landscaping and planting plans will deliver a planting strategy that includes a mix of species, accompanied by a landscape management plan to ensure all new planting is successfully established.

In order to provide an arboricultural valuation of the Site trees, for those retained, those removed, as well as those provided within the Landscaping Plan, a full CAVAT assessment (Capital Asset Value for Amenity Trees), has also been undertaken in line with the technical guidance as provided by the London Tree Officers Associated (LTOA).

2.0 INTRODUCTION

2.1 OVERVIEW

Greengage was commissioned by Hill Residential to undertake a BS5837 tree survey and prepare an Arboricultural Impact Assessment (AIA) and Arboricultural Method Statement (AMS) report for a site known as the Ham Close Estate within the London Borough of Richmond upon Thames.

This document has been produced to support a planning application for which seeks the demolition of existing buildings on-site and phased mixed-use development comprising 452 residential homes (Class C3) up to six storeys; a Community/Leisure Facility (Class F2) of up to 3 storeys in height, a "Maker Labs" (sui generis) of up to 2 storeys together with basement car parking and site wide landscaping.

A site visit was made by Greengage on 20th September 2021 to survey all trees within and adjacent to the site following the approach set out in BS5837.

As required by the British Standard, an Arboricultural Impact Assessment has been undertaken to evaluate the constraints to the development from the existing trees both on and adjacent to the site using information gained from the BS5837 Tree Survey.

The methodology followed to complete the survey and prepare this report is provided in Appendix A. Full details of the surveyed trees can be found in the Tree Schedule (Appendix B). The Tree Constraints Plan (Appendix C) presents the locations, crown spreads, root protection areas (RPAs) and BS5837 Categories of the surveyed trees against proposed layout.

2.2 SITE DESCRIPTION

The assessment site covers an area of approximately 4.69 hectares (ha) and is centred on National Grid Reference TQ 0030585, OS Co-ordinates 550309, 158566.

The site comprises existing residential buildings arranged in five storey blocks, four storey deck access flats and three storey 'T' shaped blocks. The public realm consists of large areas of surface parking and amenity grassland with scattered trees. The Youth Centre and associated car park occupies a central location on the site. Ham Village Green sits at the eastern edge of the site.

The site is bound by Woodville Road to the north, Wiggins Lane and Ham Street to the east, Ham Clinic and Ashburnham Road to the south and St Richard's C of E Primary School playing fields and the children's garden pre-school to the west.

3.0 TREE SURVEY METHODOLOGY

3.1 DESK REVIEW

Tree Legal Protection

Trees within London Borough of Richmond upon Thames may be protected under the Town & Country Planning Act[2] by a Tree Preservation Order (TPO) or by virtue of being within a Conservation Area.

A TPO makes it an offence to wilfully damage or destroy a protected tree and written permission from the LBRuT must be obtained prior to undertaking any works to the tree. Similarly, if any stem on any tree in a Conservation Area is larger than 75mm diameter when measured at 1.5 metres above ground level it is automatically protected and required by law to notify the LBRuT of any proposed works.

To determine whether any of the trees are protected by TPOs a search of the readily available data on London Borough of Richmond upon Thames Council's website was undertaken.

Additionally, the interactive map was reviewed to identify any local Conservation Areas that would add additional protection to the trees.

Geological Conditions

A review of the readily available Geology of Britain interactive map by the British Geological Society[3] was undertaken to identify the bedrock geology and superficial deposits at the site.

Site Visit

A site survey was undertaken on 20th September 2021 to survey trees, hedges and vegetation following guidance in the British Standard.

The crowns and stems were inspected from the ground using the 'Visual Tree Assessment (VTA)' method; no invasive techniques were used at this stage.

The survey followed the methodology outlined in BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations.

The site visit was undertaken in overcast/mild weather conditions with trees in the winter bud stage. Full details on the methodology can be found at Appendix A.

Limitations

This report includes information on only the trees that were inspected and the condition they were observed in at the time of survey. The condition of trees can change, and as such any findings from this report should be held valid to inform for purposes of development for no longer than 12 months from the survey date. No guarantee can be given for the structural integrity of any trees on site as a full hazard assessment has not been made.

There were no significant constraints to the assessment; all areas of the site were fully accessible to survey. The survey was completed at a suitable time of year for species identification and condition assessment.

4.0 RESULTS OF SURVEY

4.1 DESK REVIEW

Tree Legal Protection

The London Borough of Richmond upon Thames does not contain any details regarding the locations of protected trees on its website and instead they request they are written to for confirmation.

From this consultation, it was confirmed that none of the Site trees are designated with Tree Preservation Orders (TPO), nor does the site fall within a Conservation Area that would have otherwise allowed those same protections as prescribed for TPO trees. It is though noted that the Ham House Conservation Area directly abuts the site boundary to the east (Appendix L).

Geological Conditions

The BGS interactive map indicates the underlying geology to be London Clay formation - clay and silt, with superficial deposits of Kempton Park Gravel Member - sand and gravel.

It is recommended that a geotechnical specialist / structural engineer undertake a detailed soil investigation to determine the actual underlying geology and Plasticity Index which may then inform foundation design. The design of any new planting and landscape proposals should be based upon a soil analysis which considers the pH and nutrient composition of localised conditions.

Site Visit

In line with the BS5837 guidelines, 87 trees were identified within or directly adjacent to the Site red line boundary, although as stated for Table 1.1, only 68 trees are considered relevant to the development area. The following section should be read as a summary description of the onsite trees with full details given in the Arboricultural Data Tables (Appendix B), together with their respective BS category ratings.

Surveyed trees within the site boundary include a mix of species, life stages and condition with BS5837 assessments ranging from Category (Cat.) A to U.

As shown on the Tree Constraints Plans (TCP's) the trees included in the survey are located towards the outer areas of the site (or just beyond) as well as within the central areas adjacent to existing buildings, hard and soft landscaping areas and large grassed areas.

Overall, the site has been historically landscaped with a view to creating an established mixed species tree scape across the whole area. In doing so, the planting has been selectively located throughout the grounds both with consideration to the visual presentation of individual specimens as well as to allow for areas of desired site demarcation (including street lined locations), both within and adjacent to the site boundary.

The general success of this tree establishment has then resulted in a large number of Category B trees and Category C trees. Further to this, the species selection and variety along with routine arboricultural

maintenance, has also added to the high number of Category B classifications, albeit only four trees were classed as Category A.

That said, there are a number of lower quality trees throughout the site that are either in decline as result of their age or are struggling to establish themselves into the mature form as a result of either poor growing areas (such as soil compaction or heavy over shading and smothering from adjacent trees), or as a result of pest and disease.

The Tree Constraints Plan found at Appendix C shows the full layout of the existing tree stock with reference to BS5837 Category and survey data.

5.0 ARBORICULTURAL IMPACT ASSESSMENT

5.1 INTRODUCTION

The purpose of this Arboricultural Impact Assessment (AIA) is to assess the potential below and above ground impacts to existing trees from the proposed development, and to highlight the need for the pruning, removal or retention and protection of specific trees during construction.

Works associated with development of this type can damage trees, threatening the survival of those that are to be retained. The following actions can have negative impacts upon tree health:

- Soil compaction;
- Root damage (e.g. severance);
- Soil coverage with impermeable material;
- Alterations in ground level;
- Leaks and spillages from stored materials; and
- Vehicle and heavy plant collision.

As such, where possible, the RPAs and canopies that are defined in Appendix C should be protected and considered throughout works to prevent risks to the health of the trees.

5.2 SITE LAYOUT

Proposals and existing drawings provided for the assessment of the potential constraints that exist include:

- Existing layout/ topographical survey (drawing ref. 35318BWLS-01-03); and
- Proposed layout (drawing ref. 11265-LD-PLN-401-404 Soft Landscape General).

The TCP can be found at Appendix C.

5.3 TREE REMOVALS

Of the 68 trees within and adjacent to the Site development area, the proposed development requires the removal of 1 Category A, 25 Category B, 11 Category C and 5 Category U trees. All other surveyed trees are proposed for retention within the context and layout of this development.

Table 5.1 Proposed tree removals

Category	Quantity	Tree Ref. and Reason for Removal
A	1	T85 in direct or significant conflict with proposed new site buildings.
B	25	T5, T6, T7, T8, T14, T15, T16, T20, T21, T25, T26, T28, T32, T39, T43, T44, T72, T73. T78 and T79 are in direct or significant conflict with proposed new site buildings. T80 and T81 in direct conflict with proposed new road areas. T31, T74 and T75 in direct conflict with site relandscaping proposals.
C	11	T3, T9, T17, T19, T24, T27, T36, T83, T86, and T87 are in direct or significant conflict with proposed new site buildings. T82 in direct conflict with proposed new road areas.
U	5	T18, T29, T30, T63 and T84 are removed as result of their poor and deteriorating condition
Total	42	

5.4 FACILITATION PRUNING

Further to the stated tree removals, a number of retained trees will require moderate and significant crown pruning to ensure sufficient building and construction space clearance. As indicated from the crown overlaps on the proposed layout at Appendix C this will likely include T22, T33, T34, T35, T36, T37, T38, T41, T42 and T76.

Notwithstanding those trees which cannot be retained given the constraints of site space for the proposed development, the intention is to retain trees wherever possible throughout the site. In doing so, proposed building facades (particularly those to the north of the site fronting Woodville Road), have been moved back as much as the general site layout will allow, to provide greater space to the existing trees.

Given this still shows constraints between the proposed building facade and existing tree crowns (in several cases), pruning of the southern crown sections along with sympathetic full crown reductions (as required) are proposed. This is considered to be a viable option that allows for these trees to be retained.

Furthermore, the extent of this pruning (along with the likely future need for routine periodic arboricultural maintenance), is considered in keeping with street trees, which are often managed through to maturity in this fashion in many urban settings, particularly throughout London.

Proposals for pruning are further detailed in Section 6.

It is essential that arboricultural best practice as set out in BS:3998 Tree work – Recommendations, is adhered to for any required tree work.

T10 Pine Tree and the Proposed Children's Playground

With the intention to locate the new playground within the crown area of T10, there is then the potential for deadwood and large debris to fall within this high target area. A provision for a pre-use aerial tree inspection to be undertaken along with any subsequent arboricultural works is therefore included within the AMS at section 6 of this report.

5.5 DEVELOPMENT WITHIN ROOT PROTECTION AREAS (RPA)

Proposed Buildings and Structures

With the proposed tree removals and overall Site layout largely siting outside the RPA's of retained trees, the only noted significant potential constraint is the shown overlap of Block Q within T35 by approximately 15%, Whilst this is acceptable in terms of the relevant guidance BS5387, the proposed construction may though require specialist foundations to ensure the long-term retention of this tree. This then subject to initial exploratory digs and design as set out in Section 6 - Arboricultural Method Statement.

New or Modified Landscaping (hard and soft)

For all new hard standing sections or relandscaped areas proposed within the RPA's of trees to be retained (including new recreational areas), suitable ground protection will be designed by the project engineer and arboriculturist to accommodate the likely loadings.

With construction and build methodology as detailed within Section 6 - Arboricultural Method Statement, the trees and RPA's showing notable change to the finished ground surfaces as part of both the soft and hard landscaping plans (Appendix J), are as summarised in Table 5.2

Table 5.2 RPA modified landscaping ground conditions (all retained trees)

Tree No.	Existing Ground Conditions	Proposed Ground Conditions
T1	Soft ground and retaining wall.	Offsite tree- no change
T2	Soft ground and retaining wall.	Offsite tree- no change
T4	Soft ground against retaining wall.	**Hard (<20% RPA)** • Concrete block paving footpath over Geoweb subbase. **Soft** • Courtyard and Linear Park Mix low level planting.
T10	Soft ground, retaining wall	**Hard (<20% RPA)** • Self-binding gravel footpath over Geoweb subbase. • Soft insertion play equipment, with selective local foundation points.

Tree No.	Existing Ground Conditions	Proposed Ground Conditions
	and tarmac hard standing.	**Soft** • Linear Park Mix low level planting.
T11	Soft ground.	• Off site tree- with new Site retained wall constructed along the eastern edge of RPA. Constraint to be managed through root pruning (BS5837 best practice).
T12	Soft ground.	• Off site tree- with new Site retained wall constructed along the eastern edge of RPA. Constraint to be managed through root pruning (BS5837 best practice).
T13	Soft ground.	**Hard (<20% RPA)** • Self binding gravel footpath over Geoweb subbase. **Soft** • Linear Park Mix low level planting.
T22	Soft ground, pavement and road.	**Hard (<20% RPA)** • Concrete block paving footpath over Geoweb subbase. • Selectively located fence posts **Soft** • Amenity grass and hedgerow planting, with Courtyard Mix low level planting.
T23	Soft ground and tarmac path.	**Hard (<20% RPA)** • Concrete block paving footpath over Geoweb subbase. • Selectively located fence posts **Soft** • Amenity grass and hedgerow planting, with Courtyard Mix low level planting.
T33	Soft ground, pavement and road.	**Hard (<20% RPA)** • Concrete block paving footpath over Geoweb subbase. • Selectively located metal railing fence posts. **Soft** • Amenity grass and hedgerow planting.
T34	Soft ground, pavement and road.	**Hard (<20% RPA)** • Concrete block paving footpath over Geoweb subbase. • Selectively located metal railing fence posts. **Soft** • Amenity grass and hedgerow planting.

Tree No.	Existing Ground Conditions	Proposed Ground Conditions
T35	Soft ground, pavement and road.	Hard (<20% RPA) • Concrete block paving footpath over Geoweb subbase. • Selectively located metal railing fence posts. • Foundation design as detailed within this report. Soft • Amenity grass and hedgerow planting.
T37	Soft ground, pavement and road.	Hard (<20% RPA) • Concrete block paving footpath over Geoweb subbase. • Selectively located metal railing fence posts. Soft • Amenity grass and hedgerow planting.
T38	Soft ground, pavement and road.	Hard (<20% RPA) • Concrete block paving footpath over Geoweb subbase. • Selectively located metal railing fence posts. Soft • Amenity grass and hedgerow planting.
T40	Soft ground, pavement and road.	Hard (<20% RPA) • Concrete block paving footpath over Geoweb subbase. • Selectively located metal railing fence posts. Soft • Amenity grass and hedgerow planting.
T41	Soft ground, pavement and road.	Hard (<20% RPA) • Concrete block paving footpath over Geoweb subbase. • Selectively located metal railing fence posts. Soft • Amenity grass and hedgerow planting.
T42	Soft ground, pavement and road.	Hard (<20% RPA) • Concrete block paving footpath over Geoweb subbase. • Selectively located metal railing fence posts. Soft • Amenity grass and hedgerow planting.
T45	Soft ground and tarmac path.	Hard • No change from existing Soft • Wildflower Grass Mix.

Tree No.	Existing Ground Conditions	Proposed Ground Conditions
T46	Soft ground and tarmac path.	**Hard** • No change from existing **Soft** • Wildflower Grass Mix
T47	Soft ground and tarmac path.	**Hard** • No change from existing. **Soft** • No change from existing.
T48	Soft ground and tarmac path.	**Hard** • No change from existing **Soft** • No change from existing
T59	Soft ground and tarmac path.	**Hard** • No change from existing, other than Community Centre building to be constructed along eastern edge of RPA. Constraint to the managed through root pruning (BS5837 best practice). **Soft** • No change from existing
T61	Soft ground.	**Hard (<20% RPA)** • No change from existing **Soft** • Little change from existing with the addition of small area of Swale Mix low level planting.
T62	Soft ground.	**Hard (<20% RPA)** • Two resin bound gravel footpaths over Geoweb subbase. **Soft** • Two thirds of area remain the same with one third are Wildflower Grass, Swale and Ashburnham Mix low level planting.
T76	Soft ground, pavement and road.	**Hard (<20% RPA)** • Concrete block paving footpath over Geoweb subbase. • Selectively located metal railing fence posts. **Soft** • Amenity grass with Woodvale Mix low level planting.
T77	Soft ground, pavement and road.	**Hard (<20% RPA)** • Concrete block paving footpath over Geoweb subbase. **Soft**

Tree No.	Existing Ground Conditions	Proposed Ground Conditions
		• Amenity grass

5.6 LANDSCAPE PROPOSALS (TREE PLANTING)

In recognising the need to mitigate the identified tree removals as a result of the proposed development, the landscaping and planting plans will deliver a planting strategy that includes a mix of species, accompanied by a landscape management plan to ensure all new planting is successfully established. Full details of all tree planting are contained in the Landscaping Strategy within the Design and Access Statement.

The proposed landscaping should be subject to a 5-year management plan to ensure long-term deliverance of the proposals which may be secured through planning condition. Any trees or shrubs that die, are removed or severely damaged within the first 5-years should be replaced with a similar specimen.

5.7 CAVAT ASSESSMENT

The need for a CAVAT (Capital Asset Valuation of Amenity Trees) [4] assessment to provide a valuation of all Site trees was stipulated by the London Borough of Richmond upon Thames during the pre-application process. This then to provide tree valuations for the following:

1. Base line CAVAT assessments by which future such assessments could be bench marked;
2. A valuation for all trees be removed to allow for the development of the Site; and
3. Allow for replacement planting and or additional compensation/mitigation as required to be identified,

CAVAT was developed by Chris Neilan and the London Tree Officers Association (LTOA) in 2008 and is regarded as one of the principal methods of tree valuation in the UK, providing a method for managing trees as public assets. In doing so, it is designed to be a strategic tool to aid to decision-making in relation to the tree stock as a whole, as well as for individual trees, where the value of a single tree needs to be expressed in monetary terms. It is though equally suitable for assessing the impacts of tree loss and tree retention strategies for large development Sites such as in this cases, for the redevelopment of the Ham Close Estate.

Using the methodology as set out on the CAVAT LTOA website [4], Table 5.3 presents the summary calculations and overall mitigated impact assessment for the proposed tree strategy for the development. Full tree by tree values and calculations are provided at Appendix K.

In terms of replacement tree planting as part of the overall landscaping plan, as well as to mitigate for the stated tree removals, the proposed replacement planting as inputted into the CAVAT calculator, is based on the planting of semi mature stock of 15cm girth, at a 25-year post planting growth age.

Table 5.3 Summery CAVAT valuation table

Site trees	Numbers of trees	Total CAVAT Value
Total site trees	68	£ 1,151,971
Trees removed	42	£ 546,133
Trees retained	26	£ 620,336
New tree planting	132	£ 423,578
Remaining contribution required (trees removed - new plantings)		-£ 122,555

5.8 SUMMARY AND RECOMMENDATIONS

All trees under assessment have been considered, with a total of 68 trees within or adjacent to the proposed development area.

The quality of the surveyed trees varies significantly, with a mix of Category A through to Category U trees, of both individual and grouped arboricultural qualities.

Leading on from the tree survey, the Arboricultural Impact Assessment for the proposed development was drawn up based on the detailed design for the site.

Of the 68 trees within and along the boundary of the site development area, the proposed development requires the removal of 1 Category A, 25 Category B, 11 Category C and 5 Category U trees. All other surveyed trees are proposed for retention within the context and layout of this development.

All other trees are shown as retained, with the need for specific ground protection and special construction techniques presented as required in Section 6.

In recognising the need to mitigate the identified tree removals as a result of the proposed development, the landscaping and planting plans will deliver a planting strategy that includes a mix of species, accompanied by a landscape management plan to ensure all new planting is successfully established.

To accompany this a full CAVAT assessment of total site trees, proposed removals and proposed replanting, has been set out.

Subject to the stated tree removals and arboricultural works as detailed in this section, all retained trees within the proposed layout will be protected in accordance with BS58378 recommendations, via the best practice approach as set out within the Arboricultural Method Statement (AMS) and Tree Protection Plan (TPP) in Section 6 of this report.

6.0 ARBORICULTURAL METHOD STATEMENT

This Arboricultural Method Statement makes a number of recommendations for the site. For convenience, all of the recommendations in this report have been listed in Table 6.1.

In order to ensure a successful tree retention and development it is critical that all of these recommendations are carried out in a similar order to that outlined below.

Table 6.1 Works phasing

Recommendation	Phase / Timing	Arboricultural Consultant Input
Appoint Arboricultural Clerk of Works (ACoW) to oversee all arboricultural issues on site as detailed.	Pre-commencement	ACoW appointed.
Airspade assessment of the indicated foundation line of Block Q within the RPA of T35.	Pre-commencement	Site attendance.
Finalised foundation and finished floor level design for Block Q within the RPA of T35.	Pre-commencement	Key design team member
On-site meeting(s) to discuss tree protection measures/any site issues with proposed works team, site manager, Tree Officer etc.	Pre-commencement	Site attendance.
Erect tree protection fencing. To be installed as shown on the Tree Protection Plan (Appendix D). Also installation of temporary ground protection as required.	Pre-commencement	Liaison with team.
Throughout works implement reporting progress for all unforeseen arboricultural incidents.	During Construction	Prepare reporting document to keep on-site.
Undertake crown pruning works as detailed.	During Construction	Site attendance to ensure works are as agreed.

Recommendation	Phase / Timing	Arboricultural Consultant Input
Installation of utilities with the RPA's of retained trees.	During Construction	Site attendance to ensure installation is as agreed.
Install specified permanent ground protection as required.	During Construction	Site attendance to ensure installation is as agreed.
Hard and soft landscaping proposed within the RPA's of retained trees. (Table 5.1)	During Construction	Site attendance as required by circumstances.
Monitoring site visits by ACoW to ensure continued compliance (3 monthly).	During Construction	Regular site attendance, production of file notes and circulation to team.
Post development inspection to identify any required remedial actions.	Post Construction	Site attendance and recommendations.
General maintenance remedial tree works if necessary.	Post Construction	N/A.
Tree fencing to be removed.	Post Construction	Site attendance to agree removal.
Aerial Tree Inspection by AA accredited arboricultural contractor of T10 Pine, to assess for deadwood and potential large debris above the new children's playground. Arboricultural intervention works undertaken as required.	Post Construction	N/A.

6.1 ARBORICULTURAL CLERK OF WORKS

A suitably qualified arboriculturalist will be appointed to act as an Arboricultural Clerk of Works (ACoW). The ACoW will be engaged to monitor and oversee the implementation of the works required in this method statement.

The role of the ACoW is a formal one with onsite presence and site visits to make decisions to be implemented quickly. In the case of this development the following occasions are where the ACoW will be required:

- Initial meeting (usually the pre-commencement meeting) – to ensure all required tree protection is in place, and to discuss any required amendments with the Site Manager to which the local planning officer or Tree Officer will be invited to attend;

- Monitoring visits – Regular informal inspections to ensure that all tree protection measures are being maintained, and to inform the Site Manager where appropriate measures are not in place;
- Supervision during works within the RPAs of retained trees as detailed within the tree protection plan; and
- Completion meeting – To inspect trees to assess for any required works and to confirm that the development has been sufficiently completed, and the tree protection measures can be removed.

The ACoW will also be the first contact for arboricultural advice for any issues that arise which are not detailed in this report, such as extra tree works, any required work within the Root Protection Areas (RPAs) of the trees onsite, any damage that has occurred to any of the trees or any breach of the tree protection measures onsite.

Pre-Commencement Site Meeting

A pre–commencement site meeting will be undertaken prior to any onsite works commencing. This meeting will enable the Site Manager and the ACoW to review the tree works undertaken and the tree protection fencing to ensure all parties are satisfied that the proposals will not impact the trees to be retained onsite and that the measures are feasible with the construction works. The Tree Officer will be invited to attend the meeting if desired. Once the tree protection measures have been confirmed as acceptable, they can be "signed off" on the progress sheet.

Monitoring Visits

Regular informal site visits will then be undertaken following this by the ACoW to ensure protective measures are in place and file notes will be prepared and filed. It is recommended these monitoring visits are completed on a 3 monthly basis for the duration of the construction process.

On each visit, the ACoW will conduct a site walkover to check the maintenance of the tree protection measures and to assess the condition of the trees. These visits will also give the opportunity for the Site Manager/construction staff to discuss any arboricultural issues with the ACoW.

Following each visit, a short file note will be produced by the ACoW and circulated to the team for a record of best practice.

Reporting Process

If during the construction any damage to either the tree or the RPA is sustained, this should be reported to the Site Manager immediately. At the earliest possible time the Site Manager will inform the ACoW, who will undertake a site visit to assess the impact on the tree and make recommendations for any required works.

Possible damage to the tree or RPAs could be: collision damage to crowns of retained trees by site vehicles; excavation within RPA; dumping of soil / materials within the RPA; Chemical / cement spillage into Root Protection Area or fire damage to the crown / stem of the trees. See Appendix H for example.

Progress Sheet

During the various stages of the development a record of the completion of the tree protection works will be updated by the Site Manager (or ACoW if present onsite). This will then provide the Planning Officer / Tree Officer with sufficient evidence that all practicable steps have been taken to prevent damage to the trees should any issues arise.

A separate progress sheet will be completed for each completed operation. The original will be kept by the Site Manager alongside a copy of this AMS report in the site office for the duration of construction works. Once completed, a copy will be sent to the ACoW and the planning officer / Tree Officer. See Appendix I for example.

6.2 PRE-DEVELOPMENT WORKS

All tree works are to be undertaken in accordance with BS3998:2010 'Tree work - Recommendations[5].

Enabling Felling

All trees identified in Section 5 shall be removed by a suitably qualified tree surgeon prior to any demolition or construction traffic entering the site.

The ACoW will meet with the contractor and Site Manager to ensure all parties are fully informed on the enabling felling and retention strategy.

Facilitation Pruning

Further to the stated tree removals, a number of retained trees will require crown pruning to ensure sufficient building and construction space clearance. As indicated on the Tree Protection Plan at Appendix D this will likely include T22, T33, T34, T35, T36, T37, T38, T41, T42 and T76.

Notwithstanding those trees which cannot be retained given the constraints of site space for the proposed development, the intention is to retain trees wherever possible throughout the site. In doing so, proposed building facades (particularly those to the north of the site fronting Woodville Road) have been moved back as much as the general site layout will allow to provide greater space to the existing trees.

However, given this still shows constraints between the proposed building facade and existing tree crowns (in several cases), a program of crown pruning is required. This then considered to be a viable option that allows for these trees to be retained.

The precise extent of pruning is yet to be determined and will be influenced by the final details of the construction plan, once drawn up. This information is therefore proposed to be agreed at the pre commencement Site meeting with the ACoW, Site Manager and LBRuT Tree Officer.

That said, the approach to tree pruning will be one of balance between avoiding unnecessary or excessive pruning that allows the trees to flourish and grow within the development space; whilst

providing sufficient building separation that will significantly reduce any pressure for tree removal as a result of limited space and/or overshading.

Pruning Extent and Shading

Any potential shading issues should be considered within the context of the positive amenity and environmental benefits that the retained trees will provide for the Site and the surrounding area. Furthermore, it should also be highlighted that shading from trees can be a benefit in terms of natural cooling and cover from direct sunlight.

It will though be key to the success of the development (with respect to tree retention and the overall landscape plan), that proposals for development facilitation pruning allows more light into the affected areas and facades. This would be case by case for each tree, (and discussed/presented at the Site pre commencement meeting) but would likely include, crown thinning, crown raises, crown reductions, and/or target pruning. All undertaken with a clear appreciation of potential and future growth of these trees, as well as the ongoing maintenance that may be required over the medium and long term.

Overall, the extent of this pruning (along with the likely future need for routine periodic arboricultural maintenance) is considered in keeping with how street trees are managed through to maturity in many urban settings, particularly throughout London.

Tree Protection

Following the proposed tree works and prior to any demolition/construction or vehicular movement, tree protective measures will be in place around all retained trees. The ACoW will check this prior to the commencement of works. It shall be set out as per the detail on the Tree Protection Plan (TPP) located at Appendix D.

These protective measures ensure suitable protection of trees and associated soils. The key method of tree protection is through the use of fencing and ground protection.

Tree protection shall be set out as per the detail on the tree protection plan; it shall be identified as such using signage, see Appendix E.

Fencing

The location of tree protection fencing is shown on the TPP at Appendix D.

The tree protection fencing will primarily comprise 2.0m weldmesh panels around site trees secured in place with uprights driven into the ground. Once erected, this will not be moved or relocated without prior approval from the ACoW, or unless specified in this report.

The tree protection area behind the tree protection fencing (the Construction Exclusion Zone) will remain sacrosanct throughout development and no access will be allowed to this area including for example the storage of or moving of materials or machinery.

In the Construction Exclusion Zone, there will be no excavations or increases in soil level unless specified in this report or agreed with the AcoW or LBRuT.

The fencing will be secured with uprights driven into the ground to prevent movement of the protective fencing and ensure its rigid installation.

There will be clear and visible signs attached to the protective fencing (see Appendix E) and the area will be regarded as sacrosanct by everyone. This will be checked prior to the commencement of work by the ACoW and throughout the course of development during regular informal monitoring visits.

The tree protection fencing denotes the Construction Exclusion Zone. Therefore, the following must be carefully considered when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Any transit or traverse of plant in close proximity to trees should be conducted under the supervision of a banks person to ensure that adequate clearance from trees is maintained at all times.

Material that will contaminate the soil such as concrete mixing, diesel oil and vehicle washing should not be discharged within 10m of the tree stems.

No fire shall be lit, or liquids disposed of within 10m of an area designated as being fenced off or otherwise protected in the scheme.

At the end of the project the fencing will be removed on completion of site works and after confirmation by the ACoW.

A detailed TPP (Appendix D) will be located within the site cabins throughout the course of development. This will include details of the fencing specification and location for which the fence will be erected. This plan will be printed at no less than A1 in size to ensure easy reading of all the detail contained within.

Ground Protection

Temporary

Subject to the pre commencement site meeting, it may not be possible to install tree protection fencing around the whole of retained tree RPA's. In such cases, to supplement this partial tree protection fencing, temporary ground protection to both protect the RPA and meet with the needs of site construction access and storage will need to be installed. This would utilize a proprietary “no-dig” three-dimensional cellular confinement system, specifically designed for tree root protection, along with a geotextile membrane and suitably specified granular aggregate fill.

An example specification is given in Appendix F, although the precise specification to accommodate the predicted use and loadings in this area will be drawn up by the project engineer and project ACoW prior to any site enabling works.

As specific locations for the application of this methodology and best practice approach are still to be finalised, specific areas of the Site to be designed as such, are not yet shown on the Tree Protection Plan included within this report. A revised version of the TPP will though be issued to the construction team in due course, post the pre commencement Site meeting.

Permanent

Any significant new hard standing incursions into the of the RPAs of retained trees, such as new paved and tarmac areas, or new recreational areas, suitable ground protection will need to be designed by the project engineer and arboriculturalist to accommodate the likely loading (example of proposed ground protection is shown at Appendix F). Details of all such areas are set out in Table 5.2 and within the Landscaping Plans (Appendix J)

Again, this would likely require the use of proprietary systems such as the no-dig three-dimensional cellular confinement, specifically designed for tree root protection. This follows the guidance in BS5837 Section 6.2.3.3.

Any such specification and installation would require approval for use by the arboriculturist in line with the method statement before any works commence. Areas requiring such protection should be indicated on the final version of the Tree Protection Plan.

The stated ground protection will not require any excavation or alteration in ground levels other than through the installation of the specified ground protection and road surface, which will remain non-compacting by design.

If required for roadside areas, any such design would also require the use of a “no dig” kerb solution to ensure damage to roots is avoided. For example a pinned wooden sleeper design as shown at Appendix F.

6.3 CONSTRUCTION PHASE

Construction Management and Site Logistics

A Construction Management Plan (CMP) has been produced as part of the planning submission. This document gives details on several matters that are key in ensuring the protection of trees, including site construction access, storage of materials and location of site offices. These items are discussed below with recommendations from an arboricultural perspective as outlined in the CMP.

Site Construction Access

In accordance with section 5.5.6 of the BS5837, all site access routes will be outside of the RPAs of retained trees and all tree protection measures will remain in place throughout the construction phase. As discussed above, should such access be required, then suitable ground protection will be designed and installed with consideration to anticipated loadings.

Storage of Materials

An area outside of the RPAs of any on and offsite trees will be allocated for storage of materials. Materials will only be stored in the designated areas and there will be no storage of materials within the RPAs of retained trees. Tree protection measures will remain in place throughout the construction phase.

Site Offices and Welfare

In accordance with section 5.5.6 of the BS5837, all site offices and welfare facilities will be located outside of the RPAs of retained trees.

Services and Utilities

The services and utilities plan for this development has been reviewed to ensure any proposed above and below ground routes are considered in the context of the existing trees, with all subterranean utility lines and on-site drainage designed to either avoid the RPA's of retained trees or constructed and installed using the existing subterranean infrastructure space.

In all other circumstances, the guidance set out by the National Joint Utilities Group (NJUG)[6] will be followed. Any subsequent trenches close to or within the RPA of retained trees will be excavated under watching brief of the ACoW.

Proposed Works Within Root Protection Areas

Building Construction

The proposed building footprint area to the north of the site fronting Woodville Road is shown to overlap with the calculated RPA of T35 by approximately 15%, and whilst this is acceptable in terms of the relevant guidance BS5387, special construction methods are likely required.

Depending on the existing ground conditions and anticipated root spread for T35, an air spade root investigation within the RPA should be undertaken along the proposed new building foundation line. This soft dig method avoids root damage that could otherwise be caused by conventional digging. All roots that cannot be pruned back in line with the best practice methodology as set out in BS5837, can then be identified, retained and protected within mitigated foundation design, if suited to the proposed building structural requirements.

Any such design would then need to consider the specific locations/size of piles and pile caps, as well as the need or otherwise for ground beams and/or foundation rafts; the depth of which then being largely dictated by the need to retain tree roots.

At this stage the chosen foundation design for this location is still to be finalised, however it is confirmed that the finish floor level in this location restrains flexibility, in that it can be raised to allow for the retention of any significant tree roots identified through the exploratory digs.

Depending on the depth of the any significant roots, the final design will likely include a piled suspended floor slab in this location, the construction of which will then to some extent dictate the finished floor levels.

To ensure this design is developed sympathetically to the future health and retention of this tree, the project ACoW will be a key member of the design team at the relevant stage, as set out in Table 6.1.

Road and Hard Standing Construction and New Soft Landscaping

All areas proposed for landscaping changes within the RPAs of retained trees are set out in Table 5.2 and within the Landscaping Plans (Appendix J) and through design will have no significant impact upon water availability, gaseous exchange or soil compaction, along with the following best practice being adhered to.

All specialist ground protection specifications and installations, such as no-dig three-dimensional cellular confinement layers, shall be as detailed within this report and within those areas indicated in the Landscaping Plans.

Ground preparations and installation of the hard surfacing will need to be carried out in a sensitive way with regards to the adjacent trees. As required for each circumstance, this will be performed under watching brief of the appointed ACoW to ensure any potential impacts upon the trees are avoided.

As required, ant tree protection fencing as indicated on the Tree Protection Plan will be temporarily moved to allow works to be completed within the construction exclusion zone.

In line with section 7.3.6 of BS5837, existing hard surfaces will be broken up manually (using hand tools or a ground breaker), working backwards over the RPAs so that the machine is not moving over exposed ground.

There will be no excavation into the sub materials or reduction in levels; if levelling to the ground is required, this will be achieved through filling in gaps with up to 100mm of good quality topsoil and levelling with hand tools.

Any roots over 25mm that have grown above the existing/final floor level will be considered for removal by the ACoW. If appropriate, the roots will be cleanly severed with a sharp tool (e.g. pruning knife).

In the event that there is a delay to installing the new landscaping, any exposed roots will be protected from desiccation by damp hessian and the tree protection barriers must be re-aligned outside of the RPA until works are complete.

Avoiding Crown and Stem Damage

Care and vigilance must be taken to avoid crown and stem damage when working with machinery near the retained trees, both on and offsite. Plant machinery with booms, jibs and counterweighs/ tall or wide loads should be controlled by banksman to maintain adequate clearance. Machinery will remain outside of the Construction Exclusion Zone as denoted by fencing and signage.

Landscape Management

A comprehensive landscaping strategy has been designed for the scheme which includes extensive new tree planting, as described in the previous chapter.

All new tree planting shall be implemented following appropriate guidance in the *BS8545: 2014 Trees: from necessary to independence in the landscape – Recommendations*[7]. We recommend any new trees that

fail within the first 5 years following development are replaced to ensure the long-term maintenance of the planting strategy.

7.0 SUMMARY AND CONCLUSIONS

In line with the BS5837 guidelines, 87 trees were identified within or directly adjacent to the Site red line boundary, although as stated for Table 1.1, only 68 trees are considered relevant to the development area. The quality of the surveyed trees varies significantly, with a mix of Category A through to Category U trees, of both individual and grouped arboricultural qualities.

Leading on from the tree survey, the Arboricultural Impact Assessment for the proposed development was drawn up based on the detailed design for the site.

Of the 68 trees within and along the boundary of the site development area, the proposed development requires the removal of 1 Category A, 25 Category B, 11 Category C and 5 Category U trees. All other surveyed trees are proposed for retention within the context and layout of this development.

All other trees are shown as retained, with the need for specific ground protection and special construction techniques presented as required.

In recognising the need to mitigate the identified tree removals as a result of the proposed development, the landscaping and planting plans will deliver a planting strategy that includes a mix of species, accompanied by a landscape management plan to ensure all new planting is successfully established

Following on, an Arboricultural Method Statement (AMS) has been produced detailing any proposed tree works and special construction techniques to ensure all trees to be retained are adequately managed and protected throughout the development.

This then including the outline best practice approach to how identified tree works, tree protection and/or special construction techniques should be considered and implemented to ensure all trees to be retained are adequately managed and protected.

Based on the proposed layout, the Tree Protection Plan (Appendix D) and Landscaping Plans (Appendix J) indicates any trees to be removed and the tree protection measures to be employed for those to be retained.

The report also sets out in detail those anticipated tree constraints that will likely need to be considered as part of the development plans and the mitigated approach that should be adopted in each case.

Overall, provided the recommendations in this report are adhered to, all retained trees should be suitably protected throughout the development to form a key part of the post development landscape.

APPENDIX A TREE SURVEY METHODLOGY

Trees, tree groups and woodlands have been considered following evaluation into one of four categories (U, A, B, C) based on tree quality as outlined in British Standard 5837 (2012) which has been followed. Categorisation of trees, following the British Standard, gives an indication as to the trees' importance in relation to the site and the local landscape and also, the overall value and quality of the existing tree stock on site. This allows for informed decisions to be made concerning which trees should be removed or retained, should development occur.

For a tree to qualify under any given category it should fall within the scope of that category's definition. In the categories A, B, C which collectively deal with trees that should be a material consideration in the development process, there are three sub-categories which are intended to reflect arboricultural, landscape and cultural values respectively. Category U trees are those which would be lost in the short-term for reasons connected with their poor physiological or structural condition. They are, for this reason, not usually considered in the planning process.

In assigning trees to the A, B or C categories the presence of any serious disease or tree related hazards are taken into account. If the disease is considered fatal and / or irremediable, or likely to require sanitation for the protection of other trees it may be categorised as U, even if they are otherwise of considerable value.

Category (A) – trees whose retention is most desirable and is of high quality and value. These trees are considered to be in such a condition as to be able to make a lasting contribution (a minimum of 40 years) and may comprise:

- Trees which are particularly good examples of their species especially rare or unusual, or essential components of groups or of formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue);
- Trees, groups or woodlands which provide a definite screening or softening effect to the locality in relation to views into or out of the site, or those of particular visual importance (e.g. avenues or other arboricultural features assessed as groups); and
- Trees or groups or woodlands of significant conservation, historical, commemorative or other value (e.g. Veteran or wood-pasture trees).

Category (B) – are trees whose retention is considered desirable and are of moderate quality and value. These trees are considered to be in such a condition as to make a significant contribution (a minimum of 20 years) and may comprise:

- Trees that might be included in the high category but because of their numbers or slightly impaired condition (e.g. presence of remediable defects including unsympathetic past management and minor storm damage), are downgraded in favour of the best individuals;
- Trees present in numbers such that they form distinct landscape features and attract a higher collective rating than they would as individuals. Individually these trees are not essential

components of formal or semi-formal arboricultural features, or trees situated mainly internally to the site and have little visual impact beyond the site; and

- Trees with clearly identifiable conservation or other cultural benefits.

Category (C) – are trees that could be retained and are considered to be of low quality and value. These trees are in an adequate condition to remain until new planting could be established (a minimum of ten years) or are young trees with a stem diameter below 150mm and may comprise:

- Trees not qualifying in higher categories;
- Trees present in groups or woodlands, but without this conferring on them significantly greater landscape value and or trees offering low or only temporary screening benefit; and
- Trees with very limited conservation or other cultural benefits.

Category (U) – trees for removal are those trees in such a condition that any existing value would be lost within 10 years and which should in the current context be removed for reasons of sound arboricultural management. Trees within this category are:

- Trees that have a serious irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees;
- Trees that are dead or are showing signs of significant, immediate or irreversible overall decline; and
- Trees infected with pathogens of significance to the health and or/safety of other trees nearby trees or very low quality trees suppressing adjacent trees of better quality.

Species has been recorded by common name and recorded as such in the Tree Schedule. Height has been estimated in metre and stem diameters have been measured at 1.5 metres above ground level and recorded in millimetres (unless otherwise stated). Crown spreads have been measured in half metres and taken to the point of greatest spread unless the crown has presented a pronounced asymmetrical form and therefore measurements have been taken for the four cardinal points. The measurements have always been considered in the following sequence, North, East, South, and West, and therefore appear as such within the Tree Schedule.

In the assessment particular consideration has been given to the following when deciding the most appropriate British Standard Category and Sub-Category allocation:

a. the health, vigour and condition of each tree;
b. the presence of any structural defects in each tree and its life expectancy;
c. the size and form of each tree and its suitability within the context of the proposed scheme; and
d. the location of each tree relative to existing site features, e.g. its value as a screen or as a skyline feature.

Age class is assessed according to the age class categories referred to in BS 5837.

- Y: Young trees up to five years of age;

- SM: Semi-mature, trees less than 1/3 life expectancy;
- EM: Early mature, trees 1/3 – 2/3 life expectancy;
- M: Mature trees over 2/3 life expectancy;
- OM: Over mature – declining or moribund trees of low vigour; and
- V: Veteran - characteristics have been noted where a tree exhibits certain characteristic features of veteran trees.

The overall condition of the tree, or group of trees, has been referred to as one of the following. A more detailed description of condition has been noted in the Tree Schedule and discussed in the main text of the report.

- Good: A sound tree, trees, needing little, if any, attention;
- Fair: A tree, trees, with minor but rectifiable defects or in the early stages of stress, from which it may recover;
- Poor: A tree, trees, with major structural and physiological defects or stressed such that it would be expensive and inappropriate to retain; and
- Dead: A tree, trees, no longer alive. However, this could also apply to those trees that are dying and will be unlikely to recover, or are / have become dangerous.

Major defects or diseases and relevant observations have also been recorded under Structural Condition. The assessment for structural condition has included inspection of the following defects:

- 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 indicating possible root plate movement;
- Any abrupt bends in branches and limbs resulting from past pruning, as it may be an indication of internal weakness and decay;
- Tight or weak 'V' shaped unions 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 previous pruning;
- Broken branches;
- Storm damage;
- Canker formations;
- Loose bark;
- Damage to roots;
- Basal, stem or branch / limb cavities;

- Crown die-back;
- Abnormal foliage size and colour;
- Any changes to the timing of normal leaf flush and leaf fall patterns; and
- Other pathological diseases affecting any part of the tree.
- Major defects or diseases and relevant observations have also been recorded. Dead wood has been defined as the following:
    - Twigs and small branch material up to 5cm in diameter;
    - Minor dead wood 5cm to 10cm in diameter; and
    - Major dead wood 10cm in diameter and above.

The survey was completed from ground level only, aerial inspection of trees was not undertaken. Investigations as to the internal condition of a tree have not been undertaken. Further investigations of this type can be made and have been recommended where it has been considered necessary, within the report although these investigations are beyond the scope of this report.

Evaluation of the trees 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.

The individual positions of trees and groups of trees recorded in the Tree Schedule have been shown on the Tree Constraints Plan. The positions of trees are based on a topographical / land survey supplied by the client in dwg. format for the purpose of plotting the trees.

The Root Protection Areas (RPA) to be required by the individual and groups of trees are indicated by the Tree Constraints element of the above plans. The Root Protection Areas are formulated as described below.

Below ground constraints to future development is represented by the area surrounding the tree that contains sufficient rooting volume to ensure survival of the tree, which need protecting in order for the tree to be incorporated into any future scheme, without adverse harm to the tree or structural integrity of buildings. This is referred to as the RPA and is shown as a circle of a given radius.

The circle may be modified in shape to maintain a similar total area depending on the presence of surrounding obstacles. Where groups of trees have been assessed, the RPA has been shown based on the maximum sized tree in any one group and so would automatically exceed the RPA's required for many of the individual specimens within the group. The RPA is equivalent to a circle with a radius 12x the stem diameter for single stem trees and 10x the basal diameter for trees with more than one stem arising less than 1.5 meters above ground level.

APPENDIX B TREE DATA TABLE

Tree No.	Species	Height (m)	Stem Diameter (mm)	Crown Spread				Age Class	Condition		General Notes	Est. Yrs Remaining	Grade / Category
				N	E	S	W		P	S			
1	Ash	8	490	3	6	6	4	E	G	F	Twin stem structure with large side lateral branches from 2 m. Reduction history within the upper crown with current 2 m regrowth. Epicormic throughout crown with exposed buttress roots showing minor damage. Slightly asymmetrical as a result of adjacent T2.	>10	C2
2	Ash	8	740	5	5	4	5	E	G	F	Twin stem structure with large side lateral branches from 2 m. Reduction history within the upper crown with current 1 m regrowth. Multistem tree from 1m (possible pollard regrowth). Slightly asymmetrical as a result of adjacent T1. Epicormic throughout crown with exposed buttress roots showing minor damage. Shows a number of semi occluded pruning wounds.	>10	C2
3	Ash	9	390	7	5	6	6	EM	G	F	Very asymmetrical crown as a result of adjacent trees. Although well structured. Fully occluded crown rise pruning points.	>10	C2
4	Silver birch	8	350	5	4	4	5	E	F	F	Very asymmetrical crown as a result of adjacent trees. Heavy northern lean to structure that sabres back into a straightened upper crown. Two lower tear outs with some upper crown thinning.	>10	C2
5	Ash	9	450	9	7	5	5	E	G	G	Very asymmetrical crown as a result of adjacent trees. Although well structured. Fully occluded crown rise pruning points. Multistem from 2 m. Large vertical wounding to bark within lower stem to ground. Large cavity in top section of lower limb. Small deadwood throughout.	>20	B2
6	Norway maple	7	700	6	7	7	7	E	G	G	Shared crown structure with T7. Significant mid stem pruning with several exposed heartwood wounds, that may result in further decay over time. Several semi occluded pruning wounds, Extensive spread of exposed buttress roots.	>20	B2
7	Norway maple	8	550	4	6	6	6	M	G	G	Shared crown structure with T7. Multistem clustered crown with a number of cross limbs. Several semi occluded pruning wounds, Extensive spread of exposed buttress roots.	>20	B2
8	Cherry	9	530	4	6	6	6	E	G	G	Tri-stem structure from 2 m with some lower crown pruning history. Well structured tree and crown shape.	>20	B2
9	Cherry	8	320	3	3	3	3	M	G	G	Well structured crown shape despite being formed from a twin stem tree that has self braced.	>10	C2
10	Pine	18	1050	9	11	8	7	M	G	G	Large mature multistem structure from 4 m. Shows an asymmetrical structure as a result of suppression from adjacent trees. Exposed buttress roots as well as some lower crown pruning. Small deadwood within crown. Shows one severed root to allow for path to be laid.	>40	A2
11	Cherry	12	300	3	3	3	3	M	G	G	Twin stem fastigiate structure, with cankering at two locations (2 and 6 m).	>20	B2
12	Beech	11	590	7	7	5	7	M	G	G	Multistem clustered crown that has developed into a well structured rounded crown. Shows crown rise pruning.	>20	B2

Tree No.	Species	Height (m)	Stem Diameter (mm)	Crown Spread				Age Class	Condition		General Notes	Est. Yrs Remaining	Grade / Category
				N	E	S	W		P	S			
13	Silver birch	10	370	3	4	1	3	M	F	F	Shows a natural northern lean to structure as a result of adjacent trees. Medium deadwood to the southern crown area. Fustigate crown structure.	>10	C2
14	Silver birch	10	270	5	5	4	5	M	G	G	Well structured tree with no notable defects.	>20	B2
15	Silver birch	10	380	5	4	6	5	M	G	G	Well structured tree with no notable defects.	>20	B2
16	Silver birch	11	330	5	6	3	6	M	G	G	Well structure tree with no notable defects. Slightly asymmetrical given the open growing space to the north over the carpark.	>20	B2
17	Silver birch	8	340	4	4	1	4	E	G	F	Poorly structured tree with erratic crown shape resulting from growth away from adjacent building.	>10	C1
18	Silver birch	8	260	3	2	4	2	M	P	F	Tree in heavy decline with extensive decay of the base (Ganoderma rasinacium)	<10	U
19	Horse chestnut	8	690	4	6	6	5	E	F	F	Multi stem from 2 m with a wide well structured crown. Now showing signs of extensive bleeding canker	>10	C1
20	Silver birch	7	300	5	5	5	4	E	G	G	Well structured tree with no notable defects. Some crown rise history.	>20	B1
21	Silver birch	6	500	6	6	4	6	M	G	G	Twin stem from 2 m with crown rise history and minor pruning wound cavities.	>20	B1
22	Whitebeam	6	520	7	7	5	4	M	G	P	Physiologically healthy tree although is formed from a previous wind thrown structure, shown by the very heavy lean to the west. (now secure)	>10	C1
23	Whitebeam	6	700	5	5	5	5	M	G	G	Well structured tree with no notable defects.	>20	B1
24		6	290	5	4	5	5	S	G	F	Erratically structured tree that clashes with the adjacent specimen.	>10	C1
25	Silver birch	6	160	4	3	3	4	E	G	G	Well structured tree with no notable defects, although slightly asymmetrical as a result of adjacent trees.	>20	B2
26	Norway maple p	7	490	5	5	5	5	E	G	G	Well structured tree with no notable defects, although slightly asymmetrical as a result of adjacent trees. Looks that there may have been a recent ground level rise around the stem, given no buttress flare shown.	>20	B2
27	Silver birch	6	260	3	2	5	1	E	G	G	Asymmetrical and flattened crown structure as a result of heavy suppression from adjacent trees. Two large open decaying heartwood pruning wounds at 2.5 m	>10	C2
28	Whitebeam	7	590	6	7	6	5	M	G	G	Well structured tree with some black seepage noted on lower bole bark.	>20	B2
29	Whitebeam	4	180	3	3	3	3	S	P	F	Tree in terminal decline	<10	U
30	Rowan	6	280	3	3	3	4	S	P	F	Tree in terminal decline	<10	U
31	Norway maple	8	610	5	6	6	6	E	G	G	Asymmetrical structure as result of adjacent building and shows a number of exposed buttress roots with minor damage. Crown rise history, with poor pruning noted.	>20	B1
32	Silver birch												
33	Norway maple	8	350	5	5	4	3	E	F	F	Notable tip death and dieback in the upper crown areas. Extensive root pruning wounds within the mid stem.	>10	C2

Tree No.	Species	Height (m)	Stem Diameter (mm)	Crown Spread				Age Class	Condition		General Notes	Est. Yrs Remaining	Grade / Category
				N	E	S	W		P	S			
34	Norway maple	7	420	4	3	5	4	S	G	G	Tri-stem from 2m that then forms a well structured crown with no notable defects. Asymmetrical as a result of adjacent trees.	>20	B2
35	Norway maple	10	650	6	5	5	6	E	G	G	Multistem clustered crown structure from 2 m. History of mid stem poor pruning practice. Shows as a suppressed crown shape.	>20	B2
36	Silver birch	8	230	3	2	2	5	S	G	F	Very asymmetrical crown shape as a result of adjacent suppression.	>10	C2
37	Norway maple	7	250	4	3	3	3	S	G	G	Very asymmetrical crown shape as a result of adjacent suppression. Minor die back and snap outs in the upper crown area.	>10	C2
38	Silver birch	10	370	6	6	6	4	M	G	G	Generally well structured tree with good street scene visual amenity value. Marked down from a Cat A tree as it seems to have some early bleeding canker at the base of the stem.	>20	B2
39	Norway maple	9	380	3	5	8	6	E	G	F	Twin stem very asymmetrically structured tree as a result of adjacent suppression. Numerous exposed buttress roots.	>20	B2
40	Silver birch	9	180	3	1	1	1	S	G	P	Poorly structured fastigiate tree	>10	C2
41	Silver birch	7	270	5	4	3	4	E	G	G	Slightly leaning structure away from adjacent trees and building. Lower crown pruning history. No notable defects.	>20	B2
42	Silver birch	10	360	5	5	6	5	S	G	G	Slightly leaning structure away from adjacent trees and building. Lower crown pruning history. No notable defects.	>20	B2
43	Norway maple	9	430	4	6	4	6	E	G	G	Well structured tree with no notable defects. Damage noted to exposed buttress roots, with lower crown rise pruning.	>20	B2
44	Sycamore	12	570	8	8	7	7	E	G	G	Multistem a structure from 2.5 m with a shared well structured crown area with adjacent. Large poor pruning wound at 2 m which has left a large tear out with decay.	>20	B2
45	Sycamore P	11	460	6	5	6	5	S	G	G	Multistem smothered crown structure that sits within the central area of this shared crown group.	>20	B2
46	Sycamore P	11	490	7	7	6	5	E	G	G	Twin stem from 2 m that forms a well structured end of group asymmetrical crown shape.	>20	B2
47	Ash	8	570	7	7	7	7	E	G	G	Well structured tree with no notable defects. Some exposed buttress roots with minor damage noted.	>20	B2
48	Ash	8	440	6	6	6	6	E	G	F	Well structured tree with no notable defects. Minor deadwood noted throughout.	>20	B1
No. 49 to 58 are shown within the redline boundary but are unlikely to be impacted by the development proposals. These trees are therefore not included in the assessment in line with pre-application consultation comments.													
59	Whitebeam	10	600	4	4	5	4	M	G	G	Numerous tear outs and a large cavity noted within one of the upper limbs. Hanging dead noted within the upper grown.	>10	C1
No. 60 is shown within the redline boundary but is unlikely to be impacted by the development proposals. This tree is therefore not included in the assessment in line with pre-application consultation comments.													

Tree No.	Species	Height (m)	Stem Diameter (mm)	Crown Spread N	E	S	W	Age Class	Condition P	S	General Notes	Est. Yrs Remaining	Grade / Category
61	Lombardy poplar	10	830	4	4	4	4	M	G	G	Well structured tree with no notable defects. Good example of its species in this mature form.	>40	A1
62	Lombardy poplar	11	1030	5	6	4	4	M	G	G	Well structure tree with no notable defects. Good example of its species in this mature form.	>40	A1
63	Cherry	8	470	5	5	5	5	OM	P	F	Tree in terminal decline	<10	U
No. 64 to 73 are shown within the redline boundary but are unlikely to be impacted by the development proposals. These trees are therefore not included in the assessment in line with pre-application consultation comments.													
72	Silver birch	7	380	5	8	7	7	M	G	G	Well structured tree with some large lateral branches that result in an asymmetrical shape. Some exposed roots with minor mower damage	>20	B1
73	Norway maple p	6	460	6	7	7	7	E	G	G	Well structured tree with no notable defects. Does though show helical stem bark growth with some minor mower damage to the exposed roots.	>20	B1
74	Purple plum	7	390	5	5	5	5	M	G	G	Good wide open crown structure that is formed from a twisted included bark twin stem from 2m.	>20	B1
75	Silver birch	4	290	4	4	5	6	E	G	G	Well structured tree with no notable defects. Slight natural lean away from adjacent building with western crown growth over the single story garages.	>20	B1
76	Cherry	6	350	5	5	4	4	E	G	G	Good condition with a well structured crown, Good example of its species.	>20	B1
77	Cherry	8	530	5	5	6	6	M	P	F	Tree now in decline with a thinning crown and extensive lower pruning wounds. Root girdling noted.	>10	C1
78	Norway maple	9	490	6	6	6	6	E	G	G	Twin stem well structured tree with evidence of poor pruning history.	>20	B1
79	Acer sp.	8	420	5	5	6	4	E	G	G	Twin stem structure with large side lateral branches from 2 m. Slightly asymmetrical as result of adjacent tree.	>20	B1
80	Norway maple	7	360	7	5	6	3	E	G	F	Growing in close asymmetrical proximity with adjacent trees (T80 to T83) and existing site building. Evidence of poor pruning history. Minor mower damage on exposed roots.	>20	B2
81	Norway maple	10	420	4	6	6	4	E	G	G	Growing in close asymmetrical proximity with adjacent trees (T80 to T83) and existing site building. Evidence of poor pruning history. Most dominant tallest tree in this group. Root girdling noted at stem base.	>20	B2
82	Whitebeam	8	200	2	2	5	2	S	G	P	Growing in close asymmetrical proximity with adjacent trees (T80 to T83) and existing site building. Significant bark damage noted on the stem. Heavy natural lean away from rest of group.	>10	C2
83	Norway maple	7	330	4	3	5	4	S	F	F	Heavy epicormic throughout crown with die back noted. Fastigiate structure with crown rise history and minor mower damage to exposed roots.	>10	C2
84	Silver Birch	10	100	1	1	1	1	D	D	D	Tree in terminal decline.	<10	U
85	Silver maple	9	700	9	9	11	15	M	G	G	Well structured tree with no notable defects. Good examples of its species in this mature form, albeit with an asymmetrical structure from closely growing adjacent trees and building. Semi occluded lower stem damage.	>40	A2

Tree No.	Species	Height (m)	Stem Diameter (mm)	Crown Spread				Age Class	Condition		General Notes	Est. Yrs Remaining	Grade / Category
				N	E	S	W		P	S			
86	Whitebeam	9	370	3	2	5	5	S	G	P	Heavily smothered and naturally pushed over by the dominant T85	>10	C2
87	Norway maple	7	550	7	6	3	6	E	G	F	Multistem structure that has seen significant crown pruning of the southern side to maintain clearance of building. Minor mower damage to exposed roots.	>10	C1

G: Good

F: Fair

P: Poor

SM: Semi mature

EM: Early mature