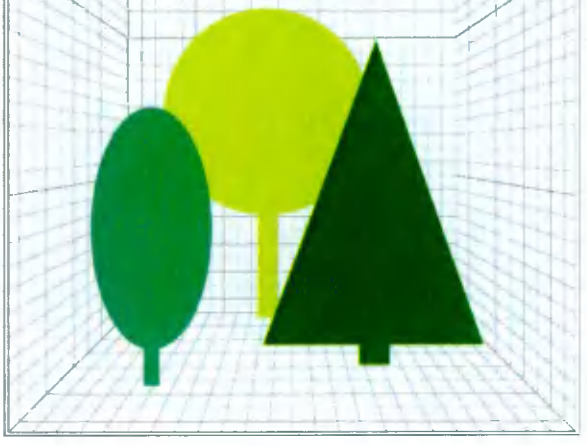
The Tree File
Consulting Arborists



Arboricultural Report

Trees at Proposed Site at
Ball Alley House
Lucan
Co Dublin

September 2021

The Tree File Ltd
Consulting Arborists
Ashgrove House
26 Foxrock Court
Dublin 18
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086-3819011

Contents

Associated Drawings

This report is for reading in conjunction with the drawings noted below

	Drawing Title	Drawing Subject
1)	**Ball Alley Tree Constraints Plan**	**Tree Constraints Plan** A plan depicting the predevelopment location, size, calculated constraints, and simplified tree quality category system
2)	**Ball Alley Tree Impacts Plan**	**Tree Impacts Plan** This plan represents the effects of the proposed development works on the above tree population and depicts trees to be retained and removed.
3)	**Ball Alley Tree Protection Plan**	**Tree Protection Plan** This plan depicts the nature, location and extent of tree protection measures required for sustainable tree retention.

1 Report Summary

1.1 The subject area of the site supports little material of Arboricultural interest, all being located close to the site's southern boundary. At this position, we find a substantial and outgrown Leyland Cypress hedge, presumed have been installed as a hedge and to provide screening. This alignment is now circa 10.00 m tall and 10.00 m wide with no realistic potential for controlling these dimensions by the application of any management works.

1.2 To the south of the Leyland cypress hedge and adjoining the edge of our diva in drive we find a group of three trees, including two Swedish Whitebeam and a Norway Maple as well as an area of suppressed shrubbery. Whilst the shrubbery offers minimal sustainability because of competition and suppression, the trees were found to be in reasonably good condition.

1.3 Outside of the site confines directly adjoining its western boundary, the survey has noted 3 additional trees and tree line. These trees arise from positions immediately west of the sites stone-built boundary wall. Review has found that this wall acts as a retaining structure with land to the west of the wall being nearly 1 m above those within the site's current car parking area. This means that the wall structure (as well as any foundation it may have) will be acting as a physiological barrier to natural root development. This means that there is practically no realistic likelihood of roots extending down to and beneath the foundation of the wall to gain access to the ground space beneath the existing tarmacadam.

1.4 The proposed development will require the removal of "Tree Line 2", the two Swedish Whitebeam, the Norway maple and "Shrub Group 1" towards the south the site. The proposed development is considered unlikely to have any encroachment issues regarding routing patterns relating to the trees arising from neighbouring properties to the west. Nonetheless, it is considered likely that the proximity of these trees to the boundary and their overhang of same, will require procedural control during construction works to avoid damage. This may involve either avoidance or the pruning of trespassing elements of the tree crowns, or a combination of the two. Nonetheless, the nature of the boundary wall is considered such as to prove provide adequate tree protection in respect of the avoidance of damage to any root bearing ground, notwithstanding the nominal, mathematical calculation of a circular root protection zone.

2 Introduction

2.1 This report was commissioned by-
CDP Architecture.

This report was prepared by-
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Report Brief

2.2 An Arboricultural report has been requested in respect of the proposed development. As "BS5837: 2012 Trees in Relation to Design, Demolition and Construction – Recommendations" is the accepted framework for such reports, its composition, inclusions and recommendations being followed as a general basis for such reporting.

Report Context

2.3 This report includes an Arboricultural review of the proposed development project. The report includes an assessment of the sites existing tree population within its current context. The report assesses their potential for sustainable retention in the post-development scenario. The report also describes the likely effects and repercussions of the development and construction process upon those trees. It also provides information regarding the necessary tree protection and the avoidance of damage to trees during the construction process, necessary to achieve sustainable tree retention.

2.4 This assessment summarises the Arborists findings and recommendations. These findings were developed after reviewing the proposed project details as provided by the design team, and after an evaluation of trees as defined and described in the tree survey at "Appendix 2". This report also includes a preliminary "Arboricultural Method Statement" at "Appendix 1" as well as a Tree Protection Plan. This plan illustrates the requisite conservation and protection methodologies necessary to maintain tree sustainability. This report is not intended as a critique of the proposed development but is an impartial assessment of the development implications relating to the sustainable retention of trees, whether that be any, some, or all trees. This report is for planning purposes only and may be deficient for construction phase use.

Report Limitations

2.5 This report relates the Arborists interpretation of information provided to him before the report compilation and gained by him during the undertaking of the site review and tree survey. The site review data is subject to the limitations set out under "Inspection and Evaluation Limitations and Disclaimers" in "Appendix 2" of this report. The findings and recommendations made within this report are compiled based upon the knowledge and expertise of the inspecting Arborist.

2.6 The "Implication Assessment" element of the report builds on assumptions and estimates, particularly in respect of how construction works might proceed on a day to day basis and appreciates the "design" stage of the project, as opposed to "detail design" or "construction" detail.

2.7 In line with the "design" stage of the development proposals, many elements of the "Arboricultural Method Statement" are deliberately broad and generic. They will require review, amendment and consolidation at the construction stage, for example, in respect of the size and nature of the equipment, plant and machinery that might be utilised by any potential building contractor and any details as may change at "detail design" or "construction detail" stages.

2.8 Accordingly, this assessment is premised on all its elements/recommendations, and the omission or alteration of any part of it, particularly the application of tree protection methodologies, can radically alter outcomes regarding sustainable tree retention.

3 Site Description

3.1 the subject site comprises the existing ball Alley house building and its associated car parking area to the south of the main building. The site is adjoined to the north by the Leixlip Road (R835) and to the south by Ardeevin Drive. To both the east and west of the site, there are existing residential properties.

3.2 The eastern, southern and western boundaries of the site are defined by block or stone-built walls.

3.3 For the most part, the site is devoid of vegetation, but supports minor amounts towards and about its southern boundary with neighbouring properties to the west supporting a number of small trees also.

3.4 The site area is substantially artificial, being almost totally developed, supporting either buildings or existing hard surfaces.

4 Pre-Development Arboricultural Scenario

4.1 Within the walled context of the site, the subject site supports only "Tree Line 2", comprising a close-knit and outgrown alignment of Leyland Cypress.

4.2 The site is adjoined by other vegetation including a small number of trees arising from gardens of neighbouring the site to the west as well as a planted border that separates the walled site area from Ardeevin Drive roadway to the south.

4.3 In respect of the trees adjoining the sites western boundary we note that neighbouring garden's support and outgrown Leyland Cypress Hedge, Norway Maple, a Sycamore and a Cotoneaster. This material arises from positions close to and immediately beyond the existing stone wall boundary. Particular note is made that the stone wall appears to be a retaining structure, with wall heights within the site being circa 2.28 m whilst the wall height when measured on the neighbouring garden side as in the order of 1.35 m. This illustrates a ground level disparity circa 0.93 m at the point of measurement. This topographical feature is considered important in respect of tree rooting extent. Research (Jackson 1996) suggests that the clear majority of tree roots exist within the upper 500 mm of ground. This means that such a feature will act as a substantial physiological barrier to root development and is likely to have deflected routes to the north and south, along the wall. Considering the wall will have some form of foundation then the likelihood of tree roots extending down more than a metre only to progress in an easterly fashion, beneath a sealed, tarmacadam surface to area is considered highly unlikely. For the purposes of this report, it is assumed that any activity carried out to the east of the existing boundary wall is unlikely to have any effect on tree roots relating to trees to the west of the wall.

4.4 To the south of the site, we note the existence of a Leyland Cypress Hedge (Tree Line 2). This alignment appears to have been planted as a hedge or screen, but at this time has become wholly outgrown, attaining circa 10.00 m in height and a similar dimension in spread. Apical growth forms and an inability to apply standard pruning practice means that this hedge cannot be successfully reduced in size and its size cannot be managed over time. This species is that which is referred to in the "High Hedges" legislation of the UK because of management issues and a general and suitability for retention within the developed context. Equally, the species is unlikely to be accepted if nominated for planting within a submitted landscape scheme.

4.5 "Tree Line 2", though providing a tangible screen should be regarded as offering limited and only short-term sustainability.

4.6 Located to the south of the existing southern boundary wall and within the soft landscape margin between the boundary wall and Ardeevin Drive, we find 3 trees and a block planting of shrubbery. These trees, including Swedish Whitebeam and Norway Maple are in reasonable condition and would offer notable degrees of sustainability. The underlying shrubbery however is of poor quality, heavily suppressed and notably unbalanced because of its position growing beneath the larger, dominating trees.

4.7 Within the site area, the only additional vegetation of visual note includes climbing plants in both eastern and western car park walls. This material comprises 8 combination of Ivy and Russian Vine on the western boundary wall whilst the eastern boundary supports a mixture of plain and variegated ivy alone. This material is considered to be of limited significance because of its small stature and these by which it can be replaced.

5 Planning Scenario in Respect of Tree

5.1 In respect of trees as they relate to planning within the **South Dublin County Council** area, note is made of two areas of guidance including - **The South Dublin County Council Development Plan 2016-2022** and **South Dublin County Council's Tree Management Policy 'Living with Trees'.**

5.2 **South Dublin County Council's Tree Management Policy 'Living with Trees'** "and the Amendments to Tree Management Policy 2015-2020 'Living With Trees' (as well as an interim internal review in February 2019) that incudes substantial amounts of information in respect of tree management, planting and pertinent to this application, information pertaining to trees on development sites as outlined in Section 7, Trees and Development.

5.3 Within the **South Dublin County Council Development Plan 2016-2022**, trees and tree issues are dealt with regularly, including **Chapter 4, Economic Development and Tourism,** section 4.3.3, ET3 Objective 5 calling for the retention of trees on

commercial development sites. Under Chapter 6, Transport and Mobility notes that the design of urban roads and street should incorporate tree planting.

5.4 As expected, trees are mentioned widely in **Chapter 8, Green Infrastructure**, with objectives to protect, and preserve trees and woodlands as per G2 Objective 9 and G6 Objective 1 and well as to include new tree planting as per Objective G2 Objective 11.

5.5 Also, **Chapter 10, Heritage, Conservation and Landscapes**, mentions trees, particularly HCL10 Objective 3, HCL11 Objective 5, HCL15 Objective 3 and HCL17 Objective 1. Within Chapter 10, trees are also mentioned specifically in respect of Section 9.2.4 GRAND CANAL where trees are considered an integral part of the canal landscape.

5.6 Specifically, **Chapter 10, Heritage, Conservation and Landscapes**, includes Section 9.5.0 Tree Preservation Orders, including their application as well as defining the 4 existing orders located at, St. Brigid's (now Newlands Garden Centre), New Road, Clondalkin, Beaufort Downs, Rathfarnham, Townland of Quarryvale and Brooklawn, Palmerstown and Newcastle Road, Lucan.

5.7 In **Chapter 11, Implementation** and under "Masterplan Considerations", "Open Space and Landscape" and particularly "Section 11.5.5 Landscape" again mentions the importance of retaining trees and hedges.

5.8 Review of the current development plan reveals no specific "map based" objective for tree or woodland protection, or any tree preservation orders associated with the site. The plan does indicate a "protected structure" status (RPS Ref.094) applicable to the Ball Alley House structure.

6 Other Legislative and Legal Constraints

6.1 Under the Forestry Act 2014, the felling of a tree standing in a county area requires a felling license unless the trees are exempted under Section 19 of the Act. An exemption applies where trees are being felled in line with a specific detail of a grant of planning permission.

6.2 Some "Section 19" exemptions are not applicable to the development scenario, for example, those applying to fire control, forest survey or gene pool protection relating to horticultural use or Christmas tree production.

6.3 Some exemptions are pertinent to the development scenario, particularly Section 19(1)(M)(ii), where "the removal of which is specified in a grant of planning permission".

6.4 Other non-specific exemptions may also be applicable, including-

- Trees standing in an urban area.

- Trees within 30 metres of a building (other than a wall or temporary structure), but excluding any building built after the trees were planted.
- Trees removed by a public authority in the performance of its statutory functions.
- A tree that is, in the opinion of the planning authority, dangerous on account of its age, condition or location.
- A tree within 10 metres of a public road and which, in the opinion of the owner (being an opinion formed on reasonable grounds), is dangerous to persons using the public road on account of its age or condition.

6.5 The above derogations do not apply where-

- The tree is within the curtilage or attendant grounds of a protected structure under Chapter 1 of Part IV of the Act of 2000.
- The tree is within an area subject to a special amenity area order
- The tree is within a landscape conservation area under section 204 of the Act of 2000.
- The tree is within a monument or place recorded under section 12 of the National Monuments (Amendment) Act 1994, a historic monument or archaeological area entered in the Register of Historic Monuments under section 5 of the National Monuments (Amendment) Act 1987, or a national monument in the ownership or guardianship of the Minister for the Arts, Heritage and the Gaeltacht under the National Monuments Acts 1930 to 1994 or is within a European Site or a natural heritage area within the meaning of Regulation 2(1) of the European Communities (Birds and Natural Habitats) Regulations 2011 (S.I. No. 477 of 2011)

6.6 For further clarification, contact should be made with Forest Service (Department of Agriculture, Fisheries and Food). The Felling Section of the Forest Service is based in Johnstown Castle, Co. Wexford

6.7 Other legislation may affect tree cutting and felling. Particular note should be made of the "Wildlife Act 1976 (as amended), as well as the EU Habitats Directive. These offer protection to animals, including Bats that often root or even breed in trees. The protection afforded by the above legislation means that particular care must be taken in the pruning of felling of trees that may contain Bats. For this reason, specific specialist advice should be sought.

7 Construction Activities and their Effect on Trees

General

7.1 As with all living things, trees are highly reliant upon their environment, the changing of which can undermine health and sustainability. The survival of the plant requires water and various nutrients provided by the soil in which the tree is rooted. The continuity of ground conditions is of particular importance in maintaining tree health

and sustainability. Any change to ground conditions extending beyond the short-term, has the potential to affect a tree's metabolism, health, and sustainability.

7.2 Development and construction activities can easily result in the loss, alteration or denaturing of the soil upon which a tree is dependant. Any action that removes, disturbs or denatures the existing soil environment in respect of chemistry, pH, gas flux, hydrology, soil strength or bulk density can damage tree roots and render a soil incapable of supporting plant root function. Therefore, these effects must be avoided in the areas upon which a tree is reliant.

7.3 Tree retention is costly in respect of available space. There is a substantial difference between physically retaining a tree in situ and gaining any realistic expectation of it surviving into the future. Sustainable tree retention is commonly dependent upon the extent and nature of protection it can be afforded during construction.

7.4 Any structure or activity that results in the issues noted above must be regarded as contrary to sustainable tree retention. In many instances where such issues arise within the minimum "root protection area" as defined under "BS5837-2012", then the sustainability of the tree may be affected.

Construction Specific Issues

7.5 New structures, their foundations as well as underground infrastructure and services all require the excavation of ground space. These digs are often substantially larger than the footprint of the structure. Some structures, including roads and paths, require that the ground beneath is compacted to provide a necessary bearing ratio. The combination of these activities typically results in the loss or denaturing of the soil volume that a tree may be reliant upon.

7.6 Most modern construction involves the use of substantial plant, equipment, and vehicles. The movement and activity of such machinery quickly compacts and denatures the ground, destroying the soil profile upon which trees are reliant.

Contextual Issues

7.7 Tree removal may be justified because of poor-quality, ill-health or other deterioration that raise safety considerations. Many such trees would be removed regardless of any site development. However, some poorer-quality trees, for example, if located in areas of reduced sensitivity, might offer some degree of limited or interim retention, dependant on the retention context and the threat they may present.

7.8 Where the site context changes in respect of occupation and use near trees, repercussions may include a requirement for greater scrutiny and management. Some trees may require specific attention, including structural pruning improve their safety status within the changed context, as well as to deal with issues of exposure and shelter loss.

7.9 Trees should be considered in respect of shadow-cast, light admission and blockage of views. Trees can have a material effect on these issues and can lead to post development request for more tree removal, for example based on a requirement for artificial light during daylight hours.

7.10 Foliage shedding can be subject to local wind patterns, creating local drifts and accumulations. This requires management and can lead to drainage issues including the blockage of drains and gullies, or to the creation of slippery surfaces. Similarly, some trees are subject to seasonal insect infestations. Issues such as Aphid "honeydew" and the creation of stick residues and/or slippery surfaces should be considered.

8 Nature of Project Works

8.1 The development will consist of:

8.1.1 The removal of selected hedging, the removal of the existing 52 No. car parking spaces and the construction of a 4-storey apartment building, with setbacks at third floor level, total 14 no apartments comprising of; 1 no. one-bedroom, 11 no. two-bedroom and 2 no. 3-bedroom apartments. All with associated private open spaces areas in the form of balconies. With access to the development from existing vehicular and pedestrian entrance from Leixlip Road (R835) and from proposed new vehicular and pedestrian access from Ardeevin Drive. All with associated landscaped courtyard at ground floor level, sedum roof (Main Roof), bicycle storage, bin storage, signage, associated drainage and site development works

8.2 Considering the scope and scale of the proposed development, then many of the issues dealt with at "Construction Works and Trees" above could apply if trees are not protected during construction works, including-

a) Direct conflict with proposed structures, thus requiring tree removal.
b) A partial conflict where the "Root Protection Area" is encroached upon by works or ground amendments and cannot be preserved/protected in full.
c) Environmental damage e.g. compaction, capping, sealing – changing the existing ground environment to one that can no longer support tree root function.
d) Construction activity and the use of large plant and machinery that can denature the ground.
e) A change in site context or a change in occupation or use which makes a tree unsuitable for retention.

9 Development Related Issues and Arboricultural Concerns

9.1 The general lack of trees on the site means that the proposed development generates minimal Arboricultural concerns.

9.2 The development will result in the loss of the trees at and about the southern boundary with Ardeevin Drive, and therefore will result in a localised loss of amenity and screening.

10 Design Iterations and Arboricultural Considerations

10.1 This report relates to clause 4.4.2.1 of BS5837-2012 in that its finding relate to a predefined concept that was issued for review. Accordingly, the report assesses Arboricultural implications and impacts of the proposals, making recommendations in respect of tree protection relating to those trees that might be retained and as outlined below.

11 Identification of Development Impacts to Trees

11.1 The expected tree impacts have been represented graphically on the tree impacts drawing **"Ball Alley Tree Impacts Plan"** and within the narrative of this report. This drawing combines the tree constraints plan information with the current stage development details, including the architectural and services layouts below, thereby allowing for simple direct comparisons between the existing site context and the development proposals regarding new structures.

11.2 In this drawing, trees denoted with "Broken Pink" crown outlines are to be removed, and those denoted with "Continuous Green" crown outlines are to be retained.

11.3 Detail of the development proposals where gained from drawings provided by-

- Moloney Millar - Consulting Engineers – Drainage and Engineering information overlaid on Masterplan
- CDP Architects - Architectural Design

11.4 The evaluation is primarily based on minimum protection ranges as defined in paragraphs 4.6.1, 4.6.2 and 4.6.3 of BS5837:2012. Any structure, action or apparent need to enter or otherwise disturb/convert the "root protection area" of a site tree has been considered likely to have a negative impact, with the potential to render a tree wholly unsuitable for retention, unsafe or unsustainable.

11.5 Where applicable, this assessment attempts to consider both direct and indirect implications. The assessment is based on perceived construction requirements and how a tree will likely interact with the development. The assessment appreciates issues including growth, hazard development, light blockage and other social concerns regarding the changing context, including its effect on tree amenity value.

12 Tree Retention and Loss

12.1 The drawing "Ball Alley Tree Impacts Plan" comprises the tree survey drawings overlaid by the development drawings, thus providing a graphic representation of the

relationship between tree constraints and the development elements. In this drawing, the trees that will be removed, are highlighted in "pink dashed" outlines.

12.2 As noted within the survey data, the "red line" area supports a total of 3no. individually described trees and a group (Tree Line 2). Additionally the review area supports an additional tree line (tree line 1 and 3No. individual trees. For the purposes of this report each of the "groups" will be regarded as an item. Therefore the site supports 6no. individual trees and 3no. multi-plant groups will be regarded as total of 9no. items. These have been categorised as:

- No category "A" items
- 4no, category "B" items
- 5no. category "C" items
- No category "U" item

12.3 Of the site's good quality category "B" items, the development will result in the loss of tree nos.5 and 6.

12.4 Of the site's category "poor" quality "C" items, the development works appears to require the removal of Tree Line 2, Shrub Group 1 and tree No.4

12.5 The tree loss breakdown for the proposed developemnt will be-

- 2 Category "B" items
- 3 category "C" items

12.6 Total development related loss includes 2No.groups and 3No. trees

13 Tree Protection within the Scope of a Development

13.1 The design and management recommendations as set out in "BS5837:2012" are considered as "best practice" regarding the selection, retention, protection, and management of tree within the scope of new developments.

13.2 In respect of tree protection, whether vertical or horizontal, all must conform or equate to the recommendations of Section 6, BS5837: 2012, must be fit for purpose and commensurate with the nature of development and the expected day-to-day activities of the site works.

13.3 This report provides a "Preliminary Arboricultural Method Statement" at "Appendix 1" to this report, as well as the associated "Tree Protection Plan" drawing "Ball Alley Tree Protection Plan".

13.4 For the purposes of this report, it should be noted that all trees within the site area will be removed. The only trees retained within the "review area" are located within the garden areas of neighbouring properties to the west of the site. These trees are effectively separated from the site area by an existing built wall that will effectively act as the tree protection boundary. It is noted that procedural arrangements may be

required in respect of the proximity of the trees to the boundary and the degree of overhang they present.

14 Preliminary Management Recommendations

14.1 Provided in the tree survey table (Table 1) are "Preliminary Management Recommendations". These recommendations relate to the trees as they existed at the time of the tree review. Therefore and in line with the changing context of the site, such recommendations may no longer apply. Examples include where the felling of trees or other specific works are necessary to facilitate development requirements.

14.2 Many of the concerns raised in the tree survey relate to evidence suggesting mechanical failure to trees, ill-health or contextual issues. These may continue to a point where the suitability of a tree for retention may change over time.

14.3 Additionally, any development related loss of trees can result in exposure and shelter loss issues. Therefore all retained trees must be reviewed immediately after the primary site clearance works. A review will allow for the updating and amending of the "preliminary management recommendations" of the primary survey. Such amendments would address such issues as may arise and may include additional structural pruning works. Regular reviews of all retained trees must be maintained, so that early and prompt intervention and action can be applied as required.

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A1 Appendix 1 - Arboricultural Method Statement (and Tree Protection Plan)

Method Statement Outline

A1.1 This method statement intends to provide guidance in respect of tree protection on a development site. This is a broad and prescriptive method statement, intended to provide general advice and guidance in respect of trees and tree protection on a typical development site, dealing with issues known at planning stage.

A1.2 Any inability to conform to the recommendations of this method statement or the associated tree protection plan could readily change the sustainability of trees and/or their suitability for retention.

A1.3 This method statement addresses, amongst others, two primary issues, those being –

a) The avoidance/prevention of physical damage to a tree to be retained.

b) The avoidance/prevention of physical damage or disturbance to the ground/earth upon which a tree is reliant.

Drawings

A1.4 This Arboricultural Method Statement must be read with the associated "Tree Protection Plan" drawing, "Ball Alley Tree Protection Plan". The "planning stage" drawing must be updated for "Construction" stage purposes, to include tree protection ranges/dimensions as defined for that tree within the tree survey table or unless otherwise defined by the project Arborist.

Method Statement Use

A1.5 This Method Statement should be used under the direct guidance of the project Arborist. As limited "construction stage" detail was available at planning stage, it may require amendment and adjustment to address construction stage issues.

Amendments and Modifications to Tree Protection Plan

A1.6 Any amendment to the tree protection plan must be agreed with the project Arborist, including the adoption of specific methodologies and/or procedures and structures for access into/use of certain parts of the above defined "Construction Exclusion Zones". Such procedures, including the provision of suitable ground protection may allow for the relocation of the "Construction Exclusion Fencing" to provide access to and across the previously protected areas.

Works Related Impacts

A1.7 In respect of any necessary and unavoidable structures/works required within or entry into the "RPA" zone, all efforts must be made to minimise impacts. Aerial issues may

require "access facilitation pruning" or clearance pruning. Subterranean works that require excavation must, by design, location, and action, minimise impacts to trees.

Tree Works Specification Updates

A1.8 Many of the tree management recommendations stipulated within the "Preliminary Management Recommendation" section of the primary tree survey, relate to the "as was" site scenario. Because of changing site contexts, these may no longer apply and may require modification to account for the changes that the built project will cause.

General Method Statement

1.0) Overview and Implementation

1.1 **Prior to any site works or construction/demolition related works or access, this method statement will be addressed and discussed by all member of the construction team management.**

1.2 The project Arborist or another suitably qualified person will oversee the application of all tree protection measures and any necessary modifications to this Method Statement (any issues as may have arisen in respect of planning conditions or details as may have changed between the design stage) to provide a basis upon which tree protection will be managed on the construction site.

1.3 Any situation that requires entry into the "root protection zones" of a tree intended for retention must be brought to the attention of the Project Arborist regarding the adoption/amendment of suitable tree protection measures.

1.4 As unforeseen tree losses may compromise project planning permissions, it is imperative that issues relating to tree protection and/or tree damage be brought to the immediate attention of the project Arborist for review and possible discussion with the relevant planning authority.

2.0) Works Sequence

2.1 No construction related works or mechanised site access will occur until the agreed level of tree protection, in accordance with the "Tree Protection Plan", is completed.

2.2 The only exception to the above will relate to the undertaking of tree works and felling as defined in the Arboricultural report and/or grant of permission.

2.3 On completion of tree felling/site clearance works, the tree management plan will be reviewed, accounting for (if necessary) the updating of the "preliminary Management Recommendations" stipulated in the original Tree Survey.

2.4 Any revised pruning/cutting works will be agreed with the local authority and applied at the earliest possible opportunity.

2.5 After the completion of primary tree clearance, but prior to the commencement of construction works, all "Construction Exclusion" and "Protective" fencing must be erected and "signed-off" as complete, by the Project Arborist.

2.6 Only on completion of all construction works will any/all tree protective measures be removed, and only then in a manner, that does not compromise the "Protection Zones". Such works must be agreed and overseen by Project Arborist.

2.7 At construction works completion stage, all retained trees will be reviewed regarding their condition and longer-term management recommendations and regarding site hand-over,

3.0) Tree Protection

3.1 All tree protection measures and locations must be agreed, overseen, and verified by the Project Arborist prior to works commencement.

3.2 All construction, works or access areas must be enclosed and defined by protective fencing, this comprising the "Construction Exclusion Zone" based upon drawings "Ball Alley Tree Protection Plan" (Construction Stage version).

3.3 Unless specifically stipulated by the project Arborist, the default minimum range of the protective fencing from a tree is the range stipulated for that tree within the "RPA" (root protection area) column of the original survey.

3.4 Such a fence must be fit for purpose and commensurate with the nature of activity expected upon the site and should comply with "Section 6.2" of BS5837: 2012.

3.5 The fence should be affixed with notification signs such as "TREE PROTECTION AREA - KEEP OUT"

3.6 Structures such as "lock-ups", offices or other temporary site building, not requiring excavation or underground ducting, might be positioned such as to comprise part of the "Construction Exclusion Zone" fencing. All remaining fencing must be continuous with such features and effectively prevents access to protected ground.

3.7 If entry into the "RPA" (Root Protection Area) zones becomes unavoidable, ground protection systems agreed with the project Arborist, will be utilised.

3.8 No amendment, alteration, relocation, or removal of the tree protection fencing shall occur without prior liaison and approval from the Project Arborist.

4.0) Provision of Ground Protection (If Required)

4.1 No vehicular/mechanised access whatsoever will be allowed onto unprotected "Construction Exclusion Area" ground.

4.2 Ground protection can comprise the use of proprietary materials/structures (installed to manufacturer's specifications and recommendations) or procedures that avoid ground damage/disturbance/compaction, or the use of procedures that avoid such effects e.g. manual/pedestrian installation procedures.

4.3 Any system utilised must effectively spread load-weight, avoid compaction, maintain drainage/percolation/aeration, and be installed in a manner that avoids these issues.

4.4 Newly provided access will be strictly limited to the area of the new protection structure.

4.6 Protection installation will require a progressive laying down of ground protection, with previously laid material providing vehicular access to the next zone will be accepted as an approved methodology.

5.0) Works within "RPA" Zone

5.1 Only works and construction practices, agreed with the Project Arborist prior to commencement, will be allowed in the "RPA" area.

5.2 All works will be undertaken under the supervision and guidance of the Project Arborist who will have the authority to stop works if activities are considered such as to have the potential to damage trees.

5.3 Preference must be given to manual labour and techniques within the fenced "RPA" zone.

5.4 On completion of the required works, the area will be inspected by the Project Arborist regarding the reinstatement of the original protection and the relocation of the protective fencing to a position relating to the original "RPA" area.

6.0) Service Installation

6.1 The "Project Arborist" must be consulted for advice and procedural recommendations, in respect of any installation of services within or requiring entry into the "Root Protection Area" of any tree intended for retention.

6.2 Any such works found to be unavoidable, must be undertaken with special care, incorporating the recommendations of both "BS5837: 2012 and the National joint utility groups, guidelines for the planning, installation and maintenance of utility services in proximity to trees (NJUG 10)

6.3 Preference must be given to trench-less techniques including Mole-piping, Directional-drilling manual hydro-trenching (high-pressure water), "Air-Spade" or broken-trench techniques.

7.0) Tree Management and Works

7.1 All tree works should be undertaken under the guidance of the project Arborist

7.2 The primary site clearance and felling should be undertaken at the earliest stage of the overall development works, to enable the re-assessment of all ostensibly retainable trees and the updating of the "Preliminary Management Recommendations" to account for context changes and construction access and/or other issues coming to light.

7.3 All Tree Works must adopt safe work procedures and must be undertaken by staff suitably trained for the purpose at hand and compliant with all legislative, safety and insurance requirements.

7.5 All additional works will be agreed with the local authority and/or other stakeholders and applied at the earliest possible opportunity.

7.6 On completion of site works, the retained tree population will be reviewed and re-evaluated regarding its ongoing condition and the likely requirements of any ongoing or future monitoring or management needs.

8.0) Demolition

8.1 All demolition procedures must be agreed and overseen by the Project Arborist or other suitably skilled staff to monitor for damage and to protect exposed roots/cut-trim exposed roots/oversee backfilling of exposed roots.

8.2 Where access into unprotected "RPA" zone becomes unavoidable then suitable ground protection, provided in accordance with an engineer's direction and agreed with the Project Arborist will be installed.

8.3 Care will be taken to avoid damage to soil volumes beneath and adjoining demolished structures that may contain tree root material.

8.4 Whilst existing foundations/structures may provide temporary protected access to areas within the "RPA" zone, preference must be given to the location of demolition plant outside of the "RPA" zone.

8.5 Where tree(s) exist near a structure to be demolished then the demolition should be undertaken inwards within the footprint of the existing building (top down, pull back).

8.6 Underground structures (services etc.) within the "RPA" zone should be reviewed with regards to decommissioning and retention in situ in the interest of avoiding tree damage.

8.7 Preference should be given to the retention existing sub-bases where hard surfaces are removed, particularly if the hard surface is to be replaced.

9.0) Ancillary Precautions

9.1 The methodologies as set out in this document apply to all undertakers of work upon or adjoining the site as may require access to the "Construction Exclusion Zone" or the "RPA" area of any tree.

9.2 This document will be disseminated to all persons requiring access to the work site, with all persons undertaking works either before or after the principal development (site investigation works, Landscape Contractors) are subject to the above requirements

9.3 Works outside the "Construction Exclusion Zone" must be controlled to create no potential secondary hazard to tree health.

9.4 Large loads accessing the site must be reviewed regarding clearance and potential tree damage.

9.5 Care must be taken regarding materials that may contaminate the ground. No concrete mixings, diesel or fuel, washings or any other liquid material may be discharged within 10 metres of a tree.

9.6 No fires can be lit within 5 metres of any tree canopy extent.

9.7 No tree will be used for support regarding cables, signs etc.

9.8 The trees should be reviewed on a regular basis throughout the development process and on completion. At that time, additional recommendations regarding tree management may be required.

9.9 Any issue that has the potential to affect site trees must be brought to the attention of the Project Arborist for review and comment.

9.10 Any circumstances that become known whilst the development project is ongoing that either involves trees or access to/works within the construction exclusion zone must be brought to the attention of the Project Arborist for evaluation and advice regarding approach and methodology.

9.11 It is possible that liaison/agreement will be required with the Local Planning Authority regarding compliance with, as well as the verification of the required tree protection measures.

A2 Appendix 2 - Tree Survey

Nature of Survey

A2.1 The criteria put forward in "BS5837:2012 – Trees in Relation to Design, Demolition and Construction – Recommendations" have provided a basis for this report.

A2.2 The data collected has been represented in table form as "Table 1" within "Appendix 1" to this report. This appendix includes a Survey Methodology, Survey Key, Survey Abbreviations, Condition Category Definitions and a brief resume of the typical application of Tree Protection measures as defined within the above standard and as relates to the "RPA" zones defined both within the survey table and on the "TCP" drawing.

A2.3 The survey, its findings and management recommendations relate to the site and the conditions thereon at the time of the survey. It relates to a "do nothing" or "as is" scenario and intends to provide an impartial representation of the site's tree population, regardless of any possible development works. It is likely that changes in site usage, development or other environmental changes will require an amendment of any tree's potential retention status and its preliminary management recommendations, and in some instances, may require the re-classification of a tree's suitability for retention.

Drawing References

A2.4 The survey must be read with the "Tree Constraints Plan" drawing "Ball Alley Tree Constraints Plan" regarding the representation of tree positions, crown forms, "RPA" extents and colour reference to category systems. Trees omitted from the supplied drawing may be "sketched in" to "Ball Alley Tree Constraints Plan". Any such trees should be located and plotted by professional means to identify the constraints such trees have upon the site.

A2.5 A green coloured outline represents each tree crown. It is scaled to represent the north, east, south, and west crown radii as denoted in the survey table. Each tree (categories A-green, B-blue, and C-grey only) have been apportioned a "Root Protection Area" (RPA see below) denoted as a dashed orange circle.

A2.6 The development of a Tree Constraints Plan (TCP) provides a design tool regarding tree retention. Such a plan combines the topographical land survey drawing with additional information as provided by the tree survey. The aspects of the tree's existence recorded on the "TCP" are, firstly, the tree canopies, represented by the four cardinal compass point radii (Sp: R in survey Table 1). Secondly, and following paragraphs 4.6.1, 4.6.2 and 4.6.3 of BS5837: 2012, we represent each tree's "Root Protection Area" (RPA). For design purposes, it approximates the position of the tree protection fencing to be erected before the commencement of any site works, thus excluding all site

activities other than those dealt with by way of the "Arboricultural Implication Assessment" and "Arboricultural Method Statement".

A2.7 The "Tree Constraints Plan" (TCP) depicts the extent and location of constraints, placed upon the site by the trees. The "TCP" represents both the true canopy form (north, east, south, and west radii) but also the "RPA" as defined above. These constraints are provided to advise regarding the design and layout of a proposed development.

Survey Intent and Context

A2.8 This document intends to highlight the extent and nature of the material of Arboricultural interest on the site in question.

Survey Data Collection and Methodology

The Survey

A2.9 An earlier survey was updated in March 2021. This survey portion of the overall report is not an Implication Assessment though but provided some of the basic information regarding its compilation. The compilation of this survey was guided by the recommendations of BS 5837: 2012. This survey typically includes trees of stem diameters exceeding 150mm at approximately 1.50 metres from ground level. The survey relates to current site conditions, setting and context.

A2.10 Each tree in the survey has a consecutive number that relates directly to the survey text. Measurements are metric and defined in metres and millimetres. All trees referred to in the survey text have been measured to provide information regarding canopy height and canopy spread (north, east, south, and west radii), level of canopy base and stem diameter at 1.50 meters from ground level. The dimensions provided are intended to provide a reasonable representation of a tree's size and form. While efforts are made to maintain accuracy, visual obstruction, especially regarding trees in groups, requires that some tree dimensions be estimated only.

Inspection and Evaluation Limitations and Disclaimers

A2.11 The information set out in this report relates to the review of a tree population on the site in question. As such, the information provided is based on a general review of trees and does not constitute a detailed review of any one of the individual specimens. Such an evaluation (tree report) would require the gathering of substantially more information than that dealt with in this survey.

A2.12 The survey is not a safety assessment and the parameters reviewed within this survey context would be substantially deficient in extent to provide for a reliable safety assessment. The survey is intended to provide a general and qualitative review to assist

in gauging the suitability of an individual tree for retention within a development context. All trees are subject to impromptu failure and damage. The assessment of risk as may be presented by a tree requires the review of numerous factors more than those noted herein and as such, remains outside the scope of this document and any attempt to use the information herein for such proposes will render the information invalid.

A2.13 A competent and experienced Arborist has completed all inspection and tree assessment. The inspection involves visual tree assessment (Mattheck and Breloer 1994) only, which has been carried out from ground level. No below ground, internal, invasive, or aerial (climbing) inspection has been carried out.

A2.14 Trees are living organisms whose health, condition and safety can change rapidly. All trees should be re-evaluated regarding their condition on an annual basis or after substantial trauma such a storm event, other damage, or injury. The results and recommendations of this survey will require review and reassessment after one year from the date of execution. This survey does not constitute a review of tree or site safety. Attempts to use the contents herein for such purposes will render the contents invalid.

A2.15 Throughout the undertaking of the survey, several factors acted against the inspectors, contriving to reduce the accuracy of the survey.

Seasonality

A2.16 Various surveys have been completed during different seasons. Some of the signs, typically symptomatic of ill-health or defect within a tree, may not have been available to view at the time of the survey or may have been obscured by seasonality related factors. Some of the fruiting bodies of various fungi, parasitic upon or causing decay or disease in trees, may have been out of season and unavailable to view. This survey can only comment upon symptoms of ill-health or defects visible at the time of the inspection.

Survey Key

Species	Refers to the specific tree species
Age	Referred to in generalised categories including: -
Y - Young	A young and typically small tree specimen.
S/M - Semi-Mature	A young tree, having attained dimensions that allow it to be regarded independently of its neighbours but typically, would be less than 50% of its ultimate size.
E/M - Early-Mature	A specimen, typically 50% - 100% of ultimate dimensions but with substantial capacity for mass and dimensional increase remaining.
M - Mature	A specimen of dimensions typical of a full-grown specimen of its species. Future growth would tend to be extremely slow with little if any dimensional increase.

O/M - Over-Mature	An old specimen of a species having already attained or exceeded its naturally expected longevity.
V - Veteran	An extremely old, veteran specimen of a species, usually of low vigour and typically subject to rapid decline and deterioration or of very limited future longevity.
Tree Dimensions	All dimensions are in meters. See notes regarding limitation of accuracy.
Ht.	Tree Height
CH	Lowest canopy height
N, E, S, W	Tree Canopy Spread measured by radii at north, east, south, and west
Dia.	Stem diameter at approx. 1.50m from ground level.
RPA	Root Protection Area, as a radius measured from the tree's stem centre.
Con	Physical Condition
G Good	A specimen of generally good form and health
G/F Good/Fair	
F Fair	A specimen with defects or ill health that can be either rectified or managed typically allowing for retention
F/P Fair/Poor	
P Poor	A specimen whom through defect, disease attack or reduced vigour has limited longevity or maybe un-safe
D Dead	A dead tree
Structural Condition	Information on structural form, defects, damage, injury, or disease supported by the tree
PMR – Preliminary Management Recommendations	Recommendation for Arboricultural actions or works considered necessary at the time of the inspection and relating to the existing site context and tree condition. Works considered as urgent will be noted.
Retention Period	
S – Short	Typically, 0 -10 years
M – Medium	Typically, 10 -20 years
L – Long	Typically, 20 – 40 years
L+	Typically, more than 40 years
Category System	The Category System is intended to quantify a tree regarding its Arboricultural value as well as a combination of its structural and physical health.
Category U	Particularly poor quality, dangerous or diseased trees that offer no realistic sustainability
Category A	A typically a good quality specimen, which is considered to make a substantial Arboricultural contribution
Category B	Typically including trees regarded as being of moderate quality
Category C	Typically including generally poor-quality trees that may be of only limited value. The above categories are further subdivided regarding the nature of their values or qualities.

Sub-Category 1	Values such as species interest, species context, landscape design or prominent aspect.
Sub-Category 2	Mainly cumulative landscape values such as woods, groups, avenues, lines.
Sub-Category 3	Mainly cultural values such as conservation, commemorative or historical links.

Table 1 – Tree Data Table

No.	Species	Age	Con	Ht.	CH	N	E	S	W	Stm	Dia.	RPA	Structural Condition	PMR	Yrs.	Cat
TL A	Tree Line A Leyland Cypress *(Cuppressocyparis leylandii)*	S/M	F/P	8.00	2.00	Spread 4.5m Contiguous				–	223	2.67	A contiguous alignment of Cypresses, managed apparently to maintain height and spread. Trees nonetheless afford a notable overhang of the premises and appear to be regrowing rapidly. Trees appear to be positioned circa 450 mm from boundary wall, raising some concern with regard to future growth and potential to damage wall. Species is regarded as troublesome in respect of management. Sustainability over time is questionable.		M	C2
1	Sycamore *(Acer pseudoplatanus)*	S/M	F	10.00	1.50	3.50	3.00	2.50	3.50	5	439	5.27	A young specimen, multi-stemmed from low level, apparently illustrating prior intervention and cutting. Specimen is vigorous and assert notable potential for continued growth over time. Tree appears to be located circa 500 mm from boundary wall raising some concern with regard to species potential for growth, proximity to wall and likelihood of structural damage to wall.	Review regularly.	L	C2
2	Norway Maple *(Acer platanoides "Crimson King")*	S/M	G/F	10.00	2.50	3.00	3.00	3.00	3.00	1	277	3.32	Appears to be set back from boundary wall by circa 800 mm. Tree is of good form and vigour. Trees proximity to boundary wall raises some concern with regard to species potential for ongoing growth and potential for structural damage to the wall as result of that growth.	Review regularly.	L	B2

No.	Species	Age	Con	Ht.	CH	N	E	S	W	Stm	Dia.	RPA	Structural Condition	PMR	Yrs.	Cat
3	Cotoneaster *(Cotoneaster Sp)*	M	G/F	6.50	2.25	3.00	3.00	2.50	2.50	1	312	3.74	A large, sprawling shrub of good vigour and vitality. Shrub assert notable overhang of site.		L	B2
TL B	Tree Line B Leyland Cypress *(Cuppressocyparis leylandii)*	E/M	F	10.00	1.00	Spread 10.00m Contiguous				1	414	4.97	A young and continuous alignment of Leyland Cypress effectively comprising a large, hedge like structure. The alignment has attained an overall spread approaching 10.00 m as result of difficulties relating to management. The species is associated with numerous management issues relating to rapid growth rates and apical growth pattern that frustrates the application of normal pruning principles without the risk of disfigurement. The hedge as it exists today cannot necessarily be reduced in dimensions and will inevitably become larger with time, regardless of application of management. The difficulties noted above are encapsulated within the "High Hedges" legislation of the UK orientated towards the non-use of this species within urban planting schemes because of the inevitably troublesome dimensions it attains at maturity.	Review regularly regarding sustainability.	M	C2
4	Swedish Whitebeam *(Sorbus intermedia)*	E/M	G/F	10.00	2.75	2.50	2.50	2.50	2.00	1	312	3.74	A still young and generally vigorous tree heavily encroached upon and rendered misshapen by proximity of adjoining cypresses.	Review regularly.	M	C2
5	Norway Maple *(Acer platanoides)*	S/M	G/F	11.00	2.25	2.50	3.50	3.00	3.00	1	283	3.40	Young and vigorous though slightly misshapen as result of proximity to adjoining Cypresses.		L	B2

No.	Species	Age	Con	Ht.	CH	N	E	S	W	Stm	Dia.	RPA	Structural Condition	PMR	Yrs.	Cat
6	Swedish Whitebeam *(Sorbus intermedia)*	E/M	F	10.00	1.75	3.50	3.50	3.50	3.50	1	341	4.09	Still vigorous specimen encroached upon by adjoining Cypresses. Tree supports localised limb loss wound at 2.00 m to south.		L	B2
SG 1	Shrub Group 1 Privet *(Ligustrum ovalifolium)* Pyracantha Viburnam *(Viburnam Sp.)*	S/M	F/P	1.00-1.50	0.00	Spread Contiguous				m/s	n/a	n/a	Located beneath the canopy of trees 4, 5 and 6 there is evidence to illustrate a planted shrubby border. This vegetation is now limited to unbalanced to the south because of suppression firstly by the adjoining cypresses and secondly by the 3 trees arising from within the roadside margin. Though the route basement of the shrubbery appears to be almost central within the verge, it is known orientated towards the south to gain light beneath canopy of the adjoining trees. Most specimens remain broadly vigorous though heavily distorted.		M	C2