British Standard 5837:2012 Arboricultural Implications Assessment

Site:

Rookwood
Stocking Lane
Ballyboden
Dublin 16

Prepared for:

Fionnuala Rogerson Architects
Ardtona House
Lower Churchtown Road
Dublin 14

Prepared by:

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Bartlett Project Reference:

JH.190031.R2.AIA

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Submitted on 15th June 2021

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1.0 SCOPE OF REPORT

1.1 Assignment

1.1.1 Bartlett Consulting undertook a tree survey at the property of Rookwood, Stocking Lane, Ballyboden, Dublin 16 in February 2019, leading to the production of a Tree Constraints Plan (TCP) dated 1st March 2019 and referenced JH.190031.Rv2.sh. The survey and initial report followed the guidance of British Standard 5837:2012 *Trees in Relation to Design, Demolition and Construction – Recommendations.*

1.1.2 This report takes the previously gathered tree data and site constraints, and overlays that information with the proposed site plan and proposed site layout, provided by Fionnuala Rogerson Architects.

1.1.3 Bartlett Consulting has been instructed to provide an arboricultural impact assessment, discussing how the proposed site-wide development will impact on, and co-exist with, the existing tree population.

1.1.4 Continuing to following the guidance of British Standard 5837:2012, this report will evaluate the potential direct and indirect impacts of proposed development and site design on the trees; recommended design modifications and/or technical solutions where necessary to address impacts; and tree compensation and mitigations options deemed necessary.

1.2 Documents & Supporting Information

1.2.1 Bartlett Consulting were provided with the following reports and plans prior to writing this impact assessment. They were sent via email in both PDF and DWG file format:

- *Draft Access & Services Report*, Gordon White Consulting Engineers, dated 30.11.2020
- Proposed Road Layout & Levels, Dwg. No. G1162-10, Rev. D, dated 11.11.2020
- Proposed Foul Drainage Layout Plan, Dwg. No. G1162-11, Rev. D, dated 28.10.2020
- Proposed Surface Water Drainage Layout Plan, Dwg. No. G1162-12, Rev. D, dated 28.10.2020
- Proposed Watermain Layout Plan, Dwg. No. G1162-13, Rev. D, dated 28.10.2020

- *Design Rationale – Landscape Architecture,* Dermot Foley, Revision A, dated 18.05.2021
- Landscape Plan, Dwg. No. We.03-DR-201, Revision A, dated 14.12.2020
- Boundary Plan, Dwg. No. We.03-DR-202, dated 14.12.2020
- Landscape Detail Area, Dwg. No. We.03-DR-210, Revision A, dated 14.12.2020
- Typical Landscape Details, Dwg. No. We.03-DR-250, dated 14.12.2020

- Site Layout, Dwg. No. PA-003, dated June 2021
- Site Sections A-A to D-D, Dwg. No. PA-004, dated June 2021
- Site Sections E-E to H-H, Dwg. No. PA-005, dated June 2021
- Bartlett TCP (working) FRA Overlay, dated 22.02.2021

1.2.2 Bartlett Consulting have also referenced the following planning and guidance documents:

- South Dublin County Development Plan (2016-2022)
- Landscape Character Assessment of South Dublin County (2015)
- Irish Water *Wastewater Infrastructure Standard Details*, dated December 2017 (Revision 3)
    - Document Reference IW-CDS-5030-01
- NJUG *Planning for the Installation and Maintenance of Utility Apparatus in Proximity to Trees* Volume 4, Issue 2, dated 16th November 2007

1.0 SCOPE OF REPORT (continued...)

1.3 Aspects Included within Report

1.3.1 This implications assessment is accompanied by a suite of tree constraints plans (TCP) as well as a 'draft' Tree Protection Plan (TPPd).

1.3.2 The suite of constraint plans included within this report will show:

- Proposed Tree Removals
- Proposed Layout and Footprint of Dwellings
- Proposed Layout of Water, Drainage and Lighting Services
- Proposed Layout and Footprint of Access, Driveways and Footpaths

All of the plans listed above will be overlaid onto the original Bartlett Consulting Tree Constraints Plan (dated 26.02.2019; Job Ref: JH.190031; DWG Ref: TCP) so that the arboricultural implication assessment can take place and be discussed within this report.

1.3.3 The TPPd will illustrate trees to be retained and incorporated into the proposed development, as well as those trees recommended for pruning to facilitate proposed development.

1.3.4 The TPPd will also illustrate initial location of physical tree protection measures, areas requiring ground protection and site specific working methods and logistical planning, as well as recommended areas of "free space" for site accommodation, storage, etc.

1.3.5 Tree compensation and mitigation measures to improve the rooting environment and tree vitality will also be provided within this report, where there is proposed development within any tree root protection area.

1.4 Aspects Excluded from Report

1.4.1 This report does not include an Arboricultural Method Statement (AMS), nor 'final' TPP.

1.4.2 The contents of this report do not include discussions regarding subsidence and/or heave as a result of retention or tree removal, nor does this report consider the water demands of trees present to determine foundation design and depth. If required, this can be provided on request.

1.4.3 The contents of this report do not discuss environmental, wildlife or ecological impacts of proposed development associations with the tree subject to this report.

2.0 DEVELOPMENT IMPLICATIONS & MITIGATION ON TREE STOCK

2.1 Proposed Development Details

2.1.1 From the information provided to us and listed in Section 1.2.1 above, it is our understanding that the following aspects of proposed development influence, or are influenced by, the existing tree population:

a) Installation of new access, new residential driveways, and associated parking
b) Construction of eleven (11) detached and semi-detached residential dwellings
c) Installation and improvements to underground services and infrastructure
d) Creation of residential open, amenity and recreation space
e) Installation of public and private footpaths

2.2 Table 1: Implications of Proposed Development on Existing Tree Stock

NOTE: Implications are moving in a clockwise direction around the site, not by tree reference number

Tree Ref.	Species	Category	Removal due to		Mitigation Required		Aspect of Development affecting retained tree
			Works	Tree	Crown	RPA	
G0001	Sycamore	C	√				• Proposed Site Entrance
T0001	Lime	B	√				• Proposed Site Entrance • Proposed Dwelling
T0002	Lime	B	√				• Proposed Site Entrance • Proposed Dwelling
T0003	Lime	A	√				• Proposed Access Within RPA • Proposed Public Footpath Within RPA • Proposed Services Within RPA
T0004	Cherry	C	√				• Proposed Access
T0005	Beech	B	√				• Proposed Access
T0006	Cherry	C	√				• Proposed Access
T1655	Lime	C		√			• Poor Quality Tree • Suppressed / Declining Health
T1656	Lime	C	√				• Proposed Dwelling • Proposed Services
T1657	Horse Chestnut	B				√	• Proposed Dwelling Within RPA • Proposed Parking / Footpath Within RPA • Proposed Services Adjacent to RPA
T1659	Sycamore	B	√				• Realigned Access Within RPA • Proposed Services Within RPA
T0022 (a)	Oak	C			√	√	• Proposed Access Within RPA • Proposed Lighting Services Within RPA

2.0 DEVELOPMENT IMPLICATIONS & MITIGATION ON TREE STOCK (continued...)

2.2 Table 1: Implications of Proposed Development on Existing Tree Stock (continued...)

Tree Ref.	Species	Category	Removal Due To		Mitigation Required		Aspect of Development Affecting Tree
			Works	Tree	Crown	RPA	
T0007	Cherry	C	√				• Proposed Public Footpath
T0008	Mimosa	C	√				• Proposed Public Footpath • Proposed Access
T0009	Holm Oak	B			√	√	• Proposed Access Within RPA • Proposed Access Within Crown Spread
T0010	Tulip Tree	C	√	√			• Proposed Access
T1645	Norway Maple	B			√	√	• Proposed Access Within RPA • Proposed Access Within Crown Spread
T1646	Cherry	C	√				• Proposed Access
T0011	Holm Oak	B			√	√	• Proposed Access Within RPA
G1672	Lawson Cypress	C	√				• Proposed Access
G0008	Paper Birch	A	√				• Proposed Access
T0012	Holm Oak	B			√	√	• Proposed Development Adjacent to RPA • Proposed Garden Within RPA
T0013	Magnolia	B			√	√	• Proposed Development Adjacent to RPA • Proposed Development Adjacent to Crown • Proposed Services Within RPA
T0014	Atlas Cedar	B	√				• Proposed Dwelling
G0004	Irish Yew	B	√				• Proposed Dwelling
T0015	Incense Cedar	B	√				• Proposed Dwelling
G0002	Lawson Cypress	C			√	√	• Proposed Development Adjacent to RPA
G0003	Irish Yew	B	√				• Proposed Dwelling
T1681	Incense Cedar	B				√	• Proposed Construction Within RPA • Proposed Garden Within RPA • Proposed Services Within RPA
T1683	Incense Cedar	B			√	√	• Proposed Construction Within RPA • Proposed Garden Within RPA • Proposed Services Within RPA

2.0 DEVELOPMENT IMPLICATIONS & MITIGATION ON TREE STOCK (continued…)

2.2 Table 1: Implications of Proposed Development on Existing Tree Stock (continued…)

Tree Ref.	Species	Category	Removal Due To		Mitigation Required		Aspect of Development Affecting Tree
			Works	Tree	Crown	RPA	
T0016	Western Hemlock	B	√				• Proposed Dwelling
T1684	Incense Cedar	B	√				• Cumulative Proposed Development
T1685	Atlas Cedar	B			√	√	• Proposed Development Adjacent to RPA • Proposed Access Within RPA • Proposed Footpath Within RPA • Proposed Services Within RPA
G0005	Irish Yew	B	√				• Proposed Dwelling
G0007	Lawson Cypress	B	√				• Proposed Access / Driveway
T1686	Western Hemlock	A			√	√	• Proposed Development Adjacent to RPA • Proposed Footpath Within RPA • Proposed Raised Decking Within RPA
T1687	Lawson Cypress	C			√	√	• Proposed Footpath Within RPA • Proposed Footpath Within Crown Spread
T1690	Scots Pine	B			√	√	• Proposed Footpath Within RPA • Proposed Raised Decking Within RPA • Proposed Raised Decking in Canopy
T1691	Lawson Cypress	C	√				• Cumulative Proposed Development
G1692	Scots Pine	A				√	• Proposed Footpath Within RPA • Proposed Play / Leisure Equipment in RPA
T1693	Lawson Cypress	C			√	√	• Proposed Raised Decking Within RPA • Proposed Raised Decking in Tree Canopy • Proposed Play / Leisure Equipment in RPA
T1694	Scots Pine	B				√	• Proposed Development Adjacent to RPA • Proposed Play / Leisure Equipment in RPA
G0006	Jacquemont Birch	A	√		√	√	• Selective Tree Removal • Proposed Parking in RPA • Proposed Services Within/Adjacent to RPA
T0052	Walnut	B			√	√	• Proposed Parking Within RPA • Proposed Parking Within Crown Spread • Proposed Services Within RPA
T0051	Scarlet Oak	B	√				• Proposed Parking
T1698	Lawson Cypress	C		√			• Low Quality Tree • Limited Useful Life Expectancy

2.0 DEVELOPMENT IMPLICATIONS & MITIGATION ON TREE STOCK (continued...)

2.2 Table 1: Implications of Proposed Development on Existing Tree Stock (continued...)

Tree Ref.	Species	Category	Removal Due To		Mitigation Required		Aspect of Development Affecting Tree
			Works	Tree	Crown	RPA	
T1699	Cherry	U		√			• N/A
T0017	Chilean Firebush	B	√				• Proposed Dwelling • Transplant / Relocate Tree
T0018	Blue Gum	U		√			• N/A
T0019	*Sorbus* species	C	√				• Proposed Dwelling
T0020	Cherry	C	√				• Proposed Dwelling
T0021	Lawson Cypress	B	√				• Proposed Dwelling
T1701	Horse Chestnut	C	√				• Cumulative Proposed Development
T0022 (b)	Beech	C	√	√			• Loss of Companion Cover
T0048	Sweetgum	B	√				• Proposed Footpath • Transplant / Relocate Tree
T0047	Dogwood	C	√				• Proposed Dwelling • Proposed Service Run
T0046	Japanese Maple	B	√				• Cumulative Proposed Development • Transplant / Relocate Tree
T0045	Holly	C	√				• Proposed Dwelling
T0044	*Wollemia* Pine	A	√				• Proposed Dwelling • Transplant / Relocate Tree
T0049	Sliver Birch	A			√	√	• Proposed Parking Within RPA • Proposed Parking Within Crown Spread • Proposed Services Within RPA
T0050	*Pittosporum*	C	√				• Proposed Parking • Proposed Service Runs
T0043	Nootka Cypress	C	√				• Cumulative Proposed Development
T1703	Lime	B			√	√	• Proposed Development Within RPA • Proposed Development Adjacent to Canopy • Proposed Service Within RPA
T1704	Lime	B				√	• Proposed Services Adjacent to RPA

2.0 DEVELOPMENT IMPLICATIONS & MITIGATION ON TREE STOCK (continued...)

2.2 Table 1: Implications of Proposed Development on Existing Tree Stock (continued...)

Tree Ref.	Species	Category	Removal Due To		Mitigation Required		Aspect of Development Affecting Tree
			Works	Tree	Crown	RPA	
T0054	Deodar Cedar	B				√	• Proposed Services Adjacent to RPA
T0053	Leyland Cypress	A				√	• Proposed Services Adjacent to RPA
T1661	Sycamore	B			√	√	• Proposed Access Within RPA • Proposed Access Within Crown Spread • Proposed Services Within RPA
T1662	Sycamore	B			√	√	• Proposed Services Within RPA
G1666	Lime	C	√				• Proposed Access • Cumulative Proposed Development
T0041	Italian Cypress	C				√	• Proposed Development Adjacent to RPA
T0042	Black Mulberry	C				√	• Proposed Development Adjacent to RPA
T0040	Cherry	C	√				• Proposed Access Within RPA • Proposed Services Within RPA
T0039	Judas Tree	B			√	√	• Proposed Access Within RPA • Proposed Boundary Treatment Within RPA • Proposed Services in RPA
T0038	Blue Gum	B			√	√	• Proposed Access Within RPA • Proposed Boundary Treatment Within RPA • Proposed Services Within RPA
T0036	Lawson Cypress	C	N/A	N/A	N/A	N/A	• N/A
T0037	False Acacia	C	√				• Proposed Access • Proposed Services
T0035	Paperbark Maple	A				√	• Proposed Development Adjacent to RPA
T0028	Black Mulberry	C	N/A	N/A	N/A	N/A	• N/A
T0030	Unknown	B	√				• Proposed Dwelling • Proposed Services
T0029	Cypress Tree	C	N/A	N/A	N/A	N/A	• N/A

2.0 DEVELOPMENT IMPLICATIONS & MITIGATION ON TREE STOCK (continued...)

2.2 Table 1: Implications of Proposed Development on Existing Tree Stock (continued...)

Tree Ref.	Species	Category	Removal Due To		Mitigation Required		Aspect of Development Affecting Tree
			Works	Tree	Crown	RPA	
T0031	Coast Redwood	A	√				• Proposed Dwelling
T0032	Western Hemlock	B	√				• Proposed Dwelling
T0033	Blue Gum	A	√				• Proposed Dwelling
T0034	Blue Gum	B			√	√	• Proposed Parking Within RPA • Proposed Services Within RPA

2.0 DEVELOPMENT IMPLICATIONS & MITIGATION ON TREE STOCK (continued...)

2.3 Table 2: Mitigation & Compensation Measures Required for Identified Tree Implications

Tree Ref	Species	Category	Mitigation & Compensation Required
T0022 (a)	Oak	C	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Site Specific Working Methodologies 5. Soil & Tree Health Care Programme
T0009	Holm Oak	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Soil & Tree Health Care Programme
T1645	Norway Maple	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Soil & Tree Health Care Programme
T0011	Holm Oak	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Soil & Tree Health Care Programme
T0012	Holm Oak	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Soil & Tree Health Care Programme
T0013	Magnolia	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Site Specific Working Methodologies 4. Soil & Tree Health Care Programme
G0002	Lawson Cypress	C	1. Vertical Tree Protection Barriers
T1681	Incense Cedar	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Site Specific Working Methodologies 4. Soil & Tree Health Care Programme
T1683	Incense Cedar	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Site Specific Working Methodologies 4. Soil & Tree Health Care Programme

2.0 DEVELOPMENT IMPLICATIONS & MITIGATION ON TREE STOCK (continued...)

2.3 Table 2: Mitigation & Compensation Measures Etc. (continued...)

Tree Ref	Species	Category	Mitigation & Compensation Required
T1685	Atlas Cedar	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Site Specific Working Methodologies 5. Soil & Tree Health Care Programme
T1686	Western Hemlock	A	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Site Specific Working Methodologies 5. Soil & Tree Health Care Programme
T1687	Lawson Cypress	C	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Site Specific Working Methodologies 5. Soil & Tree Health Care Programme
T1690	Scots Pine	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Site Specific Working Methodologies 5. Soil & Tree Health Care Programme
G1692	Scots Pine	A	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Soil & Tree Health Care Programme
T1693	Lawson Cypress	C	1. Vertical Tre Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Site Specific Equipment Installation and Working Methods 5. Soil & Tree Health Care Programme
T1694	Scots Pine	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Site Specific Equipment Installation and Working Methods 4. Soil & Tree Health Care Programme
G0006	Jacquemont Birch	A	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Soil & Tree Health Care Programme
T0052	Walnut	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Soil & Tree Health Care Programme

2.0 DEVELOPMENT IMPLICATIONS & MITIGATION ON TREE STOCK (continued...)

2.3 Table 2: Mitigation & Compensation Measures Etc. (continued...)

Tree Ref	Species	Category	Mitigation & Compensation Required
T0017	Chilean Firebush	B	1. Transplanting of Tree Elsewhere in Garden 2. Soil & Tree Health Care Programme
T0048	Sweetgum	B	1. Transplanting of Tree Elsewhere in Garden 2. Soil & Tree Health Care Programme
T0046	Japanese Maple	B	1. Transplanting of Tree Elsewhere in Garden 2. Soil & Tree Health Care Programme
T0044	Wollemia Pine	A	1. Transplanting of Tree Elsewhere in Garden 2. Soil & Tree Health Care Programme
T0049	Sliver Birch	A	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Site Specific Working Methodologies 5. Soil & Tree Health Care Programme
T1703	Lime	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Site Specific Working Methodologies 4. Soil & Tree Health Care Programme
T1704	Lime	B	1. Vertical Tree Protection Barriers 2. Site Specific Working Methodologies
T0054	Deodar Cedar	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Site Specific Working Methodologies 4. Soil & Tree Health Care Programme
T0053	Leyland Cypress	A	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Site Specific Working Methodologies 1. Soil & Tree Health Care Programme
T1661	Sycamore	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Site Specific Working Methodologies 4. Soil & Tree Health Care Programme
T1662	Sycamore	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Site Specific Working Methodologies 4. Soil & Tree Health Care Programme
T0041	Italian Cypress	C	1. Vertical Tree Protection Barriers
T0042	Black Mulberry	C	1. Vertical Tree Protection Barriers
T0039	Judas Tree	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Site Specific Working Methodologies 5. Soil & Tree Health Care Programme

2.0 DEVELOPMENT IMPLICATIONS & MITIGATION ON TREE STOCK (continued...)

2.3 Table 2: Mitigation & Compensation Measures Etc. (continued...)

Tree Ref	Species	Category	Mitigation & Compensation Required
T0038	Blue Gum	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4. Site Specific Working Methodologies 5. Soil & Tree Health Care Programme
T0035	Paperbark Maple	A	1. Vertical Tree Protection Barriers
T0034	Blue Gum	B	1. Vertical Tree Protection Barriers 2. Ground Protection 3. Non-dig Access / Footpath Design & Installation 4 Site Specific Working Methodologies 5. Soil & Tree Health Care Programme

2.0 DEVELOPMENT IMPLICATIONS & MITIGATION ON TREE STOCK (continued...)

2.4 Table 3: Recommended Tree Pruning to Facilitate Development

Tree Ref	Species	Category	Schedule of Works Prior to Establishment of Tree Protection Measures
T1657	Horse Chestnut	B	1. Crown Lift Northern Canopy to 5.0 Metres Height 2. Ensure North & West Canopy Approx. 3.0 Metres Clear of Build-Line
T0022 (a)	Oak	C	1. Advanced Assessment (Decay Detection) Main Stem 2. Likely Crown Reduction in Height and Spread
T0009	Holm Oak	B	1. Crown Lift South & East Canopy to 5.0 Metres Height 2. Formative Prune
T1645	Norway Maple	B	1. Crown Lift South & East Canopy to 5.0 Metres Height
T0011	Holm Oak	B	1. Crown Lift South & East Canopy to 5.0 Metres Height
T0012	Holm Oak	B	1. Ensure South & East Canopy Approx. 3.0 Metres Clear of Build-Line
T0013	Magnolia	B	1. Crown Reduction to Clear Build-Line by 3.0 Metres
T1685	Atlas Cedar	B	1. Crown Clean 2. Crown Lift to 4.0 Metres Height 3. Reduction of Northwest Canopy (If Needed) 3.0 Metres Clearance of Build-Line
T1686	Western Hemlock	A	1. Crown Clean 2. Crown Lift to Approx. 6.0 Metres Height (TBC) to Clear Decking
T1687	Lawson Cypress	C	1. Crown Lift to 3.0 Metres Height
T1690	Scots Pine	B	1. Crown Clean 2. Crown Lift to Approx. 6.0 Metres Height (TBC) to Clear Decking
G1692	Scots Pine	A	1. Crown Clean
T1693	Lawson Cypress	C	1. Crown Clean 2. Crown Lift North Canopy to 6.0 Metres Height (TBC) to Clear Decking
T1694	Scots Pine	B	1. Crown Clean 2. Reduction in Height of Small Co-dominant Leader to Subordinate
G0006	Jacquemont Birch	A	1. Selective Tree Removal 2. Crown Lift to 5.0 Metres Height
T0052	Walnut	B	1. Crown Lift to 5.0 Metres Height

2.0 DEVELOPMENT IMPLICATIONS & MITIGATION ON TREE STOCK (continued...)

2.4 Table 3: Recommended Tree Pruning to Facilitate Development (continued...)

Tree Ref	Species	Category	Schedule of Works Prior to Establishment of Tree Protection Measures
T0049	Silver Birch	A	1. Ensure Entire Canopy Lifted to 5.0 Metres Height
T1703	Lime	B	1. Reduction in Spread of East Canopy (If Needed) 3.0 Metres Clearance of Build-Line 2. Crown Clean
T1704	Lime	B	1. Crown Clean
T0054	Cedar	B	1. Crown Lift to 3.0 Metres Height
T1661	Sycamore	B	1. Crown Lift to 5.0 Meters Height 2. Reduction in Height and Spread Back to Old Points
T1662	Sycamore	B	1. Crown Lift to 5.0 Metres Height 2. Crown Clean
T0039	Judas Tree	B	1. Crown Lift Western Canopy to 5.0 Metres Height
T0038	Blue Gum	B	1. Crown Lift Western Canopy to 5.0 Metres Height

3.0 ARBORICULTURAL IMPLICATION ASSESSMENT

3.1 Table 4: British Standard 5837:2012 Tree Loss & Quality Assessment

BS: 5837 Category	Number
A	11
B	26
C	28
U	1
Total	66

3.2 Tree Removal

3.2.1 Tree loss is 'evenly' spread across the entire application site, as a result of the required realignment of site access; proposed access driveways to the different development areas of the application site; proposed dwellings; and proposed service runs.

3.2.2 The loss of trees within the interior of the site should have little impact on public amenity and the wider landscape, as established trees along the northern and eastern site boundaries are being retained and will mitigate this tree loss.

3.2.3 The identified removal of trees within the southern corner of the site will likely result in a loss of public amenity as many of the trees are early-mature and taller than the boundary treatment. There is also a high concentration of early-mature Category A trees in this location, which will detract from the landscape now and in the future.

3.2.4 The loss of trees in the southern corner can be off-set with new tree planting within the site following completion of any approved development, as well as the transplanting of existing trees from within the wider application site.

3.2.5 The requirement for a wider site access to and from Stocking Lane, as well as a wider driveway to serve the proposed properties and allow for emergency service vehicles, will result in the loss of most trees within the current open space along the western site boundary.

3.2.6 Some of the larger and more mature trees further within the application site are being retained however; and again, replacement planting upon completion of development within this area can also mitigate the anticipated tree loss.

3.0 ARBORICULTURAL IMPLICATION ASSESSMENT (continued...)

3.3 Direct Impacts

3.3.1 The footprint of proposed dwellings have been sited as carefully as possible with regards to the root protection area of retained trees, ensuring as little trespass as possible. Horse Chestnut T1657 and Lime T1703 have the greatest level of trespass, with proposed dwellings occupying between 6% - 10% of the root protection area.

3.3.2 In both instances this is a tolerable level of trespass with regards to encroachment, and in both instances the root protection area can be compensated for elsewhere within the site contiguous with the root protection area.

3.3.3 Excavations for foundations within the root protection area of retained trees will need to be undertaken sympathetically and methodically, likely with an air-spade and under Arboricultural supervision, so that any roots within the footprint of the dwelling can be detailed and recorded.

3.3.4 This will lead to a decision on the suitability of root pruning, or root retention and modification of foundation design to incorporate the identified and retained tree roots.

3.3.5 The siting and layout of proposed access drives, car parking and footpaths runs through the root protection area of retained trees. All of these proposed features are to be installed using a non-dig cellular confinement system.

3.3.6 There can be no level changes down to install these aspects of proposed development; voids will need to be filled to create a finished level; and a final detailed understanding of site levels will need to be understood prior to finalisation of design and installation.

3.3.7 Product manufacturers will need to be contact ahead of any installation, so that a site specific design and installation method can be determined; appropriate depth of cell will also need to be determined to address anticipated loading on the network; and the final surfacing (top dressing) will need to be permeable for water and oxygen exchange to the soil below.

3.3.8 This method of design and installation for the road and footpath network will reduce potential impacts on the retained trees and their rooting environment, and is an industry accepted method of creating hard surfaced areas through tree protection zones.

3.3.9 The installation of the raised decking platform around trees T1690, T1691 and T1693 and generally through that area of the site will need to be 'flexible' in the design and installation, especially with regards to footings.

3.3.10 Footings will have to be of a size and diameter sympathetic to working within tree rooting environments, and any cement will need to be carefully installed to prevent contamination and leaching of surrounding rooting environment.

3.3.11 Footings will also need to be moveable and not rigid in their location, should tree roots be encountered at initial placement locations.

3.3.12 This aspect of proposed development will need to be accompanied by working method statements, likely including ground and root investigations ahead of any final design and installation.

3.0 ARBORICULTURAL IMPLICATION ASSESSMENT (continued...)

3.3 Direct Impacts (continued...)

3.3.13 Play and leisure equipment such as swings, seating and spinners have been proposed within tree root protection areas, concentrated along the northeast aspect of the site.

3.3.14 Not only is there the overall root protection area to consider with final location and installation of these proposed features, but actual large surface rooting throughout this area.

3.3.15 Final positioning will need to be determined on-site ahead of any installation; foundations will need to be finalised and agreed from an arboricultural perspective; and detailed working method statements will need to be agreed by all parties ahead of installation.

3.3.16 Areas of impact absorbing play surfacing will also need to be finalised as this proposed feature within root protection areas cannot cause compaction of the soil; preclude the percolation of water through the surfacing to the root below; nor limit the gaseous exchange currently possible through the exposed ground.

3.4 Infrastructure Requirements

3.4.1 At this stage of the application process, we have been advised of the requirements for proposed sewer lines and associated man-hole covers; proposed surface water drainage and attenuation system; proposed & existing water main locations; and proposed services for lighting.

3.4.2 These are generally proposed under and within the footprint of the site access and individual driveways and parking areas, as well as within and adjacent to root protection areas.

3.4.3 Detailed and site specific working methods will have to be written and agreed before installation of any service following planning permission; and clarity on the requirement for any service easement will also need to be confirmed prior to installation.

3.4.4 Working within the guidance of the Irish Water and NJUG documents identified in Section 1.2.2 above will reduce impacts on the retained trees and unnecessary damage to their root system.

3.4.5 Under Arboricultural supervision, services will likely need to be installed using broken-trench and trenchless techniques when working within the root protection area of retained trees.

3.4.6 The proposed location of additional services, such as gas; electricity; fibre-optic and internet cables; cable TV; etc. will all need to be carefully planned – ideally outside the root protection area of retained trees.

3.4.7 These additional service runs must be reviewed with the project arborist ahead of any approval.

3.4.8 The storm water attenuation system has been realigned and sited outside the RPA of retained trees to lessen its impact during installation and future maintenance.

3.0 ARBORICULTURAL IMPLICATION ASSESSMENT (continued...)

3.5 Indirect and Cumulative Damaging Impacts

3.5.1 Likely the greatest impact on the existing and retained tree population, indirect impacts through construction and development operations (site traffic, operative movement, scaffolding, storage, site welfare, etc.) will need to be carefully managed and planned through all stages of development.

3.5.2 Site logistics and phasing of site operations will need to be carefully planned through a site-wide Construction Method Statement so that works within root protection areas of retained trees are limited and occur once instead of two or three times. For example, installation of services, then installation of the access road, then construction of dwellings.

3.5.3 The aforementioned direct impacts and services, combined with indirect impacts, results in 'cumulative damaging impacts' on the retained trees. Therefore, these will need to be managed and reduced to a level as low as reasonably practical through all phases of approved development.

3.6 Tree Compensation & Mitigation

3.6.1 As there is proposed development within the root protection area of retained trees, following the guidance of Clause 5.3.1 of British Standard 5837:2012, a series of compensation and mitigation measures need to be applied subject to approved development.

3.6.2 A series of soil samples will need to be collected ahead of any approved development, leading to a tree and site specific fertilisation programme. This will improve tree health prior to commencement of approved development and tree stresses.

3.6.3 Trees which have excavations and ground works in their root protection area, and trees which are subject to root pruning will have additional health care such as the treatment of pruned roots by an arborist, as well as additional tree and soil ameliorants to compensate for root pruning.

3.6.4 Upon completion of development, these additional treatments should include soil de-compaction works; tree fertilisation and soil health care; and the creation of mulch rings around those retained and important landscape trees.

3.6.5 These can be detailed and specified in an Arboricultural Method Statement.

3.7 Potential Tree "Nuisance"

3.7.1 Where proposed dwellings are sited near to retained trees, common 'nuisance' issues such as leaf litter, flowers and sap can be addressed through installation of filtration for rainwater guttering via mesh or "bristle" inserts; the incorporation of discreet ladder attachment points under the eaves; sufficient clearance between the edge of the roof and the guttering to facilitate ease of maintenance; fitting the downpipes with easily cleanable traps.

3.7.2 For those dwellings which will be in a tree's shade and shadow pattern, we would suggest design features such as roof lighting, wider bay windows and doors, or reviewing the orientation of floor plans and living spaces where sunlight is more desirable. These steps can reduce the post-development pressure to prune or remove retained and protected trees.

4.0 TREE PROTECTION PLANNING

A draft Tree Protection Plan (TPPd) has been included in the appendix at the end of this report. The TPPd has been prepared within the guidance of Clause 7.1 of British Standard 5837:2012. Given the intensity and proximity of proposed development to the retained trees, both vertical tree protection barriers and ground protection will be required to safe-guard the trees against damage which may be sustained throughout redevelopment of the site.

The TPPd is indicative of the anticipated locations and/or zone of tree protection measures, as well as showing indicative locations where, from an Arboricultural perspective, there is free space for site huts, site storage, etc. outside of the zone of influence for tree protection & preservation.

The TPP has been drafted at this early stage to inform the client and landowners of these requirements, as well as illustrate how the tree protection measures and tree constraints may influence the free space around the site once development commences.

Due to different elements of proposed development overlapping within tree protection zones, which are likely to be completed at different stages and phases of development, there will be a need for a combination of ground protection and bespoke working methods in the same location. We have annotated these areas on the TPPd specially.

4.1 Vertical Barriers

4.1.1 Physical protection measures for the retained trees, which will ensure that the designated root protection area (RPA) becomes an exclusion zone during any stage of development. Fencing will prevent machinery, men, materials, and other site activities from occurring within the RPA or damaging the tree crown.

4.1.2 Vertical barriers should be fit for the purpose of excluding construction activities, and appropriate to the degree and proximity of the site operations. An illustration has been included below for reference however.

4.1.3 The vertical barriers shall completely exclude access during all phases of site operations. The protected areas shall not be used for the storage of materials or spoil, nor for the mixing of substances or the disposal of any residues.

4.1.4 A4 sized Notice Signs must be laminated and attached to the vertical barrier at regular intervals so all visitors and operatives are aware of the tree protection requirements.

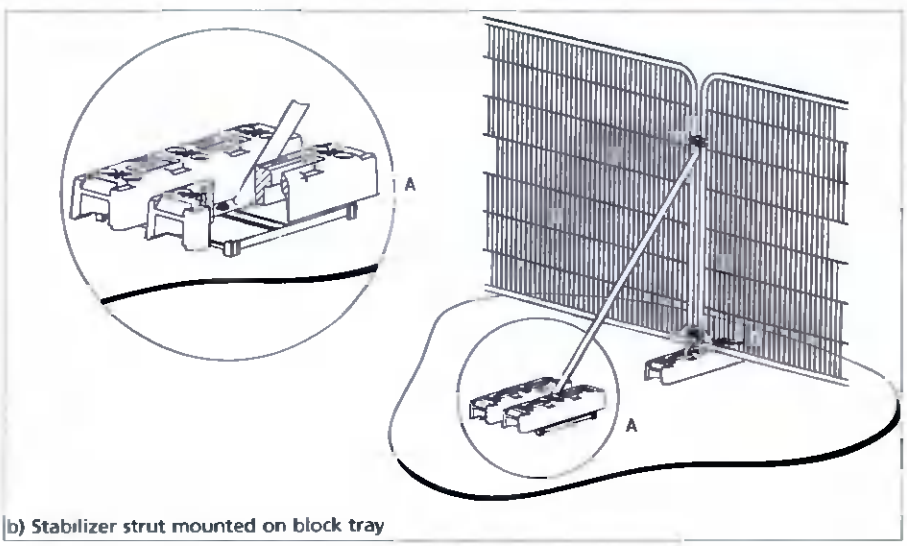

Figure 1: Illustration of Vertical Tree Protection Barrier

4.0 TREE PROTECTION PLANNING (continued...)

4.2 Ground Protection

4.2.1 Non-compacting ground protection will be required where the vertical barriers have been off-set to allow for the 'working zone' and site traffic during demolition and construction.

4.2.2 Ground protection must be retained on site until there is no risk of any damage from demolition and construction works. A reference illustration can be found below.

4.2.3 No mixing of cement or other chemicals must take place atop the ground protection, nor should any storage of oils, fuels, chemicals or cement take place atop the ground protection.

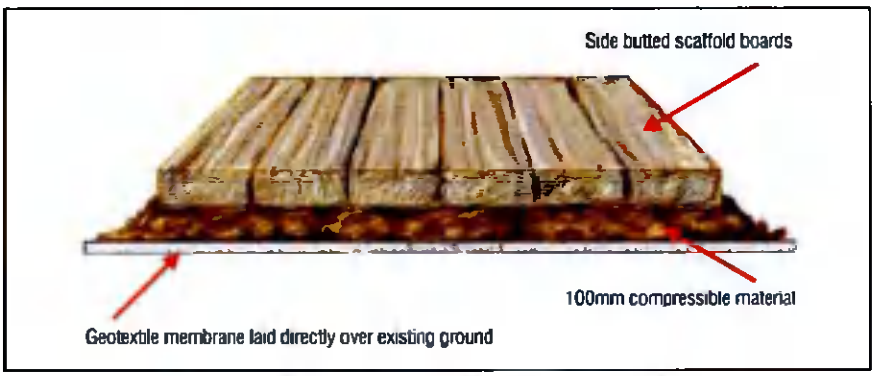

Figure 2: Illustration of Ground Protection within Root Protection Areas

Once erected, both types of tree protection will be sacrosanct, and must not be moved or adjusted during any stage of site operations without the prior written consent of South Dublin County Council and Bartlett Tree Experts.

5.0 CONCLUSIONS

5.1 Table 5: Summary of Trees and Anticipated Management

BS 5837:2012 Category	Tree Removal	Retained	
		Tree Pruning	No Pruning
A	11	4	3
B	26	16	8
C	28	3	6
U	1	0	0
Total	66	23	17

5.2 Arboricultural Impact Assessment

5.2.1 Tree removal is reasonable to balance the competing needs of development with tree retention and protection. Proposed development has been designed which should not result in too much post-development pressure on the retained trees.

5.2.2 Whilst there is a risk of cumulative damaging impacts, these can be addressed through careful project planning and detailed working methodologies. Furthermore, an initial plan for tree compensation and mitigation due to works within root protection areas has been provided.

5.2.3 These proactive and reactive tree and soil health care programmes will help the affected trees remain viable due to these impacts, as well as improve their growing environment.

5.2.4 The proximity to retained trees to proposed development will likely result in a constrained site for development. However, through the installation of robust tree protection measures and an overall construction management plan, the scheme should be able to be deliverable.

5.2.5 Overall, the proposed layout has achieve many of the initial aims and recommendations of the Bartlett Consulting *Tree Survey and Tree Constraints Plan* report, dated 01st March 2019.

5.2.6 An Arboricultural Method Statement will need to be written detailing (but not limited too) tree protection measures; hard surfacing within root protection areas; installation of services; foundation design and installation for dwellings as well as other structures (walls, paths, garages, etc.) to ensure future direct damage does not occur.

5.0 CONCLUSIONS (continued...)

5.3 Local Planning Policy Assessment

5.3.1 The proposed layout has worked to protect the existing tree population as much as possible, whilst achieving the aims of site development. The landscape will be enhanced through the retention and transplanting of existing trees, as well as replacement tree planting following any approved development.

5.3.2 The proposed development has also included a provision for open space, as per the original Bartlett Consulting recommendation. through retention and 'protection' of the tree area to the northeast of the application site.

We trust that the contents and recommendations contained within this report were informative, easy to understand and helpful to you, with regards to managing your tree. Should you have any further questions or concerns, please do not hesitate to contact us again.

REPORT CLASSIFICATION: Arboricultural Implications Assessment & Draft Tree Protection Plan

REPORT STATUS: Final

REPORT COMPLETED BY: Mr. Jason C. Hasaka *HNDArb TechArborA*
Principal Arboricultural Consultant

SIGNATURE: **DATE: 15.06.2021**

APPENDIX 1: Tree Constraints & Draft Protection Plans

DWG Ref: TCP-01	Proposed Tree Removals, Dated 14.06.2021, Revision A
DWG Ref: TCP-02	Proposed Services w/Retained Trees, Dated 14.06.2021, Revision A
DWG Ref: TCP-03	Proposed Dwellings w/Retained Trees, Dated 14.06.2021, Revision A
DWG Ref: TCP-04	Proposed Road & Path Network w/Retained Trees. Dated 14.06.2021. Revision A
DWF Ref: TPPd	Draft Tree Protection Plan, Dated 03.01.2019

NOTE: Plan will be inserted sized A3 (landscape) after this cover page as report provided electronically.

APPENDIX 2: Report Limitations

Limitations of the Arboricultural Implications Assessment

- This assessment is based upon information obtained from the BS: 5837 Tree Survey.
- All dimensions and measurement are based upon previously obtained data the BS: 5837 Tree Survey and from drawings provided to Bartlett Consulting.
- This assessment considers the possible implications to the proposed built structures. Suggestions from an arboricultural perspective may be provided outlining an alternative site layout. Such suggestions must be considered by the project Architect/Designer/or Engineer before implementing any suggestions.

Data on which the assessment is based

- Validity, accuracy and findings of the report are directed by the accuracy of information provided to Bartlett Consulting at the time of conducting the tree survey and during report writing.
- Checking of independent data/information will not be undertaken, with particular reference given to scaled maps and drawings provided to Bartlett Consulting

Validation of the assessment

- The assessment considerations/findings in this report remain valid for a period of one year, from the date of issuance.
- Such considerations/findings will become invalid if any building works are undertaken, soil levels altered, or any unsolicited tree works undertaken.
- If any alterations to the existing building structures, or soil levels, or if any unsolicited tree works have been completed, it is the recommendation of Bartlett Consulting that a new BS: 5837 Tree Survey/report is undertaken to reflect these changes.

Tree in relation to other properties

- This assessment only considers the trees in relation to the site and the proposed structures within it, as identified.
- The assessment does not comment upon trees in relation to structures beyond the boundaries of the site as identified (third party properties).
- Consideration of potential impact upon neighbouring built structures may be provided if pertinent, in the instances where boundary tree planting is proposed/required.
- Damage to, or potential damage to, any other built structures that is not referred to within this report are not considered, unless otherwise stated. This includes both neighbouring structures as well as any other structure on the site.

Trees in relation to subsidence, heave and direct damage

- This report does not deal with matters concerning subsidence or heave to any existing built structure on or neighbouring the site. It may be prudent to consider the effects of heave on any built structure if trees are to be removed.
- Similarly, the issue of direct damage (physical damage caused by tree roots) is not dealt with in this report.

Tree subject to statutory controls

- Whilst Bartlett Consulting has made attempts to ascertain if any of the trees subject to this report are 'protected', their status is always subject to change. Therefore the final responsibility for checking statutory protection for trees rests with the employed contractor and not with Bartlett Consulting
- Any prescribed tree works to a protected tree are provided due to perceived hazard and risk, and should be considered acceptable by the Local Planning Authority (LPA). However appropriate notification must still be provided to the LPA as they may take an alternative point of view.

Trees are subject to environmental factors

- The statements, findings and preliminary recommendations made within this report do not take into account any effects of extreme climate and weather incidences, vandalism, changes in the natural and built environment around the tree(s) after the date of this report, nor any damage whether physical, chemical or otherwise.

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