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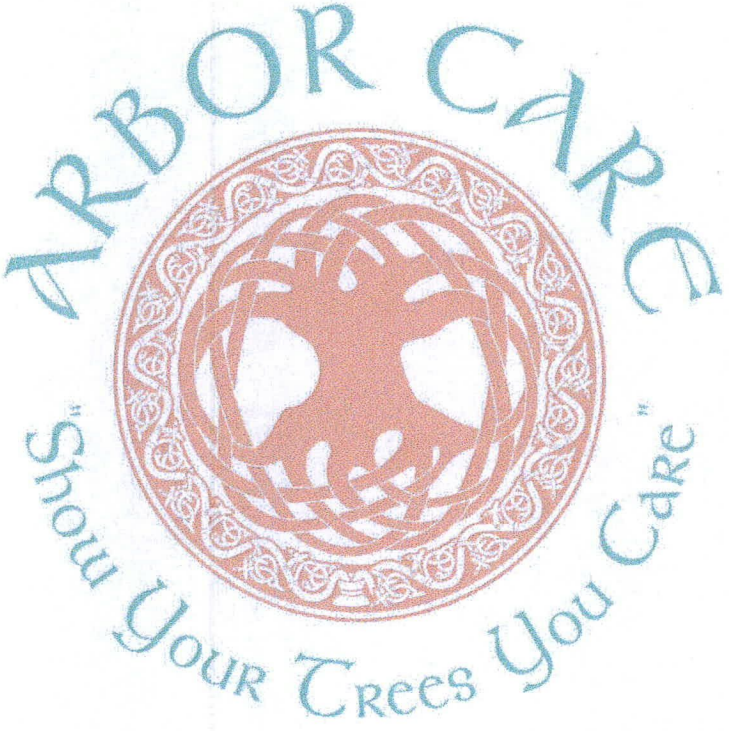
Professional
Consulting Tree Service



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Prepared for:

Pasty Carmondy

Proposed site:

Manor Avenue, Dublin 6w

Prepared by:

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Executive Summary

Arbor-Care Ltd (Professional Consulting Tree Service) was retained by Patsy Carmody to undertake, a Tree survey, an Arboricultural Impact Assessment, and a Tree Protection Plan identifying the trees that may be impacted on by the proposed development. The surveyed trees contained within this report are located within the parameters of the proposed site.

The objective of the tree survey was to identify the areas that contained trees, and to ensure where possible that these areas would be retained and to identify those to be removed. The proposed site consists of a former steelworks factory located at the end of an existing avenue. The impact assessment is based on the current proposed design.

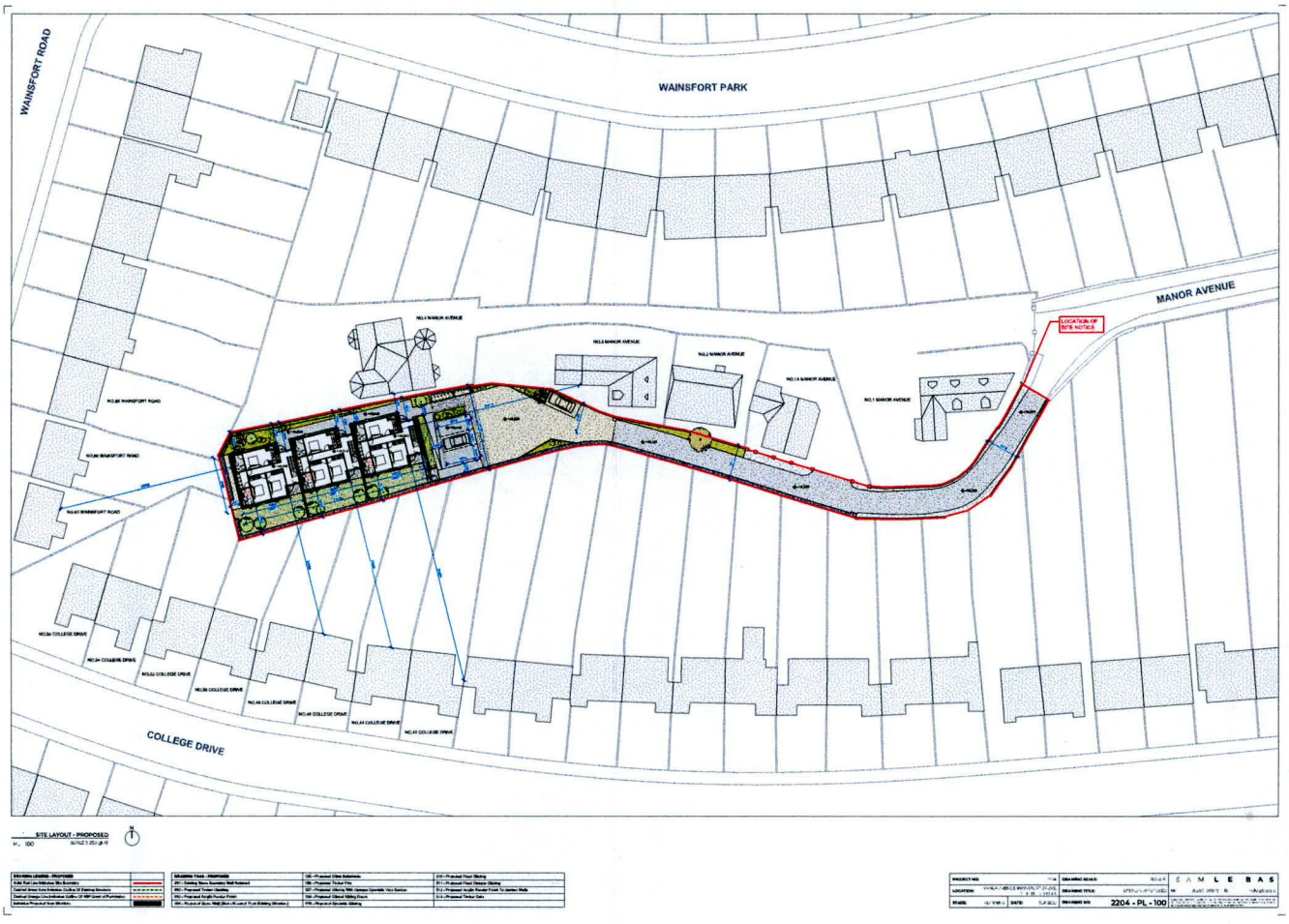
The tree survey and inventory report is based on the British standard *BS 5837:2012 Trees in relation to design, demolition and construction. Recommendations,* this standard gives recommendations and guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees, including shrubs, hedges and hedgerows, with structures. It sets out to assist those concerned with trees in relation to construction to form balanced judgements. The survey commenced on the 13th of February 2019.

This tree survey report will be accompanied by an inventory of trees on site and tree protection plan (Appendix 2) highlighting which trees are to be retained and or removed.

Proposed development

Planning permission is being sought for a 4 terraced two storey three bedroom homes an ancillary site works residential development. Please refer to Figure 1 for further information on the proposed draft scheme

Figure 1. Proposed development layout



1.0 Assignment

1. To undertake a visual tree survey to, identify any potential impact the new proposed development would have on the trees and visa versa.
2. To provide recommendations for their preservation and or removal.
3. Present a written report on the inspection of the trees
4. To provide a tree protection plan highlighting which trees are to be removed and/or retained.

1.1 Limits of the Assignment

Unless otherwise stated tree and hedgerow inspections have been undertaken from ground level and using non-invasive techniques only. Comments on the condition and safety of any tree or hedgerow relate to the condition of that tree at the time of the survey. It should be recognised that tree condition is subject to change due to, for example the effects of disease, wind or nearby development works. Changes in land use are also significant in respect of risk assessment. Trees should therefore be inspected at intervals relative to identified site risks. .

2.0 Methodology Employed

An initial tree survey and visual condition assessment was on the 13th of February 2019. For the purpose of this report and in accordance with *BS 5837: 2012 Trees in relation to design, demolition and construction. Recommendations* only trees with diameters of 75mm or greater were surveyed, Also in accordance with section 4.4.2.3 of the British standard document where trees formed obvious groups these were assessed and recorded as groups. The survey commenced along the northern boundary and continued in an easterly direction

Section 4.4.2.3 of BS 5837: 2012 states:

Trees growing as groups or woodland should be identified and assessed as such where the arboriculturist determines that this is appropriate. However, an assessment of individuals within any group should still be undertaken if there is a need to differentiate between them, e.g. in order to highlight significant variation in attributes (including physiological or structural condition).

NOTE: The term "group" is intended to identify trees that form cohesive arboricultural features either aerodynamically (e.g. trees that provide companion shelter), visually (e.g. avenues or screens) or culturally, including for biodiversity (e.g. parkland or wood pasture), in respect of each of the three subcategories.

The survey concentrated primarily on the significant trees located within the development area. The objective of this survey was to gather information regarding the trees location on the proposed development site and the impact the proposed development may have on the trees. **Please refer to appendix 1 for the tree inventory**.

Significant trees can be equated as those trees whose visual importance to the surrounding area are sufficient to justify special efforts to protect/preserve and whose loss would have an irremediable adverse impact on the local environment. Significance can also be placed depending on the trees age, another variable to imply significance can be the aesthetic merit of the tree based on its unusual size, intrinsic physical features or outstanding appearance or occurring in a unique location or context, and thus provides a special contribution as a landmark or landscape feature.

All above parts of the trees or hedgerows were visually examined. Tree diameters (DBH) were estimated at 1.5 meter above grade as per standard arboricultural practice. Tree height was measured with the use of a clinometer (Where practical). A generalised system was employed to describe the overall health of the trees. The system uses a five tier rating scale with the following descriptors:

Specimen condition 5-tier rating system

1. Very poor-1-20%
2. Poor- 21-40%
3. Fair- 41-60%

4. Good- 61-80%
5. Very good 81-100%

3.0 Trees surveyed

The survey commenced on the 13th of February 2019. A total of 2 trees were surveyed as part of the application. The impact of the development on the trees surveyed will be assessed in the Arboricultural Impact Assessment.

3.1 A breakdown of the Tree Categories on site as per BS 5837 2012 is set out in the table below:

Category	Quantity
A-Tree of high quality	0
B-trees of good quality	2
C (Low quality or trees less than 75mm diameter)	0
U (remove due to poor condition)	0
Total Trees surveyed	2

4.0 Predicted Impact of The Proposed Development.

4.1 Trees to be removed on site

The arboricultural impact of the proposed development on the site will initially be low. It is proposed to remove no trees from the site. A comprehensive landscape plan will be incorporated for the site, and appropriate trees will be planted within the proposed development, this will enhance and maintain the arboreal footprint of the site and improve the amenity value of the site for the surrounding areas.

4.2 Trees to be retained on site

Tree no. 8596 - mature sycamore has been removed by South Dublin County Council. It is proposed to retain the remaining tree - a mature Ash, tree no. 8595. This will be incorporated into the landscaping design.

5.0 Tree Remedial Works

All trees that are destined for retention may require some minor remedial works to allow room for construction vehicles. These works will include the lower limbs to be crown raised and any dead limbs removed from the inner canopy. All tree remedial works that are required shall be undertaken prior to any construction or demolition activity on the site. All the above shall be carried out by qualified and insured tree surgeons and in accordance with *BS 3998:2010 Tree works Recommendations*

6.0 Tree Protection

Prior to any construction or demolition works on this site all trees and hedgerows destined for retention need to be protected by the use of protective barriers and or ground protection, fit for the purpose of ensuring the successful long-term preservation of the trees. In order for the retained trees to be adequately protected on the site a construction exclusion zone needs to be identified. This zone is calculated based on the root protection area (RPA), which is the minimum area in m^2 which should be left undisturbed around each retained tree. The RPA should be calculated as an area equivalent to a circle with a radius 12 times the stem diameter for a single stem tree and 10 times basal diameter measured immediately above the root flare for trees with more than one stem arising below 1.5m above ground level.

Number of Stems	**Calculation**
Single Stem Tree	RPA (m^2) = $\{\frac{\text{stem diameter (mm) @ 1.5m x 12}}{1000}\}^2 \times 3.142$
Tree with more than one Stem arising below 1.5m above Ground level	RPA (m^2) = $\{\frac{\text{Basal Dia. (mm) x 10}}{1000}\}^2 \times 3.142$

Note: The Calculated RPA should be capped to 707m^2, e.g. which is the equivalent to a circle with a radius of 15m or a square with approximately 26 m sides.

6.1 *Protective Barriers*

Trees and hedgerows that are destined to be retained must be protected by barriers, signage and/or ground protection prior to any materials or machinery being brought on site and prior to any development, demolition or soil stripping takes place. Areas that are designated for new plantings should be similarly protected. Barriers should be fit for the purpose of excluding construction activity. In most cases barriers should consist of a scaffold framework (Refer to fig. 4 below) comprising a vertical and horizontal framework, well braced to resist impacts. To ensure the protective barriers are respected, clear concise signage must be affixed to the barrier in an unrestricted easily viewed location. The signage must state the following;

- No construction activity is to take place within the R.P.A. (unless pre-agreed the arborist)
- No materials of any kind are to be stored within the R.P.A.
- No "Spilling out" of materials shall take place within the R.P.A.
- No fires are to be lit within the R.P.A.

The protective barriers shall remain in an undisturbed condition and only removed on completion of all construction activity finished grading and sodding. Any breech of the protective fence shall be reported to the consulting arborist.

Fig. 3 Signage to be placed on all protective fencing

The signage must state the following;

- No construction activity is to take place within the R.P.A. (unless pre-agreed with the arborist)
- No materials of any kind are to be stored within the R.P.A.
- No "Spilling out" of materials shall take place within the R.P.A.
- No fires are to be lit within the R.P.A.

Figure 4.
Displays the protective wrapping to placed on the retained trees to avoid mechanical damage to the main stems.

6.2 *Ground Protection*

Although works within the RPA are not recommended should essentials works be required within the RPA. The installation of ground protection in the form of a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile may be acceptable. For wheeled or tracked movements within the R.P.A. the ground protection should be designed by an engineer to accommodate the likely loading. Any works within the RPA must be undertaken with prior consultation with the arborist.

6.3 Tree Protection Plan

A site specific Tree Protection Plan has been included. See Appendix 3.

7.0 Arboricultural Method Statement/Tree Protection Strategy

The object of this arboricultural method statement/tree protection plan is to provide information for the building contractor/site manager on how the trees or hedgerows on the site need to be protected pre, during and post development works so that they can prepare their own site specific detailed method statement for their works

It is necessary for the protective fencing to be erected and all other mitigation measures required to be put in place prior to any development works commencing on site to ensure all retained trees and their critical rooting zone are protected for the duration of the works. Refer to tree protection plan (Appendix 2) for the position of protective fencing and additional mitigation measures

The protection for trees and hedgerows shown for retention will occur in three stages known as pre, during and post development.

Table 1. Arboricultural Method Statement/Tree Protection Strategy – Management Stages

Arboricultural Method Statement/Tree Protection Strategy – Management Stages		
Stage 1 – Pre development works	**Stage 2 - The construction works stage**	**Stage 3-Post Development Works**
1. Consultation with Arborist and developer	1. Protective Fencing – management and maintenance	1. Site inspection by arborist to ensure plan adhered to and trees protected
2. Site meeting - consultation with Arborist, developer, main contractor and sub-contractor	2. Excavations – works only commence when protective fencing in place	
3. Tree works – Appointment of professional tree surgeon	3. Working within the RPA – All works within the RPA to be discussed and agreed with the arborist	
4. Erection of protective fencing/Mitigation measures	4. Finished ground levels/Landscaping – All works to ensure the integrity of tree/s Protected.	

7.1 Stage 1 - Pre development works

Prior to works commencing on site the following needs to be agreed and implemented:

1. The developer needs to appoint an arboriculturist for the duration of the project. The arborist is to make regular site visits to ensure that the protection measures are in place and are being adhered too.
2. The main contractor and sub-contractors are to be briefed on the tree protection plan and ensure all measures are kept in place for the duration of the project
3. All personnel are to adhere to the recommendations of the appointed arborist
4. Any issues in relation to trees shown for retention must be discussed with the appointed arborist and the necessary mitigation measures put in place without delay and prior to the works taking place.

7.2 Site meeting

Prior to any works on site, it is necessary that a meeting be arranged between the project manager, site foreman, the project landscape architect, the project arborist and the local authority to identify and finalise the trees for removal and the line of protective fencing and any other mitigation measures.

7.3 Tree works

The developer or the main contractor is to appoint a professional tree surgery company to undertake any tree removal or surgery works identified. The works are to be undertaken in accordance with *BS 3998 2010.*

7.4 Erection of protective fencing/Mitigation measures

The erection of protective fencing is to be erected to the fence line shown in tree protection plan. The fencing must adhere with BS 5837: 2012 (Figure 4 and Figure 5 above). Signage must be placed on the fence to highlight its importance. Once the fencing is erected works can commence on-site.

8.0 Stage 2 - The construction works stage

8.1 Protective Fencing

Due to the constraints of the site protective fencing will not be erected as per BS recommendations. However as the trees are growing within an avenue and the roots of the trees are growing within hard-core there will be no impact on the trees. However in order to protect the upper canopy of the trees the lowest limbs will be crown raised to allow for construction vehicles to pass without damaging the tree canopies. Also it is recommended that the main trunks of the trees are protected from mechanical damage from passing vehicles. This protection will be in the form of wrapping the trunks in burlap material and then overlaying this with wooden frame secured with metal bands. This is to remain on the trunks for the duration of the development. (Please refer to Figure 4)

8.2 Excavations

Excavation works are only to commence once the protective fence line is in place. The excavations need to be viewed on site once marked out with the project manager, site foreman and the project arborist in advanced of excavation to determine the extent of the impact and the works space required to allow the construction works proceed and to assess any additional mitigation measures that may be required to protect the retained trees. In certain areas it may be necessary to use alternative methods of excavation to prevent encroachment into the RPA of the trees to be retained and this may include such methods as retaining walls, no dig technique etc.

8.3 Working within the RPA

If it becomes necessary to undertake works within the RPA of tree/trees, these must be discussed and agreed with the project arborist. All works must be carried out manually root pruning is to be undertaken by an arborist using hand held equipment such as a handsaw.
For pedestrian movements within the R.P.A. the installation of ground protection in the form of a single thickness of scaffold boards on top of a compressible layer laid onto a geotextile may be acceptable. For wheeled or tracked movements within the R.P.A. the ground protection should be designed by an engineer to accommodate the likely loading.

8.4 Finished ground levels/Landscaping

The existing ground levels within the RPA of the retained trees must be retained and incorporated into the finished landscaped development. Where changes in level occurs these are to be either graded into the finished levels starting outside the RPA or alternatively, retaining wall structures are to be used differentiating between the different levels.
All soft and hard landscaping within the RPAs must be carried out manually and the soil levels must not be lowered or raised resulting in root damage to the trees. All finished surfaces are to be porous to allow the free movement of water and gaseous exchange to the roots.

9.0 Stage 3-Post Development Works

The project is not to be considered complete until the arborist has inspected the site and is satisfied that all retained trees have been protected in accordance with the site specific Tree Protection Plan and there has been no negative impact on the retained trees on site as a result of the development.

10.0 Conclusion

A complete tree inventory has been provided in appendix 1. This outlines the schedule of trees on site in accordance with *BS 5837: 2012 Trees in relation to design, demolition and construction. Recommendations.* The Arboricultural impact of the proposed design is low as following site inspection it was proposed to retain both trees surveyed. However, since completion of the on-site assessment South Dublin County Council has removed Tree no. 8596 - mature sycamore. Notwithstanding same, a comprehensive landscape plan will be included in the development of the site, which will ensure that site appropriate trees are planted to replace the removed tree and to ensure that the arboreal footprint of the site is maintained.

I consider subject to implementing the above Arboricultural Method Statement/Tree Protection Strategy that there is unlikely to be significant detrimental impact as a consequence of the development proposal

Tree Categorization.

Tree Categorization.

Category U

This category signifies those trees that are in such a condition that any existing value would be lost within 10 years and which should, in the current context, be removed for reasons of sound arboricultural management.

Category A.

Those trees of a high quality and value, in such a condition as to be able to make a substantial contribution. (A minimum of 40 years is suggested)

Category B

This category signifies those trees of a moderate value and in such a condition as to be able to make a substantial contribution (A minimum life expectancy of 20 yrs is suggested)

Category C

This category signifies those trees of a low quality and value that are currently in an adequate condition to remain until new planting could be established (A minimum life expectancy of 10yrs is suggested), or young trees with a stem diameter below 150mm. Whilst C category trees will usually not be retained where they would impose a significant constraint on development, young trees with a stem diameter of less than 150mm should be considered for relocation.

The above categories have sub-categories attached to the tree categorisation.

Sub-category 1- Mainly Arboricultural Values eg-A1

Sub-category 2- Mainly Landscape Values- B2

Sub-category 3- Mainly cultural values, including conservation C2

Appendix 1 – Tree Inventory

Tree Inventory Legend

Tree Dimensions - All dimensions are in meters.
Ht - Tree Height
Crown clearance - Lowest canopy height (distance from ground level to the first live branch)
Crown spread - 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.

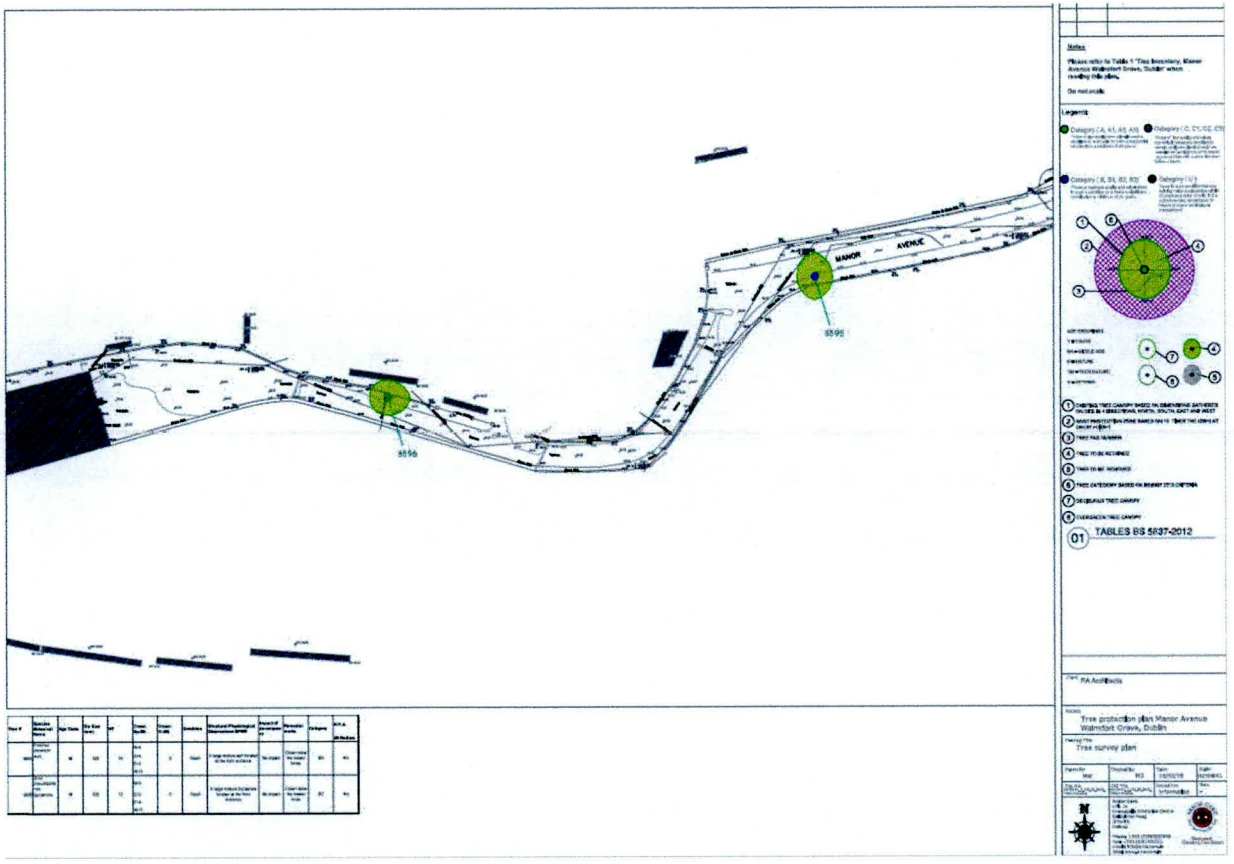
Physiological Condition
Good - A specimen of generally good form and health
Fair - A specimen with defects or ill health that can be either rectified or managed typically allowing for retention
Poor - A specimen whom through defect, disease attack or reduced vigour has a limited longevity or may be un-safe
Dead - A dead tree

Structural Condition - Information on structural form, defects, damage, injury or disease supported by the tree
PMR (Preliminary Management Recommendations) – refers to Arboricultural actions or works considered necessary at the time of the inspection and relating to the existing site context and tree condition. *Note is also made of works considered as urgent.*

Species Common name is given; botanical name is also given upon its first entry, in Italics.

Tree #	Species Botanical Name	Age Class	Dia Size (mm)	HT	Crown Sp.(M)	Crown Cl.(M)	Condition	Structural/Physiological Observations &PMR	Impact of development	Remedial works	Category	R.P.A. (M Radius)
8595	*Fraxinus excelsior* Ash	M	320	14	N=4 S=4 E=3 W=3	3	Good	A large mature ash located at the front entrance	No impact	Crown raise the lowest limbs	B2	4m
8596	*Acer pseudoplatanus* Sycamore	M	300	12	N=3 S=3 E=4 W=3	2	Good	A large mature Sycamore located at the front entrance	This tree has been removed by SDCC	Crown raise the lowest limbs	B2	4m

Appendix 2 – Tree Survey Plan



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Appendix 3 Tree Constraints Plan

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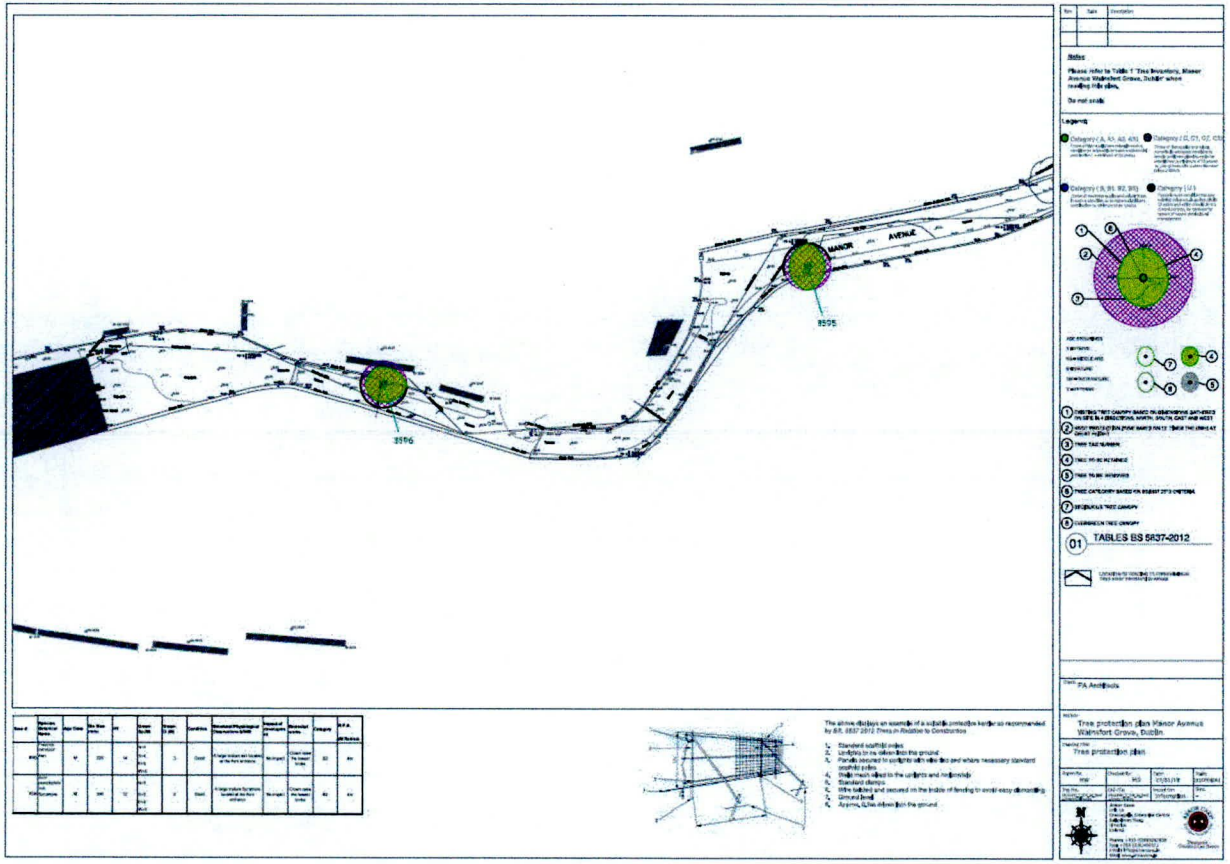
Appendix 4 Tree Protection Plan



Arboricultural ASSOCIATION
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This report was prepared by:

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Yours in Conservation.

Michael Garry.

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