Arboricultural Impact Assessment Report

Prepared for:

Mr. Eoin Sheehan

Proposed site:

Sunberry Drive, Blarney Co. Cork

Prepared by:

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Executive Summary

Arbor-Care Ltd (Professional Consulting Tree Service) was retained by Cunnane Stratton Reynolds on behalf of Mr. Eoin Sheehan to undertake, a Tree Survey, an Arboricultural Impact Assessment and a tree protection plan identifying trees that may be impacted on by the proposed development at Sunberry Drive, Blarney , Co. Cork. The surveyed trees contained within this report are located within or adjacent the parameters of the proposed site. The proposed development site is a green field site that is bounded to the south and west by trees. The trees along the southern boundary are located on top of a steep embamkment

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 6th of December 2019.

The objective of the tree survey was to identify the areas that contained trees or hedgerows of quality, and to ensure where possible that these areas would be retained.
This Tree Survey report will be accompanied by an inventory of trees and a tree protection plan (Appendix 4). The Arboricultural Impact Assessment and a tree protection plan was prepared for the site identifying trees that may be impacted on by the proposed development based on the proposed design.

Figure 1 Displays proposed site layout highlighted in red

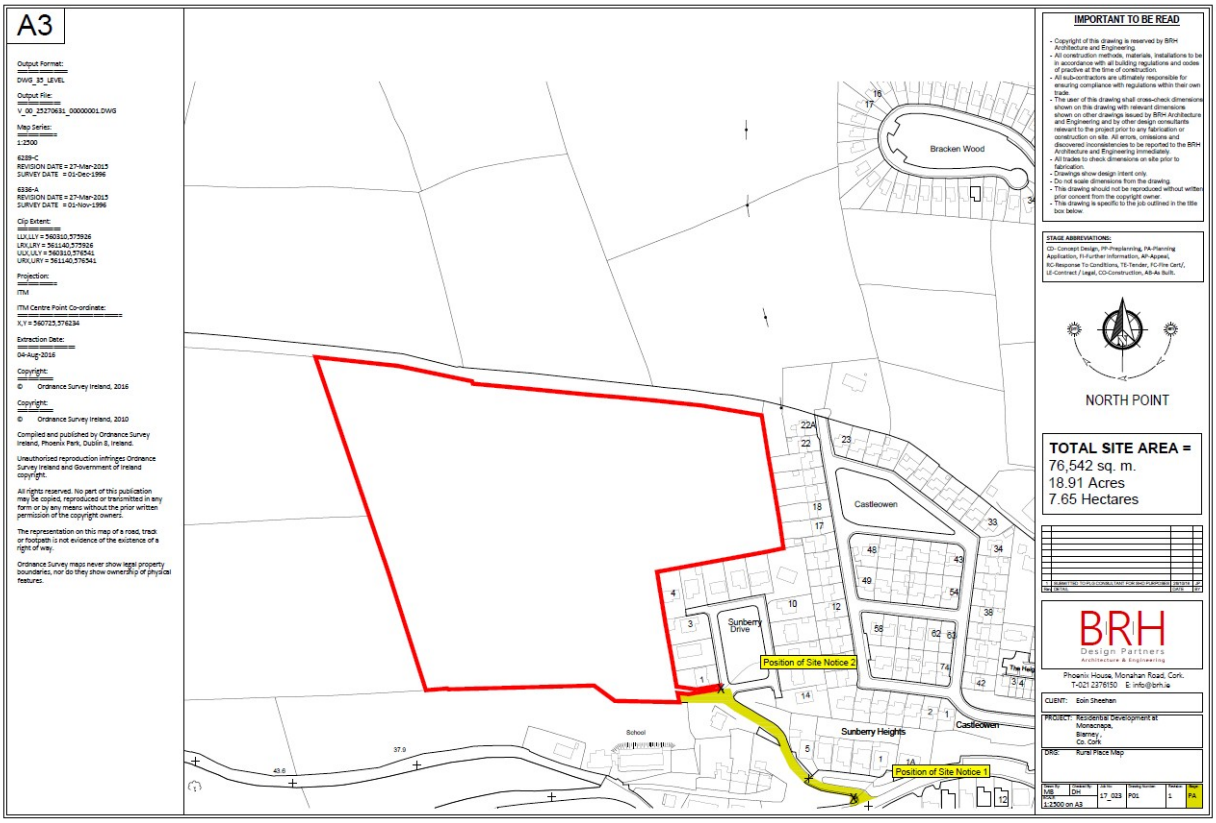

Figure 2. The Proposed Site Layout

1.0 Assignment

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

1.1 Limits of the Assignment

Unless otherwise stated tree inspections have been undertaken from ground level and using non-invasive techniques only. The trees along the southern boundary were located in private property and were assessed from the proposed development site. Comments on the condition and safety of any tree 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 risk

2.0 Methodology Employed

An initial tree survey and visual condition assessment was on the 6th of December 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 western boundary and continued in an northerly 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 or adjacent the proposed development area, as highlighted in figure one. 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 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 good81-100%

3.0 Trees surveyed

The survey commenced on the 6th of January 2020. A total of trees 43 trees were surveyed as part of this planning application.

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	9
B-trees of good quality	25
C (Low quality or trees less than 75mm diameter)	3
U (remove due to poor condition)	6
Total Trees surveyed	43

4.0 Arboricultural 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 not proposed to remove any trees to facilitate the development. Six trees are recommended for removal based on their poor condition.

Table 1: Schedule of tree to be removed to based on their condition (To be read in conjunction with Appendix 1)

Tree number	Species	Age Class	Tree category
T13	Horse chestnut	Early-Mature	U
T15	Ash	Mature	U
T16	Ash	Mature	U
T17	Ash	Mature	U
T18	Sycamore	Mature	U
T24	Elm	Mature	U

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5.0 Tree Removal

All trees that are destined for removal shall be removed prior to any construction or demolition works on this site. Any tree remedial works that are required shall also 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 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) = $\frac{\{\text{stem diameter (mm) @ 1.5m x 12}\}^2 \times 3.142}{1000}$
Tree with more than one Stem arising below 1.5m above Ground level	RPA (m^2) = $\frac{\{\text{Basal Dia. (mm) x 10}\}^2 \times 3.142}{1000}$

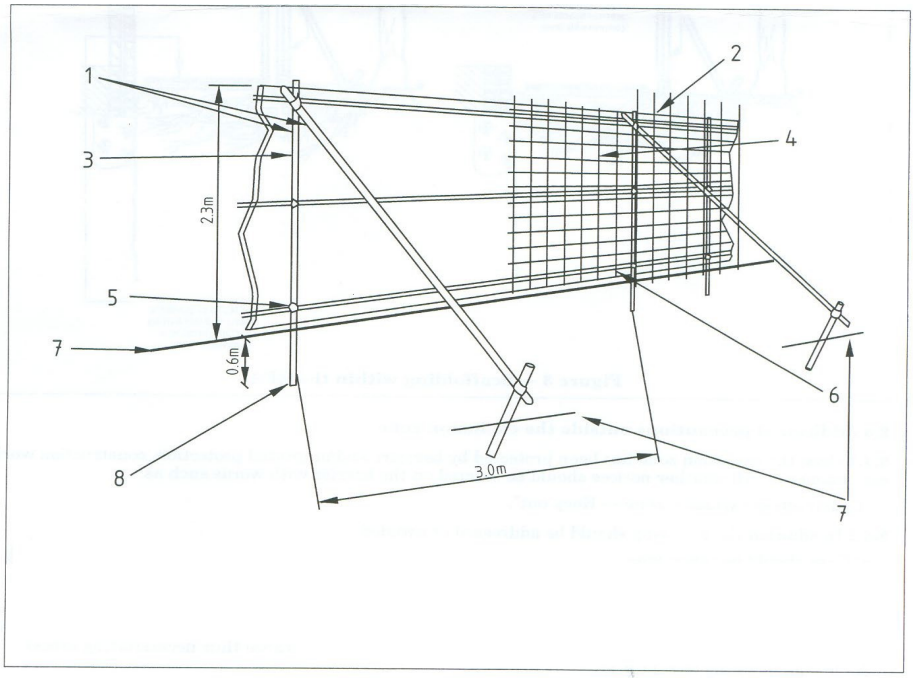
Note: The Calculated RPA should be capped to 707$m^{2,}$ e.g. which is the equivalent to a circle with a radius of 15m or a square with approximately 26 m sides.

***6.1** Protective Barriers*

Trees that are destined to be retained must be protected by protective fencing, 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. 3 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 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.

Figure 3. Protective Barrier



1. Standard scaffold poles

2. Uprights to be driven into the ground

3. Panels secured to uprights with wire ties and where necessary standard scaffold poles

4. Weld mesh wired to the uprights and horizontals

5. Standard clamps

6. Wire twisted and secured on the inside of fencing to avoid easy dismantling

7. Ground level

8. Approx. 0.6m driven into the ground

The above displays an example of a suitable protective barrier as recommended by *BS. 5837 2012 Trees in Relation to Construction. Recommendations.*

Figure 4. 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.

***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

***6.3** Tree Protection Plan*

A site specific Tree/hedgerow Protection Plan has been included. See Appendix 4.

7.0 Arboricultural Method Statement/Tree Protection Strategy

The objective of this arboricultural method statement and tree protection plan is to provide information for the building contractor/site manager on how the trees 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 4) for the position of protective fencing and additional mitigation measures

The protection for trees 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 and hedgerow 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 may need if requested by the Local Authority to appoint an arborist for the duration of the project. The arborist if requested to may have 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, if requested to by the Local Authority 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 2 and Figure 3 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*

During the course of the construction works the integrity of the fencing must be respected and remain in place at all times. No building materials or soil heaps are to be stored within this area. Should essential works need to take place with the root protection area the project arborist must be informed in advance and any mitigation measures are to be put in place. The protective fencing must remain in situ for the duration of the project and must only be removed upon completion of all works.

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 these must be discussed and agreed beforehand with the project arborist. All works must be carried out manually, and root greater than 100mm in diameter must be pruned 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.

***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 and hedgerows 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

The arboricultural impact of the proposed development on the site will initially be low.

A comprehensive landscape plan which will involve planting additional site appropriate trees that will enhance the arboreal footprint of the site (Please refer to separate landscape plan).

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

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*.

Age Class - A tree, which has been planted in the last 10 years.
Semi -mature A tree that is less than 1/3 the expected height of the species in question.
Early mature: A tree, which is approximately 2/3's the expected height of the species in question.
Mature: A tree that has reached the expected height of the species in question, but still increasing in size.
Over mature: A tree at the end of its life cycle and the crown is starting to break up and decrease in size.

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

Appendix 1 – Tree Inventory (Sunberry drive Blarney, Co. Cork.)

Tree #	Species Botanical Name	Age Class	Dia Size (mm)	HT	Crown Sp.(M)	Crown Cl.(M)	Condition	Structural/Physiological Observations	Impact of development	PMR	Category	R.P.A. (M Radius)
T1	*Fraxinus excelsior* Ash	M	500	18	N=5 S=5 E=5 W=5	2	Good	A large mature ash tree displaying a good overall condition	No impact	Retain	B2	6m
T2	*Fraxinus excelsior* Sycamore	M	400	18	N=3 S=2 E=3 W=3	3	Good	A large mature sycamore tree displaying a good overall condition	No impact	Retain	B2	5m
T3	*Fagus sylvatica* Beech	M	1500	25	N=5 S=5 E=5 W=5	2	Good	A large mature beech in good condition	No impact	Retain	A2	12m
T4	Beech	M	1200	28	N=8 S=8 E=8 W=8	2	Good	A large mature beech in good condition	No impact	Retain	A2	12m
T5	*Quercus spp* Oak	M	720	20	N=1 S=4 E=1 W=1	3	Fair	A large mature oak that has suffered significant upper canopy damage. Leaning away from the site	No impact	Retain	C2	8.2m
T6	*Pinus sylvestris* Scots pine	M	650	24	N=5 S=5 E=5 W=5	10	Good	A large mature pine displaying a good overall condition	No impact	Retain	A2	7.5m
T7	Oak	M	750	24	N=3 S=3 E=3 W=3	6	Good	A large mature oak in good condition	No impact	Retain	A2	8.5m
T8	Oak	M	600	30	N=3 S=3 E=3 W=3	3	Good	A large mature oak in good condition	No impact	Retain	A2	8.5m

T9	Oak	M	750	24	N=3 S=3 E=3 W=3	6	Good	A large mature oak in good condition	No impact	Retain	A2	8.5m

Tree #	Species Botanical Name	Age Class	Dia Size (mm)	HT	Crown Sp.(M)	Crown Cl.(M)	Condition	Structural/Physiological Observations	Impact of development	PMR	Category	R.P.A. (M Radius)
T10	Oak	M	1800	26	N=1 S=5 E=2 W=2	3	Fair	A large mature oak that has been heavily pruned on the northern side and it has suffered stem damage in the upper canopy	Maybe impacted on by the development	Consider for removal based on its condition	C2	12m
T11	Oak	M	800	24	N=1 S=1 E=1 W=1	3	Fair	A large mature oak that has been heavily pruned in the upper canopy	No impact	Consider for removal based on its condition	C2	9m
T12	Oak	M	750	26	N=4 S=4 E=4 W=4	4	Good	A large mature oak in good condition	No impact	Retain	A2	8.5m
T13	Horse chestnut	EM	300	12	N=.5 S=.5 E=.5 W=.5	2	Poor	An early mature chestnut in poor condition, effectively a standing stem	No impact	Remove	U	
T14	Ash	M	450	20	N=4 S=4 E=4 W=4	3	Good	A mature ash in good condition	No impact	Retain	B2	5.5m
T15	Ash	M	350	7	N=.5 S=.5 E=.5 W=.5	2	Poor	A mature ash in poor condition, effectively a standing stem	No impact	Remove	U	
T16	Ash	M	350	7	N=.5 S=.5 E=.5 W=.5	2	Poor	A mature ash in poor condition, effectively a standing stem	No impact	Remove	U	
T17	Ash	M	350	7	N=.5 S=.5 E=.5 W=.5	2	Poor	A mature ash in poor condition, effectively a standing stem	No impact	Remove	U	

Appendix 1 – Tree Inventory (Sunberry drive Blarney, Co. Cork, Southern boundary.)

Tree #	Species Botanical Name	Age Class	Dia Size (mm)	HT	Crown Sp.(M)	Crown Cl.(M)	Condition	Structural/Physiological Observations	Impact of development	PMR	Category	R.P.A. (M Radius)
T18	Sycamore	M	600	10	N=.5 S=.5 E=.5 W=.5	2	Poor	A mature ash in poor condition, effectively a standing stem	No impact	Remove	U	
T19	Oak	M	700	24	N=4 S=4 E=4 W=4	4	Fair	A large mature in good condition	No impact	Retain	B2	8m
T20	Beech	M	680	24	N=4 S=4 E=4 W=4	3	Good	A mature co-dominant beech the northern stem has been completely pruned back to the boundary fence	No impact	Retain	B2	7.8m
T21	Oak	M	750	24	N=5 S=5 E=5 W=5	3	Good	A large mature oak in good condition	No impact	Retain	A2	8.5m
T22	Oak	M	750	24	N=5 S=5 E=5 W=5	3	Good	A large mature oak in good condition	No impact	Retain	A2	8.5m
T23	Beech	SM	250	8	N=2 S=2 E=2 W=2	2	Good	A semi mature beech in good condition	No impact	Retain	B2	3.5m

Appendix 1 – Tree Inventory (Sunberry drive Blarney, Co. Cork, Western boundary.)

Tree #	Species Botanical Name	Age Class	Dia Size (mm)	HT	Crown Sp.(M)	Crown Cl.(M)	Condition	Structural/Physiological Observations	Impact of development	PMR	Category	R.P.A. (M Radius)
T24	Elm	M	500	16	N=1 S=1 E=1 W=1	2	Dead	Dead	No impact	Remove	U	
T25	Elm	M	300	12	N=4 S=4 E=4 W=4	1	Good	A mature elm in good condition	No impact	Retain	B2	4m
T26	Elm	M	500	18	N=3 S=3 E=5 W=5	1	Good	A mature elm in good condition	No impact	Retain	B2	6m
T27	Elm	M	500	18	N=3 S=3 E=5 W=5	1	Good	A mature elm in good condition	No impact	Retain	B2	6m
T28	Elm	M	400	18	N=4 S=4 E=4 W=4	1	Good	A mature elm in good condition	No impact	Retain	B2	5m
T29	Elm	M	400	18	N=4 S=4 E=4 W=4	1	Good	A mature elm in good condition	No impact	Retain	B2	5m
T30	Ash	M	500	20	N=4 S=4 E=4 W=4	1	Good	A mature ash in good condition	No impact	Retain	B2	6m
T31	Elm	M	380	16	N=4 S=4 E=4 W=4	3	Good	A mature elm in good condition	No impact	Retain	B2	4.8m
T32	Elm	M	500	14	N=3 S=3 E=3 W=3	1	Good	A mature elm in good condition	No impact	Retain	B2	6m

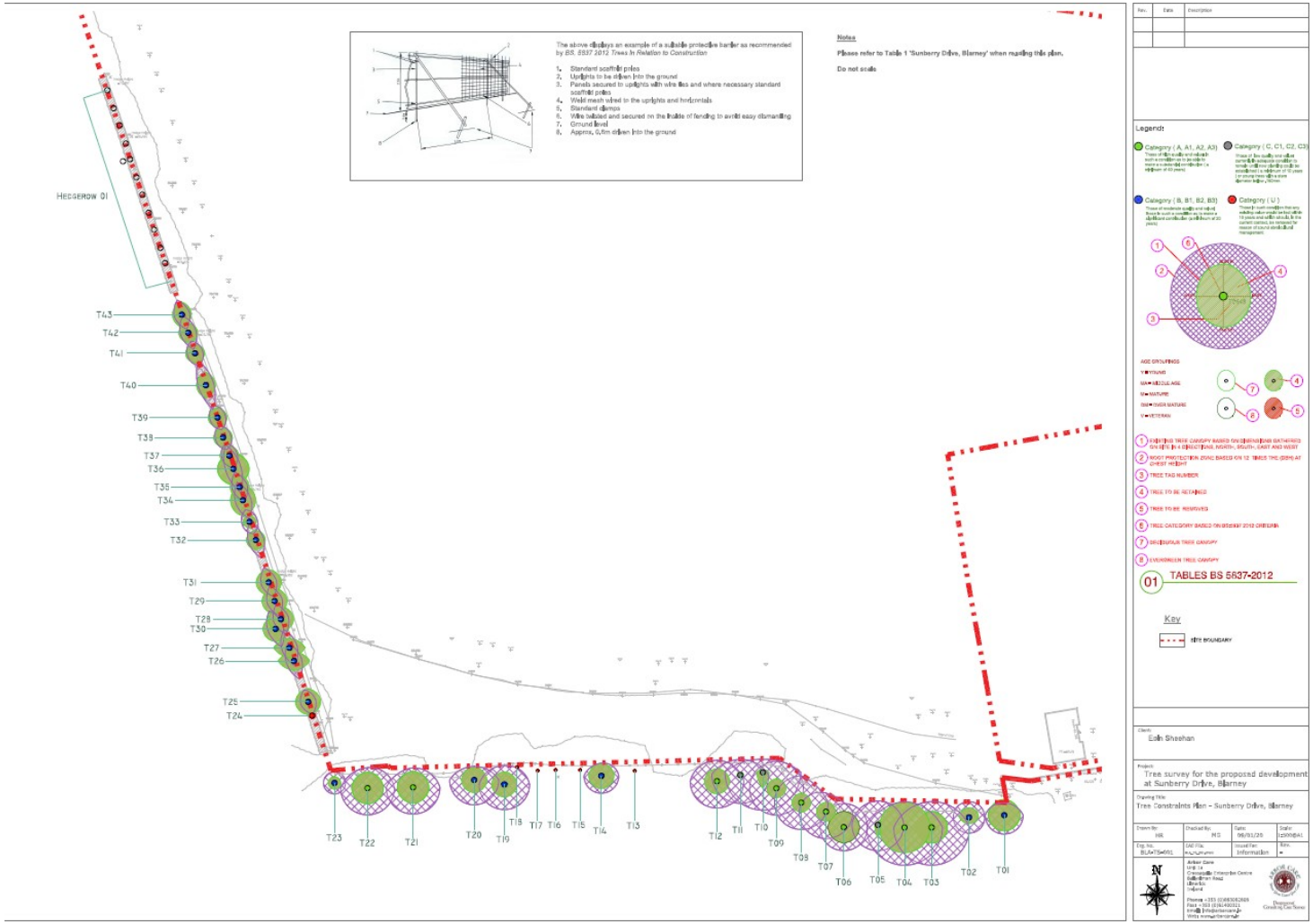
Appendix 1 – Tree Inventory (Sunberry drive Blarney, Co. Cork, Western boundary.)

Tree #	Species Botanical Name	Age Class	Dia Size (mm)	HT	Crown Sp.(M)	Crown Cl.(M)	Condition	Structural/Physiological Observations	Impact of development	PMR	Category	R.P.A. (M Radius)
T33	Elm	M	300	12	N=2 S=2 E=2 W=2	2	Good	A mature multi-stemmed elm in good condition	No impact	Remove	B2	4m
T34	Oak	M	500	18	N=5 S=5 E=4 W=4	1	Good	A large mature oak located in the adjacent field to the west	No impact	Retain	B2	6m
T35	Ash	M	400	16	N=4 S=4 E=3 W=3	1	Good	A large mature ash located in the adjacent field to the west	No impact	Retain	B2	5m
T36	Ash	M	700	24	N=5 S=5 E=5 W=5	1	Good	A mature ash in good condition	No impact	Retain	B2	8m
T37	Elm	M	300	10	N=3 S=3 E=3 W=3	1	Good	A mature multi-stemmed elm in good condition	No impact	Retain	B2	4m
T38	Elm	M	300	10	N=3 S=3 E=3 W=3	1	Good	A mature multi-stemmed elm in good condition	No impact	Retain	B2	4m
T39	Elm	M	300	10	N=3 S=3 E=3 W=3	1	Good	A mature multi-stemmed elm in good condition	No impact	Retain	B2	4m
T40	Oak	M	700	20	N=6 S=6 E=6 W=6	3	Good	A large mature oak in good condition	No impact	Retain	B2	8m
T41	Ash cluster	M	300	14	N=3 S=3 E=3 W=3	1	Good	A mature ash cluster in good condition	No impact	Retain	B2	4m

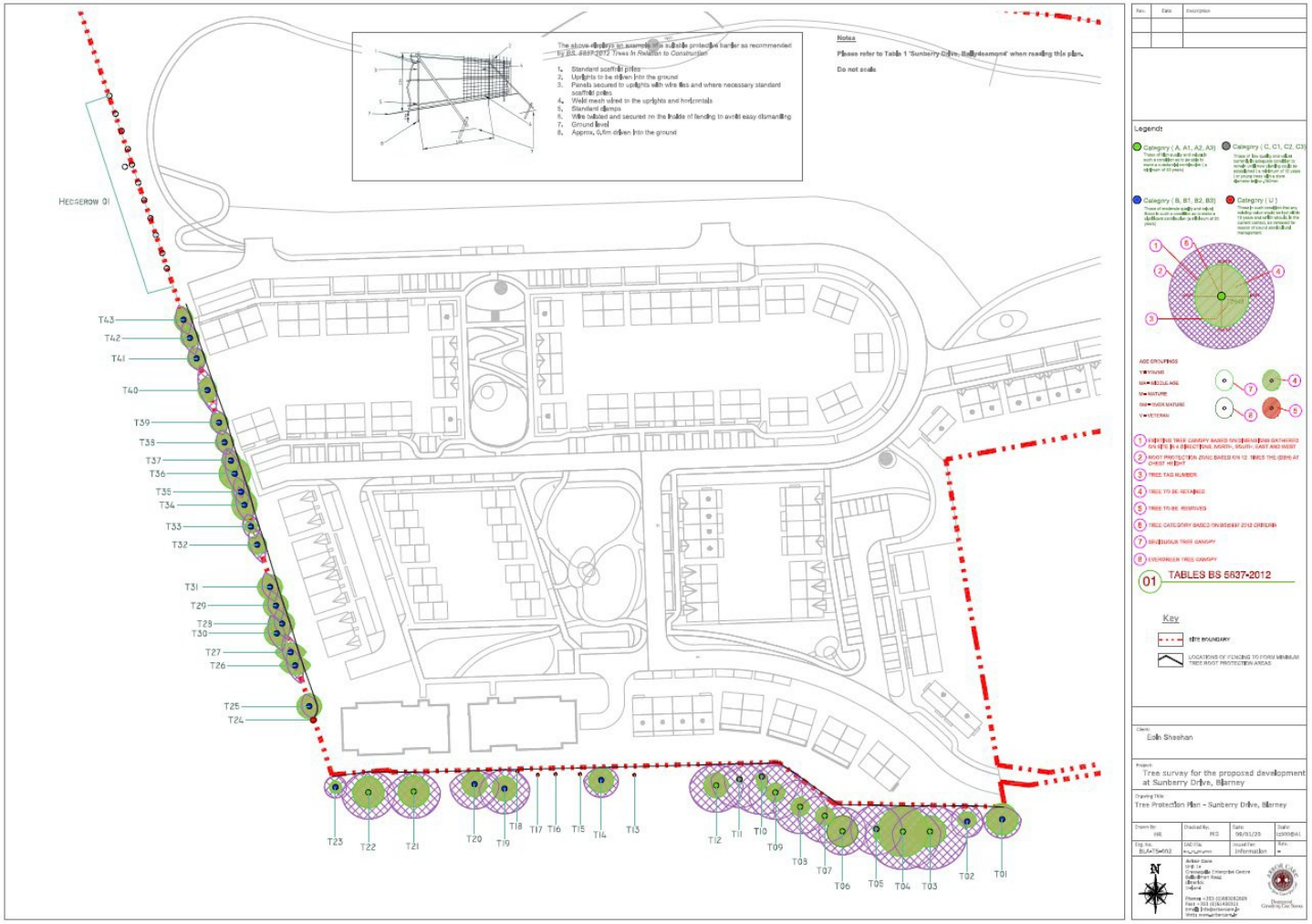
Appendix 1 – Tree Inventory (Sunberry drive Blarney, Co. Cork, Western boundary.)

Tree #	Species Botanical Name	Age Class	Dia Size (mm)	HT	Crown Sp.(M)	Crown Cl.(M)	Condition	Structural/Physiological Observations	Impact of development	PMR	Category	R.P.A. (M Radius)
T42	Ash	M	450	19	N=3 S=3 E=3 W=3	4	Good	A mature ash in good condition	No impact	Retain	B2	5.5m
T43	Ash	M	380	14	N=5 S=5 E=4 W=4	2	Good	A mature ash in good condition	No impact	Retain	B2	4.8m

Appendix 2. Tree Constraints Plan



Appendix 3. Tree Protection Plan



This report was prepared by:

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Arbor-Care Ltd, Professional Consulting Tree Service

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Michael Garry.

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