



Arboricultural Impact Assessment

Prepared for:

Limerick City & County Council

Proposed site:

Fr. Russell Road, Limerick.

Prepared by:

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1 Summary

1.1 This arboricultural report has been commissioned by Limerick City & County Council to provide information to assist with the planning process in relation to Fr. Russell Road, Limerick.

1.2 This report includes:

- an assessment of the trees, their quality and value in accordance with BS 5837:2012 - Trees in relation to design, demolition and construction;
- the site context and observations on the trees;
- local planning policies relevant to the consideration of trees on the site;
- the impact of the proposed development upon the tree population in and around the site;
- methods of reducing impacts on trees; and
- measures to be taken to protect trees during the proposed works.

2.0 Introduction

Arbor-Care Ltd (Professional Consulting Tree Service) was retained by Limerick City & County Council to undertake an on-site inspection and visual condition assessment of all trees, groups of trees, hedges that could be potentially be impacted by the development works within the site extents (Figure 1), the findings of the report will be used to inform design of development works and support a Part 8 planning application for same.

The objective of the impact assessment was to identify the areas that contained trees, groups of trees, and to ensure where possible that these areas would be retained and to identify the trees that are to be removed to facilitate the development.

The survey commenced on the 17th February 2022. The survey concentrated on the area the development area.

The below impact assessment 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. This impact assessment report will be accompanied by an inventory of trees and hedgerows on site and a tree protection plan. 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.

2.2 Methodology

An initial tree survey and visual condition assessment was on the 17th February 2022. 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. All trees were individually tagged with a metal disc. This was placed on the northern side of the tree where practical.

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/ groups located within and adjacent to the proposed development area and has been based on the topographical survey plan provided. The objective of this survey was to gather information regarding the trees within or adjacent to the development area and the impact the proposed scheme may have on the trees. **Please refer to Appendix A 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 three tier rating scale with the following descriptors:

Specimen condition 3-tier rating system

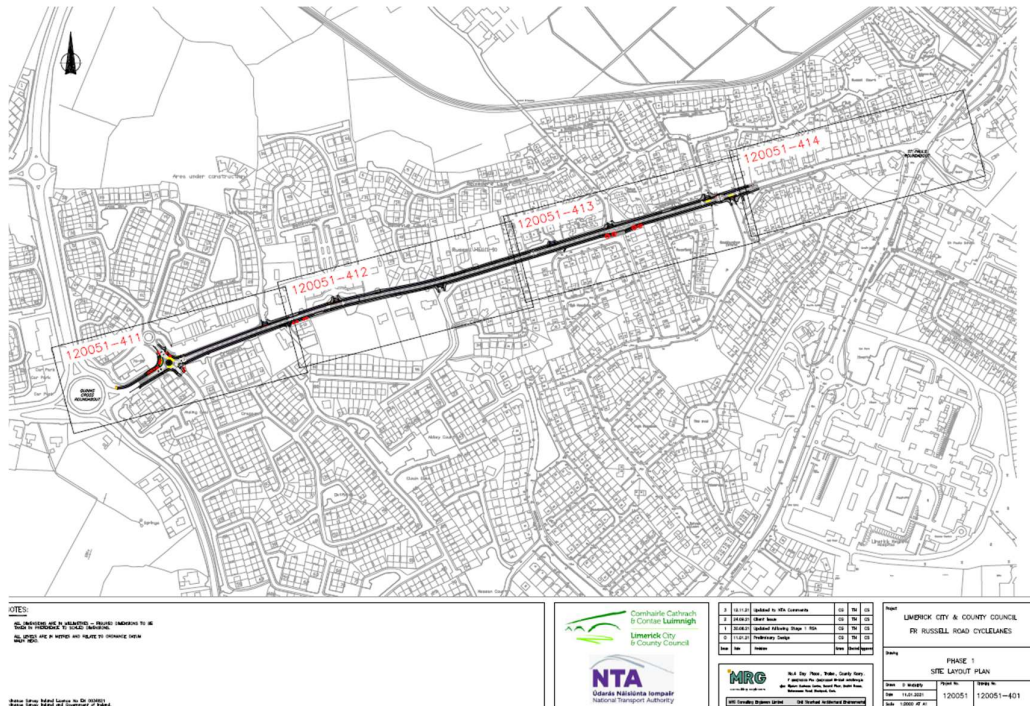
- Poor- 1-30%
- Fair- 31-60%
- Good- 61-100%

3. Initial Tree Survey Overview

3.1 The Site

The survey area is known as the Fr. Russell Road, this is a high amenity area that is popular for recreational activities such as walking, running and cycling. It is a busy thoroughfare of buses and cars

Figure 1. Site Location and extent of works



4.0 The Trees.

A total of 76 trees were surveyed, this consisted of 41 trees individual street trees plus a hedgerow of cypress within private property containing 35 trees. A breakdown of the Tree Categories on site as per BS 5837 2012 is set out in the table below:

Category	Quantity	Category %
A-Tree of high quality	2	2.6%
B-trees of good quality	23 + 35 hedgerow trees	76.3%
C (Low quality or trees less than 75mm diameter)	16	21%
U (remove due to poor condition)	0	0%
Total Trees surveyed	76	100%

View of the Trees.



Image 1: Gouldavoher Estate Entrance



Image 2: Conifers in Private Lands



Image 5: Cragaun

5.0 Statutory and Non-Statutory Designations

The National Planning Framework (NPF) seeks to ensure that new development is sustainable and underlines the importance of Green Infrastructure, of which trees form an integral part. This encompasses recognition of the importance of trees in relation to the management of air, soil and water quality along with other associated ecosystem services and climate change adaption. The NPF also seeks to achieve the protection and enhancement of landscapes and a net gain in biodiversity.

The site is located within the jurisdiction of *Limerick City & County Council*. The Local Planning Authorities have a statutory duty to consider both the protection and planting of trees when considering planning applications. The potential impact of development on all trees (including those not protected by a Tree Preservation Order or other statutory designation) is therefore a material consideration. I have reviewed *Limerick City & County Council Development Plan 2022-2028 Tree Preservation Orders (TPO's)* . There are no TPO's identified within the development site.

6. The Proposed Development (figure 2)

Brief Summary Development Description

The Fr Russell Road Cycle Lanes Scheme will extend over a distance of approx. 1km along Fr Russell Road. The scheme aims to provide improved safety, comfort and security for cyclists, (as well as pedestrians and the mobility impaired) in the area in order to promote an uptake in cycling as a viable and safe commuter travel mode. The information provided in this report and subsequent tree protection plan will assist the design team

7. Arboricultural Impact Assessment

This impact assessment sets out the likely principal direct and indirect impacts of the proposed development on the trees on or immediately adjacent to the site and suitable mitigation measures to allow for the successful retention of significant trees or to compensate for trees to be removed, where appropriate.

A brief summary of trees to be removed, related to the Proposed Scheme are detailed within the table below

Table 1: Schedule of trees to be removed to accommodate the design

(To be read in conjunction with Appendix A and the Tree Protection Plan.

Tree number	Species	Age Class	Tree category
4586	Lime	Mature	C2
4587	Lime	Mature	C2
4588	Birch	Mature	B2
4589	Lime	Mature	B2
4590	Lime	Mature	B2
4602 x 4	Birch	Early-Mature	B2
4603	Norway maple	Semi-Mature	C2
4604	Norway maple	Semi-Mature	C2
4606-07 x 4	Norway maple	Semi-Mature	C2
4608 x 2	Norway maple	Semi-Mature	C2
Hedge 1	Lawson cypress	Mature	B2

Total trees to be removed =17 & Hedge 1 (consisting of 35no. exotic conifers)

7.1 The arboricultural impact of the proposed development on the site will be moderate. It is proposed to remove seventeen trees and hedge 1 (consisting of 35no exotic conifers) out of a total of 76 surveyed to facilitate the scheme. A new planting scheme of site appropriate trees will enhance the local arboreal footprint.

Of the trees to be removed to accommodate the proposed design, these consist of 0 no. category A trees, 4 no. category B plus the Lawson cypress hedgerow and 10 no. category C

trees and 0 no. category U trees.

In accordance with *BS 5837: 2012 Trees in relation to design, demolition and construction. Recommendations.*, Category B 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 signifies those trees/hedgerows 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).” 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

- 7.2 Following the completion of the development, a tree condition assessment should be carried out on all retained trees for health and safety purposes.
- 7.3 Tree protection measures - All retained trees and hedgerows can be successfully protected during the proposed development by using robust fencing which complies with the recommendations outlined within BS5837:2012.
- 7.4 No materials or equipment other than those required to install tree protection will be delivered to the site until all fencing is in place.
- 7.5 For details of the tree protection measures required during construction, please refer to the Tree Protection Plan.
- 7.6 Compound area – The proposed site compound area has not yet been designed; however, there is sufficient space available throughout the area to avoid any unnecessary impacts to retained trees, provided the tree protection measures as detailed within this report are carried out.
- 7.7 Site access – The site is located on an existing road

- 7.8 Daylight and sunlight levels - Shading by trees has been assessed and is not considered a significant issue in relation to this proposal.
- 7.9 Drainage and services – All new service runs should be located outside the RPAs of retained trees to avoid impacting their condition. If it is found necessary to locate services within tree RPAs, it is recommended that these works are carried out under arboricultural supervision. Methods of work should follow the recommendations in the NJUG guidance. BS5837 (2012) recommends the NJUG guidance as a normative reference to be used in these circumstances.
- 7.10 Boundary treatments – None required
- 7.11 Works will be taking place within the RPA of certain trees and hedgerows. The scheme proposes to construct a cycle track (adjacent to hedgerow 1) in place of the existing footpath, with a new footpath then constructed to the rear bringing the back of the new footpath 1600mm closer to the fence. The approximate excavation depth will be 300mm to allow for the footpath construction. The scheme also proposes to construct a cycle track in place of the existing footpath within the RPA of tree numbers 4584, 4585, 4591, 4592, 4593, 4594 and 4595 with a new footpath then constructed to the rear bringing the back of the footpath 1100mm closer to the fence. The approximate excavation depth will be 500mm to allow for the footpath construction. In order to ensure that the retained trees along this section of the scheme are protected additional mitigation measures in addition to the protective fencing are to be put in place prior to development works. The minimum root protection area for these trees will be breached, thus works will be occurring within the root protection areas of these trees. It is essential that impact to these trees is kept to a minimum. To achieve this certain mitigation measures will be adhered to.

Firstly any works within the RPAs will be undertaken with prior consultation

and or under the supervision of the arborist. The new footpath will be constructed by no dig technique which will involve building up to meet the levels of the proposed footpath. This will ensure root severance is avoided or kept to a minimum. An air spade can be used in order to loosen the soil to avoid digging. Soil compaction will also be kept to a minimum, as the use of a cell web material will ensure that the load is evenly spread this reducing compaction levels. This cell web material must be in place prior to any tracked vehicles entering the root protection area (Please refer to figure 4). All works within the RPA should be undertaken during dry weather (where practical) to further avoid soil compaction. A geotextile material should be used at the base of construction to help prevent pollution contamination of the rooting area below. The new hard surface must be set back by a minimum of 500mm from the root buttress area in order to allow for expansion.

To ensure gaseous exchange the finished surface must be a porous material to allow moisture and aeration through to the rooting systems. Please refer to engineer specification's for further details regarding footpath construction. It must be noted that works will only take place on one side of the trees, therefore at least 40-50% of the rooting structure will be undisturbed.

- 7.12 Landscape operations - Landscaping operations will typically take place at the end of the construction period. These works will normally require the removal of protective fencing to facilitate access for works. There is a risk that plant and machinery may damage soil structure where tree roots are growing. These risks can be managed by maintaining good professional standards of work and working to a method statement. The principle of avoiding soil disturbance or changes in levels within the RPAs of retained trees should be followed unless arboricultural advice has been sought.

Arboricultural mitigation

7.13 A landscape plan may form part of the proposed works has been designed as part of the proposal and may include a number of new high-quality tree. The proposed planting will mitigate the loss of trees and hedgerows on site (if so determined) and will have a positive impact on local tree population. The number trees proposed to be planted will ensure that local canopy cover will gradually increase over the years and surpass the existing canopy cover within this area. A greater diversity of tree species has also been selected and will ensure that the tree population is less vulnerable to the risks posed by climate change and pests and diseases in the future.

Discussion & Conclusion

8.1

My assessment is that there will be minimal loss of trees and therefore no impact on the character and appearance of the immediate surrounding landscape; however, the proposal provides a good opportunity to carry out new high quality tree planting that will significantly enhance the tree population and have a positive impact on the visual appearance of the site and the local area in the future.

Proposal in relation to local planning policy

- 8.2 The proposed development complies with local planning policy as it relates to trees. A tree survey has been carried out in accordance with best practice and where possible trees have been retained and can be successfully protected during construction.
- 8.3 A landscape plan which includes new high quality tree planting may form part of the proposal. New planting will mitigate the loss of trees and enhance the visual appearance of the site in the future. Please review the landscape plan for further information

Conclusion

- 8.4 The proposal has been assessed in accordance with BS5837:2012 and special working methods have been recommended to minimise tree impacts.
- 8.5 Retained trees have been assessed and can be successfully protected during development by following the information provided within this report and adhering to industry best practice.
- 8.6 Provided the recommendations and methods of work, as outlined within this report, are adhered to, the proposed development can be successfully carried out without having a negative impact on the character or appearance of the surrounding landscape.

Recommendations

- 9.1 The proposal should be carried out in accordance with the recommendations outlined within this report.
- 9.2 The positioning of tree protective barriers should be installed as detailed within the Tree Protection Plan.
- 9.3 Site supervision should be carried out by an arboricultural consultant at key stages of the project to ensure that retained trees are successfully protected during the development. Details of supervision are included within the Arboricultural Method Statement at Section 2 of this report

Appendix A: Key to Abbreviations Used in the Survey

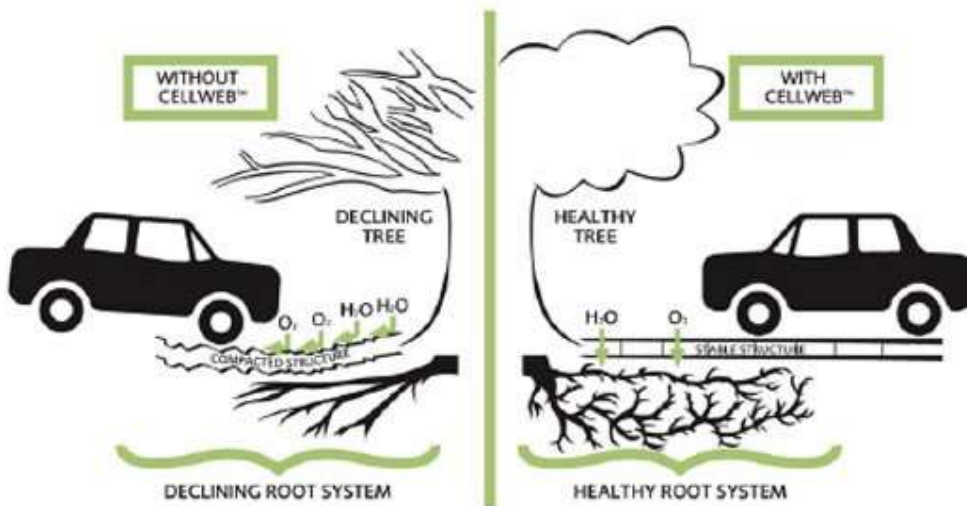
Ref No	Specific identification number given to each tree or group. T=Tree/H=Hedge/G=Group/W=Woodland/S=Shrub.	
Tag No.	Tree marked with individual tree tag of this reference number on site.	
Species	Common name followed by botanical name shown in <i>italics</i>	
RPA	Root Protection Area (As defined by BS5837)	
Stem diameter	Diameter of main stem, measured in millimetres at 1.5 m above ground level. (MS = Multi-stem tree measured in accordance with BS5837 Annexe C)	Av / Average: indicates an average representative measured dimension for the group or feature
Spread	The width and breadth of the crown. Estimated on the four compass points in metres.	
Crown clearance	The estimated height (in metres) above ground level of the lowest significant branch attachments.	
#	Estimated dimensions	
*	Indicates estimated position of tree (not indicated on topographical survey).	
P	Privately owned tree (e.g. tree not located in the public highway or adjacent public land).	
Category	Categorisation of the quality and benefits of trees on Site as per Table 1 and 2 of BS5837:2012. 1=Arboricultural quality/value 2=Landscape quality/value 3=Cultural quality/value (including conservation) A=High quality/value 40yrs+ (light green). B=Moderate quality/value 20yrs+ (mid blue) C=Low quality/value min 10yrs/stem diameter less than 150mm (grey). U=Unsuitable for retention (dark red).	
Life stage	<p>Young (Y): Newly planted tree 0-10 years.</p> <p>Semi-Mature (SM): Tree in the first third of its normal life expectancy for the species (significant potential for future growth in size).</p> <p>Early Mature (EM): Tree in the second third of its normal life expectancy for the species (some potential for future growth in size)</p> <p>Mature (M): Tree in the final third of its normal life expectancy for the species (having typically reached its approximate ultimate size).</p> <p>Over Mature (OM): Tree beyond the normal life expectancy for the species.</p> <p>Veteran (V): Tree which is of interest biologically, aesthetically or culturally because of its condition, size or age.</p>	
Structural condition	<p>Good: No significant structural defects</p> <p>Fair: Structural defects which can be resolved via remedial works.</p> <p>Poor: Structural defects which cannot be resolved via remedial works.</p> <p>Dead: Dead.</p>	
Physiological condition	<p>Good: Normal vitality including leaf size, bud growth, density of crown and wound wood development.</p> <p>Fair: Lower than normal vitality, reduced bud development, reduced crown density, reduced response to wounds.</p> <p>Poor: Low vitality, low development and distribution of buds, discoloured leaves, low crown density, little extension growth for the species.</p> <p>Dead: Dead</p> <p>Fair/Good = Indicates an intermediate condition</p> <p>Fair – Good = Indicates a range of conditions (e.g. within a group)</p>	
Preliminary management recommendations	Works identified during the tree survey as part of sound arboricultural management, based on the current context of the Site (where relevant reference has been made to tree management based on the potential future context of the site).	



Works to facilitate the development	Tree works identified as necessary to facilitate the Proposed Development following a desk top analysis of the proposals in relation to tree constraints.
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Cellweb® Tree Root Protection

Cellweb Tree Root Protection System provides a flexible and permeable solution for protecting tree roots while creating a robust and stable platform when creating vehicular access paths.



Cellweb Cellular Confinement System with its unique cellular structure and perforated cell walls reduces the vertical load pressure on sub soils above tree roots and prevents compaction. With clean granular materials as infill, air and moisture can reach the roots to encourage healthy prolonged growth.

With no-dig solutions being the preferred option Cellweb is ideal as only the surface vegetation need be removed. As well as avoiding disruption to the roots this reduces construction times and costs. Sub base depths can be reduced significantly, by using the Cellweb in most cases this can be as much as 50%, providing further cost savings. This use of Cellweb also prevents surface rutting, increasing the long-term performance and aesthetics of the final surface.

Recent research on the Cellweb System has proven the systems performance, and Cellweb is the only system on the market to have undertaken these trials.

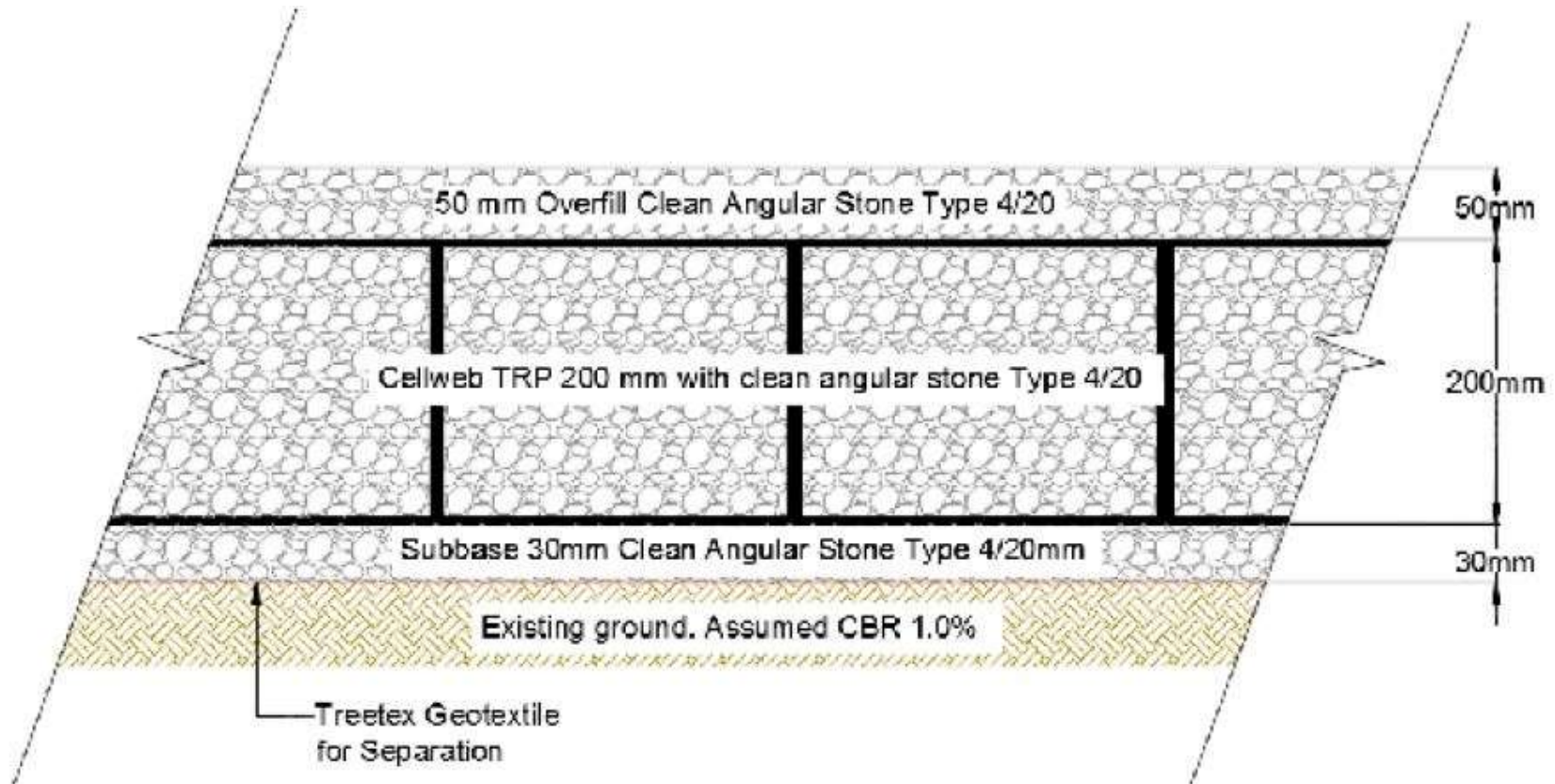


Diagram 1: Recommended build up for the level section of the driveway

Appendix A: Tree Survey Schedule

Tree #	Species Botanical Name	Age class	Size (mm)	Height (M)	Crown Sp. (M)	Crown Cl.(M)	Condition	Structural/Physiological Observations	Impact of the development	PMR	Category	R.P.A. Meters
<p style="text-align: center;">Tree survey is commencing at the eastern end of the Fr. Russell Road at the Gouldavoher Estate and working in a westerly direction to Quinns Road Roundabout. Concentrating on the trees on the south side first and then the north side.</p>												
4580	<i>Prunus pissardii</i> Purple plum	M	300	6	N=2 S=2 E=2 W=2	2m	Good	A mature cherry displaying over all good condition.	No impact	Retain No works required	B2	4.0m
4581	<i>Acer Pseudoplatanus</i> Sycamore	M	750	18	N=4 S=4 E=4 W=4	2m	Fair	A large mature co-dominant Sycamore displaying over all fair condition. This tree is co-dominant at 1.5m and there is significant Included Bark at this main union. This could increase the failure rate of this tree. This tree is located in a high target area. This tree can be retained but recommend a crown reduction.	No impact	Retain Crown reduce by 3m to 4m maximum.	C2	8.5m
4582	<i>Tilia</i> Lime	M	600	18	N=4 S=4 E=4 W=4	3m	Good	A mature Lime displaying over all good condition. This tree has a high amenity value.	No impact	Retain No works required	A2	7.0m
4583	Lime	M	600	16	N=4 S=4 E=4 W=4	3m	Good	A mature Lime displaying over all good condition. This tree has a high amenity value.	No impact	Retain No works required	A2	7.0m

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4584	Lime	M	450	10	N=2 S=2 E=2 W=2	3m	Good	A mature Lime displaying over all good condition.	No impact	Retain No works required	B2	5.5m
4585	Lime	M	450	8	N=2 S=2 E=2 W=2	3m	Good	A mature Lime displaying over all good condition.	No impact	Retain No works required	B2	5.5m
4586	Lime	M	360	2	N=0 S=0 E=0 W=0	0	Poor	A mature Lime displaying over all poor condition. This tree has been heavily pruned and is basically a standing stem of 2m and there is a suckering growth growing from this.	Remove to facilitate development	Remove	C2	4.6m
4587	Lime	M	360	2	N=0 S=0 E=0 W=0	0	Poor	A mature Lime displaying over all poor condition. This tree has been heavily pruned and is basically a standing stem of 2m and there is a suckering growth growing from this.	Remove to facilitate development	Remove	C2	4.6m
4588	<i>Betula Pendula</i> Silver Birch	M	300	8	N=2 S=2 E=2 W=2	3m	Good	A mature Silver Birch displaying over all good condition.	Remove to facilitate development	Remove	B2	4.0m
4589	Lime	M	500	12	N=3 S=3 E=3 W=3	3m	Good	A large mature Lime displaying over all good condition.	Remove to facilitate development	Remove	B2	6.0m

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Tree #	Species Botanical Name	Age class	Size (mm)	Height (M)	Crown Sp. (M)	Crown Cl.(M)	Condition	Structural/Physiological Observations	Impact of the development	PMR	Category	R.P.A. Meters
4590	Lime	M	540	12	N=3 S=3 E=3 W=3	3m	Good	A large mature Lime displaying over all good condition.	Remove to facilitate development	Remove	B2	6.4m
4591	<i>Prunus Avium</i> Cherry	EM	200	3	N=1.5 S=1.5 E=1.5 W=1.5		Fair	An early mature Cherry displaying over all fair condition.	Minimal root impact	Retain No works required	C2	3.0m
4592	Lime	M	480	12	N=3 S=3 E=3 W=3	3m	Good	A mature Lime displaying over all good condition.	Minimal root impact	Retain No works required	B2	5.8m
4593	<i>Acer Platanoides</i> Norway Maple	M	340	8	N=2 S=2 E=2 W=2	3m	Good	A mature Norway Maple displaying over all good condition.	Minimal root impact	Retain No works required	B2	4.4m
4594	<i>Fraxinus</i> Ash	M	650	12	N=4 S=4 E=4 W=4	3m	Good	A large mature Ash displaying over all good condition.	Minimal root impact	Retain No works required	B2	7.5m
4595	Lime	M	500	10	N=3 S=3 E=3 W=3	3m	Good	A mature Lime displaying over all good condition.	Minimal root impact	Retain No works required	B2	6.0m

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4596	<i>Carpinus</i> <i>Betulus</i> Hornbeam	M	200	6	N=0.5 S=0.5 E=0.5 W=0.5	2m	Good	A mature Hornbeam displaying over all good condition.	No impact	Retain No works required	B2	3.0m
4597	Lime	M	580	8	N=3 S=3 E=3 W=3	3m	Good	A large mature Lime displaying over all good condition.	No impact	Retain No works required	B2	6.8m
4598	Lime	M	500	8	N=3 S=3 E=3 W=3	2m	Good	A mature Lime displaying over all good condition.	No impact	Retain No works required	B2	6.0m
4599	Norway Maple	EM	280	4	N=3 S=3 E=3 W=3	2m	Good	An early mature Norway Maple displaying over all good condition.	No impact	Retain No works required	B2	3.8m
4600 x 3	Silver Birch	SM	190	3	N=0.5 S=0.5 E=0.5 W=0.5	2m	Good	Represents 3 semi-mature Silver Birch displaying over all good condition. These trees are located at the entrance of Abbey Court Housing Estate.	No impact	Retain No works required	B2	2.9m

Tree #	Species Botanical Name	Age class	Size (mm)	Height (M)	Crown Sp. (M)	Crown Cl.(M)	Condition	Structural/Physiological Observations	Impact of the development	PMR	Category	R.P.A. Meters
4601 x 3	Silver Birch	SM	190	3	N=0.5 S=0.5 E=0.5 W=0.5	2m	Good	Represents 3 semi-mature Silver Birch displaying over all good condition. These trees are located at the entrance of Abbey Court Housing Estate.	No impact	Retain No works required	B2	2.9m
4602 x 4	<i>Betula Jacquemonti</i> Jacquemonti Birch	EM	140	6	N=1.5 S=1.5 E=1.5 W=1.5	1m	Good	Represents a group of 4 early mature Jacquemonti Birch displaying over all good condition.	Remove to facilitate development	Remove	B2	2.4m
Hedge 1 x 35	<i>Chamecyparis lawsoniana</i> Lawson cypress	M	350 Estimated	18	N=1 S=1 E=3 W=3	.5m	Good	A mature cypress hedge located within private property. It provides good screening. However it is a hedgerow of low ecological value	Remove to facilitate development	Remove	B2	4.5m
4603	Norway Maple	SM	120	4	N=0.5 S=0.5 E=0.5 W=0.5	2m	Good	A semi-mature Norway Maple displaying over all good condition. This tree is located on the roundabout.	Remove to facilitate development	Remove	C2	2.2m
4604	Norway Maple	SM	120	4	N=0.5 S=0.5 E=0.5 W=0.5	2m	Good	A semi-mature Norway Maple displaying over all good condition. This tree is located on the roundabout.	Remove to facilitate development	Remove	C2	2.2m
4605	Norway Maple	SM	120	4	N=0.5 S=0.5 E=0.5 W=0.5	2m	Good	A semi-mature Norway Maple displaying over all good condition. This tree is located on the roundabout.	No impact	Retain No works required	C2	2.2m

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4606 - 4607 x 4	Norway Maple	SM	120	4	N=0.5 S=0.5 E=0.5 W=0.5	1.5m	Good	Represents 4 semi-mature Norway Maple displaying over all good condition.	Remove to facilitate development	Remove	C2	2.2m
4608	Norway Maple	SM	120	4	N=0.5	2m	Good	Represents 2 semi-mature Norway Maple	Remove to	Remove	C2	2.2m

x 2					S=0.5 E=0.5 W=0.5			displaying over all good condition.	facilitate development			
4609 x 3	Norway Maple	SM	90	3	N=0.5 S=0.5 E=0.5 W=0.5	2m	Good	Represents 3 semi-mature Norway Maple displaying over all good condition.	No impact	Retain No works required	C2	1.0m

Section 2: Arboricultural Method Statement

Introduction
This report has been prepared in accordance with British Standard 5837: Trees in relation to design, demolition and construction – Recommendations (2012) which provides a methodology for the assessment and protection of trees and other significant vegetation on development sites.
Sequence of Operations
<ul style="list-style-type: none">• Proposed tree works.• Installation of tree protection measures.• Enabling works.• Construction of proposal and the installation of drainage and services.• Landscaping. <p><i>Alternative sequences can be discussed and agreed with the local authority and project manager if required.</i></p>

Supervision

All key / critical activities that will affect trees during construction will be inspected and monitored by the approved arboricultural consultant.

- Pre-commencement meeting with site manager and local authority to confirm location of tree protection measures.
- Inspection of all tree works and tree protection measures prior to the commencement of works.
- Monthly site visits to inspect tree protection measures are in place and reports issued to the local authority.
- Supervision during the excavation works within the RPAs of retained trees.
- Supervision during the installation of all services within tree RPAs.
- Supervision during any other works that may affect retained trees.
- Inspection upon completion.

Arboricultural Method Statement	
Scope	Methodology
Pre-commencement meeting	<p>Prior to the commencement of works, a meeting between the arboricultural consultant, local authority and the site manager will be held in order to discuss the tree protection measures and proposed works required in close proximity to trees.</p> <p>Contact details of all parties will be circulated to ensure all team members are able to communicate correctly.</p> <p>The site manager will be responsible for the protection of all retained trees for the duration of the project. Whenever necessary, the site manager will engage the arboricultural consultant to ensure trees are adequately protected.</p> <p>The appointed arboricultural consultant will be available for verbal advice throughout site works.</p>
Tree Works	<p>Please refer to the Tree Work Schedule at Appendix A for a list of all proposed tree works. The location of trees to be removed are highlighted on the Tree Removals Plan at Appendix B.</p> <p>It is the responsibility of the Site Manager to ensure all tree works have been approved by the local planning authority.</p> <p>All tree works will be carried out by a reputable arboricultural contractor in accordance with the recommendations given in BS 3998:2010 – Tree Work Recommendations.</p> <p>All tree works should be carried out in accordance with Section 40 of the Wildlife Act 1976 and Section 46 of the Wildlife (Amendment) Act 2000.</p> <p>It is the responsibility of the arboricultural contractor to ensure that no protected species are harmed whilst carrying out site clearance or tree surgery works.</p>

Tree Protection	<p>The position of protective fencing for construction is shown on the Tree Protection Plan at Appendix B.</p> <p>Protective fencing will be constructed and installed using fencing in accordance with BS5837:2012, please refer to the attached Tree Protection Plan for the specification. Alternatives to those shown must be agreed in advance by the client approved, arboricultural consultant.</p>
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	<p>Any machinery / site operative within tree RPAs must operate on the appropriate ground protection at all times, this will include the installation and removal of ground protection.</p> <p>Ground protection measures must be installed in accordance with industry best practice guidance as stated within Section 6.2.3.3 of BS 5837:2012. They must be fit for purpose and capable of supporting any traffic entering or using the site without being distorted or causing compaction of underlying soil.</p> <p>No materials or equipment other than those required to erect protective fencing will be delivered to the site before the fencing is installed.</p> <p>Signs will be fixed to every third panel stating, <i>'Tree Protection Area Keep Out – Any incursion into the protected area must be with the agreement of the local authority or arboricultural consultant'</i>.</p> <p>The main contractor will inform the local authority and the arboricultural consultant that tree protection is in place before site clearance works commence.</p> <p>No alteration, removal or repositioning of the tree protection will take place during construction without the prior consent of the arboricultural consultant.</p>
<p>Compound Area</p>	<p>The proposed site compound area has not yet been designed; however, the considerations below must be followed:</p> <p>The site compound must be located outside the designated TPZs as highlighted on the Tree Protection Plan at Appendix B.</p> <p>No excavation works within tree RPAs are permitted to install temporary services for site cabins and facilities. Any temporary services within tree RPAs must be above ground and protected accordingly.</p> <p>No operating generators or toxic liquids will be stored within the RPAs of retained trees during construction.</p> <p>Overhanging tree canopies must be taken into consideration when transporting, installing and removing site cabins near tree crowns. A banksman will be present during this process to ensure that all operations are carried out in a controlled manner and no part of the cabin meets</p>

	overhanging tree crowns.
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<p>Installation of fencing within RPAs</p>	<p>The installation of fencing within the RPAs of retained trees will be carried out using the following methodology:</p> <p>Post holes will be carefully positioned as far away from the stem of trees as possible (minimum 50 cm) to minimise contact with tree stems and significant tree roots.</p> <p>Holes will be manually excavated with the use of hand tools only and where roots greater than 25mm in diameter or large fibrous roots are present, the position of the hole will be slightly altered to avoid potential root damage.</p> <p>If the position of the hole cannot be altered, roots greater than 25mm in diameter or large fibrous roots will be protected with flexible plastic pipes and retained within the pit.</p> <p>In some cases, individual roots less than 25mm in diameter may be pruned, making a clean cut with a suitable sharp sterile tool (e.g. secateurs or hand saw).</p> <p>Once the required depth has been excavated, the hole will be lined using 1000-gauge polythene and filled with the appropriate concrete mix.</p>
<p>Landscape Operations</p>	<p>All landscape operations within the protected area will be carried out by hand, using hand tools only, unless otherwise agreed with by the arboricultural consultant.</p>

	<p>No dumping of spoil or rubbish, parking of vehicles or plant, storage of materials or temporary accommodation will be undertaken within the TPZs.</p> <p>All tree roots within the RPAs greater than 25mm diameter will be retained and worked around.</p> <p>Soil levels will not be increased or reduced within the RPAs of trees without prior agreement from the arboricultural consultant.</p>
<p>General Principles to Avoid Damage to Trees</p>	<p>All tree works will be carried out in accordance with the recommendations given in BS 3998 (2010).</p> <p>No fires will be permitted within 20m of the crown of any tree.</p> <p>No changes in soil levels will take place within the tree protection zones without prior written consent of the local authority.</p> <p>No materials, vehicles, plant or personnel will be permitted into the tree protection zones at any time without the prior consent of the arboricultural consultant.</p> <p>Any liquid materials spilled on site will be immediately cleared up and removed from the site. If liquid fuel or cement products are spilled within 2m of the tree protection zone, the contractor will report the incident to the arboricultural consultant immediately.</p> <p>The contractor will report any damage to trees or shrubs, whether caused by construction activities or from any other cause, to the arboricultural consultant immediately.</p>

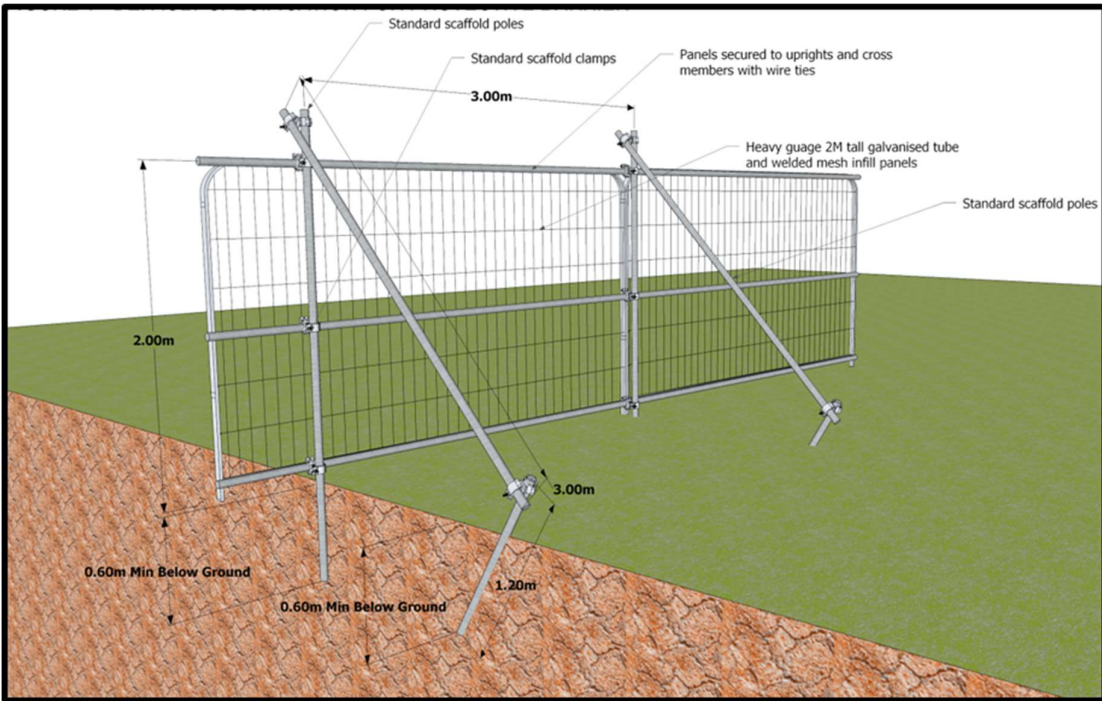
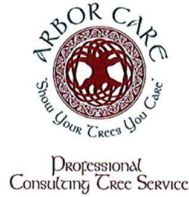


Figure 3 Default specification for tree protection barrier in accordance with BS5837:2012





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Yours in Conservation,

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