Arboricultural Impact Assessment Report

Assessment of trees in relation to the Strategic Housing Development

Prepared for:

Voyage Property Limited

Proposed site:

Greenpark, Dock Road Limerick

Prepared by:

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1.0 Introduction

1.1 Arbor-Care Ltd (Professional Consulting Tree Service) have been retained by Voyage Property Limited to undertake, to undertake an Arboricultural Impact Assessment, and a Tree Protection Plan identifying the trees, groups of trees or hedgerows that may be impacted on by the proposed development. The surveyed trees contained within this report are located within a series of large green fields that are located on an active farm (Figure 1). The objective of the impact assessment was to identify the areas that contained trees, groups of trees or hedgerows, 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.

1.2 The survey commenced on the 18th September 2020. The survey commenced at the northern boundary and continued in a southerly direction, finishing at the existing entrance.

1.3 The entire site comprises of 47 ha zoned serviced strategic undeveloped landholding and was the site of the former racecourse lands. The site has been unused since the race course closed in 1999. Due to its former use, there are few internal trees of significance, the site is predominantly overgrown by scrub vegetation such as bramble and regeneration willow. There are large over-mature Monterey cypress (*Cupressus macrocarpa)* along the northern boundary and these are in poor condition nearing the end of their natural life cycle. They have a low retention value and are a tree of little ecological value. The development area for this Phase 1 planning application comprises of c. 10.5 ha

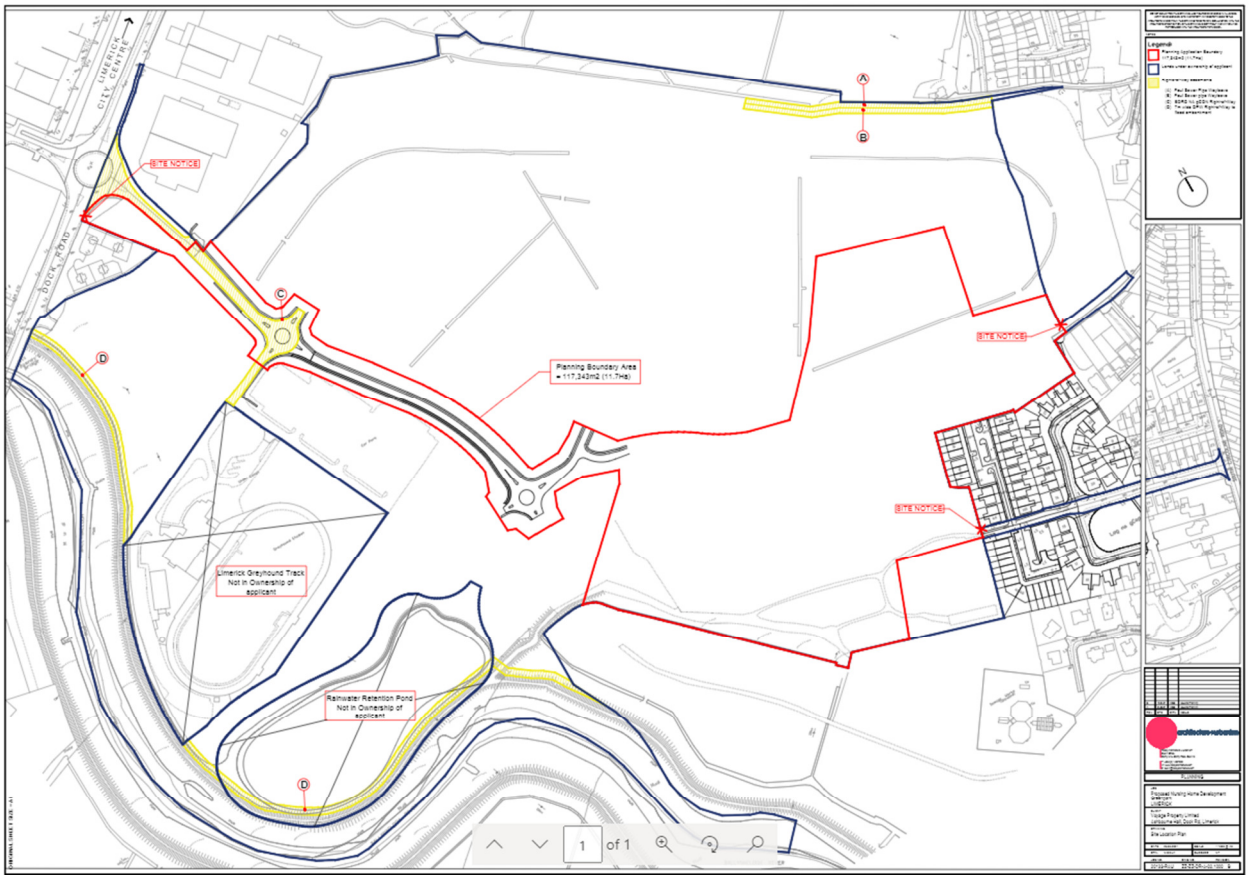
1.4 The below impact assessment report is based on the British standard *BS 5837:2012 Trees in relation to design, demolition and construction recommendations*, this standard gives recommendations and guidance on the principles to be applied to achieve a satisfactory juxtaposition of trees, including 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.

[1] www.bsigroup.com

Figure 1.0 Illustrates entire landholding and masterplan lands.

(Source: Voyage Property Limited)

Figure 2. Phase 1 Application highlighted in red



Development Description

Voyage Property Limited intend to apply to An Bord Pleanála (the Board) for permission for a strategic housing development with a total application site area of c.10.5 ha (with a substantive residential site development area of c.7.9 ha), on lands at the former Greenpark Racecourse, Dock Road, Limerick, principally bounded by existing undeveloped lands to the north, south and west and the adjoining Log na gCapall Housing Estate and Greenpark Avenue to the east. The application site includes the proposed access road (374m in length, including two lanes for vehicles, a roundabout, cycle lanes and pedestrian footpath) which connects to Dock Road at the north-western corner of the former Greenpark Racecourse lands and runs adjacent to the Limerick Greyhound Stadium.

The development with a total gross floor area of c. 36, 879 sq m will consist of the provision of 371 no. residential units comprising 157 no. two storey houses (consisting of 10 no. 4 bedroom units, 110 no. 3 bedroom units and 37 no. 2 bedroom units); 76 no. three storey duplex units (consisting of 14 no. 3 bedroom units, 38 no. 2 bedroom units and 24 no. 1 bedroom units) and 138 no. apartments (consisting

of 92 no. 2 bedroom units and 46 no. 1 bedroom units arranged in 3 no. blocks ranging between 4 and 5 storeys together with communal amenity space) and a two storey childcare facility (550 sq m), including all private, communal and public open space provision (including balconies and terraces to be provided on to front and rear elevations, private rear gardens and related play areas); surface car parking (510 no. spaces in total, including accessible spaces); car sharing provision; electric vehicle charging points; bicycle parking (long and short stay spaces including secure stands); storage areas; internal roads and pathways; hard and soft landscaping and boundary treatments; piped infrastructural services and connections; plant; revised entrances and tie-in arrangements to adjoining roads, including emergency access via Log na gCapall and Greenpark Avenue and pedestrian and cyclist access via Log na gCapall; waste management provision; solar panels; attenuation tank and related SUDS measures; signage; public lighting; bulk earthworks; and all site development and excavation works above and below ground. Vehicular access to the site will be from Dock Road, via the proposed access road.

Figure 3. Phase 1-Proposed Development

2.0 Policy Context

2.1 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.

2.2 Arbor-Care Ltd have reviewed the Limerick City Council local area plan and there are no *Tree Preservation Orders (TPO's)* identified within the proposed development site.

2.3 'BS5837:2012 Trees in relation to design demolition and construction – Recommendations (BS5837)' provides a framework which sets out how trees should be considered in this context and also explicitly applies to development where planning consent is not required.

2.4 BS5837 recommends that a tree survey is undertaken to identify the quality and benefits of trees and the spatial constraints associated with them. This is then used to produce a Tree Constraints Plan showing the above and below ground constraints associated with trees. This drawing is used to inform the design process and to allow the retention of good quality trees where appropriate.

2.5 An Arboricultural Impact Assessment is then developed to identify the likely direct and indirect impacts of the proposed development, and a Tree Protection Plan is prepared to identify trees to be removed or retained and to illustrate how retained trees are to be protected. An Arboricultural Method Statement is often required as a condition of planning consent to detail how sensitive operations are to be achieved in close proximity to retained trees. These elements are the minimum standard typically normally required for a planning application and are intended to ensure both a sustainable and harmonious relationship between trees and new development.

3.0 Methodology Employed

3.1 The tree survey and visual condition assessment was completed on the 18th September 2020. 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. Further in accordance with section 4.4.2.3 with the above 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 a southerly direction. All trees were individually tagged with a metal disc. This was placed on the northern side of the tree where practical. Where trees were inaccessible due to site conditions such as overgrown areas, a virtual tag with a T number (For example T1) was used.

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.

3.2 The survey concentrated primarily on the significant trees/hedgerows and groups located within and adjacent to the proposed 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**.

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

3.4 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 visual tree assessment from ground level 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%

4.0 Trees surveyed

4.1 The survey commenced on the 18th September 2020. A total of 64 individual trees and 1 hedgerow were surveyed. The impact of the development on the trees surveyed will be assessed in the Arboricultural Impact Assessment. The impact assessment will only include the trees located within phase 1.

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

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 years 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 10 years is suggested*)." *Category U 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'.*

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	0	0%
B-trees of good quality	40	62.5%
C (Low quality or trees less than 75mm diameter)	24	37.5%
U (remove due to poor condition)	0	0
Total Trees surveyed	64	

5.0 Arboricultural Impact Assessment

Trees to be removed on site

5.1.1 The arboricultural impact of the proposed planning application is low. It is proposed to remove 16 trees to facilitate this planning application.

5.1.2 Of the trees to be removed to accommodate the proposed design tthese consist of 0 no. category A trees, 16 no. category B and 0 no. category C group trees and 0 no. category U trees.

5.1.3 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 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".*

Table 1: Schedule of trees to be removed to accommodate the Phase 1 design (To be read in conjunction with Appendix 1 and the Tree Protection Plan).

Tree number	Species	Age Class	Tree category
Group 1 x 16	Willow	Mature	B2

Trees to be retained on site

5.2 It is proposed to retain all other trees on site at this stage of the development. Some trees may require minor remedial works to facilitate the development. Such works include having the lowest limbs crown raised and or to have any deadwood within the canopies removed.

6.0 Tree Removal

All trees that are destined for removal shall be removed prior to any construction or demolition works on this site. Any tree/hedgerow 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.*

7.0 Tree Protection

7.1 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) = { stem diameter (mm) @ 1.5m x 12 } ^{2} x 3.142 / 1000
Tree with more than one Stem arising below 1.5m above Ground level	RPA (m^2) = { Basal Dia. (mm) x 10} ^{2} x 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.

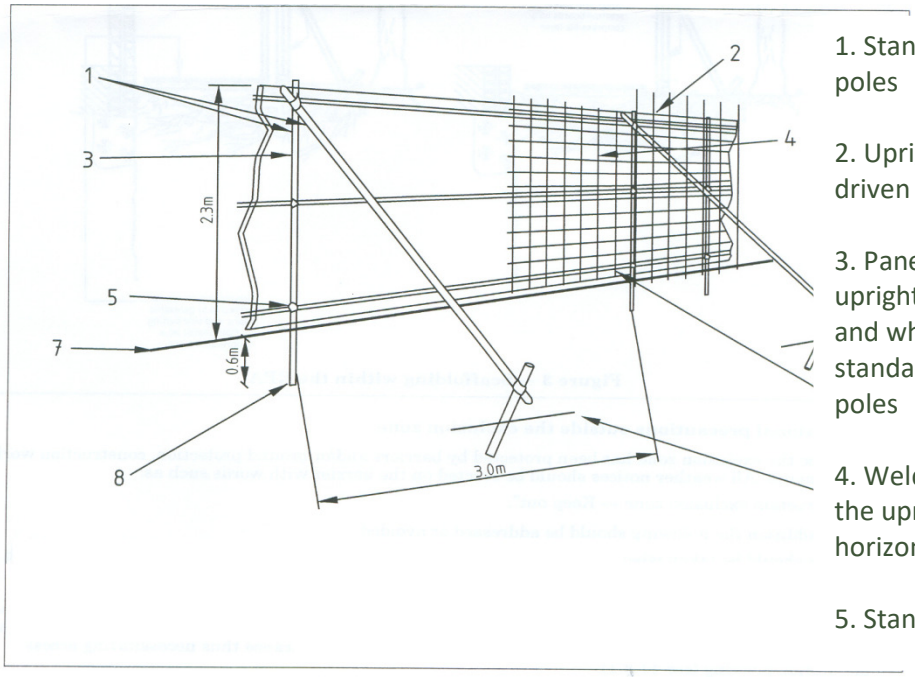
Protective Barriers

7.2 Trees and hedgerows that are indicated 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 4. 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

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

Fig. 5 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.

Ground Protection

7.3 Although works within the R.P.A. are not recommended should essentials works be required 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. Any works within the RPA must be undertaken with prior consultation with the arborist.

Tree Protection Plan

7.4 A site specific Tree Protection Plan has been undertaken please refer to separate document.

8.0 Arboricultural Method Statement/Tree Protection Strategy

8.1 The objective 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.

8.2 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 (for the position of root protection areas and additional mitigation measures.

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

Table 2. 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.	

Stage 1 - Pre development works

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

1. The developer may need to appoint an arboriculturist (If requested by the Local authority) 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.

Site meeting

8.5 Prior to any works on site, it may be 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.

Tree works

8.6 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.*

Erection of protective fencing/Mitigation measures

8.7 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.

9.0 Stage 2 - The construction works stage

Protective Fencing

9.1 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.

Excavations

9.2 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.

Working within the RPA

9.3 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.

Finished ground levels/Landscaping

9.4 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.

10.0 Stage 3-Post Development Works

10.1 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.

11.0 Conclusion

A complete tree inventory has been provided in Appendix 1 outlining the schedule of trees and hedgerows on site in accordance with '*BS 5837: 2012 Trees in relation to design, demolition and construction Recommendations'.* As stated in the introduction due to the past use of the site, the internal site is in the main devoid of any trees and has now been taken over by regeneration scrub willow and bramble. Given that the majority of the trees are located along the northern boundary it is not envisaged that the arboricultural impact of the site will be significant and on the

contrary it “affords” an opportunity to plant site appropriate trees and plants that will enhance the overall arboreal footprint and biodiversity of the site.

Appendix 1 - Tree Categorisation

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 years 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- eg-B2

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

DBH. -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

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

break up and decrease in size.

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

Arboricultural
ASSOCIATION
Professional Member

Appendix 1. **Green Park**

Tag #	Species	HT (m)	DBH (mm)	CR. Sp. N	Cr. Sp. S	Cr. Sp. E	Cr. Sp. W	Cr clearance & Dir.	Physiological/ Structural condition	Condition comments	Life stage	PMR	Impact of the dev.	Cat.	RPA Radius m	Est. Remaining yrs
T37	Willow	18	450	4	4	4	4	1 south	Good	A mature willow displaying a good overall condition	M	No works required	No impact	B2	5.5m	>20yrs
T38	Willow	18	450	4	4	4	4	1 south	Good	A mature willow displaying a good overall condition	M	No works required	No impact	B2	5.5m	>20yrs
T39 x 2	Willow	18	450	4	4	4	4	1 south	Good	A mature willow displaying a good overall condition	M	No works required	No impact	B2	5.5m	>20yrs
6009	Ash	20	500	4	4	4	4	3 south	Good	A large mature ash is good condition	M	No works required	No impact	B2	6m	>20yrs
6010-6011	Ash/ hawthorn hedgerow	16	350	3	3	3	3	1 north	GOOD	A mature ash/hawthorn hedgerow	M	No works required	No impact	B2	4.5m	>20yrs
Group 1	Willow x 16	18	300	3	3	3	3	2 north	Good	A group of 16 large mature willow trees	M	No works required	Remove to facilitate the development	B2		>20yrs
T34	Willow	18	450	4	4	4	4	1 south	Good	A mature willow displaying a good overall condition	M	No works required	No impact	B2	5.5m	>20yrs
T35-T36 x 10	Willow	22	500	5	5	5	5	2 South	Good	A row of 10 large mature willows adjacent the natural pond, appropriate for their location	M	No works requited	No impact	B2	6m	>20yrs

This report was prepared by:

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Yours in Conservation,
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