

# ARBORICULTURAL ASSESSMENT & IMPACT REPORT

Wonderful Barn, Barnhall,  
Leixlip, Co Kildare

## PROJECT NAME

Wonderful Barn

## PROJECT NO.

TWON002

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REV -

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# 1. CLIENT BRIEF AND METHODOLOGY

CMK Hort + Arb Ltd. were commissioned by AECOM, and Metropolitan Workshop on behalf of Kildare County Council to provide details on existing trees and the impact of the proposed development of lands at the Wonderful Barn, Leixlip.

The fieldwork was undertaken during the period between 4th of April 2024 and 10th of May 2024. An update to the data was collected on 15th of May 2024.

The survey methodology, supporting drawings and documentation follow the recommendations contained within BS 5837 (2012). The analysis of the trees was undertaken using the VTA methodology as developed by Mattheck and Breloer (1994).



Image 2. Apple tree *Malus* sp. in walled garden

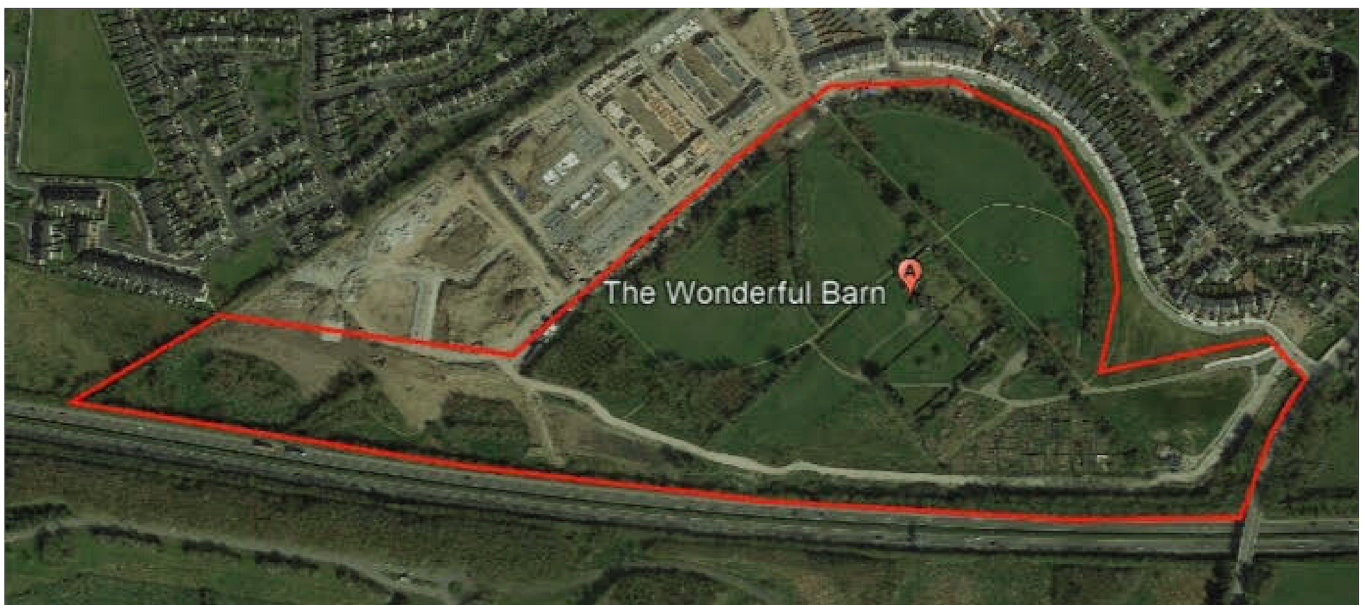


Image 1. Site location (redline boundary indicative only) © Google

## 2. GENERAL DESCRIPTION OF TREES

The site is located within the Barnhall townland in Leixlip, Co. Kildare (image1) and contains 920 trees of mixed categorisation (table 1).

The site contains older hedgerows which boasts older specimen trees from before its use as a parkland. The more recent woodland-style planting in the park's centre have been planted in clusters of about 80-120 trees each and in a grided, linear style. There is a large section of motorway planting along the site's boundary with the M4 motorway.

There are some young trees scattered throughout the park which have been planted as memorial trees by the public. Other young trees have been planted as screening along the boundary of the park and the recent housing development.

There is a mix of species both native and non-native throughout the park. There is an abundance of Common Lime *Tilia x europaea*, Pedunculate Oak *Quercus robur*, and Scots Pine *Pinus sylvestrus*.

There can also be found, Elm *Ulmus sp.*, Ash *Fraxinus Excelsior*, and Beech *Fagus Sylvatica*.

In general, the condition of the trees is good. Some physiological issues such as early stage Ash dieback, Chestnut Scale, and Dutch Elm disease were observed during the survey. These will be further discussed in section 5 Tree Management Recommendations. Some trees which overhang the park paths will require maintenance for public safety. This will also be discussed in section 5.

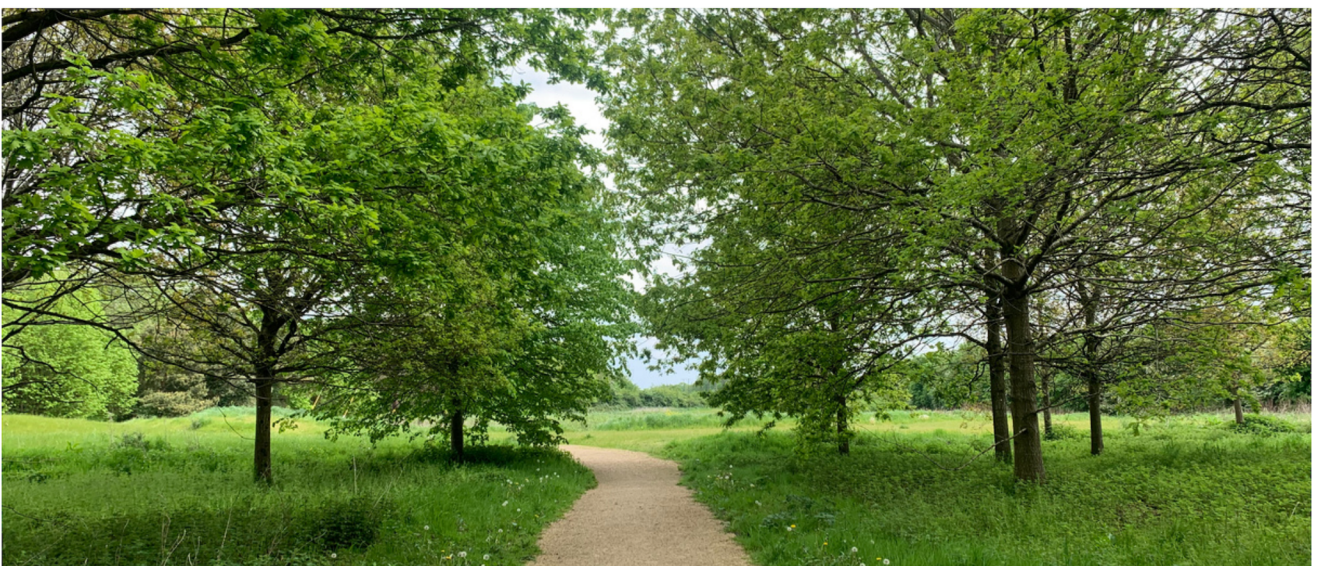


Image 3 - pathway through Oak and Lime plantation

## 2. GENERAL DESCRIPTION OF TREES

### Tree Categories

Six category A trees have been identified. Category A trees are trees of high quality and value due to their age, physiological condition and historical, visual and conservation importance. The Category A trees at the Wonderful Barn largely exist in the hedgerows within the site which predate the park. These trees comprise four Beech trees (*Fagus sylvatica*), one Apple tree (*Malus sp.*), and one Ash tree (*Fraxinus excelsior*). One of the Beech trees (tag 703) was especially noted for its veteran characteristics indicating the various ‘rigours of life’ the tree has endured.

The condition of the trees over the site is generally good with 85% of the trees surveyed being category B trees (refer to table 1 & appendix I for a detailed analysis of individual trees). Category B trees are trees of moderate value and quality. Many of the park’s trees exist in groups and woodlands which have moderate to good landscape value and place the trees in general in category B.

A small proportion of the park’s trees were assessed to be category C. Most of these trees are lower value, subdominant trees with poorer physiologies and less contribution to the park’s over all treescape.

The 34 category U trees identified for removal are a mix of species which have declined for a range of reasons. Notable among these are a number of dead Elm trees (*Ulmus ‘dodoens’*) which have succumbed to Dutch Elm disease and some instances of progressed Ash dieback (*Hymenoscyphus fraxineus*) in some ash trees. In some instances, where a tree has died and is not in a position which poses risk to park users, the recommended action has been to retain for wildlife habitat.

TREE CATEGORIES	#	% OF TOTAL
A	6	1%
B	779	85%
C	99	11%
U	36	4%

Table 1 - Tree Categories

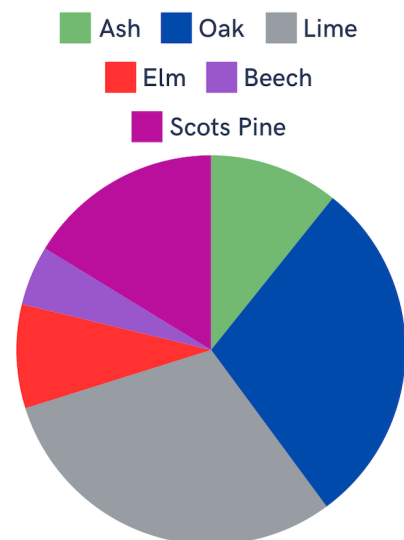


Chart 1 - Tree Species

### 3. TREES OF NOTE

‘mature and magnificent, standing out locally because they are larger than other trees around them.’ - Lonsdale 2013.

There are a number of notable specimens within the site found in the hedgerows which constitute historic field boundaries. The hedgerow to the north of the Wonderful Barn contains four mature, notable Beech (*Fagus sylvatica*) trees (one which has features which qualifies it as a veteran tree). The age of these trees as calculated from the Diameter at Breast Height (DBH) is approximately 200 years.

The category A trees in the park generally are all of notable qualities such as Ash (*Fraxinus excelsior*) #1679 (image 4). Standing out from the trees around them in size and age features, these notable trees offer habitat for birds and bats with their ivy-covered stems and various hollows.

Image 4 - Ash tree #1679



Image 5 - View from top of Wonderful Barn looking at mature Beech trees in hedgerow



Image 6 - The stem and root flare of veteran Beech #702

### 3. TREES OF NOTE



Image 8, 9, 10 - Beech tree #703 and some of its features.

The survey identified Beech #703 as having distinctly veteran tree characteristics.

A veteran tree can be defined as 'a tree that has survived various rigours of life and thereby shows signs of ancientness, irrespective of it's age... (it) should show crown retrenchment, and signs of decay.' (Lonsdale 2013).

Some veteran features are:

Decay present at base of tree and fungal colonisation present on stem.

Retrenchment of crown and signs of previous central stem failure. The crown has since reformed.

Pockets of decay at points of limb failure throughout crown as well as fully sealed points of limb failure creating gnarled features on tree stem.

Cultural significance of tree - seen in the hanging of swing and various spray paints/painted hand prints.

Measures should be taken to protect and maintain tree #703. The barbed wire and debris in the canopy should be removed.

The root area should be protected from compaction and other damage. This can be done by: avoiding frequent and close mowing of grass in the RPA (root protection area); avoiding use of pesticides and fertilisers; restricting passage of foot traffic in the area; applying mulch to RPA as additional barrier to compaction.

### 3. TREES OF NOTE

Present in the same hedge are other Beech trees which have some signs of crown retrenchment, but as the trees are largely obscured by ivy, other veteran features can not be well identified.

These trees have a valuable place in the landscape of the park as they have a historic connection to the site as shown by the below photograph taken of the Wonderful Barn in 1902 (images 11 & 12).

All category A trees within the park are of an age, condition, and significance to the local history of the area that we recommend the creation of tree preservation orders (TPOs) for their continued protection into the future.

It should be noted that the ivy cover of these trees both provides potential habitat for birds etc. while also increasing the wind sail effect on the tree which may make the tree more likely to fail in strong winds. A balanced consideration should be taken to whether or not the ivy is removed and it is advisable that an ecologist also be consulted.

Continual monitoring of these trees is recommended to ensure their continued health.



Image 11 - Photo of the Wonderful Barn circa 1900 with Beech #704/#705 visible in the background (c) National Library of Ireland



Image 12 - Photo of the Wonderful Barn 2024 with Beech #704/#705 visible in the background



Image 13 - Map of Barnhall showing the historic hedgelines. circa 1830 (c) National Library of Scotland.



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## 4. TREE MANAGEMENT RECOMMENDATIONS

In general, it is recommended that the trees which overhang paths both formal and informal be regularly maintained to raise the canopies above the level of pedestrian traffic. It is also important that where category U trees have been identified in the survey and are path side that they be removed for health and safety reasons.

Approximately 76 of the 920 trees surveyed were Ash trees representing 8% of total trees surveyed. The vigour of these trees was mixed and symptoms of Ash dieback were found in a number. It is recommended that the Ash trees be monitored regularly for further signs of the Ash dieback disease to ensure appropriate management of the trees.

The park's woodland areas have been planted effectively. The age of the trees is now at a point where thinning some of these areas will enable the continued growth of dominant trees in clusters. Selective thinning is advised to promote the success of higher quality trees.

It was noted during the survey that younger trees which have been planted along the north west boundary between the park and the housing development have suffered from poor quality soil and poor water availability. It's advised that these trees be adequately watered especially in times of drought during the summer.

Regarding Dutch Elm disease, the removal of infected material is recommended to reduce the spread of the elm bark beetle. (Waston 2013)

The Chestnut Scale is a pest which has little effect on the tree's vigour so therefore management is not necessary.<sup>1</sup>

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## 5. IMPACT ASSESSMENT

### Arboricultural Impact & Tree Protection

#### Project description

The proposed redevelopment of "The Wonderful Barn" involves conservation-led restoration and reuse of the existing building complex, upgrade works at the existing site entrance from R404, redevelopment of existing parkland and other works including upgrades to pedestrian, cycle and vehicular access.

#### Arboricultural Impact

A total of 920 individual trees and 9 hedgerows were assessed within the Wonderful Barn site. Of these, 19 trees were identified as very low quality trees which should be considered for removal. The proposed works within the park will necessitate the removal of 32 trees. None of the hedgerows will be impacted by the proposed works (refer to the Arboricultural Impact drawings TWON002 108-112 ).

The primary reason for the removal of existing trees is to upgrade paths for access and improved circulation within the park. The arboricultural impact of the works is considered to be insignificant and will not have a detrimental impact on the parks tree population as a whole.

#### Tree Protection

Particular care will be required during the works to ensure that new paths etc which are located in close proximity to trees do not negatively impact on tree health. This can be achieved by the selection of the most appropriate routes through tree groups and where necessary using root protection measures and materials such as cellweb©. Soil compaction can be avoided by the use of heavy-duty rubber matting or other materials.

A project arborist should be employed to provide professional advice on the management of trees during the works.

## 6.SURVEY OF HEDGEROWS

HEDGEROW	COMMENTS	SPECIES	HEIGHT
#1	Blackthorn and bramble to edge. Ash and sycamore the main standard trees with an understory of hawthorn. Very strong ivy growth up most ash. No evidence of ash dieback at present. Occasional elm forming part of under canopy.	IVY, ASH. SYCAMORE, HAWTHORN, ELDER, BLACKTHORN	16M AVERAGE FOR TREES AND 7M AVERAGE FOR UNDERSTORY
#2	Single line of trees in hedgerow from roadside to path ending in large ash tagged 1679. Other younger ash trees of lower quality with no obvious signs of dieback. Understory of Holly, Hawthorne, and Blackthorn. Briars also make up some of the structure of the hedge.	BLACKTHORN, HAWTHORN, ELDER, ASH, IVY, HOLLY	ASH AVERAGE 12M AND 7M UNDERSTORY
#3	Remnant hedgerow. Bramble and blackthorn forming understory to outer edge. Power lines cutting through with height restrictions in this area.	BLACKTHORN, HAWTHORN, ASH, IVY, BRIAR	4M-9M AVERAGE
#4	Hedgerow with 5 large mature ash numbers 901-897. Some young ash with levels of dieback/dead. There is a path cutting through the hedgerow and hawthorn and crab apple to either end of the opening. Some self-seeded elm also. Elder in the understory of hedge canopy. Hedge is about 5m deep at deepest and there is a ditch running through most of it which is wide enough for a person to walk through.	HAWTHORN, ELDER, IVY, ASH	4M-12M AVERAGE

## 6. SURVEY OF HEDGEROWS

HEDGEROW	COMMENTS	SPECIES	HEIGHT
#5	Ash forming the primary species as early mature specimens with remaining species forming a dense under canopy. Ash dieback occurring occasionally. Blackthorn forming a dense under canopy encroaching on field to north.	HAWTHORN, ELDER, BLACKTHORN, ASH	ASH 9m HAWTHORN ETC AT 6m AVERAGE
#6	Hedge is situated along raised ditch with no water logging present. Mature Beech and ash of various ages line the hedgerow with understory of Hawthorn and Elder. Ivy growth is heavy throughout the hedgerow.	HAWTHORN, IVY, ASH, ELDER	UNDERSTORY IS AN AVERAGE OF 5M WITH ASH ON AVERAGE 14M AND BEECH 20M
#7	Adjacent to pathway, approx. 30 m in length. Hawthorn and elder make up the body of the hedge with early mature to mature Ash trees of various qualities spaced throughout the hedge. Some of these ash are poor and the last one in the hedge is especially poor. There is a good quality cherry tree at the end of the hedgerow.	HOLLY, ASH, HAWTHORN, ELDER, CHERRY	TREES AVERAGE 12M AND UNSDERSTORY AVERAGES 6M

## 6. SURVEY OF HEDGEROWS

HEDGEROW	COMMENTS	SPECIES	HEIGHT
#8	<p>Running adjacent to the wall of the walled garden - about 10m back from the wall. Contains Elder and considerable briar undergrowth, Blackthorn and Hawthorne. Hedge is divided by gate. Elder and Hawthorn form a dense thicket of hedge. Ends in a small informal path and Willow tree #993. The hedge overall is approximately 6m at its deepest and is between 5m and 7 m high</p>	<p>ELDER, HAWTHORN, BLACKTHORN</p>	<p>APPROX. 5-7M</p>
#9	<p>Hedge runs adjacent to allotments with a small informal path on the allotment side. There is an abundance of Plum Cherry - <i>Avium cerasifera</i> in the hedge. The understory consists of hawthorn, hazel and some spindle. There is one mature multi-stemmed ash in the hedge which has significant ivy growth and some minor deadwood and dieback of the crown. The hedge continues across the road towards the Barn - there is also some goat willow on this side before it merges with Hedgerow 6.</p>	<p>PLUM CHERRY, HAWTHORN, BLACKTHORN, ASH, SPINDLE, GOAT WILLOW</p>	<p>AVERAGE 5M TO 12M</p>

## 6. SURVEY OF HEDGEROWS

HEDGEROW	COMMENTS	SPECIES	HEIGHT
<p>MOTORWAY BOUNDARY PLANTING</p>	<p>At the boundary along the entrance to the Wonderful Barn, the tree planting is wide with two informal rows of trees between the inner park and the M4 road.</p> <p>There is a Blackthorn understory likely self seeded to the inner edge. Lots of bramble and briar throughout which is encroaching into park space.</p> <p>Approx 5m wide planting between motorway and internal fence line.</p> <p>Becomes narrower to the back of park with a gap also present almost opposite the barn.</p> <p>Most is motorway planting on far side of park boundary fence located halfway within hedge.</p>	<p>FIELD MAPLE IS MOST FREQUENT, NORWAY MAPLE, ASH, BLACKTHORN, HAWTHORN, POPLAR, SCOT'S PINE, GREY ALDER, HAZEL, CRACK WILLOW, SYCAMORE, AND OCCASIONALLY ELDER</p>	<p>AVERAGE UNDERSTORY HEIGHT IS 5M AND TREE HEIGHT IS BETWEEN 8-12M AVERAGE.</p>

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## 7. LIMITATIONS OF SURVEY

This survey should be regarded as a preliminary assessment of the trees and deals with the current condition as identified during this survey only. Every attempt was made to identify hazardous trees in this report however; this survey was carried out from the ground and therefore cannot be held to have identified elements of decay, which may be hidden out of sight within the crown or beneath ivy or other obstructions. To counter this limitation in the survey process it is vital that during tree works any additional defects found by the climbing arborist are communicated to the consulting arborist to allow appropriate action to be taken.

The details within this survey are based on the condition of the trees during the survey period only. The findings in this survey cannot be held to be valid after any site disturbance, man-made or natural, which may have an adverse effect on any trees present.

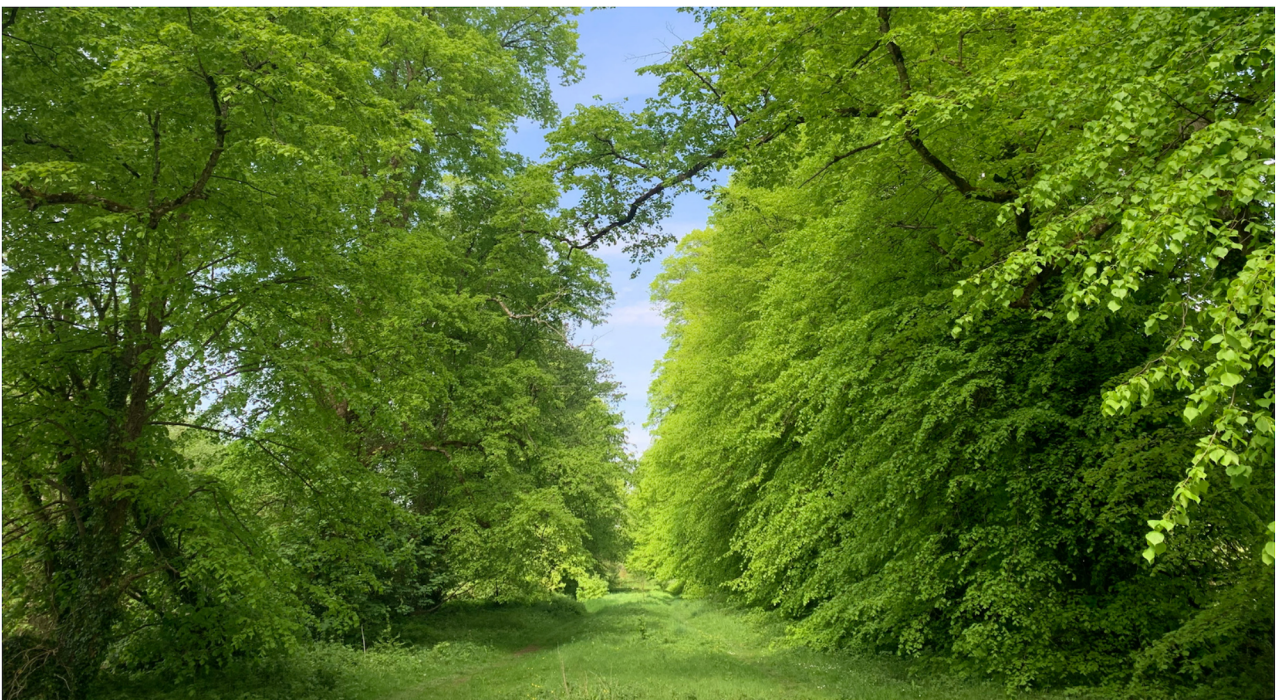


Image 14 - Lime avenue at Castletown Estate which aligns with Wonderful Barn

## 8. RELEVANT LEGISLATION

There are no Tree Protection Orders (TPOs) on any of the trees on this site. However, unless planning permission which clearly identifies trees for removal has been granted then under Section 7 of the Forestry Act 2014 a person wishing to fell trees must apply to the minister for a licence to do so.

Exempted trees: Section 19 states that the requirement for a felling licence for the uprooting or cutting down of trees does not apply where:

- The tree in question is standing in an urban area
- The tree is considered dangerous and hazardous.
- The tree is within 10m of a public road and regarded as hazardous
- The tree in question is less than 100 ft. / 30m from a dwelling other than a wall or temporary structure;
- The tree in question is a hazel, apple, plum, damson, pear, or cherry tree grown for the value of its fruit or any ozier;

Other exceptions apply in the case of local authority road construction, road safety and electricity supply operations.

The Act is administered by the Forest Service (Department of Agriculture, Fisheries and Food). The Felling Section of the Forest Service is based in Johnstown Castle, Co. Wexford (053-9160200 or 1890-200223).

If you have any queries about felling in general or are unsure whether or not the trees fall under any of the above cases, it is recommended that you seek the advice of the Felling Section or of your local forestry development officer for further information.

Trees may contain bats. Bats are protected under Schedule 5 of the Wildlife Act 1976 and Schedule 1 of the European Communities (Natural Habitats) Regulations 1997. Professional advice from a licenced surveyor should be sought prior to any works commencing on trees. Beech tree #703 and the associated notable trees in the parks hedgerows have features which may provide habitat for protected species.



## 9. TERMINOLOGY

### Tree categories

**A** Trees of high quality and value due to their size, age, condition, historical/visual merit and/or conservation potential (a minimum of 40 years).

**A1** Mainly arboricultural values. Particularly good examples of species, essential components of groups or of formal or semi-formal arboricultural features.

**A2** Mainly landscape values. Trees, groups or woodlands which provide a definite screening or softening effects to the locality in relation to views into or out of site, or those of particular visual importance.

**A3** Mainly cultural values, including conservation. Trees, groups or woodlands of significant conservation, historical, comparative or other value (e.g. veteran trees or wood-pasture).

Terminology cont.

**B** Trees of moderate quality and value (a minimum of 20 years).

**B1** Mainly arboricultural values. Trees that might be included in high categories but are downgraded because of impaired condition (e.g. presence of remedial defects including unsympathetic past management and minor storm damage).

**B2** Mainly landscape values. Trees present in numbers, usually as groups or woodlands, such that they form distinct landscape features, thereby attracting a higher collective rating than they might as individuals but which are not, individually, essential components of formal or semi-formal features (e.g. trees of moderate quality within an avenue that includes better A category specimens) or trees situated internally to the site, therefore individually having little visual impact on the wider locality.

**B3** Mainly cultural values including conservation. Trees with clearly identifiable conservation or other cultural benefits.

## 9. TERMINOLOGY

**C** Trees of low quality and value (a minimum of 10 years).

**C1** Not qualifying in higher categories.

**C2** Trees present in groups or woodlands but without conferring on them greater landscape value and/or trees offering low or only temporary screening benefit.

**C3** Trees with very limited conservation or other cultural benefits.

**U** Trees in such 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. Trees that are dead, dying or showing immediate and irreversible decline.

**Comments:** Refers to the tree's condition and suitability for the site.

**Common name:** Most widely used non-botanical name.

**Co-dominant:** Two branches assuming the role of leading shoots. When growing close together may form a weak attachment (included bark) at their point of contact. Trees with this defect may be in danger of splitting at this weak attachment.

**Crown Spread:** Measured in meters north, south, east and west.

**Decay fungi:** Refers to those species of fungi which degrade living wood and which may, depending on the degree of degradation, render the tree structurally unsound.

**Defects:** Refers to cracks, storm damage and any other damage mechanical or biological.

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## 9. TERMINOLOGY

**Diameter:** Diameter of the trunk (millimetres) at 1.5m. M.S. after the measurement refers to the tree being multi-stemmed.

**Genus & Species:** Refers to the botanical names for the tree.

**Height:** Measured in meters.

**Monitor:** Refers to trees which need to be re-surveyed on a yearly basis to assess their condition. This timescale may be sooner where works or adverse weather conditions have impacted negatively on the trees.

**Overhaul:** A reference to standard tree surgery work which consists of the removal of deadwood, crossing branches and balancing where appropriate.

**Recommendations:** Indicates surgery work necessary for the retention or, where necessary, removal of the tree.

**Tree No.** Refers to numbered tag fixed to tree during survey.

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## 10. REFERENCES

BS 5837 (2012). Trees in Relation to Design Demolition and Construction

Mattheck and Breloer (1994). The body language of trees

David Lonsdale (2013). Ancient and other veteran trees: further guidance and management

Guy Watson (2013). Tree Pests and Diseases

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