



GOLF LANE, CARRICKMINES, DUBLIN 18.
LANDSCAPE DESIGN: TREES STRATEGY



RESPONSE TO BOARD'S OPINION

RESPONSE TO BOARD'S OPINION- CASE REFERENCE: ABP-307010-20

Following the tripartite meeting with the Board and the Planning Authority, a site visit and walk was undertaken with Dun Laoghaire Rathdown County Council on the 11th of November 2020. This site meeting was attended by Donal Kearney, Assistant Parks Superintendent of the Parks and Landscape Department within DLR.

	RESPONSE
» Existing levels on site in the proximity of the retained trees	Comparison of the existing levels and proposal in the proximity of the retained trees. See page n°5 of this report.
» Landscape sections where existing trees will be retained	See pages n°6-7 of this report.
» Typical hardscape build-up along the area affect by the Root Protection Area of the existing trees to be retained	See page n°8 of this report.
» Proposed trees strategy	See page n°10 of this report.

For more detailed information please refer to CMK Horticulture & Arboriculture Ltd Report.

EXISTING TREES

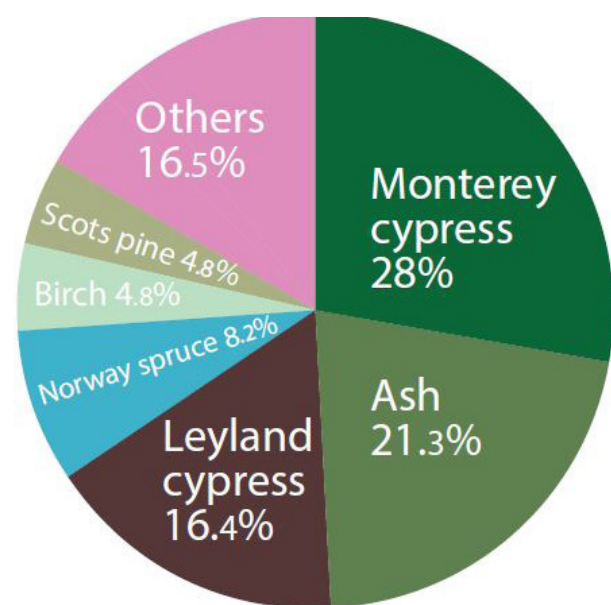
The Tree Survey produced by CMK Horticulture & Arboriculture explains in detail the current condition of the zone itself.

A total of **205 trees** were identified and assessed. The condition of the trees is generally moderate to poor; with a relatively high spread within categories C and U.

TREE CATEGORY BREAKDOWN

Category	Number	% of total
A	0	0%
B	57	27.8%
C	69	33.6%
U	79	38.5%

TREE SPECIES BREAKDOWN



**Please refer at the Tree Survey Report for further detail.*

ARBORICULTURAL IMPACT

The rationale for retaining/removing trees on this site is based on the condition of the individual trees, the suitability of trees in terms of their species and/or form and the impact of the proposed development.

- The nature of the development and the need for underground car-parking has necessitated the centre of the site being excavated to achieve the aims of the development.
- The need for attenuation tanks outside of the main excavation area with associated services has further impacted on existing trees.

TREE REMOVAL CATEGORIES

Category	Number	% of total
A	0	0%
B	48	23.1%
C	55	26.8%
U	79	38.5%



View of the Site from Golf Lane.



Leyland cypress and ash viewed from Golf lane on the southern site boundary.



View of the Site from Glenamuck Rd.



Early mature ash trees near the southern site boundary.



Early mature ash in poor condition



Line of cypress screening the motorway at the northern site boundary.

SOFT LANDSCAPE STRATEGY

PREDICTED IMPACT OF THE PROPOSED DEVELOPMENT

Due to the design layout and shape of the built form, some existing trees will be removed. The impact from services required will also have an impact. However, based on the Tree Survey provided by CMK Horticulture & Arboriculture Ltd, the general quality of the trees on the site are largely in a very poor condition. Many years of neglect in the general wellbeing of the trees has resulted in the self-seeding of trees and dieback of more Edgerly trees within the site.

The design team is aware of the impact of the trees and the ecological point of view of the large number of trees that will be lost, but we are also equally aware that the significant number of large and medium size trees being proposed will have a larger, long term increase in local ecology and biodiversity. Our design will include native species of trees and shrubs.

Ground cover will be set out to maximise local habitats for roosting birds and mammals. Proposed planting will be set-out to encourage and support the local bee and insect families.

This too will include planting which supports berry, nuts etc for other mammals. A well thought out stream edge enhancement will be shown which encourages aquatic life along the development's northern edge.

Following the tripartite meeting with the Board and the Planning Authority, a site visit and walk was undertaken with Dun Laoghaire Rathdown County Council on the 11th of November 2020. This site meeting was attended by Donal Kearney, Assistant Parks Superintendent of the Parks and Landscape Department within DLR.

This site meeting allowed for a review and examination of the existing trees on the subject site, in order to inform the Planning Authority's consideration of the forthcoming application, having regard to the points raised at pre-application stage. The feedback received at this site meeting has informed the detailed documentation now submitted in relation to tree retention on site and the extensive replacement tree planting proposed on site. It was agreed in principle during the course of the meeting that the trees to be removed on site were generally of poor quality, with the final layout providing for the retention of the majority of trees which were considered worthy of retention in the areas of the site outside the proposed built elements of the SHD development.

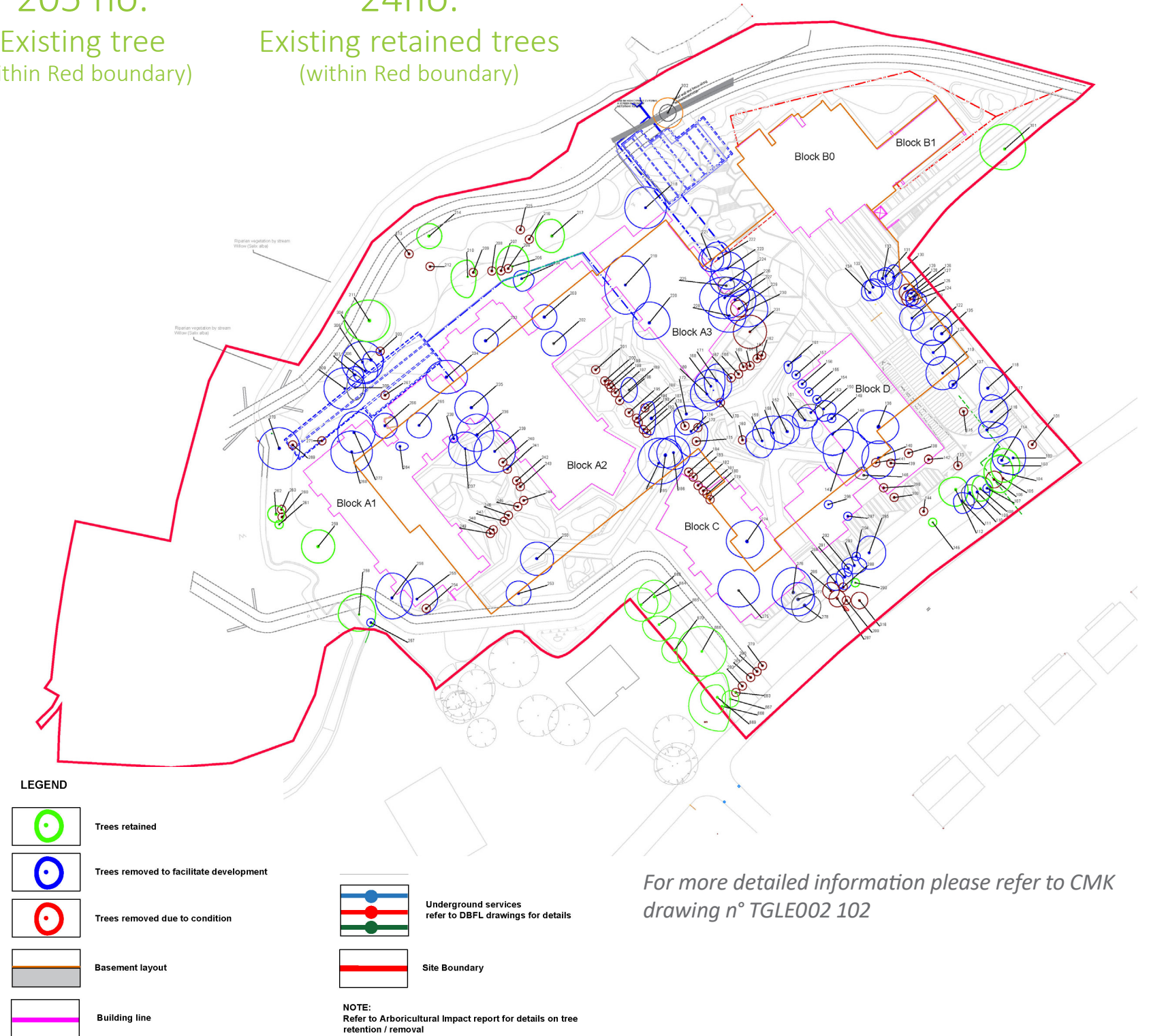
EXISTING TREES- ARBORICULTURAL IMPACT



205 no.
Existing tree
(within Red boundary)

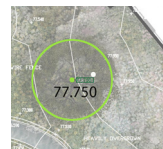


24no.
Existing retained trees
(within Red boundary)



RETAINED TREES AND LEVELS

The plans shows the comparison of the existing levels across the site and the proposed landscape details. As a principle the surface levels along the perimeter of the development will be maintained as per the existing condition and the proposed level will tie in with these. Careful attention has been paid to the existing levels surrounding any retained trees within the scheme as indicated on plan.

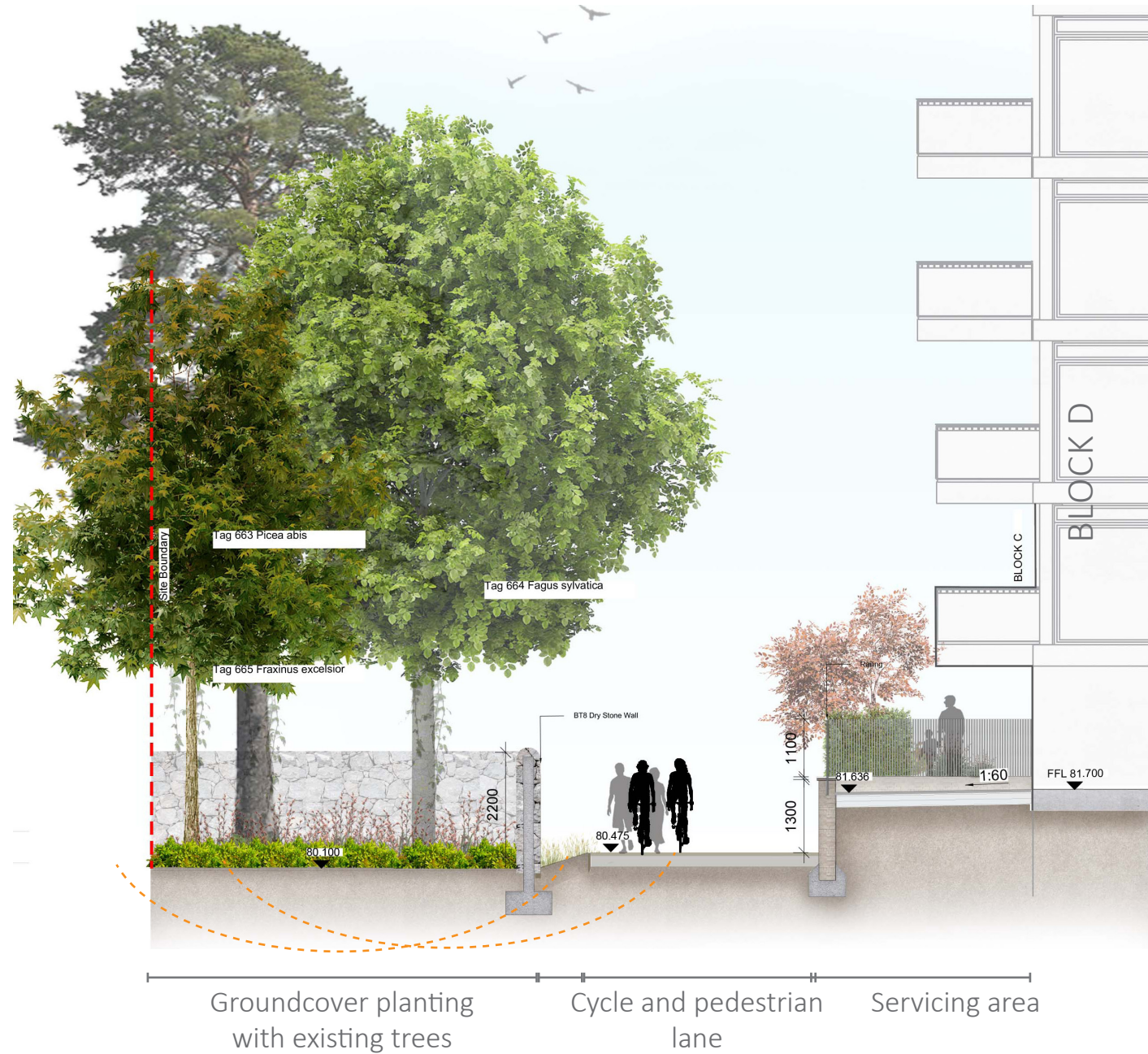


Retained trees



SOFT LANDSCAPE STRATEGY

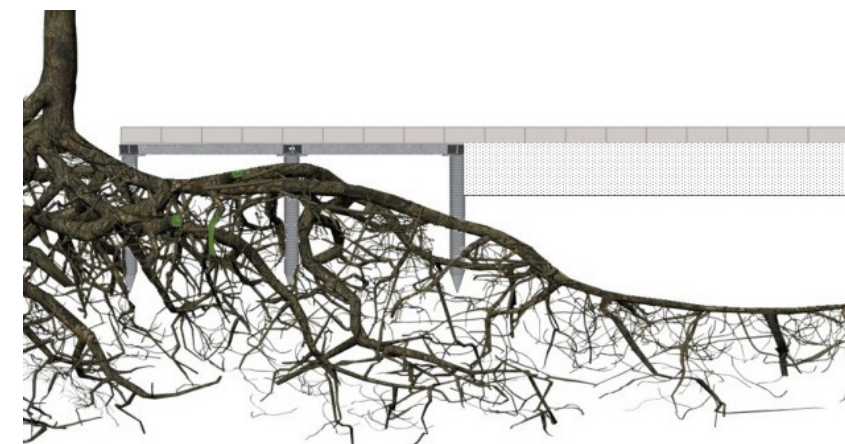
LANDSCAPE SECTIONS SECTION 1



SECTION 2



TYPICAL EXAMPLE OF ROOT BRIDGE



----- Indicative RPA

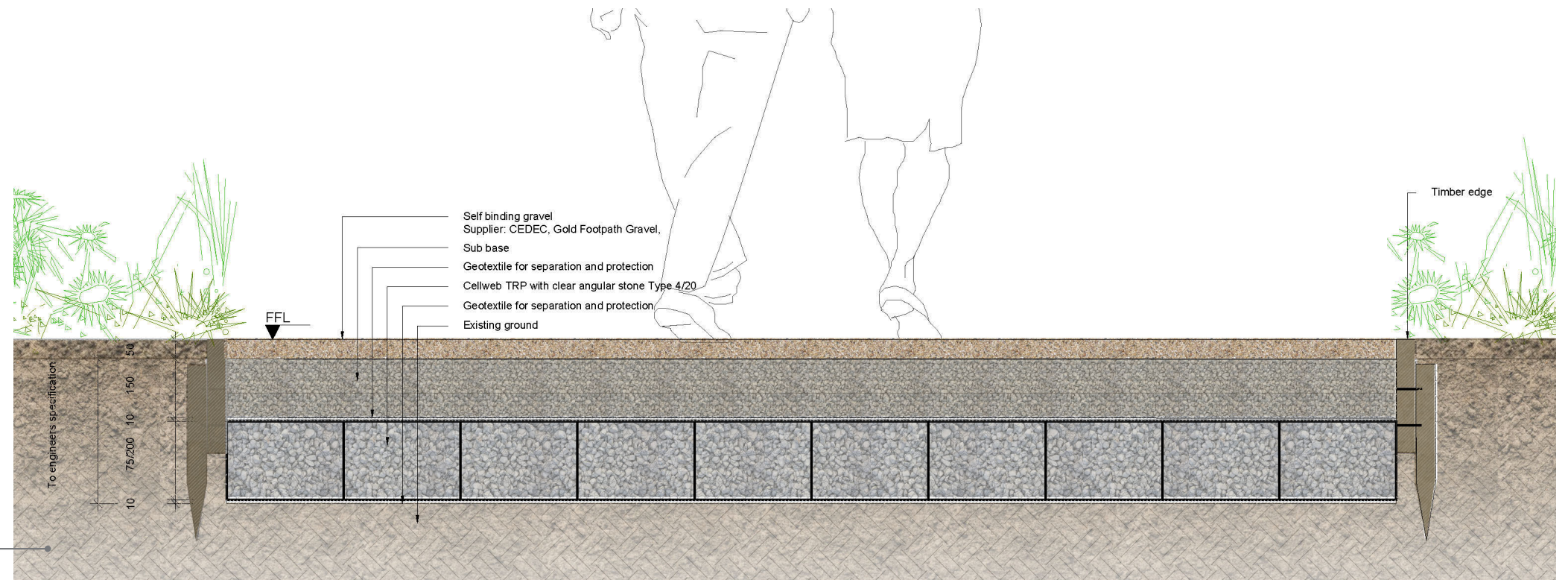
» The position of the stone wall took in consideration the RPA of the existing trees that will be retained along the site boundary. Further inspection of the roots to be under taken at pre-construction stage to avoid roots damage, a bridge beam system will be installed within the timber post foundation.

LANDSCAPE SECTION SECTION 1

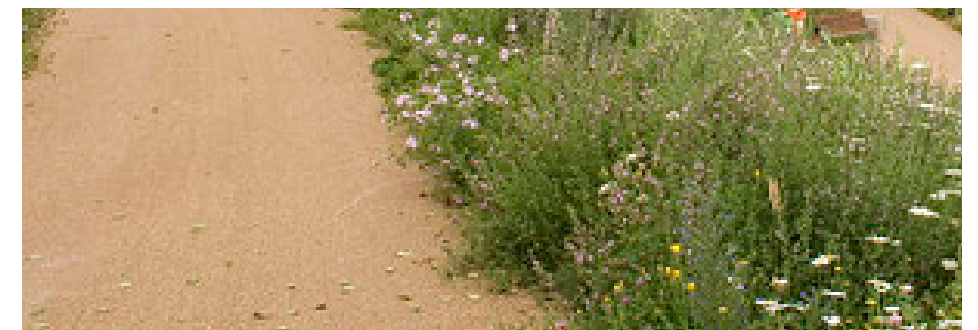
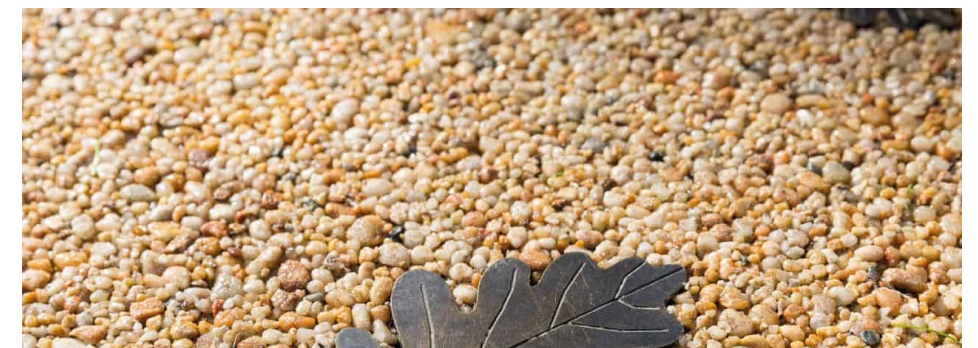
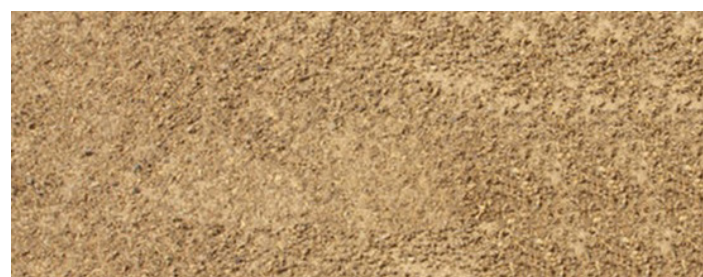
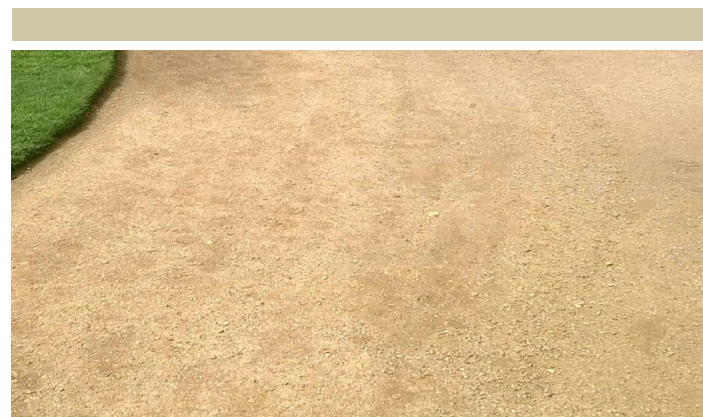
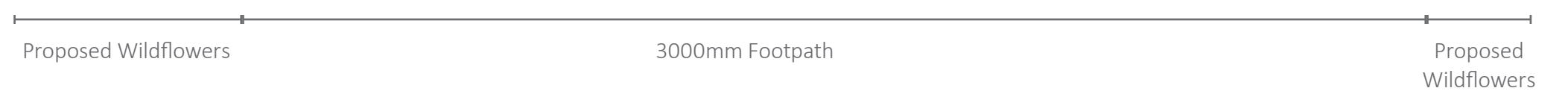


TYPICAL HARDSCAPE BUILD-UP: SELF BINDING GRAVEL WITH CELLULAR CONFINEMENT SYSTEM

A cellular confinement system specifically designed for tree root protection Such as CellWeb (product) is recommended. The system creates a permeable and stable, load bearing surface for traffic or footfall whilst eliminating damage to roots through compaction and desiccation of the soil.



Paving Type 6. Product: Self Binding Gravel
(Cycle and pedestrian walkway)
Colour: Golden Amber or Similar Approved
Supplier: Breedon Aggregates or Similar Approved



Product Data

Weight Capabilities

- 75mm Cellweb® TRP confinement system
For foot and cycle traffic. This also provides a control measure for crust compaction
- 100mm Cellweb® TRP confinement system
For domestic traffic, such as cars and transit vans up applicable up to a 6t gross weight
- 150mm Cellweb® TRP confinement system
For emergency access and refuse collection applicable up to a 30t gross weight
- 200mm Cellweb® TRP confinement system
For H.G.V and construction traffic applicable up to a 60t gross weight

Note: This is a general guidance for the depth of Cellweb® TRP according to Gross Vehicle Weight for a firm and stable subgrade (CBR>3%). If the ground conditions are poor and/or unstable please contact Geosynthetics Ltd to provide a site specific design.

Treetex™

Treetex™ is a heavy duty needle punched geotextile fleece. Manufactured from polypropylene, Treetex™ is ideal for use in a Tree Root Protection system as it is easily moulded to the shape of the aggregate and has been proven to absorb 1.7 litres of oil per m2 ensuring that the roots are not damaged by pollutants from the surface.

Clean Angular Stone

We recommend using a 4/20 mm clean angular stone type 4/20 mm (preferred) or 4/40mm to allow water permeation and gaseous exchange within the rooting environment.

(*) Please contact Geosynthetics Ltd for further information on clean angular stone.

Aggregate gradings for sub-base materials to BS EN 12620

Sieve Size (mm)	Percentage Passing (%)	
	Coarse aggregate	Coarse aggregate
	4/40	4/20
80	100	-
63	98-100	-
40	90-99	100
31.5	-	98-100
20	25-70	90-99
10	-	25-70
4	0-15	0-15
2	0-5	0-5
1	-	-

Ancillary Products - Fixing Pin

Fixing Pins	
Cellweb® Pins Geosynthetic Cellweb® pins are specifically manufactured to pin the Cellweb® system in place prior to fill. They are a 700mm long 12mm profiled bar with a 100mm return. Due to the heavy duty application they are the largest and strongest pins we manufacture.	
Cellweb® Stapler Cellweb® stapler rapid heavy duty 31 stapler.	
Cellweb® Staples Cellweb® staples 10mm staples 5000 per box.	

SOFT LANDSCAPE STRATEGY

GROUND FLOOR AND PODIUM TREE STRATEGY

A variety of trees have been selected to enhance the characteristics of the scheme. The following page illustrate these in more detail with key species highlighted for the given areas.

A total of 230 no. trees and large multi-stem shrubs are proposed across the development overall, in addition to the existing trees being retained.

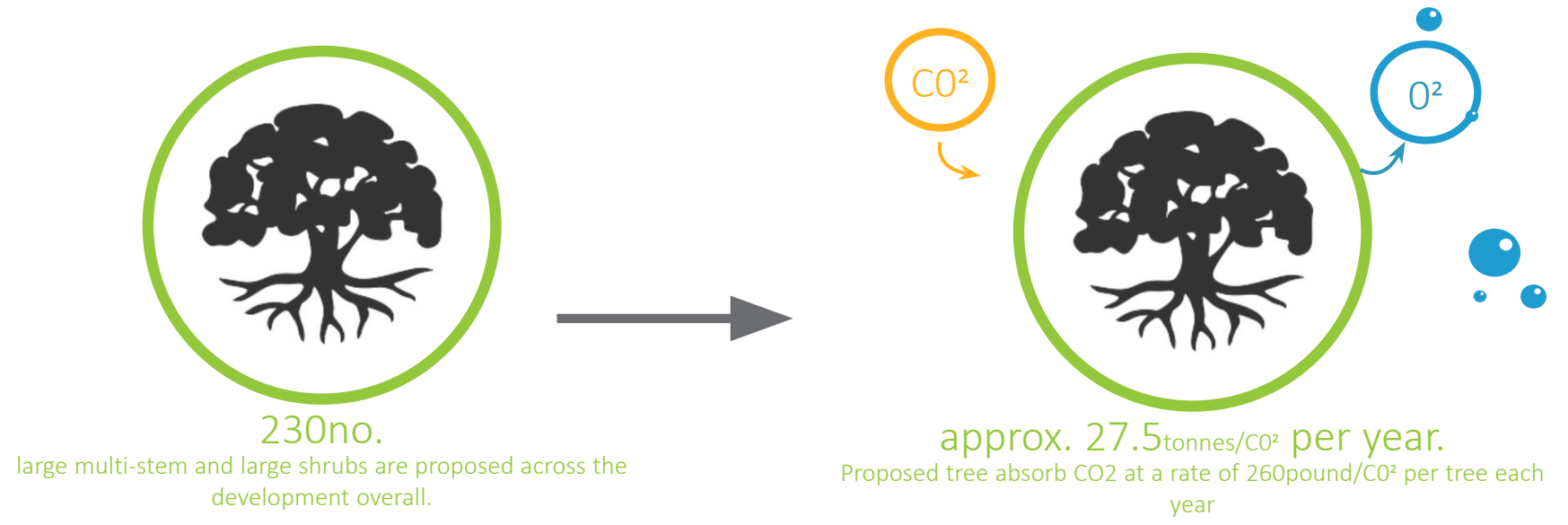


- *Betula pubescent, multi steam* (25no.)
- *Liquidambar styraciflua* (27no.)
- *Pinus sylvestris "frensham"* (2no.)
- *Pinus thumbergii* (3no.)
- *Corylus avellana "Red majestic"* (24no.)
- *Amalanchier "Price William"* (46no.)
- *Acer griseum* (14no.)
- *Alnus glutinosa* (6no.)
- *Sorbus aucuparia* (5no.)
- *Prunus padus* (24no.)
- *Pinus sylvestris sp.tbc* (1no.)
- *Fagus sylvatica* (35no.)
- *Betula pubescent* (12no.)
- *Tilia cordata Greenspire* (6no.)

GROUND FLOOR AND PODIUM TREE STRATEGY AND TREE SPECIFICATION




The landscape proposal will provide n°230 new trees which have the potential to develop and add to the existing tree cover on the site as well as the partially offset the net loss due to construction.

This new generation of trees will be an improvement on the poor-quality trees currently on the site. These proposed trees have been specifically selected for their suitability to develop within an urban environment.



COMBINED EXISTING AND PROPOSED TREES



-  Existing tree
-  Proposed mature trees
-  Proposed multi-stem trees/ large shrubs

SPECIES NAME	Size/Specification			n° species
	Condition Multi steam (ms)- Singular steam (st)	Height, meter	Girth Diameter, cm	
Medium/Large trees				
Betula pubescent	ms	6.0/7 .0		25
Betula pubescent	st	6.0/7 .0	35/40	12
Liquidambar styraciflua	st	6.0/7.0	35/40	27
Fagus sylvatica	st	6.0/7.0	35/40	35
Pinus sylvestris "Frensham"	st	6.0/7.0	35/40	2
Pinus thumbergii	st	6.0/7.0	35/40	3
Tilia cordata "Greenspire"	st	6.0/7.0	35/40	6
Small trees				
Acer griseum	1.5/2m ms	5.5/6.5		14
Alnus glutinosa	1.5/2m ms	5.5/6.5		6
Corylus avellana "Red majestic"	1.5/2m ms	5.0/6.0		24
Amalanchier "Price William"	1.5/2m ms	5.5/6.5		46
Prunus padus	1.5/2m ms	5.5/6.5		24
Sorbus aucuparia	st	5.5/6.5		5
Pinus sylvestris sp.tbc	1.5/2m ms	5.5/6.5		1

SOFTSCAPE STRATEGY

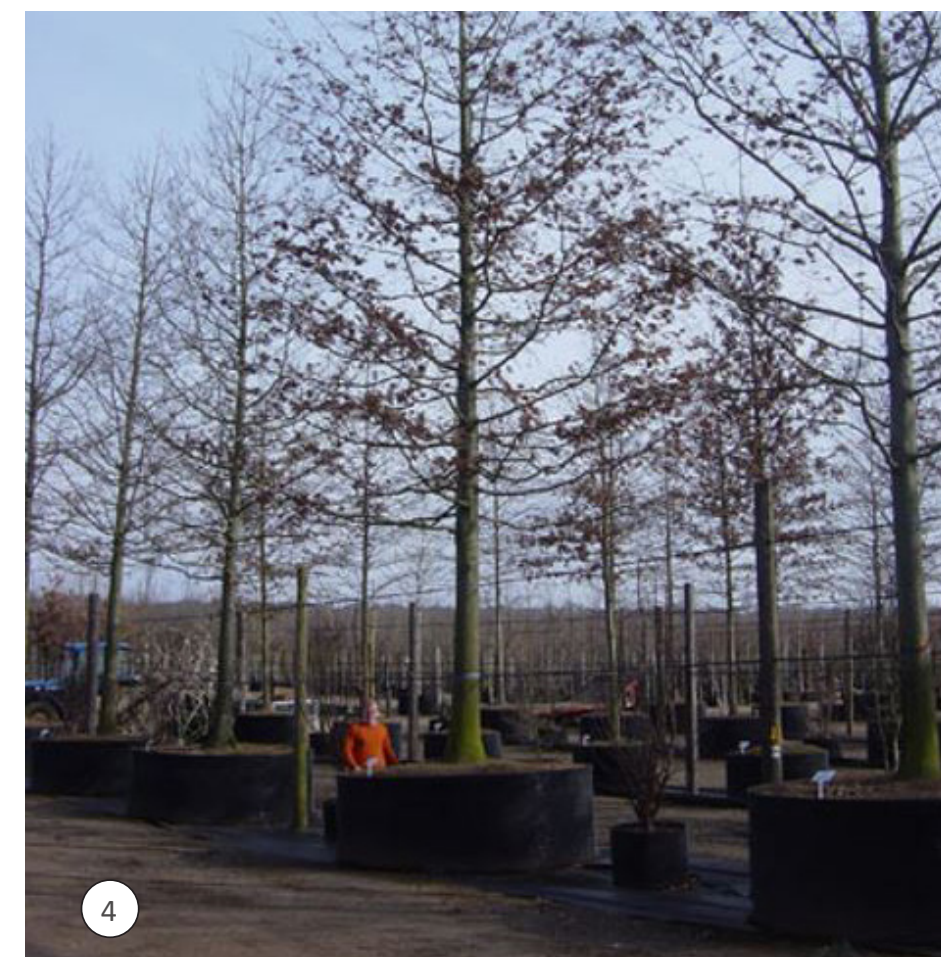
TREE TYPOLOGIES & SIZES

To help communicate the type of trees proposed in the scheme this section sets out examples of the stock sizes currently proposed. The final sizes and specification subject to detail design post planning.

It is important to note the height and root ball sizes of proposed single stem trees varies according to the girth and species selection. The dimensions given are a rough guide only.

1. Girth 16-18cmg.
Root ball size approx. 50cm diameter x 50cm deep.
Heights vary- approx. 4.0-5.0 m.
2. Girth: 20-25 cm.
Root ball size approx. 80 cm diameter x 50 cm deep.
Height of plant: approx. 5.0-6.0 m.
3. Girth: 35-40 cm (on the right).
Root ball size approx 110 cm diameter x 70 cm deep.
Height of plant: approx. 7.0-8.0 m.
4. Girth: 70-80 cm
Root ball size: approx. 180 cm diameter x 80 cm deep.
Height of plant: approx. 8-10 m.

(Note: Photos of tree sizes taken from Deepdale tree's website.)



TREES IN RELATION TO DESIGN DEMOLITION AND CONSTRUCTION BS 5837:2012

This section is designed to outline the procedures which will be undertaken to effectively retain trees free from adverse construction impacts for the duration of the construction period on the site.

Pre-construction meetings/tree works

- » An on-site meeting will be held if required, with all relevant parties; including the Developer and or his Agents, Site Arborist and Local Planning Authority
- » Remedial works to trees throughout the site where indicated as necessary within the Tree Works Schedule. All works will be undertaken to BS 3998 2010 Tree Work and/or to current best practice.
- » Erection of tree protection fencing as per recommendations contained within BS 5837:2012 Trees in relation to design, demolition and construction
- » Recommendations. Tree protection to be erected under supervision of Site Arborist prior to main construction works being undertaken on site (*Refer to drawings Tree Protection TGLE002 103*).

Construction period

- » The Site Arborist shall monitor tree protection. The Site Arborist shall specify any necessary remedial works to trees which may arise due to construction works.
- » The Main Contractor shall carry out any instructions made by the Site Arborist with regard to the protection of retained trees and ensure where necessary that these instructions are followed by any sub-contractors.

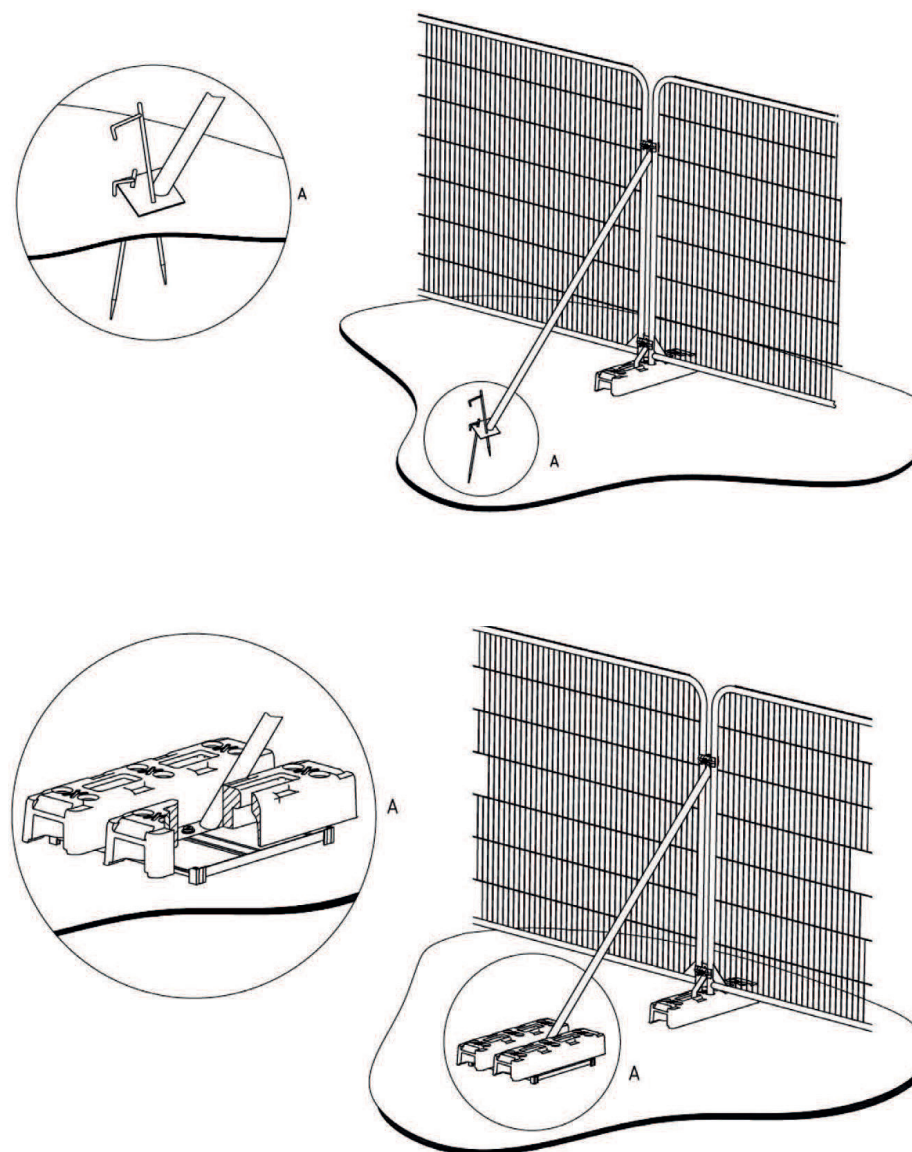
Post construction works will consist of:

- » Re-survey of retained trees and the implementation of measures contained with the survey document.

In order to guarantee the retention of the existing trees the Contractor should take all precautions to ensure that any trees which are not required to be taken down under the contract shall remain undisturbed and undamaged. All works to trees and all operations adjacent to trees should be undertaken in accordance with the Code of Practice. The Contractor must appoint a qualified arboricultural contractor to undertake all tree works subject to approval by the Consulting Arborist.

EXAMPLES OF ABOVE-GROUND STABILIZING SYSTEM

STABILIZER STRUT WITH BASE PLATE SECURED WITH GROUND PINS



The Contractor shall undertake no works to trees unless instructed by the Contract Administrator. All works on or within the Construction Exclusion Zone are to be supervised by the site arborist. Five working days notice of intention to undertake works to be given.

EXAMPLES OF STABILIZING SYSTEM AROUND THE EXISTING TREES ON SITE



— — — — — Approx. Stabilizer structure

*Please refer at *Arboricultural Assessment, Arboricultural Impact and Tree Protection Strategy Report*.

SOFTSCAPE STRATEGY

TYPICAL SOFT LANDSCAPE SECTIONS ON PODIUM AND TERRACES

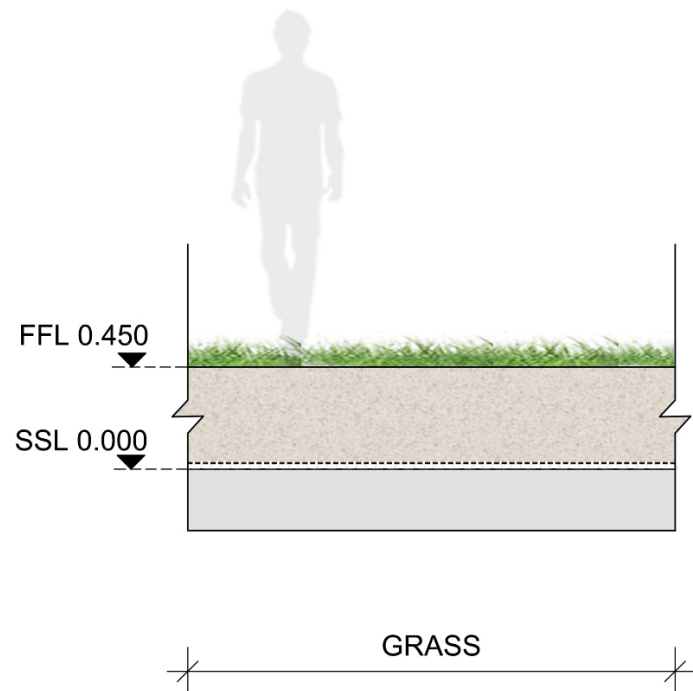


More than 50% of the garden will be built on the slab of the parking area below ground. Whilst this may seem challenging to maintain a healthy and working landscape, it is perfectly possible as long as the minimum required soil depth is provided for the plants.

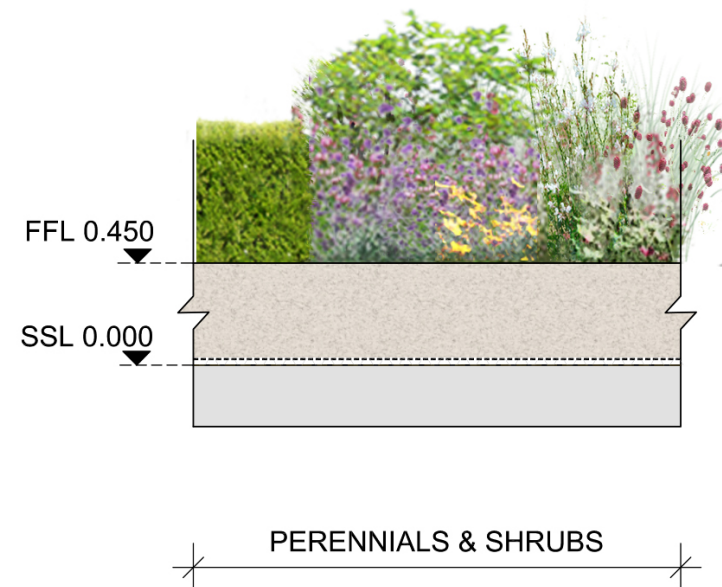
A wide range of plants will do very well in this area. The key for podium planting, as in any traditional

border design, is to choose the right plant for the situation. As a general rule, with 150mm, it is possible to grow amenity turf, given appropriate irrigation and regular feeding. With 300mm of growing medium, a good range of small shrubs and herbaceous perennials will be perfectly happy, and there is always the option of localised mounding over areas with extra structural support for smaller trees.

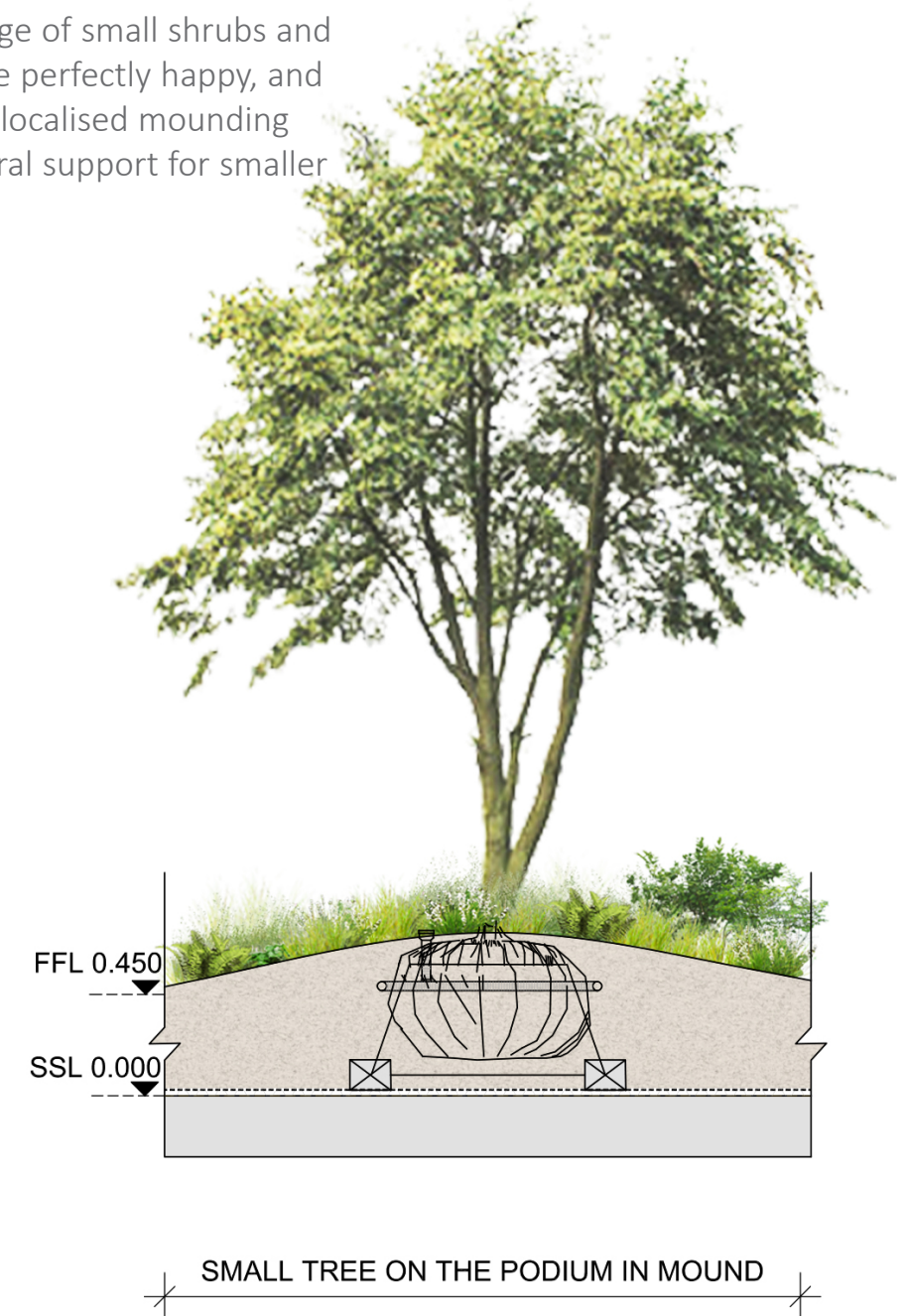
--- Basement outline



Preferred soil depth for amenity lawn: 450mm.



Preferred soil depth for small shrubs and herbaceous planting: 450mm.
For larger shrubs: 600mm.

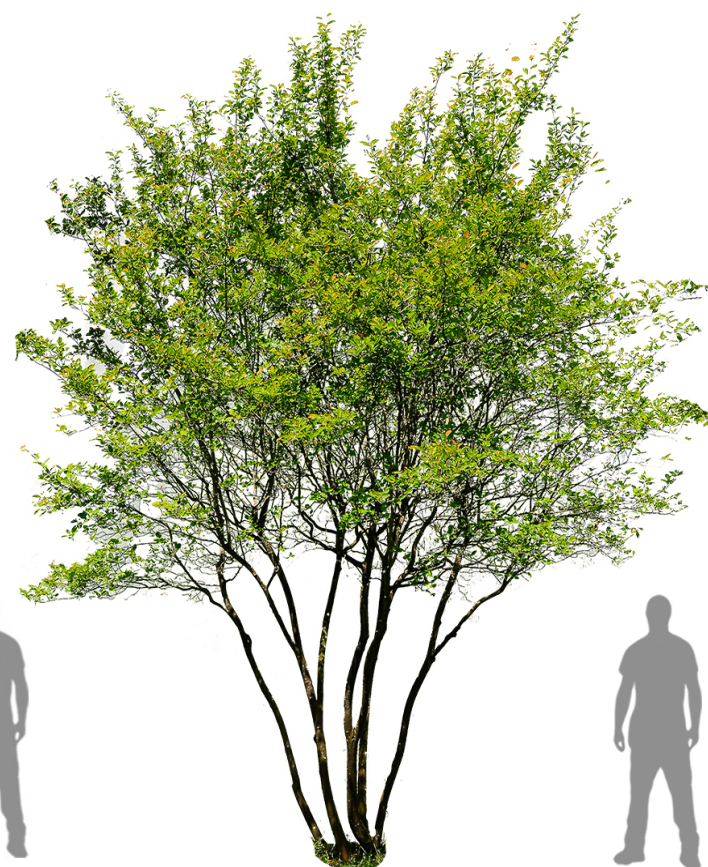


Preferred soil depth for small multi stem trees which do not grow higher than 3-4 meters: Min. 750-800mm.
For larger trees: minimum 1000mm.

PLANTING TYPES



Clear stem, semi-mature tree has a single, upright, clear stem up to 2-2.5m from the ground before the canopy starts. These type of trees are proposed along the main pedestrian and vehicular routes and in key landscape areas. The required height of the clear stem trees is: 6-7 m.



A multi-stem tree: has multiple stems, branching from the ground. The cloud-like canopy starts around 1.5-2m above ground. These types of trees were used to achieve privacy and help separate the residential and retail areas. They also help mark the key locations in the landscape, such as entrances and access points. The required height of the multi-stem trees is: 3-3.5 m.



Herbaceous planting has no persistent woody stems above ground. These plants grow fast and produce flowers and many seeds in a short period of time. They have an important role in the biodiversity, because they can provide habitat and food for wildlife. The height of the proposed herbaceous planting is approx. 0.3- 1.3 m.



Ground covers provide protection of the topsoil from erosion and drought. In an ecosystem, the ground covers forms the layer of vegetation below the shrub/herbaceous layer. The height of the proposed perennial planting is approx. 0.1- 0.3m.



The shrub palette is used as separation between the different functions in the urban realm. In addition, they have an important role in the biodiversity, because they can provide habitat and food for wildlife. The required height for the proposed shrubs is: 0.8- 1.5m.



Clipped shrubs are used to give privacy and help separate the areas. The required height for the proposed hedges is: 1- 1.5m.

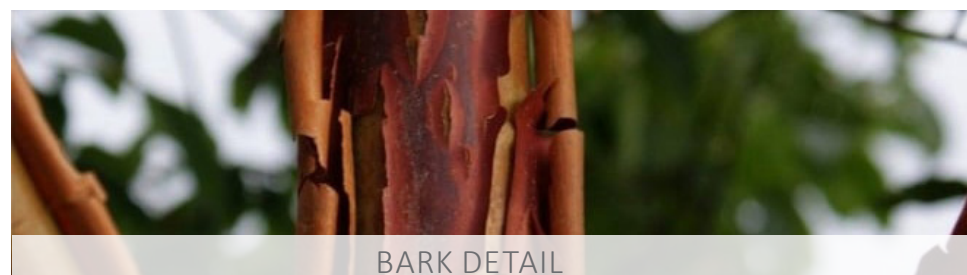
SOFTSCAPE STRATEGY

TREES SPECIES

Small multi-stem trees, with 2-2.5m clear stem



SPRING FLOWERS



BARK DETAIL



SPRING FRUITS



DETAIL OF FRUIT



AUTUM COLOUR



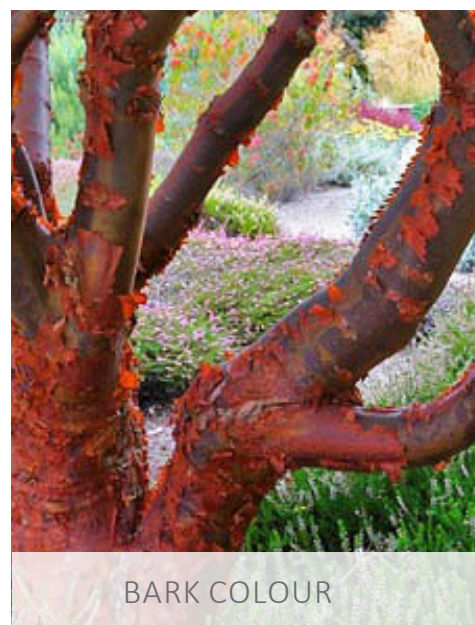
WINTER CATKINS



SUMMER COLOUR



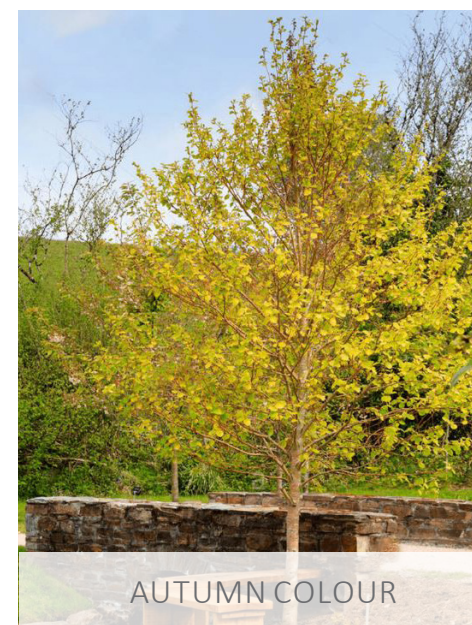
SPRING COLOUR



BARK COLOUR



SUMMER COLOUR



AUTUMN COLOUR



SUMMER COLOUR



AMELANCHIER PRINCE WILLIAM

Description: it is a deciduous small tree or shrub with large star shaped pure white flowers in March to April and June. Produces small dark reddish-purple fruits after flowering

Ultimate height: 4-6 meters
Ultimate spread: 4-5 meters



ACER GRISEUM

Description: it is a small spreading deciduous tree with attractive peeling, papery chestnut-brown bark. Leaves with 3 leaflets, downy and whitish beneath, turning brilliant red and orange in autumn.

Ultimate height: 4-6 meters
Ultimate spread: 3-5meters



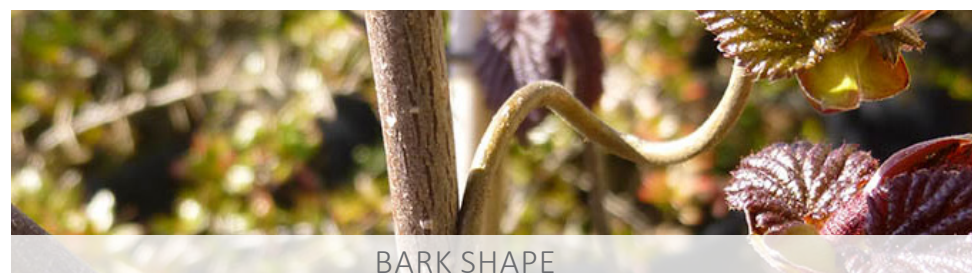
ALNUS GLUTINOSA

Description: Is a vigorous deciduous trees and large shrubs with rounded leaves and often conspicuous catkins in winter

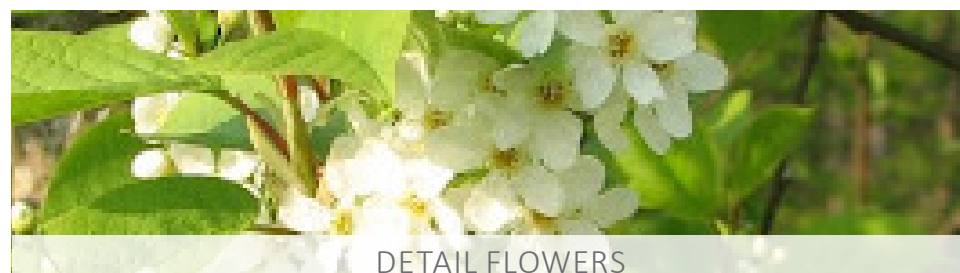
Ultimate height: 4-6 meters
Ultimate spread: 3-5meters

TREES SPECIES

Small multi-stem trees, with 2-2.5m clear stem



BARK SHAPE



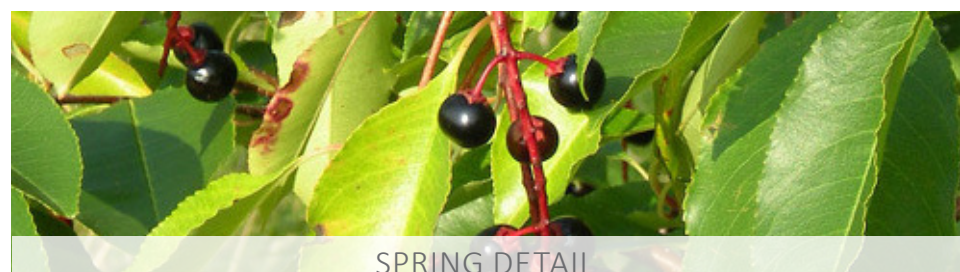
DETAIL FLOWERS



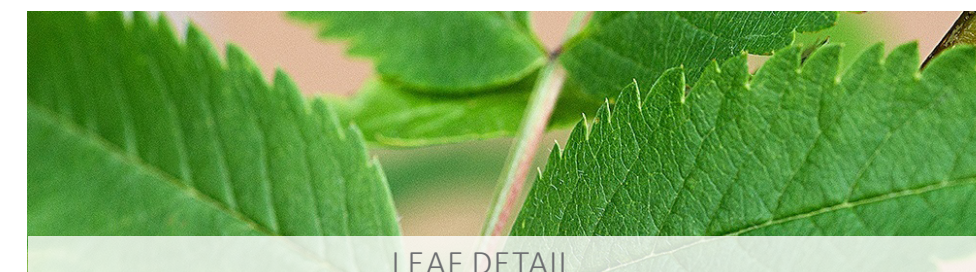
DETAIL BERRIES



AUTUMN CATKINS



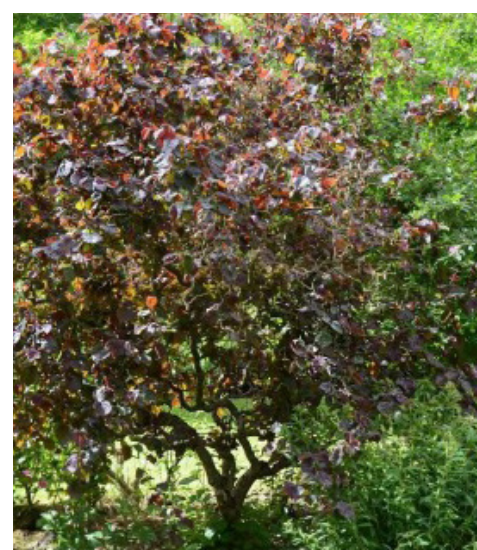
SPRING DETAIL



LEAF DETAIL



SUMMER COLOUR



AUTUMN COLOUR



SUMMER COLOUR



AUTUMN COLOUR



CORYLUS AVELLANA 'RED MAJESTIC', RED HAZEL TREE,

Description: Corylus 'Red Majestic' is a beautiful small tree which is known for its unique twisted shoots.

Ultimate height: 4-6 meters
Ultimate spread: 3-5meters



PRUNUS PADUS

Description: Is a medium-sized, round-headed deciduous tree. Single, pale white flowers open from deep pink buds before the leaves

Ultimate height: 4-6 meters
Ultimate spread: 3-5meters



SORBUS AUCUPARIA

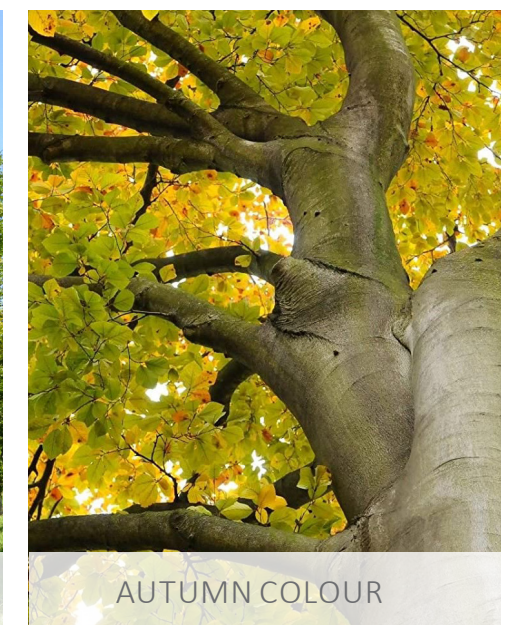
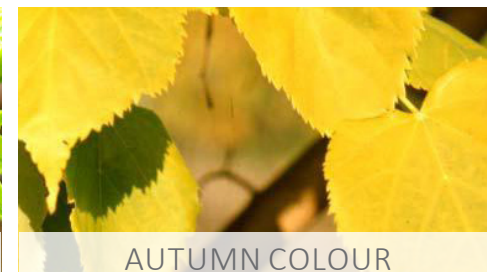
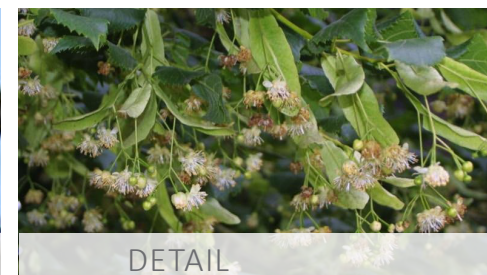
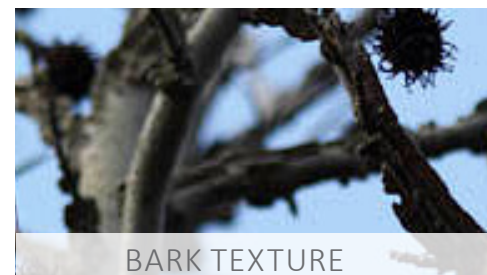
Description: It is deciduous trees or shrubs with pinnate leaves and clusters of small white or pink flowers, in late spring, followed by orange-red berries in early autumn

Ultimate height: 6-8meters
Ultimate spread: 4-6meters

SOFTSCAPE STRATEGY

TREES SPECIES

Medium/large trees



BETULA PUBESCENS - DOWNY BIRCH

Description: it is an elegant medium-sized deciduous tree with slender drooping twigs. Bark white, becoming black and rugged at base. Leaves ovate, yellow in autumn. Flowers in catkins.

Ultimate height: 12 meters
Ultimate spread: 10 meters



LIQUIDAMBAR STYRACIFLUA "WORPLESDON"

Description: 'Worplesdon' is a broad-crowned medium-sized deciduous tree with five-lobed, maple-like leaves which turn to deep orange and yellow in autumn.

Ultimate height: 12 meters
Ultimate spread: 8 meters



TILIA CORDATA GREENSPIRE

Description: 'Greenspire' is a deciduous large tree with a pyramidal crown with a straight trunk, developing branches slanting upwards. At a later stage the crown becomes oval to ovoid.

Ultimate height: 20 meter

FAGUS SYLVATICA

Description: Rapid growing, dense, rounded habit. Leaves opposite, pinnately compound, leaflets somewhat smaller than the species type, dark green and glabrous above.

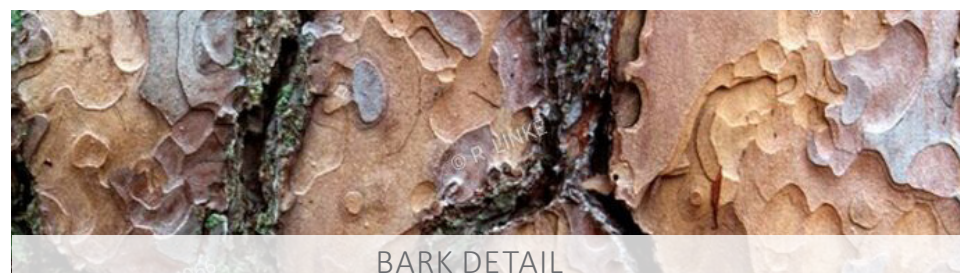
Ultimate height: 22 meters
Ultimate spread: 4 meters
Time to ultimate height: 20-30 years

TREES SPECIES

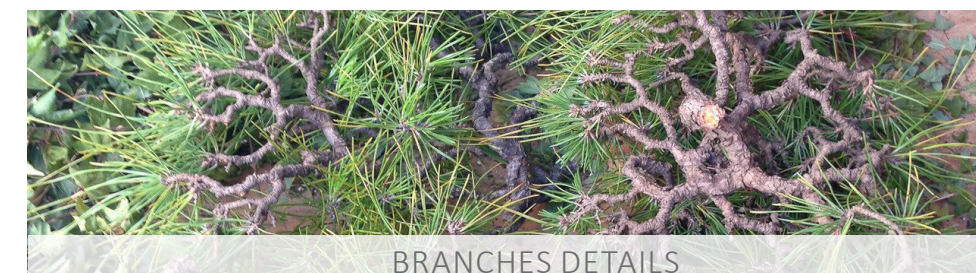
Medium/large trees



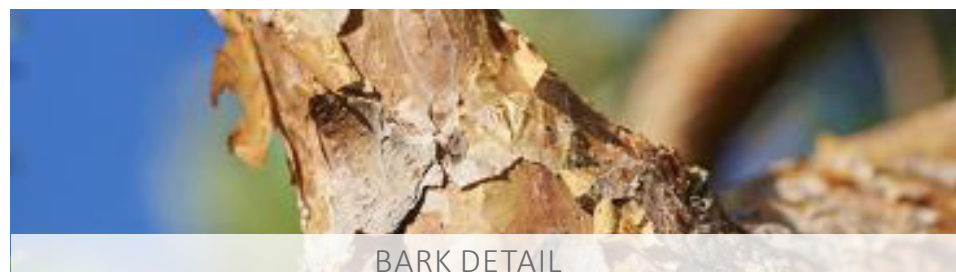
NEEDLES DETAIL



BARK DETAIL



BRANCHES DETAILS



BARK DETAIL



DETAIL OF FRUIT



NEEDLES DETAIL



ALL YEAR COLOUR



ALL YEAR COLOUR



ATTRACTIVE SHAPE



PINUS SYLVESTRIS "FRENHAM"

Description: can be shrubs or large, evergreen trees, some species with attractive bark, developing an irregular outline.

Ultimate height: 5m
Ultimate width: 4m



PINUS SYLVESTRIS, MULTISTEAM TREE, SP. TBC

Description: coniferous tree characterized by its orange trunk. This tree it can be a topiary on stem.

Ultimate height: 5 m
Ultimate width: 5m



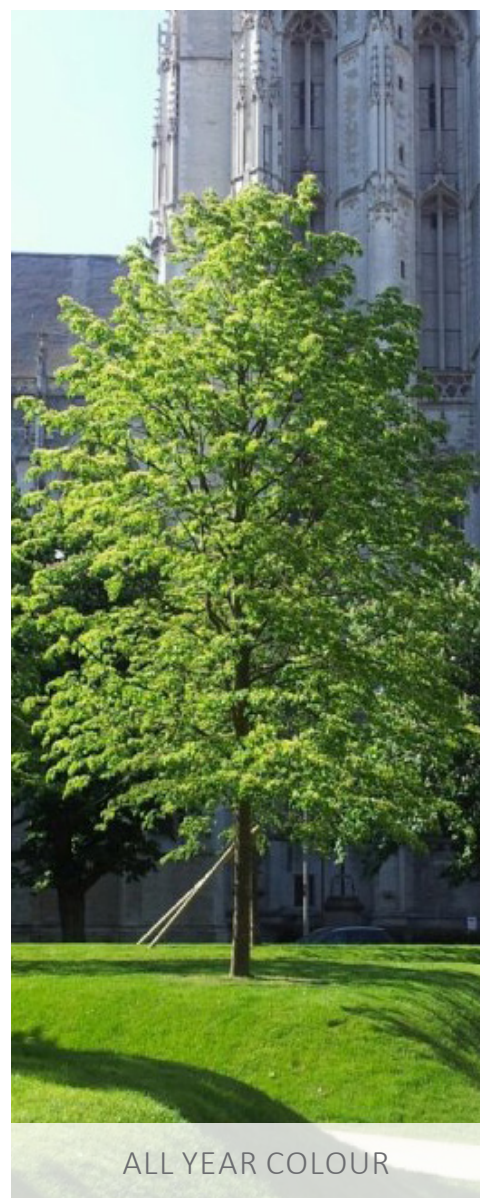
PINUS THUNBERGII

Description: a beautiful pine tree Grows up into a beautiful graceful tree.

Ultimate height: 10 meters
Ultimate spread: 3-5meters
Time to ultimate height: 8-12years

SOFTSCAPE STRATEGY

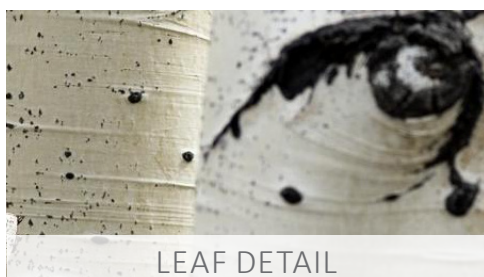
TREE SPECIE FOR WIND MITIGATION



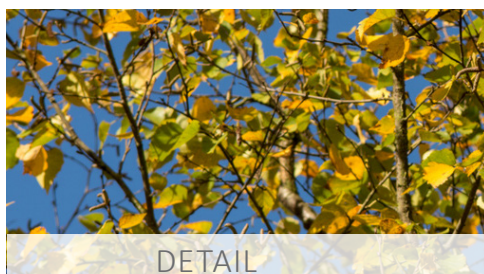
ALL YEAR COLOUR

TILIA CORDATA GREENSPIRE

Evergreen tree



LEAF DETAIL



DETAIL



DETAIL

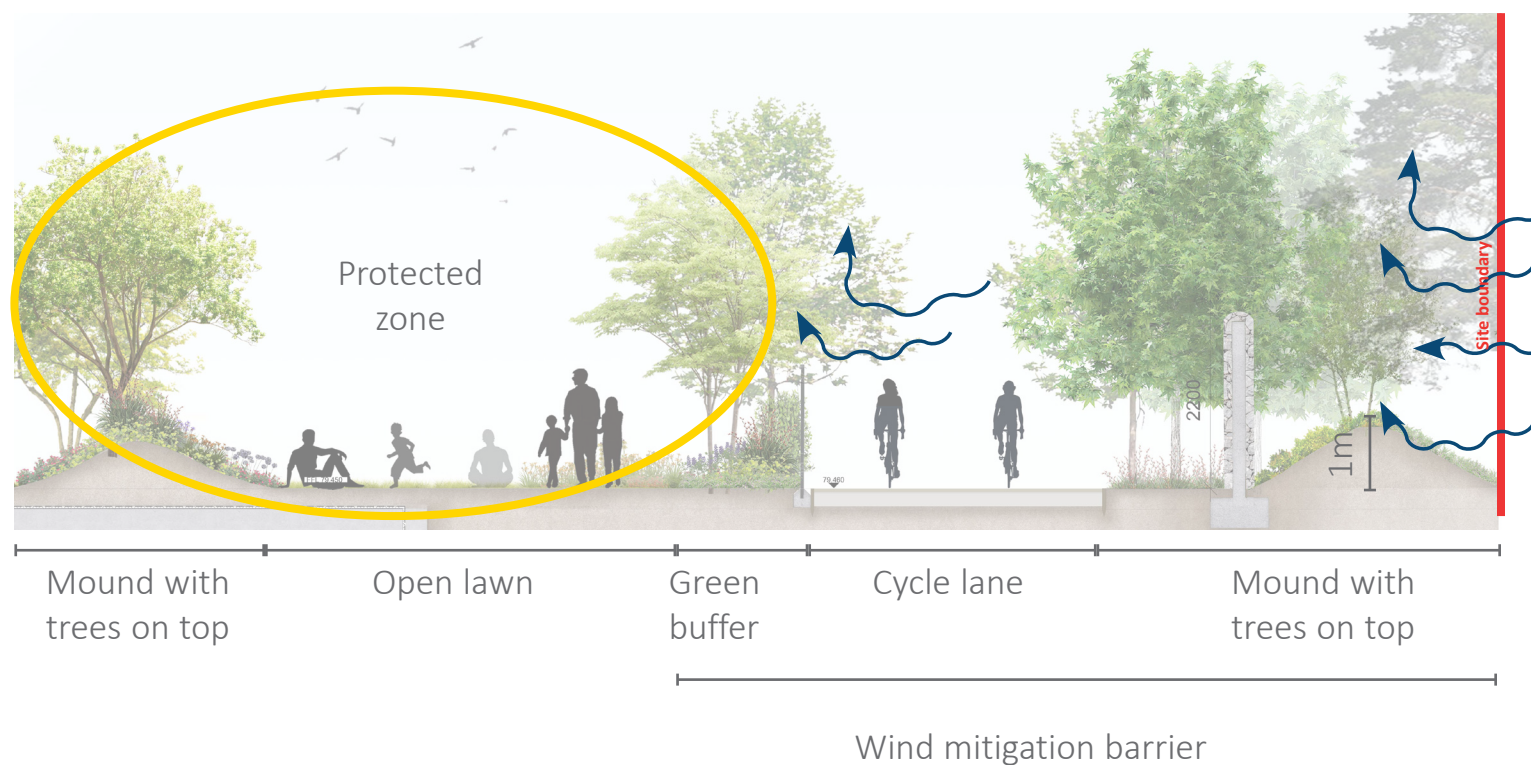
BETULA PUBESCENS -
DOWNY BIRCH

Deciduous tree

Windbreaks are semi/permeable barriers that help to reduce wind speed and provide shelter for plants and pollinating insects.

The windbreak consists of a line of defence such as a hedge with single row of trees along each side of the southern part of the cycle lane.

In order to be effective, the mitigation belt has been characterized by both deciduous and evergreen trees. With this approach the semi-permeable the soft screen could filter 50-60 percent of the wind to reduce its strength.





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