CASTLE PARK, CASTLELANDS
MALLOW

LRD LANDSCAPE AND GREEN INFRASTRUCTURE DESIGN REPORT
October 2024

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LRD Landscape and Green Infrastructure Design Report

Castle Park, Castlelands (townland), Mallow, Co. Cork,

Simon Ronan Landscape Architect Ltd.

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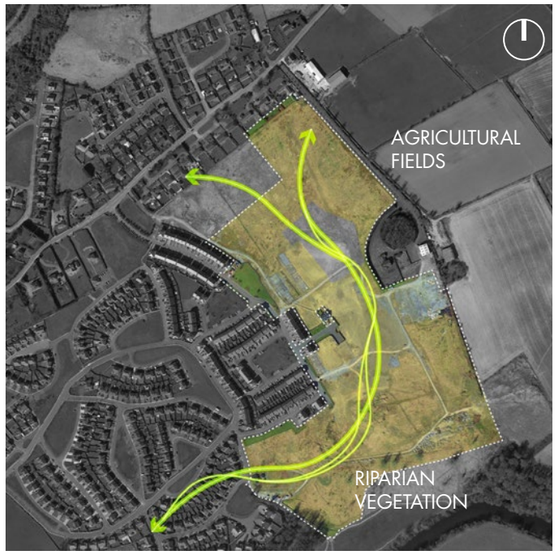
01.
CONTEXT ANALYSIS

1.4 Context Analysis Diagrams

Micro-climate

The site have positve aspect to take advantage of solar gain.

Ecological Links



Understanding the site and its existing ecological characters provide clues as to how the landscape should be developed. The existing characteristics should be retained, enhanced and protected as a parkland setting in which multiple landscape types can define mini neighbourhoods.

Historic Nodes

The site benefits from rich archeological surroundings, which have inspired the development's design. In pursuit for authenticity, careful attention has been paid to the selection of the same or similar materials and patterns to assimilate the new space to its historic context and ensure the design concept tells the story of the site's history and subsequent harmonious evolution.

Connectivity

The site connects very well with key destinations and transport. It promotes walking and cycling at its heart and the provision of amenities to support these drivers haven allowed for as has connectivity to the wider community and a sense of welcomeness for all.

02.
LANDSCAPE VISION

PILLARS OF DESIGN

Three design drivers have been identified which respond to the uniqueness of place and the existing site resources - putting the natural environment at the heart of the masterplan, celebrating ecology, water and bringing community together in high quality spaces encouraging interactions and well-being.

Ecology + Biodiversity

The protection and enhancement of the sites existing natural features will inform the character of planting and sense of place it derives from. In turn, there will be a net gain for bio-diversity by planting native tree species, coupled with plants selected form a list of pollinator friendly species and maintained to increase the availability of flowering plants in the shoulder months.

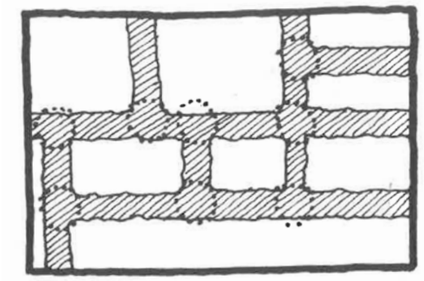
Connectivity

Increased permeability to and through the site from north to south and east to west by providing public access at potential existing links unlocking key connectors in the local context.

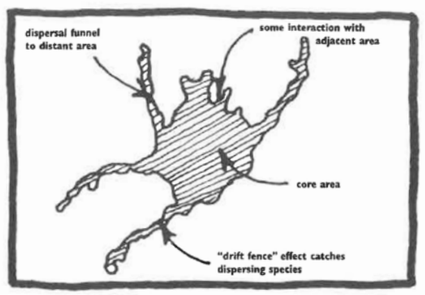
Community

Castlelands offers an opportunity to curate community. The masterplan has been crafted in such a way so as to promote Placemaking, creating opportunity for interactions on a social level and generating a sense of neighborhood and connection. The simplest of interventions such as a bench on the corner of an intersecting path can create friendships in a time of social isolation.

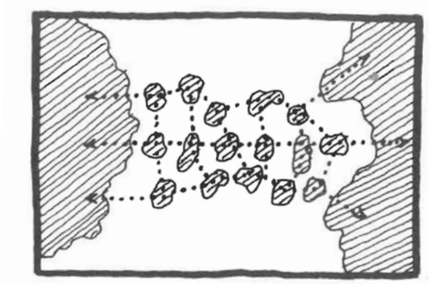
Ecological First Principles



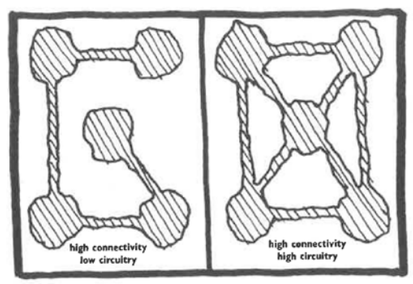
Intersection Effect



Ecologically “optimum” Patch Shape



Cluster of Stepping Stones



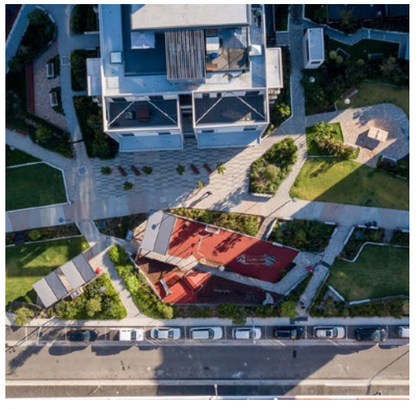
Network Connectivity & Circuitry

Pedestrian Oriented

Universal Design

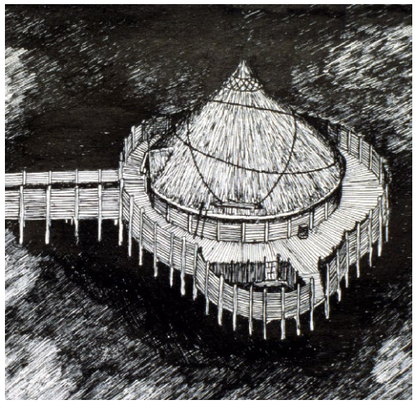
Pedestrian walkways in the nature

Pedestrian friendly parks



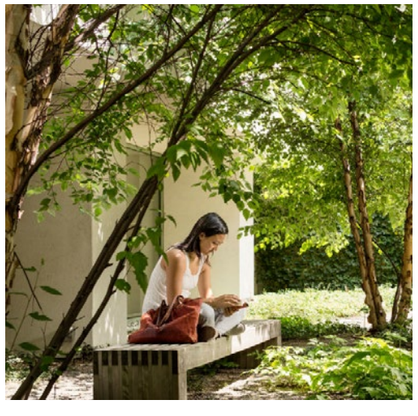
One space, many uses

Diversity + Flexibility

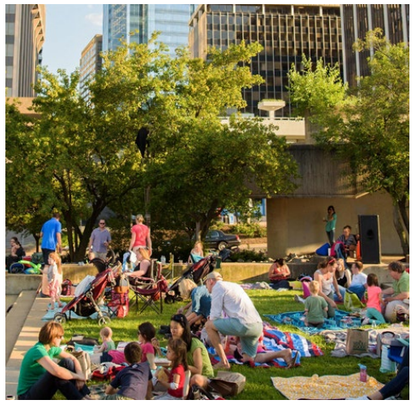


Histotical human settlement and the need
for community + protection

Interactions



Simplicity



Togetherness

Ecology + Biodiversity

This project embraces sustainable practices such as habitat restoration and the implementation of wildlife corridors, fostering a thriving ecosystem that supports a wide array of plant and animal species, ensuring a balanced and resilient environment for future generations.

Blackthorn

Blackthorn

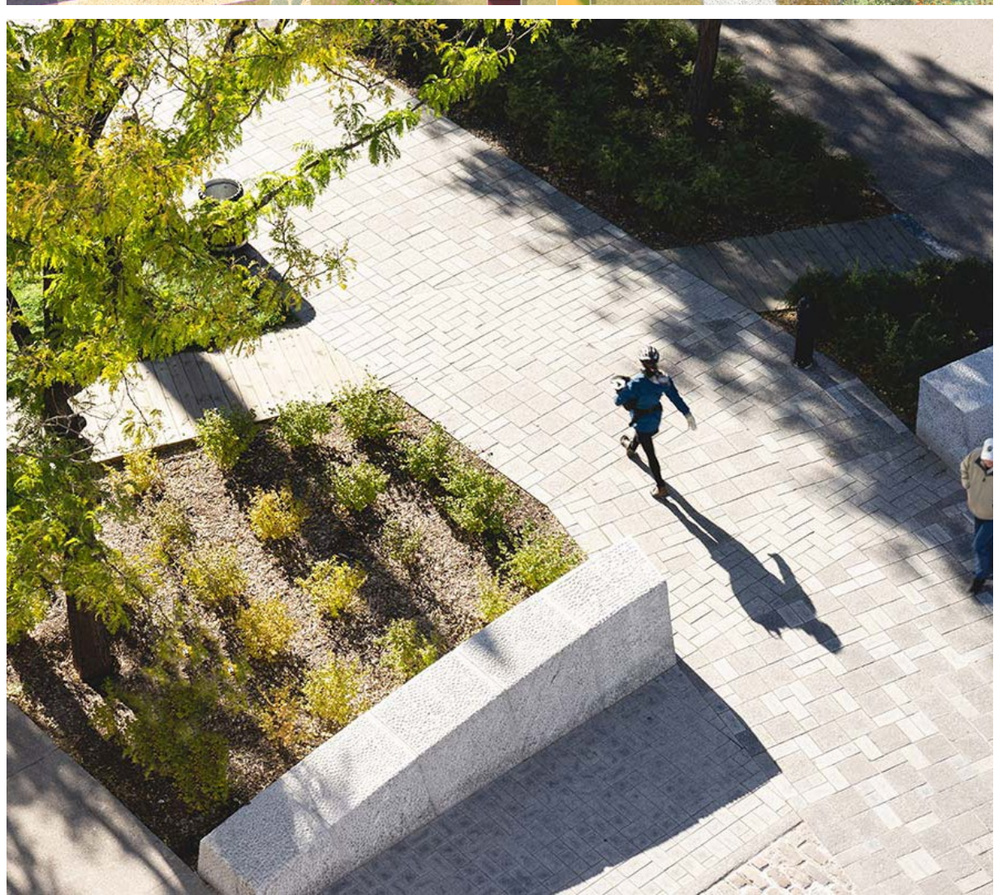
Wild Crab Apple

Elder

Holly

Connectivity

Creating a vibrant network that encourages social interactions, enhances accessibility, and fosters a sense of community.



Community

The landscape serves as a hub of community life, where families gather for picnics, friends engage in lively conversations, and neighbors come together for events, creating a strong sense of belonging and lasting bonds within the local community.

03.
LANDSCAPE STRATEGIES

Ecological Links

The ecological link weaves through the neighborhood, connecting residents with nature as they stroll along the enchanting walking trails, surrounded by native flora and fauna, creating a harmonious coexistence between the community and the environment.

Landscape Strategies

1 - NATURAL PARK

2 - URBAN PARK

3 - COMMUNITY OPEN SPACE

4 - SPORTS AREA

5 - THE GREAT LAWN

6 - ARCHEOLOGICAL PARK

7 - TODDLER PLAY

8 - PLAYGROUND

9 - URBAN PARK

Legend

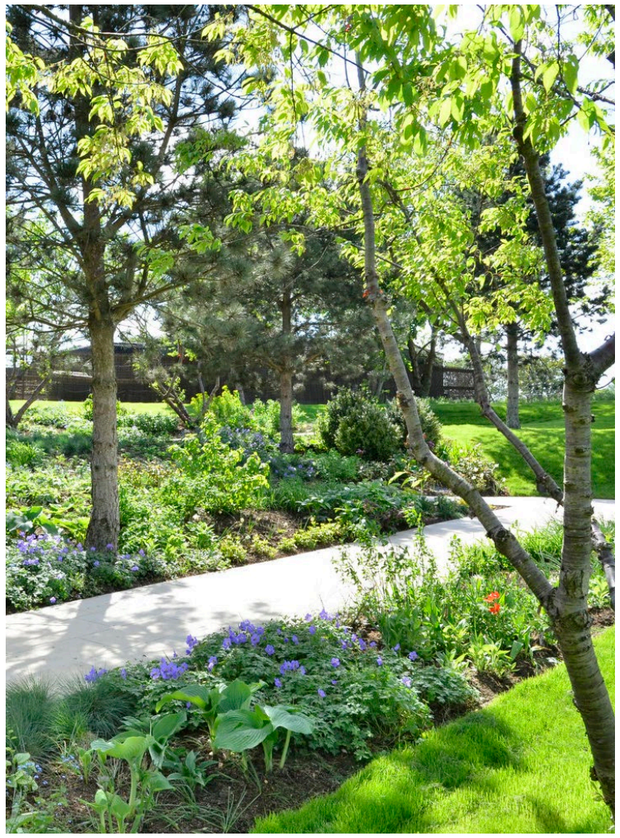
1. Natural Park
2. Urban Park
3. Community Open Space
4. Sports Area
5. Central Park
6. Archeological Park
7. Toddler Play
8. Playground
9. Urban Park

Landscape Masterplan

The masterplan showcases an ecological approach, incorporating sustainable features such as rainwater harvesting, native plantings, and wildlife-friendly habitats, promoting a harmonious coexistence between residents and the environment.

Community spaces, including the Central Park and the Great Lawn, provide a vibrant heart for social interactions and shared experiences. With its emphasis on preserving the rich heritage of Castlelands, the landscape offers an idyllic and sustainable living experience for residents.

The Greenway is the central spine of the entire project, bringing nature in the core of the development and allowing a fluent interconnection between all the different landscape moments.



Legend

1. Archeological Site
2. The Great Lawn
3. Urban Park
4. Playground
5. Shared Surface
6. Nature Park
7. Greenway
8. North Park
9. Private Gardens
10. Allotments
11. Sports Area
12. Attenuation Pond

Landscape Strategies

1 - GREEN WAY

2 - ARCHEOLOGICAL feature

3 - PLAYGROUND AND SPORTS AREA

4 - SHARED SURFACE

5 - CRECHE GARDEN

6 - NATURE PARK

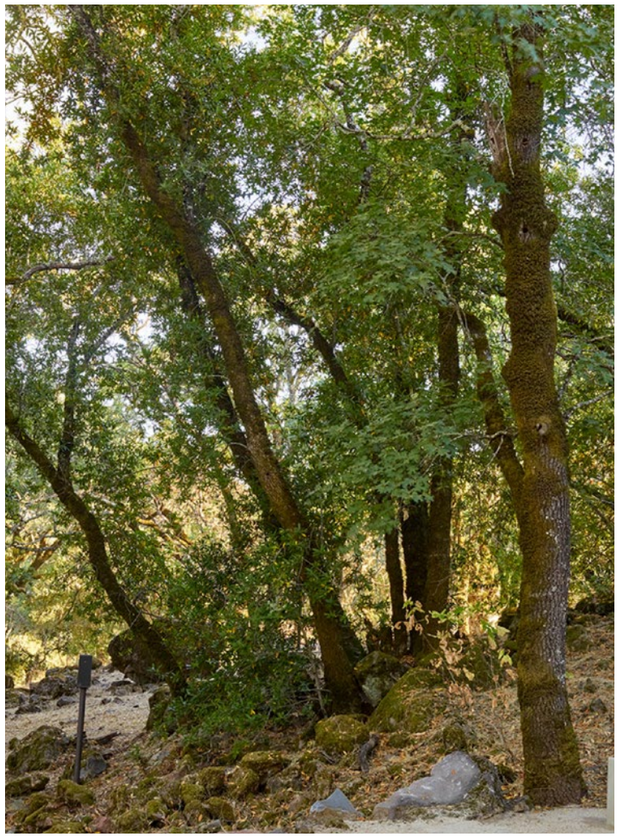
7 - THE GREAT LAWN

8 - COMMUNITY PARK

9 - NORTH PARK

Biodiversity enhancement

The project emphasizes the integration of diverse flora, including various native tree species, to enhance biodiversity and ecological richness. The incorporation of trees such as Corylus avellana, Prunus spinosa, Crataegus monogyna, Ilex aquifolium, Sambucus nigra, and Rosa canina plays a pivotal role in promoting environmental sustainability. Recognizing the significance of diverse plant species, the project aims to create a habitat that supports local ecosystems and contributes to the overall well-being of the environment. This approach underscores the importance of embracing and preserving the natural diversity of plant life for the benefit of the ecosystem and its inhabitants.



TREE PLANTING

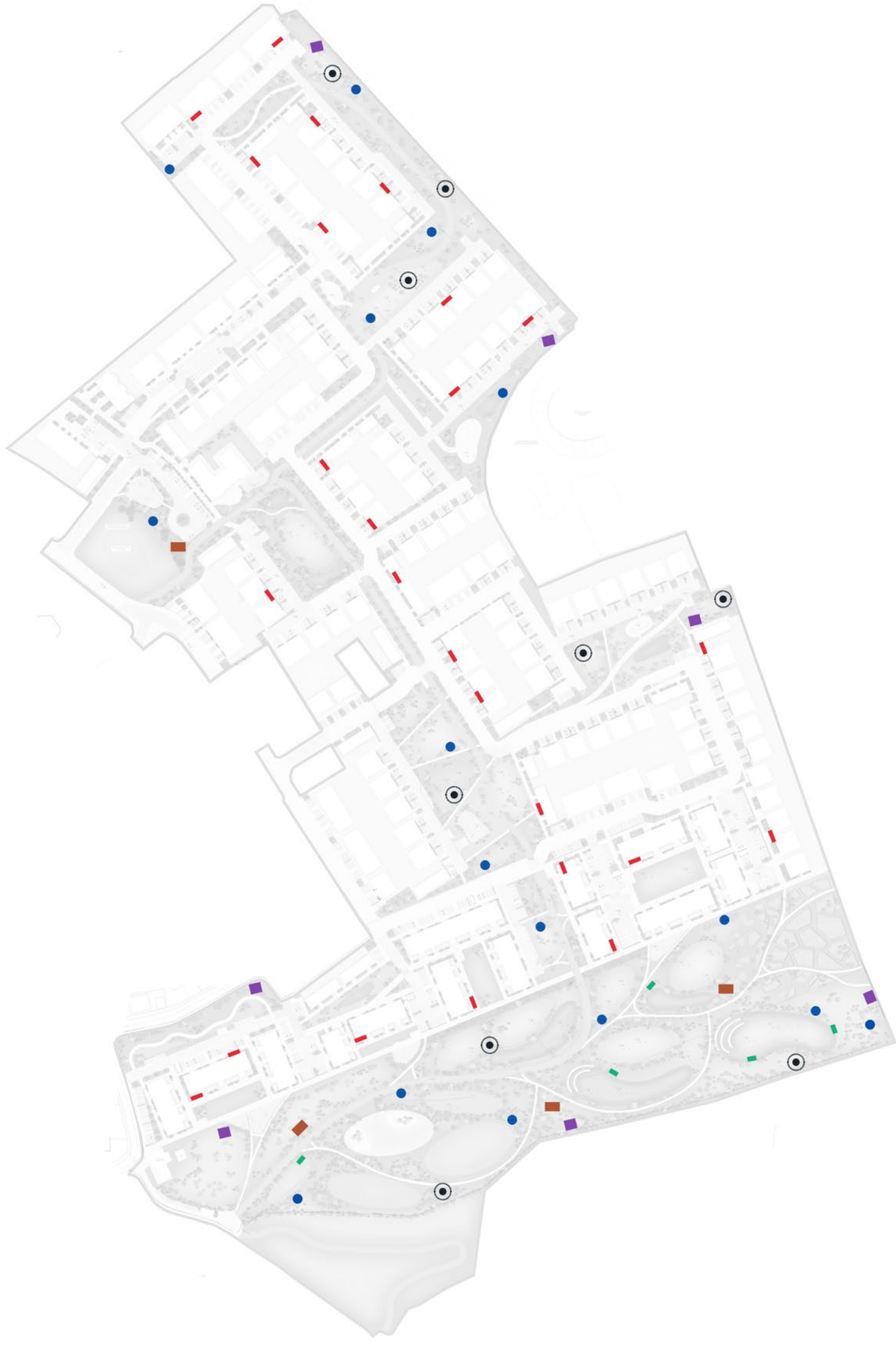
- Existing Trees & Hedge
- Existing Trees To Be Removed
- Pinus sylvestris
- Quercus robur
- Alnus glutinosa
- Betula pendula
- Sorbus aucuparia
- Sorbus hibernica
- Corylus avellana
- Crataegus monogyna
- Ilex aquifolium

Biodiversity enhancement

The project aims to bring about environmental improvements by incorporating various elements. These enhancements include the installation of amphibian and reptile hibernacula around the attenuation pond, a bird box/swift brick scheme with six bird boxes on suitable trees and twenty swift bricks on appropriate buildings to support the red-listed bird species, Swifts. Additionally, four bat boxes will be placed on suitable trees, and wildflower meadows, native planting, insect hotels, and log piles for small fauna will be strategically integrated into the landscape design. Furthermore, the project emphasizes low-intervention hedgerow management to promote biodiversity and ecological balance. These initiatives collectively contribute to fostering a sustainable and thriving ecosystem within the project area.

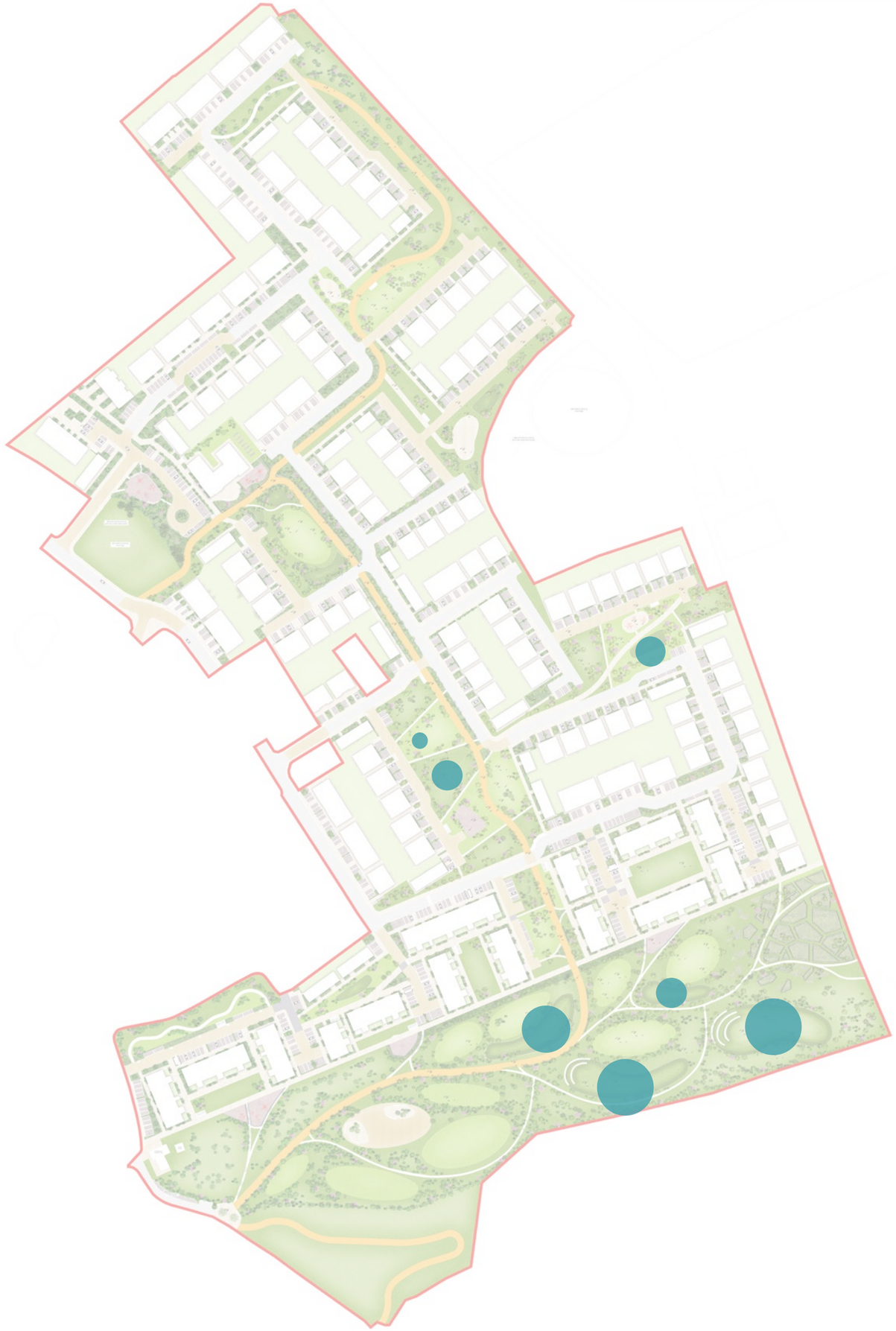
Legend

- Amphibian and reptile hibernacula
- Bird box
- Swift brick
- Bat box
- Insect hotels
- Log piles for small fauna/invertebrates



Biodiversity enhancement - Suds and Ponds

The environmental strategy aims to integrate SUDS, basins, and attenuation ponds to enhance ecological impact. In pursuit of this goal, the strategy involves strategically locating SUDS basins in or near non-intensively managed landscapes, providing a flourishing habitat for native species. Additionally, ponds are strategically placed adjacent to existing wetland areas, such as natural ponds and river floodplains, fostering the colonization of plants and animals and promoting resilience after pollutant influx events. The strategy emphasizes the importance of maximizing the area of shallow and seasonally inundated ground dominated by emergent plants, achieved through low slopes and avoiding predetermined pond levels. To enhance biodiversity, the strategy incorporates a habitat mosaic with varied sub-basins in size and depth. Elements such as undulating 'hummocky margins' and avoiding smooth finished surfaces contribute to the physical diversity of habitats. Planting trees and wetland vegetation around ponds creates valuable habitats for amphibians and provides a food source for invertebrates.



Legend

Suds / Attenuation Ponds / Basins

Landscape Activities

Chill in The Park

Active program with lawns, seating, wildflowers and tree planting to offer a space for those who choose to just ‘chill out’ and escape or require some distance from the hum of life beyond. It can be a place for art and picnicking in peace. It incorporates ecological opportunities in a sensitive manner and celebrates the green infrastructure objectives to incorporate planting to enhance and protect existing habitat.

Discrete Human Scale

Art in the Park

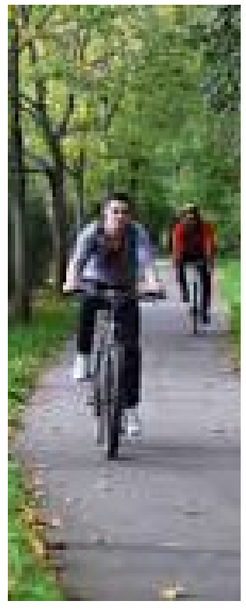
Picnic in the Park

Play in The Park

The heart of the park, play puts the focus on children and locates itself close to nature, a calming and learning environment. It will be programmed for all ages and abilities utilizing natural and creative play to nurture the imagination and encourage children outside. This has the reverse effect in providing spin off revenue generation for shops and cafes as parents oversee children. It provides passive surveillance and a destination for the wider Mallow community.

Play in the Park

Wet Play



Adventure Play

Exercise in The Park

With growing popularity, natures gym is all around us and more residents look for the ease of exercise without the hassle of a gym membership. Castlelands will offer opportunities to run, lift, jump on your doorstep in an effort to make this part of everyday life and the norm. Exercise stations are identified throughout the masterplan but a focus on utilising the space around the linear park provides for multi-function modern equipment and space to use body weight exercise’s whilst responding to the character of the site.

Park Yoga

Active Opportunities

Eco Exercise

Playscape

colorful structures, interactive elements, and imaginative design, providing a safe and joyous place where young minds can explore, create, and embark on countless adventures.

TODDLER PLAY EQUIPMENT

BOULDERS AND TOPOGRAPHY

GREEN OPEN SPACE

WILD PLAY

The Great Lawn

Legend

1. Great Lawn
2. Mounds
3. Greenway
4. Buffer Green
5. Parking
6. Road

The Great Lawn

Wildflower meadow

Creating seasonal interest

Planting to enhance biodiversity

Wildflower meadow

NATIVE PLANTING TO ENHANCE BIODIVERSITY

Hawthorn

Elder

Hazel

Holly

Blackthorn

Community Park

Legend

1. Greenway
2. Sunken Lawn
3. MUGA
4. Meadow
5. Natural Play
6. Shared Surface
7. Parkings

Community Park

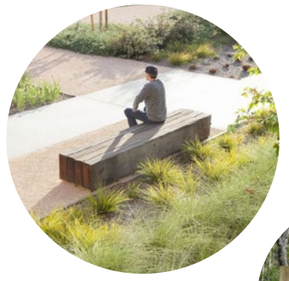
Seating Areas

Ecological Landscape

Sports and Relax Areas

Event space

Nature Park



Plaza

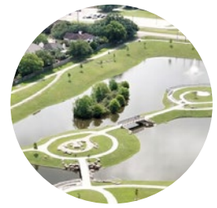
Playground

Open Air Theatre

Outdoor Gym

Multifunctional Lawn

Greenway



Basin

Allotments

Naturalistic play area

Bird Watching

Wild Areas

Allotments

Water Basin

Sports and Outdoor Activities

Urban Greenway

The Greenway's infrastructure consists of a combination of dedicated walking and cycling paths, thoughtfully planned to optimize safety and ease of use. The pathway is typically constructed from durable, environmentally-friendly materials, such as recycled asphalt or permeable surfaces that minimize the impact on the natural environment. It is engineered to accommodate both pedestrian and cycle traffic simultaneously, ensuring efficient and fluid movement along the route.

SWIFT

BAT

SWALLOW

HAWTHORN

ELDER

HAZEL

HOLLY

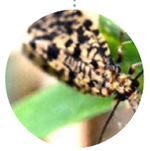
BLACKTHORN

EARTHWORM

DRAGON FLY

BUTTERFLY

BUMBLE BEE



CADDIS FLY

Urban Greenway

04.
LANDSCAPE PALETTES

Landscape Plans and schedules included in the application, prepared by SRLA Landscape Architects includes a detailed schedule of proposed planting and illustrates the location and extent of mown grass, managed long grass, reinforced grass, low ground cover, hedge and tree planting as well as existing trees to be retained.

Tree species are selected for longevity, suitability to local soil conditions and micro-climate, biodiversity (native species) and where required suitability for proximity to residential buildings. Proposed tree sizes range from heavy standards and multi-stemmed trees to native whip and forestry transplants. THere will be a net gain of individual trees in order to improve the species mix and the proportion of native species on site. Typical species are illustrated on the following pages.

Low planting is utilized to make and reinforce sub-spaces within the larger landscape spaces, for visual screening, defensible space, visual interest, ecological purposes and to guide or direct people's movement. The low planting is conceived as subtle layering of greens within the open spaces. The planting is layered as follows; lowest - bulb planting, ground cover planting, highest - clipped hedge planting.

The selection of hard landscape materials is determined by function but also to provide a cohesive palette of materials throughout. Materials are chosen for durability, but where practical are proposed to be constructed in a way which is sensitively integrated with lawn and soft landscape, in order to minimise the impact of hard landscape surfaces. Primary vehicular, pedestrian and cycle circulation are proposed as a durable, limited range of neutral materials with robust construction. Typically, in the perimeter loop, a 3.7m wide route is proposed, with the roads in bituminous macadam and all other roads in a selected coloured asphalt. Self-binding gravel and large format reconstituted stone slabs are proposed for pedestrian routes in open space.

4.1 Hard Landscape Palette

Surface Finishes

The hard materials palettes have been selected to represent and respond to use and character of specific spaces. They will be durable and of high quality with patterning developed in the latter stages to indicate moments and celebrate thresholds.

High Quality Paving

To all primary routes

Asphalt

To vehicular routes

High Friction Surface

To raised tables

Grasscrete

Self Binding Gravel

Porous Paving

To parking

Tree Grille

To trees in paving

Boundary Treatment

The boundaries between the site both external and internal will be of high quality and provide a degree of visual transparency.

Railings

Fence

Post and Panel Fence

Concrete Block Wall

Concrete Block Wall + Fence + Hedge

Furniture

Bins, bollards and seating have been selected as appropriate to the design language and surroundings within which they fit. these for the most part will be off the shelf products and specified accordingly.

Bins

To pedestrian areas

Bollards

To road edges

Bike Stand

To bike parking

Play

Bespoke Imaginative

Exercise

To fitness areas

Benches

To pedestrian areas

4.2 Soft Landscape Palette

The vision for the design of the landscape is largely influenced by the processes of ecological succession, the changing of the landscape from wet to dry.

Shade loving plants for Woodlands

Woodland Tree Planting

Informed by the existing and formative tree planting and a native palette the tree planting will bleed into the site and grade out form north to south.

Native trees planting including birches and pines

Street Trees + Small Feature Trees + Podium Trees Planting

Specimen tree planting will provide year long interest and beauty - landmarks in the landscape, to celebrate and identify with.

Woodlands with ferns understory

Wildflower & Shrub Planting

To enhance bio-diverse credentials wildflower planting will occupy edges and large swathes of the sites periphery along with shade tolerant understory planting.

Podium planting with small feature trees

Woodland Understory & Shade Loving Planting

Woodland areas and shaded gardens will be planted with mix of shade loving plants.

Prunus padus

Ilex aquifolium

Pinus sylvestris

Quercus robur

Sorbus aucuparia

Juniperus communis

Quercus petraea

Alnus glutinosa

Betula pendula

Betula pubescens

Arbutus unedo

Anemone × hybrida

Helianthus × laetiflorus

Doronicum × excelsum

Lavandula x intermedia ‘Provence’

Veronica longifolia

Hyssopus officinalis

Phlomis species

Viburnum lantana

Gaillardia × grandi-flora

4.3 Soft Landscape Palette

PLANTING			
	TREES from the all Ireland pollinator plant list		
	NAME	SIZE	NATIVE
Qr	Quercus robur	WRB 20-25cm girth	Yes
Ag	Alnus glutinosa	WRB 150-175cm Multi-stem	Yes
Ps	Pinus sylvestris	WRB 200-250cm	Yes
Sh	Sorbus hibernica	WRB 200-250cm	Yes
Bp	Betula pendula	WRB 300-350cm	Yes
Sa	Sorbus aucuparia	WRB 200-250cm	Yes
Ca	Corylus avellana	WRB 200-250cm	Yes
Cm	Crataegus monogyna	WRB 200-250cm	Yes
Iq	Ilex aquifolium	WRB 200-250cm	Yes
	MIX NATIVE HEDGEROW		
	NAME	SIZE	NATIVE
Ca	Corylus avellana	WRB 200-250cm	Yes
Psp	Prunus spinosa	8-10cm girth,3m tall	Yes
Cm	Crataegus monogyna	8-10cm girth,3m tall	Yes
Iq	Ilex aquifolium	8-10cm girth,3m tall	Yes
Sn	Sambucus nigra	8-10cm girth,3m tall	Yes
Rc	Rosa canina	8-10cm girth,3m tall	Yes
	CLIMBERS		
	NAME	SIZE	NATIVE
	Star Jasmine – Trachelospermum jasminoides	3Lt	No
	Hedera helix	3Lt	Yes

PLANTING MIX		
SHRUBS from the all Ireland pollinator plant list		
Sambucus nigra	2Lt	No
Skimmia japonica	2Lt	No
Sarcococca hookeriana	2Lt	No
Fatsia japonica	2Lt	No
Mahonia spp.	2Lt	No
Hebe sp.	2Lt	No
PERENNIALS & GROUND COVERS from the all Ireland pollinator plant list		
Potentilla – Potentilla spp.	2Lt	No
Lavandula angustifolia	2Lt	No
Aster spp.	2Lt	No
Iberis sempervirens	2Lt	No
Abelia – Abelia spp.	2Lt	No
Verbena rigida	2Lt	No
Stachys byzantina	2Lt	No
Foeniculum vulgare	2Lt	No
Salvia officinalis	2Lt	No
Ajuga reptans	2Lt	Yes
Echinacea purpurea 'Rubinstern'	2Lt	No
Hedera helix	2Lt	Yes
Rudbeckia maxima	2Lt	No
Verbena bonariensis	2Lt	No
HERBS from the all Ireland pollinator plant list		
Rosemary – Salvia rosmarinus Mint – Mentha spp. Oregano 'Golden' – Origanum vulgare Bergamot – Monarda didyma Borage – Borago officinalis Fennel – Foeniculum vulgare Chives – Allium schoenoprasum Sage – Salvia officinalis Thyme – Thymus spp. Lemon Balm – Melissa officinalis		

MEADOW		
NAME	SIZE	NATIVE
ALL-IRELAND POLLINATOR PLAN WILDFLOWER MIXTURE SEED MIX		
Centaurea cyanus Cornflower Leucanthemum vulgare Oxeye daisy Hyacinoides non-scripta Bluebell Rhinanthus minor Yellow Rattle Trifolium repens White clover Trifolium pratense Red clover Vicia spp Vetch Centaurea nigra knapweed Achillea millefolium Yarrow Prunella vulgaris Self Heal Succisa pratensis Devil's-bit Scabious	Seed Mix	Mixed, mostly yes

05.
APPENDIX

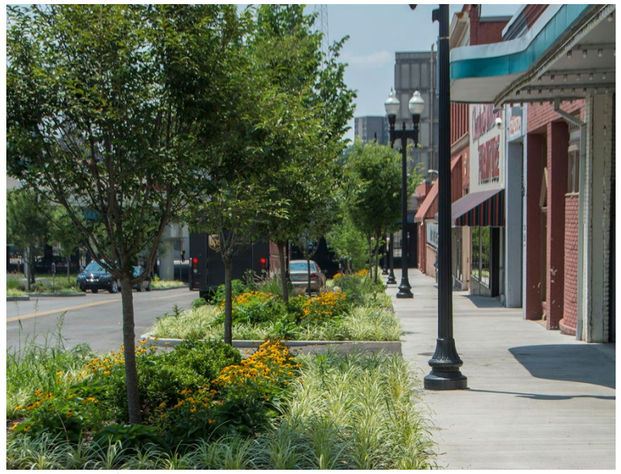
Appendix
SUDS Tree Pits

Paved Areas:

The road and paved surfaces will be finished in impermeable surfacing, either flexible bituminous pavement, rigid bound paving, impermeable concrete paver or stone pavers. Typically, all streets are provided with trees and soft landscaping zones, with car parking on at least one side. The roads and footpaths will be drained by gullies that connect to tree pits which are interlinked with perforated distribution pipes to create infiltration trenches.

The perforated pipes will allow discharge directly to the ground through the surrounding gravel bed. Due to the limited permeability which can be achieved through the sub-surface boulder clays, these pipes will also be connected to the surface water network via silt trap manholes. Notwithstanding the poor sub soil permeability, the gravel bed beneath the tree pits and surrounding the perforated pipes will provide good interception storage, which will retain, filter and attenuate run-off.

Street Planting



SUDS street planting

Sustainable Drainage Systems are a collection of water management practices that aim to align modern drainage systems with natural water processes. Integration of SuDS make urban drainage systems more compatible with components of the natural water cycle such as storm surge overflows, soil percolation, and bio-filtration, mitigating the effect human development may have on the natural water cycle, particularly surface runoff and water pollution trends. In the context of this predominantly brownfield Masterplan area, the provision of the following sustainable drainage systems, along with the construction of separate foul and surface water networks, will result in a significant improvement on the public drainage system from current conditions. Ground level courtyards shall discharge surface water directly to ground. Hard landscaping zones within paved areas shall be drained to adjacent infiltration trenches within soft landscaped areas.

Roof Gardens

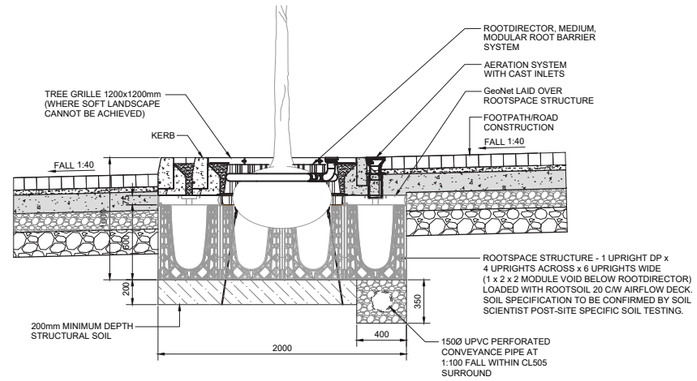
Permeable surface to tree

Example of Sustainable Drainage Systems (SuDS)

Images of SUDs planting (Sheffield Town Centre)

Tree Pits

Typically, street and footpath surfaces shall be impermeable surfacing, with finishes of bitumen, stone pavers, concrete. To provide interception storage of surface water from these impermeable surfaces, they shall be drained to Bio-retention tree pits via a series of road gulleys and linear drains.



Typical Section through Pit A- Refer to Engineer's Details

A

Type A:
Covered tree pit with connecting trench. – Typical Soil Volume = 6m3 excluding trench and 8.5m3 including trench – Drained Area typically 30-50m2 per individual tree pit

B

Type B:
Open tree pit with connecting trench. – Typical Soil Volume = 5.7m3 excluding trench and 7.5m3 including trench – Drained Area typically 30-50m2 per individual tree pit

C

Type C:
Standalone open tree pit. – Typical Soil Volume = 15m3 – Drained Area typically 60-90m2

Tree Pit Types - Refer to Engineer's Details

X1 - Indicative Planting Schedule

PLANTING			
	TREES from the all Ireland pollinator plant list		
	NAME	SIZE	NATIVE
Qr	Quercus robur	WRB 20-25cm girth	Yes
Ag	Alnus glutinosa	WRB 150-175cm Multi-stem	Yes
Ps	Pinus sylvestris	WRB 200-250cm	Yes
Sh	Sorbus hibernica	WRB 200-250cm	Yes
Bp	Betula pendula	WRB 300-350cm	Yes
Sa	Sorbus aucuparia	WRB 200-250cm	Yes
Ca	Corylus avellana	WRB 200-250cm	Yes
Cm	Crataegus monogyna	WRB 200-250cm	Yes
Iq	Ilex aquifolium	WRB 200-250cm	Yes
	MIX NATIVE HEDGEROW		
	NAME	SIZE	NATIVE
Ca	Corylus avellana	WRB 200-250cm	Yes
Psp	Prunus spinosa	8-10cm girth,3m tall	Yes
Cm	Crataegus monogyna	8-10cm girth,3m tall	Yes
Iq	Ilex aquifolium	8-10cm girth,3m tall	Yes
Sn	Sambucus nigra	8-10cm girth,3m tall	Yes
Rc	Rosa canina	8-10cm girth,3m tall	Yes
	CLIMBERS		
	NAME	SIZE	NATIVE
	Star Jasmine – Trachelospermum jasminoides	3Lt	No
	Hedera helix	3Lt	Yes

PLANTING MIX		
SHRUBS from the all Ireland pollinator plant list		
Sambucus nigra	2Lt	No
Skimmia japonica	2Lt	No
Sarcococca hookeriana	2Lt	No
Fatsia japonica	2Lt	No
Mahonia spp.	2Lt	No
Hebe sp.	2Lt	No
PERENNIALS & GROUND COVERS from the all Ireland pollinator plant list		
Potentilla – Potentilla spp.	2Lt	No
Lavandula angustifolia	2Lt	No
Aster spp.	2Lt	No
Iberis sempervirens	2Lt	No
Abelia – Abelia spp.	2Lt	No
Verbena rigida	2Lt	No
Stachys byzantina	2Lt	No
Foeniculum vulgare	2Lt	No
Salvia officinalis	2Lt	No
Ajuga reptans	2Lt	Yes
Echinacea purpurea 'Rubinstern'	2Lt	No
Hedera helix	2Lt	Yes
Rudbeckia maxima	2Lt	No
Verbena bonariensis	2Lt	No
HERBS from the all Ireland pollinator plant list		
Rosemary – Salvia rosmarinus Mint – Mentha spp. Oregano ‘Golden’ – Origanum vulgare Bergamot – Monarda didyma Borage – Borago officinalis Fennel – Foeniculum vulgare Chives – Allium schoenoprasum Sage – Salvia officinalis Thyme – Thymus spp. Lemon Balm – Melissa officinalis		

MEADOW		
NAME	SIZE	NATIVE
ALL-IRELAND POLLINATOR PLAN WILDFLOWER MIXTURE SEED MIX		
Centaurea cyanus Cornflower Leucanthemum vulgare Oxeye daisy Hyacinoides non-scripta Bluebell Rhinanthus minor Yellow Rattle Trifolium repens White clover Trifolium pratense Red clover Vicia spp Vetch Centaurea nigra knapweed Achillea millefolium Yarrow Prunella vulgaris Self Heal Succisa pratensis Devil's-bit Scabious	Seed Mix	Mixed, mostly yes

X2 Outline Soft Landscape Specification

1. Specifications for supply.

1.0 Schedule of supply:

The nursery stock material will be delivered following consultation between the Landscape Architect, landscape contractor and the selected nursery, and the Engineer. Delivery will be at all times by means of covered vehicles, and all plant material will be clearly labeled. The source of origin must be from the selected nursery as no other additional stock from other nurseries will be permitted without prior inspection and approval.

1.1 Programme of Works

The planting works shall be executed at the earliest opportunity.

1.2 Nursery stock:

All plant material shall be good quality nursery stock, free from fungal, bacterial or viral infection, aphids, red spider or other insect pests and any physical damage. It shall comply with the requirements of B.S. 3936: Parts 1-10: 1965 Specification for Nursery Stock, where applicable.

All plants shall have been nursery grown in accordance with good practice and shall be supplied through the normal channels of the wholesale nursery trade. They shall have the habit of growth that is normal for the species. Country of origin must be shown in all cases for species grown from seed.

Unless otherwise stated, the plant materials shall be supplied in accordance with the following codes where stated:

1+0 1 Year old seedling
1+1 1 Year old seedling lined out for 1 year
1+2 1 Year old seedling lined out for 2 years
1+1+11 Year old seedling lined out for 1 year, lifted and lined out for one further year
1u1 1 Year old seedling undercut then 1 more year in seedbed.
1u2 1 Year old seedling undercut then 2 more years in seedbed.
0/1 1 Year old Hardwood cutting
0/2 2 Year old Hardwood cutting
2X Twice transplanted tree
3X Three times transplanted tree
4X Four times transplanted tree
P9 Containerised plant in 9cm pot

1.3 Species:
All plants supplied shall be exactly true to name as shown in the plant schedules. Unless stipulated, varieties with variegated and/or coloured leaves will not be accepted, and any plant found to be of this type upon leafing out shall be replaced by the contractor at his/her own expense.
Bundles of plants shall be marked in conformity with B.S. 3936: Part 1: 1965 and B.S. 3936: part 4: 1966. The nursery supplier shall replace any plants which, on leafing out, are found not to conform to the labels. Definitions of all terms used are in accordance with the following British Standards: -

B.S. No. 3936: Part 1: 1965 entitled "Nursery Stock-Trees and Shrubs"

B.S. No. 3936: Part 4: 1966 entitled " Nursery Stock-Forest Trees"

B.S. No. 3936: 1967 entitled "Specification for Nursery Stock"

2.0 Tree specifications:

Trees shall have a sturdy, reasonably straight stem, and a well-defined straight and upright central leader, with branches growing out of the stem with reasonable symmetry. The crown and root systems shall be well formed. Roots shall be in reasonable balance with the crown and shall be conductive to successful transplantation.

2.1 Standard trees shall have a clear stem 1.70m in height from ground level to the lowest branch, a minimum girth of 8cm measured at 1.00m above ground level and a total height of 2.75-3.00 m.

2.2 Light Standard trees have a clear stem 1.30m in height from ground level to the lowest branch, a minimum girth of 6cm measured at 1.00m above ground level and a total height of 1.80-2.40m.

2.3 Select standard trees shall have a clear stem 1.70 m in height from ground level to the lowest branch, a minimum girth of 10 cm. Measured at 1.00.m. above ground level and a total height of 3.0 to 3.5 metres.

2.4 Heavy standard trees shall have a clear stem 1.80-1.90m in height from ground level to the lowest branch, a minimum girth of 14 cm. measured at 1.00.m. above ground level and a total height of 4.0 to 4.5 metres. All trees shall have been undercut a minimum of three times.

2.5 Extra Heavy standard trees shall have a clear stem 2.0m in height from ground level to the lowest branch, a minimum girth of 16 cm. measured at 1.00.m. above ground level and a total height of 4.5 to 5 metres. All trees shall have been undercut a minimum of three times.

2.6 Semi-mature trees shall have a clear stem 2.0m in height from ground level to the lowest branch, a minimum girth, as specified in the Bill of Quantities, measured at 1.00.m. above ground level and a total height of min. 5 metres. All trees shall have been undercut a minimum of three times.

All standards shall be clearly labeled.

2.7 Feathered Trees 180-240cm
Feathered trees shall be not less than four years old, and shall have been transplanted at least three times. Trees of species not listed in BS 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules.
Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.8 Feathered Transplants 120-150cm
Transplants shall be not less than two years old, and shall have been transplanted at least once. Trees of species not listed in B.S. 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules.
Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.9 Feathered Transplants 90-120 cms, 60-90 cm, 40-60 cm, 30-40 cm
Transplants shall be not less than one year old. Trees of species not listed in B.S. 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules. Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.10 Shrubs

(1) Containerised Shrubs shall be of the size specified in the schedules, with several stems originating from or near ground level and of reasonable bushiness, healthy, vigorous and with a sound root system. Pots or containers shall be appropriate to the size of shrub supplied and clearly labeled. Shrubs shall not be pot bound or with girdled or restricted roots.

(2) Bare Root Shrubs shall be of size specified in the schedules, with several stems originating from or near

X2 Outline Soft Landscape Specification

ground level, with reasonable bushiness, healthy, and vigorous. They shall be well furnished with fibrous roots and shall be lifted without severence of major roots. All bare root shrubs shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.11 Container Grown Conifers:
Conifers shall be of the size specified in the schedules, with one main stem originating from or near ground level and of reasonable bushiness and health, with a well-grown, root system. Pots or containers, where required, shall be appropriate to the size of plant supplied and clearly labeled. Plants shall not be pot bound, or with deformed or restricted roots.

2.12 Protection:
The interval between the lifting of stock at the nursery and planting on site is to be kept to an absolute minimum. Plants shall be protected from drying out and from damage in transport. All stock awaiting transport shall be protected from the wind and frost and from drying out.
Protection shall include for the supply of stock to site to a suitable heeling-in/ storage area prior to planting. The landscape contractor shall allow for liaison with the site engineer to arrange the heeling-in area/ storage. The contractor shall continue to be entirely responsible for the maintenance of this stock to ensure that at the time of planting the stock complies with the requirements for the supply of nursery stock as per clause 1.0 thereof. No responsibility for the maintenance of the stock will attach to the site engineer whilst the stock is protected on site. No time limit shall attach to the period of protection.

In the event of the Landscape Architect being dissatisfied with the care and attention given to the stocks, following heeling-in, he shall notify the Landscape Contractor who shall take steps to ensure careful heeling-in procedures.

The preparation of the heeling-in area and its subsequent maintenance is the sole responsibility of the Landscape Contractor.

2.13 Damage
On completion of lifting of plants in the nursery, any broken shoots or severed roots shall be pruned, areas of damaged bark neatly pared back to sound tissue.

2.14 Inspections
The Landscape Architect will inspect the hardy nursery stock on the selected nursery during the execution of the works. Only plants selected and approved in the landscape contractors selected nursery will be accepted on the site.

2.15 Delivery and heeling in
All plants will be delivered on a phased basis as called up in advance in agreement with the Engineer, Landscape Architect and the appointed Landscape Contractor. In the event of the Landscape Architect being dissatisfied with the care and attention given to the stocks, following heeling-in, he shall notify the Landscape Contractor who shall take steps to ensure careful heeling-in procedures.

The preparation of the heeling-in area and its subsequent maintenance is the sole responsibility of the Landscape Contractor.

3.0 Specifications for site operations:

3.1 Setting out:
Setting out shall be in accordance with site meetings with the Landscape Architect, and the drawings listed in the preliminaries. No planting works shall take place when the soil /fill is in a waterlogged condition.

3.2 Finished grading:
All planting pits and topsoiled areas disturbed by the landscape contractor shall be left in an even state, with all soil clumps broken up and stones of greater than 50mm diameter shall be removed.

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4.0 Specifications for Planting and Plant Materials

4.1.1 Staking/Protection:

2m high willow wrap to be installed around each tree for protection of bark

4.1.2 Canes:

Bamboo canes or similar approved shall be used to provide spot spraying location markers for small plants including Pinus, species. The canes are not to be attached to the plants.

4.2 Tree ties:

For standard and select standards, tree ties shall be of rubber, PVC or proprietary fabric laminate composition and shall be strong and durable enough to hold the tree securely in all weather conditions for a period of three years. They shall be flexible enough to allow proper tightening of the tie. Ties shall be min. 25mm wide for 120cms height trees and min. 38mm for larger sizes. They shall be fitted with a simple collar spacer to prevent chafing. Two ties per tree shall be applied to standards; for staked transplants, one tie per tree is required.

Ties shall be nailed to the stake with one galvanised nail.

4.3 Protection:

The interval between the lifting of stock at the heeling-in area and planting on site is to be kept to an absolute minimum. Plants shall be protected from drying out and from damage in transport. All stock awaiting planting on site shall be stored in a sheltered place protected from the wind and frost and from drying out.

All transplants shall be wrapped in polythene from the time of lifting to conserve moisture. Except when heeled-in, they shall be protected in polythene at all times until planted into their final position on site.

4.4 Damage:

On completion of planting any broken branches shall be pruned, areas of damaged bark neatly pared back to sound tissue.

4.5 Watering / / Fertilisers:

All bare rooted light standards and select standards shall be soaked in water overnight, on site, before planting in a liquid solution containing "Alginure" at the recommended dilution rate. Fertilisers shall conform to BS 5581: 1981. In the case of granular fertiliser being added to plantings, it must be mixed through and incorporated into the base of the planting hole and covered over in order to avoid roots of plants coming in direct contact.

4.6 Setting out:

Setting out shall be in accordance with site meetings with the Landscape Architect. Transplants in mixtures shall be planted in staggered rows. Species shall be planted in groups, as indicated in the planting drawings.

No planting shall take place until all planting holes (with ameliorants) have been inspected and approved by the Landscape Architect, or a person appointed by him as a representative, to ensure accordance with the specifications. No planting shall take place when ground conditions are frozen or waterlogged. All planting holes shall be opened and closed on the same day.

4.7 Tree planting:

Trees shall be planted at the same depth as in the nursery, indicated by the soil mark on the stem of the tree. They shall be planted in the centre of the planting pit and planted upright. Stones or other rubbish over 75mm shall be removed. Supply and drive the stake 800mm into the ground for standards, 500mm for other transplants. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position. Drainage layer to specification CL505.

4.7.1.Select Standards/Standards

Excavate tree pits to 800mm x 800mm x 600mm deep, or as approved. The base of the pit shall be broken up to a depth of 200mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m.(equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of faecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position. Drainage layer to specification CL505.

4.7.2 Heavy and Extra Heavy Standards

Excavate tree pits in soft landscape to 1000mm x 1000mm x 800mm deep, or as approved. The base of the pit shall be broken up to a depth of 200mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of faecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position. Drainage layer to specification CL505.

4.7.2 Semi-mature trees

Excavate tree pits to 1200mm x 1200mm x 1000mm deep, or as approved. The base of the pit shall be broken up to a depth of 200mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of faecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position. Drainage layer to specification CL505.

4.7.3.Light Standard Trees

Excavate tree pits to 500mmx500mmx500xx deep, or as approved. The base of the pit shall be broken up to a depth of 80mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of faecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position. Drainage layer to specification CL505.

4.8 Feathered Trees 180-240cm, container grown conifers (>2l)

Excavate tree pits to 400mm x400mm x 400 mm deep, or as approved (slit or notch planting are not acceptable planting methods). The base of the pit shall be broken up to a depth of 80mm and glazed sides roughened. Trees shall be planted at the same depth as in the nursery and backfilled with compound fertiliser 0.10.20 at the rate of 50gm per tree and 0.020m3 of Mushroom Compost or similar approved. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position. Drainage layer to specification CL505.

4.9 Feathered Whips 120-150 cm:

Excavate tree pit to depth of 300mm x 300mm x 300mm deep, or as approved (slit or notch planting are not acceptable planting methods). Excavation to be achieved by machine digging or augering methods, approved by the Landscape Architect. The base to be broken up to a depth of 60mm and glazed sides roughened. Whips to be planted at same size as in the nursery. Apply 60gm 0.10.20 and 0.020m3 of Mushroom Compost or similar approved.per tree pit to plants. Stakes 1.2m high x 37mm dia. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position. Drainage layer to specification CL505.

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4.10 Feathered Whips and Transplants 90-120cm, 60-90 cm, 40-60cm, 30-40cm, container grown conifers (<2l size) and container grown shrubs (<2l size):

Excavate planting hole to a depth of 300mm x 300mm x 300mm deep; the base to be broken to a depth of 50mm and glazed sides roughened (slit or notch planting are not acceptable planting methods). Excavation to be achieved by machine digging or augering methods, approved by the Landscape Architect. Apply 30gm 0.10.20.per planting pit. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.11 C. G. Shrubs / C. G. Wall Shrubs / C.G. Climbers:

Excavate planting hole to a depth of 300mm x 300mm x

300mm deep; the base to be broken to a depth of 50mm and glazed sides roughened. The following products are to be supplied and incorporated in to the bottom 100mm of topsoil at the base of the planting pit and in to the topsoil for backfilling around each plant: (1)Seanure soilbuilder as supplied by Farmura @ 1.5Kg per cu.m of topsoil, (2) clean and friable green waste compost @ 25 Kg per cu.m of topsoil and (3) Sierrablen Flora 15:9:9 slow release fertiliser @ 70 grams per m2 Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.12 Grassing

All grass areas to be ripped with a tractor mounted tine prior to rotovating. The contractor shall grade off all areas to smooth flowing contours, removing all stones greater than 10mm diameter and tip off site. All hollows to be filled in. Roll all areas with a roller as approved. Following the completion of final grading and raking, the area is to be left fallow for a period of 14 days. Spray with 'Basta' at recommended rates, and seed with fine grass mix at a rate of 35gr/Sq.m together with fertilizer 10:10:20 at a rate of 50gr/Sq.m use Coburns Irish premier low maintenance mixture or other as approved by the Landscape Architect.

4.12.1 Grass cutting

Grass cutting shall be carried out during the three year maintenance period and is defined into three categories:

4.12.2 Regular grass cutting

Shall be carried out to the frequencies indicated in the Bill of Quantities. Attention to neat and tidy cutting shall be required to all areas. Sightlines, as set out with the Engineer, at junctions and roundabouts must be kept clear of vegetation at all times.

GENERAL

Upon completion of planting, all pits shall be raked over lightly to leave an even surface and neat appearance. All stones greater than 50mm dia. to be removed. Provision should be made for the watering of light and select standards during periods of prolonged drought in the first year following planting.

4.13 Inspections:

The Landscape Architect will inspect the site with the Landscape Contractor during the execution of the works and following maintenance visits.

4.14 Presentation of certificates:

The Landscape Contractor shall present for the Landscape Architect's inspection, all seed and fertiliser bags, together with their markings. If requested, the contractor shall furnish the Landscape Architect with receipts of purchase for these respective materials.

4.15 Spraying:

1) Following planting of embankments, slopes etc., weed free circles to be formed around individual plants, as directed, using an approved broad-spectrum contact herbicide, as approved by the landscape architect, in mid-spring following planting. Herbicide to be applied using controlled drop applicator containing a dye to indicate areas sprayed. In areas where grass is excessively long, such grass will be strimmed off and collected prior to spraying. The contractor shall be responsible for keeping the ground (1m diameter circle) around all planted material weed free by means of herbicidal application, using approved sprays, during the course of the contract. Weeds to be removed include grasses ,broad-leaved annual and perennial weeds and all noxious weeds.

2) Selective spot spraying will be carried out to all grassed areas, whether planted or unplanted through the application of contact herbicide to control broad-leaved annual and perennial weeds, including thistle, dock and ragwort. Contact herbicide to be approved by the landscape architect prior to application. Herbicide to be applied using controlled drop applicator containing a dye to indicate areas sprayed. The contractor shall allow for the removal of gorse by cutting, as required prior to spraying to ensure its eradication from all grassed areas for the duration of the contract.

3) The boundary hedgerows shall be kept weed free by herbicidal application by forming a 300mm wide spayed strip along the full length of each respective hedgerow. Approved herbicide (broad-spectrum contact herbicide) to be applied using controlled drop applicator containing a dye to indicate areas sprayed. Spraying of planted areas on roundabouts is also included in this spraying application.

4) Such routine spraying (1, 2 and 3 above) shall be carried out during maintenance visits over the three-year period. No spraying shall take place during adverse weather conditions or at times not recommended by the manufacturer.

4.16 Cutting back:

Plants for cutting back/tip pruning shall be cut back after inspection by the Landscape Architect. This work to be carried out initially following planting for plants suffering from wind damage.

4.17 Mulching

Mulching may be considered as an optional factor that may be implemented. Mulch shall be from coniferous trees. It shall be shredded, but not pulverised, so that no dimension exceeds 75mm. Bark shall have been composted for a min. of 3mths. In the case of areas requiring mulch the depth of bark shall measure 30 mm.

4.18 Ground finish:

Upon completion of planting, all ground finish shall include for the removal of stones greater than 50mm excavated during the course of the digging for planting purposes.

X3 The Pollinator Plants - Maintenace

Perennial planting schemes

Pollinator friendly perennial plants are excellent sources of pollen and nectar. They are much more

attractive to bees when planted in blocks rather than as single plants. Having a pollinator friendly

perennial bed is an excellent way to provide food for pollinators across their lifecycle.

Perennials can be used to great effect in traffic islands and public spaces, providing a strong visual

impact and giving a good display of flowers over a long period. Pollinator friendly perennial planting

should be designed to provide a food source from spring through to autumn. In addition they are:

- Low maintenance

- Easy to establish

- Have strong visual impact

- More cost effective than bedding schemes over the long term

- Less maintenance than lawn mowing

- Provide a natural style of planting

- Provide habitat and nesting materials for birds and insects

Maintenance:

Good ground preparation is essential to minimise maintenance in the future.

- Removal of all root weeds before planting such as scutch grass, bindweed etc. will reduce

weeding later on. Sometimes it is best to leave the site fallow for a season to sort out any

issues.

- The soil must be well drained and not compacted, and have good nutritional content.

Organic material can be added. There is usually no need to add fertiliser.

- Plants ideally should contain a slow release fertiliser in the pot and should be watered well

before planting.

- In the first few months after planting beds will have to be weeded by hand as hoeing can

damage spreading plants. This should be done regularly, maybe three or four times in year

one depending on the weed population. When the perennials have established and provided

dense cover, the frequency of weeding can be reduced.

- In year two and onwards, weed the beds at the beginning of and end of the growing season,

and spot check for the odd weed in between.

- Watering may have to be taken into consideration during dry spells.

- Leave dead stems on plants for the winter as they provide protection for the plants, offer

food and habitat and nesting materials for wildlife, prevent weed seeds from germinating

and increase the organic matter.

- The dead foliage can be removed in spring by mass pruning to approx. 10cm height when

there is new growth appearing. Some plants like Grasses & Thymes will look good without

pruning back.

- Organic matter like compost can be added to keep the soil in good condition.

Planting time:

March-April is the best time for planting as the plants will have plenty time to root in before

summer. If planted in June then weeds will have already established and they will be easy to

remove, but the plants have less time to root in and provide ground coverage.

Life span of perennial planting:

The life span of a well planted and well maintained perennial scheme is 10 to 12 years, maybe

longer, which is about the same as a shrub bed. Small amount of replacements may be required

depending on the site but in general the plants are trouble free.

Thanks to Young Nurseries who voluntarily provided suggested perennial plant lists and example

costings.

Best Practice in the Use of Pesticides

In additional to the honeybee who lives in hives, we also have 20 different types of bumblebees and

77 different types of solitary bees in Ireland. Bumblebees and solitary bees live entirely in the wild.

We need healthy populations of all these bees to carry out pollination if we want to have

wildflowers in the landscape, be able to grow our own fruits and vegetables, or buy affordable,

locally grown apples or strawberries in our shops. Bees and other pollinators can only survive in a

landscape that provides them with food, shelter and safety throughout the year. Already, one third

of our 98 bee species are threatened with extinction from Ireland.

Insecticides pose the greatest direct hazard to insect pollinators. However, herbicides use is having a

much greater negative impact on pollinators because it is so widely used.

Herbicides, Fungicides and Plant Growth Regulators typically have little or no toxicity to pollinators,

but many of the plants we spray as weeds are vital sources of food for pollinators, especially in early

spring. Pollinators need a range of flowers to feed on from spring through to autumn. The overuse of

these chemicals is making it very difficult for them to find enough food to survive in our landscape.

Pesticides should be used sparingly and only when absolutely necessary, such as in the treatment

of invasive species like Japanese Knotweed

Do's

- Check the label and select pesticides that are less harmful to pollinators

- Always read, understand and follow the product label instructions fully

- Treat only the target area

- Spot treat rather than use blanket sprays

- Follow the buffer zone instructions on the product label

- Leave areas of pollinator-friendly habitat free from all pesticides. These include areas of

clover or wildflowers, the base of hedgerows, and any natural areas.

- Minimize spray drift to non-target areas by:

o Using equipment that reduces drift

o Checking the weather forecast before application and be mindful of changing

conditions.

o Ensure that you spray when the wind is blowing away from beehives and pollinatorfriendly habitat.

Don'ts

- Do not apply pesticides to bees or other pollinating insects

- Do not spray flower-rich areas (including weeds) when flowers are in bloom and providing

food for bees. Plants that we might consider weeds like dandelions, vetches, clovers, deadnettles and knapweed are important food sources as they provide high quality pollen and

X4 Outline Hard Landscape Specification

PAVING & KERBS

FOOTPATHS

General: Public footpaths, roadways, kerbs etc. shall be constructed in accordance with the requirements of the Dublin City Council Roads Dept.

Accuracy of Levels and Alignment: The levels of paths and paving shall be carefully set out and frequently checked. All care shall be taken to ensure that the correct cross sections are maintained. The finished face of paths shall be formed so as to provide adequate fall and satisfactory run off to surface water outlets, gullies, etc. Cross-falls of paths shall be carried without break across verges and kerbs to prevent ponding of water between back of kerb and
path.

Sub-Base: Granular material shall comply with Clause 804 of the D.o.E. Specification for Roadwork's and shall be spread uniformly over the formation and compacted by vibrator roller. Rolling shall continue until there is no movement under the roller. The finished surface of the compacted sub-base shall be parallel to the proposed finished surface of the footpath. The surface levels for each layer shall not deviate from the design levels by more than +15mm or –15mm.

For sub-base thickness in paved areas see area engineers spec. and attached following schedule. Each contractor shall do all necessary tests to ensure a well compacted, plain even surface on all areas with traffic movement. If paving shows settling after 1 year which normally is related to an insufficient depth and compaction of the sub-base the contractor shall rebuilt the failed area to his own cost.

Use of Surfaces by Construction Traffic:

Constructional traffic used on pavements under construction shall be suitable in relation to the courses it traverses so that damage is not caused to the sub-grade. Where damage is caused to the formation of the sub- grade in strength or level the damaged area shall be excavated for an area and depth which shall be determined by the Architect and this area shall be filled to the required levels with crushed rock of 50mm maximum size. The degree of compaction for this area shall be the same as that specified for the remainder of the formation. All this excavation and making good of damaged areas shall be carried out at the expense of the Contractor. Where damage is caused to the sub-base, the damaged area shall be made good as noted above, using the material of which the sub-base is composed. The wheels or tracks of plant moving over the various pavement courses shall be kept free from deleterious materials.

MODULAR PAVING

Concrete Pavers Precast concrete pavers shall conform to the requirements of BS 6717 Part 1.

Ensure that sub-bases are suitably accurate and to specified gradients before being laid.

Sample: Before placing orders submit representative samples for approval.

Ensure that delivered materials match sample.

Laying Generally:

1. Laying Specification

1.1 Paving blocks/bricks shall be laid to the requirements of Part 3: 1997, BS 7533,

except that the lip onto gully gratings is modified to 5 - 6 mm.

Note, in particular, the following requirements of Part 3.

i. The difference in level between two adjacent blocks shall not exceed 2 mm.

ii. The finished pavement surface shall not deviate more than 10 mm under a 3m

straight edge.

iii. The accuracy of cutting a block should be such that the resulting joint should not

exceed 5 mm.

iv. The surface course should be between

(a) 3 - 6 mm above drainage channels

(b) 5 - 10 mm above gullies (*BRL modify this to 5 - 7 mm above gullies to

reduce "trips")

v. The surface course should be inspected soon after completion and at regular
intervals thereafter - additional sand should be brushed in where necessary.

1.2 The surface course for chamfered units should be 3 - 5 mm above the kerb to

facilitate surface drainage. The surface course for non-chamfered units should be 2 mm above the kerb to facilitate surface drainage.

1.3 When paving units need to be trimmed, pieces with a dimension less than 50 mm

should not be used.

2. Drainage Channels

2.1 Where paving blocks are used in a channel, they shall be laid on freshly mixed moist 3:1 sand-cement mortar. The mortar should have thickness between 10 mm and 40 mm. Vertical joints should be filled with 3:1 wet sand-cement mix.

2.2 Mortar, which has been mixed for over 2 hours, should be discarded.

2.3 The mortar should be laid on a previously prepared concrete base as per construction drawing detail. Select blocks/paviors vertically from at least 3 separate packs in rotation, or as recommended by manufacturer, to avoid colour banding. Lay blocks/paviors on a well graded sand bed and vibrate to produce a thoroughly interlocked paving of even overall appearance with sharp sand filled joints and accurate to line, level and profile. Refill joints once a week three weeks after first fill. Commencing from an edge restraint lay blocks/paviors hand tight with a joint width of 2-3mm for pedestrian use and 3-5 mm for areas with traffic. Maintain an open working face and do not use mechanical force to obtain tight joints. Place blocks/pavers squarely with minimum disturbance to bedding. Supply blocks/paviors to laying face over newly laid paving but stack at least 1 m back from laying face. Do not allow plant to traverse areas of uncompacted paving. Continually check alignment of pavers with string lines as work proceeds to ensure maintenance of accurate bond. Infill at edge restraints as work proceeds. Wherever the type of bond and angle of edging permit, avoid very small infill pieces at edges by breaking bond on the next course in from the edge, using cut blocks/pavers not less than 1/3 full size. Cut stones shall be rectangular or trapezoidal; the smallest point shall be a minimum of 35mm. (May be pavers have to be turned by 90 deg.)Half stones shall be cut at manufacture. Thoroughly compact blocks/pavers with vibrating plate compactor as laying proceeds but after infilling at edges. Apply the same compacting effort over the whole surface.

Do not compact within 1 m of the working face. Do not leave uncompacted areas of paving at the end of working periods, except within 1 m of unrestrained edges. Checks paving after compacting first few metres, then at frequent intervals to ensure that surface levels are as specified; if they are not, lift blocks/pavers and relay. Brush sharp sand into joints, revibrate surface and repeat as required to completely fill joints. Make sure that paving is held by a kerb on both sides before vibration to avoid uneven joints. Avoid damaging kerb haunching and adjacent work during vibration. Do not begin vibration until kerbs have matured. The paving pattern will be stretcher bond, make sure that the joints will be in straight line after vibrating. Also ensure joints are off equal width. The

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block pavement shall have a surface regularity/ flatness tolerance of less than 10 mm under a 3 m straight edge.

Sample: Before placing orders submit representative samples for approval.

Ensure that delivered materials match sample.

PRECAST CONCRETE FLAGS

Pre-cast Concrete Flags:

1. Precast concrete flags shall be laid to the requirements of BS 7533 Part 4.

Note the following selected items from BS 7533, Part 4.

• The difference in level between two adjacent flags should not exceed 3 mm.

• The top surface of the paving units should stand 3 - 6 mm above the drainage channel.

• A 30 - 50 mm (compacted thickness) of the sand laying course is given as suitable (for narrow joints)

2. Flags should be laid with narrow joints (2 - 5 mm).Joints should be filled with dried sand (conforming to table 4 of the code), or as determined by the Landscape Architect.

KERBS

Kerbing General: Kerb radii shall be in accordance with Architects and Engineers drawings. Use radius kerbs for all new kerbs.

Laying Generally:

Natural stone and precast concrete kerbs shall meet the requirements of BS 435 and

BS 7263-1.

1. Precast concrete kerbs shall be laid to the requirements of BS 7533, Part 6.

2. Units shall be laid on fresh concrete or mortar bed and adjusted to line and level.

3. Concrete for foundations and haunching shall be to BS 5328.

4. Bedding mortar shall be freshly mixed, moist 3:1 sand-cement between 12 and 40

mm thick.

5. Kerbs shall be backed with concrete as per drawing.

6. Radius kerbs shall be used on radii of 12 m or less.

7. Kerbs should not deviate from the required level by more than 6mm.

8. Kerbs should not deviate by more than 3 mm under a 3 m straight edge.

9. Open-jointed kerbs should have joints of 2 - 4 mm wide.

Mortar jointed kerbs should have joints of 7 - 10 mm wide filled completely with 3:1

sand-cement mortar, and finished to give a smooth flush joint or as specified by the

Landscape Architect.

X5 PROGRAMME FOR IMPLEMENTATION, MAINTENANCE + DEFECTS PERIOD

5.0 Maintenance:

5.1 Period:

The Contractor shall be responsible for aftercare of the completed works for an agreed amount of time from the date of completion of planting. The period is to be negotiated btween Hones (The Developer) and Dublin City Council.

5.2 Organisation:

The aftercare programme will be organised as follows:-

(1) Scheduled operations, in whose timing the contractor will be permitted some flexibility and which will be the basis of payment to the Contractor.

(2) Performance standards, which the Contractor is required to meet at all times, and on which his performance will be assessed.

(3) Critical dates, by which time scheduled operations, shall have been completed, and at which performance will be assessed.

5.3 Performance standards:

Shrub, woodland and hedgerow planting to be maintained in accordance with specifications e.g. spraying, firming, tree tie adjustment. Weeds shall not cover more than 20% of the ground surface within planting areas and the maintained 1m diameter weed free circles at any time, and neither shall they exceed 100mm in height. Weeds shall be treated before they establish.

Within grass areas noxious and competitive weeds shall not be allowed to establish and all perennial weeds shall be spot treated at each maintenance visit, 3 times per year.

5.4 Watering:

The contractor is responsible for the survival of all plants during the maintenance period. Apply water to moisten full depth of root run using proprietary irrigation system. Avoid washing or compaction of the soil surface. The Landscape Contractor is responsible for informing the Landscape Architect if the plants require watering. A minimum of 16 no. waterings year1, 8 no. year 2, 4 no. year 3. Prior notification to the landscape architect and a record of attendance will be requested for each visit. Spot checks will be made to ensure full compliance with this condition.

5.5 PROGRAMME

Year One (After Planting):

5.5.1 By end of May (Year One):

Application of herbicide agreed with Landscape Architect to all planting areas. Protect all plants. Hand weed all large weeds too close to nursery stock for safe treatment. Strim long grass prior to spray application. Provision for 1 no. visit for spot weed control application to areas where perennial weeds are apparent in the grass sward. Tip prune, firm plants. Grass cutting. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water select standard trees.

Critical date: 30 May (Year One)

5.5.2 By end August (Year One):

Application of herbicide agreed with Landscape Architect to all planting areas. Protect all plants. Hand weed all large weeds too close to nursery stock for safe treatment. Provision for 1 no. visit for spot weed control application to areas where perennial weeds are apparent in the grass sward. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Grass cutting. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water select standard trees.

Critical Date: 30 August (Year One)

5.5.3 October (Year One):

Remove dead plants after Landscape Architect's inspection.

5.5.4 November (Year One):

Replacement planting. Tree care shall mean pruning deciduous trees including those of hedgerow form when dormant to promote open frame works in the crown. Remove all suckers and dead branches, and branches that are encroaching on to footpaths should be cut back to point of branching.

5.5.5 By end December:

Application of herbicide agreed with Landscape Architect to all planting areas. Grass cutting. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water extra heavy standard trees, standard trees.

Critical Date: 30 December (Year One).

5.5.6 Year 2

As year 1.

5.5.7 Year 3

As year 1 . Hedgerow to be fully pruned at end of season.

5.5.8 Sweeping and Cleaning

Sweeping shall mean sweeping of the footpaths, playing courts, car parks and the schools road network and removal of all grit rubbish moss and leaves, keeping the hard landscaped areas of the site in a neat and tidy manner. Number of sweepings per annum -12no.

Cleaning shall mean the removal of paper, plastic bags and all other rubbish from grassed areas, roads, car parks, playing courts, shrubbery's, hedging etc. or any part of the school grounds. This operation shall be carried out twice a month.

All dirt and rubbish to be removed off site to a tip to be provided by the Landscape contractor.

Autumn leaves shall be swept on a weekly basis from end of October to mid-November (three weeks). Any additional cleaning and sweeping deemed necessary, during the year, and requested by the school for any part of the schools grounds will be paid for at a pro rata basis to the rates for the programmed maintenance schedule.

5.5.9 Other Maintenance Works

All grassed areas are to be edged 3 times a year using a machine and are not to be sprayed.

Carry out any other maintenance to ensure the works are kept in a satisfactory state during the defects liability period.

5.6 Grass Cutting

Grass cutting shall be deemed to include for:

[a] Removal of lodged grass.

[b] Removal and disposal of grass cuttings from adjoining roads and paving.

[c] Removal and disposal of stones and other obstructions from area of grass to be cut.

The pitches and other high profile grassed areas, eg. the schools entrance are to be Fine cut. Fine cutting shall mean mowing to 25mm high. This operation is to be carried out in each location shown on the landscape drawings and in locations as directed on site by a representative of The Department Of Education and Science. A rough schedule is as follows-

March: 1cut

April: 3 cuts

May: 4 cuts

June: 4 cuts

July: 4 cuts

X5 PROGRAMME FOR IMPLEMENTATION, MAINTENANCE + DEFECTS PERIOD

August: 4 cuts

September: 4 cuts

October: 4 cuts

November - February: 1 cut

Total 29 cuts

Fine cutting shall be deemed to include for grass cut to 25mm high evenly over the whole area, with cuttings left evenly spread over the surfaces. Grass not to exceed 50mm between cuts.

Other grass areas of which are less high profile are to be cut 16 times a year. These will include the grassed areas around the woodland areas, in between the pitches and any grassed area hidden from the main road by the school.

Areas indicated as wildflower mix shall be cut three times per annum. Cuts shall be carried out at specified times as agreed with landscape architect and recommended by the wildflower seed producer. Remove cuttings after each cut and remove offsite to tip.

Leave cuttings evenly spread. This operation is to be carried out in each location shown on the landscape drawings and in locations as directed on site by a representative of the Board Of Management.

At every second grass cut, grass shall be trimmed from around the base of walls and fences, back of footpaths and kerbs, litter bins, sluice valves and hydrant markers, trees, shrubberies poles and public lighting columns etc., and kept in a neat and tidy condition.

CASTLE PARK, CASTLELANDS
MALLOW

SR
LA
SIMON RONAN LANDSCAPE ARCHITECTS