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APPENDIX 6-3

LANDSCAPE DESIGN RATIONALE REPORT

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LAND PLANNING & DESIGN

CUNNANE STRATTON REYNOLDS
LAND PLANNING & DESIGN

KINGSTON WEST DEVELOPMENT LRD, KNOCKNACARRA, GALWAY.

LANDSCAPE DESIGN RATIONALE REPORT

26139-1-D01

PROJECT NO. 26139

July 2026



INTRODUCTION - SITE CONTEXT – PROPOSED DEVELOPMENT

Planning permission is sought by Kingston Stables Limited for development of a Large-Scale Residential Development (LRD) for a 10-year planning permission, on a site which extends to 2.9 ha on lands located at Rahoon, Knocknacarra, Galway.

The proposed development will consist of the following:

- Provision of 133 no. residential units in 2 no. development areas with a mix of duplex and house types on a site area of 2.9 ha. The buildings range between 2 no. and 3 no. storeys in height. The development will comprise the following:

- 51 no. 3-bed townhouses.
- 6 no. 4-bed townhouses.
- 1 no. 1-bed duplex apartments.
- 1 no. 2-bed duplex houses.
- 37 no. 2-bed ground floor duplex apartments.
- 37 no. 3-bed duplex houses.
- Demolition of existing structures (388 sqm).
- Vehicular access to the proposed development from a permitted road (Planning Reference 24/60370 refers).
- Upgrades to the permitted road (Planning Reference 24/60370 refers).
- Pedestrian and cycle access to the adjacent proposed Kingston Park (ACP Ref: 323873).
- Conversion and upgrade of an existing structure to a cafe (65.8 sqm).
- The provision of public open space.
- The provision of 192 no. bicycle parking spaces.
- The provision of 143 no. car parking spaces.
- Public lighting, bin stores, signage, services, 2 no. ground mounted substation kiosks. site landscaping and all ancillary site development and enabling works.

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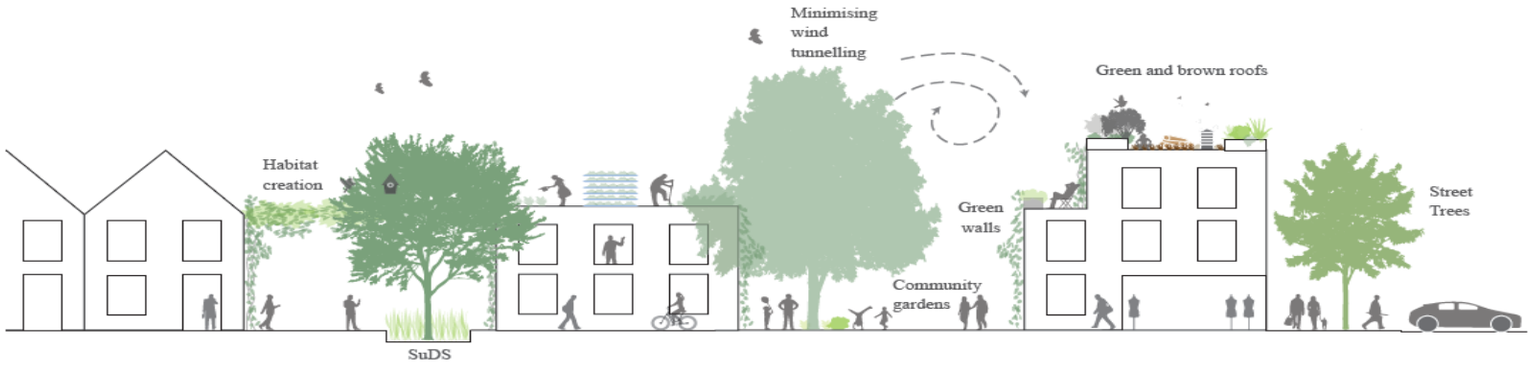


Site Location **Google Image**



Approximate site boundary in red **Google Image**

GREEN & BLUE INFRASTRUCTURE:
PRINCIPLES AND THEMES



Blue & Green Infrastructure Transcect

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Kingston West is an example of a large residential development which will benefit from proactive management both green and blue infrastructure to provide benefits to the environment and residents alike. A green infrastructure strategy typically prioritizes the incorporation of plants, trees, and green spaces into the development, while a blue infrastructure strategy focuses on managing water resources, such as watercourses, wetlands and ponds. By combining the two, development can become more sustainable, promote biodiversity and ecosystem health, and improve human well-being. This approach requires careful planning, collaboration with stakeholders, and the use of innovative design techniques to integrate green and blue infrastructure into the development's fabric. Ultimately, a green and blue infrastructure strategy can help create healthier and more resilient communities, reduce the environmental impacts, and enhance the quality of life for residents.

KEY BENEFITS:

1. Nature rich beautiful places
2. Active and healthy places
3. Thriving and prospering
4. Improved water management
5. communities
6. Resilient and climate positive places

PRINCIPLES:

- **Integration:** Integrated into the development's design, planning, and implementation.
- **Multiple Benefits:** Climate change adaptation, biodiversity conservation, water resource management, and human health and wellbeing.
- **Connectivity:** Connected through corridors and networks of interconnected system of natural spaces.
- **Community Engagement**: Residents should be involved in decision-making processes to ensure that their voices and needs are heard.
- **Maintenance and Management:** Maintained and managed to ensure long-term sustainability and functionality.
- **Partnership and Collaboration: A**mong various stakeholders, including local communities, public agencies, and private industry.
- **Monitoring and Evaluation:** Continually track progress, identify areas for improvement, and ensure that it is meeting its intended objectives.

Overall, blue and green infrastructure strategies aim to create sustainable, resilient, and liveable communities that benefit both the environment and the people who inhabit them

KEY COMPONENTS:

- **Sustainable Drainage Systems (SuDS):** Use SuDS techniques to manage surface water runoff and mitigate flood risk. SuDS can include measures such as green roofs, rain gardens, permeable paving, and retention ponds.
- **Vegetation and Biodiversity:** Incorporate planting schemes and design features that promote biodiversity, provide habitats for wildlife, and improve people's health and well-being. This can include green walls, tree-lined streets, and community gardens.
- **Open Spaces and Recreation:** Provide well-connected green spaces and recreation areas, such as parks, playgrounds, and sports facilities, that promote physical activity, community interaction, and social well-being.
- **Water Management:** Incorporate water management features such as wetlands, ponds, and water quality treatment measures. These features can help to manage and conserve water resources, improve water quality, and enhance the natural character of the development.



public gardens with pollinator plants



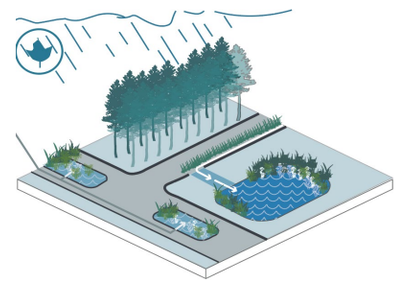
habitat & species diversity



grassland meadow



flood resilient landscape



sustainable urban drainage systems (SuDS)

GREEN BLUE INFRASTRUCTURE:
THE ALL-IRELAND POLLINATOR PLAN

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The All-Ireland Pollinator Plan aims to create an Ireland where pollinators can survive and thrive by providing them with diverse and connected habitats, food sources, and other resources. The plan has a ten-year framework that is based on five objectives and aims to increase awareness of the importance of pollinators, provide resources and education to the public and stakeholders, and create habitats for pollinators in urban and rural areas

The two main objectives from the plan, relevant to this development are as follows;

- **Public land:** To maintain and enhance public land, such as parks, roadsides, and roundabouts, as pollinator-friendly habitats.
- **Private land:** To encourage and support property owners, businesses, and communities to create and manage pollinator-friendly habitats on their lands.

Through a coordinated effort, the All-Ireland Pollinator Plan aims to increase the abundance, diversity, and health of pollinators in Ireland and enhance the viability of agriculture, food security and biodiversity.

NATIVE POLLINATOR PLANTS IN IRELAND:

- **Wildflowers** such as oxeye daisy (Leucanthemum vulgare), red clover (Trifolium pratense), and wild carrot (Daucus carota)
- **Hedgerow** shrubs such as blackthorn (Prunus spinosa), hawthorn (Crataegus monogyna), and dog rose (Rosa canina)
- **Native trees** such as oak (Quercus spp.), ash (Fraxinus spp.), and willow (Salix spp.)
- **Herbaceous plants** such as meadow buttercup (Ranunculus acris), common knapweed (Centaurea nigra), and bird's foot trefoil (Lotus corniculatus)
- **Bulbs** such as bluebell (Hyacinthoides non-scripta) and wild garlic (Allium ursinum)
- **Perennial plants** and grasses such as purple loosestrife (Lythrum salicaria), meadow cranesbill (Geranium pratense), and tufted hair-grass (Deschampsia cespitosa)

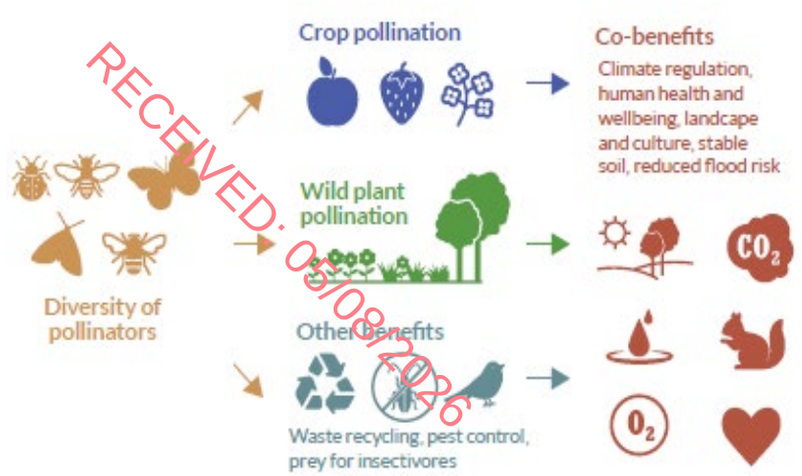
It's important to note that different species of native pollinators have different needs and preferences when it comes to the plants they visit for nectar and pollen. Maximizing the diversity of native plants within a given area is key to providing adequate resources to support a range of pollinator species.

Using non-native pollinator plants can also be beneficial in situations where they offer additional benefits that native plants do not. For example, certain non-native plant species may bloom at different times of the year, providing a source of nectar and pollen when native plants are not in bloom. Additionally, some non-native plants may produce nectar and pollen that is more easily accessible to certain types of pollinators compared to native plants.

The following is a list of some non-invasive, non-native plants recommended in the All-Ireland Pollinator Plan:

- Alyssum (Lobularia maritima)
- Borage (Borago officinalis)
- Catmint (Nepeta spp.)
- Cornflower (Centaurea cyanus)
- Cosmos (Cosmos bipinnatus)
- French lavender (Lavandula dentata)
- Lupin (Lupinus spp.)
- Marigold (Tagetes spp.)
- Phacelia (Phacelia tanacetifolia)
- Red clover (Trifolium pratense)
- Red valerian (Centranthus ruber)
- Snapdragons (Antirrhinum spp.)
- Sunflower (Helianthus annuus)
- Sweet William (Dianthus barbatus)
- Wallflower (Erysimum spp.)

It's essential to ensure that non-native plants are used in combination with and not at the expense of native plant species, to provide the most benefits to native pollinators.



The benefits of protecting pollinators







Rural hedgerows protected for native pollinator plants

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GREEN BLUE INFRASTRUCTUR:
SuDS

Sustainable Urban Drainage Systems (SuDS) aim to manage stormwater effectively, minimize flood risks, and promote sustainable water management practices. By incorporating various SUDS techniques such as permeable pavements, rain gardens, and attenuation ponds, SuDS measures seek to mimic natural drainage processes and reduce the burden on traditional drainage infrastructure. This approach allows for the infiltration and retention of rainwater, reducing surface run-off and potential pollution. By implementing a comprehensive SUDS strategy, the development site can enhance its resilience to extreme weather events, protect water resources, and create a more sustainable and environmentally friendly living environments for residents. SuDS proposals must be developed appropriate to local site ground conditions.

AMENITY
SuDS can improve a development by creating habitats that encourage biodiversity and simultaneously provide open space.

SuDS components (like ponds and wetlands) provide an array of amenity, recreational and biodiversity benefits. However, they will only fulfil their amenity potential if their design criteria considers amenity, flood risk and water quality management together. Biodiversity often has an important role in delivering good amenity.

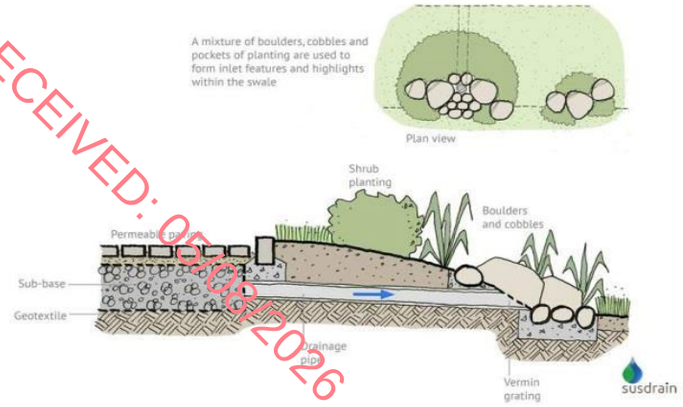
SuDS provide opportunities to create visually attractive green (vegetated and landscaped) and blue (water) corridors in developments connecting people to water. This in turn can improve the well-being of people that live or work in, or visit or pass through, the area, as the benefit pathway diagram below shows. Amenity benefits can be delivered in new build, retrofit or redevelopment situations and often relate to the pleasure derived from or the usefulness of components provided.

BIODIVERSITY AND ECOLOGY
There are a number of SuDS components that can make a significant contribution to the biodiversity (ecological) value of an area (eg green roofs, ponds, swales, wetlands, trees). The pathway diagram below shows the potential impact of SuDS on biodiversity. It is this biodiversity and ecology value that underpins some of the other functions, particularly those relating to health and wellbeing and management of flows and volumes.

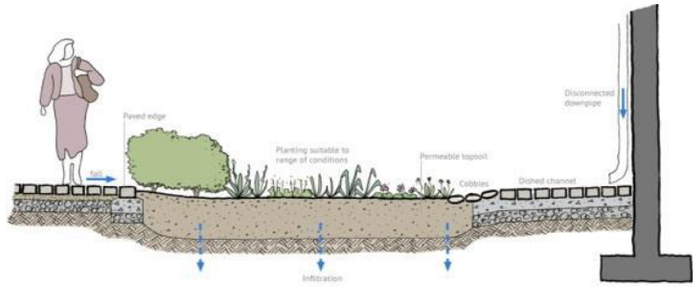
SOURCE CONTROL
Source control components are within the curtilage of properties and maintained by the property owner or manager and can include, permeable surfaces, rainwater harvesting and water butts.

SUDS EXAMPLES:
- Permeable Paving
- Rain Gardens
- Swales
- Infiltration Basin
- Floodable Landscapes

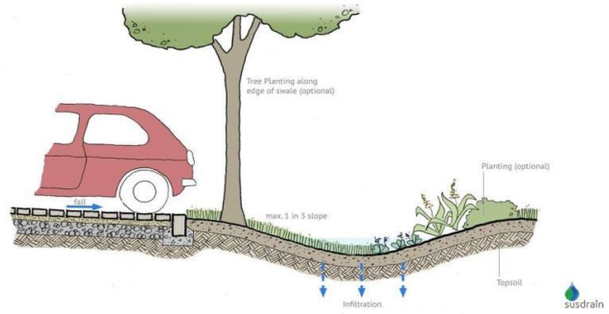
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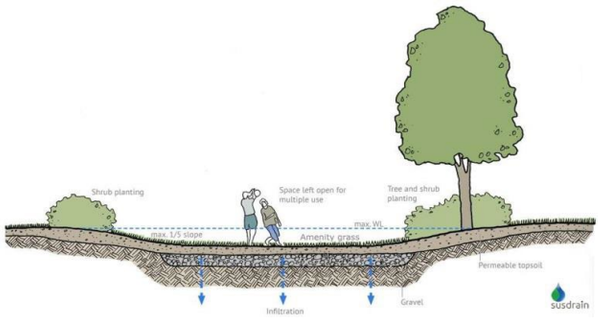
Permeable paving



Rain garden



Typical swale

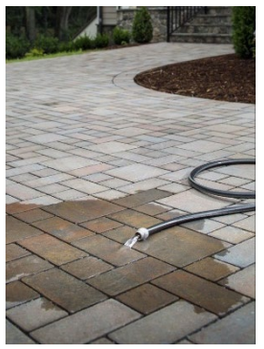


Infiltration basin









LANDSCAPE MASTERPLAN



LEGEND

- Red Line Boundary
- Open Space / Feature Trees
- Street Tree Planting
- Tree Pit Street Trees
- Ornamental Shrub Planting Mix
- Wildflower Meadow Planting Mix
- Rain Garden Planting Mix
- Public Amenity Grass
- Private Amenity Grass
- Native Hedgerow Planting - (Blackthorn - Prunus spinosa) To Be Included In The Hedgerow Mix To Support The Locally Occurring Brown Hairstreak Butterfly
- Feature Paving
- Permeable Paving To Footpaths
- Permeable Paving To Parking Spaces
- Permeable Paving To Disabled Parking Spaces
- Resin Bound Gravel
- Concrete Footpath
- Self Binding Gravel
- Soft Pour Play Surface
- Seating
- Seating With Play Features
- Kompan Play / Exercise Equipment
- Rocks / Logs (Natural Play Elements)
- 1.2m High Playground Fence
- Bird Boxes / Bat Boxes / Insect Hotels - Bio-Diversity Enhancements
- Stone Rubble Low Walls (Stone to be reused on site)

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LANDSCAPE MASTERPLAN – AIM AND OBJECTIVES

The landscape masterplan for the proposed development aims to provide a hierarchal network of well designed, high quality public open spaces across the development.

In doing so the development delivers critical green infrastructure provision, in keeping with the scale and ambition of the development.

Existing site features and assets including the vernacular architecture have been retained where possible and incorporated into the structure of the public open space.

A series of open space areas have been developed within the scheme, and each enjoys a generous provision of public open spaces, both hard and soft in nature, that compliment the architectural layout and design of the character areas.

Central to the overall scheme is the provision of a 3m cycle / footpath, which forms the spine of the development and connects the development to the neighboring Knocknacarra East and GCC all weather playing pitches.

Residents of the proposed development, as well as residents of the neighboring communities across this area of the city, will be well served by high quality public green infrastructure, parkland, active travel opportunity, play and recreation facilities.



LANDSCAPE MASTERPLAN – AIM AND OBJECTIVES

A primary active travel route serving pedestrian and cycle movement through the heart of the main open space will connect residents to neighboring developments and public amenities such as playing pitches and adjacent developments.

From this spine a multitude of secondary linkages are provided to each adjoining local residential areas.

Within the public open spaces, an informal organic landscape form is adopted, with strategic structural tree planting throughout, hosts a series of active and passive recreational opportunities.

A hierarchy of play facilities of differing scales, ('local' equipped areas for play as well as smaller 'local areas for play' of a more informal nature and design encouraging self directed play), equipped for specific age groups is provided.

Age friendly exercise equipment trail is complimented by regular seating opportunities along pathways.

The main open space is comprehensively overlooked by the proposed adjoining residential development, with the anticipated through flow of pedestrians and cyclists will further promote the concept of visual policing.









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LANDSCAPE MASTERPLAN – AIM AND OBJECTIVES

Planting design aims to create a robust seasonally attractive landscape setting, strengthening biodiversity, pollinator and habitat values.

A more formal form of planting will be used in urban and residential areas using ornamental shrubs, grasses and perennial planting to create structure and visual interest.

A freer organic form will be used in the parkland and green open spaces, using native trees, hedgerows, areas of wildflower meadow grass and mown amenity grass.

A number of linear green corridors suitable for bat feeding are created through planting of native hedgerows and avenues of trees.

Significant additional native tree and hedgerow planting both mitigates necessary removals and ultimately will significantly increase the sites tree and vegetation cover.

The use of native species will be generally preferred however a complimentary element non-native species will also be used, where appropriate to achieve particular aims or requirements.







LANDSCAPE MASTERPLAN – Character Area

MAIN PUBLIC OPEN SPACE

The main public open space provides active travel, play and exercise amenities for residents including a cafe building at the heart of the public open space. The scheme is visually structured and visually softened through a combination of clear-stem street tree planting and integrated rain garden features, which form one element of the overall provision of sustainable urban drainage solutions. Ornamental shrub planting provides aesthetic and ecological value to the open space.

A small communal open space plaza is provided in this area which includes bin storage, cycle parking for both standard and cargo bikes. Seating areas are also provided among ornamental planting and rain gardens. Buffer planting to street frontages of residential units offers privacy and further softens the streetscape. Street tree planting adds a vertical element with species selection being coordinated to further develop the sense of individual character in different areas.




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LANDSCAPE MASTERPLAN – Materials Palette

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Exposed Aggregate Paving - granite water etched paving



Salt



Birkes



Lakrids



Pepper

Natural Local Stone



Limestone Paving





Granite Setts

Coloured Bitmac



Rubber Safety Surface



Exposed Aggregate Concrete



Robust Seating



Stand-alone seating



Integrated bench seating



Quercus petraea



Sorbus Aria ‘Lutescens’



Betula pendula



Pinus sylvestris

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Pyrus ‘Chanyicleer’



Fagus sylvatica



Alnus glutinosa

Parkland Tree planting

A selection of native and naturalised trees such as Alder, Beech, Birch, Cherry, Oak, Pine, Rowan, Sycamore and **Whitebeam** will be used throughout the proposal

These trees will soften the scheme visually and provide vertical scale and structure to the landscape over a long period of time in addition to important ecological and environmental benefits.

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Street Tree Planting

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Ulmus **'Lobel' (Elm)**



Acer campestre **'Elsrijk' (Field Maple)**



Pyrus calleryana **'Capital' (Pear tree variety)**

Street tree planting will comprise of primally non native species suitable for planting in an urban environment. The selected species will offer form, colour and structure to the landscape design within the street spaces of the development.

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Bio-Diversity Enhancement Opportunities

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Bird Boxes



Bat Boxes



Insect Hotels

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LANDSCAPE MASTERPLAN – Ornamental Planting

Ornamental planting will consist of a mix of pollinator friendly structural shrubs and perennial herbaceous planting, creating year-round interest.

The planting will add texture, colour fragrance and movement, complimenting and visually softening the hard landscaping and proposed built form.

The planting of predominately pollinator friendly shrub and herbaceous species will integrate the scheme in line with the 'All Ireland Pollinator Plan'.

Wildflower meadow grass areas will be incorporated informally in select locations to add further seasonal interest and diversity to the scheme. A low frequency mowing regime in these areas will reduce the overall volume of regular maintenance in the scheme and contribute to reduction of carbon footprint.



Rudbeckia 'Goldstrum'



Hypericum 'Hidcote'



Knoiphofia



Aster novi-belgii



Blackthorn – Prunus spinosa
(Supports the local Hairstreak butterfly)



Lavandula angustifolia



Wildflower meadow grass



Nepeta x fassennii



Miscanthus sinensis

Indicative Planting Schedule

To be further refined at detail design stage

Street / Garden Trees	
Tilia cordata 'Greenspire'	12-14 cm.g., 4m+ h., 2 m clear stem. RB/CG
Acer campetre 'Estrijk'	12-14 cm.g., 4m+ h., 2 m clear stem. RB/CG
Sorbus aucuparia	M/S, 3brks, 400/450cm ht, RB/CG
Malus 'Evereste'	12-14 cm.g., 4m+ h., 2 m clear stem. RB/CG
Malus Rudolph	12-14 cm.g., 4m+ h., 2 m clear stem. RB/CG
Pyrus 'Chanyicleer'	12-14 cm.g., 4m+ h., 2 m clear stem. RB/CG
Carpinus betulus 'Fastigiata'	12-14 cm.g., 4m+ h., 2 m clear stem. RB/CG
Mixed Irish Heritage Apple Trees (Early Fruiting)	12-14 cm.g., 4m+ h., 2 m clear stem. RB/CG
Irish Heritage Apple Trees (Late Fruiting)	12-14 cm.g., 4m+ h., 2 m clear stem. RB/CG
Open space and Parkland Trees	
Acer pseudoplatanus 'Atropurpureum'	14-16 cm.g., 4m+ h., 2 m clear stem. RB/CG
Alnus glutinosa	14-16 cm.g., 4m+ h., 2 m clear stem. RB/CG
Quercus petrea	14-16 cm.g., 4m+ h., 2 m clear stem. RB/CG
Fagus sylvatica	14-16 cm.g., 4m+ h., 2 m clear stem. RB/CG
Pinus sylvestris	1 - 1.25m h RB/CG
Larix decidua	14-16 cm.g., 4m+ h., 2 m clear stem. RB/CG
Betula pendula	10-12 cm M/S Min. 3 Stems 2 m CS RB/CG
Sorbus aria 'Lutescens'	14-16 cm.g., 4m+ h., 2 m clear stem. RB/CG
Sorbus aucuparia	14-16 cm.g., 4m+ h., 2 m clear stem. RB/CG
Ilex aquifolium	1 - 1.25m h RB/CG
Wildflower Mix	
Irish Provenance Short Cut Floral Lawn, supplier Design By Nature or equivalent. 1.5g per m²	
Low Shrub and Ornamental Planting Mix	
Aster 'little carlow'	2lt CG @ 3 m²
Choisya ternata 'sundance'	5lt CG @ 1m²
Echinacea purpurea 'alba'	2lt CG @ 3 m²
Escallonia 'red dream'	2lt CG @ 3m²
Geranium rozanne	2lt CG @ 3 m²
Helleborus orientalis	2lt CG @ 3 m²
Heuchera sp.	2lt CG @ 3 m²
Hydrangea macrophylla 'veitchii'	5lt CG @ 1m²
Lavandula angustifolia	2lt CG @ 5m²
Miscanthus sinensis 'flamingo'	2lt CG @ 1m²
Molinia caerulea ssp. 'moorflamme'	2lt CG @ 1m²
Persicaria bistorta	2lt CG @ 3m²
Primula vulgaris 'taigetos'	2lt CG @ 5m²
Rudbeckia fulgida var. 'goldsturm'	2lt CG @ 3 m²
Salvia nemerosa 'caradonna'	2lt CG @ 3m²
Stipa tenuissima	2lt CG @ 3 m²
Viburnum davidii	5lt CG @ 1m²
Vinca minor	2lt CG @ 3m²
Native Hedgerow Mix	
Craetagus monogyna	1+1, 60-90cm ht., B/R @ 4 l/m
Ilex aquifolium	5lt c.g., 100cm+ ht., bushy @ 4 l/m
Lonicera pericyclmenum	5lt c.g., 100cm+ ht., @ 4 l/m
Malus sylvestris	1+2, 100cm+ ht., B/R @ 4 l/m
Prunus spinosa	1U1, 60-90cm ht., B/R @ 4 l/m
Rosa canina	1U1, 50-80cm ht., B/R @ 4 l/m
Sorbus aria	1+1, 40-60cm h, B/R @ 4 l/m
Sambuccus nigra	1+1, 60-90cm ht., B/R @ 4 l/m
Hedera helix	9cm c.g. @ 7 l/m
Ligustrum vulgare	1+1, 60-90cm ht., B/R @ 4 l/m
Rain Garden Mix	
Achillea millefolium 'Moonshine'	2lt c.g. @ 3 m²
Liriope muscari 'Big Blue'	2lt c.g. @ 3 m²
Geranium 'Rozanne'	2lt c.g. @ 1 m²
Rosa 'Munstead Wood'	2lt c.g. @ 1 m²
Perovskia atriplicifolia 'Blue Spire'	2lt c.g. @ 1 m²
Helleborus orientalis 'Burgundy'	2lt c.g. @ 1 m²
Epimedium perralderianum	2lt c.g. @ 2 m²
Kniphofia 'Royal Castle'	2lt c.g. @ 3 m²
Hellenium 'The Bishop'	2lt c.g. @ 3 m²
Hypericum 'Hidcote'	5lt c.g. 40-60cm Ht/Sprd @ 1 m²
Phlomis russeliana	2lt c.g. @ 5 m²
Brachyglotis compacta 'Sunshine'	2lt c.g. @ 1 m²
Genista lydia	2lt c.g. @ 1 m²

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GREEN & BLUE INFRASTRUCTURE STRATEGY: PROPOSED SETTLEMENT LEVEL NETWORK STRATEGY

GI Components:

- The retention/enhancement of hedgerows and trees,.
- The provision of safe and healthy recreational spaces throughout the site
- The provision of legible cycle and pedestrian links to wider services, Active Travel network and recreational amenities.
- The planting of native/pollinator friendly trees and shrubs suitable for the long-term site objectives such as definition of space, screening, seasonality etc.
- The incorporation of nature-based solutions appropriate to the site ground conditions.
- Where possible, provision of wildlife- friendly features and signs across the development, such as bat and bird nest boxes, insect hotels etc.
- GI management/maintenance operations

BI Components

- SuDS Strategy

Refer to the engineers SuDS Strategy for the site which is based on the provision of underground attenuation tanks, Filter Strips, Swales, Rain Gardens and Tree Pits.



Open Spaces Masterplan



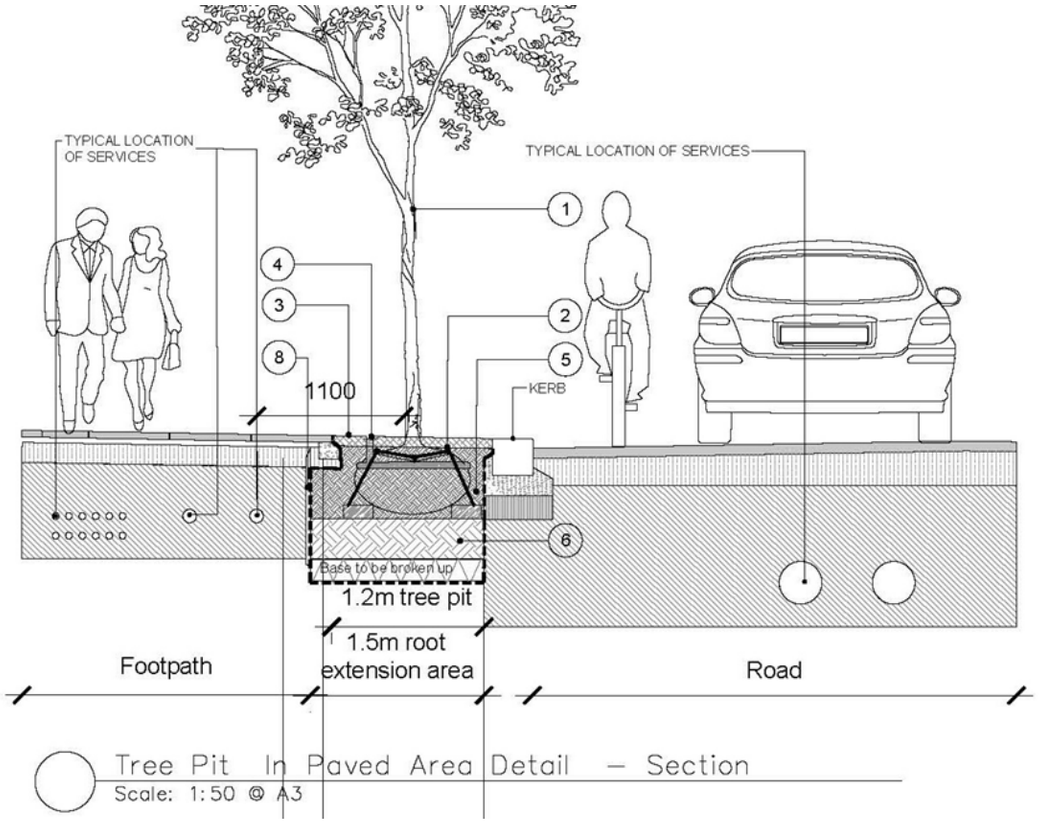
Proposed Tree Planting

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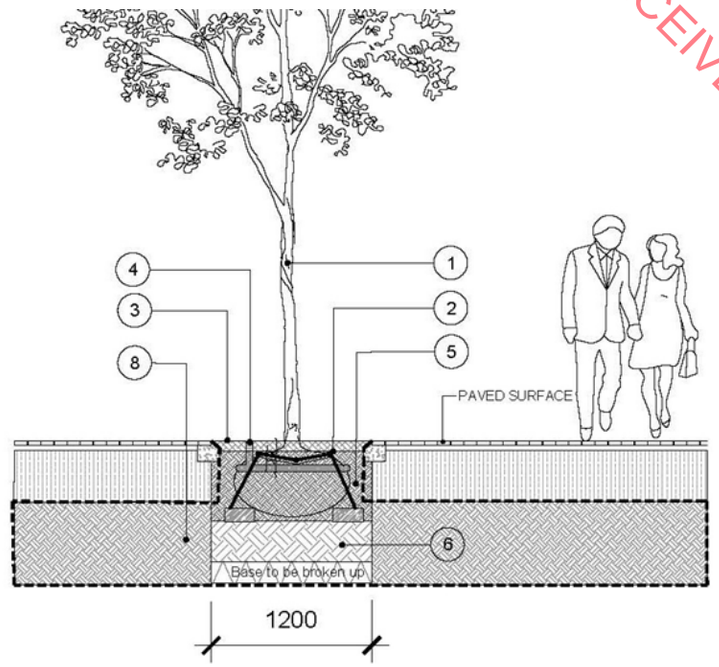
Typical Tree Pit Details

Typical Planting And Tree Root Protection Details

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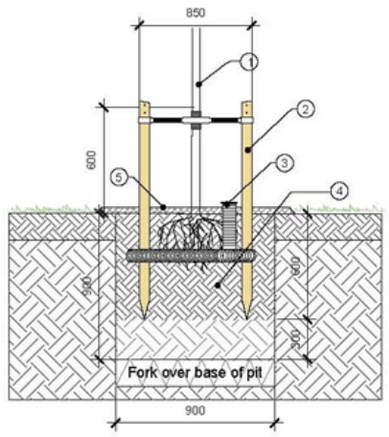


Tree Pit In Paved Area Detail – Section
Scale: 1:50 @ A3



Tree Pit In Paved Area Detail – Long Section
Scale: 1:50 @ A3

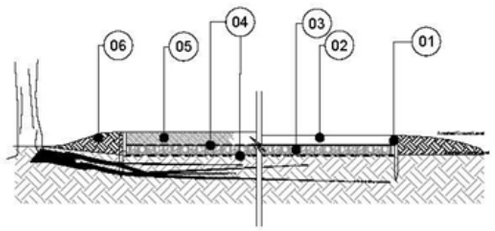
NOTES
1. Tree to have a clear stem height of 2m.
2. Tree anchoring system, using 3no. 8 thread steel wire cables lagged up over timber frame over rootball using webbing straps and anchored using 3no. 100 x 15 x 20cm sleepers .Straps to be tightened using ratchet tensioner.
3. 50mm, 6mm Arbour resin 30-50mm depth on 30mm 6mm grit, on geotextile filtration membrane.
4. 6cm diameter perforated flexible plastic drainage pipe positioned as shown over rootball, with capped end open to surface and finished level with the ground.
5. Pits to be size 1200mmx1200mmx1200mm. Remove the full depth of topsoil (to BS882) and set aside for reuse. Scarify sides, break up base of pit to a depth of 200mm.
6. The pit will be backfilled with subsoil (to BS8601) to 300mm depth or to a level that allows the rootball to sit comfortably in the ground.
7. 15m2 area root zone under paving surface, made up of 50% 35-60mm aggregate, 30% clean horticultural sand, 20% loam topsoil to BS3882, rapped in a large gauged geotextile.
8. Root protection barrier, ribbed polyethylene;



NOTES

1. Tree to have a clear stem as indicated on planting plan.
2. 2no. 75mm diameter stakes pressure treated driven 1000mm below ground 400 - 600mm above ground, with specified biodegradable rubber strap around wire at tree and nailed to 100x30x950mm crossbar. Locate stakes 475mm from tree trunk.
3. 6cm diameter perforated flexible plastic drainage pipe positioned as shown over rootball with one end open to surface to facilitate watering and capped.
4. Tree pits to be min. size 900 x 900 x 900mm. Remove the full depth of topsoil and set aside for reuse. Scarify sides and back fill pit with 400mm depth of subsoil in 200mm layers and lightly firmed in. Incorporate a soil ameliorant into base and back fill remainder of pit with topsoil mixed with soil ameliorants in 150mm firmed-in layers. All planting to receive a minimum of 25 lt water per m2 immediately after planting.
5. 50mm medium grade bark mulch in 800mm dia circle to base of trunk.

V02 Tree Pit Detail – In Grass/Shrub areas
Scale: 1:50 @ A3



1. Timber edging 25x200mm, pressure treated and screw fixed in place to a 25x300mm timber stake.
2. Ballylusk 10mm to dust 'Beige' self-binding gravel rolled to a finished depth of 75mm. IMPORTANT: To compact self-binding gravel to 75mm depth, an initial un-compacted layer of 90mm will be required. Finished surface to be rolled with max. 1ton roller or whacking plate.
3. 75mm deep CORE root protector barrier: product: CGC001; backfilled with clean washed, free-draining 30-40mm granular material, cl.805 no fines or equivalent. Supplier: www.corelp.co.uk.
4. Geotextile membrane layer; Product: TRP membrane, laid on even ground after existing turf layer is removed by hand in tree root zone & ground to be leveled and lightly consolidated sub-base. Supplier: www.corelp.co.uk.
5. 100mm asphalt footpath surface. Asphalt to engineers spec.
6. Ground level either side to be graded to halfway up outer face of square edge face of kerb stone.
7. For no-dig area, remove turf, level area and build up as per detail. No- dig area should be for total area under root zone of existing trees. See arborists tree protection drawing for area to be protected.
8. Note; max. buildup over existing ground level to be 250mm.

P05 ROOT PROTECTION BARRIER – GRAVEL SURFACE
SCALE: 1:50@A3

LAND PLANNING & DESIGN

INTRODUCTION

This document sets out the proposed maintenance and management plans for the establishment and ongoing maintenance of the landscape element of the proposed development. There will be a minimum 18 months defects period on all soft landscape works implemented. Thereafter the landscaping will be maintained in perpetuity consecutive 12 months periods.

1.0 SOFT LANDSCAPE WORKS SPECIFICATIONS

1.1 Site Clearance Generally

- General: Remove rubbish, concrete, metal, glass, decayed vegetation and contaminated topsoil.
- Stones: Remove those with any dimension exceeding 25mm.
- Contamination: Remove material containing toxins, pathogens or other extraneous substances harmful to plant, animal or human life. In accordance with current Health and Safety legislation.
- Vegetation: remove all weed growth.
- Large roots: Grub up and dispose of without undue disturbance of soil and adjacent areas.

1.2 Weed Control

Remove all noxious and undesirable weeds from the sit. Weeds shall include: Ragwort, Himalayan Balsam, Giant hogweed & Japanese knotweed, Thistle, Dock, Common Barberry, Male Wild Hop and Spring Wild Oat, or any other noxious species identified by the Department of Environment. For the removal of certain species such as Japanese Knotweed a method statement is to be prepared and submitted to the Department of Environment. Where ever possible hand weeding will occur.

1.3 Standards

In preparing the landscaping, supplying plants and maintaining the landscaping the following standards are to be adhere to:

• BS 3882	Specification for topsoil and requirements for use
• BS 3936-1 to 10	Specification for the supply of nursery stock
• NPS	National Plant Specification
• BS 3998	Tree Works: Recommendations
• BS 4428	Code of Practice for general Landscape Operations
• BS 5837	Tree in relation to Construction
• BS 7370-1 to 5	Grounds Maintenance
• BS 8545	Trees: from nursery to independence in the landscape- recommendations
• BS 8601	Specification for subsoil and required use
• BS EN 1722-9 round or	Fences Specification for mild steel - low carbon steel - fences with square verticals and flat horizontals

The latest publications for each document are to be used.

1.4 Soil Conditions

- Soil for cultivating and planting: Moist, friable and do not plant if waterlogged.
- Frozen or snow covered soil: Give notice before planting. Provide additional root protection. Prevent planting pit sides and bases and backfill materials from freezing.

1.5 Climatic Conditions

- General: Carry out the work while soil and weather conditions are suitable.
- Strong winds: Do not plant.

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1.6 Times of year for planting

- Deciduous trees and shrubs: Late October to early March.
- Evergreens/Conifers: October/November or Feb/ March.
- Container Grown plants: Any time of years.

1.7 Mechanical Tools

Restrictions: Do not use within 100mm of tree and plant stems.

1.8 Watering

- Quantity: Wet full depth of topsoil.
- Application: Even and without damaging or displacing plants or soil.
- Frequency: As necessary to ensure establishment and continued thriving of planting.

1.9 Preparation, Planting and Mulching Materials

General: Free from toxins, pathogens or other extraneous substances harmful to plant, animal or human life.

1.10 Plants/ Trees - General

- Condition: Materially undamaged, sturdy, healthy and vigorous.
- Appearance: Of good shape and without elongated shoots.
- Hardiness: Grown in a suitable environment and hardened off.
- Health: Free from pests, diseases, discoloration, weeds and physiological disorders.
- Budded or grafted plants: Bottom worked.
- Root system and condition: Balanced with branch system.
- Species: True to name.

1.11 Container Grown Plants/ Trees

- Growing medium: With adequate nutrients for plants to thrive until permanently planted.
- Plants: Centred in containers, firmed and well watered.
- Root growth: Substantially filling containers, but not root bound, and in a condition conducive to successful transplanting.
- Hardiness: Grown in the open for at least two months before being supplied.
- Containers: With holes adequate for drainage when placed on any substrate commonly used under irrigation systems.

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1.12 Labelling And Information

General: Provide each plant/ tree or group of plants/ trees of a single species or cultivar with supplier's labelling for delivery to site, showing:

- Full botanical name.
- Total number.
- Number of bundles.
- Part bundles.
- Supplier's name.
- Employer's name and project reference.
- Plant specification, in accordance with scheduled National Plant Specification categories and BS 3936.

1.13 Plant/ Tree Substitution

Plants/ trees unobtainable or known to be likely to be unobtainable at time of ordering. Submit alternatives, stating the price and difference from specified plants/ trees. Obtain approval before making any substitution.

1.14 Plant Handling, Storage Transport and Planting

- Standard: To HTA 'Handling and Establishing Landscape Plants'.
- Frost: Protect plants from frost.
- Handling: Handle plants with care. Protect from mechanical damage and do not subject to shock, e.g. by dropping from a vehicle.
- Planting: Upright or well balanced with best side to front.

1.15 Treatment of Tree Wounds

Cutting: Keep wounds as small as possible.

- Cut cleanly back to sound wood using sharp, clean tools.
- Leave branch collars. Do not cut flush with stem or trunk.
- Set cuts so that water will not collect on cut area.
- Fungicide/ Sealant: Do not apply unless instructed.

1.16 Protection paved areas

- General: Protect areas affected by planting operations using boards/ tarpaulins.
- Excavated or imported material: Ensure boards are laid to disperse load. .

Duration: Minimum period.

1.17 Surplus Material

Subsoil, stones, debris, wrapping material, canes, ties, temporary labelling, rubbish, pruning's and other arising's: Remove.

1.18 General Planting/Seeding

- Planting shall be carried out within the contract period but not during periods of frost, drought, cold drying winds or when the soil is waterlogged, or when the moisture of the soil exceeds field capacity.
- All containers and protective coverings including biodegradable coverings to root systems shall be removed prior to planting. Roots, except for emergent vegetation, shall be teased out from the root-ball, spread evenly and not twisted.
- All plant material shall be planted upright or placed so as to be well-balanced. Extreme care is to be taken to avoid damage to the root system, stem and branches when planting. The plant shall be positioned such that after planting the original soil mark on the stem is at finished ground level.
- Following completion of planting, grass seeding and turf laying, the soil over the whole of the planted, seeded or turfed area shall be sufficiently watered to achieve its field capacity.
- On completion of planting, watering and mulching, all areas shall be left tidy and weed-free and shall be maintained in a tidy and weed-free state until completion of the works.
- For shrub and transplant pit planting, notch planting and ordinary planting, the plant positions shall be set at equal centres in order to obtain a natural dense cover when mature. For notch and pit planting plants shall be planted in parallel lines. Planting positions in each row shall be staggered with the previous row.
- Finely-broken backfill material shall be carefully spread around roots and root trainers of all plants and the plants given slight shake to ensure that all interstices/ gaps are filled with soil, which shall then be consolidated by heeling. Careful filling and heeling shall continue as necessary at 150mm layers.

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1.18.1 Mulching

Newly planted shrub areas shall be mulched immediately after planting to a depth of 50mm or in accordance with the details indicated on the drawing. Mulch shall be coarse chipped tree bark, composted for 2-4 months. Particle size 25-75mm diameter. No Fines.

1.18.2 After Planting & Mulching

- Watering: Immediately after planting, thoroughly and without damaging or displacing plants or soil.
- Firming: Lightly firm soil around plants and fork and/ or rake soil, without damaging roots, to a fine tilth with gentle cambers and no hollows.
- All areas shall be left tidy and weed-free and shall be maintained in a tidy and weed-free state until completion of the works.

1.19 Tree Planting

Attached in the appendix are typical tree planting details for this site.

1.19.1 Tree Pits

- Sizes: at least 300mm greater than rootball in all directions.
- Sloping ground: Maintain horizontal bases and vertical sides with no less than minimum depth throughout.
- Pit bottoms: With slightly raised centre. Break up to a depth of 100mm.
- Pit sides: Scarify.

1.19.2 Extra Heavy Standard Trees

- Standard: Prepare roots and transplant to BS 8545.
- Planting shall be carried out by positioning the tree in the centre of the pit closely against the tree stake and spreading the tree roots to their fullest extent.
- Backfilling material: Previously prepared mixture of topsoil excavated from pit and additional compost as required.
- Immediately following planting, trees with stakes shall be secured with tree ties. Tree ties shall be fixed so that movement of the tree shall not cause damage or abrasion to the bark, top tie to be 50mm below top stake.

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1.19.3 Staking Generally
Softwood, peeled chestnut, larch or pine, straight, free from projections and large or edge knots and with pointed lower end. Adjustable rubber ties to be fixed to all trees and at the correct size for the tree.

1.19.4 Mulch Circles/Squares
All existing trees/newly planted trees within open grass areas or grass verges shall have 50mm depth mulch circle/square of a maximum 1m diameter or as allowed by verge width.

1.20 Shrub Planting
- All shrubs are to be pit planted. General pit dimensions are to be wide enough to accommodate roots when fully spread and 75mm deeper than root system.
- Break up base of pit to a depth of 150 mm, incorporating soil ameliorant/ conditioner at 50 g/m².
- Pits to be backfilled with previously excavated material. Backfilling to be done in layers of 150mm depth; at each stage the filling to be firmly consolidated.
- Soil ameliorants can be premixed with the soil applied or mixed in during planting.
- Soil ameliorants to consist of an approved compost at 10L per m2; and 150g/m2 of 10:10:10 NPK slow release fertilizer, or as approved.
- All shrub areas to be finished, with 75mm of medium grade bark mulch.

1.21 Hedgerow Planting
- Preparation: Dig trench to 500mm width for single staggered row, ensuing pit base is broken up 100mm deeper than plant rootball.
- Ameliorants: Compost at 10lt/m2 and 10:10:10 NPK slow release fertiliser at 150g/m2.
- Planting: Mix in soil ameliorants with excavated topsoil, or if there is poor topsoil then mix in with imported new topsoil. Firm down topsoil lightly in layers of 150mm by treading.
- Additional Requirements: If there is no existing fencing or barrier, install a protective fence to stop people walking through it until hedge is established. If there is livestock adjoining hedge install a stockproof fence or electrical fence 1m from hedge line until hedge is established.
- Prior to new growth cut the hedge back by 300mm to encourage new growth from base.
- Maintain hedges at height indicated on drawings.

1.23 Removing Trees and Shrubs
- Identification: Clearly mark trees and hedges to be removed.
- Work near retained trees: Where canopies overlap, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.

1.24 Failures of Planting
- Defects due to materials or workmanship not in accordance with the Contract: Plants/ trees/ shrubs that have failed to thrive.
    - Exclusions: Theft or malicious damage after completion.
    - Rectification: Replace with equivalent plants/ trees/ shrubs.
- Replacements: To match size of adjacent or nearby plants of same species or match original specification, whichever is the greater.
- Defects Period: 5 years.

1.25 Cleanliness
After completion of all works remove all debris and waste material from site.
- Soil and arisings: Remove from hard surfaces and grassed areas.
- General: Leave the works in a clean tidy condition at completion and after any maintenance operations.

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2.0 MAINTENANCE

The maintenance programme will be organised on the basis of specific **performance standards** which must be met by the contractor at all times and will be the basis on which this contract will be assessed. Along with these performance standards a monthly report sheet shall be filled out and returned each month. Details of the performance standards are outlined below.

Remove all noxious and undesirable weeds from the sit. Weeds shall include: Ragwort, Himalayan Balsam, Giant hogweed & Japanese knotweed, Thistle, Dock, Common Barberry, Male Wild Hop and Spring Wild Oat, or any other noxious species identified by the Department of Environment. For the removal of certain species such as Japanese Knotweed a method statement is to be prepared and submitted to the Department of Environment.

Performance Standards and Maintenance Operations

2.1.1 Spring Bulbs

Only cut grassed areas populated by spring bulbs after the leaves of the bulbs have died down and/or yellowed completely. Initially reduce height by one third, followed by a 2-3 stage further reduction over two weeks.

2.2 Shrub Planting

Shrub areas shall be kept litter and weed free, particularly of perennial weeds. Healthy growth shall be maintained to cover as much as possible of the planting area and allowing the individual plants to achieve as near as possible their natural form. With the exception of hedges, boxing or pruning to shapes is prohibited. Plants shall be contained with designed planting areas and pruned to avoid obstructing pathways or sightlines. Climbers are to be pruned and tied into trellises as required, with two main inspections annually to check trellis system is intact and anchor points are secure.

2.3 Pruning

In general pruning shall be done only to enhance natural growth. Dead, damaged and diseased portions of the plant will be removed. All cuts shall be flush and clean, leaving no stubs or tearing of bark. All major pruning shall be done following flowering or during plant's dormant season. Emergency or minor pruning shall be done when needed.

Pruning shall be carried out to maintain proper size in relationship to adjacent plantings and intended function. Remedial attention and repair to shrubs shall be provided as appropriate by season or in response to incidental damage.

Groundcover plants shall be pruned as required to restrain perimeter growth to within planting bed areas where adjacent to walks and curbs. Tip prune selected branches of low growing shrub or groundcover masses to maintain even overall heights and promote fullness.

Certain plants, such as Cornus spp. will require heavy annual pruning in order to maintain healthy colourful stems and healthy leaves. All arising's from pruning shall be removed of site.

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2.4 Weed Control

Planting beds shall be maintained relatively weed free (no more than 10% of weed cover at maximum) by hand weeding or spot spraying any emergent weeds during the growing season with Glyphosate or approved equivalent. Saplings shall be removed from all planting areas on emergence or immediately after to prevent establishment.

Specific weed control operations shall be carried out a min of 9no. times per year, however it will be the contractor's duty to control weeds by hand weeding or other if weed cover exceeds 10% of the planting area.

2.5 Watering

The Contractor will be responsible for the watering of all trees and shrubs during the maintenance period. Watering shall mean applying clean health water (chlorinated water accepted) to moisten the full depth of root run of each tree or shrub. Avoid washing or compaction of the soil surface. Any landscaping damage, discolouration or failing to show signs of healthy growth as a result of under watering will be replaced at the contractors cost.

The contractor will notification the Landscape Architect and keep a record of attendance for each visit. Spot checks will be made to ensure full compliance with this condition. It will be the Contractor's responsibility to source water for these applications. Additional watering may be required depending on weather.

The frequency of watering must be increased should the weather conditions turn excessively dry. It is the contractor's responsibility to monitor weather conditions to ensure the watering schedule is adjusted accordingly. It will be the responsibility of the Contractor to notify the Client of any additional requirements and agree the number of additional watering visits.

2.6 Mulching

Shrub beds shall contain a min. depth of 50mm bark mulch throughout the year. Contractor to top-up as 2 times per year or as appropriate to maintain depth. Mulch is not required in areas where plant foliage completely covers the soil surface, such that the soil is not visible through the foliage. The contractor shall spot treat to remove emergent weeds as specified above but do not cultivate or incorporate the mulch into the soil. Any mulch outside of designated planting areas shall be returned to the planter on a weekly basis.

Mulch shall be uniform in colour and appearance, and free of leaves, sticks, or trash. Mulch may be chipped or shredded wood, bark. When replacing existing mulch, use a mulch product that is similar in appearance to that already at the site.

2.7 Pest and Disease Control

The contractor will be responsible for maintaining the plants in a heathy and vigorous growth. Where disease, pest damage or fungi ingress is identified, the Contractor is to inform the Landscape Architect/ Client's Representative and agree treatment prior to application.

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2.8 Tree Planting Care

Trees shall be maintained in a healthy, vigorous growing condition with a well-shaped framework for future growth.

2.8.1 New Tree Planting

Spring and autumn of each year during the maintenance period the trees, double-stakes, rabbit guards and ties shall be checked and adjusted, the soil firmed, any dead wood removed back to healthy tissue and mulch adjusted to original levels. Any broken stakes or ties evident throughout the maintenance period shall be replaced.

A 1m-diameter mulch circle/square shall be maintained at the base of each tree located in open grass areas or grass verges. Top up bark mulch to 75mm where required and make good any mulch mats.

During the first growing season all standard trees / semi-mature trees shall be watered at least five times during the growing season - in April, May, June, July and August unless otherwise directed by the Landscape Architect. During the second growing season trees will be kept well watered, particularly during June, July and August.

The edge of the mulch circle shall be maintained in a neat and tidy condition as above.

The surface of all planting pits is to be kept free of weeds during the maintenance period by hand weeding of annual weeds, and spot application of translocated herbicide, (as per manufacturer's instructions), for perennial weeds to be carried out on three visits during the growing season.

2.8.2. Tree Stakes and Ties

Check tree stakes and ties on each maintenance visit. Repair, strengthen and adjust (loosen / tighten) to ensure optimum functioning and trees not being damaged by poor fixings. If trees no longer require stake / tie remove. Prior to handover, check all tree stakes and ties and remove those no longer required.

2.8.3 Existing Trees

The existing trees will have post remedial work to ensure their retention and protection during construction. All works to existing trees should be carried out in accordance with the Arboroist's report.

2.9 Litter Clearance/Pick-up

The contractor shall maintain all areas free from litter. This shall mean the removal of all extraneous litter, rubbish and any other debris from all areas, which will include grass areas, planted areas, carparks, footpaths as well as woodlands and tree canopies.

Notwithstanding the above it is expected that the contractor and his staff shall take sufficient pride in the appearance of the Units 66&67nd that they would pick up all visible litter during every site visit.

In addition to removal of litter from footpaths, planted areas, etc., the contractor shall make provision for the immediate (within 1 days of notification) arrangement for collection and removal of all extraneous matter which has been deliberately been deposited on site by persons known or unknown (fly-tipping).

2.11 Replacements

Any tree, hedge or shrub that is removed, uprooted, destroyed or becomes seriously damaged, defective, diseased, or dead shall be replaced in the same location with another plant of the same species and size as that originally planted within 5 years after planting. All such replacements shall be carried out in the first available planting season after the requirement to do so is recognised.

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Indicative Maintenance Programme

This programme is a guideline only and times of operations may vary on approval by landscape architect.

ONGOING REQUIREMENTS:	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Lawn grass cutting (Min 25 cuts)		*	**	***	***	***	***	***	***	**	**	
Edging to lawn grass areas				*			*			*		
Rough Grass							*					
Fertiliser application to lawn grass areas.					*		*			*		
Ornamental hedge clipping			*		*			*			*	
Shrubs pruning and feeding				*		*			*			
Weed control of hedge and shrub planting areas		*	*	*	*	*	*	*	*	*	*	
Native Hedgerow & Tree pruning	*	*									*	*
Removal of tree stakes (3-5yr)				*								
Mulch top-up to tree circles/ squares						*				*		
Herbicide app. to tree mulch circles				*			*			*		
Herbicide app./weeding to shrubs & hedgerow				*			*			*		
Watering of new trees (or after 3 weeks of no rain)				*	*	*	*	*				
Trimming of scrub areas												*
Weed control of scrub areas				*					*			
Application of residual weed killer to footpaths, cycle paths.				*								
Litter Clearance/pick up	***	***	***	***	***	***	***	***	***	***	***	***