

SD2224/16018



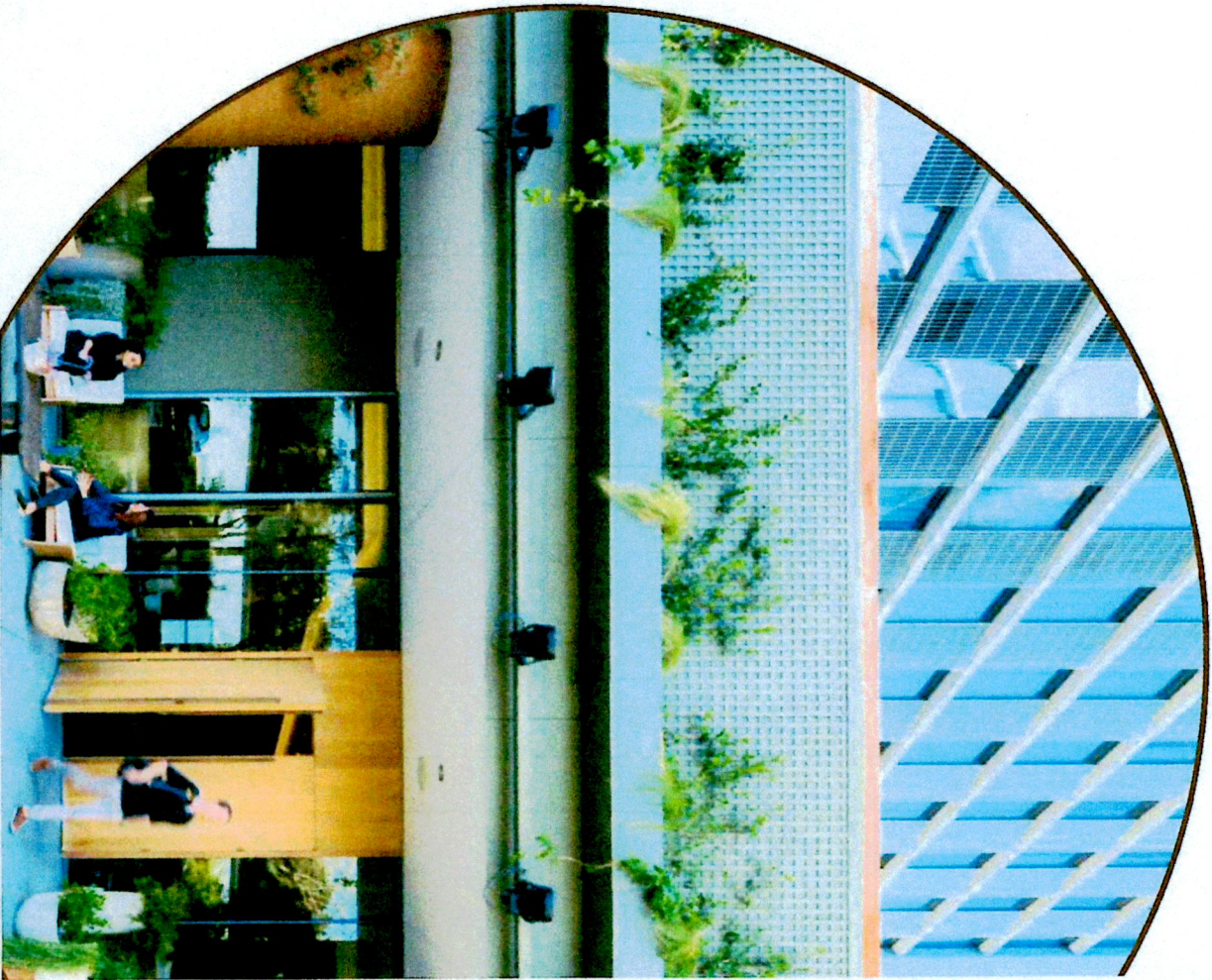
Landscape Design Statement

Proposed Hotel Development

22193

Liffey Valley, Dublin 22

on behalf of
Winmar Developments LLC.



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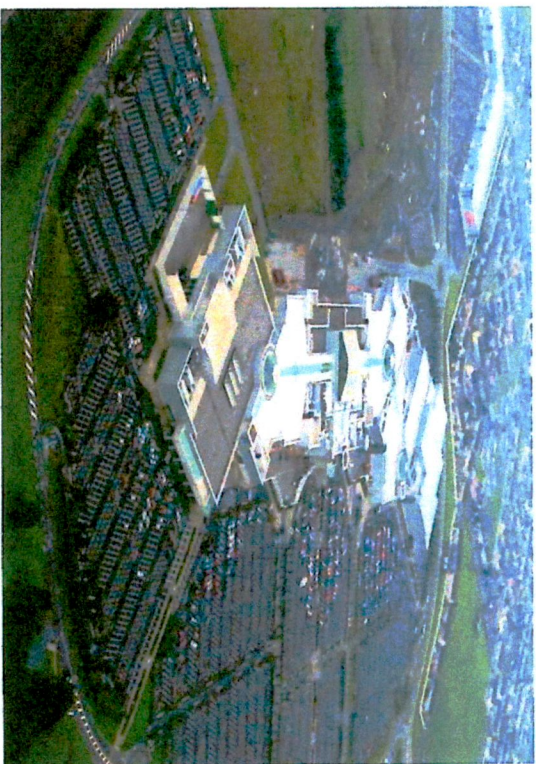
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1 / CONTEXT

The chosen development site is Clondalkin in the area most known as Liffey Valley. The site is surrounded by important commercial areas on the western and eastern boundary which comprehend Liffey Valley Shopping Centre and other businesses.

On the northern side we find Lucan's Hospital, Hospital School and a large number of golf clubs with Castleknock, Hermitage and Luttrellstown being the most famous ones, with the River Liffey running along them. On the southern boundary we find residential units, mixed-use area, Saint Bernadette's senior and junior schools and Quarryvale Park which is often used by the residents.

The area is located near the junction of the M50 motorway and N4 road closely surrounded by Lucan to the west, Palmerstown Village to the east and Clondalkin to the south which makes it only 25 minutes driving and 13km to Dublin City Centre.

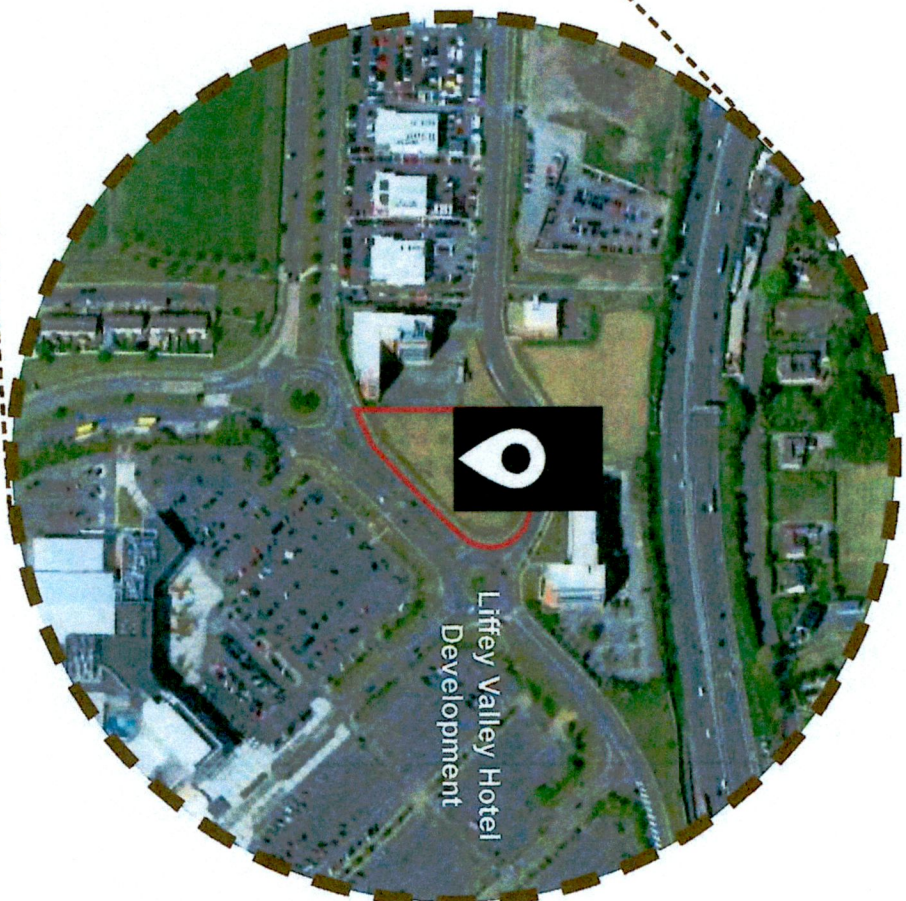


1.1 SITE CONTEXT

CO. DUBLIN



LIFFEY VALLEY
53°21'16.1"N
6°23'43.8"W



— Development Site Boundary

1.2 SITE PICTURES





1.3 HISTORY



Neolithic tribes first settled in the area around 7,600 years ago, taking advantage of the site's favourable location on the River Liffey and the inland pass between the mountains and the river.

It is believed its first inhabitants settled there around 1,400 years ago and it was crossed by Vikings in 832 AD.

Although, at the time the area that we indicate part of as Clondalkin was originally part of Palmerstown, which has changed drastically over time.

In fact, around 1800, Palmerstown consisted of a large space of agricultural lands, which then became industrious villages which slowly started spreading towards the west Dublin suburbia. Maps from the 18th century tell the story of how the area has changed and shifted to become what it is today.

The area, when overlapped with satellite photography from today, really begins to look like itself in terms of roads and plots of land, which would eventually play host to the housing estates we see today.

1900 is when we see some development starting on the northern side of the development site and fifty years later the area has drastically changed. Industrial and mainly residential areas are being built along with some commercial activities.

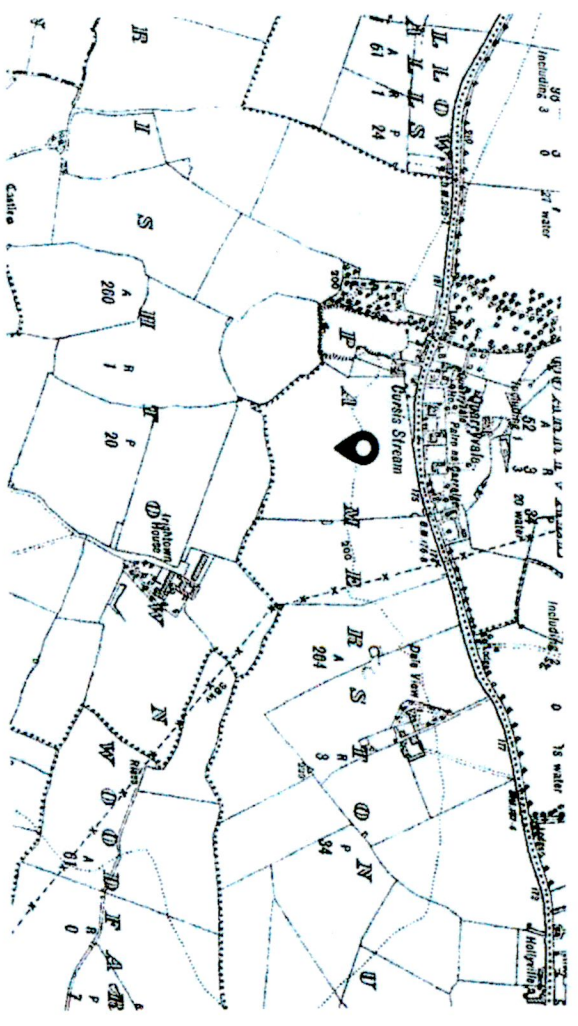
In 1998 Liffey Valley Shopping Centre opened. The centre was a scaled-down replacement for a much larger complex once mooted for the site, known as Quarryvale.

Being located near the junction of the M50 motorway and N4 road is surrounded by Lucan to the west, Palmerstown Village to the east and Clondalkin to the south, and it is only 5m away walking to the chosen site for the hotel development.



Map 1. Map Genie 6 Inch Historic Map - 1850

During this period the area where the site is located was used as agricultural land and there was no sort of development in its surrounding.



Map 2. Map Genie 6 Inch Historic Map - 1900

The 20th century is where we see some development starting on the northern side of the site. The site is still used for agricultural purposes and the areas around it start being defined by hedgerows and private lands.



Map 3. Map Genie Imagery - 1970

Seventy years later residential development is visible on the southern side of the site. There are ongoing road construction works and the first commercial activities are being established.



Map 4. Map Genie Digital Globe - 2005

These are the first years of activity of the Liffey Valley Shopping Centre, residential and commercial areas are now part of the site and keep developing over time.

2/ SITE ANALYSIS

The site of the proposed development at Liffey Valley covers an area of approx 0.56 ha.

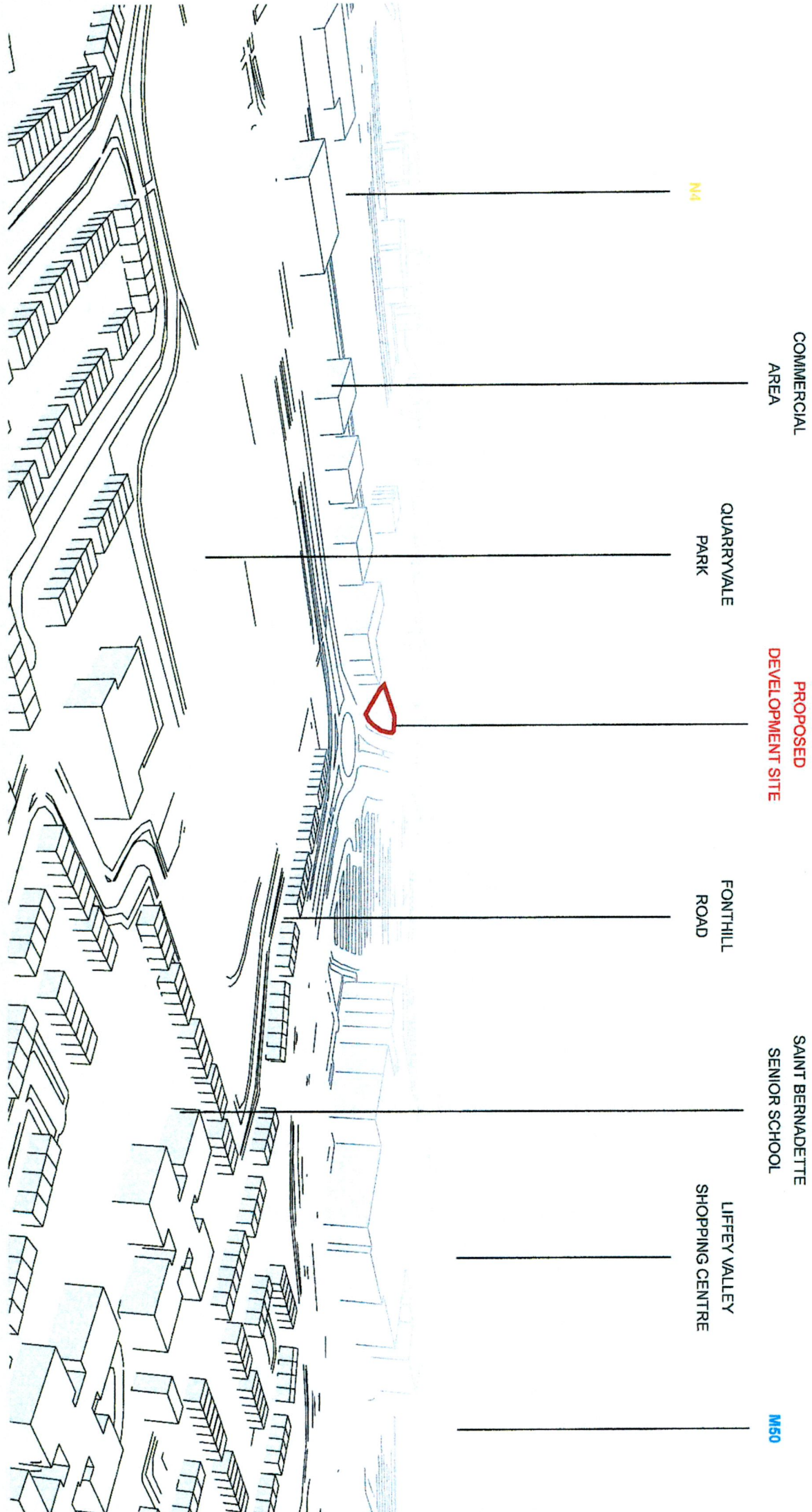
The site is about 13km away and only 25 minutes driving from Dublin City Centre and 20 minutes away from Phoenix Park. The area is also located near the junction of the M50 motorway and N4 road closely surrounded by Lucan to the west, Palmerstown Village to the east and Clondalkin to the south. It is connected to the surrounding areas by bus and overall there is a good transport infrastructure.

The area is characterized by important commercial areas and it is situated next to Liffey Valley Shopping Centre. On the north there are some services and facilities, as well Lucan's Hospital. Furthermore there is the River Liffey running in the north, only 1km away with various golf clubs along it like Castelknock, Hermitage and Luttrellstown. On the southern site boundary there is Quarryvale Park, along with residential and mixed-use areas and senior & junior schools.

The site presents slight level change on the boundaries and there is no existing vegetation on site that needs to be retained or protected.



1.1 LOCATION ANALYSIS










1.2 SITE ANALYSIS



SITE ANALYSIS

Key

-  Site Location
-  Site Boundary
-  Green Spaces
-  Roads
-  Buildings
-  Walking Distance
-  Bus Stop

1.3 SPATIAL ANALYSIS

USES



- Red dashed line: Site Boundary
- Purple square: Mixed Use
- Orange square: Commercial

- Blue square: Touristic
- Brown square: Residential
- Dark green square: Educational
- Green square: Parks

CIRCULATION



- Red dashed line: Site Boundary
- Brown line: Main Road
- Yellow line: N4

- Black line: Cycle Lanes
- Blue line: M50

3/ LANDSCAPE STRATEGY

3.1 CONCEPT

The first key principle was to connect the courtyards, terraces, seating areas, access areas and all the various outside spaces; they will be overlaid and their spatial connection will create a powerful but tranquil atmosphere. The outdoor spaces can be seen from the inside or higher levels of the hotel too.

Throughout every space of the landscape design there is an interplay between the materials used for the plaza, the entrances and the terraces which once combined and contrasted emphasizes their differences, similarities and beauty.

The vehicular and pedestrian arrival area, or plaza, leads you towards the hotel's main entrance but is strategically designed to lead the guests towards the amenity open spaces areas, seating areas and terraces. Instead of walking through the lobby guest can walk directly to their points of interest.

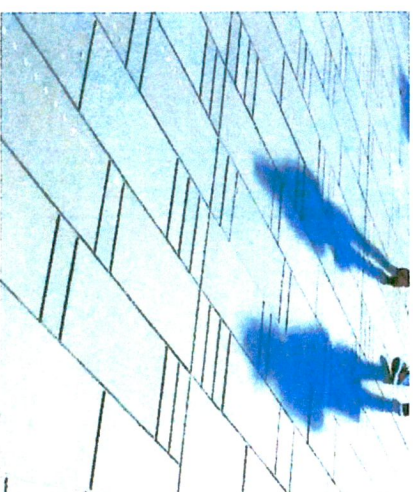
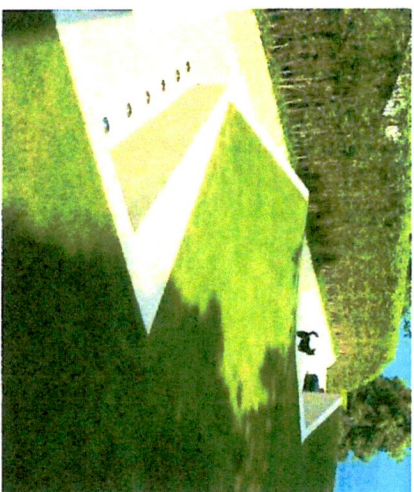
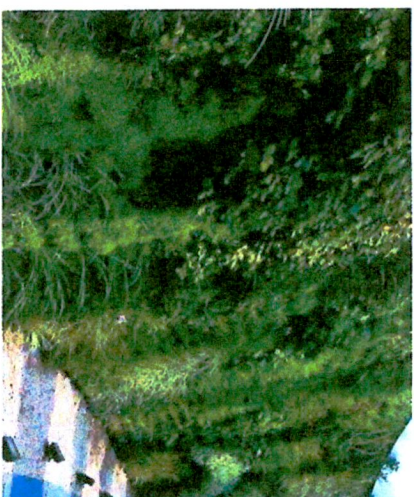
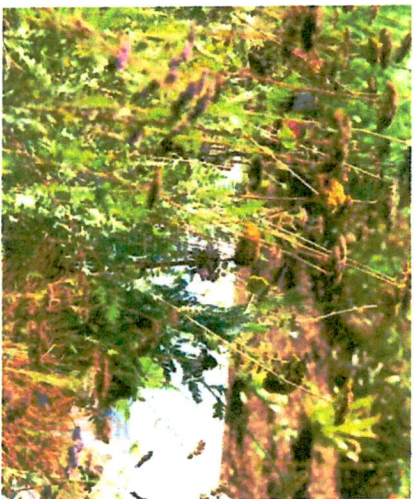
The planting strategy maximises the experience of the exterior and the interior spaces and softens the cool-toned surfaces used for the hardscaping with warmer materials and colours. The design also encourages an experience through the surrounding materials along an abundance of plants and trees at every glance.

Considering the surroundings and the topography of the site the building will emerge and be very visible from the ground. For this reason the first key principle, from the arrival plaza through the parking to the delivery area, was to create privacy on the western boundary. It will be achieved native hedgerow with a mix of pleached trees will be used to screen the spaces. This creates privacy for the hotel's guest and at the same time pedestrians will not see unsightly functions.

On the northern boundary side very little of the hotel outdoor amenities and seating areas can be seen; they are laid out along a continuous line of trees which obscures the guests from the surroundings and from the road above. The same is achieved on the eastern and southern side with the use of different tree species.

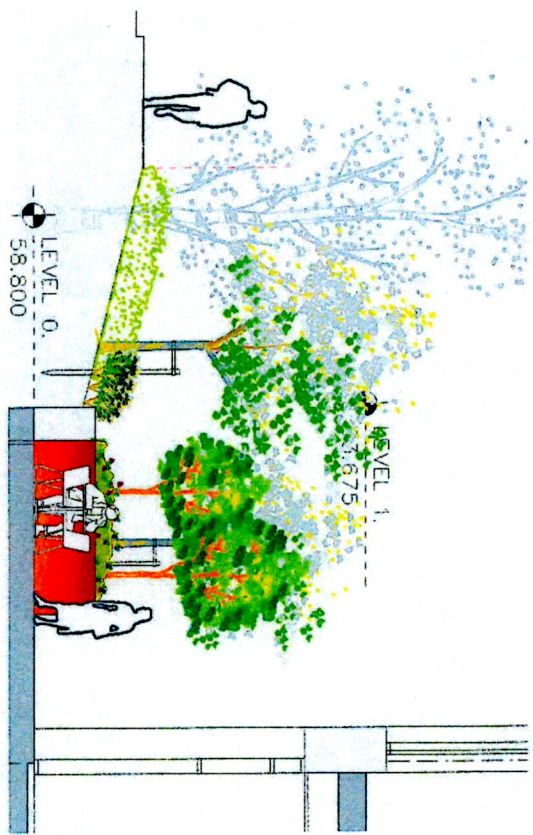


3.2 CONCEPT REFERENCE IMAGES

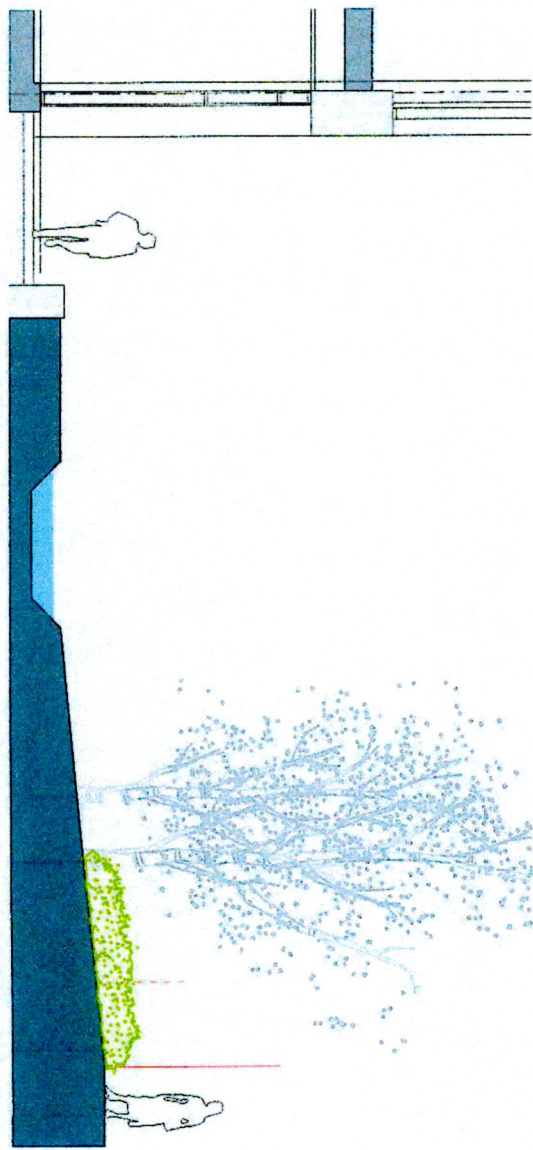


3.4 SECTIONS

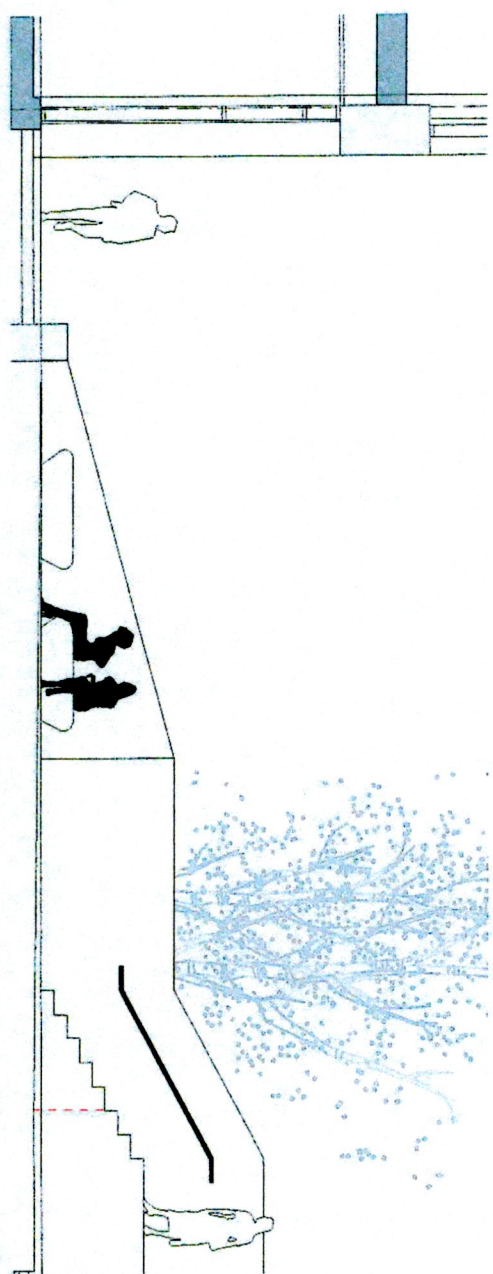
SECTION A - A



SECTION B - B



SECTION C - C



4/ LANDSCAPE DETAILS

The open spaces of the site are the core of the development and shall beautify the aesthetic of the hotel and provide privacy and screening for its guests.

This area has been deeply planted with a mix of specimen trees and planters coupled with seasonal grasses, ornamental shrubs and pollinator friendly planting.

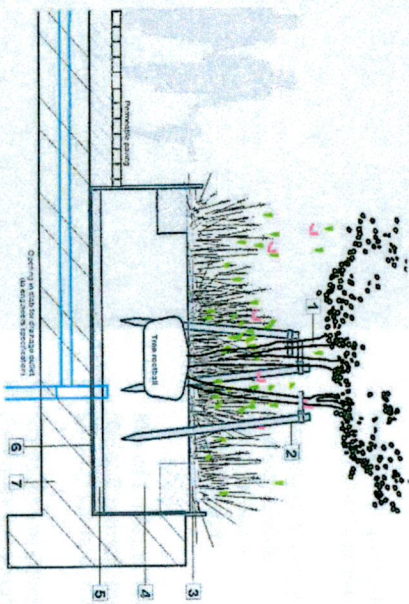
Different species of trees are selected in order to create different expressions through the seasons and provide colour and different atmospheres all year around. To mention some, *Sorbus aucuparia* with their white blossoms will announce the Spring and additional trees such as the *Liquidambar styraciflua* and *Ginkgo biloba* will provide beautiful foliage.

Ornamental flowering shrubs will be used in the planting scheme such as *Astilbe 'Vision Pink'*, *Stipa gigantea*, *Helenium 'Rubinzweig'*, *Aster 'Twilight'*, *Betonica officinalis 'Rosea'*, *Selinum wallichianum*, *Agastache 'Blue Fortune'*, *Knautia macedonica*.



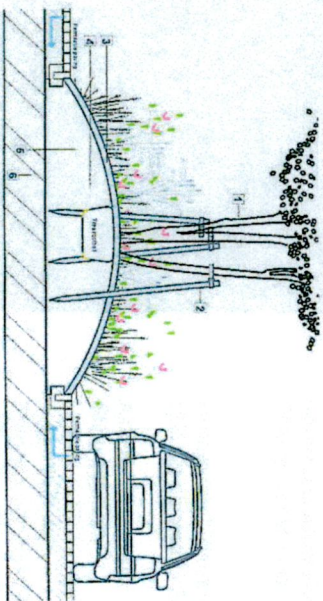
4.2 SOFT LANDSCAPE DETAILS

TREE PLANTERS IN PLANTERS



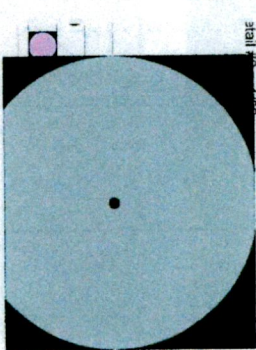
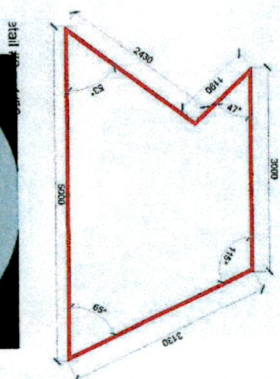
- 1 - Specified tree
- 2 - Triple stake with cross bars. Stake 75mm O, 2400mm long min., machined and rounded. All timber to be pressure treated. All nails to be galvanised. Cross bar set at min. 150 angle to ground. Tree stem strapped to staked with 3no. 'Holdfast Rubber Block: HB3 90x75x40mm and 50mm wide 'Holdfast Natural Tree Belting'. Available from www.greentech.co.uk or similar approved.
- 3 - 75mm medium grade bark chip supplied by Enrich.ie or similar approved, no splinters or fines
- 4 - 840mm of depth rich, friable, sandy loam topsoil and compost mix 3:1 provided supplied by Enrich.ie or similar approved
- 5 - 100mm gravel drainage layer. Ground condition finely ripped substrate at 600mm depth below drainage layer to ensure no standing water.
- 6 - Waterproof layer
- 7 - Podium slab

TREE PLANTING ABOVE PODIUM



- 1 - Specified tree
- 2 - Triple stake with cross bars. Stake 75mm O, 2400mm long min., machined and rounded. All timber to be pressure treated. All nails to be galvanised. Cross bar set at min. 150 angle to ground. Tree stem strapped to staked with 3no. 'Holdfast Rubber Block: HB3 90x75x40mm and 50mm wide 'Holdfast Natural Tree Belting'. Available from www.greentech.co.uk or similar approved.
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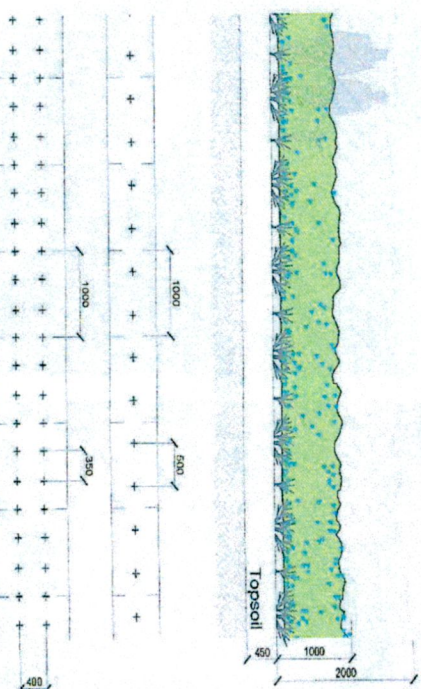
ORNAMENTAL PLANTING SCHEME



ORNAMENTAL PLANTING MIX

- Astilbe 'Vision in Pink'
- Chinese astilbe
- Vision in Pink
- Silla gigantea
- Golden oats
- Helianthem 'Rubinzweg'
- (Sneezeweed 'Rubinzweg')
- Aster 'T wright'
- Dianella 'Gauria Twilicht'
- Ratoncra officinalis 'Rosae'
- Stachys officinalis 'Rosae'
- Salinum wallichianum
- (Wallish milk parsley)
- Agastache 'Blue Fortune'
- (Giant Nyssep 'Blue Fortune')
- Knaulia macedonica
- (Macedonian scabious)

HEDGEROW



NOTE: Screen hedge to be planted as per planting schedule. Plants shall be 1m tall, and be shall conform to BS 3936 - Part 1: Nursery stock specification for trees and shrubs. Planting strip to be 700mm wide x 450mm deep with cultivated and evenly incorporated organic manure 100mm layer over area of strip, fertiliser 35g.



4.4 TREE PLANTING SPECIFICATIONS

TREE PLANTING

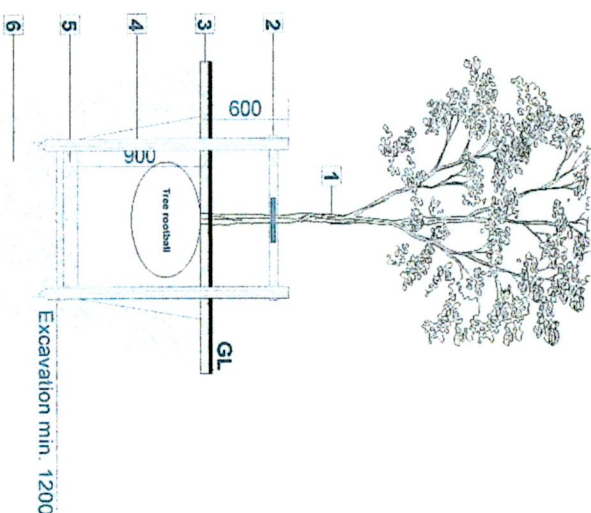
Tree planting throughout the scheme has been selected to blend the development in to its surrounding environs and create focal points within the development. The tree species selected will maximise food and nectar sources for birds and invertebrates. Trees will be planted as Standard and Heavy Standard to provide a reasonable degree of instant maturity to the development. All trees shall be planted between the months of Nov and March. The trees shall be purchased from a reputable nursery as rootball specimens and final order to be agreed by Landscape Architect. The trees shall be planted on delivery. If this is not possible due to weather conditions (wet or frosty), the plants must be heated in. Maintenance Watering is essential during the first 2 growing seasons regardless of the weather conditions - 1000lt / Tree/ Month.

Methodology and Guidance notes:

The tree pit should have a diameter at least 100mm greater than that of the root system, with the depth not exceeding the rootball. Any glazed or smeared sides caused by digging shall be scarified with the use of a fork. The tree will be positioned in the centre of the planting pit at the correct depth, taking into account the root flare and finished level. Prior to backfilling the hessian twine/wire cage supporting the rootball shall be loosened or removed. Backfilling shall be carried out in layers of 150mm, ensuring the tree is held upright. At each stage the fill will be carefully firmed in to eliminate air pockets under and around the root system.

The final layer of backfill will not be consolidated, but should be of a sufficient depth to allow for settlement and mulching. Formative pruning should be carried out if required, removing dead, damaged, crossing or diseased branches. Refer to Tree planting specification for tree anchoring system. All trees planting operation will be carried in accordance with BS8545:2014 Trees: from nursery to independence in the landscape recommendations.

STANDARD ROOTBALL TREE



1 - Specified tree

2 - Triple stake with cross bars. Stake 75mm O, 2400mm long min., machined and rounded. All timber to be pressure treated. All nails to be galvanised. Cross bar set at min. 150 angle to ground. Tree stem strapped to staked with 3no. 'Holdfast Rubber Block; HB3 90x75x40mm and 50mm wide 'Holdfast Natural Tree Belling'. Available from www.greentech.co.uk or similar approved.

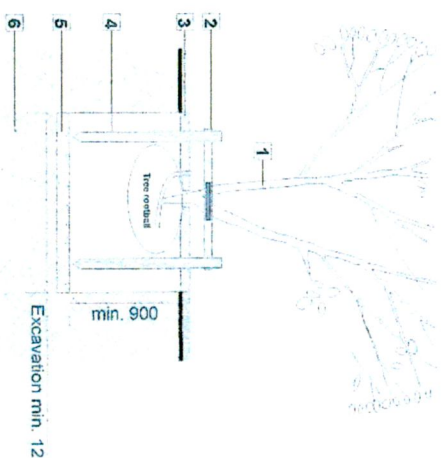
3 - 75mm medium grade bark chip supplied by Enrich ie or similar approved, no splinters or fines

4 - 900mm of depth rich, friable, sandy loam topsoil and compost mix 3:1 provided supplied by Enrich ie or similar approved

5 - 100mm gravel drainage layer. Ground condition finely ripped substrate at 600mm depth below drainage layer to ensure no standing water.

6- Subsoil

MULTI-STEM TREE



2 pressure impregnated timber stakes connected at top with crossbar to minimise vandalism (min. 100mm dia.) removed after four years

Specified tree (selected by Landscape Architect)

Square planting pit shall be large enough to accommodate tree roots.

Pit to be backfilled with a mix of topsoil, planting compost and polymer granular. The bottom and sides of pit to be broken up by forking prior to planting.

4.5 TREE REFERENCE IMAGES

TREES

Standard Trees

@standard-extra heavy, 4X, 18-20cm girth, 4-4.5m height, min 200cm clear stem, R/B

Field Maple - *Acer campestre*

Downy Birch - *Betula pubescens*

Maidenhair tree *Ginkgo biloba*

Sweetgum - *Liquidambar styraciflua*

London Plane - *Platanus x hispanica*

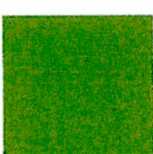
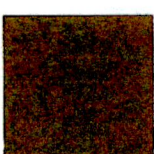
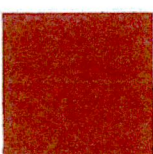
Ommatetal Pear - *Pyrus calleryana*

'Chanticleer'

Whitebeam - *Sorbus aria majestica*

Small leaved lime - *Tilia cordata*

'Greenspire'



Planters Trees

r/b, 3X, 200mm girth

Swedish Whitebeam - *Sorbus Intermedia*

'Bouwers'

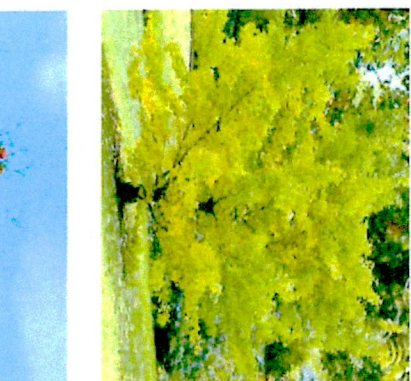
m/s, c/g 50L, 3.5m high

Paperbark maple - *Acer griseum*

Strawberry Tree - *Arbutus unedo*

Himalayan Birch - *Betula Jacquimonitii*

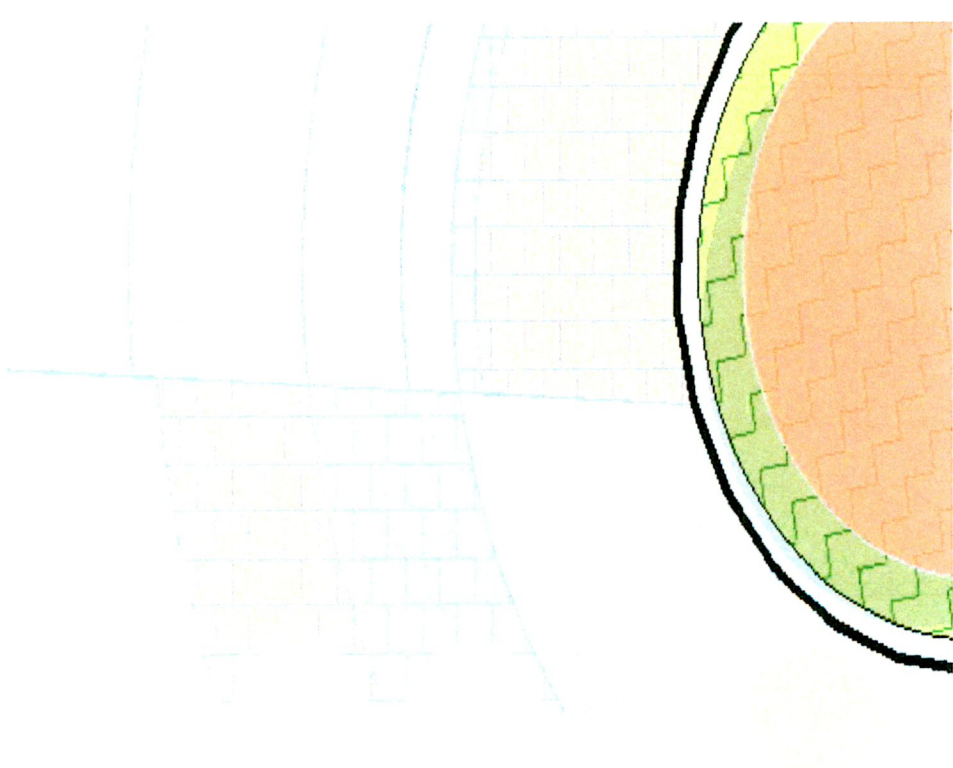
Rowan - *Sorbus acuparia*



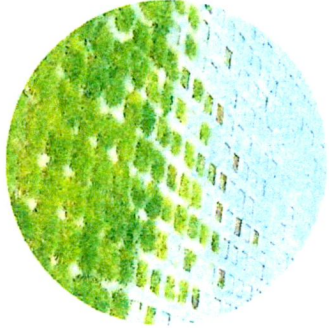
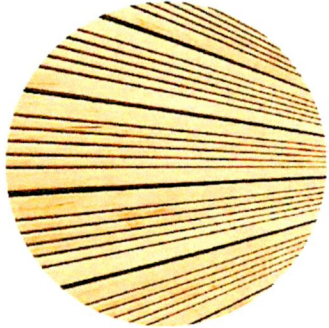
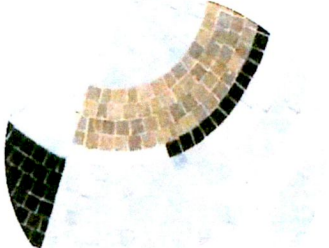


5/ HARDSCAPE DETAILS

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PAVING

<p>Ramp/Stair Access Concrete</p>		<p>Paved Amenity Areas Grasscrete Paving</p>		<p>Terraces Decking</p>		<p>Plaza Mellifont block Natura, Slate, Charchoal, Corrough Gold</p>	<p>Parking Bay Mellifont Blocks</p>	
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PAVING & KERBS

FOOTPATHS

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

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 rebuild 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 subgrade 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.

5.1 HARD LANDSCAPE DETAILS

PERMEABLE PAVING ABOVE PODIUM DECK SC 1/50



- 1 - Selected paving blocks
- 2 - 6-3-2mm grit laying course material to BS EN13242:2002.
- 3 - Well compacted Sub-Base clean stone 4/20mm aggregate to BS EN13242:2002. Compacted thickness: 100-225mm
- 4 - Waterproof layer
- 5 - Podium slab

TIMBER EDGE

- 6 - 175 x 38 mm treated timber board (Tanalised larch)
- 7 - 50mm Galvanized nails into softwood pegs
- 8 - 50x50x275 drive into ground treated and pointed pegs

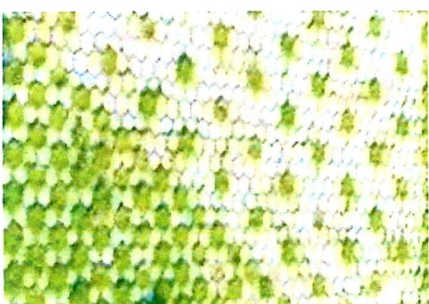


GRASSCRETE DETAIL SC 1/50



GRASSCRETE PAVING

- 1 - Grasscrete concrete block
- 2 - Filled with multipurpose soil textural class to BS 3882
- 3 - Bedding Layer - 10mm grit laying course material to BS EN13242:2002
- 4 - 150mm Well compacted Sub-Base clean stone 4/20mm aggregate to BS EN13242:2002
- 6 - Subgrade

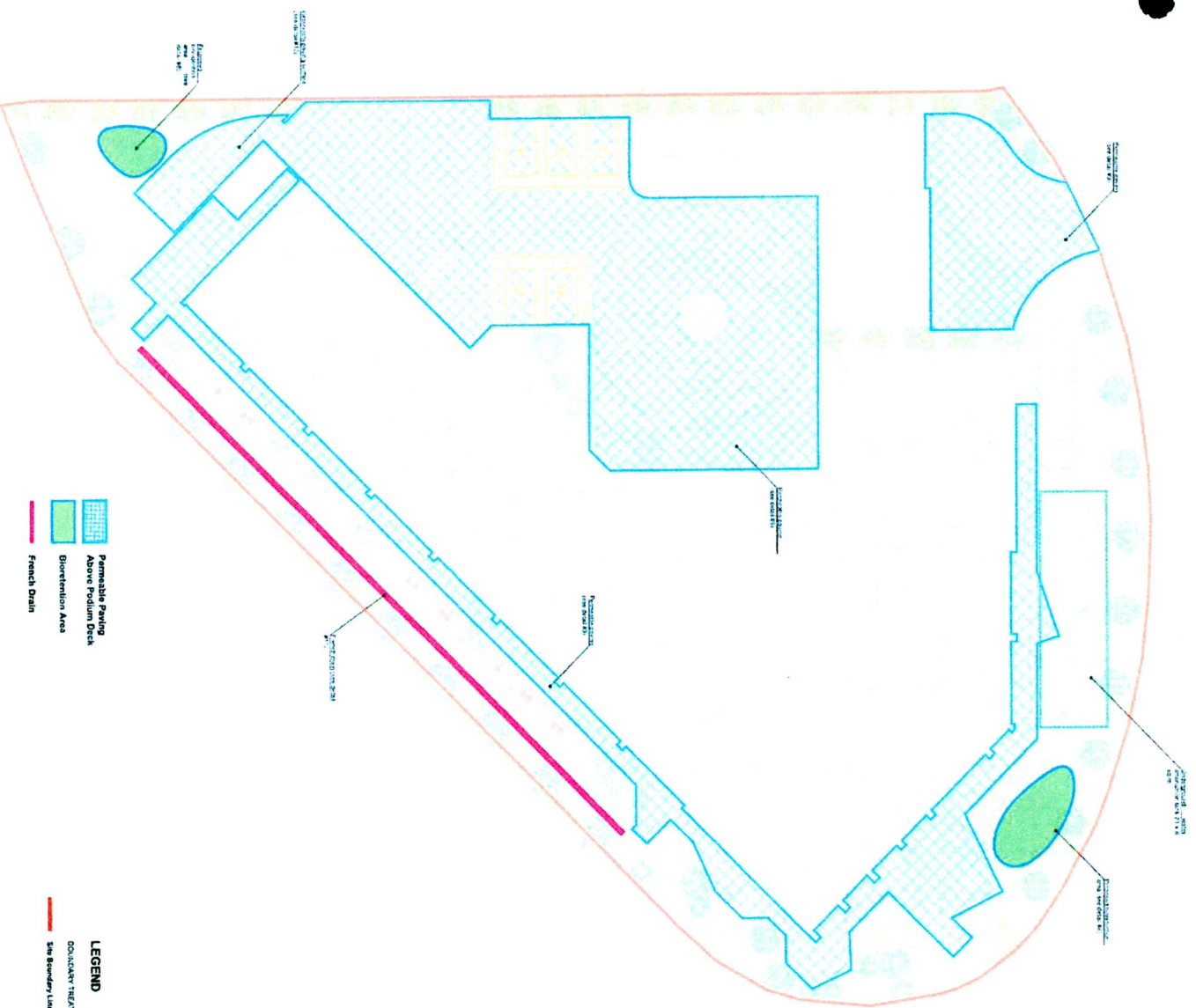


PAVED FOOTPATH PLAZA DETAIL SC 1/50



- 1 - Selected paving blocks
 - 2 - 6-3-2mm grit laying course material to BS EN13242:2002.
 - 3 - Polypropylene, Non-woven
 - 4 - 150mm Well compacted Sub-Base clean stone 4/20mm aggregate to BS EN13242:2002.
 - 5 - Subgrade
- TIMBER EDGE**
- 6 - 175 x 38 mm treated timber board (Tanalised larch)
 - 7 - 50mm Galvanized nails into softwood pegs
 - 8 - 50x50x750 drive into ground treated and pointed peg





SUDS PILLARS

Water Quantity - Controlling the quantity of runoff to support the management of flood risk and maintain and protect the natural water cycle.

Water Quality - Managing the quality of the runoff to prevent pollution.

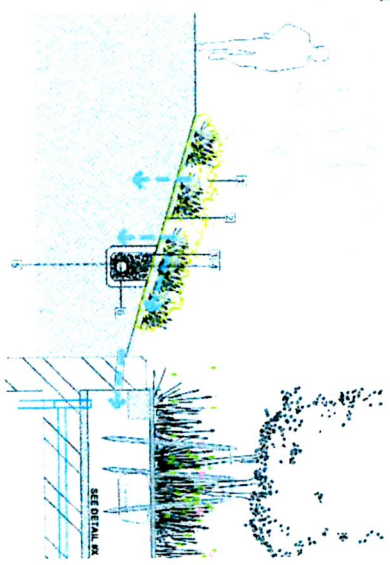
Amenity - Creating and sustaining better places for people.

Biodiversity - Creating and sustaining better places for nature.

Suds reduce the impact of new construction by replicating natural drainage systems, as they have a low environmental impact and collect, store, filter and clean water before releasing it back into the environment.

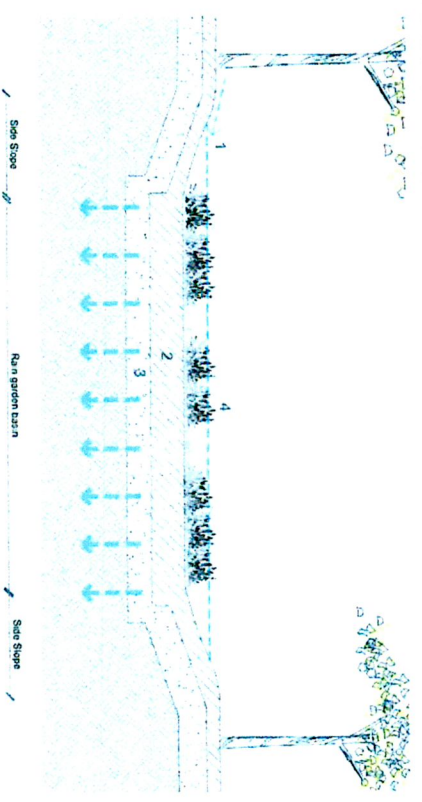
STORM WATER DRAIN

- 1 - Adapted vegetation, tolerant to wet soil and summers
- 2 - Lawn area sloped to collect water from the surface.
- 3 - Coarse aggregate gravel, 4-200mm undergrround perforated drain pipe wrapped and sloped for drainage.
- 5 - Weeping tile surrounding drain pipe.
- 6 - Collected groundwater.
- 7 - Podium slab



BIORETENTION AREA

- 1 - Gentle slope to collect water from the surface
- 2 - 450mm improved topsoil up to 20% coarse compost
- 3 - Free-drainage soil, under-drain optional
- 4 - Adapted vegetation, tolerant to wet soil and submerision



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/pavers vertically from at least 3 separate packs in rotation, or as recommended by manufacturer, to avoid colour banding. Lay blocks/pavers 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/pavers 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/pavers to laying face over newly laid paving but slack 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

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 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.



6/ OPEN SPACE MANAGEMENT

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6.1 OPEN SPACE MANAGEMENT

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 site. Weeds shall include: Ragwort, Himalayan Balsam, Giant hog weed & Japanese knot weed, 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 Knot weed a method statement is to be prepared and submitted to the Department of Environment.

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 Fences Specification for mild steel - low carbon steel - fences with round or square verticals and flat horizontal
- RoSPA Standards for safety for play and exercise equipment.

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.

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.

- 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 of Existing Grass
 - General: Protect areas affected by planting operations using boards/ tarpaulins.
 - Excavated or imported material: Do not place directly on grass.

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.
- 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, composed 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 Semi-Mature 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.

6.1 OPEN SPACE MANAGEMENT

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, ensuring pit base is broken up 100mm deeper than plant rootball.
- Ameliorants: Compost at 10l/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.

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 Green Roofs Due care is to be taken when planting in gardens to ensure no damage occurs to the waterproof membranes. All planting is to be laid over a green-roof system that complies with European Federation of Green Roof Associations, (EFB), or equivalent, and in accordance with the drawings provided.

1.26.1 Cultivation

- Compacted topsoil: Break up to full depth.
- Soil ameliorant/ Conditioner/ Fertilizer are to be used to boost late seeding only. Type to be used is to be agreed with the administering body depending on the time of year and the condition of the soil.
- Tilt: Reduce topsoil to a tilt suitable for blade grading.
- Depth: 75 mm.
- Particle size (maximum): 20 mm.
- Material brought to the surface: Remove stones and clay balls larger than 50 mm in any dimension, roots, tufts of grass, rubbish and debris.

1.26.4 Topsoiling

- Areas to be reinstated shall be top-soiled to a min. depth of 150mm.
- Quantity: Provide as necessary to make up any deficiency of topsoil existing on site and to complete the work.
- General: Do not use topsoil contaminated with subsoil, rubbish or other materials that are:
 - Corrosive, explosive or flammable;
 - Hazardous to human or animal life;
 - Detrimental to healthy plant growth.

1.26.5 Grading

- General appearance to be achieved: A fine graded finish to bring the ground to a uniform and even grade at the correct finished levels with smooth, flowing contours.
- Topsoil condition: Reasonably dry and workable.
- Contours: Smooth and flowing, with falls for adequate drainage.
- Hollows and ridges: Not permitted.
- Finished levels after settlement: 25 mm above adjoining paving, kerbs, manholes etc.
- Blade grading: May be used to adjust topsoil levels provided depth of topsoil is nowhere less than 150mm.
- Give notice: If required levels cannot be achieved by movement of existing soil.

1.26.6 Fertilizer for Seeded Areas

- Types: Apply both:
 - Superphosphate with a minimum of 18% water-soluble phosphoric acid.
 - A sulphate of ammonia with a minimum of 20% nitrogen.
- Application: Before final cultivation and three to five days before seeding/turfing.
- Coverage: Spread evenly, each type at 70 g/m², in transverse directions.

1.26.7 Final Cultivation

- Timing: After grading and fertilizing.
- Seed bed: Reduce to fine, firm tilth with good crumb structure.
- Depth: 50-100mm.
- Surface preparation: Rake to a true, even surface, friable and lightly firmed but not over compacted.
- Remove surface stones/earth clods exceeding:
 - Pastoral areas: 50mm.
 - Fine lawn areas: 10mm.
- Adjacent levels: Extend cultivation into existing adjacent grassed areas sufficient to ensure full marrying in of levels.

1.26.8 Grass Seed

- All seeds shall carry appropriate certificates.
- Seed shall be purchased fresh for each growing season and seed purchased impervious sowing seasons is not to be used.
- Seed shall be stored under non-transparent wrapping, off the ground, in a dry, shaded place, in well ventilated conditions under cover and shall be protected from vermin and contamination until required for use.
- No seeding shall take place until the seedbed is completed. All seeding shall be carried out within the sowing season.

1.26.9 Sowing

- General: Establish good seed contact with the root zone.
- Method: To suit soil type, proposed usage, location and weather conditions during and after sowing.
- Distribution: 2 equal sowings at right angles to each other.
- Protection: fence off areas with suitable fencing to stop people or animals from trampling new growth.

1.26.10 Grass sowing season

Grass seed generally: April to June or August to November.

1.27 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.

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 site. 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 Grassed Areas

2.1.1 Fine-Cut Grass Areas

Fine cut grass areas shall achieve an even cover of vegetation of uniform height and colour comprising predominantly of grass species. No more than 5% of the grass areas shall contain dicotyledonous (dicots) weeds, except clover. Grass cutting shall not be carried out during excessively wet or waterlogged conditions. Contractor to inform administrative authority if conditions are unsuitable.

Fine-Cut Mowing

Where practical fine grass areas shall be cut using a cylinder mower, otherwise a rotary mower shall be used. All grass clippings shall be collected and removed off-site after each cut. Lawn grass cutting shall be carried out every 10-14 days during the growing season, (throughout the period of March to October), but will need to be adjusted according to season's weather conditions. Grass shall be kept at a maximum height of 50mm and minimum height of 35mm. A minimum of 24 cuts shall be carried out annually.

Fertilizer

Approved fertilizer shall be applied 2no. times per year to lawn areas if required due to poor grass growth / establishment or yellowing. Spring fertilizer application of NPK ratio 9:7:7 shall be applied in May of each year and Autumn/Winter fertiliser of NPK ratio 3:12:12 shall be applied in October of each year to all fine cut grass areas.

2.1.2 Amenity Grass Areas

Amenity grass areas shall achieve an even cover of vegetation of uniform height and colour comprising predominantly of grass species. Unless otherwise agreed with the landscape architect no more than 15% of the grass areas shall contain dicotyledonous (dicots) weeds, except clover. Grass cutting shall not be carried out during excessively wet or waterlogged conditions. Contractor to inform administrative authority if conditions are unsuitable.

6.1 OPEN SPACE MANAGEMENT

Amenity Grass Mowing

Where practical grass areas shall be cut using a cylinder mower, otherwise a rotary mower shall be used. Unless excessive or unsightly, or likely to cause a nuisance or damage to the sward, arisings shall be spread evenly over sward areas collected.

Lawn grass cutting shall be carried out every 10-14 days during the growing season, (throughout the period of March to October), but will need to be adjusted according to season's weather conditions. Grass shall be kept at a maximum height of 75mm and minimum height of 35mm. A minimum of 24 cuts shall be carried out annually.

Weed Control

Areas of invasive and noxious species in lawns, shall be spot sprayed.

Weed infestations shall be reviewed in the context of the aesthetic and amenity functioning of the grass and if necessary controlled or eradicated.

Fertilizer

Approved fertilizer shall be applied 2no. times per year to lawn areas if required due to poor grass growth / establishment or yellowing. Spring fertilizer application of NPK ratio 9:7:7 shall be applied in May of each year and Autumn/Winter fertiliser of NPK ratio 3:12:12 shall be applied in October of each year to all fine cut grass areas.

2.1.4 Edging and Strimming

Grass edges along pathways, planting borders, roadways, trees, lampposts, signs and any other obstacle shall be kept neat and tidy at all times.

Between the months of March and October inclusive edging shall be carried out to all areas of grass abutting isolated/ specimen trees or shrub borders or mulch circles. These areas shall be maintained using a half moon tool or similar to maintain straight or curved defined line and shall be carried out a minimum of 2 - 3 times per year.

Mowing strips against permanent obstacles shall be a max. width of 150mm and shall be maintained using a hand strimmer. Large areas of desiccated/ burnt off grass are not permitted. Strimming shall be carried out a min. of 12 times per year.

Grass clipping and all arisings shall be swept up and removed off site.

2.1.5 Spring Bulbs in Grassed Areas

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 to achieve desired grass height.

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 colour/fullstems and healthy leaves. All arising's from pruning shall be removed of site.

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 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.

2.6 Tree Planting Care

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

2.7 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, for perennial weeds to be carried out on three visits during the growing season.

2.9. 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 Woodland/Scrub Area Management

Woodland areas specified shall be maintained in a healthy, vigorous condition and free from litter and noxious weeds throughout the year.

Certain areas of woodland may require thinning over the 5-year period. These areas shall be thinned by no more than 10%, removing only the weaker tree specimens. Thinning shall be carried out as directed onsite by administrative authority.

Areas of natural scrub as indicated on the maintenance plans shall be contained by trimming back once per year. This shall be carried out 2no. times per annum.

All clearance operations within woodland and scrub areas shall be carried out outside of the birdnesting season to preserve the bird life in the area. This season extends from the 1st March to 31st August.

2.09 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 site and 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).

2.10 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.

6.1 OPEN SPACE MANAGEMENT

3.0 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 24 cuts)		*	**	**	***	***	***	***	***	**	**	
Edging to lawn grass areas				*			*			*		
Rough Grass							*					
Fertiliser application to lawn grass areas							*					
Hedge pruning/cutting										*		
Shrubs pruning and feeding							*					
Weed control of hedge and shrub planting areas				*			*			*		
Tree pruning											*	
Removal of tree stakes (3-5yr)				*								
Mulch top-up to tree circles/ squares				*			*					
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	***	***	***	***	***	***	***	***	***	***	***	***