3. SOFT WORKS

Proposed Planting Palletes

The primary objectives of the planting design are to reflect the existing character of the application site more generally.

Species were selected from the All Ireland Pollinator Plan 2021-2025 and 'Our Trees' as well as other native and naturalized species to ensure biodiversity on site is maximized and plant selection is appropriate to the site.

The green structure is divided in the folowing categories:

- Semi Mature Feature Trees (native / naturalised). Typically 20-25cm girth 5-6m ht

- Street Trees / Primary Vehicle. Typically 16-18cm girth 5-6m ht

- Feature Small Trees. Typically 14-16cm, 3-4m ht

- Shrubs and sub-shrubs. Typically 60-120cm

- Ornamental/display planting. Typically 45-60cm

- Shade planting

- Rain gardens

- Herbaceous cover

- Meadows

Proposed Vegetation List

Proposed Street Trees

Large Trees
Corylus colurna 14-16cm gth, 5-6m ht
Liquidambar styraciflua 16-18cm, 5-6m ht
Tilia cordata 'Greenspire' 16-18cm, 5-6m ht
Acer campestre 16-18 cm gth, 4-6m ht

Small - Medium Trees
Betula pendula 14-16cm, 3-4m ht
Sorbus aria 'Lutescens' 14-16cm, 3-4m ht
Pyrus 'Chanticleer' 14-16cm, 3-4m ht
Sorbus aucuparia 12-14cm, 2.5-3.5m ht

Proposed Promenade, Flood Conveyance Channel or Communal Space Trees

Large Trees
Alnus glutinosa 14-16cm, 3-4m ht
Quercus petrea 14-16cm, 4.25-6m ht
Fagus sylvatica 14-16cm, 4.25-6m ht
Pinus sylvestris 120-150cm, RB
Larix decidua 120-150cm, RB
Salix alba 14-16cm, 4.25-6m ht
Specimens:
Cedrus atlantica 'Glauca' 20-25cm ht, 6m ht
Quercus petraea 20-25cm, 6m ht
Pinus sylvestris 1,9m-2m ht, RB

Small - Medium Trees
Betula pendula 14-16cm, 3-4m ht
Sorbus aria 'Lutescens' 14-16cm, 3-4m ht
Pyrus 'Chanticleer', 14-16cm, 3-4m ht
Sorbus aucuparia 12-14cm, 2.5-3.5m ht

Shrub planting

Low height ornamental shrubs/plants
Ajuga reptans va
Berberis 'Amstelveen'
Carex sp.
Ceanothus 'Blue Mound'
Ceanothus 'Glorie de Versailles'
Centaurea montana
Erica spp.
Hedera helix 'Hibernica'
Lavandula angustifolia 'Blue Cushion'
Miscanthus spp.
Pinus mugo 'Mops'
Rudbeckia 'Goldstrum'
Spirea japonica 'Firelight
Santolina cham. 'Nana
Sarcococca spp.
Stipa spp

Medium height ornamental shrub
Choisya ternata 45-60cm, 3L pot
Cornus sanguinea 60-90cm,br.
Corylus avellana 60-90cm, br.
Cytissus 'All Gold' 45-60cm, 3L pot
Hypericum 'Hidcote 45-60cm, 3L pot
Lavandula ang. 45-60cm, 3L pot
Lonicera pileata 45-60cm, 3L pot
Viburnum davidii 30-45, 2L pot
Specimen:
Amelancier Canadendis 90-120cm
Cotinus coggygria 90-120cm
Rhus thypina 90-120cm

Flood Conveyance Channel/ Rain Garden planting

Herbaceous plants
Iris psedacorus
Botomus umbellatus
Typha angustifolia
Filipendula vulgaris
Eupatorium cannabium
Lythum salicaria
Astilbe vars
Carex pendula
Lonicera pileata
Actea spp.

Shrubs
Cornus sanguinea
Crataegus europaeus
Ilex aquifolium
Ligustrum vulgare
Prunus spinosa
Rosa canina
Viburnum opulus
Salix caprea

A) PROPOSED STREET TREES

Acer campestre

Tilia cordata 'Greenspire'

Sorbus aucuparia

Pyrus 'Chanticleer'

Corylus colurna

Sorbus aria lutescens

Liquidambar styraciflua

Betula pendula

A) PROPOSED PROMENADE, FLOOD CONVEYANCE CHANNEL OR COMMUNAL SPACE TREES


Alnus glutinosa


Quercus petraea


Salix alba


Cedrus atlantica


Larix decidua


Pinus sylvestris


Fagus sylvatica


Sorbus aria lutescens


Pyrus 'Chanticleer'


Sorbus aucuparia


Betula pendula

B) SHRUB PLANTING


Ajuga reptans va


Berberis stenophylla


Carex sp.


Ceanothus 'Blue Mound'


Ceanothus 'Gloire de Versailles'


Hedera helix 'Hibernica'

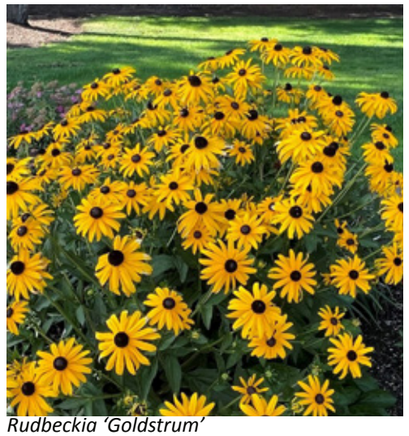

Lavandula angustifolia 'Blue Cushion'


Pinus mugo 'Mops'


Miscanthus spp.


Centaurea montana


Erica spp.


Rudbeckia 'Goldstrum'


Spirea japonica 'Firelight


Santolina cham. 'Nana

B) SHRUB PLANTING


Sarcococca spp.


Stipa spp


Choisya ternata


Cornus sanguinea


Cytisus 'All Gold'


Hypericum 'Hidcote


Lonicera pileata


Viburnum davidii


Amelanchier Canadensis


Cotinus coggygria


Rhus typhina


Corylus avellana

C) FLOOD CONVEYANCE CHANNEL/ RAIN GARDEN PLANTING
HERBACEOUS PLANTS


Iris psedacorus


Butomus umbellatus


Typha angustifolia


Filipendula vulgaris


Eupatorium cannabinum


Lythrum salicaria.


Astilbe vars


Carex pendula


Lonicera pileata


Actaea spp.

C) FLOOD CONVEYANCE CHANNEL/ RAIN GARDEN PLANTING

SHRUBS

Cornus sanguinea

Crataegus europaeus

Ilex aquifolium

Ligustrum vulgare

Prunus spinosa

Rosa canina

Viburnum opulus

Salix caprea

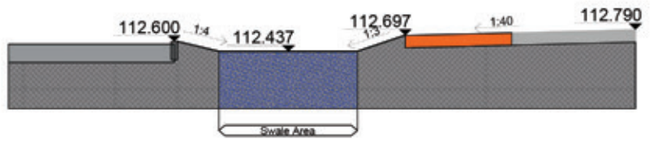
4. SUD'S STRATEGY

Key plan NTS

The project complies with CDP 2022-2028 and with SDCC Sustainable Drainage Systems.
A SUD's Layout Plan incluiding a flow route analisys is presented in the Engineers' drawings and report.

13 SUD's were also defined along the northern and eastern boundary of the Site. These are biotention areas, with shallow landscaped depressions whith, enhanced vegetation and filtration to remove pollution and reduce runoff downstream.

With a total area of 400 square meters these bioretention areas are aimed at managing and treating runoff from frequent rainfall events.



S1 Swale Area Section S1
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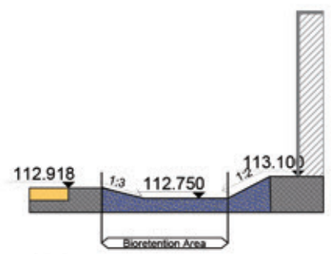

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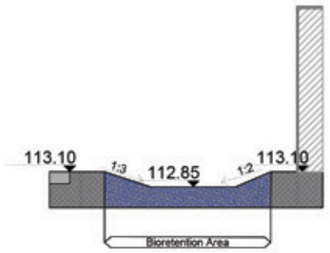

S3 Bioretention Area Cross Section S3
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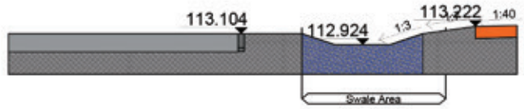

S4 Swale Area Cross Section S4
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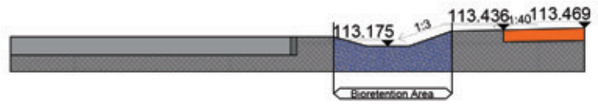
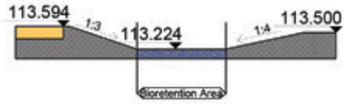


S5 Bioretention Area Cross Section S5
SCALE: 1:100@A1

S6 Bioretention Area Cross Section S6
SCALE: 1:100@A1



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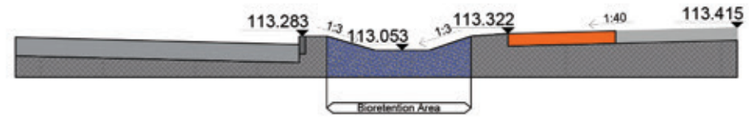

S8 Bioretention Area Cross Section S8
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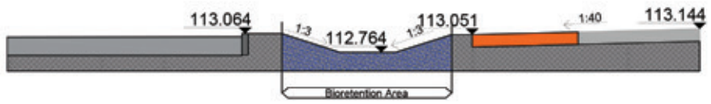

S9 Bioretention Area Cross Section S9
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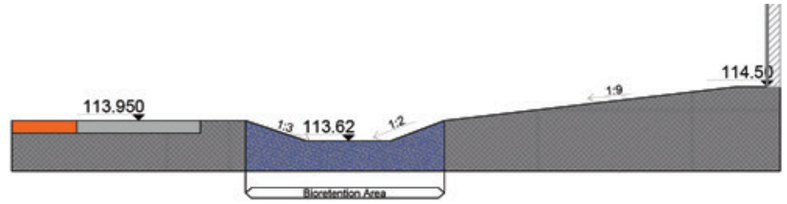

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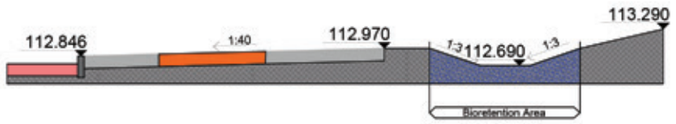
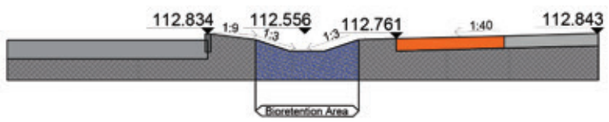
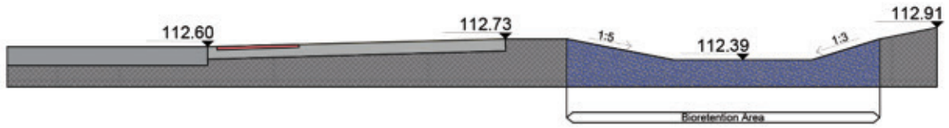


S10 Bioretention Area Cross Section S10
SCALE: 1:100@A1



S11 Bioretention Area Cross Section S11
SCALE: 1:100@A1

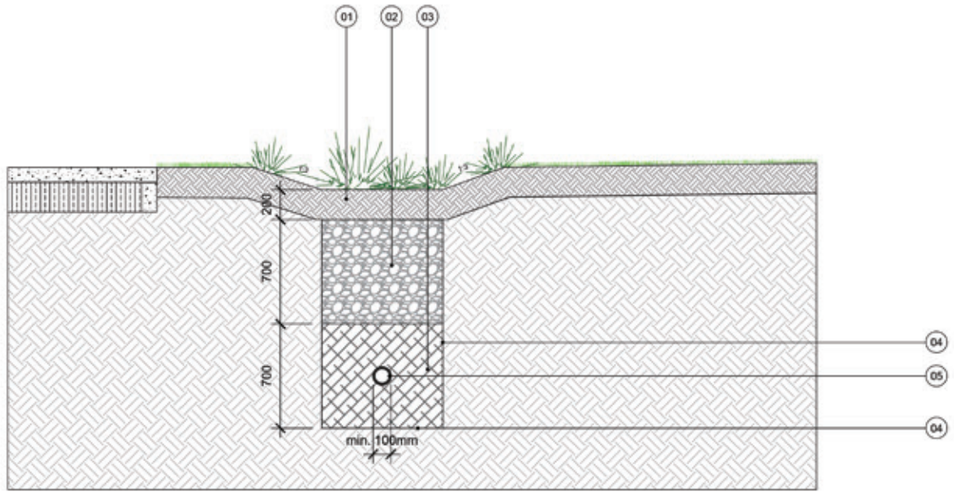


S12 Bioretention Area Cross Section S12
SCALE: 1:100@A1

NOTES

1. 'Root Zone' topsoil
2. 700mm pea gravel depth to BS 882
3. 700mm sand filter media 1mm to 0.5mm nominal size
4. Permeable geotextile filter fabric
5. Perforated pipe/underdrain system (100mm min. dia.) wrapped in permeable geotextile (terram 1000 or similar)

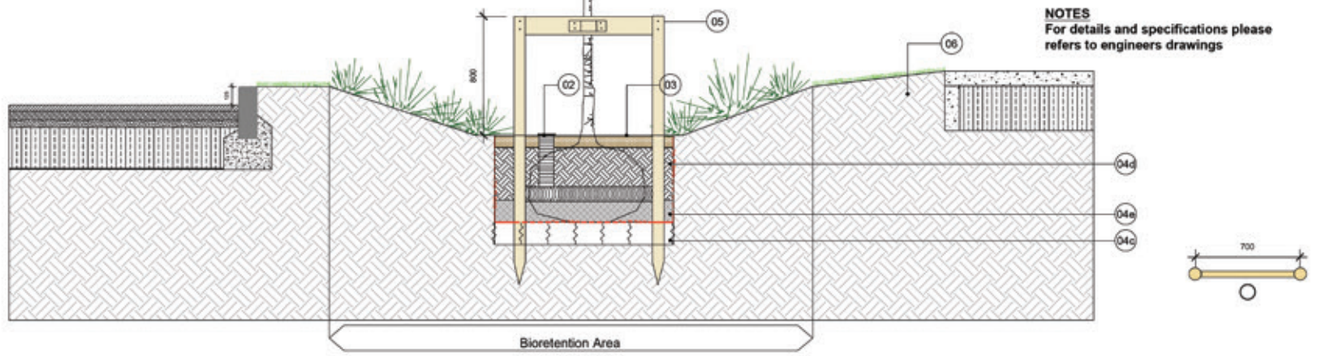
NOTES
For details and specifications please refers to engineers drawings



TP1 Bioretention swale detail
SCALE 1:25@A1

NOTES
1. **Tree** to have a clear stem height of 2000mm.
2. **Irrigation**
   a) 100mm diameter perforated flexible plastic drainage pipe positioned as shown over rootball with one end open to surface to facilitate watering.
3. **Mulch**
   a) 50mm bark mulch in 1000mm Ø circle to base of trunk.
4. **Tree Pit**
   a) Size; 1000x1000x500mm. Excavation to depth of rootball.
   b) Remove the specified depth of topsoil and set aside for reuse.
   c) Scarify sides, break up base of pit to a depth of 200mm and incorporate a soil ameliorant into base.
   d) Back fill pit with subsoil allowing 450mm for topsoil and mulch layers.
   e) Back fill pit with topsoil mixed with soil ameliorants in 150mm firmed-in layers. All planting to receive a minimum of 25lt water per m² immediately after planting.
5. **Tree Support**
   a) 75mm diameter stakes pressure treated driven 1000mm below ground 800mm above ground with specified biodegradable adjustable tie affixed to tree & stake.
6. **Existing sub-soil**

NOTES
For details and specifications please refers to engineers drawings



TP2 Standard tree pit Double stake
SCALE 1:25@A1

Double stake detail

5. GREEN SPACE FACTOR

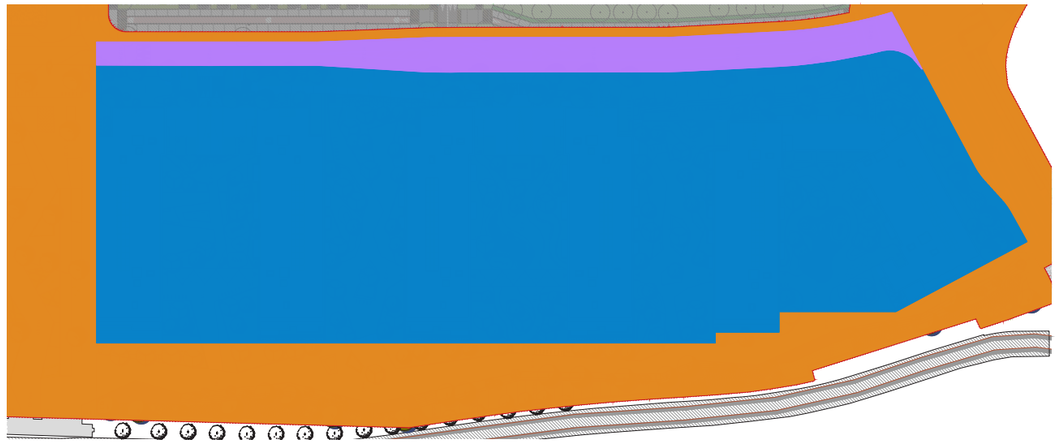
Green Space Factor Tool
South Dublin County Council

Comhairle Contae Átha Cliath Theas
South Dublin County Council

User input indicated by Orange fields

User Input	
Zoning lookup	Minimum GI Score
RES-N	0.5

1. Enter Development Site Area m² HERE►	17623		
Surface Type (see tab for detailed descriptions)	**Factor**	**Proposed Surface Area m²**	**Factor Values**
1. Short Lawn	0.3	1690	507
2. Tall Lawn (wild, not mown)	0.5	402	201
3. Permeable Paving	0.3	4961	1488.3
4. Vegetation			
4a. Vegetation-Shrub below 3m	0.4		0
4b. Vegetation-Shrub / Hedgerow above 3m	0.5		0
4c. Vegetation-Pollinator friendly perennial planting	0.5	3634	1817
4d. Vegetation-Preserved hedgerow	1.2	0	0
5. Trees			
5a. New trees	0.6	1870	1122
5b. Preserved trees	1.2		0
7. SuDS intervention (rain garden, bioswale)	0.6	400	240
9. Green Roof			
9a. Green Roofs - Intensive green roof (substrate is 200-1200mm in depth)	0.7		0
9b. Green Roofs - Extensive green roof (substrate is 80-200mm in depth)	0.6	5843	3505.8
10. Green wall	0.4	0	0
11. Retained Open Water	2	0	0
12. New open water	1.5	0	0
Total Equivalent Surface Area of Greening Factors		**18,800.00**	



Scheme illustrating the considered area for the Green Space Factor calculation in blue

As requested by SDCC the Green Space Factor calculation is presented for the current application, as illustrated in the scheme above, with a total 1.762 ha. The area of the road is not considered since there are no changes in this area from the permitted application (only road markings).

The mimimum required GI score is met within the current application.

Green Factor Numerator	**8881.10**

Minumum Required GI score	Final GI score	Result
0.5	0.50	Pass

6. PLANTS SPECIFICATIONS AND MAINTENANCE

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 12 months defects period on all soft landscape works implemented. Thereafter the landscaping will be maintained in perpetuity in consecutive 12 month 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.

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
- NPSNational Plant Specification
- BS 3998 Tree Works: Recommendations
- BS 4428 Code of Practice for general Landscape Operations
- BS 5837 Trees 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 horizontals
- 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, 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 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: Backfill with fine sand up to 400mm below the proposed ground level. Then fill with 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.

1.19.2 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.

1.19.3 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.

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 EEuropean Federation of Green Roof Associations, (EFB), or equivalent, and in accordance with the drawings provided.

1.26 Grass and Meadow Seeding
1.26.1 Herbicide Application
- Type: Suitable for suppressing perennial weeds and existing grass.
- Timing: Allow fallow period before cultivation.
- Duration: As manufacturer's recommendation

1.26.2 Seedbed cleaning before sowing
Operations: Kill pernicious weeds with selective contact herbicide.

1.26.3 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 administrating body depending on the time of year and the condition of the soil.
- Tilth: Reduce topsoil to a tilth 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 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 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.

Weed Control
Lawn grass areas shall be treated using an approved selective herbicide according to manufacturer's instructions. Areas of invasive and noxious species in the lawn or areas, shall be spot sprayed.

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.

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.

2.1.3 Meadow Grass
Meadow grass cutting will occur twice in the first year in spring once grass has established and in August/September to improve growth. There after it can be cut annually. Cut grass should be removed from field to stop rotting and damage to grass growth.

Weed Control
Areas of invasive and noxious species in meadow grass areas, shall be spot sprayed.

Fertilizer
Fertiliser is not to be applied to meadow grass areas unless there is no establishment and only then at dilute rates.

2.1.4 Swale
Planting to be kept well-weeded in the first year. Once good vegetation cover is achieved, the annual need for weeding will be reduced. Leave growth standing through winter Cut back in Spring if necessary. Use stems as a mulch. Water upon establishment and in exceptionally dry periods.

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 Failed areas

Areas of grass which fail or are damaged or worn shall be reinstated by re-turfing or re-seeding in accordance with the original specification.

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.

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, 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. 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.

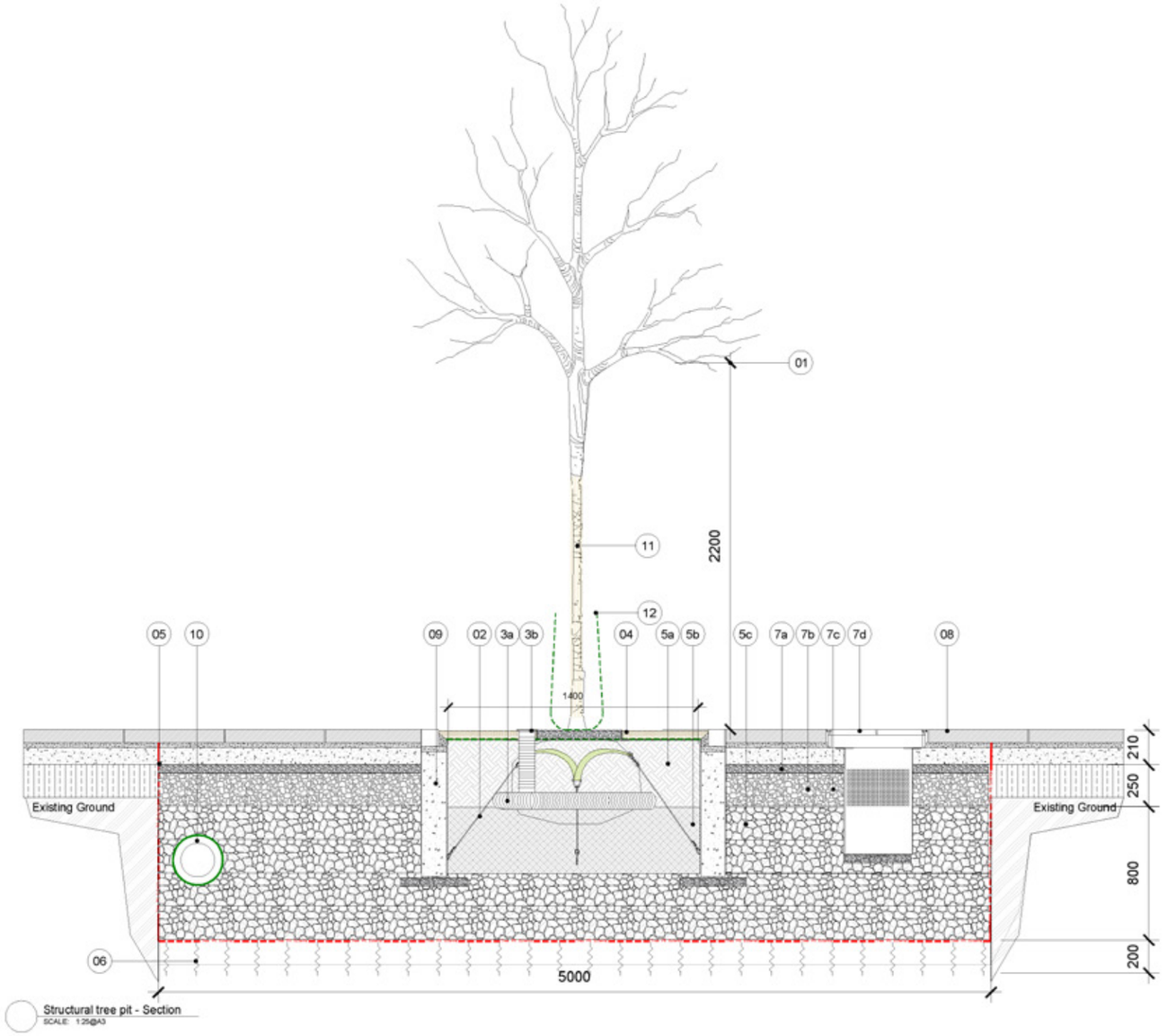
2.9 Woodland/Scrub Area Management
- Woodland areas specified shall be maintained in a healthy, vigorous condition and free from litter and noxious weeds throughout the year.
- Certain areas of woodland may require thinning over the 5-year period. These areas shall be thinned by no more than 10%, removing only the weaker tree specimens. Thinning shall be carried out as directed onsite by administrative authority.
- Woodland areas shall be sprayed 3 times per year with a suitable contact herbicide. Contractor to ensure that no damage is caused to trees by herbicide application.
- Areas of natural scrub as indicated on the maintenance plans shall be contained by trimming back once per year. The contractor shall spray the perimeter of the scrub areas with a contact herbicide to control noxious weeds. This shall be carried out 2no. times per annum.
- All clearance operations within woodland and scrub areas shall be carried out outside of the bird-nesting season to preserve the bird life in the area. This season extends from the 1st March to 31st August.

2.10 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.

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						*				*		
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	***	***	***	***	***	***	***	***	***	***	***	***

F) Planting Structural Detail - Tree pit



NOTES

1. **Tree to have a clear stem height of 2200mm.**

2. **Tree Support**
   a) Deadman anchoring system attached to concrete structure,with four high tensile wires, root-ball protection and ratchet strap.

3. **Irrigation**
   a) 100mm diameter perforated flexible plastic drainage pipe positioned as shown around rootball.
   b) Stainless steel access cover
   Size; 100x100mm.

4. **Surfacing**
   50mm layer of 10mm self compacting gravel laid on a geotextile membrane. Ø500mm metal collar to protect tree stem from gravel.

5. **Tree pit**
   a) Planting soil composition; 400mm approved sandy loam.

   b) **CU Structural soil ®**
   Supplier; Landtech soils
   Composition; 20-40mm crushed rock with soil installed in 200mm layers. Slow-release fertiliser 100 gr/m² is applied on each structural layer.

6. Loosening of subsoil to a depth of 200mm

7. **Aerating bearing layer**
   a) 50mm crushed stone, 8-12mm in size
   b) 200mm crushed stone, 35-70mm in size.
   c) Air Inlet on 50mm cl804 harcore.
   d) Access cover

8. Paved Surface

9. Precast concrete retaining structure.
   Size; 125mm thick section

10. Root barrier membrane to protect utility ducts in structural soil.

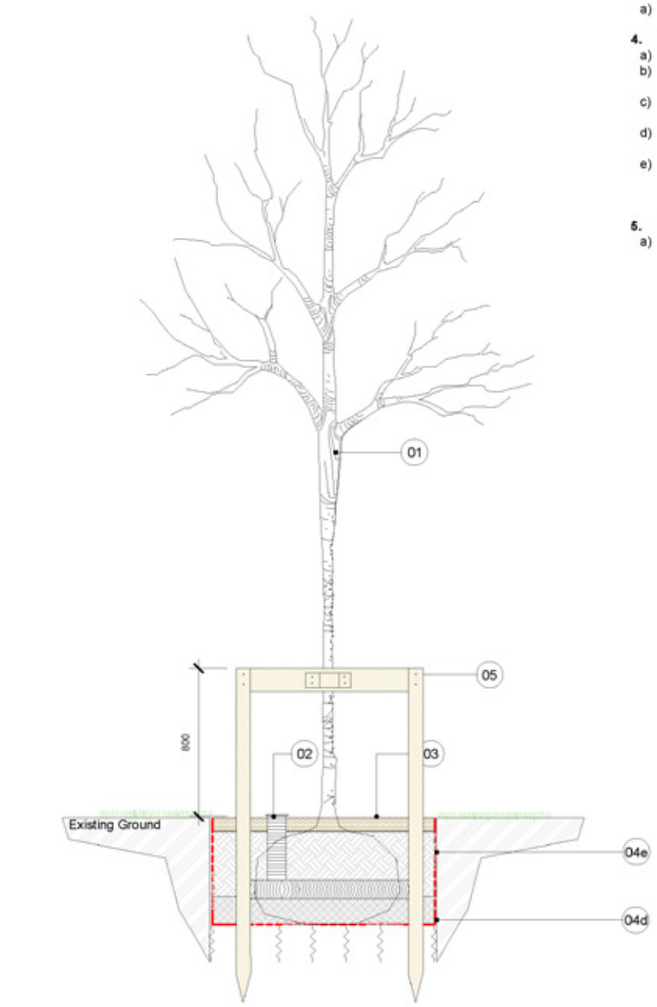
11. **Tree stem protection**
    Willow wrap

12. **Slow release watering bag**
    Capacity; 50 liters

Structural Tree Pit - Quantities

Fill material	Per treepit	1
Structural soil	15.75m³	15.75m³
Planting soil	1.75m³	1.75m³
Aeration layer	4.45m³	4.45m³

G) Planting Detail



TP1 Standard tree pit Double stake
SCALE: 1:25@A3

NOTES

1. Tree to have a clear stem height of 2200mm.

2. **Irrigation**
   a) 100mm diameter perforated flexible plastic drainage pipe positioned as shown over rootball with one end open to surface to facilitate watering.

3. **Mulch**
   a) 75mm bark mulch in 1200mm Ø circle to base of trunk.

4. **Tree Pit**
   a) Size; 1200x1200x500mm. Excavation to depth of rootball.
   b) Remove the specified depth of topsoil and set aside for reuse.
   c) Scarify sides, break up base of pit to a depth of 200mm and incorporate a soil ameliorant into base.
   d) Back fill pit with subsoil allowing 425mm for topsoil and mulch layers.
   e) Back fill pit with topsoil mixed with soil ameliorants in 150mm firmed-in layers. All planting to receive a minimum of 25lt water per m² immediately after planting.

5. **Tree Support**
   a) 75mm diameter stakes pressure treated driven 1000mm below ground 800mm above ground with specified biodegradable adjustable tie affixed to tree & stake.

Double stake detail

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