

# CUNNANE STRATTON REYNOLDS LAND PLANNING & DESIGN

KILHEDGE LANE RESIDENTIAL DEVELOPMENT AT  
KILHEDGE LANE, LUSK,  
COUNTY DUBLIN

LANDSCAPE STRATEGY & DESIGN REPORT  
21532-2-D01

May 2021

for Túath Housing



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## 1.0 SITE AND PLANNING CONTEXT

### 1.1 Site Location and Context

The proposed development site is located at Kilhedge Lane, Lusk, Co. Dublin. The site is located at the south-western edge of Lush Village. Its total area is 0.86 ha. The site is delimited to the east and south by Chapel Farm Road and Chapel Farm Mews and to the west by Chapel Farm Drive road. To the north-west of the site, construction of a new housing estate at Dun Emer and associated upgrading works of Kilhedge Lane commenced in May 2021. Thus, the current proposed development is, in a way, an infill development between established housing and housing being under construction. Also, the site is bordered by residential development on east and south and agricultural fields to the west. The proposed development site slopes gently from the north-eastern edge to the south western boundary of the site with an average difference of 1.5m. Mixed native hedgerow is situated along the northwest boundary.

### 1.2 Policy context

The site is zoned 'RS – Residential' and the zoning objective is to 'provide to residential development and protect and improve residential amenity' as stated on the Map Sheet No. 6 of Fingal County Council Development Plan 2017-2023.

We note, Local Objective Point '22' is marked on the Development Plan's map at the open space south-west of the subject site. The objective is to 'require the provision of good pedestrian and cycle links between the Chapel Farm Estate, the school site and the open space' at the neighbouring area.

The planning related landscape policies and objectives that relate to the proposed site are listed as follows:

#### Natural Heritage Policy:

- NH 07: Ensure that the management of the Council's open spaces and parks is pollinator-friendly, provides more opportunities for biodiversity, and does not introduce or lead to the spread of invasive species.
- NH 27: Protect existing woodlands, trees and hedgerows which are of amenity or biodiversity value and/or contribute to landscape character and ensure that proper provision is made for their protection and management.
- NH 37: Ensure that new development meets high standards of siting and design.

#### Green Infrastructure Policy:

- GI 02: Create an integrated and coherent green infrastructure for the County by requiring the retention of substantial networks of green space in urban, urban fringe and adjacent countryside areas to serve the needs of communities now and in the future including the need to adapt to climate change.
- GI 19: Set targets for the provision of green infrastructure elements such as trees and green roofs as part of the preparation of Local Area Plans.
- GI 24: Ensure biodiversity conservation and/or enhancement measures, as appropriate, are included in all proposals for large scale development such as road or drainage schemes, wind farms, housing estates, industrial parks or shopping centres.
- GI 25: Integrate provision for biodiversity with public open space provision and sustainable water management measures (including SuDS) where possible and appropriate.
- GI 36: Ensure green infrastructure provision responds to and reflects landscape character including historic landscape character, conserving, enhancing and augmenting the existing landscapes and townscapes of Fingal which contribute to a distinctive sense of place.

## SHELTERED HOUSING DEVELOPMENT AT KILHEDGE LANE, LUSK, CO. DUBLIN



Site location (site marked in red).



### Zoning Objectives

CI - Community Infrastructure	Provide for and protect civic, religious, community, education, health care and social infrastructure
LC - Local Centre	Protect, provide for and/or improve local centre facilities
OS - Open Space	Preserve and provide for open space and recreational amenities
RA - Residential Area	Provide for new residential communities subject to the provision of the necessary social and physical infrastructure
RS - Residential	Provide for residential development and protect and improve residential amenity
RU - Rural	Protect and promote in a balanced way, the development of agriculture and rural-related enterprise, biodiversity, the rural landscape, and the built and cultural heritage
TC - Town and District Centre	Protect and enhance the special physical and social character of town and district centres and provide and/or improve urban facilities

### Specific Objectives

Architectural Conservation Area	Greater Dublin Area (GDA) Cycle Network	Recorded Monuments
Development Boundary	Local Objective Points	
Zone of Archaeological Notification	Protected Structures	

Note :

Land use zoning map. Source: Fingal County Development Plan 2017-2023 (site marked in red).

1.3 Site photos



1. Existing hedge and level change with round tower in far distance.



2. Kilhedge Lane, entrance to open space and overlooking homes to the north.



3. View towards local shops



10. Adjacent lands to the south



4. Existing hedge and hedgerow trees – showing the slope of the lands and views towards Chapel Farm Mews



9. Southern-most corner of the site looking north



5. Eastern corner of the site looking along Chapel Farm Mews



8. Along Kilhedge Lane looking south showing the mature hedgerows adjacent to the road



7. Along Kilhedge Lane looking north showing ditches and mounds and the proximity to local shops



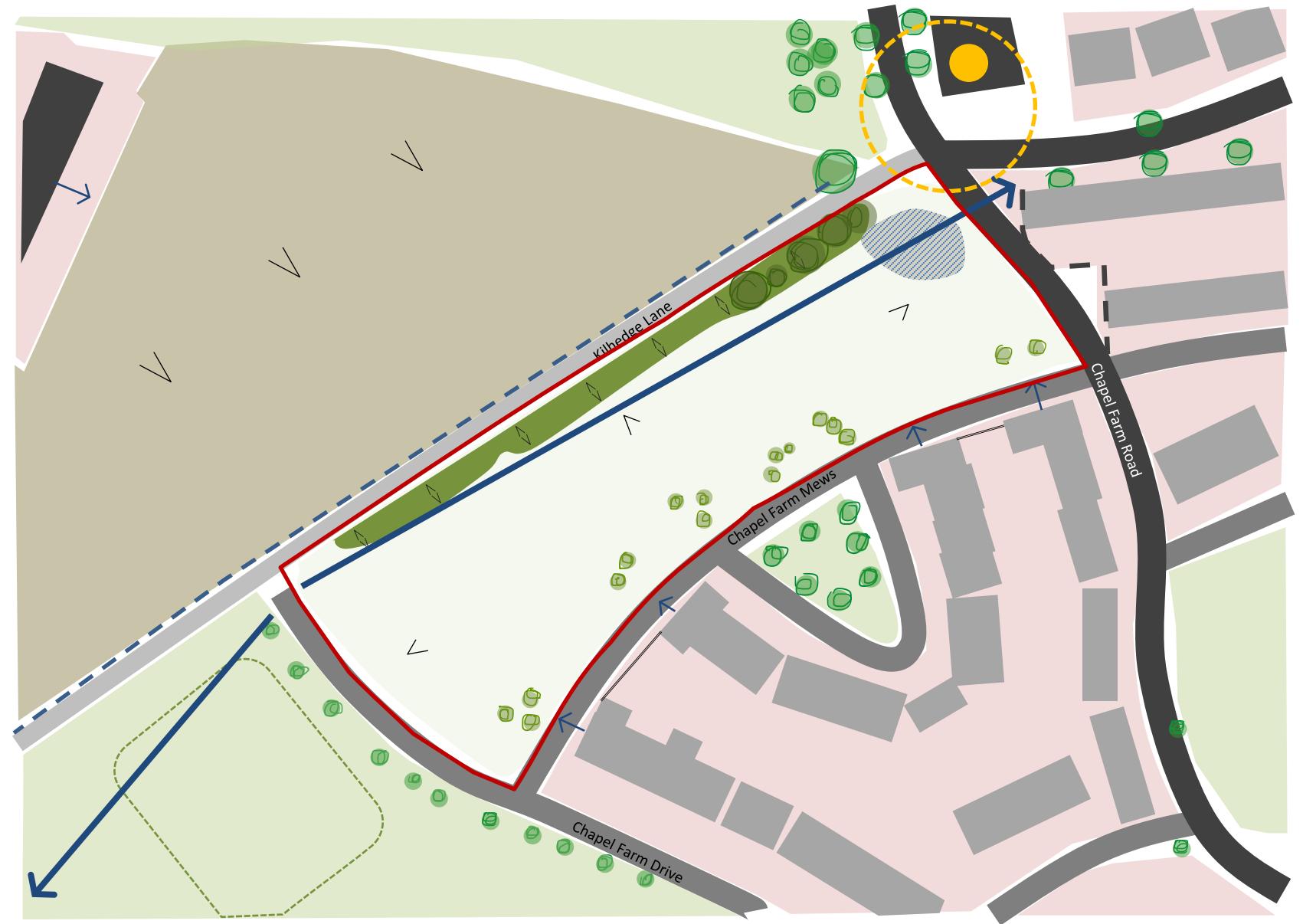
6. View towards Chapel Farm Copse.

**2.1 Aims and Objectives**

It is proposed to:

- Potential connectivity to local shops making the open space active and well-used.
- Potential to re-plant young trees within the site.
- Views towards Lusk Round Tower.
- To create space that encourages outdoor activities.
- To incorporate native plants to enhance biodiversity.
- Potential to re-plant young trees within the site.
- To utilise the existing levels so that the development is incorporated into the wider urban context whilst still retaining the character.
- To provide access for the mobility impaired and wheelchair users.

- Site boundary
- Incidental amenity green space
- Amenity green space
- Grassland / scrub – zoned for housing
- Existing hedgerows
- Existing trees
- Existing young trees - could be replanted
- Levelled out land
- Slopes
- Private land
- 2-3 storey buildings
- 2 storey homes
- 2m high walls facing the site
- Passive frontages
- Views towards the site from homes
- Long distance views
- 6m wide local streets
- 5-5.5m local streets
- Narrow lane
- Local shops
- Local hub
- Wet ground
- Ditch



**2.2 Design Development: Places, Spaces and Concepts**

The proposed sheltered housing for the elderly will include 31 no. single-storey dwellings in a layout that groups the units in two blocks around a centrally located Public Open Space. Within the blocks, the units are arranged around shared garden areas. All units are directly accessible from public roads or the proposed Public Open Space. The block on the east side includes a Communal Facility facing the public Open Space and has a direct access to the adjoining shared garden space. Internal layout of all dwellings will comply with space standards of Fingal County Council. All dwellings will be provided with access to the shared garden area including shared bin store and bicycle parking areas. Also, car parking will be provided as required by Development Plan Standards.

**The proposal aims to create a patchwork of public and semi-private gardens and open spaces that connect existing facilities and green infrastructure while responding to and mitigating microclimate.**

The following types of spaces are proposed:

1. **A well-treed street frontage to the surrounding roads.**
2. **Screening and edge planting along boundary wall.**
3. **Public open space: seating area, stage with a play sculpture, bulb and swale planting.**
4. **Semi-privately used Shared Gardens: seating and lawn areas.**

COMMUNAL COURTYARDS:

Shared courtyards have been designed to create a series of garden spaces that

1. Optimize the sense of space,
2. Create defensible space outside homes and
3. Respond positively to micro-climate.

As such:

- Lawns and seating areas are located in sunny spots.
- Groves of trees are planted in shady spaces and at gable ends to provide shelter and visual interest.
- Hedges and perennial borders divide space and add colour, habitat and screening.
- Bin stores and bike shelters are will be in the shade

PUBLIC AMENITY SPACE:

The park provides a central focus space within the development with paths that link to local shops and destinations. The park includes a seating area with a raised platform for events in the sunniest area. A robust play sculpture could be integrated to provide visual interest. A sense of enclosure is provided by planted swales / habitat planting.

The courtyard servicing the community facility will be in part-sun for flexibility.

The design responds to the urban form created by the buildings.

Bulb and swale planting areas will be created within the public open space.

Paths follow desire lines. Entrances are highlighted with high quality materials.

**Open Space**

The proposed landscaped open space will consist of 3,443m<sup>2</sup> of landscaped space of which 2,050m<sup>2</sup> is destined to the semi-privately used Shared Gardens and 1085.9m<sup>2</sup> will be Amenity Open Space (12.6 % of the total site area).



2.3 Landscape Masterplan



- LEGEND**
- Existing hedgerow and trees to be removed
  - Proposed Street Trees
  - Proposed Amenity Trees
  - Proposed Feature Shrubs / Small trees
  - Amenity Grass
  - Shrub Planting
  - Bulb planting
  - Swale planting
  - Formal hedge
  - Raised planters
  - Permeable block paving with natural granite
  - Granite finish permeable paving flags
  - Composite timber decking
  - Tarmac Road - refer to engineer's detail
  - Permeable concrete paviers - refer to engineer's detail
  - Brushed concrete footpath - refer to engineer's detail
  - Raised platform with play sculpture
  - Cast Iron and Timber Benches
  - 450mm low concrete wall with timber slats
  - Bike shelter
  - Gates
  - Light column - Refer to L8ME031 ME 1000 External Lighting
- Boundary treatment**
- 2100 mm high fencing with 900mm low brick wall (matching height low plant if required) and 1200 galvanneal steel railing - refer to architect's detail
  - 2100 mm high full height brick wall - refer to architect's detail

<p><b>Proposed Street Trees</b> Planted in same species groups or lines on individual streets</p> <p><b>Small - Medium Trees</b>  <i>Acer campestre</i> 'Streetwise' 14-16cm gth, 4-6m ht  <i>Acer campestre</i> 'Elaeagn' 14-16cm gth, 4-6m ht  <i>Tilia cordata</i> 'Greenspire' 14-16cm, 5-6m ht  <i>Sorbus aria</i> 'Lutescens' 14-16cm, 3-4m ht  <i>Sorbus aucuparia</i> 14-16cm, 3-4m ht</p>	
<p><b>Proposed Parkland, Open Spaces and Feature Trees</b> To include species from the above list and selected species from the following:</p> <p><b>Large Trees</b>  <i>Alnus glutinosa</i> 14-16cm, 3-4m ht  <i>Quercus petraea</i> 14-16cm, 4.25-6m ht  <i>Fagus sylvatica</i> 14-16cm, 4.25-6m ht</p>	
<p><b>Proposed Feature Small Trees and Shrubs</b> To include selected species from the following:</p> <p><b>Trees</b>  <i>Crataegus monogyna</i> 12-14cm, 2.5-3.5m ht  <i>Prunus 'Kanzan'</i> 12-14cm, 2.5-3.5m ht  <i>Pyrus 'Chanticleer'</i> 14-16cm, 3-4m ht  <i>Sorbus aucuparia</i> 12-14cm, 2.5-3.5m ht</p>	

<p><b>Shrub planting (153mq)</b> Indicative species list</p> <p><b>Low height ornamental shrubs/plants - max. ht. 40-150cm, 2L min. pot size and planted at 4m<sup>2</sup></b></p> <p><i>Ajuga reptans</i> var  <i>Aster novi-belgii</i>  <i>Berberis 'Amataivoon'</i>  <i>Cornus</i> sp.  <i>Erica</i> spp.  <i>Goranium m. 'Czako'</i>  <i>Hedera helix 'Hibernica'</i>  <i>Lavandula angustifolia</i>  <i>Miscanthus</i> spp.  <i>Pinus mugo 'Mops'</i>  <i>Rosa 'Rhapsody Blue'</i>  <i>Rudbeckia 'Goldsturm'</i>  <i>Spiraea japonica 'Firelight'</i>  <i>Sarcococca</i> spp.</p>		<p><b>Medium height ornamental shrub mix at 3m<sup>2</sup></b></p> <p><i>Cholera formata</i> 45-60cm, 3L pot  <i>Cornus sanguinea</i> 60-90cm, br.  <i>Corylus avellana</i> 60-90cm, br.  <i>Cytisus 'All Gold'</i> 45-60cm, 3L pot  <i>Fuchsia 'Riccartonii'</i> 45-60cm, 3L pot  <i>Lavandula ang.</i> 45-60cm, 3L pot  <i>Lonicera pilealis</i> 45-60cm, 3L pot  <i>Viburnum davidii</i> 30-45, 2L pot  <i>Rosa 'Rhapsody Blue/Tenaxistria'</i>  <b>Specimen:</b>  <i>Amelanchier Canadensis</i> 90-120cm  <i>Cotinus coccinea</i> 90-120cm  <i>Cordylite australis</i> 90 cm</p>
<p><b>Hedges</b> Planted in single species lengths of hedge varied randomly across site. 60-90cm at 4m/lin</p> <p><i>Fagus sylvatica</i>  <i>Prunus lusitanica</i></p>		

<p><b>Swale Planting (58mq)</b> Low-Medium height shrubs/plants. Max height 60-150mm. 2L min. pot size and planted at 5m<sup>2</sup> unless specified.</p>	
<p><b>For the base and inlet on moisture-retentive soils</b></p> <p><i>Actaea racemosa</i> 15%  <i>Butomus umbellatus</i> 10%  <i>Caitha palustris</i> 10%  <i>Lycchnis flos-cuculi</i> 15%  <i>Iris pseudacorus</i> 15%  <i>Lythrum salicaria</i> 15%  <i>Typha angustifolia</i> 10%  <i>Sparganium erectum</i> 10%</p>	<p><b>Plants tolerate temporarily wet soil as well as dry</b></p> <p><i>Ajuga reptans</i> 1L pot size at 7m<sup>2</sup> - 10%  <i>Astilbe vars</i> 10%  <i>Lythrum salicaria</i> 10%  <i>Campanula glomerata</i> 1L pot size at 7m<sup>2</sup> 10%  <i>Deschampsia cespitosa</i> 10%  <i>Eupatorium cannabinum</i> 10%  <i>Fliependula vulgaris</i> 15%  <i>Iris pseudacorus</i> 10%  <i>Iris sibirica</i> 10%*</p>
<p><b>Bulb Planting - (80mq) 110 sq.m</b></p>	

Not to scale - refer to 21532-1-100 Landscape Masterplan

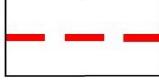
### 2.4 Open Space Use and Management

The proposed development will NOT be taken in charge. The full extent of the proposed estate will be managed by a management company. The works proposed to the footpath along Kilhedge Lane and the centred public open space will be taken in charge.

There are two main communal open spaces within the development which have been designed to accommodate south facing sitting and amenity areas.

The Public open space which connects the two communal open spaces from has been designed as an active amenity area . There are several incidental green spaces and areas of planting around the development which creates structural planting and green infrastructure within the development.

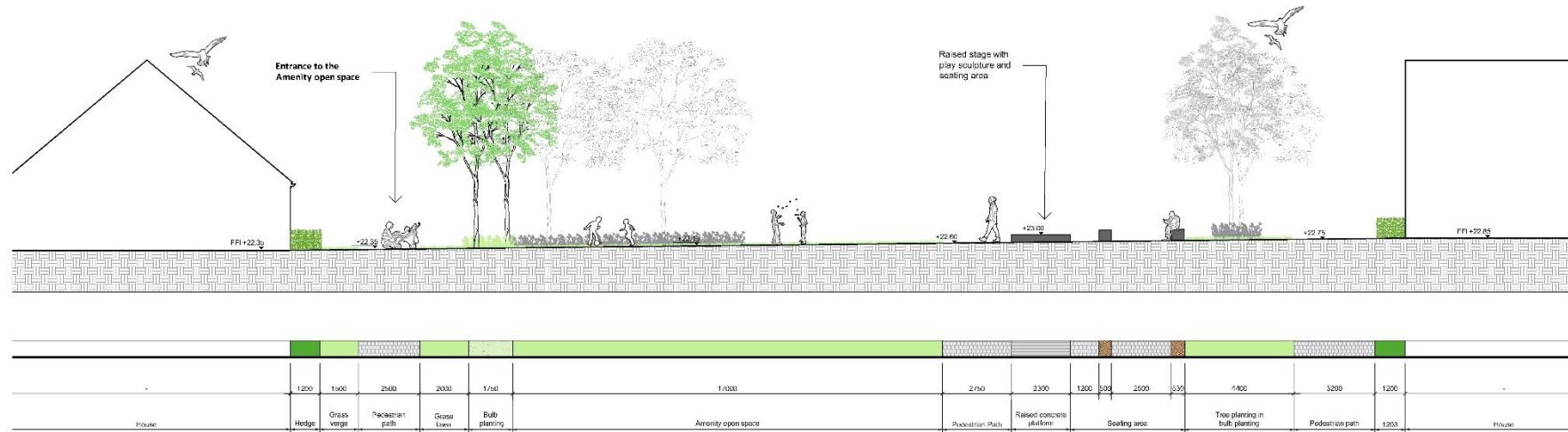
#### LEGEND

-  Site Boundary
-  Public open space to be taken in charge
-  Semi-private Amenity Space managed by Tuath Housing

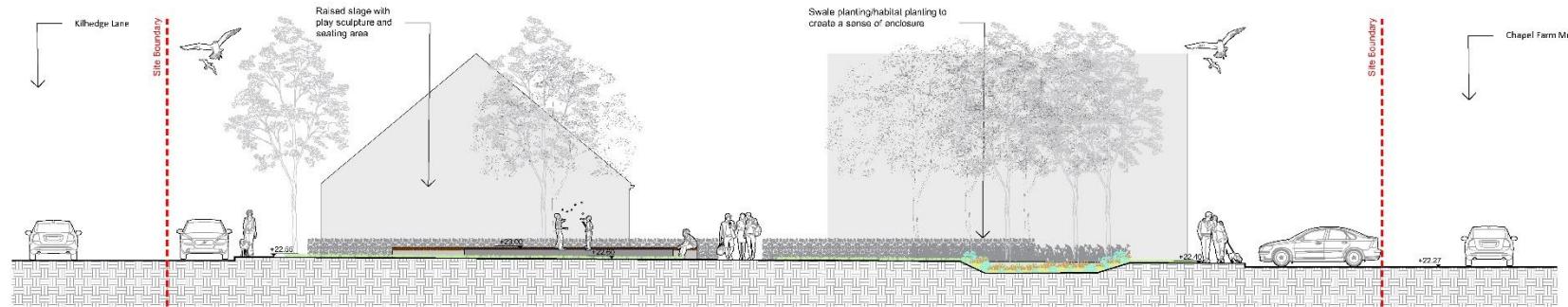
Not to scale- refer to 21532-1-120 Open Space Management plan



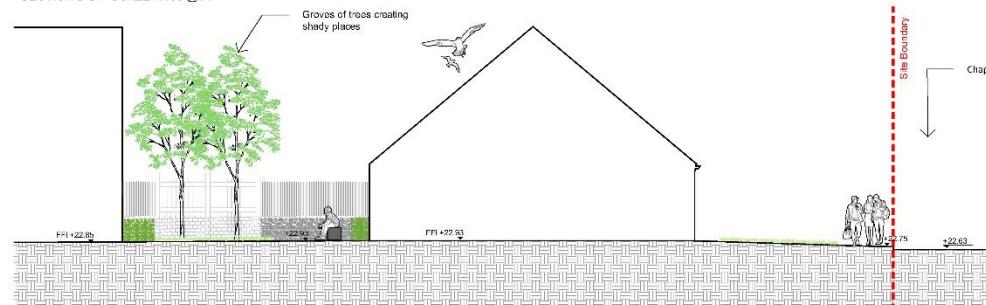
2.5 Landscape Masterplan and Proposed Services



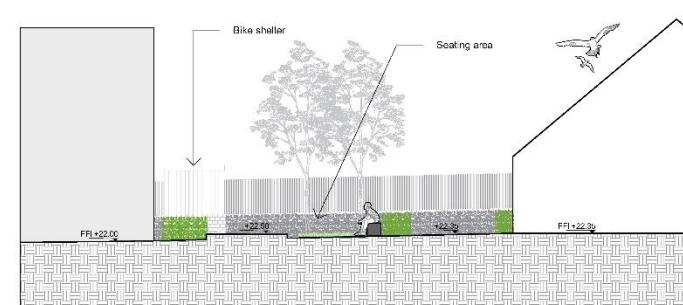
SECTION A-A1- SCALE 1:100 @ A1



SECTION B-B1- SCALE 1:100 @ A1



SECTION C-C1- SCALE 1:100 @ A1



SECTION D-D1- SCALE 1:100 @ A1

Not to scale- refer to 21532-1-200 Landscape Sections

3.0 MATERIAL FINISHES

All materials will be designed to a high standard, be robust and withstand a long life, as well as meet the CE standard.



Low wall with railing on top



Brushed concrete



Permeable concrete pavers



Low concrete wall with timber slats



Play concrete sculpture



Granite finish paving flags



Permeable block paving with natural granite



Cast and iron timber bench



Bike shelters and rack bike stands



Composite decking

4.0 PLANTING AND VEGETATION - TYPICAL PROPOSED SPECIES

SHELTERED HOUSING DEVELOPMENT AT KILHEDGE LANE, LUSK, CO. DUBLIN

All proposed planting species have been selected based on their suitability for their location. In particular the planting that will be in raised planters above the ground level will be suitable for the limited soil depth, be drought tolerant and robust enough for public realm and communal amenity spaces.

All planters will be suitable constructed to provide adequate growing space for the shrubs and trees. All planting will be planted as per the details on the following pages. All landscaping will be implemented and maintained in accordance with the maintenance and management schedule at the back of this report.

Street Trees:



*Acer campestre*  
*'Streetwise'*



*Acer campestre*  
*'Elsrijk'*



*Tilia cordata*  
*'Greenspire'*



*Sorbus aria* *'Lutescens'*



*Sorbus aucuparia*

Formal Hedges:

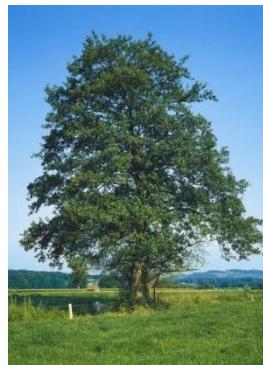


*Fagus sylvatica*



*Prunus lusitanica*

Parkland, Open Spaces and Feature Trees:



*Alnus glutinosa*  
**Shrubs:**



*Fagus sylvatica*



*Betula pendula*



*Quercus petraea*



*Pyrus* *'Chanticleer'*



*Amelancier Canadensis*



*Cotinus coggygria*



*Cordyline australis*

Specimen shrub planting:



*Aster novi-belgii*



*Berberis f.* *'Amstelveen'*



*Erica spp.*



*Lavandula angustifolia*



*Lavenula* *'Hidcote'*



*Miscanthus sp.*



*Pinus mugo* *'Nana'*



*Spirea j.* *'Firelight'*

Groundcover:



*Ajuga reptans*



*Hedera helix*



*Geranium m* *'Czalar'*



*Fuchsia* *"Riccartonii"*



*Viburnum davidii*



*Lonicera pileata*



*Rosa* *'Rhapsody Blue'*

**INTRODUCTION**

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

**1.0 SOFT LANDSCAPE WORKS SPECIFICATIONS**

**1.1 Site Clearance Generally**

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

**1.2 Weed Control**

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

**1.3 Standards**

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

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• BS 3882</li> <li>• BS 3936-1 to 10</li> <li>• NPS</li> <li>• BS 3998</li> <li>• BS 4428</li> <li>• BS 5837</li> <li>• BS 7370-1 to 5</li> <li>• BS 8545</li> <li>• BS 8601</li> <li>• BS EN 1722-9</li> <li>• RoSPA</li> </ul> | <ul style="list-style-type: none"> <li>Specification for topsoil and requirements for use</li> <li>Specification for the supply of nursery stock</li> <li>National Plant Specification</li> <li>Tree Works: Recommendations</li> <li>Code of Practice for general Landscape Operations</li> <li>Trees in relation to Construction</li> <li>Grounds Maintenance</li> <li>Trees: from nursery to independence in the landscape-recommendations</li> <li>Specification for subsoil and required use</li> <li>Fences Specification for mild steel - low carbon steel - fences with square verticals and flat horizontals</li> <li>Standards for safety for play and exercise equipment.</li> </ul> |
|---|--|

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 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.
- Backfill with fine sand up to 400mm from the proposed ground levels and then fill with topsoil

**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: 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.

**1.19.3 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/m<sup>2</sup>.
- 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 m<sup>2</sup>; and 150g/m<sup>2</sup> 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/m<sup>2</sup> and 10:10:10 NPK slow release fertiliser at 150g/m<sup>2</sup>.
- 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 or laying the Sedum blanket 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 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/m<sup>2</sup>, 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 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.

##### 2.1.2 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.

##### 2.1.3 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 trimmer. 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.

##### 2.1.4 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.

**2.9. 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.

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 1<sup>st</sup> March to 31<sup>st</sup> August.

### **2.9 Litter Clearance/Pick-up**

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

Notwithstanding the above it is expected that the contractor and his staff shall take sufficient pride in the appearance of the 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.

**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 ( after 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	*	*	**	***	***	***	***	***	***	**	*	*