

CUNNANE STRATTON REYNOLDS
LAND PLANNING & DESIGN



RESIDENTIAL DEVELOPMENT AT
RATHMULLAN ROAD,
DROGHEDA,
CO. MEATH

LANDSCAPE STRATEGY + DESIGN REPORT
18306-2-D04

September 2019

for Trailford Enquiries Ltd

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1.0 Site & Context | Introduction

The proposed development site is located on existing fields on the western fringe of Drogheda between the M1 and the Rathmullan Road. The total area is 27ha.

The site is bounded on the south by Sheephouse Road and to the north by the Rathmullan Road where it lies adjacent to the Boyne River and its riverside walkway and cycleway. The site slopes gently south from Sheephouse Road before dropping away gently, and then steeply towards the wooded valley sides.

The site's most western point is located approximately 2.5km from the centre of Drogheda. The county boundary between Louth and Meath lies immediately NE of the site on the north-western edge of the Rathmullan Road. It peels off northeast across the River Boyne and east following the Rathmullan Road towards the town centre.

The landscape to the west of Drogheda rises to the north and the south away from the Boyne the banks of which become increasingly wooded towards the edge of the town. The rise to the north of the river is steeper than that to the south. There is an identifiable change in the townscape of Drogheda between its traditional core and the newer estates built in the 20th century which extend for approximately 2km further west. Between the built edge of Drogheda and the M1 motorway, the lands are predominantly agricultural consisting of medium-large sized arable fields divided by hedgerows which in places have become gappy over time and contain few hedgerow trees. To the west of the M1, the landscape becomes more traditionally rural and intimate in scale with newer development more scattered. The site itself has two principal landscape characters, set within the context of the urban fringe of Drogheda, County Meath.

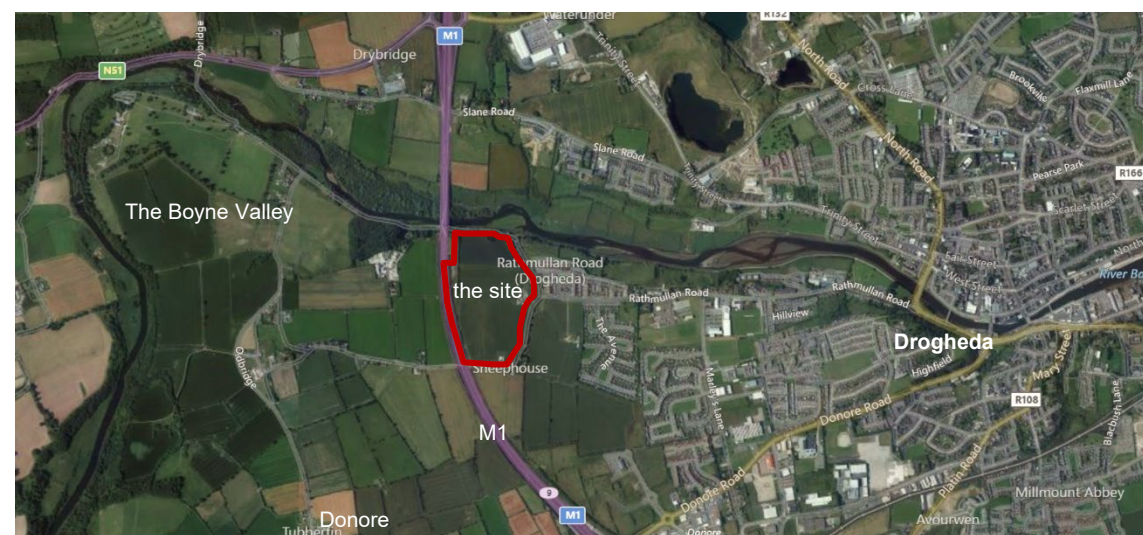
The first is the character of worked arable fields and associated farm buildings. There are two clusters of farm buildings, the oldest of which is located at the junction of the Rathmullan Road and Sheephouse Road. The agricultural lands have been farmed intensively for centuries. The lands slope gently towards the river from south to north. The gradient gets much steeper to the north with the gradient of the wooded bank ranging from 24% to 50%. There is a topographical change of almost 43m across the site.

The second landscape character is that of the mature and naturalistic deciduous woodland on the steep slopes of the River Boyne to the north of the site. This relatively narrow swathe of land ranges from 25 to 65m in depth, is densely vegetated and provides a marker between the farmed landscape to the south and the ecologically rich Boyne River valley.

RESIDENTIAL DEVELOPMENT AT RATHMULLAN ROAD, DROGHEDA, COUNTY MEATH

There are views out of the site across the majority of it. These take in the rising fields towards Donore to the south, the very dominant and eye-catching Mary McAleese Bridge to the northwest and the rising lands towards Tullyallen in the North. Views westward, beyond the bridge contain more rural elements and developments than views eastwards (both to the north and south). There are glimpses through vegetation adjacent to the site to the residential areas to the east. The northernmost field within the site is enclosed and views are enclosed by existing trees and landform.

The landscape, vegetation and visual amenity of the site is analysed over the following pages. The opportunities presented by the existing landscape and the issues to be addressed are identified. These inform Landscape Objectives, including the Green Infrastructure and Open Space Strategy. This landscape structure creates a network of green spaces and corridors – which in turn structure the development strategy and the urban design approach. The scheme Masterplan and Urban Design Strategy is set out in the Design Statement by NDBA Architects.



Site Location and Context.

Meath County Development Plan 2013-2019

The site is predominantly zoned as A2 New Residential Lands which aims, “to provide for new residential communities with ancillary community facilities, neighbourhood facilities and employment uses as considered appropriate for the status of the centre in the Settlement Hierarchy”. Drogheda is identified County Settlement Hierarchy as one of the county’s “Large Growth Towns I”, which are described as being a, “key destination, economically active supporting surrounding area, located on multi-modal corridor in metropolitan hinterland” (p.10).

The proposed development is located on the urban fringe of Drogheda. Although the lands are zoned for residential use, the existing use is primarily agricultural. MCDP identifies three types of rural areas. According to Map 10.1 Rural Area Types Development Pressure, the development site under review is categorised as a ‘Rural Area Under Strong Urban Influence’ (shown in pink on MCC’s Map 10.1 Rural Area Types Development Pressure).

Policy relating to Rural Areas Under Strong Urban Influence seeks, “to facilitate the housing requirements of the rural community as identified while directing urban generated housing to areas zoned for new housing development in towns and villages in the area of the Development Plan” (RD POL 2) (p.25), while seeking, “protect areas falling within the environs of urban centres in this Area Type from urban generated and unsightly ribbon development and to maintain the identity of these urban centres.” (RD POL 3) (p.25).

Louth County Development Plan 2015-2021

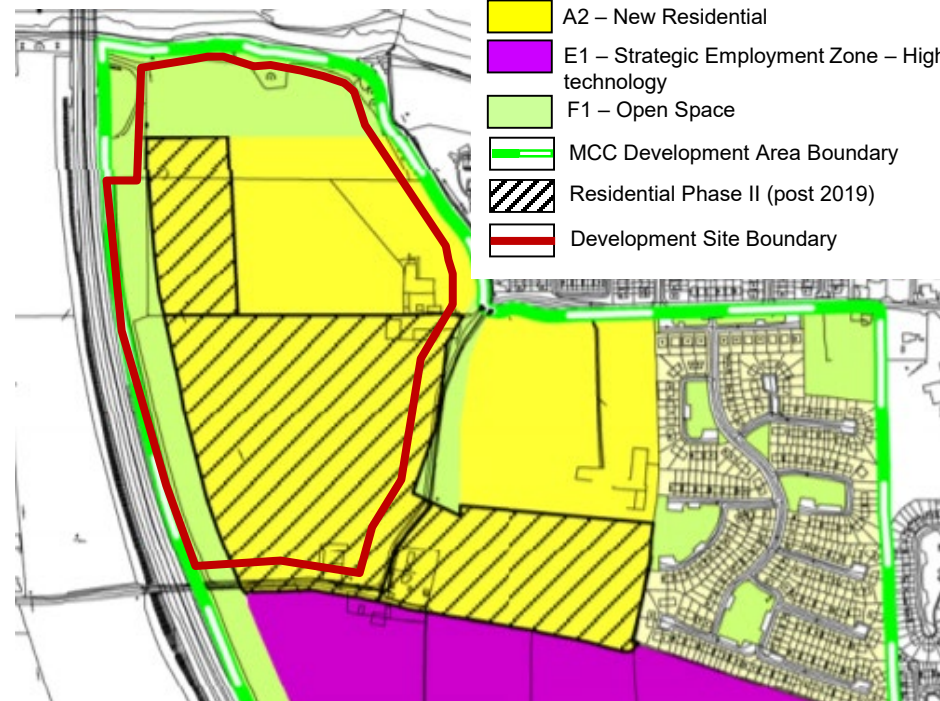
Louth County Council have identified 6 development zones. The following excerpt from the zoning plan illustrates those adjacent to the proposed development site. The subject is closest to Zone 2 and ‘Drogheda Urban Centre’. **Development zone 2** aims to “protect the scenic quality of the landscape and facilitate development required to sustain the existing rural community”. The Development Plan states, “the area covered by this development zone contains landscapes of high scenic quality which the Council considers should be protected” (p.85).

Drogheda Development Plan (2011-2017)

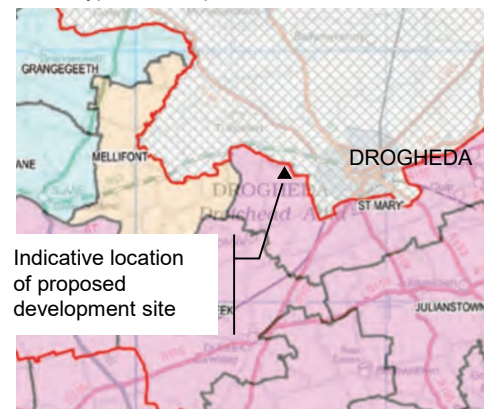
The development strategy for the Drogheda Development Plan identifies seven distinct development areas covering the plan area. The proposed development site is located to the east of the Rathmullan / Lagavoureen character area which is to the southeast of the town, The objectives of this character area are to; “provide for new residential development and supporting community facilities and to facilitate seamless, sustainable expansion into the adjacent southern environs” and “to consolidate the existing residential development including support for additional community facilities and infrastructures.” (p.26).

Excerpt from Meath County Council’s Development Plan Map for Drogheda Southern Environs

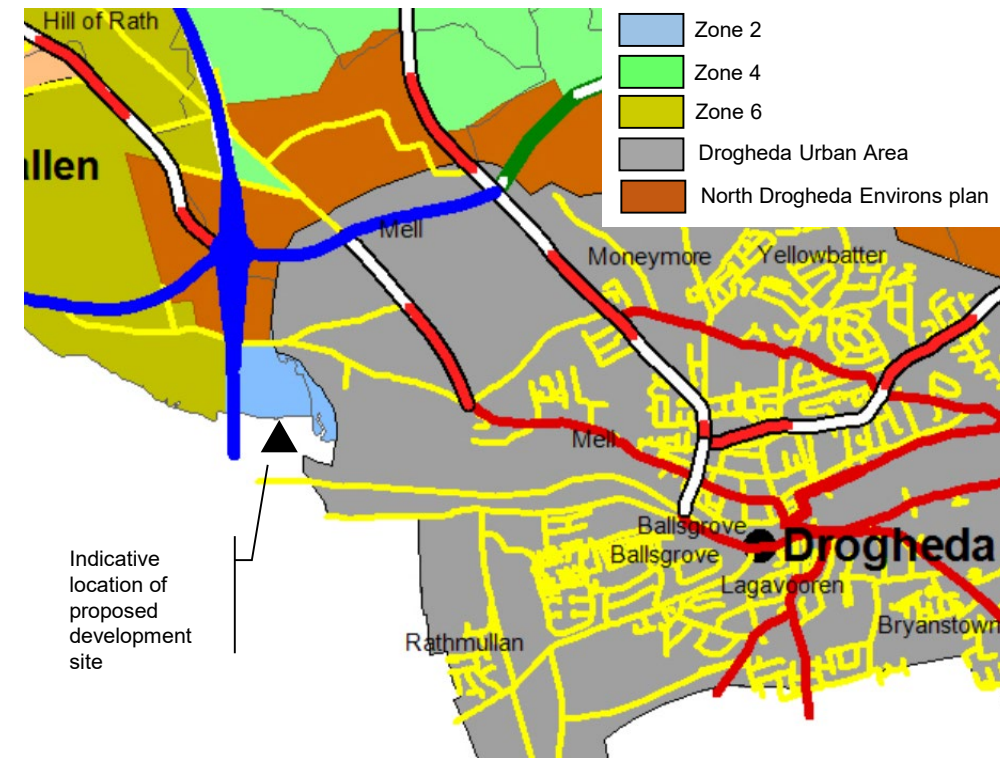
- A1 – Existing Residential
- A2 – New Residential
- E1 – Strategic Employment Zone – High technology
- F1 – Open Space
- MCC Development Area Boundary
- Residential Phase II (post 2019)
- Development Site Boundary



Meath County Council’s Map 10.1 Rural Area Types Development Pressure



Excerpt from Louth County Council’s Development Zone Map 3.1



Cultural Heritage designations

Three types of cultural designations are relevant to this site;

The World Heritage Site (WHS) of Brú na Bóinne ,

The core World Heritage Site Area is 780ha and is mapped below. The centre of the WHS is located approximately 4km west of the site. The shortest distance between the site and the WHS Core Area is approximately 1.64km. There is a 2500ha buffer zone around the core area. The proposed development site is located approximately 130m east of the western boundary of the World Heritage Site Buffer Zone over the M1 motorway.

Architectural Conservation Areas

There are no ACAs in the immediate vicinity of the development site. Oldbridge Estate is the closest ACA to the site located approximately 1260m to the NW of the development site.

Archaeological Sites and Monuments

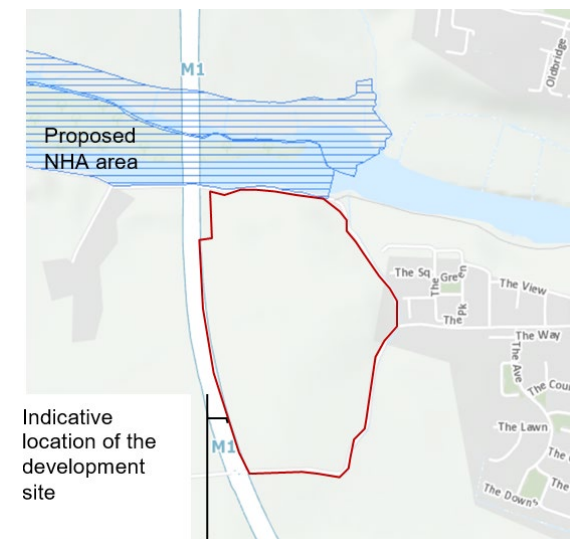
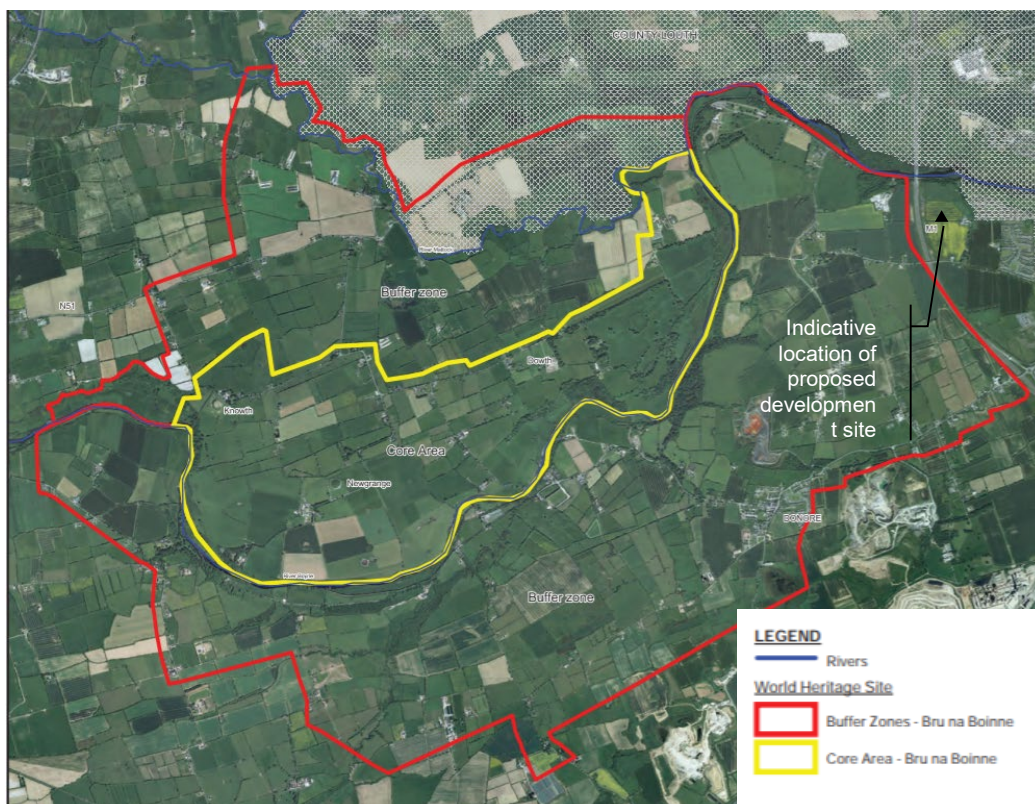
Four records of National Monuments exist on the zoned site (see diagram overleaf). The National Monuments are not visible to the untrained eye and therefore do not contribute to landscape character and views. Archaeological advise has been detailed in a separate report. The route taken by the design team is to express the northernmost National Monument through landscape design.

Natural Heritage designations

The River Boyne is a valuable natural and cultural asset. The northern boundary of the proposed development site abuts a Special Area of Conservation (“SAC”) and a proposed National Heritage Area (“NHA”) and is very close to a Special Protection Area (“SPA”) boundary.

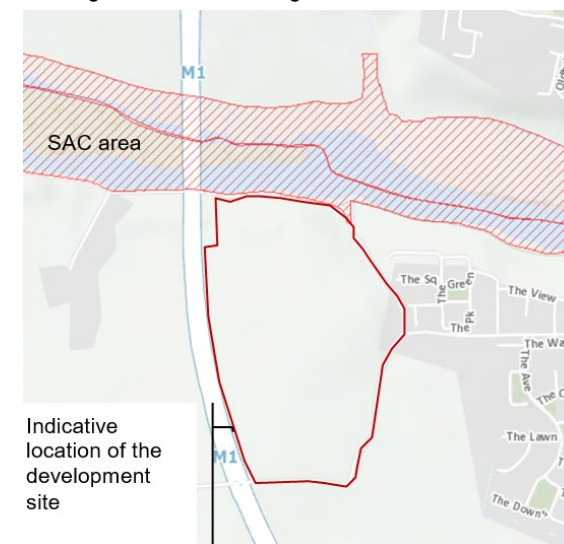
The value of Green infrastructure, woodlands, trees and hedgerows are supported by the MCDP. It is noted that Meath is one of the least wooded counties in Ireland. Small and fragmented woodlands are located particularly along the lower stretches of the river Boyne as found in the northern are of the development site

World Heritage Site Core and Buffer zone in relation to the site

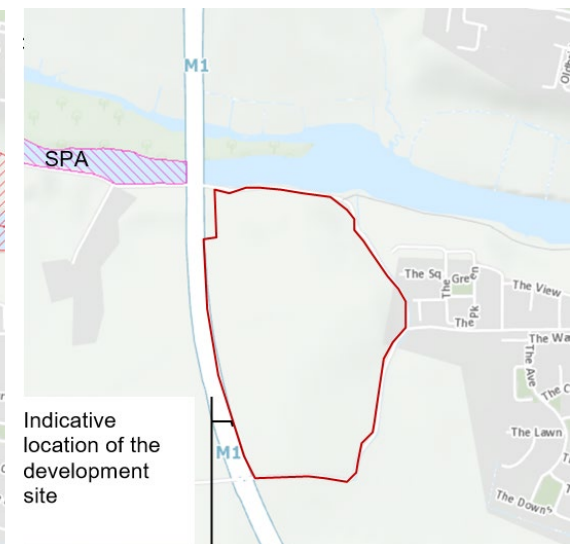


Indicative location of the development site

Diagrams from the development plan showing the location of Designated Sites









Indicative location of the development site



Indicative location of the development site

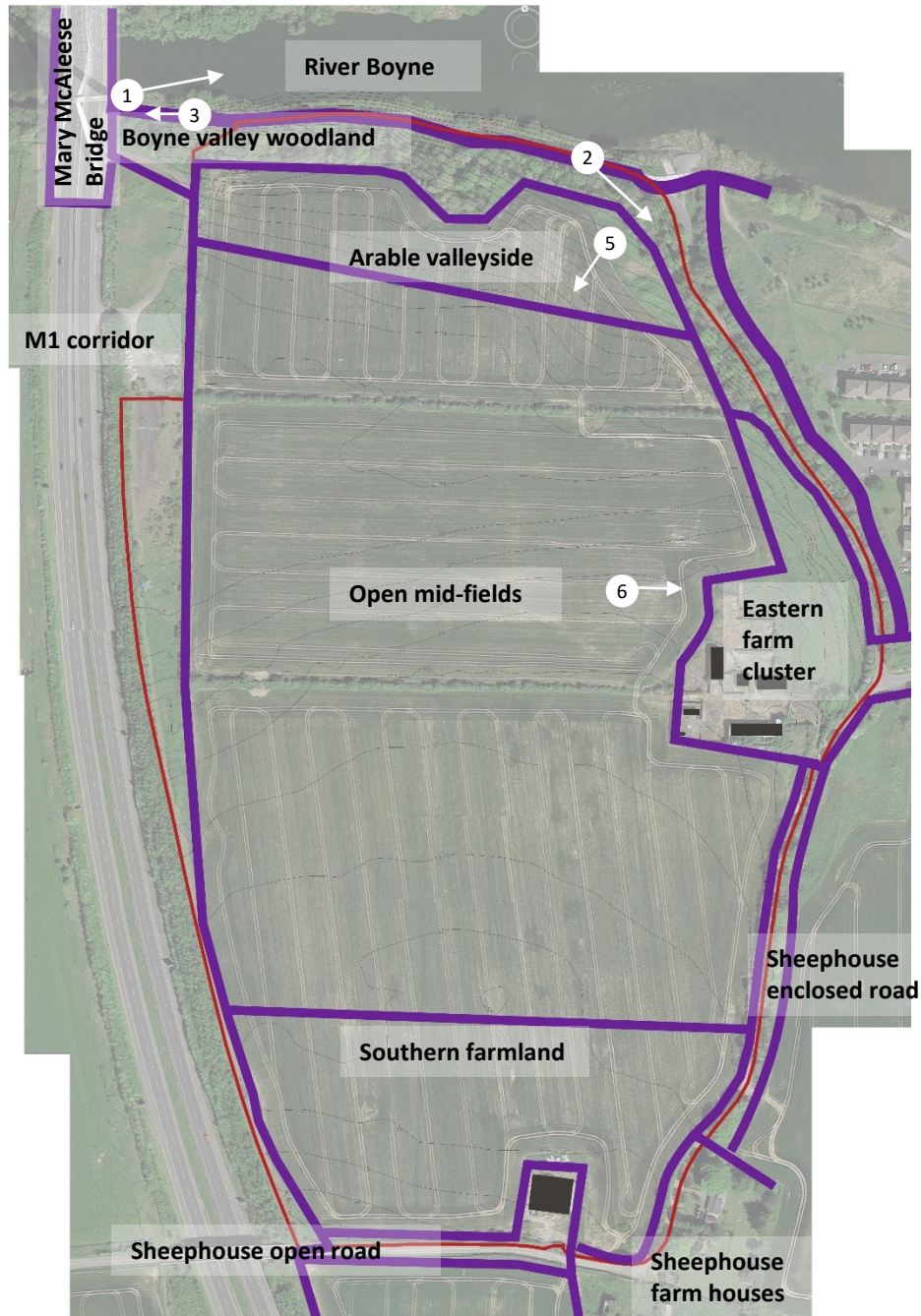
The map below illustrates the LVIA scoping exercise undertaken in order to establish views for assessment.

26 viewpoints were visited as part of the exercise. 13 were selected for full LVIA.

-  Site boundary
-  World Heritage Site boundary
-  World Heritage Site boundary buffer zone
-  Viewpoints
-  Viewpoints from which site is visible
-  Viewpoints from which site not visible



The site can be understood by dividing it into 11 character areas as shown in the diagram below. A representative photograph of each character area and a brief description is provided. Photograph locations are shown on the map (except for number 4, which was taken from the road bridge on Hill of Rath Road). The attributes of each character area are listed next to the accompanying photo of each. Attributes that could benefit the development of the landscape masterplan are highlighted in **purple**. Challenging attributes are highlighted in **red**. Neutral attributes – or where attributes present both a challenge and an opportunity remain in black text.



River Boyne

- Meandering
- Changing
- Rich
- Well-vegetated
- Biodiverse
- Tidal
- Accessible



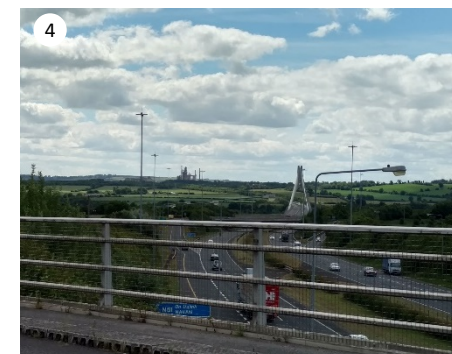
Boyne Valley Woodland

- Mature
- Biodiverse
- Rare
- Dense
- Steep



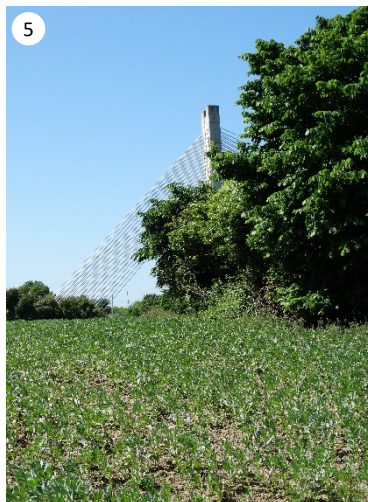
Mary McAleese Bridge

- Distinctive
- Eye-catching
- Attractive
- Large
- Geometricity



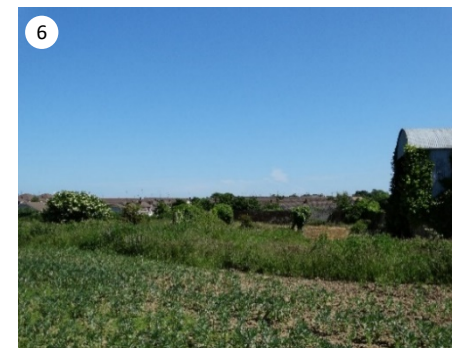
M1 corridor

- Noisy
- Large
- Visible
- Well vegetated



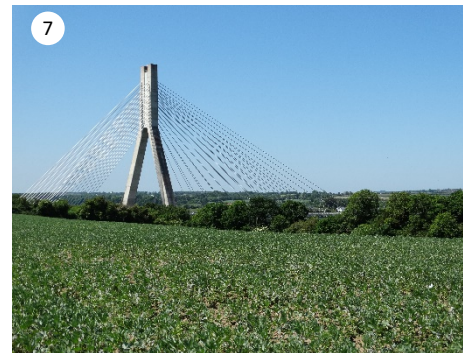
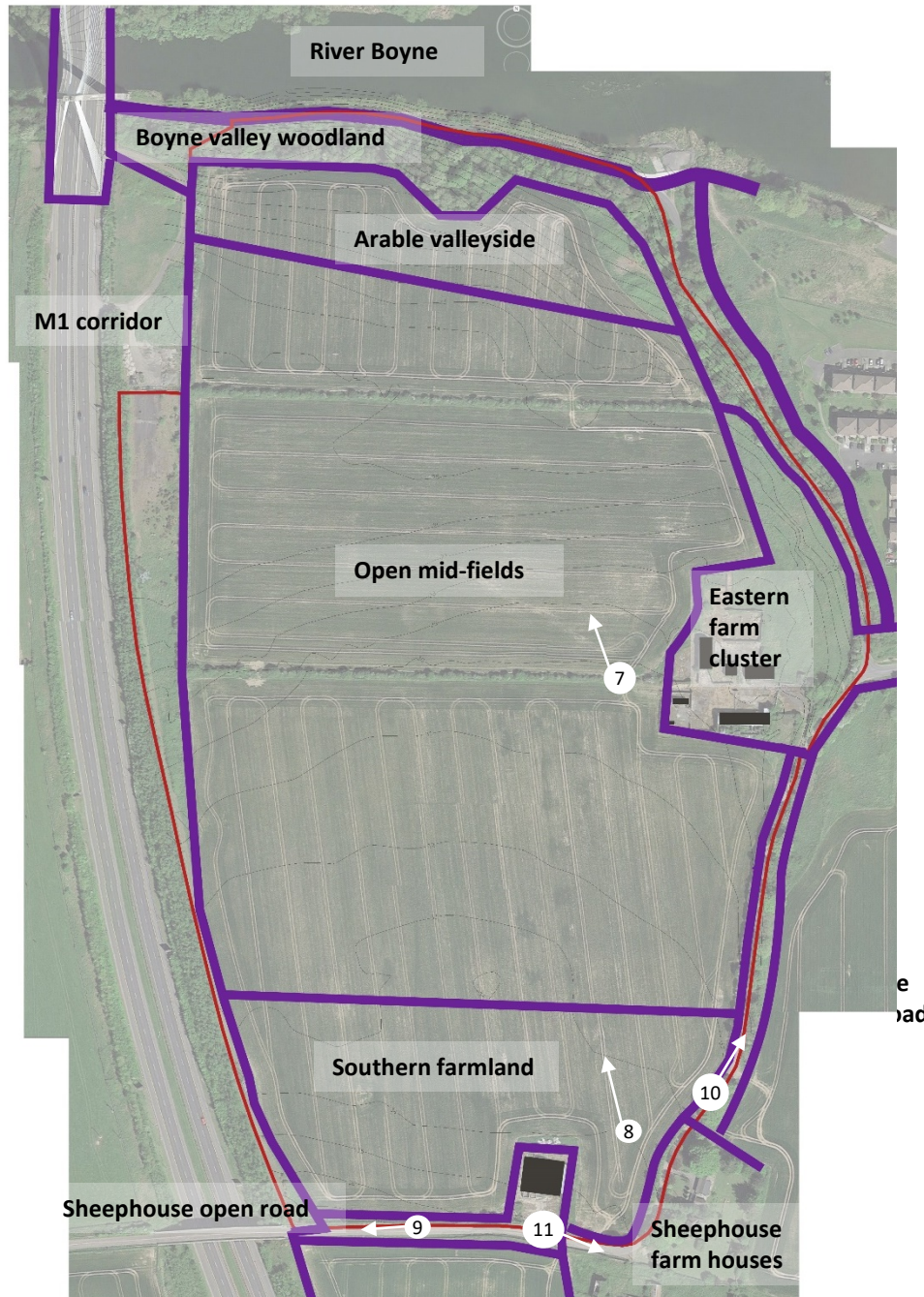
Arable valleyside

- Steep
- Semi-enclosed
- Culturally and archeologically rich



Eastern Farm Cluster

- Rural feel
- Overgrown
- In poor condition
- Visible from the east



Open mid-fields

Elevated Views out
Poor hedgerows
Mary McAleese Bridge visible



Southern farmland

Expansive
Functional
Monoculture



Sheephouse open road

Open
Linear
Functional



Sheephouse enclosed road

Mature vegetation
Bounded
Rich
Rural



Sheephouse farm houses

Scattered
Well-enclosed
Set-back
Wide verges
Mature trees



- Site boundary
- River Boyne
- Arable fields with a single crop
- Scrub
- Mature woodland
- Young woodland
- Thick and dense hedgerows
- Sparse hedgerows
- Roads
- Dilapidated farm buildings and yards
- Farm gates
- Important junction
- Boyne River walkway
- Mary McAleese Bridge
- Key views
- Views are relatively enclosed and site levels discourage access
- Residential edge overlooking site
- Smells of the sea
- Steep slopes
- Smells of the sea
- Indicative location of National Monuments
- Approximate location of Bronze Age features (courtesy of Archaeology Heritage Consultancy)



Summary of the landscape analysis

- Mary McAleese Bridge is a dominant and attractive visual feature
- The motorway is noisy but is not always visible
- The north of the site is steep, sheltered, biodiverse and influenced by the shape of the river and its valley
- The site has a cultural richness and has been settled and farmed through time
- The internal hedgerows are thick but gappy in places
- The peripheral vegetation is strong and intact
- The character of the farm and residential cluster to the southeast is coherent and can be drawn upon to influence the shape of the masterplan
- The existing farm gateways could be used to access the site through the woodland without effecting the ecology of the site.
- The Boyne River pedestrian walkway is currently inaccessible.
- Existing buildings are in a poor state of repair.



Tree Survey

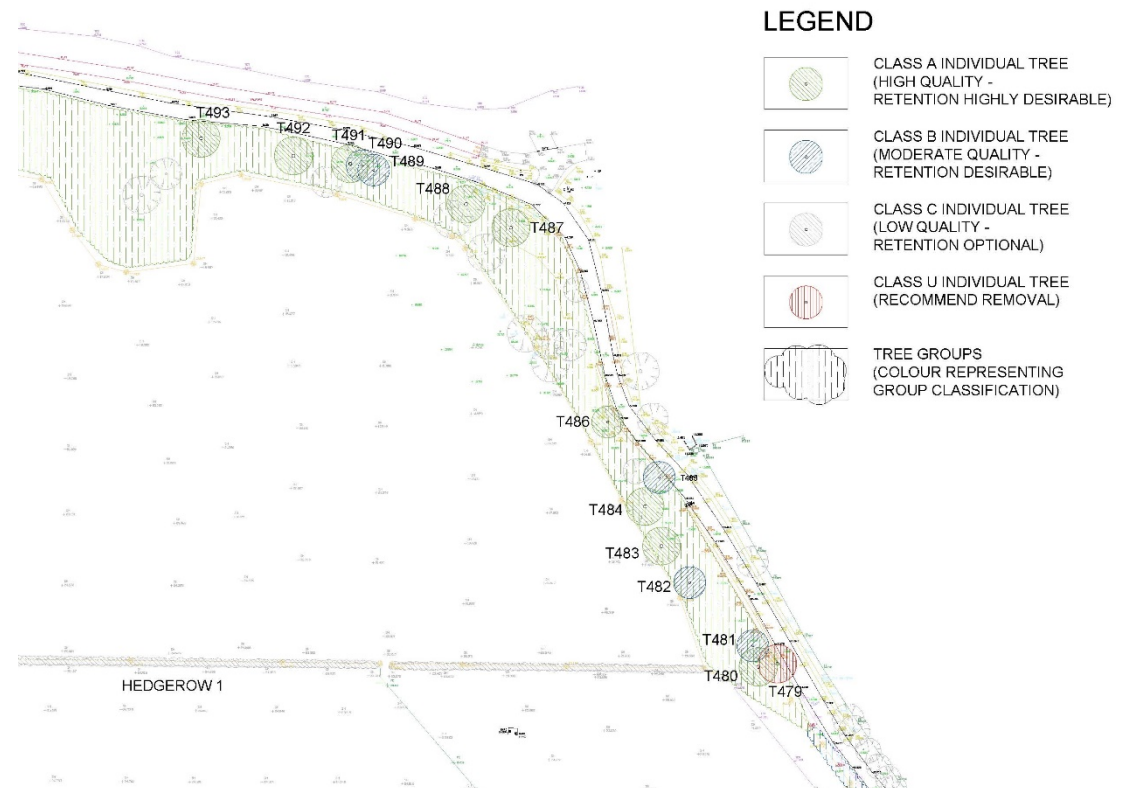


The arboricultural tree survey highlighted the following:

- The mature swathe of woodland to the north is Class A woodland. It is dense woodland. Individual trees have been plotted and assessed to the northeast of the site.
- The young woodland to the west of the site has been assessed as Class B woodland.



Excerpt of the NE corner of the site with individual trees assessed

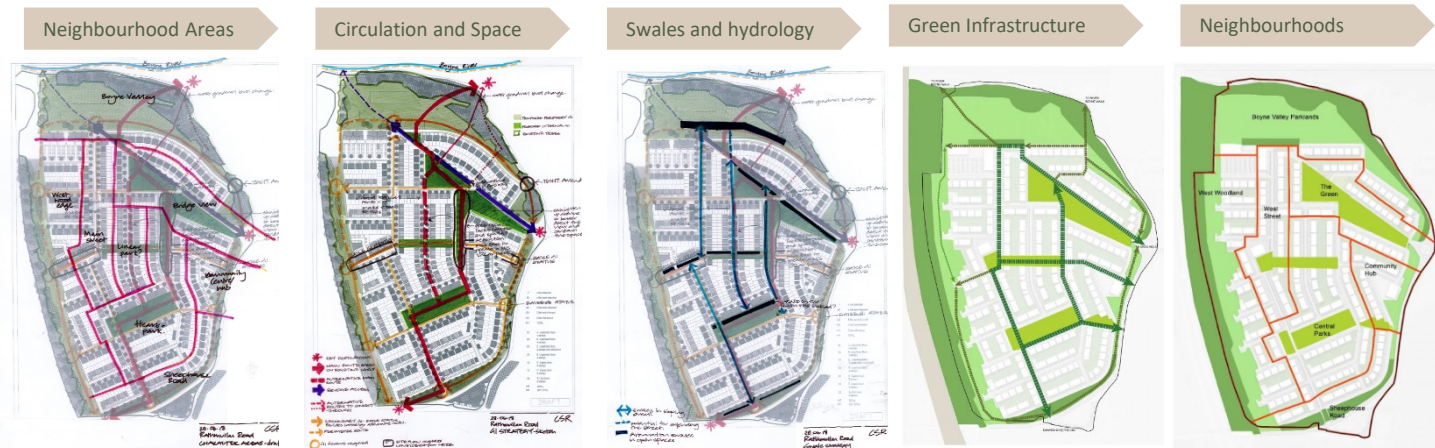


2.0 Design Principles and Evolution

The design process undertaken to achieve the proposed development and landscape masterplan was iterative and collaborative in nature. Early site layouts were analysed in accordance to place-making principles and were re-shaped accordingly. The following principles emerged;

- **Neighbourhoods that are focussed around and draw their identity from their relationship with open space**
- **Edges are softened and filtered by extensive tree planting, which extends into the development along its streets**
- **A series of open spaces that are a destination in their own right and have their own identity and sense of place – but are also important parts of the movement network**
- **Connections that are logical and direct throughout and within the development**
- **Many places to play**
- **Historical and cultural features are an asset that can add character and identity to the site**
- **Streets that are an integral part of green infrastructure and sustainable drainage**
- **A periphery cycle route that facilitates the experience of the changing landscape - activated and punctuated by opportunities to play and rest.**

Initial sketch design of open space design and connectivity in relation to neighbourhoods



The evolving landscape masterplan identified the following types of open spaces

- Sloping parkland (Boyne Valley parkland)
- Linear Parks
- Community Hub
- Woodland Ring
- Central Park
- Pocket Parks
- Green Streets with swales
- Homezones



Woodland Ring

Sloping parkland



3.0 Landscape Masterplan (NTS)

The landscape masterplan is presented on the following pages. First, the overall proposal is analysed according to proposed;

- Green Infrastructure
- Neighbourhood Areas
- Connectivity and Streets
- Open Space
- Play Provision

Annotation of places relates to Neighbourhood Areas ascribed overleaf.

Following on from this, the masterplan is presented in more detail with accompanying detail on levels, materials and planting specification.

LEGEND
NOTE: for details of materials & planting see drawing 18306-2-102

GENERAL		PROPOSED PLANTING AND HABITATS	
	Existing trees managed and retained		1. Self-regenerating mixed native woodland 2. New mixed native woodland planting
	Existing hedgerow to be retained		Small - medium Garden trees
	Existing river / water body		Street trees
	Proposed building		Parkland trees
PROPOSED PLAY AREAS			Public realm
	Equipped play spaces		Birch thickets
	Informal natural play spaces		Fruit trees
	Fitness trail equipment		1. Private grass 2. Amenity grass
	Table tennis tables		1. Meadow planting 2. Reinforced grass
PROPOSED HARD ELEMENTS			Shrubs & ornamental hedges Swales
	1. Tarmac road 2. Rolled-top shared surface		Ornamental Grass
	1. Material change within roads 2. Concrete setts		Native boundary hedgerow
	Concrete footpaths		Perennial planting
	Paved footpath		Landform
	In-situ concrete to floated finish	PROPOSED FURNITURE & STRUCTURES	
	Shared cycle & pedestrian lane		Seat TYPE 1 - Timber Bench
	1. Rolled dust / gravel areas 2. Bridges and boardwalks		Seat TYPE 2 - Concrete
	1. Public plaza / feature paving 2. Threshold paving		1. Bins
	Parking Bays		2. Bike stands
	Attenuation Area		1. Bollards
	Proposed 1.2m high vertical bar railing		2. Lights in ground
	Proposed temporary 1.8m stock proof fencing - in use until woodland is semi-mature		Light columns
			Free standing walls
			Retaining walls / elements
			Concrete play forms
			Pumping station - location indicative
			Substation - To eng. specification



The proposed Green Infrastructure of the site aims to:-

- Create and reinforce the hierarchy of routes through and around the development
- Create and connect important parks and open spaces to provide an active green network and wildlife corridors
- Create distinctive neighbourhoods around places with character and identity. These have been carefully mapped to represent how residents are likely to perceive the place.



"I live opposite the shops"

"Our house is opposite the green, right in the middle of the estate – near the orchard"



Combining well-structured urban layouts, direct routes and green infrastructure allows parks and open spaces to become an integral part of daily travel. It provides an active green network of landscapes benefit to people and ecology.

Pathways and streets are well-used when they provide a logical and safe way of getting people to where they want to go – their destinations. This development includes the following types of destinations:-

- A retail and creche facility located so that it is visible and accessible from Sheephouse Road but aligned to one of the main parks in the development.
- 15 parks and open spaces.
- A landform feature of express bronze age archaeology.
- A range of equipped playgrounds, play experiences and kickabout areas.
- A woodland ring for active and passive recreation – also serving to filter landscape into the development from the west.
- A route to Drogheda via bus or the main roads.
- A connection to the River Boyne walkway providing a riverside route to Drogheda and the Boyne valley for pedestrians and cyclists.

The diagram to the right presents the proposed hierarchy of streets and routes along with the destination listed above. **Overall, the diagram represents a well-connected and structured place.**

The proposed characteristics of the streets are illustrated using photographs overleaf. The qualities of individual parks and spaces are described in section 5.0 of this report.



GI Legend

- Parkland and play area (1 no.)
- Woodland
- Local / Pocket Park (9no.)
- Linear Park (3no)
- Woodland ring (1no)
- Plaza (1no.)

Connectivity Legend

- Periphery link roads
- Internal link road
- Local road
- Homezones
- Cycle routes
- Pedestrian routes

Destinations Legend

- ✱ Commercial area
- ✱ Bronze age feature
- ➔ External links
- ★ Creche / allocated play area
- ★ Equipped play area (4 no.)
- ★ Natural play area (4 no.)
- ★ Non-traditional / natural play experience
- ★ Kickabout areas (4no)

SAFE PEDESTRIAN FRIENDLY GREEN STREETS



Indicative Paving Materials:

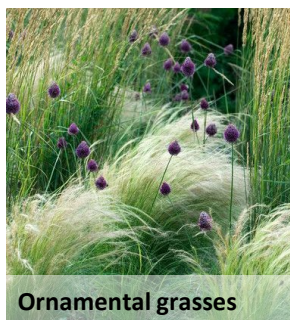
- Feature Paving to Public Plaza – Granite Slabs with limestone details or PCC equivalent
- Parking Bays – Natural or silver granite finish PC setts 120X160, 80mm thickness
- Cycleway – Tarmac to selected finish
- Roads – Tarmac to Engineers Detail
- Footpaths – Brushed concrete
- Informal paths – Rolled dust or brushed concrete



Cycle path meets park



Birch thickets



Ornamental grasses



Small formal square



Simple landform feature

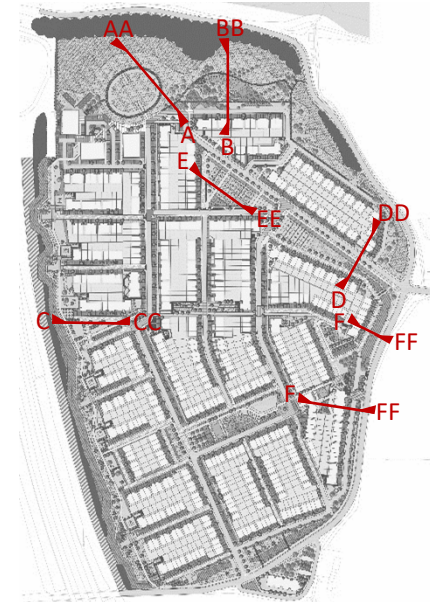


Innovative play

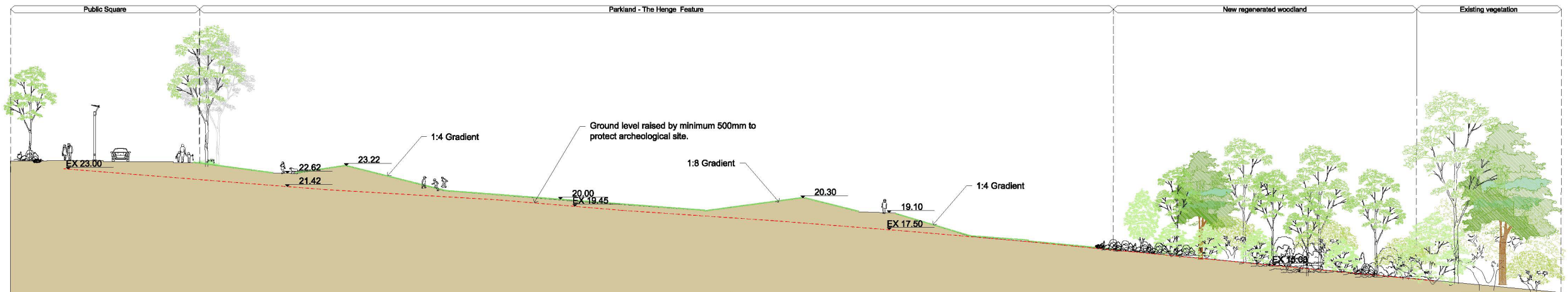


Play on the slopes

See drawings 18306-2-201A/2 for scaled versions of these sectional elevations.

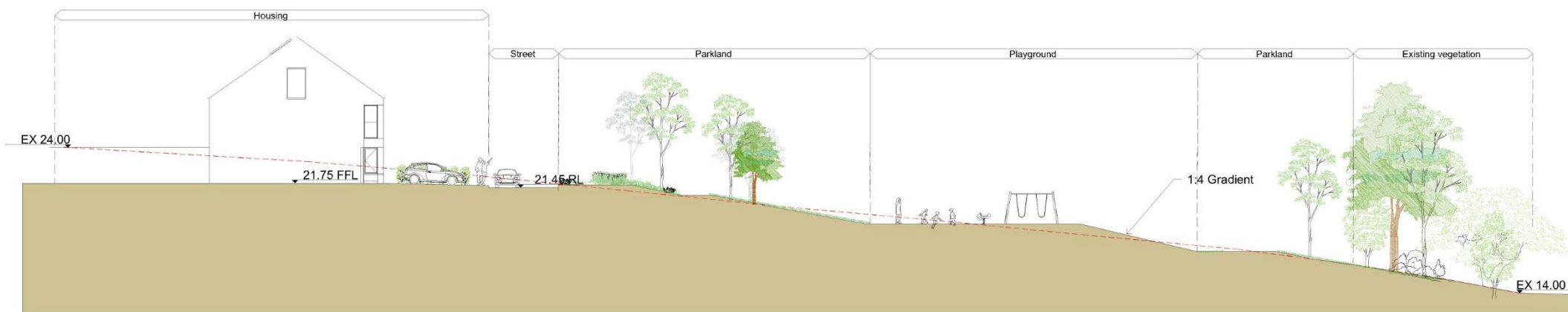


Section A-AA: from parkland to woodland through the proposed earth mound feature



A'A SECTION A

Section B-BB: from proposed housing to the woods through the playground



B'B SECTION B

The West Wood runs north to south and incorporates a 4m high wooded bund to shield residents from the noise of the M1 motorway. Cul-de-sac ends have been made into play spaces, connected by a broad cycle path, with places to sit.

A place to play with equipment for young children and table tennis tables for older children.

The land is folded into zigzags mimicking the geometry of the bridge and creating patterns with shadows. A wide swale with bridges across it and a generous cycle path emphasises the vista NW.

Sculpted low, limestone retaining walls add to the vista to the Mary McAleese Bridge. This, combined with the planted swale, the woodland backdrop creates a strong but soft sense of arrival.

Each walk-up has a semiprivate garden space

Orchard

Kick-about area

Simple pocket park adjacent to cycle track. Lines of trees create intimate spaces and reinforce linearity.

The Cut is a cut-through space with simple strips of lawn / meadow, feature paving and concrete play forms which double up as planters for trees.

Pocket park linked to walk-about

Contemporary looking playground and local park



Wooded bund



Woodland play



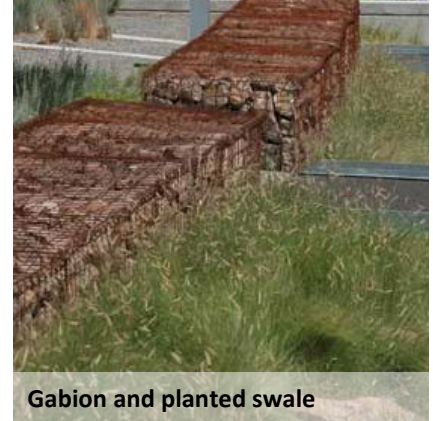
Woodland play



Shared cycle route connects play spaces



Wooded slope



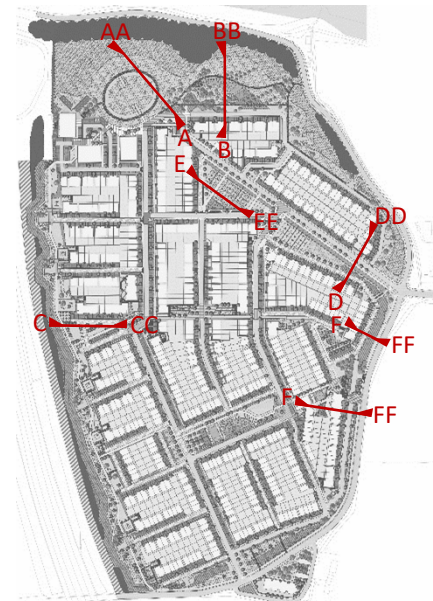
Gabion and planted swale

Section C-CC: from M1 to homezone

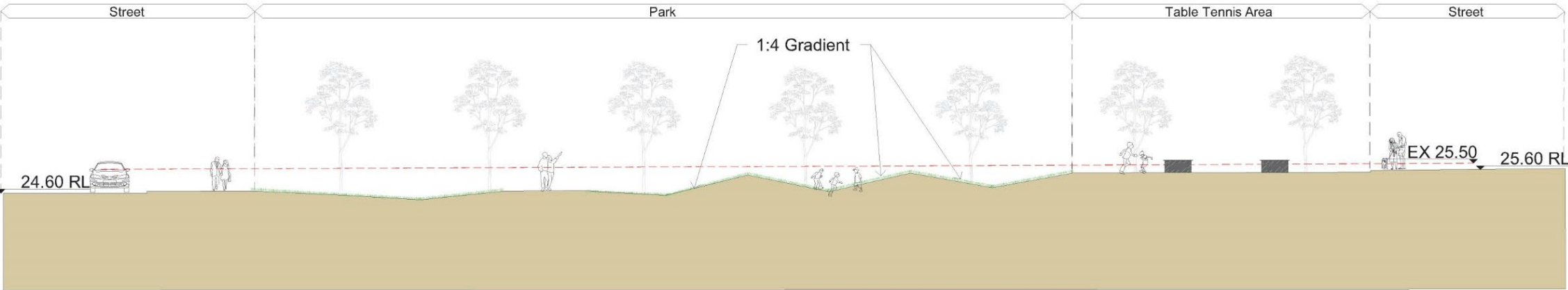


See drawings 18306-2-201A/2 for scaled versions of these sectional elevations.

Section D-DD: Over the zigzag park



Section E-EE: from street to street through Mary McAleese Park



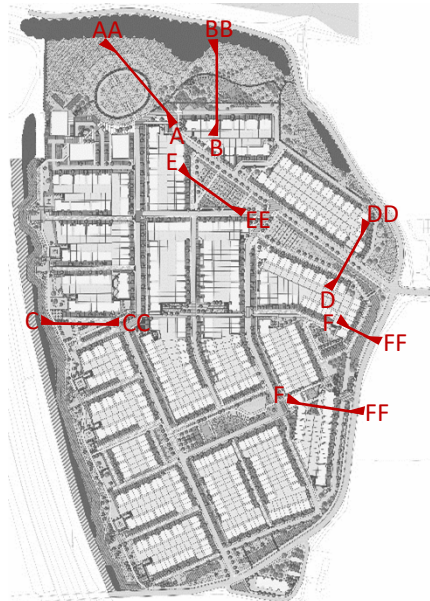
E'E SECTION E
SCALE: 1:200 @ A1

Section F-FF: The eastern edge of the scheme



F'F SECTION F
SCALE: 1:200 @ A1

See drawings 18306-2-201A/2 for scaled versions of these sectional elevations.



Zigzag landforms



Table tennis in the park



Paths along the park edge welcome use



Wooded slope

Triangular earth mounds creates an informal play / meeting space and suggests a sense of arrival into the central area of the development. The geometry links to the Mary McAleese Bridge which is visible in the distance from this point. .

Contemporary, rectilinear space with small multi-use games area (oriented north-south), simple grassed terraces, a kick about area and a planted swathe planted with colourful, robust perennial species and ornamental grasses.

The park incorporates a paved area to the east which crosses over the road to link into the entrance of the creche and the pedestrian street that continues on.

To the west is a planted orchard providing the opportunity for residents to pick their own fruit.

The planted bund and significant additional tree planting along the western edge will soften the urban edge of the development when viewing it from the southwest.

Contemporary feeling plaza leading to the shops and creche.

Private play associated with the creche.

Raised garden area for apartments.

High boundary planting

Native hedgerow to be planted along the cycle path

Parkland character woodland with open areas and scattered trees. Tree planting to the south and west intended to filter views from viewpoints to the southwest



Indicative characteristics of Rathmullan south



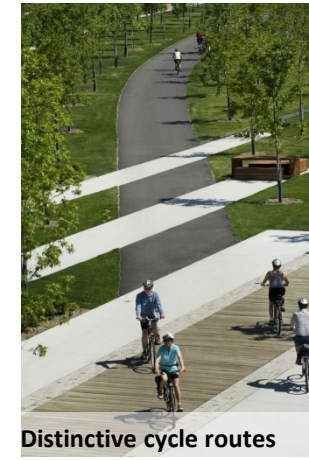
Planted open woodland edge



MUGA



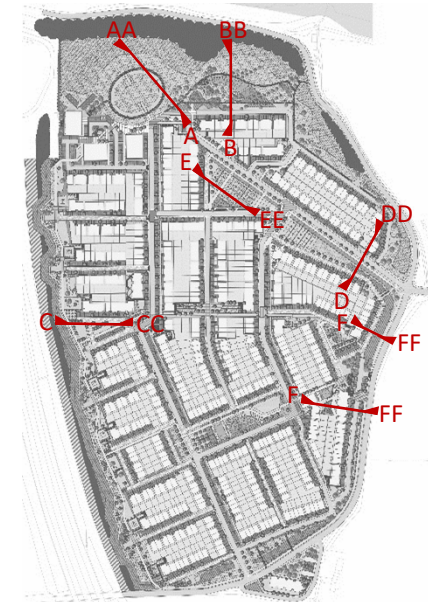
Equipped play area



Distinctive cycle routes

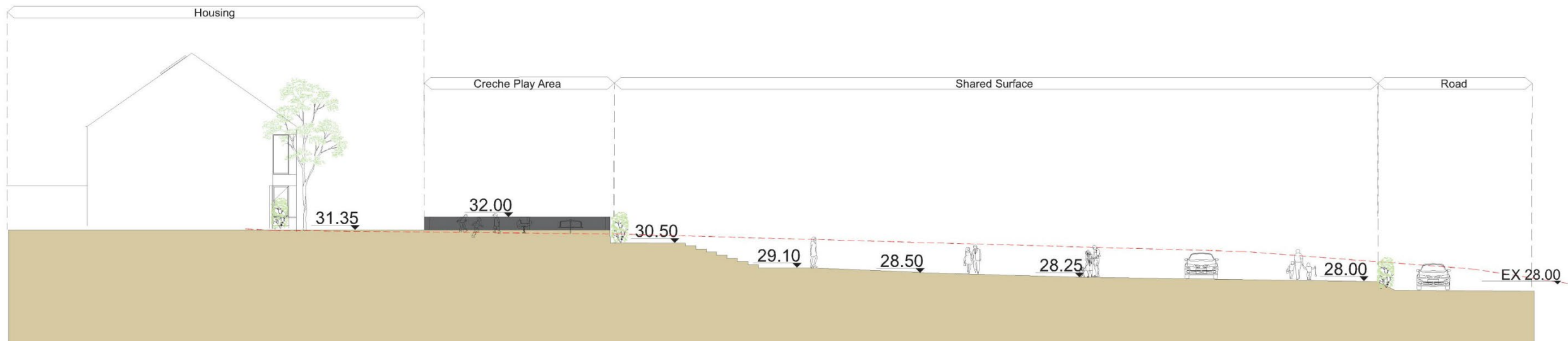


Public square with changes in materials



See drawings 18306-2-201A/2 for scaled versions of these sectional elevations.

SectionG-GG: Through Rathmullan Central Square



The following excerpts from drawing 18306-2-102 illustrate the proposed materials and planting specification and details the treatments illustrated on the landscape masterplan 18306-2-101.

	1. Private grass 2. Amenity grass
	Reinforced Grass
	Landform
	Road Surface - Black tarmacadam - Rolled top tarmac
	Shared Surface - Rolled top tarmac
	Concrete Areas
	Feature Paving - Patterned concrete to key spaces with stone highlights & concrete setts
	Footpath - Brushed concrete - Concrete paviour
	Shared Cycle & Pedestrian lane - Tarmacadam
	Rolled Dust/Self - Binding Gravel Path - Ballylusk 10mm or similar
	Bridges and Boardwalks - Recycled black plastic
	Selected PCC Pavers/Slabs - To private threshold areas
	Parking Bays - PCC pavers 120x160x80mm - Natural, silver or charcoal finish to complement street facades and reinforce character areas. - Alternate colours for details and highlights. - N.B Permeable paving to private areas only

	Seating Type 1 - 2m wide timber bench Type 2 - Concrete bench
	1. Bins 2. Bike stands
	1. Bollards 2. Lights in ground
	Light columns
	Free Standing Walls Retaining Walls / Elements
	Concrete Play Forms
	Pumping Station - Location indicative - To eng. specification
	Substation - To eng. specification
	Play Surface/Safety Surface - Coloured rubber wetpour play surface to ISEN 116/177
	Formal Play Equipment - Supplier: KOMPAN or similar
	Fitness Trail Equipment - Supplier: KOMPAN or similar
	Informal Natural Play - Logs, sensory planting, boulders, play steps
	Tennis Tables
	Attenuation Area
	Railing - 1.2m high vertical bar railing

LEGEND

	Existing River / Water Body
	Existing Trees retained and managed (See arborists report)
	Existing Hedgerows Manage to maturity, thinning where required and supplementing with the Native trees and hedgerow mix as listed below (density indicative to reflect site requirements).
	Native Hedge planting* (710m²)
	Trees - fthd trees 2.1 - 2.5m ht. - min 3m. ctrs <i>Alnus incana</i> - 20% <i>Betula pubescens</i> - 20% <i>Fagus sylvatica</i> - 5% <i>Fraxinus excelsior</i> (if permitted) - 20% <i>Malus sylvestris</i> * - 10% <i>Quercus petraea</i> - 20% <i>Sorbus aria</i> * - 5%
	Shrubs - 60-90cm ht., in random groups of 5-15 no at 2-4m/sq.m <i>Cornus sanguinea</i> * - 10% <i>Corylus avellana</i> - 20% <i>Crataegus europaeus</i> * - 20% <i>Ilex aquifolium</i> - 10% <i>Ligustrum vulgare</i> * - 10% <i>Prunus spinosa</i> * - 10% <i>Rosa canina</i> * - 10% <i>Viburnum opulus</i> * - 10%
	Proposed Street Trees (452 no.) Planted in same species groups or lines on individual streets
	Large Trees in public realm <i>Acer campestre</i> 'Streetwise' 16-18 cm gth, 4-6m ht <i>Acer campestre</i> 'Elsrijk' 16-18cm gth, 4-6m ht <i>Corylus colurna</i> 14-16cm gth, 5-6m ht <i>Quercus robur</i> 'Fastigiata' 16-18cm gth, 4-6m ht <i>Tilia cordata</i> 'Greenspire' 16-18cm, 5-6m ht <i>Ulmus 'Lobel'</i> 16-18cm, 5-6m ht
	Small - Medium Trees in front gardens <i>Betula pendula</i> 14-16cm, 3-4m ht <i>Malus sylvestris</i> * 14-16cm, 3-4m ht <i>Pyrus 'Chanticleer'</i> * 14-16cm, 3-4m ht <i>Sorbus aria</i> 'Lutescens' 14-16cm, 3-4m ht <i>Sorbus aucuparia</i> * 12-14cm, 2.5-3.5m ht
	Proposed Parkland, Open Spaces and Feature Trees To include species from the above list and selected species from the following:
	Large Trees - in parkland(218no.) <i>Aesculus hippocastanum</i> * 14-16cm, 4.25-6m ht <i>Alnus glutinosa</i> 14-16cm, 3-4m ht <i>Castanea sativa</i> * 14-16cm, 4.25-6m ht <i>Fagus sylvatica</i> 14-16cm, 4.25-6m ht <i>Pinus sylvestris</i> 120-150cm, RB <i>Populus tremula</i> 14-16cm, 4.25-6m ht <i>Quercus petraea</i> 14-16cm, 4.25-6m ht
	Specimens: <i>Carpinus betulus</i> 20-25cm, 6m ht <i>Cedrus atlantica</i> 'Glauca' 20-25cm ht, 6m ht <i>Pinus radiata</i> 1.9m-2m ht, RB <i>Quercus pallustis</i> 20-25cm, 6m ht
	Small - Medium Trees - open spaces and public realm(152 no.) <i>Betula pubescens</i> 14-16cm, 3-4m ht <i>Prunus padus</i> * 14-16cm, 3-4m ht <i>Pyrus 'Chanticleer'</i> * 14-16cm, 3-4m ht <i>Sorbus aria</i> 'Lutescens' 14-16cm, 3-4m ht <i>Sorbus aucuparia</i> * 12-14cm, 2.5-3.5m ht
	Underplanted with selected bulbs - Narcissus and Hyacinthoides non - scripta
	Proposed Small to Medium Trees to Gardens(201 no.)
	Trees <i>Arbutus unedo</i> * 12-14cm, 2.5-3.5m ht <i>Betula pendula</i> 12-14cm, 2.5-3.5m ht <i>Malus floribunda</i> 12-14cm, 2.5-3.5m ht <i>Prunus 'Kanzan'</i> 12-14cm, 2.5-3.5m ht <i>Prunus padus</i> 'Fastigiata' 2-14cm, 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
	Tall Shrubs <i>Acer palmatum</i> 150-175cm ht <i>Amelanchier Canadensis</i> * 150-175cm ht <i>Lavatera olbia</i> * 50-175cm ht <i>Ptelea trifoliata</i> * 50-175cm ht <i>Syringa vulgaris</i> * 150-175cm ht
	Birch Thicket (340m²) Whips planted at 5/m2 <i>Betula pubescens</i>
	Orchard Trees(26 no.) 10-12cm, 2.5m ht. Indicative species list below <i>Malus 'Summer Red'</i> , <i>Prunus domestica</i> 'Victoria', <i>*Pyrus communis</i> 'Conference'
	Mixed Native Woodland planting(10535m²) Natural regeneration from adjacent woodland and feathered trees from Irish seed banks planted at minimum 3m centres in groups of 5-11
	Trees - fthd trees 2.1 - 2.5m ht. - min 3m. ctrs <i>Betula pendula</i> <i>Fagus sylvatica</i> <i>Fraxinus excelsior</i> (if permitted) <i>Prunus avium</i> * <i>Quercus petraea</i> <i>Ulmus glabra</i>
	Shrubs - 60-90cm ht., in random groups of 5-15 no at 2-4m/sq.m <i>Cornus sanguinea</i> * <i>Ligustrum vulgare</i> * <i>Prunus spinosa</i> * <i>Rosa canina</i> * <i>Viburnum opulus</i> *
	Proposed Mixed Native Woodland Planting(10718m²)
	Trees - fthd trees 2.1 - 2.5m ht. - min 3m. ctrs <i>Alnus incana</i> - 20% <i>Betula pendula</i> - 20% <i>Fagus sylvatica</i> - 10% <i>Fraxinus excelsior</i> (if permitted) - 20% <i>Quercus petraea</i> - 20% <i>Sorbus aria</i> * - 10%
	Shrubs - 60-90cm ht., in random groups of 5-15 no at 2-4m/sq.m <i>Cornus sanguinea</i> * - 10% <i>Crataegus europaeus</i> * - 20% <i>Ilex aquifolium</i> - 10% <i>Ligustrum vulgare</i> * - 10% <i>Prunus spinosa</i> * 20% <i>Rosa canina</i> * - 20% <i>Viburnum opulus</i> * - 10%

	Ornamental Shrub Planting Indicative species list
	Low to medium height ornamental shrubs/plants. pot size and planted 3/m2 unless specified <i>Choisya temata</i> 'Sundance'* 45-60cm 3L pot <i>Calamagrostis 'Karl Foerster'</i> 45-60cm 3L pot <i>Cytisus scoparius</i> * 45-60cm 3L pot <i>Helleborus niger</i> * 2L pot at 5/m² <i>Hebe 'Mrs Winder'</i> * 45-60cm 3L pot <i>Lavendula angustifolia</i> * 45-60cm 3L pot <i>Lonicera pileata</i> 45-60cm 3L pot <i>Pachysandra terminalis</i> 2L pot at 5/m² <i>Philadelphus coronaries</i> * 45-60cm 3L pot <i>Viburnum tinus</i> * 45-60cm 3L pot
	Ornamental Grasses - planted in drifts, 45-60cm at 2/m2. Underplanted with Allium 'Purple Sensation' bulbs in key areas at 5/m2 <i>Stipa gigantea</i> , <i>Molinia caerulea</i> , <i>Stipa tenuissima</i> , <i>Calamagrostis x acutiflora</i> , 'Karl Foerster', <i>Carex sp</i> (greens, golds, whites), <i>Pennisetum alopecuroides</i>
	Perennial Planting 2l min pot size and planted at 5/m2 unless specified. Underplanted with Allium 'Purple Sensation' bulbs in key areas at 5m/2 <i>Achillea sp.</i> (deep reds/whites)* <i>Aquilegia species</i> (purples, whites)* <i>Anemone x hybrid</i> 3l pot planted at 4/m2* <i>Lavandula angustifolia</i> 'Blue Cushion'* <i>Echinacea purpurea</i> * <i>Knautia macedonica</i> <i>Agastache 'Black Adder'</i> * <i>Sedum 'Brilliant'</i> * <i>Verbena bonariensis</i> *
	Ornamental Hedge Planting Planted in staggered rows of single species 60-90cm at 3/in.m <i>Fagus sylvatica</i> , <i>Prunus lusitanica</i> *, <i>Taxus baccata</i> , <i>Lonicera nitida</i> , <i>Griselinia littoralis</i>
	Swale Planting Low-Medium height shrubs/plants. Max height 60-150mm. 2L min. pot size and planted at 5/m² unless specified. For the base and inlet on moisture-retentive soils Plants tolerate temporarily wet soil as well as dry
	Meadow Planting Native Irish biodiversity seed mix for sun and partial shade. Recommended product: Sandro's Irish Wildflower Conservation Grade Seed Mixture. Sowing 1.5 grams per metre. Sample species include: <i>Annual Mayweed</i> , <i>Birdsfoot Trefoil</i> , <i>Bladder Campion</i> , <i>Bluebell</i> , <i>Burdock</i> , <i>Cat's Ear</i> , <i>Common Sorrel</i> , <i>Corn Mangold</i> , <i>Corn Poppy</i> , <i>Corncockle</i> , <i>Cornflower</i> , <i>Cowslip</i> , <i>Devil's-bit Scabious</i> , <i>Eyebright</i> , <i>Flag Iris</i> , <i>Foxglove</i> , <i>Kidney Vetch</i> , <i>Common Centaury</i> , <i>Lesser Knapweed</i> , <i>Musk Mallow</i> , <i>Marjoram</i> , <i>Purple Loosestrife</i> , <i>Ragged Robin</i> , <i>Red Bartsia</i> , <i>Red Campion</i> , <i>Red Clover</i> , <i>Rough Hawksbit</i> , <i>Shepherd's Purse</i> , <i>Smooth Hawksbit</i> , <i>St. Johnswort</i> , <i>Vetch Common</i> , <i>White Campion</i> , <i>Wild Angelica</i> , <i>Wild Valerian</i> , <i>Yellow Agrimony</i> , <i>Yellow Rattle</i> .

* Species selected for their pollinating qualities.

Parkland Trees (native / naturalised) – typically 16-18cm girth 4-6m ht:



Pinus radiata



Quercus petraea



Prunus avium 'Plena'



Fraxinus excelsior



Fagus sylvatica



Tilia cordata



Acer campestre



Betula pedula

Street Trees – typically 16-18cm girth 4-6m ht:

Small to Medium Trees – typically 14-16cm girth 3-4m ht:



Prunus var.



Pyrus calleryana 'Chanticleer'



Sorbus aucuparia



Sorbus 'Autumn Spire'

Typical Swale planting:



*Actaea racemose**



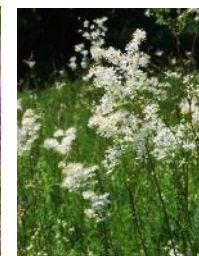
*Butomus umbellatus**



*Iris pseudocorus**



*Lythrum salicaria**



*Filipendula vulgaris**

Typical Low Shrub planting – typically 2L pot size at 4/sq.m:



Aster novi-beigii



Berberis 'Amstelveen'



Carex spp.



Lavendula augustifolia



Hypericum 'Hidcote'



Calamagrostis Karl Foerster



*Knautia macedonica**



Pennisetum alopecuroides

Hedges – 60-90cm bushy at 3/lin.m



Fagus sylvatica



Typical Medium Shrub planting typically 3L pot size at 3/sq.m or individual specimens :



Choisya ternata



Cornus sanguinea



Frangula alnus



Rosa Noaschee



*Hebe 'Mrs Winder'**



Lonicera pileata

Hedgerow Mix – 60-90cm at 5/lin.m:



Ilex aquifolium



Crataegus monogyna



Prunus spinosa

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

Circulation Surfaces and public realm



Brushed concrete.

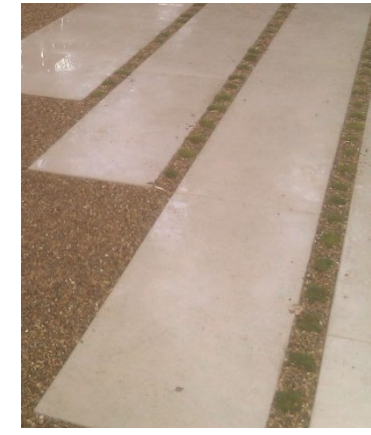


Rectangular concrete PC paviors –lightly textured, light grey colour



Self binding gravel in warm, pale tone.

Details



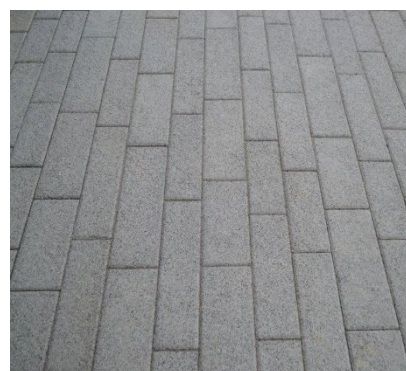
Polished concrete in rolled dust gravel



Self binding gravel in warm, pale tone edged with poured concrete strips – 120mm wide and polished



Brushed concrete footpath



Concrete setts – granite effect



Concrete flags – granite effect

Furniture



Bins & Bollards



Steel bike stands – angular form



Seating - timber & steel



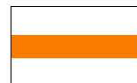
Concrete seat wall



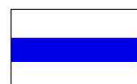
Concrete and timber bench

The following excerpts from drawing 18306-2-103 illustrate the strategy for dealing with internal boundaries across the site.

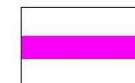
Soft landscape treatments are proposed around the periphery of the site.



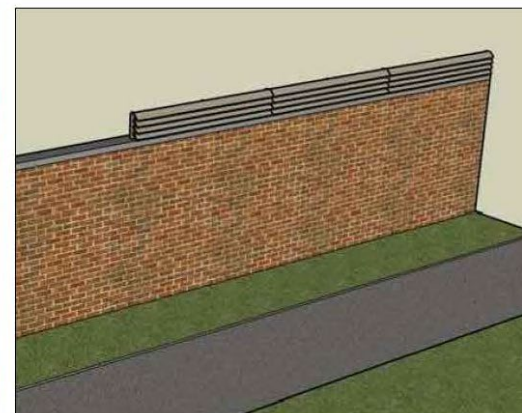
Retaining wall between rear gardens
2000mm high rendered concrete blockwork wall



Internal garden boundaries:
1800mm high concrete post and plinth fence with infill timber panel. Horizontal panelling to match louvre detail at gable ends.



Rear garden gable end walls:
2000mm high brick wall (to match adjacent property) and capping with louvred timber fence detail on top and within the wall adjacent to public realm and the street.



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:

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

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

1.19.2 Semi-Mature Trees

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

1.19.3 Staking Generally

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

1.19.4 Mulch Circles/Squares

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

1.20 Shrub Planting

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

1.21 Hedgerow Planting

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

1.23 Removing Trees and Shrubs

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

1.24 Failures of Planting

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

1.25 Green Roofs

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

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

Performance Standards and Maintenance Operations

2.1 Grassed Areas

2.1.1 Fine-Cut Grass Areas

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

Fine-Cut Mowing

Where practical fine grass areas shall be cut using a cylinder mower, otherwise a rotary mower shall be used. All grass clippings shall be collected and removed off-site after each cut.

Lawn grass cutting shall be carried out every 10-14 days during the growing season, (throughout the period of March to October), but will need to be adjusted according to season's weather conditions. Grass shall be kept at a maximum height of 50mm and minimum height of 35mm. A minimum of 24 cuts shall be carried out annually.

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.

2.1.4 Edging and Strimming

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

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

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

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

2.1.5 Spring Bulbs in Grassed Areas

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

2.1.6 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 1st March to 31st August.

2.9 Green Roof System and Irrigation

Care is to be taken not to damage any fleeces or waterproof membranes during maintenance. Irrigations systems are to be blown-out and a full pressure test carried out annually and monitored for leaks. Remove soil and dead foliage from irrigation pipes to ensure they do not get blocked. Cut back root systems if they become entangled in the irrigation system. Regular monitoring (bi-monthly) should occur to ensure the timer system and moisture monitoring system, are working efficiently and make adjustments to suit the weather conditions, if required.

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).

2.11 Replacements

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

3.0 Maintenance Programme

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

ONGOING REQUIREMENTS:	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Lawn grass cutting (Min 24 cuts)		*	**	**	***	***	***	***	***	**	**	
Edging to lawn grass areas				*			*			*		
Rough Grass							*					
Fertiliser application to lawn grass areas.					*		*			*		
Hedge pruning/cutting					*			*			*	
Shrubs pruning and feeding				*		*			*			
Weed control of hedge and shrub planting areas		*	*	*	*	*	*	*	*	*	*	
Tree pruning											*	*
Removal of tree stakes (3-5yr)				*								
Mulch top-up to tree circles/ squares						*				*		
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	***	***	***	***	***	***	***	***	***	***	***	***