Fortfield Road Residential Development LRD Stage 3



Landscape Design Statement Fortfield Road, Terenure, Dublin 6W



1.1

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Soft Landscape Outline Specification

Hard Landscape Outline Specification

Programme For Implementation, Maintenance + Defects Period



Niall Montgomery + Partners Landscape Architects have been engaged by the applicant 1 Celbridge West Land Limited to collaborate with Urban Agency Architects to develop lands at Fortfield Road, Terenure, Dublin 6W.

The development will comprise a Large-Scale Residential Development (LRD) on a site at Fortfield Road, Terenure of 284 no. units delivering 19 no. houses and 265 no. apartments made up of studios; 1 beds; 2 beds; 3 beds; and 4 beds. The development will also provide community, cultural and arts space and a creche. Communal internal space for residents will also be delivered. Provision of car, cycle and motorbike parking will be provided throughout the development, including at basement and surface level. Vehicular/pedestrian/cyclist access from Fortfield Road. Proposed upgrade works to the surrounding road network is also included. All associated site development works, open space, services provision, ESB substations, plant areas, waste management areas, landscaping (both public and communal) and boundary treatments.

Response to issues raised during the consultation process and the LRD meeting.

Requirement: 4) The proposed application should submit details of how it is proposed to delineate the areas of communal open space from the public open space, while allowing each block to have one publicly accessible frontage to ensure that access can be provided to residents and visitors without compromising the quality of the private spaces. The applicant should also consider the provision of privacy screening to the ground floor apartments on the western side of Block A.

Response: Communal open spaces will be defined with a low 1.1m railing with gated access for residents only. The railing will be set within 1.1m high hedge to screen its impact visually. The low railing provides delineation for residents but also offers visual. Permeability. Each block has core access through these spaces which will be controlled by way of access code pad / intercom for visitors.

Requirement: 5) The proposed application should include full details in relation to the future management and maintenance of the public open spaces on the site, including the area adjoining the lake which is within the site boundary.

Response: Public open spaces including those adjacent to the lake will be maintained under a management company for the development. These will not be taken in charge. Full details of the maintenance regime can be found in the report appendix. Section 2 of the Operational Management Plan prepared by GAA provides further detail on the scope of responsibility for the management of the public open space.

Requirement: 6) Dublin City Council's Conservation Officer recommends that the following items are addressed prior to lodgement of the application: a) Justification for the extensive removal of the historic demesne wall as proposed.

b) Consideration should be given to omitting the removal of the historic demesne wall as proposed and allowing for more of the historic wall to be retained in situ, submitting revised plans, sections and elevations showing the retention of the majority of the historic demesne wall, with new gateways or limited openings to provide access and egress from the site.

Response: The existing historic demesne stone wall is to be retained in South-Western corner of the site. The rest of the Western historic demesne stone wall to be retained but reduced in height to 0.4m and a 0.9m railing placed on top with openings between to create permeability both physically and visually.

Requirement: 8i) All pedestrian and cycle paths should demonstrate compliance with the relevant design standards of DMURS. All internal pedestrian access routes to Blocks should achieve a continuous minimum width of at least 2m. Where shared cycle and pedestrian access routes are proposed, it should be demonstrated that the proposed width can safely and comfortably accommodate shared use.

Response: All paths are to be minimum 2.2m in width. A 3.7m wide path runs through the site functioning as bought fire engine access as well as a shared pedestrian surface. Please refer to the LRD Opinion Summary Response prepared by PUNCH Engineering for further detail.

INTRODUCTION O



Terenure College, 1917

CONTEXT ANALYSIS

Historical Context 1.1

Note: any red line boundaries are indicative only. Refer to architects drawings for application boundary.

Originally built by the Deane family, Terenure House had later passed to the family of George Bernard Shaw, and finally the Bourne family. Nearby was a second house, also owned by the Shaws, which is now home to Our Lady's School. In 1860, Terenure House opened as a college with twenty-one pupils on its roll. Between 1870 and 1890 the school was extended to the current main block which house the fifth and sixth year classrooms, and which also include an original stone staircase of the era, but the original clocktower has since been removed due to safety concerns. The estate holds a lake, and is connected to three rivers. There is an artificial branch watercourse from the River Poddle to the western end of the lake, a culverted outflow, the Olney Stream, to the Swan River system, and a tunnel carries the Lakelands Overflow from the lake to pass under a housing estate, and into Bushy Park, before falling into the River Dodder

1837-1842 6 inch colour mat



Local Context 1.2

The site, 7 kilometres from Dublin city centre, is self-contained. The College istelf is on a parkland. It accommodates approximately 1,000 day students. It is in close proximity to Terenure Village, bus routes and cycle networks. It is rich with amenities and a short walk to Bushy Park. The area is well served with Day Care, Pre, Primary and Secondary Schools. The local area is for the most part residential in character and nature with a strong sense of exising community and maturing landscape with some significant specimen trees contributing to the overarching parkland character. The area indicated below in dotted outline demonstrate's access to public open space on a wider contextual level and opens up potential to a more connected public realm.

Note: any redline boundaries are indicative only









Note: any red line boundaries are indicative only. Refer to architects drawings for application boundary.

1.3 Existing Site Conditions Note: any red line boundaries are indicative only and also include an area the subject of a separate application to South Dublin County Council. Refer to architects drawings.

Micro-climate

Access + Connections

Existing Vegetation

Topography



the central space advantagous of all aspects. The the nature of its current use. An informal path is existing tree belts on the northern boundaries defined through the woodland area which links urban heat island effect.

winds from the south west and orientation of vehicles or pedestrians to the external area given

The site is reasonably well sheltered with prevailing The site currently has no formal access points for Rich bands of existing mature trees enclose the site on all four boundaries. These are a mix of native and non-native species and are for the most part in good condition. The trees contribute will provide protection from wind and a reduced with a path on the southern portion of the lake. to the character of the area significantly and their retention is a key design driver.



The intention is to utilise this grade change for trees defining it. some water attenuation.

Boundaries + Edges

There is little in the way of topography which The sites western boundary is currently a rendered block wall approx. 2.2m in height with a mature defines the site. Sloping from south-west to north hedgerow low in poor condition.

east it creates a grade change of just over 1.5m. The northern boundary of the playing fields is a block wall approx. 1.5m in height with a row of poplar

The eastern boundary of the exiting playing fields is defined by rigid mesh fence approx. 4m in height while the southern boundary of the pitches is a combination of wall and fence with an undefined opening for access to the school.

The northern boundary of the lake area is bound by a low 1.1m rigid mesh fence, further east this becomes the boundary wall to dwellings - low in profile. The eastern boundary is a 2.2m tall paladin fence whilst the southern boundary to the lake is an open edge.



Tír an Iúir 'land of the yew tree'

LANDSCAPE の VISION へ

Design Principles



The use of native tree and shrub planting and wildflower meadow grass areas to respond to, support and promote the national pollination plan will have a positive net gain for bio-diversity. This will enhance the existing ecological system, creating more habitat and diversity. Additional tree planting to promote Carbon Sequestration as well as a varied habitat, roosting for bird life and screening the development. The sites character is very much in tune with tree planting and this is a unique selling point for it.





Fortfield offers an opportunity to curate community. The masterplan has been crafted in such a way so as to promote placemaking, creating opportunity for interactions on a social level and generating a sense of neighbourhood and connection. The simplest of interventions such as a bench on the corner of an intersecting path can create friendships in a time of social isolation.

Engaging Community

2.0 Vision - The Heath

Formative Landscape Character











In contemplating the design strategies and concept for Fortfield Road, particularly with respect to environment and the existing lake habitat, the design finds itself rooted in its formative landscape years. A heathland landscape has emerged which successively transforms to a woodland typology as it journeys north to south. This is responsive to the lakes habitat, offering further diversity in the landscape.

The historic nature of Terenure House and the associated lands will also have an influence on the design in terms of identity as will 'The Yew Tree', the Irish for Terenure, albeit as elemental only given its 'taxicum' properties. The design, in its entirety will support biodiversity, integrated rain gardens, natural play, fitness areas, flexible lawns, some undulations in the topography. It supports permeability and an ease of access and parking as the architectural and engineers reports will demonstrate.

Gradation + Natural Succession



Natural succession should be a guiding principle in nature and the cultivating of plants. Understanding plant relationships, timing and the edge condition can hugely enhance a projects biodiverse credentials. In addition it can inform a landscape derived from gradation and direct a cohesive design language.



"BEAUTY IS THE MOMENT OF TRANSITION ... "

- Ralph Waldo Emerson

LANDSCAPE DESIGN M STRATEGIES

3.1 Landscape Strategies: Open Space Quantum

The Site is primarily zoned Z15 and the Proposed Development is considered Public Open Space: As described in the following pages the public open to be fully consistent with the land use zoning and related objectives of the Dublin City Development Plan (DCDP). A specific requirement of the Z15 zoning is that 25% of the lands be allocated to open space and/ or community facilities. In this regard, 6600M² is required. The Proposed Development has been laid out to provide c. 6989.35M². A small corner to the east of the site is zoned as Z1 "Sustainable Residential Neighborhoods" and falls within the Public Open Space. The existing pond is zoned Z11 with the intention "To protect and improve canal, coastal and river amenities" and is not included in the 25% Accessible Public Open Space.

This is predominantly a single large public open space located on the southern portion of the site adjacent connecting with the existing lake and woodland. The residential communal open space for each block requirements meet and exceed the current standards in terms of quantum and day light quality.

space provides for a multitude of activities such as exercise, play, boules courts and seating areas as well as walking and jogging routes connecting the sequence of spaces. These create opportunities for the local and wider neighborhood to engage and galvanize a sense of community.

Communal Open Space: Located at ground floor and roof terraces the communal open spaces will cater for a variety of programmed activities such as lawn, exercise, terrace areas and allotment gardens to name but a few. These spaces will be for the residents only and secured where relevant with a low railing and gate to access but allow visual permeability.

Private Amenity Spaces: Apartments located at ground level have a 1.5m defensible space in front of the terrace area. There is a gate and railing to allow for own door access. The Terrace itself will be of a high quality paved material. Private Spaces to the rear of the houses will be grassed with a small set of steps where level changes exist. In addition, the front gardens will have parking bays, lawn areas and shrubs.







		PROVIDED	REQUIRED	
		sqm	sqm	
	A(i)	6989.35 sqm		
	TOTAL PUBLIC OPEN SPACE	6989.35 sqm	6600 sqm	
	COMMUNAI	L OPEN SPACE		
ND	AREA	sqm		
	C(i)	1037.55 sqm		
Public Open Space	ROOF BLOCK B	564.71 sqm		
	C(ii)	1031.77 sqm		
	ROOF BLOCK C	564.90 sqm		
	C(iii)	1012.41 smq		
Communal Open Space	C(iv)	280.88 sqm		
communal open space				
	TOTAL COMMUNAL OPEN SPACE	4492.22 sqm	1609 sqm	
Community + Cultrual Space				
	COMMUNITY, ARTS	COMMUNITY, ARTS AND CULTURE SPACE		
Crèche External Space				
	AREA	sqm		
	D	199 sqm	199 sqm	
P.A.S				
	CRECHE EX	CRECHE EXTERNAL SPACE		
Private Gardens	AREA	sqm		
	E	153 sqm	153 sqm	



Public Open Space

LEGEND

PUBLIC OPEN SPACE

3.1 Landscape Strategies: Open Space Quantum



3.2 Landscape Strategies: Accessibility + Circulation

access will be from the north west corner of the site off Fortfield Road with an internal street providing access to on street parking, parking within adjacent to block D in front of the Crèche. A woodland route on Fortfield

It is proposed to ensure the site is fully accessible and permeable. Vehicle Road links the publicly accessible open space and provides cycle and pedestrian links. It is anticipated that all primary routes will be made Part M and K compliant with level access provided where possible. The diagram the curtilage of the private houses and access to basement parking. Two set opposite shows the potential the site has to link with its wider context and down areas have been provided, adjacent to block A near the entrance and open up the community and more importantly expand green infrastructure.



LEGEND

Homezone Primary Pedestrian Route Secondary Pedestrian Route $\left(\right)$ Access $\leftarrow - - \rightarrow$ Fire Access ← − − → Drop Off



Home Zone



Pedestrian Orientated

3.2 Landscape Strategies: Wider Context



3.3 Landscape Strategies: Play + Exercise Strategy

For the most part play will be delivered as informal and natural. Inclusive play spaces have been proposed to provide opportunities for everyone to play together. The play spaces are accessible, engage children of all ages and abilities and encourage them to interact with each other. These will promote health and wellbeing, learning, and social interactions. Play is provided throughout the site and responds to age, context and ability. Several principles have driven the design all of which underpin creating a well-integrated community:

- equipment that stimulates the senses such as sound play

- equipment that is accessible to all with the width for wheelchair access and part M compliant and space for children who do not like to be touched.

- surface materials meet EN 1176 and EN 1177 standards, to be safe and visually pleasing.

- play for all has been provided for with play equipment that has similar tasks but different levels of challenge for age groups and abilities, such as the climbing frame, providing children with choice.

-Providing for calm and landscaped areas with seating.

-A variety of routes to encourage exploration but also allowing for solitary play, onlooker play, parallel play (playing beside one another), associative play (playing close by and mimicking other children).

-The Crèche located in block D provides 153m2 enclosed play area.

In addition to this, exercise stations will be provided in the form of functional equipment.





Exercise Area

Exercise Trail 1086.5m





Natural Play





Exercise

3.4 Landscape Strategies: Boundary Strategy

The sites edge conditions will be split into two sections to facilitate Southern boundary to be retained and planted with native hedgerow and explanation of the boundary treatments - The Former Playing Fields, trees to screen. representing the major development and the Existing Woodland and Lake Eastern boundary to be retained, a low retaining wall provided to allow for Area. level changes (localized) and 1.8m hedge planted in front.

- The Former Playing Fields:

The existing historic demesne stone wall is to be retained in South-Western Northern boundary to be retained corner of the site. The rest of the Western historic demesne stone wall is to be reduced in height to 0.4m and a 0.9m railing is to placed on top with Southern boundary to be retained openings between to create permeability both physically and visually.

Eastern boundary rigid mesh fence to be retained. The existing bridges and Northern boundary trees and block wall to be retained – 2.4m timber fence walls will require some remedial works to re-place copping's, repointing and on post to be erected in front of existing block wall to provide screening to integrate new railings to match original design intent. both adjacent residents and future residents.







Timber panel and concrete post

Playing together



- Existing Woodland and Lake Area:

Brick Wall (planting to soften in front)

Hedge Sub-division on driveway

Rigid Mesh Fence

3.5 Landscape Strategies: Existing + Proposed Trees + Plants

removed to facilitate development. Others have been indicated for removal due to condition and the remainder for some remedial works. Please refer to been planned according to the program, thresholds and spatial hierarchy. arborists drawings for further detail.

It is proposed to re-plant 332no. new trees to define spaces, enhance character and bio-diverse credentials. These will vary in specification of size and species. There will be a majority selected form native tree species and they will be deciduous and evergreen in nature and varying habit.

Proposed planting styles and types will vary depending on use. Within the public realm, plants will be more robust, evergreen and require less maintenance and consistent with other developments in the area. Street trees

It is proposed to retain almost all existing trees on site with only a few to be will be tried and tested urban species. Scale of planting and transition in shrub planting from low medium and high to create defensible space has Within the semi-private apartment courtyards, the palette should be softer, colorful and generally more shade tolerant.

> The Pollinator Plan 2020 has richly informed the planting palette and soft landscape approach. This, in conjunction with a selection of native plant species will characterize the landscape design. Planting will inform and define public routes to differentiate from communal or private space. Planting will respond to the existing character in which it is located and enhance the sense of place to complement it and not compete with it.



The landscape surface water drainage strategy celebrates SUDS features The parking bays and lightly pedestrianised trafficked zones. story of water hugely influences the design of the open space. Opportunities The soft landscape will allow water to drain freely to recharge the ground to treat and celebrate these interventions such as swales and rain gardens water if not captured by filter drains before release. In addition it is proposed become features in the landscape, contributing to creating a unique sense to create several rain gardens on the linear park to capture run off. of identity. Water is collected at the surface and discharged to the local water course via attenuation ponds and swales. Bio Retention Tree pits have been proposed to streets. Currently green roofs have been planned for 70% of the roof area. In addition, permeable paving has been specified for all







Sculptural

Accent + Specimen Trees



Define Spaces

3.6 Landscape Strategies: Water Attenuation Strategy



Bio-retention Tree Pits



Rain Gardens



Swale

3.7 Landscape Strategies: Parking + Furniture

Off street parking has been provided for residents where the curtilage is set and maximizing numbers have driven the masterplan layout in a large part. back from the pavement edge allowing vehicle access and space to park. Off street parking has also been provided for both residents and visitors. On street parking and access to driveways has been designed in coordination with proposed tree pit locations to maximize tree planting opportunities. For the most part, a tree will occur every two or three parallel parking spaces. These have also been coordinated with street lights. Tree positions

Furniture will be provided such as benches and bins in addition to play and exercise equipment which can be further defined at a detailed design stage. Bike parking has also been considered and set out at appropriate locations with a number of cargo bike spread around the site.









Picnic Tables



Bike Parking

The Public Art Strategy will follow best practice guidance and be curated creativity and imagination. through a number of different channels; local artists, student artist and The level of detail applied in the ground plane can also provide spaces national artists. This can form part of the applicant's portfolio, support the of interest and moments to stop, pause and appreciate. In general, an art local cultural and heritage groups and add value to the open space. This will strategy can go some way towards a supporting wayfinding, intuitively or be agreed with local authority in advance and is for consideration only at otherwise. this point.

Pieces can be 'happened' upon as part of a sculptural trail. No matter how it Art can be isolated, stand alone or permanent pieces, or installations during morphs, it should represent and be sensitive to its surroundings. certain times of the year. Art can also be integrated as part of the building fabric in subtle areas. The opportunity to weave sculpture and play together Wayfinding and signage will be an important part of the masterplan narrative creates a much more stimulating environment for children, encouraging and will be further developed in the later stages of the project.



LEGEND

Potential Art Location Wayfinding



Integrated Art + Play

NMP | Landscape Architecture

3.8 Landscape Strategies: Way Finding + Art Strategy



Stand Alone



Wayfinding



Information



"TIME AND SPACE ARE NOT CONDITIONS OF EXISTENCE, TIME AND SPACE IS A MODEL FOR THINKING." - Albert Einstein

LANDSCAPE O CONCEPT DESIGN 7

4.0 Landscape Masterplan

The Development as a whole is considered to be publicly accessible with the exception of the spaces between blocks which will remain secure and communal for residents only. The site is bound to the west with a nature trail and woodland walk, to the south by a series of spaces such as a dog park, the great lawn (for flexible events, kick about etc) a basketball court. Various activities are programmed to the spaces between the blocks such as boules, a putting green, terraces areas complemented with rain gardens and areas of highly diverse planting. A key asset of the site is the existing lake and woodland walk, it is proposed to link this space with Lakelands Park by providing a pedestrian access gate and thus increasing permeability across the site.

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The Great Lawn
Playing Fields
Play
Site Access
Pedestrain Link
Woodland Walk
Home Zone
Communal Space
School Grounds
Crèche
Roof Gardens
Dog Park
Lake Walk
Set Down

Landscape Design 4.1

The landscape design for Fortfeild brings together a cohesive series of spaces driven by historical and ecological influences in response to the sites context and relationship with surrounding lands. Experienced sequentially as routes of discovery and exploration weave themselves together revealing a sensorium of spatial typologies.

The landscape design has been planned in such a way so as to maximise the sites orientation and anticipated micro-climate to create habitable, quality spaces which respond to human comfort ,encouraging residents and public into a safe and surveilled space. A number of potential routes through the site have been identified to benefit connections with its surroundings and provide a better amenity for the wider community. Pedestrian and cycle routes complement this strategy underpinning the sustainable credentials associated with the development.

In addition, it is anticipated that the development will offer a net gain to biodiversity through the development of additional habitat.

An increased number of trees, areas for surface water treatment and wildflower meadows, coupled with best practice maintenance will ensure a sustainable landscape for the future. Edge conditions and relationships with neighbouring developments are sensitively integrated and screened.

The primary objectives of the design are to encourage biodiversity through varied tree and shrub planting, create a series of interlinking spaces which 'blur' the boundaries and create 'moments' for interactions, crafting a sense and extension of the community for the wider Terenure neighborhood.

The following pages will demonstrate through illustrations and narrative the spatial experience for each area of significance.



ollinator Planting and Informal Paths

Buildings Nestled in the Landscape





Concept Sketch

Sculpture Grove Dog Garden Rain Garden Exercise Area Lawn Play Terrace Nature Trail Crèche

Boules Court

Set Down

- Putting Green
- Woodland Walk
- Bike Parking
- Detention Basin





Illustrative Masterplan

Landscape Design

4.2 The Great Lawn + Public Spaces

The Great Lawn is a large expanse of open space which will be the heart of the development. As with the great estates of the past, it is somewhat informal and is framed on one side by new buildings and a soft boundary to the south. The design is careful to respond to desire lines but equally creates choice by organically weaving paths of various widths around spaces. The lawn space also responds to the external cultural space requirements as follows:

• Designed as a multifunctional flexible space to meet the needs of the adjacent cultural building use and wider community.

• The space is a sunken elliptical Amphitheatre lawn with central hard space and sail covering to protect from inclement weather conditions.

• Designed as a performance space for events.

• Capacity to hold smaller market or gallery events for art community.

• Day to day use for designed for gender diversity specifically teenage girls following most current best practice such as tiered seating to hang out and talk, space to perform or dance and importantly a safe space, open but discreet and well lit. Potential for built in speakers to allow for music with decibel limiters and wifi.

• Additional day to day use provides for space to have lunch, coffee, picnic throw a frisbee or just sit and meet.

• Potential for use as an external fabrication space for artists or sculptural space in addition to plein air painting classes

The space has been designed to be the focal point of the development and open to the public 24/7. Natural Play has been incorporated to the 'forest gardens' end, the lawn itself is anticipated to be flexible in nature for use as kick abouts, picnics, frisbee throwing, small community events, art programmes etc.

The vehicular routes will be laid with a High Friction finish in a buff color and are anticipated to have low volume of traffic. This will help to ensure pedestrians are priority for the occasional vehicle traffic which traverses this road. The road edges will be raised Krebs with side gullies to capture wa runoff for bio-retention tree pits.











1 Great Lawn

3 Exercise

LEGEND

2 Play

10 Rain Garden 11 Bike Parking 12 Boundry Railing on Plinth Wall 4 Amenity Terrace

9 Putting Green

6 Woodland

5 Natural Play

- 7 Dog Park
- 8 Sculpture Grove

4.2 The Great Lawn + Public Spaces



Illustrative Masterplan

4.3 The Courtyard Gardens

The courtyard gardens have been designed to create an open heathland experience. To immerse the user in nature and provide as many habitat opportunities for flora and fauna as is possible. The opportunity to sit in the presence of trees has a calming effect on residence and guests and the design provides for this in an overwhelming capacity whilst also catering for programme, sunken gathering spaces, sculpture and exercise.

The design is heavily driven by the desire to increase bio-diverse credentials and create a unique sense of place in how it interacts with the buildings. Own door access to ground floor apartments increases opportunities for social interactions and creates a vibrant sense of space. Allotment gardens, boules courts, lawn areas all provide multiple spaces for residents to utilise.





Flexible Space



Exercise



Natural Play



Social Spaces to Encourage Social Interactions



Discrete Spaces

LEGEND



10 Building Access 11 Bike Parking **12** Shrub + Tree Planting

8 Access to GF Apartment



Illustrative Masterplan

4.3 The Courtyard Gardens

4.3 The Courtvard G



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4.3 The Courtyard Gardens



4.3 The Courtyard Gardens

PS IV-



4.4 The Rooftop Gardens

The roof gardens for Fortfield will benefit from panoramic views across the tree tops of the surrounding grounds to the city and up to the Dublin Mountains in the distance. The Gardens will be fully enclosed with glazed balustrades up to 1.5-1.8m in height according to recommendations by the micro-climate consultant in order to meet human comfort standards.

Each roof garden will have programme such as play, seating and small areas for exercise, BBQ's and small gatherings. The spaces will be well planted with hardy shrubs in raised planters. In addition to this, some allotment glass houses can be provided, managed by the community. The provision of roof gardens is a benefit to the residents of the blocks and contributes in part to meeting the communal open space requirements.



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Integrated Seating



Glass house on Rooftop



Enclosed well planted spaces



BBQ + Seating Arrangements



5 Seating Terrace6 Core Entrance

LEGEND Lawn Exercise BBQ

- **7** Glass House
- 8 Perimeter Planting

4 Outdoor Kitchen

9 Grren Roof



4.5 Lake + Woodland Walk

The Existing Lake and Woodland area to the eastern portion of the site will be protected and enhanced and approached in a light footed manner with minimum impact. It is both of ecological and historical importance. In respect of ecology, the islands will not be made accessible with the exception of infrequent maintenance. In addition, the peninsula, toward the eastern portion of the lake will be made secure in order to protect existing nesting grounds and habitat. Paths will be made good and level with a no dig path build up solution (compacted gravel over web cell) to ensure tree roots will not be impacted. Existing trees requiring works will be identified and remediated accordingly.

The historical bridges and footbridges will be utilised and followed. The bridges will require some remedial works to replace copping's, repointing and integrate new railings to be Part M and Part K compliant. Existing boundary treatments on the northern boundary retained.



Existing bridge on eastern boundary of lake to be retained + augmented. Levels to be made good and railing to be incorporated for health and safety purposes- existing stanchions to be removed.



+ augmented. Levels to be made good and railing to be incorporated to wall and on facing side.





Existing bridge on northern boundary of lake to be retained + augmented. Levels to be made good and railing to be incorporated for health and safety purposes.



Existing bridge on northern boundary of lake to be retained + augmented. Levels to be made good and railing to be incorporated to maintain historical route.

Landscape Plans and schedules included in the application, prepared by NMP Landscape Architects includes a detailed schedule of proposed planting and illustrates the location and extent of mown grass, managed long grass, reinforced grass, low ground cover, hedge and tree planting as well as existing trees to be retained where applicable.

Tree species are selected for longevity, suitability to local soil conditions and microclimate, biodiversity (native species) and where required suitability for proximity to residential buildings. Proposed tree sizes range from heavy standards and multistemmed trees to native whip and forestry transplants. There will be a net gain of individual trees in order to improve the species mix and the proportion of native species on site. Typical species are illustrated on the following pages.

Low planting is utilised to make and reinforce sub-spaces within the larger landscape spaces, for visual screening, defensible space, visual interest, ecological purposes and to guide or direct people's movement. The low planting is conceived as subtle layering of greens within the open spaces. The planting is layered as follows; lowest - bulb planting, ground cover planting, highest - clipped hedge planting.

The selection of hard landscape materials is determined by function but also to provide a cohesive palette of materials throughout. Materials are chosen for durability, but where practical are proposed to be constructed in a way which is sensitively integrated with lawn and soft landscape, in order to minimise the impact of hard landscape surfaces. Primary vehicular, pedestrian and cycle circulation are proposed as a durable, limited range of neutral materials with robust construction. Typically, a 3.7m wide route is proposed for service vehicles. Self-binding gravel and large format reconstituted stone slabs are proposed for pedestrian routes in open space.

LANDSCAPE C PALETTES

5.1 Indicative Hard Landscape Material Approach

SURFACE FINISHES

The hard materials palettes have been selected to represent and respond to use and character of specific spaces. They will be durable and of high quality with patterning developed in the latter stages to indicate moments and celebrate thresholds.

Natural Stone



Self Binding Gravel



To forest walk and Running Track

Porous Paving



To edge of fire tender route

Planters





To utility service areas

Grasscrete







To Retaining Walls + Sign Wall





To bike parking

WALLS + FENCES

FURNITURE

accordingly.

The boundaries between the site both external and internal will be of high quality and and provide a degree of visual transparency.

Bins, bollards and seating have been selected as appropriate to the design language and surroundings within which they fit. These for the most part, will be off the shelf products and specified



To boundaries + GF terraces



Bins

Bollards



To road edges









To woodland

To pedestrian areas





To raised planters at roof level

Soft Pour



To play + fitness zone

Porous Paving



To parking

Green Roof



To Lift Over Runs

Benches



To pedestrian areas

Play



Bespoke Imaginative

Exercise



To fitness areas

Tree Grille



To trees in paving

5.2 Indicative Soft Landscape Material Approach

WOODLAND TREE PLANTING

Informed by the existing and formative tree planting and a native palette the tree planting will bleed into the site and grade out form north to south.

Fagus sylvatica





Pinus sylvestris









Pinus sylvestris watereri

STREET TREES + SMALL FEATURE TREES + PODIUM TREES PLANTING

Specimen tree planting will provide year long interest and beauty landmarks in the landscape, to celebrate and identify with.

Betula jacquemontii



Carpinus betulus multistem





Cornus sanguinea







Dryopteris filix-mas



WILDFLOWER & SHRUB PLANTING

To enhance bio-diverse credentials wildflower planting will occupy edges and large swathes of the sites periphery along with shade tolerant understory planting including plant selection to encourage foraging.

Papaver rhoeas

Silene dioica





Cyathea australis



Lotus corniculatus



WOODLAND UNDERSTORY & SHADE LOVING PLANTING

> Woodland areas and shaded gardens will be planted with mix of shade loving plants.

Polystitchum aculeatum





Dicksonia antarctica







Pyrus callerayana





Prunus serrula



Acer griseum



Magnolia grandiflora

Buxus sempervirens



Ranunculus acris



Medicago lupulina



Lavandula x intermedia

Salvia officinalis



Viburnum davidii





Hosta sp.



Pachysandra terminalis



NMP | Landscape Architecture

5.3 Planting Palette - Planting Approach



Grass land planting for movement and texture



Perennials for seasonal variety



Bulbs to add seasonal interest



Native trees planting including birches and pines birch trees



Shade loving plants for Woodlands



Wildflower meadow



Woodlands with ferns understory



Dense large shrub planting

APPENDIX

Appendix 0 - SUDS Tree Pits

Paved Areas:

The road and paved surfaces will be finished in impermeable surfacing, either flexible bituminous pavement, rigid bound paving, impermeable concrete paver surface water network via silt trap manholes. Notwithstanding the poor sub soil or stone pavers. Typically, all streets are provided with trees and soft landscaping zones, with car parking on at least one side. The roads and footpaths will be drained by gullies that connect to tree pits which are interlinked with perforated run-off. distribution pipes to create infiltration trenches.

The perforated pipes will allow discharge directly to the ground through the surrounding gravel bed. Due to the limited permeability which can be achieved through the sub-surface boulder clays, these pipes will also be connected to the permeability, the gravel bed beneath the tree pits and surrounding the perforated pipes will provide good interception storage, which will retain, filter and attenuate



Street Planting

aim to align modern drainage systems with natural water processes. Integration drainage system from current conditions. of SuDS make urban drainage systems more compatible with components of the natural water cycle such as storm surge overflows, soil percolation, and bio- Direct Infiltration To Ground filtration, mitigating the effect human development may have on the natural water cycle, particularly surface runoff and water pollution trends. In the context of this predominantly brownfield Masterplan area, the provision of the following sustainable drainage systems, along with the construction of separate foul and



Permeable surface to tree pits

SUDS street planting

Sustainable Drainage Systems are a collection of water management practices that surface water networks, will result in a significant improvement on the public

Ground level courtvards shall discharge surface water directly to ground. Hard landscaping zones within paved areas shall be drained to adjacent infiltration trenches within soft landscaped areas.



Example of Sustainable Drainage Systems (SuDS)



Images of SUDs planting (Sheffield Town Centre)

Appendix 0 - SUDS Tree Pits

Tree Pits

Typically, street and footpath surfaces shall be impermeable surfacing, with finishes of bitumen, stone pavers, concrete. To provide interception storage of surface water from these impermeable surfaces, they shall be drained to Bio-retention tree pits via a series of road gulleys and linear drains.



Typical occuon unough Fit A- Acter to Engineer's Details



Type A:

Covered tree pit with connecting trench. _ Typical Soil Volume = 6m3excluding trench and 8.5m3 including trench - Drained Area typically 30-50m2 per individual tree pit

Tree Pit Types - Refer to Engineer's Details









Type B:

Open tree pit with connecting trench. – Typical Soil Volume $= 5.7 \text{m}^3$ excluding trench and 7.5m3 including trench - Drained Area typically 30-50m2 per individual tree pit

SUDS approach



Type C:

Standalone open tree pit. -Typical Soil Volume = 15m3 - Drained Area typically 60-90m2

Appendix 1 - Soft Landscape Outline Specification

1. Specifications for supply.

1.0 Schedule of supply:

The nursery stock material will be delivered following consultation between the Landscape Architect, landscape contractor and the selected nursery, and the Engineer. Delivery will be at all times by means of covered vehicles, and all plant material will be clearly labeled. The source of origin must be from the selected nursery as no other additional stock from other nurseries will be permitted without prior inspection and approval.

1.1 Programme of Works

The planting works shall be executed at the earliest opportunity.

1.2 Nursery stock:

All plant material shall be good quality nursery stock, free from fungal, bacterial or viral infection, aphids, red spider or other insect pests and any physical damage. It shall comply with the requirements of B.S. 3936: Parts 1-10: 1965 Specification for Nursery Stock, where applicable.

All plants shall have been nursery grown in accordance with good practice and shall be supplied through the normal channels of the wholesale nursery trade. They shall have the habit of growth that is normal for the species. Country of origin must be shown in all cases for species grown from seed.

Unless otherwise stated, the plant materials shall be supplied in accordance with the following codes where stated:

- 1+0 1 Year old seedling
- 1+1 1 Year old seedling lined out for 1 year
- 1+2 1 Year old seedling lined out for 2 years
- 1+1+1 1 Year old seedling lined out for 1 year, lifted and lined out for one further year
- 111 1 Year old seedling undercut then 1 more year in seedbed.
- 1u2 1 Year old seedling undercut then 2 more years in seedbed.
- 0/1 1 Year old Hardwood cutting
- 0/2 2 Year old Hardwood cutting
- Twice transplanted tree 2X
- 3X Three times transplanted tree
- 4X Four times transplanted tree
- P9 Containerised plant in 9cm pot

1.3 Species:

All plants supplied shall be exactly true to name as shown in the plant schedules. Unless stipulated, varieties with variegated and/or coloured leaves will not be accepted, and any plant found to be of this type upon leafing out shall be replaced by the contractor at his/her own expense. Bundles of plants shall be marked in conformity with B.S. 3936: Part 1: 1965 and B.S. 3936: part 4: 1966. The nursery supplier shall replace any plants which, on leafing out, are found not to conform to the labels. Definitions of all terms used are in accordance with the following British Standards: -

B.S. No. 3936: Part 1: 1965 entitled "Nursery Stock- Trees and Shrubs"

B.S. No. 3936: Part 4: 1966 entitled "Nursery Stock- Forest Trees"

B.S. No. 3936: 1967 entitled "Specification for Nursery Stock"

2.0 Tree specifications:

Trees shall have a sturdy, reasonably straight stem, and a well-defined straight and upright central leader, with branches growing out of the stem with reasonable symmetry. The crown and root systems shall be well formed. Roots shall be in reasonable balance with the crown and shall be conductive to successful transplantation.

2.1 Standard trees shall have a clear stem 1.70m in height from ground level to the lowest branch, a minimum girth of 8cm measured at 1.00m above ground level and a total height of 2.75-3.00 m.

2.2 Light Standard trees have a clear stem 1.30m in height from ground level to the lowest branch, a minimum girth of 6cm measured at 1.00m above ground level and a total height of 1.80-2.40m.

2.3 Select standard trees shall have a clear stem 1.70 m in height from ground level to the lowest branch, a minimum girth of 10 cm. measured at 1.00.m. above ground level and a total height of 3.0 to 3.5 metres.

2.4 Heavy standard trees shall have a clear stem 1.80-1.90m in height from ground level to the lowest branch, a minimum girth of 14 cm. measured at 1.00.m. above ground level and a total height of 4.0 to 4.5 metres. All trees shall have been undercut a minimum of three times.

2.5 Extra Heavy standard trees shall have a clear stem 2.0m in height from ground level to the lowest branch, a minimum girth of 16 cm. measured at 1.00.m. above ground level and a total height of 4.5 to 5 metres. All trees shall have been undercut a minimum of three times.

2.6 Semi-mature trees shall have a clear stem 2.0m in height from ground level to the lowest branch, a minimum girth, as specified in the Bill of Quantities, measured at 1.00.m. above ground level and a total height of min. 5 metres. All trees shall have been undercut a minimum of three times.

All standards shall be clearly labeled.

2.7 Feathered Trees 180-240cm to conserve moisture.

2.8 Feathered Transplants 120-150cm to conserve moisture.

2.9 Feathered Transplants 90-120 cms, 60-90 cm, 40-60 cm, 30-40 cm Transplants shall be not less than one year old. Trees of species not listed in B.S. 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules. Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.10 Shrubs

(1) Containerised Shrubs shall be of the size specified in the schedules, with several stems originating from or near ground level and of reasonable bushiness, healthy, vigorous and with a sound root system. Pots or containers shall be appropriate to the size of shrub supplied and clearly labeled. Shrubs shall not be pot bound or with girdled or restricted roots.

(2) Bare Root Shrubs shall be of size specified in the schedules, with several stems originating from or near ground level, with reasonable bushiness, healthy, and vigorous. They shall be well furnished with fibrous roots and shall be lifted without severence of major roots. All bare root shrubs shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting to conserve moisture.

2.11 Container Grown Conifers: Conifers shall be of the size specified in the schedules, with one main stem originating from or near ground level and of reasonable bushiness and health, with a well-grown, root system. Pots or containers, where required, shall be appropriate to the size of plant supplied and clearly labeled. Plants shall not be pot bound, or with deformed or restricted roots.

Feathered trees shall be not less than four years old, and shall have been transplanted at least three times. Trees of species not listed in BS 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules.

Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting

Transplants shall be not less than two years old, and shall have been transplanted at least once. Trees of species not listed in B.S. 3936: Part 4: shall be sturdy, with a balanced root and shoot development. Size shall conform to the schedules.

Trees shall be well furnished with lateral fibrous roots, and shall be lifted without severance of major roots. Roots shall be of the habit normal for the species, without deformation. Transplants shall be wrapped in polythene in bundles of 50 no. and clearly labeled from the time of lifting until planting

Appendix 1 - Soft Landscape Outline Specification

2.12 Protection:

The interval between the lifting of stock at the nursery and planting on site is to be kept to an absolute minimum. Plants shall be protected from drying out and from damage in transport. All stock awaiting transport shall be protected from the wind and frost and from drying out. Protection shall include for the supply of stock to site to a suitable heeling-in/ storage area prior to planting. The landscape contractor shall allow for liaison with the site engineer to arrange the heeling-in area/ storage. The contractor shall continue to be entirely responsible for the maintenance of this stock to ensure that at the time of planting the stock complies with the requirements for the supply of nursery stock as per clause 1.0 thereof. No responsibility for the maintenance of the stock will attach to the site engineer whilst the stock is protected on site. No time limit shall attach to the period of protection.

In the event of the Landscape Architect being dissatisfied with the care and attention given to the stocks, following heeling-in, he shall notify the Landscape Contractor who shall take steps to ensure careful heeling-in procedures.

The preparation of the heeling-in area and its subsequent maintenance is the sole responsibility of the Landscape Contractor.

2.13 Damage

On completion of lifting of plants in the nursery, any broken shoots or severed roots shall be pruned, areas of damaged bark neatly pared back to sound tissue.

2.14 Inspections

The Landscape Architect will inspect the hardy nursery stock on the selected nursery during the execution of the works. Only plants selected and approved in the landscape contractors selected nursery will be accepted on the site.

2.15 Delivery and heeling in

All plants will be delivered on a phased basis as called up in advance in agreement with the Engineer, Landscape Architect and the appointed Landscape Contractor. In the event of the Landscape Architect being dissatisfied with the care and attention given to the stocks, following heeling-in, he shall notify the Landscape Contractor who shall take steps to ensure careful heeling-in procedures.

The preparation of the heeling-in area and its subsequent maintenance is the sole responsibility of the Landscape Contractor.

3.0 Specifications for site operations:

3.1 Setting out:

Setting out shall be in accordance with site meetings with the Landscape Architect, and the drawings listed in the preliminaries. No planting works shall take place when the soil /fill is in a waterlogged condition.

3.2 Finished grading:

All planting pits and topsoiled areas disturbed by the landscape contractor shall be left in an even state, with all soil clumps broken up and stones of greater than 50mm diameter shall be removed.

4.0 Specifications for Planting and Plant Materials

4.1.1 Stakes:

Round stakes shall be of peeled larch, pine or Douglas fir, preserved with a water-borne copper chrome arsenic composition in accordance with I.S. 131. For standard and select standards stakes shall be 1.8m long, 75mm in diameter. Stake all whips and transplants greater than 120cm in height. For all transplants exceeding 120cm height stakes shall be 1.2m long, 37mm x 37mm square. Stakes shall be pointed at the butt end. Set stakes vertically in the pit, to the western side of the tree station, and drive before planting. Drive stake with a wooden maul or cast-iron headed drive. Stakes shall be driven into the excavated planting pit to a depth of:

800mm for Standards/Light Standards/Feathered Trees 1000mm for Heavy Standards 500mm for Whips/Transplants

4.1.2 Canes:

Bamboo canes or similar approved shall be used to provide spot spraying location markers for small plants including Pinus, species. The canes are not to be attached to the plants.

4.2 Tree ties:

For standard and select standards, tree ties shall be of rubber, PVC or proprietary fabric laminate composition and shall be strong and durable enough to hold the tree securely in all weather conditions for a period of three years. They shall be flexible enough to allow proper tightening of the tie. Ties shall be min. 25mm wide for 120cms height trees and min. 38mm for larger sizes. They shall be fitted with a simple collar spacer to prevent chafing. Two ties per tree shall be applied to standards; for staked transplants, one tie per tree is required. Ties shall be nailed to the stake with one galvanised nail.

4.3 Protection:

from drying out.

All transplants shall be wrapped in polythene from the time of lifting to conserve moisture. Except when heeled-in, they shall be protected in polythene at all times until planted into their final position on site.

4.4 Damage:

4.5 Watering / Alginure / Fertilisers: All bare rooted light standards and select standards shall be soaked in water overnight, on site, before planting in a liquid solution containing "Alginure" at the recommended dilution rate. Fertilisers shall conform to BS 5581: 1981. In the case of granular fertiliser being added to plantings, it must be mixed through and incorporated into the base of the planting hole and covered over in order to avoid roots of plants coming in direct contact.

4.6 Setting out:

Setting out shall be in accordance with site meetings with the Landscape Architect. Transplants in mixtures shall be planted in staggered rows. Species shall be planted in groups, as indicated in the planting drawings. No planting shall take place until all planting holes (with ameliorants) have been inspected and approved by the Landscape Architect, or a person appointed by him as a representative, to ensure accordance with the specifications. No planting shall take place when ground conditions are frozen or waterlogged. All planting holes shall be opened and closed on the same day.

remove all stones and debris, firming plant into position

4.7.1.Select Standards/Standards Excavate tree pits to 800mm x 800mm x 600mm deep, or as approved. The base of the pit shall be broken up to a depth of 80mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of faecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.7.2 Heavy and Extra Heavy Standards Excavate tree pits to 1000mm x 1000mm x 800mm deep, or as approved. The base of the pit shall be broken up to a depth of 100mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of faecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.7.2 Semi-mature trees Excavate tree pits to 1200mm x 1200mm x 1000mm deep, or as approved. The base of the pit shall be broken up to a depth of 200mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of faecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

The interval between the lifting of stock at the heeling-in area and planting on site is to be kept to an absolute minimum. Plants shall be protected from drying out and from damage in transport. All stock awaiting planting on site shall be stored in a sheltered place protected from the wind and frost and

On completion of planting any broken branches shall be pruned, areas of damaged bark neatly pared back to sound tissue.

be planted in the centre of the planting pit and planted upright. Stones or other rubbish over 75mm shall be removed. Supply and drive the stake 800mm into the ground for standards, 500mm for other transplants. Backfill planting hole 4.7 Tree planting:

Trees shall be planted at the same depth as in the nursery, indicated by the soil mark on the stem of the tree. They shall with excavated topsoil, and

Appendix 1 - Soft Landscape Outline Specification

4.7.3.Light Standard Trees

Excavate tree pits to 500mmx500mmx500xx deep, or as approved. The base of the pit shall be broken up to a depth of 80mm and glazed sides roughened. F.Y.M. at the rate of 0.047 cu.m. (equivalent to 60mm deep) and 100gms of 0.10.20 shall be applied to each tree pit prior to planting. Farm manure shall consist predominantly of faecal matter and shall be free of loose, dry straw and undigested hay. It shall be free of surplus liquid effluent. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.8 Feathered Trees 180-240cm, container grown conifers (>2I)

Excavate tree pits to 400mm x400mm x 400 mm deep, or as approved (slit or notch planting are not acceptable planting methods). The base of the pit shall be broken up to a depth of 80mm and glazed sides roughened. Trees shall be planted at the same depth as in the nursery and backfilled with compound fertiliser 0.10.20 at the rate of 50gm per tree and 0.020m3 of Mushroom Compost or similar approved. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.9 Feathered Whips 120-150 cm:

Excavate tree pit to depth of 300mm x 300mm x 300mm deep, or as approved (slit or notch planting are not acceptable planting methods). Excavation to be achieved by machine digging or augering methods, approved by the Landscape Architect. The base to be broken up to a depth of 60mm and glazed sides roughened. Whips to be planted at same size as in the nursery. Apply 60gm 0.10.20 and 0.020m3 of Mushroom Compost or similar approved.per tree pit to plants. Stakes 1.2m high x 37mm dia. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.10 Feathered Whips and Transplants 90-120cm, 60-90 cm, 40-60cm, 30-40cm, container grown conifers (<2l size) and container grown shrubs (<2l size):

Excavate planting hole to a depth of 300mm x 300mm x 300mm deep; the base to be broken to a depth of 50mm and glazed sides roughened (slit or notch planting are not acceptable planting methods). Excavation to be achieved by machine digging or augering methods, approved by the Landscape Architect. Apply 30gm 0.10.20.per planting pit. Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.11 C. G. Shrubs / C. G. Wall Shrubs / C.G. Climbers:

Excavate planting hole to a depth of 300mm x 300mm x 300mm deep; the base to be broken to a depth of 50mm and glazed sides roughened. The following products are to be supplied and incorporated in to the bottom 100mm of topsoil at the base of the planting pit and in to the topsoil for backfilling around each plant: (1)Seanure soilbuilder as supplied by Farmura @ 1.5Kg per cu.m of topsoil, (2) clean and friable green waste compost @ 25 Kg per cu.m of topsoil and (3) Sierrablen Flora 15:9:9 slow release fertiliser @ 70 grams per m2 Backfill planting hole with excavated topsoil, and remove all stones and debris, firming plant into position.

4.12 Grassing

All grass areas to be ripped with a tractor mounted tine prior to rotovating. The contractor shall grade off all areas to smooth flowing contours, removing all stones greater than 10mm diameter and tip off site. All hollows to be filled in. Roll all areas with a roller as approved. Following the completion of final grading and raking, the area is to be left fallow for a period of 14 days. Spray with 'Basta' at recommended rates, and seed with fine grass mix at a rate of 35gr/Sg.m together with fertilizer 10:10:20 at a rate of 50gr/Sg.m use Coburns Irish premier low maintenance mixture or other as approved by the Landscape Architect.

4.12.1 Grass cutting

Grass cutting shall be carried out during the three year maintenance period and is defined into three categories:

4.12.2 Regular grass cutting

Shall be carried out to the frequencies indicated in the Bill of Quantities. Attention to neat and tidy cutting shall be required to all areas. Sightlines, as set out with the Engineer, at junctions and roundabouts must be kept clear of vegetation at all times.

GENERAL

Upon completion of planting, all pits shall be raked over lightly to leave an even surface and neat appearance. All stones greater than 50mm dia. to be removed. Provision should be made for the watering of light and select standards during periods of prolonged drought in the first year following planting.

4.13 Inspections:

The Landscape Architect will inspect the site with the Landscape Contractor during the execution of the works and following maintenance visits.

4.14 Presentation of certificates:

The Landscape Contractor shall present for the Landscape Architect's inspection, all seed and fertiliser bags, together with their markings. If requested, the contractor shall furnish the Landscape Architect with receipts of purchase for these respective materials.

4.15 Spraying:

1) Following planting of embankments, slopes etc., weed free circles to be formed around individual plants, as directed, using an approved broad-spectrum contact herbicide, as approved by the landscape architect, in mid-spring following planting. Herbicide to be applied using controlled drop applicator containing a dye to indicate areas sprayed. In areas where grass is excessively long, such grass will be strimmed off and collected prior to spraying. The contractor shall be responsible for keeping the ground (1m diameter circle) around all planted material weed free by means of herbicidal application, using approved sprays, during the course of the contract. Weeds to be removed include grasses ,broad-leaved annual and perennial weeds and all noxious weeds.

2) Selective spot spraying will be carried out to all grassed areas, whether planted or unplanted through the application of contact herbicide to control broad-leaved annual and perennial weeds, including thistle, dock and ragwort. Contact herbicide to be approved by the landscape architect prior to application. Herbicide to be applied using controlled drop applicator containing a dye to indicate areas sprayed. The contractor shall allow for the removal of gorse by cutting, as required prior to spraying to ensure its eradication from all grassed areas for the duration of the contract.

d prior to spraying to ensure its eradication from all grassed areas for the duration of the contract.

3) The boundary hedgerows shall be kept weed free by herbicidal application by forming a 300mm wide spayed strip along the full length of each respective hedgerow. Approved herbicide (broad-spectrum contact herbicide) to be applied using controlled drop applicator containing a dye to indicate areas spraved. Spraving of planted areas on roundabouts is also included in this spraving application.

4) Such routine spraying (1, 2 and 3 above) shall be carried out during maintenance visits over the three-year period. No spraying shall take place during adverse weather conditions or at times not recommended by the manufacturer.

4.16 Cutting back: for plants suffering from wind damage.

4.17 Mulching

bark shall measure 30 mm.

4.18 Ground finish: for planting purposes.

Plants for cutting back/tip pruning shall be cut back after inspection by the Landscape Architect. This work to be carried out initially following planting

Mulching may be considered as an optional factor that may be implemented. Mulch shall be from coniferous trees. It shall be shredded, but not pulverised, so that no dimension exceeds 75mm. Bark shall have been composted for a min. of 3mths. In the case of areas requiring mulch the depth of

Upon completion of planting, all ground finish shall include for the removal of stones greater than 50mm excavated during the course of the digging

Appendix 2 - Hard Landscape Outline Specification

PAVING & KERBS

FOOTPATHS

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

Accuracy of Levels and Alignment: The levels of paths and paving shall be carefully set out and frequently checked. All care shall be taken to ensure that the correct cross sections are maintained. The finished face of paths shall be formed so as to provide adequate fall and satisfactory run off to surface water outlets, gullies, etc. Cross-falls of paths shall be carried without break across verges and kerbs to prevent ponding of water between back of kerb and path.

Sub-Base: Granular material shall comply with Clause 804 of the D.o.E. Specification for Roadwork's and shall be spread uniformly over the formation and compacted by vibrator roller. Rolling shall continue until there is no movement under the roller. The finished surface of the compacted sub-base shall be parallel to the proposed finished surface of the footpath. The surface levels for each layer shall not deviate from the design levels by more than +15mm or -15mm.

For sub-base thickness in paved areas see area engineers spec. and attached following schedule. Each contractor shall do all necessary tests to ensure a well compacted, plain even surface on all areas with traffic movement. If paving shows settling after 1 year which normally is related to an insufficient depth and compaction of the sub-base the contractor shall rebuilt the failed area to his own cost.

Use of Surfaces by Construction Traffic:

Constructional traffic used on pavements under construction shall be suitable in relation to the courses it traverses so that damage is not caused to the sub-grade. Where damage is caused to the formation of the sub- grade in strength or level the damaged area shall be excavated for an area and depth which shall be determined by the Architect and this area shall be filled to the required levels with crushed rock of 50mm maximum size. The degree of compaction for this area shall be the same as that specified for the remainder of the formation. All this excavation and making good of damaged areas shall be carried out at the expense of the Contractor. Where damage is caused to the sub-base, the damaged area shall be made good as noted above, using the material of which the sub-base is composed. The wheels or tracks of plant moving over the various pavement courses shall be kept free from deleterious materials.

MODULAR PAVING

Concrete Pavers Precast concrete pavers shall conform to the requirements of BS 6717 Part 1. Ensure that sub-bases are suitably accurate and to specified gradients before being laid.

Sample: Before placing orders submit representative samples for approval. Ensure that delivered materials match sample.

Laying Generally:

1. Laying Specification

1.1 Paving blocks/bricks shall be laid to the requirements of Part 3: 1997, BS 7533, except that the lip onto gully gratings is modified to 5 - 6 mm. Note, in particular, the following requirements of Part 3.

i. The difference in level between two adjacent blocks shall not exceed 2 mm.

ii. The finished pavement surface shall not deviate more than 10 mm under a 3m

straight edge.

iii. The accuracy of cutting a block should be such that the resulting joint should not exceed 5 mm.

iv. The surface course should be between

(a) 3 - 6 mm above drainage channels

(b) 5 - 10 mm above gullies (*BRL modify this to 5 - 7 mm above gullies to reduce "trips")

v. The surface course should be inspected soon after completion and at regular

intervals thereafter - additional sand should be brushed in where necessary.

1.2 The surface course for chamfered units should be 3 - 5 mm above the kerb to

facilitate surface drainage. The surface course for non-chamfered units should be 2 mm above the kerb to facilitate surface drainage.

1.3 When paving units need to be trimmed, pieces with a dimension less than 50 mm

should not be used.

2. Drainage Channels

tween 10 mm and 40 mm. Vertical joints should be filled with 3:1 wet sand-cement mix. 2.2 Mortar, which has been mixed for over 2 hours, should be discarded. 2.3 The mortar should be laid on a previously prepared concrete base as per construction drawing detail. Select blocks/paviors vertically from at least 3 separate packs in rotation, or as recommended by manufacturer, to avoid colour banding. Lay blocks/paviors on a well graded sand bed and vibrate to produce a thoroughly interlocked paving of even overall appearance with sharp sand filled joints and accurate to line, level and profile. Refill joints once a week three weeks after first fill. Commencing from an edge restraint lay blocks/paviors hand tight with a joint width of 2-3mm for pedestrian use and 3-5 mm for areas with traffic. Maintain an open working face and do not use mechanical force to obtain tight joints. Place blocks/pavers squarely with minimum disturbance to bedding. Supply blocks/paviors to laying face over newly laid paving but stack at least 1 m back from laying face. Do not allow plant to traverse areas of uncompacted paving. Continually check alignment of pavers with string lines as work proceeds to ensure maintenance of accurate bond.Infill at edge restraints as work proceeds. Wherever the type of bond and angle of edging permit, avoid very small infill pieces at edges by breaking bond on the next course in from the edge, using cut blocks/pavers not less than 1/3 full size. Cut stones shall be rectangular or trapezoidal; the smallest point shall be a minimum of 35mm. (May be pavers have to be turned by 90 deg.)Half stones shall be cut at manufacture. Thoroughly compact blocks/pavers with vibrating plate compactor as laying proceeds but after infilling at edges. Apply the same compacting effort over the whole surface. Do not compact within 1 m of the working face. Do not leave uncompacted areas of paying at the end of working periods, except within 1 m of unrestrained edges. Checks paving after compacting first few metres, then at frequent intervals to ensure that surface levels are as specified; if they are not, lift blocks/pavers and relay. Brush sharp sand into joints, revibrate surface and repeat as required to completely fill joints. Make sure that paving is held by a kerb on both sides before vibration to avoid uneven joints. Avoid damaging kerb haunching and adjacent work during vibration. Do not begin vibration until kerbs have matured. The paving pattern will be stretcher bond, make sure that the joints will be in straight line after vibrating. Also ensure joints are off equal width. The block pavement shall have a surface regularity/ flatness tolerance of less than 10 mm under a 3 m straight edge.

Sample: Before placing orders submit representative samples for approval. Ensure that delivered materials match sample.

PRECAST CONCRETE FLAGS

Pre-cast Concrete Flags:

Note the following selected items from BS 7533, Part 4.

the Landscape Architect.

KERBS

Kerbing General: Kerb radii shall be in accordance with Architects and Engineers drawings. Use radius kerbs for all new kerbs.

Laying Generally:

Natural stone and precast concrete kerbs shall meet the requirements of BS 435 and BS 7263-1.

- 3. Concrete for foundations and haunching shall be to BS 5328.
- mm thick.
- 5. Kerbs shall be backed with concrete as per drawing.
- 6. Radius kerbs shall be used on radii of 12 m or less.

- Landscape Architect.

2.1 Where paving blocks are used in a channel, they shall be laid on freshly mixed moist 3:1 sand-cement mortar. The mortar should have thickness be-

1. Precast concrete flags shall be laid to the requirements of BS 7533 Part 4.

The difference in level between two adjacent flags should not exceed 3 mm.

• The top surface of the paving units should stand 3 - 6 mm above the drainage channel.

• A 30 - 50 mm (compacted thickness) of the sand laying course is given as suitable (for narrow joints)

2. Flags should be laid with narrow joints (2 - 5 mm). Joints should be filled with dried sand (conforming to table 4 of the code), or as determined by

1. Precast concrete kerbs shall be laid to the requirements of BS 7533, Part 6.

2. Units shall be laid on fresh concrete or mortar bed and adjusted to line and level.

4. Bedding mortar shall be freshly mixed, moist 3:1 sand-cement between 12 and 40

7. Kerbs should not deviate from the required level by more than 6mm.

8. Kerbs should not deviate by more than 3 mm under a 3 m straight edge.

9. Open-jointed kerbs should have joints of 2 - 4 mm wide.

Mortar jointed kerbs should have joints of 7 - 10 mm wide filled completely with 3:1

sand-cement mortar, and finished to give a smooth flush joint or as specified by the

Appendix 3 - Programme For Implementation, Maintenance + Defects Period

5.1 Period:

The Contractor shall be responsible for aftercare of the completed works for 1 Year from the date of completion of planting. Subject to satisfactory performance the maintenance contract may be extended for two further periods of 12 months. Maintenance in years 2 and 3 shall be provisional. Maintenance during years 2 and 3 may be assigned directly to the Board Of Management of the school. This will include grass cutting, weed control of all planted areas, litter clearance and watering of Select Standard trees during dry weather.

5.2 Organisation:

The aftercare programme will be organised as follows:-

(1) Scheduled operations, in whose timing the contractor will be permitted some flexibility and which will be the basis of payment to the Contractor. (2) Performance standards, which the Contractor is required to meet at all times, and on which his performance will be assessed. (3) Critical dates, by which time scheduled operations, shall have been completed, and at which performance will be assessed.

5.3 Performance standards:

Shrub, woodland and hedgerow planting to be maintained in accordance with specifications e.g. spraying, firming, tree tie adjustment. Weeds shall not cover more than 20% of the ground surface within planting areas and the maintained 1m diameter weed free circles at any time, and neither shall they exceed 100mm in height. Weeds shall be treated before they establish.

Within grass areas noxious and competitive weeds shall not be allowed to establish and all perennial weeds shall be spot treated at each maintenance visit, 3 times per year.

Watering: 5.4

The contractor is responsible for the survival of all plants during the maintenance period. Apply water to moisten full depth of root run using proprietary irrigation system. Avoid washing or compaction of the soil surface. The Landscape Contractor is responsible for informing the Landscape Architect if the plants require watering. A minimum of 16 no. waterings year1, 8 no. year 2, 4 no. year 3. Prior notification to the landscape architect and a record of attendance will be requested for each visit. Spot checks will be made to ensure full compliance with this condition.

5.5 PROGRAMME

Year One (After Planting): Period of 12 months from date of practical completion

5.5.1 By end of May (Year One):

Application of herbicide agreed with Landscape Architect to all planting areas. Protect all plants. Hand weed all large weeds too close to nursery stock for safe treatment. Strim long grass prior to spray application. Provision for 1 no. visit for spot weed control application to areas where perennial weeds are apparent in the grass sward. Tip prune, firm plants. Grass cutting. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water select standard trees. Critical date: 30 May (Year One)

5.5.2 By end August (Year One):

Application of herbicide agreed with Landscape Architect to all planting areas. Protect all plants. Hand weed all large weeds too close to nursery stock for safe treatment. Provision for 1 no, visit for spot weed control application to areas where perennial weeds are apparent in the grass sward. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Grass cutting. All necessary cultural/ husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water select standard trees. Critical Date: 30 August (Year One)

5.5.3 October (Year One):

Remove dead plants after Landscape Architect's inspection.

5.5.4 November (Year One):

Replacement planting. Tree care shall mean pruning deciduous trees including those of hedgerow form when dormant to promote open frame works in the crown. Remove all suckers and dead branches, and branches that are encroaching on to footpaths should be cut back to point of branching.

5.5.5 By end December: Critical Date: 30 December (Year One).

5.5.6 Year 2

As year 1.

5.5.7 Year 3

As year 1. Hedgerow to be fully pruned at end of season.

Sweeping and Cleaning 5.5.8

Sweeping shall mean sweeping of the footpaths, plaving courts, car parks and the schools road network and removal of all grit rubbish moss and leaves. keeping the hard landscaped areas of the site in a neat and tidy manner. Number of sweepings per annum -12no.

programmed maintenance schedule.

5.5.9 Other Maintenance Works

Carry out any other maintenance to ensure the works are kept in a satisfactory state during the defects liability period

Application of herbicide agreed with Landscape Architect to all planting areas. Grass cutting. All necessary cultural/husbandry methods to be completed in order to leave the sites in a clean, orderly and tidy manner. Water extra heavy standard trees, standard trees.

Cleaning shall mean the removal of paper, plastic bags and all other rubbish from grassed areas, roads, car parks, playing courts, shrubbery's, hedging etc. or any part of the school grounds. This operation shall be carried out twice a month.

All dirt and rubbish to be removed off site to a tip to be provided by the Landscape contractor.

Autumn leaves shall be swept on a weekly basis from end of October to mid-November (three weeks). Any additional cleaning and sweeping deemed necessary, during the year, and requested by the school for any part of the schools grounds will be paid for at a pro rata basis to the rates for the

All grassed areas are to be edged 3 times a year using a machine and are not to be sprayed.

Appendix 3 - Programme For Implementation, Maintenance + Defects Period

5.6 Grass Cutting

Grass cutting shall be deemed to include for:

[a] Removal of lodged grass.

[b] Removal and disposal of grass cuttings from adjoining roads and paving.

[c] Removal and disposal of stones and other obstructions from area of grass to be cut.

high profile grassed areas, eg. central gardens are to be Fine cut. Fine cutting shall mean mowing to 25mm high. This operation is to be carried out in each location shown on the landscape drawings and in locations as directed on site by a representative of the management team. A rough schedule is as follows-

March: 1cut April: 3 cuts May: 4 cuts June: 4 cuts July: 4 cuts August: 4 cuts September: 4 cuts October: 4 cuts November - February: 1 cut Total 29 cuts

Fine cutting shall be deemed to include for grass cut to 25mm high evenly over the whole area, with cuttings left evenly spread over the surfaces. Grass not to exceed 50mm between cuts.

Other grass areas of which are less high profile are to be cut 16 times a year. These will include the grassed areas around the woodland areas, in between the pitches and any grassed area hidden from the main road by the school.

Areas indicated as wildflower mix shall be cut three times per annum. Cuts shall be carried out at specified times as agreed with landscape architect and recommended by the wildflower seed producer. Remove cuttings after each cut and remove offsite to tip.

Leave cuttings evenly spread. This operation is to be carried out in each location shown on the landscape drawings and in locations as directed on site by a representative of the Board Of Management.

At every second grass cut, grass shall be trimmed from around the base of walls and fences, back of footpaths and kerbs, litter bins, sluice valves and hydrant markers, trees, shrubberies poles and public lighting columns etc., and kept in a neat and tidy condition.

The contractor shall apply a broad spectrum weed killer, once a year, mid April, at the recommended application rate, to control weeds in the grassed areas during the growing season. In addition, 1 no. applications of herbicide to kill off clover in the grass areas shall be applied in April in line with approved herbicides under current legislation.

