Biodiversity Management Plan for the proposed Strategic Housing Development at Lands South of Stocking Ave., Stocking Avenue, Woodstown, Dublin 16.

12TH MAY 2021

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On behalf of: Ardstone Homes Limited.

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Introduction

Description of the Proposed Project

Ardstone Homes Limited intends to apply for planning permission for a Strategic Housing Ardstone Homes Ltd. intend to apply for permission for a strategic housing development at a site of 2.2 Ha, at Lands South of Stocking Ave., Stocking Avenue, Woodstown, Dublin 16 (Figures 1 and 2).

The proposed residential development will provide for 114 No. build to rent units in a mix of 1, 2 and 3 bed apartment and duplex units, across 6 No. separate blocks;

- Block A is a part 6 part 4 storey apartment block comprising 47 No. 1 and 2 bed units;
- Block B is a 3 storey duplex block comprising 11 No. 1, 2 and 3 bed units;
- Block C1 is 3 storey duplex block comprising 15 No. 1, 2 and 3 bed units;
- Block C2 is a 3 storey duplex block comprising 19 No. 1, 2 and 3 bed units;
- Block D is a 3 storey duplex block comprising 18 No. 2 and 3 bed units; and
- Block E is a 3 storey duplex block comprising 4 No. 2 and 3 bed units.

The proposed development will also consist of the provision of: 110 sqm residential amenity space in the lower ground floor of Block A; waste storage facilities; 98 No. car parking spaces and 238 No. bicycle parking spaces; boundary treatments and street lighting; the provision of Sustainable Urban Drainage systems (SUDs); 1 No. ESB substation; plant and switch rooms and all ancillary works and services necessary to facilitate construction and operation; changes in levels across the site; associated hard and soft landscaping; and all other associated site excavation; and infrastructural and site development works above and below ground. The development will be served by a vehicular access from Stocking Avenue via White Pines South on the western side of the site.

Background to the Biodiversity Management Plan

During the planning process consultation took place with South Dublin County Council (SDCC) for the White Pines East development, which is adjacent to the proposed development (White Pines Central). Comments in relation to biodiversity in the response back from the consultation process with SDCC for the proposed development (White Pines East) included the following:

- *"The design of SuDS features is required to be of high quality to achieve a multifunctional space for amenity, biodiversity and surface water management."*
- *"The current proposed drainage system needs to be developed further in order to sustainably manage surface water through a natural hydrological regime or SUDS scheme within the development. The philosophy of SUDS is an integrated multi-disciplinary approach which locally addresses water quality, water quantity, and provides for amenity and habitat/biodiversity enhancement."*
- *"The applicant is requested to submit a fully detailed Planting Plan for the entire development. The planting plan should provide the following information:*
  - *Location of species types, schedule of plants noting species, planting sizes and proposed numbers/densities where appropriate*
  - *Implementation timetables.*
  - *Detailed proposals for the future maintenance/management of all landscaped areas"*
- *"The applicant should propose native species where possible to encourage biodiversity and support pollinators within the landscape."*

Feedback from the White Pines Central consultation with South Dublin Council in relation to the development outlined the following:

"*Given the numerous policies and objectives regarding Green Infrastructure in the County Development Plan 2106-2022 and given the size and nature of the proposed development. It is requested that an overarching* ***Biodiversity Management Plan*** *be drawn up by the applicant/developer to oversee the various biodiversity issues on the site including bats, birds, amphibians, invertebrates, mammals etc. and the provision of a range of appropriate habitat types to mitigate against potential biodiversity impacts.*
The plan should indicate how biodiversity and green infrastructure is to be protected, enhanced and developed on this site during construction and into the future, taking into account matters that included the following:

(a) The protection of hedgerows
(b) Protections and enhancement measures for bats
(c) Protection and enhancement of breeding birds and their habitats
(d) The use of SUDS and Climate Adaption Measures."

The project team discussed this requirement at White Pines Central and it was deemed to be a rational and positive approach to develop a Biodiversity Management Plan for White Pines East as well as White Pines Central, to ensure consistency throughout the masterplan area in relation to the biodiversity enhancement measures and to improve the biodiversity value of the site for its residents as well as local biodiversity.

Following the decision to incorporate a Biodiversity Management Plan into the White Pines East and Central submissions, discussions took place between the Ecologists (Altemar Limited.) and Mitchell & Associates (Landscape Architects) on how to improve the biodiversity value of the site and how to ensure that biodiversity is encouraged on site during the short, medium and long term, in line with the comments received from SDCC for both project consultations. The proposed biodiversity management plan is as a result of this consultation and cross reverences both landscape and biodiversity elements.

Landscape Design incorporating biodiversity elements.

The proposed landscape masterplan is seen in Figures 4-9. Biodiversity enhancement measures are noted in Figures 5-9. The South Dublin County Council Development Plan 2016-2022 Green Infrastructure Objectives are seen in Appendix I. The proposed planting schedule is seen in Appendix II. The outline specification for Softworks is seen in Appendix III and the Outline Specification for Soft works Maintenance is seen in Appendix IV.

Figure 1. Site outline and location.

Figure 2. Site outline and location.

Figure 3. Proposed site layout.

Figure 4. Landscape Masterplan.

Figure 5. Landscape Masterplan (north west section)

Figure 6. Landscape Masterplan (west section)

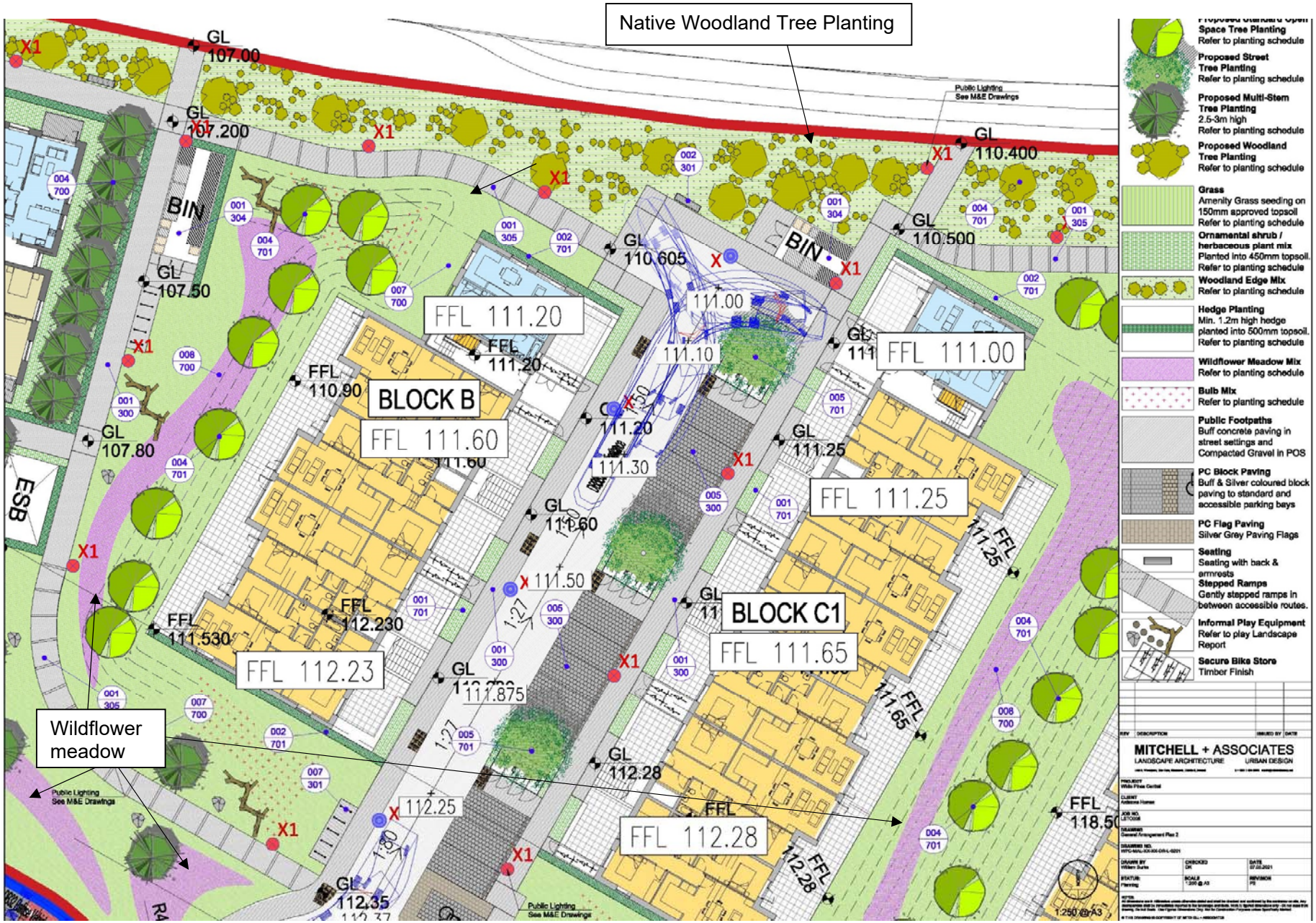

Figure 7. Landscape Masterplan (north section).

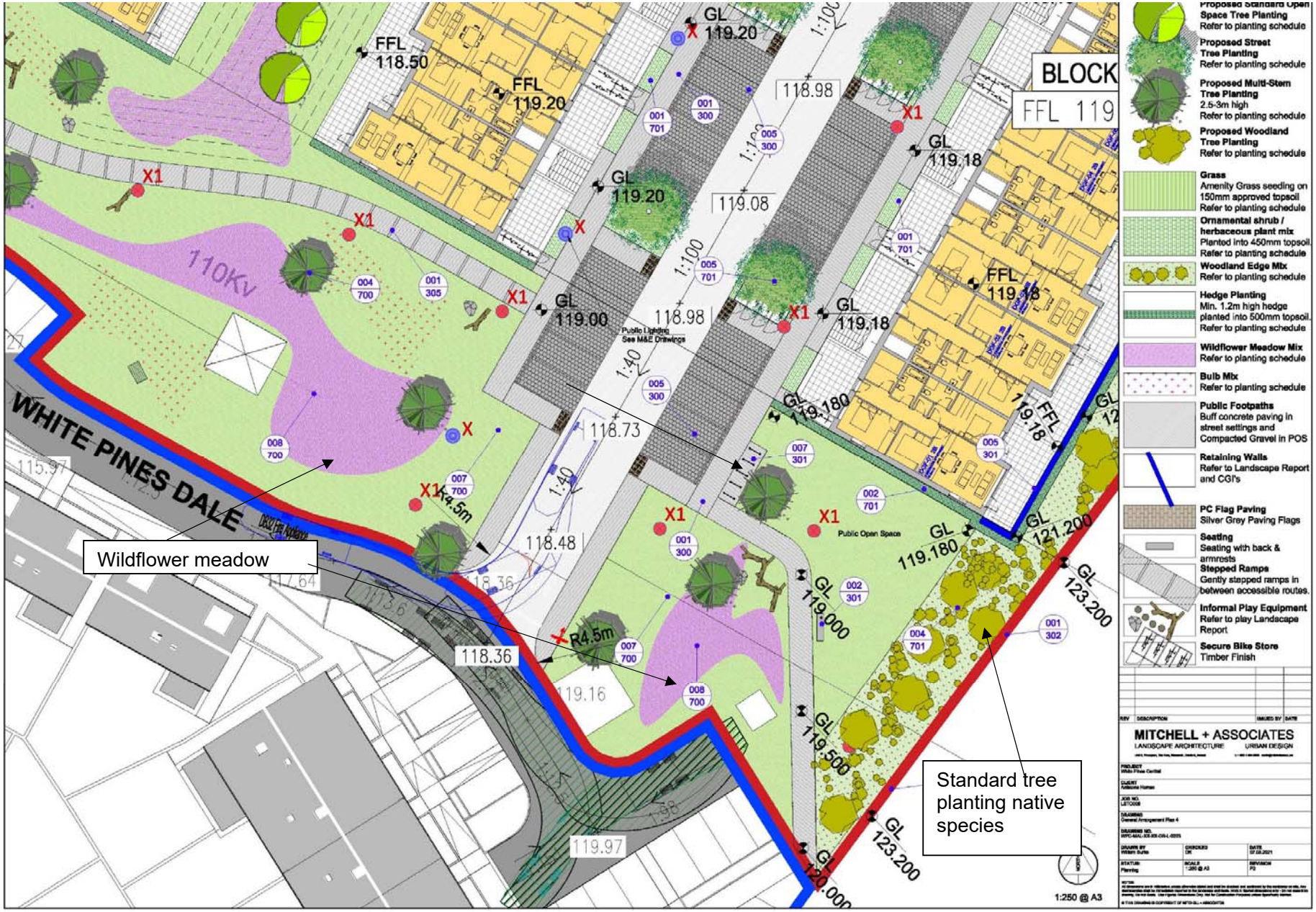

Figure 8. Landscape Masterplan (south east section).

Biodiversity enhancement features

Landscape

The Landscape Architects Report (Mitchell & Associates) and drawings accompanying this submission should be consulted in relation to all aspects of site clearance, site preparation and the maintenance of all planting on site. Altemar has worked with the Landscape Architect to provide appropriate native species lists. In addition to extensive tree planting throughout the proposed development, a mix of herbaceous planting, wild-flower meadows and shade-tolerant plants are proposed within the public realm and communal amenity spaces.

Northern and Eastern Woodland Boundary

As outlined in the Landscape Architects Report "*One of the most important landscape proposals on site is the establishment of a woodland and wildflower boundary. Not only will the boundary act as a buffer for the scheme it will anchor the scheme to Stocking Avenue. We propose plant specimen trees and ~10m spacing while reinforcing them with smaller woodland trees, shrubs, hedges and understorey planting.*

It is desired that the boundary be as biodiverse as possible. To facilitate and encourage this we have filled the boundary with pollinator friendly planting species (see Planting Schedule). The planting will provide food, shelter and safety from chemicals such as pesticides. Many pollinator friendly actions simply require us to manage the land in a slightly different way than we have become used to. It is not about letting the landscape go wild, but about managing it in a way that is sustainable for pollinators so that they can survive and continue to provide us with their vital service. The Boundary will usually be accompanied by a compacted gravel footpath which gives residents and visitors the chance to walk alongside the boundary without disturbing it and its flora and fauna. The woodland boundary on this site will run close to the woodland boundary on the White Pines North and South schemes and act as a corridor for biodiversity."

Meadow Spine

"*First established in the White Pines North scheme as a way of utilising the space above the water lines that run through the site, this wildflower meadow open space will now continue into the White Pines Central scheme. Planted in a meandering wave the wildflower creates pocket spaces for informal use. This wildflower meadow will tie the two scheme together and make them feel like one. The colour and form of the meadow creates great interest for the residents but is also a hub of pollinator activity*."

Species Selection for the Landscape Masterplan

Altemar provided Mitchell & Associates details of species that could be used to encourage and maintain biodiversity on site. The proposed mixes meant fundamental changes in the species planting from a mix of ornamental and native species to a more dominantly native landscape strategy leaning towards species selection to promote and enhance biodiversity (native seeds fruits and pollinator friendly species). In relation to species the proposed strategy has a heavy reliance on native species that provide an ecological function and are detailed within the Pollinator Friendly Planting Code[1]. In addition to the pollinater friendly plants additional planting and species were selected to encourage and sustain birds and bats on site. This included predominantly native but some non native planting to provide and encourage foraging on site. In addition, invasives such as Fuchsia, Cherry Laurel, Rhododendron, Sycamore, snowberry & *Allium triquetrum* were not included within planting lists.

Trees for to encourage bird foraging included hazel, crab apple, Rowan (mountain ash), elder, silver birch, Spindle - Euonymus europaeus, holly, blackthorn, Hawthorn, willow, wild cherry, wild privet, oaks (*Quercus robur*) and Scots Pine (Pinus Sylvestris). Shrubs to encourage bird foraging included non native cotoneaster and pyracantha. Treelines were modified to include native Scots pine and wildflower meadows are tin include species such as Teasle and mullion to be added to the proposed mixes. Hedging is to include hawthorn, blackthorn, crab apple and rowan.

In relation to maintaining and encouraging bats on site the eastern treeline where bat foraging was noted is to be retained. Lighting in the area has been designed so as not to impact on bat foraging. In addition, woodland planting has been placed in this area and surrounding the proposed development to encourage bat foraging in the long term and provide bat foraging corridors. Scented bedding plants and herbs for bats have been included in the landscape mixes to encourage insect activity. Scented climbers have also been introduced to provide for increased insect activity. The species selected are seen in Appendix II.

[1] https://www.biodiversityireland.ie/wordpress/wp-content/uploads/Pollinator-Council-Guide-Planting-Code-FINAL.pdf

Ecological Corridors.

The revision to the landscape strategy has resulted in strong ecological woodland corridors on the northern and eastern portions of the site. It would be seen that these corridors would form important pathways for biodiversity across and particularly around the perimeter of the site. The modification to in the streetscape to more native trees will also increase the biodiversity value of the site in the long term, providing nesting and foraging resources for birds. As can be seen from Figure 9, the habitats outlined in Table 1 consist primarily of spoil and bare ground (ED2). However, there is a hedgerow to the east of the site. It is proposed to remove this hedgerow and replace it with a woodland planting on the entire length of the eastern boundary.

Figure 9. H*abitats referred to in the text Fossitt (2000) terminology.*

Consultation with SDCC

Specifically, in relation to the comments raised in consultation with SDCC please note the following:

a) The protection of hedgerows

As outlined in the biodiversity chapter of the EIAR, the proposed development area will involve the removal of a hedgerow. Supplementary planting of woodland mix will be carried out on the eastern and northern boundaries. As outlined in the arborist tree protection plan the trees to be retained on site will have sufficient tree root protection measures in place.

Table 1. *Habitats and species noted on site.*

Fossitt	Habitat and species description	
BL	**BL-Built Land** No buildings were on site. However, there was an area of hardstanding that was a construction compound and containers with welfare facilities and machinery. No species of conservation importance were noted in these areas.	
ED2	**ED2- Spoil and Bare Ground** As can be seen from Figure 7.6, the vast majority of the site had been cleared and worked over by machinery to such an extent that the ground was totally bare, with no flora**.**	
WS1	**WS1-Scrub** An area of scrub was noted on site in the upper corner of the field. This area of scrub was dominated by (gorse (*Ulex* sp), butterfly-bush (*Buddleja davidii*) and bramble (*Rubus fruticosus agg*.) Other species in this area included scrambling roses (*Rosa spp.)* and Colt's-foot *(Tussilago farfara)*.	

Fossitt	Habitat and species description	
ED3	**ED3 Recolonising bare ground** On the most eastern part of the site at the top of the hill, behind a hedgerow, was a mound of earth which had become recolonised. Species observed included Rape (*Brassica napus*), creeping buttercup (*Ranunculus repens*), bramble (*Rubus fruticosus*), dandelion (*Taraxacum spp*.), daisy (*Bellis perennis*), plantains (*Plantago spp*.), thistles (*Cirsium vulgare*), docks (*Rumex spp*.), cleavers (Galium aparine), scarlet pimpernel (Anagallis arvensis) and nettle (*Urtica dioica*).	
WL1	**WL1-Hedgerow** A prominent hedgerow is located across the most elevated part of the site proximate to the redline boundary. Species included elder (*Sambucus nigra*), sycamore (*Acer pseudoplatanus*), ash (*Fraxinus excelsior*), bramble (*Rubus fruticosus agg*.), dandelion (*Taraxacum spp*.), creeping buttercup (*Ranunculus repens*), plantains (*Plantago spp*.), nettle (*Urtica dioica*), thistles (*Cirsium arvense, C. vulgare*), docks (*Rumex spp.*), ivy (*Hedera helix*), cleavers (*Galium aparine*), lords and ladies (*Arum maculatum*), cow parsley (*Anthriscus sylvestris*) and wild carrot (*Daucus carota*). Two sika deer (*Cervus nippon*) and a disused fox den were also noted in the vicinity of the hedgerow. No bats were observed foraging in the vicinity of the hedgerow. The trees within the hedgerow were of poor bat roosting potential.	

No flora species or habitats of National or international conservation importance were noted during the surveys. No flora species of conservation importance were noted on site by the NPWS, NBDC. There are no watercourses, drainage ditches or water features on site.

(b) Protections and enhancement measures for bats

No bats were noted on site. However, a woodland mix will be places on the eastern and northern boundaries. It would be expected that the eastern perimeter would be more important to bat foraging and potential roosting as it would be away from the streetlighting and road noise. Once fully grown that these woodland areas would also provide foraging as well as potential roosting sites for bats.

(c) Protection and enhancement of breeding birds and their habitats
Relevant guidelines and legislation (Section 40 of the Wildlife Acts, 1976 to 2012) in relation to the removal of trees and timing of nesting birds will need be followed e.g. do not remove trees or shrubs during the nesting season (1st March to 31st August). As outlined in the planting strategy a significant number of native trees in addition to shrubs will be provided on site. These species have been selected to provide a varied and significant foraging resource for birds in addition in the long term providing a significant nesting resource.

(d) The use of SUDS and Climate Adaption Measures.
As outlined in the DBFL Infrastructure report (section 3.2.6).
"The following methodologies are being implemented as part of a SuDS treatment train approach:
 Permeable paving in parking spaces / in curtilage areas.
 Typically, road gullies discharge to tree pits (with high level overflow to the piped surface water network)
 Surface water runoff from duplex roofs will be routed to the proposed surface water pipe network via the stone reservoir beneath permeable paved parking. Note, this detail does not rely on infiltration, the stone reservoir is intended to provide an additional element of attenuation storage.
 Surface water runoff from apartment roofs will be captured by green roofs (sedum blanket) prior to being routed to piped surface water drainage network.
 Attenuation of the 1 in 100 year return period storms in underground attenuation chambers (Stormtech). Provision of above ground storage for the 100 year less the 30 year storm volume is not feasible due to steep site gradients. Note: Our calculation has not allowed for any infiltration when calculating the attenuation volume.
 Installation of a vortex flow control device (Hydrobrake or equivalent).
 Surface water discharge will also pass via a Class 1 full retention fuel / oil separator (sized in accordance with permitted discharge as set out in SD10A/0041).
In addition as outlined in the Infrastructure Report the *Rainfall Depth Factored for Climate Change (as per GDSDS)"* is 10%.

Conclusion
The Biodiversity Management Plan has been prepared by Altemar and Mitchell & Associates. It involves the implementation of significant biodiversity management measures in line with the South Dublin County Council Development Plan 2016-2022 Green Infrastructure Objectives that are seen in Appendix I. The proposed planting schedule is seen in Appendix II outlines the heavy reliance on native and pollinator friendly species. The outline specification for softworks (Appendix III) outlines the general works, site preparation, soil preparation, grass seeding, wildflower seeding, bulb/corm planting, shrub/groundcover planting, and tree planting. The Outline Specification for Soft works Maintenance is seen in Appendix IV and outlines the general maintenance and landscape works, site preparation, soil preparation, grass seeding, wildflower seeding, bulb/corm planting, shrub/groundcover planting, and tree planting. The works in relation to the biodiversity management plan will be overseen by a project ecologist to ensure that the specifications outlined will be carried out.

Appendix I- South Dublin County Council Development Plan 2016-2022 Green Infrastructure Objectives.

The South Dublin County Council Development Plan 2016-2022 Green Infrastructure Objectives that have been underlined (below) are the objectives that the project team, the proposed Landscape Masterplan and Biodiversity Management Plan have specifically and successfully addressed. Other GI objectives are objectives that are not relevant to or were not possible for the proposed project to specifically address.

GREEN INFRASTRUCTURE (G) Policy 1 Overarching
It is the policy of the Council to protect, enhance and further develop a multifunctional Green Infrastructure network by building an interconnected network of parks, open spaces, hedgerows, grasslands, protected areas, and rivers and streams that provide a shared space for amenity and recreation, biodiversity protection, flood management and adaptation to climate change.

G1 Objective 1:
To establish a coherent, integrated and evolving Green Infrastructure network across South Dublin County with parks, open spaces, hedgerows, grasslands, protected areas, and rivers and streams forming the strategic links and to integrate the objectives of the Green Infrastructure Strategy throughout all relevant Council plans, such as Local Area Plans and other approved plans.

G1 Objective 2:
To prepare and implement a South Dublin County Green Infrastructure Strategy during the lifetime of this plan that will form the basis for the identification, protection, enhancement and management of the Green Infrastructure network within the County.

GREEN INFRASTRUCTURE (G) Policy 2 Green Infrastructure Network
It is the policy of the Council to promote and develop a coherent, integrated and evolving Green Infrastructure network in South Dublin County that can connect to the regional network, secure and enhance biodiversity, provide readily accessible parks, open spaces and recreational facilities.

G2 Objective 1:
To reduce fragmentation of the Green Infrastructure network and strengthen ecological links between urban areas, Natura 2000 sites, proposed Natural Heritage Areas, parks and open spaces and the wider regional Green Infrastructure network.

G2 Objective 2:
To protect and enhance the biodiversity value and ecological function of the Green Infrastructure network.

G2 Objective 3:
To restrict development that would fragment or prejudice the Green Infrastructure network.

G2 Objective 4:
To repair habitat fragmentation and provide for regeneration of flora and fauna where weaknesses are identified in the network.

G2 Objective 5:
To integrate Green Infrastructure as an essential component of all new developments.

G2 Objective 6:
To protect and enhance the County's hedgerow network, in particular hedgerows that form townland, parish and barony boundaries, and increase hedgerow coverage using locally native species.

G2 Objective 7:

To incorporate items of historical or heritage importance in situ within the Green Infrastructure network as amenity features.

G2 Objective 8:
To provide for the incorporation of Eco-ducts and/or Green Bridges at ecologically sensitive locations on the County's road and rail corridors that will facilitate the free movement of people and species through the urban and rural environment.

G2 Objective 9:
To preserve, protect and augment trees, groups of trees, woodlands and hedgerows within the County by increasing tree canopy coverage using locally native species and by incorporating them within design proposals and supporting their integration into the Green Infrastructure network.

G2 Objective 10:
To promote a network of paths and cycle tracks to enhance accessibility to the Green Infrastructure network, while ensuring that the design and operation of the routes responds to the ecological needs of each site.

G2 Objective 11:
To incorporate appropriate elements of Green Infrastructure e.g. new tree planting, grass verges, planters etc. into existing areas of hard infrastructure wherever possible, thereby integrating these areas of existing urban environment into the overall Green Infrastructure network.

G2 Objective 12:
To seek to control and manage non-native invasive species and to develop strategies with relevant stakeholders to assist in the control of these species throughout the County.

G2 Objective 13:
To seek to prevent the loss of woodlands, hedgerows, aquatic habitats and wetlands wherever possible including requiring a programme to monitor and restrict the spread of invasive species such as those located along the River Dodder.

GREEN INFRASTRUCTURE (G) Policy 3 Watercourses Network
It is the policy of the Council to promote the natural, historical and amenity value of the County's watercourses; to address the long term management and protection of these corridors and to strengthen links at a regional level.

G3 Objective 1:
To promote the natural, historical and amenity value of the County's watercourses and address the long term management and protection of these corridors in the South Dublin Green Infrastructure Strategy.

G3 Objective 2:
To maintain a biodiversity protection zone of not less than 10 metres from the top of the bank of all watercourses in the County, with the full extent of the protection zone to be determined on a case by case basis by the Planning Authority, based on site specific characteristics and sensitivities. Strategic Green Routes and Trails identified in the South Dublin Tourism Strategy, 2015; the Greater Dublin Area Strategic Cycle Network; and other government plans or programmes will be open for consideration within the biodiversity protection zone, subject to appropriate safeguards and assessments, as these routes increase the accessibility of the Green Infrastructure network.

G3 Objective 3:
To ensure the protection, improvement or restoration of riverine floodplains and to promote strategic measures to accommodate flooding at appropriate locations, to protect ground and surface water quality and build resilience to climate change.

G3 Objective 4:
To uncover existing culverts and restore the watercourse to acceptable ecological standards and for the passage of fish, where possible.

G3 Objective 5:
To restrict the encroachment of development on watercourses, and provide for protection measures to watercourses and their banks, including but not limited to: the prevention of pollution of the watercourse, the protection of the river bank from erosion, the retention and/or provision of wildlife corridors and the protection from light spill in sensitive locations, including during construction of permitted development.

G3 SLO 1:
To ensure the appropriate development of the former Burmah Garage site on Wellington Lane and surrounding area adjoining the River Poddle. Such development will ensure that the river remains overground and will provide an attractive vista towards Tymon Park.

GREEN INFRASTRUCTURE (G) Policy 4 Public Open Space and Landscape Setting
It is the policy of the Council to provide a hierarchy of high quality and multi-functional public parks and open spaces.

G4 Objective 1:
To support and facilitate the provision of a network of high quality, well located and multifunctional public parks and open spaces throughout the County and to protect and enhance the environmental capacity and ecological function of these spaces.

G4 Objective 2:
To connect parks and areas of open space with ecological and recreational corridors to aid the movement of biodiversity and people and to strengthen the overall Green Infrastructure network.

G4 Objective 3:
To enhance and diversify the outdoor recreational potential of public open spaces and parks, subject to the protection of the natural environment.

G4 Objective 4:
To minimise the environmental impact of external lighting at sensitive locations within the Green Infrastructure network to achieve a sustainable balance between the recreational needs of an area, the safety of walking and cycling routes and the protection of light sensitive species such as bats.

G4 Objective 5:
To promote the planting of woodlands, forestry, community gardens, allotments and parkland meadows within the County's open spaces and parks.

G4 Objective 6:
To take steps, in conjunction with communities and businesses, to plant existing areas of grassed open space to promote the development of multifunctional amenity areas with enhanced biodiversity value.

G4 Objective 7:
To avoid the cumulative fragmentation and loss of ecologically sensitive areas of the Green Infrastructure network to artificial surfaces and to position recreational facilities that incorporate artificial surfaces at appropriate community-based locations.

G4 SLO 1:
To facilitate the provision of an apiary colony within Waterstown Park, Palmerstown subject to appropriate location and design and regard to public amenity.

GREEN INFRASTRUCTURE (G) Policy 5 Sustainable Urban Drainage Systems
It is the policy of the Council to promote and support the development of Sustainable Urban Drainage Systems (SUDS) in the County and to maximise the amenity and biodiversity value of these systems.

G5 Objective 1:
To promote and support the development of Sustainable Urban Drainage Systems (SUDS) at a local, district and county level and to maximise the amenity and biodiversity value of these systems.
G5 Objective 2:

To promote the provision of Green Roofs and/or Living Walls in developments where expansive roofs are proposed such as industrial, retail and civic developments.

GREEN INFRASTRUCTURE (G) Policy 6 New Development in Urban Areas
It is the policy of the Council to support the protection and enhancement of Green Infrastructure in all new development in urban areas, to strengthen Green Infrastructure linkage across the wider urban network and to achieve the highest standards of living and working environments.

G6 Objective 1:
To protect and enhance existing ecological features including tree stands, woodlands, hedgerows and watercourses in all new developments as an essential part of the design process.

G6 Objective 2:
To require new development to provide links into the wider Green Infrastructure network, in particular where similar features exist on adjoining sites.

G6 Objective 3:
To require multifunctional open space provision within all new developments that includes provision for ecology and sustainable water management.

MITCHELL + ASSOCIATES
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our ref: LSTO006 Planting Schedule

WPC-MAL-XX-XX-SH-L-0903

LSTO006

PLANTING SCHEDULE

FOR WORKS AT THE PROPOSED WHITE PINES CENTRAL DEVELOPMENT AT STOCKING AVENUE

07.05.2021

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Species highlighted in green have been chosen specifically from the 'All Ireland Pollinator Plan' and will form the majority of the planting scheme. The remaining species provide benefits in other aspects i.e. sensory, native etc. The Planting Schedule has been designed in line with the project Ecologist where species were selected to promote and enhance biodiversity (native seeds, fruits and pollinator friendly species).

TREE PLANTING		
Street Tree Planting *On minimum depth of 1.2m cu topsoil. All trees to be springring or containerised for out of season planting. See Planting Details. See Landscape Specification. 75mm mulch applied continuously*		
No.	**Species**	**Specification**
	Aesculus hippocastanum	Min Girth 18-20cm, Min Ht. 4.5m, Min 2m Clearstem, RB
	Alnus glutinosa	Min Girth 18-20cm, Min Ht. 4.5m, Min 2m Clearstem, RB
	Amelanchier x grandiflora 'Robin Hill'	Min Girth 18-20cm, Min Ht. 4.5m, Min 2m Clearstem, RB
	Amelanchier x grandiflora 'Robin Hill'	Multi-stem (min.3 stems emerging from base), 2.5-3m high, full balanced canopy
	Betula albosinensis 'Fascination'	Min Girth 18-20cm, Min Ht. 4.5m, Min 2m Clearstem, RB
	Betula pendula	Min Girth 18-20cm, Min Ht. 4.5m, Min 2m Clearstem, RB
	Crataegus monogyna 'Stricta'	Min Girth 18-20cm, Min Ht. 4.5m, Min 2m Clearstem, RB
	Liriodendron tulipifera	Min Girth 18-20cm, Min Ht. 4.5-5m, Min 2m Clearstem, RB
	Prunus avium	Multi-stem (min.3 stems emerging from base), 2.5-3m high, full balanced canopy
	Malus tschonoskii	Min Girth 18-20cm, Min Ht. 4.5m, Min 2m Clearstem, RB
	Prunus serrula	Min Girth 18-20cm, Min Ht. 4.5-5m, Min 2m Clearstem, RB
	Pinus Sylvestris	Min Girth 18-20cm, Min Ht. 3-3.5m, Min 2m Clearstem, RB
	Pyrus calleryana 'Chanticleer'	Min Girth 18-20cm, Min Ht. 4.5-5m, Min 2m Clearstem, RB
	Robinia pesudoacacia - False Acacia	Min Girth 18-20cm, Min Ht. 4.5-5m, Min 2m Clearstem, RB
	Salix aegyptiaca	16-18cmg, min.450, min.200, rb
	Salix alba 'Liempde'	16-18cmg, min.450, min.200, rb
	Sorbus acuparia	Min Girth 18-20cm, Min Ht. 4.5m, Min 2m Clearstem, RB
	Tillia cordata 'Greenspire'	Min Girth 18-20cm, Min Ht. 4.5-5m, Min 2m Clearstem, RB
Open Space Tree Planting *On minimum depth of 1.2m cu topsoil. All trees to be springring or containerised for out of season planting. See Planting Details. See Landscape Specification. 75mm mulch applied continuously*		
	Aesculus hippocastanum	Min Girth 18-20cm, Min Ht. 4.5m, Min 2m Clearstem, RB
	Amelanchier x grandiflora 'Robin Hill'	Multi-stem (min.3 stems emerging from base), 2.5-3m high, full balanced canopy
	Betula albosinensis fascination	Min Girth 18-20cm, Min Ht. 4.5m, Min 2m Clearstem, RB
	Betula pendula	Min Girth 18-20cm, Min Ht. 4.5m, Min 2m Clearstem, RB
	Catalpa bignonioides	16-18cmg, min.450, min.200, rb
	Malus tschonoskii	Multi-stem (min.3 stems emerging from base), 2.5-3m high, full balanced canopy

	Prunus avium	Multi-stem (min.3 stems emerging from base), 2.5-3m high, full balanced canopy
	Prunus padus	Multi-stem (min.3 stems emerging from base), 2.5-3m high, full balanced canopy
	Prunus serrulata 'Tai Haku'	Multi-stem (min.3 stems emerging from base), 2.5-3m high, full balanced canopy
	Pyrus calleryana 'Chanticleer'	16-18cmg, min.450, min.200, rb
	Quercus robur	16-18cmg, min.450, min.200, rb
	Salix aegyptiaca	16-18cmg, min.450, min.200, rb
	Salix alba 'Liempde'	16-18cmg, min.450, min.200, rb
	Tilia x europea	Min Girth 18-20cm, Min Ht. 4.5m, Min 2m Clearstem, RB
ORNAMENTAL PLANTING MIX *On minimum depth of 450mm topsoil. 75mm mulch applied continuously.*		
No.	**Species**	**Specification**
	Achillea 'Moonshine'	cg, 2Lt pot,
	Aconitum carmichaelii	cg, 2Lt pot,
	Anemone Honorine Jobert	cg, 1Lt pot, planted at 12no. per m2
	Anemone 'Splendens'	cg, 2Lt pot,
	Arbutus unedo	cg, 2Lt pot,
	Armeria juniperifolia	cg, 2Lt pot,
	Calamagrostis 'Karl Foerster'	cg, 2Lt pot,
	Campanula poscharskyana	cg, 2Lt pot,
	Cornus kousa chinensis	cg 10L pot, (specimen shrub)
	Delphinium elatum	cg, 2Lt pot,
	Dryopteris felix-mas	cg, p9 pot, planted at 5no. per m2
	Echinacea purpurea	cg, 2Lt pot,
	Erysimum 'Bredon'	cg, 2Lt pot,
	Euphorbia cornigera	cg, 2Lt pot,
	Geranium	cg, 2Lt pot,
	Helianthus × laetiflorus	cg, 2Lt pot,
	Helleborus	cg, 2Lt pot,
	Hydrangea quercifolia	cg, 10L pot, (specimen shrub)
	Kniphofia 'Ice Queen'	cg, 2Lt pot,
	Libertia formosa	cg, 2Lt pot,
	Libertia grandiflora	cg, 2Lt pot, planted at 5no. per m2
	Miscanthus sinensis 'Graziella'	cg, 2Lt pot, planted at 5no. per m2
	Nepeta × faassenii	cg, 2Lt pot,
	Nepeta 'Six Hills giant'	cg, 2Lt pot,
	Osteospermum ecklonis	cg, 2Lt pot,
	Pennisetum alopecuroides	cg, 2Lt pot,
	Persicaria affinis 'Superba'	cg, 2Lt pot, planted at 5no. per m2
	Prunus laurocerasus 'Zabeliana'	cg, 2Lt pot, planted at 4no. per m2
	Salvia nemerosa	cg, 2Lt pot,

	Salvia x sylvestris 'Mainacht'	cg, 2Lt pot, planted at 5no. per m2
	Sarcococca hookeriana	cg, 2Lt pot,
	Sedum telephium	cg, 2Lt pot,
	Viburnum plicatum 'Mariesii'	cg10L pot, (specimen shrub)
	Viburnum tinus	cg, 2Lt pot,
	Vinca balcanica	cg, 2Lt pot, planted at 6no. per m2
FORMAL HEDGE PLANTING		
No.	**Species**	**Specification**
	Carpinus betulus	Min 90-120cm High. Planted in a double staggered row. 5 per linear m, br
	Fagus sylvatica	Min 60-80cm High. Planted in a double staggered row. 5 per linear m
	Prunus luscitanica	Min 30-60cm High. Planted in a double staggered row. 5 per linear m, br
CLIMBERS		
	Parthenocissus tricuspidata	Min 90-120cm High. Planted at 3m centres with support stake and trellis along retaining walls
BOUNDARY/ WOODLAND PLANTING AND REINFORCEMENT		
No.	**Species**	**Specification**
	Borage officinalis	
	Cornus canadensis	cg, 2Lt pot
	Corylus avellana	Min Girth 14-16cm, Min Ht. 3- 4.5m, Min 2m Clearstem, RB, 3xTransplanted
	Corylus avellana	1.75-2m,
	Corylus colurna	Min Girth 14-16cm, Min Ht. 3- 4.5m, Min 2m Clearstem, RB, 3xTransplanted
	Corylus colurna	1.75-2m,
	Crataegus monogyna	1.75-2m,
	Hedera helix	cg, 2Lt pot
	Hesperis natronalis	cg, 2Lt pot
	Ilex aquifolium	1.75-2m,
	Jasminium officinale	cg, 2Lt pot
	Ligustrum vulgare	1.75-2m,
	Lonicera	cg, 2Lt pot
	Matthiola bicornis	cg, 2Lt pot
	Melissa officinalis	cg, 2Lt pot
	Nicotiana affinis	cg, 2Lt pot
	Oenothera biennis	cg, 2Lt pot
	Origanum vulgare	cg, 2Lt pot
	Petasites hybridus	cg, 2Lt pot
	Prunus avium	Min Girth 30-35cm, Min Ht. 6- 6.5m, Min 2m Clearstem, RB, 4xTransplanted, 100cm RB

	Prunus avium	1.75-2m, 1.75-2m,
	Prunus spinosa	1.75-2m,
	Quercus robur	Min Girth 30-35cm, Min Ht. 6- 6.5m, Min 2m Clearstem, RB, 4xTransplanted, 100cm RB
	Quercus robur	1.75-2m,
	Rosa canina	cg, 2Lt pot
	Rubus fruticosus	1.75-2m,
	S. noctiflora	cg, 2Lt pot
	S. vulgaris	cg, 2Lt pot
	Salix fragilis	1.75-2m,
	Sambucus nigra	1.75-2m,
	Sambucus nigra	cg, 2Lt pot
	Saponaria officinalis	cg, 2Lt pot
	Silene nutans	cg, 2Lt pot
	Sorbus aucuparia	Min Girth 30-35cm, Min Ht. 6- 6.5m, Min 2m Clearstem, RB, 4xTransplanted, 100cm RB
	Sorbus aucuparia	1.75-2m,
SPRING BULB PLANTING *Topsize bulbs, planted in bands and naturalistic flowing drift formations as directed by Landscape Architect on site. To be planted in same species groups of min. 30 plants. No lines; random pattern, evenly spaced.*		
No.	**Species**	**Specification**
	Allium	See above
	Anenome nemerosa	See above
	Colchicum	See above
	Crocus spp.	See above
	Galanthus nivea	See above
	Muscari armeniacum	See above
	Narcissus pseudonarcissus	See above
GRASS SEEDING *The germination capacity of each constituent of the mixture should be not less than 80%, and the purity of the mixture not less than 90%. Total weed seed content should not be more than 0.5% and the total content of other crop seeds should not be more than 1%. The seed is to be thoroughly re-mixed before sowing to avoid patchiness on the ground. On min depth of 250mm topsoil. Above free draining de-compacted subsoil.*		
Common Name	**Density**	**Quantity**
'Coburns Urban Parks mix'	35-50 grams per m²	
WILDFLOWER MIX *Design by Nature Species Rich Amenity Grassland (Or similar as approved) Product Code: EC09* *Product Name: Species Rich Amenity Grassland (After the Heritage Council list of Grassland Classification)* *This is a very specific mixture of the most beautiful flora ideally suited to the improved soils found in parklands and rolling countryside.* *This mixture has been the constant favourite of County Councils, park managers and nature conservationists. It can be sown with or without grass, and can be managed in many different ways, left tall, cut short or given mixed and varied management.*		

Name	Density	Quantity
Species Rich Amenity Grassland ; EC09	4 grams per m²	
SHORT GRASS MEADOW MIX To be sown on borders of kick-about open space areas as per the wildflower spec above.		
	Name	
	Ajuga reptans	
	Campanula rotundifolia	
	Dipsacus fullonum	
	Lotus corniculatus	
	Mullein	
	Potentilla erecta	
	Primula veris	
	Prunella vulgaris	
	Ranunculus repens	
	Trifolium pratense	
	Trifolium repens	
	Thymus serpyllum	
	Veronica chamaedrys	
LONG GRASS MEADOW MIX To be included in the wildflower meadow mix if not already present		
	Name	
	Achillea	
	Agrimonia	
	Centaurea nigra	
	Cirsium arvense	
	Cirsium vulgare	
	Daucus carota	
	Dipsacus fullonum	
	Hypochaeris radicata	
	Knautia arvensis	
	Lathyrus pratensis	
	Leucanthemum vulgare	
	Mullein	
	Origanum vulgare	
	Ranunculus acris	
	Rhinanthus	
	Scabiosa	
	Scorzoneroides autumnalis Solidago	
	Succisa pratensis	
	Vicia sativa	

WOODLAND MEADOW MIX To be sown to the entire boundary of the site in the woodland zone as per the wildflower spec above.		
	Name	
	Allium ursinum	
	Brassica	
	Chamaenerion angustifolium	
	Digitalis purpurea	
	Fragaria vesca	
	Ficaria verna	
	Galium verum	
	Geranium robertianum	
	Hyacinthoides non-scripta	
	Lamium	
	Reseda luteola	
	Silene dioica	
	Stachys sylvatica	
	Vicia sativa ssp. Segetalis	

Unit 5 Woodpark The Rise Glasnevin Dublin 9 Ireland
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Mitchell Landscape Architecture Ltd Company no: 523027 Registered address: 5 Woodpark The Rise Glasnevin Directors: Dave Kirkwood Brian McGuinne

WOODLAND MEADOW MIX To be sown to the entire boundary of the site in the woodland zone as per the wildflower spec above.		
	Name	
	Allium ursinum	
	Brassica	
	Chamaenerion angustifolium	
	Digitalis purpurea	
	Fragaria vesca	
	Ficaria verna	
	Galium verum	
	Geranium robertianum	
	Hyacinthoides non-scripta	
	Lamium	
	Reseda luteola	
	Silene dioica	
	Stachys sylvatica	
	Vicia sativa ssp. Segetalis	

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MITCHELL + ASSOCIATES
Landscape Architecture Urban Design

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our ref: LSTO006 Outline Softworks Specification

WPC-MAL-XX-XX-SP-L-0901

LSTO006

OUTLINE SPECIFICATION FOR SOFTWORKS

FOR WORKS AT THE PROPOSED WHITE PINES CENTRAL DEVELOPMENT AT STOCKING AVENUE

07.05.2021

PRELIMINARIES

Description of Work
The work consists of general works, site preparation, soil preparation, grass seeding, wildflower seeding, bulb/corm planting, shrub/groundcover planting, and tree planting
Exact dates for completion of works will be finalised after the award of the contract.

Standards of Workmanship and Materials
The Landscape Contractor shall satisfy the Landscape Architect that all works have been carried out to comply with BS 4428(General Landscape Operations), BS 3936 (Nursery Stock), and BS 3882 (Topsoil).
It is essential that the site is tidy at all times, and that the planting appears healthy. The Landscape Contractor should be prepared, at all times, to ensure that such conditions are met and should include for this in his rates.
Any materials not meeting the specifications or qualifying for the approval of the Landscape Architect, for whatever cause, shall be rejected.
The Landscape Contractor shall familiarise himself/herself with the layout of services and the positions of all structures on the site and shall be liable for any damage to the above.
No existing plants shall be removed or damaged, other than those specified by the Landscape Architect

Notice of Intentions and Recording Actions
The Landscape Contractor shall give 48 hours notice of his intention to commence setting out, planting and maintenance visits.
The Landscape Contractor shall return a weekly record of all site actions.

Leaving the Site Tidy
The site shall be left in a neat and orderly condition at the end of each day's work.

Season
Landscape work shall take place in the appropriate season and only when the conditions are suitable, i.e. it is dull, moist and mild, without undue risk of frost or drying winds.
There shall be no cultivation or planting when the soil is frozen or waterlogged.

If exceptional weather conditions occur after planting, e.g. heavy frosts, measures shall be taken as approved by the Landscape Architect.

Replacement
The sub-contractor shall make good at his own expense any losses of trees and plants which die or appear unhealthy at any time up to practical completion and in the twelve months after planting.

The sub-contractor shall make good at his own expense any losses of trees and plants which die or appear unhealthy at any time prior to hand over.

Plant failures will not be charged to the Landscape Contractor if the failure is due to; damage by hares, rabbits, deer, livestock where not protected by guards or fencing, damage/ losses due to theft, vandalism or disturbance by other contractors.

Persistence of weed in planted areas will be regarded as a contributory cause of failure due to drought.
Prolonged dry weather will not exonerate the landscape Contractor if the scheduled maintenance operations have not been carried out as programmed.

Damage
All trees and plants are to be adequately and carefully packed and protected to survive transport, whatever means, to the site, during loading, transit or unloading.
If in spite of these precautions roots, branches, or shoots suffer slight damage, they are to be carefully pruned.
If major damage has occurred, the plant or tree shall be rejected and replaced at the Landscape Contractor's own expense.

Defects Liability Period
The Landscape Contractor shall be responsible for any plants that fail to take during the first full growing season (12 months) from date of completion.

Protection
The Landscape Contractor shall provide adequate temporary protection to the whole of his work and shall include temporary coverings, planked barrow runs and all other measures for protecting the work from damage.
The Landscape Contractor shall also protect from damage all existing roadways, kerbs, services and other completed works on site.
Any work damaged or soiled by weather, traffic or other causes due to inadequate temporary protection shall be removed and made good at the cost of the Landscape Contractor. The form of protection is left to the discretion of the Landscape Contractor.

Programme of Operation
The Landscape Contractor shall execute his works in conformity with a programme to be agreed with the Landscape Architect and shall include in his estimate for working within an agreed time limit.
No individual areas will be handed over unless there is an agreed sectional completion. The Landscape Contractor shall allow for keeping individual areas adequately maintained until the whole has been completed.

Site Inspection
Prior to the submission of tenders to the Landscape Architects, the Landscape Contractor is expected to visit the site and familiarise himself with the nature of the existing roads and pathways, the soil conditions, slope gradients, any hazards and other matters affecting the works. No extra charges will be made for any misunderstandings, or incorrect information or any of these points, or on grounds of insufficient description or lack of information will be allowed.

Setting Out
The Landscape Contractor will be responsible for checking all schedules and drawings by the Landscape Architect. In the event of any discrepancies being found between such schedules and drawings, or if the Landscape Contractor considers that additional detail drawings are required, the Landscape Contractor shall report such discrepancy in writing at least ten days before the works are to be executed.
The right is reserved to adjust the exact position of trees and specimen shrubs after they have been set out on site.
Any trees which are planted without approval of the setting out may be required to be re planted at the Landscape Contractor's expense.

Supervision and Contractor's Staff
The Landscape Contractor shall ensure full and adequate supervision of the site during the duration of the works.

The Landscape Contractor shall at all times during the Contract period employ sufficient persons of appropriate abilities, skills, care, and experience as are required for the proper performance of the Services in accordance with the Contract and shall ensure that a sufficient reserve of persons is available to provide the Services during holiday periods, absences due to sickness and special events/emergencies.

The Landscape Contractor will appoint a Contract Manager to supervise those persons employed to perform the Services in accordance with the Contract. The Contract Manager must be available and present in the Contract Area at all times that the Services are being carried out.
The Landscape Contractor shall notify the Supervising Officer of the name, address and telephone number of the appointed Contract Manager who will be responsible for receiving notification from the Employer of complaints and instructions under the Contract.
The Employer shall be entitled to notify the Landscape Contractor by notice in writing to remove from the Contract or discipline any employee of the Landscape Contractor (which for avoidance of doubt shall include the Contract Manager or his deputy) who, in the reasonable opinion of the Supervising Officer, has shown himself to be unsuitable to perform his duties under the Contract. The Employer shall in no circumstances be liable either to the Landscape Contractor or to the employee in respect of any liability, loss or damage

occasioned by such removal or disciplinary action and the Landscape Contractor shall fully and promptly indemnify the Employer against any claim made by such employee.
The Landscape Contractor shall ensure that every person employed by the Landscape Contractor in and about the provision of the Services is at all times properly and sufficiently trained and instructed with regard to:
the task the person has to perform;
any relevant provisions of the Contract; relevant rules, procedures and standards of the Employer; all relevant rules, procedures and statutory requirements concerning Health and Safety at work; fire risks and fire precautions; and the necessity to observe the highest standards of courtesy and consideration to the public to promote and enhance the Employer's image and reputation.

Sequence of Operations
The sequence of operations shall be as described unless written authority to vary is obtained from the Landscape Architect.

Insurance, Indemnities, etc.
The Landscape Contractor shall indemnify, and keep indemnified the Employer against all actions, suits, claims, demands, costs and expenses whatsoever, by reason of, or arising out of the execution of the Contract Works, or any of the matters connected therewith, whether such claim or proceedings be brought or costs or expenses incurred under or virtue of Workmen's Compensation Act, Employer's Liability Act, or any other statute or at Common Law, or otherwise howsoever.

The Landscape Contractor shall indemnify the Employer in respect of accidental injury, loss or damage caused by, through or in connection with his work. The Landscape Contractor shall arrange insurance to cover the risk of such accidental injury, loss or damage and shall have the Employer indemnified by such insurance policies with approved insurance companies as detailed hereunder and shall take all necessary steps to keep such policies validly in force during the period of Contract work. The Landscape Contractor shall produce such insurances when requested by the Employer.

Employer's Liability Policy
This policy should provide for indemnification of the Employer in respect of claims which could be made against it as principal by employees of the Landscape Contractor.

Public Liability Policy
This policy should provide for the following:
Indemnification of the Employer as principal.
Unlimited cover generally and a limit not less than €1,000,000.00 in respect of any one accident.

Full Motor Insurance Policy
This should provide for the following in respect of vehicles and plant governed by the Roads Traffic Act:
Indemnification of the Employer as principal.
Names and addresses of drivers where limited cover only is provided.
Passenger cover in relation to seating capacity of cab.
Cover for towing including trailers where applicable.
Loading and unloading risks both on and beyond public thoroughfares.

Health and Safety
The Landscape Contractors shall at their own cost arrange for the safe keeping during and after delivery to works of all manures, plants and equipment necessary to complete the job in hand. All oil and petrol containers must be kept in suitable sheds and the Landscape Contractor shall observe all regulation regarding the storage of poisonous and/or inflammable liquids.
The Landscape Contractor shall in performing the Services adopt safe methods of work in order to protect the health and safety of his own employees, the employees of the Employer and of all other persons, including members of the
public and shall comply with the requirements of the Health and Safety at Work Act 1974, The Management of Health and Safety Regulations 1992, Control Of Substances Hazardous to Health (COSHH) Regulations 1988 and 1994, and of the Road Traffic Act 1988 and of any other Acts, Regulations, Orders or any European Directive pertaining to the health and safety of employed persons.

The Landscape Contractor shall at the time of submitting his Tender provide to the Employer a written copy of his health and safety working procedures relating to the performance of the Contract.

The Landscape Contractor shall review his Health and Safety policy and safe working procedures as often as may be necessary and in the light of changing legislation or working practices or the introduction of new Work Equipment and shall notify the Supervising Officer in writing of any such revisions. The Supervising Officer may require the Landscape Contractor to amend its health and safety policy and safe working procedures to comply with any change in legislation or working practices or required as a result of the introduction of new Work Equipment.

Equal Opportunities Policy
The Landscape Contractor shall keep his equal opportunities policy in force for the duration of the Contract to comply with statutory obligations. Any findings of unlawful discrimination against the Landscape Contractor during the three years prior to the commencement of the Contract shall be reported to the Employer, together with details of the steps taken to avoid repetition.

Waiver
Failure by the Employer at any time to enforce the provisions of the Contract or to require performance by the Landscape Contractor of any of the provisions of the Contract shall not be construed as a waiver of any such provision and shall not affect the validity of the Contract or any part thereof or the right of the Employer to enforce any provision in accordance with its terms.

Acceptance
Payment will be made to the Landscape Contractor following certification of completed works by the Landscape Architect. There shall be no sectional handover unless previously agreed. In appropriate circumstances and where the contract involves the application of a defects liability period following practical completion of landscape works, there shall be a retention amounting to 5% of the total contract price, which shall be released when defects have been made good at the end of the defects liability period.

Default in provision of the service
Without prejudice to any other powers of the Employer, if the Landscape Contractor, for whatever reason fails to provide or perform the Services in whole or in part completely in accordance with the terms of the Contract then without prejudice to any remedy contained herein the Employer may by his own or other workmen provide and perform such Services or part thereof in which the Landscape Contractor has made default. The costs and charges incurred by the
Employer in so doing shall be paid by the Landscape Contractor to the Employer on demand or may be deducted by the Employer from any moneys due or which may become due to the Landscape Contractor.
In the event of non-completion of specified works, non-compliance with specification, faulty workmanship or use of defective materials, the Landscape Contractor will be deemed to be in breach of contract and payment may be withheld in full or in part pending completion or execution of remedial works.

SPECIFICATION

Topsoil
Topsoil shall be native topsoil as removed and stored.
All imported topsoil to be of medium texture, pH matching that of the native topsoil, stone content 10mm in size not greater than 5% by weight, and no stones greater than 40mm in any dimension, and shall conform to BS 3882:1965. Topsoil shall be a free draining sandy loam. Depth of topsoil to be as specified.
Topsoil shall be free of perennial weed roots, i.e. couch grass, sticks, sub soil or any waste, toxic, putrescent or foreign matter.

Plants Generally
All plants shall conform fully to the specification in respect of species, size and quality.
The Landscape Contractor shall investigate the sources of supply and satisfy himself that he can supply all of the plants specified on the planting schedule in the size, variety and quality before submitting a bid.
Substitutions will not be permitted. If proof is submitted that any plant specified is not obtainable, a proposal will be considered for use of nearest equivalent size or variety, with an equitable adjustment of contract price.
All plants shall be well grown, sturdy and bushy, according to type, and free from all disease and defects.
The Landscape Architect reserves the right to reject any plant material before or after planting if it does not conform with the specification.
All plants shall be adequately hardened off prior to planting, where frost or cold winds may be a problem. All plants shall be supplied with temporary labels with the full botanical name, on each bundle or batch of plants.
The Landscape Contractor should indicate in their tender source of material to be used and where it can be inspected prior to award of contract.
All plants that do not conform to the specification will be automatically rejected and must be removed from site and replaced at the Landscape contractor's expense.
All trees, shrubs and other plant material shall comply with the minimum requirement of the relevant British Standards below:

BS 3936	Part 1: Specification for trees and shrubs
BS 3936	Part 4: Specification for forest trees
BS 3936	Part 5: Specification for Poplars and Willows
BS 3936	Part 6: Specification for herbaceous, perennials and alpines
BS 3936	Part 9: Specification for bulbs, corms and tubers
BS 3936	Part 10: Specification for groundcover plants

Time of Lifting
Bare root plants must only be lifted when the ground is moist and the plant is dormant between November and end March of the current year. Lifting must never take place when there is a severe ground frost. Particular attention must always be paid to the protection of the roots on lifting when there is a strong drying wind or sun.

Protection
Care must be taken to ensure that bare roots are protected from physical damage and desiccation at all times. All bare roots must be covered within two hours of lifting.

Bundling
Whip planting must be in bundles of the same species and size, all shoots must face in the same direction so that roots and shoots are not in contact, and must be of equal numbers. Bundles are to be securely tied with supple material which will not, by its nature or tension, cause damage to the plants.

Labelling
Each individual plant, bundle, bag, or lot of one species shall be labelled with a securely attached label, clearly indicating the plant name, grade and quantity.

Grass Seed
Grass seed shall conform to the requirements of British Standard 4428:1969 and subsequent amendments, and to the European communities (seed and fodder plants) regulations 1976.
The Landscape Contractor shall supply, with each seed mixture, a certificate stating the composition, purity, germination, year of collection and country of origin.
The germination capacity of each constituent of the mixture should be not less than 80%, and the purity of the mixture not less than 90%.
Total weed seed content should not be more than 0.5% and the total content of other crop seeds should not be more than 1%. These minimum figures shall be for the current 14 month period of annual tests.

The seed is to be thoroughly re-mixed before sowing to avoid patchiness on the ground and is to be 'Coburns Urban Parks mix' or similar approved, sown at a rate of 35 - 50g per square metre.
(James Coburn + Sons Ltd., 32 Scarva Street, Banbridge, Co. Down BT32 3DD
Telephone: 08 - 018206 - 62207 Fax: 08 - 018206 - 27250)

Wild Flower Seed
Wild Flora Mix is to be 'Coburn's Light Soil mix' or similar approved as supplied by Coburn's, seed merchants.
Grass seed shall conform to the requirements of British Standard 4428:1969 and subsequent amendments, and to the European communities (seed and fodder plants) regulations 1976.

The seed is to be thoroughly re-mixed before sowing to avoid patchiness on the ground. The seed can be bulked up with sand to ease distribution, lightly raked or rolled in with a ringed roller, taking care not to bury the smaller seeds.
The seed is to be sown at a rate of 5gms per square metre.

Grass Turf
Sods shall be cut carefully into rectangular blocks with a width of 300mm and a minimum thickness of soil of 25mm. Grass height on the sods shall not exceed 25mm. Sods shall not be affected by pests or diseases.

Container grown Shrubs, Groundcovers, Climbers and Herbaceous Plants
Shrubs shall be bushy, well established nursery stock with a good fibrous root system. They shall be container grown, true to size, name and description as scheduled. Shrubs shall conform to the appropriate British Standards.
Plants shall not be pot bound, nor with roots deformed or restricted.

Bare root material will only be accepted where specified.

Herbaceous plants shall be supplied as well rooted clumps, showing several healthy buds, and grown in pots. Pots shall be appropriate to the size of the plant supplied, minimum size 0.5litres (80mm square or 90mm diameter).

Whips and Transplants
All plant material must comply in all respects with the current edition of BS 3936 Parts 1, 4, and 5.

Transplants shall not be less than 3 years old and have been transplanted at least once. Trees shall be sturdy, with a balanced root and shoot development, sizes shall conform to schedule.

Willows shall have been stumped and transplanted at the end of the first year in the nursery.

Trees
Trees shall conform to the appropriate British Standards.
All trees should be full and well shaped, bark unmarked and have healthy root systems.
The Landscape Architect must inspect and approve all trees prior to lifting or planting. Trees must all be of identical size and shape and should originate from the same stock nursery and stand.

Rootballed trees shall be rootballed immediately when lifted at the nursery.
The rootball shall be suitable for the size of crown and the rootball shall be flat bottomed.

The rootball shall be formed through regular transplanting; every 2-3 years minimum. The rootball shall be wrapped in hessian and steel wire netting or other suitable and approved decomposable material.

Standard pleached trees shall have a clear stem 1.7m to 1.85m in height from ground level to the lowest branch, a minimum girth of 8cm at 1m from ground level and a total height of 2.75m to 3m.
They shall have a well defined, straight and upright central leader, with branches growing out of the stem with reasonable symmetry. The crown shall be well shaped, balanced, of a form and habit natural for the species.

All advanced nursery trees shall comply with BS 5236: 1975. They shall have a well defined, straight and upright central leader, with branches growing out of the stem with reasonable symmetry. The crown shall be well shaped, balanced, of a form and habit natural for the species. Trees shall have a sturdy, reasonably straight stem not less than 1.8m from ground level to the lowest branch.
All advanced nursery stock trees shall be supplied with roots balled.

All coniferous trees shall be supplied rootballed or container grown, with a good fibrous root system. Trees shall conform to specified height with well developed, uniform branching systems.

Shrub/Groundcover Sizes
All shrubs and groundcovers shall be supplied as sizes indicated in the Bill of Quantities and Contract drawings.

Whip Sizes
Unless otherwise specified, all trees shall be as follows:-
Whips, 600 - 1200mm high, 150 x 150 x 150mm minimum root dimension. To have a sound central leader and well formed branches.

Tree Sizes
Unless otherwise specified, all trees shall be as follows:-

Type	Girth	Height
Whip planting	-	600-1200mm
Half Standard Tree	4-6cm	1.8-2.1m
Light Standard Tree	6-8 cm	2.25-2.5m
Standard Tree	8-10 cm	2.75-3m
Selected Standard Tree	10-12 cm	3-3.5m
Heavy Standard Tree	12-14 cm	3.5-4m
Extra Heavy Standard Tree	14-16 cm	4-4.5m
Advanced Extra Heavy Standard Tree	16-18 cm	5m
Semi-mature Tree	20-22 cm +	6.5-7m +

Tree Anchors, Stakes, Guys, etc.
All trees other than semimature trees and whips trees shall be supplied and fitted with one tree stake per tree.

Tree stakes shall be peeled poles of oak, sweet chestnut, pine or douglas fir, or tanalised larch. All stakes shall be preserved with water borne copper chrome arsenic to IS 131, to a net dry salt retention of 5.3kg per cubic metre of timber.
Stakes shall be supplied as sizes specified.

They shall be at least 1.8 metres long unless otherwise specified, with a minimum diameter of 75 mm at both butts.

Stakes shall be driven prior to planting with a drive all, wooden maul or cast iron mell, not with a sledge hammer.

Trees shall be tied to each stake with a purpose made tie and spacer, the tie to be overlapped and thrice nailed to the stake. Tree ties shall be rubber or PVC or proprietary fabric laminate composition, and shall be durable enough to hold the tree secure in all weather conditions for a period of three years.

They shall be flexible enough to allow for proper tightening of the tie.
Tree ties shall be 25mm -40mm wide depending on tree size. They shall be fitted with a simple collar spacer to prevent charring, and with a buckle for adjustment.
All Semimature trees shall be supplied and fitted with anchoring system: "Platipus root anchoring system kit" (as by Duckbill Anchors Ltd., Perrywood Business Park, Honeycrock Lane, Salfords, Nr. Redhill, Surrey, England, RH1 5DZ Tel: 01737 762300).

Mulch
Mulch shall be graded bark chippings from coniferous trees, particles 25 - 75mm, free of fine material, dust or wood.

Mulch will be rejected if in the Landscape Architect's opinion it is likely to be wind blown.
The Contractor should arrange to have an on site sample (or samples) inspected by the Landscape Architect prior to spreading. Spreading without the approval of sample is at the Contractor's own risk.

Approved chemicals
All chemicals used shall be non-toxic to human beings, birds and animals under normal use, and chemicals which are not agriculturally approved shall not be used.

The use of the following herbicides is acceptable:
Roundup
Basta
Tritox (only after 2nd cut)
Kerb Flo

The use of the following fertilizers is acceptable:
Fisons PS5: grass areas
Osmocote Plus- fertiliser N:P:K 15:9:11 plus trace elements: Shrub areas
Enmag - 4:19:10 + 7.5%: Tree planting

The Landscape Contractor may only use alternative formulations and manufacturers with prior approval by the Landscape Architect.

All weed killer and fertiliser shall be applied with properly designed equipment, maintained in good order and calibrated to deliver the specified volume, evenly and without localised overdosing. All quantities shall be accurately measured.

WORKMANSHIP

Site Clearance
Remove and dispose of off-site any rubbish still occurring in topsoiled areas, including weeds, old masonry and rubble, metal, wood, and stones, excavating as necessary to permit the specified depth of final cultivations.

All scrub areas shall be grubbed and all existing plants of same shall be removed and disposed of including all root systems unless otherwise specified.

Before topsoiling, remove all stones over 75mm in diameter. Dig out any areas polluted by oil or chemicals and make up with clean soil. Break up the formation under any areas liable to ponding of rainwater, so that they drain.

Topsoil shall be moved and spread only in dry weather. No work to topsoil shall be carried out when it is waterlogged, or if it's moisture content is conducive to structural deterioration. Minimise compaction of topsoil and subsoil when spreading, running machinery over the surface as little as possible.

Cultivation Generally
The aim of cultivation is to produce a well-drained and textured soil suitable for plant growth.
All areas to be planted, or seeded shall be cultivated to a minimum depth of 450mm or deeper if specified.
Areas where obvious compaction has occurred shall be ripped.
Stones above 75mm longest dimension shall be removed from the top 100mm layer of shrub planting areas.

Final preparation - Seeding Areas
One week before seeding, Fisons PS5 or similar approved pre-seeding fertiliser shall be spread at a rate of 70g per square metre and incorporated in the surface layer. The soil shall be firmed and raked to a fine tilth suitable for seeding.

Final preparation - Wild flower seeding Areas
The soil shall be firmed and raked to a fine tilth suitable for seeding. No fertilisers shall be used on areas for wildflower seeding.

Final Preparation - Shrub planting areas
Coarse clean moist compost or approved peat substitute shall be forked in at a rate of 5kg per square metre and incorporated to a depth of 200mm.
Controlled release fertiliser N:P:K 15:9:11 plus trace elements - Osmocote plus or similar approved shall be applied at specified rates and raked into the top 50mm layer.
The surface shall be raked to a tilth suitable for planting.

Final Preparation Whip planting areas
Coarse clean moist compost or approved peat substitute shall be forked in at a rate of 5kg per square metre and incorporated to a depth of 200mm.
An approved fertiliser shall be spread at a rate of 70g per square metre and raked into the top 50mm layer.
The surface shall be raked to a tilth suitable for planting.

Planting Season
Forestry transplants and feathered trees other than evergreens will be planted between November and march inclusive. Evergreens will be planted in October or in April/May.
Planting shall normally be carried out during the period 1st October to 31 March in suitable weather.

Containerised plants may be planted throughout the year provided the weather is suitable, the soil is sufficiently moist and each planted is watered following planting.

Planting out with the specified planting period will only be permitted in exceptional circumstances at the discretion of the landscape Architect; such exceptional circumstance shall include unsuitable weather and no

penalty shall be incurred under provided that any delay is formally accepted by the Landscape Architect as attributed to this cause. in the event that works are delayed by inclement weather, the landscape Contractor shall complete them at the earliest opportunity afforded by suitable weather.

Planting Generally
All planting operations shall be carried out in accordance with BS 4428 and good horticultural practice.

The Landscape Contractor shall provide the Landscape Architect with the species and quantities reserved from each named nursery, and the Landscape Architect shall have the right to inspect such nursery stock as deemed necessary, prior to its purchase by the contractor.

All plant labels are to be kept on their respective plants by the Landscape Contractor until the final inspection has been carried out. Only on approval from the Landscape Architect may such labels be removed by the Landscape Contractor.

Bare root stock shall be delivered to the site on the day of planting.

If under exceptional circumstances planting cannot take place within 12 hours of delivery, stock shall be healed in or their roots shall be adequately covered with moist hessian or good quality topsoil fir a maximum period of ten days. The roots are to be kept moist throughout this time by adequate watering. Waterlogging shall be prevented.
Any plants which fail due to inadequate protection prior to planting shall be rejected and replaced at the Landscape contractor's own expense.

Any plants stored temporarily on site shall be protected from adverse weather conditions. Plants with damaged root systems shall not be accepted.
After planting, any minor damage shall be rectified by pruning.
Plants which, in the opinion of the Landscape Architect, have been seriously damaged during planting shall be rejected and replaced at the Landscape Contractor's expense.

All planting shall be firmed up if loosened by frost or wind.

Prior to planting all bare rooted plants shall be completely immersed in a container of Alignure Root Dip (1:99) solution and container grown plants shall be sprayed with the solution according to manufacturers instructions.

Seeding and Establishment
Grass seeding rate shall be: 25-35gm per square metre.
Wildflower seeding rate shall be: 5gm per square metre.
Seeding shall only be carried out at the correct season and in suitably calm but moist weather conditions.
Seed shall be cross sown in two directions at right angles to each other (half the seed to be used in each directions) to prevent striping.
After sowing, all areas shall be lightly raked with a chain harrow or by hand.
About 48 hours before first cut, large stones (more than 40 mm in any dimension), should be removed and all areas rolled with a light roller to firm grass and press in all remaining stones.
When the grass is established and from 40 mm to 75 mm high, according to the seed mixture, it should be topped with a roto-scythe so as to leave from 25 mm to 50 mm of growth, to cut weeds, to control the growth of coarser grass and to encourage tillering.
Grass areas shall only be accepted as reaching practical completion when germination has proved satisfactory and all weeds have been removed.
No payment for re-seeding shall be made to the landscaping Sub-Contractor if the seed fails due to any cause whatsoever. He shall be required to make good the soiling and repeat the seeding until a good sward is obtained.

Grass Turf
Turfing shall take place in the appropriate season and only when the conditions are suitable, i.e. it is dull, moist and mild, without undue risk of frost or drying winds. Turfing will be carried out during the months of March - April 1996, or as otherwise directed by the Landscape Architect.

The Contractor shall make good at his own expense any areas of turfing which die or appear unhealthy at any time up to practical completion in the twenty four months after laying. The Landscape Contractor shall only use sods or grass seed as instructed by the Landscape Architect. Any other species/mix of grass shall not be accepted.

Sods shall be stored on site of drainage works as directed by the Landscape Architect and shall be installed immediately after each drainage works are completed. If stacked sods shall be placed grass to grass.

Laying of turf shall comply with BS 4428:1969.
Sods shall be laid on the prepared soil bed and firmed into position in consecutive rows with broken joints (as in stretcher bond brickwork), closely butted and to correct levels as directed by the Landscape Architect. A dressing of approved sand shall be applied and well brushed into joints.

During dry periods and at any other times deemed necessary prior to practical completion, and during the maintenance period the Landscape Contractor shall water all turfed areas.
The Contractor is to ensure that he is aware of any restrictions on the use of water and hose pipes which may be applied by the Client and is to comply with any such restrictions.
Any watering carried out shall take care to avoid disturbance.
Any damage caused shall be immediately rectified by the Contractor at his own expense, to the approval of the Landscape Architect.

Bulbs / Corms
Bulbs/Corms shall be planted in a random pattern and allowed to naturalise. Avoid planting in straight lines. To plant, take out core in grass/shrub area, placing bulb/corm at base of hole ensuring no space is left under bulb. Hole must be wide enough to allow for base of bulb/corm to be placed directly on soil. Replace core and firm flush.

Shrubs
All shrubs shall be pit planted in precise locations as shown in plans. Pits shall be excavated 150mm wider in all directions than the natural root spread of the plant, and the bottom of the pit must be well forked to improve drainage.
Back filling of all pits shall be with soil and compost or an approved peat substitute in the ratio of 4:1.

All plastic and non-degradable wrappings and containers shall be removed before planting. Make four vertical cuts with a sharp knife on the quadrants through the edge of container grown rootballs to sever girdling roots.

Whip Planting
All whips shall be notch planted in staggered pattern. Whip trees shall be planted randomly with no more than 5 plants of the same species planted in groups. Blocks of similar species are not to be planted. Pits shall be excavated 150mm wider in all directions than the natural root spread of the plant.

Tree Planting
Planting pits for trees in undisturbed ground will be backfilled with excavated material. Tree pits in mounds or other made up ground shall be backfilled with topsoil.

All tree pits for all trees other than semimature trees shall be excavated 200mm wider in all directions than the natural root spread, or rootball, and the base forked to improve drainage. Stakes shall be positioned before backfilling.
Topsoil backfill shall be mixed with peat substitute in the ratio of 4:1.
60g Enmag or similar approved slow release fertiliser shall be incorporated.
The backfill shall be settled and well firmed around the roots avoiding air pockets.

All semimature tree pits shall be excavated 500mm wider than the natural root rootball, and 150mm deeper to allow for 250mm of backfill mix, tamped firm to 150mm. In all semimature tree pits an additional depth of 150mm should be dug to allow for a 150mm gravel layer at the bottom of the pit to aid in drainage.
Sides of tree pit shall be ripped and loosened to ensure a good bond with the backfill and to avoid root girdling.

All semimature tree pits shall be backfilled with mix consisting of: 10 parts native topsoil and 5 parts sharp sand. 60g Enmag or similar approved slow release fertiliser shall be incorporated.
Backfilling shall be firmly tamped every 150-200mm and when pit is half full the backfill shall be flooded for further settlement. After excess water has drained further soil shall be added, tamped, and a final watering shall be given just before the final 75mm of backfill added.
The backfill shall be settled and well firmed around the roots avoiding air pockets.
All trees shall be well watered after planting.

All semimature trees shall be transported to the site of planting one tree at a time, and only when the pit has been dug and the backfill mixed on site.
All semimature trees shall be supported on transit by the rootball only. Manhandling of the rootball will not be permitted. The stem shall not be supported. The crown may be supported by hand only if the Landscape Contractor deems it necessary.
No tyred machinery except approved balloon-tyred machinery shall be used in the excavations of the tree pits. While excavating, tracked or balloon wheeled machinery shall operate on protective mats or wooden sheets to prevent compaction.

All semimature trees shall be secured with a Platipus rootball fixing kit as per manufacturer's instructions. See schedule for rootball fixing in Bill of Quantities.
All timber frames to be used with the Platipus rootball fixing system shall be fixed with nail plates at each junction so that the individual members of the finished frame shall be flush with each other and of one level. Where possible the timber frames shall be constructed so that an optimum condition is achieved between preventing the timber frame from appearing above finished ground levels, and also ensuring that an uncompromised frame for anchorage exists (i.e. the frame shall be made as large as possible so that it can sit on the lowest part of the top rootball).

All ratchet tensioning systems shall be nailed to the timber frame so that the ratchet shall remain upright and in the position intended when installed.
All timber frames of the rootball fixing system shall be installed to ensure that when the tree pit is backfilled the frame shall be covered by a minimum of 50mm of mulch.
All rootballs of semimature trees are to be surrounded with a 4 inch perforated land drain pipe to aid in future waterings.

Mulch
On completion of planting, the total area of the disturbed soil is to be mulched to a depth of 50mm. The soil and the mulch shall be thoroughly wetted prior to application, and also prior to application a complete clearing through and weeding of the area shall be carried out, leaving the soil weed free, smooth and conforming to acceptable finished levels.

Watering
During dry periods at any other times deemed necessary prior to practical Completion, the Landscape Contractor shall water all plant areas.
The Landscape Contractor must give notice to the local water Authority that a supply of water will be required for the execution of the works.
The Landscape Contractor is to ensure that he is aware of any restrictions on the use of water and hose pipes which may be applied by the water Authority and is to comply with any such restrictions.
Any water carried out shall take care to avoid soilwash off the shrub area and disturbance of the peat mulch.
Any damage caused by soil-wash shall be immediately rectified by the Landscape Contractor at his own expense, to the approval of the Landscape Architect.
Watering shall be carried out to add moisture to the full planting depth. No minor surface watering shall be carried out.

The Landscape contractor shall allow for watering of all plants to field capacity as and when necessary, until practical completion is achieved.

Weeding

All planting areas are to be kept free of weeds and rubbish prior to Practical Completion. All planting areas are to be hoed, forked or hand weeded. The use of chemicals shall be only be upon approval from Landscape Architects.

Roundup - by Monsanto chemicals Ltd. 4 - 5litre/Ha. Do not apply when rain is forecast within six hours. Do not apply when wind is likely to cause spray drift (over 24kph / 15mph). Allow for leaf symptoms to develop before carrying out any cultivations. Apply to manufacturers recommendations. Apply 'Roundup' to kill existing grass preseeding, and weeds germinating in topsoil.
If germinating weed grasses are less than 100mm high and broad leaved weeds have not produced full-sized keaves, do not apply 'Roundup'. Apply 'Basta' @ recommended rates, 4 to 7 days before cultivating.
Basta - by Hoechst Ltd. 3 - 7.5litre/Ha. Do not apply when rain is forecast within six hours. Apply to manufacturers recommendations.
'Actrilawn 10' - by May + Baker Ltd., 11litre/Ha. Shall be used in accordance with manufacturer's instructions. Apply 'Actrilawn' when grasses have reached the two leaf stage or beyond, and when seedlings have emerged and have reached cotyledon or two leaf stage (approx. 4 weeks after sowing). Do not mow grass within 7 days of treatment.
Casoron G - Granular weedkiller to be applied 5.6-22.5 kg /1000sq.m. Shall be used in accordance with manufacturer's instructions.
Kerb Flo - weedkiller to be applied 3.75 - 4.25litre/Ha. Shall be used in accordance with manufacturer's instructions.

MITCHELL + ASSOCIATES
Landscape Architecture Urban Design

www.mitchellassoc.net

our ref: LSTO006 Outline Maintenance Specification

WPC-MAL-XX-XX-SP-L-0902

LSTO006

OUTLINE SPECIFICATION FOR SOFTWORKS MAINTENANCE

FOR WORKS AT THE PROPOSED WHITE PINES CENTRAL DEVELOPMENT AT STOCKING AVENUE

07.05.2021

PRELIMINARIES

Description of Work
The work consists of general maintenance and landscape works, site preparation, soil preparation, grass seeding, wildflower seeding, bulb/corm planting, shrub/groundcover planting, and tree planting

Standards of Workmanship and Materials
The Landscape Contractor shall satisfy the Landscape Architect that all works have been carried out to comply with BS 4428(General Landscape Operations), BS 3936 (Nursery Stock), and BS 3882 (Topsoil).
It is essential that the site is tidy at all times, and that the planting appears healthy. The Landscape Contractor should be prepared, at all times, to ensure that such conditions are met and should include for this in his rates.
Any materials not meeting the specifications or qualifying for the approval of the Landscape Architect, for whatever cause, shall be rejected.
The Landscape Contractor shall familiarise himself/herself with the layout of services and the positions of all structures on the site and shall be liable for any damage to the above.
No existing plants shall be removed or damaged, other than those specified by the Landscape Architect

Notice of Intentions and Recording Actions
The Landscape Contractor shall give 48 hours notice of his intention to commence setting out, planting and maintenance visits.
The Landscape Contractor shall return a weekly record of all site actions.

Leaving the Site Tidy
The site shall be left in a neat and orderly condition at the end of each day's work.

Season
Landscape work shall take place in the appropriate season and only when the conditions are suitable, i.e. it is dull, moist and mild, without undue risk of frost or drying winds.
There shall be no cultivation or planting when the soil is frozen or waterlogged.

If exceptional weather conditions occur after planting, e.g. heavy frosts, measures shall be taken as approved by the Landscape Architect.

Replacement
The sub-contractor shall make good at his own expense any losses of trees and plants which die or appear unhealthy at any time up to practical completion and in the twelve months after planting.

The sub-contractor shall make good at his own expense any losses of trees and plants which die or appear unhealthy at any time prior to hand over.

Plant failures will not be charged to the Landscape Contractor if the failure is due to; damage by hares, rabbits, deer, livestock where not protected by guards or fencing, damage/ losses due to theft, vandalism or disturbance by other contractors.

Persistence of weed in planted areas will be regarded as a contributory cause of failure due to drought. Prolonged dry weather will not exonerate the landscape Contractor if the scheduled maintenance operations have not been carried out as programmed.

Damage
All trees and plants are to be adequately and carefully packed and protected to survive transport, whatever means, to the site, during loading, transit or unloading.
If in spite of these precautions roots, branches, or shoots suffer slight damage, they are to be carefully pruned.
If major damage has occurred, the plant or tree shall be rejected and replaced at the Landscape Contractor's own expense.

Defects Liability Period
The Landscape Contractor shall be responsible for any plants that fail to take during the first full growing season (12 months) from date of completion.

Protection
The Landscape Contractor shall provide adequate temporary protection to the whole of his work and shall include temporary coverings, planked barrow runs and all other measures for protecting the work from damage.
The Landscape Contractor shall also protect from damage all existing roadways, kerbs, services and other completed works on site.
Any work damaged or soiled by weather, traffic or other causes due to inadequate temporary protection shall be removed and made good at the cost of the Landscape Contractor. The form of protection is left to the discretion of the Landscape Contractor.

Programme of Operation
The Landscape Contractor shall execute his works in conformity with a programme to be agreed with the Landscape Architect and shall include in his estimate for working within an agreed time limit.
No individual areas will be handed over unless there is an agreed sectional completion. The Landscape Contractor shall allow for keeping individual areas adequately maintained until the whole has been completed.

Site Inspection
Prior to the submission of tenders to the Landscape Architects, the Landscape Contractor is expected to visit the site and familiarise himself with the nature of the existing roads and pathways, the soil conditions, slope gradients, any hazards and other matters affecting the works. No extra charges will be made for any misunderstandings, or incorrect information or any of these points, or on grounds of insufficient description or lack of information will be allowed.

Setting Out
The Landscape Contractor will be responsible for checking all schedules and drawings by the Landscape Architect. In the event of any discrepancies being found between such schedules and drawings, or if the Landscape Contractor considers that additional detail drawings are required, the Landscape Contractor shall report such discrepancy in writing at least ten days before the works are to be executed.
The right is reserved to adjust the exact position of trees and specimen shrubs after they have been set out on site.
Any trees which are planted without approval of the setting out may be required to be re planted at the Landscape Contractor's expense.

Supervision and Contractor's Staff
The Landscape Contractor shall ensure full and adequate supervision of the site during the duration of the works.

The Landscape Contractor shall at all times during the Contract period employ sufficient persons of appropriate abilities, skills, care, and experience as are required for the proper performance of the Services in accordance with the Contract and shall ensure that a sufficient reserve of persons is available to provide the Services during holiday periods, absences due to sickness and special events/emergencies.

The Landscape Contractor will appoint a Contract Manager to supervise those persons employed to perform the Services in accordance with the Contract. The Contract Manager must be available and present in the Contract Area at all times that the Services are being carried out.
The Landscape Contractor shall notify the Supervising Officer of the name, address and telephone number of the appointed Contract Manager who will be responsible for receiving notification from the Employer of complaints and instructions under the Contract.
The Employer shall be entitled to notify the Landscape Contractor by notice in writing to remove from the Contract or discipline any employee of the Landscape Contractor (which for avoidance of doubt shall include the Contract Manager or his deputy) who, in the reasonable opinion of the Supervising Officer, has shown himself to be unsuitable to perform his duties under the Contract. The Employer shall in no circumstances be liable either to the Landscape Contractor or to the employee in respect of any liability, loss or damage

occasioned by such removal or disciplinary action and the Landscape Contractor shall fully and promptly indemnify the Employer against any claim made by such employee.
The Landscape Contractor shall ensure that every person employed by the Landscape Contractor in and about the provision of the Services is at all times properly and sufficiently trained and instructed with regard to: the task the person has to perform;
any relevant provisions of the Contract; relevant rules, procedures and standards of the Employer; all relevant rules, procedures and statutory requirements concerning Health and Safety at work; fire risks and fire precautions; and the necessity to observe the highest standards of courtesy and consideration to the public to promote and enhance the Employer's image and reputation.

Sequence of Operations
The sequence of operations shall be as described unless written authority to vary is obtained from the Landscape Architect.

Insurance, Indemnities, etc.
The Landscape Contractor shall indemnify, and keep indemnified the Employer against all actions, suits, claims, demands, costs and expenses whatsoever, by reason of, or arising out of the execution of the Contract Works, or any of the matters connected therewith, whether such claim or proceedings be brought or costs or expenses incurred under or virtue of Workmen's Compensation Act, Employer's Liability Act, or any other statute or at Common Law, or otherwise howsoever.

The Landscape Contractor shall indemnify the Employer in respect of accidental injury, loss or damage caused by, through or in connection with his work. The Landscape Contractor shall arrange insurance to cover the risk of such accidental injury, loss or damage and shall have the Employer indemnified by such insurance policies with approved insurance companies as detailed hereunder and shall take all necessary steps to keep such policies validly in force during the period of Contract work. The Landscape Contractor shall produce such insurances when requested by the Employer.

Employer's Liability Policy
This policy should provide for indemnification of the Employer in respect of claims which could be made against it as principal by employees of the Landscape Contractor.

Public Liability Policy
This policy should provide for the following:
Indemnification of the Employer as principal.
Unlimited cover generally and a limit not less than €1,000,000.00 in respect of any one accident.

Full Motor Insurance Policy
This should provide for the following in respect of vehicles and plant governed by the Roads Traffic Act:
Indemnification of the Employer as principal.
Names and addresses of drivers where limited cover only is provided.
Passenger cover in relation to seating capacity of cab.
Cover for towing including trailers where applicable.
Loading and unloading risks both on and beyond public thoroughfares.

Health and Safety
The Landscape Contractors shall at their own cost arrange for the safe keeping during and after delivery to works of all manures, plants and equipment necessary to complete the job in hand. All oil and petrol containers must be kept in suitable sheds and the Landscape Contractor shall observe all regulation regarding the storage of poisonous and/or inflammable liquids.

The Landscape Contractor shall in performing the Services adopt safe methods of work in order to protect the health and safety of his own employees, the employees of the Employer and of all other persons, including members of the public and shall comply with the requirements of the Health and Safety at Work Act 1974, The Management of Health and Safety Regulations 1992, Control Of Substances Hazardous to Health (COSHH) Regulations 1988 and 1994, and of the Road Traffic Act 1988 and of any other Acts, Regulations, Orders or any European Directive pertaining to the health and safety of employed persons.

The Landscape Contractor shall at the time of submitting his Tender provide to the Employer a written copy of his health and safety working procedures relating to the performance of the Contract.

The Landscape Contractor shall review his Health and Safety policy and safe working procedures as often as may be necessary and in the light of changing legislation or working practices or the introduction of new Work Equipment and shall notify the Supervising Officer in writing of any such revisions. The Supervising Officer may require the Landscape Contractor to amend its health and safety policy and safe working procedures to comply with any change in legislation or working practices or required as a result of the introduction of new Work Equipment.

Equal Opportunities Policy
The Landscape Contractor shall keep his equal opportunities policy in force for the duration of the Contract to comply with statutory obligations. Any findings of unlawful discrimination against the Landscape Contractor during the three years prior to the commencement of the Contract shall be reported to the Employer, together with details of the steps taken to avoid repetition.

Waiver
Failure by the Employer at any time to enforce the provisions of the Contract or to require performance by the Landscape Contractor of any of the provisions of the Contract shall not be construed as a waiver of any such provision and shall not affect the validity of the Contract or any part thereof or the right of the Employer to enforce any provision in accordance with its terms.

Acceptance
Payment will be made to the Landscape Contractor following certification of completed works by the Landscape Architect. There shall be no sectional handover unless previously agreed. In appropriate circumstances and where the contract involves the application of a defects liability period following practical completion of landscape works, there shall be a retention amounting to 5% of the total contract price, which shall be released when defects have been made good at the end of the defects liability period.

Default in provision of the service
Without prejudice to any other powers of the Employer, if the Landscape Contractor, for whatever reason fails to provide or perform the Services in whole or in part completely in accordance with the terms of the Contract then without prejudice to any remedy contained herein the Employer may by his own or other workmen provide and perform such Services or part thereof in which the Landscape Contractor has made default. The costs and charges incurred by the
Employer in so doing shall be paid by the Landscape Contractor to the Employer on demand or may be deducted by the Employer from any moneys due or which may become due to the Landscape Contractor.
In the event of non-completion of specified works, non-compliance with specification, faulty workmanship or use of defective materials, the Landscape Contractor will be deemed to be in breach of contract and payment may be withheld in full or in part pending completion or execution of remedial works.

SPECIFICATION

MAINTENANCE OF TREE PLANTING

Maintenance period
The Landscape Contractor shall be responsible for the aftercare and maintenance of the completed works for 12 months from the date of practical completion.

Weed control
Weeding may only be done by hand, except in exceptional circumstances where persistent perennial weeds may be treated chemically. The use of chemicals shall only be upon approval from the Landscape Architect.
In the winter a first application of the residual weedkiller 'Kerb Flo' shall be applied in the according to the manufacturer's instructions, for tree areas, immediately after the area has been planted and before any weed germination has taken place.
Annual or perennial weeds which grow shall be spot treated by the contact weedkiller 'Basta', according to the manufacturer's instructions, care been taken to ensure no spray touches any part of the leaves.
An application of 'Roundup' may be applied from August on, strictly according to the manufacturer's instructions for tree areas. It is to be noted that the surface of the ground shall not be physically disturbed.

Noxious weeds (dock, thistle, ragwort) shall not be allowed to establish.
All soil surfaces shall be generally free of weeds at all times and shall be entirely free of weeds after each maintenance visit. No grass shall be allowed to encroach into soil areas.
Weed free circles around trees shall be 1000mm diameter in grassed areas. Weeds shall not cover 10% of circle at any time during maintenance period.

Watering
Careful attention to water is essential during dry spells and may be critical in the case trees. Trees shall be watered as necessary and to their full planting depths. Water trees as required after any period of 4 weeks without significant rainfall (less than 5mm).

Fertilizer
Apply top-dressings of organic matter such as cow, horse or sheep manure or proprietary materials to trees and shrubs once in spring, twice during the summer and once again in winter.

This treatment is to be carried out for the duration of the maintenance contract.
Alternatively, if so wished, inorganic fertilizer can be applied as 'Osmocote' 18:11:10, @ 50g / square metre in spring and late summer.

Pruning / trimming
Any pruning should involve removal of dead, diseased or badly crossing branches or shoots. Dead heading reduces competition for nutrients between the developing seeds and the rest of the plants so that further growth and flowering is often stimulated.

Wind firmness, stakes and tree ties
All plants shall be regularly inspected for wind firmness and firmed as necessary at the same time. Stakes shall likewise be checked for firmness and all tree ties inspected and made good as required.

MAINTENANCE OF SHRUB PLANTING

Maintenance period
The Landscape Contractor shall be responsible for the aftercare and maintenance of the completed works for 12 months from the date of practical completion.

Weed control
Weeding may only be done by hand, except in exceptional circumstances where persistent perennial weeds may be treated chemically. The use of chemicals shall only be upon approval from the Landscape Architect.

In the winter a first application of the residual weedkiller 'Kerb Flo' shall be applied in the according to the manufacturer's instructions, for shrub areas, immediately after the area has been planted and before any weed germination has taken place.

Annual or perennial weeds which grow shall be spot treated by the contact weedkiller 'Basta', according to the manufacturer's instructions, care been taken to ensure no spray touches any part of the shrubs.

An application of 'Roundup' may be applied from August on, strictly according to the manufacturer's instructions for shrub areas. It is to be noted that the surface of the ground shall not be physically disturbed.

If foliar acting weedkillers are applied, all plants shall be protected during their application with 'Arboguard', 'Politec' or similar approved. No residual herbicide shall be used in the first season of planting.

Noxious weeds (dock, thistle, ragwort) shall not be allowed to establish.
All soil surfaces shall be generally free of weeds at all times and shall be entirely free of weeds after each maintenance visit. No grass shall be allowed to encroach into soil areas.

Weed free bands along hedges shall be 750mm wide. Weeds shall not cover 10% of circle at any time during maintenance period.

Watering
Careful attention to water is essential during dry spells and may be critical in the case large shrubs. Shrubs shall be watered as necessary and to their full planting depths.

Fertilizer
Apply top-dressings of organic matter such as cow, horse or sheep manure or proprietary materials to trees and shrubs once in spring, twice during the summer and once again in winter.

This treatment is to be carried out for the duration of the maintenance contract.

Alternatively, if so wished, inorganic fertilizer can be applied as 'Osmocote' 18:11:10, @ 50g / square metre in spring and late summer.

Hypericum Rust
All Hypericum spp. plants shall be treated with 'Bayleton 5' for rust, according to manufacturers' instructions.

Pruning / trimming
Any pruning should involve removal of dead, diseased or badly crossing branches or shoots. Dead heading reduces competition for nutrients between the developing seeds and the rest of the plants so that further growth and flowering is often stimulated.

Deciduous shrubs are best pruned in winter when new and old growth can be easily distinguished.
Allow shrubs which flower on the current season's growth to be pruned back to older wood soon after flowering.
Any pruning should involve removal of dead, diseased or badly crossing branches or shoots.

Dead heading reduces competition for nutrients between the developing seeds and the rest of the plants so that further growth and flowering is often stimulated. All hedges shall be clipped to maintain uniform and tidy appearance.

Wind firmness
All plants shall be regularly inspected for wind firmness and firmed as necessary at the same time.

MAINTENANCE OF GRASS SEEDED AREAS

Maintenance period
The Landscape Contractor shall be responsible for the aftercare and maintenance of the completed works for 12 months from the date of practical completion.

First roll and cut
When grass has grown to 38mm it shall be lightly rolled and two days later mowed with an approved mower having no roller and sufficiently sharp to avoid root pulling. Mowing shall be carried out under dry weather conditions.

Further cuttings
Thereafter grass shall be cut regularly (a total of 32 times during each growing season) to a length consistent with the season and quality of growth, and rolled as necessary.

Cuttings shall not normally be removed unless otherwise directed. Cuttings shall be spread evenly on grassed areas. All grass cuttings shall be swept and removed from hard standing areas.
Note: Grass shall be established with a height of cut at about 20mm.
Mowing shall be carried out under dry weather conditions.
Prior to mowing all litter shall be removed from grass areas.
Grass cutting in areas of bulbs/corms shall not be undertaken until June or until such time as dieback has occurred.

Fertilizing
The sward shall be given one application of an approved top dressing 10:10:20 applied in two equal passes in transverse directions at a combined rate of 17 g/ square metre, also avoid any banding.

Weed control
The sward shall be maintained weed free by the application 'Actrilawn 10' - by May + Baker Ltd., 11litre/Ha. Weedkiller shall be used in accordance with manufacturer's instructions. Apply 'Actrilawn' when grasses have reached the two leaf stage or beyond, and when seedlings have emerged and have reached cotyledon or two leaf stage (approx. 4 weeks after sowing). Do not mow grass within 7 days of treatment.

A selective weedkiller shall be applied for the presence of Clover; a formulation of 'Mecoprop' and 2, 4-D suitable for turf. Apply when clover is growing vigorously, in accordance with manufacturer's instructions. Do not spray in windy conditions, or within 1.5m of shrub planting without protection. Apply in two half doses, at right angles to each other.

Settlement
Any settlements or local depressions shall be made up by the Landscape Contractor at his own expense. The whole new grass areas shall be handed over as complete well established sward at the end of the maintenance period and all necessary work (whether specifically mentioned or not) shall be carried out to secure this end.

Trimming
The edges of seeded areas adjoining beds and margins where board edgings or mowing margins have not been constructed are to be carefully trimmed square and true to line.

Acceptance
Unless otherwise stated in the programme of completion, individual areas will not be accepted until the whole of the works have been completed. The Landscape Contractor shall include for keeping such areas correctly maintained and protected until handed over.

GENERAL

Debris removal
All paper and trash in the planted areas shall be removed on a monthly basis. All paper and trash shall be disposed of by the contractor outside of the Client's facilities.

Remove excessive amounts of leaf and litter (dead twigs, branches, leaves, bark, etc.) as it accumulates in maintained areas. Leaves and other organic material useful as a mulch may be left in place upon approval of the Client. Additional visits will be facilitated as requested by Client.

Stone or debris over 50mm diameter shall be removed or buried after each maintenance visit.

Monthly Maintenance - Maintenance Certificate
Throughout the one year maintenance period following completion of planting, the Contractor shall maintain the site in a weed free, tidy and tended condition. He shall include in the Schedule of Rates a realistic amount to cover the cost of such maintenance for the full year period.