PROPOSED PART 8 RESIDENTIAL DEVELOPMENT

Croke Villas, Dublin City – Dublin City Council

Landscape Report

July / 2024

Mitchell + Associates
5 Woodpark. The Rise,
Glasnevin
Dublin 9

info@mitchell.ie
+353 01 4545066

Document Details

Project Title: Social Housing Bundle 4 & 5 – Croke Villas

Client: NDFA

Project Code: LSOC003

BIM Code: SHB4-CVD-RP-MAL-L-P3-0001

Date Created: 09/04/2024

Version/ Issue Date: 24/07/2024

Author: Finian McCarthy

Checked By: Fergal Parlon

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Landscape Design Aims and Objectives

The landscape structure of the proposed residential development adopts the open space strategy of the Landscape Masterplan which provides for a varied, accessible, and permeable open space network for community use that as it matures will become a significant resource.

The proposed open space network aims to provide attractive streetscapes and communal open spaces. There is a community requirement for open natural spaces which facilitate play, exercise, and closeness to nature, as well as a need to facilitate the movement of large numbers of pedestrians to Croke Park. The proposed open space network provides for these needs with flexible streetscapes in a natural environment with inclusive access.

The design incorporates wildlife considerations in the enhancement of the existing streetscape along with natural environments, SuDS and a rich tree canopy layer. Consideration has also been given to existing trees adjacent to the site which will be retained and protected.

Varied habitats are created for ecological connections and landscape visual amenity;

- Rain Gardens
- New tree planting
- Flexible amenity lawn areas
- Bioretention tree planting pits within the residential street network

Management Structure

The landscape areas will be managed by the development management company for a period of 25 years.

Bird Season Restrictions

Vegetation clearance will take place outside the breeding bird season (i.e. the start of September to the end of February, inclusive) to avoid any potential impact on breading birds. Where this seasonal restriction cannot be observed, a check for active nests will be carried out immediately prior to any site clearance and repeated as required to ensure compliance with Irish wildlife law. This will be carried out under the supervision of a qualified Ecologist.

Ecology

The open space landscape network has been designed to provide for ecological value in the area and this function will be enhanced in accordance with further recommendations from the Ecologist Consultant.

The three main design principles of landscape and biodiversity for this site are as follows.

1. **Retention of existing ecological features**.
2. **Biodiversity enhancement in the landscaping scheme**.

3. **Biodiversity enhancement for fauna**

These are outlined further in the biodiversity chapter below.

All Ireland Pollinator Plan 2021-2025

Planting and management of the landscape areas shall be undertaken in accordance with pollinator friendly management objectives as outlined in the "All Ireland Pollinator Plan 2021-2025 (Councils: Actions to Help Pollinators)" National Biodiversity Data Centre and will include interpretative signage highlighting the areas Managed for Wildlife. Varied grass cutting regimes will provide for a species richness within the grassland areas, especially in the context of their location on the outskirts of an urban area.

SUDS integration for water management (are there nature-based suds solutions)

A coordinated approach within the landscape design has been taken to site services, in particular SUDS integration for water management and habitat creation.

Design criteria for swales will include the following:

• Maximum side slopes will be 3:1. Slopes and depths should be minimised to the extent practical for aesthetic and safety reasons. The base width should be a minimum width of 2 feet.

• Check dams should be installed at regular intervals along the swales to promote ponding. Large rocks that are obvious and do not become concealed by vegetation should be used as check dams. Such rocks will create an attractive as well as effective check dam and will provide micro-habitat for species (e.g. basking sites for invertebrates etc.).

Standards of Care

High standards will be maintained in all areas of service delivery.

High standards of care will be achieved by:

• a landscape maintenance specification

• maintenance works to be undertaken by trained staff members, providing on-site supervision of trainees

• providing Health & Safety training for staff

• proactive maintenance of hard landscape areas, play elements and seating

• a programme of tree works

• monitoring of standards of care

• working with local interest groups to ensure community ownership of the site

• updating risk assessments for operations by the landscape staff

• periodic review of standards and procedures

• perceptions of safety will be increased, and vandalism and other anti-social behaviour discouraged with additional natural surveillance by increasing circulation, overlooking from the residential development.

Landscape design description

This development will include a green boulevard leading to the entrance of Croke Park. This streetscape has been carefully designed to integrate subtle references to the GAA, which serves as the backdrop to the site. These references include the configuration of the street trees that line Sackville Avenue, which have 15 on either side – referencing GAA having 15 players per team – and are grouped in a way that reflects the positions of players in a GAA squad.

The design of the street incorporates significant wildlife enhancements through the use of large rain gardens and a variety of native Irish tree species. These landscape features, along with furniture and lighting elements, are placed strategically to allow for the movement of large numbers of pedestrians to-and-from the Croke Park stadium. The scheme also includes an extension to Sackville Gardens in front of the proposed Block A building as well as an enhanced layout of Ardilaun Road, both of which include wildlife and visual enhancements.

The communal open space is framed neatly by the proposed Blocks A and B, as well as the existing GAA Handball Alley building. The space incorporates a dynamic system of paths and green spaces containing flexible amenities including creative play equipment integrated into the landscape, with seating areas, and natural environments of shrubs and tree planting.

All areas of the scheme incorporate SuDS features and native tree and shrub planting. Raingardens serve streets as well as the enclosed courtyard space. These collect surface water and allow for slow and natural infiltration into the ground.





Planting Strategy

The general planting strategy throughout the scheme is for significant structure tree planting with 2 metre clear stems to provide a leafy canopy layer, softening the proposed buildings and a base layer of shrub planting to create low level seasonal interest and colour softening the hard surfaced areas, curtilage and car parking. Eye level between the two planting types is kept clear to maintain sight lines throughout the scheme.

Throughout the scheme, the planting palette is uplifted with edible trees and shrubs as part of the amenities provided for the future residents.

The priority is given to locally sourced and native planting, when appropriate, to enhance biodiversity and support local biome.

Open space structure trees

Native and naturalised tree species are to be planted within the amenity space to increase opportunities for native wildlife. The existing trees for retention are to be protected in order reduce the impact of the development on the existing biodiversity.

Proposed tree list (indicative):

- Sorbus aucuparia
- Quercus ilex
- Quercus robus
- Carpinus betulus
- Prunus padus
- Malus sylvestris

Street trees

Street tree planting will consist of species with fastigiate or neat forms suitable to the scale of the streetscape and those which will thrive in a streetscape environment. The trees will be integrated as part of the drainage strategy and implemented in detention tree pits. Therefore, the species selected along the local road will be adapted to this constraint. A selection of trees will be implemented along the access road that will vary in species, size, and shape to future proof the street planting in case an unknown disease to this date.

Proposed tree list (indicative):

- Betula pubescens
- Betula utilis ‘Jaquemontii’
- Alnus x Spahetii
- Pinus sylvestris
- Ulmus lutece

Street tree planting is located to avoid impacts with street lighting. Street trees will be planted into a minimum of 1.2m3 topsoil (or to the requirements of the local authority

parks department, whichever is greater), with the use of urban tree soils and topsoil loaded root cells to increase rooting areas outside the main tree pit area as necessary.

Raingarden planting:

Proposed plant list (indicative):

water mint (Mentha aquatica), water plantain (Alisma plantago-aquatica), lesser spearwort (Ranunculus flammula), meadowsweet (Filipendula ulmaria), marsh woundwort (Stachys palustris), purple-loosestrife (Lythrum salicaria), horsetail species (Equisetum spp), marsh pennywort (hydrocotyl vulgaris), sneezewort (Achillea ptarmica), wild angelica (Angelica sylvestris), marshmarigold (Caltha palustris), cuckooflower (Cardamine pratensis), wavy bitter-cress (C. flexuosa), hairy bitter-cress (C. hirsuta), common mouse-ear (Cerastium fontanum), sedge species (Carex spp), creeping bent (Agrostis stolonifera), red fescue (Festuca rubra), smooth meadow grass (Poa pratensis), rough meadow grass (Poa trivialis), marsh foxtail (Aleopecurus geniculatu

LANDSCAPE MANAGEMENT STRATEGY

Maintenance should maximize the biodiversity potential of the site, providing new opportunities for expansion of (and cross-interaction between) habitats whilst also providing an attractive area of green open space with high amenity value. The open space network can be broken down into the following softworks planting types for maintenance:

Amenity Active Use Grassland

Objective: To produce a firm hard wearing sward with the appropriate cover of acceptable species, and adequate control of weeds, pests and diseases. The lawn is to be maintained to 40mm height to create a close mown turf for active and passive recreational use.

Operations: Grass maintenance strips to be cut at 2-week intervals to a height of 40mm during the growing season of April to October. Grass cuttings to be broken down and spread evenly across the area and remain on site. Lightly roll Amenity Grass areas in spring and autumn annually to consolidate the soil. Carry our when ground conditions are appropriate when soil is moist but not waterlogged. Any settlements or local depressions should be made good.

Maintenance Grass Strip to All Pathways

Objective: To produce a firm hard wearing sward with the appropriate cover of acceptable species, and adequate control of weeds, pests and diseases to a width of 2m to both sides of all pathways. This maintenance strip is required to all tarmac, concrete, compacted gravel and grass footpaths. Mown grass edges to present a maintained appearance to the open space and prevent overhanging of tall grasses or planting encroaching upon the circulation network.

Operations: Grass maintenance strips to be cut at 4-week intervals to a height of 40mm during the growing season of April to October. Grass cuttings to be broken down and spread evenly across the area and remain on site.

Meadow Grassland Areas

Objective: Meadow areas are to produce and promote a species rich meadow providing for increased biodiversity and different character areas to the park network.

Operations: Meadow areas shall be cut once a year in late September to a height of 75mm. Meadow areas that are cut should be left for 3-5 days so that insects can move to refuges as moisture content is lost from the cut areas. Meadow cuttings are then to be removed from site. As a general rule always remove 'cut' materials as most wildflowers will die if grass cuttings are not removed. If winters are mild meadow can be mown or toped between October and April if growth exceeds 250mm.

Woodland Planting Areas

Objective: Areas planted with trees and shrubs to promote and develop native deciduous and mixed woodland in the development. The woodland area protects and retains existing trees, provides habitat and seasonal interest in the park and provides an amenity space for community use.

Operations: Woodland planting areas to remain clear of weeds to a diameter of 1m circle around each plant planted. Achieved by a circle of mulch 75mm deep being maintained to the base of each tree planted. At all times, weed cover to be less than 5% and no weed to exceed 100 mm high. Check condition of stakes, ties, guys and guards. Replace broken or missing items. Adjust if necessary to allow for growth and prevent rubbing of bark. Review presence of rabbits within the woodland area and if risk of damage to juvenile planting is low remove spiral rabbit guards after three years all other guards to be removed after five years. Gently firm loosened soil around trees. Straighten leaning trees/ shrubs.

Frequency of checks: Every month or after periods of strong winds. Ensure that trees and shrubs are not damaged by use of mowers, nylon filament rotary cutters and similar powered tools. A two-meter strip of unmown grass will surround all areas of woodland planting to form a buffer zone and to increase species biodiversity.

Constructed Wetlands

Objective: A wetland is an area of land whose soil is saturated with moisture either permanently or seasonally and that contains shallow pools of water. Wetlands are considered the most biologically diverse of all the ecosystems as they contain a wide range of plant and animal life. Wetlands to be protected and extended to offer natural flood water storage and improved water quality, lock away huge amounts of carbon, provide havens for wildlife and interesting places for people to visit and enjoy.

Operations: Maintain a dense canopy of wetland plants across the wetland to resist weed growth. Replant any bare ground or dead areas with a plant species that seems to be growing well in the wetland. This should be monitored annually with new planting as per plant species list as necessary. Harvesting is not required, as direct plant uptake of nutrients generally only accounts for a small proportion of nutrient removal. If harvesting is practiced, it should ideally be done in midsummer, allowing sufficient

growth season for the growth of a canopy before winter. If not managed correctly, harvesting of the plant canopy can enable weed invasion. Weeds and any pests should be controlled as the plants establish. Hand weeding should normally be sufficient, but needs to be done before weeds become well established and deeply rooted. Remove weeds by hand when they are young. If you leave them to grow large, they can develop extensive root systems that can be hard to pull out. Invasive plant species such as algal growth and plant dieback to be physically removed as necessary. If plants look to be suffering from lack of water, check water levels are correct and water is inflowing freely. This may indicate a problem with leakage in the system, or may be due to low water flows and high plan evapotranspiration rates in dry summer conditions. Sediment should be removed as necessary to maintain a minimum of 50% of the design depth. Care should also be taken in the event that fertilisers or herbicides are applied adjacent to any of the wetlands to avoid an increased level of nutrients entering the wetland which promotes excessive plant growth and decay, favouring simple algae and plankton over other more complicated plants, and cause a severe reduction in water quality. Avoid shading of wetland vegetation by overhanging trees, or accumulation of leaves from around the site. Trim surrounding vegetation to maintain open air space above the wetland. Other maintenance works such as monitoring of inlets/outlet, flow regulating devices, siltation of storage areas are not detailed as part of these works.

Long Term Objective: Harvesting and replanting of emergent plants once every 15-20 years.

Hard Surfaces including: Insitu Concrete and Tarmac Pathways, Compacted Gravel and Paved Areas

Note: Paved areas that drain into grass areas/rain gardens, tree pits and planted areas avoid use of high concentrations of salt, detergent or soil-acting herbicides. Materials used in repairs should match the existing surface material specification, and be laid to the same depth as originally specified and, where applicable, to a similar degree of compaction.

Objective: Tarmac pathways and steps throughout the area are to provide a solid surface for users of the open space to circulate. Maintain clean, even, consistent surfaces, safe for use by normal traffic in all weather conditions.
Hard surfaces to be kept free from the following:
• litter including autumn leaf fall,
• dust and accumulated grit,
• stains, e.g. oil or paint spillage,
• graffiti,
• weeds, moss and algae
• standing water

Operations: Arisings or cuttings to be removed from pathways after maintenance of planting. Surface of tarmac pathways to be clean, not slippery, build up of algae etc to be removed.

Insitu concrete –
Refer to Engineers documentation for repairs compliance.
If litter accumulates, increase the frequency of sweeping.
Where weeds colonise cracks and joints, remove and repair.
If moss and algae grow, treat by scraping or sweep.

Tarmac –
If litter accumulates, increase the frequency of sweeping.
Where weeds colonise cracks and joints, remove and repair.
If moss and algae grow, treat by scraping or sweep.
Where the surface becomes uneven or there is a drainage problem, patch or replace to falls. Repair cracking and frost damage by raking out and repairing or replacing the surface. Potholes to be reinstated should be cut back to sound material, the sides cut vertically to a square/rectangular shape, painted with bitumen emulsion, and filled with new bitumen.

Compacted Gravel – Ballylusk aggregate dust, well compacted on hardcore subbase.
If litter accumulates, remove by picking or sweeping.
If the surface is stained, replace it.
Where weeds colonise, remove.
Surfaces should be raked/rolled at least once a year in winter when wet.
Where the surface becomes uneven or there is a drainage problem, rake and roll when wet, and make up levels to falls.
Surfaces should be repaired by loosening, raking and making up with matching material to maintain profiles, levels and gradients, followed by rolling.

Furniture
Play Equipment
Objective: To provide opportunities to play and exercise within the open space network for individuals of all ages and abilities. Including opportunities for social interaction, physical activity, imaginative or intellectual stimulation, creative achievement, emotional and educational development.

Operations: A visual inspection is to be carried out when on site carrying out other maintenance works or at 2 week intervals whichever is more frequent, or immediately in response to reports or complaints from the public. This inspection must bring any defects to the immediate attention of the management company. As a general policy,

equipment is repaired as soon as possible. Every twelve months a full ROSPA inspection shall take place using independent inspectors. This results in a full written report with a safety assessment and recommendations for action. The recommendations are acted upon immediately, or should they require large capital investment, they will be used as justification to support the
application for funding.
Play equipment is repaired by the manufacturer/supplier other than routine replacements.

Planting Seasons

• Bare Root Deciduous Stock: November to Mid March
• Rootballed Deciduous Stock: November to Mid March
• Rootballed Evergreens and Conifers: late September or October or between March and early May
• Container Grown Stock: Any time of the year
• Grass Seeding: Spring or Autumn – when the soil is still warm and there is the promise of rain.

No planting should take place during periods of frost, drought, cold drying winds or when soil in water logged, or when the moisture of the soil exceeds field capacity (the maximum amount of water that soil can hold).

Grass Seeding

Grass seeding should only be carried out at the correct season from late summer to mid autumn and in suitably calm but moist weather conditions. If the opportunity to sow grass in autumn is not possible sow seed in mid Spring, but only if there is the promise of rain as it is critical to provide the seed with sufficient water to prevent it from shriveling up and dying. Ideal growing conditions for grass seed to germinate is warm soil damp from rain. Seed should be cross sown in two directions at right angles to each other (half the seed to be used in each direction) to prevent striping.

Replacements

In September or each year, the Landscape Maintenance Team shall provide a list of all trees and plants that are dead, dying, vandalised or not growing in a vigorous condition. These are to be replaced during the November – December of the same year or for evergreens April/May of the following year. All plants shall be planted at the size as shown in the Planting Schedule.
All replacement planting shall be in accordance with the Specification/Planting Schedule.

Dead Plant Removal

Remove dead plants and dead parts of plants as soon as possible and replace plants within the appropriate planting seasons.

Topsoil

Topsoil should be clean, free from stones, perennial weeds, roots and other plant matter, sticks, sub soil or any waste, toxic, rotting or foreign matter. The soil should be fertile with a humus and fibre content and be of a medium texture having a pH value of between 6.0 and 7.5 (unless imported for specific wildflower meadow seeding areas. Imported topsoil should not contain stones greater than 40mm in size, nor have a total stone content exceeding 10 per cent by mass.

Topsoil should be spread evenly on formation levels. Grass areas and shrub/groundcover areas should have a minimum of 150mm and 450mm respectively, after firming. Stones should be removed up to 40mm in diameter.

Plant Material

All plants should be well grown, sturdy and bushy, according to type, and free from all disease and defects.

• Shrubs should be bushy, well established nursery stock with a good fibrous root system.
• All trees should be full and well shaped, bark unmarked and have healthy root systems. Rootballed trees should be rootballed immediately when lifted at the nursery.
• The rootball should be suitable for the size of crown and the rootball should be flat bottomed.
• The rootball should be formed through regular transplanting; every 2-3 years minimum. The rootball should be wrapped in hessian and steel wire netting or other suitable and approved decomposable material. Trees should have a well defi ned, straight and upright central leader, with branches growing out of the stem with reasonable symmetry. The crown should be well shaped, balanced, of a form and habit natural for the species.
• All coniferous trees should be supplied rootballed or container grown, with a good fibrous root system. Trees should conform to specified height with well developed, uniform branching systems.

Planting Preparation

The proper preparation of the ground, the quality of plants and materials, and good planting techniques are essential for proper plant growth and establishment, ensuring minimal loss of plants and ease of maintenance. Where the project requires earthworks such as the formation of subsoil levels and topsoiling works it is important that it is done in the right way to avoid compaction, so that the best conditions are available for planting.
If topsoil is stockpiled on site it should be stored in mounds of maximum height 1.5m constructed so that they shall shed water and not puddle. Care should be taken that no

trafficking of placed topsoil and no mixing of topsoil and subsoil take place. Any Topsoil stockpiles should be kept weed free.
The areas for planting should be prepared prior to planting by ensuring that the subsoil is free draining and well cultivated and suitable for topsoiling. The aim of cultivation is to produce a well-drained and textured soil suitable for plant growth.
All areas to be planted or seeded should be cultivated to a minimum depth of 450mm or deeper if needed. Areas where obvious compaction has occurred should be ripped to allow adequate drainage.
Subsoil should be placed in layers not exceeding 150mm in depth.
To create the best growing environment for the planting in subsoil a combination of actions were applied to each planting pit. Any future planting works into subsoil should follow the following these principles:
• The pits should be dug prior to delivery of plants so that the tees are out of the ground for as short a time as possible.
• Planting to be into pits which are excavated 200mm deeper and 300mm greater in diameter or 1/3 greater depth and diameter than the root size (whichever is greater)
• The plant must be planted to the same level relative to top of soil as that grown in the nursery.
• The sides and bottom of the planting pits are to be thoroughly broken up by forking to alleviate compaction and to facilitate drainage.
• When planting on slopes ensure that an area made by a 0.3m diameter circle from the centre of each plant is level (horizontal) at the ground surface upon completion of backfilling.
• The backfill or soil placed back in around the plant roots will comprise of broken up (to a loose friable state) soil removed to form the planting pit. Large solid soil / clay clods larger than 50mm will be rejected and deficiencies made up with topsoil.
• Bare root stock to be dipped in root dip gel containing sufficient species of mycorrhizae for the tree or shrub being planted, water holding gel and bio-stimulant.
• 100mm bark mulch to be applied to surface for weed suppression and water retention

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Works near Existing Trees and Softworks

When developing near existing trees, ground levels, especially under their canopies should remain unchanged. Most roots are found in the top 600mm of soil. They often grow out further than the trees height. The majority of these roots can be thin in diameter. Some species of trees can tolerate a small increase in level – generally up to 75mm but since most of the roots occur in the top 600mm of soil, raising the ground level can reduce the air available to the root zone and change the feeding of the tree by these roots and lead to the demise of the tree.

Paths of underground service runs should avoid the tree root spread of existing trees and if this is unavoidable then any excavations should be carefully done by hand and services ducting placed through the roots by hand.

Ideally no roots should be severed, so where construction is of necessity within the root spread, damage must be minimized by careful routing of services, with any excavation carried out by hand to allow larger roots to remain undamaged. No root over 25mm in diameter should be cut; they can be left bridging a trench while pipes or cables are laid. Smaller roots should be cut cleanly by hand. Pipes and cables can be passed through or under root systems that have been given minimum disturbance by hand digging. If services cannot be routed clear of trees, they can be laid below the root run level, at about 1.2m or greater depth.

When back-filling trenches, the correct sequence of topsoil above subsoil should be observed.

Services

No digging below 300mm depth using powered machinery will be permitted near to known sub-surface pipe and infrastructure locations. In all other areas the depth restriction will be 600mm deep.

Tree Surgery and Emergency Tree Works

A tree survey condition report on the condition of the existing trees on site has been undertaken. Any recommendations should be implemented by qualified personnel in compliance with British Standard B.S. 3998: 1989 'Recommendations for tree work."

Following this initial tree condition survey, trees seen to be in good condition should undergo regular visual safety inspections. A visual inspection should be carried out as part of the routine maintenance works on site coupled with specific visits following storm events or periods of very heavy rain.

Trees should be reviewed for dead wood in the canopy, storm damage, decline in vigor in the crown or damage caused following other maintenance practices.

In addition to regular visual surveys of the existing trees a professional tree condition survey should be undertaken by a suitably qualified arboricultural consultant every 3 years producing a report on the condition of trees.

Any recommendations should be implemented by qualified personnel in compliance with British Standard B.S. 3998: 1989 'Recommendations for tree work." Any wind damaged trees or trees requiring emergency works should be made as safe as possible and contact made with the management company.

An annual inspection of the trees will establish and programme restorative/remedial pruning, and in order to prevent an aging tree stock, some new trees will be planted to reinforce the existing tree planted structure.

Scheduling of works

Pre-construction tree works will follow that outlined below

• Remedial works to trees being retained throughout the site as per the Tree Survey document.

• The erection of tree protection fencing

Protected Tree Zone.

The 'Protected Tree Zone' should under no circumstances be used for storage of materials, equipment, or site debris. No fires should be lit within the Protected Tree Zone, or equipment washed or cleaned.

Code of Practice for the preservation of trees.

The Code of Practice will be brought to the attention of all site personnel including Contractors, Sub-Contractors and Engineering Specialists associated with works on site. All operations to be in accordance with BS 5837 Trees in Relation to Construction (2005). The management company should purchase and make available on site a copy of the above.

The Arboricultural Contractor will:

• Submit a full method statement containing machinery to be used, removal of wood etc to the CA.

• Carry out works to the most up to date arboricultural practices available e.g. BS 3998. Recommendations for tree work (as amended).
• Undertake work only with suitably qualified operatives in constant consultation with the Site Arborist.
• Trees identified for removal will be section felled in wooded areas so as not to damage remaining trees.

Control of dogs

It is recommended that dogs should be kept on a lead when walking the path network within the open spaces, except for in the designated dog park to prevent disturbance to wildlife. Signage should be erected to encourage public cooperation. This may help to reduce disturbance impacts to bird species.

Introduction

The aim of this chapter is to describe aspects of the landscaping scheme that are intended specifically for biodiversity. It includes the retention of existing features, biodiversity enhancements included in the landscaping scheme and biodiversity enhancements for fauna.

Some features have been discussed in detail elsewhere in this report, in which case we will refer readers to relevant locations rather than repeating information.

This document should be read in combination with the Ecological Impact Assessment for the development, which provides information on the baseline condition of the site.

Green and Blue Infrastructure

The proposed landscape design aims to strengthen the value of the site as a place for delivering green/blue infrastructure whilst protecting and enhancing the natural/built and cultural assets of the site.

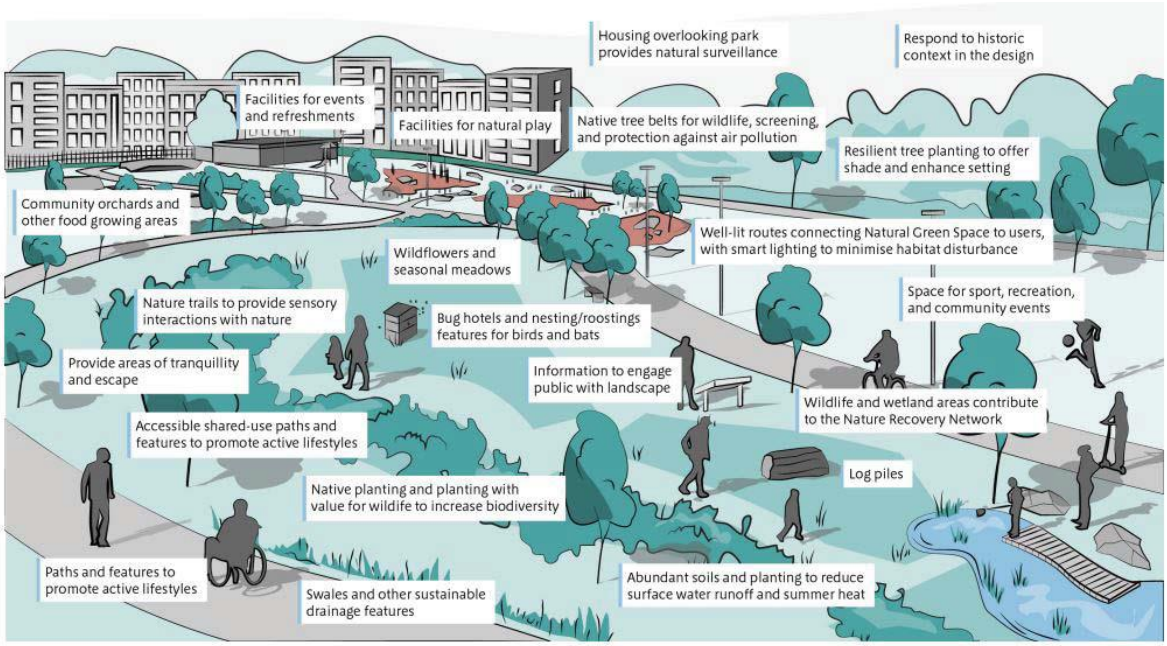

Figure Extract from “Green Infrastructure Planning and Design Guide” published by Natural England

Green Infrastructure is designed and managed to provide and facilitate the following:

• High quality open spaces which provide health and social benefits for people through the provision of formal and informal nature-based play areas, safe and attractive areas and routes for meeting with a variety of seating areas for socialising and relaxing, accessible walking and cycling routes facilitated.

• Opportunities and space for contact with nature, which is considered essential for good health and wellbeing and to promote community cohesion.

• Adaptation to the impacts of climate change and flooding.

• Space for biodiversity (nature and wildlife) to flourish

• A sense of place and local distinctiveness.

• Features are multifunctional, they are designed to benefit people and wildlife.

Biodiversity National Guidance

National Biodiversity Action Plan 2017-2021

Ireland's Vision for Biodiversity:

"That biodiversity and ecosystems in Ireland are conserved and restored, delivering benefits essential for all sectors of society and that Ireland contributes to eff orts to halt the loss of biodiversity and the degradation of ecosystems in the EU and globally."

The Biodiversity Climate Change Sectoral Adaptation Plan. 2019. Department of Culture, Heritage, and the Gaeltacht.

"The Goal of this Plan is to protect biodiversity from the impacts of climate change and to conserve and manage ecosystems so that they deliver services that increase the adaptive capacity of people and biodiversity while also contributing to climate change mitigation".

Action 4.4 "Co-design green spaces and wildlife refuges in cities and peri-urban areas with local communities to provide habitats for species under threat from climate change and to connect people to biodiversity".

All Ireland Pollinator Plan 2015-2020 (Councils: Actions to Help Pollinators) NBDC

There are 7 key actions in the guidance document – all of which inform the planting design within the site:

A: Identify and protect existing areas that are good for pollinators

B: Alter frequency of mowing of grassy areas to allow more native plants to flower

C: Pollinator friendly planting

D: Provide wild pollinator nesting habitat: hedgerows, earth banks and hotels

E: Reduce the use of pesticides

F: Raise public awareness of pollinators

G: Tracking progress and recognition for eff orts

Protecting pollinators by planting and appropriately maintaining:

1. Flowering Native Hedgerows

2. Flowering margin of 0.5 to 2 metres around fi eld edges

3. Low to zero pesticide inputs

4. Pollinator friendly trees

5. Wildflower meadow, flower rich pasture, cover crop, herbal ley

Planting and management of the planted areas shall be undertaken in accordance with pollinator friendly management objectives as outlined in the "All Ireland Pollinator Plan 2021-2025 (Councils: Actions to Help Pollinators)" National Biodiversity Data Centre and will include interpretative signage highlighting the areas Managed for Wildlife.

Ecology Design Elements

1. **Retention of existing ecological features.**
   An Arboriculture assessment has been carried out for this site and submitted as part of this application. It outlines General tree descriptions, Arboriculture impact, impact of the development, tree protection. And has informed the landscape and biodiversity design of this project.

Birds

Breeding Bird Season Restrictions

Any removal of vegetation, including trees and hedges within the site will take place outside the breeding bird season (i.e. the start of September to the end of February, inclusive) to avoid any potential impact on breeding birds. Where this seasonal restriction cannot be observed, a check for active nests will be carried out immediately prior to any site clearance and repeated as required to ensure compliance with Irish wildlife law. This will be carried out under the supervision of a qualified Ecologist.

2. **Biodiversity enhancement in the landscaping scheme.**
   Outlined above in the landscape proposals and the landscape masterplan submitted with this application.
   These measures will compensate for some of the habitats removed during site clearance and create some features that are not currently present at the site.

3. **Green Roof**
   Green roofs will be installed on the buildings with a minimum of 200mm lightweight intensive green roof soil

   Green roof planting mix (indicative):

   Common Knapweed, Greater Knapweed, Wild Carrot, Lady's Bedstraw, Field Scabious, Oxeye Daisy, Common Toadflax, Birdsfoot Trefoil, Musk Mallow, Hoary Plantain, Cowslip, Self Heal.

4. **Biodiversity enhancement for fauna.**

   This would include swift / swallow nest boxes on the buildings (they need to be at least 5 m above ground level), other bird nesting boxes for finches, tits, etc.

   - Existing grassland enhanced to support invertebrate's habitat as a food source for birds

   - Bird nest boxes of a variety of sizes/typologies will be installed as per Ecologist recommendations

   - Swallow and Swift bricks to building structure

   - House Martin nest structures to building structure

   - Ground nesting bird habitat to Living Roof to building structure

Native trees and pollinator friendly grasslands

Additional planting is recommended to strengthen areas within the site for wildlife and biodiversity and to reinstate green infrastructure across the site where feasible. In keeping with the recommendations of the All-Ireland Pollinator plan.

- Grasslands managed for invertebrates as a food source for the bats

- Night scented climbers and plants to attract food source for the bats

- Bat friendly lighting

- Bat boxes are proposed to be installed in locations and guidelines to Ecologist recommendations

Mammals

- Additional planting is recommended to strengthen areas within the site for wildlife and biodiversity and to reinstate green infrastructure across the site where feasible.