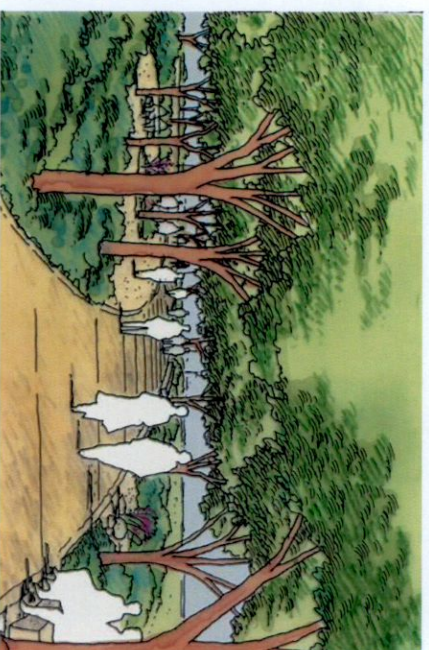


Green Infrastructure Plan



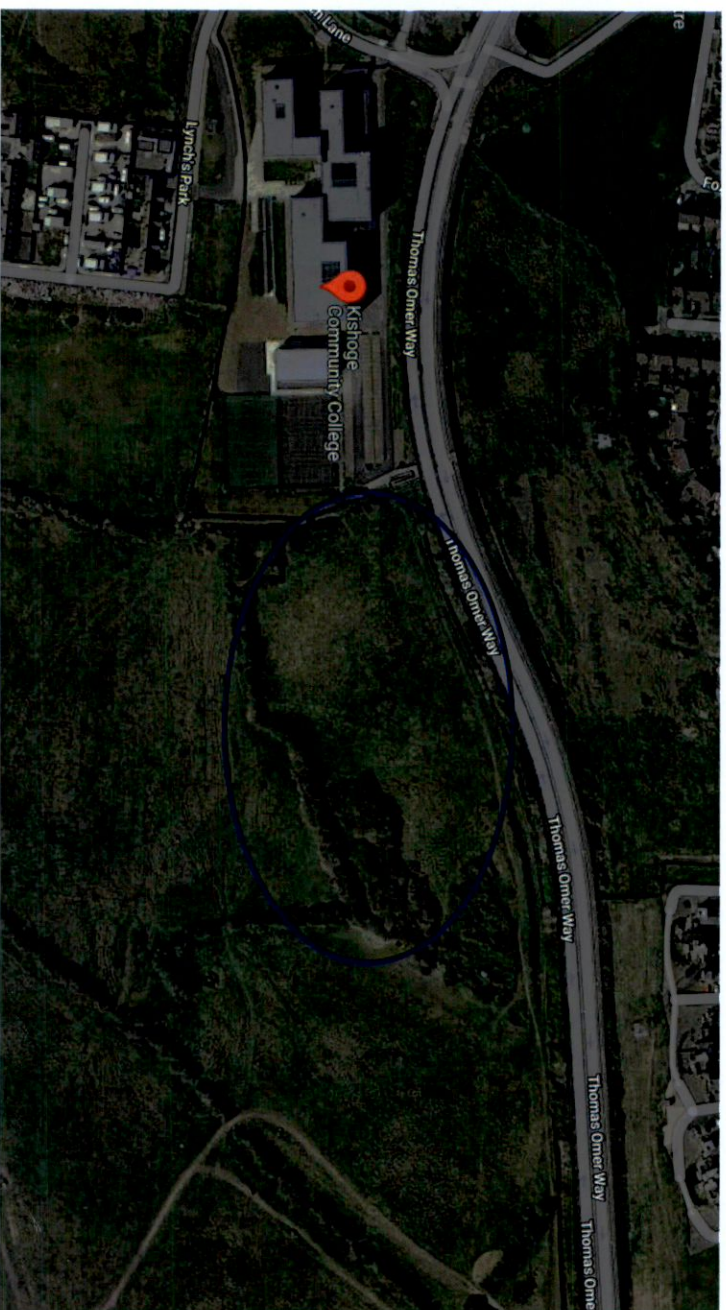
Prepared for AFEC International on behalf of The Department of Education

Kishoge, Co
Dublin

1.0 SITE LOCATION AND DESCRIPTION

The Application Site is a greenfield site located adjacent to Kishoge Community College on the southern side of Thomas Omer Way. The application site is located within the townland of Balgaddy, Lucan, Co. Dublin. It has a stated area of 1.91 hectares and is bounded to the north by Thomas Omer Way beyond which lies the predominantly residential area of Balgaddy and Lucan. There is an existing post-primary school located immediately west of the site, Kishoge Community School, with a small housing development, Lynch's Park, and community centre located to the south-west. Lands to the south and east are undeveloped at present.

The Proposed Development consists of the construction of a two-storey, 16 classroom Primary School including a 2 classroom Special Educational Needs unit, with a gross floor area of 3521m², at Kishoge, Lucan, Co. Dublin. The development will include a sports hall and all ancillary teacher and pupil facilities, bicycle parking, staff parking, vehicle drop off and set down areas, internal access road, hard and soft play areas, piped infrastructure and ducting, landscaping and boundary treatments, PV Panels, external courtyard, disabled car parking spaces, ESB substation and a packaged biomass heating plant.



Aerial view of subject site – Google images 2002.



Mixed native trees adjacent to Thomas Omer Way.



Existing Hedgerow to the South.



Goat willow at southern boundary.



Hedgerow along western boundary.

2.0 RELEVANT PLANNING HISTORY

Whilst there is no recent planning history attached to the application site itself, the following planning activity on lands in the vicinity is relevant to the proposed development.

SD20A/0109 - Permission granted 15th July 2020 for a 2 storey modular classroom building and a single storey toilet building **at Kishoge Community College, Thomas Omer Way, Lucan, Co. Dublin**

SD13A/0048 - Permission granted 25th June 2013 for the construction of a new post primary school with a capacity for 1000 pupils at Lynch's Lane, Lucan, Co. Dublin.

3.0 RELEVANT PLANNING POLICY

Relevant Policy in South Dublin County Development Plan 2022-2028

Chapter 4 Green Infrastructure – South Dublin County Development Plan 2022-2028

The EU defines Green Infrastructure (GI) as:

“ a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation and climate mitigation and adaptation.”

Policy GI1:

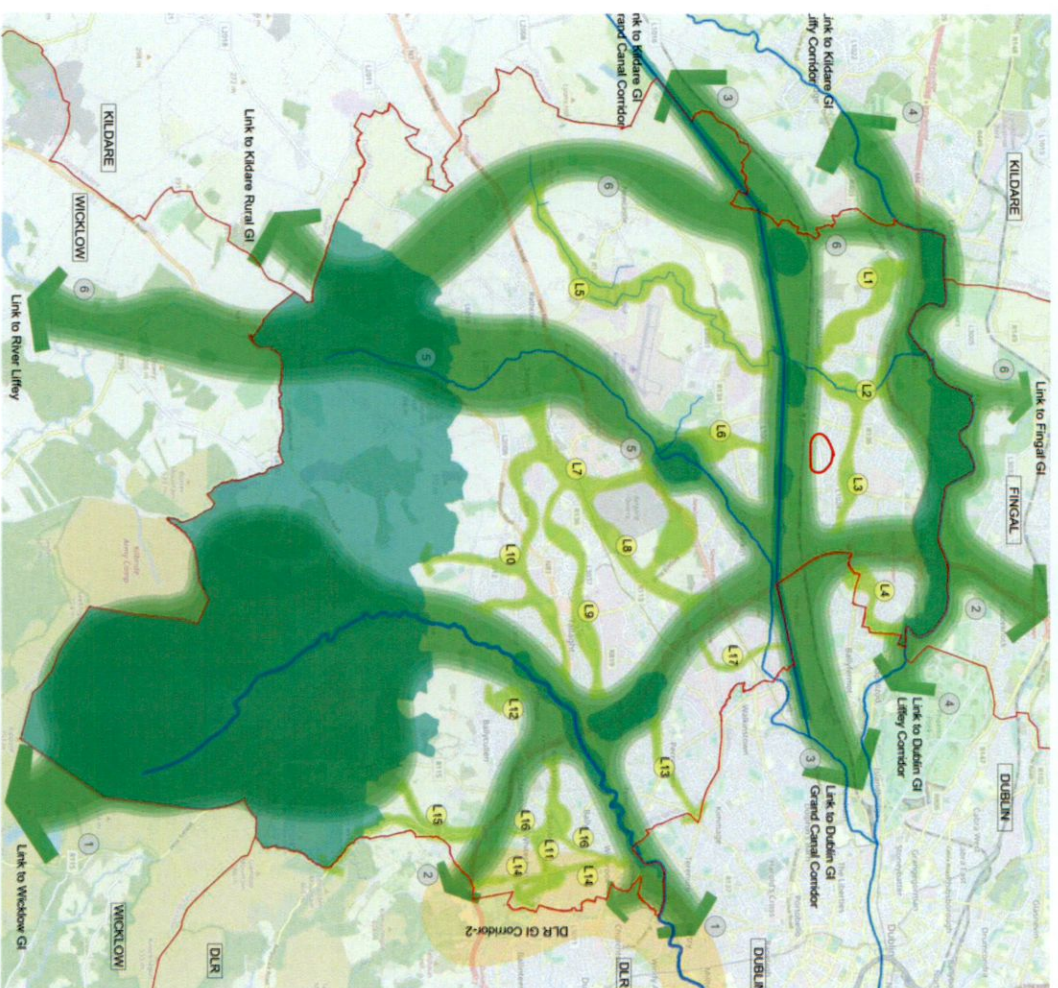
Protect, enhance and further develop a multifunctional GI network, using an ecosystem services approach, protecting, enhancing and further developing the identified interconnected network of parks, open spaces, natural features, protected areas, and rivers and streams that provide a shared space for amenity and recreation, biodiversity protection, water quality, flood management and adaptation to climate change.

GI1 Objective 1:

To establish a coherent, integrated and evolving GI Network across South Dublin County with parks, open spaces, hedgerows, trees including public street trees and native mini woodlands (Miyawaki-Style), grasslands, protected areas and rivers and streams and other green and blue assets forming strategic links and to integrate and incorporate the objectives of the GI Strategy throughout all relevant land use plans and development in the County.

GI1 Objective 4:

To require development to incorporate GI as an integral part of the design and layout concept for all development in the County including but not restricted to residential, commercial and mixed use through the explicit identification of GI as part of a landscape plan, identifying environmental assets and including proposals which protect, manage and enhance GI resources providing links to local and countywide GI networks.



Green Infrastructure Strategy for South Dublin County Council with subject site outlined in red.

GI2 Objective 1:

To reduce fragmentation and enhance South Dublin County's GI network by strengthening ecological links between urban areas, Natura 2000 sites, proposed Natural Heritage Areas, parks and open spaces and the wider regional network by connecting all new developments into the wider GI Network.

G12 Objective 5:

To protect and enhance the County's hedgerow network, in particular hedgerows that form townland, parish and barony boundaries recognising their historic and cultural importance in addition to their ecological importance and increase hedgerow coverage using locally native species including a commitment for no net loss of hedgerows on any development site and to take a proactive approach to protection and enforcement

G12 Objective 6:

To continue to support and expand the County Pollinator Plan through the management and monitoring of the County's pollinator protection sites as part of the Council's commitment to the provisions of the *National Pollinator Plan 2021-2025*.

Policy G14: Sustainable Drainage Systems

Require the provision of Sustainable Drainage Systems (SUDS) in the County and maximise the amenity and biodiversity value of these systems.

G14 Objective 1:

To limit surface water run-off from new developments through the use of Sustainable Drainage Systems (SUDS) using surface water and nature-based solutions and ensure that SUDS is integrated into all new development in the County and designed in accordance with South Dublin County Council's *Sustainable Drainage Explanatory Design and Evaluation Guide, 2022*.

Clonburris SDZ 2019

The Clonburris Strategic Development Zone (SDZ) Planning Scheme represents a shared outlook for the future residential, social, economic, and environmental development of a new planned and sustainable community in South Dublin County.

Clonburris comprises 12 Development Areas, with the proposed development located in Development Area 10 Kishoge North East.

The key overarching principles of the 2019 Planning Scheme include the following:

- To prioritise the delivery of high quality services, utilities infrastructure, and sustainable urban surface water drainage;

- To provide attractive, interesting and well used outdoor spaces using the latest place making and urban design principles, creating a pedestrian-centred environment with active, inviting public space, parks and private gardens.

Section 2.3 Green & Blue Infrastructure**Overarching Principle**

To deliver a network of high quality green and blue infrastructure spaces and public parks while protecting, enhancing and sensitively upgrading the natural, built and cultural assets of Clonburris lands.

Key Principles

- To retain and improve key landscape and ecological features such as hedgerows, the Grand Canal and the Griffeen River;
- To incorporate new elements of Green and Blue Infrastructure such as tree planting, parks and natural open spaces and sustainable urban drainage systems;
- 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;
- To support native plant and animal species and encourage corridors for their movement; and
- To seek to retain hedgerows, aquatic habitats and established tree lines wherever possible.

SUDS

- A system of infiltration trenches, tree pits, permeable paving green roofs, and other elements shall be provided that should direct surface water to attenuation areas.
- Swales should be designed as linear landscape elements and used as elements to enhance streetscape and neighbourhood character and identity.

Section 2.10 Landscape & Open Space

- To allow the movement network to connect to and through open spaces by providing safe, well-overlooked and accessible routes;

Key requirements for these open spaces shall include pedestrian and cyclist connectivity through and between the parks, adjacent neighbourhoods and public transport.

Local links

All development proposals for arterial and local link streets shall be accompanied by a detailed landscaping plan, prepared by a suitably qualified landscape architect and in accordance with Table 2.10.5 Design Criteria for local links (See also Section 2.8). The landscape plan shall include details of hard and soft landscaping and planting schedule



LEGEND

SDZ BOUNDARY	EXISTING BUILDINGS	LANDMARK BUILDINGS	PROPOSED SCHOOLS
URBAN SPACE	EXISTING URBAN BLOCK	AVENUE FRONTAGE	EXISTING SCHOOLS
LOCAL PARKS AND SQUARES	URBAN BLOCK	CANAL FRONTAGE	RAILWAY STATION
STRATEGIC OPEN SPACE	TREES LINE	PARK FRONTAGE	FINE URBAN GRAIN
EXISTING GREEN INFRASTRUCTURE	EXISTING / IMPROVED HEDGEROW/TREE LINE	RAILWAY FRONTAGE	
CANAL / SUDS / POND / WATERWAY	WALKWAYS / CYCLERSWAYS	COMMUNITY / CIVIC BUILDING	
		LOCAL NODE	

Green Infrastructure Strategy Clonborris SDZ – Subject Site Outlined.

Section 2.7 of the Planning Scheme - Schools

All schools constructed within the development to include drop off/pick up zones on or immediately adjacent to the school grounds to ensure minimum traffic congestion (para. 2.7.6). Schools should be located adjacent to open space of sufficient size to allow for the participation in multiple sports and other physical recreation, with access available out of hours for community use (para. 2.7.6).

As required under Section 2.7, the proposed layout incorporates a dedicated set down area at and adjacent to the main entrance to the school building. High quality outdoor play areas are provided within the school site itself. These include 2 no. outdoor ball courts and a soft play area. In addition, the proposed park immediately to the south of the school will provide opportunities for physical recreation as well as nature-based education programmes. The southern elevation of the school faces towards the proposed Park 'Na Ciuainte Park North'

Development Area 10 Kishoge North East

Key Objectives

- To prioritise pedestrian and cyclist movement and to provide for local bus services along the avenue;
- To provide significant and integrated SUDS infrastructure, including a high amenity retention pond/lake to enhance green and blue infrastructure and ecological connectivity.



Development Area 10 – Kishoge North East -indicating subject site with key green corridor on western boundary and future open space to the south.

4.0 SITE ANALYSIS

The site is bounded with fencing around any access points, as well as a double fence on the boundary to the north. The site is located immediately south of the Thomas Omer Way road, and east of Kishoge Community College. There are no watercourses on the site. There is a significant area of residential housing north of the site, but the surrounding land use outside the school and roads, comprises fields with treelines and hedgerows as field boundaries. There is a railway line located c. 180m to the south.

The north of the site comprises a palisade fence, leading to a dyke and then another fence with blockwork and iron bars leading on to the pathway along Thomas Omer Way. There is a low semi-mature treeline in between both fences. Species such as Hazel *Corylus avellana* and other non-native species including conifers. There is a trail to the north of the site which leads east. The site itself comprises rough grassland, with thistles evident throughout and grazed grass.

Further east, there is an area of scrub which is inaccessible. This area comprises a mix of brambles and nettles. There is another treeline located to the south of the site. This is more established than the northern treeline, but mainly comprises shrub like species. Species present included willows *Salix* sp. as well as some hawthorn *Crataegus monogyna*. The western boundary also comprises a treeline, and another trail leading south to the field with the horses present.



Existing Site

4.1 Invasive Species

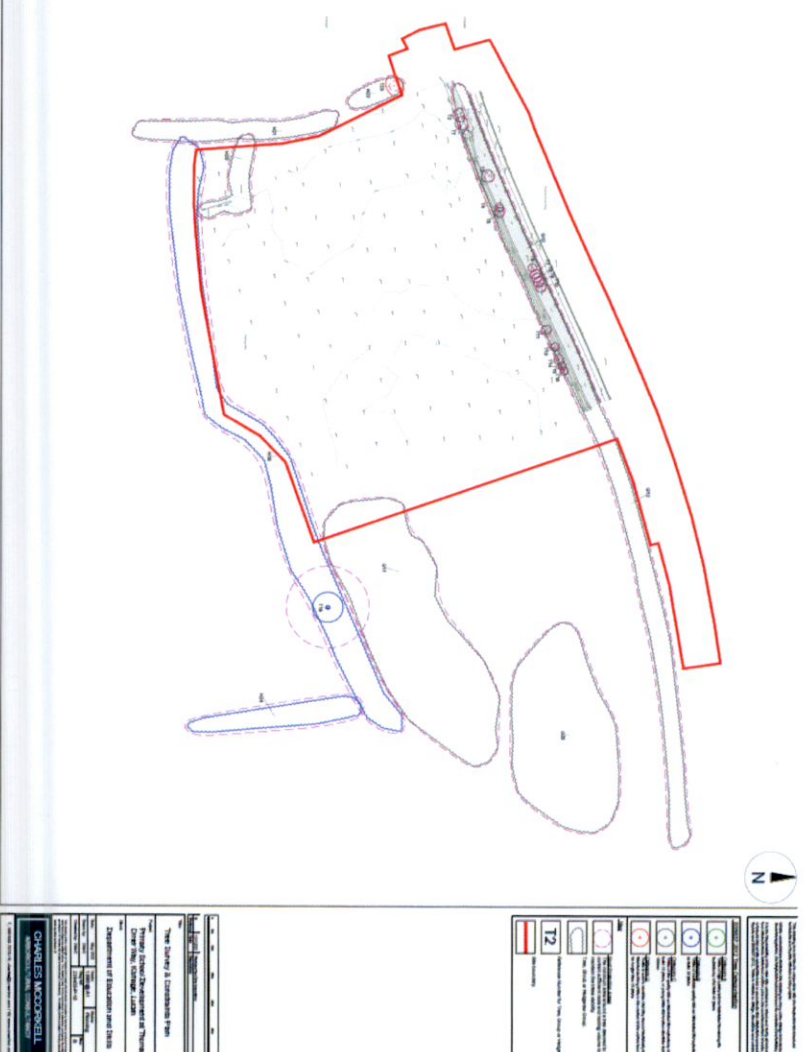
An Invasive Species Survey was carried out by Dr Mary Tubridy, a botanist with experience of invasive species surveys. She examined the site on May 27th 2022. The brief for the survey specified that it should cover the following species: Japanese knotweed, Bohemian knotweed, Giant knotweed, Giant hogweed, Giant rhubarbs, Himalayan knotweed, Himalayan balsam, Hottentot fig and Rhododendron both within the site and 10m outside. **No invasive species were found.**

A strategy will be put in place in agreement with the Local Authority re the implementation of an Invasive Species Management Plan to ensure that no invasive species are brought on to the site during the construction period.

4.2 Tree and Hedgerow Survey

A Tree and Hedgerow Survey, Arboricultural Impact Assessment & Arboricultural Method Statement were carried out by Charles McCorckell in July of this year.

The tree and hedgerow survey reports that in conclusion, the proposed development is achievable in both arboricultural terms and in relation to local planning policy as it relates to trees. Tree impacts have been assessed and tree protection measures have been specified in accordance with best practice and are sufficient to safeguard retained trees and hedgerows during the proposed works.



Tree & Hedgerow Survey of Application site.

The Arboriculture Report sets out *Tree protection measures* – Boundary hedgerows can be successfully protected during the proposed development works by using robust fencing which complies with the recommendations outlined within BS 5837:2012. For details of the tree protection measures required during construction, please refer to the Method Statement within Section 2 and the Tree Protection Plan at Appendix B.

4.3 Ecological Assessment

An Ecological Impact Assessment was carried out on the site as part of the planning application on the 1st June 2022 by Moore Group Environmental Services. The report found the following:

Habitats

There will be a loss of approximately 1 Ha of improved grassland which is not significant given the availability of surrounding farmland used for grazing and silage in the general area.

There will be a loss of approximately 0.4 Ha of Scrub which is deemed not significant. There are no significant impacts predicted from the development on habitats, flora, fauna or biodiversity.

Should best practice guidelines for the prevention of invasive species spread be adhered to, no potential for the spread or introduction of high impact invasive species are foreseen as a result of this Proposed Development.

4.4 Bat Survey Report (Daytime Assessment).

Ecofact were commissioned to undertake a bat survey at a proposed primary school development site at Kishoge, Lucan, Co. Dublin. The survey comprised a daytime inspection during November 2022 and thus is outside the active bat season. This survey therefore includes a winter assessment of habitats on the site.

A comprehensive bat survey could not be completed as this is outside the active bat survey season. However, habitats on the site were assessed in November 2022 for their potential to be used by roosting, foraging and commuting bats.

There are no structures on the site. There are no mature trees on the site that have PRFs of features that could be used by roosting bats. At best, the site provides limited foraging and commuting opportunities. It is likely the site is used by common species such as Soprano and Common pipistrelle, and Leisler's bat. The treeline to the south and west provide the most optimal foraging habitat. These treelines are likely not as affected by lighting from the north, are overgrown and wide so would provide nice linear features for foraging and commuting.

This hedgerow to the south and west are to be retained in full as part of the revised development.

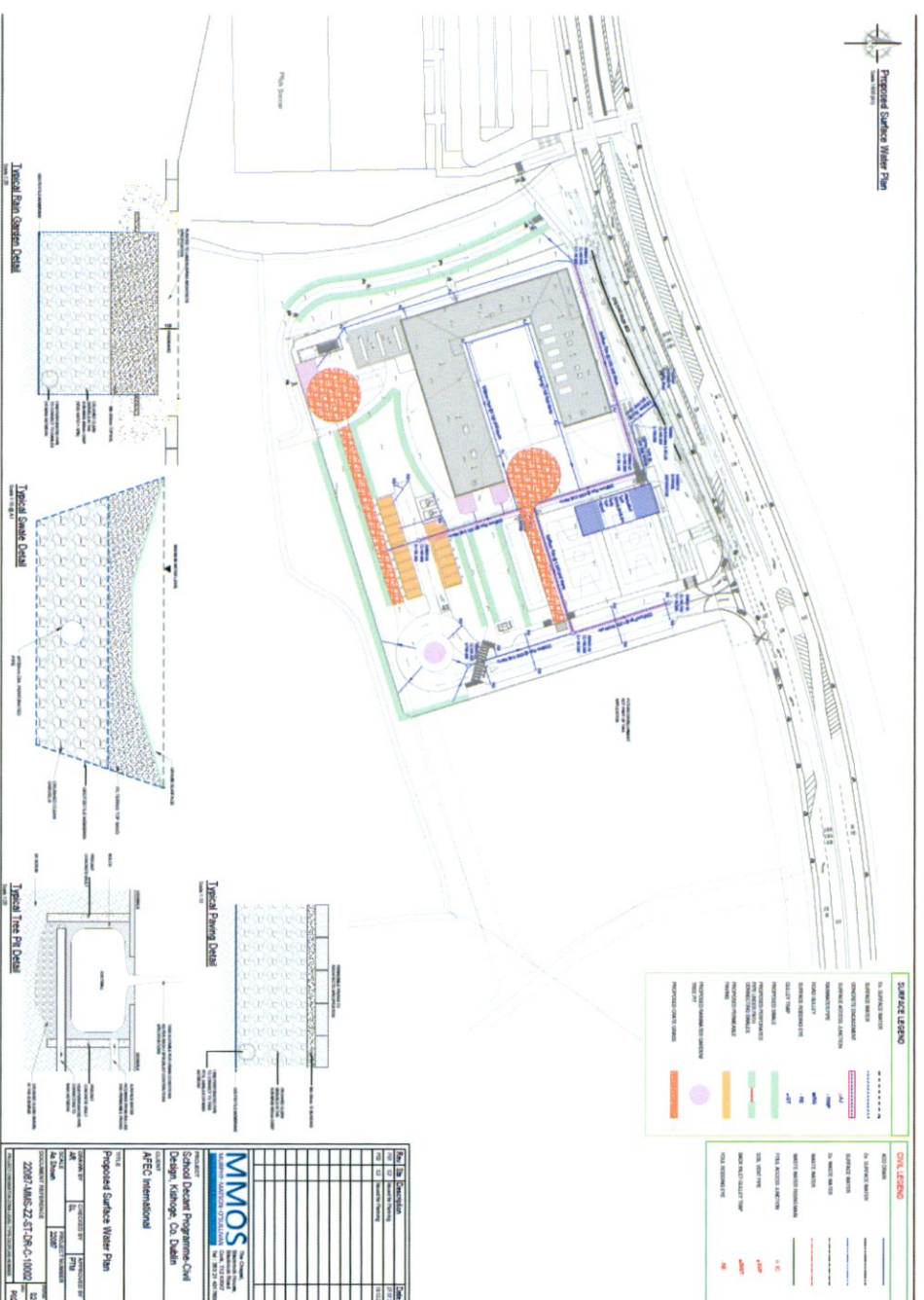
4.5 Surface Water Design – SUDS

Murphy Matson O'Sullivan (MMOS) have prepared a surface water design report as part of this planning application for a proposed commercial development at Kishoge, Co. Dublin
Surface Water Policy

The management of the surface water for the proposed development will be designed to comply with the policies and guidelines outlined in 'BS EN 752:2008 Drain and Sewer Systems outside buildings' and Building Regulations 2010, TGD Part H and the Greater Dublin Strategic Drainage Study (GDSDS).

The key principles of surface water management are as follows:

- Manage surface water run off at source in order to prevent or reduce surface water flows;
- Manage water on the surface to intercept flows and direct them to areas designed to treat, store and discharge flows away from residential dwellings, businesses, and transportation networks, where distribution and flooring could occur;
- Develop a high quality Sustainable Urban Drainage System (SUDS) integrated within public realm and public open space where feasible, to provide high quality and attractive 'green and blue' corridors, features, and focal points with the SDZ landscape, which can also enhance local amenity, ecology and biodiversity;
- Effective operation and maintenance of SUDS measures, to ensure that such systems are operating to their designed capacity;
- Account for climate change and any changes to the amount of impermeable areas over the design life of the development, in accordance with the (GDSDS).



Surface water design measure to include Swales and Permeable Paving.

5.0 PROPOSED DEVELOPMENT AND LANDSCAPE DESIGN APPROACH

5.1 Proposed Development

The development applied for consists of the construction of a new primary school. The proposed primary school will extend to c3,355 sq.m will be 2 storeys in height and will comprise 16 no. classrooms with an additional 2 classroom Special Educational Needs Unit; a General Purpose Hall and all ancillary teacher and pupil amenities and facilities. The proposed development also provides for hard and soft play areas, including 2 no. outdoor ball courts, bicycle parking, staff car parking, vehicle drop off and set down areas. Photovoltaic Panels (PV) are proposed on roofs in addition to EV Charging Points and a packaged Biomass heating plant. The proposed development also provides for all landscaping and boundary treatments and all associated site development works.

Access to the site will be via a new junction and access road off Thomas Omer Way. The new access road will run south off Thomas Omer Way and then west into the site. The proposed access road is in accordance with the Clonburris Strategic Development Zone (SDZ) Planning Scheme and incorporates public lighting, footpaths and cycle tracks. A further pedestrian / cycle only connection to Thomas Omer Way is also proposed along the western green corridor, west of the proposed school building.



View of Proposed development.

5.2 Landscape Design Principles and Approach

The proposed landscape design has been developed following the site analysis as set out in this report. The Tree and Hedgerow Survey, Ecological Survey, Invasive Species report, Surface Water Design and discussion with South Dublin Parks Department all have had an input to the revised landscape design for the scheme.

The proposed Green Infrastructure of this development aims to:

- Protect and enhance existing hedgerows.
- Provide opportunities for a safe and active green network.
- Create wildlife corridors around and through the development.

The main focus of the development is the protection of the existing hedgerows to the west and south of the site which are deemed significant green infrastructure corridors, provision of SUDS measures and a linked pathway to a future green open space to the south of the development. A Local Green Corridor along the boundary with Thomas Omer Way is to be retained and left in its current natural state.

The All Ireland pollinator plan (2021-2025) has informed the planting pallet and soft landscape approach. This in conjunction with a selection of native plants species will characterise the landscape design. Tree and plant screening softens boundaries within the site.

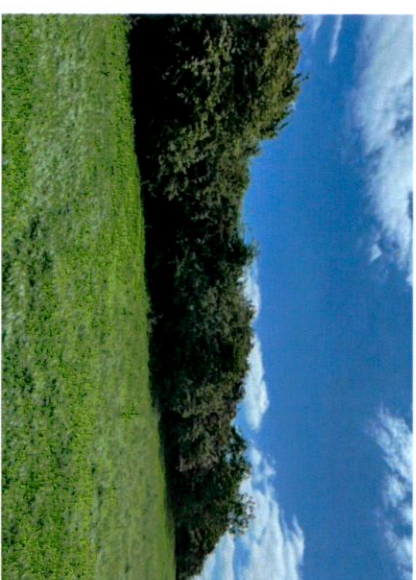


Landscape Masterplan

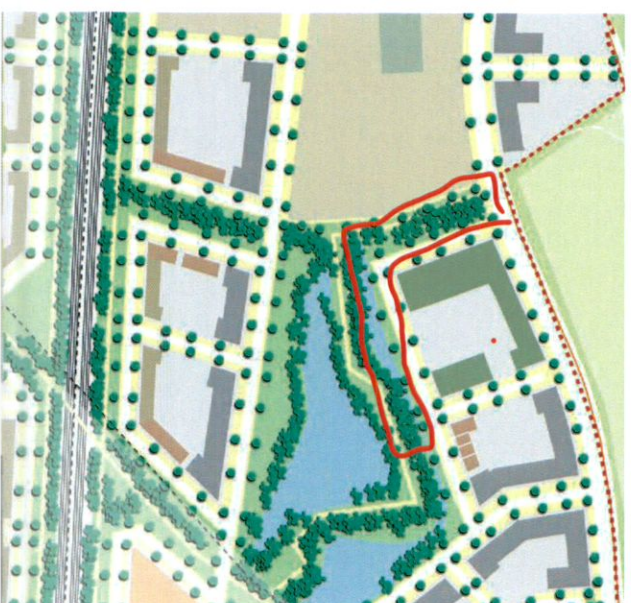
5.3 Hedgerow Retention

The proposed entrance roadway to access the site has been relocated so it will not have any impact on the existing hedgerow running to the south and west of the site. The hedgerow to the south of the site is deemed significant and is to be protected as set out in the Clonborris SDZ. The scheme proposes to further enhance the hedgerow to the West of the site with infill planting of native *Crataegus monogyna*, *prunus spinosa*, *Rosa canina* and *Corylus avellana*.

A new low impact cycleway/pathway is proposed to connect Thomas Omer Way and the School Sites with a future green space to the south as set out in the Open Space Strategy of the Clonborris SDZ. The exact location of this linked pathway will be agreed with South Dublin County Council prior to construction so as to have minimal impact on the existing hedgerow.



Existing hedgerows to be retained and supplemented where required.



Green Corridor to be Protected.

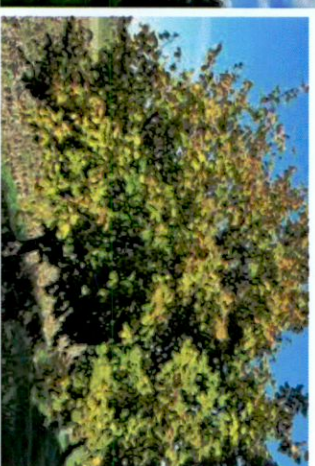
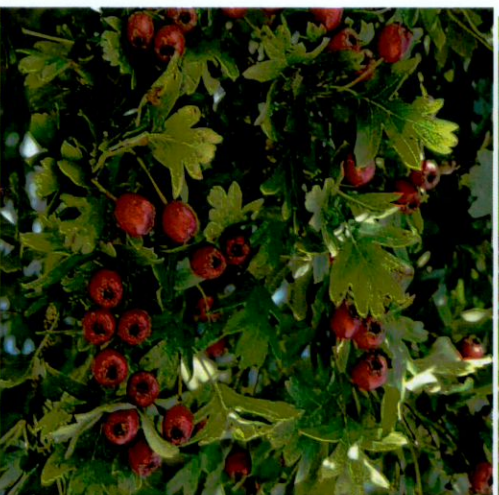
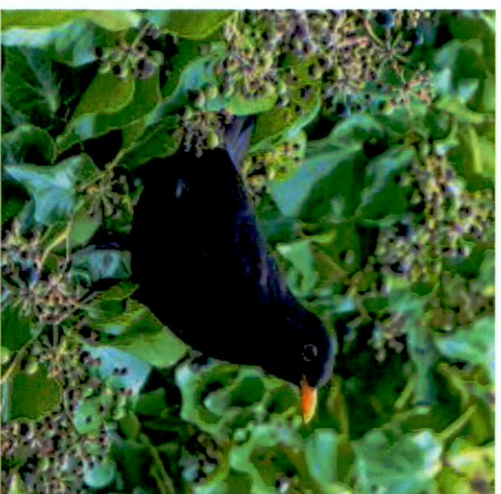
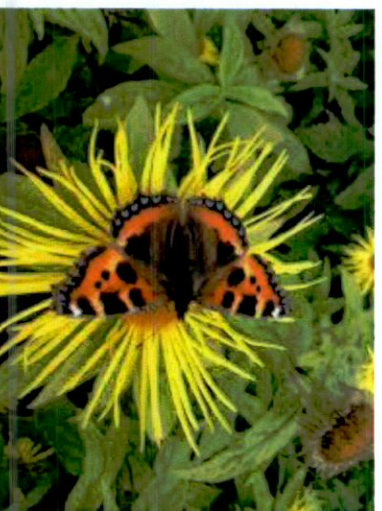


Tree Protection Plan

5.4 Biodiversity

Planting proposals form a vital part of the strategy for the site, in accordance with the County Development Plan objectives and national policy on biodiversity. The planting proposals are aimed at gaining the maximum possible benefit for biodiversity and pollinators and are in accordance with the All-Ireland Pollinator Plan (2021 -2025). This means that wherever possible, native vegetation is proposed and where needed for functional or aesthetic reasons, non-native plants are specified, with due care.

The site is bounded by a hedgerow to the south and west which are to be protected. A riparian strip of low level scrub with some intermittent native trees is to be retained to the northern boundary with Thomas Omer Way to the south. An green corridor is to be developed along the western boundary between the existing hedgerow and boundary to the school to allow for a natural riparian corridor with a low impact pathway and some native tree planting. This corridor will provide the opportunity for access through the riparian corridor without impacting on the existing biodiversity.



Planting to promote biodiversity
 Native hedgerow to be maintained and a woodland tree mix will be planted along perimeter of proposed development.
 This planting mixture will be a combination of native whitethorn, blackthorn and hazel. These hedgerows are valuable to wildlife

5.5 SUDS and Permeability

The green infrastructure concept involves the planning, management and engineering of green spaces in order to provide specific benefits to society. It is a network of green spaces, habitats and ecosystems within a defined geographic area and comprises of wild, semi natural and developed environments.

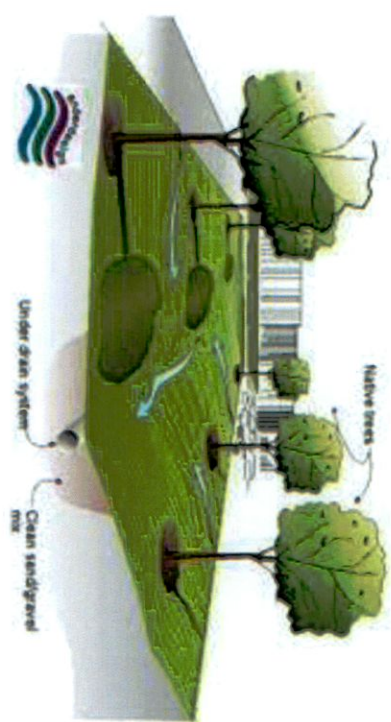
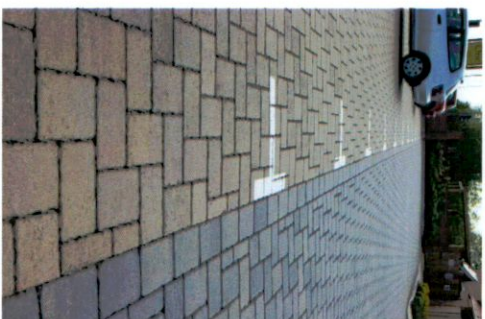
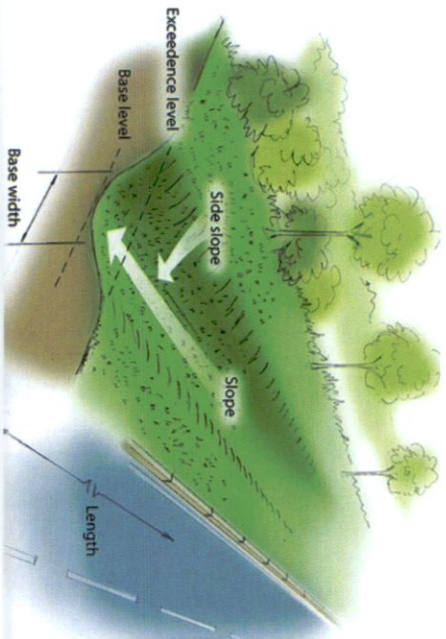
The proposal seeks to create a positive receiving environment and access in conveyance of water surface run off, which creates a better sense of place and a more aesthetically pleasing landscape. Sustainable drainage systems slow down the flow of rainwater entering drainage systems, they filter out pollutants, immediately improving water quality and allow groundwater to recharge.

The Design team have set out some SUDS measures that will be incorporated into the scheme as the masterplan evolves further. The SUDs measures proposed for this site included permeable paving, swales and grasscrete which will help reduce the required size of underground tanks.

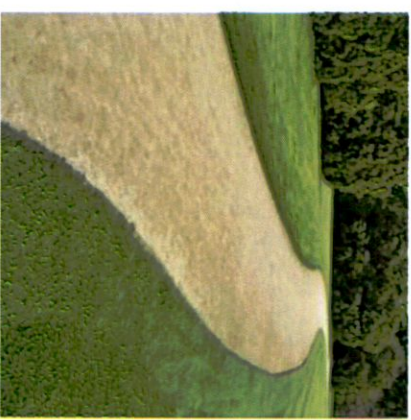
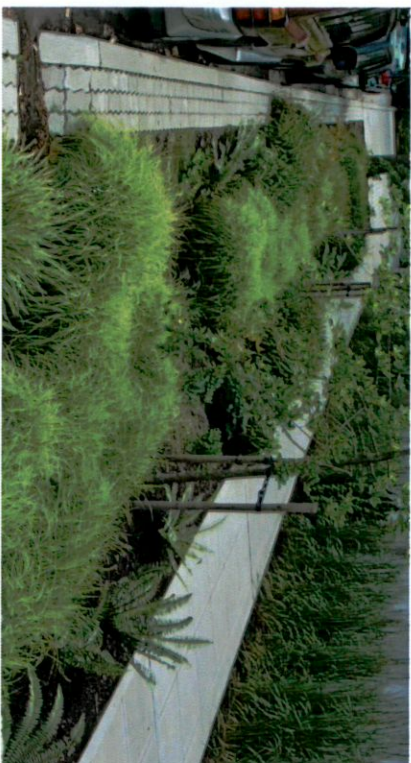
The permeable paving system that is proposed for this site covers approximated 230m² of parking spaces which will include 450mm of stone with a void ratio of 30%. This will hence provide 34.5m³ of underground storage.

Swales are proposed which will comprise 350 linear metres throughout the site allowing for 105m³ of above ground storage within the swale. No infiltration has been allowed for through the walls of the swales as a soil infiltration test on site failed, confirming that infiltration is not feasible. These swales are to be planted with native and pollinator perennial riparian wildflowers using local species.

Finally, 774m² of grasscrete is proposed on internal access roads and turning areas. These will provide an additional 120m³ of underground storage.



Permeable Paving and Swale example



Grasscrete and Low Impact Pathway

Example of proposed Swales and Permeable Paving

PLANTING PLAN

PROPOSED TREE PLANTING

Proposed Planting will provide:

- Colour and year round interest
- Sensory garden
- Swale suitability
- Native species included
- Lower- Maintenance
- Pollinator friendly plants



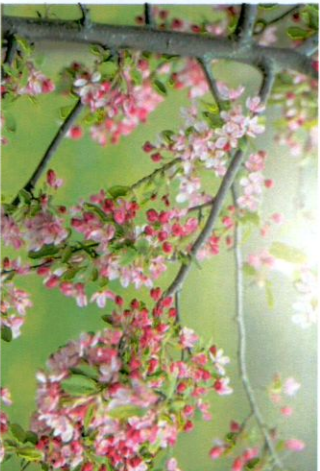
Sorbus aria



Betula
jacqueomintii
Multistemmed



Pyrus calleryana
'Redspire'



Malus sylvestris



Prunus avium



Sorbus aucuparia



Amelanchier lamarckii

PROPOSED HEDGING



Carpinus betulus



Crataegus monogyna



Rosmarinus officinalis



Thymus vulgaris



Nepeta grandiflora

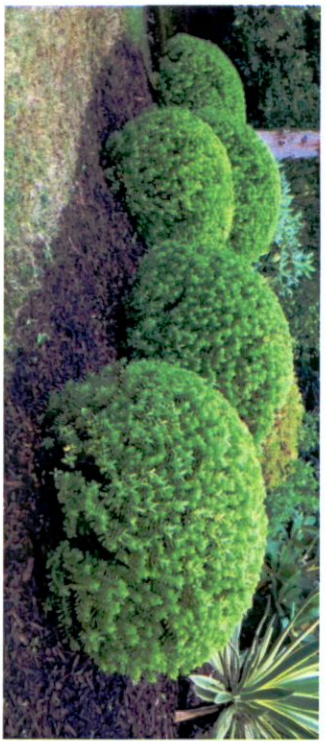


Allium schoenoprasum

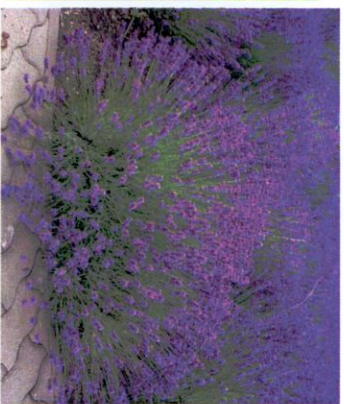


Melissa officinalis 'All Gold'

PROPOSED SHRUB PLANTING



Hebe raikienensis



Lavandula angustifolia



Sedum spectabile



Pittosporum tom thumb



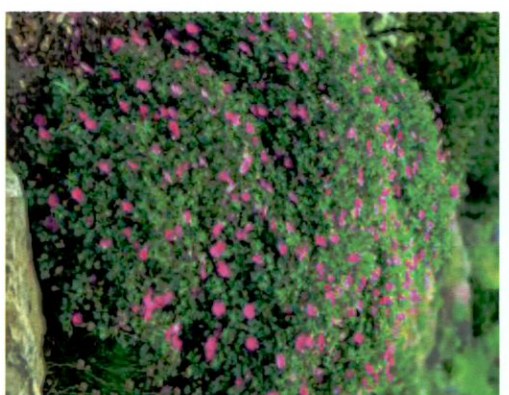
Verbena bonariensis



Geranium 'Johnson's Blue'



Potentilla fruticosa 'Abbotswood'



Geranium sanguineum



Viburnum tinus

Swale Planting Mix



Miscanthus sinensis 'Yaku-jima'



Calamagrostis brachytricha



Cornus sanguinea 'Midwinter'

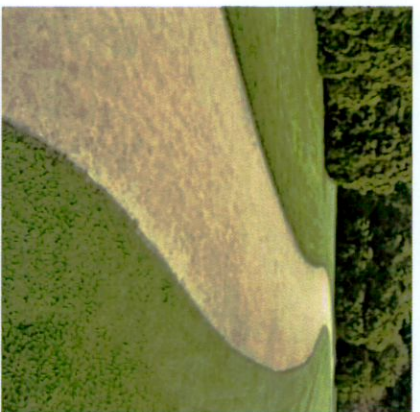
MATERIALS HARDLANDSCAPING

A simple and robust palette of hard landscape materials is proposed. High quality and varied materials are proposed throughout the scheme. Hard landscaping surfaces are chosen for accessibility, slip resistance and to be free draining.

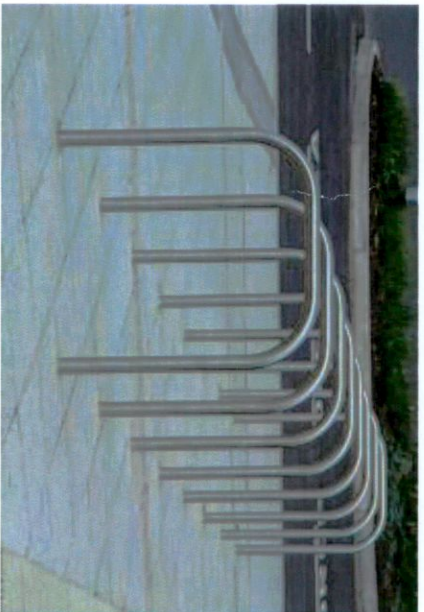
The footpaths will generally be concrete with permeable surfacing, including resin-bound aggregate or paving blocks, to be used for building entrances. Roadways and cycleways will be asphalt. Permeable paving is proposed for car parking areas.



Paving blocks to include Permeable paving to parking areas.



Proposed Seating Examples



Cycle stands