

Part 8 Planning Application – Civil Engineering Executive Summary

Nature-Based Sustainable Drainage System

The proposed redevelopment of the existing brownfield site to provide mixed tenure housing development at Oldcastle Park, Clondalkin, Dublin 22 has been designed to incorporate a comprehensive, nature-based Sustainable Drainage System (SuDS) for the management and attenuation of surface water runoff. The proposed SuDS strategy has been developed in accordance with the requirements of the

- South Dublin County Council (SDCC) Development Plan 2022–2028
- SDCC Sustainable Drainage Explanatory, Design and Evaluation Guide
- Greater Dublin Strategic Drainage Study (GSDSDS)
- Greater Dublin Regional Code of Practice for Drainage Works
- CIRIA C753 SuDS manual

SDCC identifies SuDS as the preferred approach for managing rainfall from new development and requires SuDS to maximise the amenity and biodiversity value of drainage infrastructure.

The proposed drainage strategy adopts a nature-based, treatment train approach where rainfall is managed as close as practicable to the surface rather than relying on traditional piped drainage. The design incorporates appropriate source control measures using a combination of SuDS components coordinated within the proposed landscape and residential design layouts. This approach is consistent with SDCC Development Plan Policy GI4 and the requirement for SuDS to be integrated into a new development through managing surface water locally within sub-catchments.

The proposed SuDS design has been hydraulically modelled to convey and attenuate surface water runoff for events up to and including the 1% Annual Exceedance Probability (AEP) rainfall event with a 20% allowance for climate change. The design includes attenuation and controlled discharge to prevent an increase in downstream flow rates ensuring the proposed development does not exacerbate flood risk. The existing brownfield site is served by an unmitigated surface water drainage system, runoff from current impermeable areas is conveyed to the existing drainage network without the source control and attenuation proposed by the redevelopment. The proposed SuDS design will substantially reduce both the discharge rate, volume and quality of water leaving the site. The controlled discharge from the proposed development will be restricted to a Q_{BAR} greenfield equivalent runoff rate.

The SuDS design has been developed with the four principal SuDS objectives identified by SDCC, water quantity, water quality, biodiversity and amenity. Water quantity is addressed through interception, attenuation and controlled discharge reducing peak runoff rates and providing resilience to climate change. Water quality will be improved using the SuDS treatment train allowing biological treatment to remove pollutants prior to discharge. SDCC specifically identifies treatment through sustainable and natural means as a core SuDS objective. The proposed nature based SuDS features will provide a contribution to the development's green infrastructure and will be integrated into amenity spaces providing ecological habitats and improved for biodiversity.

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SuDS measures will comprise vegetated landscaped SuDS features including rain gardens, tree pits and attenuation basins. The design will minimise reliance on conventional underground attenuation prioritising visible, multifunctional SuDS features.

The SuDS design incorporates consideration of maintenance and long term operation. SuDS components have been designed to remain accessible for inspection and maintenance with consideration to exceedance, sediment management, vegetation establishment, inlet and outlet protection, flow control and safe access. This is consistent with the SDCC SuDS objective to ensure SuDS remain maintainable during construction and operation.

The proposed SuDS design has been hydraulically modelled using Causeway Flow to verify the proposed system provides sufficient hydraulic capacity and attenuation to prevent flooding within the development up to and including a 1% AEP + 20% CC event. A detailed hydraulic modelling report is included with the planning submission as supporting evidence of the hydraulic assessment.

Foul Drainage

The proposed foul drainage network will be designed in accordance with relevant design standards and guidance, including:

- Uisce Éireann Code of Practice for Wastewater Infrastructure.
- Uisce Éireann Wastewater Infrastructure Standard Details
- Recommendations for Site Development Works for Housing Areas.
- I.S. EN 752 – Drain and Sewer Systems Outside Buildings.

Foul wastewater flows will be calculated using Uisce Éireann wastewater design parameters for the proposed residential development and will form the basis of the hydraulic design and capacity assessment of the proposed network.

The site is currently served by an existing foul water connection that has been considered as part of the detailed drainage design. The proposed network will be designed to provide capacity for the calculated design foul flows via a gravity drainage network maintaining suitable gradients and hydraulic performance.

Planning approval should not be taken as confirmation of foul drainage connection capacity or approval by Uisce Éireann for any proposed new or modified connection. The modified connection to the public foul drainage network will be subject to engagement with Uisce Éireann. Final connection arrangements and capacity requirements will be confirmed in consultation with Uisce Éireann and in accordance with their requirements prior to construction.

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Internal Roads, Access and Movement

The civil engineering design for the proposed internal road network will provide safe vehicular, pedestrian and cycle access to the proposed residential units. Designs are developed in accordance with the Design Manual for Urban Roads and Streets (DMURS), SDCC taking in charge details and standards for roads and infrastructure. The proposed road hierarchy, carriageway widths, footways, cycle facilities, junction arrangements, gradients, visibility requirements and pedestrian crossing points.

The location and arrangement of proposed site entrances have been considered as part of the overall master plan for the development with regard to the existing road network, site constraints, pedestrian and cycle connectivity to the requirements of SDCC. The proposed new entrance from Grange Castle Road has been developed and assessed at planning stage to confirm the arrangement can operate within acceptable and safe parameters. A vehicle swept-path analysis will be undertaken for the proposed access arrangement and indicates that the required design vehicles can negotiate the proposed layout without identified tracking constraints.

The design has also considered the provision of safe, direct and accessible pedestrian and cycle connections between the proposed residential units and the surrounding public realm and existing active travel network. Opportunities to improve pedestrian and cyclist connectivity, permeability and safety will be incorporated where practicable through the detailed public realm design.

PRA

The PRA is being prepared in respect of the proposed residential development at lands located off Nangor Road, Oldcastle Drive, Dublin 22. The site is currently partially occupied. There is evidence of waste and discarded materials present onsite. The assessment has been undertaken at desktop stage only, with no environmental testing completed to date.

The purpose of this assessment is to identify potential environmental and human health risks associated with the current and historical site conditions, with particular consideration given to the potential for ground contamination arising from waste accumulation, inappropriate disposal practices, spillages and other potentially contaminative activities. The anticipated presence of a range of waste types, including domestic waste, bulky items, scrap materials, construction and demolition waste and potentially hazardous materials, represents a potential source of contamination requiring further assessment.

The desktop assessment will consider available historical information, site context and potential pollutant linkages, including contaminant sources, migration pathways and sensitive receptors. Potential receptors include future residents, construction workers, current site occupants and the surrounding environment. In the absence of environmental testing, the presence, nature and extent of any contamination cannot currently be confirmed.

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Based on the current stage of assessment, further environmental investigation is expected to be required to establish the potential for contamination and assess the significance of any identified pollutant linkages. The scope of further investigation should be informed by the findings of the desktop assessment and may include targeted soil, groundwater and, where relevant, ground gas investigations.

The assessment should be undertaken with reference to applicable Irish environmental legislation and guidance, including the Environmental Protection Agency Act 1992, as amended; the Waste Management Act 1996, as amended; the Local Government (Water Pollution) Acts 1977 and 1990; Land Contamination Risk Management (LCRM) and relevant planning and environmental requirements applicable to the proposed residential development.

Where contamination is identified through further investigation, appropriate risk mitigation and, if required, remediation measures should be considered to support the proposed residential end use. Any remediation strategy should be developed based on the findings of the investigation and validated as appropriate.

The conclusions and recommendations of this Preliminary Risk Assessment should be reviewed and updated following completion of further environmental investigations, site inspections and waste characterisation. The findings will inform the need for additional assessment and the measures required to support the proposed residential development.

oWMP

The Outline Waste Management Plan (OWMP) has been prepared for the proposed residential development at lands off Nangor Road, Oldcastle Drive, Dublin 22. The site is currently partially occupied. There is evidence of waste and discarded materials present onsite. Waste clearance arrangements have not yet been finalised.

The purpose of this plan is to provide a preliminary framework for the inspection, characterisation, segregation, removal and lawful management of existing waste. Anticipated waste streams include domestic waste, bulky items, scrap materials, construction and demolition waste, and potentially hazardous materials.

Prior to clearance, a detailed site inspection and waste survey should establish the type, quantity and distribution of waste, including any evidence of burning, burial or uncontrolled disposal. Suspected hazardous materials, asbestos-containing materials, contaminated soils, gas cylinders and oils should be assessed and managed by suitably competent personnel.

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All waste inspection, handling, removal, transportation and disposal activities should be undertaken in accordance with applicable legislation and regulations, including the Waste Management Act 1996, as amended; the European Communities (Waste Directive) Regulations 2011, as amended; the Waste Management (Collection Permit) Regulations 2007, as amended; the Waste Management (Facility Permit and Registration) Regulations 2007, as amended; the Waste Management (Licensing) Regulations 2004, as amended; and the Waste Management (Hazardous Waste) Regulations 1998, as amended. Relevant EPA guidance on waste classification and hazardous waste management should also be followed.

Waste should be segregated where practicable and transported by appropriately authorised waste collectors to suitably authorised facilities, with relevant documentation retained. Clearance arrangements should consider resident safety, access, dust, noise and potential exposure to hazardous materials.

The oWMP should be reviewed and updated following the site inspection, waste survey, further environmental investigations and confirmation of the clearance arrangements. A post-clearance inspection should verify waste removal and identify any residual waste or contamination requiring further action.

Road Safety Audit and Traffic & Transport Assessment

A Road Safety Audit (RSA) and Traffic and Transport Assessment (TTA) will be undertaken by Stephen Reid Consulting as part of the planning and design process. The assessments will be undertaken in accordance with the applicable Department of Transport guidance, DMURS requirements and South Dublin County Council requirements, as appropriate to the scale and nature of the proposed development.

The RSA will independently review the proposed access arrangements, internal road network, junctions and associated pedestrian and cyclist facilities to identify any potential road safety issues arising from the proposed development. The findings and recommendations of the RSA will be considered as part of the ongoing design development, with appropriate measures incorporated into the design where required.

The TTA will assess the anticipated traffic and transport implications of the proposed residential development, including the proposed site access arrangements and interaction with the surrounding road network. The assessment will consider vehicular, pedestrian and cyclist movements and will identify any appropriate mitigation or improvement measures required to support the safe and efficient integration of the development with the existing transport network.

The RSA and TTA will form part of the supporting technical documentation for the Part 8 planning submission, with the findings informing the detailed civil engineering, access and public realm design

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