



Additional Information Civil Engineering Response – Drainage Planning

Residential Development at Clonburriss, Adamstown, Co. Dublin

November 2023

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Quality Assurance – Approval Status

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2015 and BS EN ISO 14001: 2015)

Issue	Date	Prepared by	Checked by	Approved by
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Comments

Disclaimer

This report has been prepared by Waterman Moylan, with all reasonable skill, care and diligence within the terms of the Contract with the Client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the Client.

We disclaim any responsibility to the Client and others in respect of any matters outside the scope of the above.

This report is confidential to the Client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

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1. Introduction

1.1 Context

This report forms part of a submission to South Dublin County Council (SDCC), in response to their request for Additional Information for the proposed residential development on lands at Clonburris, Adamstown, Co. Dublin, part of the Clonburris Strategic Development Zone (SDZ). This report addresses the civil engineering drainage planning items raised in SDCC's additional information request.

1.2 Planning Application Details

Local Authority: South Dublin County Council
Planning Reference: SDZ23A/0004
Decision Date: 06 April 2023
Applicant: Clear Real Estate Holdings Limited
Location: Clonburris, Adamstown, Lucan, Co. Dublin

1.3 Summary of Report

This section of the report has been prepared by Waterman Moylan in support of the proposed amended layout submission made by the design team and addressed under separate cover in response to SDCC's request for Additional Information.

This Applicant proposes an alternative layout to that submitted for planning to address the items raised within; including the relocation of apartment units in response to RFI item 1b (refer Architectural submission under separate cover), adjustment to street layout in response to RFI item 1e; and adjustment of layout to retain existing hedgerow at the southern end of the scheme, in response to RFI item 2.1 (refer Landscape Architectural submission under separate cover).

For due diligence, the engineering layouts have been amended to ensure that the road levels and drainage and water layouts have been fully considered. The amended drainage and water layout drawings have been appended to this document as part of the Waterman Moylan Civil Engineering response to item 2.3, accounting for marginally revised road alignments/local adjustments, as clouded.

It is noted that there are no significant changes to the proposed engineering strategies as part of this revised submission. The road layout, drainage layout (including SuDS strategy and attenuation) and watermain layout strategy remain consistent with the previously submitted planning application documentation, with marginal adjustments to accommodate the proposed layout changes to some of the buildings behind the public footpath.

Layout adjustments brought about as part of the additional information process have resulted in an upward revision of the number of units from that originally submitted for planning, from 385 units to 396 units. As a result of this, there will be a marginal (<3%) increase to the foul and watermain loads from that previously proposed. Foul Water load shall increase to a peak flow of 6.126l/s from 5.955l/s, and water demand shall increase to a peak demand of 12.762l/s from 12.410l/s.

Section 2 of this report addresses the engineering items included in South Dublin County Council's request for Additional Information. For clarity, the items from South Dublin County Council's additional information request are set out in bold italics, with the Applicant's response provided below each item.

2. Response to Civil Engineering Items

2.1 Additional Information Request Item No.2.3 – Drainage Planning

- 2.3. *The applicant is requested to provide revised plans to demonstrate the use of SUDS for water treatment, amenity and biodiversity. Please refer to SDCC SUDS Guide. Swale details to be revised to include 1 meter base of swale and consider planting to increase the amenity and biodiversity value.*

Response:

This response is to be read in conjunction with the BSM Landscape Architectural response, through which the requirements of Item 2 of the Additional Information request have been agreed with the Parks and Landscape Department. This response covers the updates made to the SuDS details drawing, as well as commentary relating to the specific use of SuDS on this site for **water treatment**.

We refer you to the appended revised additional information “Typical SuDS details” drawing 21-055-P1230A included in Appendix A of this report, which shows the amended detail to the proposed swale cross section, allowing for a minimum 1m width at the base of the swale, with a total width of 2.7m.

Within the swale detail, 100mm max height “check dams” large boulders (300mm-500mm wide) are indicated, which are proposed at intermittent locations, as indicated on the landscape architectural layout drawings.

We also refer you to the proposed “Stockholm” Type tree pit detail proposed for use within the development, where trees will be placed within paved areas. Similarly, rain garden soakaways are proposed to be provided within residential gardens to infiltrate rainwater from down pipes. Refer to Landscape Architectural Drawings for details of location and planting.

Water treatment benefits through use of SuDS features (as detailed on 21-055-P1230A) within this development are summarised as follows:

Permeable Paving

It is proposed to introduce permeable paving at all private driveways and parking courts throughout the development. Downpipes from the front of the houses and apartments will drain to filter drains beneath the permeable paving to facilitate maximum infiltration of surface water from driveways and roof areas.

The goal of permeable paving is to control stormwater at the source to reduce runoff. In addition to reducing surface runoff, permeable paving has the dual benefit of improving water quality by trapping suspended solids and filtering pollutants in the substrata layers.

Bio-Retention Rain Gardens:

It is proposed to install raingardens at residential gardens. The plant species and bioretention soil mix absorb large amounts of rainwater and release it back into the atmosphere by transpiration and evaporation. They also filter water as it passes through, so the run-off, when it is produced, has fewer pollutants. Rainfall not retained by the planting will overflow via a high-level overflow pipe to the surface water network.

Green / Sedum Roof:

It is proposed to introduce sedum roofing as a source control device on the Apartment Blocks 1 & 2. The sedum roofing typically consists of 75mm substrate with a sedum blanket.

The substrate and the plant layers in a green roof absorb large amounts of rainwater and release it back into the atmosphere by transpiration and evaporation. They also filter water as it passes through the layers, so the run-off, when it is produced, has fewer pollutants. Rainfall not retained by green roofs is detained, effectively increasing the time to peak, and slowing peak flows.

A sedum roof can reduce annual percentage runoff by between 40% and 80% through this retention and evapotranspiration, with the impact dependent on a range of factors including the depth of substrate, the saturation of substrate at the onset of a rain event, the angle of the roof, the range of vegetation growing, intensity of rainfall and the time of year.

Roadside Bio-retention Tree Pits:

It is proposed to provide roadside trees throughout the development. Trees can help control storm water runoff because their leaves, stems, and roots slow rain from reaching the ground and capture and store rainfall to be released later. Trees help to attenuate flows, trap silts and pollutants, promote infiltration and prevent erosion. Incorporating tree planting offers multiple benefits, including attractive planting features, improved air quality and increased biodiversity whilst helping to ensure adaptation to climate change.

Swales:

Swales are vegetated channels proposed to run parallel and adjacent to selected roads throughout the site. Rainfall from the road surface will be directed to gaps in the road kerbing and will flow to the swales. The swales will be linked back to the drainage network to prevent flooding in extreme weather events, where the volume of rainfall exceeds the percolation capacity of the swales.

Vegetated swales enhance surface water runoff quality as they slow down water flow, allowing suspended particles to filter and settle out of suspension.

The proposed vegetated swales incorporate filter drains which will provide infiltration, optimise the retention time, and provide quality improvement to the storm water runoff, in particular the first flush from hardstanding areas. The proposed perforated pipes connect to the proposed surface water sewer network.

As has been noted in the above summary text in Section 1.3, we also refer you to the appended revised additional information drainage and water layouts drawings in Appendix A of this report, which show the amended drainage and water layouts for the proposed additional information development layout, accounting for marginally revised road alignments/local adjustments, as clouded.



Appendix A –Additional Information Drainage Drawings

UK and Ireland Office Locations

