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13.0 MATERIAL ASSETS - SITE SERVICES

13.1 INTRODUCTION

This chapter of the EIAR describes the existing surface water drainage, foul drainage, and water supply infrastructure serving the development site area, and provides an assessment of the proposed development's likely impact on these services during the project's construction and operational phases.

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13.2 STUDY METHODOLOGY

Alongside the legislation, policy, and guidance outlined in Chapter 1, the following relevant legislation, policy, and guidance has informed the preparation of this Chapter:

- Environmental Protection Agency (EPA) *Guidelines on the Information to be Contained in Environmental Impact Assessment Reports* (2022)
- Uisce Éireann (Irish Water) *Code of Practice for Water Infrastructure* (2020)
- Uisce Éireann (Irish Water) *Code of Practice for Wastewater Infrastructure* (2020)

The preparation of this chapter has also been informed by desktop studies of relevant data sources including:

- Uisce Éireann drainage and water supply records (Appendix 12.1)
- Greater Dublin Strategic Drainage Study (GDSDS) 2005

13.2.1 Scoping and Heading / Topic Identification

The EPA *Guidelines*, 2022, state that:

"each [environmental] *factor is typically explored by examining a series of headings and / or topics relevant to that factor".*

[and]

"The relevant topics for any given EIAR should be established during scoping".

The methods employed for scoping and identification of the relevant environmental topics for this Chapter have been:

1. Desktop analysis of existing water and drainage infrastructure serving the development site.

The headings and/or topics scoped into this Chapter's assessment are:

1. Surface Water Drainage Infrastructure
2. Foul Drainage Infrastructure
3. Water Supply Infrastructure

13.3 THE EXISTING RECEIVING ENVIRONMENT (BASELINE SCENARIO) AND CHARACTERISTICS OF THE PROPOSED DEVELOPMENT

13.3.1 Surface Water Infrastructure

Uisce Éireann drainage records does not indicate any public foul sewers in the close proximity of the development site. However, Uisce Éireann records indicate that there is an existing combined sewer along Moss Street to the west

of the development site and an existing 225mm diameter combined sewer along City Quay to the north of the development site.

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The existing surface water networks and their connections to the private surface water network will be decommissioned.

All surface water run-off from the proposed development shall be controlled during intense rainfall events by means of blue roofs located at roof levels 6, 9, 11, and 12 and attenuation storage system located at the basement level -2 and associated flow control device which shall limit surface water run-off from the proposed development to a maximum of 2.0l/sec. The surface water from these attenuation systems shall be discharged into the proposed last manhole located within the proposed development extents.

The combination of surface water and foul effluent from the proposed development shall ultimately discharged into the existing 225mm diameter combined sewer along Moss Street.

In accordance with the requirements of Dublin City Council, the proposed development shall incorporate Sustainable Drainage Systems (SuDS) features. These serve a dual purpose in managing stormwater within new developments and to improve the quality of stormwater leaving the site. SuDS are drainage systems that are environmentally beneficial, causing minimal or no long-term detrimental damage.

These measures will include blue green roofs, attenuation and a hydrobrake. Petrol interceptors will also be provided for any surface water collected from the underground parking area.

The proposed stormwater drainage has been designed and modelled to cater for 1-in-100-year storm event increased by 20% for the predicted effects of climate change and restrict the surface water flow to 2l/s/ha. Further information in relation to surface water drainage and flood risk is provided in Chapter 6 (Water and Hydrology), and the Flood Risk Assessment undertaken by CS Consulting Engineers (2024) and the Engineering Services Report undertaken by CS Consulting Engineers (2024) both of which are submitted as part of this planning application.

13.3.2 Foul Drainage Infrastructure

Uisce Éireann drainage records does not indicate any public foul sewers in the close proximity of the development site. However, Uisce Éireann drainage records indicate an existing combined sewer along Moss Street to the west of the development site and an existing 225mm diameter combined sewer along City Quay to the north of the development site.

Welfare facilities via portable sanitary facilities shall be provided for the contractors within the construction compound during the construction and demolition stages of the development. It is also envisaged that the waste shall be collected by tankers and shall be disposed off appropriately. Temporary connections shall be provided via existing services subject to relevant applications and approvals.

Foul drainage infrastructure for the proposed development during the operational phase shall be designed in accordance with Irish Water Code of Practice for Wastewater Infrastructure.

Foul Effluent Generation during the operational phase

The Uisce Éireann Code of Practice for Wastewater Infrastructure specifies an average foul effluent flow rate of 55 litres per person per day for offices without canteens (50 litres per person per day, plus a 10% allowance for external infiltration). Based on the development's calculated office staff population equivalent of 1,821 staff, the maximum average effluent flow (dry weather flow or DWF) to be generated by the proposed development's office element may be calculated as:

Dry Weather Flow (DWF)

55 l/day x 1,821 people = 100,155 l/person/day = 1.159 l/sec

Peak Flow (4.5 times DWF)

1.159l/sec x 4.5 = 5.216 l/sec (Peak Flow 4.5 x DWF for area 0 - 5.5ha).

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Proposed Foul Drainage Arrangement during Operational Phase

It is proposed to discharge the foul effluent generated by upper floors via gravity to the existing combined sewer along Moss Street to the west of the development site.

Flow design loading calculations for the proposed development indicate a worst-case maximum peak flow rate of 5.216 l/s. The plans include showers and sanitary facilities at the lower ground floor and basement levels. Since these levels are situated below the invert levels of the nearest combined sewer, it will be necessary to pump foul waste from these areas to the final private manhole before it discharges into the existing combined sewer.

It is proposed to provide a pumping station with 24-hour storage at the basement level (-2 level) to pump any foul effluent generated at the basement levels. The foul effluent shall pass through a petrol interceptor before being pumped to a standoff manhole at surface level and ultimately discharge into the existing combined sewer on Moss Street.

A Pre-connection Enquiry (PCE) has been submitted to Irish Water for the proposed foul infrastructure. It is envisaged that the existing combined sewer shall have adequate capacity to cater for the proposed development.

13.3.3 Water Supply

The proposed potable water supply for the development will be designed and installed in compliance with the Irish Water Code of Practice for Water. Measures to reduce water consumption will be incorporated into the development, including the use of low-flow sanitary fittings, rainwater reuse systems, and leak detection mechanisms.

Potable Water Demand

The Uisce Éireann Code of Practice for Water Infrastructure does not specify potable water consumption rates for non-domestic uses; therefore, on the principle that the development's water consumption shall not exceed its foul effluent generation, the foul generation rates used in section 12.3.2 have therefore also been employed for calculating average potable water demand (omitting the 10% increase corresponding to foul drainage infiltration). Therefore, the demand rate of 50 litres/person/day have been applied to calculate the average potable water demand.

Similarly, the Uisce Éireann Code of Practice for Water Infrastructure does not specify a default peaking factor for non-domestic water demand. The standard domestic peak factor of 5 has therefore been applied to calculate the peak water demand for the proposed development.

Average water demand

50 l/day x 1,821 people = 91,050 l/person/day = 1.053 l/s

Average day/ week demand

1.053l/s x 1.25 = 1.317 l/s

Peak water demand (5 times average day/week water demand)

1.317 l/s x 5 = 6.586 l/sec

It is proposed to tie into the existing 250mm ductile iron watermain along Moss Street via a new 100mm watermain for the proposed development.

A pre-connection enquiry was submitted to Irish Water for the proposed water supply infrastructure. It is envisaged that the existing watermain shall have adequate supply to cater for the proposed development.

13.4 DO NOTHING SCENARIO

Should the proposed development not take place, the subject site would remain in its existing condition and would not give cause for any changes to the surrounding infrastructure. While changes to infrastructure and to the demands placed on it will take place as a result of other external factors, these fall outside the scope of this assessment.

13.5 POTENTIAL IMPACTS/EFFECTS OF THE PROPOSED DEVELOPMENT

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This sub section addresses the implications for the proposed development on the existing environment and looks at the possible effects the proposed development may have during the construction & operational phases. The principal risks associated with the Construction Phase are:

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13.5.1 Construction Phase

Surface Water Infrastructure

Surface water run-off will occur from hardstanding and roof structures during the construction period. Surface water run-off from construction activities has the potential to be contaminated by:

- Suspended solids arising from ground disturbance and excavation
- Hydrocarbons from accidental spillage from construction plant and storage
- Concrete/ cementitious produces: arising from construction materials
- Water removed from surface excavations as a result of rainfall or groundwater seepage
- Vehicle wheel wash water
- Runoff from exposed work areas and excavated materials storage areas
- Leakage of temporary foul water services, and
- Solid (municipal) wastes being disposed or blown into watercourses or drainage systems

During construction, the removal of existing impermeable surfaces and soil excavation may lead to increased runoff. This could result in higher sediment levels in surface water runoff, potentially affecting local drainage systems. Runoff with significant silt content can harm surface water infrastructure and nearby watercourses.

With proper and standard mitigation measures implemented as detailed in the CMP, the potential impact on surface water during the construction phase is negligible, imperceptible, and short term.

Foul Drainage Infrastructure

During the construction phase, wastewater generated at the development site shall discharge via a temporary connection to the Uisce Éireann foul drainage network; this shall be arranged by the lead Contractor appointed to the project. This wastewater shall have two components:

- Foul effluent generated by the site's working population, and
- Groundwater requiring disposal as a result of dewatering (excavation drainage).

The lead contractor will be required to secure a Trade Effluent Licence from Uisce Éireann, permitting the discharge of pumped groundwater to the public drainage network.

Welfare facilities will be made available on-site for construction workers during the works, and any wastewater generated will be of domestic origin only. If required, the lead contractor will be required to secure a Trade Effluent Licence from Uisce Éireann, permitting the discharge of pumped groundwater to the public drainage network. The contractor will also be required to adhere to all conditions outlined in the discharge license to regulate the quality and flow rate of discharges. The potential impact on foul drainage during the construction phase is considered negative, imperceptible, and short term.

Water Supply Infrastructure

During the construction phase, the development site will be supplied with potable water through a temporary connection to the Uisce Éireann supply network, which will be arranged by the project's lead contractor.

The potential impact on public water supply infrastructure during the construction phase is considered negative, imperceptible, and short term.

13.5.2 Operational Phase

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The principal risks associated with the Operation Phase are:

Surface Water Infrastructure

The completed stormwater system will remain under the control of a management company and will not be offered to be taken in charge by the Local Authority. As such operational and maintenance requirements will be addressed by the company's maintenance contractor. Issues which my interfere with the stormwater network pertain to blockages and the lack of appropriate jetting and cleaning of gullies, drains and main sewers are required.

Due to the proposed stormwater system which will be implemented at the site there is considered to be minimal risk of the site impacting the water quality of the River Liffey during the operational stage.

Proposed Attenuation Arrangements

The attenuation volume to be retained on site for a 1–in–100-year extreme storm event, increased by 20% for the predicted effects of climate change indicates that a storage volume of 121m^3 It is proposed to provide 18m^3 in the attenuation storage system located at the basement level -2 and 103m^3 provided within the combined blue roof buildup at roof levels 6, 9, 11 and 12.

SuDS measures will be incorporated into the stormwater drainage network to improve the quality of stormwater leaving the Site. These will include green roofs, attenuation, a hydrobrake and rainwater collection. Petrol interceptors will also be provided in car parking areas.

The proposed new storm water drainage arrangements will be designed and carried out in accordance with:

- The Greater Dublin Strategic Drainage Study Volume 2
- The Greater Dublin Regional Code of Practice for Drainage Works
- BS EN - 752:2008, Drains & Sewer Systems Outside Buildings
- The requirements and specifications of Dublin City Council (DCC)
- Part H (Building Drainage) of the Building Regulations

The new network will significantly reduce the volume of surface water entering the public combined sewerage system. The potential impact on surface water during the operational phase is considered positive, moderate, and long-term.

Foul Drainage Infrastructure

It is proposed to discharge the foul effluent generated by upper floors via gravity to the existing combined sewer along Moss Street to the west of the development site. Flow design loading calculations for the proposed development indicate a worst-case maximum peak flow rate of 4.742 l/s. The plans include showers and sanitary facilities at the lower ground floor and basement levels. Since these levels are situated below the invert levels of the nearest combined sewer, it will be necessary to pump foul waste from these areas to the final private manhole before it discharges into the existing combined sewer.

It is proposed to provide a pumping station with 24-hour storage at the basement level (-2 level) to pump any foul effluent generated at the basement levels. The foul effluent shall pass through a petrol interceptor before being pumped to a standoff manhole at surface level and ultimately discharge into the existing combined sewer on Moss Street.

A Pre-connection Enquiry (PCE) has been submitted to Irish Water for the proposed foul infrastructure. It is envisaged that the existing combined sewer shall have adequate capacity to cater for the proposed development. This existing combined sewer ultimately discharges to the Ringsend wastewater treatment plant. The potential impact on foul drainage for the operational phase is neutral, imperceptible, and long term.

Water Supply

It is proposed to tie into the existing 250mm ductile iron watermain along Moss Street via a new 100mm watermain for the proposed development. A pre-connection enquiry was submitted to Irish Water for the proposed water supply infrastructure. It is envisaged that the existing watermain shall have adequate supply to cater for the proposed development. The proposed development has been designed with a focus on the sustainable use of water. To minimise water consumption during the operational phase, measures such as low-consumption sanitary fittings, leak detection systems, and rainwater harvesting are proposed. The potential impact on potable water infrastructure for the operational phase is neutral, imperceptible, and long term.

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13.6 AVOIDANCE, REMEDIAL AND MITIGATION MEASURES

13.6.1 Construction Phase

No significant impacts are expected from the construction or operation of the proposed development. However, to minimise impacts as much as possible, the following mitigation measures will be implemented during the construction phase:

- The precise locations of all existing on-site services (both underground and overhead, where applicable) will be confirmed, such as through the use of slit trenches in key areas, before the commencement of on-site works.
- In planning and carrying out the proposed works, careful consideration will be given to the Gas Networks Ireland (GNI) Guidelines for Designers and Builders - Industrial and Commercial (Non-Domestic) Sites (2018), as well as the Health & Safety Authority (HSA) Code of Practice for Avoiding Danger from Underground Services (2016).
- All necessary precautions will be taken to prevent any unplanned disruptions to services or utilities during the proposed works.
- Consultation with all relevant service providers will be conducted prior to the commencement of works, ensuring that all activities are carried out in accordance with the applicable standards and safely.
- An interface will be established between the contractor and the relevant utility service providers/authorities during the construction phase of the proposed development. This interface will be carefully managed to ensure a smooth construction schedule with little to no disruption to the local residential and business community.
- All new infrastructure will be installed in compliance with the relevant standards, guidelines, and codes of practice.
- All mitigation measures related to site access/egress and construction traffic management, as outlined in Chapter 12 of this EIAR (Traffic & Transportation) and in the finalised Construction Traffic Management Plan, which will be developed by the contractor in agreement with DCC, as specified in the outline Construction Management Plan (submitted separately as part of the planning application), shall be fully implemented by the site contractors.
- Before the operational phase of the proposed development, utility infrastructure connections will be tested by a qualified professional using an approved methodology, as authorised by the relevant service provider and under the supervision of DCC. The water supply for the proposed development will be tested to the satisfaction of DCC and Irish Water before being connected to the public potable water system.
- The successful contractor will ensure that the drainage and water supply networks remain clear of materials that could reduce capacity or cause blockages. Regular visual inspections will be conducted to maintain this condition.

13.6.2 Operational Phase

No significant impacts are expected from the construction or operation of the proposed development. However, to minimise impacts as much as possible, any required maintenance or upgrades of on-site utilities infrastructure during the operational phase will be conducted in accordance with the specifications of the relevant service providers and will be facilitated by the estate manager.

The proposed development includes intrinsic design elements that will reduce its demand for potable water. These include low water usage sanitary appliances and the collection of rainwater for landscaping and maintenance

purposes. Water meters shall be fitted to Uisce Éireann specifications, to permit monitoring of potable water consumption.

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The use of low-water-usage sanitary appliances, as previously described, will reduce the volume of foul effluent generated during the operational phase of the development. To enhance the quality of the effluent discharged into the public foul drainage system, incidental runoff from underground basement car park areas, internal waste storage areas, and compactor units will be routed through grit/oil separators before being discharged from the development.

13.7 RESIDUAL IMPACTS OF THE PROPOSED DEVELOPMENT

13.7.1 Construction Phase

The implementation of the mitigation measures described in Section 12.6.1 will ensure that the development's construction-phase residual impacts on surrounding infrastructure will be neutral in nature, short-term in duration, and imperceptible.

13.7.2 Operational Phase

The implementation of the mitigation measures described in Section 12.6.2 will ensure that the development's operational-phase residual impacts on surrounding infrastructure will be neutral in nature, long-term in duration, and imperceptible.

13.8 MONITORING AND/ OR REINSTATEMENT

The proposed development does not require specific monitoring or reinstatement measures with respect to the material assets discussed in this chapter.

13.9 DIFFICULTIES ENCOUNTERED IN COMPILING

No particular difficulties were encountered in the preparation of this EIAR chapter.

13.10 REFERENCES

- **Environmental Protection Agency (2022).** Guidelines on the Information to be Contained in Environmental Impact Assessment Reports
- Uisce Éireann: Drainage and Water Supply Records
- **Uisce Éireann (2020).** Code of Practice for Water Infrastructure
- **Uisce Uisce Éireann (2020).** Code of Practice for Wastewater Infrastructure
- **Dublin City Council.** Dublin City Council Development Plan 2022-2028
- The Greater Dublin Strategic Drainage Study Volume 2
- The Greater Dublin Regional Code of Practice for Drainage Works
- BS EN - 752:2008, Drains & Sewer Systems Outside Buildings
- Part H (Building Drainage) of the Building Regulations

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APPENDIX 13.1

UISCE ÉIRRANN DRAINAGE & WATER SUPPLY RECORDS

V101 Uisce Éireann Records - Supply and Drainage

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