Environmental Impact Assessment Report (EIAR) – Volume 2

Chapter 18 – Material Assets – Water Supply and Wastewater

CHAPTER 18

Proposed ORE Capable Terminal on a 250m Wharf Extension & Ancillary Operational Support Infrastructure

Port of Waterford Company

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MALONE O'REGAN ENVIRONMENTAL

TABLES

APPENDICES

All appendices referenced in this document are presented in EIAR Volume III

APPENDICES CHAPTER 18

Appendix 18-1: Uisce Eireann Confirmation of Feasibility

18 MATERIAL ASSETS – WATER AND WASTEWATER

18.1 Introduction

This chapter documents the potential effects of the Proposed Development on the local water and wastewater infrastructure and details mitigation measures where necessary.

18.2 Methodology

The methodology undertaken for this assessment comprised the following:

18.2.1 Desk-Based Review

A desk-based review of all relevant published information was undertaken, including:

- Relevant legislation, including:
    - European Union (Wastewater Discharge) Regulations 2020 (S.I. 214/2020);
    - Wastewater Discharge (Authorisation) (Environmental Impact Assessment) Regulations 2010 (S.I. 231/2010);
    - Wastewater Discharge (Authorisation) Regulations 2007 (S.I. 684/2007); and,
    - Dangerous Substances Directive 2006/11/EC.
- Information pertaining to the local Urban Wastewater Treatment Plant ('UWWTP');
- Relevant CIRIA publications;
- Published planning permissions for developments in proximity to the Site;
- Kilkenny County Development Plan 2021 – 2027 [1];
- Waterford County Development Plan 2022 – 2028 [2]; and,
- Port of Waterford Masterplan [3].

18.2.2 Consultation

Water and sewage connections to the public drainage systems are already in place at the Port of Waterford. A pre-connection enquiry to enable the sewage system to be expanded to include the Proposed Development was submitted to Uisce Éireann on 5th July 2023. On 29th August 2023, Uisce Éireann issued a Confirmation of Feasibility to the effect that the required wastewater connection was feasible (see Appendix 18-1).

18.3 Receiving Environment

18.3.1 Water Supply

The mains water supply that serves the Port of Waterford is supplied via the East Waterford Water Supply Scheme ('EWWSS'), which draws water from the Ballyshunnock Reservoir, the River Clodiagh and the River Mahon to supply Waterford City, Tramore, Dunmore East and the surrounding areas [4]. The EWWSS serves a population of ca. 66,046 people and has a supply volume of 27,000 – 28,000 m^3/day [4]. Average water use for one person is 133 litres/day, allowing for leakage [5]. Therefore, it can be estimated that the EWWSS currently supplies ca. 8,800m^3/day (66,046 * 133 litres).

Uisce Éireann state that the EWWSS has the capacity to support the predicted 2023 population of the East Waterford area [6].

18.3.2 Foul Water

Foul water discharge at the Port of Waterford is treated at the Waterford Urban Wastewater Treatment Plant ('UWWTP'), located on the northern bank of the Lower Suir Estuary to the west of the N29/Port Road. This facility is licensed under Wastewater Discharge Licence D0022-01. It provides secondary and tertiary treatment of foul water. It was deemed 'compliant' with its licence in the 2023 Annual Environmental Report ('AER'), and there were no exceedances [7].

Table 18-1 below details the permitted Emission Limit Values ('ELVs') for the UWWTP and the average concentrations of those parameters in the water discharged from the Waterford UWWTP in 2023 [7].

Table 18-1: ELVs for Waterford UWWTP Outfall (Licence D0022-01)

Parameter	Emission Limit Values		Monitoring Frequency
	As Licensed	2023 Annual Mean	
pH	6.0 – 9.0	7.58	Daily
Conductivity at 20°C	N/A	1211µS/cm	Fortnightly
Parameter	**Emission Limit Values (mg/l)**		**Monitoring Frequency**
	As Licensed	**2023 Annual Mean**	
cBOD	25	4.29	Fortnightly
COD	125	26	Fortnightly
Suspended Solids	35	8.03	Fortnightly
Total Oxidised Nitrogen (as N)	35	6.08	Fortnightly
Ammonia (as N)	25	2.63	Fortnightly
Total Nitrogen (as N)	35	9.55	Fortnightly
Total Phosphorous (as P)	N/A	0.882	Fortnightly
Orthophosphate (as P)		0.414	Fortnightly
Fats, Oils and Grease (FOG)		17	Fortnightly

The UWWTP was constructed with a hydraulic capacity of 82,598m^3/day and a Population Equivalent[1] ('P.E.') treatment capacity of 190,600. Table 18-2 below shows the 2023 treatment capacity summation for the UWWTP [7]. Available capacity is the remaining capacity. The minimum hydraulic capacity is the remaining capacity when maximum flow occurs.

[1] Population Equivalent represents the amount of organic biodegradable load equating to the waste produced by a specific number of individuals. 1 p.e. = 60g BOD/person/day.

Table 18-2: Treatment Capacity at Waterford UWWTP (D0022-01) in 2023

Capacity Type	As Built	Volume Received		Available Capacity	
		Max	Average	Min.	Mean.
Hydraulic Capacity (m^3/day)	82,598	79,790	37,876.57	Ca. 3.40%	Ca. 54.14%
Organic Capacity (P.E.)	190,600	107,229	N/A	43.74%	N/A

It can be concluded based on this data that the current public wastewater treatment system at the Waterford UWWTP is typically well within capacity, and it remains well within permitted ELVs.

18.4 Characteristics and Potential Effects of the Proposed Development

18.4.1 Construction Phase

18.4.1.1 Water Supply

During the Construction Phase, potable water will be provided via a temporary mains connection for the estimated 18 – 24-month construction programme in order to serve construction works with potable water and also for welfare facilities. Given the timing and nature of this connection, it will not give rise to any significant impact on the water supply infrastructure.

Given the duration of the construction period and the scale of the construction work to be carried out, the water usage at the Site during the Construction Phase will not give rise to any likely or significant effect on the local water supply.

18.4.1.2 Wastewater

Temporary hygiene and washing facilities for the construction workers will be provided via temporary facilities that will be emptied by an appropriate contractor.

18.4.2 Operational Phase

18.4.2.1 Water Supply

Uisce Éireann issued a Confirmation of Feasibility to the effect that the required wastewater connection was feasible. It was recommended that the internal pumping station infrastructure be located *"as far south-west as reasonable within the development site"* to achieve the necessary velocities (see Appendix 18-1). No amendment was deemed necessary to the water supply system.

Water demand at the Proposed Development will be for potable water for an anticipated occupational level of 75 persons shore-side (requiring 45 litres per person per day) and for the ORE vessels (requiring a total of 5m^3/day). The peak water use arising from the ORE support facilities will be ca. 8.4m^3/day ((75 x 45 litres) + 5 m^3). This represents an increase of ca. 0.09% of the current level supplied by EWWSS.

Given the mains water supply volume available, the effect of the Proposed Development on the water supply infrastructure will be imperceptible and thus not significant.

18.4.2.2 Wastewater

Bilge water from the ORE vessels will be discharged at sea via on-board interceptors as permitted under the MARPOL Convention Annex I, which was integrated into Irish law via the Sea Pollution (Prevention of Oil Pollution) (Amendment) Regulations 2010 (S.I. No. 664/2010).

Foul wastewater from ORE vessels will be treated via on-board WWTPs, with treated effluent discharged at sea as permitted under the MARPOL Convention Annex IV (see section 17.3.3.3 of this EIAR), which was integrated into Irish law via the Sea Pollution (Prevention of Pollution by Sewage from Ships) Regulations 2006 (S.I. No. 269/2006). The sludge from the WWTPs will be retained until the vessel returns to port, when it will be pumped from the vessel into tankers for removal and treatment (see section 17.4.2.3 above).

Wastewater from the land-side element of the Proposed Development will be discharged into the public foul water system via a new purpose-built sewer system. All such discharge from the Proposed Development will consist of foul wastewater. The predicted peak and average discharge from the Proposed Development into the public foul sewer system is set out in Table 18-3 below.

Table 18-3: Anticipated Wastewater Discharge from Proposed Development

Discharge Type	Rate (l/s)	Hourly Rate (ls)	Daily Rate (m^3)	Annual Rate* (m^3)
Peak Discharge	0.4	1,494	36	13,087
Average Discharge	0.2	720	17	6,307

*Assuming flow is 24/365

Table 18-4 below sets out the Proposed Development foul discharge as a proportion of the current UWWTP intake. As shown, at the worst-case scenario (peak rate of discharge from the Proposed Development against average flow into the UWWTP), the Proposed Development will contribute less than 0.1% of the average flow into the UWWTP.

Table 18-4: Proposed Development Discharge as Percentage of UWWTP Intake

Proposed Development Discharge Type	Daily Discharge Rate as % of UWWTP:		Remaining Hydraulic Capacity (%) at UWWTP	
	Max Flow Received	Average Flow Received	Min.	Mean
Peak Discharge	0.05%	0.1%	Ca. 3.4%	Ca. 54.1%
Average Discharge	0.02%	0.05%	Ca. 3.4%	Ca. 52.5%

As shown in Table 18-4, in terms of remaining hydraulic capacity, the worst-case scenario will be when the peak rate of discharge from the Proposed Development coincides with peak rate inflow to the UWWTP. Under these circumstances, the Proposed Development will reduce the remaining hydraulic capacity at the UTWWP to 3.4% of the built capacity – a reduction of ca. 0.6% from the current minimal remaining capacity.

As set out in Table 18-2 above, the UWWTP has an organic capacity of 190,600 P.E., meaning that it has the capacity to treat BOD of 11,436 kg/day (190,600 x 60g). With the anticipated occupational population of the Proposed Development being 75 persons, the organic load of the Proposed Development discharge will equate to a BOD of 4.5kg/day. This equates to 0.4% of the BOD treatment capacity at the UWWTP, with the remaining Organic Capacity being ca. 43%.

It can therefore be concluded that the effects of the increase in flow and load at the UWWTP arising from the Proposed Development will be not likely and not significant, both in terms of the effect on the UWWTP intake and in terms of the UWWTP effluent.

18.5 Proposed Mitigation Measures and/or Factors

18.5.1 Construction Phase

Uisce Eireann has released guidance for the reduction of water usage within construction projects [8]. The following methods for conserving water will be used where possible:

- Waterless / low-water systems (e.g. for hygiene facilities);
- High-pressure water-efficient hoses;
- Percussion taps;
- Twin-flush toilets;
- Use of brooms rather than water to clean surfaces;
- Cleaning of tools in buckets rather than in running water;
- Use of stormwater for dust suppression; and,
- Maintenance of water delivery systems to reduce leaks / drips.

Table 18-5 below sets out the potential water savings available through the use of alternative sanitary systems.

Table 18-5: Water Usage and Potential Savings in Sanitary Facilities

Device	Variation	Water Usage (l/use)	Savings (l/use) over standard device
WC/Toilet	Standard	6 – 9.5	N/A
	Low-flush	3.5	2.5 – 6
	Dual-flush	4 – 6.5	0 – 5.5
	Cistern Displacement Device	4 – 7.5	2 – 5.5
	Delayed Action Valve	5 – 8.5	1 – 4.5
	Chemical	0	6 – 9.5
Urinal	Standard	3 – 4	N/A
	Low Flush	0 – 1	3 - 4
	Waterless	0	3 - 4
Taps (l/min)	Standard	15 – 20	N/A
	Aerators/Low flow	7 – 10	5 – 13
	Spray taps	3 - 4	11 – 17

18.5.2 Operational Phase

18.5.2.1 Water Supply

The ORE operators will be required to review water usage at their facilities, with the objective of continuously seeking opportunities to use recycled water, thereby further improving water efficiency.

18.5.2.2 Wastewater

No specific mitigation measures are warranted.

18.6 Cumulative and In-Combination Effects

The Proposed Development will not generate process wastewater or trade effluent. The only water requirements will be for potable water and water for welfare / hygiene facilities within the ORE support facilities. The only discharge to sewer will consist of foul water from welfare and hygiene facilities. Therefore, no significant cumulative effects on the EWWSS or the Waterford City WWTP have been predicted.

18.7 Interactions with other Environmental Attributes

Water and wastewater treatment may interact with other environmental attributes as follows:

- Chapter 5 – (Population and Human Health). An excessive demand on water supply could affect the supply available to the local population. Discharges to a UWWTP that cause exceedance of the plant's ELVs can affect the local population in terms of both health and enjoyment of the environment. The effect of the Proposed Development on the water supply and wastewater management and infrastructure were assessed in this chapter, with the conclusion that the effects will be not likely and not significant. Therefore, there will be no likely or significant effect on local population or on human health arising from the water needs or wastewater produced by the Proposed Development; and,
- Chapter 8 – (Water). Water demand and improper wastewater management can affect water levels and water quality. The effect of the Proposed Development on water supply and wastewater management and infrastructure were assessed in this chapter, with the conclusion that the effects will be not likely and not significant. Therefore, there will be no likely or significant effect on water arising from the water needs or wastewater produced by the Proposed Development.

18.8 Indirect Effects

No significant indirect effects on the national or local water or wastewater infrastructure will arise from the Proposed Development.

18.9 Residual Effects

Considering the direct and cumulative effects of the Proposed Development and the mitigation measures in place, the residual effect of the Proposed Development on the public water and wastewater infrastructure will be not likely and not significant.

18.10 Monitoring

Water intake at the Port of Waterford is metered for billing purposes, and usage is monitored as part of the Port's environmental policies. This practice will continue including the Proposed Development.

18.11 Reinstatement

Not relevant.

18.12 Difficulties Encountered in Compiling This Information

No difficulties were encountered.

REFERENCES

[1] Kilkenny County Council, "Kilkenny County Development Plan 2021-2027," Kilkenny County Council, 2023.

[2] Waterford City and County Council, "Waterford City & County Development Plan 2022–2028," Waterford CC, Waterford, 2022.

[3] Port of Waterford, "Port of Waterford Masterplan 2020 - 2044," Port of Waterford, Waterford, 2019.

[4] EPA, "Site Visit Report - East Waterford Water Supply Scheme," EPA, Wrexham, 2021.

[5] Uisce Eireann, "Water Conservation Calculator," Uisce Eireann, [Online]. Available: https://www.water.ie/conservation/home/water-conservation-calculator. [Accessed 2025].

[6] Uisce Eireann, "Waterford 10-year Water Supply Capacity Register," UE, [Online]. Available: https://www.water.ie/connections/developer-services/capacity-registers/water-supply-capacity-register/waterford. [Accessed 2025].

[7] Uisce Eireann, "AER 2023 - Waterford Urban Wastewater Treatment Plant (D0022-01)," Uisce Eireann, 2024.

[8] Uisce Eireann/Irish Water, "Business Conservation Tips - Construction," Uisce Eireann/Irish Water, August 2022. [Online]. Available: https://www.water.ie/conservation/business/business-conservation-tips/construction/.