



**ATTACHMENT A.1.1:**

**NON-TECHNICAL SUMMARY**

**JUNE 2023**

## ATTACHMENT A.1.1 NON-TECHNICAL SUMMARY

### 1. Introduction

The primary basis for this Midleton Waste Water Discharge Authorisation (WWDA) review is to account for the current Industrial connection P1103-01 to the UÉ network downstream of the Midleton WwTP. This review also includes for the amalgamation of the Carrigtwohill and Midleton licences, the population equivalent (p.e.) to which the application relates is 48,750. This p.e. is a combination of the design p.e. for Carrigtwohill WwTP (30,000 p.e.), Midleton WwTP (15,000 p.e.) and Industrial Emission (IE) discharges (3,750 p.e.) downstream of the Midleton WwTP.

The amalgamated agglomeration will cover the previous Midleton and Carrigtwohill agglomerations over a combined 72 no. townlands. Refer to **Table 6** within the Application Form for details of these townlands.

The wastewater from the Midleton agglomeration is collected in a partially combined foul and surface water drainage network. The Midleton WwTP has a design capacity of 15,000 p.e. following an upgrade in 2012 and provides tertiary treatment *via* UV disinfection of the final effluent. Midleton WwTP was compliant for the 2022 reporting year and is meeting the ELVs as per condition 2.1 of the original licence and Schedule A. However, the WwTP is currently overloaded at 16,652 p.e. (Source: 2022 AER) and does not have the capacity to cater for additional loads from proposed development sites in Midleton. The design capacity of the Carrigtwohill WwTP is 30,000 p.e. and has a current collected load of 8,654 p.e. (Source: 2022 AER), and thus has significant spare capacity.

The treated wastewater arising from the Midleton agglomeration is a mix of domestic, commercial, and industrial (IE licence Reg. No. P0442-02 and licence Reg. No. P1103-01) and varies daily, weekly, and seasonally. Both P0442-02 and P1103-01 treated effluent bypasses the Midleton WwTP and combines with treated effluent from the Midleton WwTP before discharging to the North Channel from the Rathcoursey holding tank.

The wastewater in Carrigtwohill is collected in a partially combined drainage network which means that during rain events, the sewage gets diluted, resulting in higher flow rates to the WwTP. The wastewater from the agglomeration arises from domestic and industrial loads. Sewage from industry is collected *via* the public sewer and is combined with domestic waste water before entering the WwTP.

A key element of this WWDL review also includes the amalgamation of the Carrigtwohill agglomeration into the Midleton D0056-01 licence, and the proposed changes to ELVs at Midleton and Carrigtwohill (refer to **Section 10**). The Midleton Waste Water Load Diversion Project is the driver of the amalgamation of Midleton and Carrigtwohill agglomerations and will provide interconnectivity between the two functional areas, further discussed below. This Project will consist of the construction and delivery of two new Pumping Stations, one at Water Rock (to divert *ca.* 7,000 p.e. from the Urban Expansion Area (UEA) Housing site to Carrigtwohill WwTP) and another at Midleton North (to draw *ca.* 4,177 p.e. from the existing sewerage network in Midleton to Carrigtwohill WwTP), and approximately 7km of rising main which will connect the new Water Rock Pumping Station to the existing foul sewer network in Carrigtwohill north of the N25 to the east of Fota Rock. There will be no storage, SWO or EO at the new Midleton North Pumping Station. In the event that flows in the existing sewer exceed the pumping capacity of the Midleton North Pumping Station, surplus flows will return into the Midleton network, *via* a bifurcation chamber, and

ultimately back to the Midleton WwTP for treatment, as per the current treatment situation. These works will be completed under the Local Infrastructure Housing Activation Fund (LIHAF) Project. Refer to **Section 3** below and **Attachment B.8.** for details on these projects.

This Review also relates to the inclusion of 13 no. overflows (*i.e.*, SW005, SW006, SW007, SW008, SW013, SW015, SW016, SW017, SW018, SW019, SW020, SW021, and SW022) into the reviewed Midleton licence. These are existing overflows in the Midleton and Carrigtwohill network which will be regularised as part of this review.

Further details pertaining to the reasons for this WWDA review are provided in **Section 10** below.

Refer to **Attachment A.1.2** for the area of interest and **Attachment B.2.1** for a map of the proposed amalgamated Midleton and Carrigtwohill agglomeration.

## 2. Description of the waste water discharges from the waste water works serving the agglomeration

### Discharge Scenario as per D0056-01 (Midleton)

Details of the discharges applicable to the current D0056-01 licence, including the primary discharge and agglomeration overflows, can be found in **Table A.1.1** below.

**Table A.1.1 Discharges as per D0056-01:**

Current Licence Name	Asset	Discharge Type	Discharge Location Coords (NGR)	Receiving Waters
SW01MIDL	Primary Discharge	Primary	186177, 69506	North Channel Great Island
SW03MIDL*	Bailick No. 1 Pumping Station	SWO/EO	187975, 73109	Owennacurra Estuary
SW04MIDL*	Bailick No. 2 Pumping Station	SWO/EO	188047, 72518	Owennacurra Estuary
SW05MIDL	Ballinacurra No. 2 Pumping Station	SWO/EO	188518, 71783	Owennacurra Estuary
<i>Not Available</i>	Bailick No. 3 Pumping Station	EO	188272, 72060	Owennacurra Estuary
SW07MIDL	Dwyers Road Pumping Station	SWO/EO	187475, 72902	Owennacurra_040
<i>Not Available</i>	Oakwood Pumping Station	EO	188573, 73373	Dungourney_020
<i>Not Available</i>	Roxboro Mews Pumping Station	SWO/EO	188346, 73332	Dungourney_020
<i>Not Available</i>	The Rock Pumping Station	SWO/EO	188265, 73232	Dungourney_020
<i>Not Available</i>	Roxboro Housing Estate Pumping Station	SWO/EO	188332, 73316	Dungourney_020
<i>Not Available**</i>	Old Youghal Road Pumping Station	SWO/EO	188703, 73401	Dungourney_020
<i>Not Available*</i>	Riversfield Estate SWO (Network)	SWO	187687, 73025	Owennacurra Estuary

Current Licence Name	Asset	Discharge Type	Discharge Location Coords (NGR)	Receiving Waters
Not Available	Drury's Avenue SWO (Network)	SWO	188346, 73332	Dungourney_020
Not Available	Ballinacurra No.1 Pumping Station	EO	188366, 71791	Owennacurra Estuary

\* Do not meet criteria as set out in the DoEHLG 'Procedures and Criteria in Relation to Storm Water Overflows', 1995. These discharges will be upgraded as part of the Midleton Waste Water Networks Upgrade Project by Q4 2029.

Note – "Not Available" indicates that the discharge is to be regularised as part of this licence review.

### **Discharge Scenario as per D0044-01 (Carrigtwohill)**

Details of the discharges applicable to the current D0044-01 licence, including the primary discharge and agglomeration overflows, can be found in **Table A.1.2** below.

**Table A.1.2 Discharges as per D0044-01:**

Current Licence Name	Asset	Discharge Type	Overflow Discharge Location Coords (NGR) as per WWDL	Receiving Waters
SW001	Primary Discharge	Primary	179911, 72583	Lough Mahon (Harper's Island)
Not Available	Located at Carrigtwohill WwTP	SWO	179911, 72605	Lough Mahon (Harper's Island)
SW003	Barryscourt Pumping Station	SWO/EO	181276, 72256	Tibbotstown_010
Not Available	Church Lane (Network)	SWO	181544, 73040	Tibbotstown_010
Not Available	Elm Road (Network)	SWO	181544, 73040	Tibbotstown_010
SW004	IDA Pumping Station No.1	SWO/EO	181133, 72310	Tibbotstown_010
Not Available	Old Cobh Road PS	SWO/EO	180594, 72283	Lough Mahon (Harper's Island)

All 6 no. of SWOs in the Carrigtwohill agglomeration meet the criteria as set out in the DoEHLG 'Procedures and Criteria in Relation to Storm Water Overflows', 1995'.

Note – "Not Available" indicates that the discharge is to be regularised as part of licence review.

### **Discharges as per Subject Matter of Licence Review**

The proposed discharges associated with this licence review are listed in **Table A.1.3**. The primary discharge will remain as per D0044-01 *i.e.*, treated effluent from the Carrigtwohill WwTP will discharge to Lough Mahon (Harper's Island). The secondary discharge location will be the current primary discharge as per D0056-01 *i.e.*, treated effluent from the Midleton WwTP will discharge to North Channel Great Island at Rathcoursey Point *via* a diffuser after passing through Rathcoursey Tidal Holding Tank.

**Table A.1.3 Discharges as per subject matter of licence review:**

<b>Discharge</b>	<b>Asset</b>	<b>Type</b>	<b>Discharge Location NGR</b>	<b>Receiving Waters</b>
<b>SW009*</b>	Primary Discharge from Carrigtwohill	Primary	179911 72583	Lough Mahon (Harper's Island)
<b>SW003*</b>	Barryscourt Pumping Station	SWO/EO	181276, 72256	Tibbotstown_010
<b>SW004*</b>	IDA Pumping Station No.1	SWO/EO	181133, 72310	Tibbotstown_010
<b>SW005</b>	Located at Carrigtwohill WwTP	SWO	179911, 72605	Lough Mahon (Harper's Island)
<b>SW006</b>	Church Lane (Network)	SWO	181544, 73040	Tibbotstown_010
<b>SW007</b>	Elm Road (Network)	SWO	181544, 73040	Tibbotstown_010
<b>SW008</b>	Old Cobh Road PS	SWO/EO	180594, 72283	Lough Mahon (Harper's Island)
<b>SW001**</b>	Secondary Discharge from Midleton	Secondary	186177, 69506	North Channel Great Island at Rathcoursey point
<b>SW010**</b>	Bailick No. 1 Pumping Station	SWO/EO	187975, 73109	Owennacurra Estuary
<b>SW011**</b>	Bailick No. 2 Pumping Station	SWO/EO	188047, 72518	Owennacurra Estuary
<b>SW012**</b>	Ballinacurra No. 2 Pumping Station	SWO/EO	188518, 71783	Owennacurra Estuary
<b>SW013</b>	Bailick No. 3 Pumping Station	EO	188272, 72060	Owennacurra Estuary
<b>SW014**</b>	Dwyers Road Pumping Station	SWO/EO	187475, 72902	Owennacurra_040
<b>SW015</b>	Oakwood Pumping Station	EO	188573, 73373	Dungourney_020
<b>SW016</b>	Roxboro Mews Pumping Station	SWO/EO	188346, 73332	Dungourney_020
<b>SW017</b>	The Rock Pumping Station	SWO/EO	188265, 73232	Dungourney_020
<b>SW018</b>	Roxboro Housing Estate Pumping Station	SWO/EO	188332, 73316	Dungourney_020
<b>SW019</b>	Old Youghal Road Pumping Station	SWO/EO	188703, 73401	Dungourney_020
<b>SW020</b>	Riversfield Estate SWO (Network)	SWO	187687, 73025	Owennacurra Estuary
<b>SW021</b>	Drury's Avenue SWO (Network)	SWO	188346, 73332	Dungourney_020
<b>SW022</b>	Ballinacurra No.1 Pumping Station	EO	188366, 71791	Owennacurra Estuary

\*Discharges SW009 = SW001, SW003 & SW004 are currently licensed under D0044-01

\*\*Discharges currently licensed under D0056-01. SW001 = SW01MIDL, SW010 = SW03MIDL; SW011 = SW04MIDL; SW012 = SW05MIDL & SW014 = SW07MIDL.

*Note – Any changes to coordinates from original D0044-01 & D0056 licences are a result of increased accuracy to the discharge locations.*

There will be 19 no. overflows within the agglomeration. 6 no. associated with the Carrigtwohill Functional area, and 13 no. associated with the Midleton Functional area.

The 3 no. overflows in the Midleton Functional Area (*i.e.*, SW010 - Bailick No. 1 Pumping Station, SW011 - Bailick No. 2 Pumping Station, and SW020 - Riversfield Estate Network SWO) not meeting the DoEHLG criteria will be upgraded as part of the Midleton Waste Water Network Upgrade Project due for completion by Q4 2029. Therefore, the infrastructure relating to this Project is not included in this WWDA review application.

The receiving waters of the operational discharges are outlined in **Table A.1.3** above.

Refer to **Attachment B.2.2: Map 5, Map 6, Map 7, and Map 8** for the location of the proposed discharges.

### **3. Description of the wastewater works and associated waste water treatment plant**

#### **Works as per D0056-01 (Midleton)**

The WwTP is located at NGR 187505E, 72801N and has a design capacity of 15,000 p.e, following an upgrade to the plant in 2012. The current organic loading (peak weekly load) is 16,652 p.e. (Source: 2022 AER), and therefore the plant is currently organically overloaded.

The current WwTP provides secondary treatment using extended aeration followed by clarification, and tertiary treatment *via* UV disinfection of the final effluent.

Treated effluent from the WwTP discharges to the North Channel Great Island transitional waterbody at Rathcoursey Point *via* a diffuser after passing through Rathcoursey Tidal Holding Tank at NGR 186177E, 69506N.

There are 22 no. Pumping Stations on the network. 8 no. Pumping Stations have associated Dual Function Overflows and 3 no. have EOs. The remaining 11 no. Pumping Stations have no overflows associated with them.

Details of all overflows associated with the current works are provided in **Section 2** above.

#### **Works as per D0044-01 (Carrigtwohill)**

The WwTP is located at NGR 181177E, 72228N and was originally built in 1978, with a design of 5,000 p.e. In June 2016, a new WwTP was commissioned which increased the WwTP capacity to 30,000 p.e. The current organic loading (peak weekly load) is 8,654 p.e. (Source: 2022 AER) and therefore, the plant is not organically overloaded and has a large amount of remaining capacity.

The current WwTP provides tertiary N and P removal. The treatment process is Nerada (Aerobic Granular Sludge process) which provides for N and P removal. A backup chemical dosing system is also provided for P removal.

There are currently 4 no. Pumping Stations on the network that convey flows from the agglomeration to the WwTP. 3 no. Pumping Stations have associated Dual Function Overflows (*i.e.*, Barryscourt Pumping Station, Old Cobh Road Pumping Station, and the IDA Pumping Station (No.1)). Bog Road Pumping Station does not have an overflow.

Details of all overflows associated with the current works are provided in **Section 2** above.

### **Works as per Subject Matter of Licence Review**

As discussed in **Section 1**, the primary driver for this licence review is to account for the current Industrial connection P1103-01 to the final outfall at Rathcoursey Point, downstream of the Midleton WwTP.

To accommodate the proposed diversion of wastewater loads from the Midleton agglomeration to the existing Carrigtwohill WwTP, it is proposed that two new Pumping Stations, and approximately 7km of rising main will be delivered, as discussed in **Section 1**. Refer to **Attachment B.8**. for full details on these projects.

Under this WWDL review, the scope includes for the diversion of waste water loads from the Midleton agglomeration to the existing Carrigtwohill and Environs WwTP (Design Capacity: 30,000 p.e.) and the amalgamation of the Carrigtwohill and Environs agglomeration into the Midleton licence (D0056), thereby leading to the surrender of the Carrigtwohill licence (D0044-01). The total design p.e. of 48,750 is a combination of the design p.e for Carrigtwohill and Midleton WwTP and Industrial Emission (IE) discharges downstream of the Midleton WwTP. There are no construction works associated with the existing primary, secondary, or overflows in the Midleton or Carrigtwohill functional areas. However, as outlined in **Section 2**, additional overflows from the Carrigtwohill and Midleton WwTWS will be regularised as part of the D0056-01 WWDL review.

The treated effluent from the primary (SW009) and secondary discharge (SW001) locations will remain as per D0044-01 and D0056-01 *i.e.*, they will continue to discharge the locations as described in **Table A.1.3**.

The proposed ELVs for the primary and secondary discharges are listed in **Table A.1.4** and **Table A.1.5** below. It should be noted that proposed changes to ELVs include replacing TON and NH<sub>3</sub> ELVs with DIN for Carrigtwohill, and a change to the pH range for Midleton. These changes are deemed necessary to support the water quality objectives of the receiving waterbodies. The European Communities Environmental Objective (Surface Waters) Regulations 2009 (as amended) set DIN standard depending on the salinity of the coastal water body. The Surface Water Regulations do not set EQSs for Ammonia or TON in Coastal Waters or Transitional waters. While it is acknowledged the receiving waters are Transitional, if the Agency require ELVs for Nitrogen, it is proposed that DIN is the stipulated ELV instead of TON and NH<sub>3</sub>.

**Table A.1.4 Proposed Primary Discharge (SW009) ELVs for Carrigtwohill**

<b>Parameter</b>	<b>Emission Limit Value</b>
BOD	25 mg/l
COD	125 mg/l
Suspended Solids	35 mg/l
Total Phosphorous (as P)	1 mg/l
DIN	25 mg/l
Ortho-P (as P)	0.5 mg/l
pH	6 - 9

**Table A.1.5 Proposed Secondary Discharge (SW001) ELVs for Midleton**

<b>Parameter</b>	<b>Emission Limit Value</b>
BOD	25 mg/l

Parameter	Emission Limit Value
COD	125 mg/l
Suspended Solids	35 mg/l
Total Nitrogen (as N)	15 mg/l
Ortho-P (as P)	2 mg/l
E.Coli	GM ≤250 ec/100mls & 95%ile ≤ 1000ec/100mls
pH	6 - 9

The proposed effluent standards above give effect to the principle of the Combined Approach as defined European Union (Waste Water Discharge) Regulations 2007-2020 (as amended) in that they accommodate the Urban Waste Water Regulations, and the status and objectives of the receiving waterbodies. The design of the WwTPs are greater than 15,000 p.e and therefore in line Article 4 of the Urban Waste Water Treatment Directive (UWWTD), "Member States shall ensure that urban waste water entering a collecting system shall before discharge be subject to secondary treatment or an equivalent treatment [...] for all discharges from agglomerations of more than 15,000 pe". In line with the above, Carrigtwohill WwTP provides tertiary treatment with N & P removal, and Midleton WwTP provides tertiary treatment with N removal.

As the secondary discharge (SW009) is a combined outfall and discharges treated effluent from Midleton WwTP, and Industries P0442-02 and P1103-01, ELVs will continue to apply directly at Midleton WwTP to comply with the UWWTD requirements as tabled below:

**Table A.1.6 Proposed ELVs at Midleton WwTP to meet UWWTD:**

Parameter	Emission Limit Value at WwTP
BOD	25 mg/l
COD	125 mg/l
Suspended Solids	35 mg/l
Total Nitrogen (as N)	15 mg/l

Details of the overflows, which are the subject matter of this WWDL review, are provided in **Section 2** above.

Refer to **Attachment B.8** for details on the following Projects which relate to this WWDA review:

- Midleton Waste Water Load Diversion Project, including;
  - Midleton North Pumping Station and Network
  - Water Rock Pumping Station
  - Water Rock Pipeline to Carrigtwohill

**4. Description of the features and measures, if any, envisaged to avoid, prevent, or reduce and, if possible, offset the significant adverse effects on the environment**

Uisce Éireann is committed to ensuring that water services infrastructure operates in a manner that supports the achievement of the water body objectives under the Water Framework Directive (WFD), and their obligations under the Birds and Habitats Directives.

The amalgamated Carrigtwohill and Midleton agglomerations will cater for a hydraulic and biological load of 48,750 p.e. The Carrigtwohill WwTP provides secondary treatment, nutrient removal, and tertiary treatment (Nereda process). The Midleton WwTP provides



tertiary treatment and advanced treatment by UV disinfection of the final effluent. This will ensure that treated effluent discharges do not have a significant adverse effect on the receiving aquatic environment, and that all relevant legislative requirements are complied with.

Measures to prevent deleterious discharges from the amalgamated agglomeration include, 13 no. of compliant overflows as per criteria as set out in the DoEHLG, provision of Storm water storage at Carrigtwohill WwTP, alarms at both WwTP which are linked to SCADA with immediate notification to operators, backup permanent generators at both WwTPs, standby generators and connection points to temporary mobile generators at Pumping Stations, standby pumps including (RAS)/waste activated sludge (WAS) pumps at both WwTPs, and standby pumps is also available at a number of Pumping Stations with auto-change over of pumps where applicable.

Refer also to **Section C.2** for further details of the proposed robust measures to prevent any unintended discharges to the receiving waters.

#### **5. The proposed technology and other techniques for preventing or, where this is not possible, reducing discharges from the wastewater works**

Refer to **Section C.2** and **Point 4** above for details of the proposed measures to prevent any unintended discharges to the receiving waterbodies.

#### **6. Description of the receiving waterbody**

The operational discharges from the proposed amalgamated agglomeration discharge to six different receiving waterbodies, which are listed in **Table A.1.3** above.

Each of these waterbodies are part of the Lee, Cork Harbour, and Youghal Bay Catchment area (Hydrometric Area 19). This catchment area includes the area drained by the River Lee and all streams entering tidal water in Cork Harbour and Youghal Bay and between Knockaverry and Templebreedy Battery, Co. Cork, draining a total area of 2,153km<sup>2</sup>.

The draft 3<sup>rd</sup> cycle Catchment Report (2021) for this hydrometric area, determined that for river waterbodies the main significant issues include morphological issues, nutrient pollution, organic pollution, hydrological issues, and sediment. For transitional waterbodies the significant issues include nutrient and organic pollution. Excess nutrients followed by morphological issues are the most prevalent issue for all waterbodies within the Lee, Cork harbour, and Youghal Bay Catchment. Midleton (D0056) and Carrigtwohill (D0044) agglomerations are mentioned in the Catchment Report as significant pressures to their receiving waterbodies. However, in the draft 3<sup>rd</sup> cycle catchment assessment, it is noted that upgrades to both agglomerations are included in UÉ Capital Investment Programme. Midleton is listed as an area for action under the 3<sup>rd</sup> cycle as an area for action and is classified for Restoration, including for 4 no. waterbodies.

The WFD Status for the receiving waters of the primary discharge, SW005 and SW008, Lough Mahon (Harper’s Island) is Moderate (2016-2021) and At Risk. Significant pressures for Lough Mahon (Harper’s Island) have been determined, within the draft 3<sup>rd</sup> Cycle Catchment Report, as Urban Runoff and Urban Wastewater. The Trophic Status of Lough Mahon (Harper’s Island) is Intermediate based on water quality from 2018-2020.

The WFD status for the receiving waters of the secondary discharge, North Channel Great Island is Moderate (2016-2021) and At Risk. Agriculture was determined as the only significant pressures for the North Channel Great Island. The Trophic Status of North Channel Great Island is Intermediate based on water quality from 2018-2020.

5 no. overflows discharge to the Owennacurra Estuary. The WFD Status for the Owennacurra Estuary is Moderate (2016-2021) and At Risk. The significant pressures identified within the 3<sup>rd</sup> Cycle Draft Catchment Report for the Owennacurra Estuary are Industry, Urban Runoff and Urban Wastewater. The Trophic Status (2018-2020) of the Owennacurra Estuary is Potentially Eutrophic.

There are 4 no. operational discharges discharging to the Tibbotstown\_010 River. The WFD status is Good (2016-2021) and the WFD Risk Status is Under Review. There were no significant pressures identified in the 3<sup>rd</sup> Cycle Draft Catchment Report.

There are 6 no. operational discharges discharging to the Dungourney\_020. The WFD status is Poor (2016-2021) and At Risk. The significant pressures identified within the 3<sup>rd</sup> Cycle Draft Catchment Report for the Dungourney\_020 were Agriculture and Industry.

There is 1 no. operational overflow discharging to the Owennacurra\_040 River. The WFD status is Moderate (2016-2021) and At Risk. The only significant pressure identified for this waterbody within the 3<sup>rd</sup> Cycle Draft Catchment Report was Urban Runoff.

Based on UÉ Compliance Data from 2020 - 2022 at Station TW05003153LE6001, which is ca. 4.3km d/s of the proposed primary discharge location, the 95<sup>th</sup>ile concentration for BOD and Dissolved Oxygen (DO) (Sat%) were within the required EQSs for Good status (95<sup>th</sup>ile). The Compliance Data also shows that MRP is not within the required Mean EQS for Good Status.

Based on UÉ Compliance Data collected from TW05003153LE6005 ca. 0.9km u/s of the proposed secondary discharge, the 95<sup>th</sup>ile concentrations for BOD were within the required EQSs for Good Status (95<sup>th</sup>ile), the results were not within the required 95<sup>th</sup>ile EQS for DO (Sat%). MRP is within the required Mean EQS for Good Status at this location.

The UÉ Compliance Data collected from at TW05003153LE6006 ca. 1km d/s show that the 95<sup>th</sup>ile concentration for BOD and DO (Sat%) were within the required EQSs for Good Status (95<sup>th</sup>ile). The Compliance Data also shows that MRP is also within the required Mean EQS for Good Status at this location.

Based on the UÉ Compliance Data for Mar 2020 – Oct 2022 at the primary ambient monitoring location, and Feb 2020 – Aug 2022 Compliance Data at the secondary discharge ambient monitoring locations, it is observed that the operational discharges do not appear to be having an observable negative impact on the WFD status of Lough Mahon (Harper’s Island) and the North Channel Great Island transitional waterbodies.

There are no Fresh Water Pearl Mussel (FWPM) designated waterbodies in the vicinity of the operational discharges. There are also no designated Salmonid River waterbodies upstream or downstream of the receiving waters.

The Tibbotstown\_010 and the Owennacurra\_040 Rivers are designated Drinking Water Rivers. The drinking water abstraction points from the Tibbotstown and the Owennacurra Rivers are upstream of the operational discharges and therefore do not pose a risk to drinking water supplies.

The Owennacurra Estuary / North Channel and Lee Estuary / Lough Mahon are designated as ‘sensitive’ under the Urban Treatment Regulations 2001 (as amended). The primary discharge enters directly into the Lee Estuary / Lough Mahon Nutrient Sensitive Area. The secondary discharge enters directly into the Owennacurra Estuary / North Channel Nutrient Sensitive Area. For the Owennacurra Estuary / North Channel, N is the limiting nutrient and for the Lee Estuary / Lough Mahon, P is the limiting nutrient. Based on these

designations, along with the fact that the p.e of the agglomeration is greater than 10,000, the existing TN ELV at Midleton WwTP of 15mg/l and the existing TP ELV of 1mg/l at Carrigtwohill WwTP are proposed to be maintained.

Carrigtwohill WwTP primary discharge discharges *ca.* 2 km from the boundary of the Great Island North Channel designated shellfish waters, and *ca.* 8 km from the boundary of the Rostellan designated shellfish waters. The Midleton WwTP secondary discharge discharges *ca.* 1.5 km from the boundary of the Great Island North Channel designated shellfish waters, and *ca.* 3 km from the boundary of the Rostellan designated shellfish waters. A Water Quality Modelling Assessment is currently being prepared to determine the potential impact of the Carrigtwohill and Midleton proposed primary and secondary discharges on the receiving water environment, including Designated Shellfish Waters.

The Primary Discharge from the Carrigtwohill WwTP (SW001) discharges directly to the Great Island Channel SAC and the Cork Harbour SPA. The Secondary Discharge (SW009) from Midleton WwTP (SW009) discharges into the immediate zone of influence of the Great Island Channel Special Area of Conservation (SAC) and the Cork Harbour Special Protection Area (SPA).

The Great Island Channel SAC (Site Code: 001058) is protected for habitats and/or species listed in Annex I/II of the E.U. Habitats Directive, they include:

- [1140] Tidal Mudflats and Sandflats, and [1330] Atlantic Salt Meadows.

The Cork Harbour SPA (Site Code: 004030) is designated under the E.U. Birds Directive of special conservation interest.

The proposed primary discharge discharges directly into the Great Island Channel pNHA. The pNHAs within the surrounding environment and which have a hydrological connection to the primary discharge include:

- The Douglas River Estuary pNHA (Site Code: 001046) *ca.* 5.5km downstream;
- Monkstown Creek pNHA (Site Code: 001979) *ca.* 8km downstream;
- Lough Beg pNHA (Site Code: 001066) *ca.* 12km downstream;
- Cuskinny Marsh pNHA (Site Code: 001987) 13km downstream;
- Whitegate Bay pNHA (Site Code: 001084) *ca.* 14km downstream.

The proposed secondary discharge discharges into the immediate zone of influence of Great Island Channel pNHA. The pNHAs within the surrounding environment and which have a hydrological connection to the secondary discharge include:

- Rostellan Lough, Aghada Shore and Poul nabibe Inlet pNHA *ca.* 2.3km downstream;
- Cuskinny Marsh pNHA (Site Code: 001076) *ca.* 6.2km downstream;
- Whitegate Bay pNHA *ca.* 5.7km downstream;
- Lough Beg pNHA *ca.* 9.9km downstream.
- Monkstown Creek pNHA *ca.* 12km downstream;
- Owenboy River pNHA (Site Code: 001990) *ca.* 13km downstream.

Upon completion, a copy of **Attachment B.5** Environmental Impact Assessment Report and Water Framework Directive (WFD) Screening Assessment Report, **Attachment D.2.2** combined Appropriate Assessment (AA) Screening Report & Natura Impact Statement, and **Attachment D.2.3** Water Quality Modelling Report will be forwarded to the Agency to inform this WWDL Review Application.

## 7. Description of the likely significant effects of the discharges on the environment

A Water Quality Modelling Report is currently being prepared to determine the potential impact of the future operating conditions of the Uisce Éireann and Industrial discharges from the proposed amalgamated agglomeration on the receiving aquatic environment.

As mentioned above, upon completion, the results of the Water Quality Modelling (**Attachment D.2.3**) along with **Attachment B.5** Environmental Impact Assessment Report and Water Framework Directive (WFD) Screening Assessment Report, and **Attachment D.2.2** combined Appropriate Assessment (AA) Screening Report & Natura Impact Statement will be forwarded to the Agency.

## 8. Measures planned to monitor discharges into the environment

### Effluent Monitoring:

It is proposed that effluent from the Carrigtwohill WwTP and the Midleton WwTP will be sampled and analysed (using the standard method of analysis) as follows:

**Table A.1.7** – Proposed Primary Discharge Effluent Monitoring Regime for Carrigtwohill SW001

Parameter	Units	Monitoring Frequency	Analysis Method/Technique
pH	pH Units	Monthly	pH Meter and recorder
cBOD	mg/l	Monthly	Standard Method
COD	mg/l	Monthly	Standard Method
Suspended Solids	mg/l	Monthly	Standard Method
Ortho-Phosphate (as P)	mg/l	Monthly	Standard Method
Total Phosphorous	mg/l	Monthly	Standard Method
DIN	mg/l	Monthly	Standard Method
Visual Inspection	Descriptive	Monthly	Standard Method
Temperature	°C	Monthly	Temperature probe
Flow	m <sup>3</sup> /24 hours	Continuous	On-line flow meter with recorder
Enterococci (Intestinal)	cfu/100ml	Biannually	Standard Method
E. Coli	cfu/100ml	Biannually	Standard Method

**Table A.1.8** – Proposed Secondary Discharge Effluent Monitoring Regime for Midleton SW009 (final discharge)

Parameter	Units	Monitoring Frequency	Analysis Method/Technique
pH	pH Units	Monthly	pH electrode/meter and recorder
cBOD	mg/l	Monthly	Standard Method
COD	mg/l	Monthly	Standard Method
Suspended Solids	mg/l	Monthly	Standard Method

Parameter	Units	Monitoring Frequency	Analysis Method/Technique
Ortho-Phosphate (as P)	mg/l	Monthly	Standard Method
E.Coli	no./100mls	Biannually	Standard Method
Total Nitrogen	mg/l	Monthly	Standard Method
Visual Inspection	Descriptive	Monthly	Sample and examine for colour, odour, and petroleum hydrocarbon film
Flow	m <sup>3</sup> /24 hours	Continuous	On-line flow meter with recorder
Temperature	°C	Monthly	Temperature probe

**Table A.1.9** – Proposed Secondary Discharge Effluent Monitoring Regime at Midleton Midleton WwTP to comply with UWWTD requirements (SW100).

Parameter	Units	Monitoring Frequency	Analysis Method/Technique
cBOD	mg/l	Monthly	Standard Method
COD	mg/l	Monthly	Standard Method
Suspended Solids	mg/l	Monthly	Standard Method
Total Nitrogen	mg/l	Monthly	Standard Method

**Ambient Monitoring:**

The proposed monitoring parameters to be monitored are tabled below:

**Table A.1.9** – Proposed Primary Discharge Ambient Monitoring Regime for Carrigwohill

Parameter	Units	Monitoring Frequency	Analysis method/Technique
pH	pH Unit	Quarterly	pH Meter and recorder
Dissolved Oxygen	% O <sub>2</sub>	Quarterly	Standard Method
BOD	mg/l	Quarterly	Standard Method
COD	mg/l	Quarterly	Standard Method
Suspended Solids	mg/l	Quarterly	Standard Method
Temperature	°C	Quarterly	Standard Method
Orthophosphate (as P)	mg/l	Quarterly	Standard Method
Total Ammonia	mg/l	Quarterly	Standard Method
Faecal Coliforms	cfu/100ml	Quarterly	Standard Method
Escherichia coli	cfu/100ml	Quarterly	Standard Method
Intestinal Enterococci	cfu/100ml	Quarterly	Standard Method
Total Phosphorus (as P)	mg/l	Quarterly	Standard Method
Total Oxidised Nitrogen (as N)	mg/l	Quarterly	Standard Method

**Table A.1.10** – Proposed Secondary Discharge Ambient Monitoring Regime for Midleton

Parameter	Units	Monitoring Frequency	Analysis method/Technique
pH	pH Unit	Quarterly	pH Meter and recorder

Parameter	Units	Monitoring Frequency	Analysis method/Technique
Dissolved Oxygen	% O <sub>2</sub>	Quarterly	Standard Method
BOD	mg/l	Quarterly	Standard Method
COD	mg/l	Quarterly	Standard Method
Suspended Solids	mg/l	Quarterly	Standard Method
Temperature	°C	Quarterly	Standard Method
Orthophosphate (as P)	mg/l	Quarterly	Standard Method
Total Nitrogen (as N)	mg/l	Quarterly	Standard Method
Faecal Coliforms	cfu/100ml	Quarterly	Standard Method
Total Oxidised Nitrogen (as N)	mg/l	Quarterly	Standard Method
Total Ammonia (as N)	mg/l	Quarterly	Standard Method
<i>Escherichia coli</i>	cfu/100ml	Quarterly	Standard Method
Intestinal Enterococci	cfu/100ml	Quarterly	Standard Method

### 9. Hours during which the wastewater works is supervised or manned and days per week of this supervision

Both WwTPs run automatically and are linked to SCADA with alarms sent to operators in the result of an emergency event. The WwTP's are manned sites during the hours of 08:00 and 16:30 Monday to Thursday and 08:00 to 16:00 on Fridays with 24 hour call out response where the amount of time spent on site will depend on various factors *e.g.*, weather or breakdowns in plant or maintenance works required such as cleaning of the intake screens *etc.*

### 10. In the event of a review application, state the grounds for which this review application is being made

Uisce Éireann are submitting this licence review of the existing Waste Water Discharge Licence (WWDL) (Reg No. D0056-01) for the Midleton Agglomeration in accordance with Regulation 14(1)(b) of the European Union (Waste Water Discharge) Regulations 2007-2020 (as amended) to the Environmental Protection Agency (EPA).

This review includes for the amalgamation of the Carrigtwohill agglomeration into the above licence, thereby giving an agglomeration with a total design p.e. of 48,750. This p.e. is a combination of the design p.e. for Carrigtwohill Wastewater Treatment Plant (WwTP), Midleton WwTP, and Industrial Emission (IE) discharges downstream of the Midleton WwTP.

The reasons for the review of the Midleton licence (D0056-01) are due to:

1. Industrial connection (P1103-01) into the UÉ network downstream of the Midleton WwTP
2. The amalgamation of Carrigtwohill and Environs licence into the Midleton licence, thereby resulting in an increase in PE over that which is authorised in the Midleton Licence

3. Change to Emission Limit Values (ELVs) (e.g, replacing TON and NH3 ELVs with DIN for Carrigwohill and pH range change for Middleton) deemed necessary to support the water quality objectives of the receiving waterbodies.

Some relevant changes to the Middleton Licence as a result of this review include:

4. The regularisation of a number of additional overflows
5. Agglomeration boundary changes
6. Change to the Carrigwohill downstream ambient monitoring station.

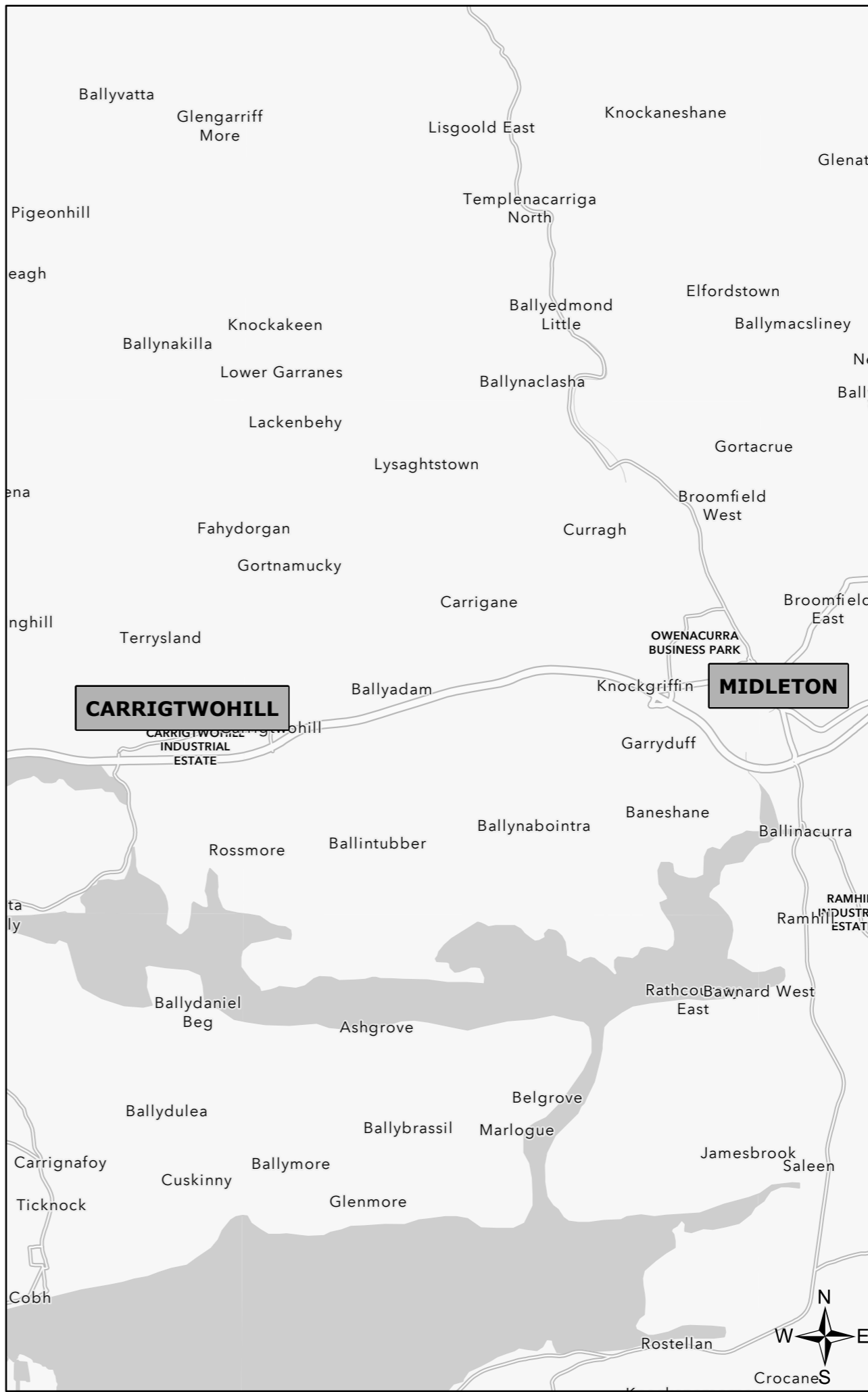


**ATTACHMENT A.1.2:**  
**MAP 1 – AREA OF INTEREST**





MIDLETON - CARRIGTWOHILL LOCATION MAP - 1:100,000



MIDLETON - CARRIGTWOHILL LOCATION PLAN - 1:60,000

NOTES:  
Human Geography Detail: Esri UK, Esri, HERE, Garmin, Forequest, GeoTechnologies, Inc, METNADA, USGS  
 Human Geography Label: Esri UK, Esri, HERE, Garmin, Forequest, GeoTechnologies, Inc, METNADA, USGS  
 Geographic Map Data: Esri, DeLorme, GeoEye, Microsoft, Swire, IGN, Intermap, Inc, Swire, Esri, Community Maps contributors, Map layer by Esri  
 Human Geography Base: Esri UK, Esri, HERE, Garmin, Forequest, GeoTechnologies, Inc, METNADA, USGS

SIGNED: \_\_\_\_\_

PRINT NAME: \_\_\_\_\_

POSITION: \_\_\_\_\_

DATE: \_\_\_\_\_

FOR UISCE ÉIREANN

Rev	Date	Description	Drn	Chk	App

**LICENCE APPLICATION**

CLIENT: **UISCE ÉIREANN**  
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 24-26 Talbot Street,  
 Dublin 1  
 Tel. 1890 278 278 Web. www.water.ie

PROJECT: **MIDLETON  
 WASTE WATER DISCHARGE  
 LICENCE REVIEW APPLICATION**

TITLE: **MAP 1  
 AREA OF INTEREST**

SCALE: AS SHOWN      DRAWN: R. Clarke  
 DATE: 13/06/2023

ATTACHMENT: **A.1.2**