














ATTACHMENT D.1:

MAP 8 - RECEIVING WATER DESIGNATIONS



Map 8 - Receiving Water Designations

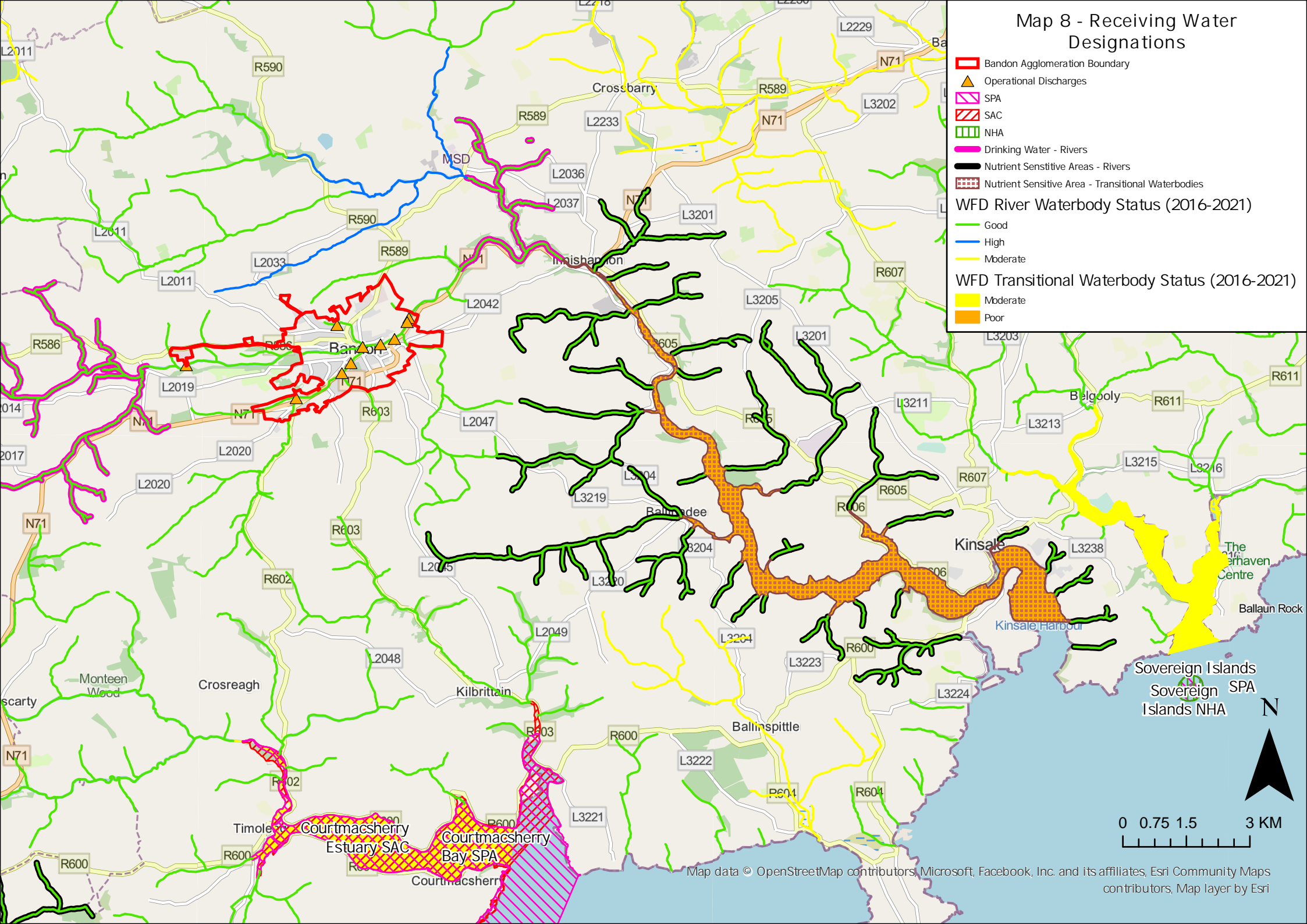
-  Bandon Agglomeration Boundary
-  Operational Discharges
-  SPA
-  SAC
-  NHA
-  Drinking Water - Rivers
-  Nutrient Sensitive Areas - Rivers
-  Nutrient Sensitive Area - Transitional Waterbodies

WFD River Waterbody Status (2016-2021)

-  Good
-  High
-  Moderate

WFD Transitional Waterbody Status (2016-2021)

-  Moderate
-  Poor





ATTACHMENT D.2:

**ASSESSMENT OF IMPACT ON RECEIVING
WATERS**



ATTACHMENT D.2.1:

IMPACT ASSESSMENT REPORT

DECEMBER 2022

ATTACHMENT D.2.1: IMPACT ASSESSMENT REPORT

1. Introduction

This Report provides a summary of the Impact Assessments prepared to determine the impact of the discharges from the Bandon agglomeration on the receiving waterbody, the River Bandon, and associated downstream receptors, and also addresses the criteria as outlined in **Section D.2** of the EPA guidance document.

2. Water Environment

The Bandon WwTP primary discharge (SW001) and eight overflows (SW002, SW004, SW008, SW014, SW016, SW018, SW019 and SW020) discharge to the River Bandon (Bandon_090). SW012 currently discharges to the Bandon_090 but this overflow will be decommissioned by end of Q1 2023. One overflow (SW017) discharges to the Bandon_080. Bandon_080 and Bandon_090 are within the Bandon Ilen catchment area (Hydrometric Area 20). This catchment includes the area drained by the Rivers Bandon and Ilen and all streams entering tidal water between Templebreedy Battery and Mizen Head, Co. Cork, draining a total area of 1,803km².

The draft 3rd cycle Catchment Report (2021) for this hydrometric area, determined that the main significant issues are impacts from nutrient pollution, followed by sediment, organic pollution and morphological impacts. The main significant pressures are agricultural pressures followed by urban waste water, forestry and hydromorphological pressures and urban run-off. The Bandon agglomeration combined sewer overflows are listed as a significant pressure in At Risk waterbodies (Bandon_090 and Bandon_100) in the draft 3rd cycle catchment assessment. However, in the draft 3rd cycle catchment assessment, the report makes note that the SWOs upgrades are included in Irish Water's Capital Investment Programme. The Bandon_090 is listed as an area for action under the 3rd cycle under the and is classified as an area for Restoration.

The reason for assigning the Bandon_090 as an area for action is reported as follows:

- Review status waterbody which is failing to meet its WFD objective. Level 1 abstraction catchment.
- Builds on existing work of Cork County Council.
- Potential pressures from Bandon WwTP, & AIBP Bandon discharge, major flood relief works, intensive dairy & tillage catchment.

Based on 2016-2021 data, the WFD status of the Bandon_080 is Good. The WFD status of the Bandon_090 is Good and the risk status is 'At Risk'. No significant pressures for the Bandon_080 were identified. Significant pressures for the Bandon_090 have been determined, within the draft 3rd cycle Catchment Report, as domestic waste water, unknown anthropogenic pressures, urban run-off and urban waste water. Further downstream, the Bandon_100 is also classified as Good status.

The EPA undertake biological monitoring of the River Bandon at various locations. Upstream of the WwTP at RS20B020800 (ca. 0.12 km upstream), the 2020 monitoring reported a Q value of 4 (Good). Downstream of the WwTP at RS20B020900 (ca. 5.3 km downstream), the 2020 monitoring reported a Q value of 4 (Good). The Q value at station RS20B020800 adjacent to Bandon WwTP has improved relative to the Q value of 3-4 achieved in 2018, indicating Moderate water quality conditions have improved to Good and consequently this was reflected in the recent status update.

Recent ambient monitoring data for the Bandon_090 and Bandon_100 is shown in the tables below.

Table D.2.1 - Ambient Monitoring – upstream monitoring results (Data Source: Catchments.ie, samples taken at RS20B020800 - Bandon_090 from Jan 2020 – May 2022)

Parameter	pH (pH Unit)	BOD (mg/l)	Ortho-phosphate (mg/l)	Total Ammonia (mg/l)	DO (mg/l)	DO (%sat)	Temp (°C)
Number of Samples	11	11	11	11	11	11	11
Max result	8.10	5.70	0.086	0.077	12.1	109	17.0
Min result	6.90	0.71	0.011	0.014	9.0	94	9.0
Average result	7.64	1.30	0.033	0.033	10.6	102	13.5
Mean EQS as per S.I. No. 288/2022*	6-9	≤1.5	≤ 0.035	≤0.065			
95%ile EQS as per S.I. No. 288/2022 Good Status *	6-9	≤2.6	≤ 0.075	≤0.14			
Overall compliance with relevant Mean EQS Good Status *	Yes	Yes	Yes	Yes			
Overall compliance with relevant 95%ile EQS Good Status *	Yes	Yes	Yes	Yes			

*EQS under S.I. No. 288 of 2022

Note: Where the concentration in the result is less than the limit of detection (LOD), a value of LOD/sqrt(2) was applied

Table D.2.2 - Ambient Monitoring – downstream monitoring results (Data Source: Catchments.ie, samples taken at RS20B020850 - Bandon_100 from Jan 2020 – June 2022)

Parameter	pH (pH Unit)	BOD (mg/l)	Ortho-phosphate (mg/l)	Total Ammonia (mg/l)	DO (%sat)	Temp (°C)
Number of Samples	15	15	15	15	15	15
Max result	8.60	6.20	0.707	0.197	131	19.8
Min result	7.30	0.71	0.016	0.005	10	7.1
Average result	7.78	1.89	0.074	0.036	98	12.4
Mean EQS as per S.I. No.	6-9	≤1.5	≤ 0.035	≤0.065		

Parameter	pH (pH Unit)	BOD (mg/l)	Ortho- phosphate (mg/l)	Total Ammonia (mg/l)	DO (%sat)	Temp (°C)
288/2022 Good Status *						
95%ile EQS as per S.I. No. 288/2022 Good Status *	6-9	≤2.6	≤ 0.075	≤0.14		
Overall compliance with relevant Mean EQS Good Status *	Yes	No	No	Yes		
Overall compliance with relevant 95%ile EQS Good Status *	Yes	Yes	Yes	Yes		

*EQS under S.I. No. 288 of 2022

Note: Where the concentration in the result is less than the limit of detection (LOD), a value of LOD/sqrt(2) was applied

For the time period between January 2020 – May 2022 the mean concentrations of Ortho-P, BOD and Ammonia at upstream RS20B020800 station were within the required EQSs for Good status (mean and 95%ile). For the time period of January 2020 – June 2022 the mean concentrations of Ammonia at downstream RS20B020850 station were within the required EQSs for Good status (mean and 95%ile). In terms of BOD and Ortho-P at RS20B020850, the EQSs for Good status (mean) were not met. However, the EQSs for Good status (95%ile) were met.

There is a drinking water abstraction point at Innishannon located ca. 4.5km downstream of the primary discharge point. A Drinking Water Risk Assessment was carried out by Irish Water and was included in the 2015 AER, and it was determined that the overall risk of the WwTP on the Drinking Abstraction is classified as Low Risk. It is considered based on the Bandon WwTP and Glasslinn Road Pumping Station Upgrade which was completed to improve the treatment processes at the WwTP, thereby resulting in an improved effluent discharge quality, along with the removal of 10 no. SWOs from the agglomeration by the end of Q1 2023, and the assimilative capacity in the receiving waters, that the overall risk of the upgraded WwTP to this Drinking Abstraction remains as a Low Risk, even based on the WwTPs increased loadings.

The Bandon Estuary Upper which lies ca. 5km downstream of the primary discharge point is designated as nutrient sensitive area (P limited) in accordance with the Urban Waste Water Treatment (UWWT) Directive 91/271/EEC on Urban Waste Water Treatment and S.I. No. 254 of 2001, S.I. No. 440 of 2004 and S.I. No. 48 of 2010. The River Bandon is not listed as Sensitive in Parts 1 and 2 of the Urban Wastewater Treatment Regulations. However, based on the distance of the Bandon Estuary Upper downstream of the agglomeration, along with the fact that the p.e. of the agglomeration is greater than 10,000, a TP ELV of 2mg/l is proposed. It should be noted however that this downstream estuary waterbody is not TN limiting as per the EPA's Urban Waste Water Treatment

Directive (UWWTD) (91/271/EEC) Article 5 Report (2020) and therefore a TN ELV is not required.

Kinsale shellfish area is located *ca.* 18 km downstream of the primary discharge point. However, it is considered that there is no significant risk to this shellfish area due to the assimilative capacity of the river and the nature of the operational discharges from the agglomeration.

The River Bandon is not a designated salmonid waterbody. However, the River Bandon is important for fishing and is primarily a salmon and sea trout river but also has resident brown trout and there are a number of angling associations in the area. The completion of the upgrade works at the WwTP, and the completion of the ongoing Bandon Watermain & Sewer Network Project will contribute towards compliance with the European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended, and will assist in the efforts to maintain the Good WFD Status of the waterbody. This will provide a high level of protection to the River Bandon and the salmon contained therein.

The River Bandon downstream of the agglomeration is not a designated Freshwater Pearl Mussel (FWPM) catchment under the European Communities Environmental Objectives (Freshwater Pearl Mussel) Regulations (2009), as amended. ELVs were set in Schedule A of D0136-01 to meet 'Good' status in the European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended for BOD, Ortho-phosphate and Ammonia. These ELVs were set by the EPA following consultation with the National Parks & Wildlife Service (NPWS), on the basis that this part of the River Bandon is not a suitable habitat for FWPM. It should be noted however that FWPM are known from the Bandon River SAC further upstream of the agglomeration and there may be *ex-situ* populations downstream of the SAC, but upstream of Bandon. Connectivity to the operational discharges is indirectly established to the Bandon River SAC FWPM population due to the role salmonid species play in the FWPM life cycle.

There are no pNHAs in the immediate vicinity of the operational discharges. The nearest pNHAs in the vicinity of the operational discharges are the Bandon Valley above Inishannon which extends from *ca.* 1.3km downstream of the primary discharge point for *ca.* 5km and Bandon Valley West of Bandon pNHA which extends from *ca.* 3km upstream of the primary discharge point for *ca.* 3km.

The Bandon River SAC (*ca.* 29km upstream of primary discharge) is potentially within the zone of influence of the Bandon discharges, due to the fact that migratory salmonid species using or transiting through the river in Bandon are a key element of the life cycle of the FWPM population upstream. In addition, due to their mobile nature and potential to use the River Bandon on an *ex-situ* basis, qualifying waterbird species of the Courtmacsherry Bay SPA (*ca.* 10km south of primary discharge), Clonakilty Bay SPA (*ca.* 16km southwest of primary discharge) and Sovereign Islands SPA (*ca.* 29km downstream of primary discharge) are potentially within the zone of influence of the Bandon discharges.

A Waste Assimilative Capacity (WAC) calculation based on the proposed primary discharge ELVs at DWF for 14,456 p.e was completed in 2022 to inform this WWDA review application in order to ensure that the ELVs as per D0136-01 were fit for purpose based on the latest data available (see **Section 3** below). It was concluded, based on latest available background data, that a more onerous Ortho-P ELV of 1.6mg/l was required in order to meet the Good-status 95%ile EQS downstream of the primary discharge. The current ELVs for both Ammonia and BOD were considered appropriate to ensure compliance with the

Good status standards set in European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended. The Ammonia and BOD ELVs as per D0136-01 and the proposed revised Ortho-P ELV take account of the sensitivity of the receiving River Bandon.

Refer to **Attachment B.5** for a copy of the Environmental Impact Assessment Report and **Attachment D.2.2** for a copy of the combined AA Screening & Natura Impact Statement Report for further details on the receiving environment.

In summary, the upgrade works to the Bandon WwTP and associated effluent discharge standards, the decommissioning of 10 no. SWOs, along with the operational design of the overflows will ensure compliance with the European Communities Environmental Objectives (Surface Water) Regulations, 2009, as amended, and will assist the receiving waterbody in maintaining its Good WFD Status.

3. Waste Assimilative Capacity Calculations

A WAC analysis has been carried out on the receiving waterbody, the Bandon_090 on the basis of the proposed ELVs, design p.e of 14,456 and the most recent available upstream ambient monitoring data for RS20B020800.

The calculations were based on the EPA adopted approach utilising the DWF from the treatment plant based on 14,456 p.e., mass-balanced against 95%ile flows in the river. The calculations were performed using 2020 to 2022 mean background river water quality data from Station RS20B020800. The “*notionally clean river*” concentrations were also used for comparison purposed only. The long-term 95%ile flow for the relevant reach of the River Bandon, as obtained from the EPA Hydrometrics and Groundwater Section, is 1.570m³/sec.

The stated water body objective for the Bandon_090 is to maintain Good status, as defined by the standards specified in the Surface Waters Regulations and detailed in **Table D.2.3** below. BOD, Ammonia and Ortho-phosphate meet the specified standards for both the background water quality and notionally-clean scenarios.

Table D.2.3 – Assimilative Capacity Calculations

Parameter	Background		Proposed ELVs	Predicted D/S Concentration	Relevant Standards ^{Note 1}
	Actual				
BOD	Actual	1.304	25	1.750	95%ile: ≤2.6 (good)
	Notionally Clean	0.260		0.726	
Ortho-phosphate	Actual	0.033	1.6	0.063	95%ile: ≤0.075 (good)
	Notionally Clean	0.005		0.035	
Ammonia	Actual	0.033	3	0.089	95%ile: ≤0.14 (good)
	Notionally Clean	0.008		0.064	

Note 1: European Union Environmental Objectives (Surface Waters) (Amendment) Regulations (S.I. No. 288 of 2022) – 95%ile Good Status EQS.

Refer to **Attachment D.2.3** for the WAC calculations.

4. Appropriate Assessment

A combined Appropriate Assessment (AA) Screening and Natura Impact Statement (NIS) Report was prepared in December 2022 to accompany this WWDL review application. The Report will enable the EPA, as the Competent Authority, to conduct an AA Screening Determination and Stage 2 AA in respect of the Bandon agglomeration operational discharges, for the purposes of the European Union (Waste Water Discharge) Regulations 2007 to 2020.

The AA Screening of the operational discharges assessed whether the discharge activity, alone or in combination with other plans and projects, is likely to have significant effects on a European Site(s) in view of best scientific knowledge and the conservation objectives of the site(s). Based on the information set out in the AA Screening, and the documentation referenced therein, it was concluded that the likelihood of significant effects to the Bandon River SAC cannot be excluded, and a Stage Two AA was therefore provided.

The NIS was prepared following the EPA (2009) '*Note on Appropriate Assessments for the purposes of the Waste Water Discharge (Authorisation) Regulations, 2007 (S.I. No. 684 of 2007)*'. The Department of the Environment, Heritage and Local Government guidance '*Appropriate Assessment of Plans and Projects in Ireland. Guidance for Planning Authorities*' (DoEHLG, 2009) was also taken into account.

The NIS investigated the potential adverse effects on the aquatic qualifying interests of Bandon River SAC arising from the Bandon agglomeration operational discharges, in combination with other plans / projects affecting the aquatic environment. The assessment considered whether the discharges, alone or in combination with other projects or plans, could have adverse effects on the integrity of this European site.

The NIS concluded that the operational discharges from the Bandon agglomeration will not prevent the achievement of the conservation objectives of the qualifying interests of the Bandon River SAC and that there will be no adverse effects on the integrity of this SAC, or indeed any other European Site, in view of this sites conservation objectives, and that the conservation status of the Annex I habitats, Annex II species or Annex I bird species, will not be compromised by the agglomeration discharges either directly, indirectly or cumulatively.

It is therefore concluded that the Bandon agglomeration operational discharges, alone or in-combination with other plans and / or projects will not give rise to adverse effects on the integrity of the Bandon River SAC, or any other European Site.

Please refer to **Attachment D.2.2** for a copy the AA Screening and NIS Report (December 2022) prepared to inform this WWDL review process.

5. Environmental Impact Assessment

This WWDA application review is for a WwTP with a capacity of greater than 10,000 p.e. as defined in Article 2, point (6), of the Urban Waste Water Treatment Directive (*i.e.*, Bandon 14,456 p.e). Therefore, a mandatory EIA, and the preparation of an Environmental impact Assessment Report (EIAR) is required to inform the WWDA process.

The EIAR includes an assessment of the operational discharge from the agglomeration to the receiving water *i.e.*, River Bandon.

The approach adopted in this impact assessment, and the overall preparation of the EIAR, was based on the recommendations in the Guidelines on information to be contained in Environmental Impact Assessment Reports (EPA, 2022) and is in line with the EIA Directive 2014/52/EU, and indeed takes account of all current relevant guidance documents published at the time of preparing the EIAR. Due regard has also been taken of the scoping responses received during the EIA Scoping Process.

The EIAR concluded that the Bandon agglomeration operational discharges would not be likely to have significant effects on the environment.

The EIAR will enable the EPA, as the Competent Authority, to conduct an EIA in respect of the Bandon agglomeration operational discharges, for the purposes of the European Union (Waste Water Discharge) Regulations 2007 to 2020.

Please refer to **Attachment B.5** for a copy the Environmental impact Assessment Report (December 2022) prepared to inform this WWDL review process.

6. Priority Substance Assessment Report

An assessment of the potential for impacts on receiving waters from priority substances in the primary discharge has been carried out to inform this WWDL application. The assessment considered the primary discharge relevant to Environmental Quality Standards (EQS) for priority substances in surface waters, as set out in the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

It was concluded that after dilution none of the substances listed in the Specific Pollutants, Priority and Priority Hazardous Substances as outlined in the Surface Water Regulations, are likely to be present in the effluent discharge to the River Bandon, at concentrations above the specified standards as per European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

This Report is contained in **Attachment D.2.4**: Priority Substance Assessment Report, November 2022.

7. Shellfish Waters

There are no designated shellfish waters located downstream in the vicinity of the discharges. Kinsale shellfish area is located ca. 18 km downstream of the primary discharge point.

8. Bathing Waters

There are no designated bathing waters located downstream in the vicinity of the discharges.

9. River Flow Estimation

The 95%ile river flow estimation for the River Bandon is 1.57m³/s (Source: EPA Estimated 95%ile flow (up to 2018 data)).

10. Combined Approach

The Waste Water Discharge Authorisation under the European Union (Waste Water Discharge) Regulations 2007 to 2020, specify that a '*combined approach*' in relation to licensing of waste water works must be taken, whereby the emission limits for the discharge are established on the basis of the stricter of either or both, the limits and controls required under the Urban Waste Water Treatment Regulations, 2001, as amended, and the limits determined under statute or Directive for the purpose of achieving the environmental objectives established for surface waters, groundwater or protected areas for the water body into which the discharge is made.

The design of the WwTP is greater than 10,000 p.e. and is therefore in line with Article 4 of the directive, "*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 between 10,000 and 15,000 p.e.*". The upgraded WwTP provides for secondary treatment, with P removal in line with current licence requirements.

The effluent standards for the upgraded WwTP give effect to the principle of the Combined Approach as defined in Waste Water Discharge (Authorisation) Regulations, 2007 to 2020 in that they accommodate the Urban Waste Water Regulations and the relevant designations /status of the receiving waterbody, the River Bandon.

Further assessment may be required in order to determine any capital or operational requirements needed to ensure that the effluent discharges comply with any proposed ELVs under a new licence.

11. Compliance with Relevant National or EU Legislation

As per **Attachment B.6**, the Bandon WwTW has been designed to ensure that the emissions from the agglomeration will comply with, and will not result in the contravention of, EU Legislation and National Regulations.

The design standards of the upgraded Bandon WwTP are for 3mg/l Ortho-P and 3mg/l Ammonia as per the existing licence. IW wish to confirm that any necessary changes to ensure compliance with a new licence will be implemented following confirmation from the EPA of the new licence ELVs.

The proposed effluent discharge standards (*i.e.*, proposed ELVs: COD 125mg/l, TSS 35mg/l, BOD 25mg/l, Total Ammonia 3mg/l, Total Phosphorus 2mg/l and Ortho-P 1.6mg/l), the design of the overflows, along with the positive effects from the network upgrade works, will ensure that the operational discharges from the agglomeration (i) contribute towards maintaining the Good status of the Bandon_090 and Bandon_080 and (ii) will ensure that there is no environmental risk posed to the receiving water environment as a result of the discharges from the agglomeration.

The discharge activities will not cause a deterioration in the chemical status in the relevant receiving waterbody and will not compromise the achievement of the objectives and EQSs established for any European sites water dependant species and natural habitats, or any other designations. The operation of the upgraded WwTP and network is expected to have a positive impact in terms of a reduction in the levels of nutrients being discharged to the River Bandon.

12. Data Sources

The following data sources were used to complete this application.

- Online data available on held by the NPWS, the EPA and Irish Water:
 - www.npws.ie
 - epawebapp.epa.ie
 - gis.epa.ie/EPAMaps
 - catchments.ie
- GIS data for European site boundaries obtained in digital format online from European Environmental Agency
- Irish Water/Cork County Council Monitoring & Sampling Data

13. Cumulative and In Combination Effects

The combined AA Screening and NIS Report (December 2022), and the Environmental Impact Assessment Report (December 2022) address cumulative and in-combination effects. Refer to **Attachments D.2.2** and **Attachment B.5**, respectively.

14. Mixing zone or transitional areas of exceedance

Based on the 95%ile River flow (1.57 m³/s), and the Bandon WwTP DWF (2,602 m³/d), there are ca. 52 dilutions estimated immediately in the proximity of the discharge point.

15. Dilutions and retention times for lakes

Not applicable. No discharges to lakes.

16. The impact of the discharges on any environmental media other than those into which the emissions are to be made

Not applicable. No other relevant media into which the emissions are to be made.

17. Groundwater Details

Not applicable. No discharge to ground waters.

18. High Status Waterbodies

Not applicable. No High status waterbodies within the region of the Bandon WwTP and/or the operational discharges.

19. Fresh Water Pearl Mussels

Refer to **Section 2** above for details.

20. Impacts on Transboundary / Territory of other States

The operational discharges to which this application relates will not result in transboundary impacts or impacts on the territory of other states.

- 21. For waste water treatment plants with coastal discharges, provide evidence that the end of the discharge pipe is below the mean spring tide low water line**

Not applicable. Discharge is not to coastal water.



ATTACHMENT D.2.3:
WASTE ASSIMILATIVE CAPACITY (WAC),
OCTOBER 2022



Project Number: 20893		Rev	Date	By		
Project Name: Bandon		1.0	07-Aug-22	CAS		
Sheet: 1 of 1		2.0	19-Oct-22	CAS		
Waste Assimilative Capacity (WAC) Calculation						
Name of River	Bandon_090		WFD 2016 -2021 Status	Good		
River Flow	m ³ /s	Data Source	m ³ /d	PE		
95% ile Flow	1.570	Flow Data confirmed by the EPA Hydrometrics & Groundwater Section	135,648	10 year design	14,456	
Background Concentration		Proposed ELVs	Max Allowable D/S	Legislation	Status	
	mg/l	Data Source	(mg/l)	95% ile mg/l ^{Note 1}	Data Ref	
Carbonaceous BOD	1.304	Data Source: Catchments.ie Mean background concentration - Jan 2020 - May 2022 (Station: RS20B020800)	25.00	2.60	SW Regulations - Good Status EQS	Good
Total Ammonia (NH ₃)	0.033		3.00	0.14	SW Regulations - Good Status EQS	Good
Ortho-Phosphate (OP)	0.033		1.60	0.075	SW Regulations - Good Status EQS	Good
Dry Weather Flow ^{Note 2}	Flow in River	Allowable Effluent Concentration	WAC	Predicted Downstream Concentration	Comments	Legislation
m ³ /d	95% ile m ³ /d	BOD mg/l	BOD kg/d	BOD mg/l	Treatment Plant Capacity	Comply with SW Regulations
2602	135,648	70.15	182.54	1.750	10 year design	Yes
m ³ /d	95% ile m ³ /d	NH ₃ mg/l	NH ₃ kg/d	NH ₃ mg/l		
2602	135,648	5.73	14.91	0.089	10 year design	Yes
m ³ /d	95% ile m ³ /d	OP mg/l	OP kg/d	OP mg/l		
2602	135,648	2.25	5.86	0.063	10 year design	Yes

Note 1: S.I. No. 77/2019 - European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2019

Note 2: using 180 lpd



Project Number: 20893 Project Name: Bandon Sheet: 1 of 1	Rev	Date	By	
	1.0	07-Aug-22	CAS	
	2.0	19-Oct-22	CAS	

Waste Assimilative Capacity (WAC) Calculation

Name of River	Bandon_090	WFD 2016 -2021 Status	Good
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River Flow	m ³ /s	Data Source	m ³ /d	PE
95% ile Flow	1.570	Flow Data confirmed by the EPA Hydrometrics & Groundwater Section	135,648	10 year design 14,456

Background Concentration	Proposed ELVs	Max Allowable D/S	Legislation	Status		
mg/l	(mg/l)	95% ile mg/l ^{Note 1}	Data Ref			
Carbonaceous BOD	0.260	Background Concentration mg/l (Notionally Clean)	25.00	2.60	SW Regulations - Good Status EQS	Good
Total Ammonia (NH ₃)	0.008		3.00	0.14	SW Regulations - Good Status EQS	Good
Ortho-Phosphate (OP)	0.005		1.60	0.075	SW Regulations - Good Status EQS	Good

Dry Weather Flow ^{Note 2}	Flow in River	Allowable Effluent Concentration	WAC	Predicted Downstream Concentration	Comments	Legislation
m ³ /d	95% ile m ³ /d	BOD mg/l	BOD kg/d	BOD mg/l	Treatment Plant Capacity	Comply with SW Regulations
2602	135,648	124.59	324.18	0.726	10 year design	Yes
m ³ /d	95% ile m ³ /d	NH ₃ mg/l	NH ₃ kg/d	NH ₃ mg/l		
2602	135,648	7.02	18.27	0.064	10 year design	Yes
m ³ /d	95% ile m ³ /d	OP mg/l	OP kg/d	OP mg/l		
2602	135,648	3.72	9.69	0.035	10 year design	Yes

Note 1: S.I. No. 77/2019 - European Union Environmental Objectives (Surface Waters) (Amendment) Regulations 2019

Note 2: using 180 lpd



ATTACHMENT D.2.4:

**PRIORITY SUBSTANCE ASSESSMENT
REPORT,
NOVEMBER 2022**

Priority Substances Assessment

Agglomeration Name:	Bandon
Licence Register No.	D0136 Licence Review



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Appendix 1 – Screening of Parameters for Priority Substances

1 Introduction

This report has been prepared for the Bandon agglomeration, in County Cork, to inform a Waste Water Discharge Licence (WWDL) Review Application for D0136-01.

This desk top study has been undertaken to determine the necessity, if any, for further analysis of the discharge based on the *Guidance on the Screening for Priority Substances for Waste Water Discharge Licences*, issued by the EPA. Relevant inputs to the Bandon WwTP and estimates for the emissions from the discharge point have been taken into account in the preparation of this report.

2 Desktop Study

2.1 Assessment of Analysis Required

A. Review of all industrial inputs into WWTP

A review of available online mapping and EPA licensed facilities was undertaken to determine the non-domestic discharge types being received at the Bandon WwTP. In addition, all planning applications, since 2017, were reviewed to determine the associated non-domestic discharges being sent to the Bandon WwTP. The IW Technical Assessment Manual Sectoral Profile Data was reviewed to determine the potential dangerous substances which could be released to sewer from industrial inputs.

As per the EPA, IPC and IE database, there are currently no industrial premises with an IPC licence within the agglomeration that discharge to the WwTP.

There are eight trade effluent licences under Section 16 of the Water Pollution Act 1977 (amended 1990) within the agglomeration, as follows:

- Brady's Lane Pub
- Bandon Motors Ltd
- Riverview Shopping Centre Management Ltd
- Jack Dwyer's
- Kevin O'Leary Motor Group
- Bandon Vale Cheese Ltd
- Kevin O'Leary Motor Group
- Rana Catering

The licenced p.e. load from the Section 16 Licensed discharges to Bandon WwTP is 100 p.e, which accounts for approximately 1% of the total load input to Bandon WwTP.

It is considered that the Priority Substances which are possibly being emitted to sewer have been well represented in this partial characterisation of the wastewater (**Table 2.1**).

Upon review of the types of businesses, amenities and educational facilities in Bandon, **Table 2.1** provides an indicative list of non-domestic discharge types to the WwTP and details potential dangerous/priority substance.

Table 2.1 – List of Non-Domestic Discharge Types to WwTP and Details of Potential Dangerous/Priority Substance

Type of Industry within the Agglomeration	Potential Source of Dangerous / Priority Substances (Yes / No)	Dangerous / Priority Substances Monitoring Undertaken (Yes / No)	List of Potential Dangerous Substances Based on Industry Type (Source: <i>Technical Assessment Manual - Sectoral Profile Data</i>)
Manufacture of food products and beverages	Yes	No	Lead and its compounds Nickel and its compounds Cadmium and its compounds Mercury and its compounds Chromium (III) Copper Zinc
Production, processing and preserving of meat and meat products	Yes	No	Naphthalene Trichloroethylene Hexachlorocyclohexane (Lindane) Chromium (VI) Cypermethrin Toluene Xylenes (Total)
Hospital	Yes	No	Dichloromethane
Garages and Filling Station	Yes	No	Benzene Di (2-ethylhexyl) phthalate (DEHP) Lead and its compounds Naphthalene Nickel and its compounds Cadmium and its compounds Mercury and its compounds Chromium (III) Copper Toluene Xylenes (Total) Zinc
Dentist	Yes	No	Octylphenols Mercury and its compounds
Hairdressers	Yes	No	Nickel and its compounds Cadmium and its compounds
Launderettes and Dry Cleaners	Yes	No	Di (2-ethylhexyl) phthalate (DEHP)
School	Yes	No	Dichloromethane Lead and its compounds Nickel and its compounds Trichloromethane
Construction	Yes	No	Lead and its compounds Nickel and its compounds Mercury and its compounds Arsenic Chromium (III) Copper Zinc

B. Discharge monitoring

No primary discharge monitoring for the possible presence of Specific Pollutants, Priority and Priority Hazardous Substances as outlined in Table 10, 11 and 12 of European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended, is currently available for this agglomeration.

C. Downstream monitoring location's participation in relevant monitoring programme

There is no priority substances monitoring data for the downstream ambient monitoring location, the River Bandon.

D. Participation in PRTR reporting

Estimated data from the PRTR reporting tool was required for this desktop assessment as measured data was unavailable for all parameters in Appendix 1.

2.2 Review Outcome of Desktop Study

Following the desktop study, all parameters in Appendix 1 have been assessed to establish any potential impact on the receiving waters. Priority substance measured concentrations in the primary discharge were not available for all parameters. Therefore, estimated concentrations were assessed. This desktop study is considered to provide partial characterisation of the wastewater.

3 Assessment of Significance and Recommendations

An assessment of the potential for impacts on receiving waters from priority substances in the primary discharge has been carried out. The assessment considers the primary discharge relevant to Environmental Quality Standards (EQS) for priority substances in surface waters, as set out in the European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

Based on the estimated data, no parameters were identified as potentially being higher than the required EQS.

Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of the EPA guidance	Desk Top Study
Does the assessment include a review of licensed / authorised inputs to the works?	Yes
Does the assessment include a review of other (unauthorised) inputs to the works?	Yes
Does the report include an assessment of the significance of the results where a listed material is present in the discharge? (e.g. impact on the relevant EQS standard for the receiving water)	Yes
Does the assessment identify that priority substances may be impacting the receiving water?	No

<p>Does the assessment use the Desk Top Study Method or Screening Analysis to determine if the discharge contains the parameters in Appendix 1 of the EPA guidance</p>	<p>Desk Top Study</p>
<p>Does the Improvement Programme for the agglomeration include the elimination / reduction of all priority substances identified as having an impact on receiving water quality?</p>	<p>Not applicable</p>

4 Conclusion

An assessment of the potential for impacts on receiving waters from priority substances in the primary discharge has been carried out to inform this WWDL application. Estimated data from the PRTR reporting tool was used to inform this desktop assessment. The assessment considered the primary discharge relevant to the EQS for priority substances in surface waters, as set out in the Surface Waters Regulations, as amended.

It can be concluded that, after dilution, none of the substances listed in the Specific Pollutants, Priority and Priority Hazardous Substances, are likely to be present in the effluent discharge to the River Bandon, at concentrations above the standards in European Communities Environmental Objectives (Surface Waters) Regulations 2009, as amended.

Based on the results of this desk top study, it can be determined that **no for further analysis** of the discharge, based on the *Guidance on the Screening for Priority Substances for Waste Water Discharge Licences*, issued by the EPA, is required.

Appendix 1 – Screening of Parameters for Priority Substances

AA: Annual Average

MAC: Maximum Allowable Concentration

EQS: Environmental Quality Standards

Dilution factor in receiving water: 52 dilutions estimated immediately in the proximity of the discharge point (based on the River Bandon 95%ile flow 1.57 m³/s and DWF 2,602 m³/d)

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) ¹	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
1	Benzene	VOCs	10	8	0.01682	PRTR Electronic Toolset	N/A	No	No
2	Carbon tetrachloride	VOCs	12	12	0.00000	PRTR Electronic Toolset	N/A	No	No
3	1,2-Dichloroethane	VOCs	10	10	0.00000	PRTR Electronic Toolset	N/A	No	No
4	Dichloromethane	VOCs	20	20	0.04545	PRTR Electronic Toolset	N/A	No	No
5	Tetrachloroethylene	VOCs	10	10	0.05909	PRTR Electronic Toolset	N/A	No	No
6	Trichloroethylene	VOCs	10	10	0.00000	PRTR Electronic Toolset	N/A	No	No
7	Trichlorobenzenes	VOCs	0.4	0.4	0.00000	PRTR Electronic Toolset	N/A	No	No
8	Trichloromethane	VOCs	2.5	2.5	0.00000	PRTR Electronic Toolset	N/A	No	No
9	Xylenes (all isomers)	VOCs	10	10	0.11591	PRTR Electronic Toolset	N/A	No	No

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) ¹	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
10	Ethyl Benzene	VOCs	n/a	n/a	0.01659	PRTR Electronic Toolset	N/A	N/A	N/A
11	Toluene	VOCs	10	10	3.62500	PRTR Electronic Toolset	N/A	No	No
12	Naphthlene ¹	PAHs	2	2	0.00400	PRTR Electronic Toolset	N/A	No	No
13	Fluoranthene ¹	PAHs	0.0063	0.0063	0.00234	PRTR Electronic Toolset	N/A	No	No
14	Benzo[k]fluoranthene ²	PAHs	MAC of 0.017	MAC of 0.017	0.00200	PRTR Electronic Toolset	N/A	No	No
15	Benzo[ghi]perylene ²	PAHs	MAC of 8.2×10^{-3}	MAC of 8.2×10^{-4}	0.00200	PRTR Electronic Toolset	N/A	No	No
16	Indeno[1,2,3-c,d]pyrene ²	PAHs			0.00220	PRTR Electronic Toolset	N/A	No	No
17	Benzo[b]fluoranthene ²	PAHs	MAC of 0.017	MAC of 0.017	0.00200	PRTR Electronic Toolset	N/A	No	No
18	Benzo[a]pyrene	PAHs	1.7×10^{-4}	1.7×10^{-4}	0.00200	PRTR Electronic Toolset	N/A	Yes	No
19	Di(2-ethylhexyl)phthalate (DEHP)	Plasticiser	1.3	1.3	0.91727	PRTR Electronic Toolset	N/A	No	No

¹ The EQS for these substances shall take effect from 22 December 2015

² No indicative parameter is provided for this group of substances

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) ¹	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
20	Isodrin ³	Pesticides	Σ=0.01	Σ=0.005	0.00000	PRTR Electronic Toolset	N/A	No	No
21	Dieldrin ³	Pesticides			0.00000	PRTR Electronic Toolset	N/A	No	No
22	Diuron	Pesticides	0.2	0.2	0.02636	PRTR Electronic Toolset	N/A	No	No
23	Isoproturon	Pesticides	0.3	0.3	0.00750	PRTR Electronic Toolset	N/A	No	No
24	Atrazine	Pesticides	0.6	0.6	0.01045	PRTR Electronic Toolset	N/A	No	No
25	Simazine	Pesticides	1	1	0.01409	PRTR Electronic Toolset	N/A	No	No
26	Glyphosate	Pesticides	60	-	1.53273	PRTR Electronic Toolset	N/A	No	No
27	Mecoprop	Pesticides	n/a	n/a	0.10705	PRTR Electronic Toolset	N/A	N/A	N/A
28	2,4-D	Pesticides	n/a	n/a	0.05102	PRTR Electronic Toolset	N/A	N/A	N/A
29	MCPA	Pesticides	n/a	n/a	0.08864	PRTR Electronic Toolset	N/A	N/A	N/A
30	Linuron	Pesticides	0.7	0.7	0.00000	PRTR Electronic Toolset	N/A	No	No
31	Dichlobenil	Pesticides	n/a	n/a	0.00430	PRTR Electronic Toolset	N/A	N/A	N/A

³ Σ of Aldrin, Dieldrin, Endrin and Isodrin.

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) ¹	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
32	2,6-Dichlorobenzamide	Pesticides	n/a	n/a	0.08045	PRTR Electronic Toolset	N/A	N/A	N/A
33	PCBs	PCBs	n/a	n/a	0.00000	PRTR Electronic Toolset	N/A	N/A	N/A
34	Phenols (as Total C)	Phenols	8	8	0.90978	PRTR Electronic Toolset	N/A	No	No
35	Lead	Metals	1.2	1.3	3.03939	PRTR Electronic Toolset	N/A	Yes	No
36	Arsenic	Metals	25	20	0.35000	PRTR Electronic Toolset	N/A	No	No
37	Copper	Metals	5 or 30 ²	5	3.08333	PRTR Electronic Toolset	N/A	No	No
38	Zinc	Metals	8 or 50 or 100 ³	40	49.36364	PRTR Electronic Toolset	N/A	No	No
39	Cadmium	Metals	0.08 or 0.09 or 0.15 or 0.25 ⁴	0.2	0.0500	PRTR Electronic Toolset	N/A	No	No
40	Mercury	Metals	MAC of 0.07	MAC of 0.07	0.00000	PRTR Electronic Toolset	N/A	No	No
41	Chromium VI	Metals	3.4	0.6	0.29167	PRTR Electronic Toolset	N/A	No	No
42	Selenium	Metals	n/a	n/a	0.43750	PRTR Electronic Toolset	N/A	N/A	N/A
43	Antimony	Metals	n/a	n/a	0.15455	PRTR Electronic Toolset	N/A	N/A	N/A

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) ¹	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
44	Molybdenum	Metals	n/a	n/a	0.00000	PRTR Electronic Toolset	N/A	N/A	N/A
45	Tin	Metals	n/a	n/a	0.10833	PRTR Electronic Toolset	N/A	N/A	N/A
46	Barium	Metals	n/a	n/a	18.508	PRTR Electronic Toolset	N/A	N/A	N/A
47	Boron	Metals	n/a	n/a	62.87500	PRTR Electronic Toolset	N/A	N/A	N/A
48	Cobalt	Metals	n/a	n/a	0.17576	PRTR Electronic Toolset	N/A	N/A	N/A
49	Vanadium	Metals	n/a	n/a	2.72727	PRTR Electronic Toolset	N/A	N/A	N/A
50	Nickel	Metals	4	8.6	4.25758	PRTR Electronic Toolset	N/A	Yes	No
51	Fluoride	General	500	1,500	241.87500	PRTR Electronic Toolset	N/A	No	No
52	Chloride	General	n/a	n/a	84885.45455	PRTR Electronic Toolset	N/A	N/A	N/A
53	TOC	General	n/a	n/a	9219.77273	PRTR Electronic Toolset	N/A	N/A	N/A
54	Cyanide	General	10	10	2.93182	PRTR Electronic Toolset	N/A	No	No
	Conductivity	General	n/a	n/a	0.00000	PRTR Electronic Toolset	N/A	N/A	N/A
	Hardness (mg/l CaCO ₃)	General	n/a	n/a	214	PRTR Electronic Toolset	N/A	N/A	N/A

No.	Compound	Group of compounds	AA-EQS Inland SW (µg/l)	AA-EQS Other SW (µg/l)	Estimated Conc. (µg/l) ¹	Data Source	Sample Date (if applicable)	Effluent Concentration above AA concentration (Yes/No)	Effluent Concentration above AA concentration after dilution (Yes/No)
	pH	General	n/a	n/a	-	PRTR Electronic Toolset	N/A	N/A	N/A

Notes:

1. Where measured values are available these should be used instead of estimated values from PRTR tool.
2. In the case of Copper, the value 5 applies where the water hardness measured in mg/l CaCO₃ is less than or equal to 100; the value 30 applies where the water hardness exceeds 100 mg/l CaCO₃. Estimated CaCO₃ value > 100 where no sampling data available (based on PRTR tool)
3. In the case of Zinc, the standard shall be 8 µg/l for water hardness with annual average values less than or equal to 10 mg/l CaCO₃, 50 µg/l for water hardness greater than 10 mg/l CaCO₃ and less than or equal to 100 mg/l CaCO₃ and 100 µg/l elsewhere. Estimated CaCO₃ value > 100 where no sampling data available
4. For Cadmium and its compounds the EQS values vary dependent upon the hardness of the water as specified in five class categories (Class 1: <40 mg CaCO₃/l, Class 2: 40 to <50 mg CaCO₃/l, Class 3: 50 to <100 mg CaCO₃/l, Class 4: 100 to <200 mg CaCO₃/l and Class 5: >200 mg CaCO₃/l)