

14. Carrick STP

14.1 Activity and report details

Activity name	Carrick STP		
Activity address	Off Meander Valley Highway, Carrick		
Permit number	Licence to Operate -2878	Date of issue	27/10/1983
EPN	8121/2	Date of issue	23/09/2011
Treatment level	Secondary Treatment		
Authorised dry weather flows	624 KL		
Key influent source	Residential		
Contact person	Kate Westgate		
Report author	Luisa Romero (Environmental Scientist)		
Contact details	Environment@taswater.com.au		
Date of submission	30 September 2025		

Figure 14-1: Carrick Sewage Treatment Plant



14.2 Monitoring and compliance summary

14.2.1 Flow data

Table 14-A: Flow monitoring summary

	Influent	Effluent	Reuse
Location name	Inlet	Meander River	Ag Irrigation (Moat Property)
Coordinates	E501432 N5402715	E501266 N5402979	E501595 N5403642
Method of measurement	In line meter	In line meter	In line meter
Date of last calibration/validation (if applicable).	24/03/2025	22/01/2025	24/03/2025

Table 14-B: Annual flow and rainfall data

Month	Average daily influent volume (kL/day)	Rainfall (mm/month) BOM Station ID 91303	Discharge to waters total effluent volume (ML)	Discharge to reuse total effluent volume (ML)
July 2024	753	67.2	23.34	0.00
August 2024	835	80.8	25.87	0.00
September 2024	1140	65.4	34.21	0.00
October 2024	702	33	16.14	5.61
November 2024	635	69.6	0.00	19.04
December 2024	823	61.2	0.24	25.27
January 2025	587	36.8	1.17	17.04
February 2025	561	22.2	0.00	15.72
March 2025	538	17.8	0.00	16.69
April 2025	521	21	0.00	15.63
May 2025	511	37	15.84	0.00
June 2025	593	68.6	17.80	0.00
Annual 2024-25	684	580.6	134.60	114.99
% of total discharge	--	--	53.9%	46.1%

2024-25 monthly flow data was submitted directly to the EPA.

14.3 Bypass events

There were no bypass events associated with the STP during the reporting period.

14.4 Discharge compliance with permit limits

Table 14–C: Discharge compliance with permit limits

Parameter	Ammonia	BOD5	Chlorine	Nitrogen	Oil and grease	pH	Phosphorous	E coli	Total suspended solids
Permit/EPN limit	mg/L	mg/L	mg/L	mg/L	mg/L	Units	mg/L	MPN/100mL	mg/L
Maximum	10	20	--	15	10	8.5	8	1000	40
90th percentile	--	--	--	--	--	--	--	--	--
50th percentile	--	--	--	--	--	--	--	--	--
Minimum	--	--	--	--	--	6.5	--	--	--
Samples analysed									
Number required	12	12	--	12	12	12	12	12	12
Number analysed	12	12	--	12	12	12	12	12	12
Statistical summary									
Maximum	7.4	41.0	0.0	12.2	1.1	10.3	7.9	855.0	121.0
90th percentile	4.9	27.9	0.0	10.6	1.1	9.4	7.2	785.9	90.5
50th percentile	3.2	9.0	0.0	8.8	1.0	8.3	6.0	244.5	25.3
Minimum	0.2	5.0	0.0	3.4	1.0	7.4	1.5	20.0	4.6
EPN limit compliance									
% compliance with maximum	100%	75%	--	100%	100%	50%	100%	100%	67%
% compliance with 90th percentile	--	--	--	--	--	--	--	--	--
% compliance with 50th percentile	--	--	--	--	--	--	--	--	--
% compliance with pH range	--	--	--	--	--	50%	--	--	--

Note: Percentages reflective of complete data set for the year

Table 14–D: Mass loads to the environment

Mass Loads	EPN limit	Frequency	2024–25 result
Nitrogen	--	Annual	1298.3
Phosphorous (kg)	--	Annual	839.0
Method	Time weighted/Grab sample method		

Table 14–E: Performance analysis (discharge to environment)

Effluent compliance parameter	Date(s) of non-compliance	Reasons for non-compliance	Actions to improve performance
BOD	7/01/2025 6/05/2025	Algae is the primary reason for non-compliant BOD, TSS and pH. Algae cells in the effluent directly increase BOD and TSS, while CO ₂ stripping during algae photosynthesis causes an increase in pH. Most of the non-compliant results were in warmer months when algal blooms occur.	No specific actions taken in reporting period. The Meander Tamar Sewerage Regional Master Plan has been completed and includes the short term and long-term considerations for the Carrick STP with the ultimate decommissioning of the STP and transfer of sewage to the Longford STP.
TSS	7/01/2025 6/05/2025		
pH	4/12/2024 7/01/2025		

No other parameters had exceedances in the reporting period.

14.5 Reuse annual reporting

The Carrick STP supplies treated effluent to the Carrick recycled water scheme (RWS) for irrigation purposes at one property “*The Moat*”.

Table 14-F: Reuse compliance summary

	BOD5	pH	E coli
Permit/EPN limit	mg/L	Units	MPN/100ml
Maximum	50	9.0	10000
90th Percentile	--	--	--
50th Percentile	--	--	1000
Minimum	--	5.5	--
Samples analysed			
Number required	12	12	12
Number analysed	12	12	12
Statistical summary			
Maximum	41.0	10.3	855
90th percentile	27.9	9.4	786
50th percentile	9.0	8.3	245
Minimum	5.0	7.4	20
EPN Limit Compliance			
% compliance with Maximum	100%	--	100%
% compliance with 90th percentile	--	--	--
% compliance with 50th percentile	--	--	100%
% compliance with pH range	--	67%	--

Table 14-G: Performance analysis (discharge to reuse)

Reuse compliance parameter	Date(s) of elevated parameter	Reasons	Actions to improve performance
pH	1/04/2025 4/03/2025 4/02/2025 12/11/2024	Algae is believed to be the primary reason for elevated pH due to CO ₂ uptake during photosynthesis. Non-compliance results were in warmer months when algal blooms occur. Algae is a source of oxygen and is fundamental to lagoon treatment.	No specific actions undertaken in reporting period. See Section 14.3.

Soil sampling was completed at the two long term monitoring sites (*Air Strip* and *Pivot 1*) in June 2025. A third site (Illawarra Road) was also sampled at the suggestion of the landowner for possible future recycled water expansion. The annual compliance audit

was completed in conjunction with the soil sampling. Summary of the findings can be found in the below table.

Table 14-H: Annual recycled water scheme compliance audit and soil monitoring

Program	Compliance audit	Soil monitoring
Outcomes	Compliant	All analytes remain within historic levels. Soil salinity has steadily decreased across the property. Both long-term sites continued to record elevated concentrations of one analyte (Phosphorous). Elevated levels are attributed to sources other than recycled water.
Comments	It is noted that the landowner has installed pipelines to expand irrigation, including recycled water on the property. Adequate management controls are to be put in place and documented prior to recycled water irrigation occurring.	

RWS Groundwater Status: Amber

The RWS groundwater monitoring network consists of five bores; ID numbers CAGW4-8. Sampling at all five bores was reintroduced in the 2021-22 monitoring program. Bore ID CAGW4 is associated with the recycled water storage dam and is located downgradient to the northwest of the storage.

Annual sampling at the standard analytical suite was completed across the network in June 2025 as scheduled.

The 2024-25 RWS groundwater monitoring event recorded all bores have recorded one or more exceedances of analytes above the adopted groundwater criterion in previous sampling events, with total phosphorous concentrations above the adopted guideline criteria at all bores. Impacts to groundwater are unlikely due to recycled water due to the low rate of recycle water irrigation.

Annual sampling at the standard analytical suite is scheduled to continue at all five bores during the 2025-26 monitoring program.

14.6 Ambient monitoring program

Table 14-I: Program details

Program	Seasonal ambient monitoring as required under EPA permit variation 18/01/2024. Biological monitoring in accordance with TasWater risk based ambient monitoring program.
Status	Ambient water quality monitoring required under EPA permit variation within the Meander River receiving environment. Biennial seasonal (spring/autumn) biological (AUSRIVAS) monitoring.
Update	Ambient water quality monitoring from July – December 2024 and May – June 2025 completed during the reporting period. Biological monitoring not required during the reporting period.
Comments	Ambient water quality monitoring was conducted during effluent discharges into the Meander River receiving environment. Effluent discharges to environment occurred continuously from July – late October 2024. Short timeframe discharges occurred in December 2024 (< 1day) and in January 2025 (~ 2 days) while the RWS was unavailable. Continuous discharges to the Meander River resumed at the beginning of May 2025 and continued through to year end June 2025. Key findings from the ambient water quality monitoring are summarised below:

- Ammonia levels did not exceed the ANZG Default Guideline Value (tDGV) at either upstream or both downstream monitoring locations during STP effluent discharges. However, the upstream and both downstream locations exceeded the EPA DGV slightly to moderately disturbed (SMD) aquatic ecosystems for the Meander Catchment and site-specific water quality objectives (SSWQOs) in July – September 2024 and again in June 2025. The two downstream monitoring locations closely correlated with upstream levels although downstream levels were slightly higher on most occasions.
- Nitrate levels at both the upstream and downstream monitoring locations were elevated on most occasions but within the draft tDGV and exceeded SSWQOs in July – September, December 2024 and June 2025 and the lower EPA DGV at all monitoring locations except in November 2024 and May 2025. Both downstream monitoring location levels closely correlated with upstream levels with no clear influence from the STP effluent discharge.
- Total nitrogen levels at the upstream and both downstream monitoring locations again closely correlated with no clear influence from the STP effluent discharge. Levels upstream and downstream exceed the SSWQOs in July – September and December 2024 and exceed the lower EPA DGV on all occasions except November 2024 and May 2025.
- Total phosphorus levels at the upstream and both downstream monitoring locations closely correlated through July –December 2024. However slight elevations at both downstream locations above upstream levels were observed in May –June 2025. On most occasions, all monitoring locations exceeded the SSWQO and the EPA DGV, especially in July and December 2024.
- Total suspended solids (TSS) levels at the upstream and both downstream monitoring locations varied across the monitoring period with occasional elevations at the first downstream monitoring location above upstream levels, although this was not directly related to STP effluent discharges. TSS levels at the 1st downstream monitoring location were elevated above the upstream monitoring location in June 2025 when the STP was discharging but had returned to baseline levels at the 2nd downstream monitoring location.
- Enterococci levels at the upstream and both downstream monitoring locations correlated closely, with levels at all locations exceeding the EPA low risk guideline values for waters with current or potential recreational use in July, August and December 2024. Levels at all three monitoring locations were within the low risk guidelines during STP effluent discharges in May and June 2025.
- *E. coli* levels at the upstream and both downstream monitoring locations correlated closely, with levels in August and December 2024 exceeding the EPA low risk guideline values for waters with current or potential recreational use and/or the draft ANZG livestock drinking water guidelines.
- Blue-green algae (BGA) and potential toxin producing BGA (*Microcystis aeruginosa*) was detected within the EPA low alert detection/surveillance mode level at all three locations in May and June 2025 during STP effluent discharges. A significant toxic BGA bloom had been occurring at the STP prior to discharges in May and June 2025 but no microcystin toxins were detected at any ambient monitoring location.

Ambient water quality monitoring within the Meander River receiving environment shows no impact from STP effluent discharges with downstream water quality equivalent to upstream water quality. However, overall water quality within the Meander River varies significantly and is likely impacted by agricultural/urban inputs more so than the STP. Water quality occasionally exceeds the relevant EPA guidelines and poses potential risks to recreational users and livestock drinking water.

14.7 Groundwater monitoring

Site Status: Green

Carrick STP groundwater monitoring network consists of four bores: ID numbers CAGW1-3 and CAGW11.

Annual sampling at the standard analytical suite was completed at all four bores June 2025 as scheduled.

The 2024–25 groundwater monitoring event recorded no exceedances and no increasing trends in concentrations.

Annual sampling at the standard analytical suite is scheduled to continue at all four bores during the 2025–26 monitoring program.

14.8 Inflow and infiltration (I&I)

The latest revision to the TasWater Inflow and Infiltration Management Plan includes details of the actions undertaken statewide to address I&I issues.

A Multi Criteria Assessment was undertaken by TasWater in 2024 to prioritise I&I investigation and works state-wide. This catchment was ranked 60 out of 108 in priority.

14.9 Sludge and biosolids

The latest revision to the Sewage Sludge Management Plan (SSMP) includes full details of the actions undertaken during the reporting period, the most recent sludge profiling results, and upcoming annual desludging program. This STP was deemed as non-compliant with the 2024–25 SSMP due to lack of information being provided on how stabilisation was confirmed. TasWater will provide EPA with volatile solids results and evidence of sludge age to rectify this non-compliance. *E.coli* was not tested as it was assumed that levels would be very low due to significant sludge age and dryness.

The majority of sludge at this STP is captured within the two sludge drying lagoons, which will be periodically desludged as required. No sludge was removed from either of the sludge drying lagoons during the reporting period. There is currently no sludge stockpiled at this STP.

Table 14–J: Desludging status and comments

Desludging status	Comments
Low priority	Desludging of sludge lagoons 1 and 2 was completed in FY2023–24. The polishing lagoon is currently considered low priority with no desludging required for this lagoon for the foreseeable future.

14.10 Non-compliance with other permit requirements

Table 14–K: EPN non-compliances

EPN condition	Description of non-conformance	Future actions to be taken
EF2 Effluent quality limits for discharge to water	See section 14.4 Discharge compliance with permit limits and Performance Analysis	See section 14.4 Discharge compliance with permit limits and Performance Analysis

EPN condition	Description of non-conformance	Future actions to be taken
EF3 Effluent discharge to reuse scheme	See section 14.4 Discharge compliance with permit limits and Performance Analysis	See section 14.4 Discharge compliance with permit limits and Performance Analysis
WM1 Sewage Sludge management plan	Information to demonstrate how stabilisation was confirmed was not provided. Microbial and volatile solids reduction sampling is required.	TasWater will provide EPA with VS% results and evidence of sludge age to rectify this non-compliance. <i>E. coli</i> was not tested as it was assumed levels would be very low due to significant sludge age and dryness.
EF7 Emission Limit Guidelines Compliance Plan	Discharge Management Plan overdue.	TasWater acknowledges the non-compliance associated with the DMP condition. We are working towards the intent of the EPN condition to prioritise discharge risk reduction projects in line with our EPA endorsed Wastewater Risk Management Plan and Price and Service Plan process.
EF8 Discharge Management Plan		

14.11 Complaints and incident reporting

No incidents were received during the 2024–25 reporting period.

Table 14–L: Complaints reporting

Date	Category	Details	Mitigation actions
20/02/2025	Odour	Strong odour from STP	One of the aerators at Carrick STP was offline for a period of two days. The aerator has now been restarted to assist in restoring the biological treatment process to normal operating conditions.

14.12 Any other relevant information

Table 14–M: Projects or significant operational events that occurred in FY 2024–25

Project or significant operational event	Progress
Meander Tamar Sewerage Regional Master Plan	The Meander Tamar Sewerage Regional Master Plan has been completed and includes the short term and long-term considerations for the Carrick STP with the ultimate decommissioning of the STP and transfer of sewage to the Longford STP.

For further information on Carrick STP please contact TasWater on 13 6992

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