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Our Ref: 000118.10

21 February 2024

Narre Warren Central Pty Ltd
52-54 Rathdowne Street
Carlton VIC 3053

Attention: Mr Paul Nio
Via email: pnio@osanrae.com.au
CC: cmistica@fidus.com.au; inga@natureadvisory.com.au

Dear Paul

Re: 2023 Annual Report of Water Quality, Habitat and Dwarf Galaxias Monitoring for Casey Green

Aquatica Environmental was engaged by Narre Warren Central Pty Ltd to undertake the 2023 annual monitoring of water quality and Dwarf Galaxias (*Galaxiella pusilla*) at the site of the Casey Green residential development at 96-166 Centre Road, Narre Warren, Victoria (the project).

The annual monitoring was undertaken to meet specific management actions outlined in the project's commonwealth, state and locally approved Dwarf Galaxias Management Plan (DGMP; BL&A 2015) and Dwarf Galaxias Salvage and Translocation Plan (DGSTP; Aquatica Environmental 2015). These actions were interpreted by the federal then Department of Environmental (DE 2016) to include the following monitoring requirements:

- **Dwarf Galaxias**: Survey for Dwarf Galaxias and predatory fish populations at established sites in November/December annually during construction and for least five years during and post completion of construction on the site (DE Condition 1; referenced to BL&A 2015 Section 6.5 and Aquatica Environmental 2015 Section 4.5).
- **Aquatic and riparian habitat condition**: Assess Dwarf Galaxias habitat condition in conjunction with the dwarf galaxias survey (DE Condition 1, referenced to Aquatica Environmental 2015 Section 4.5).
- **Water quality**: Assess water quality at established sites fortnightly and after rainfall events >10mm during construction, and during Dwarf Galaxias monitoring (DE Condition 3b and 3d).

This report has been produce to provide a summary record of the 2023 water quality, habitat and dwarf galaxias monitoring in accordance with the DGMP and DGSTP.

1. METHODOLOGIES

1.1 Rainfall Monitoring

There is no rainfall gauge located on the site. The nearest Bureau of Meteorology (BOM) weather stations, with current / live rainfall monitoring data, are located at Ferny Creek (16km north), Frankston (Ballam Park, 18km southwest), Moorabbin (20km west northwest) and Scoresby (14km north northwest)(Figure 1). To determine whether an approximately >10mm rainfall event had occurred at the site the average of the daily totals from the four BOM weather stations was used as the trigger.

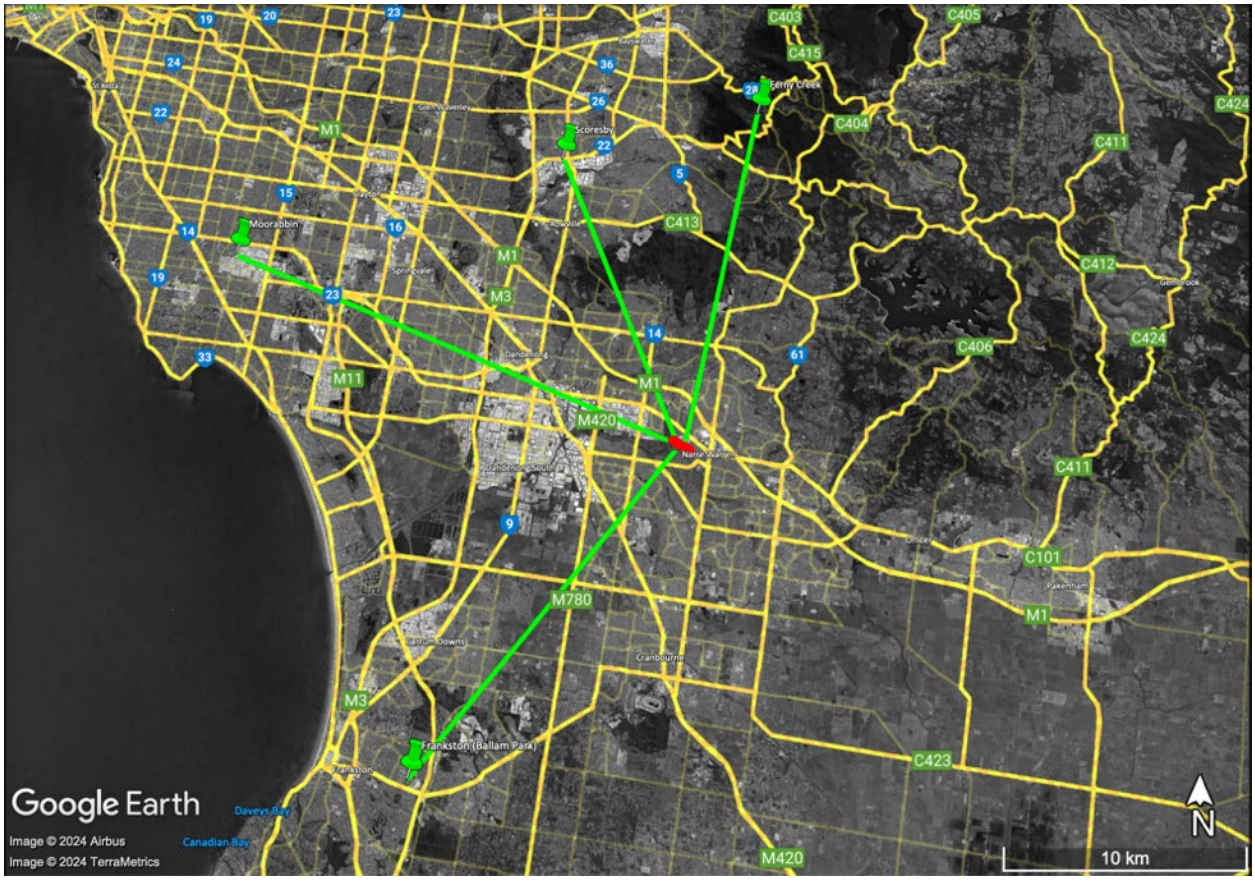

Figure 1 Bureau of meteorology weather station locations (green) relative to the site (red)

1.2 Sampling Sites

During initial baseline and salvage surveys in 2016-17 a number of water quality and Dwarf Galaxias survey sites were established (Aquatica Environmental 2017). However, in the time since these initial surveys were undertaken development of the site (and neighbouring sites) has progressed significantly and not all of the originally established site still exist and / or can be reached. Accordingly, new sites have been added. Figure 2 shows the sites that were monitored during the 2023 monitoring year, which were the same as the 2022 and 2021 monitoring years..

0 50 100 200
Metres

Spatial Reference
Name: GDA2020 MGA Zone 55
PCS: GDA2020 MGA Zone 55
GCS: GDA2020
Datum: GDA2020
Projection: Transverse Mercator

N

- Water Quality (WQ) monitoring sites
- DG monitoring
- Retained Habitat
- Site
- Structure
- Connector or drain
- River
- Stream
- Wetland

Casey Green, 96-166 Centre Road, Narre Warren

Dwarf Galaxias and Water Quality monitoring sites

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1.3 Dwarf Galaxias and Predatory Fish Monitoring

Dwarf Galaxias and predatory fish monitoring was undertaken at Dwarf Galaxias retained habitat monitoring location shown in Figure 1. This sites aligns with pre-2021 monitoring sites Sites DG1 and DG2 corresponding to where Dwarf Galaxia were released during the 2016 salvage and translocation program (Aquatica Environmental 2017). These sites are now effectively merged into one larger retained habitat and therefore monitoring location, representative of the fully connected and wetted portion of the retained habitat and newer swales.

Sampling for adult Dwarf Galaxias and predatory fish was undertaken using hand-held dip-nets, sampling in and around areas of suitable habitat, and bait traps set overnight with phosphorescent baits. Sampling for larval Dwarf Galaxias was also undertaken by collecting a sample of water (approximately 10 litres) and placing it in a shallow white tray, where any larva would have been visible.

Active searching using dip-nets and bait-trapping are standard methods for sampling Dwarf Galaxias and are the most effective methods outlined in the Survey Guidelines for Australia's Threatened Fish (DSEWPaC 2004) and Biodiversity Precinct Structure Planning Kit (DSE 2010). They are also most appropriate method for sampling in the small and heavily vegetated water bodies, like those at the site.

Dwarf Galaxias sampling was undertaken by Aquatica Environmental at another nearby site, where Dwarf Galaxias also occur and as reference/baseline as to whether Dwarf Galaxias should have been detectable on the site.

1.4 Aquatic and Riparian Habitat Condition Monitoring

Aquatic and riparian habitat condition was visually assessed during the annual Dwarf Galaxias survey. The assessment was primarily based on a comparison of the aquatic and riparian vegetation condition during this survey as compared to previous surveys (i.e. temporal comparison).

1.5 Water Quality Monitoring

Water quality monitoring was undertaken fortnightly and/or following rainfall events >10 millimetres, and during the annual Dwarf Galaxias survey. In situ water quality data was collected by using a calibrated Hanna Instruments HI9829 multiparameter water quality metre. The parameters collected included temperate, electrical conductivity, pH, dissolved oxygen and turbidity.

A water depth gauge was also installed at the Dwarf Galaxias monitoring location in June 2023 in response to feedback from the Department of Environment as part of a site audit (Photo 1). The installed gauge was a steel picket, with the initial/installing water depth (i.e. water depth to sediment base) and height of picket above water measured to set the baseline.

Litter monitoring is undertaken by Narre Warren Central, however, where notable litter was observed during water quality monitoring it was noted and Narre Warren Central advised.

Photo 1 Water measuring gauge

2. RESULTS

1.6 Sampling Frequency and Conditions

During the 20232 monitoring year[1] a total of 29 water quality sampling events had occurred, including 13x scheduled, 15x post >10mm rainfall events and 1x during annual Dwarf Galaxias monitoring (Table 1).

The overall number of post >10mm rainfall events sampling was slightly lower than the previous years (i.e. 18x in 2022), namely due to a return to slight less wet conditions. For the 2023 monitoring year there was a total of 22 days with >10mm rain (Figure 3), as compared to 35 days in 2022 and 24 days in 2021. The raw water rainfall monitoring data are provided in Appendix 2.

[1] The final water quality monitoring event, scheduled for 29th December will be included in the 2023 monitoring data.

Table 1 2023 sampling schedule

DAY	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	KEY
Sunday	1/1/2023									1/10/2023			Standard WQ Monitoring Event
Monday	2/1/2023				1/5/2023					2/10/2023			Next scheduled
Tuesday	3/1/2023				2/5/2023			1/8/2023		3/10/2023			Post >10mm rainfall event
Wednesday	4/1/2023	1/2/2023	1/3/2023		**3/5/2023**			2/8/2023		**4/10/2023**	1/11/2023		**Incident**
Thursday	5/1/2023	2/2/2023	2/3/2023		4/5/2023	1/6/2023		3/8/2023		5/10/2023	2/11/2023		Annual DG Survey
Friday	6/1/2023	**3/2/2023**	3/3/2023		5/5/2023	2/6/2023		4/8/2023	1/9/2023	6/10/2023	3/11/2023	1/12/2023	Other
Saturday	7/1/2023	4/2/2023	4/3/2023	1/4/2023	**6/5/2023**	3/6/2023	1/7/2023	5/8/2023	2/9/2023	7/10/2023	4/11/2023	2/12/2023	**Rainfall > 10mm**
Sunday	8/1/2023	5/2/2023	5/3/2023	2/4/2023	7/5/2023	4/6/2023	2/7/2023	6/8/2023	3/9/2023	8/10/2023	5/11/2023	**3/12/2023**	Salvage Event
Monday	9/1/2023	6/2/2023	**6/3/2023**	3/4/2023	8/5/2023	5/6/2023	3/7/2023	7/8/2023	4/9/2023	9/10/2023	6/11/2023	4/12/2023	
Tuesday	10/1/2023	7/2/2023	7/3/2023	4/4/2023	**9/5/2023**	6/6/2023	4/7/2023	8/8/2023	5/9/2023	10/10/2023	7/11/2023	5/12/2023	
Wednesday	11/1/2023	8/2/2023	8/3/2023	5/4/2023	10/5/2023	7/6/2023	5/7/2023	9/8/2023	6/9/2023	11/10/2023	8/11/2023	6/12/2023	
Thursday	12/1/2023	9/2/2023	9/3/2023	6/4/2023	11/5/2023	**8/6/2023**	6/7/2023	10/8/2023	7/9/2023	12/10/2023	9/11/2023	7/12/2023	
Friday	13/1/2023	10/2/2023	10/3/2023	7/4/2023	12/5/2023	9/6/2023	7/7/2023	11/8/2023	8/9/2023	**13/10/2023**	10/11/2023	8/12/2023	
Saturday	14/1/2023	11/2/2023	11/3/2023	**8/4/2023**	13/5/2023	10/6/2023	8/7/2023	12/8/2023	9/9/2023	14/10/2023	11/11/2023	9/12/2023	
Sunday	15/1/2023	12/2/2023	12/3/2023	**9/4/2023**	14/5/2023	11/6/2023	9/7/2023	13/8/2023	10/9/2023	15/10/2023	12/11/2023	10/12/2023	
Monday	16/1/2023	13/2/2023	13/3/2023	10/4/2023	15/5/2023	12/6/2023	10/7/2023	14/8/2023	11/9/2023	**16/10/2023**	13/11/2023	11/12/2023	
Tuesday	17/1/2023	14/2/2023	14/3/2023	11/4/2023	16/5/2023	13/6/2023	11/7/2023	15/8/2023	12/9/2023	17/10/2023	14/11/2023	12/12/2023	
Wednesday	18/1/2023	15/2/2023	15/3/2023	12/4/2023	17/5/2023	14/6/2023	12/7/2023	16/8/2023	13/9/2023	18/10/2023	15/11/2023	13/12/2023	
Thursday	19/1/2023	16/2/2023	16/3/2023	13/4/2023	18/5/2023	15/6/2023	13/7/2023	17/8/2023	14/9/2023	19/10/2023	16/11/2023	14/12/2023	
Friday	20/1/2023	17/2/2023	17/3/2023	14/4/2023	19/5/2023	16/6/2023	14/7/2023	18/8/2023	15/9/2023	20/10/2023	17/11/2023	15/12/2023	
Saturday	21/1/2023	18/2/2023	18/3/2023	15/4/2023	20/5/2023	17/6/2023	15/7/2023	19/8/2023	16/9/2023	21/10/2023	18/11/2023	16/12/2023	
Sunday	22/1/2023	19/2/2023	19/3/2023	**16/4/2023**	**21/5/2023**	**18/6/2023**	16/7/2023	20/8/2023	17/9/2023	22/10/2023	19/11/2023	17/12/2023	Offset Site construction complete
Monday	23/1/2023	20/2/2023	20/3/2023	17/4/2023	22/5/2023	**19/6/2023**	17/7/2023	21/8/2023	18/9/2023	23/10/2023	20/11/2023	18/12/2023	
Tuesday	24/1/2023	21/2/2023	21/3/2023	18/4/2023	23/5/2023	20/6/2023	18/7/2023	22/8/2023	19/9/2023	24/10/2023	21/11/2023	19/12/2023	
Wednesday	25/1/2023	22/2/2023	22/3/2023	19/4/2023	24/5/2023	21/6/2023	19/7/2023	23/8/2023	20/9/2023	25/10/2023	22/11/2023	20/12/2023	
Thursday	26/1/2023	23/2/2023	23/3/2023	20/4/2023	25/5/2023	22/6/2023	20/7/2023	24/8/2023	21/9/2023	26/10/2023	23/11/2023	21/12/2023	
Friday	27/1/2023	24/2/2023	24/3/2023	21/4/2023	26/5/2023	23/6/2023	21/7/2023	25/8/2023	22/9/2023	27/10/2023	24/11/2023	22/12/2023	
Saturday	28/1/2023	25/2/2023	25/3/2023	22/4/2023	27/5/2023	24/6/2023	22/7/2023	26/8/2023	23/9/2023	28/10/2023	**25/11/2023**	23/12/2023	
Sunday	29/1/2023	26/2/2023	26/3/2023	23/4/2023	28/5/2023	25/6/2023	23/7/2023	27/8/2023	24/9/2023	29/10/2023	**26/11/2023**	24/12/2023	
Monday	30/1/2023	27/2/2023	27/3/2023	24/4/2023	29/5/2023	26/6/2023	24/7/2023	28/8/2023	25/9/2023	30/10/2023	27/11/2023	25/12/2023	
Tuesday	31/1/2023	28/2/2023	28/3/2023	25/4/2023	30/5/2023	27/6/2023	25/7/2023	29/8/2023	26/9/2023	31/10/2023	28/11/2023	26/12/2023	
Wednesday			29/3/2023	26/4/2023	31/5/2023	28/6/2023	26/7/2023	30/8/2023	27/9/2023		29/11/2023	27/12/2023	
Thursday			**30/3/2023**	27/4/2023		29/6/2023	27/7/2023	31/8/2023	28/9/2023		30/11/2023	**28/12/2023**	
Friday			31/3/2023	28/4/2023		30/6/2023	28/7/2023		29/9/2023			29/12/2023	
Saturday				**29/4/2023**			29/7/2023		30/9/2023			30/12/2023	
Sunday				30/4/2023			30/7/2023					31/12/2023	

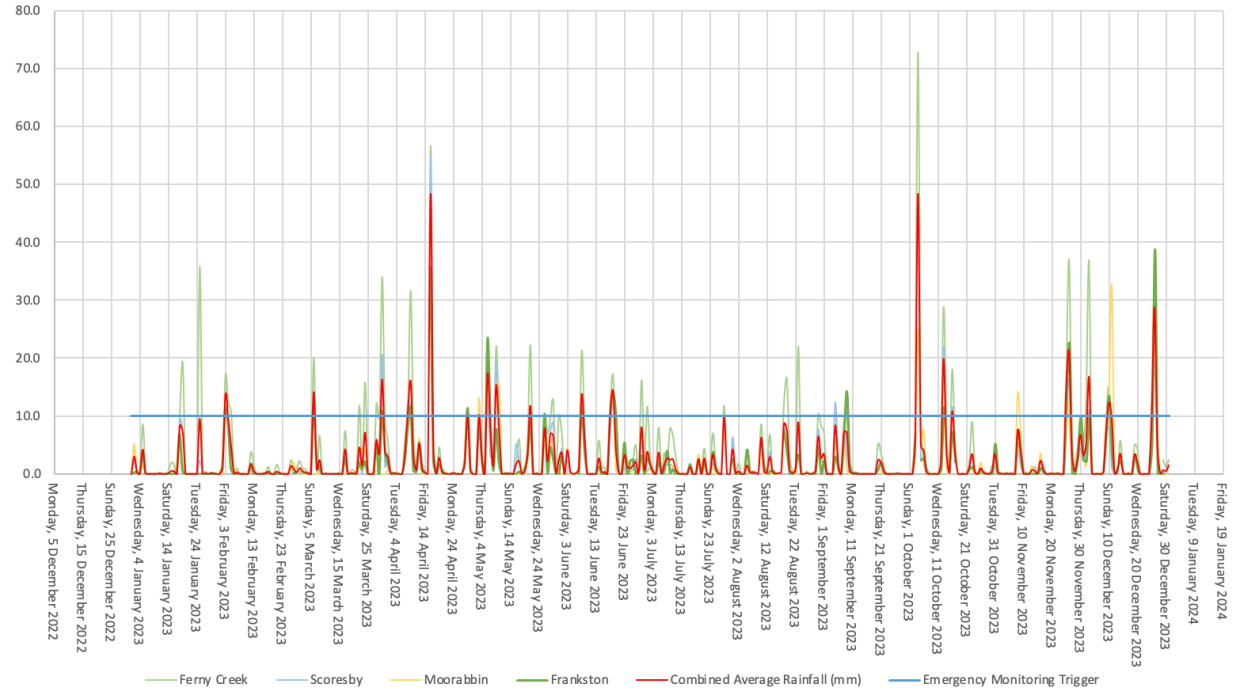

Figure 3 2023 rainfall chart

1.7 Aquatic and Riparian Habitat Condition

During the 2023 Dwarf Galaxias survey the vegetation within the retaining habitat (WQ6) increased in overall density as compared to previous rounds of monitoring (Photo 2). This increased appears to be particularly beneficial for dwarf galaxias, with numerous individuals being recorded in the more open exposed area near the concrete retaining wall compared to previous rounds of monitoring with they were mostly found most centralised within the dense stands of paperbark (*Melaleuca* spp.)(i.e. there appears to have been an increase in their area of habitation). The difference was markedly observable compared to the 2022 annual survey, when retained habitat was significantly inundated due to recent rainfall and seasonal vegetation growth impeded (Photo 3). Another marked variation was the increase in

the area and density of common reed (*Phragmites australis*) in the more open area between the melaleuca and concrete retaining wall.

Error! Reference source not found. is provided for additional temporal comparison of the quality and condition of the retained habitat in November 2020 (i.e. prior to the approved construction of the concrete retaining wall and swales), when the habitat was inclined to dry quite extensively second during the summer months. Compared to the 2022 and 2023 monitoring it is visually clear that the size of individual melaleuca plants has increased, as well as their overall area of coverage and shading (i.e. beneficial to the species).

Aquatic and riparian habitat condition at the other five water quality monitoring sites along Centre Road norther drain (WQ1-5) remained mostly the same compared previous surveys.

Photo 2 Habitat vegetation and inundation at Site Dwarf Galaxias survey location in December 2023 during the dwarf galaxias survey

Photo 3 Habitat vegetation and inundation at Site Dwarf Galaxias survey location in November 2022

Photo 4 Habitat vegetation at Site Dwarf Galaxias survey location in November 2020

1.8 Water Quality

The raw water quality data are provided in Appendix B.

Table 1 provides a summary of the relevant statistical analysis and/or relevant Environmental Reference Standard (ERS; EPA 2021) objectives for the Urban segment, Lowlands of Western Port catchment.

Review and assessment of the water quality data should be considered in light of the following minor water sampling observations and / or events:

- 25th January 2023 – Turbidity results at Site 4 and 6 were higher than actual due to shallow water and the water quality monitoring maker probe disturbing and suspending some sediment.
- 3rd March 2023 – Due to an unidentified water quality meter fault electrical conductivity and dissolved oxygen result were not recorded by the meter.
- 19th June 2023 – Following approximately 25 mm of rain falling in the 24 hours prior to the monitoring event, elevated turbidity was identified at Site 5. Upon on investigation it was found that a sediment fence had unknowingly breached allowing an unquantifiable volume sentiment-laden surface water to discharge into the nearest swale and then the Centre Road northern and drain. The site manager was immediately notified and the fence repaired and upgraded with the installation of new geofab sediment logs by Statewide Environmental. The impact was considered to be not ecologically significant with the turbidity reading at Site 5 at about the upper limit of that observed throughout the monitoring year but not at a level that would be deemed a risk dwarf galaxias.

Overall the 2023 water quality monitoring data showed the following patterns:

- Temperature was on average very consist across the sites across the year, showing expected heating and cooling phases in summer and winter. The highest temperatures across the sites were experienced in January to April and again in December. The lowest temperatures were observed in July.

  The highest individual temperature recorded was 22.73 °C at Site 5 on 29th December (the most open/exposed site, but still less than the previous year's high of 26.39°C). the lowest observed temperature was 8.60 °C at Site 6 on 18th July (the most shaded site but higher than the 2022 low of 6.34 °C.

  Overall Site 1 had the highest average temperature (mean=16.2), likely due to the discharge of warmer industrial/residential stormwater from the culvert. Site 6 had the lowest, again due to being the most shaded by the dense vegetation at the site.

  There is no ERS objective for temperature.

- pH was on average consistent across all five Centre Road sites (mean range=7.13 to 7.2-60) and higher at the dwarf galaxias retained habitat site (Site 6; mean=7.35). There appears no seasonal variation to pH across the sites and slightly higher pH results at Site 6 unlikely due to natural biological and chemical processes (i.e. the variation is not ecologically significant and there is no indication that the variation is caused through development of the site).

  The ERS objective was met at all sites.

- As has been consistently observed during previous rounds of monitoring electrical conductivity was consistently higher at Sites 6 (mean=1,012 µS/cm compared to Site 1 to 5 mean range=548 µS/cm to 628 µS/cm). As has been previously concluded the higher electrical conductivity levels at, Site 6 are likely reflective of the lack of direct flows and the concentration of salts due to evaporation.

  The ERS objective of ≤500 µS/cm was exceeded at all sites. The levels observed are not attributable to the development of the site, rather occurred naturally and/or from other upstream inputs/influences, and were clearly of no concern for dwarf galaxias due to their ongoing presence and abundance at the site.

- Dissolved oxygen was again consistently low across all sites (mean range=33.9% to 62.5%). Dissolved oxygen was consistently higher at the dwarf galaxias retained habitat site, likely due to the sampling usually occurring around the middle of the day and the high vegetation and algae content of the site likely producing oxygen as a result

of photosynthesis. In particular dissolved oxygen at Site 6 was very high through the cooler months of the year between about July and September.

The ERS objective of ≥70% was not met at any site, and the ERS upper limit objective of 130% was exceeded at Site 6 across three sequential rounds of sampling in August and September.

Similarly to electrical conductivity, the levels observed were not attributable to the development of the site, rather occurred naturally and/or due to other influences, and were clearly of no concern for the resident dwarf galaxias population.

- **Turbidity** was yet again on average highest at Site 1 (mean=34.89 NTU), indicating a high turbidity input from the culvert and unknown upstream sources. Site 5 had the lowest average turbidity (mean=16.75 NTU) indicating the effectiveness of the retained vegetation along the centre Rd north and rain in terms of its ability to philtre water as it flows past the site (i.e. from Sites 1 to 5). . This indicated that the retained Centre Road drain vegetation and construction/vegetation of the project's swales are functioning as designed and resulting in an overall reduction turbidity as surface waters pass by the site.

  The ERS of ≤35 NTU was only not met at Site 1, again due to unknown inputs upstream of the project area, as compared to none of the sites meeting the objective in 2022. Is further supports that retained vegetation, the constructed swales and the proper management of surface water and sediments from the site are all occurring as required.

Table 2 2023 water quality sampling summary

Parameter		ERS Objective	Centre Road Drain Sites					Habitat Site
			Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
Temperature (°C)	Min.	NA	10.70	9.22	9.13	8.60	9.37	8.03
	Max.		21.90	22.19	21.69	22.50	22.73	22.51
	Mean		16.12	15.26	15.28	15.11	15.88	14.84
pH	25th %tile	≥6.4	6.89	7.00	7.03	6.96	6.99	7.16
	75th %tile	≤7.9	7.38	7.35	7.19	7.27	7.40	7.66
	Mean	NA	7.21	7.16	7.13	7.13	7.20	7.35
Electrical Conductivity (µS/cm)	75th %	≤500	709	706	735	693	598	1205
	Mean	NA	597	628	627	619	548	1012
Dissolved Oxygen (%)	75th %tile	≥70	48.1	43.0	42.3	42.4	59.7	69.0
	Max.	130	64.4	61.9	61.5	65.9	74.1	164.2
	Mean	NA	35.3	36.1	33.9	34.9	49.2	62.5
Turbidity (NTU)	75th %tile	≤35	41.3	34.2	30.2	22.4	21.4	29.3
	Mean	NA	34.9	22.5	22.2	19.6	16.8	23.4

Orange highlight = parameter did not meet the ERS objective

1.9 Retained Habitat Water Height

In accordance with them following feedback from the 2023 audit and review conducted by the Department of Environment, a water depth gauge was installed in June 2023 at Site 6 (the retained habitat site) to measure and monitor the height of the water in the habitat.

Figure 4 shows the retained habitat water height from between June to December 2023. Monitoring shows that although there is some variation in water height at times, it consistently returns to its baseline at about 30 centimetres of depth at the location gauge.

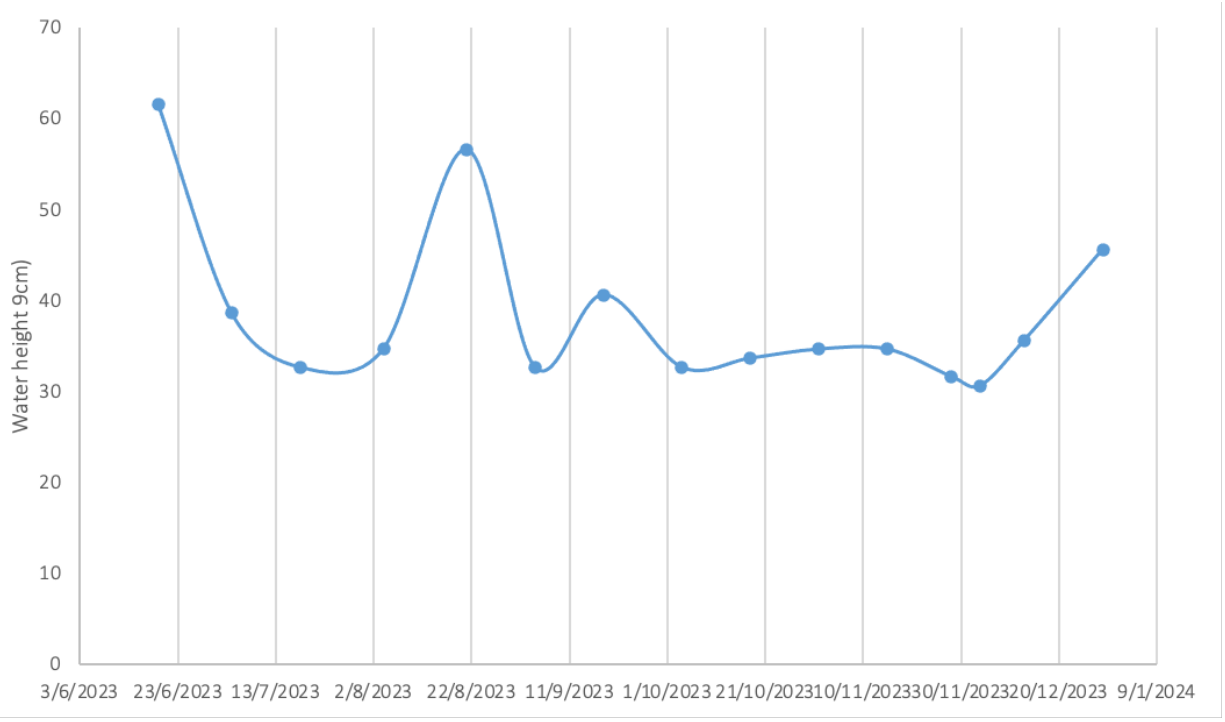

Figure 4 Site 6 water height

1.10 Dwarf Galaxias and Predatory Fish

The annual Dwarf Galaxias monitoring and associated water quality sampling occurred on the 13th and 14th December 2023. The weather during the survey was warm to hot with temperatures ranging between 34.2°C (day time maximum) and 14.7°C (night time minimum) at Scoresby (BOM 2024). Based on the four BOM weather monitoring stations data, an average of 4.0 mm rain fell during the survey, with 29.1 mm of rain falling in the week prior to the survey (BOM 2024).

The results of the December 2023 survey are provided in Table 3 and compared to previous rounds of monitoring.

A total of 18 Dwarf Galaxias (Photo 5 and Photo 6) were recorded during the November survey, including 10 adult males and 8 juveniles/sub-adults from the most recent breeding season, which likely occurred through August to October.

Large numbers of Mosquitofish (*Gambusia holbrooki*; Photo 6) were also recorded, much higher than previous years. Most appeared to be residing near the concrete retaining wall, where there is less shading and therefore warmer water (Photo 7). Though Dwarf Galaxias were also caught in this location.

Based on the number and condition of the individuals, and despite the increased number of Mosquitofish recorded during this survey, it appears there has been another good year for the on-site population, with successful breeding. This has also been our experience at other sites in the region, mostly due to above average winter/spring rains and mild temperatures.

The results also confirm that the constructed swales are continuing to function well and as intended, by supplying more consistent water levels to the retained habitat (i.e. the heavily vegetated *Melaleuca* areas), but limiting pest fish ingress to the retained habitat drain.

Table 3 Species and number of individuals recorded

Common Name	Scientific Name	Sampling Event						
		2023	2022	2021	2020	2019	2018	2017
Dwarf Galaxias	*Galaxiella pusilla*	18	11	17	25	12	3	2
Mosquitofish	*Gambusia holbrooki*	209	10s	10s	12	6	3	-
Common Galaxias	*Galaxias maculatus*	2	-	-	-	-	-	-
Goldfish	*Carassius auratus*		-	-	-	2	4	-
Freshwater Burrowing Crayfish	*Engeus spp.*	1	-	-	-	1	1	-
Oriental Weatherloach	*Misgurnus anguillicaudatus*	-	1	-	1	-	-	-

Photo 5 Dwarf Galaxias adult male (top and juvenile (bottom)

Photo 6 Dwarf Galaxias adult male, female Mosquitofish and dragonfly/damselfly larvae

Photo 7 More open habitat at the concrete retaining wall.

Photo 8 Oriental Weatherloach

3. SUMMARY

The 2023 annual Dwarf Galaxias monitoring event detected 18 individual Dwarf Galaxias in the retained habitat drain (compared to 11 in 2022, 17 in 2021, 25 in 2020, 12 in 2019 and 3 in 2018). This was the second highest numbers observed to date indicating that conditions for the species are being maintained and likely continuing to improve, due to the establishment of further suitable habitat in the constructed swales (i.e. increased area and density of vegetation). The primary reason for this is that the constructed swales result in more water and a more constant water levels in the retained habitat drain (comparing anecdotally) and in a manner that is clearly suited to the resident Dwarf Galaxias population (i.e. still maintaining ephemerality but not allowing complete drying).

Considering this and previous rounds of sampling for the project and historical records (Aquatica Environmental 2017, 2019, 2020, 2021 and 2022a/b), it is considered likely the abundance and distribution of the Dwarf Galaxias population in the habitat areas is somewhat dynamic, varying between years and due to seasonal influenced on water availability and therefore habitat. However, with the continued improvement of the retained habitat and expansion of suitable habitat into the constructed swales it is clearly resulting in an overall increase in the quality and area of available habitat for Dwarf Galaxias. This appears to have also correlated with an increase in the number of predatory fish species (i.e. Mosquitofish), however their presence doesn't appear to have impacted the successful breeding and increasing numbers and area of habitation of Dwarf Galaxias.

Based on the results of the 2023 annual survey and data, it is our option that development of the Casey Green site to date has been undertaken in accordance the DGSTP and associated approvals. No ecologically significant impacts have been observed to the retained habitat, with the constructed swales having improved overall conditions for Dwarf Galaxias on the site and in the region.

The 2024 monitoring year commenced on 1st January 2024, will include all required monitoring in accordance with approved DGSTP (and the project DGMP; BL&A 2015) including:

- Water quality monitoring: Fortnightly and/or after rainfall events > 10 millimetres until all construction is completed (i.e. all works on site completed), including the monitoring of water heights at the retained Dwarf Galaxias habitat site (Site 6).
- Dwarf Galaxias monitoring: Annually in November/December for at least five years post construction.

Please note, we interoperate the "completion of construction" to be the point at all major works including site clean-up, landscaping, etc. Have been completed and there is not further risk to the Dwarf Galaxias and their habitat (i.e. all possible sources of sediment/contaminant runoff have been mitigated.

If you have any questions or would like to discuss this assessment, report or any other matter further, please do not hesitate to call me on 0413 935 497.

Kind Regards,

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APPENDIX A: RAW WATER QUALITY RESULTS

Temperature (°C)

Sample Date	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
11/1/2023	21.68	22.19	21.40	20.91	22.39	22.51
25/1/2023	21.90	19.32	19.51	19.17	21.14	19.73
6/2/2023	19.93	18.07	19.33	17.00	19.51	17.03
15/2/2023	18.10	18.10	17.40	19.00	18.50	18.10
3/3/2023	20.00	19.00	19.00	19.00	21.00	20.00
7/3/2023	18.40	16.31	16.74	16.05	16.89	16.03
21/3/2023	19.55	18.60	19.60	19.60	20.80	17.30
31/3/2023	18.11	17.43	16.04	16.05	17.36	14.02
10/4/2023	18.66	18.50	18.64	18.55	18.54	15.20
17/4/2023	15.10	15.45	15.18	14.72	14.20	13.90
1/5/2023	14.85	12.40	13.15	11.99	12.98	11.89
9/5/2023	12.65	12.82	13.02	12.92	13.17	12.58
22/5/2023	14.56	13.33	13.35	13.27	13.55	12.20
9/6/2023	13.81	12.07	12.59	12.03	12.90	11.95
19/6/2023	10.70	11.30	11.12	10.67	10.94	9.92
4/7/2023	11.96	10.41	10.21	10.04	10.30	10.17
18/7/2023	12.20	9.22	9.13	8.60	9.37	8.03
4/8/2023	11.88	11.73	11.39	11.83	11.39	11.76
21/8/2023	11.23	11.56	11.33	11.18	11.77	12.31
4/9/2023	12.69	11.14	10.62	11.05	12.09	13.66
18/9/2023	13.26	13.12	13.22	12.95	13.20	13.65
4/10/2023	15.07	14.67	14.84	14.73	14.64	13.61
18/10/2023	15.85	13.90	14.02	14.62	15.52	14.62
1/11/2023	15.69	13.98	13.95	13.95	14.75	13.54
15/11/2023	18.41	16.13	16.33	15.94	17.75	18.67
28/11/2023	16.77	15.71	16.09	15.48	16.32	14.51
4/12/2023	16.65	16.16	15.54	15.64	17.11	15.87
13/12/2023	18.40	18.70	18.63	18.80	19.65	18.10
29/12/2023	19.45	21.20	21.69	22.50	22.73	19.50

pH

Sample Date	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
11/1/2023	7.19	7.00	7.03	6.96	6.99	7.51
25/1/2023	7.29	7.06	6.93	6.70	6.81	7.41
6/2/2023	7.35	7.64	7.06	7.01	6.98	7.66
15/2/2023	7.20	7.35	7.04	7.09	7.05	7.60
3/3/2023	7.38	7.40	7.50	7.50	7.60	7.40
7/3/2023	7.25	7.39	7.46	7.61	7.45	7.33
21/3/2023	7.15	7.50	7.15	7.13	7.11	7.36
31/3/2023	7.45	7.17	7.19	7.12	7.06	7.16
10/4/2023	7.34	7.01	7.00	7.07	7.00	7.05
17/4/2023	7.67	7.04	7.09	6.93	7.45	7.26

Sample Date	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
1/5/2023	7.56	6.94	6.92	6.99	7.30	7.45
9/5/2023	7.34	7.19	7.17	7.23	7.03	7.31
22/5/2023	7.11	7.35	7.33	7.25	7.26	7.84
9/6/2023	7.67	7.10	7.11	6.95	6.91	7.56
19/6/2023	8.36	7.97	7.84	7.74	7.91	7.95
4/7/2023	8.07	7.67	7.52	7.46	7.53	8.04
18/7/2023	7.11	7.34	7.10	7.29	7.27	8.08
4/8/2023	6.88	7.14	7.16	7.12	7.24	7.75
21/8/2023	6.89	7.08	7.14	7.27	7.40	7.84
4/9/2023	6.87	7.08	7.17	7.13	7.45	8.59
18/9/2023	6.95	6.89	7.03	7.10	7.35	7.56
4/10/2023	6.70	6.91	6.96	6.93	6.98	7.22
18/10/2023	6.45	6.78	6.74	6.76	6.63	6.36
1/11/2023	7.61	7.24	7.20	7.09	7.22	7.30
15/11/2023	7.17	7.38	7.27	7.51	7.46	7.14
28/11/2023	6.55	7.21	7.07	7.27	6.95	6.29
4/12/2023	6.84	6.59	7.06	6.80	7.22	6.16
13/12/2023	6.62	6.47	6.55	6.82	6.98	6.13
29/12/2023	7.09	6.85	7.01	7.01	7.19	6.96

Electrical Conductivity (µS/cm)

Sample Date	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
11/1/2023	751	702	698	649	415	965
25/1/2023	1246	815	1101	1294	933	1211
6/2/2023	916	854	753	636	602	875
15/2/2023	621	603	577	654	626	903
3/3/2023						
7/3/2023	441	434	442	440	423	629
21/3/2023	434	447	426	436	402	675
31/3/2023	446	431	428	456	426	703
10/4/2023	392	510	484	511	399	832
17/4/2023	484	509	472	441	378	688
1/5/2023	496	516	493	526	589	701
9/5/2023	547	504	479	553	558	1055
22/5/2023	512	582	564	541	496	1357
9/6/2023	407	495	478	436	414	1096
19/6/2023	249	517	438	654	442	895
4/7/2023	699	838	807	807	762	1197
18/7/2023	1577	1108	1033	841	837	1252
4/8/2023	740	699	708	697	679	1360
21/8/2023	468	560	649	757	685	1327
4/9/2023	625	705	729	795	588	1238
18/9/2023	523	551	568	581	593	1201
4/10/2023	216	327	290	360	437	1191
18/10/2023	631	707	695	540	472	1165

Sample Date	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
1/11/2023	471	465	859	824	596	1203
15/11/2023	833	569	513	493	462	1210
28/11/2023	369	995	920	692	584	1006
4/12/2023	405	811	764	609	544	897
13/12/2023	461	647	568	546	463	748
29/12/2023	761	694	613	575	544	756

Dissolved Oxygen (%)

Sample Date	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
11/1/2023	38.3	37.8	37.9	32.0	40.2	54.2
25/1/2023	36.5	30.3	24.9	26.5	36.7	30.4
6/2/2023	48.3	47.8	26.9	42.0	50.2	64.1
15/2/2023	29.0	27.8	42.2	36.5	67.6	29.9
3/3/2023						
7/3/2023	27.5	33.3	43.6	43.7	67.3	42.0
21/3/2023	35.1	37.4	36.9	36.8	57.9	36.9
31/3/2023	35.6	41.5	42.6	40.7	50.4	35.7
10/4/2023	37.7	39.1	39.1	48.8	63.6	67.3
17/4/2023	41.1	51.0	47.9	50.0	57.3	56.1
1/5/2023	53.7	61.9	55.9	56.8	74.1	58.3
9/5/2023	44.2	37.8	36.9	38.8	41.3	45.9
22/5/2023	53.4	52.4	53.3	55.5	58.7	49.6
9/6/2023	50.5	59.7	61.5	65.9	68.1	73.3
19/6/2023	64.4	31.7	28.0	22.2	49.1	43.3
4/7/2023	19.6	20.7	13.7	18.1	23.6	94.2
18/7/2023	11.6	29.7	17.0	30.1	35.3	103.3
4/8/2023	14.2	47.3	38.5	48.5	58.1	144.0
21/8/2023	46.3	37.5	47.4	40.3	71.9	147.9
4/9/2023	9.7	27.8	39.8	32.7	62.8	164.2
18/9/2023	22.3	20.0	19.5	35.0	52.0	106.0
4/10/2023	58.5	33.6	25.4	17.7	16.4	29.5
18/10/2023	48.0	38.7	32.9	34.5	54.2	55.2
1/11/2023	17.5	21.0	23.8	20.4	43.4	26.9
15/11/2023	12.6	22.6	9.0	11.7	32.1	67.5
28/11/2023	57.4	59.0	29.7	26.1	50.3	24.2
4/12/2023	34.8	14.1	31.8	23.6	32.0	26.5
13/12/2023	2.2	11.2	3.8	11.1	23.7	18.8
29/12/2023	38.3	37.8	37.9	32.0	40.2	54.2

Turbidity (NTU)

Sample Date	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
11/1/2023	35.9	34.6	33.9	19.3	21.6	16.1
25/1/2023	5.60	5.0	9.1	15.4	4.1	11.8
6/2/2023	10.1	9.3	17.4	2.1	4.7	18.8

Sample Date	Site 1	Site 2	Site 3	Site 4	Site 5	Site 6
15/2/2023	16.80	10.3	17.4	11.8	10.2	16.0
3/3/2023	30.0	20.0	15.0	20.0	15.0	15.0
7/3/2023	32.2	13.8	13.4	10.6	17.6	38.9
21/3/2023	31.6	12.6	15.3	16.4	12.7	33.0
31/3/2023	26.8	22.3	18.4	15.8	12.8	26.0
10/4/2023	7.2	10.8	14.8	10.9	8.5	15.3
17/4/2023	26.8	22.3	18.4	15.8	12.8	26.0
1/5/2023	63.3	15.6	15.3	16.7	13.0	19.0
9/5/2023	40.2	41.6	45.3	40.9	27.1	29.3
22/5/2023	66.4	51.0	36.8	39.0	35.1	32.0
9/6/2023	64.0	51.7	44.3	33.9	35.1	20.5
19/6/2023	80.4	51.4	53.3	22.4	85.4	30.7
4/7/2023	41.3	14.8	16.8	21.1	9.9	19.7
18/7/2023	15.9	20.1	21.9	29.4	11.3	23.6
4/8/2023	18.4	11.7	11.7	27.0	6.8	41.7
21/8/2023	51.1	23.4	18.6	18.7	5.4	22.9
4/9/2023	9.3	13.3	9.0	11.5	4.5	18.3
18/9/2023	11.0	12.3	9.2	9.9	6.3	17.2
4/10/2023	34.5	48.4	39.7	36.6	21.4	19.4
18/10/2023	78.9	48.0	45.3	47.7	29.1	21.5
1/11/2023	37.7	7.4	8.4	10.9	5.1	16.7
15/11/2023	41.1	4.3	9.5	7.2	4.3	16.0
28/11/2023	28.8	13.1	27.8	15.6	19.3	23.0
4/12/2023	64.8	34.2	30.2	20.8	21.6	25.9
13/12/2023	19.8	12.6	11.6	6.9	12.8	29.7
29/12/2023	22.0	15.5	16.2	15.4	12.3	35.7
11/1/2023	35.9	34.6	33.9	19.3	21.6	16.1

APPENDIX A: RAW WATER QUALITY RESULTS

Date	Ferny Creek	Frankston	Moorabbin	Scoresby	Combined Average Rainfall (mm)	Emergency Monitoring Trigger
Sunday, 1 January 2023	0.2	0.0	0.0	0.0	0.1	10
Monday, 2 January 2023	4.4	0.2	5.2	2.2	3.0	10
Tuesday, 3 January 2023	0.4	0.4	0.0	0.0	0.2	10
Wednesday, 4 January 2023	0.0	0.0	0.0	0.0	0.0	10
Thursday, 5 January 2023	8.6	3.8	1.6	2.8	4.2	10
Friday, 6 January 2023	0.2	0.2	0.0	0.0	0.1	10
Saturday, 7 January 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 8 January 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 9 January 2023	0.0	0.0	0.0	0.0	0.0	10
Tuesday, 10 January 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 11 January 2023	0.2	0.0		0.0	0.1	10
Thursday, 12 January 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 13 January 2023	0.0	0.0	0.0	0.0	0.0	10
Saturday, 14 January 2023	0.4	0.0	0.0	0.0	0.1	10
Sunday, 15 January 2023	2.0	0.0	0.0	0.0	0.5	10
Monday, 16 January 2023	1.6	0.0	0.0	0.2	0.5	10
Tuesday, 17 January 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 18 January 2023	10.6	7.0	6.4	9.4	8.4	10
Thursday, 19 January 2023	19.2	0.6	2.0	7.2	7.3	10
Friday, 20 January 2023	0.2	0.0	0.0	0.0	0.1	10
Saturday, 21 January 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 22 January 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 23 January 2023	0.0	0.0	0.0	0.0	0.0	10
Tuesday, 24 January 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 25 January 2023	35.8	0.0	0.0	2.4	9.6	10
Thursday, 26 January 2023	0.4	0.0	0.0	0.0	0.1	10
Friday, 27 January 2023	0.4	0.0	0.0	0.0	0.1	10
Saturday, 28 January 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 29 January 2023	0.2	0.0	0.2	0.2	0.2	10
Monday, 30 January 2023	0.2	0.0	0.0	0.0	0.1	10
Tuesday, 31 January 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 1 February 2023	0.0	0.0	0.0	0.0	0.0	10
Thursday, 2 February 2023	1.8	1.4	0.2	0.2	0.9	10
Friday, 3 February 2023	17.0	11.2	14.0	12.6	13.7	10
Saturday, 4 February 2023	12.2	8.8	7.4	9.6	9.5	10
Sunday, 5 February 2023	10.8	1.0	2.2	4.6	4.7	10
Monday, 6 February 2023	0.4	0.0	0.2	0.0	0.2	10
Tuesday, 7 February 2023	1.0	0.0	0.0	0.2	0.3	10
Wednesday, 8 February 2023	0.0	0.0	0.0	0.0	0.0	10
Thursday, 9 February 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 10 February 2023	0.0	0.0	0.0	0.0	0.0	10

Date	Ferny Creek	Frankston	Moorabbin	Scoresby	Combined Average Rainfall (mm)	Emergency Monitoring Trigger
Saturday, 11 February 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 12 February 2023	3.8	1.8	0.4	0.6	1.7	10
Monday, 13 February 2023	1.4	0.0	0.0	0.4	0.5	10
Tuesday, 14 February 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 15 February 2023	0.0	0.0	0.0	0.0	0.0	10
Thursday, 16 February 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 17 February 2023	0.0	0.2	0.0	0.0	0.1	10
Saturday, 18 February 2023	1.2	0.0	0.2	0.2	0.4	10
Sunday, 19 February 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 20 February 2023	0.0	0.0	0.0	0.0	0.0	10
Tuesday, 21 February 2023	1.6	0.0	0.0	0.0	0.4	10
Wednesday, 22 February 2023	0.4	0.0	0.0	0.2	0.2	10
Thursday, 23 February 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 24 February 2023	0.0	0.0	0.0	0.0	0.0	10
Saturday, 25 February 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 26 February 2023	2.4		0.8	1.0	1.4	10
Monday, 27 February 2023	0.8	0.2	2.0	0.2	0.8	10
Tuesday, 28 February 2023	1.0	0.2	0.0	0.0	0.3	10
Wednesday, 1 March 2023	2.2		0.6	0.2	1.0	10
Thursday, 2 March 2023	1.0	0.4	0.2	0.4	0.5	10
Friday, 3 March 2023	0.8	0.2	0.0	0.0	0.3	10
Saturday, 4 March 2023	0.2	0.2	0.0	0.0	0.1	10
Sunday, 5 March 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 6 March 2023	20.0	12.2	10.4	14.0	14.2	10
Tuesday, 7 March 2023	0.4	2.8	0.0	0.2	0.9	10
Wednesday, 8 March 2023	6.6	1.2	0.4	1.4	2.4	10
Thursday, 9 March 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 10 March 2023	0.0	0.0	0.0	0.2	0.1	10
Saturday, 11 March 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 12 March 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 13 March 2023	0.0	0.0	0.0	0.0	0.0	10
Tuesday, 14 March 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 15 March 2023	0.2	0.0	0.0	0.0	0.1	10
Thursday, 16 March 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 17 March 2023	7.4	2.8	4.0	2.8	4.3	10
Saturday, 18 March 2023	0.0	0.0	0.0	0.2	0.1	10
Sunday, 19 March 2023	0.6	0.0	0.0	0.0	0.2	10
Monday, 20 March 2023	0.6	0.0	0.0	0.0	0.2	10
Tuesday, 21 March 2023	0.2	0.0	0.0	0.0	0.1	10
Wednesday, 22 March 2023	11.8	2.0	1.2	3.4	4.6	10
Thursday, 23 March 2023	0.2	0.8	4.8	0.2	1.5	10
Friday, 24 March 2023	15.8	2.2	3.8	6.8	7.2	10

Date	Ferny Creek	Frankston	Moorabbin	Scoresby	Combined Average Rainfall (mm)	Emergency Monitoring Trigger
Saturday, 25 March 2023	0.2	0.0	0.0	0.0	0.1	10
Sunday, 26 March 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 27 March 2023	0.0	0.2	0.0	0.0	0.1	10
Tuesday, 28 March 2023	12.2	5.4	0.6	5.4	5.9	10
Wednesday, 29 March 2023	9.6	0.0	0.2	4.4	3.6	10
Thursday, 30 March 2023	34.0	10.8	0.0	20.6	16.4	10
Friday, 31 March 2023	9.0	4.2	0.0	1.4	3.7	10
Saturday, 1 April 2023	5.8	1.8	0.8	3.6	3.0	10
Sunday, 2 April 2023	0.0	0.2	0.0	0.0	0.1	10
Monday, 3 April 2023	0.0	0.2	0.0	0.0	0.1	10
Tuesday, 4 April 2023	0.2	0.0	0.0	0.0	0.1	10
Wednesday, 5 April 2023	0.0	0.0	0.0	0.0	0.0	10
Thursday, 6 April 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 7 April 2023	6.2	2.4	3.0	3.4	3.8	10
Saturday, 8 April 2023	11.4	7.8	11.2	12.6	10.8	10
Sunday, 9 April 2023	31.6	11.4	9.6	11.2	16.0	10
Monday, 10 April 2023	6.2	0.6	1.8	2.6	2.8	10
Tuesday, 11 April 2023	1.2	0.4	0.6	0.2	0.6	10
Wednesday, 12 April 2023	5.8	5.4	6.2	3.6	5.3	10
Thursday, 13 April 2023	2.0	0.6	0.2	1.0	1.0	10
Friday, 14 April 2023	0.4	0.2	0.0	0.2	0.2	10
Saturday, 15 April 2023	0.0		0.2	0.0	0.1	10
Sunday, 16 April 2023	56.6	35.6	46.6	54.8	48.4	10
Monday, 17 April 2023	6.0	2.2	2.6	2.8	3.4	10
Tuesday, 18 April 2023	0.2	0.0	0.0	0.0	0.1	10
Wednesday, 19 April 2023	4.6	1.6	2.2	2.8	2.8	10
Thursday, 20 April 2023	0.0	0.8	0.0	0.2	0.3	10
Friday, 21 April 2023	0.2	0.0	0.2	0.0	0.1	10
Saturday, 22 April 2023	0.0		0.0	0.0	0.0	10
Sunday, 23 April 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 24 April 2023	0.0	0.2	0.0	0.0	0.1	10
Tuesday, 25 April 2023	0.0	0.0	0.0		0.0	10
Wednesday, 26 April 2023	0.0	0.0	0.0		0.0	10
Thursday, 27 April 2023	0.0	0.0	0.0		0.0	10
Friday, 28 April 2023	2.6	2.4	1.8	0.8	1.9	10
Saturday, 29 April 2023	8.6	11.4	11.2	9.8	10.3	10
Sunday, 30 April 2023	0.0	0.8	0.2	0.6	0.4	10
Monday, 1 May 2023	0.0	0.0	0.0	0.0	0.0	10
Tuesday, 2 May 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 3 May 2023	6.8	9.0	13.2	11.8	10.2	10
Thursday, 4 May 2023	2.8	2.6	1.6	3.6	2.7	10
Friday, 5 May 2023	0.2	0.0	0.0	0.0	0.1	10

Date	Ferny Creek	Frankston	Moorabbin	Scoresby	Combined Average Rainfall (mm)	Emergency Monitoring Trigger
Saturday, 6 May 2023	19.0	23.4	14.4	12.6	17.4	10
Sunday, 7 May 2023	6.8	9.2	10.4	3.0	7.4	10
Monday, 8 May 2023	2.4	0.6	0.4	3.0	1.6	10
Tuesday, 9 May 2023	22.0	7.8	12.2	19.2	15.3	10
Wednesday, 10 May 2023	9.0	1.8	15.6	4.8	7.8	10
Thursday, 11 May 2023	0.2	0.0	0.0	0.2	0.1	10
Friday, 12 May 2023	0.2	0.0	0.0	0.0	0.1	10
Saturday, 13 May 2023	0.2	0.0	0.0	0.0	0.1	10
Sunday, 14 May 2023	0.0	0.0	0.0	0.2	0.1	10
Monday, 15 May 2023	0.2	0.0	0.0	0.0	0.1	10
Tuesday, 16 May 2023	1.6	0.0	0.0	5.2	1.7	10
Wednesday, 17 May 2023	6.0	0.4	0.0	2.4	2.2	10
Thursday, 18 May 2023	0.0	0.0	0.2	0.0	0.1	10
Friday, 19 May 2023	0.4	1.0	0.0	0.2	0.4	10
Saturday, 20 May 2023	5.2	3.2	2.2	2.4	3.3	10
Sunday, 21 May 2023	22.2	8.8	6.6	9.4	11.8	10
Monday, 22 May 2023	0.0	0.0	0.0	0.2	0.1	10
Tuesday, 23 May 2023	0.2	0.0	0.0	0.0	0.1	10
Wednesday, 24 May 2023	0.0	0.0	0.0	0.0	0.0	10
Thursday, 25 May 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 26 May 2023	9.8	10.4	5.6	5.8	7.9	10
Saturday, 27 May 2023	7.0	0.2	0.4	1.0	2.2	10
Sunday, 28 May 2023	9.6	4.6	6.6	7.2	7.0	10
Monday, 29 May 2023	12.6	2.6	2.4	8.8	6.6	10
Tuesday, 30 May 2023	0.8	0.0	0.0	0.2	0.3	10
Wednesday, 31 May 2023	10.0	0.0	0.0	0.0	2.5	10
Thursday, 1 June 2023	7.0	3.0	0.2	4.4	3.7	10
Friday, 2 June 2023	0.0	0.0	0.0	0.0	0.0	10
Saturday, 3 June 2023	4.2		4.6	3.6	4.1	10
Sunday, 4 June 2023	0.8		0.0	0.2	0.3	10
Monday, 5 June 2023	0.0		0.0	0.0	0.0	10
Tuesday, 6 June 2023	0.0		0.2	0.2	0.1	10
Wednesday, 7 June 2023	1.6	0.0	0.2	1.4	0.8	10
Thursday, 8 June 2023	21.2	11.2	11.0	11.6	13.8	10
Friday, 9 June 2023	9.2	4.0	4.6	7.8	6.4	10
Saturday, 10 June 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 11 June 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 12 June 2023	0.0	0.0	0.0	0.0	0.0	10
Tuesday, 13 June 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 14 June 2023	5.8	1.2	1.8	2.0	2.7	10
Thursday, 15 June 2023	1.0	0.0	0.0	0.4	0.4	10
Friday, 16 June 2023	1.2	0.0	0.0	0.2	0.4	10

Date	Ferny Creek	Frankston	Moorabbin	Scoresby	Combined Average Rainfall (mm)	Emergency Monitoring Trigger
Saturday, 17 June 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 18 June 2023	11.8	10.8	10.6	7.4	10.2	10
Monday, 19 June 2023	17.0	14.2	13.8	12.6	14.4	10
Tuesday, 20 June 2023	3.6	10.2	0.6	2.4	4.2	10
Wednesday, 21 June 2023	0.2	0.4	0.2	0.0	0.2	10
Thursday, 22 June 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 23 June 2023	2.8	5.4	3.8	1.0	3.3	10
Saturday, 24 June 2023	2.4	0.0	1.8	0.6	1.2	10
Sunday, 25 June 2023	0.4	2.2	1.0	0.4	1.0	10
Monday, 26 June 2023	2.4	2.4	0.0	0.8	1.4	10
Tuesday, 27 June 2023	5.0	0.0	0.6	2.6	2.1	10
Wednesday, 28 June 2023	0.2	0.4	0.4	0.0	0.3	10
Thursday, 29 June 2023	16.2	3.2	7.2	5.6	8.1	10
Friday, 30 June 2023	2.4	0.0	0.0	0.0	0.6	10
Saturday, 1 July 2023	11.6	2.8	0.4	0.6	3.9	10
Sunday, 2 July 2023	3.0	1.6	0.8	1.0	1.6	10
Monday, 3 July 2023	0.8	0.4	0.2	0.4	0.5	10
Tuesday, 4 July 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 5 July 2023	8.0	2.2	1.8	2.8	3.7	10
Thursday, 6 July 2023	0.2	0.0	0.2	0.2	0.2	10
Friday, 7 July 2023	3.6	0.6	0.8	1.6	1.7	10
Saturday, 8 July 2023	2.2	4.0	3.0	1.6	2.7	10
Sunday, 9 July 2023	7.8	0.2	0.0	1.6	2.4	10
Monday, 10 July 2023	6.6	0.8	1.4	1.4	2.6	10
Tuesday, 11 July 2023	3.0	0.0	0.0	0.2	0.8	10
Wednesday, 12 July 2023	0.2	0.0	0.0		0.1	10
Thursday, 13 July 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 14 July 2023	0.0	0.0	0.0	0.0	0.0	10
Saturday, 15 July 2023	0.0	0.0	0.2	0.0	0.1	10
Sunday, 16 July 2023	1.8	1.6	0.8	0.4	1.2	10
Monday, 17 July 2023	0.2	0.0	0.0	0.0	0.1	10
Tuesday, 18 July 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 19 July 2023	2.6	2.4	3.4	2.0	2.6	10
Thursday, 20 July 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 21 July 2023	4.4	2.4	1.4	2.6	2.7	10
Saturday, 22 July 2023	0.2	0.0	0.0	0.0	0.1	10
Sunday, 23 July 2023	0.0	0.0	0.2	0.0	0.1	10
Monday, 24 July 2023	7.0	3.8	1.0	1.8	3.4	10
Tuesday, 25 July 2023	2.4	0.8	0.0	0.6	1.0	10
Wednesday, 26 July 2023	0.4	0.0	0.2	0.0	0.2	10
Thursday, 27 July 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 28 July 2023	11.8		7.8	10.0	9.9	10

Date	Ferny Creek	Frankston	Moorabbin	Scoresby	Combined Average Rainfall (mm)	Emergency Monitoring Trigger
Saturday, 29 July 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 30 July 2023	0.0		0.0	0.0	0.0	10
Monday, 31 July 2023	5.4	2.6	2.6	6.4	4.3	10
Tuesday, 1 August 2023	0.4	0.0	0.2	0.0	0.2	10
Wednesday, 2 August 2023	1.8	0.0	0.0	0.0	0.5	10
Thursday, 3 August 2023	0.2	0.0	0.0	0.0	0.1	10
Friday, 4 August 2023	0.0	0.0	0.0	0.0	0.0	10
Saturday, 5 August 2023	0.6	4.2	1.0	0.0	1.5	10
Sunday, 6 August 2023	0.4	0.4	0.0	0.2	0.3	10
Monday, 7 August 2023	0.0	0.4	0.2	0.0	0.2	10
Tuesday, 8 August 2023	0.2	0.2			0.2	10
Wednesday, 9 August 2023	0.2		0.0	0.0	0.1	10
Thursday, 10 August 2023	8.6	6.2	4.0		6.3	10
Friday, 11 August 2023	0.2	1.4	0.0	0.0	0.4	10
Saturday, 12 August 2023	0.6	0.0	0.2	0.2	0.3	10
Sunday, 13 August 2023	6.8	0.4	0.8	3.8	3.0	10
Monday, 14 August 2023	0.4	0.6	0.0	0.2	0.3	10
Tuesday, 15 August 2023	0.0	0.0	0.2	0.0	0.1	10
Wednesday, 16 August 2023	0.2		0.0	0.2	0.1	10
Thursday, 17 August 2023	0.2		0.2		0.2	10
Friday, 18 August 2023	12.4	7.4	6.8	8.0	8.7	10
Saturday, 19 August 2023	16.4	3.8	3.2	7.2	7.7	10
Sunday, 20 August 2023	2.8	0.0	0.0	0.0	0.7	10
Monday, 21 August 2023	0.4	0.0	0.2	0.0	0.2	10
Tuesday, 22 August 2023	0.6	1.0	0.0	0.2	0.5	10
Wednesday, 23 August 2023	22.0	3.4	3.0	7.4	9.0	10
Thursday, 24 August 2023	0.2	0.0	0.0	0.0	0.1	10
Friday, 25 August 2023	0.0		0.0	0.0	0.0	10
Saturday, 26 August 2023	0.4		0.0	0.0	0.1	10
Sunday, 27 August 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 28 August 2023	0.2	0.0	0.0	0.0	0.1	10
Tuesday, 29 August 2023	0.8	0.2	0.2	0.4	0.4	10
Wednesday, 30 August 2023	10.2	4.8	3.0	7.8	6.5	10
Thursday, 31 August 2023	8.2	0.0	0.4	2.4	2.8	10
Friday, 1 September 2023	7.2	2.4	2.2	2.0	3.5	10
Saturday, 2 September 2023	0.2	0.0	0.0	0.0	0.1	10
Sunday, 3 September 2023	0.0	0.0	0.0	0.2	0.1	10
Monday, 4 September 2023	0.0	0.0	0.0	0.0	0.0	10
Tuesday, 5 September 2023	12.0	3.0	6.2	12.4	8.4	10
Wednesday, 6 September 2023	3.6	1.0	0.4	1.2	1.6	10
Thursday, 7 September 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 8 September 2023	9.0	7.0	5.2	7.6	7.2	10

Date	Ferny Creek	Frankston	Moorabbin	Scoresby	Combined Average Rainfall (mm)	Emergency Monitoring Trigger
Saturday, 9 September 2023	10.4	14.2	0.8	3.4	7.2	10
Sunday, 10 September 2023	0.0	1.8	0.0	0.2	0.5	10
Monday, 11 September 2023	0.4	0.0	0.0	0.0	0.1	10
Tuesday, 12 September 2023	0.0	0.2	0.0	0.0	0.1	10
Wednesday, 13 September 2023	0.0	0.0	0.0	0.0	0.0	10
Thursday, 14 September 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 15 September 2023	0.0	0.0	0.0	0.0	0.0	10
Saturday, 16 September 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 17 September 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 18 September 2023	0.0	0.0	0.0	0.0	0.0	10
Tuesday, 19 September 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 20 September 2023	5.2	0.8	0.8	2.6	2.4	10
Thursday, 21 September 2023	3.6	2.0	0.8	1.6	2.0	10
Friday, 22 September 2023	1.4	0.2	0.0		0.5	10
Saturday, 23 September 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 24 September 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 25 September 2023	0.0	0.0	0.0	0.0	0.0	10
Tuesday, 26 September 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 27 September 2023	0.2	0.0	0.0	0.0	0.1	10
Thursday, 28 September 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 29 September 2023	0.0	0.0	0.0	0.0	0.0	10
Saturday, 30 September 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 1 October 2023	0.0	0.0	0.0		0.0	10
Monday, 2 October 2023		0.0	0.0		0.0	10
Tuesday, 3 October 2023	6.0	7.0	3.2	3.2	4.9	10
Wednesday, 4 October 2023	72.8		25.0	47.4	48.4	10
Thursday, 5 October 2023	9.6	2.4	5.2	2.2	4.9	10
Friday, 6 October 2023	2.0	2.6	7.8		4.1	10
Saturday, 7 October 2023	0.0	0.6	0.0		0.2	10
Sunday, 8 October 2023	0.0	0.0	0.0		0.0	10
Monday, 9 October 2023	0.0	0.0	0.0		0.0	10
Tuesday, 10 October 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 11 October 2023	0.0	0.0	0.0	0.0	0.0	10
Thursday, 12 October 2023	2.8	0.6	1.4	1.0	1.5	10
Friday, 13 October 2023	28.8	11.6	17.2	22.0	19.9	10
Saturday, 14 October 2023	9.6		1.0	1.0	3.9	10
Sunday, 15 October 2023	0.8	0.2	0.0	0.2	0.3	10
Monday, 16 October 2023	18.0	7.2	6.4	11.6	10.8	10
Tuesday, 17 October 2023	6.0	2.0	4.4	3.2	3.9	10
Wednesday, 18 October 2023	0.2		0.0	0.0	0.1	10
Thursday, 19 October 2023	0.0	0.0	0.0		0.0	10
Friday, 20 October 2023	0.0	0.0	0.0		0.0	10

Date	Ferny Creek	Frankston	Moorabbin	Scoresby	Combined Average Rainfall (mm)	Emergency Monitoring Trigger
Saturday, 21 October 2023	0.0	0.0	0.0		0.0	10
Sunday, 22 October 2023	2.0	0.8	1.0	0.6	1.1	10
Monday, 23 October 2023	9.0	1.2	0.8	2.8	3.5	10
Tuesday, 24 October 2023	0.6	0.2	0.0	0.0	0.2	10
Wednesday, 25 October 2023	0.0	0.0	0.0	0.0	0.0	10
Thursday, 26 October 2023	0.2	0.8	2.0		1.0	10
Friday, 27 October 2023	0.4	0.2	0.0		0.2	10
Saturday, 28 October 2023	0.2	0.0	0.0	0.0	0.1	10
Sunday, 29 October 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 30 October 2023	1.4	0.0	0.0		0.5	10
Tuesday, 31 October 2023	1.2	5.2	3.8	3.6	3.5	10
Wednesday, 1 November 2023	0.2	0.4	0.0	0.0	0.2	10
Thursday, 2 November 2023	0.2	0.0	0.0	0.0	0.1	10
Friday, 3 November 2023	0.0	0.0	0.0	0.0	0.0	10
Saturday, 4 November 2023	0.2	0.0	0.0	0.0	0.1	10
Sunday, 5 November 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 6 November 2023	0.2	0.0	0.0	0.0	0.1	10
Tuesday, 7 November 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 8 November 2023	5.4	7.6	14.0	3.4	7.6	10
Thursday, 9 November 2023	1.4	3.8	8.0	2.4	3.9	10
Friday, 10 November 2023	0.2	0.0	0.0	0.0	0.1	10
Saturday, 11 November 2023	0.2	0.0	0.0	0.0	0.1	10
Sunday, 12 November 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 13 November 2023	0.6	0.0	1.4	0.8	0.7	10
Tuesday, 14 November 2023	1.2	0.0	0.2	0.6	0.5	10
Wednesday, 15 November 2023	0.2	0.0	0.0	0.2	0.1	10
Thursday, 16 November 2023	2.8	1.0	3.6	1.8	2.3	10
Friday, 17 November 2023	1.4	0.2	0.2	1.2	0.8	10
Saturday, 18 November 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 19 November 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 20 November 2023	0.2	0.0	0.0	0.0	0.1	10
Tuesday, 21 November 2023	0.0	0.0	0.0	0.0	0.0	10
Wednesday, 22 November 2023	0.2	0.0	0.0	0.0	0.1	10
Thursday, 23 November 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 24 November 2023	0.0	0.0	0.0	0.0	0.0	10
Saturday, 25 November 2023	16.4	12.2	15.2	15.8	14.9	10
Sunday, 26 November 2023	37.0	22.4	9.0	16.2	21.2	10
Monday, 27 November 2023	8.0	0.2	3.6	2.4	3.6	10
Tuesday, 28 November 2023	1.0	0.0	0.2	0.4	0.4	10
Wednesday, 29 November 2023	4.6	3.0	2.2	1.8	2.9	10
Thursday, 30 November 2023	9.5	10.0	3.2	4.4	6.8	10
Friday, 1 December 2023	4.6	2.6	3.2	2.2	3.2	10

Date	Ferny Creek	Frankston	Moorabbin	Scoresby	Combined Average Rainfall (mm)	Emergency Monitoring Trigger
Saturday, 2 December 2023	12.8	2.2	1.4	4.4	5.2	10
Sunday, 3 December 2023	36.8	10.2	9.0	11.0	16.8	10
Monday, 4 December 2023	0.2	0.0	0.2	0.0	0.1	10
Tuesday, 5 December 2023	0.0	0.0	0.0		0.0	10
Wednesday, 6 December 2023	0.0	0.0	0.0		0.0	10
Thursday, 7 December 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 8 December 2023	0.4	0.4	0.0	0.0	0.2	10
Saturday, 9 December 2023	9.2	8.2	4.6	5.0	6.8	10
Sunday, 10 December 2023	14.8	13.4	13.2	8.2	12.4	10
Monday, 11 December 2023	1.0	3.4	32.6	1.6	9.7	10
Tuesday, 12 December 2023	0.2	0.0	0.0	0.0	0.1	10
Wednesday, 13 December 2023	0.2	1.2	0.4	0.0	0.5	10
Thursday, 14 December 2023	5.8	2.2	3.0	3.0	3.5	10
Friday, 15 December 2023	0.2	0.0	0.2	0.2	0.2	10
Saturday, 16 December 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 17 December 2023	0.2	0.0	0.0	0.0	0.1	10
Monday, 18 December 2023	0.0	0.0	0.0	0.0	0.0	10
Tuesday, 19 December 2023	5.0	3.4	3.2	2.0	3.4	10
Wednesday, 20 December 2023	4.4	0.6	1.0	1.8	2.0	10
Thursday, 21 December 2023	0.0	0.0	0.0	0.0	0.0	10
Friday, 22 December 2023	0.0	0.0	0.0	0.0	0.0	10
Saturday, 23 December 2023	0.0	0.0	0.0	0.0	0.0	10
Sunday, 24 December 2023	0.0	0.0	0.0	0.0	0.0	10
Monday, 25 December 2023	13.4	5.6	9.8	10.4	9.8	10
Tuesday, 26 December 2023	33.4	38.8	22.8	20.0	28.8	10
Wednesday, 27 December 2023	7.6	0.0	7.8	3.2	4.7	10
Thursday, 28 December 2023		0.0	0.4	0.0	0.1	10
Friday, 29 December 2023	2.4	0.0	0.0	0.2	0.7	10
Saturday, 30 December 2023	1.2		0.0	0.2	0.5	10
Sunday, 31 December 2023	2.4	2.2	0.2	1.2	1.5	10