

Boundary Creek, Big Swamp and Surrounding Environment – Remediation and Environmental Protection Plan

Quarterly Update

1 July to 30 September 2023

11 October 2023

Table of contents

Introduction.....	3
Implementation of the REPP	4
Boundary Creek and Big Swamp Remediation Plan	6
Boundary Creek and Big Swamp status update.....	6
Actions Completed on the Boundary Creek and Big Swamp Remediation Plan since 30 June 2023.....	12
Upcoming Actions Associated with the Boundary Creek & Big Swamp Remediation Plan	13
Surrounding Environment Investigation	14
Actions Completed on the Surrounding Environment Investigation since 30 June 2023	15
Upcoming actions Associated with the Surrounding Environment Investigation	16
Issues Register.....	17
Community Engagement.....	18
Success Targets.....	19
Technical Reports and Investigations.....	19
Contingency Measures.....	19
REPP Amendments.....	20
Progress Report	21

Introduction

In June 2017, Barwon Water acknowledged that the historic management of periodic groundwater pumping activities at the Barwon Downs borefield, conducted between 1982 and 2016 to supplement drinking water supplies during dry periods, had led to a reduction in groundwater contribution from the Lower Tertiary Aquifer into Boundary Creek, a tributary of the Barwon River.

This reduction, in conjunction with the changes in land use, Millennium Drought, and the complexities associated with management and regulation of a private on-stream dam that controls flow into the lower reaches of Boundary Creek, resulted in the occurrence of 'cease to flow' and 'acid flush' events along Boundary Creek and Big Swamp – a wetland that is primary fed by inflows from Boundary Creek.

This occurred, despite meeting the provisions set out in the groundwater extraction licence(s) that were intended to offset the potential impacts from Barwon Water's groundwater pumping activities on Boundary Creek. This drying subsequently resulted in the enhanced oxidation of naturally occurring acid sulfate soils and discharge of acidity and metals impacting the condition and function of Big Swamp and the lower reaches of Boundary Creek.

In May 2018, Barwon Water established a community and stakeholder working group to help inform the development of a Remediation Plan to address the impacts caused by Barwon Water's activities. In September 2018, Barwon Water's commitment to undertake remedial works was legally strengthened through the issuing of a Ministerial Notice by Southern Rural Water (SRW) under section 78 of the Water Act. The Boundary Creek, Big Swamp and Surrounding Environment Remediation and Environmental Protection Plan (REPP) was subsequently submitted to Southern Rural Water (SRW) in December 2019, and subsequently amended to account for Southern Rural Water and Independent Technical Reference Panel (ITRP) feedback prior to acceptance in February 2020. Noting that this was more recently updated in July 2023.

A key requirement of the section 78 notice and the REPP is the provision of quarterly updates to Southern Rural Water to report on progress with implementation of the plan, as well as an Annual Report. The section 78 notice also stipulates that the Annual Report is required to be submitted to Southern Rural Water for review and comment before being made publicly available by 30 September each year.

This quarterly update is the fourteenth (14th) since the REPP was implemented on 1 March 2020, and provides a high-level update on progress against the actions and timeframes outlined in the REPP between 1 July and 30 September 2023.

Implementation of the REPP

In accordance with the REPP, Barwon Water have adopted an adaptive management approach, whereby the REPP can be adapted in response to the current 'state of knowledge', or in response to data collected as part of the routine environmental monitoring program. This approach allows Barwon Water and Southern Rural Water to evaluate how the confirmed areas of impact and the surrounding environment more broadly are responding to the adopted remediation actions and take further action, such as implementation of contingency measures, if required.

To help address the requirements of the section 78 notice and ensure momentum was maintained, several key milestones and actions were established, as shown in Figure 1. While the timeframes presented only extend until the end of 2024, Barwon Water acknowledges that it may take several years to meet all the Boundary Creek and Big Swamp remediation success targets, and that the number and nature of remedial actions or contingency measures may change in line with the adaptive management approach.

This acknowledges that the number and nature of remedial actions needs to be balanced with practicality, as is required under the section 78 notice, along with the environmental implications, costs, risks, and trade-offs associated with implementing remedial actions that may alter the condition or intrinsic value of the swamp.

Regular assessment of monitoring results against the success targets and triggers for the implementation of contingency measures will continue beyond the timeframes outlined in Figure 1 until successful remediation has been achieved.

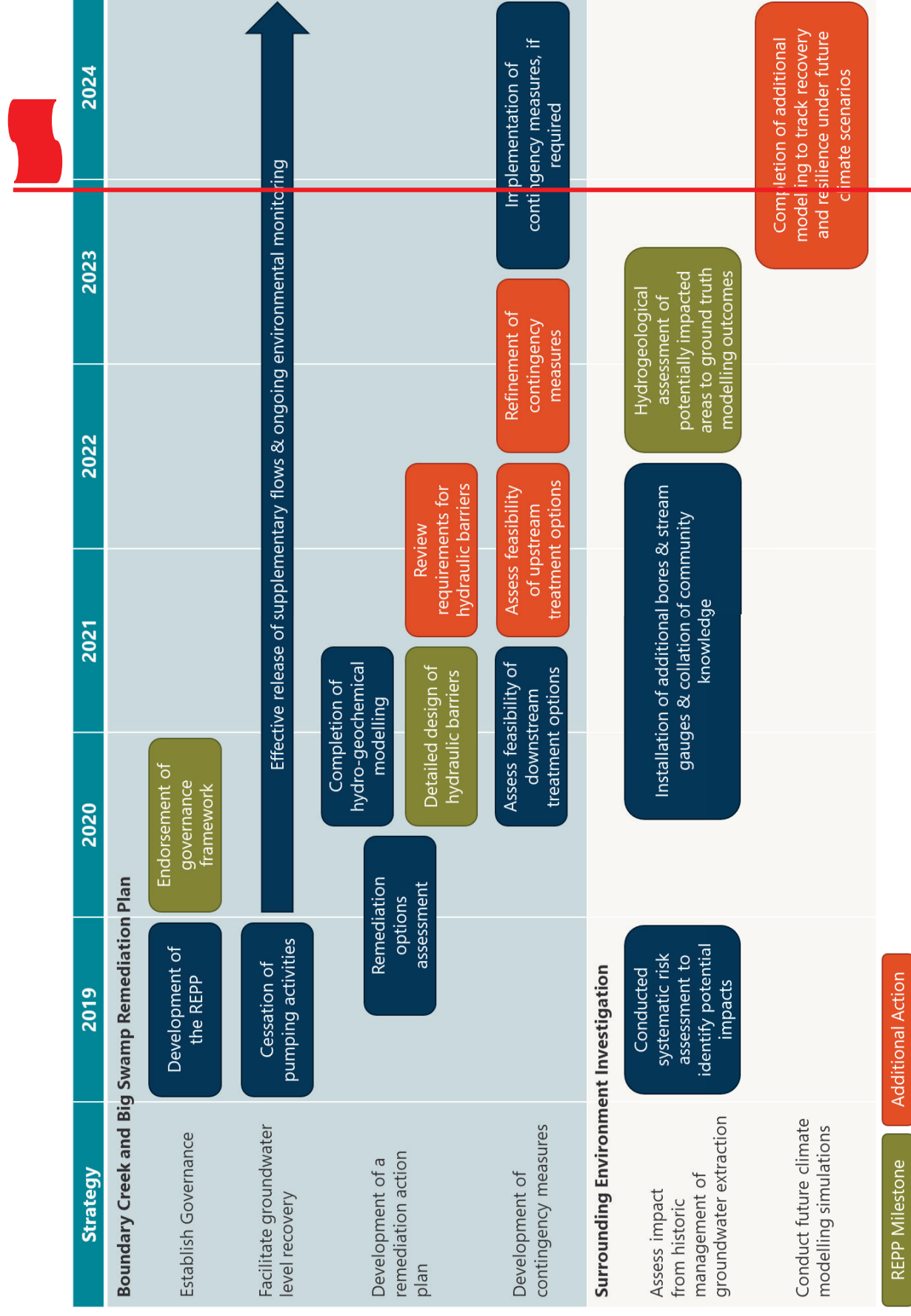


Figure 1: Timeframes for implementation of the REPP

Boundary Creek and Big Swamp Remediation Plan

Boundary Creek and Big Swamp status update

Based on the most recent data collected as part of Barwon Water's routine environmental monitoring program, the following observations can be made:

- Groundwater levels within Big Swamp's upper aquifer system continue to be maintained above the reactive horizon (i.e., where there is a high potential acidity) (refer Figure 2 and Figure 3). This positive outcome continues to minimise any further oxidation of acid sulfate soils and reduce the severity of wet-dry cycling processes.
- Groundwater levels from bores installed in the Lower Tertiary Aquifer system within Big Swamp continue to indicate the long-term recovery and repressurisation of the Lower Tertiary Aquifer system (refer Figure 2 and Figure 3), with the western end of the swamp consistently reporting artesian conditions since March 2022 (refer Figure 3). This is a positive shift towards the restoration of groundwater-surface water interaction in Boundary Creek upstream of Big Swamp.
- Standing water continues to be visible, at least seasonally, within Big Swamp's inundation areas (Table 1), with water levels within the swamp increasing with increased rainfall. This continues to provide suitable conditions for desired species and minimise the occurrence of 'acid flush' events, that occur following severe drying events.
- The pH levels in Boundary Creek downstream of Big Swamp (site 233276) and Boundary Creek at Yeodene (site 233228) continue to exhibit a long term increasing trend and a marked reduction in the frequency and duration of severe acid flush events, with Boundary Creek at Yeodene (site 233228) reporting a minimum pH of 4.5 pH units between 1 July and 30 September 2023 (refer Figure 4 and Figure 5).
- Between 1 July and 30 September 2023, average daily streamflow's at stream gauge 233228 (Boundary Creek at Yeodene) have ranged between 2.3 and 66.0 ML/day, reporting an average daily flow of 14.4 ML/day (refer Figure 5). As such, no cease to flow events have occurred during Q1 2023-2024.

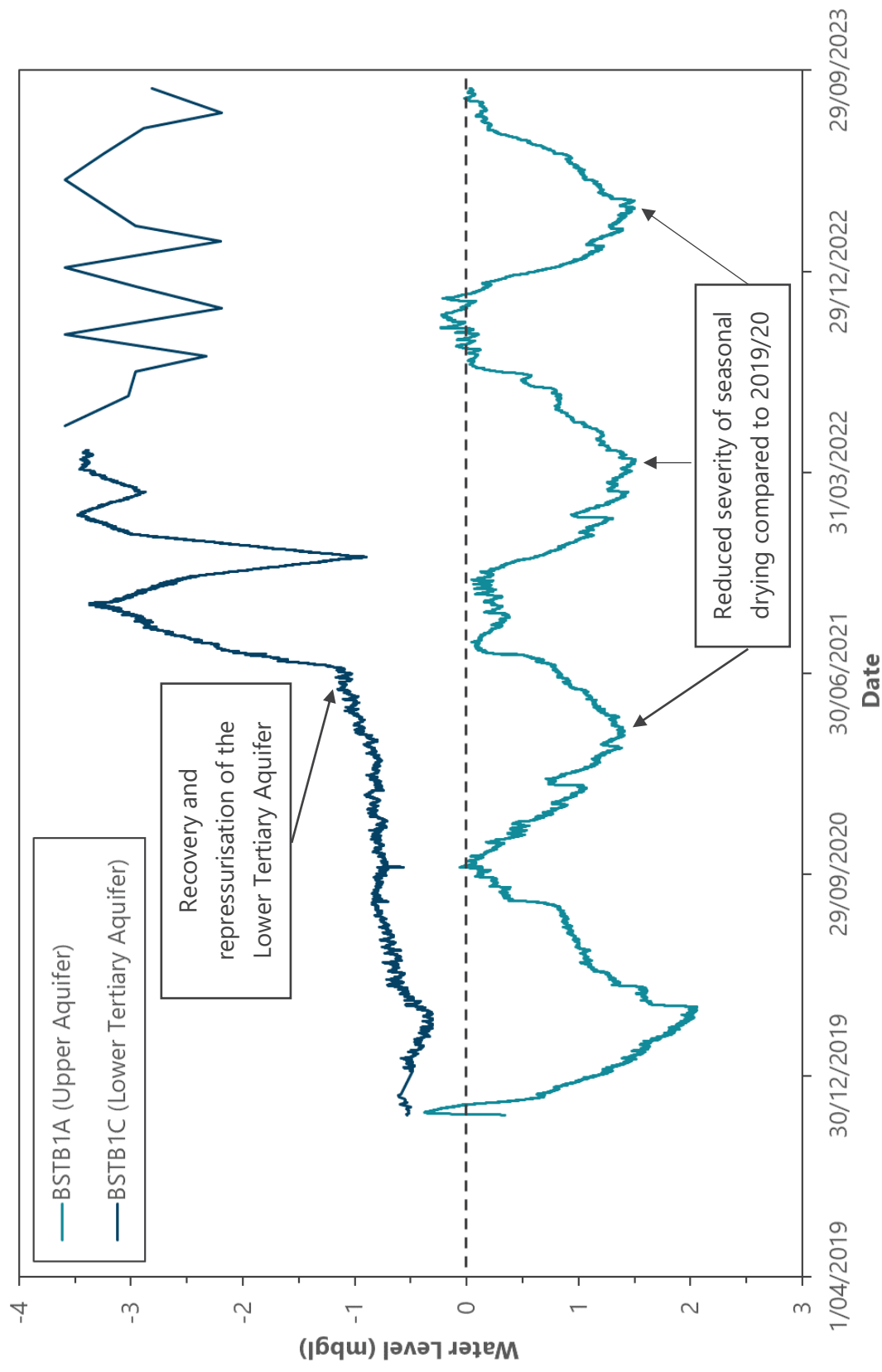


Figure 2 Groundwater levels in the eastern portion of the swamp. Note that since the logger was removed from BSTB1C in April 2022 due to leakage associated with repressurisation of the LTA, the data presented after this time relates to spot sampling data

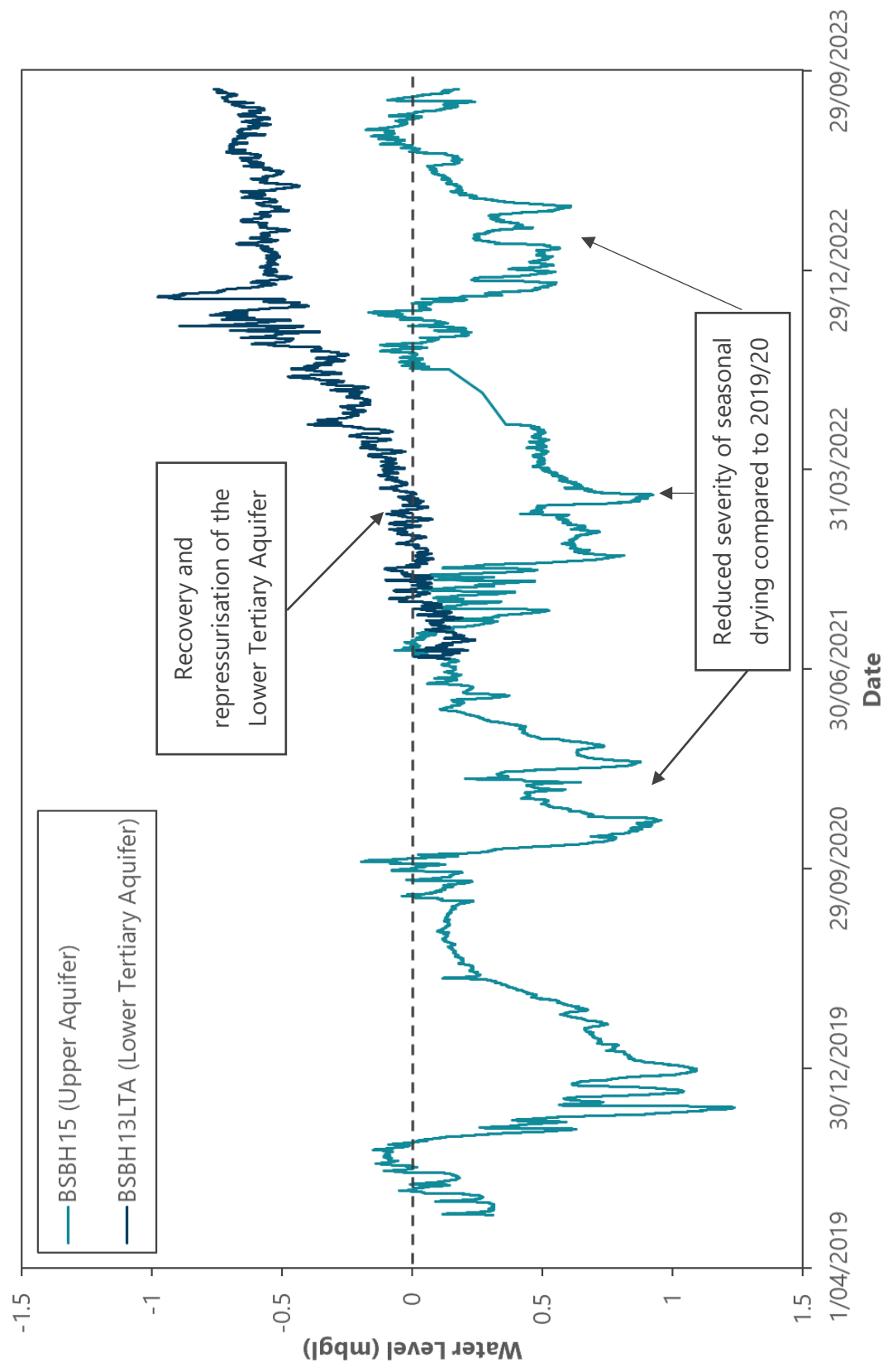


Figure 3 Groundwater levels in the western portion of the swamp. Note that the logger from BSBH15 was found to be missing on 14 July 2022 and was replaced on 15 August 2022, data between these times relates to spot sampling data

Table 1 Visual comparison of Big Swamp between March 2022 and September 2023

Date	Western end of Big Swamp	Eastern end of Big Swamp
March 2022		
October 2022		
February 2023		
September 2023		

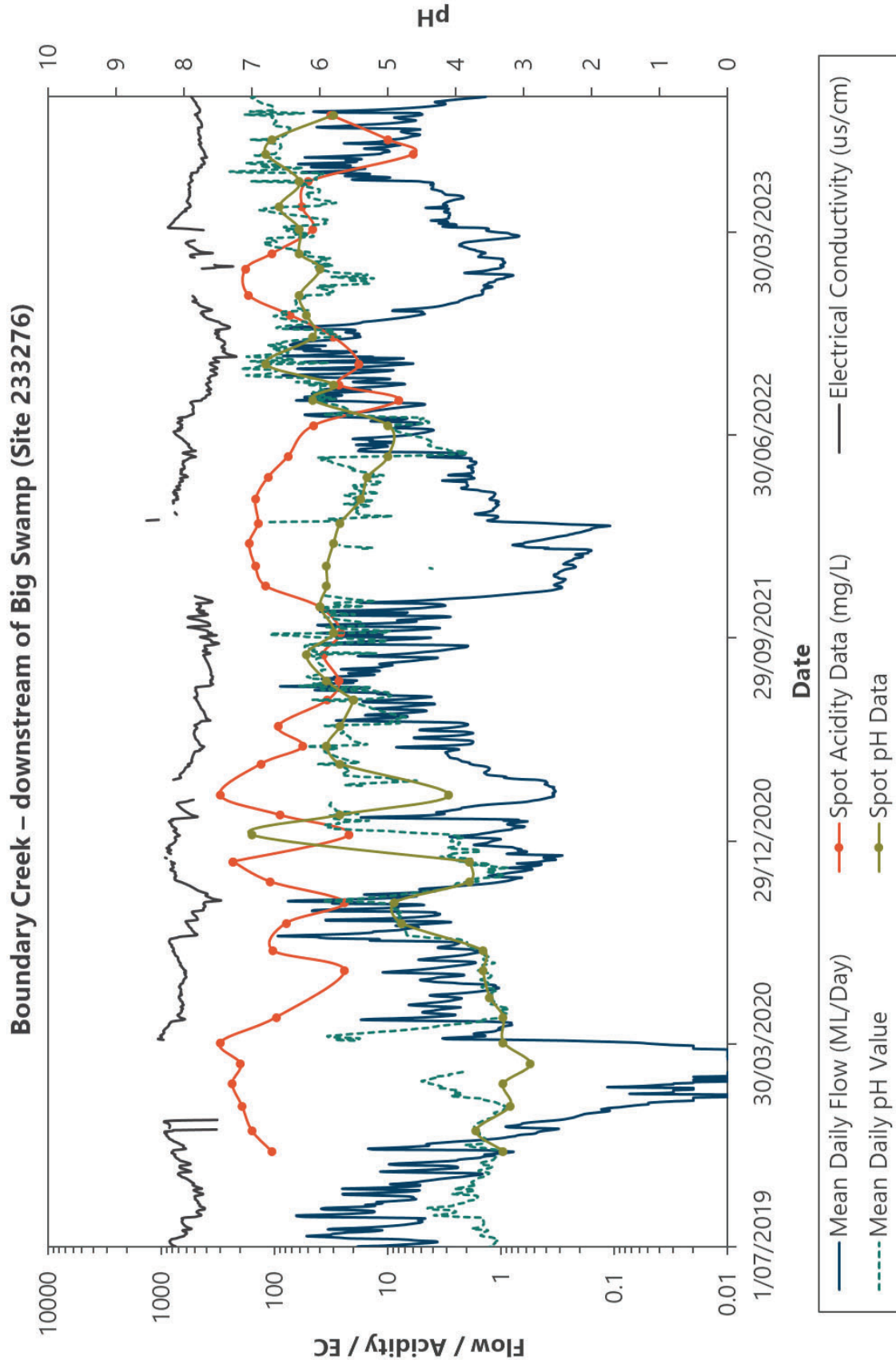


Figure 4 Streamflow, pH, EC and acidity readings in Boundary Creek – downstream of Big Swamp as recorded at stream gauge 233276 and during routine spot sampling

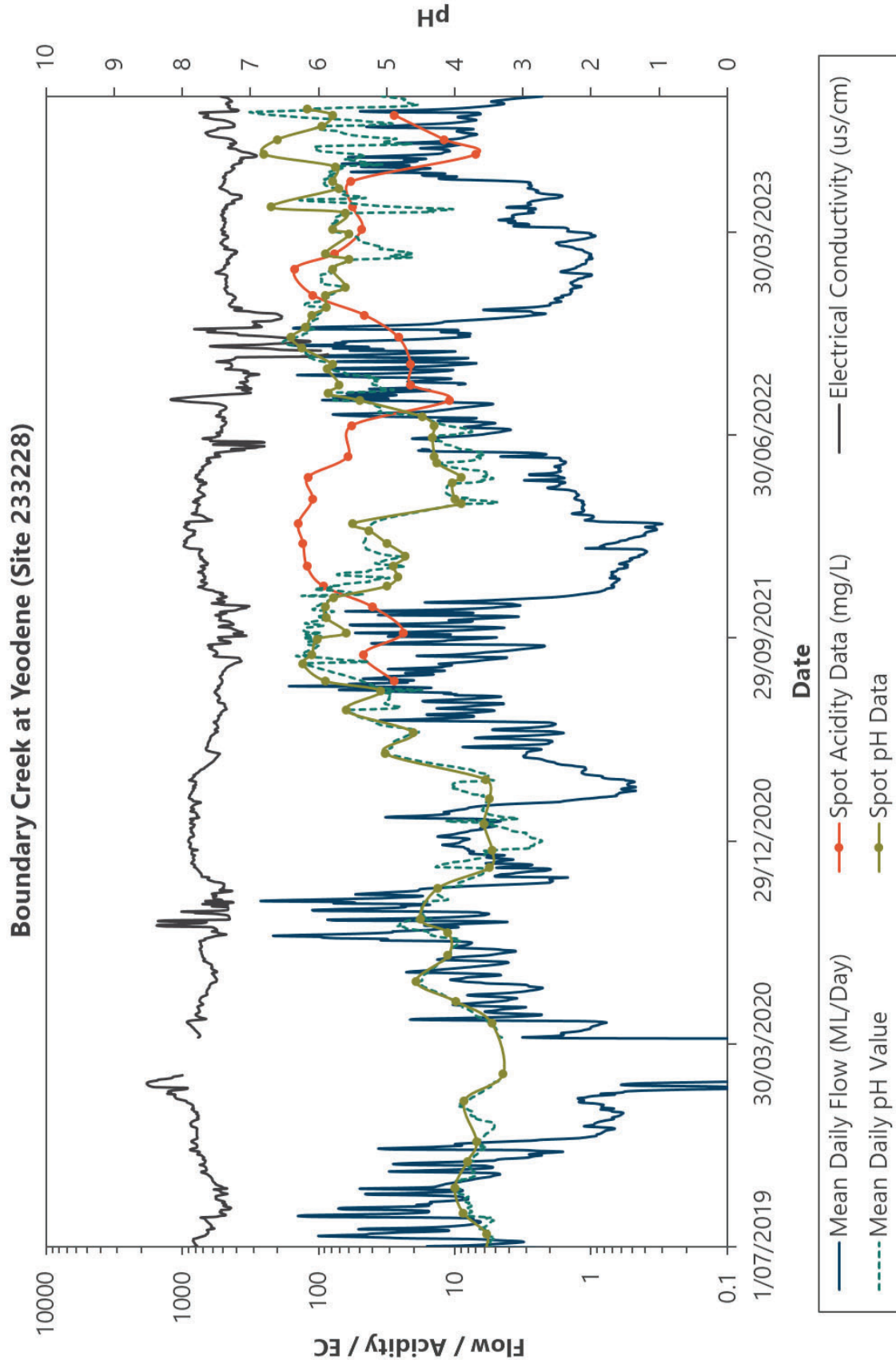


Figure 5 Streamflow, pH and acidity readings in Boundary Creek at Yeodene as recorded at stream gauge 233228 and during routine spot sampling

Actions Completed on the Boundary Creek and Big Swamp Remediation Plan since 30 June 2023

Table 2 outlines the actions completed for the Boundary Creek and Big Swamp Remediation Plan since 30 June 2023.

Table 2 Boundary Creek and Big Swamp - Actions completed in Q1 2023/24 (1 July – 30 September 2023)

Action Items	Comment / Link
Completion of the Q1 2023/2024 Remediation Reference Group meeting	Completed 6 September 2023
Submission of the 2022-2023 Annual Report	Complete Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Submit quarterly update to Southern Rural Water for the period 1 July to 30 September 2023 and publish to the Your Say web page	Complete – this report Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Continue to collect data from new and existing monitoring assets	Ongoing
Provision of supplementary flows, where required, to maintain flows of at least 0.2 ML/day at the Boundary Creek at Yeodene stream gauge (site 233228).	Ongoing Barwon Water continues to monitor the operation of the automated flow release valve that was installed on the outlet of the private on-stream dam to help facilitate the passing of flows down Boundary Creek.
Finalise and publish the autumn macro-invertebrate and water quality sampling report.	Complete Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Progress amendment of the REPP based on the current 'state of knowledge' and the adaptive management approach. This will include a review of the adopted remedial actions and the development of a risk-based remedial strategy that accounts for recent community and stakeholder feedback to help facilitate natural recovery processes.	Complete, the revised REPP was submitted to Southern Rural Water on 31 July 2023. Barwon Water is currently awaiting feedback on this from Southern Rural Water.
Development of contingency measures	Barwon Water's risk-based contingency approach was submitted to Southern Rural Water as part of the revised REPP (refer above). In addition to this, the design of a mobile downstream treatment contingency measure

Action Items	Comment / Link
	was also submitted to Southern Rural Water on 31 July 2023.
Completion of a Level 3 Ecological Risk Assessment to quantify the risks of the existing metal and acidity loads on Boundary Creek, Big Swamp, and the Barwon River and to help inform the development of suitable triggers for the implementation of relevant contingency measures, if required	Submitted to Southern Rural Water on 31 July 2023 and uploaded to the Your Say website. Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Completion of a paleoecology study of Big Swamp	Submitted to Southern Rural Water on 31 July 2023 and uploaded to the Your Say website. Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Development of the Barwon Downs Borefield Decommissioning Plan	The Barwon Downs Borefield Decommissioning Plan was submitted to Southern Rural Water as part of a decommissioning licence application on 17 July 2023. A Licence to Decommission was subsequently issued by Southern Rural Water to Barwon Water on 25 September 2023. This is an important milestone in achieving the commitments outlined in the 2023-2028 Price Submission and means we can now commence the tender process to appoint a suitably qualified driller to conduct the works.
Completion of community information sessions to engage with the broader community	In September 2023 Barwon Water held two community information drop-in sessions in Winchelsea and Colac. In addition to these, Barwon Water also held a project specific community information session and presentation in Kewarren, which focused on the Kewarren component of the Surrounding Environment Investigation.

Upcoming Actions Associated with the Boundary Creek & Big Swamp Remediation Plan

Table 3 outlines the upcoming actions associated with the Boundary Creek and Big Swamp Remediation Plan between 1 October and 31 December 2023.

Table 3 Boundary Creek and Big Swamp - Upcoming actions for Q2 2023/2024 (1 October – 31 December 2023)

Action Items	Due
Completion of the Q2 2023/2024 Remediation Reference Group meeting	December 2023
Submit quarterly update to Southern Rural Water for the period 1 October to 31 December 2023 and publish to the Your Say web page	14 January 2024
Engage a suitably qualified driller to conduct the Barwon Downs borefield decommissioning works	30 June 2024
Continue to collect data from new and existing monitoring assets	Ongoing
Continue to release supplementary flows, where required, to try to maintain a flow of at least 0.2 ML/day at the Yeodene stream gauge #233228	Ongoing

Surrounding Environment Investigation

Surrounding Environment Investigation status update

In line with the REPP, the outcomes of the surrounding environment investigation were submitted to Southern Rural Water on 31 July 2023 in line with the process outlined in Figure 1 and Figure 6.

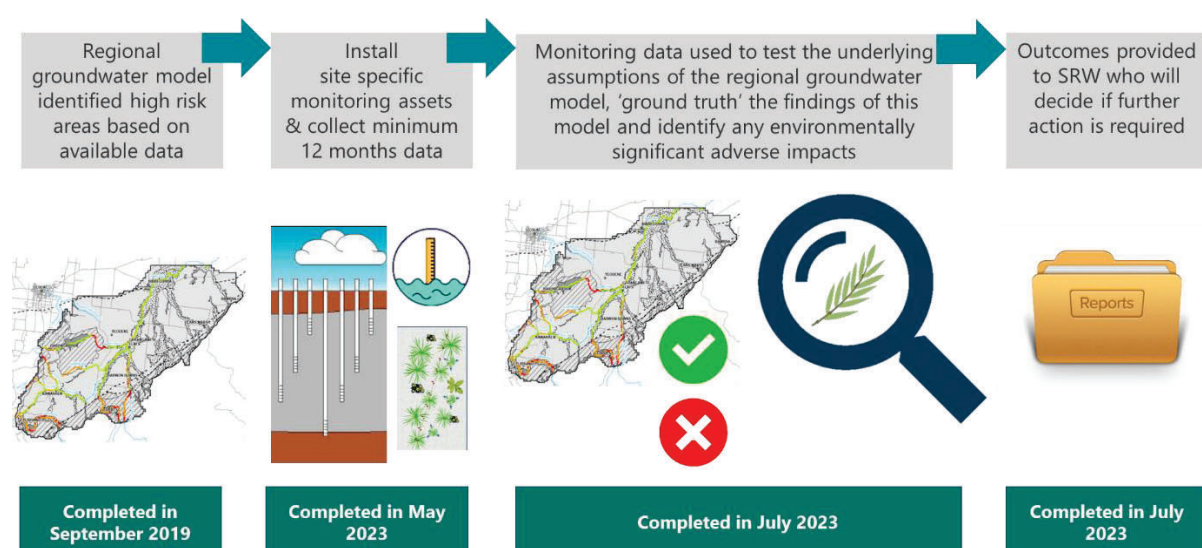


Figure 6 Process overview for the surrounding environment investigation

While hydraulic influences from Barwon Water's historic management of groundwater pumping activities at the Barwon Downs borefield were identified in Love Creek, Yahoo Creek and to a lesser extent in the Barwon River and Gellibrand River, this work did not reveal any evidence to suggest that this has resulted in any environmentally significant impacts (i.e., material harm) within the broader environment.

Barwon Water are currently awaiting feedback on the surrounding environment investigation from Southern Rural Water. However, the remedial actions that have been committed to as part of the Boundary Creek and Big Swamp Remediation Plan will continue to facilitate the recovery of the Lower Tertiary Aquifer within the surrounding environment and help to address any groundwater pumping derived hydraulic influences that may have led to streamflow reductions in select surface water features.

Actions Completed on the Surrounding Environment Investigation since 30 June 2023

Table 4 outlines the actions completed for the Surrounding Environment Investigation since 30 June 2023.

Table 4 Surrounding Environment Investigation - Actions completed in Q1 2022/23 (1 July – 30 September 2023)

Action Items	Comment / Link
Completion of the Q1 2023/2024 Remediation Reference Group meeting	Completed 6 September 2023
Submission of the 2022-2023 Annual Report	Complete Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Submit quarterly update to Southern Rural Water for the period 1 July to 30 September 2023 and publish to the Your Say web page	Complete – this report Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Continue collection of data from new monitoring assets for the surrounding environment investigation	Ongoing
Continue collation of community information regarding sites/issues of concern to inform the surrounding environment investigation	Ongoing
Progress amendment of the REPP based on the current 'state of knowledge' and the adaptive management approach. This will include a review of the adopted remedial actions and the development of a risk-based remedial strategy that accounts for recent	Complete, the revised REPP was submitted to Southern Rural Water on 31 July 2023. Barwon Water is currently awaiting feedback on this from Southern Rural Water.

Action Items	Comment / Link
community and stakeholder feedback to help facilitate natural recovery processes.	
Scope any further works required as part of the surrounding environment investigation	Barwon Water is currently awaiting feedback from Southern Rural Water on our 31 July 2023 submissions before finalising the scope of any further works.
Engage a suitably qualified consultant/contractor to conduct the future climate resilience modelling work	Barwon Water is currently in the process of reviewing tender submissions due to a delay in tender process. This will be finalised by 31 October 2023.
Subject to streamflows and site conditions, complete the remaining stream gauge installations	Complete, as outlined in the Annual Report Barwon Water no longer plan to re-install the East Barwon Stream gauge based on the outcomes of the Surrounding Environment Investigation. All other stream gauges were completed in May 2023.
Commence the assessment phase of the surrounding environment investigation	Complete. The outcomes from the Surrounding Environment Investigation were submitted to Southern Rural Water on 31 July 2023. Refer to the Your Say website located here: https://www.yoursay.barwonwater.vic.gov.au/boundary-creek
Completion of community information sessions to engage with the broader community	In September 2023 Barwon Water held two community information drop-in sessions in Winchelsea and Colac. In addition to these, Barwon Water also held a project specific community information session and presentation in Kewar, which focused on the Kewar component of the Surrounding Environment Investigation.

Upcoming actions Associated with the Surrounding Environment Investigation

Table 5 outlines the upcoming actions associated with the Surrounding Environment Investigation between 1 October and 31 December 2023.

Table 5 Surrounding Environment Investigation - Upcoming actions for Q2 2023/2024 (1 October – 31 December 2023)

Action Items	Due
Completion of the Q2 2023/2024 Remediation Reference Group meeting	December 2023
Submit quarterly update to Southern Rural Water for the period 1 October to 31 December 2023 and publish to the Your Say web page	14 October 2023

Action Items	Due
Completion of community information sessions to engage with the broader community	Dates and locations to be confirmed following submission of the additional technical works in July 2023.
Continue collection of data from new monitoring assets to track recovery	Ongoing
Scope any further works required as part of the surrounding environment investigation	Barwon Water is currently awaiting feedback from Southern Rural Water on our 31 July 2023 submissions before finalising the scope of any further works.
Engage a suitably qualified consultant/contractor to conduct the future climate resilience modelling work	Barwon Water is currently in the process of reviewing tender submissions due to a delay in tender process. This will be finalised by 31 October 2023.

Issues Register

Table 6 below outlines any issues that have been identified during implementation of the REPP that may impact future implementation activities.

Table 6 Issues register

Issue	Likelihood	Consequence	Comments
Availability of appropriate consultants or contractors to undertake works required under the REPP	Medium	Low	Barwon Water has experienced delays regarding the availability of consultants, contractors, and materials to complete work for this project. With consultants continuing to be close to capacity this remains an ongoing risk and may lead to unexpected delays.
Extended remediation timeframes	Medium	Low	While water level and quality improvements are evident, changing climatic conditions could impede the recovery seen to date or lead to another decline in the future. While this is beyond Barwon Water's control, this may provide a barrier to meeting the remediation success targets.

Community Engagement

The twelfth (12th) Remediation Reference Group (RRG) meeting was held via Zoom on 6 September 2023. This meeting was attended by Barwon Water, members of the community and stakeholder Remediation Reference Group and Southern Rural Water.

Topics discussed included:

- a brief discussion regarding the following items that were raised during the previous RRG meeting.
- an overview of the July 2023 submissions to Southern Rural Water.
- progress against the Boundary Creek and Big Swamp Remediation Plan and the current conditions with Boundary Creek and Big Swamp.
- an overview of the findings from the Annual Report and how things are tracking against the remediation success targets.
- an update of the Barwon Downs borefield decommissioning works, and
- next steps.

During this meeting, an open forum was also held for group members to raise any topics that were not discussed above and for members to ask any questions that they may have. A high-level summary of the feedback received during this meeting is outlined in the table below.

Table 7 Community feedback

Community Feedback Received	Response
A RRG member sought clarification on whether Alan Wade's feedback on the Kwarren Sub-Basin Investigation had been addressed before finalisation.	Barwon Water confirmed that the comments received from Alan Wade and the remaining stakeholders were addressed prior to finalisation.
A RRG member raised concerns regarding embedded mistakes in historical reports and the need to ensure that these are not relied upon now and into the future.	Following the meeting, Barwon Water met with the RRG member to discuss these concerns and have since received additional information from the RRG member. Barwon Water and the RRG nominated experts will review these concerns to document an agreed set of facts and where these may differ.
A RRG member suggested that Barwon Water contact a particular landholder and Friends of the Barwon as part of the Deans Marsh, Matthews and Pennyroyal Creeks investigation.	Barwon Water has followed up with the RRG member and the suggested landholder and will get in touch with Friends of the Barwon once the scope has been bedded down.

Community Feedback Received	Response
A RRG member commented that it was really good to hear about how the forecasted warm and dry summer may impact the remediation work.	Barwon Water reiterated that while the forecasted warm and dry summer may affect the water levels within the upper aquifer system and slow the recovery to some degree, supplementary flows will continue to be used to maintain these to the extent practicable.
A RRG member involved in the Kawarren work commented on the BlueSphere work and said that it had been terrific and thought that they had done an excellent job. The RRG member mentioned that the community consultation with local landholders was terrific and that it was pleasing to see local feedback being addressed.	Barwon Water has since passed this feedback onto the consultants and thanks those involved in the work for their extremely valuable contribution.

Success Targets

Since the implementation of the REPP in March 2020, the success targets have been reviewed and adapted over time based on feedback from the Remediation Reference Group, Southern Rural Water, and the Independent Technical Review Panel. These were most recently updated as part of the revised REPP that was submitted to Southern Rural Water on 31 July 2023.

An update on progress against the relevant success targets will be provided in the 2023-2024 Annual Report along with the supporting monitoring data.

Technical Reports and Investigations

Relevant technical and investigation reports that have been completed to inform the Boundary Creek, Big Swamp and Surrounding Environment Remediation and Environmental Protection Plan can be accessed via Barwon Water's dedicated Your Say webpage via the following link: <https://www.yoursay.barwonwater.vic.gov.au/boundary-creek>

Barwon Water will proactively share links to technical reports as they are published so that Remediation Reference Group members have access to the latest information as it is shared.

Contingency Measures

As part of the REPP review process Barwon Water has since developed a risk-based contingency approach that focuses on minimising the potential for high-risk events, should these persist following the implementation of the primary remedial actions.

This risk based contingency approach, which has been developed in conjunction with the Remediation Reference Group, was submitted to Southern Rural Water on 31 July 2023 as part of the revised REPP.

REPP Amendments

The revised REPP was submitted to Southern Rural Water on 31 July 2023 following completion of the Ecological Risk Assessment and Palaeoenvironmental Study. This version of the REPP also included revisions based on the feedback received on the interim draft REPP that was submitted to Southern Rural Water on 22 December 2022.

Barwon Water are currently awaiting Southern Rural Water's feedback on the revised REPP.

Progress Report

Table 8 outlines the actions that have been completed, are currently in progress, or are yet to commence as part of implementation of the REPP through to the end of the 2023/24 monitoring and reporting period (30 June 2023). It is important to note that additional tasks may be added as they are identified during the implementation of the REPP.

Table 8 Task Tracker

#	Activity	Due Date	Status	Health Indicator	Comments
1.0	Meeting with SRW to be held at the Barwon Water office to develop work plan towards confirming priority actions relating to feedback provided.	30-Apr-20	Complete	Complete	Complete
2.0	Complete autumn macro-invertebrates survey	30-Jun-20	Complete	Complete	Report now complete and is now uploaded on website
3.0	Complete soil incubation testing	31-May-20	Complete	Complete	Report has been finalised and is now uploaded on website
4.0	Submit quarterly report to SRW and publish to website	30-Jun-20	Complete	Complete	Completed and uploaded to website
5.0	Scoping of SW-GW technical work packages required to inform detailed design and address feedback register	30-Nov-20	Complete	Complete	Complete
6.0	Complete installation of additional monitoring assets required to inform the Surrounding Environment Investigation	30-Jun-23	Complete	Complete	The installation of 21 additional groundwater bores and the development of 4 pre-existing groundwater bores was completed in June 2022. 4 of 5 proposed stream Gauges have now been installed.

#	Activity	Due Date	Status	Health Indicator	Comments
					<p>The installation of the Barongarook Creek stream gauge was completed in May 2023.</p> <p>The East Barwon stream gauge reinstatement works have not yet been completed and remain on hold given the surrounding environment investigation has indicated that Barwon Water's historic management of groundwater pumping activities at the Barwon Downs borefield have not resulted in any environmentally significant adverse impacts at this location. On this basis, Barwon Water no longer plan to reinstate this stream gauge.</p>
7.0	Conclusion of monitoring period enabling the capture of a full seasonal cycle of data to inform updates to the groundwater-surface water model and geochemical model.	31-Jul-20	Complete	Complete	<p>The data collected from this work has since been included in the relevant technical reports</p>
8.0	REPP Feedback Work plan - Submission and Acceptance	31-Jul-20	Complete	Complete	Complete
9.0	Governance Framework - Submission and Acceptance	31-Jul-20	Complete	Complete	Complete
10.0	Barwon Water Communications and Engagement Plan	Ongoing	Ongoing	Ongoing	<p>The Communications and Engagement Plan continues to be adapted in line with the adaptive management approach.</p>
11.0	Submission of the updated REPP to Southern Rural Water to account for the current state of knowledge and close out any outstanding feedback. SRW to accept the updated REPP.	31-Jul-23	Complete	Complete	<p>On 22 December 2023 Barwon Water submitted an interim draft of the revised REPP to Southern Rural Water for initial comment and feedback.</p> <p>This was subsequently updated to account for the additional work and feedback and</p>

#	Activity	Due Date	Status	Health Indicator	Comments
					was submitted to Southern Rural Water on 31 July 2023.
12.0	Submit annual report to SRW and publish to Your Say website	30-Sep-20	Complete	Complete	Complete
13.0	Remediation Reference Group Meeting	2-Dec-20	Complete	Complete	Complete
14.0	Establish vegetation monitoring for Boundary Creek and Big Swamp Remediation Plan	31-Dec-20	Complete	Complete	Completed
15.0	Update groundwater-surface water model	31-Dec-20	Complete	Complete	Complete and uploaded to website
16.0	Submit quarterly report to SRW and publish to Your Say website	31-Dec-20	Complete	Complete	Complete
17.0	Remediation Reference Group Meeting	17-Mar-21	Complete	Complete	Complete
18.0	Submit quarterly report to SRW and publish to Your Say website	31-Mar-21	Complete	Complete	Complete
19.0	Remediation Reference Group Meeting	23-Jun-21	Complete	Complete	Complete
20.0	Submit quarterly report to SRW and publish to Your Say website	30-Jun-21	Complete	Complete	Complete and uploaded to website
21.0	Submission of detailed design of the hydraulic barriers outlining proposed controls or actions and any revisions to success measures/targets.	1-Jul-21	Complete	Complete	Complete. Submitted to Southern Rural Water on 1 July 2021. Barwon Water has since reviewed the viability of this remedial action as part of the Outcomes and Implications of the Upstream Treatment Investigation (Barwon Water, 2022) and no longer consider hydraulic barriers a potential remedial action due to the unintended impacts that would result from implementing this

#	Activity	Due Date	Status	Health Indicator	Comments
					approach. This has since been reflected in the revised REPP.
22.0	Update Hydro geochemical model	31-Jul-21	Complete	Complete	Complete and uploaded to website
23.0	Complete detailed design of contingency measure and feasibility assessment for upstream for new upstream treatment method	31-Jul-21	Complete	Complete	Barwon Water has since ruled out the use of the proposed semi-passive caustic magnesia treatment system. This decision was supported by Southern Rural Water and the Independent Technical Review Panel (ITRP) in their response received on 29 August 2022. Following completion of the Upstream Treatment Investigation in June 2022, Barwon Water have since developed a risk based contingency approach that focuses on minimising the potential for high-risk events, should these persist following the implementation of the primary remedial actions. As part of this, Barwon Water submitted the design on a mobile downstream contingency measure to Southern Rural Water on 31 July 2023.
24.0	Remediation Reference Group Meeting	8-Sep-21	Complete	Complete	Complete
25.0	Submit annual report to SRW and publish to Your Say website	30-Sep-21	Complete	Complete	Complete and uploaded to website
26.0	Remediation Reference Group Meeting	9-Dec-21	Complete	Complete	Complete
27.0	Submit quarterly report to SRW and publish to Your Say website	31-Dec-21	Complete	Complete	Complete and uploaded to website

#	Activity	Due Date	Status	Health Indicator	Comments
28.0	Completion of upstream treatment investigation and development of Trial Plan	14-Jan-22	Complete	Complete	Complete. Submitted to SRW on 14 January 2022. Barwon Water has since ruled out the use of the proposed semi-passive caustic magnesia treatment system. This decision was supported by Southern Rural Water and the Independent Technical Review Panel (ITRP) in their response received on 29 August 2022.
29.0	Remediation Reference Group Meeting	21-Mar-21	Complete	Complete	Complete
30.0	Submit quarterly report to SRW and publish to Your Say website	31-Mar-22	Complete	Complete	Complete and uploaded to website
31.0	Hosted community information session in Winchelsea	10-May-22	Complete	Complete	Complete
32.0	Hosted community information session in Colac	17-May-22	Complete	Complete	Complete
33.0	Remediation Reference Group Meeting	8-Jun-22	Complete	Complete	Complete
34.0	If trial plan is approved undertake upstream treatment trial	30-Jun-22	Complete	Complete	Barwon Water has since ruled out the use of the proposed semi-passive caustic magnesia treatment system. This decision was supported by Southern Rural Water and the Independent Technical Review Panel (ITRP) in their response received on 29 August 2022.
35.0	Decision on implementation of full-scale upstream treatment, hydraulic barriers, and downstream treatment	30-Jun-22	Complete	Complete	
36.0	Submit quarterly report to SRW and publish to Your Say website	30-Jun-22	Complete	Complete	Complete and uploaded to website
37.0	Remediation Reference Group Meeting	21-Sep-22	Complete	Complete	Complete

#	Activity	Due Date	Status	Health Indicator	Comments
38.0	Submit quarterly report to SRW and publish to Your Say website	30-Sep-22	Complete	Complete	Complete and uploaded to website
39.0	Submit annual report to SRW and publish to website	30-Sep-22	Complete	Complete	Complete and uploaded to website
40.0	Remediation Reference Group Meeting	16-Nov-22	Complete	Complete	Complete
41.0	Submit quarterly report to SRW and publish to Your Say website	31-Dec-22	Complete	Complete	Complete and uploaded to website
42.0	Remediation Reference Group Meeting	8-Mar-23	Complete	Complete	Complete
43.0	Submit quarterly report to SRW and publish to Your Say website	31-Mar-23	Complete	Complete	Complete and uploaded to website
44.0	Remediation Reference Group Meeting	14-Jun-23	Complete	Complete	Complete
45.0	Submit quarterly report to SRW and publish to Your Say website	14-Jul-23	Complete	Complete	Complete and uploaded to website
46.0	Submission of the Ecological Risk Assessment to Southern Rural Water	31-Jul-23	Complete	Complete	Submitted to Southern Rural Water on 31 July 2023
47.0	Submission of the Paleoenvironmental Study of Big Swamp to Southern Rural Water	31-Jul-23	Complete	Complete	Submitted to Southern Rural Water on 31 July 2023
48.0	Development of the Barwon Downs Borefield Decommissioning Plan	31-Jul-23	Complete	Complete	Submitted to Southern Rural Water as part of a bore decommissioning licence application on 17 July 2023.
49.0	Submission of the revised downstream treatment contingency measures	31-Jul-23	Complete	Complete	Submitted to Southern Rural Water on 31 July 2023
50.0	Provide the outcomes of the Surrounding Environment Investigation to Southern Rural Water to determine if further remedial works is required	31-Jul-23	Complete	Complete	Submitted to Southern Rural Water on 31 July 2023

#	Activity	Due Date	Status	Health Indicator	Comments
51.0	Remediation Reference Group Meeting	6-Sep-23	Complete	Complete	Complete
52.0	Submit annual report to SRW and publish to website	30-Sep-23	Complete	Complete	Complete and uploaded to website
53.0	Submit quarterly report to SRW and publish to website	14-Oct-23	Complete	Complete	Complete and uploaded to website
54.0	Remediation Reference Group Meeting	31-Dec-23	Not started		
55.0	Submit quarterly report to SRW and publish to website	14-Jan-24	Not started		
56.0	Remediation Reference Group Meeting	31-Mar-24	Not started		
57.0	Submit quarterly report to SRW and publish to website	14-Apr-24	Not started		
58.0	Remediation Reference Group Meeting	30-Jun-24	Not started		
59.0	Submit quarterly report to SRW and publish to website	14-Jul-24	Not started		
60.0	Completion of follow up investigations on Deans Marsh, Matthews and Pennyroyal Creeks	31-Dec-24	Not started		
61.0	Completion of further modelling work to track recovery and test what may happen under future climate scenarios	31-Dec-24	Not started		
62.0	Completion of Fish Surveys in the Upper Barwon	31-Dec-25	Not started		