The background of the slide is a photograph of a city skyline at dusk or dawn. The sky is a pale blue, and the buildings are silhouetted against it. A prominent feature is a tall, cylindrical tower with a glowing top section. In the foreground, there's a body of water reflecting the sky. A dark blue semi-transparent box is overlaid on the left side of the image, containing the text.

# Berrima Colliery – Closure Working Group

Meeting #16

14 December 2022

# Agenda

1. **Welcome and Apologies - Introductions**
2. **Terms of Reference - Conduct of CWG Members**
3. **Review of minutes & actions**
4. **Water Quality Results update - Greg Johnson**
5. **Water treatment update- Greg Johnson/David Spears**
6. **Pit top treatment and pipeline REF update– Greg Johnson**
7. **Resource Regulator Update**
8. **Medway Community**
9. **Communication update**
10. **General business**
11. **Next meeting**

# 01

## Welcome and Apologies



# CWG Representatives, Apologies & Guests

- **Boral** - Girish Yadwad (apology), Greg Johnson, David Spears, Kate Woodbridge (apology)
- **Resource Regulator** - Greg Kininmonth, Peter McMillan
- **Environment Protection Authority** – Greg Newman (apology), Andrew Couldridge,
- **WaterNSW** - Ravi Sundaram
- **Wingecarribee Shire Council** - Barry Arthur
- **Western Sydney University** - Dr Ian Wright,
- **Community** - Clive West (apology), Alan Lindsay, Graham Kelly, Ray Nolan, Julian Brophy, Tony McCormick
- **Independent chair** - Brad Mullard
- **Minute taker** – Rob Byrnes
- **Guest** – Lance Ward Medway Community Association

# 02

## Terms of Reference – Code of Conduct



# Terms of Reference – Code of Conduct

## 13. Conduct of CWG Members

Members of the CWG, including appointed alternates, shall:

- act properly, honestly and in accordance with an open and transparent process;
- perform their functions impartially and in the best interests of the local and broader communities;
- refrain from any form of conduct which may cause any reasonable person unwarranted offence or embarrassment;
- be respectful to fellow members and not engage in threatening or intimidating behaviour;
- refrain from saying or doing anything which is inconsistent with maintaining order at the meeting; and
- allow time for other participants of the meeting to have a fair and reasonable say.

# 03

## Review of minutes and actions



# Review of Minutes – suggested amendments



## MINUTES

**Subject:** Berrima Colliery Closure Working Group (Meeting 14)  
**Location:** Berrima Cement Plant Engineering plus Microsoft Teams  
**Date & Time:** 16<sup>th</sup> September 2022

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**Independent Chair:** Brad Mullard

### Attendees:

Brad Mullard - Chairperson  
Peter McMillan – Environmental Inspector, NSW Resources Regulator  
Greg Kininmonth – Manager Environmental Operations Southern, NSW Resources Regulator  
Andrew Couldridge – NSW Environment Protection Authority  
Carly Roder - NSW Environment Protection Authority  
Ravi Sundaram – Mining Catchment Specialist, WaterNSW  
Alan Lindsay – Local Resident  
Ray Nolan – Local Resident  
Julian Brophy – Local Resident  
Graham Kelly – Local Resident  
Barry Arthur – Manager Environment and Sustainability, Wingecarribee Shire Council  
Tony McCormick – Local Resident representing Mandemar Lane

### Boral Personnel:

David Spears – Project Manager, Boral Cement  
Greg Johnson – Environmental Sustainability Manager, Boral Cement  
Minutes: - Robert Byrnes\*

### Apologies:

Dr Ian Wright – University of Western Sydney  
Clive West – Local Resident  
Girish Yadwad – National General Manager Operations, Boral Cement  
Greg Newman – NSW Environment Protection Authority  
Kate Woodbridge – Stakeholder Relations Manager, Boral Land & Property)

*These minutes reflect the presentation and consequent conversations conducted as part of this meeting. The content, while an accurate summation of proceedings, should not be taken to represent exact dialogue unless specifically minuted as such. Text in italics have been added by the minute taker for clarification or to reference items being spoken about such as the presentation slides, graphs or other meeting materials.*

*For the full presentation, visit [www.boral.com.au/medway](http://www.boral.com.au/medway). Minutes do not become 'official' unless endorsed at the following meeting by the appropriate representatives.*

*\* Boral Cement uses the services of International Environmental Consultants (IEC) to undertake environmental monitoring and technical report preparations for the Berrima Colliery. Rob Byrnes, owner and Director of IEC, acts as the nominated minute taker for the Closure Working Group (CWG) via the appointment of Boral Cement.*

## 12. Acceptance of Minutes of Meeting

Minutes of the CWG's meetings will be uploaded to the Boral website in draft within 1 month of the meeting after review by the Chairperson. Minutes will be endorsed by the CWG at the following meeting. If the minutes are amended by the committee, then the amended version will be posted on the Boral website.



# Review of minutes - actions

## Summary of Meeting Actions:

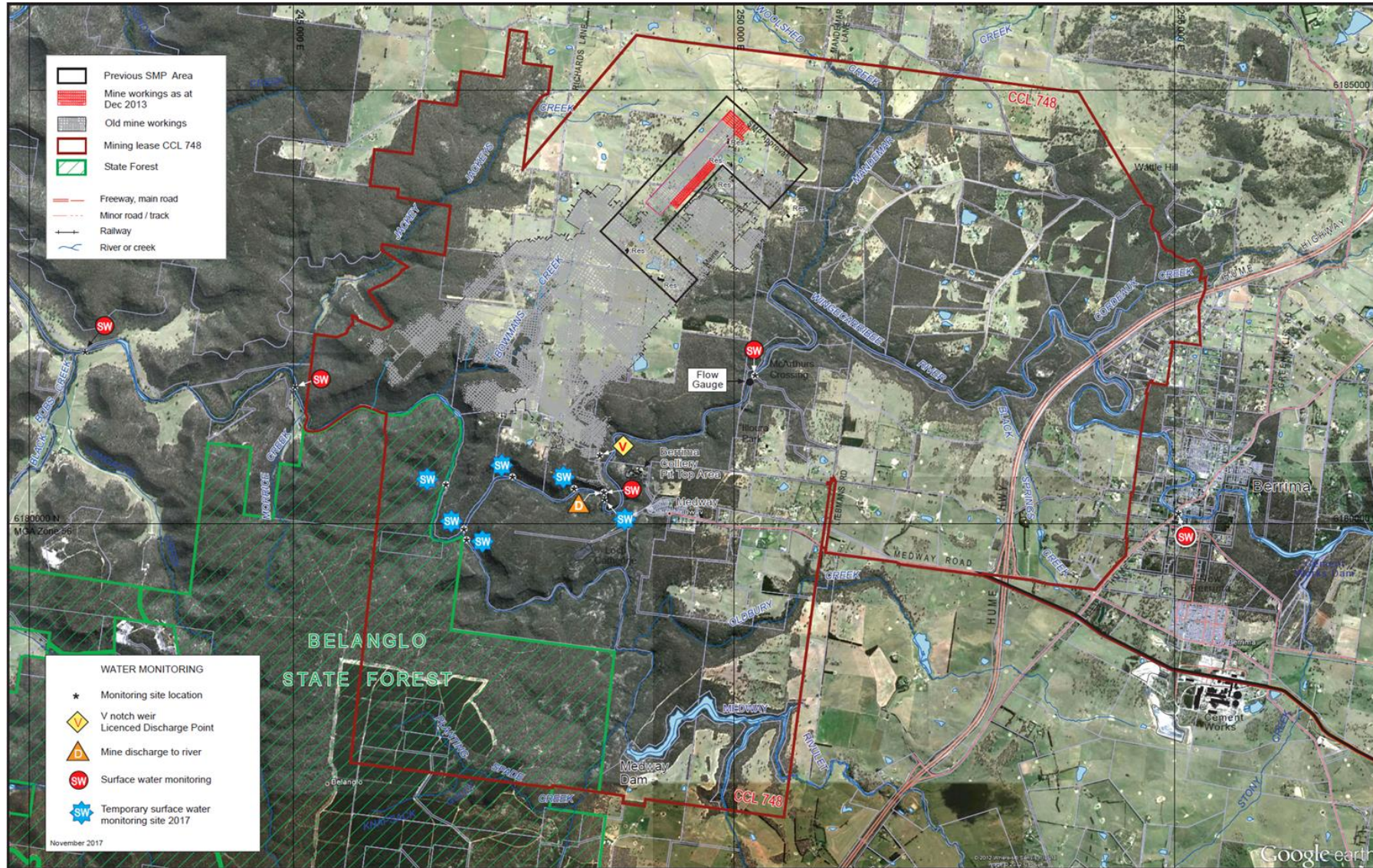
1. Boral to include water quality testing from behind the bulkheads and report results at the next meeting.
2. Extend a further invitation to Medway representative for the next meeting.
3. Boral to provide a draft of the REF to WaterNSW and the Resources Regulator for review.
4. Boral to determine date and appropriate advertising for a pop-up community meeting in relation to the water treatment project.
5. Boral to follow-up with the Resources Regulator on their participation during the REF community consultation program.

# 04

## Water Quality Results Update



# Surface Water Monitoring Update



# Water Quality Guidelines

In order to interpret and give context to the water quality monitoring results from the Colliery we are now including details, where applicable, against the Australian Water Quality Guidelines for Freshwater Protection, Australian Water Quality Guidelines – Primary Industry and Australian Drinking Water Guidelines.

<https://www.waterquality.gov.au/guidelines>

<https://www.waterquality.gov.au/guidelines/anz-fresh-marine>

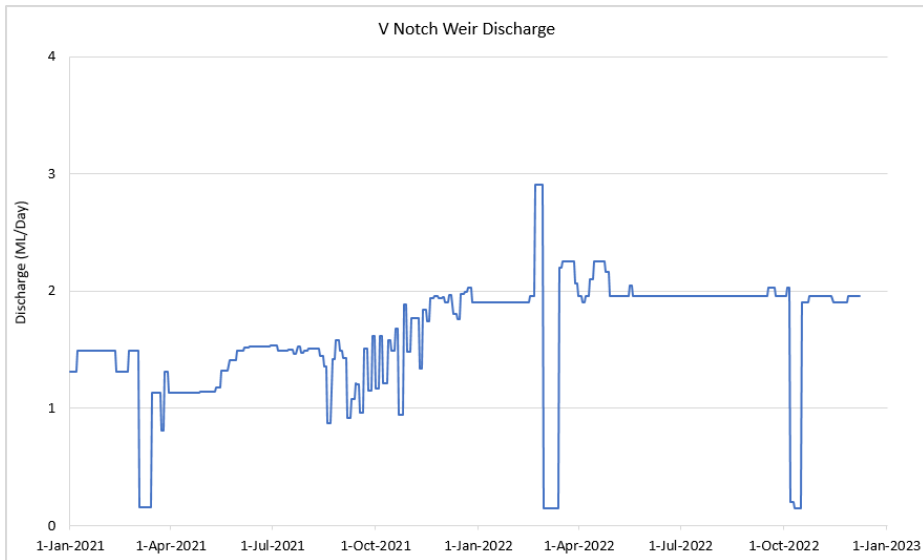
<https://www.waterquality.gov.au/guidelines/drinking-water>

<https://www.waterquality.gov.au/anz-guidelines/guideline-values/default/primary-industries>

In including this information it is important to note the site does not have these guideline values included on the licence. Importantly the Freshwater Protection numbers are those that are used to undertake further investigations. The elevated naturally occurring metals have been investigated and assessed as part of the 2018 and 2019 scientific study available on the Boral Berrima Colliery website. The mixing zone is considered to be from the discharge point to the Biolela sampling point.

<https://www.boral.com.au/berrima-colliery>

# Adit discharge update – Volume, pH & EC

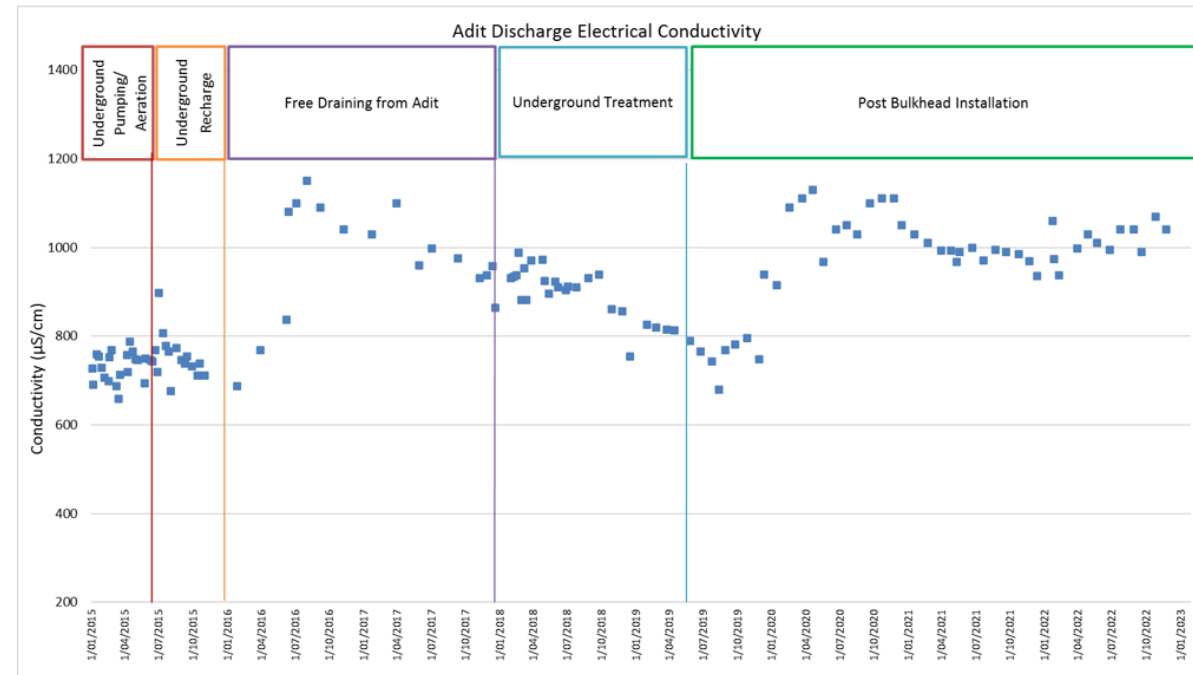
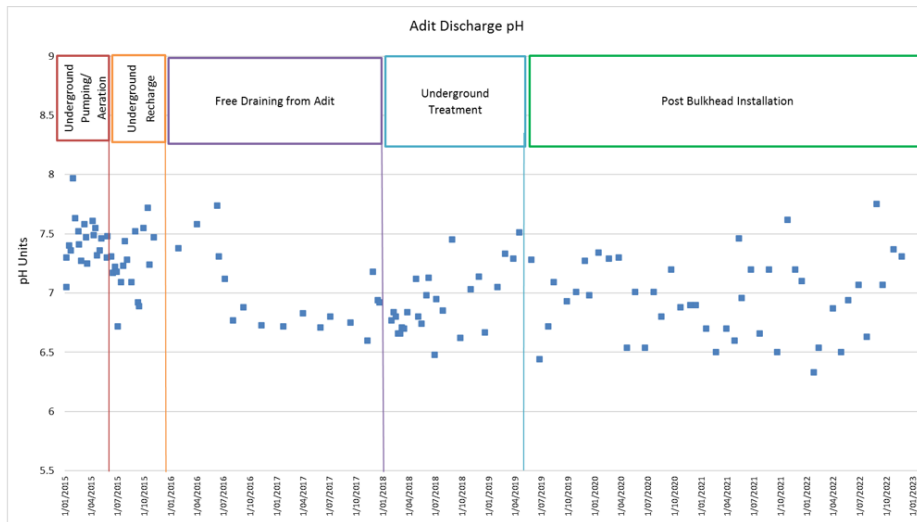


Volume discharged – 1.9 ML per day (av.)

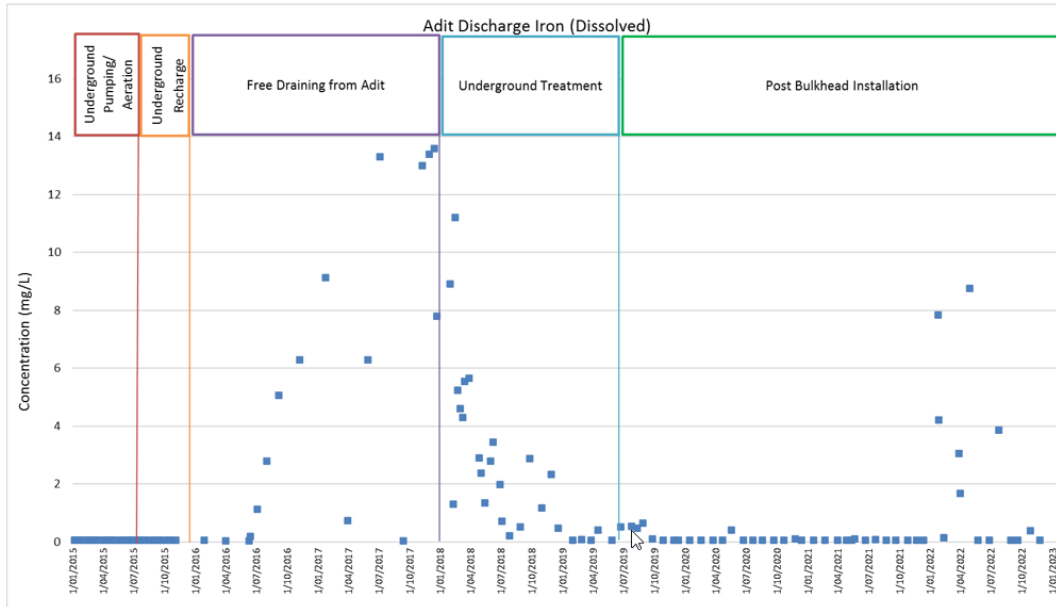
pH – recent results more towards a neutral level by dosing

EC – slight uptick above 1000uS/cm

Adit Discharge November 2022

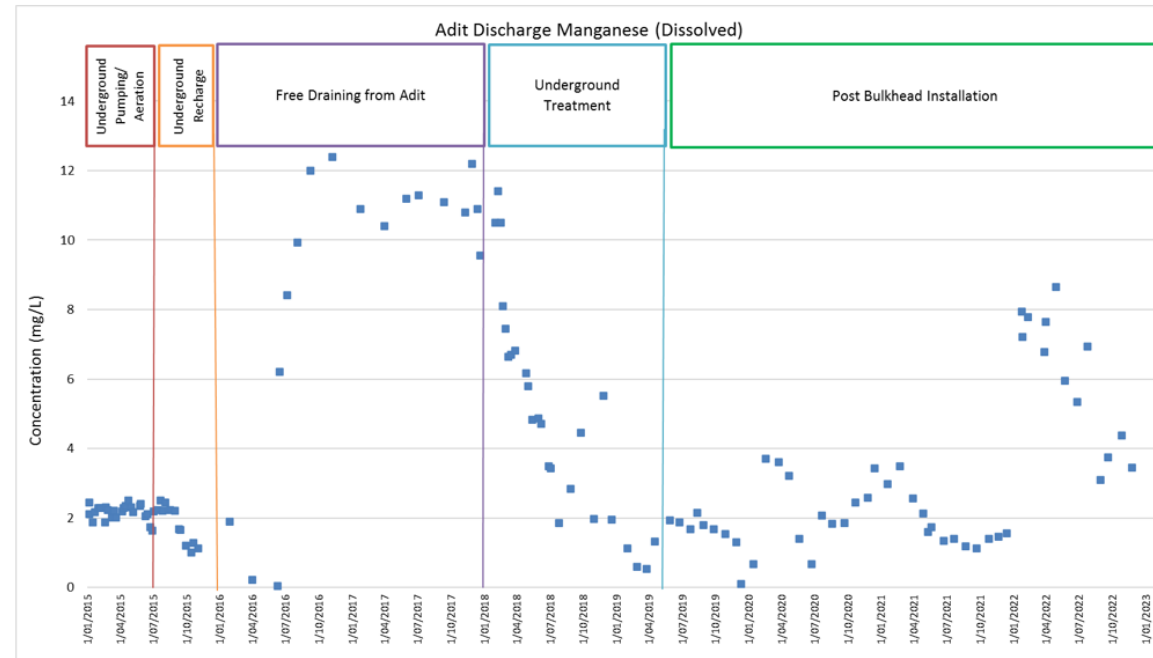


# Adit discharge update – Iron & Manganese

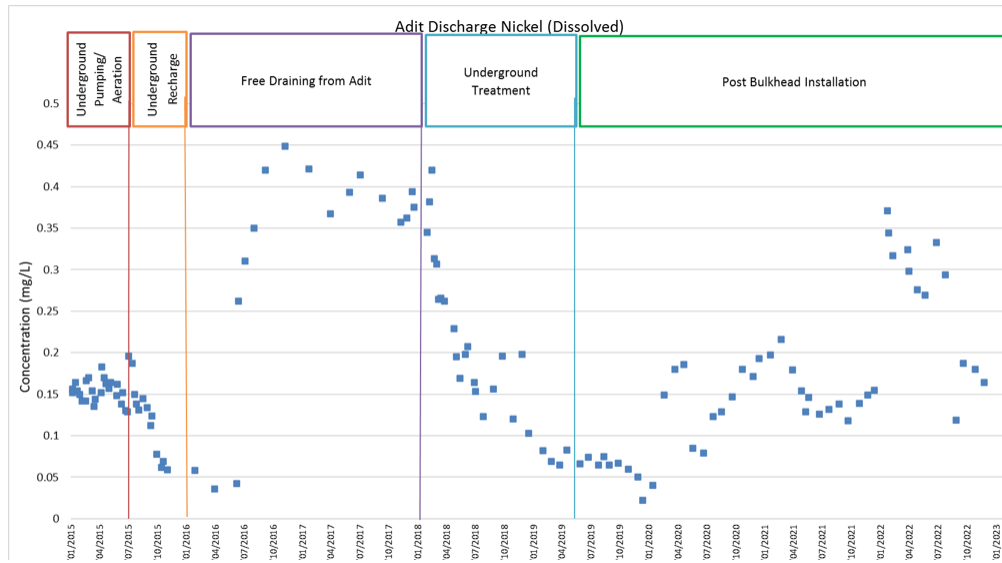


**Iron** – has settled back down.

**Manganese** – has continued to trend down



# Adit discharge update – Nickel and Zinc

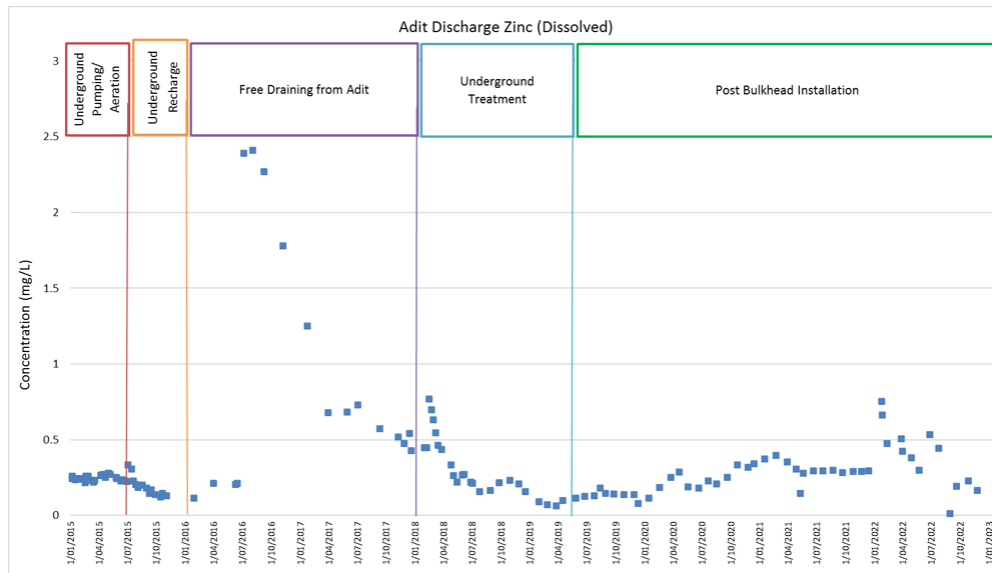


**Nickel** – Back to post bulkhead trend.

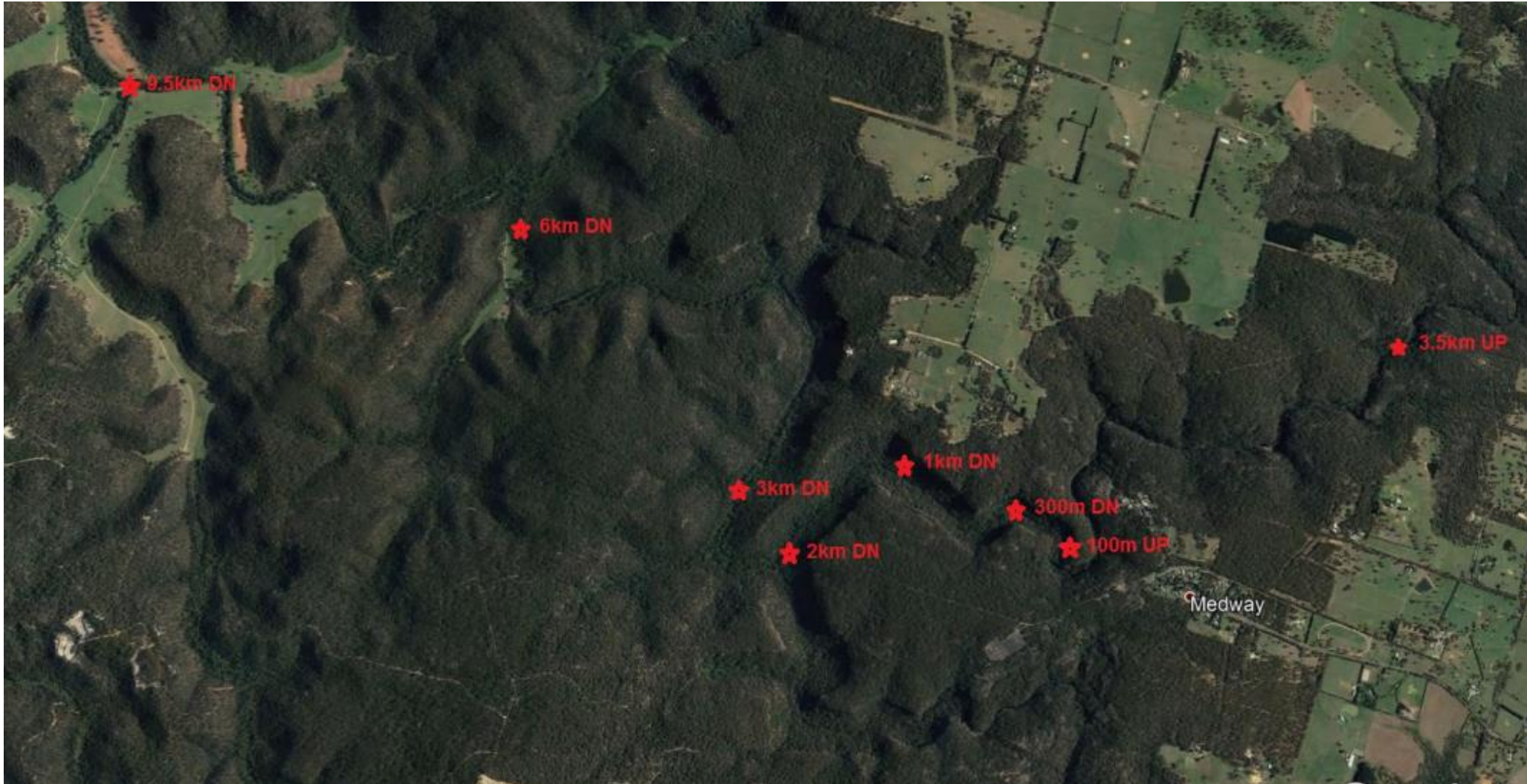
**Zinc** – Back to post bulkhead trend

**Commentary** – Recent spikes in metals have settled down. Increased lime dosage and aeration is key.

Water quality will be easier to manage at the surface once the pit top treatment system installed.



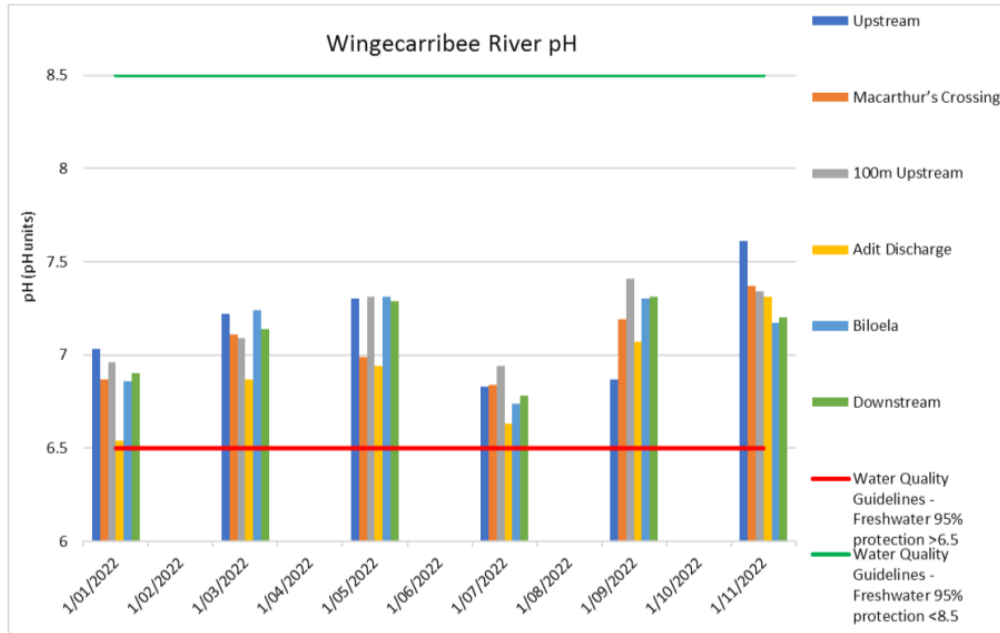
# River Quality Update





# River quality update – pH & EC

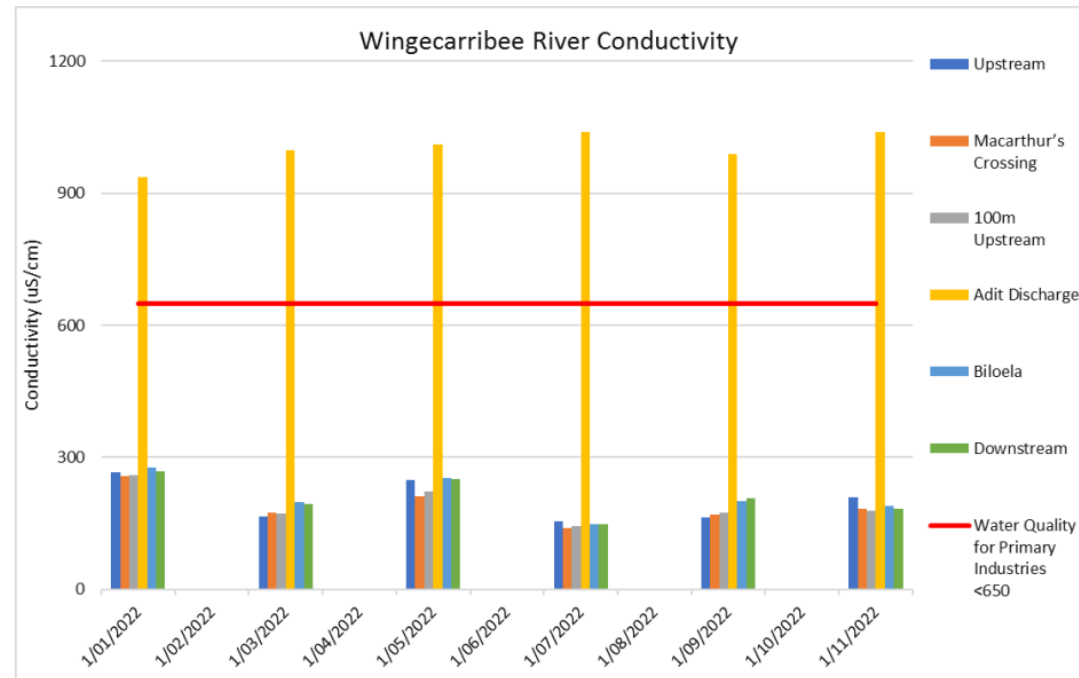
Wingecarribee River Monitoring Graphs November 2022



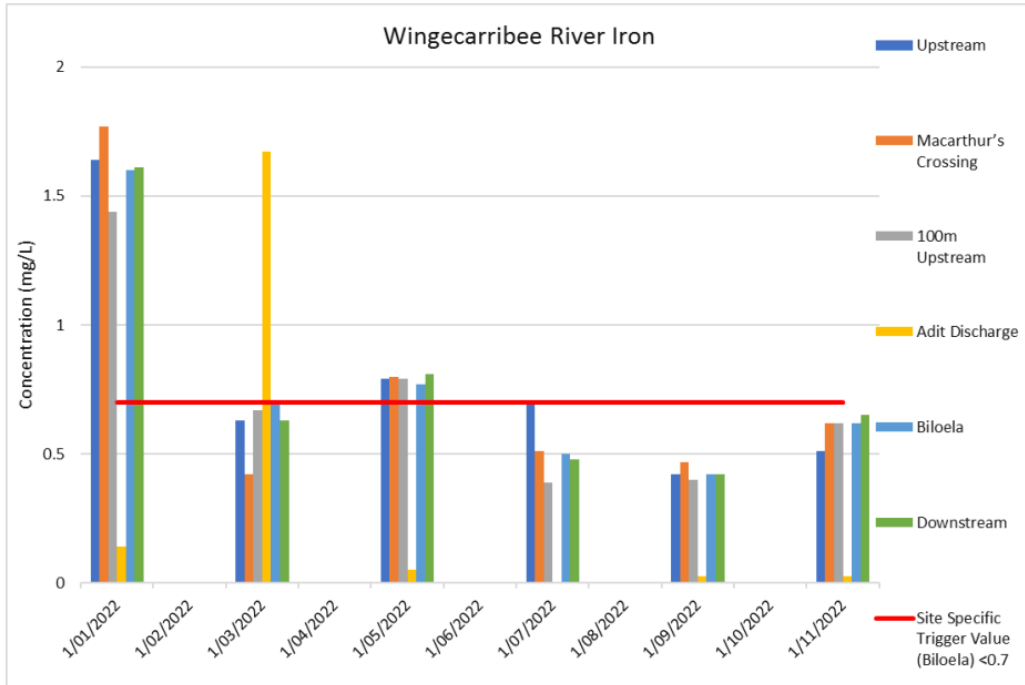
Similar results to last quarter. High stream flows continue.

pH – No influence in river at Biloela (6km)

EC – No influence in river at Biloela (6km)

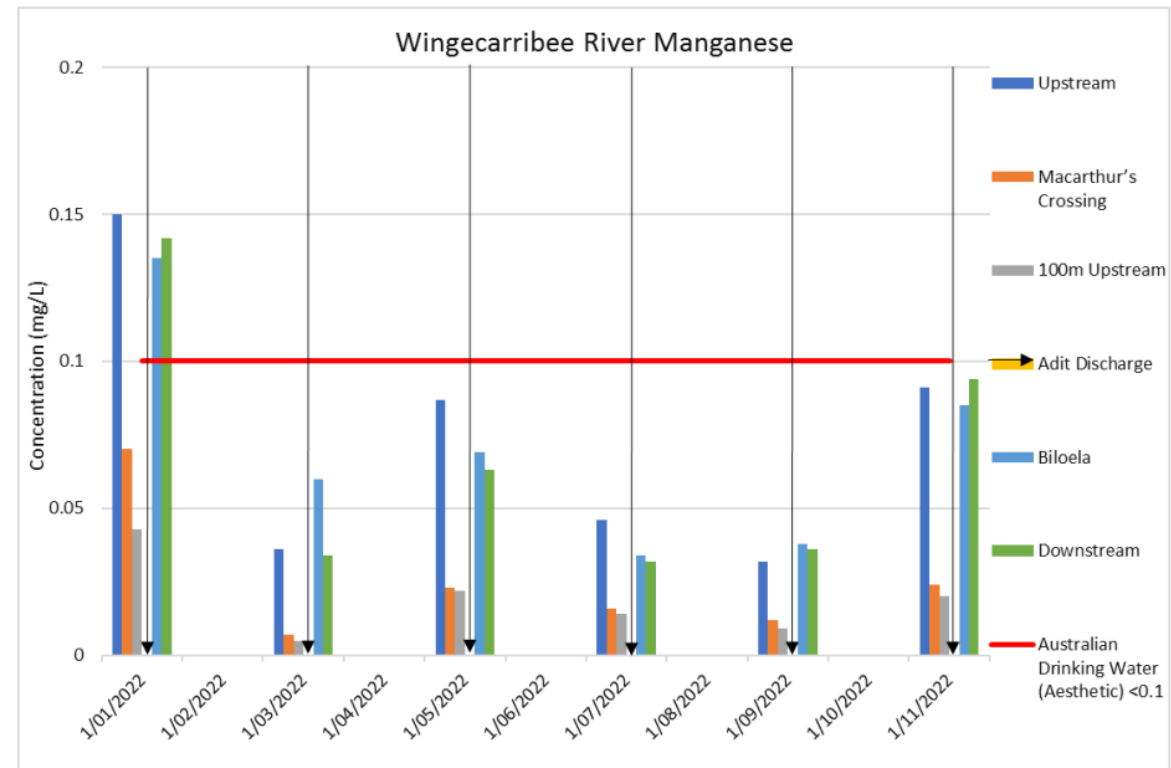


# River quality update – iron & manganese

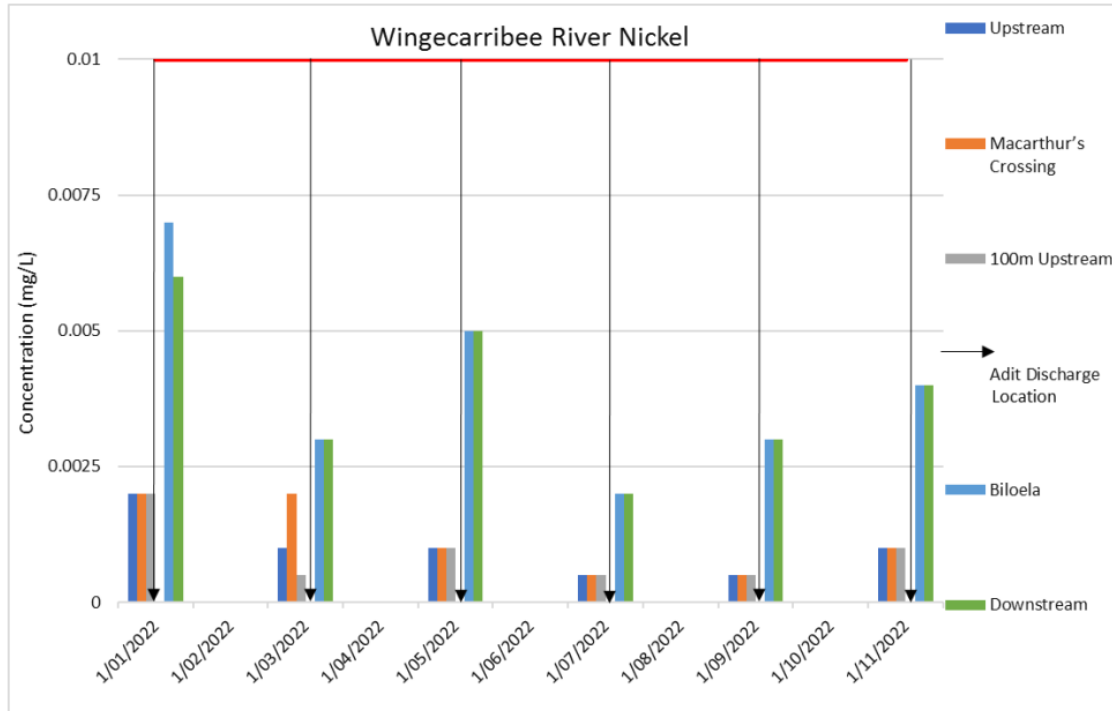


**Iron** – No influence on river.

**Manganese** – Elevated levels in the stream are likely the result of high stream flow from rain events.

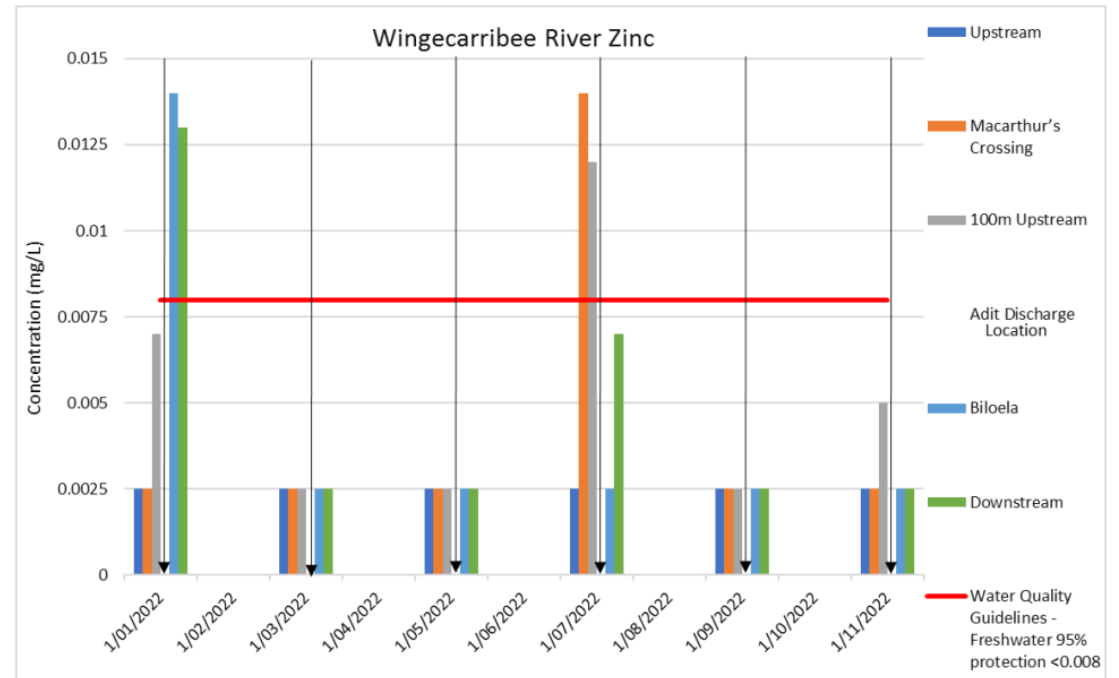


# River quality update – Nickel and Zinc

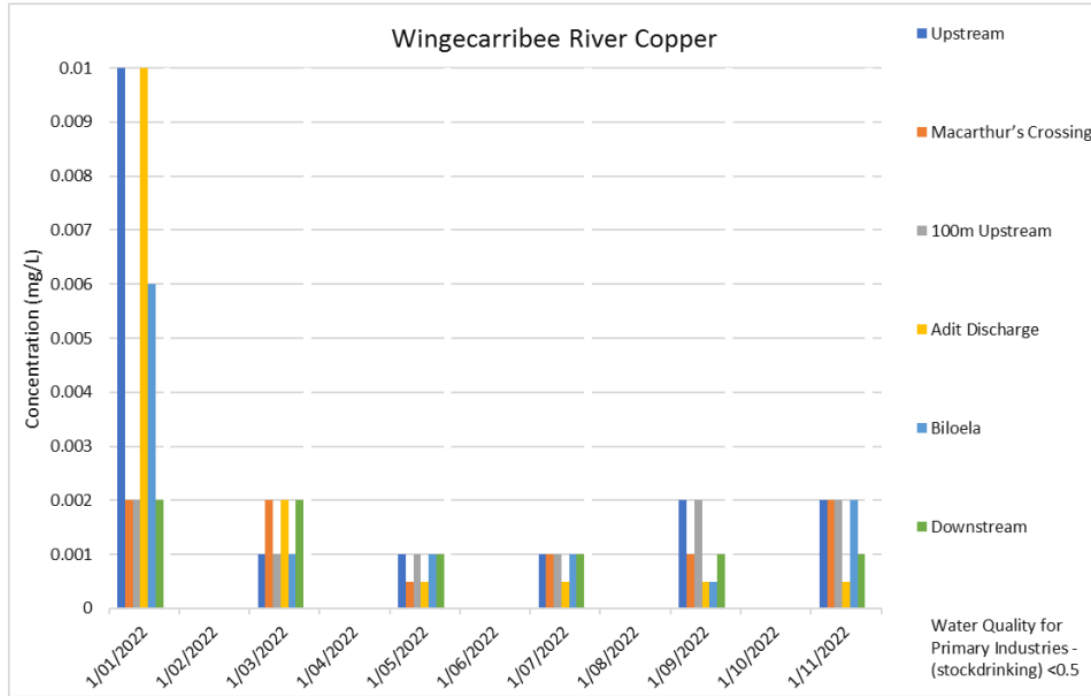


**Nickel** – River is below 95% protection down stream.

**Zinc** – Levels below 95% protection down stream.

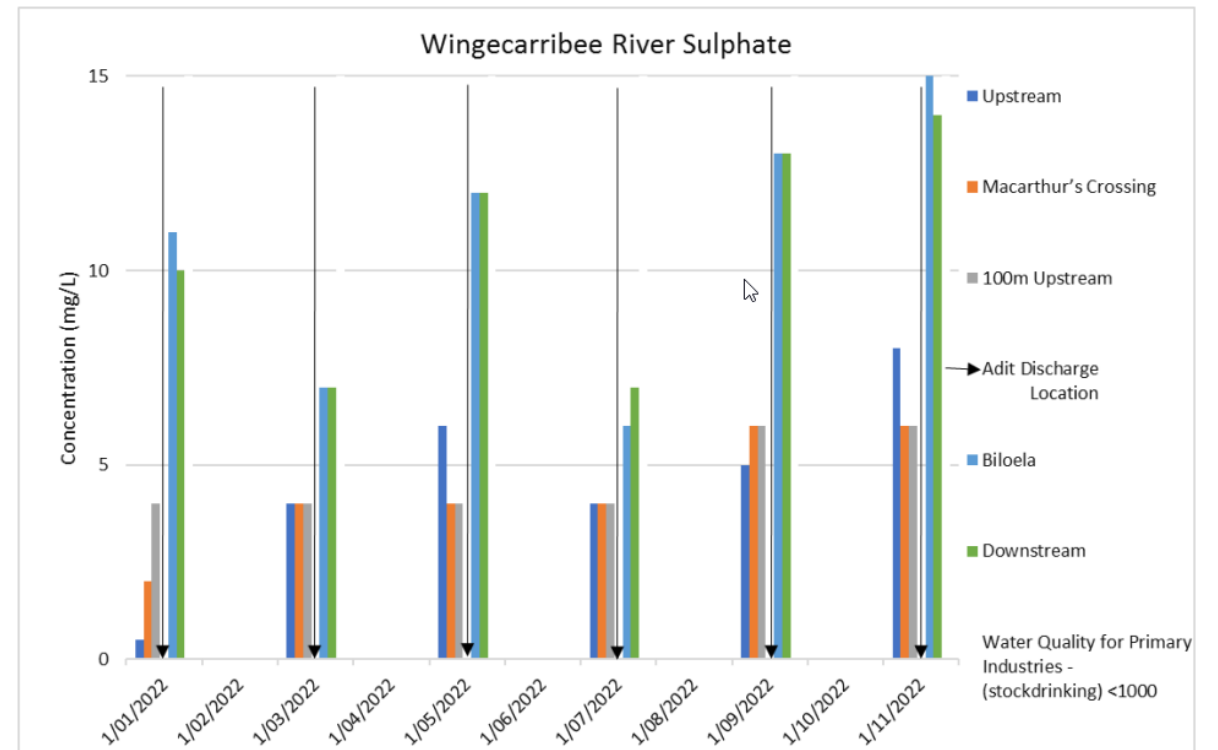


# River quality update – Sulphate and commentary



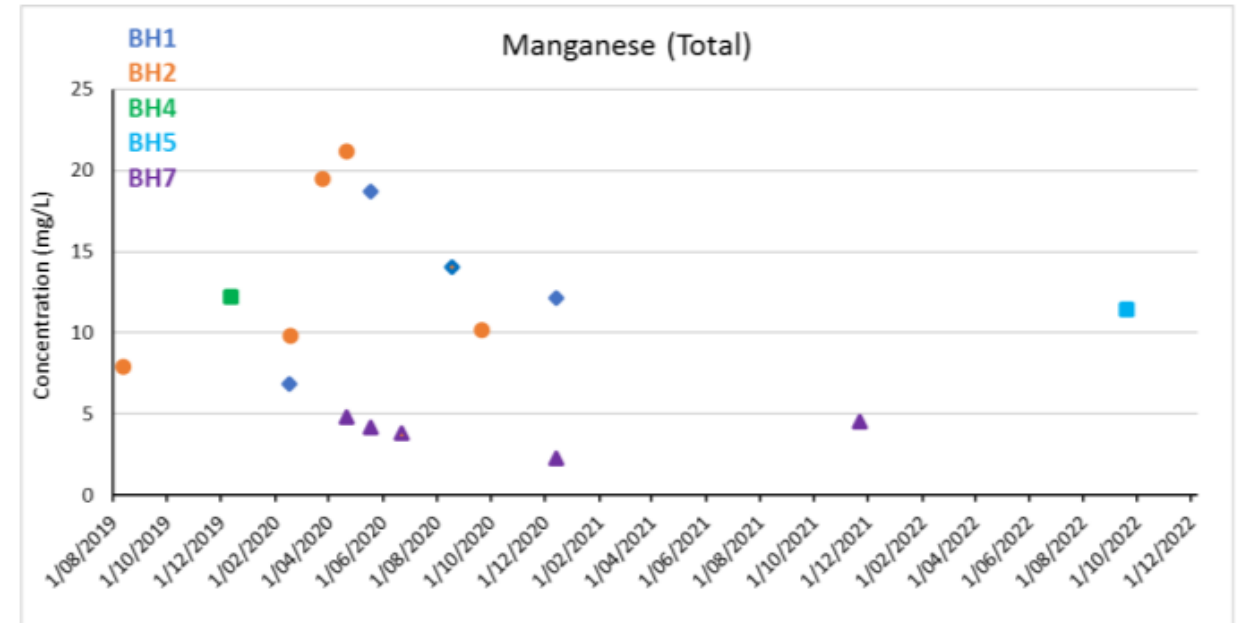
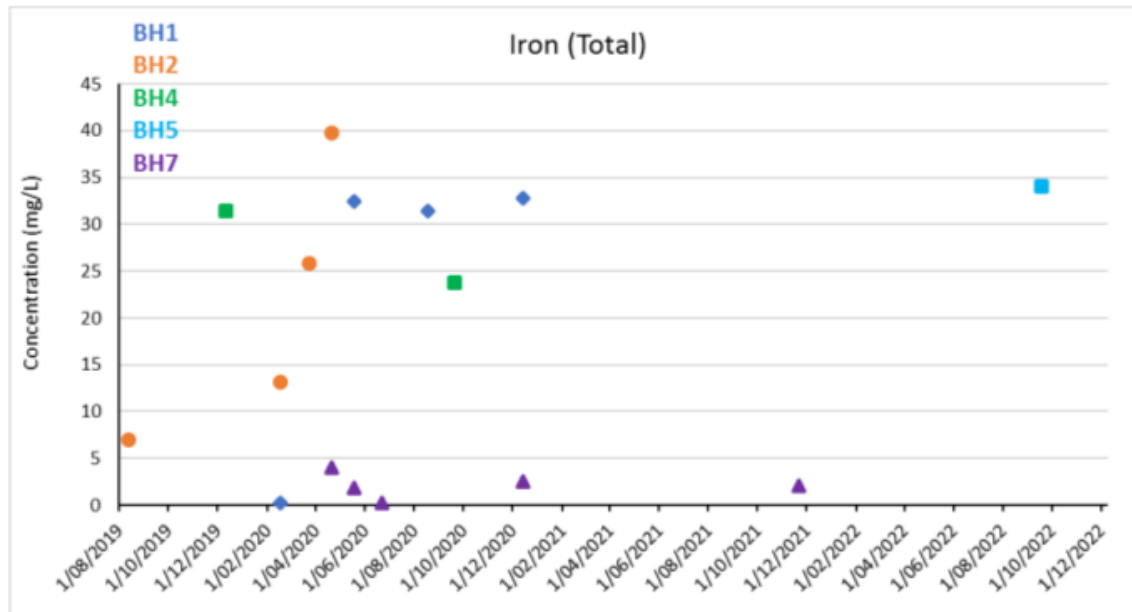
**Copper** – Below stock drinking levels. Other sources influencing.

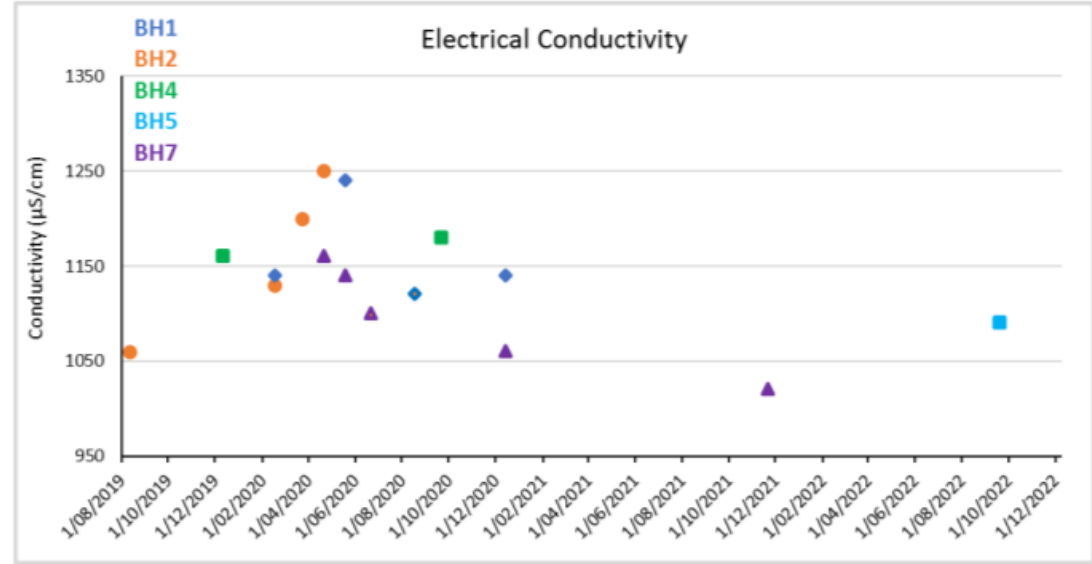
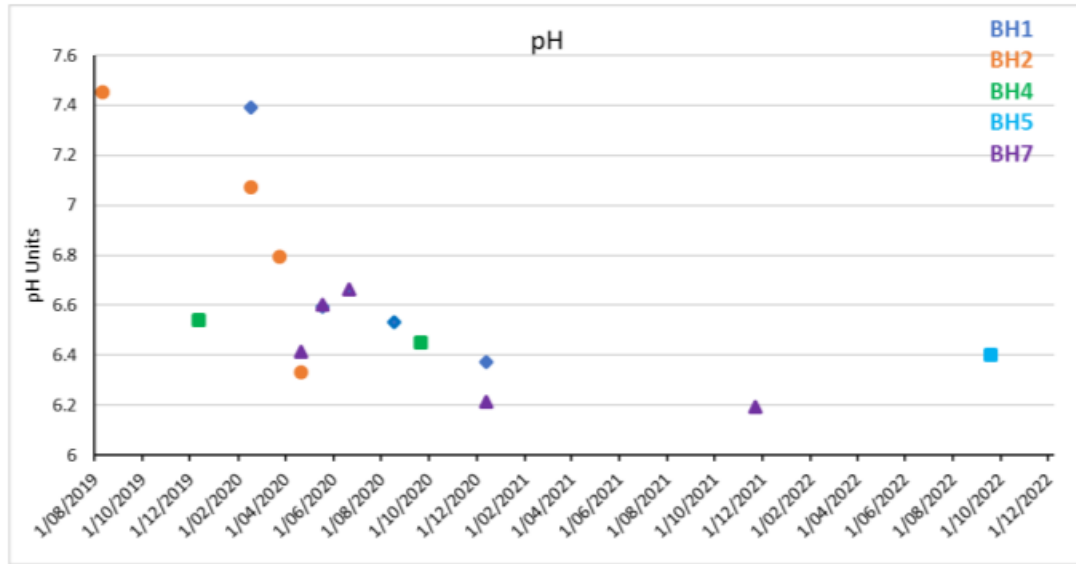
**Sulphate** – Well below any trigger points.

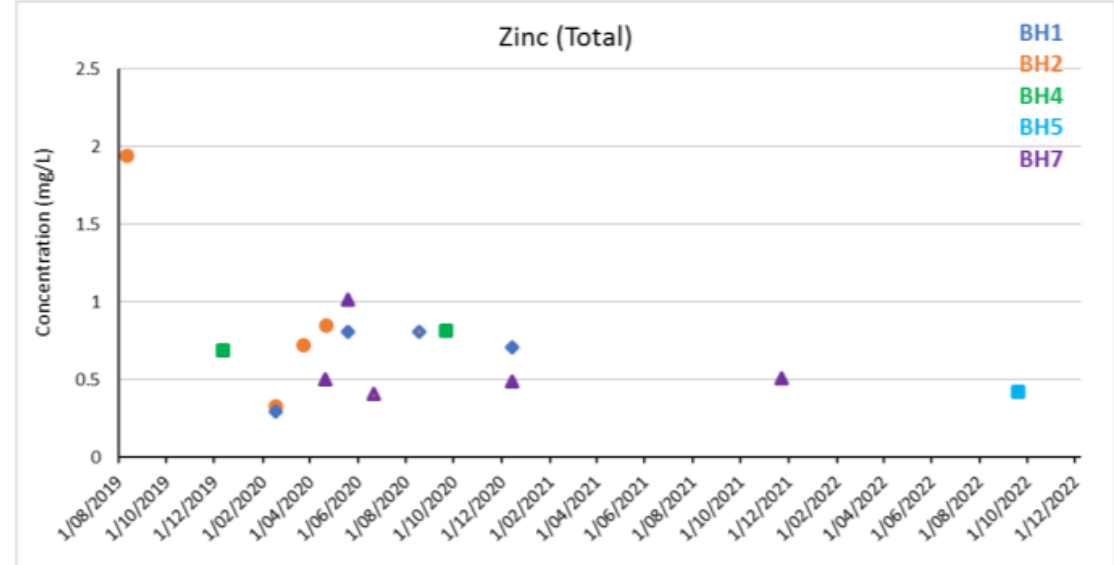
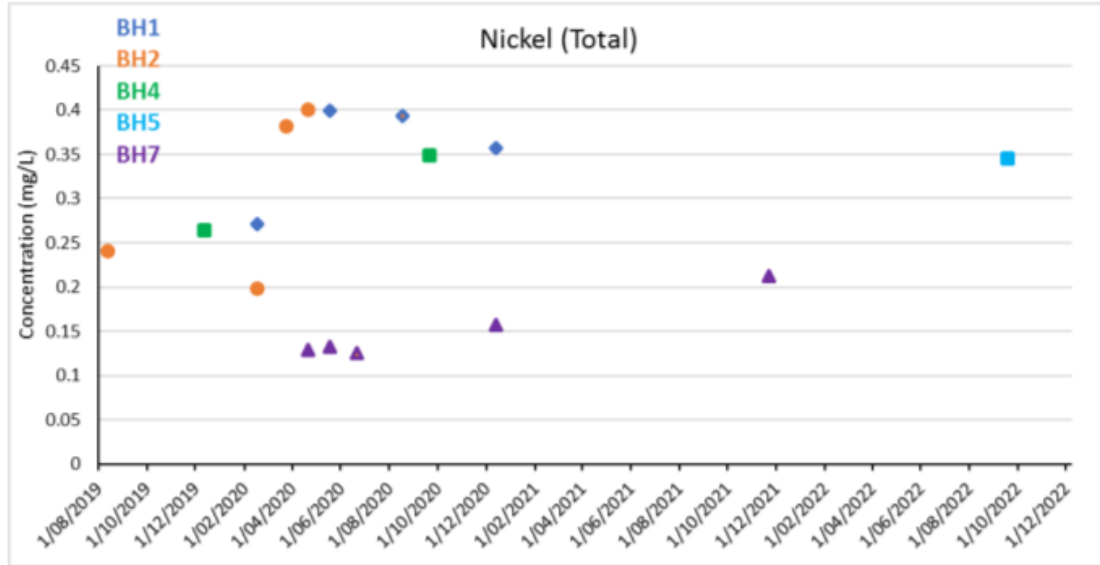


# Bulkhead Water Quality Results

The water behind the bulkheads remains poor.







# 05

## Water Treatment Update

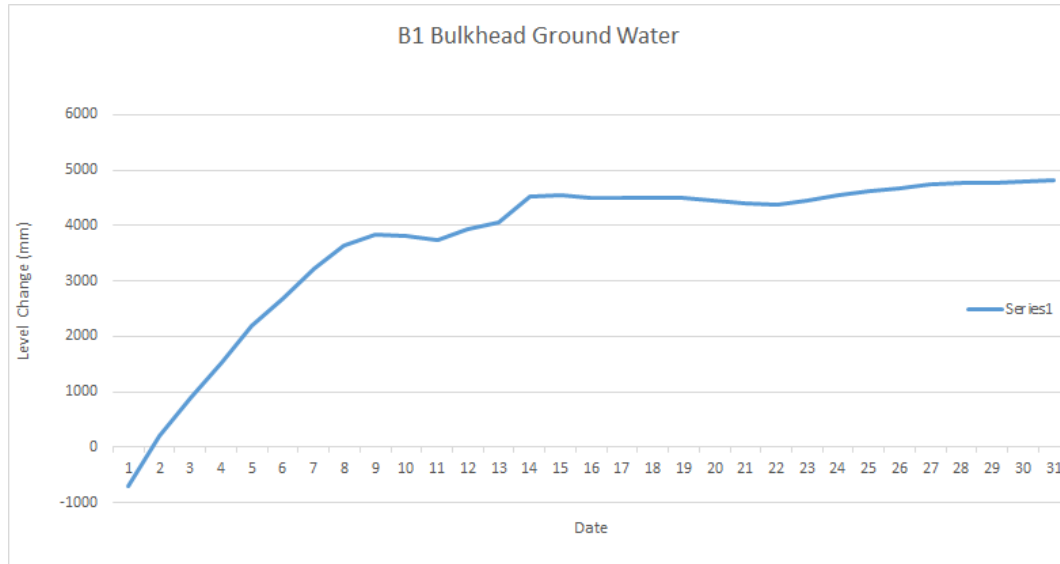




# Water treatment update

- The mine water quality behind the bulkheads remains poor, the underground water treatment system remains in operation to manage the mine water discharge quality.
- Volumes of waters discharging has been consistent at 1.9ML
- The pH of water was within the licence conditions.
- The temporary lime dosing system remains in place.

# Bulkhead water level update



The underground water level behind the bulkheads has been retained at a reasonably constant height as is indicated in the above graph. With mine water levels behind the bulkheads managed through the underground mine water treatment pumping system.

The monitoring the surrounding bulkhead strata permeability is continuing, with the details of the inspections indicated some leakage through the roof and ribs.

# 06

## Pit Top Treatment & Pipeline EPL EIP & Review of Environmental Factors



# Tip Top Treatment and Pipeline – EPL EIP

- The NSW EPA finalised the licence variation in December 2021.
2. The following variations have been made to the licence:
- Condition A2.1: added Lot 4 DP793839 & Lot 1 & Lot 2 DP1136734
  - Condition U1 : *'Environmental Improvement Program - Passive Water Treatment Plant and Pipeline to Berrima Cement Works'* has been added to licence.
  - Conditions E1, E2 and E3 have been removed following completion of respective works.

## 8 Pollution Studies and Reduction Programs

### U1 Environment Improvement Program 1 - Construct Passive Water Treatment Plant and Pipeline to Berrima Cement Works

U1.1 Under the terms of this Environmental Improvement Program, the licensee must complete the following.

- 1) Install a passive water treatment plant on the surface at Berrima Colliery to treat groundwater from the closed underground coal mine at Medway.
- 2) Lay a pipeline from Berrima Colliery to Berrima Cement Works to transfer treated water for use in the cement making process.
- 3) Prepare an environmental assessment that identifies potential environmental impacts from the construction and operation of the above works and proposes measures to prevent or mitigate the impacts.

# Review of Environmental Factors – Status

Rob Byrnes from IEC has now prepared a draft report.

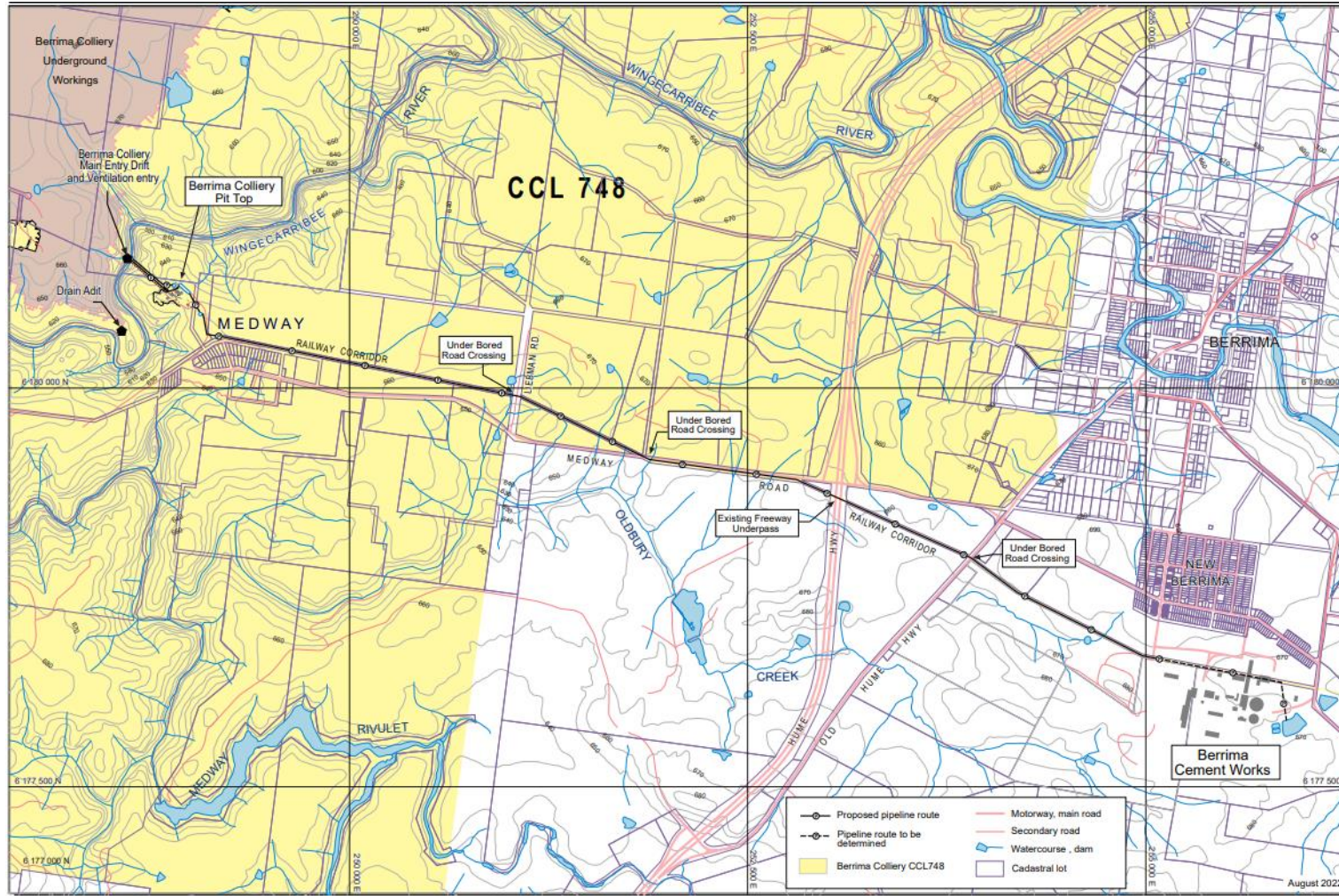


Berrima Colliery Passive Water Treatment Project  
Review of Environmental Factors  
August 2022



Prepared by:  
International Environmental Consultants Pty Limited  
"Longmead"  
700 Wombeyan Caves Road  
Mittagong NSW 2575

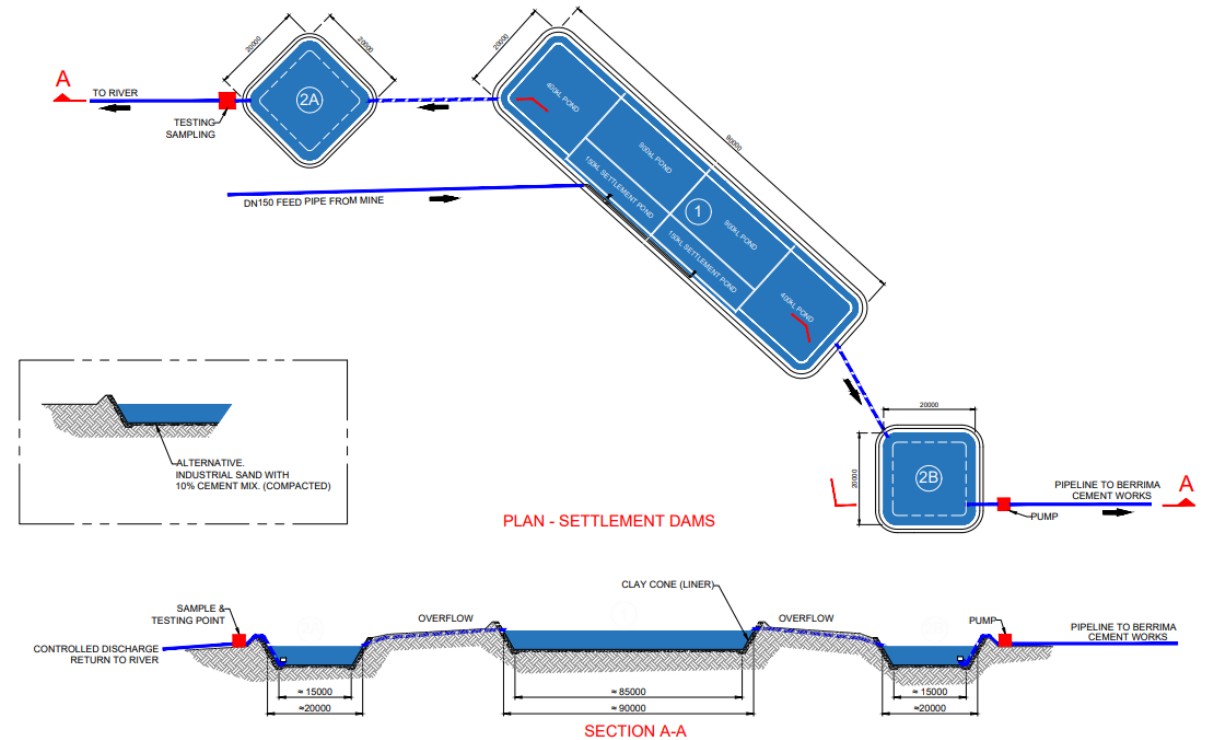
# Draft REF – Proposed Pipeline Route



# Draft REF – Project Outline

In summary,

- Pumping water from the mine to a purpose built passive treatment at the pit top
- Treatment system will involve aeration, pH correction and settlement via multi celled ponds.
- Treated water can be discharged back into the mine Wingecarribee River via a new licensed discharge point
- A portion of the treated water could be sent to the Berrima Cement Works via a pipeline along the existing railway easement (Boral owned and within existing colliery EPL) between the Colliery and the Cement Works, reducing needs from existing licensed pump-out from Wingecarribee River



# Draft REF – Summary of Impacts

The project will result in the following impacts:

- Increased traffic along Medway Road during first six months of construction, up to 10 trucks per day, averaging 2. (Dam construction materials/pipework, plant and equipment)
- No additional traffic once operational.
- Construction noise (dozer, excavator, bobcat and FEL) only between 7am -7pm Mon-Fri
- Pipeline construction (dozer for preparation, excavator/pipe trenching unit and trucks, with pipe boring unit under roads). Construction equipment activities would be close to residential receptors for only a short period or the anticipated 3 months construction.
- Moving existing discharge point in the Wingecarribee further upstream will result in approximately 200m of river receiving an increase flow rate of approx. 2ML per day.



# Draft REF – Summary of Benefits

The project will result in the following benefits:

- Reduction of environmental risks as a result of mine closure
- Improved water quality within the Wingecarribee due to more consistent and effective water treatment capability
- Better reuse of the water resource by reducing the Cement Works extraction of water directly from the river
- Increase in the base water flow between the existing river pump-out upstream of Berrima township to the new discharge point at the colliery.

# DRAFT REF – Next Steps

Boral has met with the EPA. Following potential concerns for discharging upstream of the existing adit, Boral is proposing to discharge back into the mine to release via V-notch weir and the existing adit.

Boral held a community day on Sat 26 November at Berrima Church hall.

The EPA are discussing with the RR for further feedback.

Completion of the final REF will be subject to this feedback and the recent RR directive.

A summary of the final report and proposed plans will be placed on the Colliery webpage.

# 07

## Resources Regulator Update



# Resources Regulator Activity Update

The RR has issued Boral a directive to update the groundwater model and run long term closure scenarios. This modelling exercise and work will run until late April 2023.

The outcome should finalise the closure option and the pit top treatment and pipeline proposal.

# 08

## Medway Community Update



# Medway Community update

Welcome Guest – Lance Ward Vice President of the Medway Community Association

Open discussion

# 9

## Communications Update



- A community drop-in session was held in Berrima on Saturday 26<sup>th</sup> November to answer questions regarding the proposed pit top treatment and pipeline project from the colliery to the cement works.
- We have been approached by a few residents at Medway about illegal dumping of garden waste and other rubbish at the end of the western arm of Liebman Rd. I have asked the resident to keep an eye out and try and get registration numbers of vehicles they see dumping waste in the area and encouraged them to contact Council if they see anyone behaving suspiciously. I have also sent an email to Council to ask if patrols can be stepped up in the area to try and catch the culprits.
- Weed spraying has commenced on Boral land near Liebman Road to try and control the serrated tussock, blackberry and thistles.





# 10

## General Business



# 11

Next Meeting

Proposed  
26 May 2023





Thanks for your participation