



ANNUAL COMPLIANCE REPORT

(Combined Approval 60CA581273)

2023/24

Contact: David Hilton - Executive Manager Operations

LICENCE COMPLIANCE REPORT 2023/24

PREFACE

This report is prepared by Western Murray Irrigation Limited (WMI) as part of licence requirements which WMI holds with the NSW Department of Climate Change, Energy, the Environment and Water) and the Environmental Protection Authority (EPA). It discusses our annual compliance performance, including the environmental performance and impacts of the works and infrastructure owned or controlled by WMI and the quality of irrigation wastewater discharged from works and infrastructure.

Our environmental programs, which aim to exceed our environmental obligations, demonstrate our commitment to ensuring that our operations do not impact negatively on the environment.

Western Murray Irrigation Limited

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2023/24 Annual Compliance report

INTRODUCTION

WMI supplies water to customers in its three irrigation areas, Buronga, Coomealla and Curlwaa under Combined Approval Number 60CA581273. The Statement of Approval has a date of effect 01 July 2004 and expiry of 23 February 2030. Details of the Statement of Approval can be found at:
<https://waterregister.watarnsw.com.au/water-register-frame>.

Operating licence for Western Murray Irrigation was renewed and amended for a period of ten years on 24th January 2018, published in NSW Government Gazette No 10 of 25th January 2018:

Government Notices

WATER MANAGEMENT ACT 2000

Sections 123 and 124

RENEWAL AND AMENDMENT OF OPERATING LICENCE

NOTICE is given that, pursuant to sections 123 and 124 of the *Water Management Act 2000*, the Governor of New South Wales has, on 24th January 2018, renewed and amended the Operating Licence of Western Murray Irrigation Limited, for a period of ten years. The renewed Operating Licence commences on the day this notice is published in the NSW Government Gazette.

[n2018-247]

This Compliance Report details the monitoring and reporting activities undertaken by WMI during the 2023/24 financial year to comply with the water management licences. It also outlines irrigation development data that explains the trends in monitoring results.

All mapping details are using projected coordinate system: GDA-1994- MGA-Zone 54. Heights are in metres AHD.

STATEMENT OF APPROVAL 60CA581273 – COMPLIANCE OF CONDITIONS

Take of Water

MW0655-00001

All water supply works authorised by this approval take water in compliance with the conditions of the access licence under which water is being taken.

MW2452-00001

Water is taken through metering equipment that meet the following requirements:

- A. The metering equipment accurately measures and records the flow of all water taken through the water supply work authorised by this approval.
- B. Status of metering equipment compliance with the current Australian Standard AS 4747: 'Meters for non-urban supply':
 - Buronga pump station meter (1) is pattern approved to NMI-M-10; installed/commissioned 05May21.
 - Coomealla pump station meters (1-6) are pattern approved to NMI-M-10; installed/commissioned 01July2021.
 - Curlwaa pump station meters (1-2) are pattern approved to NMI-M-10. Installed/commissioned 12July21(1) and 12Jun21(2)

Commissioning of Telemetry for DAS – WMI are working with NRAR/DPIE-Water to commission our existing telemetry in accordance with 'Marketing engagement policy for metering and telemetry; Part 3 – Assessment process for 'other telemetry systems'; WMI have submitted a proposal and followed up several times with no resolution from NRAR/DPIE-Water.

- C. All metering equipment is sited and installed at a place in the pipe, between the water source and the first discharge outlet. There is no flow of water into or out of the pipe, between the water source and the metering equipment.
- D. The metering equipment is always operated and maintained in a proper and efficient manner. Calibration/Verification are carried out approximately each year.

Metering Calibration Certificates

Buronga Pump Station.



Trescal (Australia) Pty Ltd
16 William St
Mile End South, SA 5031

INSTRUMENT CALIBRATION REPORT

Western Murray Irrigation Limited

Calibration ID: 163404

Contact : David Hilton

City : Dareton

PM Task No :

Phone : 0429183619

State : NSW

Work Order : 23.051958

Address : 5 Tapio Street

Postcode : 2717

Instrument ID	BGA MAIN	Manufacturer:	Siemens
Description	1Y Verification of BGA Main Flowmeter - ModBus address	Model:	MAG5100W with MAG 6000 CT
Calibrated	19/Jul/2023	Serial:	974403H280 / N1M0075045
Location	Buronga Pumps	Classification:	Critical Item
Area		Previous Inst Status:	In Service
Equipment ID	BURONGA PUMPS		

Calibration Data

Origin of Stated Accuracy	Manufacturer Specification
Calibration Type:	In Service
Document ID:	VERIFICATION

Group #	1	Test Type :	TaskList.bpl
Group Name	Verification	Group Result :	Pass
Step #	Step	Result	Comments
1	Converter Test (Enter Pass / Fail in Comment)	Completed	Pass
2	Sensor Insulation (Enter Pass / Fail in Comment)	Completed	Pass
3	Sensor Magnetism (Enter Pass / Fail in Comment)	Completed	Pass
4	Enter WO# in Notes on Verification Report	Completed	

Test Instruments Used During the Calibration:

<u>Test Instrument ID</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Serial Number</u>	<u>Last Cal Date</u>	<u>Next Cal Date</u>
STIN313	Seimens Magflo Verificator	Siemens	083F5060	00519N089	29/07/2022	29/07/2023

Calibration Result:	Calibration Successful	Performed By :	Neil Zander
Finalized By :	Denise Harrison	Finalized Date :	20/07/2023
Calibration Frequency :	Annual	Next Calibration Date	19/07/2024
Amb. Temp. (DEG.C) :		Amb. Humidity (%R.H.) :	

Trescal (Australia) Pty Ltd certifies that the above listed Instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). This Report of Calibration applies only to the item being calibrated, identified above and shall not be reproduced, except in full, unless written permission for an approved abstract is obtained from Trescal (Australia) Pty Ltd. The quality systems of Trescal (Australia) Pty Ltd are in compliance with ISO9001. Measurements in this calibration are traceable to the International System of Units (SI) via national metrology institutes that are signatories to the CIPM Mutual Recognition Agreement.

Coomoalla Pump Station - Pump A



Trescal (Australia) Pty Ltd
16 William St
Mile End South, SA 5031

INSTRUMENT CALIBRATION REPORT

Western Murray Irrigation Limited

Calibration ID: 163392

Contact : David Hilton

City : Dareton

PM Task No :

Phone : 0429183619

State : NSW

Work Order : 23.051958

Address : 5 Tapio Street

Postcode : 2717

Instrument ID	PUMP A	Manufacturer:	Siemens
Description	1Y Verification of Coomealla Pumps - PUMP A	Model:	MAG5100W with MAG 6000 CT
Calibrated	19/Jul/2023	Serial:	982003H280 / N1M9215020
Location	Coomealla Pumps	Classification:	Critical Item
Area		Previous Inst Status:	In Service
Equipment ID	COOMEALLA PUMPS		

Calibration Data

Origin of Stated Accuracy	Manufacturer Specification
Calibration Type:	In Service
Document ID:	VERIFICATION

Group #	1	Test Type :	TaskList.bpl
Group Name	Verification	Group Result :	Pass
Step #	Step	Result	Comments
1	Converter Test (Enter Pass / Fail in Comment)	Completed	Pass
2	Sensor Insulation (Enter Pass / Fail in Comment)	Completed	Pass
3	Sensor Magnetism (Enter Pass / Fail in Comment)	Completed	Pass
4	Enter WO# in Notes on Verification Report	Completed	

Test Instruments Used During the Calibration:

<u>Test Instrument ID</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Serial Number</u>	<u>Last Cal Date</u>	<u>Next Cal Date</u>
STIN313	Seimens Magflo Vericator	Siemens	083F5060	00519N089	29/07/2022	29/07/2023

Calibration Result:	Calibration Successful	Performed By :	Neil Zander
Finalized By :	Denise Harrison	Finalized Date :	20/07/2023
Calibration Frequency :	Annual	Next Calibration Date	19/07/2024
Amb. Temp. (DEG.C) :		Amb. Humidity (%R.H.) :	

Trescal (Australia) Pty Ltd certifies that the above listed Instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). This Report of Calibration applies only to the item being calibrated, identified above and shall not be reproduced, except in full, unless written permission for an approved abstract is obtained from Trescal (Australia) Pty Ltd. The quality systems of Trescal (Australia) Pty Ltd are in compliance with ISO9001. Measurements in this calibration are traceable to the International System of Units (SI) via national metrology institutes that are signatories to the CIPM Mutual Recognition Agreement.

Coomoalla Pump Station - Pump B



Trescal (Australia) Pty Ltd
16 William St
Mile End South, SA 5031

INSTRUMENT CALIBRATION REPORT

Western Murray Irrigation Limited
Contact : David Hilton

Phone : 0429183619

Address : 5 Tapio Street

City : Dareton

State : NSW

Postcode : 2717

Calibration ID: 163394

PM Task No :
Work Order : 23.051958

Instrument ID	PUMP B	Manufacturer:	Siemens
Description	1Y Verification of Coomealla Pumps - PUMP B	Model:	MAG5100W with MAG 6000 CT
Calibrated	19/Jul/2023	Serial:	982203H280 / N1M0025053
Location	Coomealla Pumps	Classification:	Critical Item
Area		Previous Inst Status:	Failed Calibration
Equipment ID	COOMEALLA PUMPS		

Calibration Data

Origin of Stated Accuracy	Manufacturer Specification
Calibration Type:	In Service
Document ID:	VERIFICATION

Group #	1	Test Type :	TaskList.bpl
Group Name	Verification	Group Result :	Pass
Step #	Step	Result	Comments
1	Converter Test (Enter Pass / Fail in Comment)	Completed	Pass
2	Sensor Insulation (Enter Pass / Fail in Comment)	Completed	Pass
3	Sensor Magnetism (Enter Pass / Fail in Comment)	Completed	Pass
4	Enter WO# in Notes on Verification Report	Completed	

Test Instruments Used During the Calibration:

Test Instrument ID	Description	Manufacturer	Model Number	Serial Number	Last Cal Date	Next Cal Date
STIN313	Seimens Magflo Vericator	Siemens	083F5060	00519N089	29/07/2022	29/07/2023

Calibration Result:	Calibration Successful	Performed By :	Neil Zander
Finalized By :	Denise Harrison	Finalized Date :	20/07/2023
Calibration Frequency :	Annual	Next Calibration Date	19/07/2024
Amb. Temp. (DEG.C) :		Amb. Humidity (%R.H.) :	

Trescal (Australia) Pty Ltd certifies that the above listed Instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). This Report of Calibration applies only to the item being calibrated, identified above and shall not be reproduced, except in full, unless written permission for an approved abstract is obtained from Trescal (Australia) Pty Ltd. The quality systems of Trescal (Australia) Pty Ltd are in compliance with ISO9001. Measurements in this calibration are traceable to the International System of Units (SI) via national metrology institutes that are signatories to the CIPM Mutual Recognition Agreement.

Coomoalla Pump Station - Pump C



Trescal (Australia) Pty Ltd
16 William St
Mile End South, SA 5031

INSTRUMENT CALIBRATION REPORT

Western Murray Irrigation Limited

Contact : David Hilton
Phone : 0429183619
Address : 5 Tapio Street

City : Dareton
State : NSW
Postcode : 2717

Calibration ID: 163395

PM Task No :
Work Order : 23.051958

Instrument ID	PUMP C	Manufacturer:	Siemens
Description	1Y Verification of Coomoalla Pumps - PUMP C	Model:	MAG5100W with MAG 6000 CT
Calibrated	19/Jul/2023	Serial:	982303H280 / N1M9045205
Location	Coomoalla Pumps	Classification:	Critical Item
Area		Previous Inst Status:	Failed Calibration
Equipment ID	COOMEALLA PUMPS		

Calibration Data

Origin of Stated Accuracy	Manufacturer Specification
Calibration Type:	In Service
Document ID:	VERIFICATION

Group #	1	Test Type :	TaskList.bpl
Group Name	Verification	Group Result :	Pass
Step #	Step	Result	Comments
1	Converter Test (Enter Pass / Fail in Comment)	Completed	Pass
2	Sensor Insulation (Enter Pass / Fail in Comment)	Completed	Pass
3	Sensor Magnetism (Enter Pass / Fail in Comment)	Completed	Pass
4	Enter WO# in Notes on Verification Report	Completed	

Test Instruments Used During the Calibration:

Test Instrument ID	Description	Manufacturer	Model Number	Serial Number	Last Cal Date	Next Cal Date
STIN313	Seimens Magflo Verificator	Siemens	083F5060	00519N089	29/07/2022	29/07/2023

Calibration Result:	Calibration Successful	Performed By :	Neil Zander
Finalized By :	Denise Harrison	Finalized Date :	20/07/2023
Calibration Frequency :	Annual	Next Calibration Date	19/07/2024
Amb. Temp. (DEG.C) :		Amb. Humidity (%R.H.) :	

Trescal (Australia) Pty Ltd certifies that the above listed instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). This Report of Calibration applies only to the item being calibrated, identified above and shall not be reproduced, except in full, unless written permission for an approved abstract is obtained from Trescal (Australia) Pty Ltd. The quality systems of Trescal (Australia) Pty Ltd are in compliance with ISO9001. Measurements in this calibration are traceable to the International System of Units (SI) via national metrology institutes that are signatories to the CIPM Mutual Recognition Agreement.

Coomella Pump Station - Pump D



Trescal (Australia) Pty Ltd
16 William St
Mile End South, SA 5031

INSTRUMENT CALIBRATION REPORT

Western Murray Irrigation Limited

Calibration ID: 163396

Contact : David Hilton

City : Dareton

PM Task No :

Phone : 0429183619

State : NSW

Work Order : 23.051958

Address : 5 Tapio Street

Postcode : 2717

Instrument ID	PUMP D	Manufacturer:	Siemens
Description	1Y Verification of Coomealla Pumps - PUMP D	Model:	MAG5100W with MAG 6000 CT
Calibrated	19/Jul/2023	Serial:	982503H280 / N1MO025057
Location	Coomealla Pumps	Classification:	Critical Item
Area		Previous Inst Status:	Failed Calibration
Equipment ID	COOMEALLA PUMPS		

Calibration Data

Origin of Stated Accuracy	Manufacturer Specification
Calibration Type:	In Service
Document ID:	VERIFICATION

Group #	1	Test Type :	TaskList.bpl
Group Name	Verification	Group Result :	Pass
Step #	Step	Result	Comments
1	Converter Test (Enter Pass / Fail in Comment)	Completed	Pass
2	Sensor Insulation (Enter Pass / Fail in Comment)	Completed	Pass
3	Sensor Magnetism (Enter Pass / Fail in Comment)	Completed	Pass
4	Enter WO# in Notes on Verification Report	Completed	

Test Instruments Used During the Calibration:

<u>Test Instrument ID</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Serial Number</u>	<u>Last Cal Date</u>	<u>Next Cal Date</u>
STIN313	Seimens Magflo Vericator	Siemens	083F5060	00519N089	29/07/2022	29/07/2023

Calibration Result:	Calibration Successful	Performed By :	Neil Zander
Finalized By :	Denise Harrison	Finalized Date :	20/07/2023
Calibration Frequency :	Annual	Next Calibration Date	19/07/2024
Amb. Temp. (DEG.C) :		Amb. Humidity (%R.H.) :	

Trescal (Australia) Pty Ltd certifies that the above listed Instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). This Report of Calibration applies only to the item being calibrated, identified above and shall not be reproduced, except in full, unless written permission for an approved abstract is obtained from Trescal (Australia) Pty Ltd. The quality systems of Trescal (Australia) Pty Ltd are in compliance with ISO9001. Measurements in this calibration are traceable to the International System of Units (SI) via national metrology institutes that are signatories to the CIPM Mutual Recognition Agreement.

Coomoalla Pump Station - Pump E



Trescal (Australia) Pty Ltd
16 William St
Mile End South, SA 5031

INSTRUMENT CALIBRATION REPORT

Western Murray Irrigation Limited

Calibration ID: 163397

Contact : David Hilton

City : Dareton

PM Task No :

Phone : 0429183619

State : NSW

Work Order : 23.051958

Address : 5 Tapio Street

Postcode : 2717

Instrument ID	PUMP E	Manufacturer:	Siemens
Description	1Y Verification of Coomealla Pumps - PUMP E	Model:	MAG5100W with MAG 6000 CT
Calibrated	19/Jul/2023	Serial:	982603H280 / N1M9045190
Location	Coomealla Pumps	Classification:	Critical Item
Area		Previous Inst Status:	Failed Calibration
Equipment ID	COOMEALLA PUMPS		

Calibration Data

Origin of Stated Accuracy	Manufacturer Specification
Calibration Type:	In Service
Document ID:	VERIFICATION

Group #	1	Test Type :	TaskList.bpl
Group Name	Verification	Group Result :	Pass
Step #	Step	Result	Comments
1	Converter Test (Enter Pass / Fail in Comment)	Completed	Pass
2	Sensor Insulation (Enter Pass / Fail in Comment)	Completed	Pass
3	Sensor Magnetism (Enter Pass / Fail in Comment)	Completed	Pass
4	Enter WO# in Notes on Verification Report	Completed	

Test Instruments Used During the Calibration:

<u>Test Instrument ID</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Serial Number</u>	<u>Last Cal Date</u>	<u>Next Cal Date</u>
STIN313	Seimens Magflo Vericator	Siemens	083F5060	00519N089	29/07/2022	29/07/2023

Calibration Result:	Calibration Successful	Performed By :	Neil Zander
Finalized By :	Denise Harrison	Finalized Date :	20/07/2023
Calibration Frequency :	Annual	Next Calibration Date	19/07/2024
Amb. Temp. (DEG.C) :		Amb. Humidity (%R.H.) :	

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Coomoalla Pump Station - Pump F



Trescal (Australia) Pty Ltd
16 William St
Mile End South, SA 5031

INSTRUMENT CALIBRATION REPORT

Western Murray Irrigation Limited

Contact : David Hilton

Phone : 0429183619

Address : 5 Tapio Street

City : Dareton

State : NSW

Postcode : 2717

Calibration ID: 163399

PM Task No :

Work Order : 23.051958

Instrument ID	PUMP F	Manufacturer:	Siemens
Description	1Y Verification of Coomealla Pumps - PUMP F	Model:	MAG5100W with MAG 6000 CT
Calibrated	19/Jul/2023	Serial:	979503H280 / N1M9045212
Location	Coomealla Pumps	Classification:	Critical Item
Area		Previous Inst Status:	In Service
Equipment ID	COOMEALLA PUMPS		

Calibration Data

Origin of Stated Accuracy	Manufacturer Specification
Calibration Type:	In Service
Document ID:	VERIFICATION

Group #	1	Test Type :	TaskList.bpl
Group Name	Verification	Group Result :	Pass
Step #	Step	Result	Comments
1	Converter Test (Enter Pass / Fail in Comment)	Completed	Pass
2	Sensor Insulation (Enter Pass / Fail in Comment)	Completed	Pass
3	Sensor Magnetism (Enter Pass / Fail in Comment)	Completed	Pass
4	Enter WO# in Notes on Verification Report	Completed	

Test Instruments Used During the Calibration:

<u>Test Instrument ID</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Serial Number</u>	<u>Last Cal Date</u>	<u>Next Cal Date</u>
STIN313	Seimens Magflo Verificator	Siemens	083F5060	00519N089	29/07/2022	29/07/2023

Calibration Result:	Calibration Successful	Performed By :	Neil Zander
Finalized By :	Denise Harrison	Finalized Date :	20/07/2023
Calibration Frequency :	Annual	Next Calibration Date	19/07/2024
Amb. Temp. (DEG.C) :		Amb. Humidity (%R.H.) :	

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Curlwaa Pump Station – Main.



Trescal (Australia) Pty Ltd
16 William St
Mile End South, SA 5031

INSTRUMENT CALIBRATION REPORT

Western Murray Irrigation Limited

Calibration ID: 163400

Contact : David Hilton

City : Dareton

PM Task No :

Phone : 0429183619

State : NSW

Work Order : 23.051958

Address : 5 Tapio Street

Postcode : 2717

Instrument ID	CWA MAIN	Manufacturer:	Siemens
Description	1Y Verification of Curlwaa Pumps - CWA MAIN	Model:	MAG5100W with MAG 6000 CT
Calibrated	19/Jul/2023	Serial:	918903H480 / N1MO09508
Location	Curlwaa Pumps	Classification:	Critical Item
Area		Previous Inst Status:	In Service
Equipment ID	CURLWAA PUMPS		

Calibration Data

Origin of Stated Accuracy	Manufacturer Specification
Calibration Type:	In Service
Document ID:	VERIFICATION

Group #	1	Test Type :	TaskList.bpl
Group Name	Verification	Group Result :	Pass
Step #	Step	Result	Comments
1	Converter Test (Enter Pass / Fail in Comment)	Completed	Pass
2	Sensor Insulation (Enter Pass / Fail in Comment)	Completed	Pass
3	Sensor Magnetism (Enter Pass / Fail in Comment)	Completed	Pass
4	Enter WO# in Notes on Verification Report	Completed	

Test Instruments Used During the Calibration:

Test Instrument ID	Description	Manufacturer	Model Number	Serial Number	Last Cal Date	Next Cal Date
STIN313	Seimens Magflo Verificator	Siemens	083F5060	00519N089	29/07/2022	29/07/2023

Calibration Result:	Calibration Successful	Performed By :	Neil Zander
Finalized By :	Denise Harrison	Finalized Date :	20/07/2023
Calibration Frequency :	Annual	Next Calibration Date	19/07/2024
Amb. Temp. (DEG.C) :		Amb. Humidity (%R.H.) :	

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Curlwaa Pump Station - By-pass



Trescal (Australia) Pty Ltd
16 William St
Mile End South, SA 5031

INSTRUMENT CALIBRATION REPORT**Western Murray Irrigation Limited**

Contact : David Hilton

Phone : 0429183619

Address : 5 Tapio Street

City : Dareton

State : NSW

Postcode : 2717

Calibration ID: 163401

PM Task No :

Work Order : 23.051958

Instrument ID	CWA BYPASS	Manufacturer:	Siemens
Description	1Y Verification of Curlwaa Pumps - CWA Bypass - ModBus address	Model:	MAG5100W with MAG 6000 CT
Calibrated	19/Jul/2023	Serial:	978303H280 / N1M9045200
Location	Curlwaa Pumps	Classification:	Critical Item
Area		Previous Inst Status:	In Service
Equipment ID	CURLWAA PUMPS		

Calibration Data

Origin of Stated Accuracy	Manufacturer Specification
Calibration Type:	In Service
Document ID:	VERIFICATION

Group #	1	Test Type :	TaskList.bpl
Group Name	Verification	Group Result :	Pass
Step #	Step	Result	Comments
1	Converter Test (Enter Pass / Fail in Comment)	Completed	Pass
2	Sensor Insulation (Enter Pass / Fail in Comment)	Completed	Pass
3	Sensor Magnetism (Enter Pass / Fail in Comment)	Completed	Pass
4	Enter WO# in Notes on Verification Report	Completed	

Test Instruments Used During the Calibration:

<u>Test Instrument ID</u>	<u>Description</u>	<u>Manufacturer</u>	<u>Model Number</u>	<u>Serial Number</u>	<u>Last Cal Date</u>	<u>Next Cal Date</u>
STIN313	Seimens Magflo Verificator	Siemens	083F5060	00519N089	29/07/2022	29/07/2023

Calibration Result:	Calibration Successful	Performed By :	Neil Zander
Finalized By :	Denise Harrison	Finalized Date :	20/07/2023
Calibration Frequency :	Annual	Next Calibration Date	19/07/2024
Amb. Temp. (DEG.C) :		Amb. Humidity (%R.H.) :	

Trescal (Australia) Pty Ltd certifies that the above listed Instrument meets or exceeds all specifications as stated in the referenced procedure (unless otherwise noted). This Report of Calibration applies only to the item being calibrated, identified above and shall not be reproduced, except in full, unless written permission for an approved abstract is obtained from Trescal (Australia) Pty Ltd. The quality systems of Trescal (Australia) Pty Ltd are in compliance with ISO9001. Measurements in this calibration are traceable to the International System of Units (SI) via national metrology Institutes that are signatories to the CIPM Mutual Recognition Agreement.

Water Management Works

MW3192-00001

Government-provided metering equipment is not installed on any of WMI water supply works authorised by this approval, any water taken using the works is metered as detailed at MW2452-00001 above.

MW0491-00001

All works authorised by this approval remain in use; there are presently no plans to decommission the works.

Monitoring and Recording

MW2338-00001

The metered usage is recorded electronically at least every 15 minutes and stored on WMI servers; historical data can be accessed back at least 10 years. Live, end of day and end of month meter readings are also available on the WWW:

http://orderwater.westernmurray.com.au/PumpTotalisers_sql.asp .

MW2336-00001

The purpose for which water is taken is based on the WMI Crop Report. It is not feasible to create a record each time water is used for type, area, dates of planting and harvesting of each individual owner's crop.

MW2337-00001

The following information is recorded electronically for each 15-minute period that all water is taken:

- A. Time, date, volume of water, start and end times and flowrate.
- B. The access licence number under which the water is taken; also, our order system records individual customer orders; each customer meter is read each quarter.
- C. The approval number under which the water is taken.
- D. Volume of water taken for domestic consumption and/or stock watering is not recorded separately; this is recorded on customer metered outlets.

MW0482-00001

A water meter is installed on all water supply works authorised by this approval, the meter reading is recorded at least every 15 minutes.

MW2339-00001

All works are metered, the WaterNSW data loggers were removed off all works approvals by WaterNSW (or their representatives) in 22/23. The metered records are sent directly to WaterNSW every 15 minutes and daily to MDBA via telemetry; Live data is available at https://orderwater.westernmurray.com.au/PumpTotalisers_sql.asp ; Historical records are also recorded on WMI servers. Western Murray Irrigation are still pursuing options with NRAR/DPIE-Water regarding connection to DAS (Eagle-Eye), utilising our existing telemetry/business systems.

Reporting

MW0051-00001

WMI are not aware any breaches of the conditions of this approval.

Other Conditions - Monitoring and Recording

DK5891-00004

Monitoring and Reporting has been carried out as specified in the 'Western Murray Irrigation Limited Monitoring and Reporting Plan for 60CA581273', dated 16 March 2018, as below.

WMIL – MONITORING AND REPORTING PLAN FOR COMBINED APPROVAL 60CA581273

Schedule 1 – Requirements

The Approval Holder of 60CA 581273 has provided all data in the format detailed in each specific requirement of the Monitoring and Reporting Plan, unless otherwise authorised by NRAR. The data has been submitted to the nominated officer within NRAR.

Reporting and Notification Requirements:

Submission of an Annual Compliance Report.

Condition 1

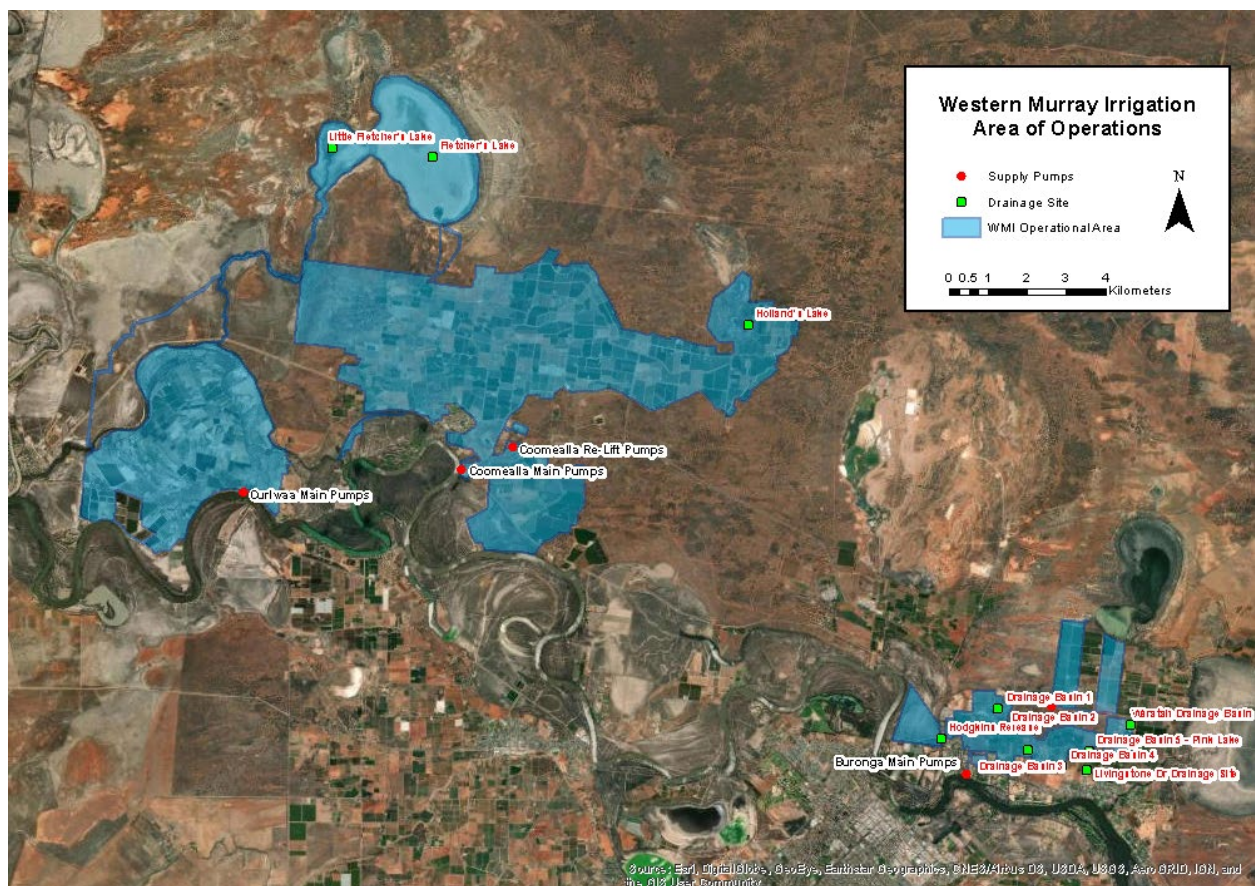
The Approval Holder has, by the 31st of October each year, submitted to the Minister an electronic copy of an Annual Compliance Report for the preceding water year (from 1 July to 30 June).

Condition 2

Following are plans of Western Murray Irrigation Limited Infrastructure for the year 2023/24.

Condition 2.1

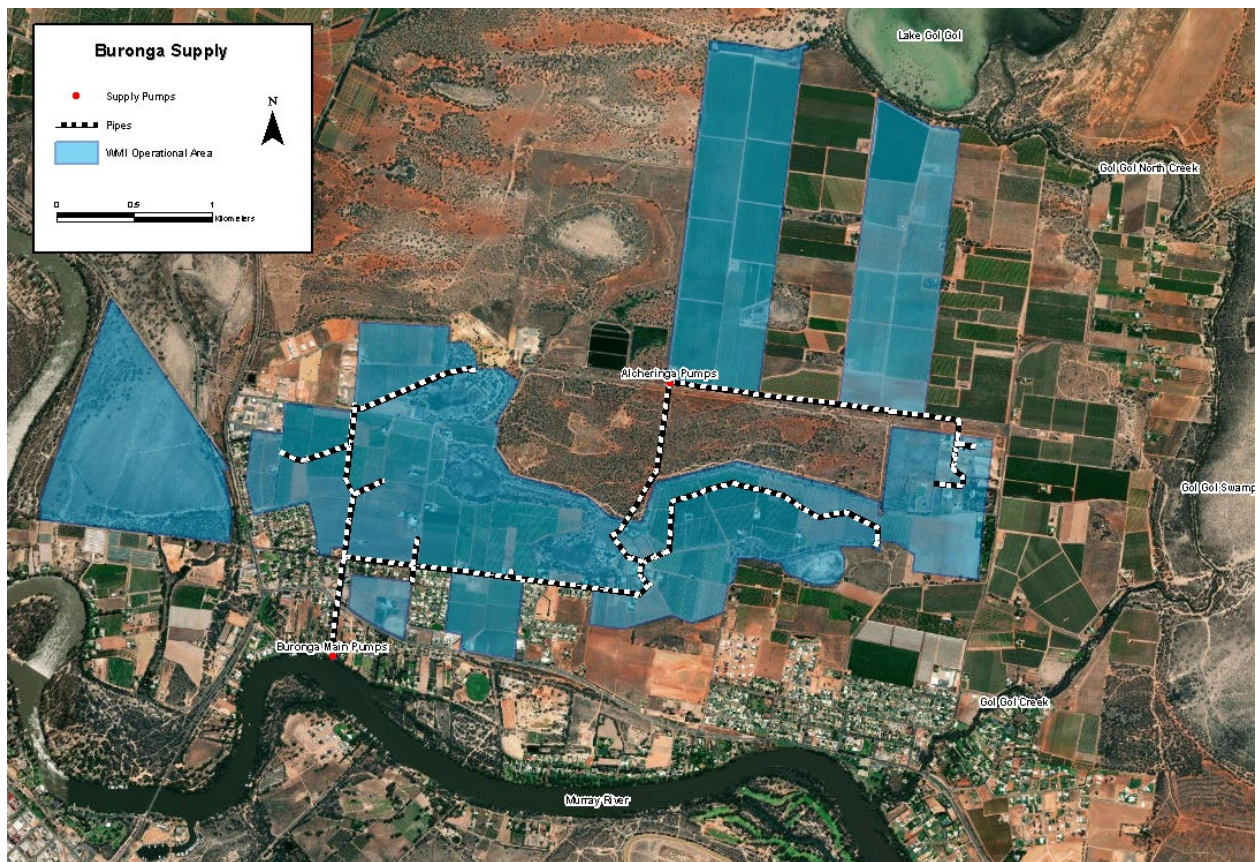
Area of Operations, existing on 30 June 2024, showing, to the Minister’s satisfaction, the boundary of all included land and including any amendments made by the inclusion and exclusion of lands in accordance with sections 131 and 135 of the *WMA 2000*, and showing the boundary of any other land water is supplied to that are not included in the Area of Operations. Zero changes to area of operations in financial year 2023/24; Buronga will show significant losses to operational area in the following 1-3 years as urbanisation takes over irrigable land.



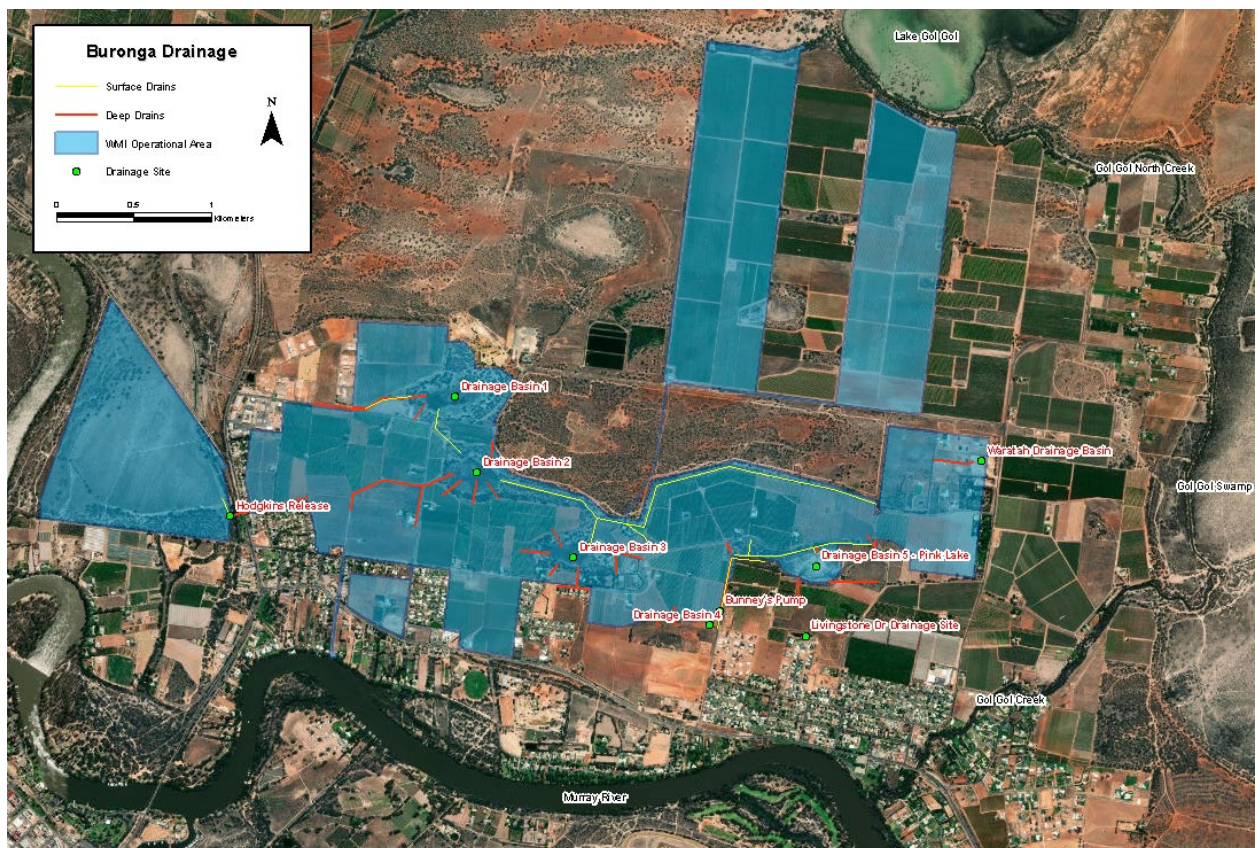
WMI Operational Area

Condition 2.2

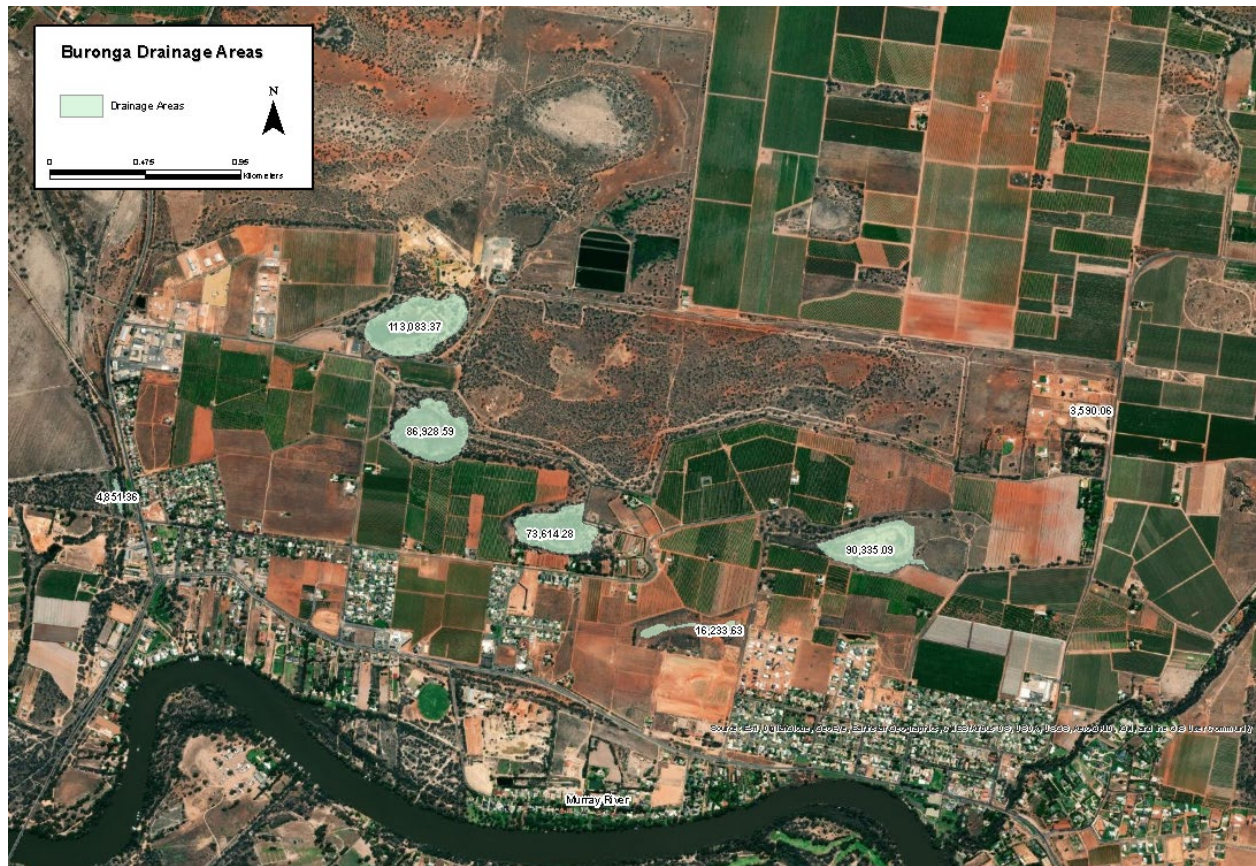
Plans showing current location of Major water courses, Authorised works and supply infrastructure, Drainage infrastructure, Drainage disposal sites and Monitoring sites.



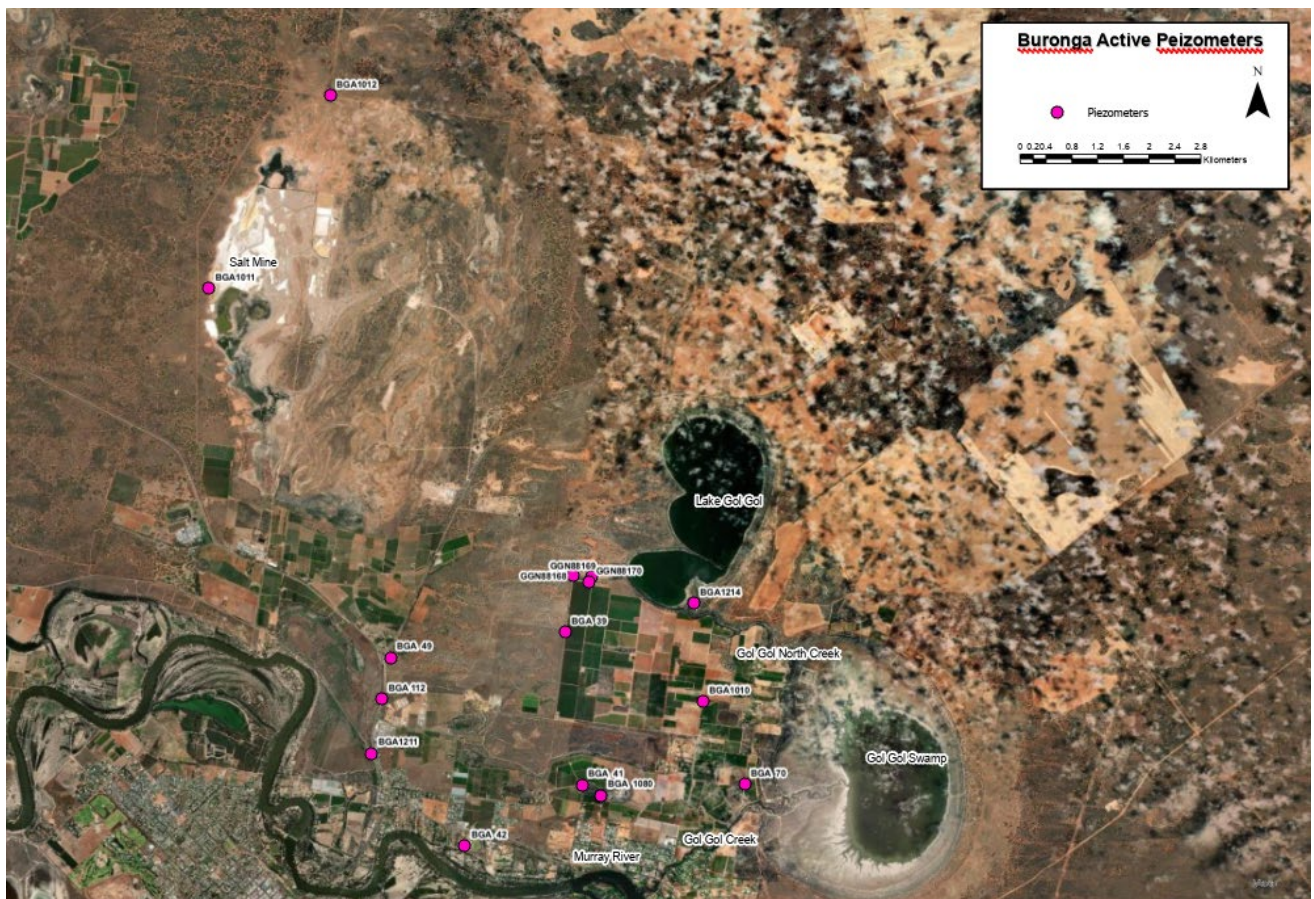
W01 – Buronga supply. Area of operations.



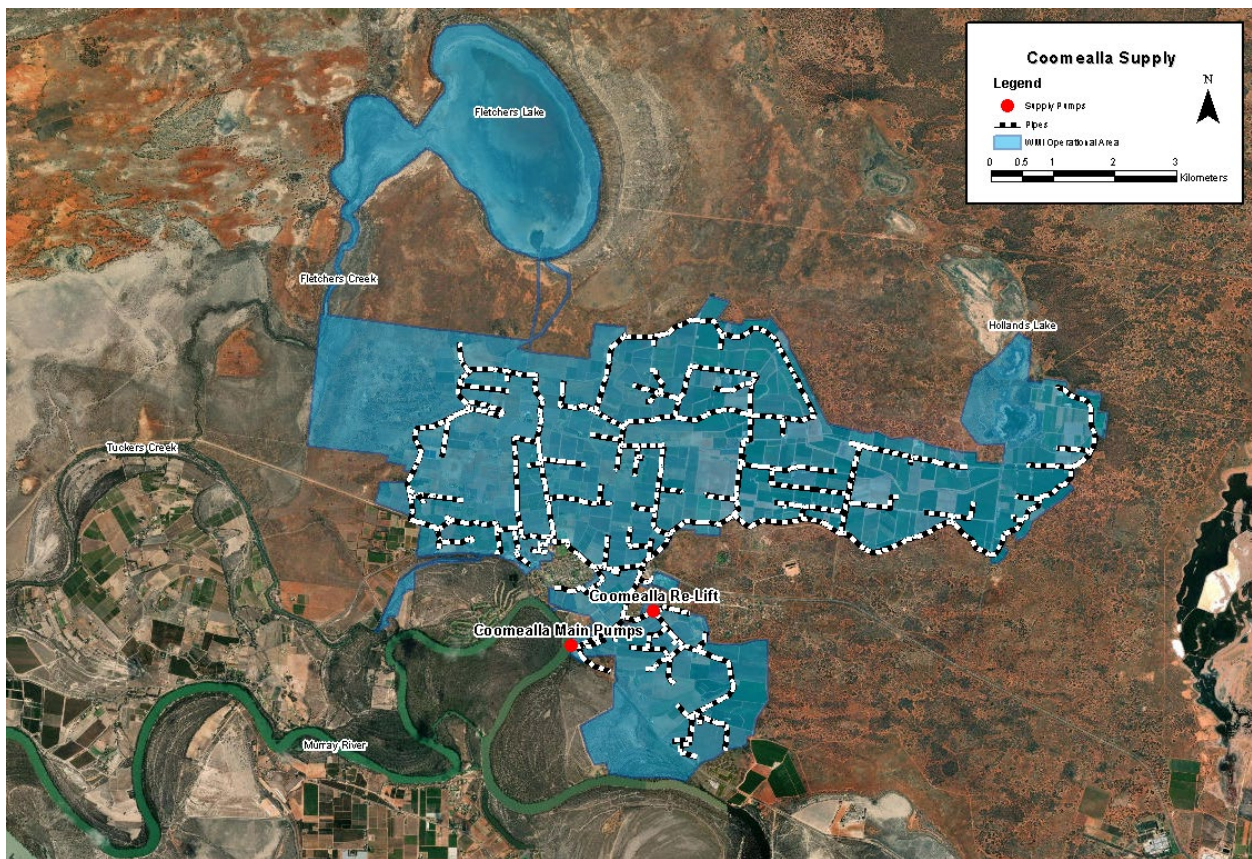
Buronga drainage infrastructure



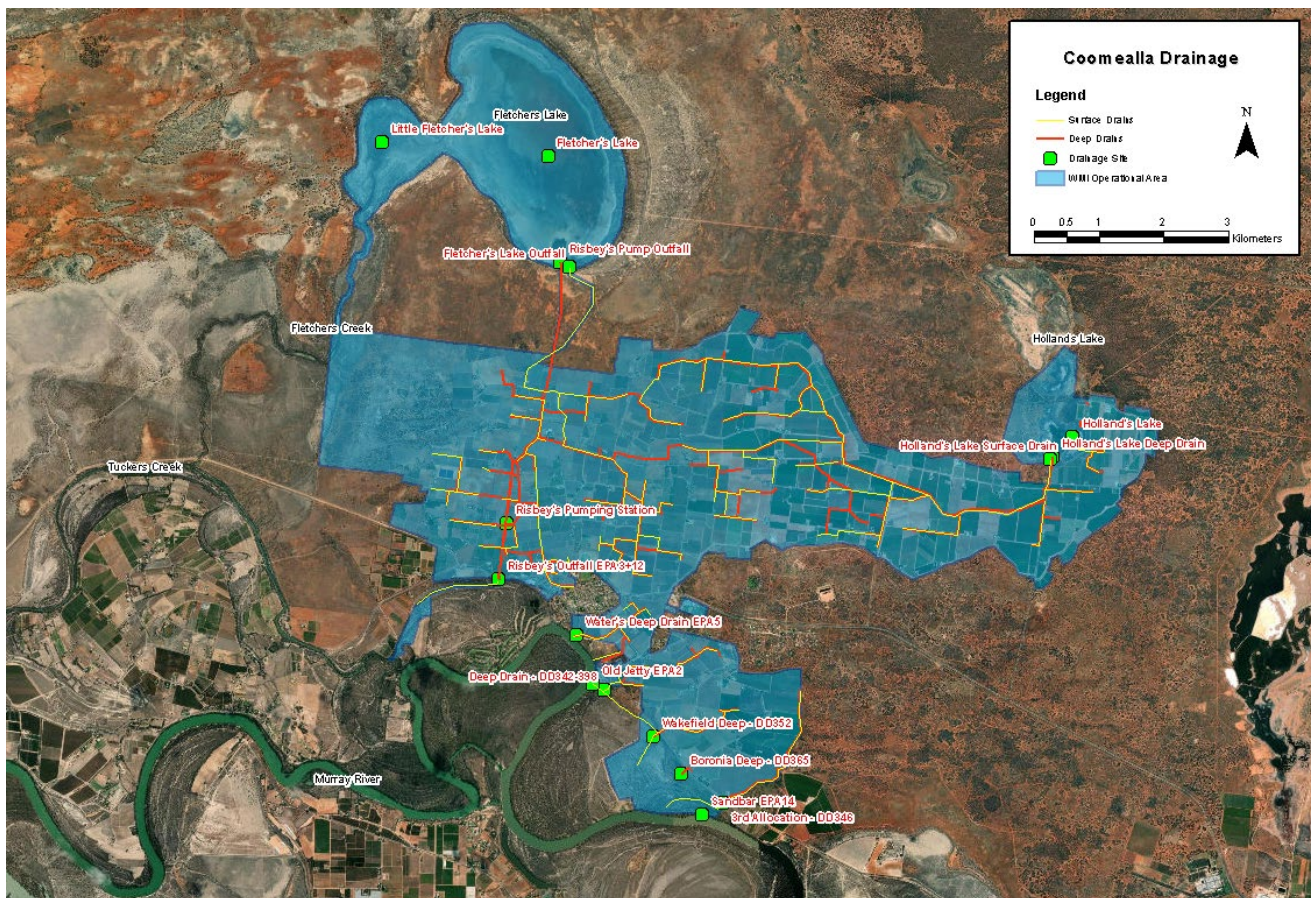
Buronga - Extent of area (square metres) that are temporarily inundated to store drainage and storm water (evaporation basins).



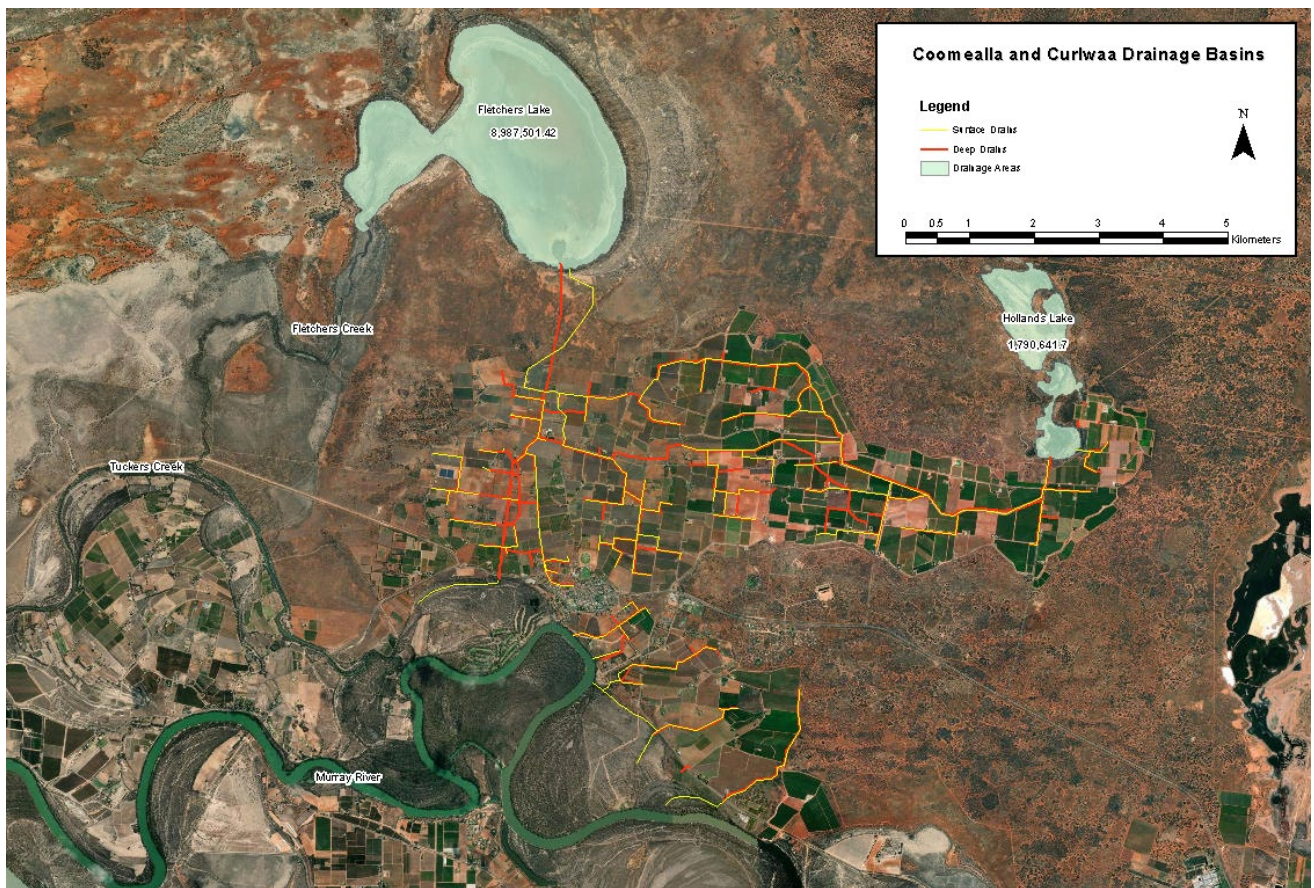
Buronga Active Piezometers



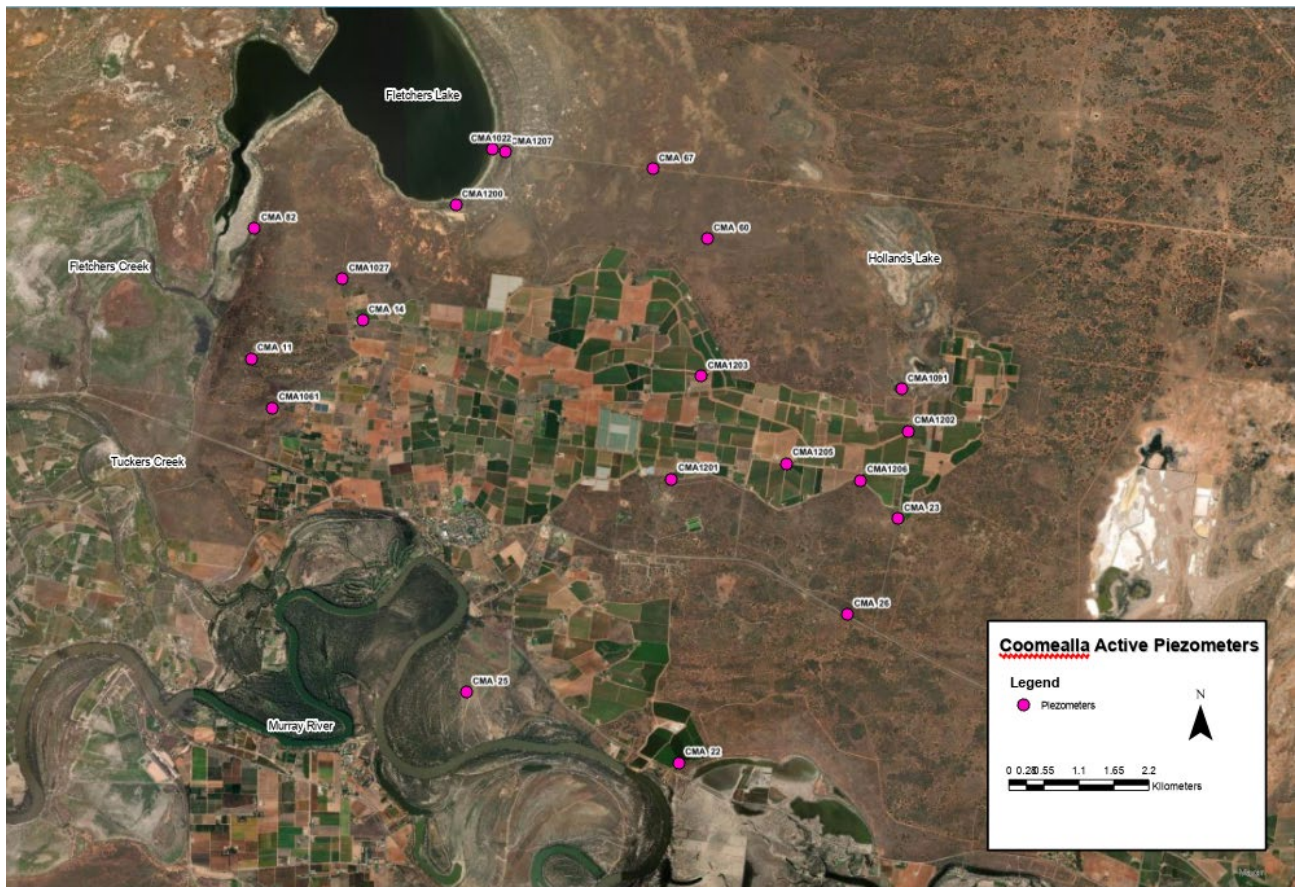
W02 - Coomealla supply.



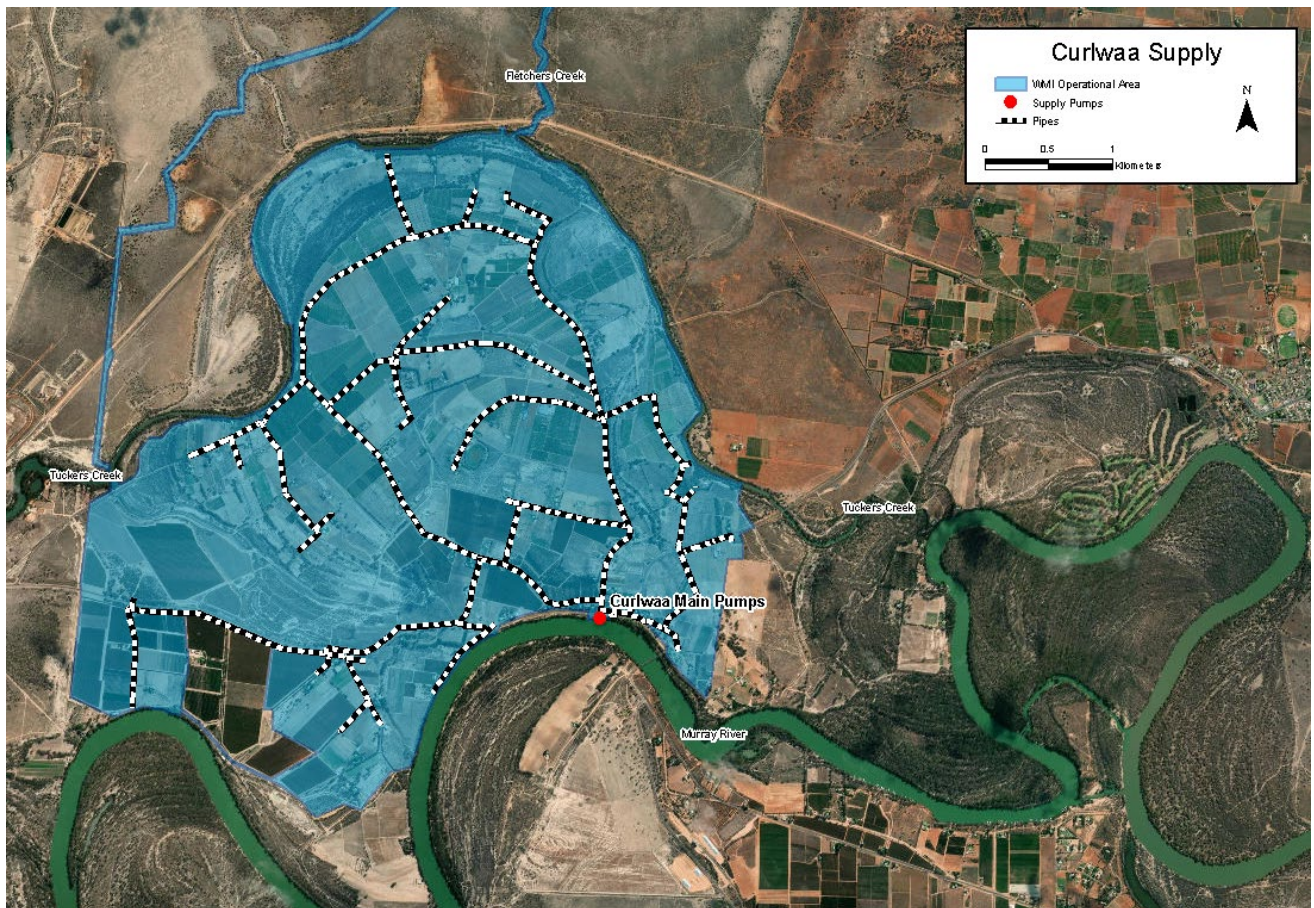
Coomealla Drainage Infrastructure



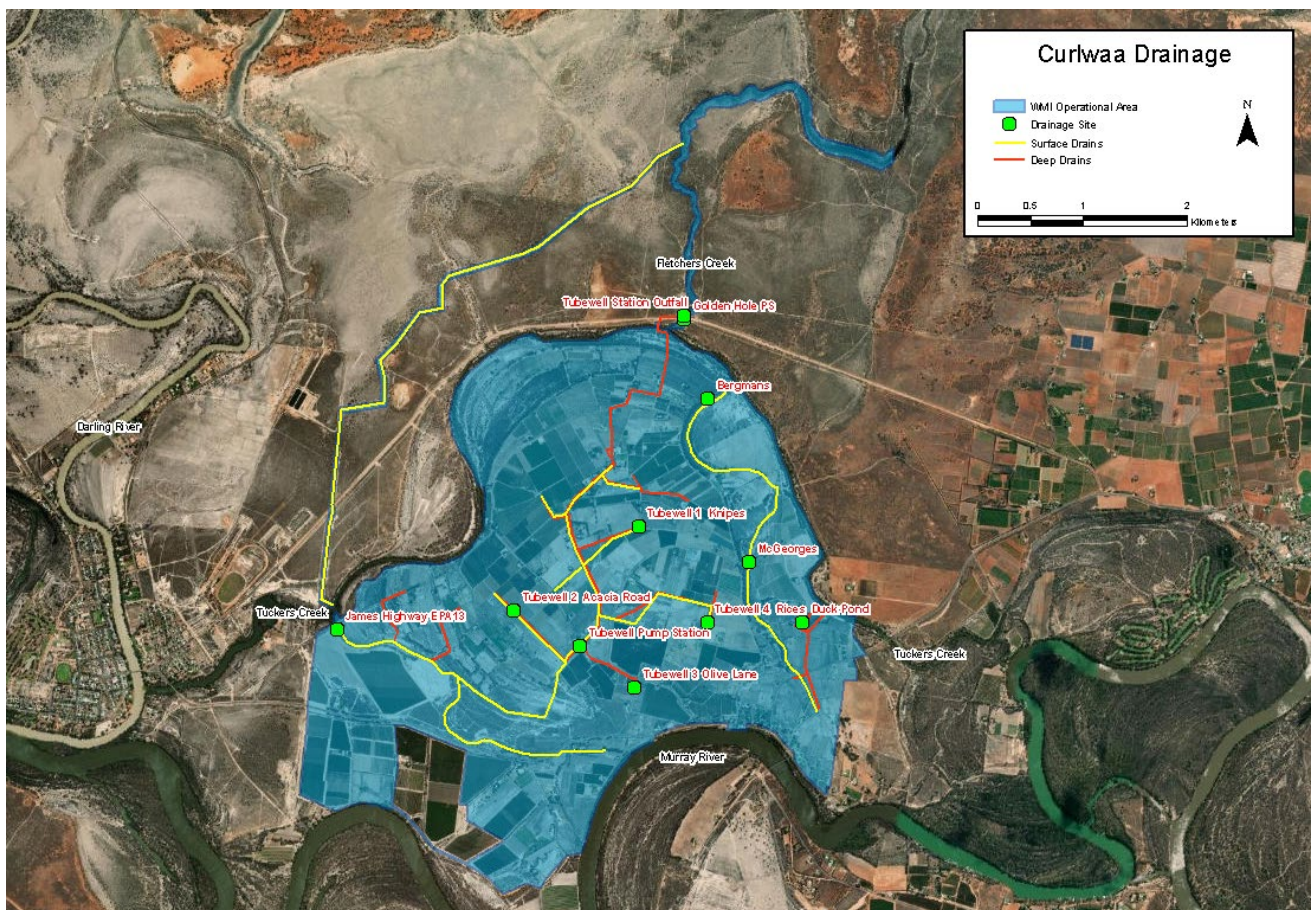
Coomealla and Curlwaa - Extent of area (square metres) that are temporarily inundated to store drainage and storm water (evaporation basins).



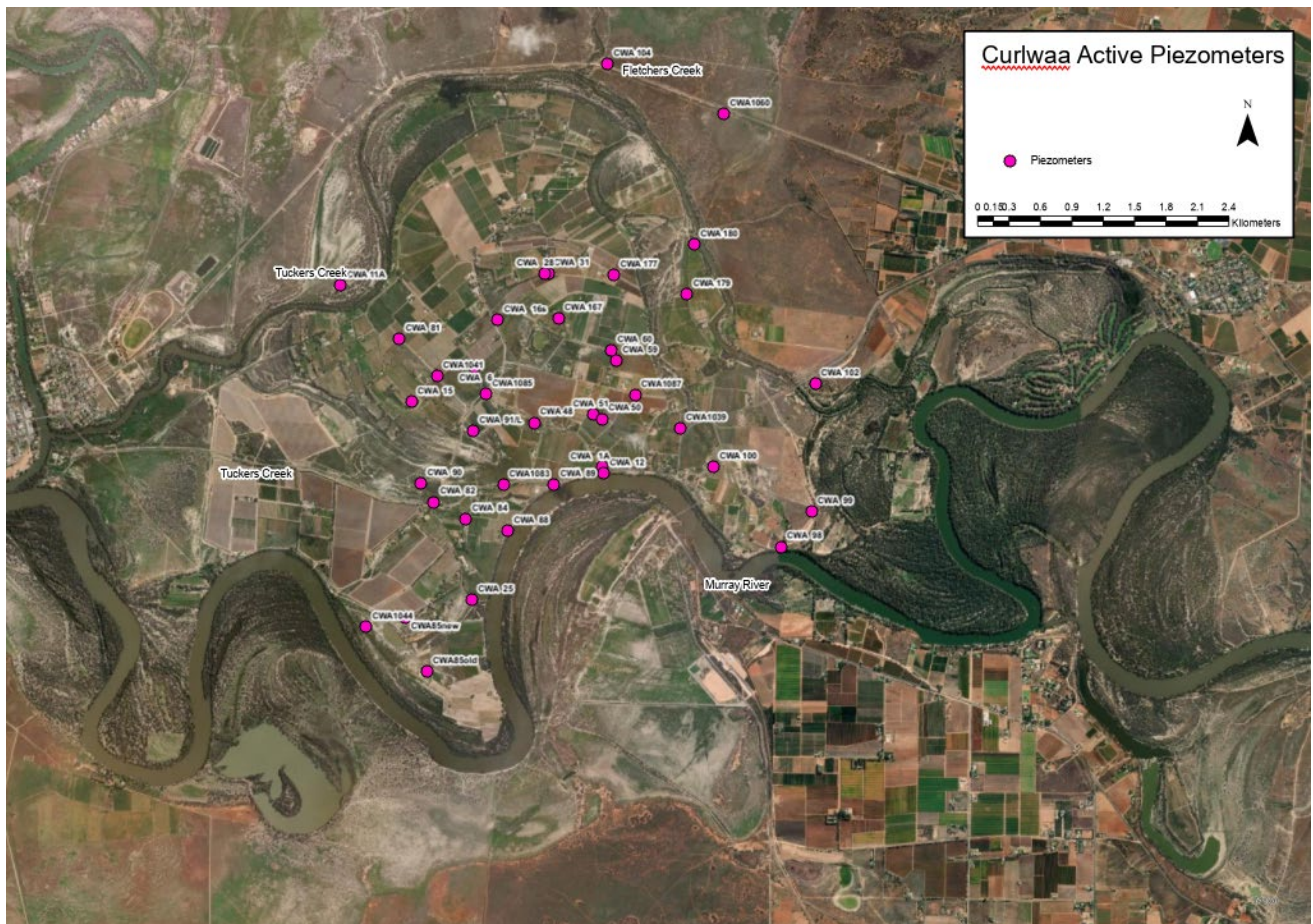
Coomealla Piezometers



W03 - Curlwaa pumping plant and supply infrastructure



Curlwaa Drainage Infrastructure



Curlwaa piezometers

Statement of Compliance

Condition 2.3

WMI is in compliance of Approval number 60CA581273.

Groundwater monitoring results showing destroyed, dry, inactive, and active piezometers are included in this report.

The Saltwater Interception Scheme (SIS) is a government project and has operated since the late 1960's under various configurations; maintained by government until 1995 and WMI thereafter. NRAR have informed WMI on 18August2021 there is a requirement for a separate works approval and WAL to operate the SIS. WMI has requested further information from NRAR investigating why there is a requirement for WMI to pursue a separate works approval and WAL for a SIS, this is a government project and is already a part of our combined Water Supply Work Approval and Water Usage approval (e-mail dated 29Aug2023 – Attached).

WMI has previously attached a consultant's groundwater hydrogeologist report in October 2020, this is a long-term audit of our groundwater control and monitoring. This has been used to establish the best course of action for destroyed piezometers. Extract from report:

Recommendations for Groundwater Monitoring

It is recommended that WMI continue monitoring within their operating network to comply with conditions of the water use approval, maintain a consistent data set, and ensure the collection of time series salinity data (which is not routinely collected as part of state monitoring. For the WMI monitoring program going forward the following recommendations may be adopted to confirm and or improve confidence in monitoring data quality. This includes:

■ Confirm correct bore location details by taking GPS co-ordinates at each site comparing the results to the existing WMI records and NSW government records to identify the correct dataset.

Complete (extract from GIS)

■ Measure total bore depth during the next annual monitoring round and comparison of this data to known construction details to confirm that monitoring bores remain open to the aquifer.

Complete

■ Exclude dry bores from ongoing monitoring where the 2019-2020 monitoring data indicates the screen is mostly or completely blocked.

Not yet excluded, screen/bore cleaning is ongoing, some bore blockages have been removed, and are now indicating correctly.

■ Survey the natural surface elevation and reference elevation of bores in the current network where this data is unavailable (10 bores) so that depth to water measurements can be compared to river levels and changes in groundwater gradients can be assessed.

Not started.

■ It is recommended that a selection of bores in the WMI network (20%) are surveyed. This data can be compared to the existing data to assess the accuracy of reference elevation data as most sites have no documented survey methodology. Additional survey may then be required to improve confidence in groundwater elevations and the assessment of groundwater trends.

Not started.

Several bores within the WMI networks have been destroyed or are listed as dry, despite this the existing monitoring data provides a relatively good spatial coverage of the irrigation footprint to identify the potential impacts of irrigation and drainage. However, it is recommended that the network distribution be reviewed following the collection of data listed above, particularly confirmation of correct bore locations and measurement of total bore depth. This data can then be used to identify gaps in the current monitoring network and determine if existing bores not currently monitored by WMI can be included in the annual monitoring round or if replacement bores are required where there are gaps. It is then recommended that a groundwater monitoring plan be developed and presented to the regulator to provide an agreed monitoring strategy going forward. This should also include an update of the agreed set of reporting outputs or performance indicators to be included in the annual compliance report.

To be completed after Surveys.

It is also recommended that WMI continue the collection of 3 yearly crop report data to capture changes in irrigation methods, irrigated area, and crops. This is a valuable data set and can be used to support the analysis of groundwater trends.

Recommendations for SIS Operations

The review of the operational and monitoring data indicates that the Curlew SIS does not need to operate under current conditions and there is currently no need to refurbish tubewell 1. However, groundwater monitoring data should continue to be collected annually and reviewed against trigger levels to provide a safeguard if groundwater levels begin to rise. Groundwater levels should be reviewed in the context of rainfall and river level data as hydrograph analysis shows that the floodplain aquifer responds to flood and rainfall events which may result in rises in groundwater levels that are only short term. Irrigation supply and method data should also be reviewed with groundwater trends. Previous communications with Department of Natural Resources by WMI have suggested a trigger level of 31.8m AHD (i.e., 1m above pool level) as a trigger to reinstate SIS operation. This trigger level is considered reasonable however it is also proposed that if groundwater levels rise to 31.3 MAHD (0.5m above pool level) this should trigger a review of SIS operations and the development of a plan to reinstate pumping. This is to prevent a significant time lag for reinstating groundwater pumping if the 31.8m AHD level is reached.

All tubewells are operational after successful rehabilitation; they have been running since November 2022 to today's date of 16Oct24; currently run the tubewells once a month for 5 days. Tubewell station is now fully operational, all deep drainage water is now diverted before James Highway pump station and discharged at Fletchers Creek.

It has been noted Schedule One – 'Authorised Supply Works' is in the process of being updated with NRAR (August 2024):

W02 Work details should read:

- 5 Variable axial flow pumps of 63ML/day each.
- 3 Variable centrifugal pumps of 10 ML/day each

Five original (55.2MLD) pumps have been replaced with more efficient 63MLD pumps; last pump was installed Sep2023.

3 small variable centrifugal pumps of 10, 10, 10 MLD – used as auxiliary/winter pumps.

Condition 2.4

Data from all monitoring required by this Monitoring and Reporting Plan has been supplied in electronic format, including:

- PDF of this report.
- Original Excel spreadsheets used for calculations and presentations within this report.
- Other original documents forming part of this report.

Condition 2.5

Condition 2.5 has been broken down into Salinity, Discharge, Groundwater, Extraction and Water use, monitoring data.

Condition 2.5-Salinity

There have been no significant salt load discharges and no changes to any works or practices that could lead to increased impact trends on the River Murray. Average EC from the river for this year is 211µS, similar to previous year, well above the normal range of 100-150 µS/cm; we presume this is still due to significant flooding from Nov22 – Mar23.

a) Comparable salinity import data for at least 2 years (5 years):

Total Salt Imports (Tonnes)						
Month	2019-20	2020-21	2021-22	2022-23	2023-24	5 Yr RA
July	22	29	14	24	18	21
August	46	22	42	30	25	33
September	77	86	93	25	153	87
October	100	94	152	32	194	114
November	147	292	142	124	245	190
December	354	494	447	509	440	449
January	289	328	583	685	549	487
February	200	262	455	633	721	454
March	151	175	268	549	716	372
April	53	122	107	200	191	135
May	31	61	20	135	122	74
June	34	19	21	37	91	40
Year to Date	1,504	1,984	2,343	2,982	3,465	2,456
Total	1,504	1,984	2,343	2,982	3,465	2,456
Average EC	163	138	139	114	211	153

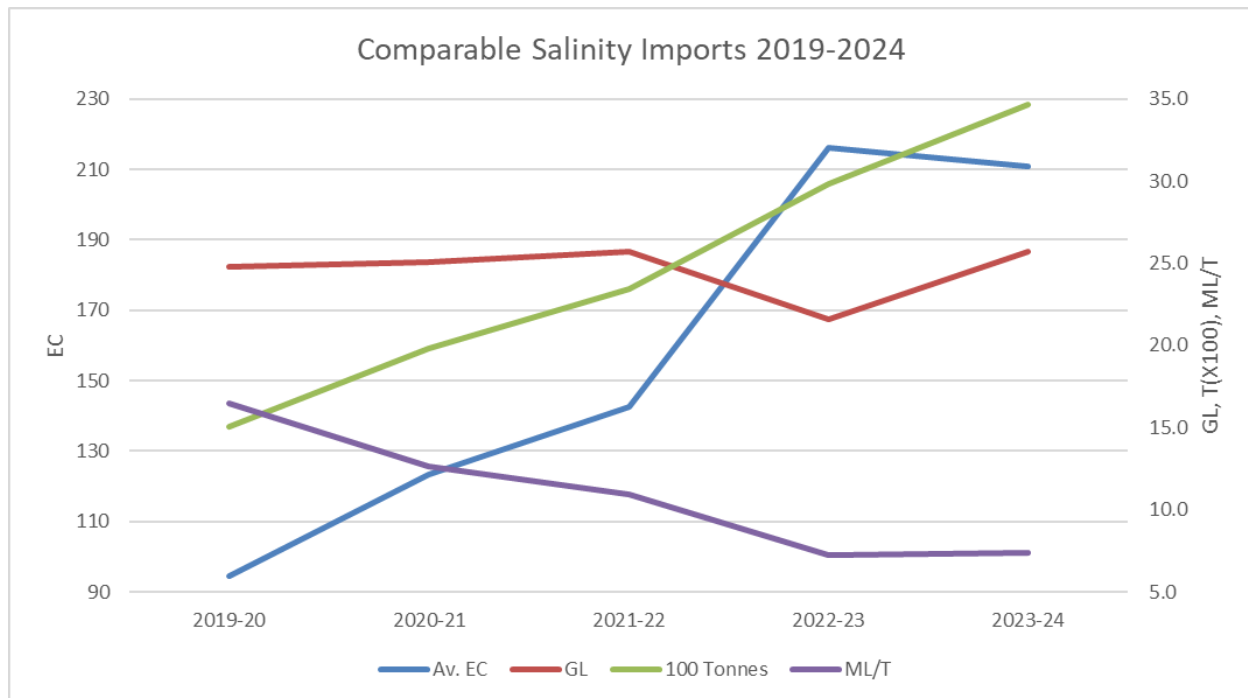
F:\Annual Reports\EPA Return and Water Approval Annual Compliance\30 June, 2024\ACRI\Files To NRA ,

The chart shows seasonal water usage affecting salt imports for each month; For annual trends, see para 2.5 Salinity (b).

b) Comparable Salinity import data for a year being at least 5 years prior:

Annual	2019-20	2020-21	2021-22	2022-23	2023-24	5 Yr RA
Av. EC	95	124	142	216	211	156
ML	24,816	25,099	25,691	21,572	25,678	24,571
Tonnes	1,504	1,984	2,343	2,982	3,465	2,456
ML/T	16	13	11	7	7	10

O:\Supply\WMIL Supply Figures\WMIL Supply 2023-24\WMIL Daily Flow s ALL Stations 2023-24.xlsx]Monthly Salt Summary



This chart shows the effect of EC on annual salt imports.

(c) There are no new targets identified, the salt imports are controlled purely by the salt content of the river and quantity of water extracted. The annual EC average has been calculated by daily salt imported in tonnes /daily water pumped in GL/0.64; this gives a true average EC of 'imported' water. This is an identified benchmark although we have no control over this.

d) Supply is above the 5-year average (26/25GL), average EC also remains in a high range therefore salt imports have again increased.

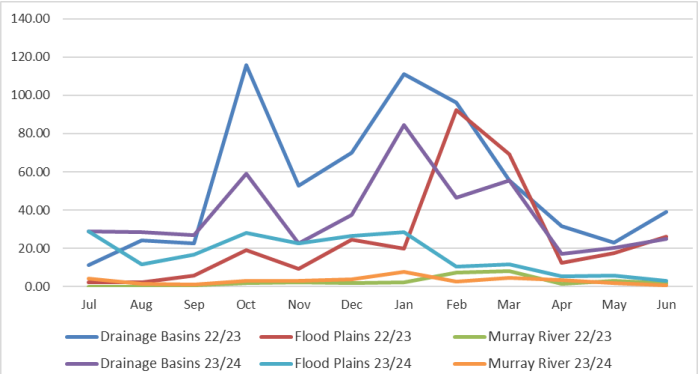
Condition 2.5-Discharge

a) Discharges from all drainage outfalls for the 2023/24 year:

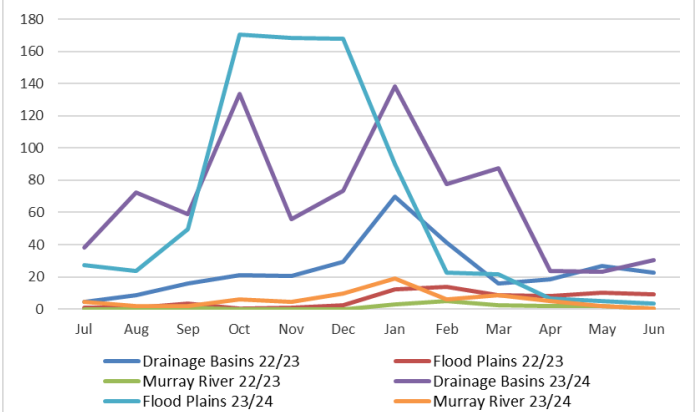
Buronga			Coomealla			Curlwaa			Total		
Total Drainage			Total Drainage			Total Drainage			Total Drainage		
ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)
8.82	1,230	6.95	635.75	3,658	1488.27	40.16	5,611	144.24	684.74	3499.84	1639.46
Drainage Basins			Drainage Basins			Drainage Basins			Drainage Basins		
ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)
8.82	1,230	6.95	402.31	2,569	661.50	40.16	5,611	144.24	451.30	3136.97	812.68
Flood Plains			Flood Plains			Flood Plains			Flood Plains		
ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)
0.00	NA	0.00	197.53	5,989	757.16	0.00	NA	0.00	197.53	5989.14	757.16
Murray River			Murray River			Murray River			Murray River		
ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)
0.00	NA	0.00	35.91	3,030	69.62	0.00	NA	0.00	35.91	3029.54	69.62

O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WMIL Drainage 2023-24.xlsx\Summary CWA

Drainage water (ML) - Comparable data for last 2 years						
	Drainage Basins 22/23	Flood Plains 22/23	Murray River 22/23	Drainage Basins 23/24	Flood Plains 23/24	Murray River 23/24
Jul	11.35	2.37	0.00	28.98	28.65	4.03
Aug	24.04	2.21	0.00	28.26	11.42	1.38
Sep	22.71	5.60	0.60	26.82	16.60	0.93
Oct	115.84	19.04	1.79	58.99	27.95	2.79
Nov	52.86	9.22	2.07	22.63	22.52	2.80
Dec	69.80	24.38	1.97	37.50	26.37	3.89
Jan	111.11	19.96	1.98	84.30	28.44	7.66
Feb	96.31	92.20	7.26	46.57	10.25	2.68
Mar	55.42	69.22	8.19	55.36	11.49	4.50
Apr	31.39	12.42	1.46	16.89	5.29	3.18
May	23.02	17.56	2.96	20.22	5.52	1.65
Jun	38.95	26.26	1.66	24.77	3.04	0.42

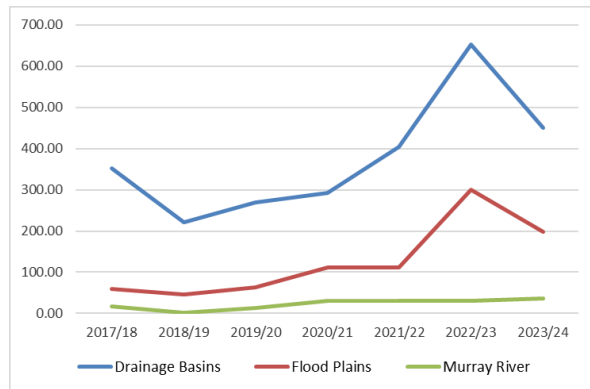


Salt Exports (T) - Comparable data for last 2 years						
	Drainage Basins 22/23	Flood Plains 22/23	Murray River 22/23	Drainage Basins 23/24	Flood Plains 23/24	Murray River 23/24
Jul	13.79	3.73	0.00	38.23	27.35	4.59
Aug	28.62	3.21	0.00	72.22	23.85	1.97
Sep	31.65	8.10	0.79	58.94	49.61	1.68
Oct	146.86	20.42	2.20	133.86	170.65	5.87
Nov	64.71	16.46	2.64	55.67	168.59	4.41
Dec	85.05	26.69	2.62	73.70	167.67	9.72
Jan	127.42	20.57	2.43	138.10	89.81	19.22
Feb	141.41	99.79	9.99	77.56	22.66	5.99
Mar	80.53	149.34	12.37	87.32	21.81	8.65
Apr	39.04	14.37	1.93	23.73	6.47	5.23
May	27.00	15.35	2.90	23.14	5.19	1.72
Jun	61.90	34.67	2.76	30.20	3.50	0.56

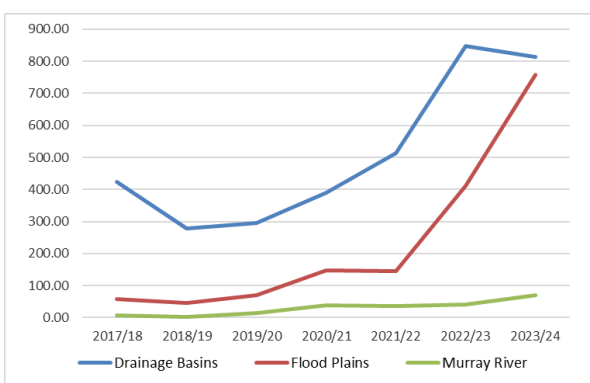


b) Comparable discharge data for a year being at least 5 years prior:

Drainage Water (ML) over 7 years			
	Drainage Basins	Flood Plains	Murray River
2017/18	352.41	58.93	17.57
2018/19	221.99	46.33	1.81
2019/20	268.59	63.23	13.27
2020/21	293.28	111.00	30.56
2021/22	403.48	110.66	31.23
2022/23	652.80	300.44	29.93
2023/24	451.30	197.53	35.91



Salt Exports (T) over 7 years			
	Drainage Basins	Flood Plains	Murray River
2017/18	422.96	58.38	7.88
2018/19	277.27	46.96	2.09
2019/20	295.00	70.44	14.42
2020/21	389.58	148.48	38.56
2021/22	512.94	145.64	37.06
2022/23	847.96	412.69	40.61
2023/24	812.68	757.16	69.62



c) The majority of the drainage water trend follows the irrigation demand and to a lesser degree rainfall events. 2022/23 irrigation supply was 104.51% of the 5-year average; Rainfall was 216.9mm, below the 50-year average of 287.6mm considerably less than last year. There was a decrease in drainage water, even though irrigation supply was up, possibly in line with the decrease in rainfall. Salinity in both supplied water and drainage water has been higher than normal. Since 2019, WMI have used pulsed hydrogen peroxide dosing, currently at 4 hours a day at 5ppm at all our extraction sites, this is increased up to 24/7 depending on river water quality and demand; This is to control bryozoan growths in the pipeline, aimed at improved water quality at customer outlets; Customers have generally noticed their on-farm filters have been running for longer between backflushes, this has reduced the quantity of backflush water returned to the surface drain system; although when river water quality is bad, peroxide dosing cannot dissolve organic matter in the pipeline.

d) Salt exported follows a similar pattern to drainage water throughout the year; Long term change from dominant furrow irrigation in 1997 to dominant drip irrigation in 2024 has reduced drainage water from 4848ML in 1998/99 to 684ML in 2023/24; exported salt in 1998/99 was 6,538 tonnes, while 2023/24 was 1,639 tonnes. If salt exports are compared against salt imports, it appears the imported salt is being partially retained on irrigated land; sustained rainfall may control the salinity to some extent, plus the ground water may return to the river/basins/floodplains through unmetered courses.

- Individual salinity and salt load of schedule 1 extraction sites is continued at condition 2.14.
- Individual salinity and salt loads of attachment 1 discharge sites is found at condition 2.15.
- A simple salt balance report is found at condition 2.16.

Flood 22/23

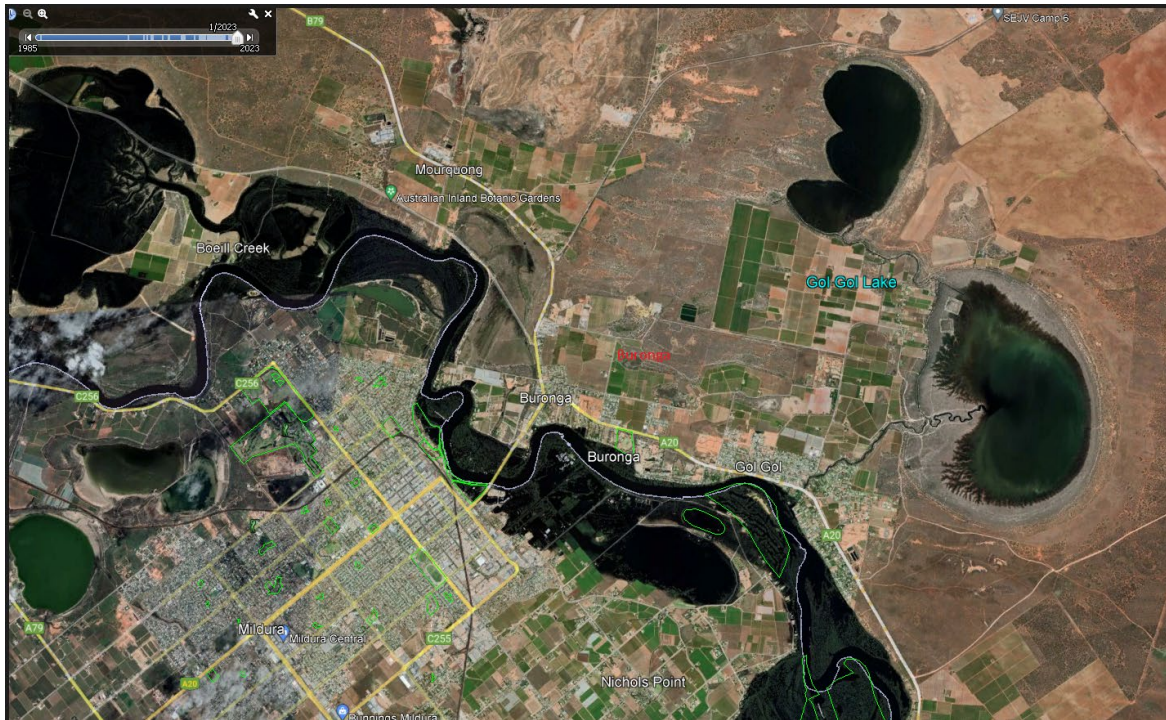
I have left this flood report in this year's ACR as there are still effects from the aftermath of this flood, forming part of data used in this report.

November 2022 – March 2023 was a major flood in our area of operations. Drainage basins and flood plains at Coomealla, Curlwaa and Buronga were inundated with water for this period. The Murray, Darling, Tuckers Creek, Fletchers Lake (usually a dry basin), Gol Gol swamp, and associated flood plains became one body of water.

We have reported our discharges to the normal discharge areas, however, most of this drainage water will have flowed back into the river system, all except Buronga basin discharge.

Fletchers Lake and Gol Gol swamp are still very full of water, although no longer connected directly to the river system; these are expected to evaporate over time to back to dry lake beds again. Our drainage water is still being discharged into Fletchers Lake.

Several Piezometers were (and still are) underwater or still inaccessible.



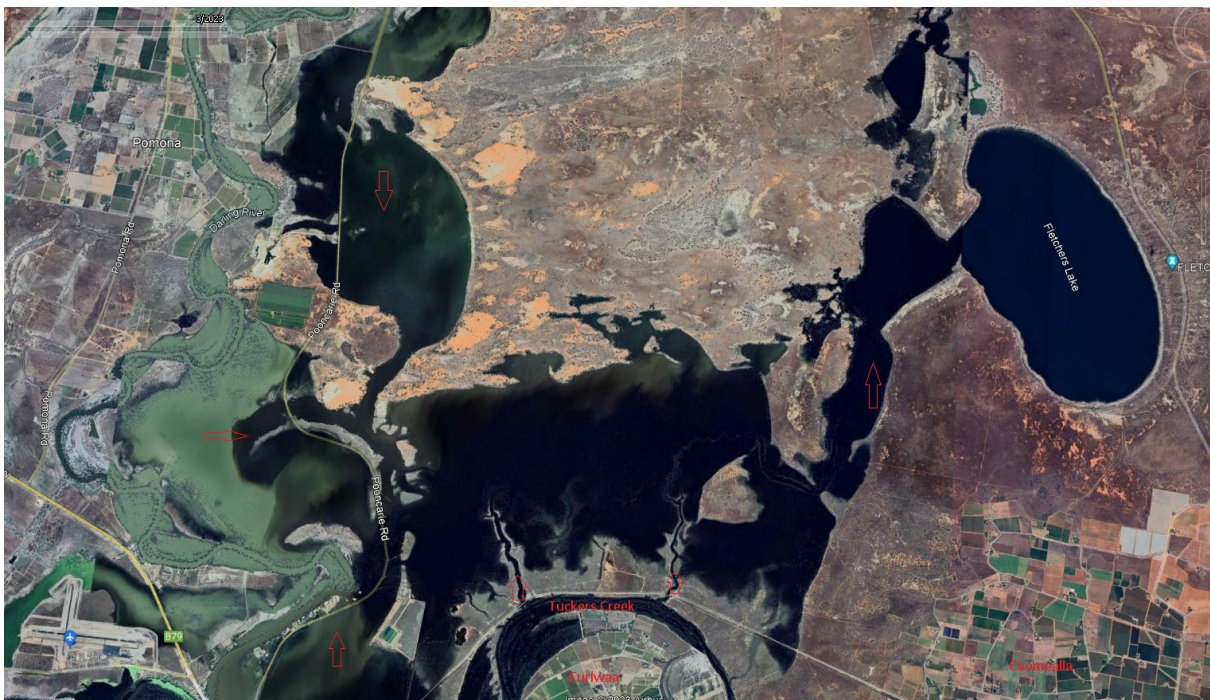
Buronga Irrigation Area and surrounds Jan. 2023



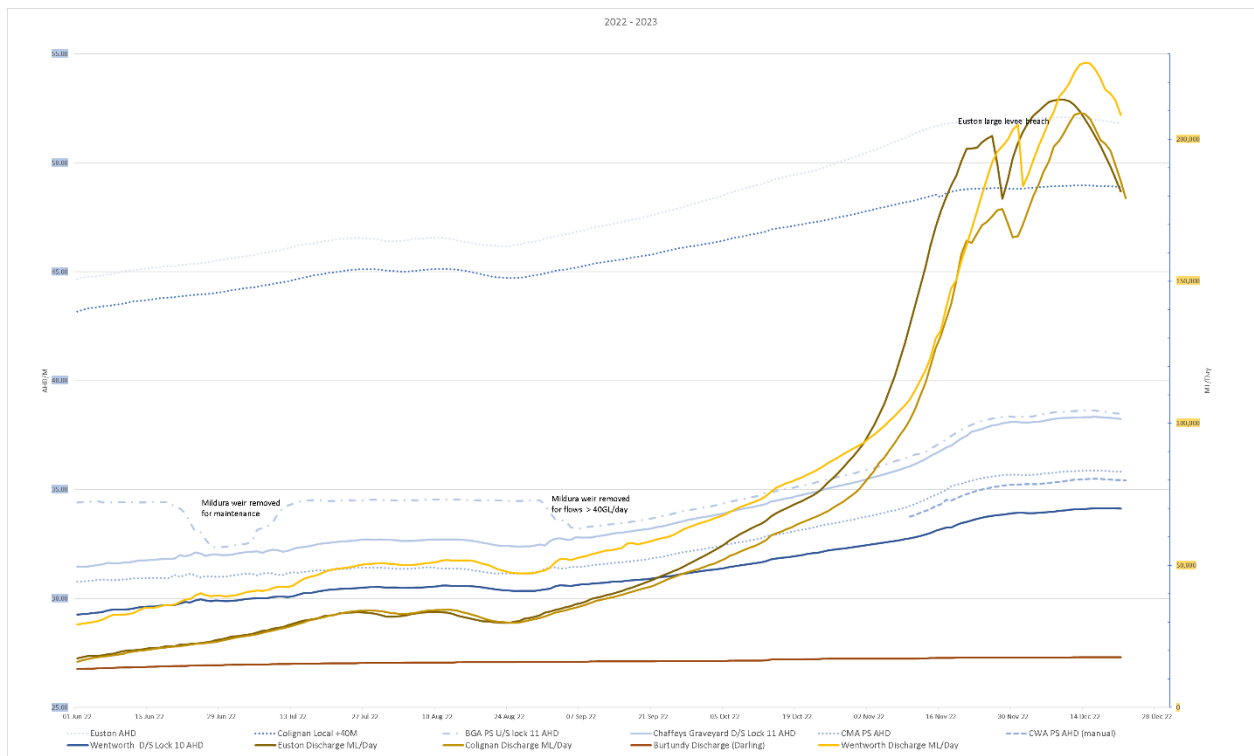
South of Coomealla Irrigation Area Jan. 2023



South-West of Coomealla and Curlwaa Irrigation Areas with Darling/Murray convergence, Jan. 2023.



North-West of Coomealla/Curlwaa Irrigation areas, showing the inundation between Tuckers Creek, Fletchers Lake, and Darling River, Mar. 2023



Condition 2.5-Groundwater

The Curlwaa salt interception scheme is 100% operational, X4 tubewell pumps discharge into the deep drainage system; the deep drainage water is collected at the Tubewell Pump Station, this is pumped north in a sealed pipeline and discharges at Fletchers Creek, then it runs by gravity along the natural creek bed to Fletchers Lake drainage basin. The tubewell pumps are run about once a month, to ensure their serviceability.

Recommendations for SIS Operations

The review of the operational and monitoring data indicates that the Curlwaa SIS does not need to operate under current conditions and there is currently no need to refurbish tubewell 1. However, groundwater monitoring data should continue to be collected annually and reviewed against trigger levels to provide a safeguard if groundwater levels begin to rise. Groundwater levels should be reviewed in the context of rainfall and river level data as hydrograph analysis shows that the floodplain aquifer responds to flood and rainfall events which may result in rises in groundwater levels that are only short term. Irrigation supply and method data should also be reviewed with groundwater trends. Previous communications with Department of Natural Resources by WMI have suggested a trigger level of 31.8mAHD (i.e., 1m above pool level) as a trigger to reinstate SIS operation. This trigger level is considered reasonable however it is also proposed that if groundwater levels rise to 31.3 MAHD (0.5m above pool level) this should trigger a review of SIS operations and the development of a plan to reinstate pumping. This is to prevent a significant time lag for reinstating groundwater pumping if the 31.8mAHD level is reached.

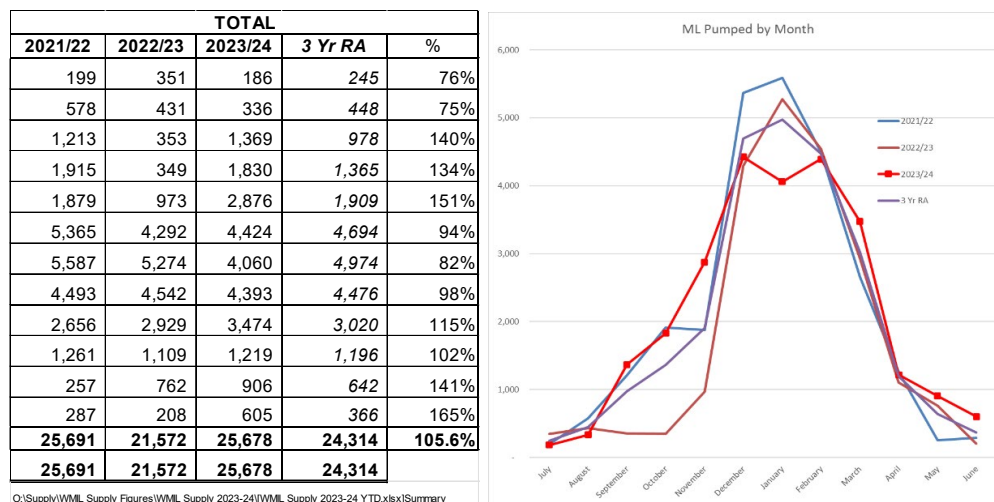
Western Murray Irrigation | 30 October 2020

Groundwater Monitoring and Salt Interception Scheme Review Page 4

Full details of groundwater at Condition 2.17.

Condition 2.5-Extraction

a) Comparable extraction data (ML) for at least 2 previous years (3 years):

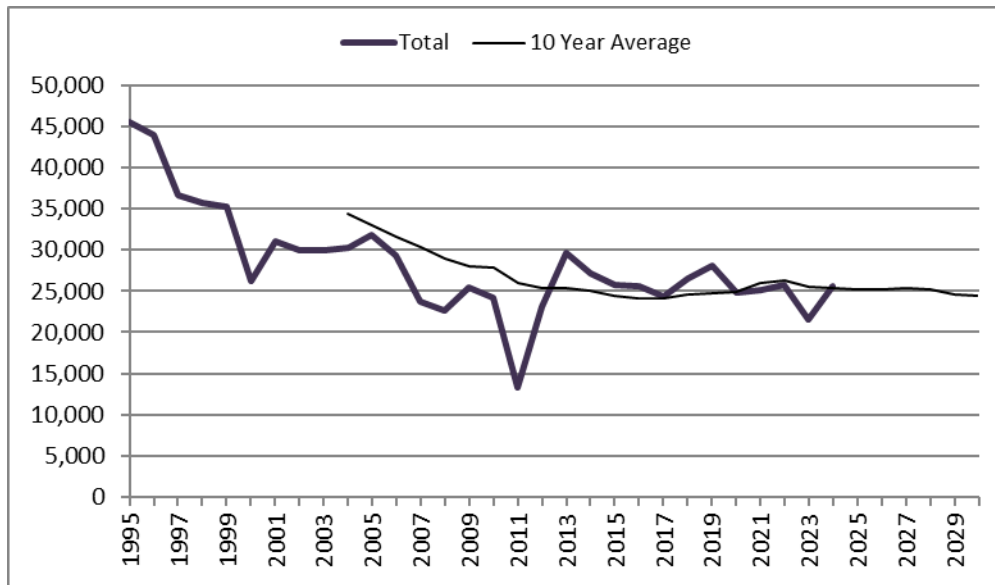


2023/24 extraction (ML) was 5.6% above the 3-year average, Rainfall was 217mm, 25% below 50-year average.

b) Comparable extraction data for a year being at least five years (10 years):

Jun-30	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Buronga	2,816	2,906	2,892	3,248	3,542	2,338	2,578	2,597	1,969	2,500
Coomealla	18,596	18,376	17,751	19,266	20,584	18,871	19,269	19,496	16,625	19,927
Curlwaa	4,352	4,353	3,660	4,027	3,943	3,607	3,252	3,597	2,976	3,251
Total	25,764	25,635	24,303	26,541	28,069	24,816	25,099	25,691	21,571	25,678
O:\Supply\WML Supply Figures\WML Supply 2023-24\WML Supply 2023-24 YTD.xlsx\Long term totals from 95										

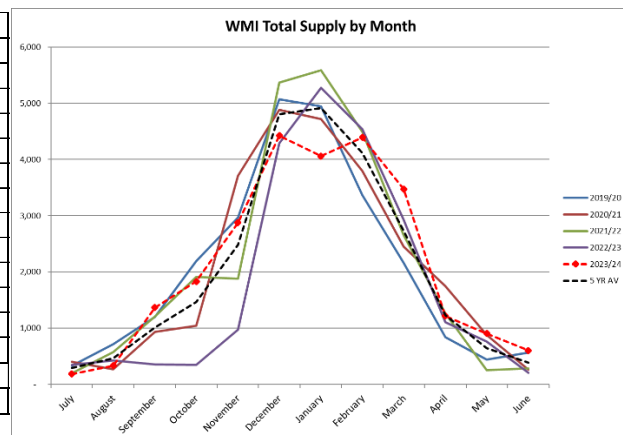
Long-term annual extraction:



Monthly extraction over the past 5 years:

Month	Total WMI Diversions					5 YR AV
	2019/20	2020/21	2021/22	2022/23	2023/24	
July	335	404	199	351	186	295
August	714	268	578	431	336	465
September	1,204	936	1,213	353	1,369	1,015
October	2,193	1,044	1,915	349	1,830	1,466
November	2,967	3,710	1,879	973	2,876	2,481
December	5,071	4,885	5,365	4,292	4,424	4,808
January	4,945	4,718	5,587	5,274	4,060	4,917
February	3,364	3,794	4,493	4,542	4,393	4,117
March	2,165	2,451	2,656	2,929	3,474	2,735
April	841	1,748	1,261	1,109	1,219	1,235
May	444	879	257	762	906	650
June	572	262	287	208	605	387
Year to Date	24,816	25,099	25,691	21,572	25,678	24,571
Total	24,816	25,099	25,691	21,572	25,678	24,571

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c) Long-term extraction shows a marked reduction in water usage; utilisation of irrigation area is presently at 79% (2021), 1997 this was 98%; Irrigable area has increased by 9% from 1997. Water savings have largely been achieved by a change from dominant furrow irrigation in 1997 to dominant drip irrigation in 2021:



Figure 5: Western Murray Irrigation - Irrigation methods from 1997 to 2021

(2021 WMI Crop Report, p15)

d) Long-term climate tends to go through long periods of drought followed by heavy rainfall. 2023/24 was 25% below average annual rainfall 216.9mm (287.6mm 50-year average), concentrated around late winter and spring.

Cumulative Rainfall Totals												
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
2023/24	34.2	48.0	50.4	86.2	122.5	135.5	171.1	174.5	181.1	182.9	201.3	216.9
50 Yr Average	24.2	48.9	75.7	106.8	134.3	161.1	187.2	205.6	221.4	241.6	265.5	287.6
Max Year in 50	26.4	55.6	112.2	204.4	314.6	461.4	588.4	771.6	891.4	903.2	916.4	926.6
Min Year in 50	2.6	5.0	29.2	32.4	35.6	36.6	38.4	39.2	71.4	79.4	90.0	97.4

Rainfall mm (Original data from B.O.M. - Mildura Airport)

Condition 2.5-Water Use

- 2023/24 WMI extracted 25,678ML for water use (see 2.5 – Extraction a), this report), this was used predominantly for horticulture with a small amount of this allocated for General Security (86.9ML) and Domestic and Stock use (560ML).
- WMI crops are planned to be surveyed every three years, next report due at end of 2024:

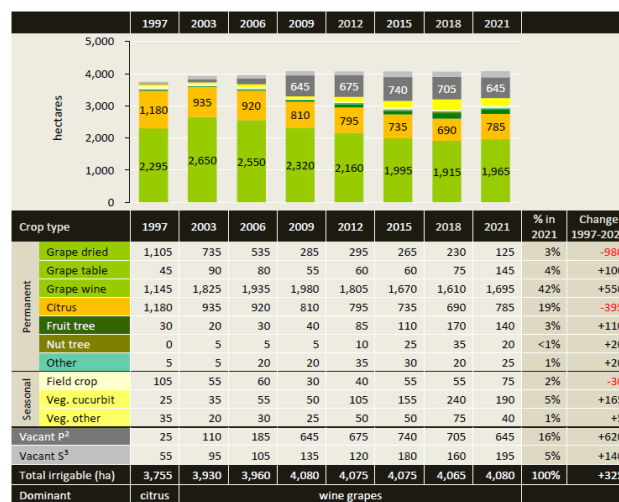


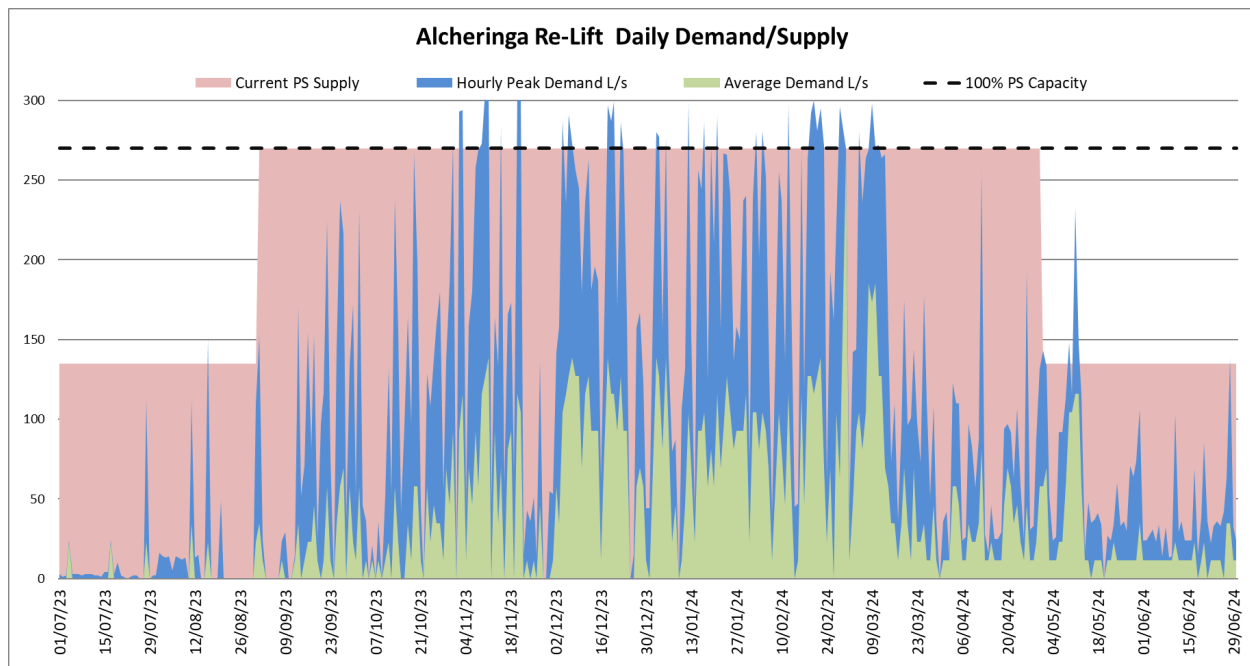
Figure 2: Western Murray Irrigation - crop types from 1997 to 2021

² Vacant P: not irrigated but previously an irrigated permanent planting

³ Vacant S: not irrigated but previously an irrigated seasonal crop

It has been noticed the horticulture business is gaining some momentum within Coomealla Irrigation Area. Short term trends indicate more irrigable land is being put back into production; this will also increase water usage which will challenge our infrastructure in its current configuration.

- We are pumping less water annually than 1997, but drip irrigation puts excessive intra-day pressure on our infrastructure (designed around furrow irrigation); days above 40C create very high peaks of demand from drip irrigation systems, targeted pipeline upgrades are necessary to alleviate the intra-day demand, the first upgrade completed in spring 2022 was to alleviate two bottlenecks in our system.



Alcheringa relict pump station emphasises demand at peak season (2023/24). Rain events can be seen mid-Irrigation season where the demand reduces to zero for a few days. When Alcheringa relict pump station is above 270L/s, customer pressure drops below service level; This is a typical irrigation season and is the usual trends we record.

Condition 2.6

The following have been identified as possible data omissions and discrepancies with an explanation of action undertaken/proposed to remedy the monitoring and reporting deficiency.

- a) Several destroyed piezometers have not been replaced; however, consideration is being given to which piezometers are required to achieve the appropriate reporting coverage with consultation with a groundwater hydrogeologist. Rehabilitation of several piezometers has been attempted in 2017/18; work is now ongoing to rehabilitate more piezometers. Several piezometers have recorded ground water to a measurable level since the flood in 22/23. Piezometers have been checked for GPS location and updated; several were found incorrect. All positions are now recorded to our GIS system as GDA94, we would like to update to GDA2020, but current hand-held GPS do not come with GDA2020 as an optional coordinate system. As built screen depths have been updated from historical files where possible, See condition 2.17.

Condition 2.7

All files including the Compliance Report, and all associated Excel spread sheets have been provided, as a record of monitoring and testing data for discharged water salinity and volume and groundwater conditions. These are provided in an unrestricted access, electronic format.

Condition 2.8

"Salinity Training Manual"; Published by NSW Department of Primary Industries, June 2014 is used as a reference for understanding the effects of salination and methods for monitoring and control. Quality assurance is achieved by annual calibration of our extraction meters for extraction volume. MDBA website is used for salinity readings from Mildura weir. Volume of exports is measured by V-notch, timed-10L bucket, or meters; Salinity is measured with a salinity meter which is calibrated before every use with a test solution. As part of EPA reporting, at least once a year (depending on drainage flow) drainage water samples are sent to consultants 'Pinion Advisory-Mildura' for NATA approved laboratory testing for chemical content (at NMI, 105 Delhi Road, North Ryde, NSW 2113). Piezometers are measured in accordance with the works approval. Training is also carried out, so at least 3 staff are familiar with the current monitoring procedures. Consultants are used for advice when required.

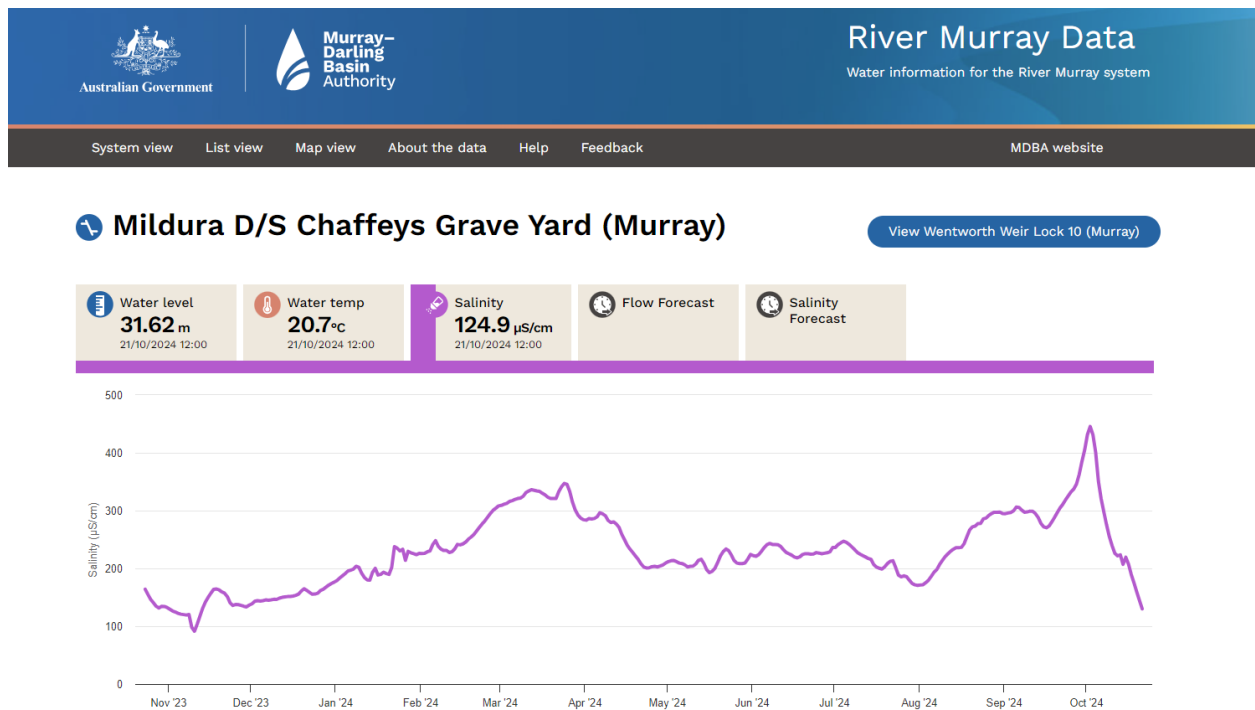
New Measures to Limit Groundwater Recharge and Discharge of Salt

Condition 2.9

A continuing trend towards drip irrigation requires much finer filtration, this requires more frequent operation of filter backflush systems; Hydrogen peroxide treatment was introduced in 2019/20 to stop the growth of pipeline bryozoans and

other organic growths, it has reduced backflush water at the on-farm filtration systems, and reduced flows into the surface drainage system, thereby reducing groundwater recharge and discharge of salt.

Since June 2023, the river has been returning to normal flows, although salinity has been erratic and has spent most of its time in a high range (above 150 μ S/cm):



Reporting on Water Management

Condition 2.10

In respect of each water supply work listed in schedule one (of the Monitoring and Reporting Plan for Combined Approval 60CA581273) the reconciled monthly water volumes in megalitres are as follows:

- Extracted under water access licences held by the approval holder. Domestic + Stock, General Security and High Security are not metered separately. There is a 1.1ML totalised discrepancy between Water NSW statements and WMI reported figures.

Water NSW - Reconciled Usage

IWAS Statement		
Type	WAL	ML
HS	60AL581271	25,069.5
DS	60AL581272	490.0
DS	60AL682421	34.0
DS	60AL583565	36.0
GS	60AL583086	47.4
	Total	25,676.9

Western Murray Irrigation Limited

	BURONGA				COOMEALLA				CURLWAA				TOTAL				
Month	2021/22	2022/23	2023/24	3 Yr RA	2021/22	2022/23	2023/24	3 Yr RA	2021/22	2022/23	2023/24	3 Yr RA	2021/22	2022/23	2023/24	3 Yr RA	%
July	30	50	29	36	127	242	132	167	41	59	25	42	199	351	186	245	76%
August	58	48	46	51	413	316	243	324	107	67	47	74	578	431	336	448	75%
September	136	49	137	107	863	260	1,018	714	214	44	213	157	1,213	353	1,369	978	140%
October	215	31	155	134	1,410	273	1,438	1,040	290	45	238	191	1,915	349	1,830	1,365	134%
November	185	82	253	173	1,422	758	2,273	1,484	272	133	350	252	1,879	973	2,876	1,909	151%
December	480	349	407	412	4,190	3,429	3,530	3,716	696	514	486	565	5,365	4,292	4,424	4,694	94%
January	552	484	386	474	4,330	4,116	3,217	3,888	705	673	457	612	5,587	5,274	4,060	4,974	82%
February	416	392	420	409	3,503	3,553	3,403	3,486	574	597	571	581	4,493	4,542	4,393	4,476	98%
March	293	271	350	305	1,935	2,175	2,671	2,261	428	483	453	455	2,656	2,929	3,474	3,020	115%
April	153	125	134	137	913	788	887	863	195	196	197	196	1,261	1,109	1,219	1,196	102%
May	41	72	125	79	182	545	660	462	35	145	121	100	257	762	906	642	141%
June	38	17	58	38	209	171	455	278	40	20	92	51	287	208	605	366	165%
Year to Date	2,597	1,970	2,500	2,356	19,496	16,625	19,927	18,683	3,597	2,976	3,251	3,275	25,691	21,572	25,678	24,314	105.6%
Total	2,597	1,970	2,500	2,356	19,496	16,625	19,927	18,683	3,597	2,976	3,251	3,275	25,691	21,572	25,678	24,314	
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C:\Supply\WML Supply Figures\WML Supply 2023-24\WML Supply 2023-24 YTD.xls\Summary

WMI – Reconciled Usage for each Authorised supply works

- b) No other water access licences were used for extraction.
- c) No water was extracted for environmental or river operational purposes.
- d) All water is delivered to customers except for leakage and flushing (scouring); leakage is so minute it is not measurable with any confidence, flushing used 43.4ML.

Condition 2.11

Water discharged from (drainage) sites listed in Attachment 1:

This “Drainage” water is a combination of:

- Groundwater - from the deep drainage system, this drains the farms of excessive water from irrigation and rain events, these drains were very active when furrow irrigation was dominant.
- Surface water - from the surface drain system, from backflush, deep drains discharge and rain events.
- a) Discharged without credit:
 - 648.83 ML was retained in area of operations i.e., drainage basins and flood plains, not to the river.
 - 35.91 ML was discharged to Murray River.
- b) Nil discharges for environmental or river operational purposes.

Condition 2.12

- a) Discharged without credit (not including rain or evapotranspiration rates).
 - Buronga – 2,500ML water extracted from river, 0.0ML scoured to drains, 8.82ML discharged to drainage basins.
 - Coomealla – 19,927ML water extracted from river, 37.62ML scoured to drains, 599.84ML discharged to drainage basins and flood plains, 35.91ML drained to river.
 - Curlwaa – 3,251ML extracted from river, 5.78ML scoured to drains, 40.16L discharged to drainage basins.
- b) Negligible losses in fully pipelined network <10ML (0.05%).
- c) No change to offline storages – (balance towers) they are a fixed size metal cylinder, kept at a constant height to maintain pressure on the pipelined systems, i.e., part of the pipelined system. Coomealla tower (1995) is approximate 2ML (0.01% of annual use), Curlwaa tower (1986) is approximately 0.6ML (0.017% of annual use), they have been at the same level (except maintenance) since construction.

Water Extraction and Supply Balance (ML)

	Buronga	Coomealla	Curlwaa
Extracted under water access licence held by the approval holder	2,500	19,927	3,251
Extracted under any other water access licences nominating that work	0	0	0
Extracted for environmental or river operational purpose under agreement with and for Water NSW or	0	0	0
Delivered in total to the approval holders customers	2,489	19,328	3,210
Discharged without credit (Scouring)	0	38	6
Discharged for environmental or river operational purpose under agreement with Water NSW or the	0	0	0
Net channel losses	0	0	0
Escaped	0	0	0
Recycled	0	0	0
Evapourated	0	0	0
Within Channel rainfall	0	0	0
Change in water storage volume	0	0	0
Seepage	0	0	0
Change in the volume of water held in off-line storages	0	0	0
Extraction minus discharge	10	562	35
%	0.42%	2.82%	1.08%

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The small discrepancies of extraction minus discharge are considered acceptable metering errors (<5%).

Condition 2.13

The estimated annual values in measurement units requested for:

- Rainfall = 216.9mm
- Evapotranspiration = 1,677mm (Mildura Airport, supplied by BOM).
- Water deliveries for horticulture = 91% = 22,775ML
- Water deliveries for summer crops = 8% = 2,003ML
- Water deliveries for winter crops = 1% = 250ML

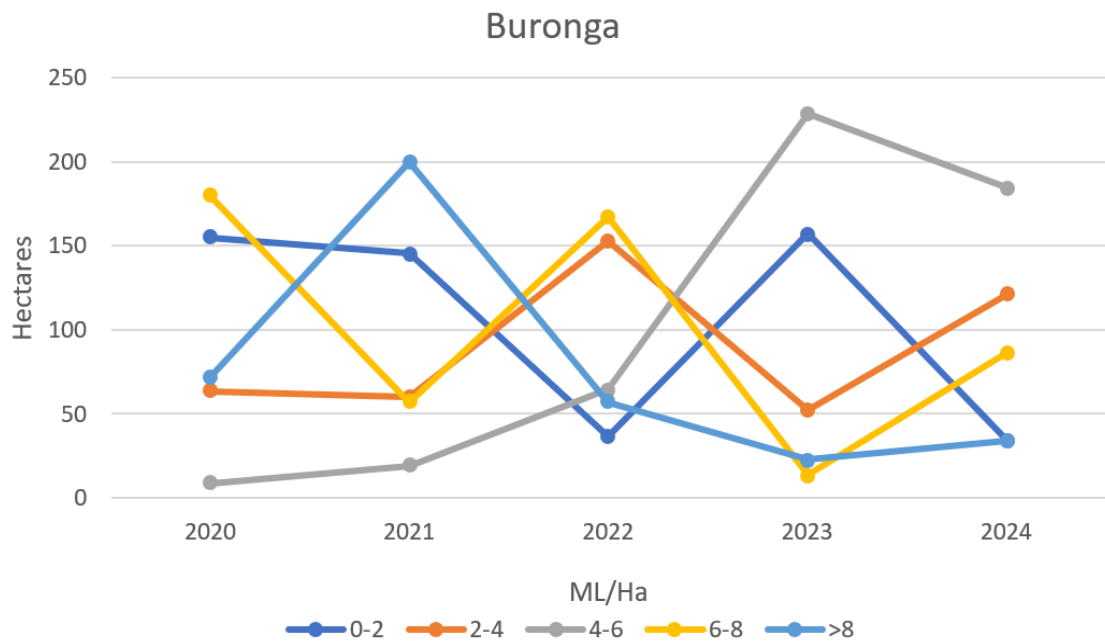
Table 2: Western Murray Irrigation - irrigated crops in 2021

Crop type	2021 (ha)	2021 %	Description
Permanent	Grape dried	125	3%
	Grape table	145	4%
	Grape wine	1,695	42%
	Citrus	785	19%
	Fruit tree	140	3%
	Nut tree	20	<1%
	Other	25	1%
Seasonal	Field crop	75	2%
	Veg. cucurbit	190	5%
	Veg. other	40	1%
Total irrigated (ha)		3,240	79%
Vacant	Vacant P	645	16%
	Vacant S	195	5%
Total irrigable (ha)		4,080	100%

WMI Crop Report 2021, p.10

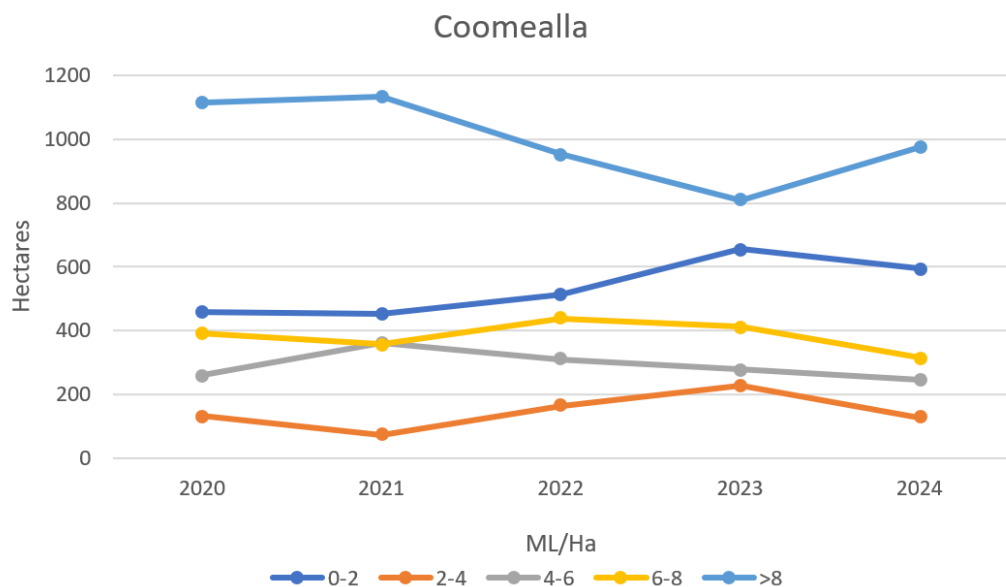
- Water deliveries for Domestic and Stock = 560ML.
- Application areas for the water uses c) to f) estimated from locally relevant crop water use factors. = 3,240ha.
- The distribution of irrigation intensity (ML/ha/year) in at least three intensity ranges for the main supply sub-division areas.

Five intensity ranges total Ha of ML/Ha over a period of 5 years for each irrigation area. The data can easily get distorted e.g. if there is no market for grapes, the growers will cut back on the water to minimal requirements to just keep the vines alive:



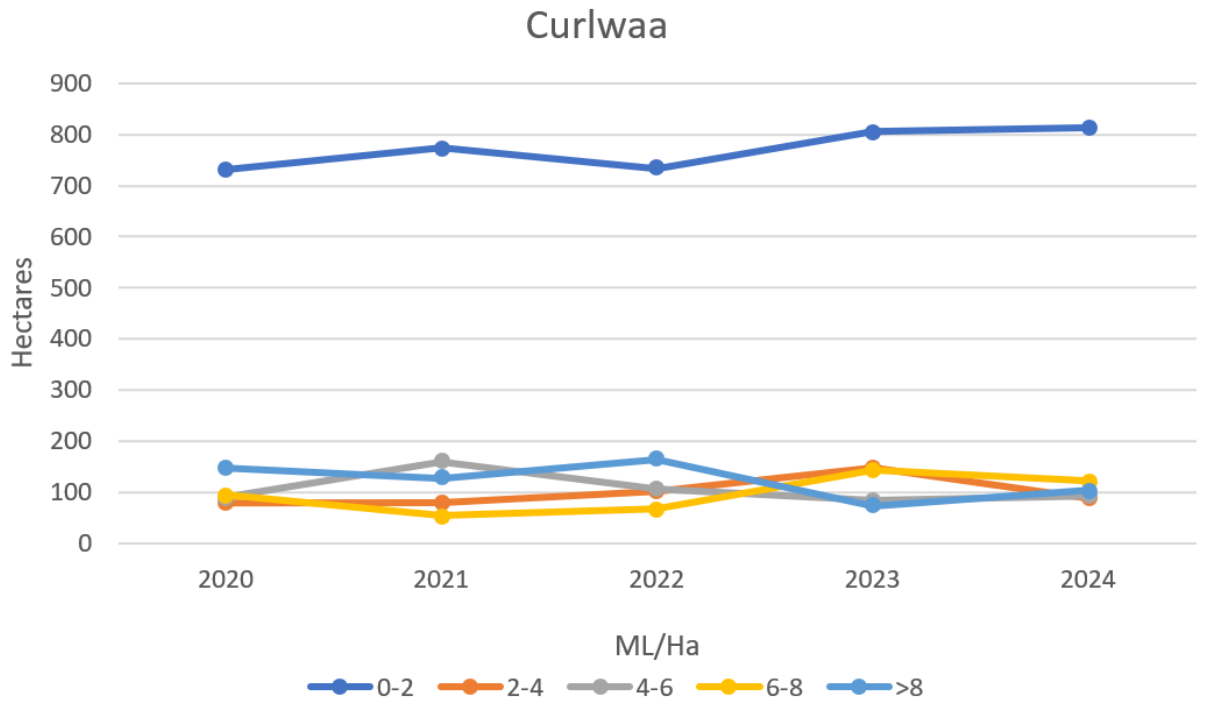
O:\Supply\WMIL Supply Figures\WMIL Supply 2023-24\ML per Ha charts.xlsx]Sheet2

Buronga appears erratic, this is due to a lot of replanting, urbanisation, one large irrigator taking supply from another water source and Buronga being a small system. The 4-6ML/Ha range had trended up strongly over 2020/23, while the >8ML/Ha had trended down over the same period, this appears to have stabilised for the 2023/24 year.



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Coomealla has also had a lot of replanting and redevelopment of previously dry blocks for the past 3 years. The >8ML/Ha has trended up this year, while all others have trended down, this is possibly due to the crops planted in the previous years reaching maturity.



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Curlwaa continues a trend of significant land out of production. This trend has continued into 2023-24 with a slight increase of unirrigated land.

Reporting on Salinity and Saltload

Condition 2.14

The salinity and saltload of extractions at the sites listed in schedule 1, and in accordance with requirements set out in schedule 1:

- Flow - ML/Month
- Salt Loads - Tonnes/Month
- Salinity - micro-Siemens/cm
- In table format

	BURONGA W01		COOMEALLA W02		CURLWAA W03		Average EC
Month	ML	Salt (T)	ML	Salt (T)	ML	Salt (T)	
July	29	3	132	13	25	2	151
August	46	3	243	18	47	4	116
September	137	15	1,018	114	213	24	175
October	155	16	1,438	153	238	25	166
November	253	22	2,273	193	350	30	133
December	407	40	3,530	352	486	48	155
January	386	52	3,217	435	457	62	211
February	420	73	3,403	555	571	93	256
March	350	72	2,671	550	453	94	322
April	134	21	887	139	197	31	245
May	125	17	660	89	121	16	210
June	58	9	455	68	92	14	234
Year to Date	2,500	343	19,927	2,679	3,251	443	211

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All Districts	2023/24		
	ML	Salt (T)	AV EC
Year to Date	25,678	3,465	211

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Condition 2.15

The salinity and salt loads of discharges at the sites listed in Attachment 1, and in accordance with the requirements set out in Attachment 1:

- Volume - ML/Month
- Salt Load - Tonnes/Month
- Monthly min, max, average
- Table format

District Curlwaa Work/Site Identifier CW 6 Name James' Highway Representing discharge Discharges to Fletchers Lake										Location Details Coordinates (WGS84) 586760E 6225910N				Type Dimensions Capacity	Centrifugal Pumps 80mm & 200mm X- Section = 0.04m ² 13 ML/D			
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits	
Volume (ML)	0.0	13.1	6.9	7.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0 ML	13.1	0.0	2.3	Flow	No Flow
Salt Load (T)	0.0	46.7	27.9	30.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	106.0 T	46.7	0.0	8.8		
Average EC	NA	5,570	6,311	6,111	2,700	NA	NA	NA	NA	NA	NA	0		6,311	0	5,914	14	38

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52

District Buronga Work/Site Identifier B1 Name Corbett Ave Representing Discharges to Basin No.1										Location Details GDA94-54 609900E 6219513N				Type Dimensions Capacity	Weir - 90° V Notch 300mm Pipe X- Section = 0.07m ² 2 ML/D			
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits	
Volume (ML)	1.22	1.20	1.44	2.26	0.51	0.36	1.02	0.07	0.13	0.08	0.03	0.51	8.8 ML	2.26	0.03	0.74	Flow	No Flow
Salt Load (T)	0.68	1.00	1.10	1.91	0.41	0.29	0.92	0.06	0.11	0.07	0.02	0.36	6.9 T	1.91	0.02	0.58		
Average EC	866	1,308	1,200	1,321	1,271	1,235	1,412	1,431	1,332	1,328	1,270	1,127		1,431	866	1,230	52	0

Western Murray Irrigation Limited

District Coomealla Work/Site Ide CM 5 Name Hollands Lake Main Deep Drain Representing Discharge to Hollands Lake											Location Details 0 E N				Type Dimensions Weir - 60° V Notch 600mm Pipe X- Section = 1.13m ² 8ML/D			
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits	
Volume (ML)	20.7	7.8	5.4	23.57	11.6	23.7	42.02	28.2	29.056	4.3	4.5	3.3	204.3 ML	42.0	3.3	17.0	Flow	No Flow
Salt Load (T)	26.2	14.9	10.1	46.37	22.3	30.5	71.17	56.1	48.709	7.5	5.8	4.5	344.1 T	71.2	4.5	28.7		
Average EC	1,985	2,975	2,897	3,075	2,995	2,011	2,647	3,106	2,619	2,684	1,990	2,113		3,106	1,985	2,632	52	0
O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WML Drainage 2023-24.xlsx\EPA13 CW6 James Hwy																	52	

District Coomealla Work/Site Identify CM 1 Name Risbey's Outfall - Risbey's Main Deep Drain & Branch Channel No.1 COMBINED Representing disc Discharge to Tuckers Creek										Location Details GDA94-54 594809E 6227149N				Type Dimensions Capacity		Weir - 90° V Notch X2 600mm Pipe X: Section = 1.13m2 16 ML/D			
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits		
Volume (ML)	17.8	4.0	1.9	0.16	0.2	7.7	0.00	0.0	0.000	0.0	0.0	0.0	31.7 ML	17.8	0.0	2.6	Flow	No Flow	
Salt Load (T)	14.3	6.0	3.5	1.19	1.5	86.7	0.00	0.0	0.000	0.0	0.0	0.0	113.3 T	86.7	0.0	9.4			
Average EC	1,260	2,328	2,964	11,473	13,721	17,540	NA	NA	NA	NA	NA	NA	NA	17,540	1,260	5,581	25	27	
O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WML Drainage 2023-24.xls\CM1 Risbeys Combined																		52	

District Coomealla Work/Site Identify CM2 Name Risbey's Pumps to Fletchers Lake Representing disc Discharge to Fletchers Lake										Location Details GDA94 M54 E595763 N6232045				Type Dimensions Capacity		Weir - 90° V Notch 600mm Pipe X- Section = 1.13m2 8 ML/D			
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits		
Volume (ML)	7.1	6.2	13.0	25.33	10.3	13.5	35.48	18.2	22.915	11.2	15.7	19.1	198.0 ML	35.5	6.2	16.5	Flow	No Flow	
Salt Load (T)	11.3	9.6	19.8	54.91	32.9	42.9	47.62	21.3	27.656	12.4	17.3	19.5	317.4 T	54.9	9.6	26.4			
Average EC	2,490	2,451	2,379	3,388	4,988	4,983	2,097	1,825	1,886	1,726	1,731	1,594		4,988	1,594	2,505	46	6	
O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WML Drainage 2023-24.xls\CM1 Risbeys Combined																		52	

District	Coomella										Location Details				Type	Bank & Pipe				
Work/Site Identifier	CM 7										Coordinates (WGS84)				Dimensions	150mm Pipe				
Name	Water's Deep Drain										595825E6226100N				Capacity	X- Section = 0.07m ²				
Representing discharge	Discharges to Murray River														0.5 ML/D					
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits			
Volume (ML)	0.0	0.0	0.0	0.1	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6 ML	1.5	0.0	0.1	Flow	No Flow		
Salt Load (T)	0.0	0.0	0.0	0.2	1.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1 T	1.9	0.0	0.2				
Average EC	NA	NA	NA	2,000	2,000	NA	NA	NA	NA	NA	NA	NA	NA	2,000	2,000	2,000	2	50		
O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WML Drainage 2023-24.xls\CM1 Risbeys Combined																		52		

District	Coomealla										Location Details				Type	Bank & Pipe			
Work/Site Identifier	CM21										Coordinates GDA94-54				Dimensions	150mm Pipe			
Name	Old Jetty										596276E 6225541N				X- Section = 0.07m ²				
Representing discharge	Discharges to Murray River														Capacity	0.5 ML/D			
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits		
Volume (ML)	4.0	1.4	0.9	2.7	1.3	3.9	7.7	2.7	4.5	3.2	1.6	0.4	34.3 ML	7.7	0.4	2.9	Flow	No Flow	
Salt Load (T)	4.6	2.0	1.7	5.7	2.5	9.7	19.2	6.0	8.6	5.2	1.7	0.6	67.5 T	19.2	0.6	5.6			
Average EC	1,780	2,234	2,823	3,345	3,007	3,904	3,921	3,494	3,003	2,569	1,633	2,073		3,921	1,633	3,079	52	0	
O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WML Drainage 2023-24.xlsx\CM15 Boroona Deep																		52	

District Coomealla Work/Site Identifier CM 12&13 Name Deep Drain 342-398 WMIL Depot Representing discharg Discharges to Murray River Flood Plain										Location Details GDA94-54 596440E 6225448N				Type Dimensions Capacity	Bank & Pipe 150mm Pipe X- Section = 0.07m ² 0.5 ML/D				
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits		
Volume (ML)	0.7	1.2	0.9	1.3	1.3	1.9	2.1	3.0	2.9	1.4	1.0	0.9	18.7 ML	3.0	0.7	1.6	Flow	No Flow	
Salt Load (T)	1.1	2.0	1.9	2.6	2.0	5.1	6.1	7.9	6.2	2.3	1.4	1.6	40.3 T	7.9	1.1	3.4			
Average EC	2,215	2,601	3,151	3,073	2,475	4,146	4,492	4,148	3,373	2,661	2,291	2,680		4,492	2,215	3,370	52	2	
O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WMIL Drainage 2023-24.xls\CM12&13 DD342-398\Depot)																		52	

District Coomealla Work/Site Identifier CM 14 Name Wakefield Deep DD352 Representing discharg Discharges to Murray River Flood Plain										Location Details GDA94-54 597314E 6224817N				Type Dimensions Capacity	Bank & Pipe 150mm Pipe X- Section = 0.07m ² 0.5 ML/D				
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits		
Volume (ML)	4.1	4.1	7.3	10.1	10.0	7.6	6.3	2.2	5.3	3.6	3.2	1.8	65.5 ML	10.1	1.8	5.5	Flow	No Flow	
Salt Load (T)	2.4	3.9	6.2	103.9	92.1	59.3	60.4	1.9	4.7	3.0	2.4	1.7	342.0 T	103.9	1.7	28.5			
Average EC	9.10	1,470	1,332	16,110	14,424	12,264	15,066	1,391	1374	1,289	1,144	1,515		16,110	910	8,154	50	2	
O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WML Drainage 2023-24.xlsx\CM14 Wakefield Deep																		52	

District Coomealla Work/Site Identifier CM 15 Name Boronia Deep Drain - DD365 Representing discharge to Murray River Flood Plain										Location Details GDA94-54 597737E 6224257N				Type Dimensions Capacity		Bank & Pipe 150mm Pipe X- Section = 0.07m ² 0.5 ML/D		
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits	
Volume (ML)	1.2	0.3	0.1	1.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2 ML	1.6	0.0	0.3	Flow	No Flow
Salt Load (T)	1.9	0.3	0.2	3.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.4 T	3.6	0.0	0.5		
Average EC	2,400	1,500	3,000	3,501	3,700	NA	NA	NA	NA	NA	NA	NA		3,700	1,500	3,139	6	46

District	Coomealla										Location Details				Type	Bank & Pipe			
Work/Site Identifier	CM 17										GDA94-54				Dimensions	150mm Pipe			
Name	3rd Allocation Main Deep Drain - DD346										598345E 6223751N				Capacity	X- Section = 0.07m ²			
Representing discharge	Discharges to Murray River Flood Plain															0.5 ML/D			
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits		
Volume (ML)	5.5	2.9	7.4	16.1	12.1	11.1	22.2	8.1	6.2	1.7	2.3	1.3	96.8 ML	22.2	1.26	8.1	Flow	No Flow	
Salt Load (T)	8.8	13.7	39.7	62.0	74.0	21.6	29.4	20.7	17.1	3.5	2.8	1.8	295.1 T	74.0	1.8	24.6			
Average EC	2,471	7,253	8,425	6,006	9,565	3,044	2,073	4,013	4,335.0	3,228	1,926	2,196		9,565	1,926	4,762	52	0	

O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WML Drainage 2023-24.xlsx\CM15 Boronia Deep

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Condition 2.16

A simple annual salt balance representing the imported, exported and retained salt load for the area associated with each separate water supply work:

WMI Supply Imports

Buronga			Coomealla			Curlwaa		
Main Pumping Station			Main Pumping Station			Main Pumping Station		
ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)
2,500	214	343	19,927	210	2,679	3,251	213	443

O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WML Drainage 2023-24.xlsx\Area Drainage and Salt Imports

WMI Drainage Outfalls 23/24

Buronga			Coomealla			Curlwaa			Total		
Total Drainage			Total Drainage			Total Drainage			Total Drainage		
ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)
8.82	1,230	6.95	635.75	3,658	1488.27	40.16	5,622	144.51	684.74	3503.43	1639.73
Drainage Basins			Drainage Basins			Drainage Basins			Drainage Basins		
ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)
8.82	1,230	6.95	402.31	2,569	661.50	40.16	5,622	144.51	451.30	3140.55	812.96
Flood Plains			Flood Plains			Flood Plains			Flood Plains		
ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)
0.00	NA	0.00	197.53	5,989	757.16	0.00	NA	0.00	197.53	5989.14	757.16
Murray River			Murray River			Murray River			Murray River		
ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)	ML	Av. EC	Salt (T)
0.00	NA	0.00	35.91	3,030	69.62	0.00	NA	0.00	35.91	3029.54	69.62

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WMI Salt Balance

Salt (T)	Buronga	Coomealla	Curlwaa	Total
Imported	343.00	2,679.00	443.00	3,465.00
Exported to Drainage Basins	6.95	661.50	144.51	812.96
Exported to Murray Flood Plains	0.00	757.16	0.00	757.16
Exported to Murray River	0.00	69.62	0.00	69.62
Retained on Irrigated Land	336.05	1,190.73	298.49	1,825.27

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Retained salt T/ha			
	Buronga	Coomealla	Curlwaa
Irrigated ha	430	2290	515
Tonnes salt retained	336	1191	298
Average T/ha	0.78	0.52	0.58

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Reporting Groundwater Requirements

Condition 2.17

The results of monitoring of groundwater conditions by means of piezometers and groundwater control bores (tube-wells) in accordance with the monitoring and reporting requirements set out in Attachment 2.

On advice from NRAR, WMI have had the groundwater monitoring network reviewed by a consultant hydrogeologist 20/21, this report will be sent with the Annual Compliance Report. In accordance with this report the following audit has been started in 2021/22 and has continued through 23/24 although floods held up progress most of the year.

- 100% of WMI controlled Piezometers accounted for. – *Complete; some are completely gone (destroyed), some need some work to bring them back into service.*
- GPS location re-established for GDA1994. *A two-stage verification has been carried out, desktop utilising GIS and a physical GPS read using a hand-held GPS, a lot of sites are walk-in only.*
- AHD, screen depth and overall depth measured and confirmed at each piezometer. – *There is no way of physically confirming screen depth; overall depth has been measured. Missing AHDs have not been established 2023/24.*
- Assess dry/destroyed piezometers for rehabilitation. A lot of work has been carried out this year to rework piezometers that were under water during the flood. These have commonly filled with silt; removal is time consuming.



Example of piezometer desilting in progress. This piezometer was previously 'dry', it is now 2M deeper. Will be checked for reading in 2 weeks.

- Liaise with other stakeholders to establish a plan of rectification for the whole piezo network. – *This will be started once we have completed auditing our existing piezometers.*
- Groundwater control bores (Tubewells) are fully operational; bores have been running once a month for a week as part of anti-deterioration maintenance; Drainage water is transferred to the Tubewell pump station, where it is pumped through a sealed pipeline to Fletchers Creek; from there it discharges to Fletchers Lake.
- NRAR has requested WMI apply for separate Works Approvals and WALs for the operation of the tubewells, this is currently queried by WMI, see attached E-Mail in folder 'Groundwater Monitoring and SIS data'. Still no reply in 23/24.

Attachment 2- p.1

Piezometers are read in accordance with appropriate procedures and standards detailed in: DPI NSW, Salinity Training Manual - 2014, Chapter 13.

Current listing of piezometers by area:

Buronga							
Site ID	Use Y/N	Top of Pipe above NS (M)	NS (AHD)	Depth below top of pipe (M)	GDA94 Easting	GDA94 Northing	Condition
BGA 39	Y	0.10	38.77	6.30	611,610	6,220,940	6.2
BGA 41	Y	0.10	38.65	5.03	611,866	6,218,570	4.93
BGA 42	Y	0.16	36.84	4.51	610,052	6,217,625	4.35
BGA 49	Y	0.10	38.54	6.77	608,896	6,220,547	6.67
BGA 70	Y	0.15	38.64	5.22	614,390	6,218,577	5.07
BGA 94	N	0.03	37.79	Destroyed	608,949	6,218,151	Destroyed
BGA 112	Y	0.10	38.52	6.65	608,764	6,219,899	6.55
BGA 113	N	0.09	37.21	Destroyed	608,492	6,220,035	Destroyed
BGA1010	Y	0.17	38.58	6.18	613,744	6,219,867	6.01
BGA1011	Y	0.22	33.44	3.07	606,079	6,226,268	2.85
BGA1012	Y	0.15	33.50	3.75	607,960	6,229,259	3.6
BGA1013	N	0.50	33.15	Unknown	612,885	6,221,493	Unknown Underwater
BGA1080	Y	0.16	35.40	1.95	612,168	6,218,409	1.79
BGA1211	Y	0.20		9.41	608,607	6,219,061	9.21
BGA1214	Y	0.30	34.41	1.61	613,603	6,221,382	1.31
GGN 88168	Y	0.55		5.01	611,723	6,221,813	4.46
GGN 88169	Y	0.50		3.63	612,007	6,221,793	3.13
GGN 88170	Y	0.52		6.17	611,984	6,221,717	5.65
GGN 88171	N	0.33	0.00	Destroyed	611,796	6,219,995	Destroyed
GGN 88172	N	0.68	0.00	Destroyed	611,599	6,219,595	Destroyed

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Coomealla							
Site ID	Use Y/N	Top of Pipe above NS (M)	NS (AHD)	Depth below top of pipe (M)	GDA94 Easting	GDA94 Northing	Condition
CMA 11	Y	0.15	47.15	9.25	592895	6229556	9.1
CMA 12	N	0.12	45.92	Dry	593013	6228000	Dry
CMA 13	N	0.34	38.61	Dry	592993	6226744	Dry
CMA 14	Y	0.09	41.81	10.9	594651	6230158	10.81
CMA 15	N	0.03	35.28	Destroyed	594820	6228585	Destroyed
CMA 17	N	0.1	47.08	Dry	597386	6228912	Dry
CMA 19	N	0.4	46.56	Destroyed	597432	6224905	Destroyed
CMA 22	Y	0.07	38.34	6.09	599623	6223207	6.02
CMA 23	Y	0.12	51.22	19.26	603060	6227045	19.14
CMA 24	N	0.28	35.98	Destroyed	592996	6225377	Destroyed
CMA 25	Y	0.08	35.83	3.9	596284	6224322	3.82
CMA 26	Y	0.04	54.09	22.32	602274	6225545	22.28
CMA 52	N	0.15	39.25	Dry	596000	6230939	Dry
CMA 53	N	0.07	53.2	Dry	597127	6226003	Dry
CMA 56	N	0.075	57.75	Destroyed	605572	6228666	Destroyed
CMA 58	N	0.18	35.58	Dry	603036	6230266	Dry
CMA 60	Y	0.15	48.57	17.73	600072	6231442	17.58
CMA 63	N	0.07	47.3	Dry	599862	6230475	Dry
CMA 67	Y	0.11	48.94	18.23	599207	6232534	18.12
CMA 77	N	0.22	51.07	Destroyed	601701	6229588	Destroyed
CMA 78	N	0.16	44.25	Dry	603989	6231888	Dry
CMA 79	N	0.14	40.56	dry	604114	6230296	Dry
CMA 82	Y	0.12	35.59	4.614	592955	6231606	4.494
CMA1019	N	0.2	36.1	Destroyed	601534	6232271	Destroyed
CMA1022	Y	0.36	32.09	510	596696	6232849	509.64
CMA1027	Y	0.33	40.67	9.77	594334	6230812	9.44
CMA1061	Y	0.36	42.36	11.85	593236	6228785	11.49
CMA1062	N	0.34		Dry	597172	6224021	Dry
CMA1091	Y	0.3		3.1	603114	6229076	2.8
CMA1092	N	0.25		Dry	602755	6229261	Dry
CMA1094	N	0.4		Dry	602949	6229107	Dry
CMA1110	N			Destroyed	598871	6226877	Destroyed
CMA1200	Y	0.26	34.09	2.67	596119	6231971	2.41
CMA1201	Y	0.28		20.12	599508	6227667	19.84
CMA1202	Y	0.32		4.5	603224	6228415	4.18
CMA1203	Y	0.4		5.88	599973	6229284	5.48
CMA1204	N	0.34		Dry	594827	6227191	Dry
CMA1205	Y	0.4		10.11	601310	6227913	9.71
CMA1206	Y	0.2		18	602475	6227646	17.8
CMA1207	Y	0.34	37.67	7	596892	6232801	6.66

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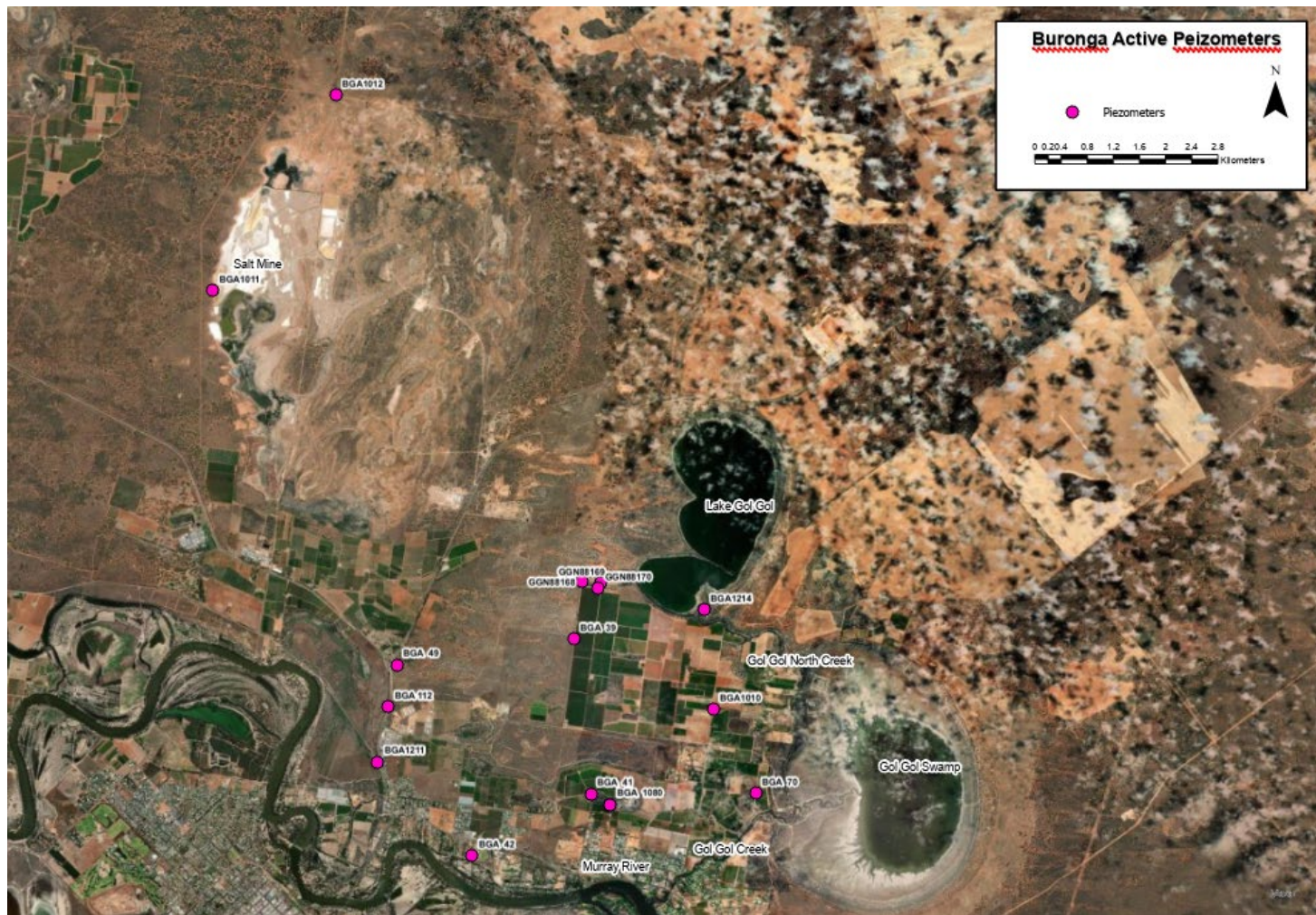
Curlwaa							
Site ID	Use Y/N	Top of Pipe above NS (M)	NS (AHD)	Depth below top of pipe (M)	GDA94 Easting	GDA94 Northing	Condition
CWA 1/A	Y	0.2	35.89	5.3	590307	6225159	5.1
CWA 5	N	0.08	33.07	dry	589229	6225853	Dry dry 4.41
CWA 6	N	0.21	35.14	dry	589093	6226121	Dry dry
CWA 11/A	Y	0.2	33.1	5.3	UTF		5.1
CWA 12	Y	0.22	35.4	5.3	590326	6225103	5.08
CWA 13	N	0.03	34.89	destroyed	UTF		Destroyed destroyed
CWA 15	N	0.3	35.24	Unknown	588489	6225784	Unknown bent/gal pipe
CWA16s	Y	0.46	34.36	5.26	589316	6226566	4.8
CWA 19	N	0.26	34.35	Unknown	UTF		Unknown gps?
CWA 21/A	N	0.23	35.21	Unknown	587658	6228057	Unknown gps?
CWA 23	N	0.25	33.28	Unknown	591468	6226176	Unknown Flooded
CWA 25	Y	0.4	33.19	3.56	589067	6223896	3.16
CWA 27	N	0.16	34.36	Unknown	UTF		gone
CWA 28	Y	0.18	34.36	5.07	589765	6227007	
CWA 31	N	0.1	34.36	destroyed	589793	6227013	Destroyed destroyed
CWA 41	N	0.15	36.42	destroyed	591912	6225789	Destroyed destroyed
CWA 48	Y	0.14	35.82	6.16	589661	6225588	6.02
CWA 50	Y	0.17	35.52	4.8	590311	6225624	4.63
CWA 51	Y	0.08	35.29	4.8	590224	6225663	4.72
CWA 59	Y	0.06	35.52	6.45	590446	6226182	6.39
CWA 60	Y	0.26	35.52	5.92	590395	6226283	5.66
CWA 80	N	0.07	35.12	destroyed	UTF		Destroyed destroyed
CWA 81	Y	0.08	33.56	dry	588372	6226389	Dry dry
CWA 82	Y	0.22	34.89	4.19	588703	6224831	3.97
CWA 84	Y	0.06	33.88	4.19	589011	6224669	4.13
CWA 85	Y	0.09	33.88	2.88	UTF		2.79
CWA 86	Y	0.12	34.83	3.83	589191	6223867	3.71
CWA 87	N	0.1	34.38	Unknown	UTF		Unknown
CWA 88	Y	0.09	35.42	4.3	589408	6224552	4.21
CWA 89	Y	0.02	35.5	4.7	589852	6225003	4.68
CWA 90	Y	0.15	33.8	3.82	588577	6225009	3.67
CWA 91/L	Y	0.15	33.5	3.986	589078	6225509	3.836
CWA 92	N	0.16	34.39	destroyed	UTF		Destroyed destroyed
CWA 93	N	0.11	34.44	destroyed	588580	6228587	Destroyed destroyed
CWA 98	Y	-0.03	35.96	5	592017	6224404	5.03
CWA 99	Y	0.2	36.52	5.32	592312	6224737	5.12
CWA 100	Y	0.7	35.36	4.59	591373	6225168	3.89
CWA 101	N	0.15	36.24	dry	592032	6225525	Dry dry
CWA 102	Y	0.13	35.83	6	592345	6225956	5.87
CWA 103	N	0.08	37.78	Unknown	UTF		Unknown destroyed
CWA 104	Y	0.15	35.15	5.2	590361	6229014	5.05
CWA 105	N	0.23	34.34	dry	587454	6226977	Dry dry
CWA 111	N	0.06	33.89	destroyed	UTF		Destroyed destroyed
CWA 113	N	0.12	33.71	destroyed	UTF		Destroyed destroyed
CWA 115	N	0.15	33.92	destroyed	UTF		Destroyed destroyed
CWA 119	N	0.15	34.61	destroyed	UTF		Destroyed destroyed
CWA 142	N	0.15	35.84	destroyed	UTF		Destroyed destroyed
CWA 150	N	0.21	32.39	destroyed	UTF		Destroyed destroyed
CWA 162	N	0.1	34.6	destroyed	UTF		Destroyed destroyed
CWA 165	N	0.15	36.3	destroyed	UTF		Destroyed destroyed
CWA 167	N	0.01	35.01	destroyed	589894	6226586	Destroyed destroyed
CWA 173	N	0.15	34.26	destroyed	UTF		Destroyed destroyed
CWA 174	N	0.1	34.69	Unknown	589215	6227059	Unknown broken pvc
CWA 177	N	0.02	35.69	dry	590423	6227002	Dry dry
CWA 178	N	0.005	34.26	destroyed	591759	6226954	Destroyed destroyed
CWA 179	Y	0.13	34.81	4.71	591121	6226813	4.58
CWA 180	N	0.12	35.58	dry	591190	6227287	dry dry 4.5
CWA 185	N	0.02	34.21	destroyed	589241	6227478	Destroyed destroyed
CWA 187	N	0.005	35.5	destroyed	588496	6227620	Destroyed destroyed
CWA 189	N	0.07	35.27	dry	589318	6227957	dry dry 3.8
CWA 195	N	0.09	35.18	destroyed	UTF		Destroyed destroyed
CWA 196	N	0.15	35.22	dry	589724	6228311	Dry dry
CWA 198	N	0.09	35.43	Unknown	589391	6228743	Unknown Flooded
CWA 199	N	0.09	35.18	destroyed	UTF		Destroyed destroyed
CWA1039	Y	0.22	34.72	4.2	591054	6225536	3.98
CWA1041	Y	1.2	34.35	4.83	588734	6226034	3.63
CWA1044	Y	0.32	34.06	3.34	588057	6223637	3.02
CWA1045	N	0.31	35.19		588173	6224402	Flooded
CWA1060	Y	0.24	34.66	4.44	591473	6228534	4.2
CWA1083	Y	0.3	34.63	4.25	589367	6224994	3.95
CWA1084	N	0.2	34.93	destroyed	588970	6224197	Destroyed destroyed
CWA1085	Y	0.18	32.36	4.89	589201	6225858	4.71
CWA1086	N	0.32	34.88		591372	6225553	Flooded
CWA1087	Y	0.08	35.88	5.62	590628	6225858	5.54
CWA1088	N	0.16	35.85	destroyed	590489	6227394	Destroyed destroyed
CWA1131	N	0.17	33.69	Unknown	587444	6229017	Unknown kelso, no access

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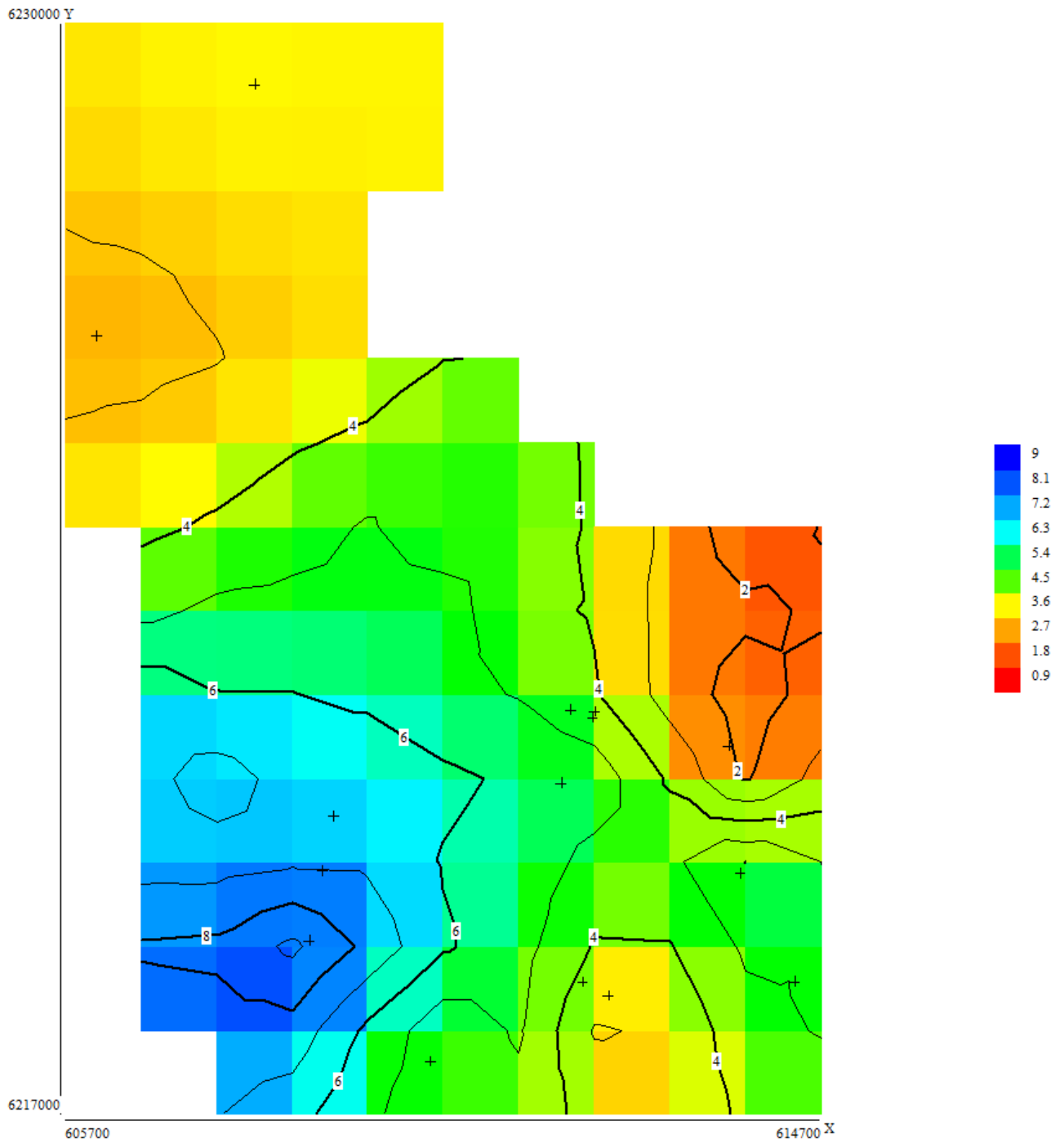
Attachment 2, p.2 - Condition 1

Map of groundwater depth below natural surface @ 2M contour intervals and including first 1M. Dry/destroyed piezometers are not used for constructing contour lines.

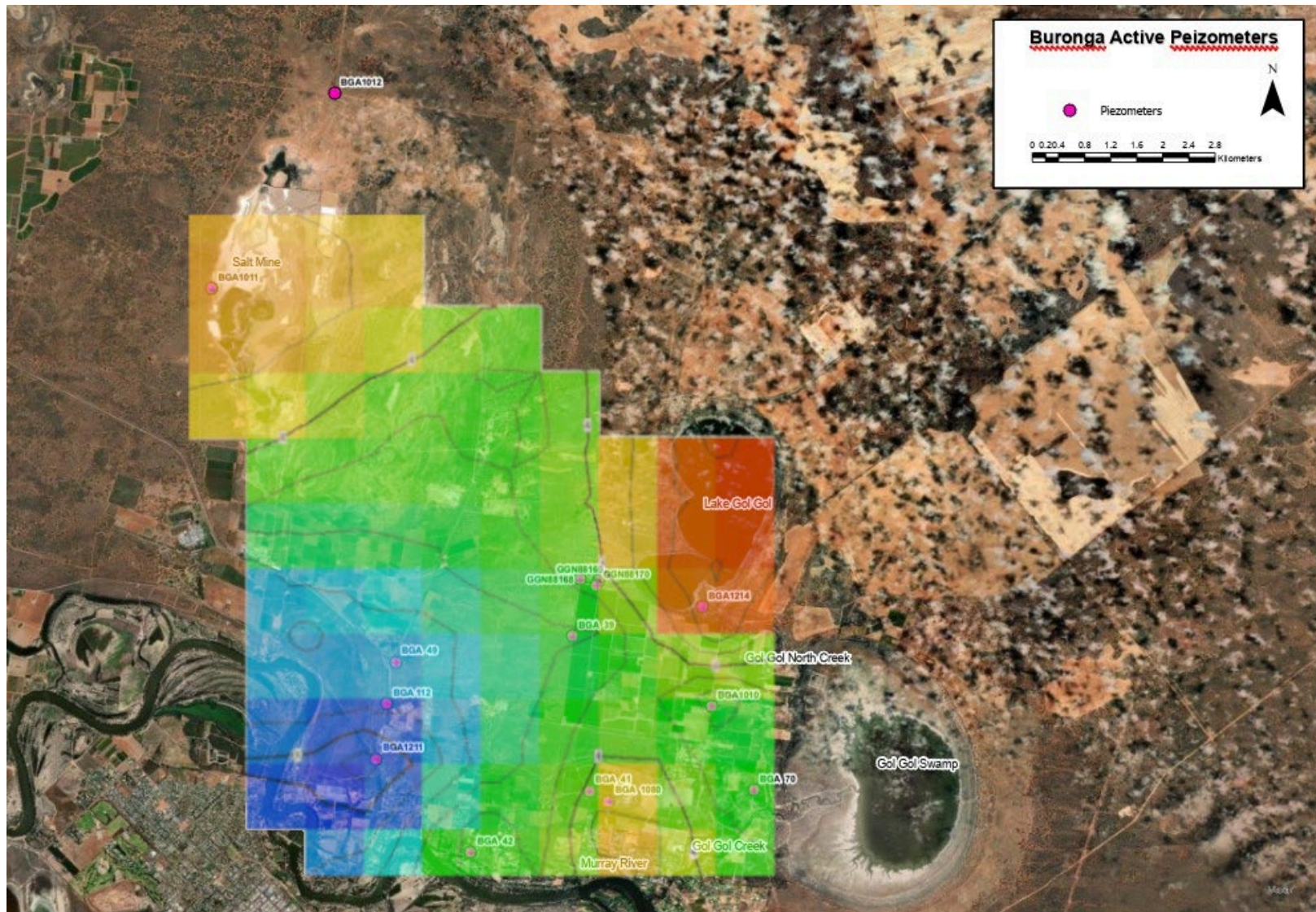
Location of Active Buronga Piezometers:



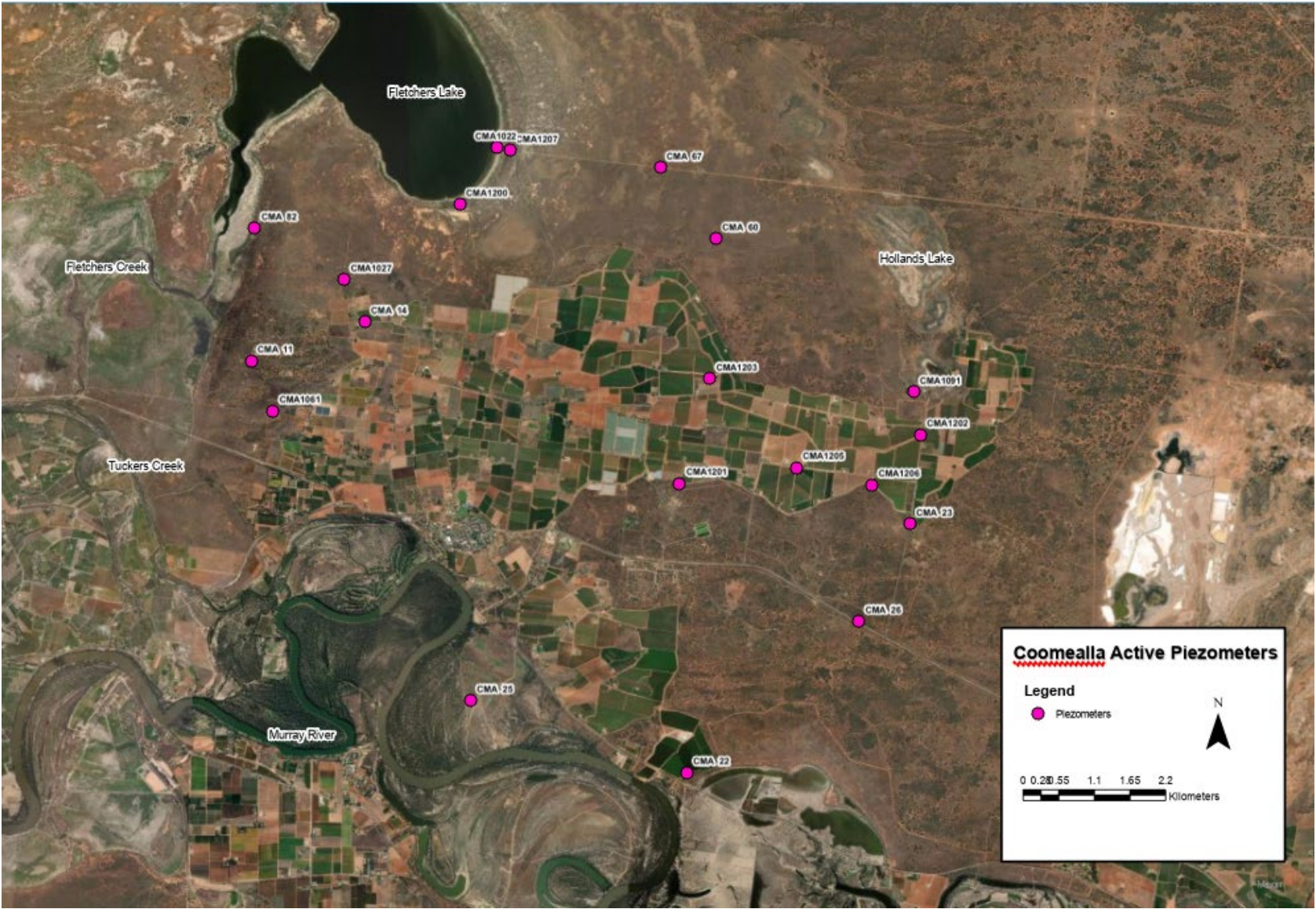
Buronga groundwater heights below natural surface (M)



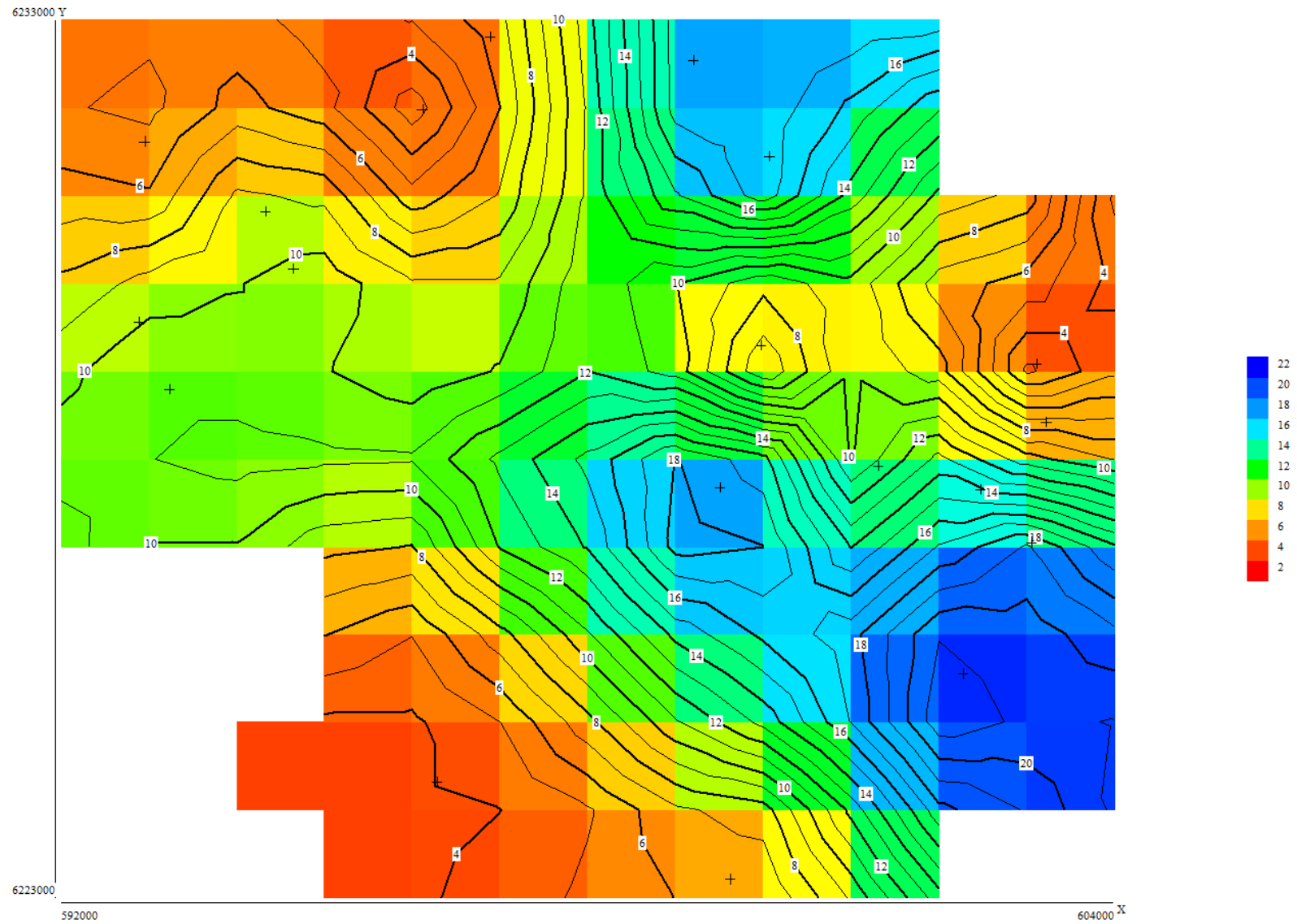
Buronga groundwater heights below natural surface (M), combined image:



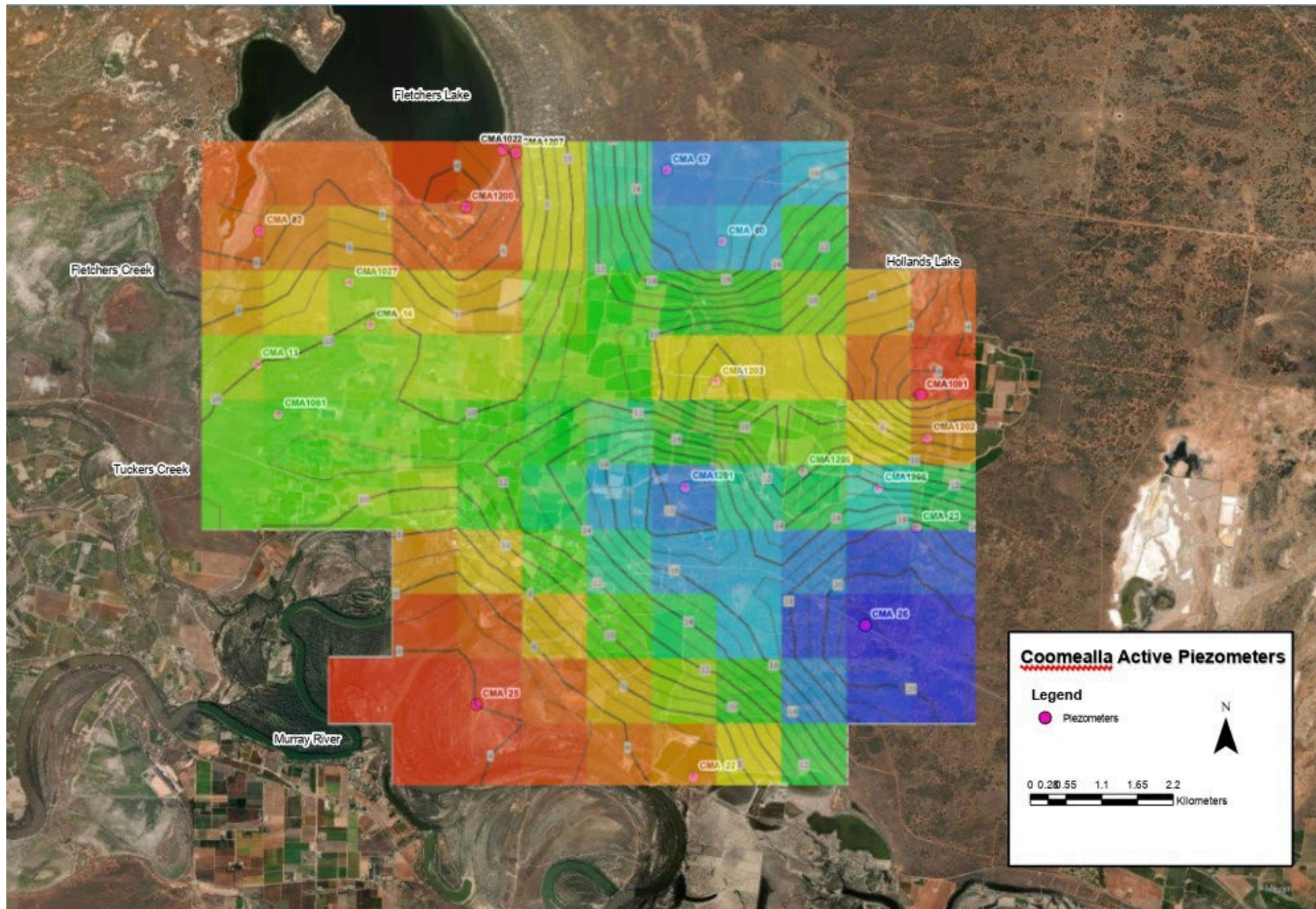
Location of Active Coomealla piezometers:



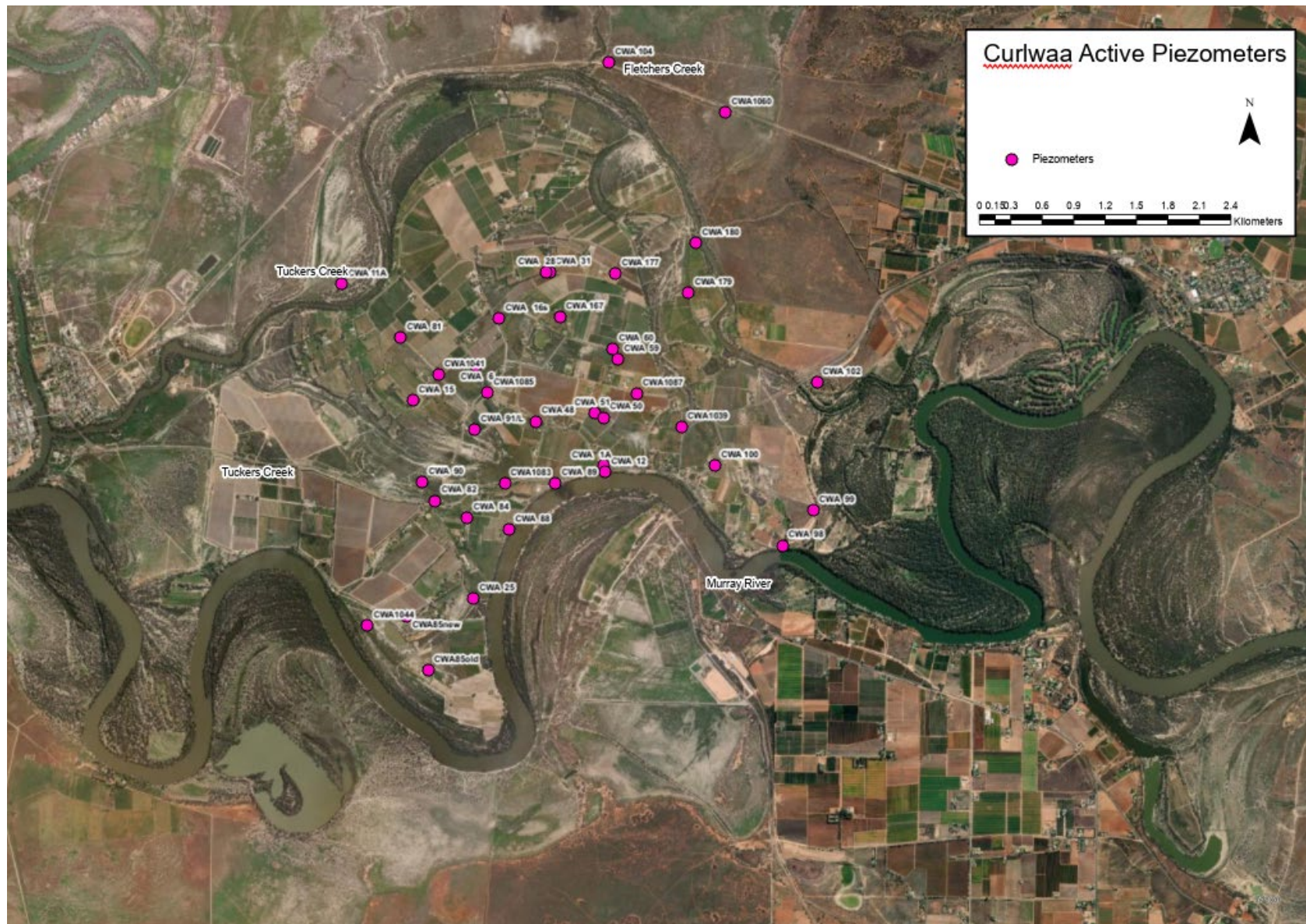
Coomealla groundwater height below natural surface (M):



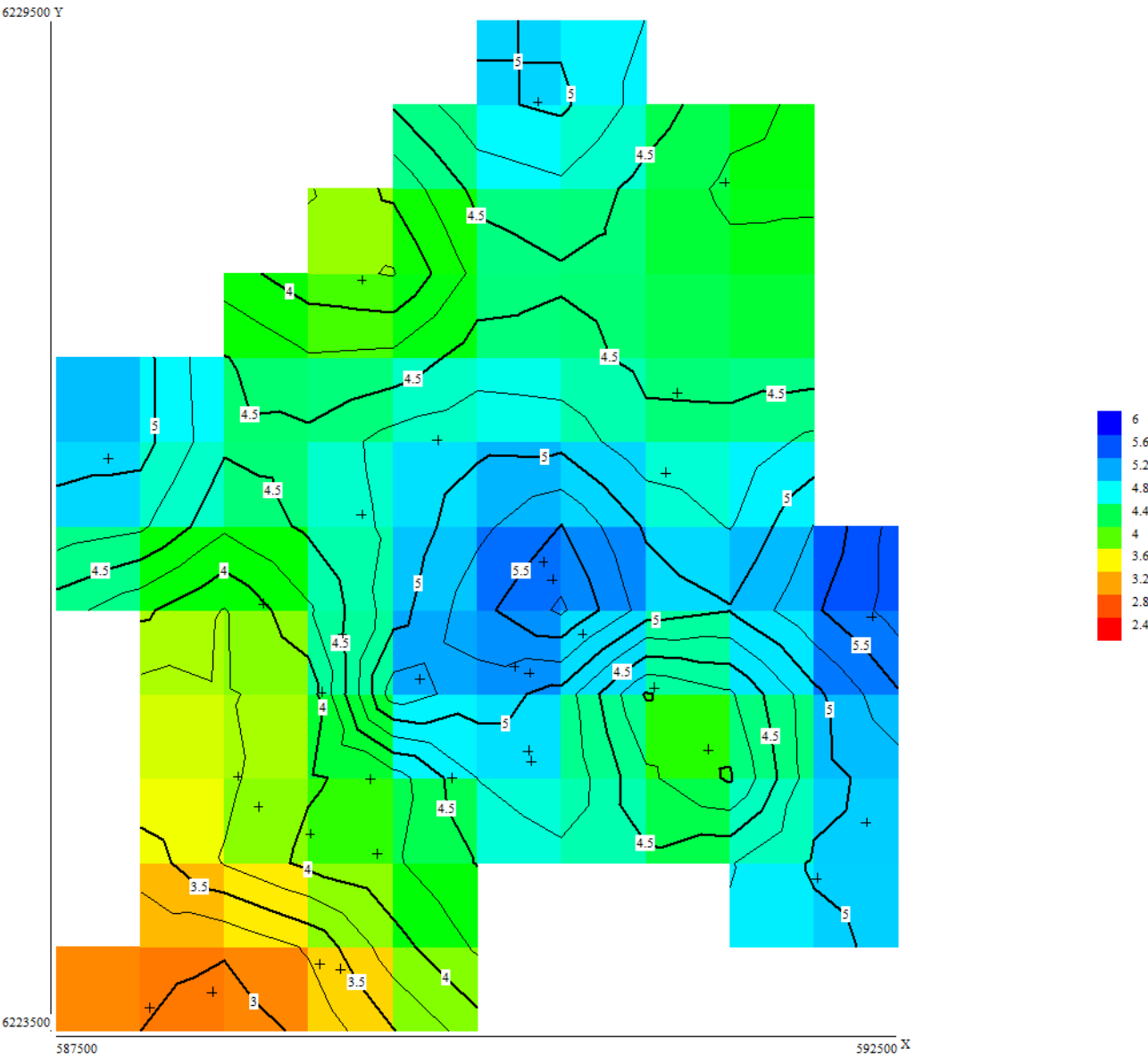
53 | P a g e



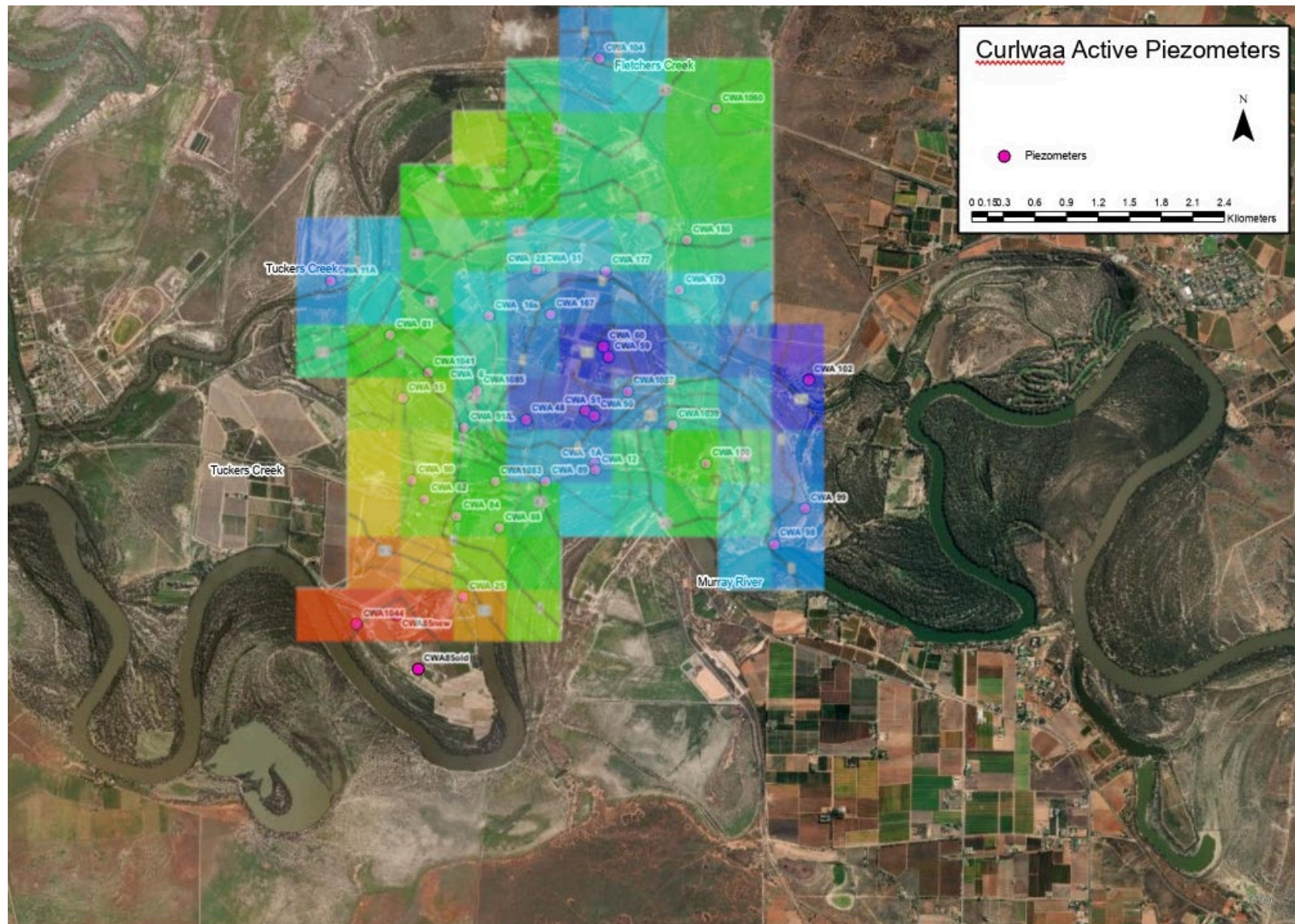
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Curlwaa groundwater height below natural surface (M):



Curlwaa groundwater heights below natural surface (M), combined image:



Attachment 2, p.2 - Condition 2.

No consultation with the minister required, where levels have risen above the historical reference.

Groundwater contour maps have been provided at condition 1; Groundwater levels are expected to be decreasing after the flooding event. All piezometers are read in August/September of each year.

Attachment 2, p.2 - Condition 3.

Table of entire mapped area (ha) of shallow (<2M), moderate (2-4M) and >4M groundwater depth.

Approximate areas at different depths of groundwater (Ha)				
	<2M	2-4M	>4M	Total mapped area
Buronga	6	3510	4320	8370
Coomealla	0	400	9900	10300
Curlwaa	0	625	1675	2300

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- Evaporation basins form a large part of our area of operations, the figures indicate this as being a large area of high groundwater, whereas it is a low laying drainage/evaporation basin.

Attachment 2, p.2 –Condition 4.

Table of the change in the three depth class areas (ha) within the area of operations, relative to the previous and historical reference years:

Approximate areas at different heights of groundwater (ha)														
2023/24					2023/24 - 2022/23 difference (ha)					2023/24 - 2010/11 difference (ha)				
	<2M	2-4M	>4M	Total op. area		<2M	2-4M	>4M			<2M	2-4M	>4M	
Buronga	0	45	612	657	Buronga	0	0	0	Buronga	-3.2	31.25	-28.05		
Coomealla	0	100	4,081	4,181	Coomealla	0	-25	25	Coomealla	-473.55	-104.28	577.83		
Curlwaa	0	100	1,541	1,641	Curlwaa	0	-50	50	Curlwaa	0	45.09	-45.09		
2022/23					2022/23 - 2021/22 difference (ha)					2022/23 - 2010/11 difference (ha)				
	<2M	2-4M	>4M	Total op. area		<2M	2-4M	>4M			<2M	2-4M	>4M	
Buronga	0	45	612	657	Buronga	0	-15	15	Buronga	-3.2	31.25	-28.05		
Coomealla	0	125	4,056	4,181	Coomealla	0	50	-50	Coomealla	-473.55	-79.28	552.83		
Curlwaa	0	150	1,491	1,641	Curlwaa	0	150	-150	Curlwaa	0	95.09	-95.09		
2021/22														
	<2M	2-4M	>4M	Total op. area										
Buronga	0	60	597	657										
Coomealla	0	75	4,106	4,181										
Curlwaa	0	0	1,641	1,641										
2010/11														
	<2M	2-4M	>4M	Total op. area										
Buronga	3.2	13.75	640.34	657										
Coomealla	473.55	204.28	3502.91	4,181										
Curlwaa	0	54.91	1586.09	1,641										

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No Change at Buronga; Coomealla and Curlwaa indicate water table is still decreasing, even though it was expected to see an increase post flood, it was a dry year for rainfall at 216.9mm. 2010/11 has been used as a significant historical year; up until August 2010 the prior year was close to average rainfall (277mm), followed by the wettest year on record. Groundwater monitoring and SIS review made an observation that significant rainfall changes the groundwater temporarily; below are monthly rainfall figures covering this monitoring period.

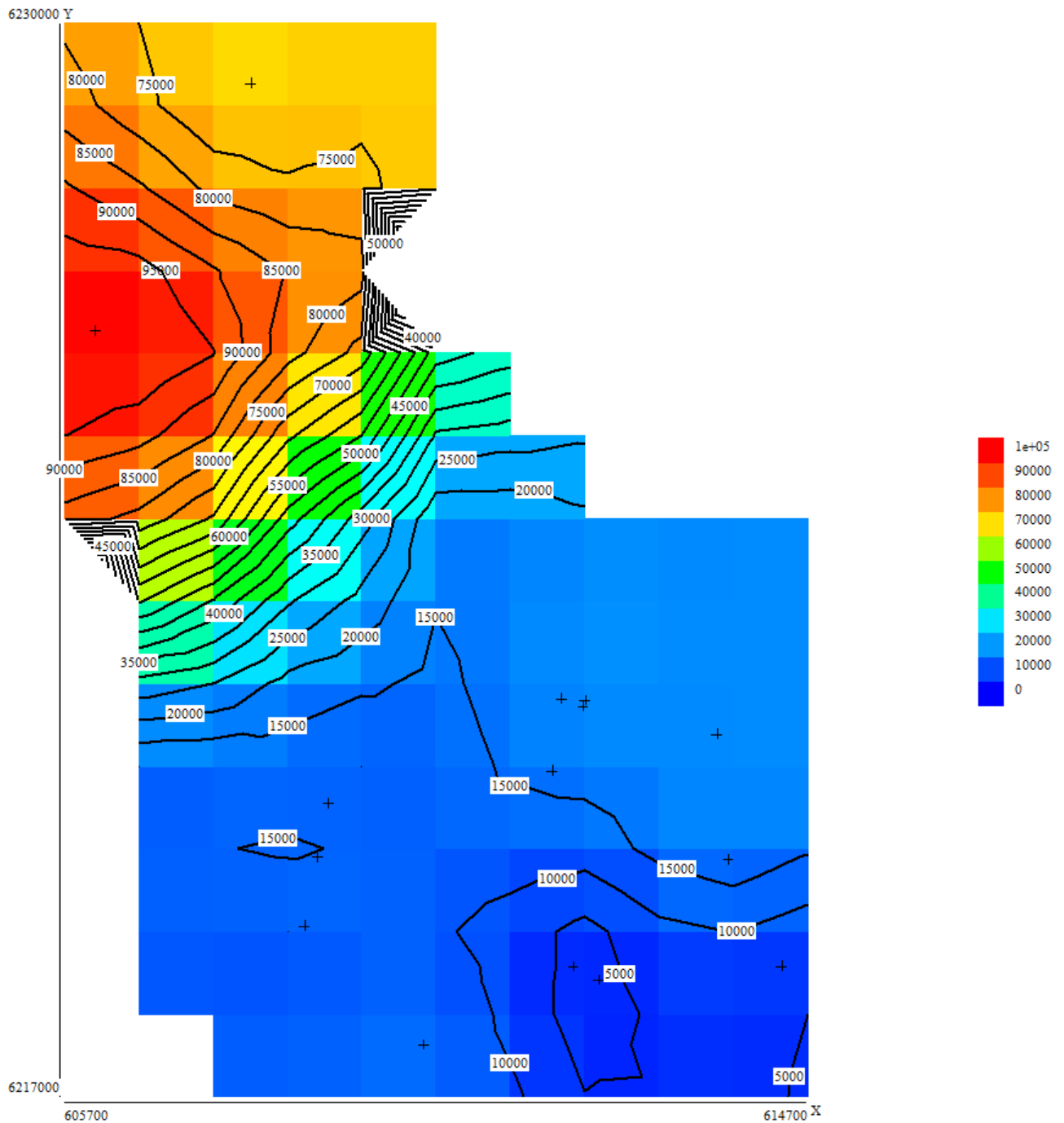
Monthly rainfall BOM – Mildura Airport:

Season	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Total	Total 2 years	Total 3 years
2009/10	11.8	8.2	30.4	10.8	65.6	13.2	8.4	19.8	35.8	18.8	51.2	14.6	288.6	517.6	668.4
2010/11	26.4	29.2	56.6	92.2	110.2	146.8	127.0	183.2	119.8	11.8	13.2	10.2	926.6	1,215.2	1,444.2
2011/12	15.4	20.8	7.2	27.6	43.4	61.8	12.6	36.6	64.2	4.0	2.6	8.0	304.2	1,230.8	1,519.4
2012/13	41.4	17.0	13.6	7.0	4.6	4.4	1.2	14.6	10.8	6.2	29.2	35.8	185.8	490.0	1,416.6
2013/14	14.8	10.4	18.8	14.4	2.4	57.8	0.6	67.2	29.2	58.4	22.8	6.4	303.2	489.0	793.2
2014/15	13.0	18.2	18.6	0.6	13.4	9.6	57.0	0.6	0.0	93.0	10.2	30.6	264.8	568.0	753.8
2015/16	11.6	12.0	13.0	3.8	6.0	1.6	68.2	0.2	0.4	3.0	43.4	18.2	181.4	446.2	749.4
2016/17	19.2	30.8	93.6	24.8	51.2	5.6	29.4	5.2	4.2	44.0	19.6	1.8	329.4	510.8	775.6
2017/18	4.0	34.0	4.0	23.0	55.4	45.0	3.4	0.2	2.2	1.8	17.4	19.2	209.6	539.0	720.4
2018/19	3.4	10.6	0.8	12.2	19.2	44.6	2.6	2.8	3.0	1.8	48.0	13.4	162.4	372.0	701.4
2019/20	10.4	5.4	12.0	0.0	13.8	2.6	2.8	11.0	27.6	48.6	48.1	8.4	190.7	353.1	562.7
2020/21	10.4	41.6	25.0	59.0	5.2	8.6	45.0	0.2	4.8	0.0	8.0	30.6	238.4	429.1	591.5
2021/22	32.2	11.8	14.8	15.2	56.6	1.6	86.2	6.0	14.8	49.0	52.8	17.0	358.0	596.4	787.1
2022/23	4.6	38.8	53.4	109.6	66.2	11.0	24.8	1.4	5.4	23.0	12.4	80.2	430.8	788.8	1,027.2
2023/24	34.2	13.8	2.4	35.8	36.3	13.0	35.6	3.4	6.6	1.8	18.4	15.6	216.9	647.7	1,005.7

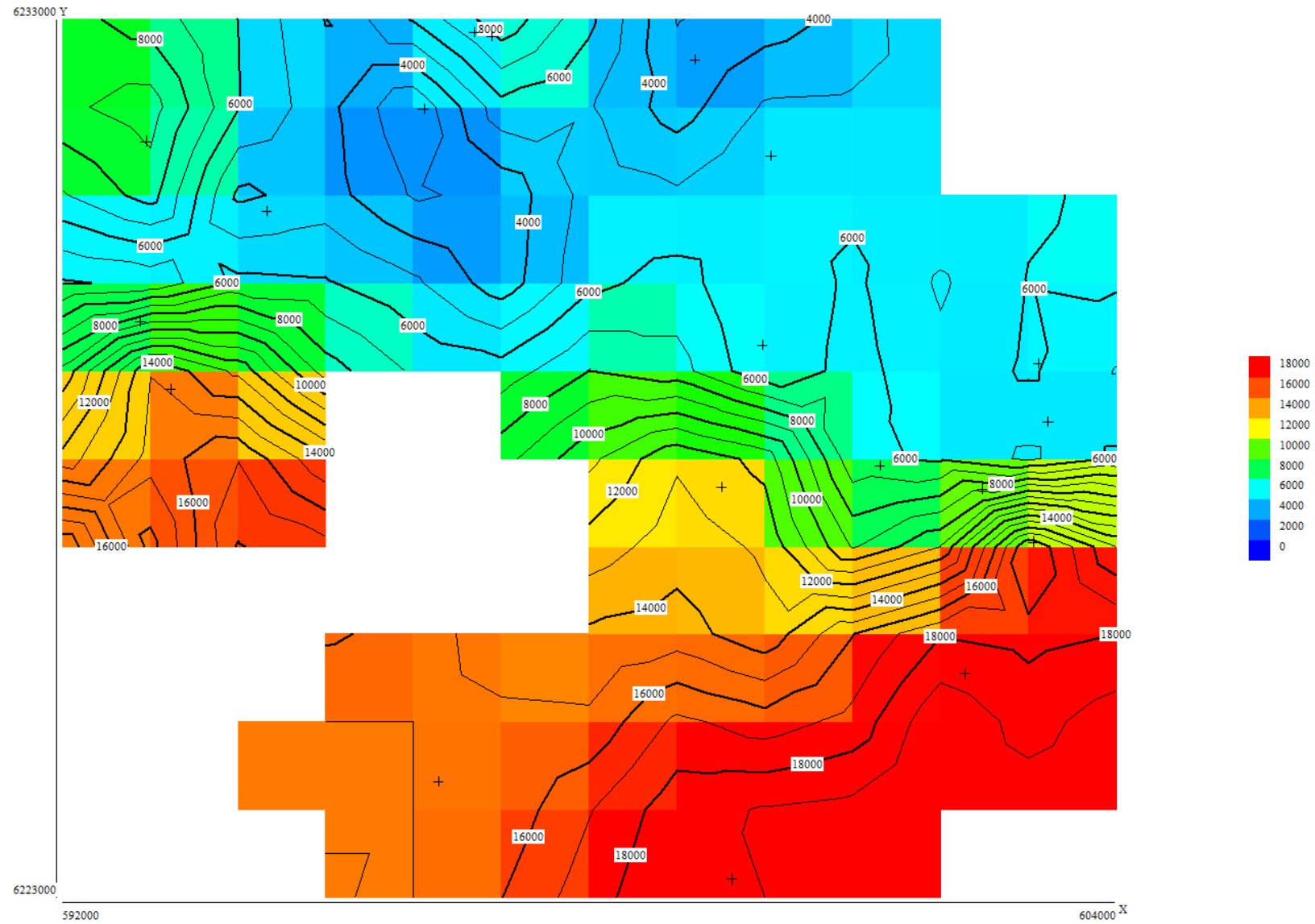
Attachment 2, p.2 – Condition 5

Groundwater salinity @ 0-2000, -5000, -10,000, -20,000, -30,000, -40,000 micro-Siemens/cm contours:

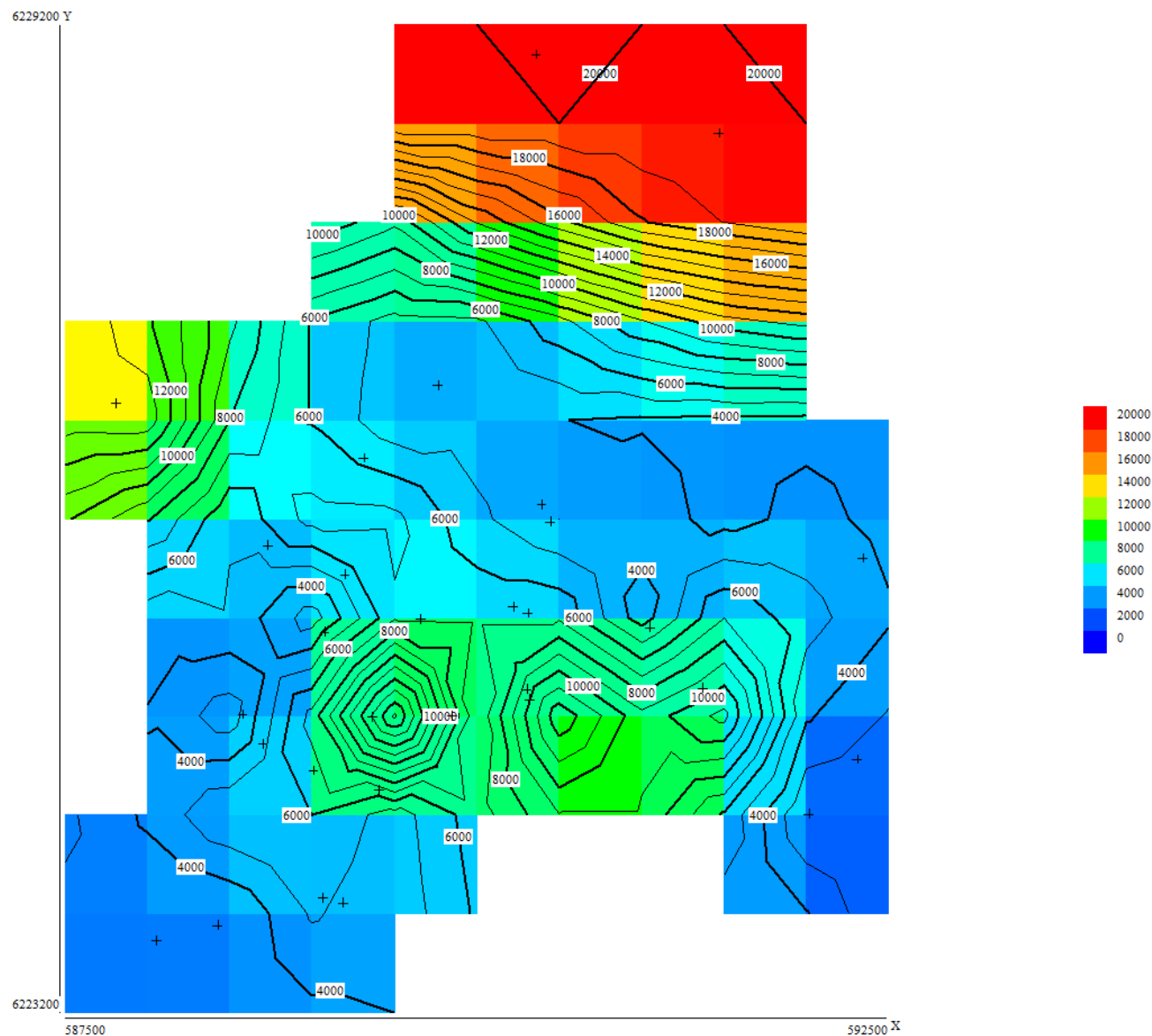
Buronga Salinity Contours (μ /Siemens):



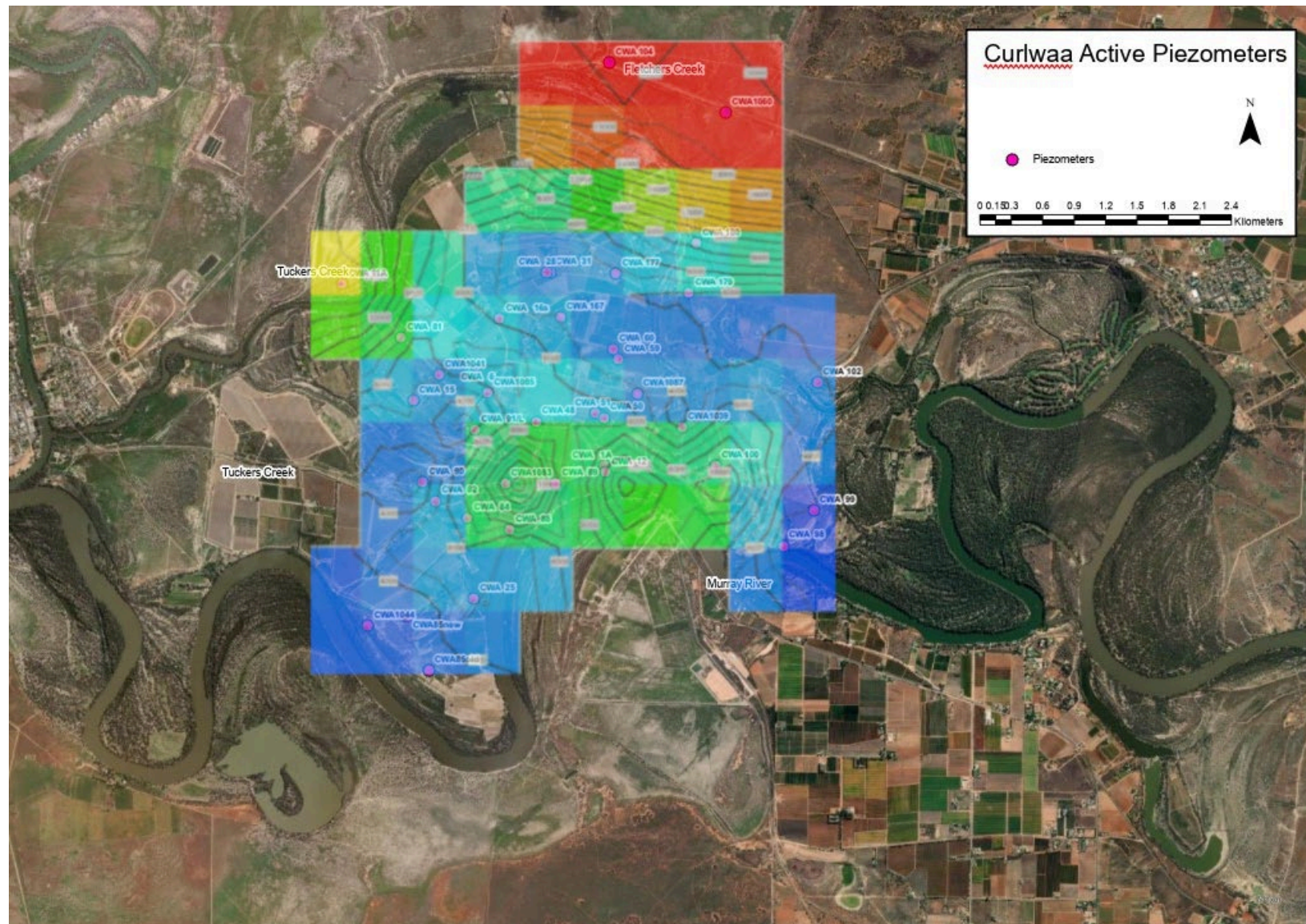
Coomoalla Salinity Contours:



Curlwaa Salinity Contours:



Curlwaa Salt Contours – Combined Image:



Tabulated approximate salinity (microSiemens/cm) interval areas, within areas of operations boundary, relative to the previous and historical reference year:

Approximate areas at different EC of groundwater (ha)

2023/24							
	0-2000	-5000	-10000	-20,000	-30,000	-40,000	Total op. area
Buronga	0	90	270	297	0	0	657
Coomealla	0	1100	2700	381	0	0	4,181
Curlwaa	0	675	300	666	0	0	1,641
2022/23							
	0-2000	-5000	-10000	-20,000	-30,000	-40,000	Total op. area
Buronga	0	190	270	197	0	0	657
Coomealla	0	300	3481	400	0	0	4,181
Curlwaa	60	1101	480	0	0	0	1,641
2021/22							
	0-2000	-5000	-10000	-20,000	-30,000	-40,000	Total op. area
Buronga	0	90	190	377	0	0	657
Coomealla	0	600	2881	750	0	0	4,181
Curlwaa	0	1100	401	140	0	0	1,641
2010/11							
	0-2000	-5000	-10000	-20,000	-30,000	-40,000	Total op. area
Buronga	7	20	154	141	148	188	657
Coomealla	123	615	984	1312	943	205	4,181
Curlwaa	43	756	194	432	130	86	1,641

2023/24 - 2022/23 difference (ha)							
	0-2000	-5000	-10000	-20,000	-30,000	-40,000	
Buronga	0	-100	0	100	0	0	0
Coomealla	0	800	-781	-19	0	0	0
Curlwaa	-60	-426	-180	666	0	0	0
2022/23 - 2021/22 difference (ha)							
	0-2000	-5000	-10000	-20,000	-30,000	-40,000	
Buronga	0	100	80	-180	0	0	0
Coomealla	0	-300	600	-350	0	0	0
Curlwaa	60	1	79	-140	0	0	0

2023/24 - 2010/11 difference (ha)							
	0-2000	-5000	-10000	-20,000	-30,000	-40,000	
Buronga	-7	70	116	156	-148	-188	-188
Coomealla	-123	485	1716	-931	-943	-205	-205
Curlwaa	-43	-81	106	234	-130	-86	-86

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Buronga has become slightly more saline; this may be due to low rainfall and urbanisation. Coomealla has become slightly less saline, this may be due to vacant land being put back into production. Curlwaa has become much more saline; this area of groundwater was heavily affected by the floods and is known for salinity; Salt Interception Scheme was running for 5 months during the flood period to pump salt away from the river.

Attachment 2, p.2 – Condition 6.

It is unknown whether there are alternative presentation formats approved by the minister; therefore, presentation is as close as possible to requested.

Attachment 2, p.3

Groundwater Control bores (Tubewells) Details

Tubewells are run once a month for a 4–5-day period as part of maintenance. have been active due to high river levels from October2022 to 20Mar23:

District	Curlwaa										Location Details				Type	200mm Magmeter			
Work/Site Identifier	CWA 1										Mildura 7329-N 1:50,000 map				Dimensions	600mm Pipe			
Name	Tubewell Pump Station										589087E 6225688N				X- Section = 1.13m2				
Representing discharge	Discharge to Fletchers Creek														Capacity	8 ML/D			
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits		
Volume (ML)	0.00	0.00	0.00	0.00	0.00	0.00	5.78	0.04	3.26	1.24	0.00	1.83	12.2 ML	5.8	0.0	1.0	Flow	No Flow	
Salt Load (T)	0.00	0.00	0.00	0.00	0.00	0.00	18.39	0.07	10.86	3.81	0.00	5.84	39.0 T	18.4	0.0	3.2			
Average EC	NA	NA	NA	NA	NA	NA	4,973	2,500	5,200	4,798	NA	4,991		5,200	2,500	5,010	9	43	
O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WML Drainage 2023-24.xlsx\CW5 Tubewell No4-Rice																	52		

District	Curlwaa										Location Details GDA94-Z54 589780E 6227019N				Type	Submersible Pump			
Work/Site Identifier	CW 2														Dimensions	100mm			
Name	Tubewell Pump No.1 - Knipes										Capacity				X- Section = 0.01m ²				
Representing discharge	Discharges to Tubewell Station														0.5 ML/D				
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits		
Volume (ML)	0.75	3.78	2.83	3.65	0.74	0.00	0.00	0.00	0.58	0.18	0.00	0.15	13.4 ML	3.8	0.0	1.1	Flow	No Flow	
Salt Load (T)	1.34	9.30	8.80	10.30	2.74	0.00	0.00	0.00	2.14	0.55	0.00	0.49	37.28 T	10.3	0.0	3.0			
Average EC	2,800	3,845	4,854	4,413	5,800		0	0	5,800	4,800		5,000		5,800	0	4,361	19	33	
O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WML Drainage 2023-24.xlsx\CW1 Tubewell Station																	52		

District	Curlwaa										Location Details GDA94-Z54 588579E 6226214N				Type	Submersible Pump			
Work/Site Identifier	CW 3														Dimensions	100mm			
Name	Tubewell Pump No.2 - Acacia Road										Capacity				X- Section = 0.01m ²				
Representing discharge	Discharges to Tubewell Station														0.5 ML/D				
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits		
Volume (ML)	0.00	9.53	6.08	6.34	1.99	0.00	0.00	0.85	1.03	0.18	0.00	0.65	26.6 ML	9.5	0.0	2.2	Flow	No Flow	
Salt Load (T)	0.00	39.70	22.98	20.80	6.88	0.00	0.00	2.72	3.97	0.67	0.00	1.78	99.51 T	39.7	0.0	8.3			
Average EC		6,512	5,910	5,128	5,400		0	0	6,000	5,800		4,300		6,512	0	5,835	17	35	
O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WML Drainage 2023-24.xlsx\CW1 Tubewell Station																		52	

District	Curlwaa										Location Details GDA94-Z54 589732E 6225474N				Type	Submersible Pump		
Work/Site Identifier	CW 4														Dimensions	100mm		
Name	Tubewell Pump No.3 - Olive Lane										Capacity				X- Section = 0.01m ²			
Representing discharge	Discharges to Tubewell Station														0.5 ML/D			
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits	
Volume (ML)	2.37	10.66	7.07	9.74	2.10	0.00	0.00	0.00	2.07	0.72	0.00	1.04	36.8 ML	10.7	0.0	3.0	Flow	No Flow
Salt Load (T)	13.53	53.98	33.53	46.53	10.76	0.00	0.00	0.00	6.64	2.20	0.00	3.46	174.22 T	54.0	0.0	14.2		
Average EC	8,900	7,910	7,406	7,461	8,000			0	5,000	4,800		5,200		8,900	0	7,392	19	33
O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WML Drainage 2023-24.xlsx\CW4 Tubewell No3-Olive																	52	

District	Curlwaa										Location Details GDA94-Z54 590420E 6226103N				Type	Submersible Pump			
Work/Site Identifier	CW 5														Dimensions	100mm			
Name	Tubewell Pump No.4 - Rice										Capacity				X- Section = 0.01m ²				
Representing discharge	Discharges to Tubewell Station														0.5 ML/D				
Month	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Totals	Max	Min	Av.	Site Visits		
Volume (ML)	2.14	10.66	6.64	11.13	0.00	0.00	0.00	0.00	0.00	1.76	0.00	0.26	33.5 ML	11.1	0.0	2.7	Flow	No Flow	
Salt Load (T)	12.17	47.56	32.50	56.02	0.00	0.00	0.00	0.00	0.00	9.66	0.00	1.65	159.56 T	56.0	0.0	13.3			
Average EC	8,900	6,974	7,652	7,864				0	0	8,600		10,000		10,000	0	7,440	19	33	
O:\DO Files\001 Drainage\000 Drainage Figures\Drainage 2023-24\WML Drainage 2023-24.xlsx\CW5 Tubewell No4-Rice																	52		

Quality Assurance for Monitoring & Reporting

Condition 3.

All monitoring and reporting are carried out in accordance with the DPI NSW publication “Salinity Training Manual” (2014).

Presentation of Data

Condition 4.

There has been no written request from the minister for presentation of any primary monitoring data or other material.

Environment Protection and Management Requirements

Discharge of Noxious Aquatic weeds

Condition 5.

WMI did not discharge any noxious aquatic weeds.

Discharge of Blue-Green Algae

Condition 6.

WMI pumps directly from the River Murray and has a fully pipelined system. Blue green algae monitoring on the river is performed by external parties and reported to stakeholders, including WMI. There is no discharge of Blue-Green Algae from WMI systems.

Basin Salinity Management Strategy

Condition 7.

There were no practices undertaken to increase the salinity debit, however it is evident that WMI has improved salinity management over the long term.
