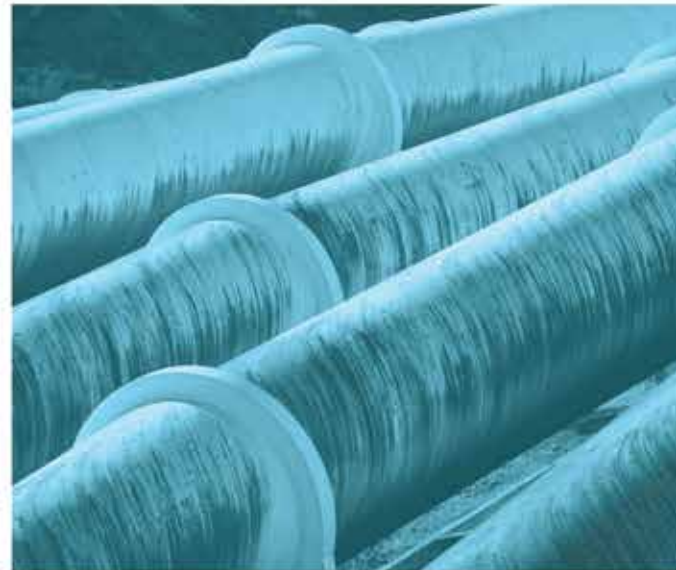




Wongawilli Colliery Modification Report

PA 09_0161 MOD 2 - North West Mains Development
Volume 8 - Appendix I (Part 3)

Prepared for Wollongong Coal Limited
December 2020





Servicing projects throughout Australia and internationally

SYDNEY

Ground Floor, 20 Chandos Street
St Leonards NSW 2065
T 02 9493 9500

NEWCASTLE

Level 3, 175 Scott Street
Newcastle NSW 2300
T 02 4907 4800

BRISBANE

Level 1, 87 Wickham Terrace
Spring Hill QLD 4000
T 07 3648 1200

ADELAIDE

Level 4, 74 Pirie Street
Adelaide SA 5000
T 08 8232 2253

MELBOURNE

Ground Floor, 188 Normanby Road
Southbank VIC 3006
T 03 9993 1905

PERTH

Suite 9.02, Level 9, 109 St Georges Terrace
Perth WA 6000
T 02 9339 3184

CANBERRA

PO Box 9148
Deakin ACT 2600

Volume Directory

Volume 1	Main Report (Part 1)	
Volume 2	Main Report (Part 2)	
Volume 3	Appendix A	DPIE correspondence regarding MOD 2
	Appendix B	Legal advice
	Appendix C	Updated project description
	Appendix D	Updated mitigation measures table
	Appendix E	Noise and vibration impact assessment
Volume 4	Appendix F	Air quality and greenhouse gas assessment
Volume 5	Appendix G	Traffic impact assessment
	Appendix H	Surface water impact assessment
Volume 6	Appendix I	Groundwater impact assessment (Part 1)
Volume 7	Appendix I	Groundwater impact assessment (Part 2)
Volume 8	Appendix I	Groundwater impact assessment (Part 3)
Volume 9	Appendix I	Groundwater impact assessment (Part 4)
	Appendix J	Groundwater peer review report
Volume 10	Appendix K	Subsidence impact assessment
Volume 11	Appendix L	Biodiversity development assessment report
Volume 12	Appendix M	Historical heritage assessment and statement of heritage impact (Part 1)
Volume 13	Appendix M	Historical heritage assessment and statement of heritage impact (Part 2)
Volume 14	Appendix N	Archaeological assessment (Part 1)
Volume 15	Appendix N	Archaeological assessment (Part 2)
Volume 16	Appendix O	Social impact assessment
	Appendix P	Economic impact assessment

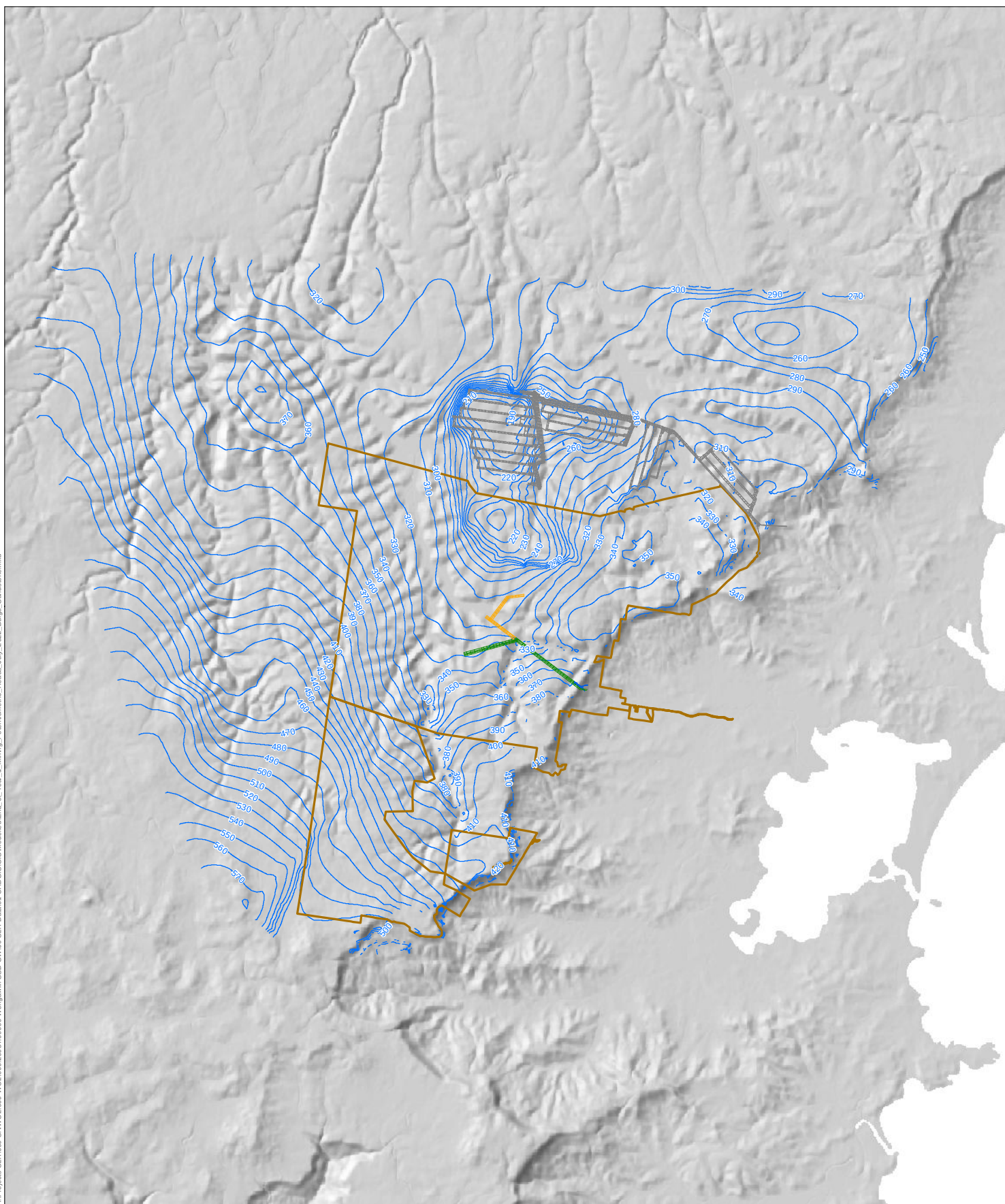


Appendix I - Part 3

Groundwater impact assessment



H:\Projects\SLR\660-Srv\WOL\660-WOL\660-2024-00000 Wongawilli SSD GW\06 SLR Data\01 CAD\GIS\GIS Modelled\End of Year 1 Mining Potentiometric Heads July 2022 Bulgo Sandstone.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

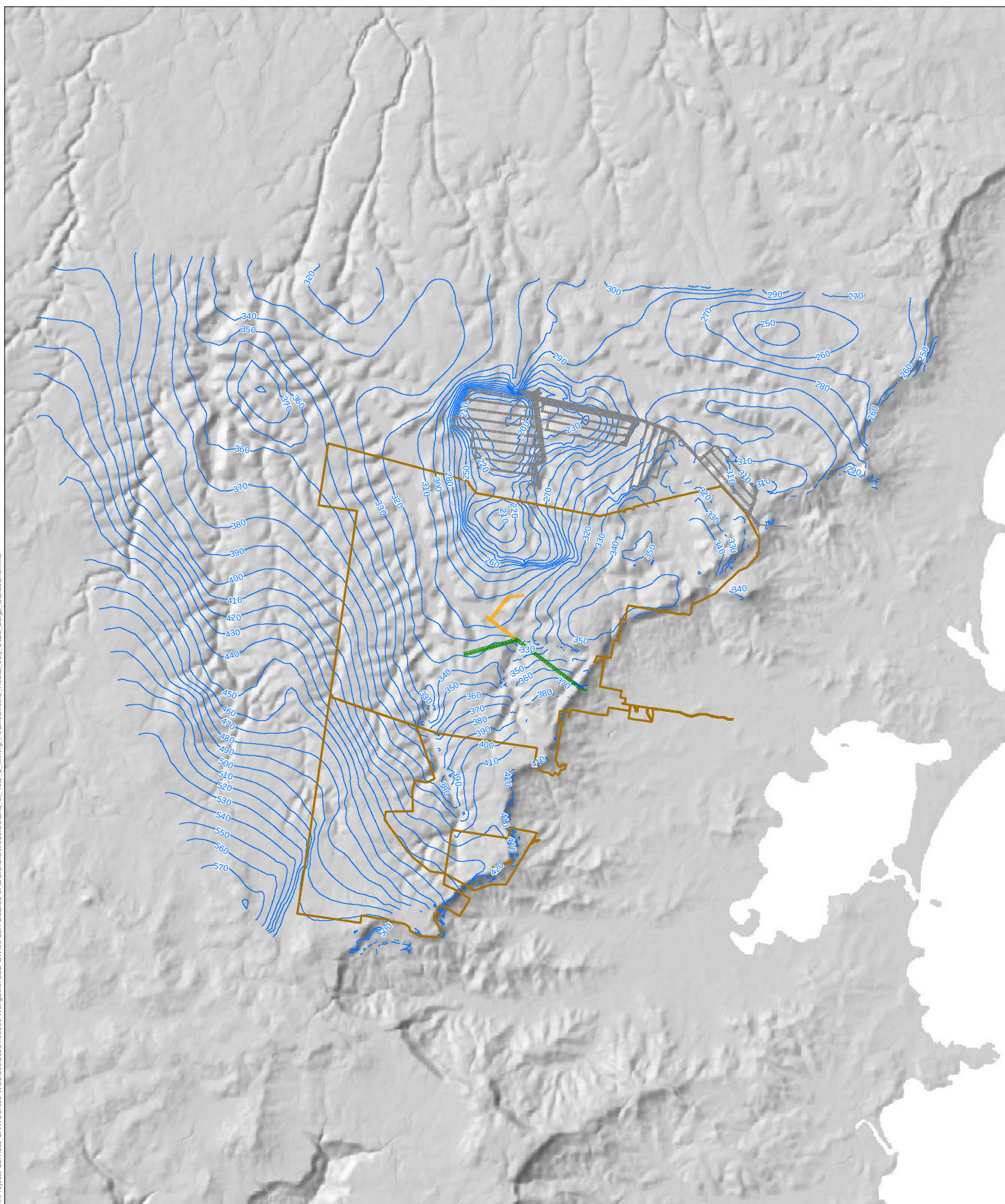
— Potentiometric Surface (mAHD)

GROUNDWATER IMPACT ASSESSMENT

End of Year 1 Mining - Potentiometric Heads - July 2022 - Bulgo Sandstone

C - 11

H:\Projects\SLR\660-Srv\WOL\660-WOL\660-2024-00000\Wongawilli SSD GW\06 SLR Data\01 CAD\GIS\GIS Modelled\End of Year 2 Mining Potentiometric Heads July 2023 Bulgo Sandstone.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

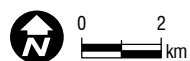
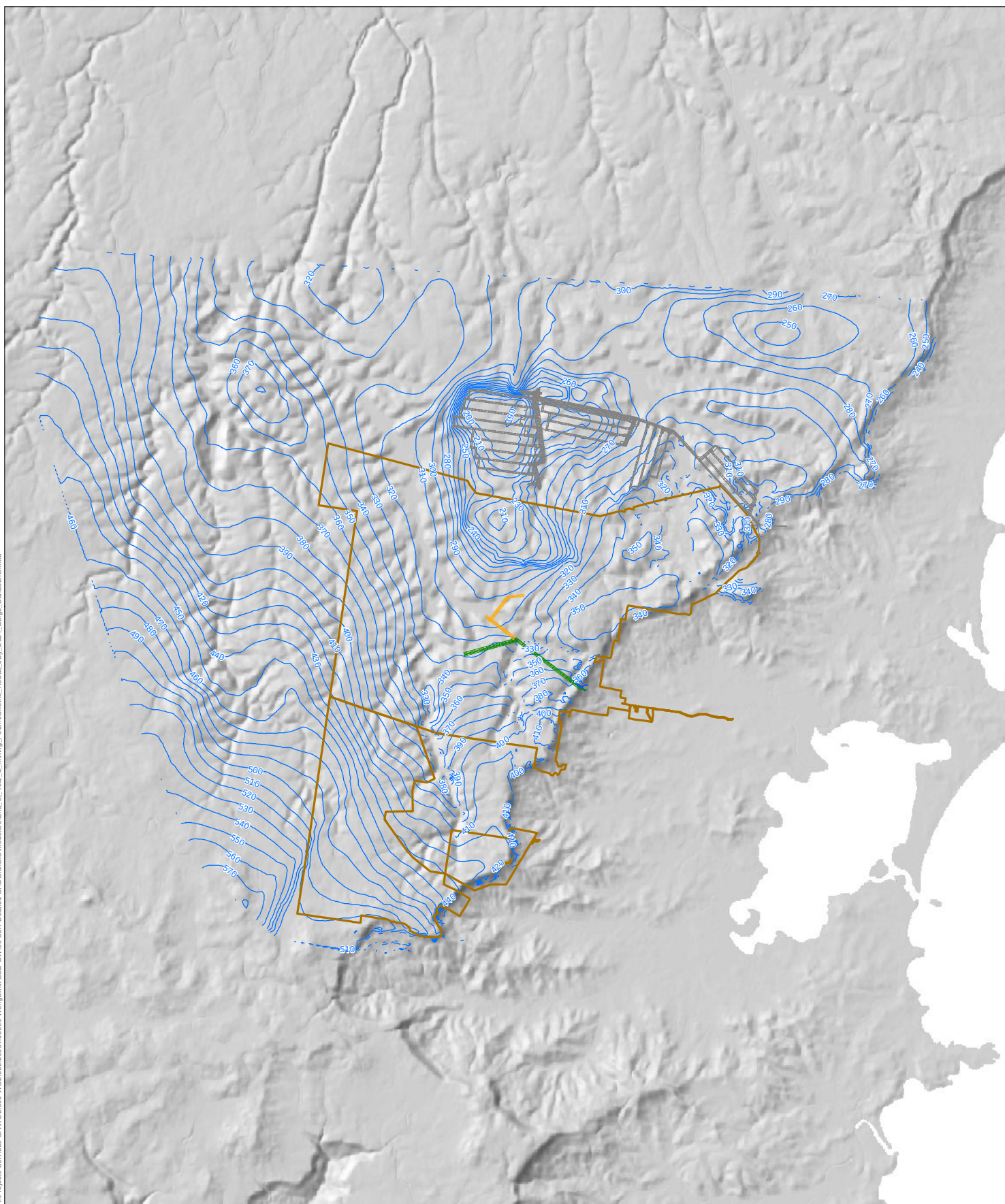
— Potentiometric Surface (mAHd)

GROUNDWATER IMPACT ASSESSMENT

End of Year 2 Mining - Potentiometric Heads - July 2023 - Bulgo Sandstone

C - 12

H:\Projects\SLR\660-Srv\WOL\660-WOL\660-2024\000000 Wongawilli SSD GW\06 SLR Data\01 CAD\GIS\GIS Modelled\End of Year 3 Mining Potentiometric Heads July 2024 Bulgo Sandstone.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

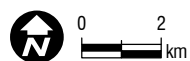
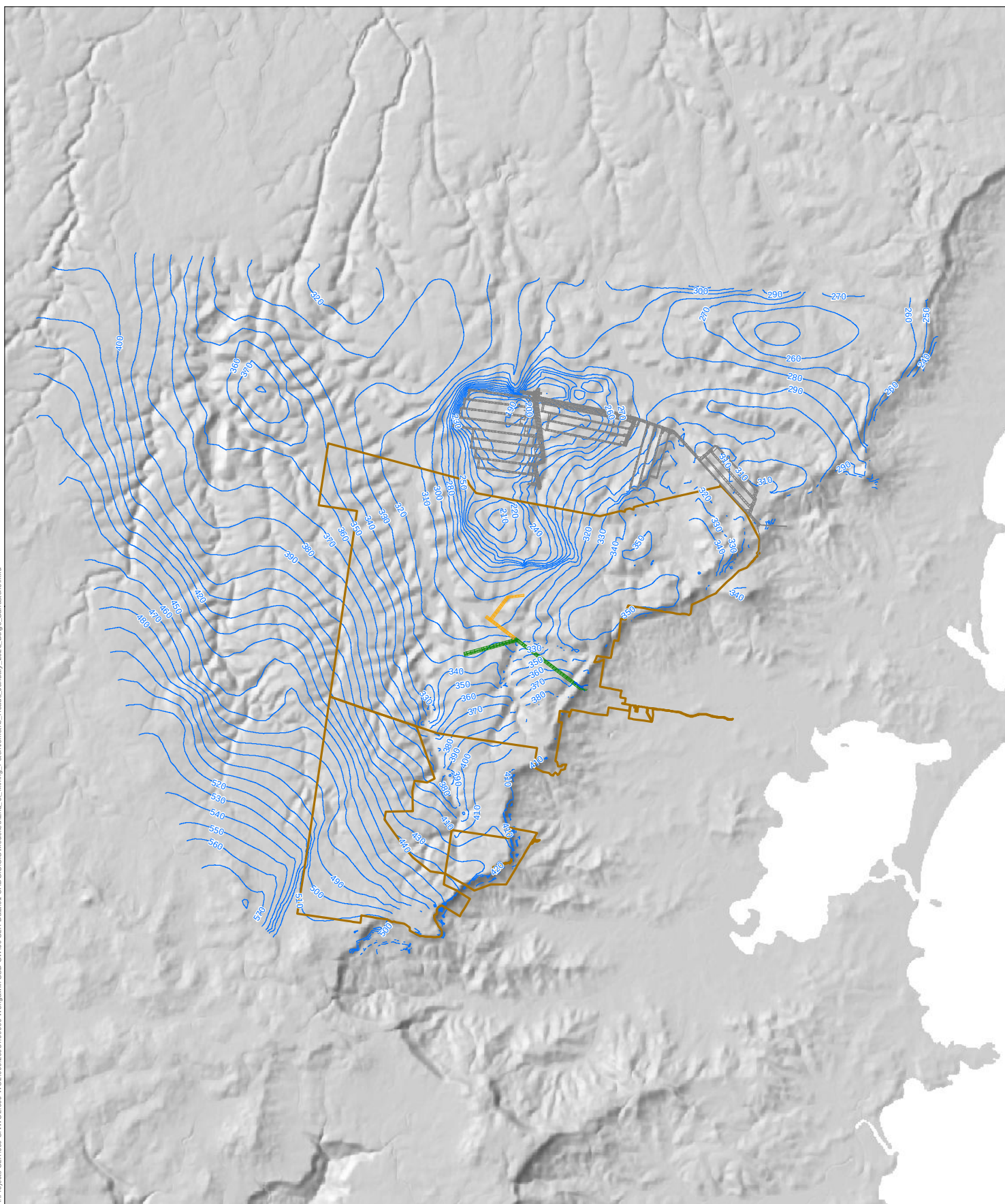
— Potentiometric Surface (mAHD)

GROUNDWATER IMPACT ASSESSMENT

End of Year 3 Mining - Potentiometric Heads - July 2024 - Bulgo Sandstone

C - 13

H:\Projects\SLR\660-Srv\WOL\660-WOL\660-2019-00000\Wongawilli SSD GW\06 SLR Data\01 CAD\GIS\GIS Modelled\End of Mining_Potentiometric_Heads_January_2025_Bulgo_Sandstone.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

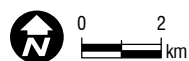
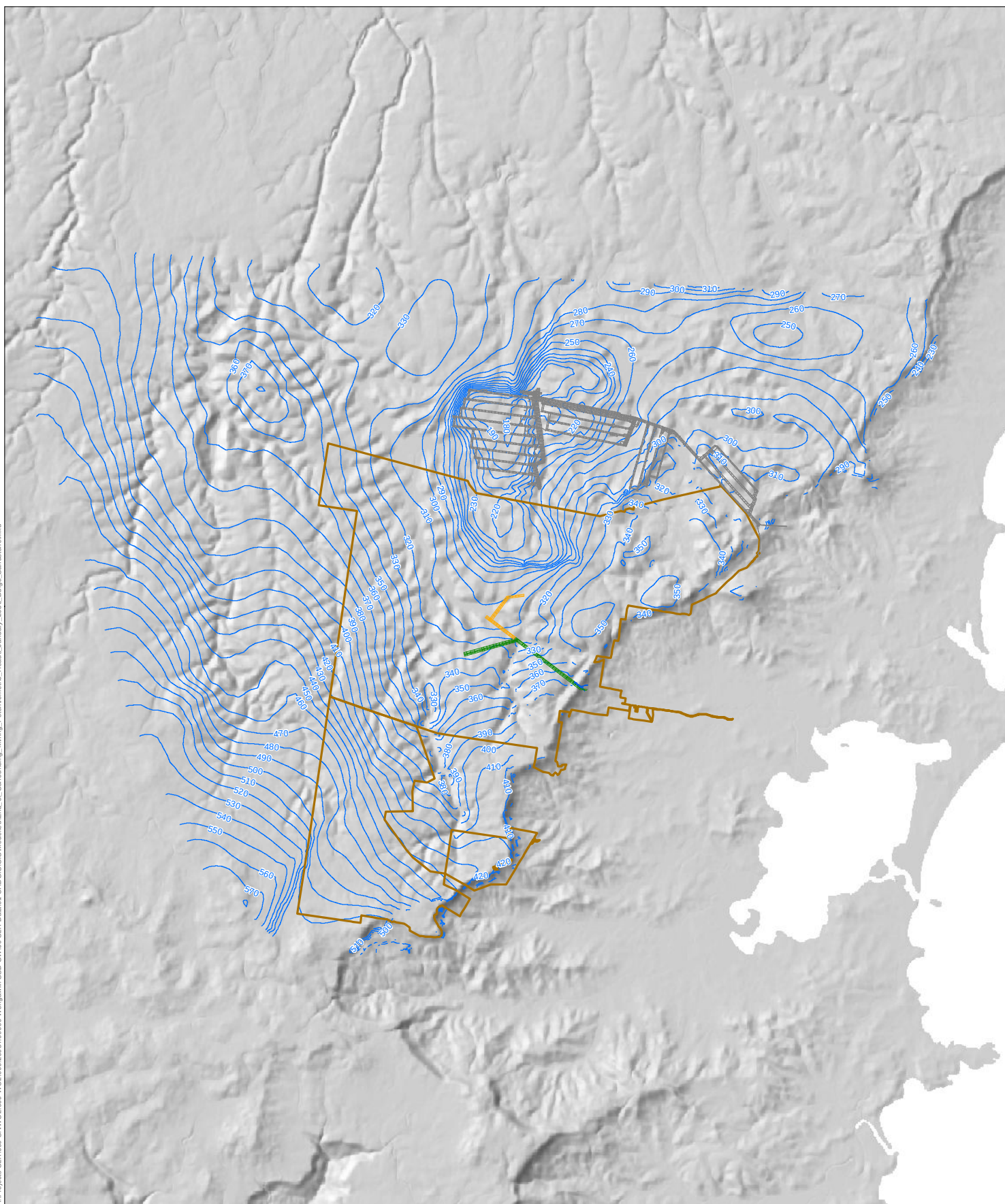
— Potentiometric Surface (mAHD)

GROUNDWATER IMPACT ASSESSMENT

End of Mining - Potentiometric Heads - January 2025 - Bulgo Sandstone

C - 14

H:\Projects\SLR\660-SwWOL\660-WOL\660-2019-000000\Wongawilli SSD GW\06 SLR Data\01 CAD\GIS\GIS Modelled\End of Surrounding Mining Potentiometric Heads January 2050 Bulgo Sandstone.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- ▭ Mining Lease

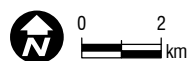
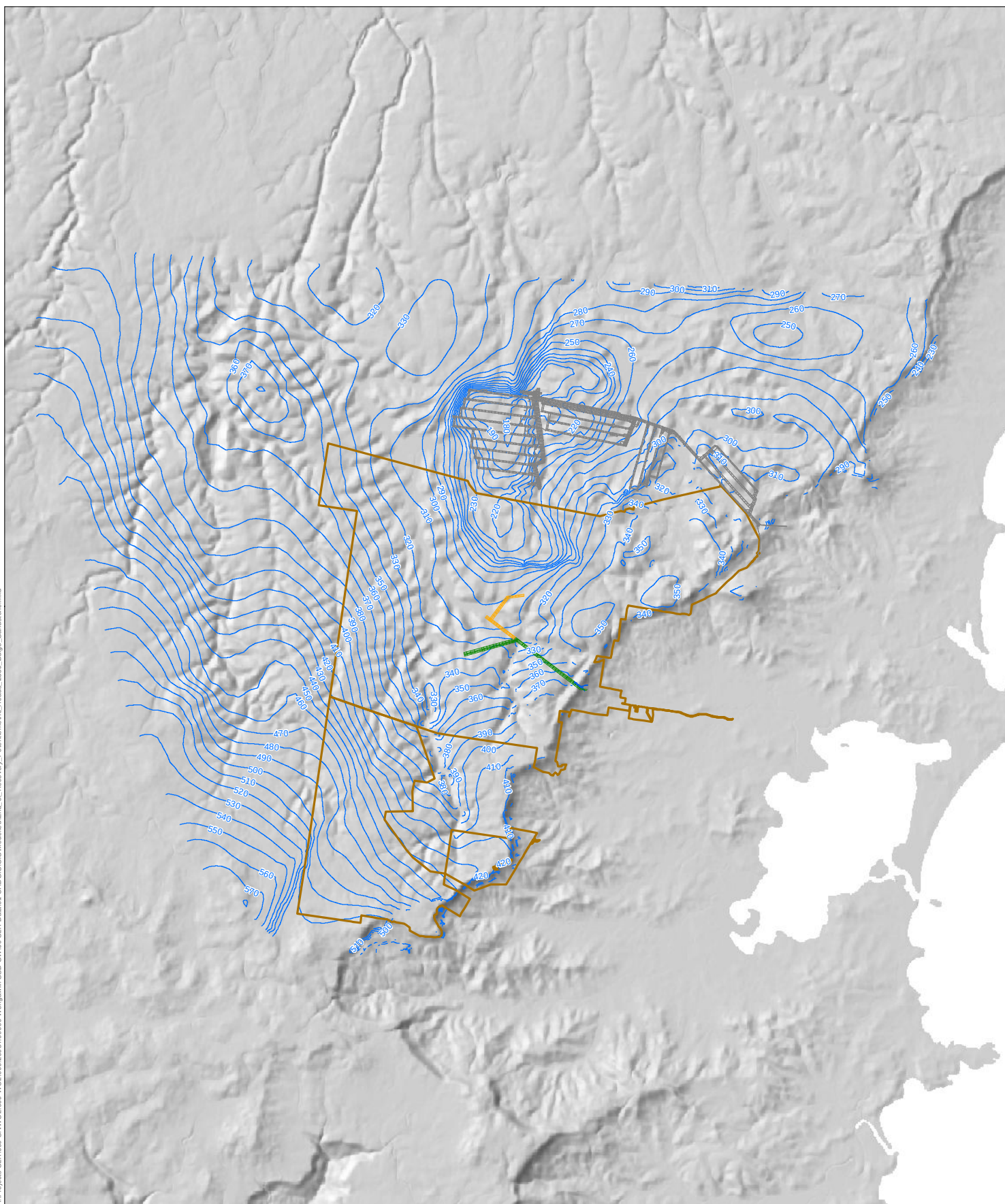
— Potentiometric Surface (mAHD)

GROUNDWATER IMPACT ASSESSMENT

End of Surrounding Mining - Potentiometric Heads - January 2050 - Bulgo Sandstone

C - 15

H:\Projects\SLR\660-Srv\WOL\660-WOL\660-2019-000000\Wongawilli SSD GW\06 SLR Data\01 CADGIS\GIS Modelled\End of Recovery_Potentiometric Heads_2550_Bulgo Sandstone.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

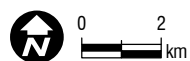
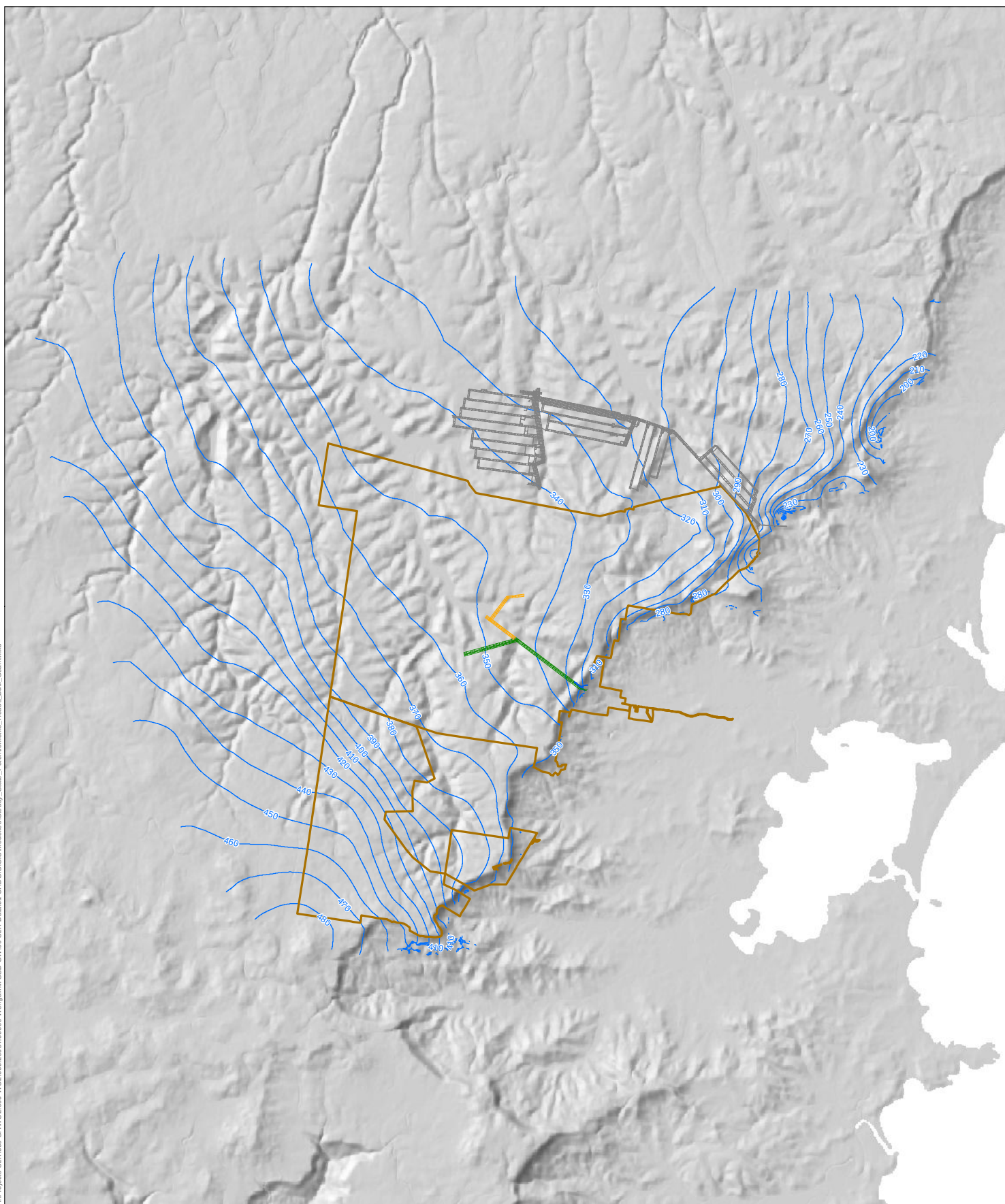
Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

GROUNDWATER IMPACT ASSESSMENT
End of Recovery - Potentiometric Heads - 2550 - Bulgo Sandstone
— Potentiometric Surface (mAHD)

H:\Projects\SLR\660-Srv\WOL\660-WOL\660-2019\000000\Wongawilli SSD GW\06 SLR Data\01 CAD\GIS\GIS Modelled\Steady State Potentiometric Heads.Bull Seam.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.:	660.20084.00000
Date:	10-Nov-2020
Drawn by:	AP
Sheet Size:	A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

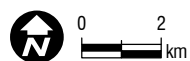
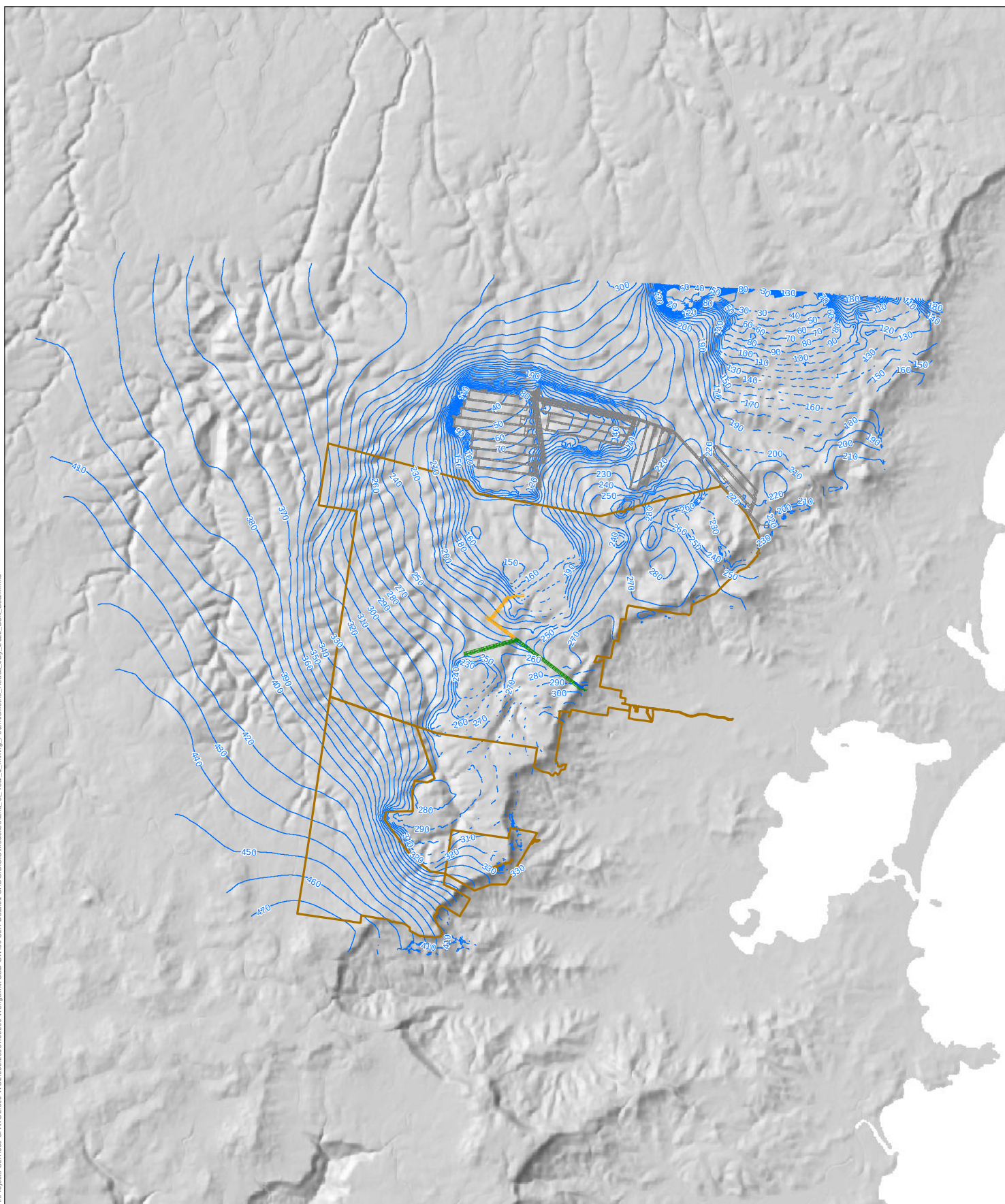
— Potentiometric Surface (mAHd)

GROUNDWATER IMPACT ASSESSMENT

Steady State - Potentiometric Heads - Bulli Seam

C - 17

H:\Projects\SLR\660-SwWOL\660-WOL\660-2020\660-00000\Wongawilli SSD GW106 SLR Data\01 CADGIS\GIS Modelled\End of Year 1 Mining Potentiometric Heads July 2022 Bulli Seam.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

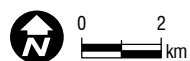
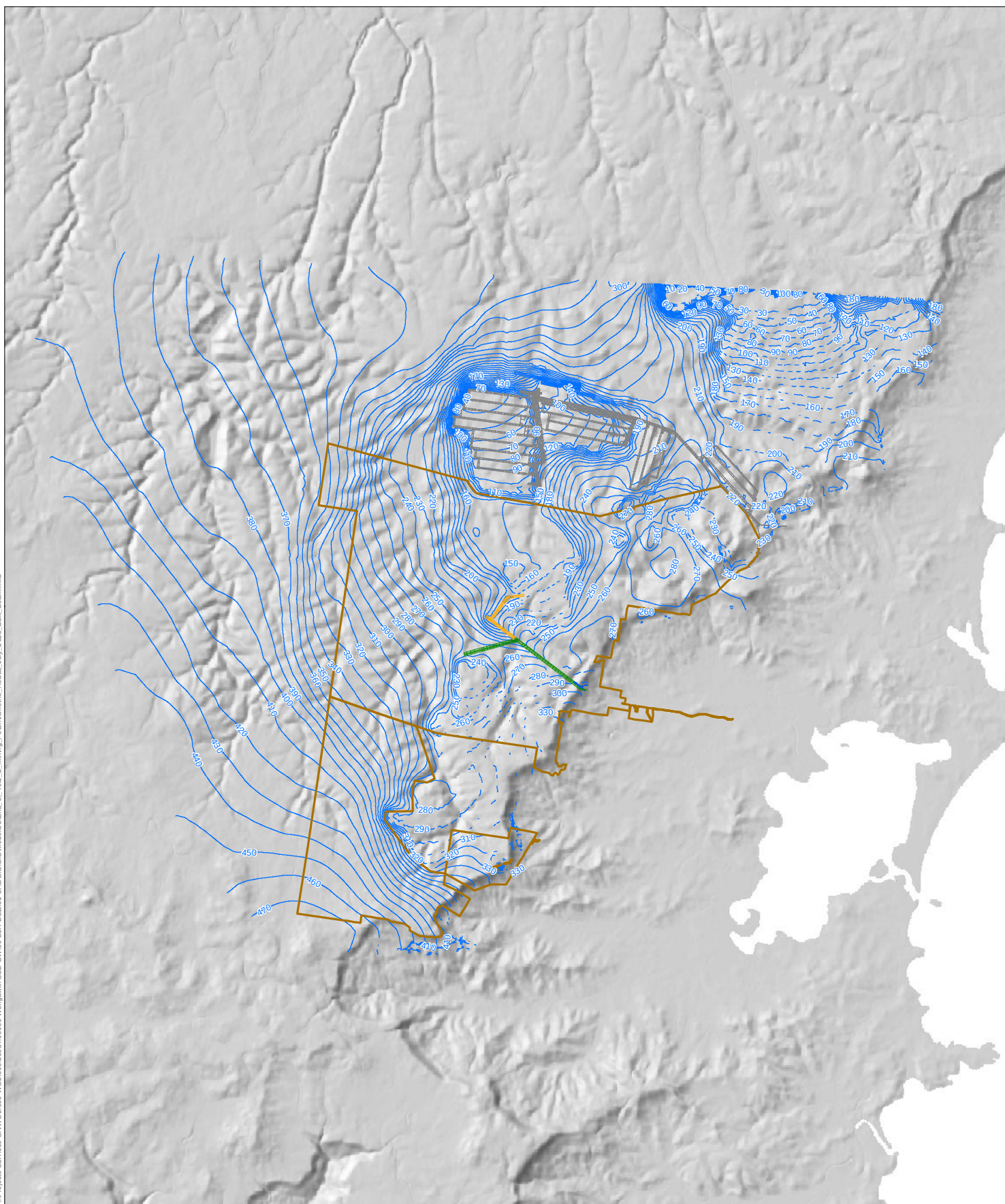
- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

GROUNDWATER IMPACT ASSESSMENT

End of Year 1 Mining - Potentiometric Heads - July 2022 - Bulli Seam

— Potentiometric Surface (mAHD)

H:\Projects\SLR\660-SwWOL\660-WOL\660-2024\000000 Wongawilli SSD GW06 SLR Data\01 CAD\GIS\GIS Modelled\End of Year 2 Mining Potentiometric Heads July 2023 Bulli Seam.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

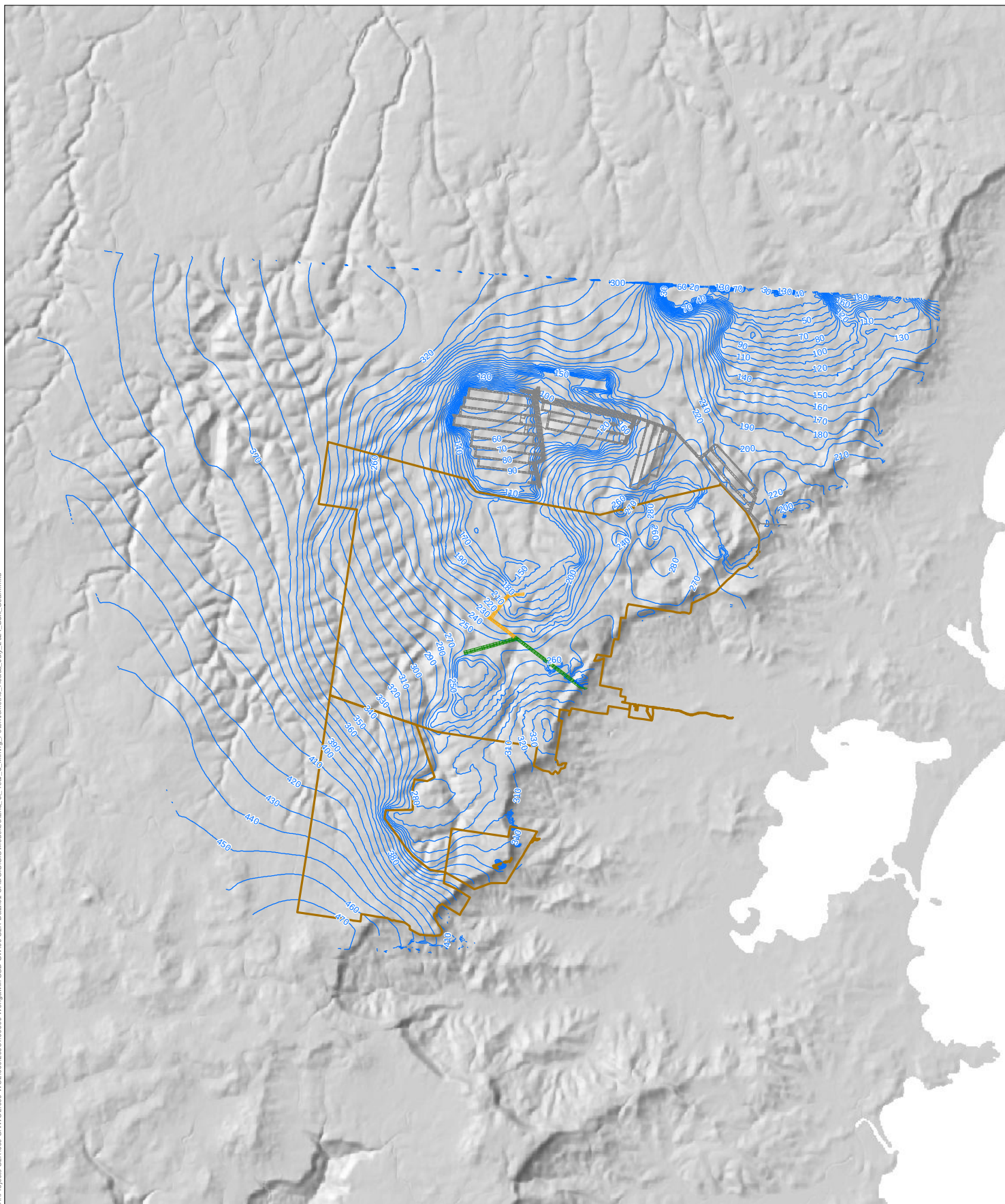
- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

GROUNDWATER IMPACT ASSESSMENT

End of Year 2 Mining - Potentiometric Heads - July 2023 - Bulli Seam

— Potentiometric Surface (mAHD)

H:\Projects\SLR\660-Srv\WOL\660-WOL\660-2024\00000 Wongawilli SSD GW\06 SLR Data\01 CAD\GIS\GIS Modelled\End of Year 3 Mining Potentiometric Heads July 2024 Bulli Seam.mxd



0 2
km

Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

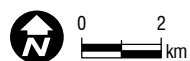
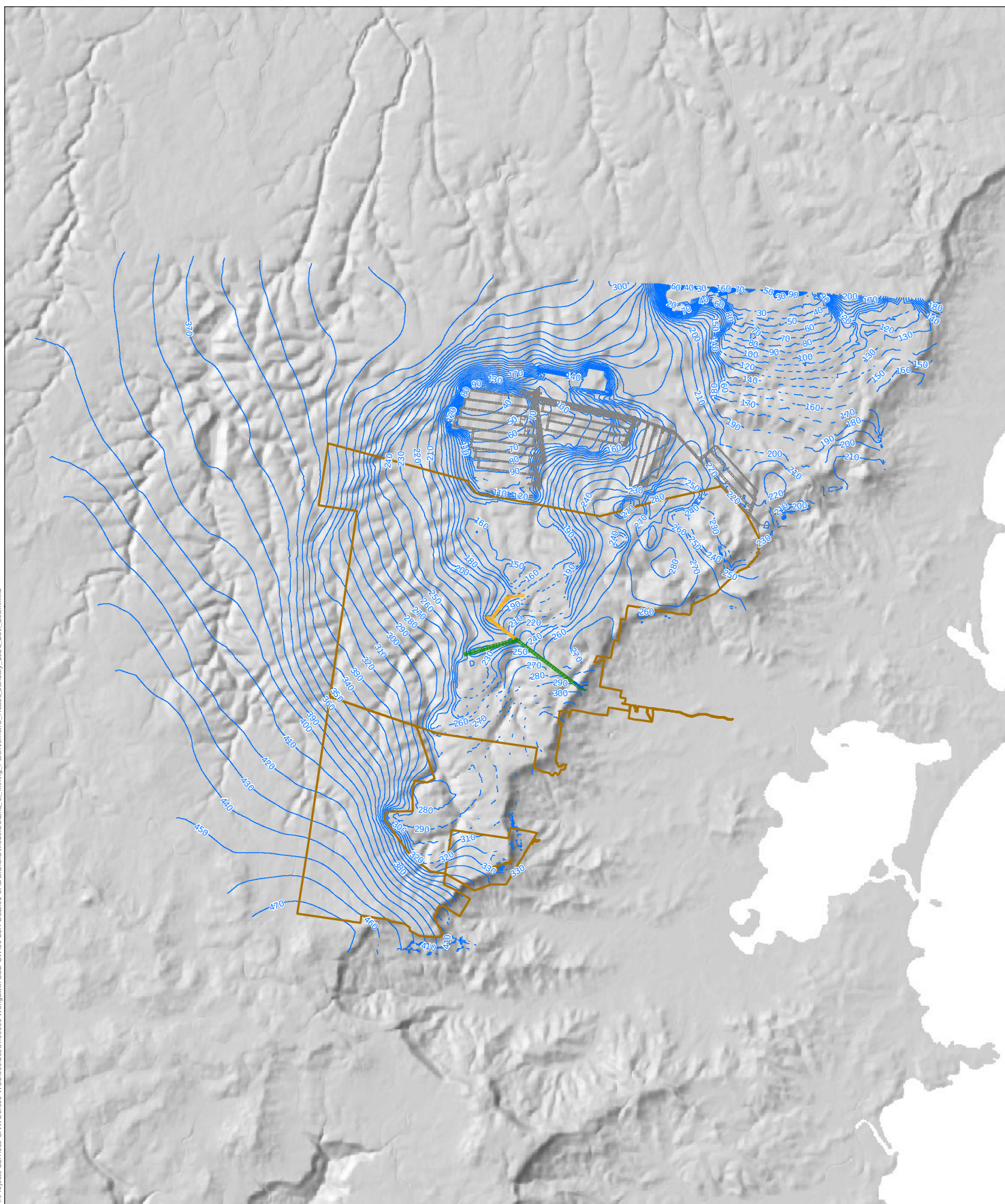
- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- ▭ Mining Lease

GROUNDWATER IMPACT ASSESSMENT

End of Year 3 Mining - Potentiometric Heads - July 2024 - Bulli Seam

— Potentiometric Surface (mAHD)

H:\Projects-SLR\660-SwWOL\660-WOL\660-2024\000000 Wongawilli SSD GW106 SLR Data\01 CADGIS\GIS Modelled\End of Mining_Potentiometric_Heads_January_2025_Bulll_Seam.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

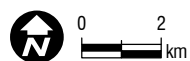
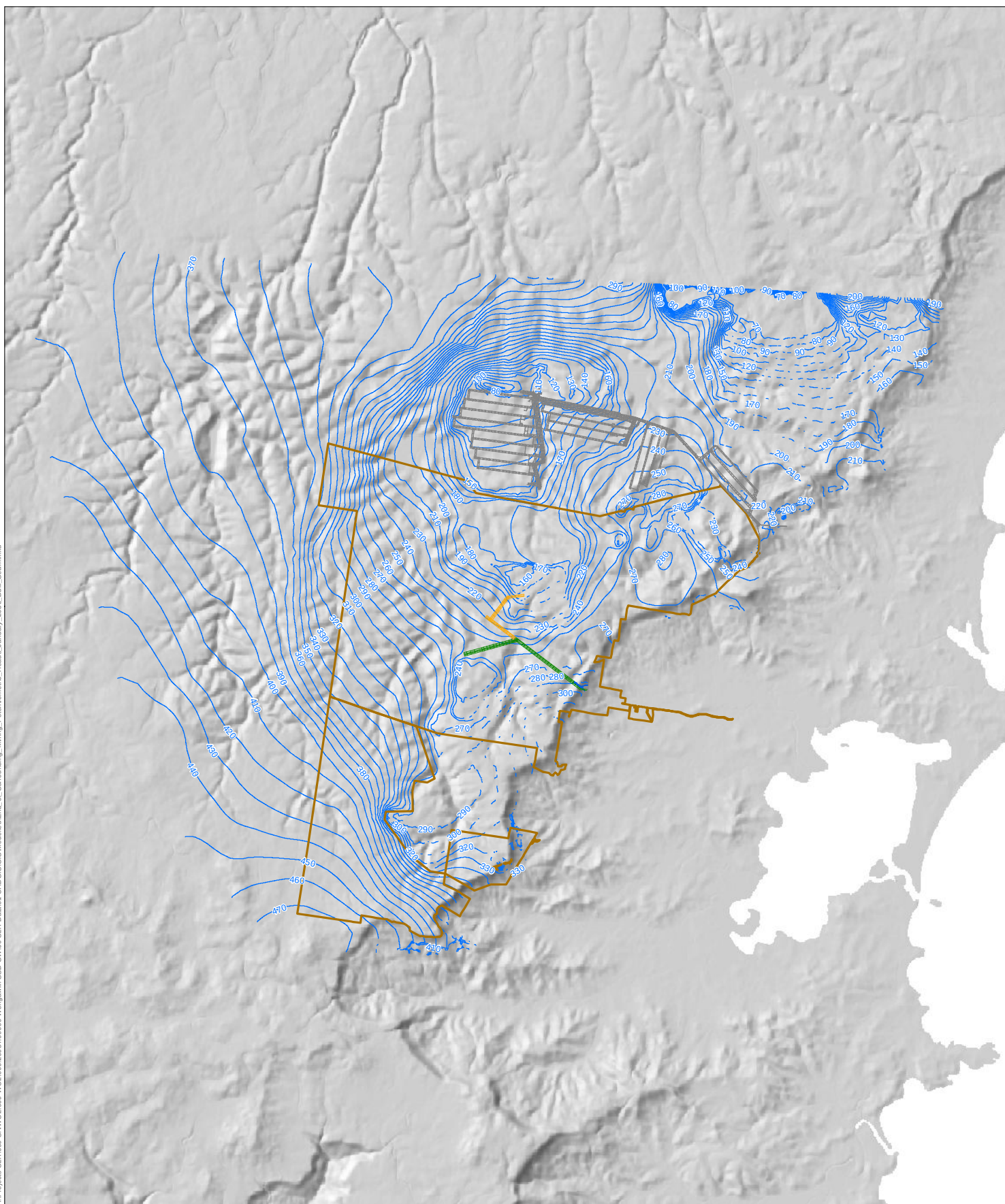
— Potentiometric Surface (mAHD)

GROUNDWATER IMPACT ASSESSMENT

End of Mining - Potentiometric Heads - January 2025 - Bulli Seam

C - 22

H:\Projects\SLR\660-SwWOL\660-WOL\660-2019-000000 Wongawilli SSD GW06 SLR Data\01 CADGIS\GIS Modelled\End of Surrounding Mining Potentiometric Heads January 2050 Bulli Seam.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

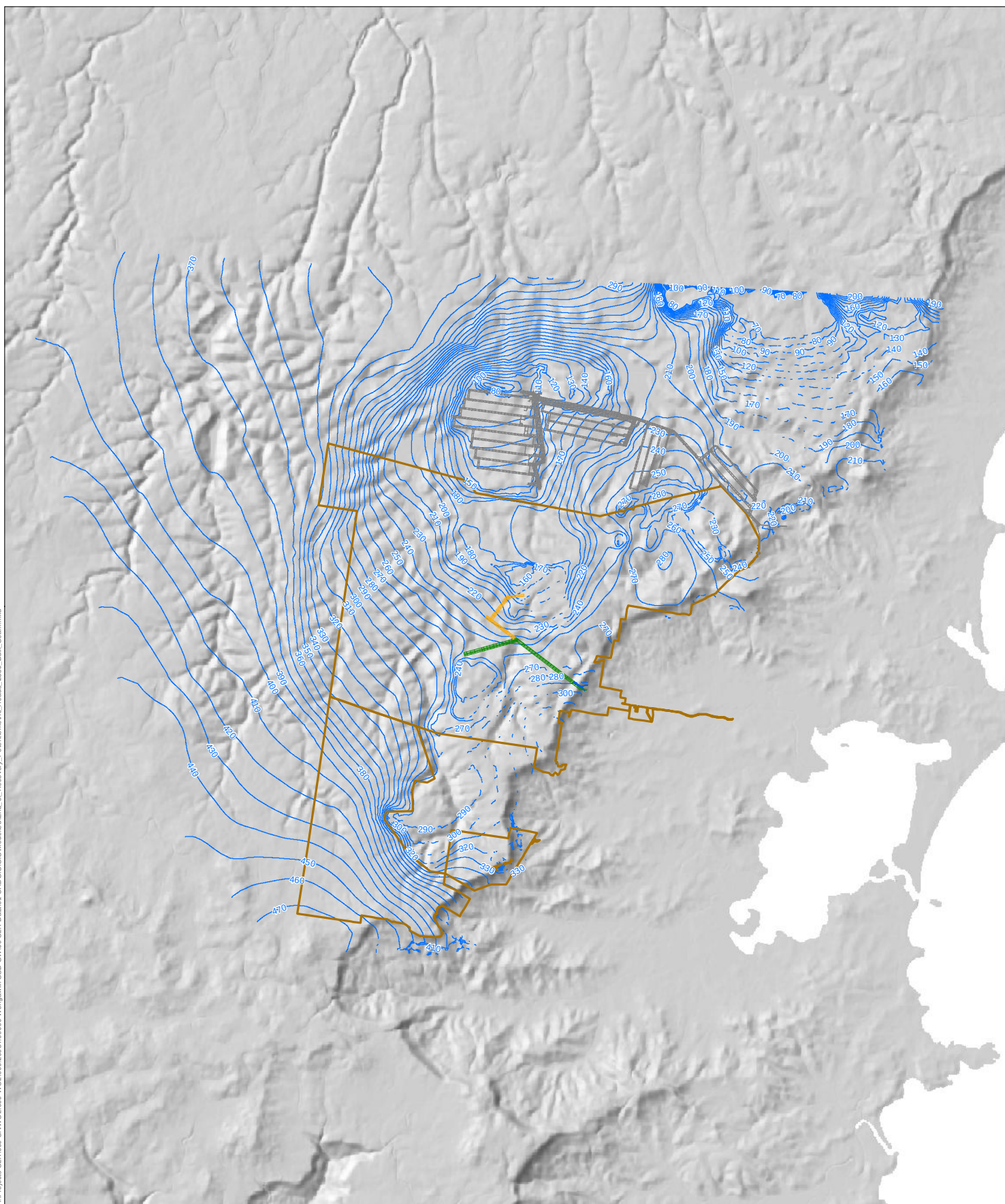
— Potentiometric Surface (mAHD)

GROUNDWATER IMPACT ASSESSMENT

End of Surrounding Mining - Potentiometric Heads - January 2050 - Bulli Seam

C - 23

H:\Projects\SLR\660-SwWOL\660-WOL\660-2019-000000\Wongawilli SSD GW\06 SLR Data\01 CADGIS\GIS Modelled\End of Recovery Potentiometric Heads_2550_Bulli_Seam.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

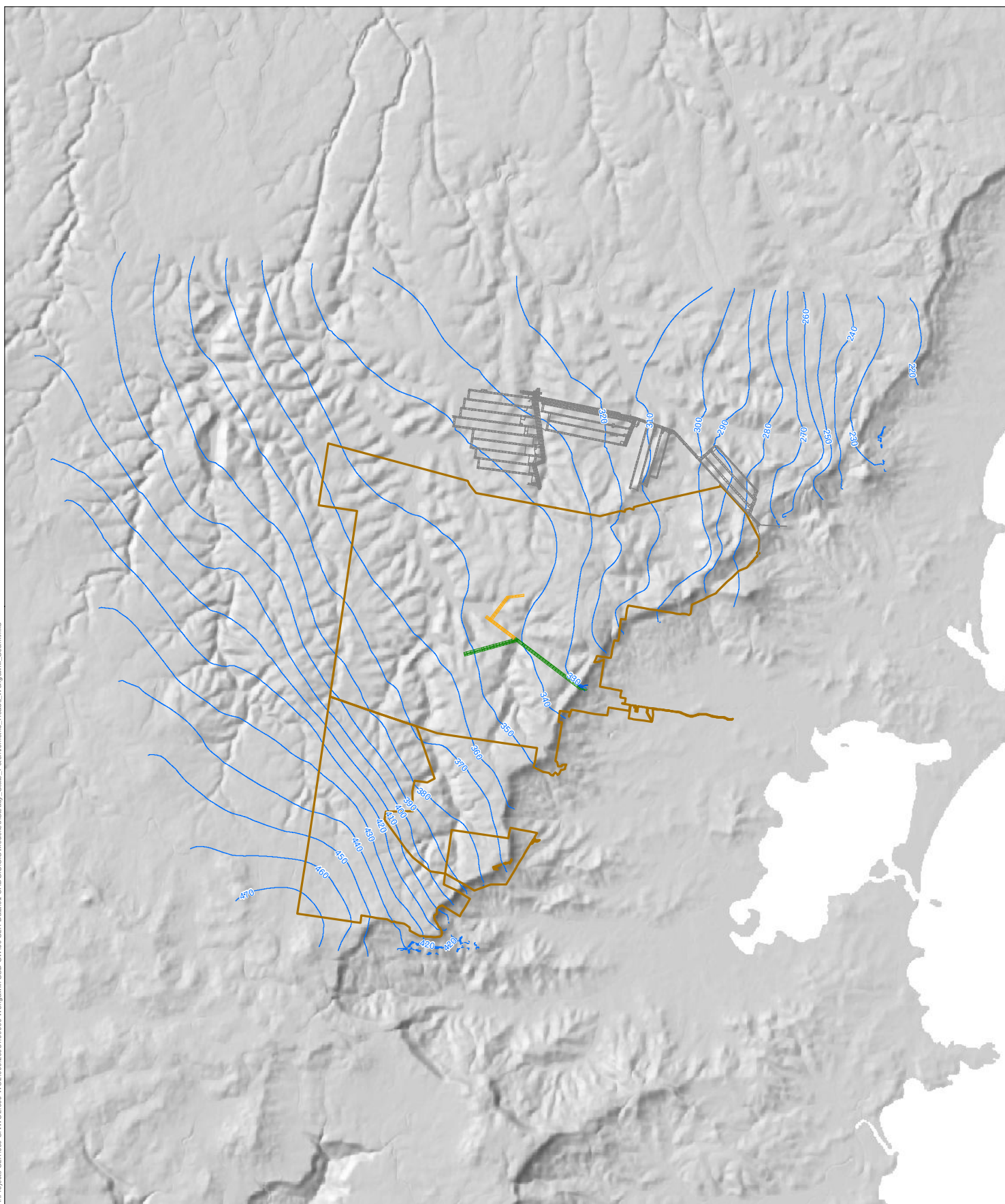
— Potentiometric Surface (mAHD)

GROUNDWATER IMPACT ASSESSMENT

End of Recovery - Potentiometric Heads - 2550 - Bulli Seam

C - 24

H:\Projects\SLR\660-Srv\WOL\660-WOL\660-2019\000000 Wongawilli SSD GW\06 SLR Data\01 CAD\GIS\GIS Modelled\Steady_State_Potentiometric_Heads_Wongawilli_Seam.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.:	660.20084.00000
Date:	10-Nov-2020
Drawn by:	AP
Sheet Size:	A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

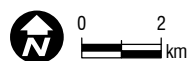
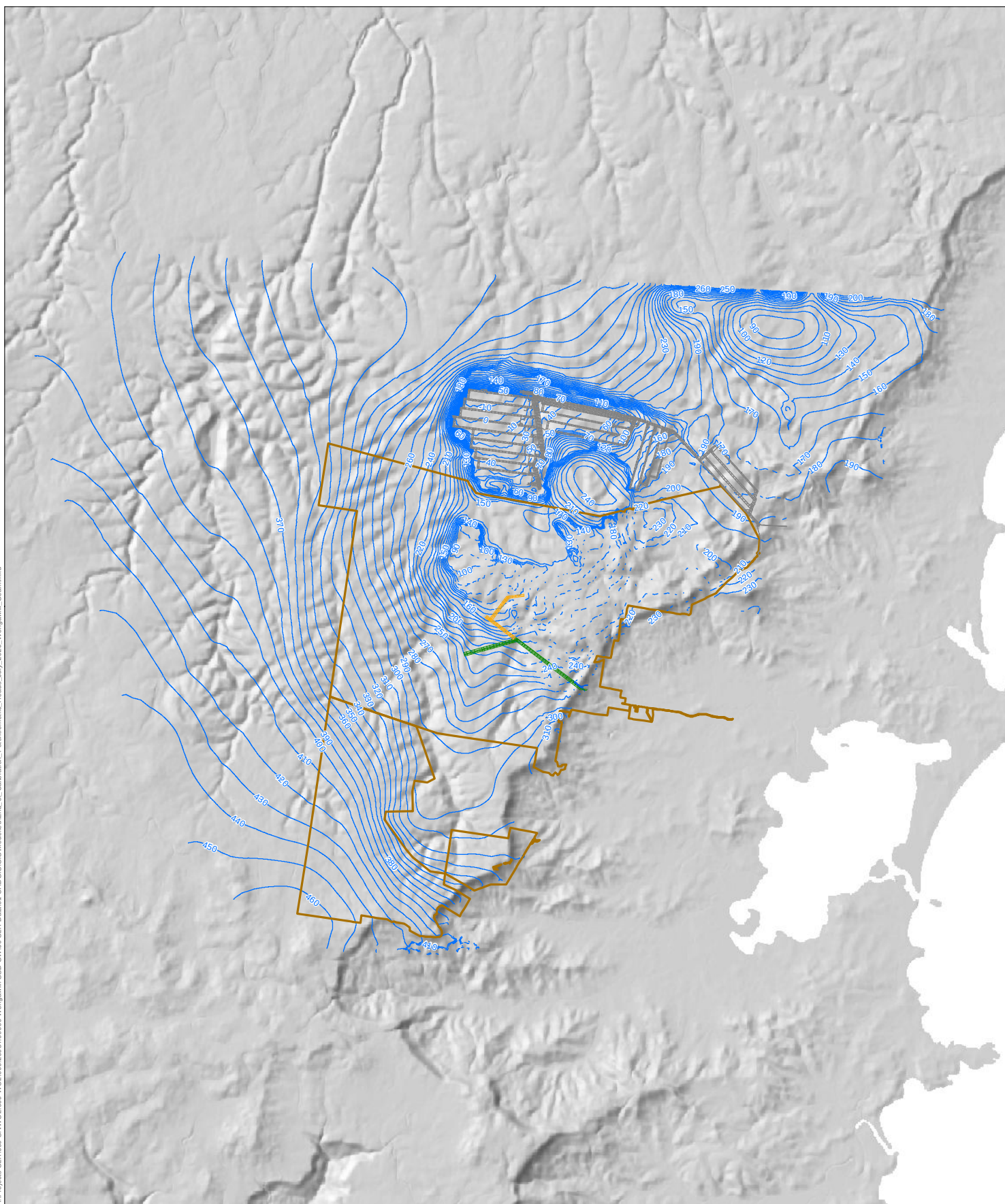
— Potentiometric Surface (mAHD)

GROUNDWATER IMPACT ASSESSMENT

Steady State - Potentiometric Heads - Wongawilli Seam

C - 25

H:\Projects\SLR\660-SwWOL\660-WOL\660-2020\660-00000 Wongawilli SSD GW\06 SLR Data\01 CAD\GIS\GIS Modelled\End of Calibration - Potentiometric Heads - July 2020 - Wongawilli Seam.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

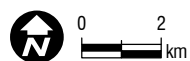
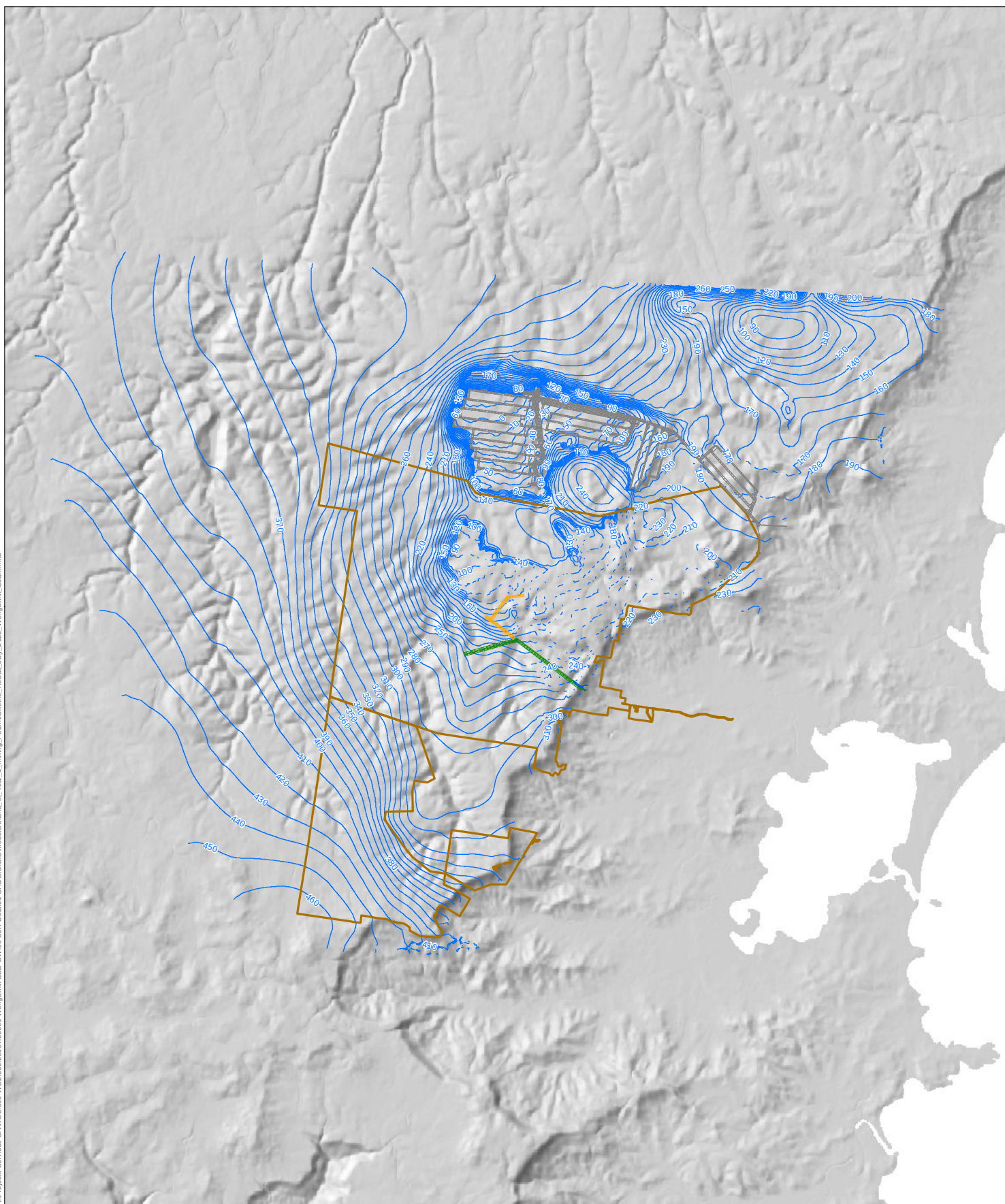
— Potentiometric Surface (mAHD)

GROUNDWATER IMPACT ASSESSMENT

End of Calibration - Potentiometric Heads - July 2020 - Wongawilli Seam

C - 26

H:\Projects\SLR\660-Srv\WOL\660-WOL\660-2020\660-00000 Wongawilli SSD GW106 SLR Data\01 CAD\GIS\GIS Modelled\End of Year 1 Mining Potentiometric Heads July 2022 Wongawilli Seam.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

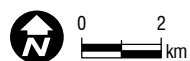
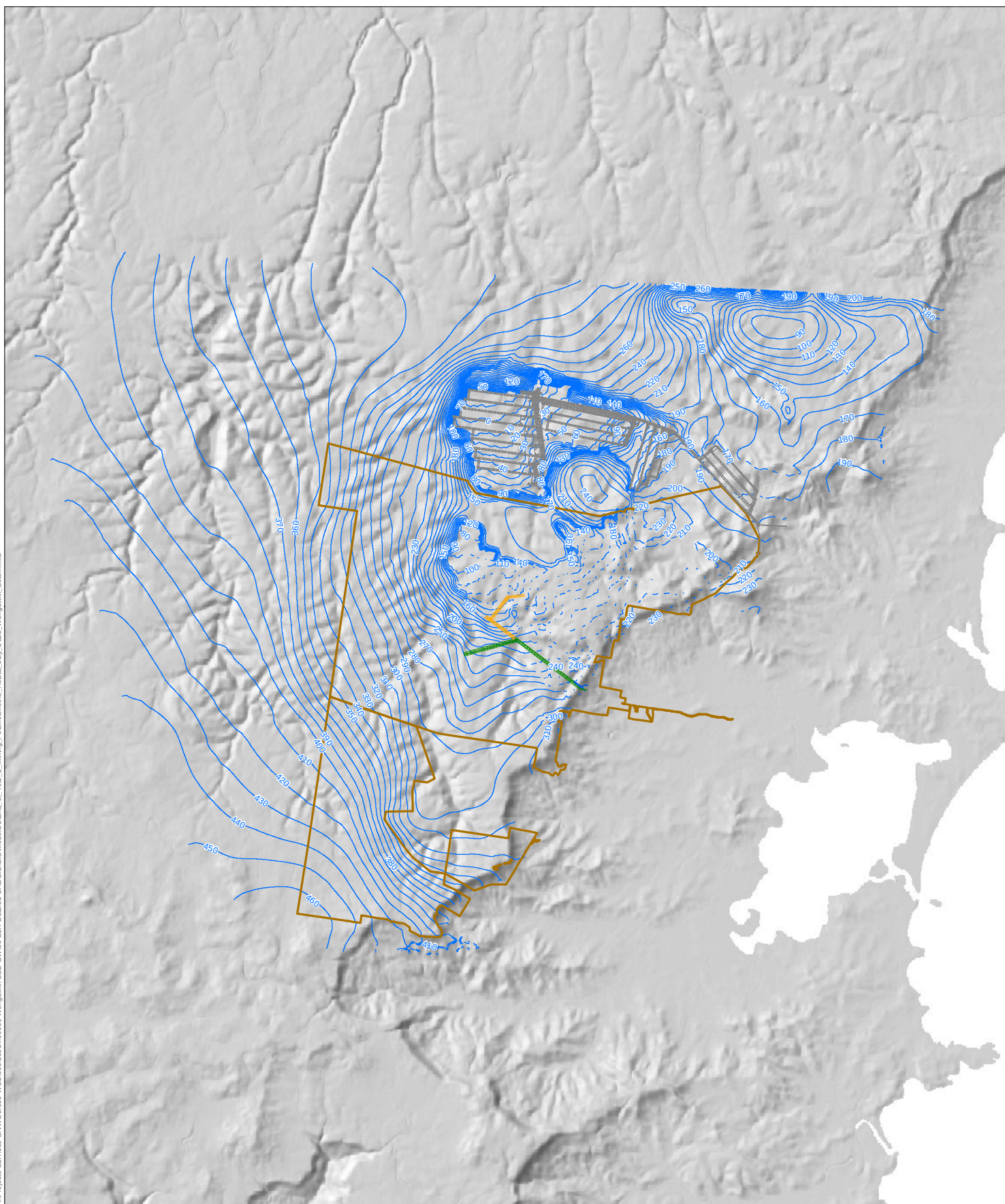
— Potentiometric Surface (mAHD)

GROUNDWATER IMPACT ASSESSMENT

End of Year 1 Mining - Potentiometric Heads - July 2022 - Wongawilli Seam

C - 27

H:\Projects-SLR\660-Srv\WOL\660-WOL\660-2020\660-00000 Wongawilli SSD GW06 SLR Data\01 CAD\GIS\GIS Modelled\End of Year 2 Mining Potentiometric Heads July 2023 Wongawilli Seam.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- ▭ Mining Lease

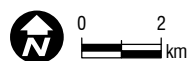
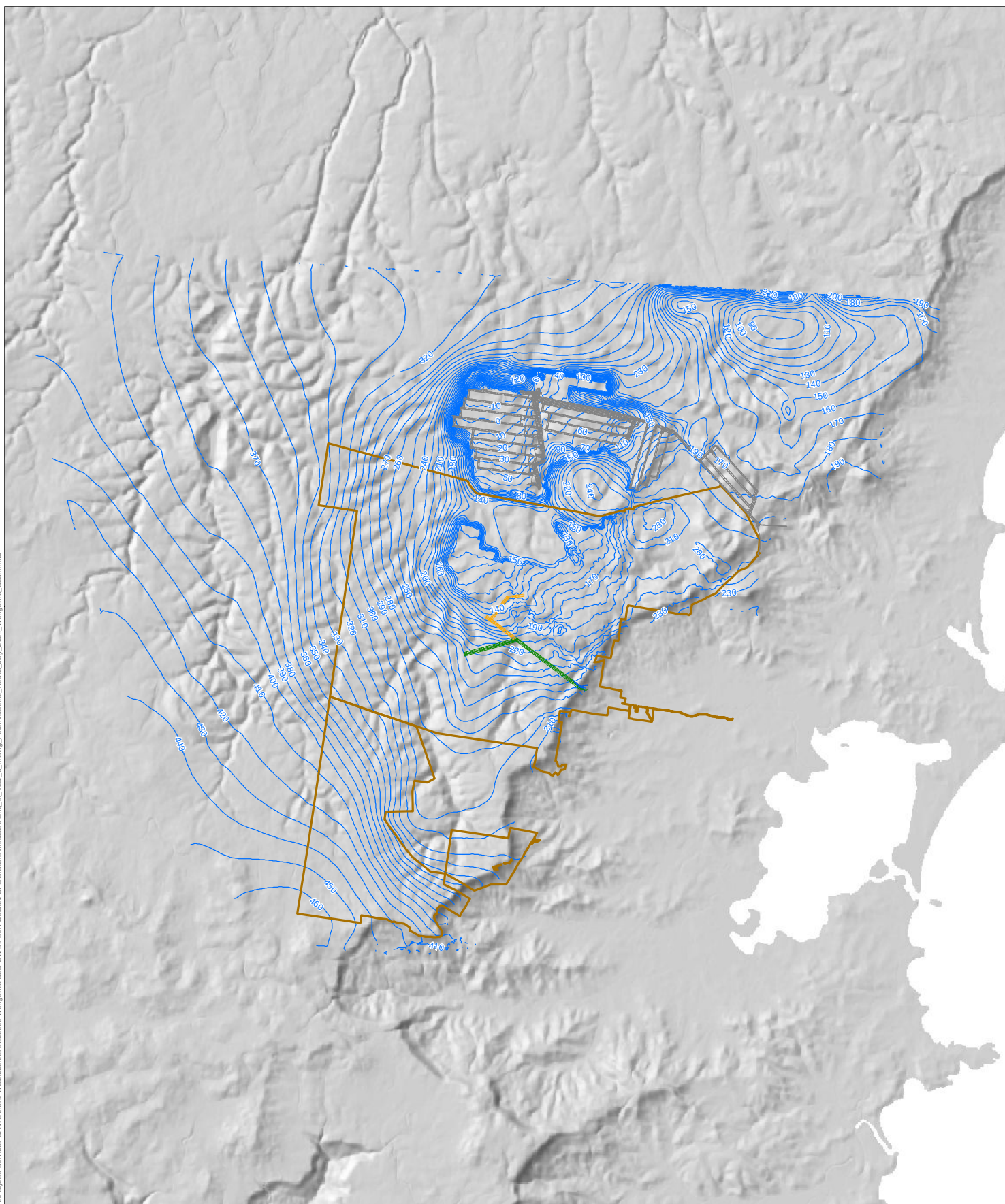
— Potentiometric Surface (mAHD)

GROUNDWATER IMPACT ASSESSMENT

End of Year 2 Mining - Potentiometric Heads - July 2023 - Wongawilli Seam

C - 28

H:\Projects\SLR\660-Srv\WOL\660-WOL\660-2024\00000 Wongawilli SSD GW\06 SLR Data\01 CAD\GIS\GIS Modelled\End of Year 3 Mining Potentiometric Heads July 2024 Wongawilli Seam.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- Mining Lease

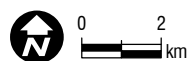
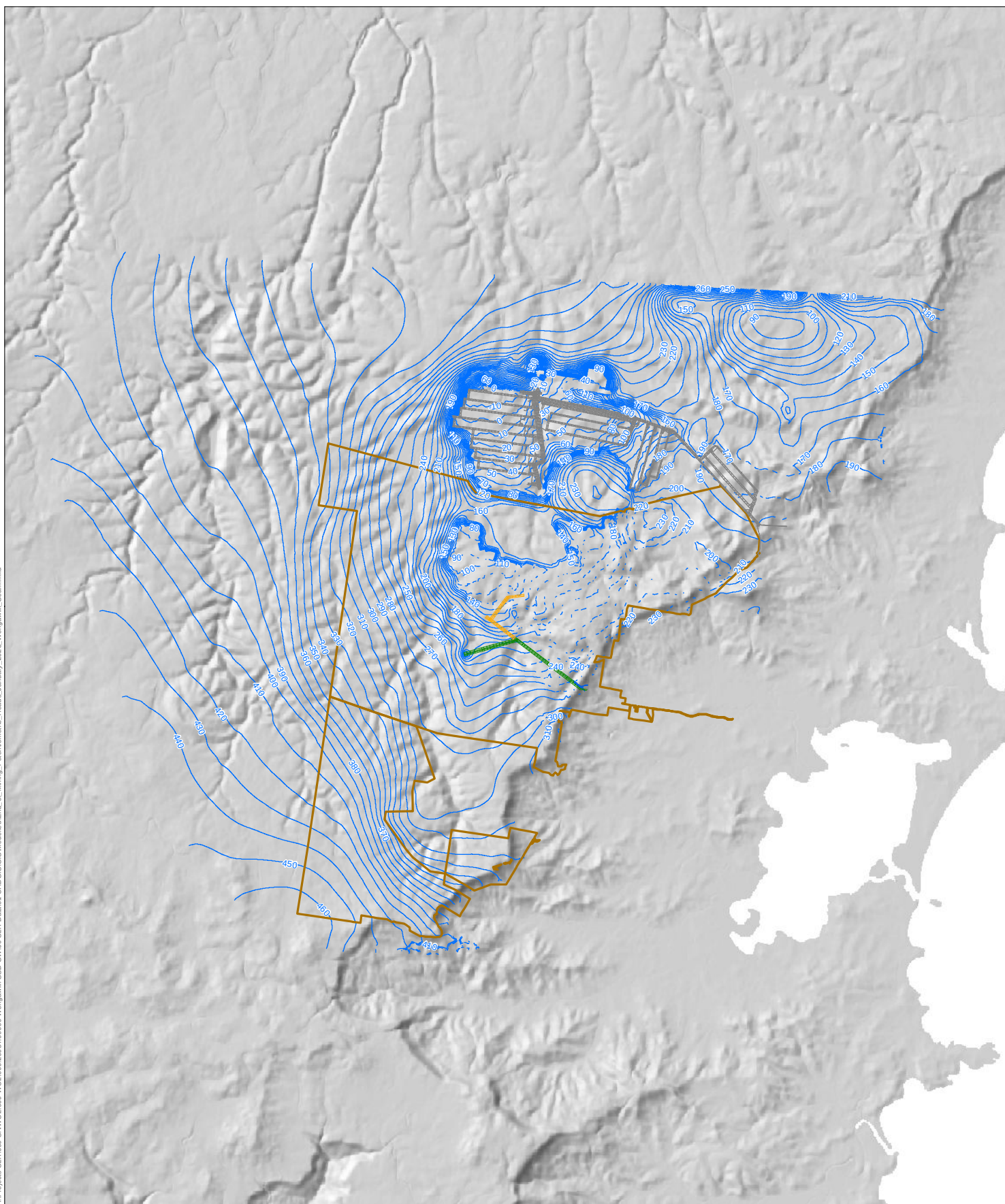
— Potentiometric Surface (mAHD)

GROUNDWATER IMPACT ASSESSMENT

End of Year 3 Mining - Potentiometric Heads - July 2024 - Wongawilli Seam

C - 29

H:\Projects\SLR\660-SwWOL\660-WOL\660-2024\00000 Wongawilli SSD GW06 SLR Data\01 CAD\GIS\GIS Modelled\End of Mining_Potentiometric Heads_January_2025_Wongawilli_Seam.mxd



Projection: GDA 1994 MGA Zone 56
Scale: 1:190,000

Project No.: 660.20084.00000
Date: 10-Nov-2020
Drawn by: AP
Sheet Size: A4

Legend

- Proposed workings
- Approved workings
- Dendrobium workings
- Current workings
- ▭ Mining Lease

— Potentiometric Surface (mAHD)

GROUNDWATER IMPACT ASSESSMENT

End of Mining - Potentiometric Heads - January 2025 - Wongawilli Seam

C - 30



