

- GEOLOGY LEGEND -

- Qx - Quaternary Alluvial Sediments (Aquifer)
- Pmx - Permian Maules Creek Formation
- Pbr - Permian Boggabri Volcanics
- Crc - Carboniferous Rocky Creek Conglomerate

WATER BORE YIELDS (L/sec)

- 100 to 175
- 50 to 100
- 25 to 50
- 10 to 25
- 5 to 10
- 1 to 5
- 0.01 to 1

- LEGEND -

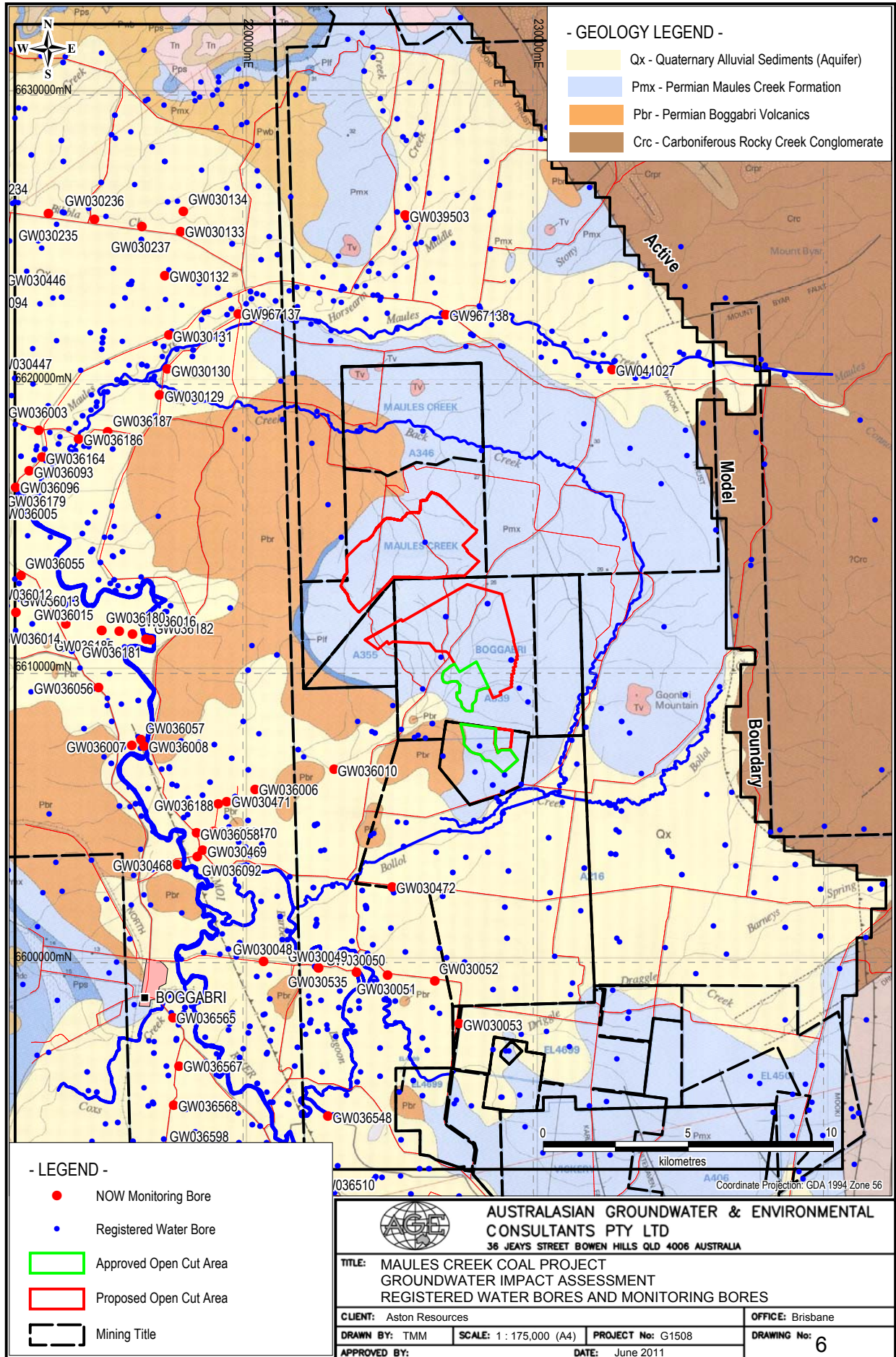
- Approved Open Cut Area
- Proposed Open Cut Area

AGE
AUSTRALASIAN GROUNDWATER & ENVIRONMENTAL CONSULTANTS PTY LTD
 36 JEAYS STREET BOWEN HILLS QLD 4006 AUSTRALIA

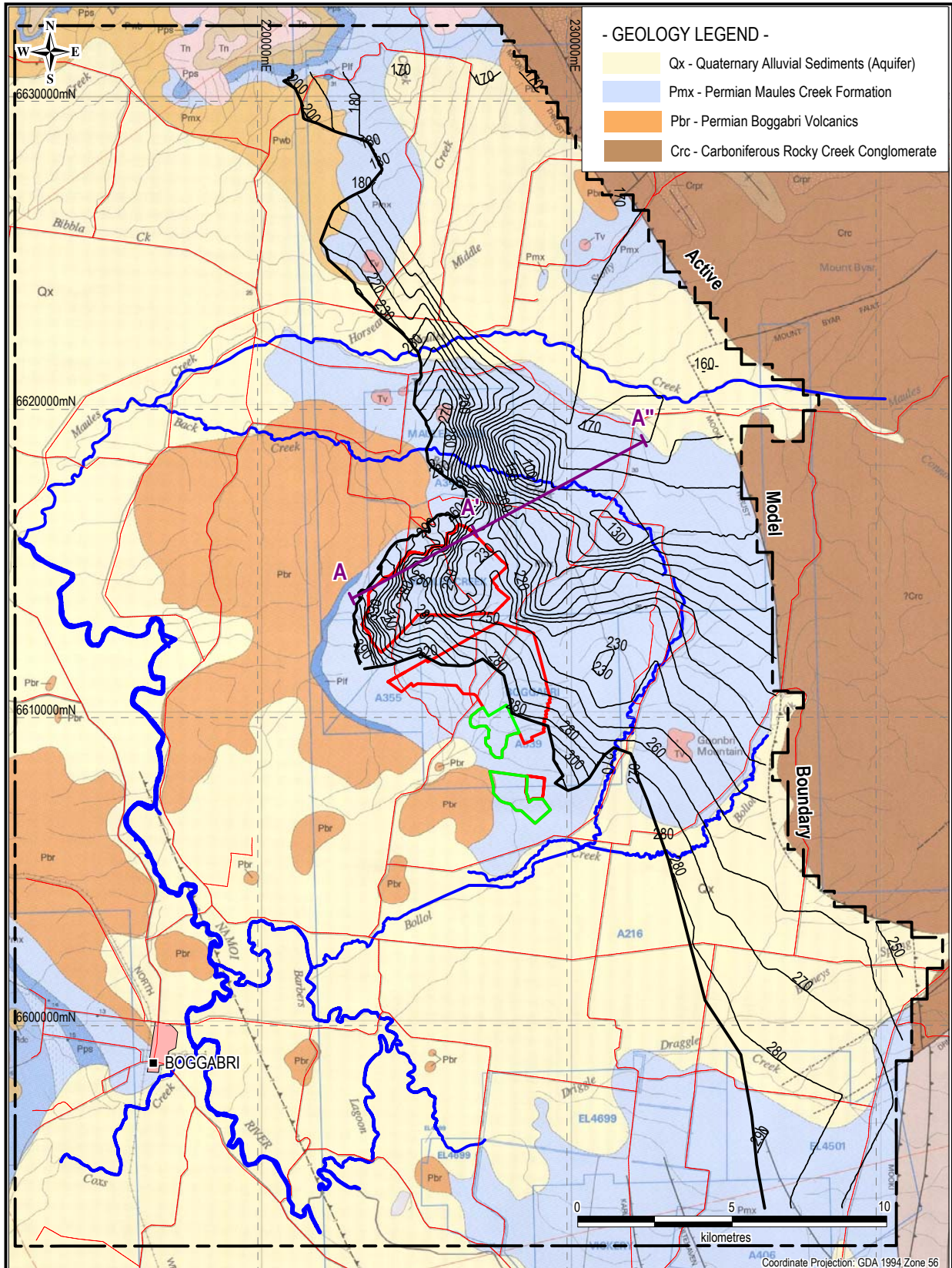
TITLE: MAULES CREEK COAL PROJECT
 GROUNDWATER IMPACT ASSESSMENT
 REGISTERED WATER BORES YIELDS

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| CLIENT: Aston Resources | PROJECT No: G1508 | OFFICE: Brisbane |
| DRAWN BY: TMM | SCALE: 1 : 175,000 (A4) | DRAWING No: 5 |
| APPROVED BY: _____ DATE: June 2011 | | |

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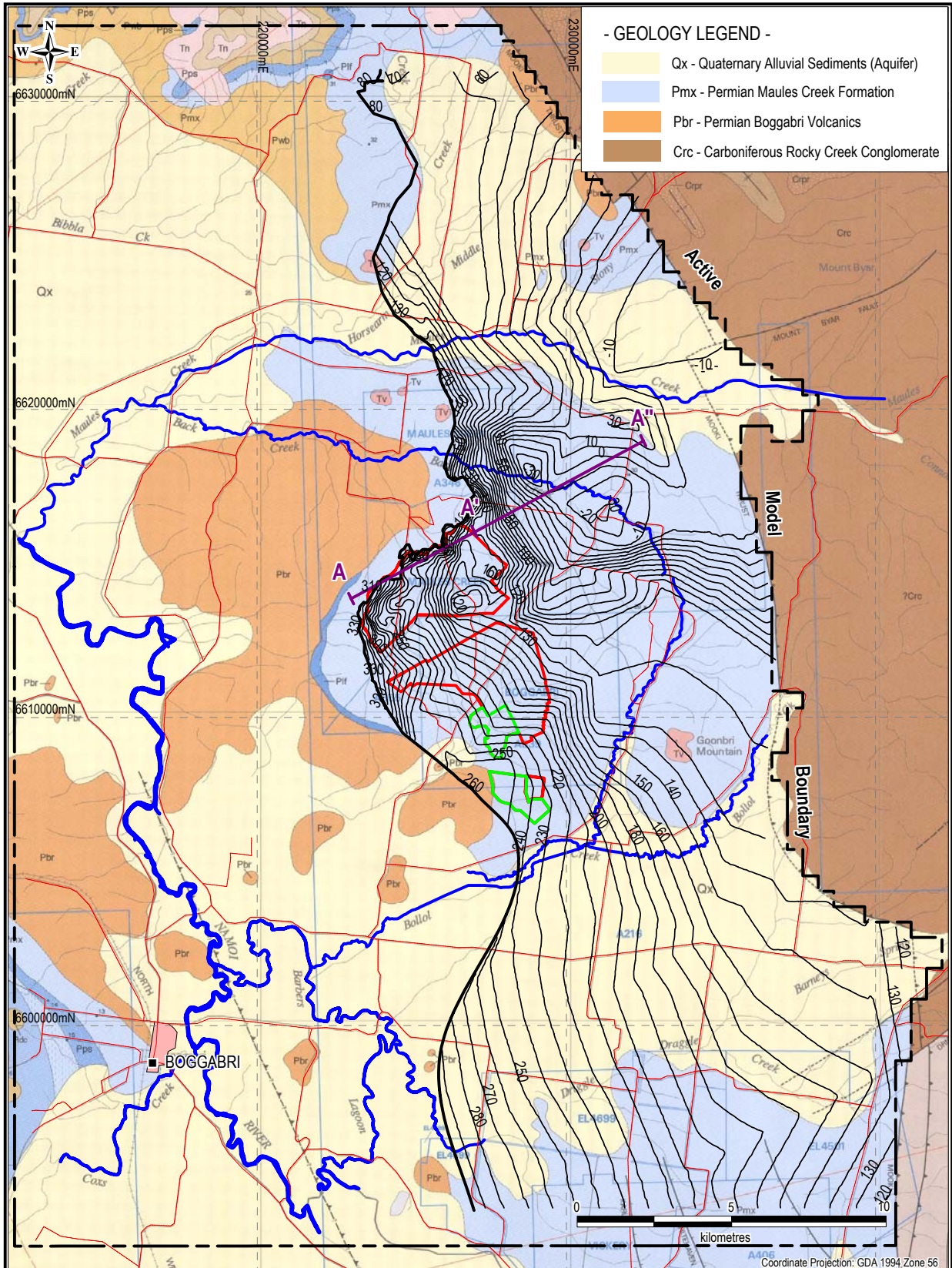


- LEGEND -

- Footprint Proposed Open Cut Mine
- Approved Open Cut Area
- Coal Seam Floor (mRL)
- Coal Seam Subcrop

| | | |
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| AUSTRALASIAN GROUNDWATER & ENVIRONMENTAL CONSULTANTS PTY LTD 36 JEAYS STREET BOWEN HILLS QLD 4006 AUSTRALIA | | |
| TITLE: MAULES CREEK COAL PROJECT GROUNDWATER IMPACT ASSESSMENT INTERPOLATED FLOOR ELEVATION BRAYMONT SEAM | | |
| CLIENT: Aston Resources | PROJECT No: G1508 | OFFICE: Brisbane |
| DRAWN BY: TMM | SCALE: 1 : 175,000 (A4) | DRAWING No: 7 |
| APPROVED BY: | DATE: June 2011 | |

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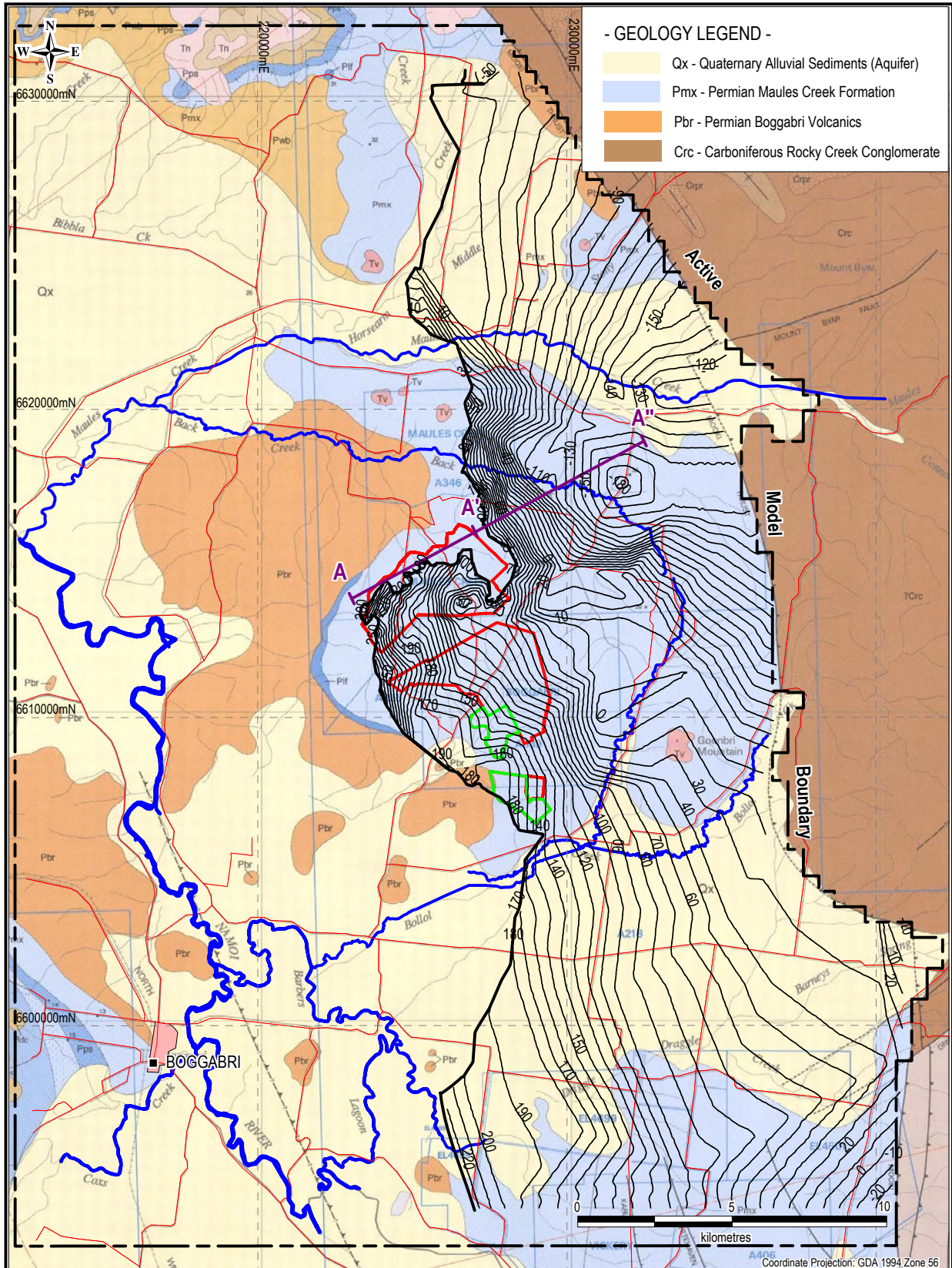


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- LEGEND -

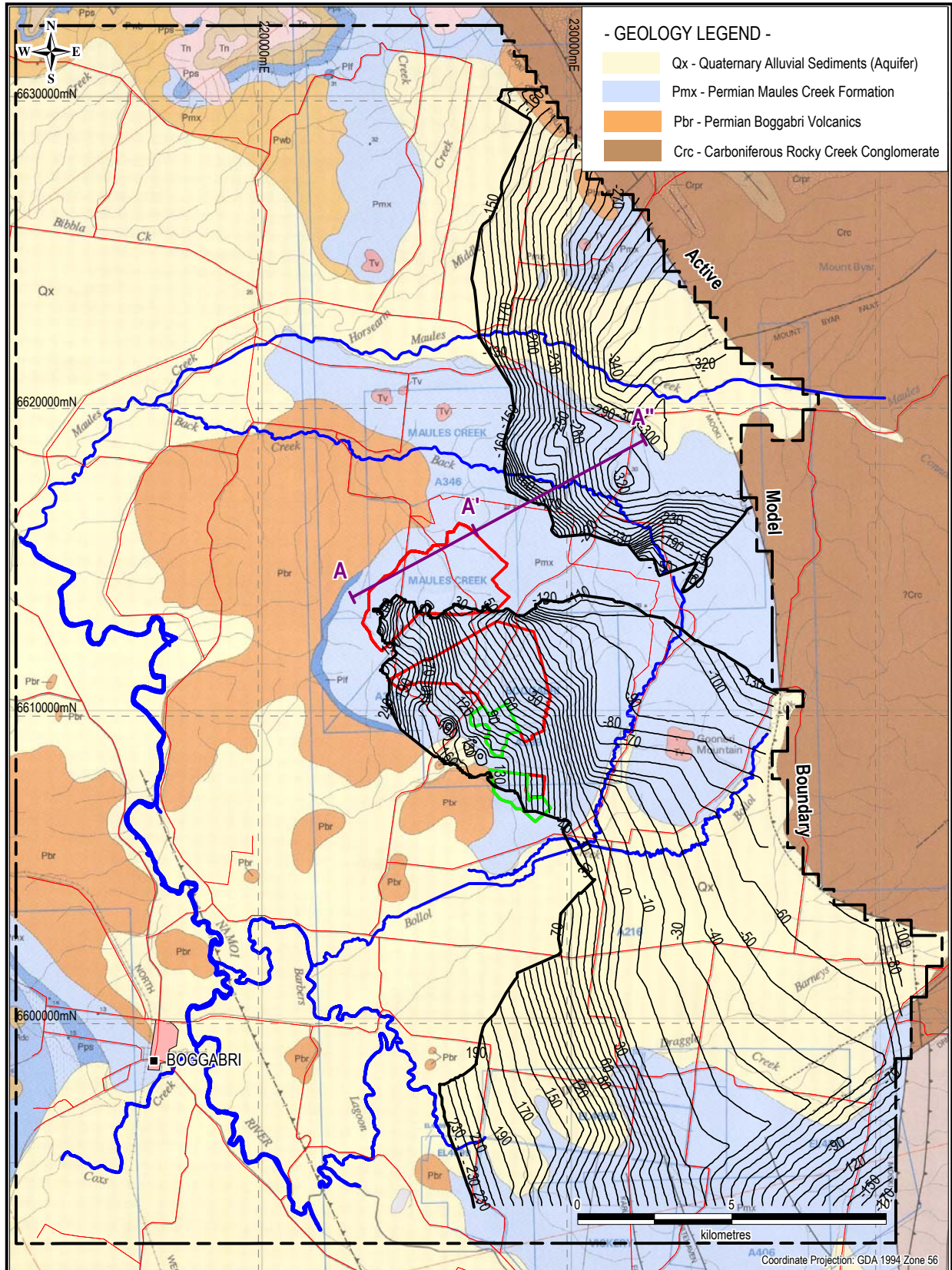
- Footprint Proposed Open Cut Mine
- Approved Open Cut Area
- Coal Seam Floor (mRL)
- Coal Seam Subcrop

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| AUSTRALASIAN GROUNDWATER & ENVIRONMENTAL CONSULTANTS PTY LTD 36 JEAYS STREET BOWEN HILLS QLD 4006 AUSTRALIA | | |
| TITLE: MAULES CREEK COAL PROJECT GROUNDWATER IMPACT ASSESSMENT INTERPOLATED FLOOR ELEVATION VELYAMA SEAM | | |
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| APPROVED BY: | | DATE: June 2011 |



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| AUSTRALASIAN GROUNDWATER & ENVIRONMENTAL CONSULTANTS PTY LTD 36 JEAYS STREET BOWEN HILLS QLD 4006 AUSTRALIA | | |
| TITLE: MAULES CREEK COAL PROJECT GROUNDWATER IMPACT ASSESSMENT INTERPOLATED FLOOR ELEVATION FLIXTON SEAM | | |
| CLIENT: Aston Resources | PROJECT No: G1508 | OFFICE: Brisbane |
| DRAWN BY: TMM | SCALE: 1 : 175,000 (A4) | DRAWING No: 9 |
| APPROVED BY: | DATE: June 2011 | |



- GEOLOGY LEGEND -**
- Qx - Quaternary Alluvial Sediments (Aquifer)
 - Pmx - Permian Maules Creek Formation
 - Pbr - Permian Boggabri Volcanics
 - Crc - Carboniferous Rocky Creek Conglomerate

- LEGEND -**
- Footprint Proposed Open Cut Mine
 - Approved Open Cut Area
 - Coal Seam Floor (mRL)
 - Coal Seam Subcrop



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 36 JEAYS STREET BOWEN HILLS QLD 4006 AUSTRALIA

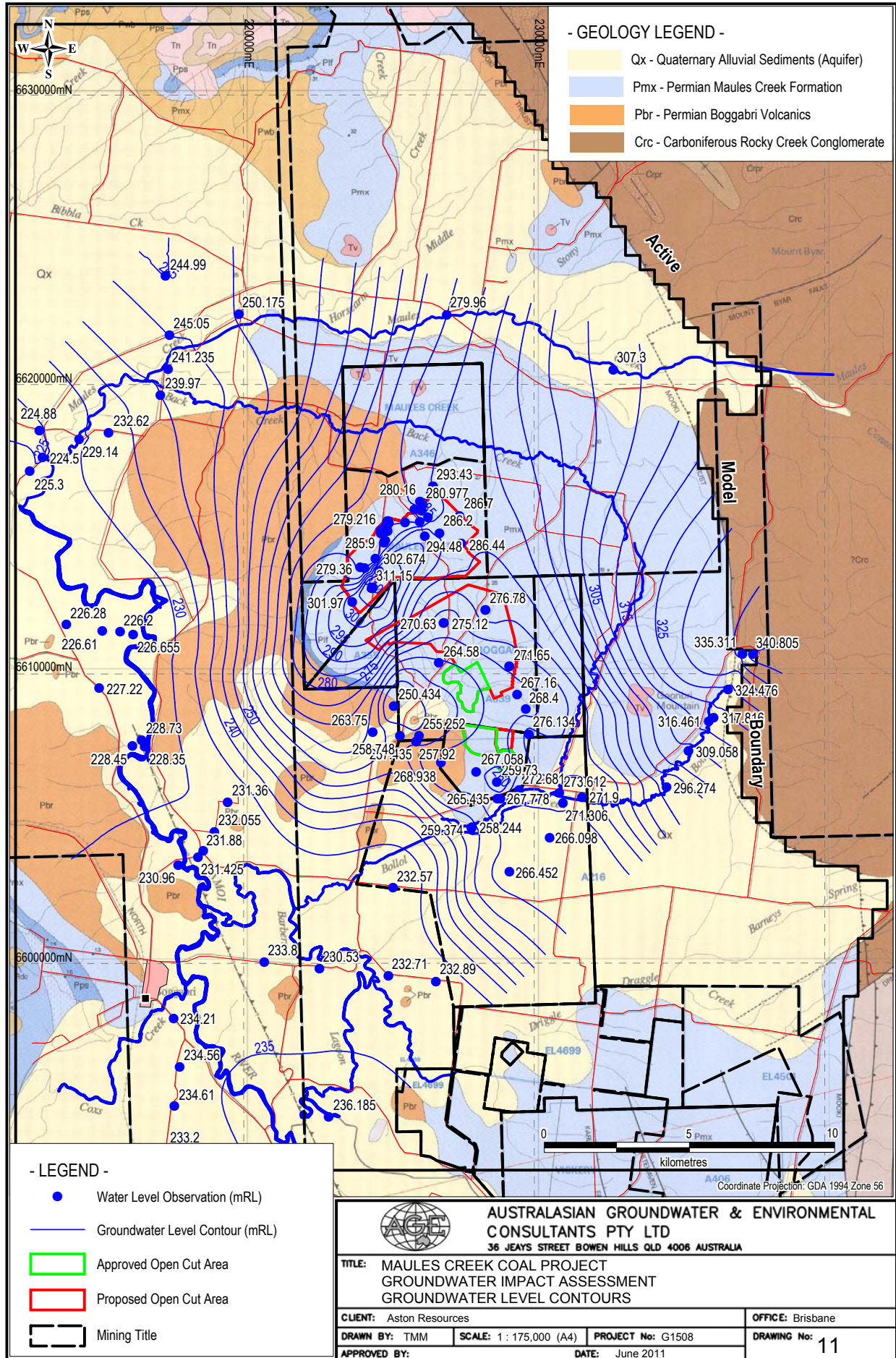
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 GROUNDWATER IMPACT ASSESSMENT
 INTERPOLATED FLOOR ELEVATION TEMPLEMORE SEAM**

CLIENT: Aston Resources **OFFICE:** Brisbane

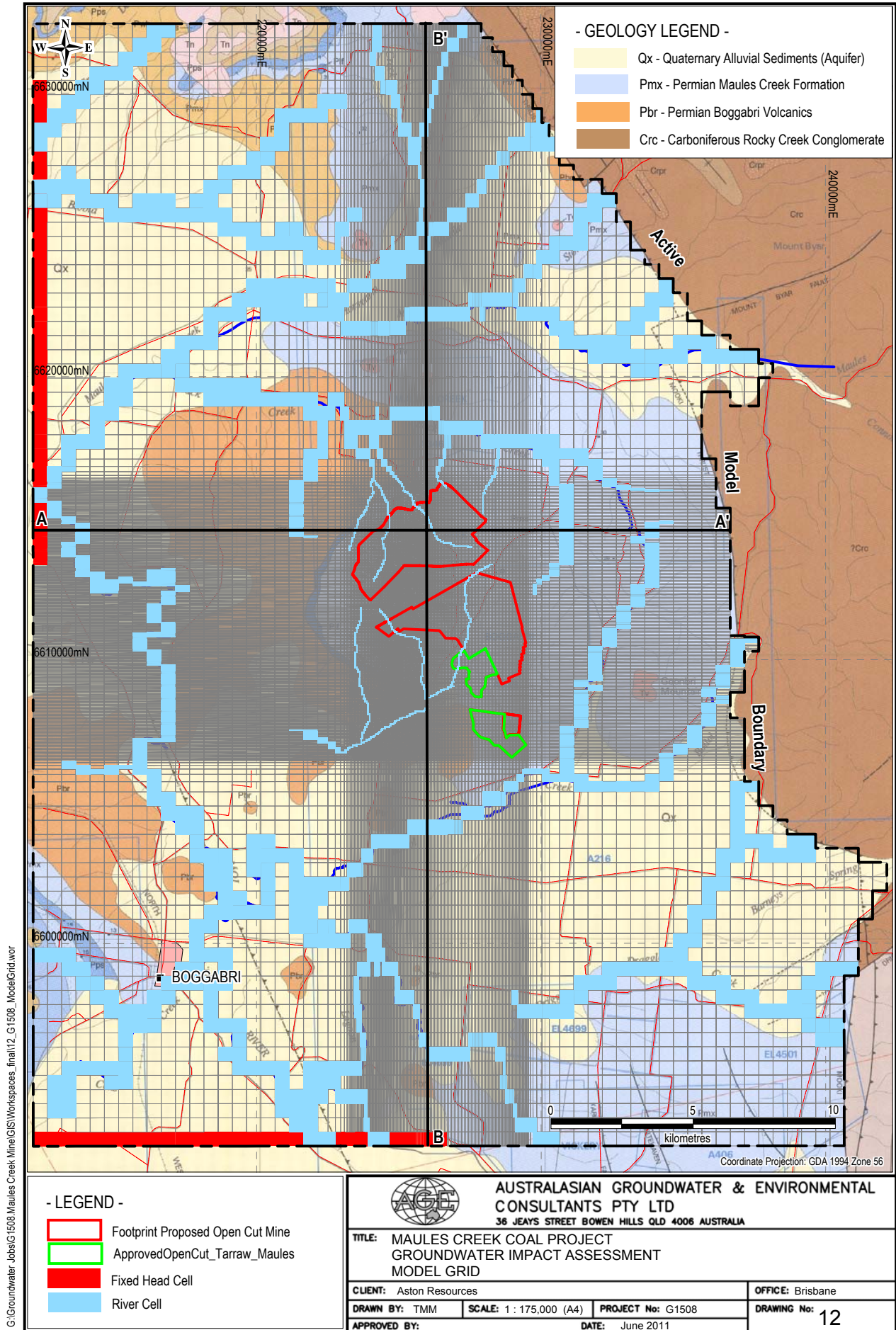
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APPROVED BY: **DATE:** June 2011

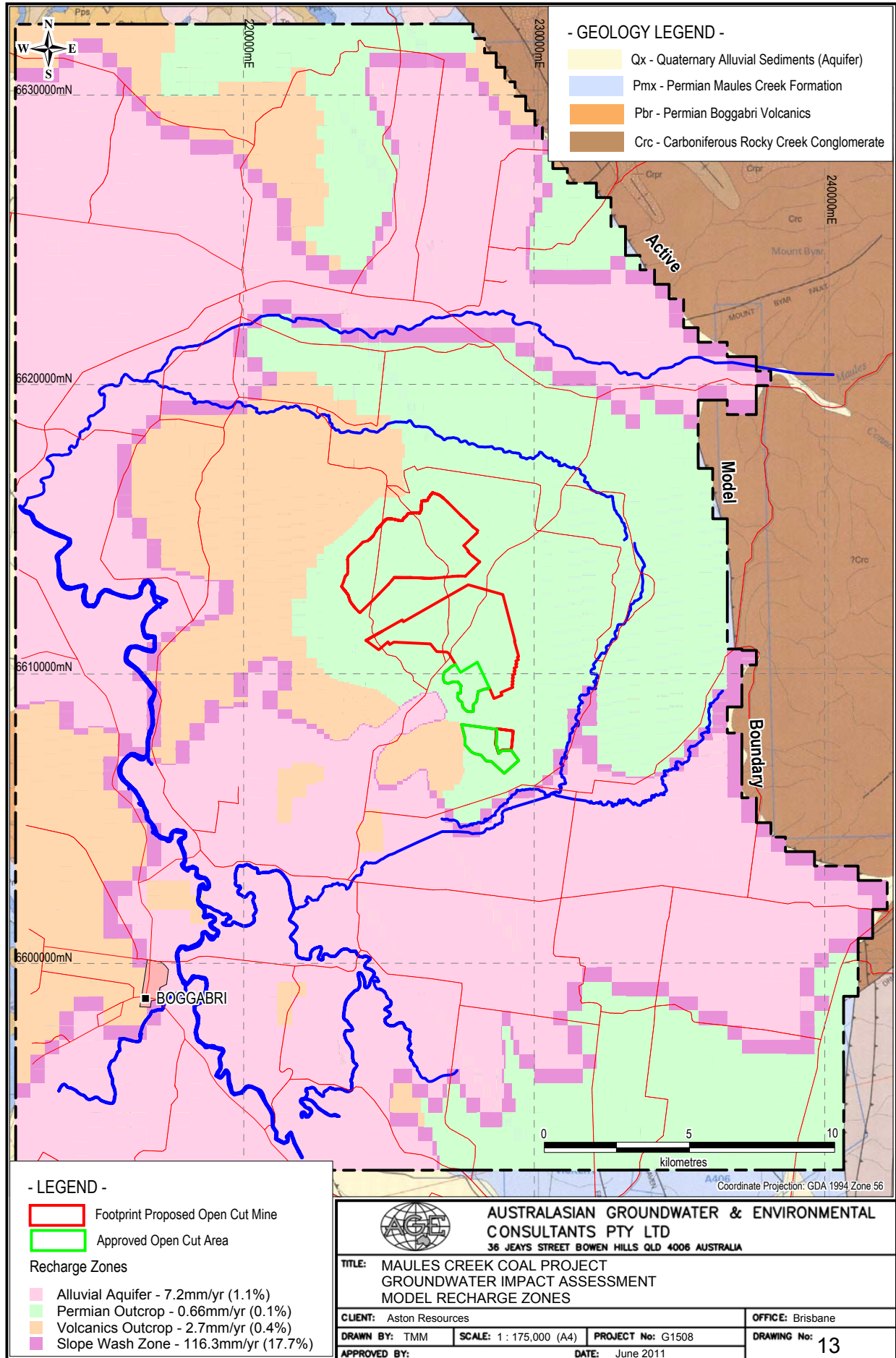
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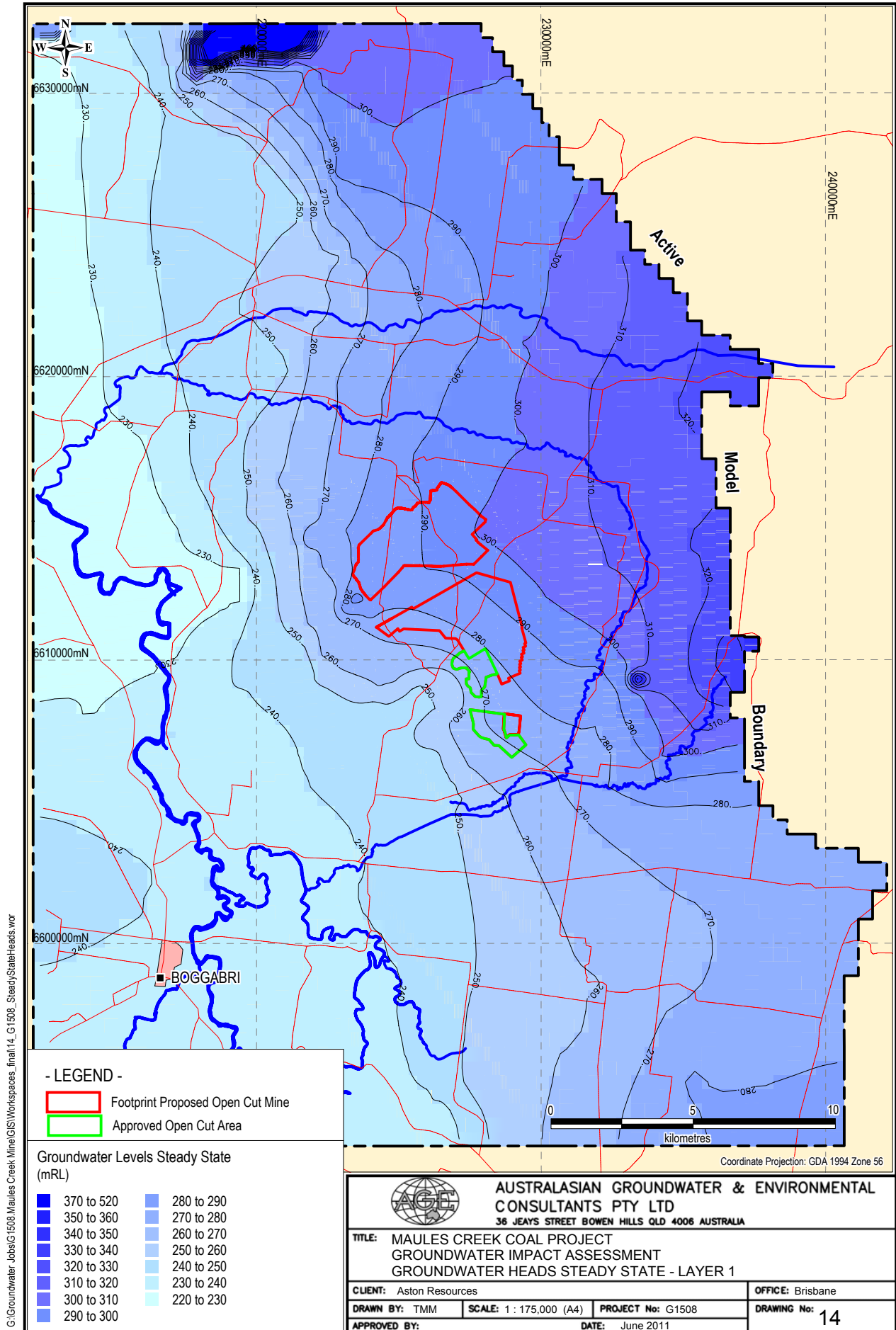
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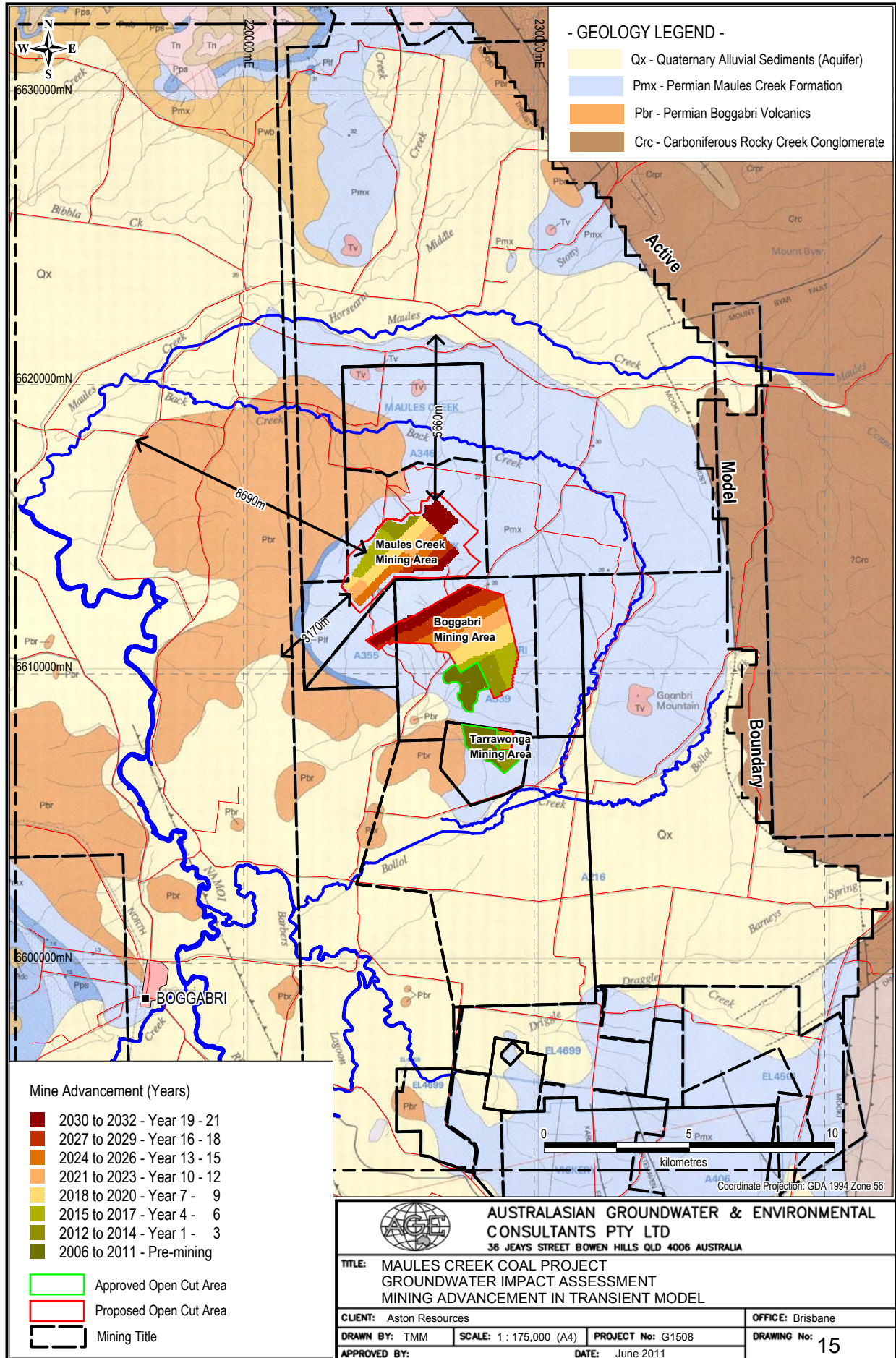


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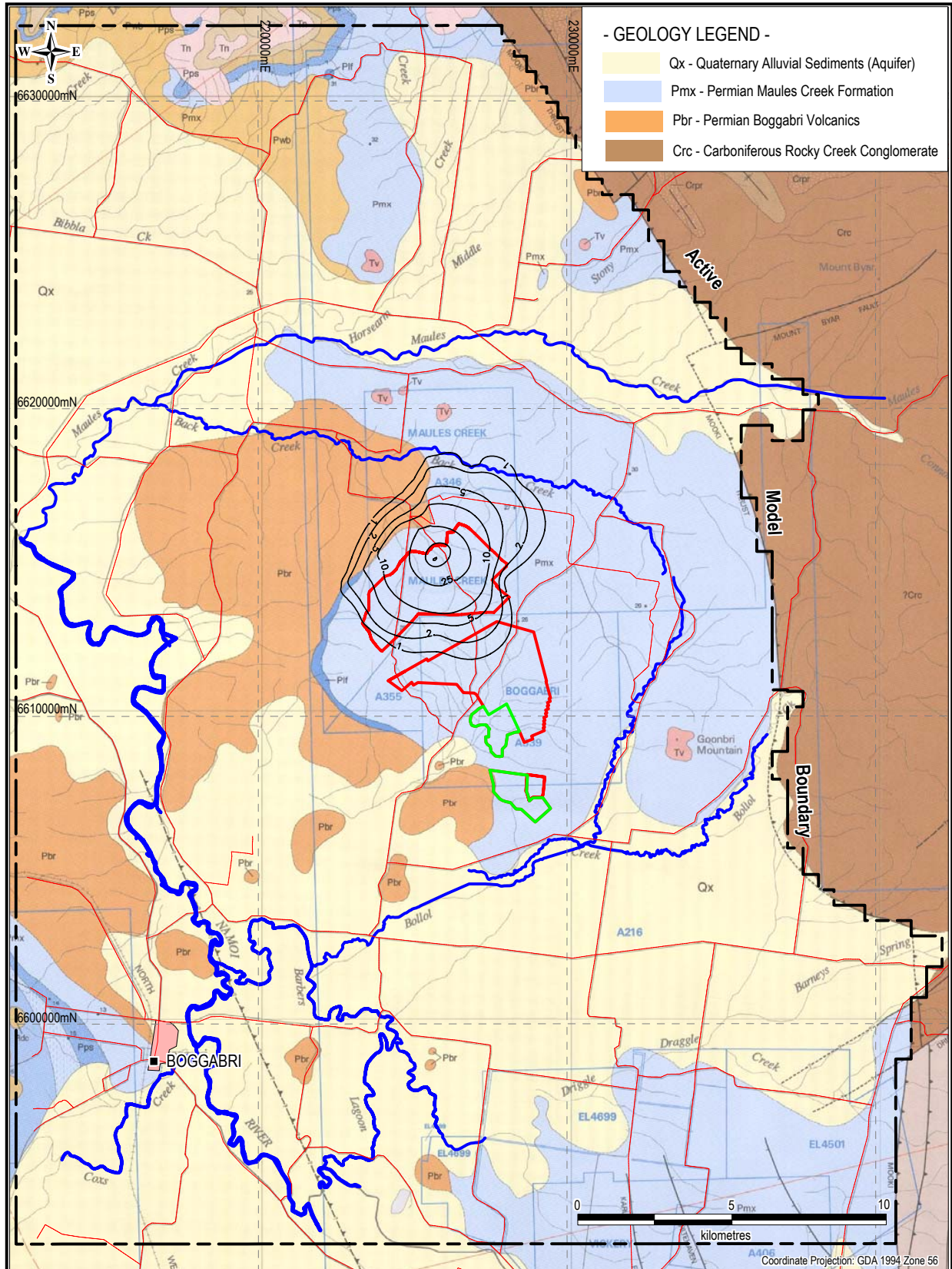


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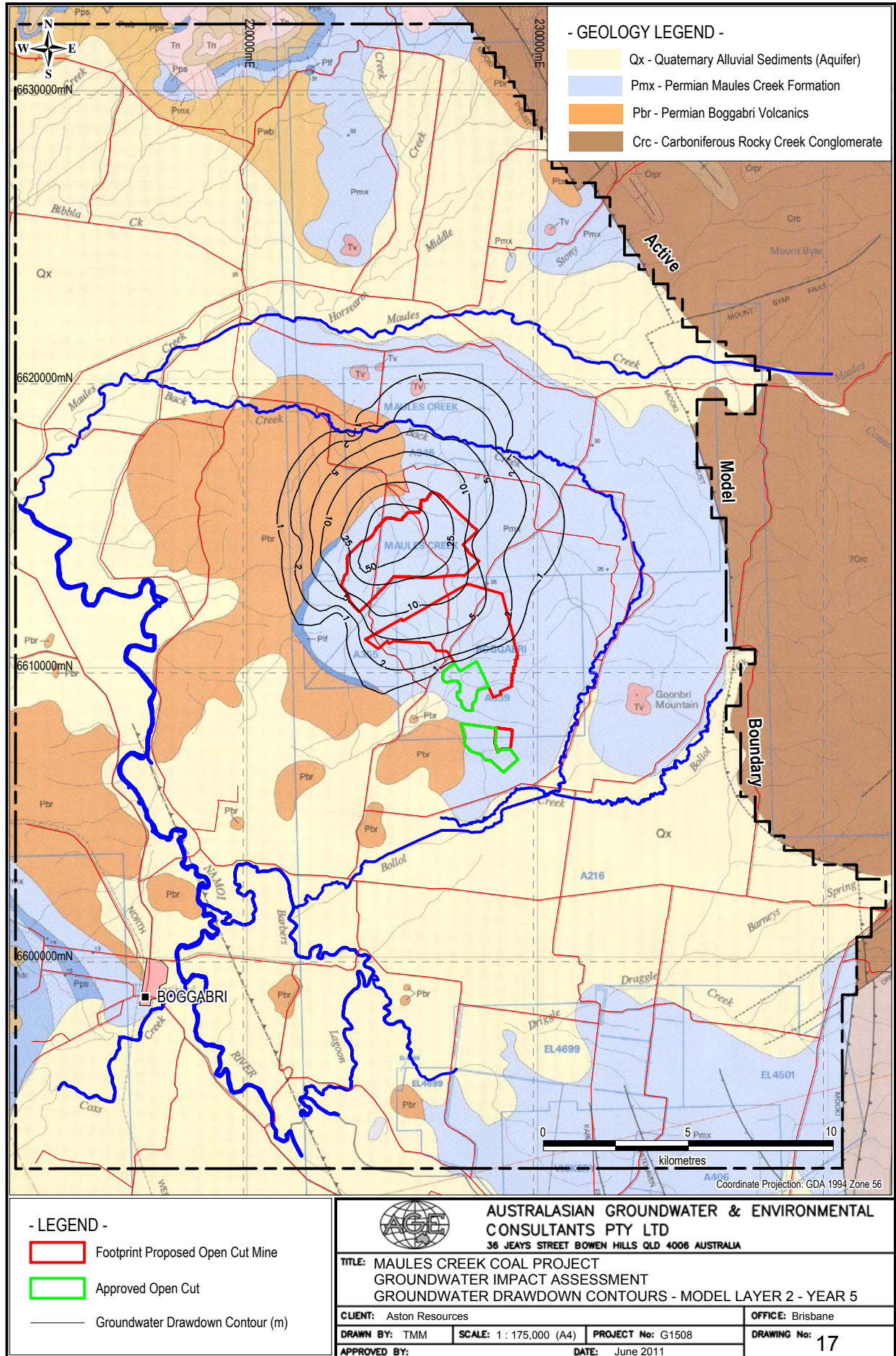


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| AUSTRALASIAN GROUNDWATER & ENVIRONMENTAL CONSULTANTS PTY LTD 36 JEAYS STREET BOWEN HILLS QLD 4006 AUSTRALIA | | |
| TITLE: MAULES CREEK COAL PROJECT GROUNDWATER IMPACT ASSESSMENT GROUNDWATER DRAWDOWN CONTOURS - MODEL LAYER 2 - YEAR 1 | | |
| CLIENT: Aston Resources | OFFICE: Brisbane | |
| DRAWN BY: TMM | SCALE: 1 : 175,000 (A4) | PROJECT No: G1508 |
| APPROVED BY: | DATE: June 2011 | DRAWING No: 16 |



- GEOLOGY LEGEND -
 Qx - Quaternary Alluvial Sediments (Aquifer)
 Pmx - Permian Maules Creek Formation
 Pbr - Permian Boggabri Volcanics
 Crc - Carboniferous Rocky Creek Conglomerate

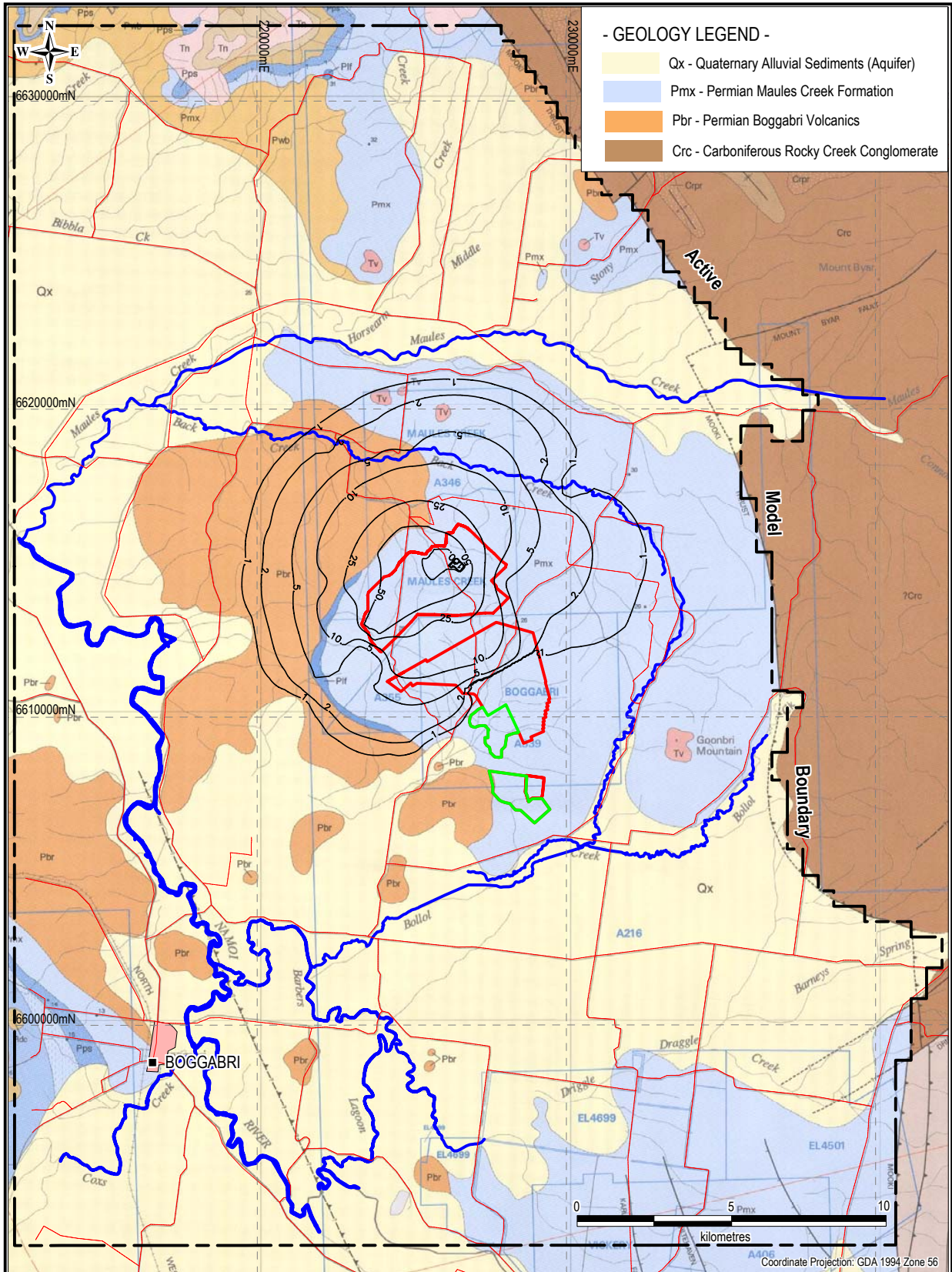
- LEGEND -
 Footprint Proposed Open Cut Mine
 Approved Open Cut
 — Groundwater Drawdown Contour (m)



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| | | |
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| TITLE: MAULES CREEK COAL PROJECT GROUNDWATER IMPACT ASSESSMENT GROUNDWATER DRAWDOWN CONTOURS - MODEL LAYER 2 - YEAR 5 | | |
| CLIENT: Aston Resources | PROJECT No: G1508 | OFFICE: Brisbane |
| DRAWN BY: TMM | SCALE: 1 : 175,000 (A4) | DRAWING No: 17 |
| APPROVED BY: | | DATE: June 2011 |

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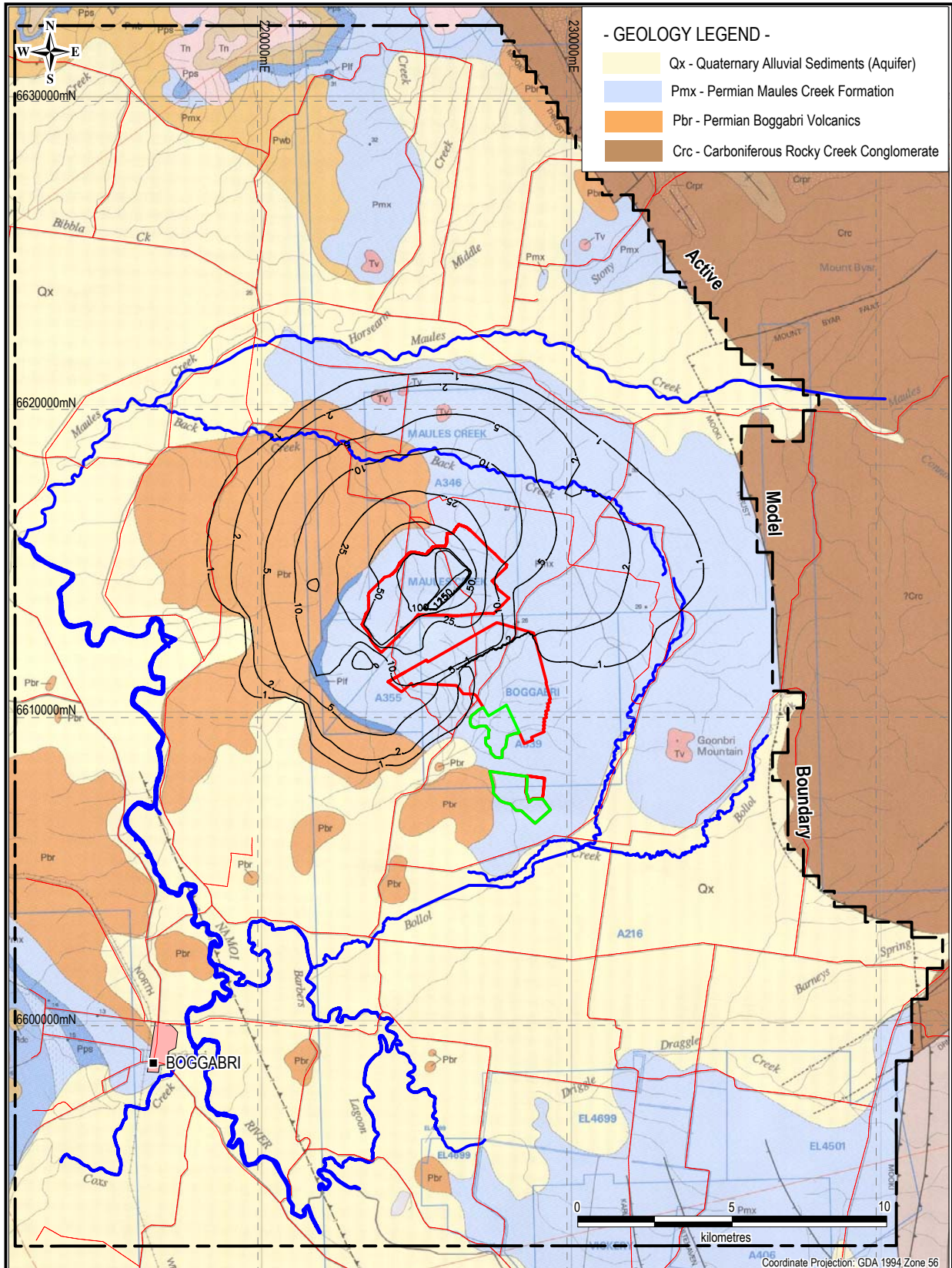
- LEGEND -

- Footprint Proposed Open Cut Mine
- Approved Open Cut
- Groundwater Drawdown Contour (m)



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| TITLE: MAULES CREEK COAL PROJECT GROUNDWATER IMPACT ASSESSMENT GROUNDWATER DRAWDOWN CONTOURS - MODEL LAYER 2 - YEAR 10 | | |
| CLIENT: Aston Resources | OFFICE: Brisbane | |
| DRAWN BY: TMM | SCALE: 1 : 175,000 (A4) | PROJECT No: G1508 |
| APPROVED BY: | DATE: June 2011 | DRAWING No: 18 |



- GEOLOGY LEGEND -**
- Qx - Quaternary Alluvial Sediments (Aquifer)
 - Pmx - Permian Maules Creek Formation
 - Pbr - Permian Boggabri Volcanics
 - Crc - Carboniferous Rocky Creek Conglomerate

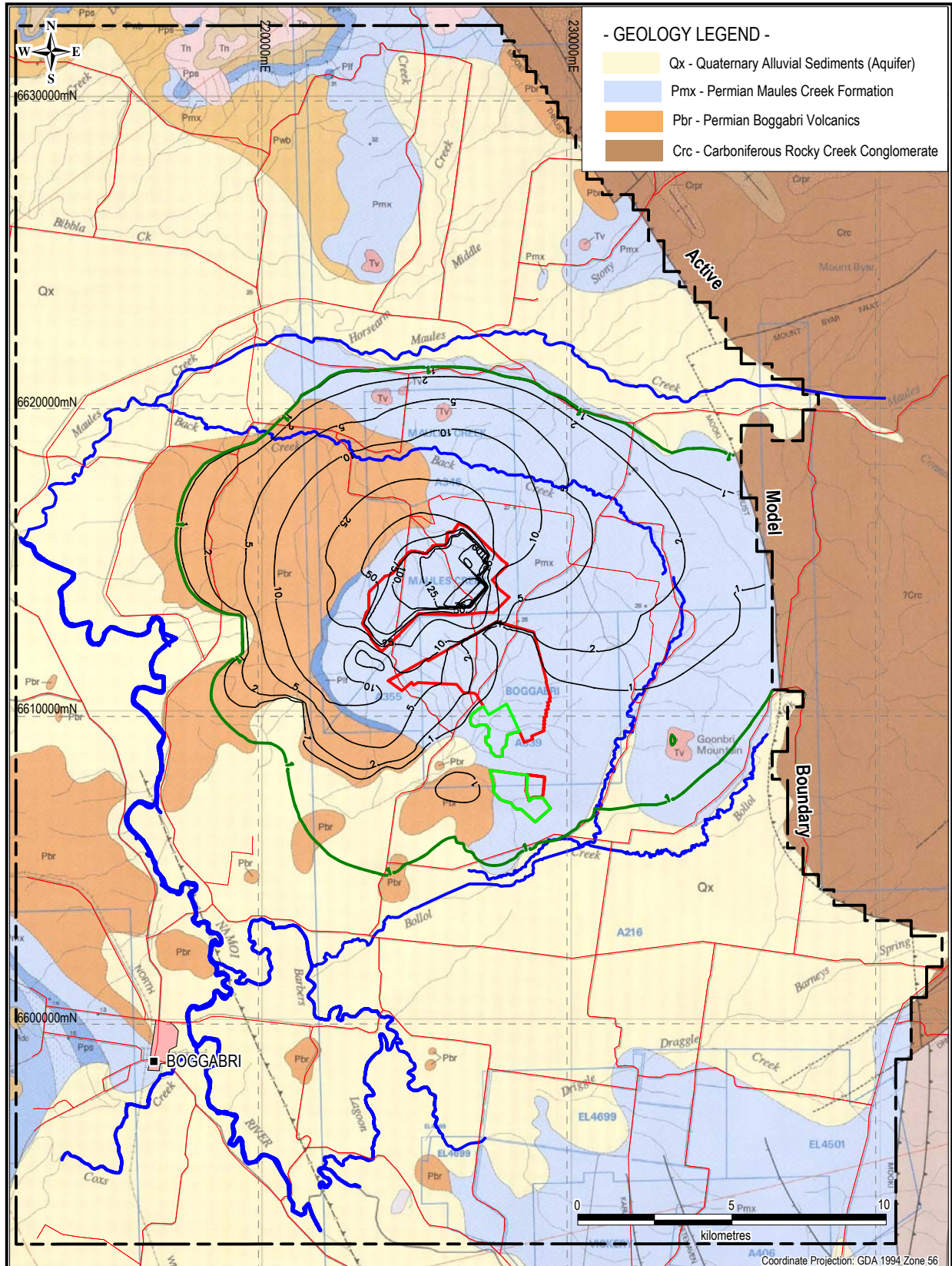
- LEGEND -**
- Footprint Proposed Open Cut Mine
 - Approved Open Cut
 - Groundwater Drawdown Contour (m)



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 36 JEAYS STREET BOWEN HILLS QLD 4006 AUSTRALIA

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| TITLE: MAULES CREEK COAL PROJECT | | | OFFICE: Brisbane | | |
| GROUNDWATER IMPACT ASSESSMENT | | | DRAWING No: 19 | | |
| GROUNDWATER DRAWDOWN CONTOURS - MODEL LAYER 2 - YEAR 15 | | | DATE: June 2011 | | |
| CLIENT: Aston Resources | SCALE: 1 : 175,000 (A4) | PROJECT No: G1508 | | | |
| DRAWN BY: TMM | APPROVED BY: | | | | |

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- GEOLOGY LEGEND -

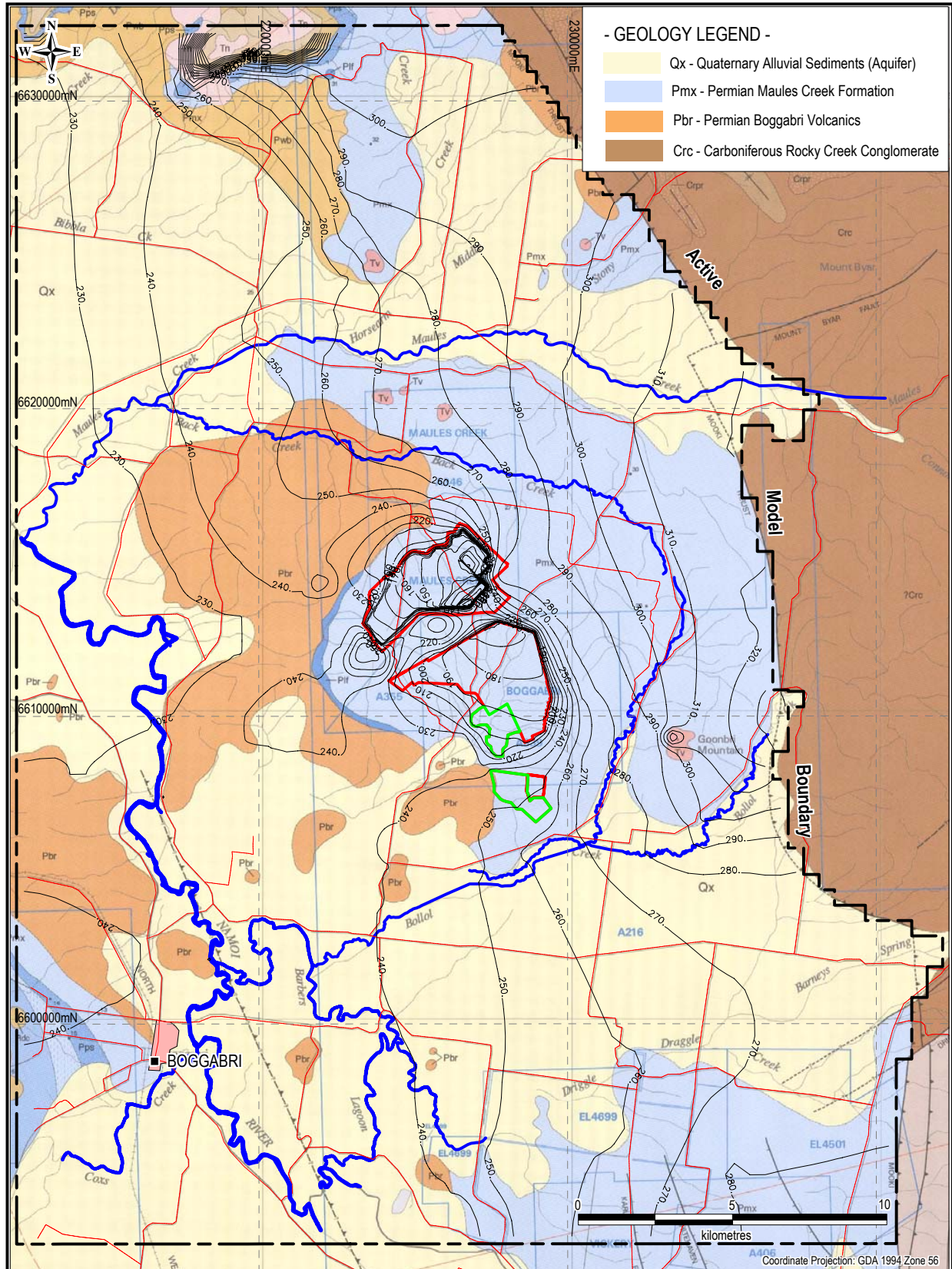
- Qx - Quaternary Alluvial Sediments (Aquifer)
- Pmx - Permian Maules Creek Formation
- Pbr - Permian Boggabri Volcanics
- Crc - Carboniferous Rocky Creek Conglomerate

- LEGEND -

- Footprint Proposed Open Cut Mine
- Approved Open Cut
- Groundwater Drawdown Contour (m)
- Cumulative Groundwater Drawdown Contour (m)

| | | |
|---|--------------------------------|--------------------------|
| AUSTRALASIAN GROUNDWATER & ENVIRONMENTAL CONSULTANTS PTY LTD 36 JEAYS STREET BOWEN HILLS QLD 4006 AUSTRALIA | | |
| TITLE: MAULES CREEK COAL PROJECT GROUNDWATER IMPACT ASSESSMENT GROUNDWATER DRAWDOWN CONTOURS - MODEL LAYER 2 - YEAR 21 | | |
| CLIENT: Aston Resources | OFFICE: Brisbane | |
| DRAWN BY: TMM | SCALE: 1 : 175,000 (A4) | PROJECT No: G1508 |
| APPROVED BY: | DATE: June 2011 | DRAWING No: 20 |

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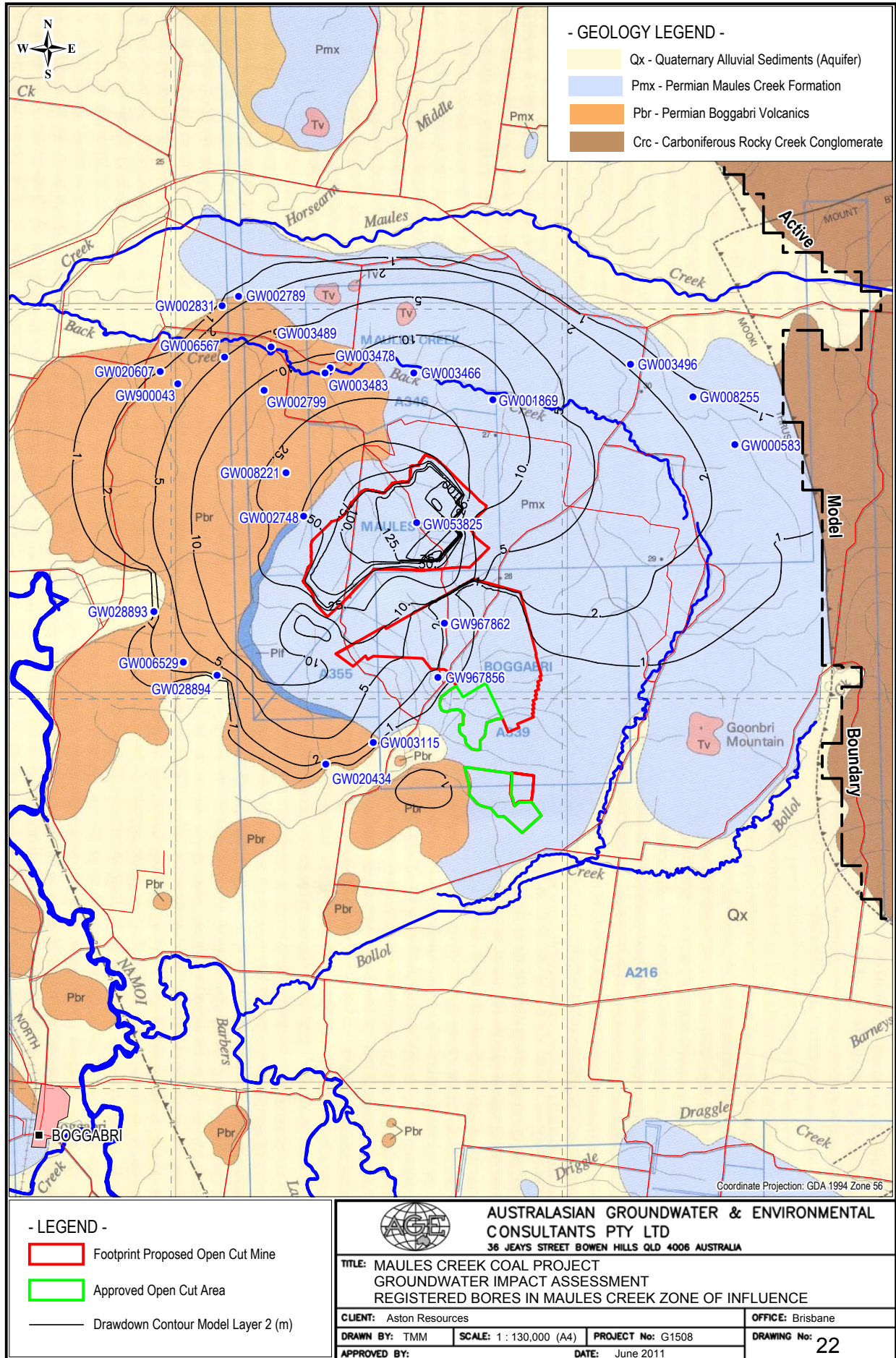


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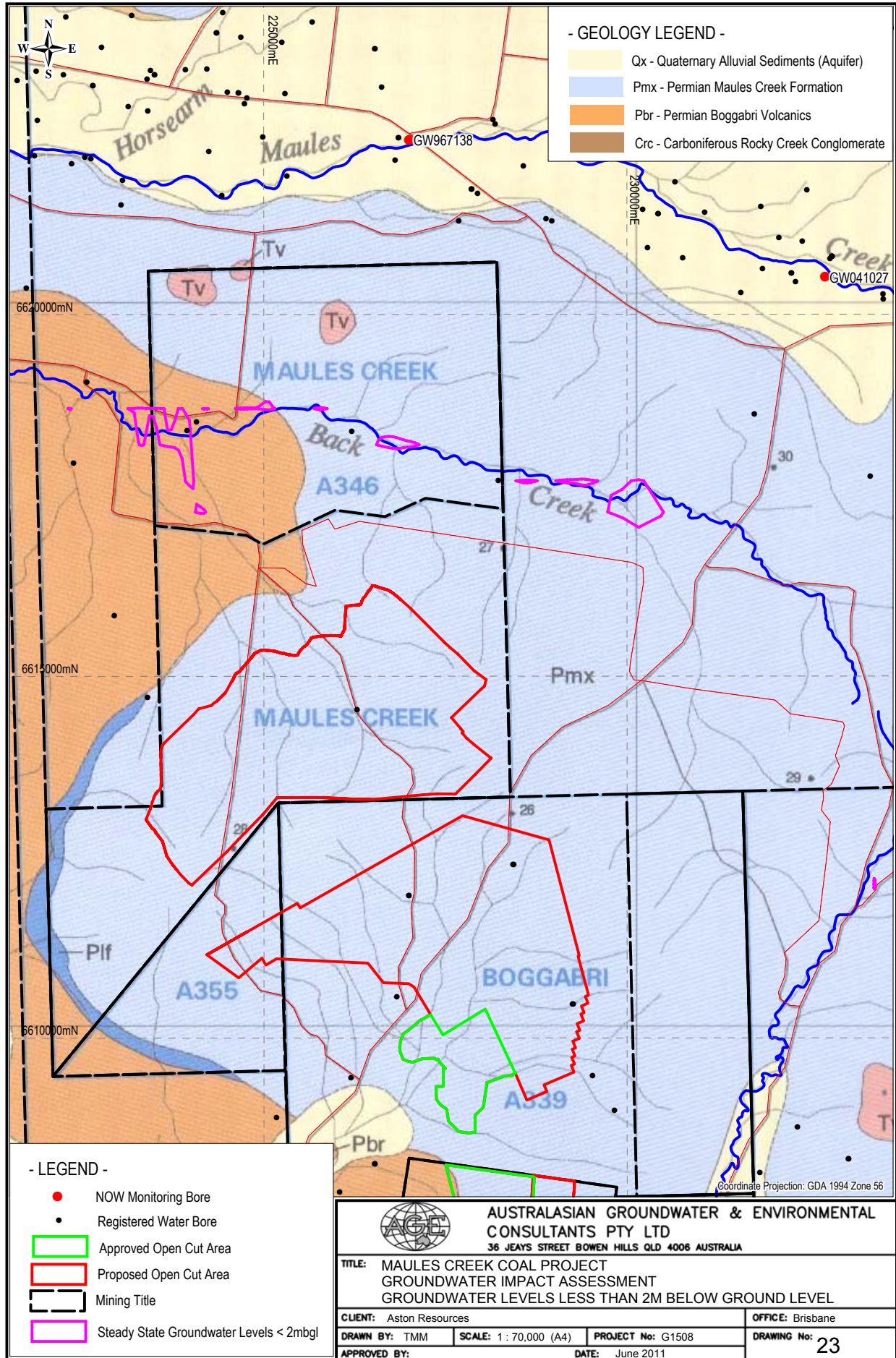
- LEGEND -

- Footprint Proposed Open Cut Mine
- Approved Open Cut
- Groundwater Level Contour (mRL)

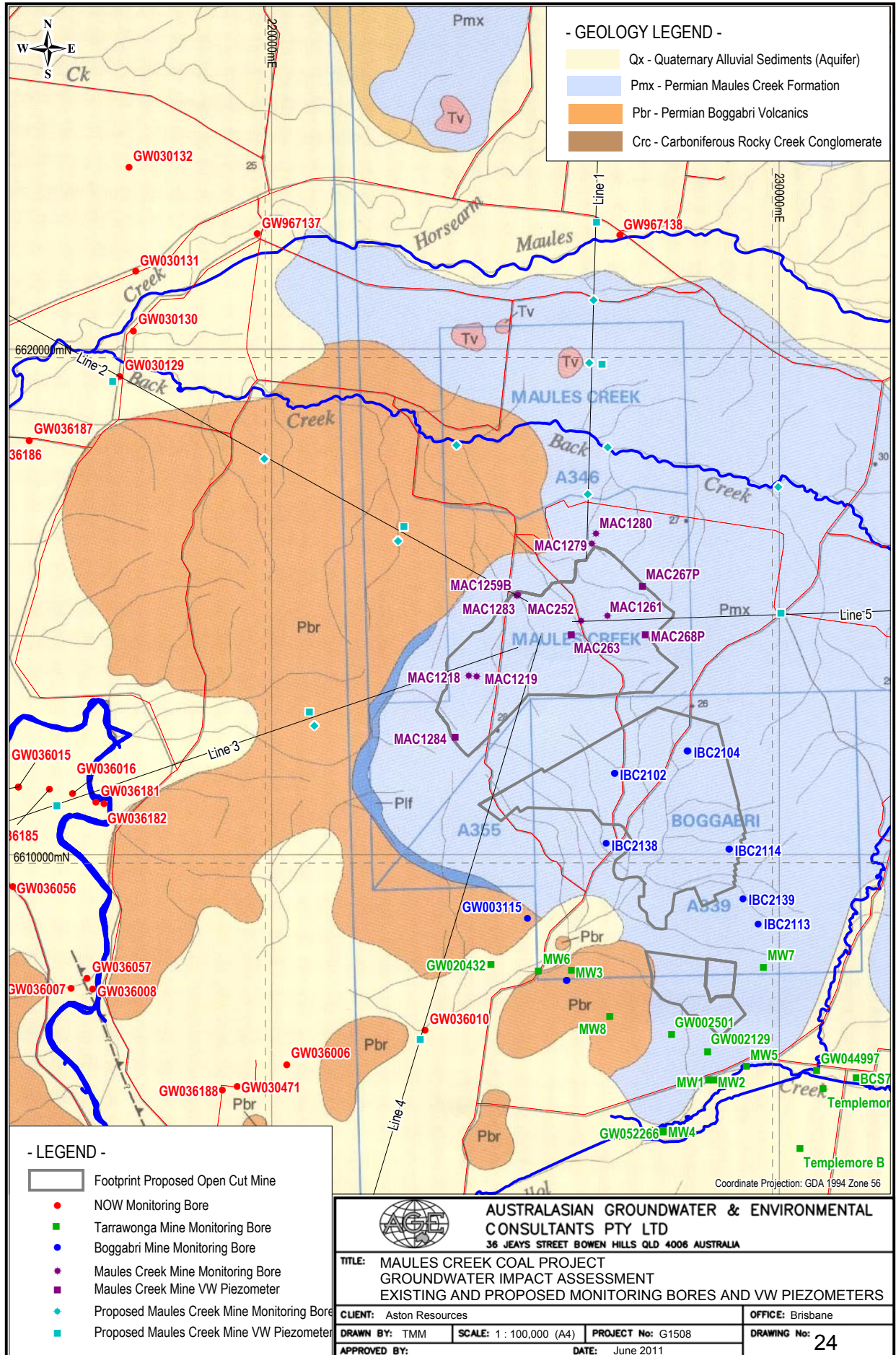
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| AUSTRALASIAN GROUNDWATER & ENVIRONMENTAL CONSULTANTS PTY LTD 36 JEYS STREET BOWEN HILLS QLD 4006 AUSTRALIA | | |
| TITLE: MAULES CREEK COAL PROJECT GROUNDWATER IMPACT ASSESSMENT SIMULATED GROUNDWATER LEVEL CONTOURS MODEL LAYER 2 - YEAR 21 | | |
| CLIENT: Aston Resources | PROJECT No: G1508 | OFFICE: Brisbane |
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| APPROVED BY: _____ DATE: June 2011 | | |



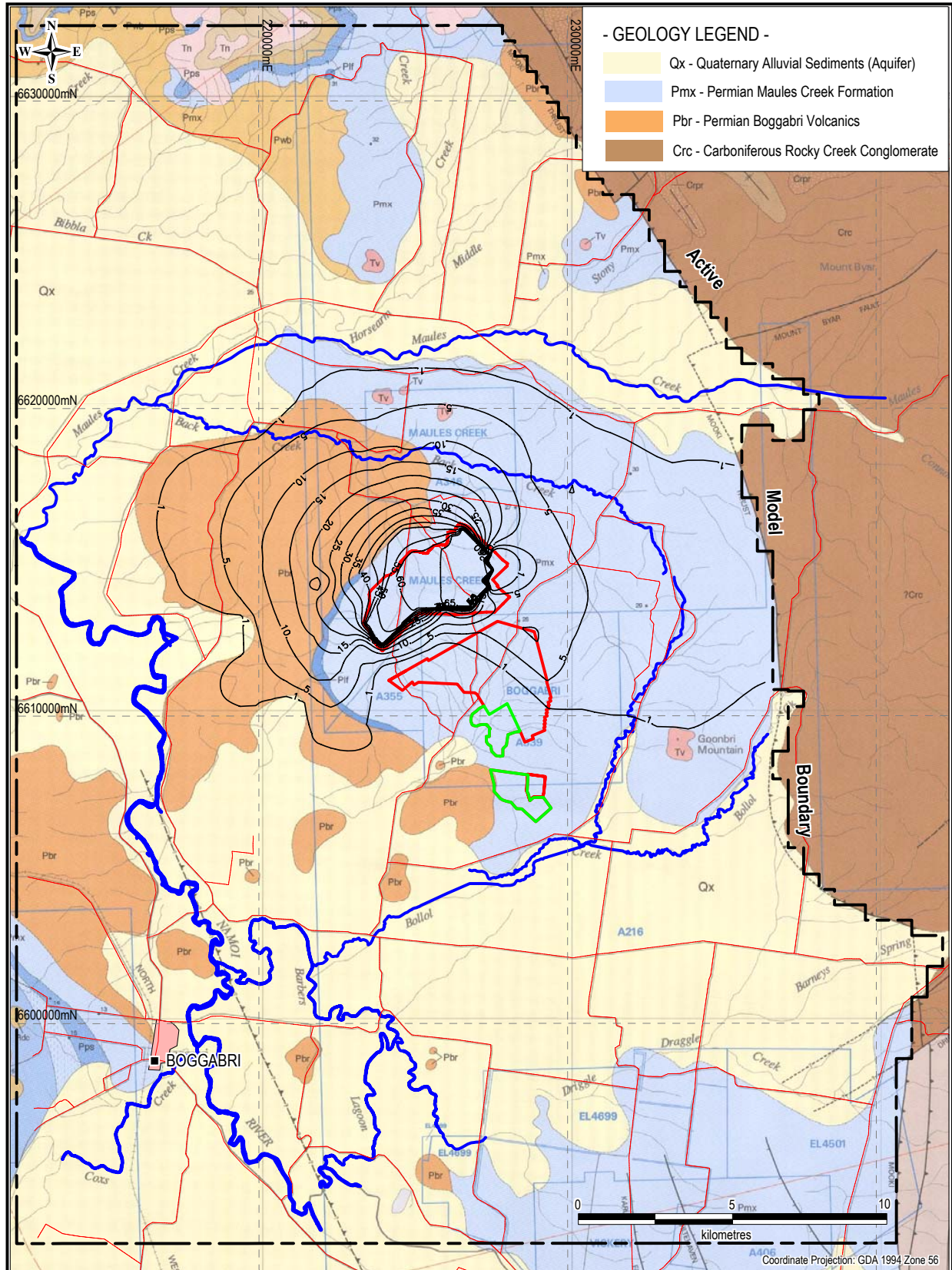
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- GEOLOGY LEGEND -

- Qx - Quaternary Alluvial Sediments (Aquifer)
- Pmx - Permian Maules Creek Formation
- Pbr - Permian Boggabri Volcanics
- Crc - Carboniferous Rocky Creek Conglomerate

- LEGEND -

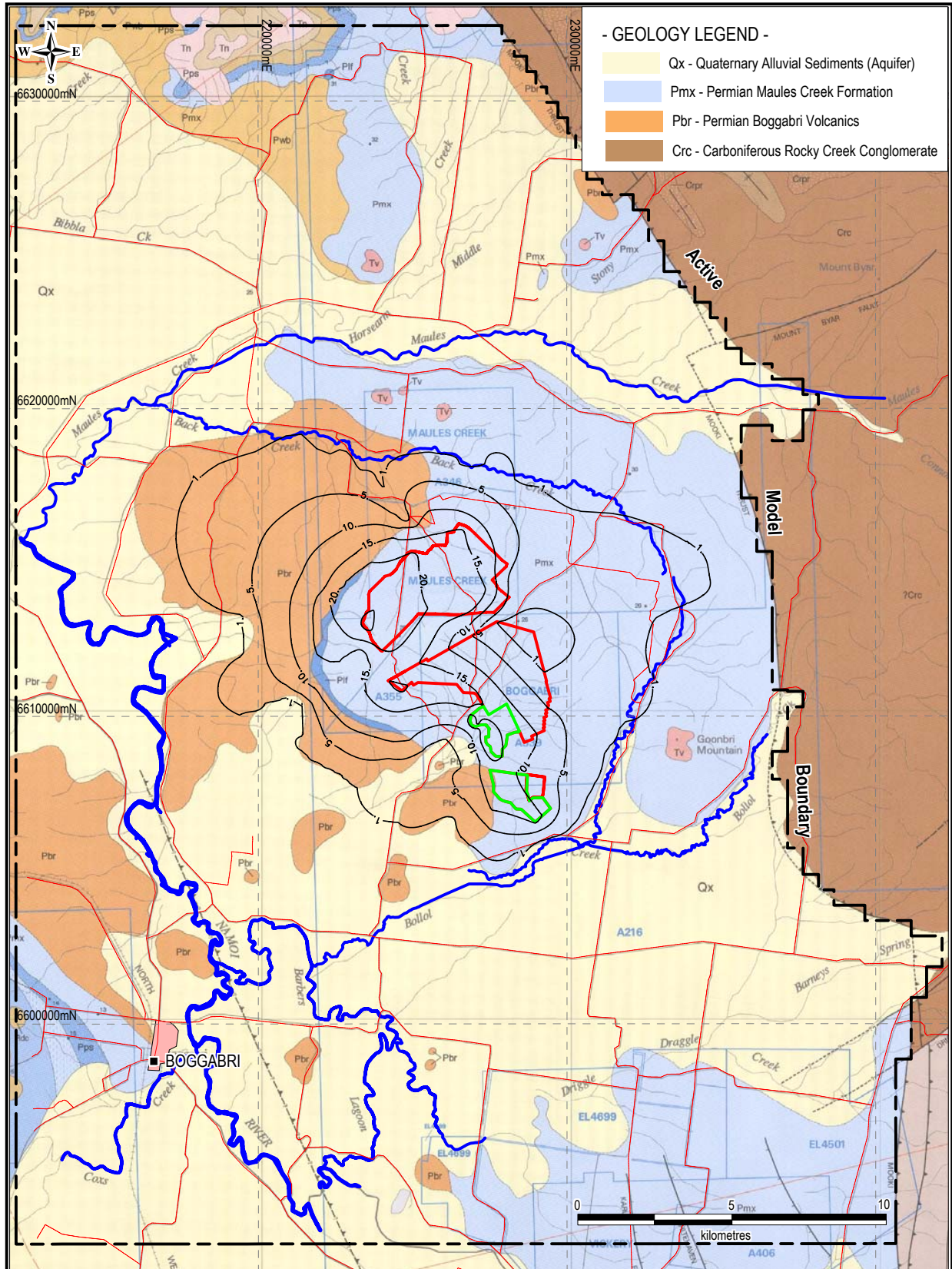
- Footprint Proposed Open Cut Mine
- Approved Open Cut
- Groundwater Drawdown Contour (m)



AUSTRALASIAN GROUNDWATER & ENVIRONMENTAL CONSULTANTS PTY LTD
 36 JEAYS STREET BOWEN HILLS QLD 4006 AUSTRALIA

| | | |
|---|--------------------------------|-------------------------|
| TITLE: MAULES CREEK COAL PROJECT GROUNDWATER IMPACT ASSESSMENT GROUNDWATER DRAWDOWN CONTOURS - VOID - LAYER 2 - 1000 YEARS | | |
| CLIENT: Aston Resources | PROJECT No: G1508 | OFFICE: Brisbane |
| DRAWN BY: TMM | SCALE: 1 : 175,000 (A4) | DRAWING No: 25 |
| APPROVED BY: | DATE: June 2011 | |

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- LEGEND -

- Footprint Proposed Open Cut Mine
- Approved Open Cut
- Groundwater Drawdown Contour (m)



AUSTRALASIAN GROUNDWATER & ENVIRONMENTAL CONSULTANTS PTY LTD
36 JEAYS STREET BOWEN HILLS QLD 4006 AUSTRALIA

**TITLE: MAULES CREEK COAL PROJECT
GROUNDWATER IMPACT ASSESSMENT
RECOVERY CONTOURS - BACKFILLED - LAYER 2 - 1000 YEARS**

CLIENT: Aston Resources

OFFICE: Brisbane

DRAWN BY: TMM

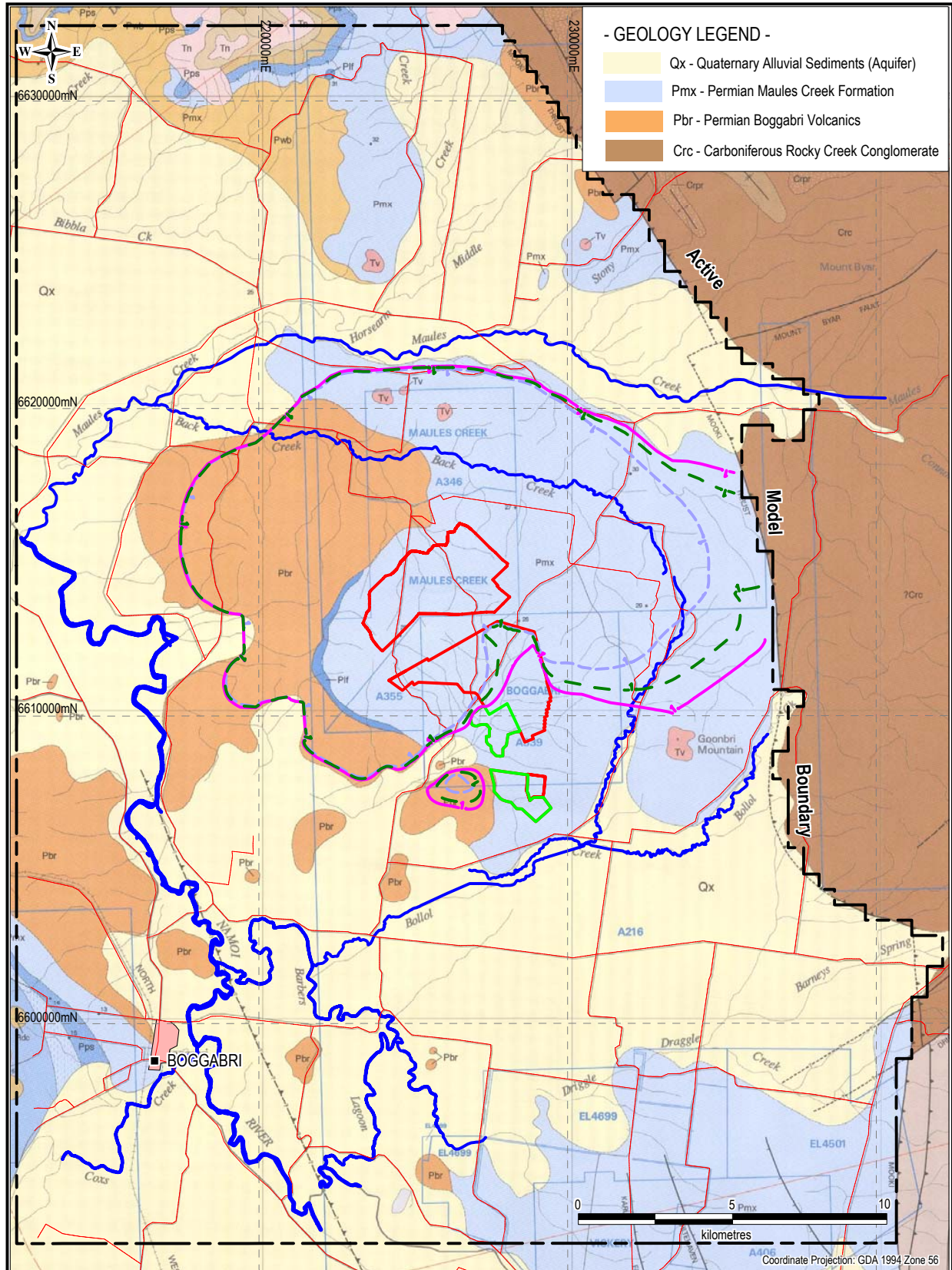
SCALE: 1 : 175,000 (A4)

PROJECT No: G1508

DRAWING No: 26

APPROVED BY:

DATE: June 2011



- GEOLOGY LEGEND -

- Qx - Quaternary Alluvial Sediments (Aquifer)
- Pmx - Permian Maules Creek Formation
- Pbr - Permian Boggabri Volcanics
- Crc - Carboniferous Rocky Creek Conglomerate

- LEGEND -

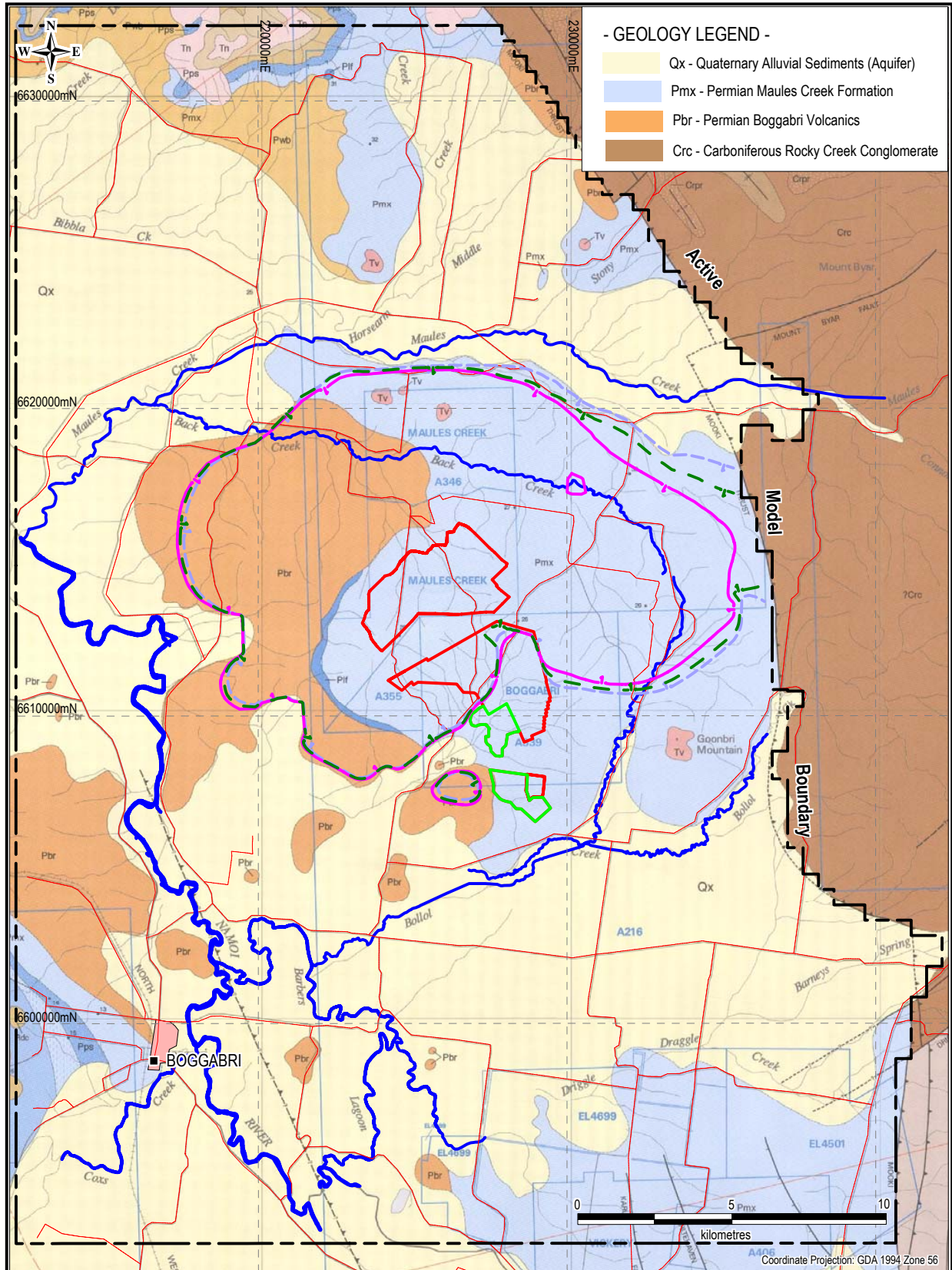
- Footprint Proposed Open Cut Mine
- Approved Open Cut
- Groundwater Drawdown Contour (m), baselin
- Drawdown Contour (m), +50 percent
- Drawdown Contour (m), -50 percent



AUSTRALASIAN GROUNDWATER & ENVIRONMENTAL CONSULTANTS PTY LTD
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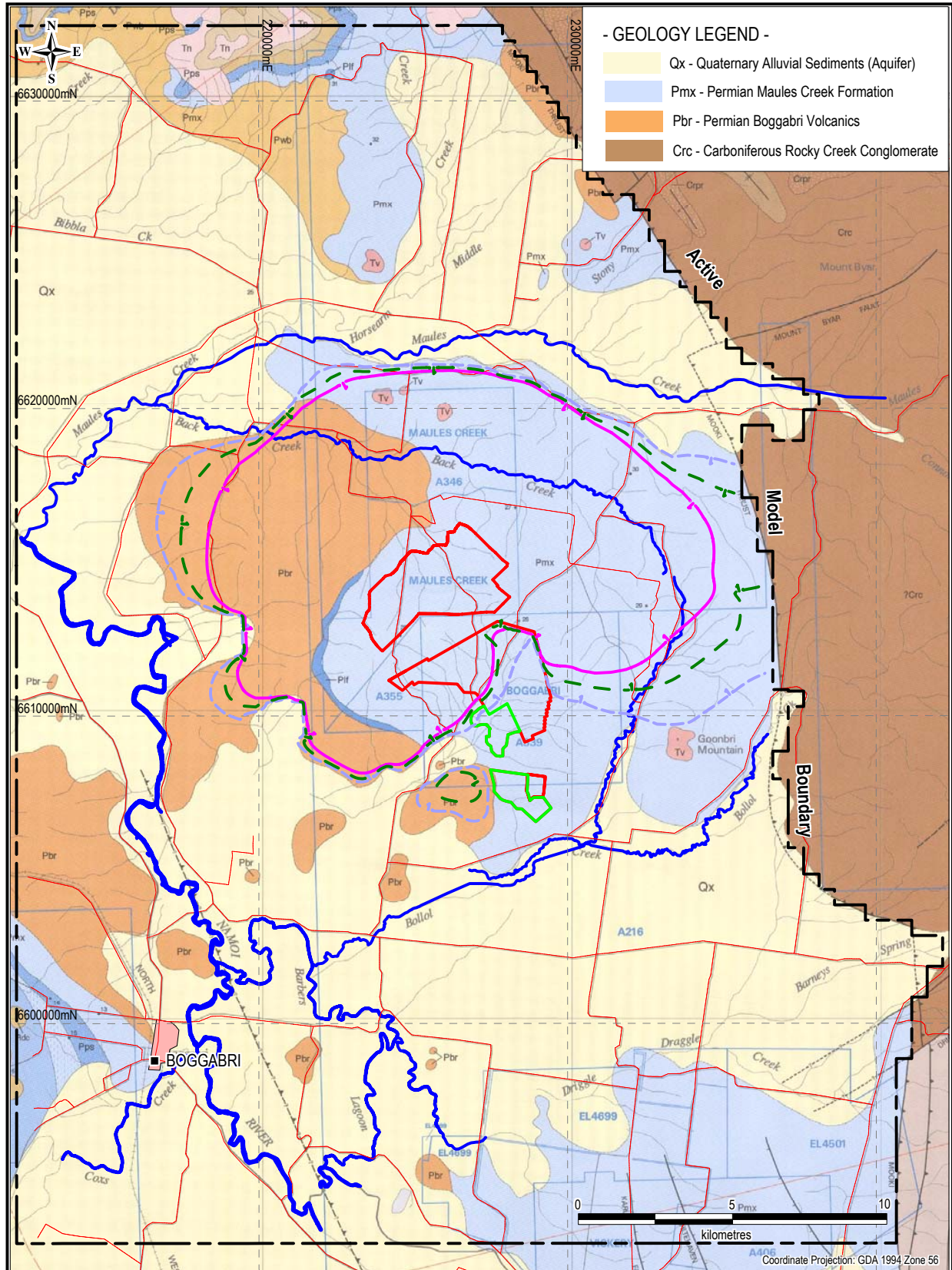
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| CLIENT: Aston Resources | OFFICE: Brisbane | |
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| AUSTRALASIAN GROUNDWATER & ENVIRONMENTAL CONSULTANTS PTY LTD 36 JEAYS STREET BOWEN HILLS QLD 4006 AUSTRALIA | | |
| TITLE: MAULES CREEK COAL PROJECT GROUNDWATER IMPACT ASSESSMENT DRAWDOWN - RECHARGE SENSITIVITY | | |
| CLIENT: Aston Resources | PROJECT No: G1508 | OFFICE: Brisbane |
| DRAWN BY: TMM | SCALE: 1 : 175,000 (A4) | DRAWING No: 28 |
| APPROVED BY: | DATE: June 2011 | |



- GEOLOGY LEGEND -**
- Qx - Quaternary Alluvial Sediments (Aquifer)
 - Pmx - Permian Maules Creek Formation
 - Pbr - Permian Boggabri Volcanics
 - Crp - Permian Rocky Creek Conglomerate

- LEGEND -**
- Footprint Proposed Open Cut Mine
 - Approved Open Cut
 - Groundwater Drawdown Contour (m), baseline
 - Drawdown Contour (m), +50 percent
 - Drawdown Contour (m), -50 percent



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| TITLE: MAULES CREEK COAL PROJECT GROUNDWATER IMPACT ASSESSMENT DRAWDOWN - SPECIFIC STORAGE SENSITIVITY | | |
| CLIENT: Aston Resources | OFFICE: Brisbane | |
| DRAWN BY: TMM | SCALE: 1 : 175,000 (A4) | PROJECT No: G1508 |
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APPENDIX 1

Photographs



Photograph 1 – Monitoring Bore Site



Photograph 2 – Airlift development of monitoring bore



Photograph 3 – Monitoring Bore Site



Photograph 4 – Gins Leap



Photograph 5 – Ephemeral Bollo Creek Crossing



Photograph 6 – Ephemeral Bollo Creek Crossing – Looking Upstream



Photograph 7 – Boggabri Volcanics Outcrop



Photograph 8 – Maules Creek Alluvial Plain Looking North



Photograph 9 – Elfin Crossing



APPENDIX 2

Monitoring Bore Logs



| Elevation | | Graphic | Lithologic Description | SWL | Bore Construction | Bore Description |
|-----------|-----|---------|--|------------------------------------|-------------------|--|
| Depth | | | | | | |
| 0 | 340 | | CONGLOMERATE: yellow-orange / grey, weathered, cobble sized, minor claystone | SWL 50.68 m below GL on 17-09-2010 | | 125mm diameter steel casing, 0m to 27.71m hole diameter 96.1mm, 27.71m to 231m 50mm ID class 18 PVC casing, 0m to 92.5m cement-bentonite grout, 0m to 83m bentonite seal, 83m to 86m gravel filter pack, 3-6mm washed rounded quartz, 86m to 101m 50mm ID class 18 PVC screen, machine slotted, aperture 0.4mm, 92.5m to 98.5m |
| 5 | 335 | | BASE OF WEATHERING (18.5m) | | | |
| 10 | 330 | | | | | |
| 15 | 325 | | COAL: bright, TSU to TSL seams, minor claystone and siltstone interbeds | | | |
| 20 | 320 | | | | | |
| 25 | 315 | | SANDSTONE: light grey, fine to coarse grained, minor conglomerate and claystone | | | |
| 30 | 310 | | | | | |
| 35 | 305 | | COAL: bright, TNN seam | | | |
| 40 | 300 | | | | | |
| 45 | 295 | | SILTSTONE: grey, interbedded with fine to coarse grained sandstone, conglomerate and minor claystone | | | |
| 50 | 290 | | | | | |
| 55 | 285 | | COAL: bright, BRT and BRL seams, interbedded with minor claystone, sandstone and conglomerate | | | |
| 60 | 280 | | | | | |
| 65 | 275 | | | | | |
| 70 | 270 | | | | | |
| 75 | 265 | | | | | |
| 80 | 260 | | | | | |
| 85 | 255 | | | | | |
| 90 | 250 | | | | | |
| 95 | 245 | | | | | |
| 100 | | | | | | |

| | |
|--|--|
| Australasian Groundwater & Environmental Consultants Pty Ltd 36 Jeays St, Bowen Hills, Queensland 4006 | BOREHOLE LOG |
| | BOREHOLE ID: MAC 252 Page 2 of 3 |

| | | |
|--|---|--|
| PROJECT NO. G1508 | LICENSED DRILLER: Gordon Monkman | DATUM: MGA 1994 Z.56 |
| PROJECT NAME: Maules Creek Mine | DRILLING METHOD: HQ3 - 96.1mm | GROUND LEVEL: 340.98 mRL |
| DATE: 25-07-2010 | DRILL RIG: Atlas Copco - Rig 25 | TOP OF CASING LEVEL: 341.54 mRL |
| CONTRACTOR: GOS Drilling | COORDINATES: 226239.83 mE, 6614771.70 mN | LOGGED BY: WH |

| | Elevation Depth | Graphic | Lithologic Description | SWL | Bore Construction | Bore Description |
|-----|--------------------|---------|---|-----|-------------------|---|
| 100 | 240 | | COAL: bright, BRT and BRL seams, interbedded with minor claystone, sandstone and conglomerate | | | -- 101m gravel filter pack, 3-6mm washed rounded quartz, 86m to 101m |
| 105 | 235 | | CONGLOMERATE: light grey-green, massive, overlain by interbedded sandstone, claystone, coal and siltstone | | | |
| 110 | 230 | | | | | |
| 115 | 225 | | | | | |
| 120 | 220 | | | | | |
| 125 | 215 | | | | | hole diameter 96.1mm, 27.71m to 231m |
| 130 | 210 | | COAL: bright, JEA and JEB seams, 5m thick sandstone parting | | | |
| 135 | 205 | | | | | |
| 140 | 200 | | SANDSTONE: light grey, fine to medium grained, interbedded with conglomerate, siltstone, claystone and minor coal | | | |
| 145 | 195 | | | | | |
| 150 | 190 | | | | | cement-bentonite grout, 101m to 231m |
| 155 | 185 | | COAL: bright, MEA to MEC seams, claystone interbeds | | | |
| 160 | 180 | | CONGLOMERATE: light grey-green, lithic, with fine to medium grained sandstones | | | |
| 165 | 175 | | | | | |
| 170 | 170 | | | | | |
| 175 | 165 | | | | | |
| 180 | 160 | | | | | |
| 185 | 155 | | COAL: bright, VEB, VEC, NAG and UPN seams, minor claystone interbeds | | | |
| 190 | 150 | | SANDSTONE: light grey, fine to coarse grained, very minor siltstone interbeds | | | |
| 195 | 145 | | | | | |
| 200 | | | | | | |



| Elevation | | Graphic | Lithologic Description | SWL | Bore Construction | Bore Description |
|-----------|-----|---------|--|-----|-------------------|---|
| Depth | | | | | | |
| 200 | 140 | | SANDSTONE: light grey, fine to coarse grained, very minor siltstone interbeds | | | hole diameter 96.1mm, 27.71m to 231m |
| 205 | 135 | | | | | |
| 210 | 130 | | | | | |
| 215 | 125 | | COAL: bright, black, LRN, TER and FLX seams, with minor siltstone interbeds | | | cement-bentonite grout, 101m to 231m |
| 220 | 120 | | SILTSTONE: medium to dark grey, conglomeratic in parts, thin sandstone bands, minor mudstone interbeds | | | |
| 225 | 115 | | | | | |
| 230 | 110 | | | | --231m | total hole depth 231m |
| 235 | 105 | | | | | |
| 240 | 100 | | | | | |
| 245 | 95 | | | | | |
| 250 | 90 | | | | | |
| 255 | 85 | | | | | |
| 260 | 80 | | | | | |
| 265 | 75 | | | | | |
| 270 | 70 | | | | | |
| 275 | 65 | | | | | |
| 280 | 60 | | | | | |
| 285 | 55 | | | | | |
| 290 | 50 | | | | | |
| 295 | 45 | | | | | |
| 300 | | | | | | |



Australasian Groundwater & Environmental Consultants Pty Ltd

36 Jeays St, Bowen Hills, Queensland 4006

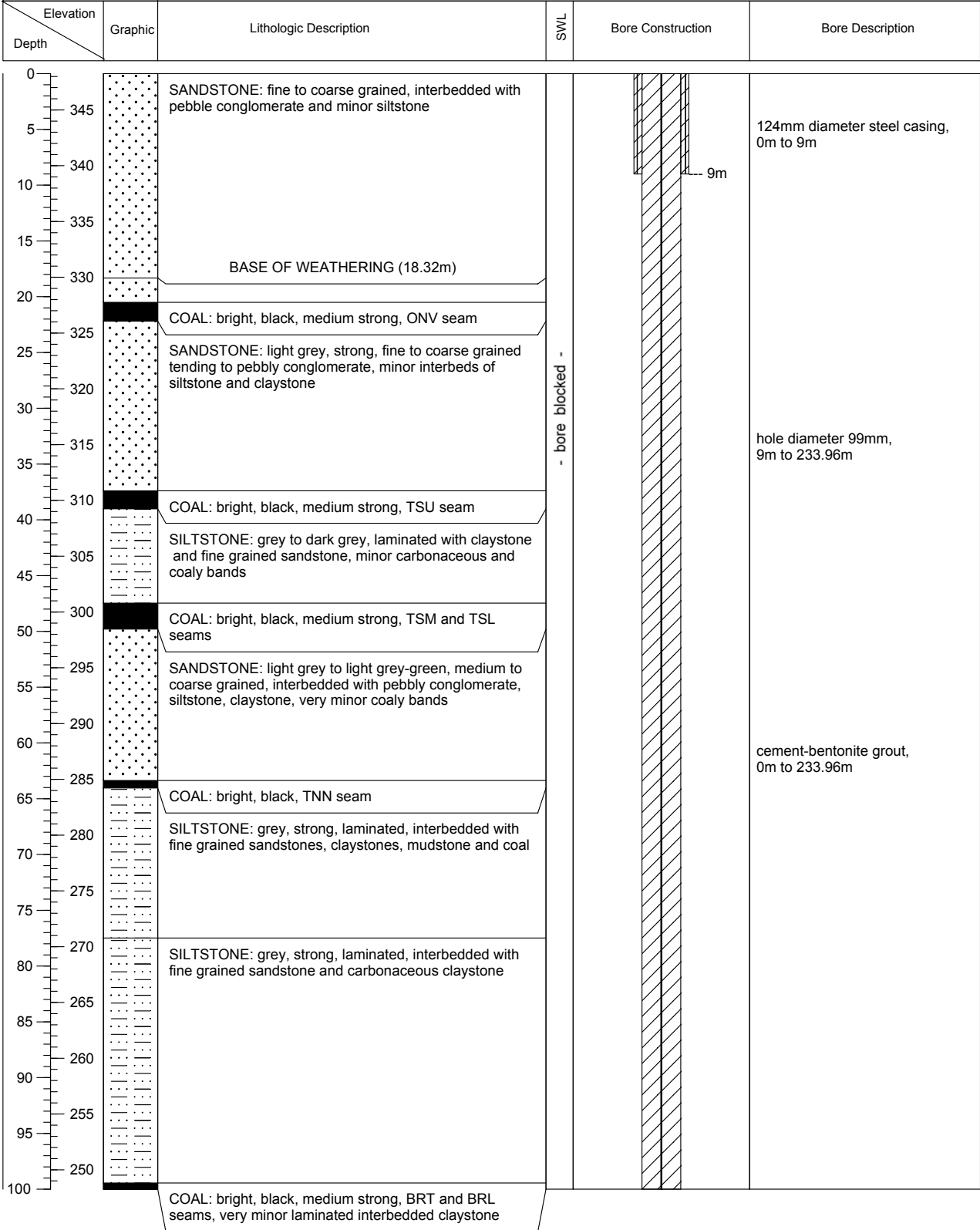
BOREHOLE LOG

BOREHOLE ID: **MAC 252** Page 3 of 3

PROJECT NO. **G1508** LICENSED DRILLER: **Gordon Monkman** DATUM: **MGA 1994 Z.56**
 PROJECT NAME: **Maules Creek Mine** DRILLING METHOD: **HQ3 - 96.1mm** GROUND LEVEL: **340.98 mRL**
 DATE: **25-07-2010** DRILL RIG: **Atlas Copco - Rig 25** TOP OF CASING LEVEL: **341.54 mRL**
 CONTRACTOR: **GOS Drilling** COORDINATES: **226239.83 mE, 6614771.70 mN** LOGGED BY: **WH**


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| <p>Australasian Groundwater & Environmental Consultants Pty Ltd 36 Jeays St, Bowen Hills, Queensland 4006</p> | BOREHOLE LOG | |
| | BOREHOLE ID: MAC 263 | Page 1 of 3 |

| | | |
|--|---|---|
| PROJECT NO. G1508 | LICENSED DRILLER: Gordon Monkman | DATUM: MGA 1994 Z.56 |
| PROJECT NAME: Maules Creek Mine | DRILLING METHOD: HQ - 99mm | GROUND LEVEL: 348.26 mAHD |
| DATE: 23-07-2010 | DRILL RIG: Atlas Copco - Rig 24 | TOP OF CASING LEVEL: +1.41m stick-up |
| CONTRACTOR: GOS Drilling | COORDINATES: 226036.93 mE, 6614512.96 mN | LOGGED BY: LT |



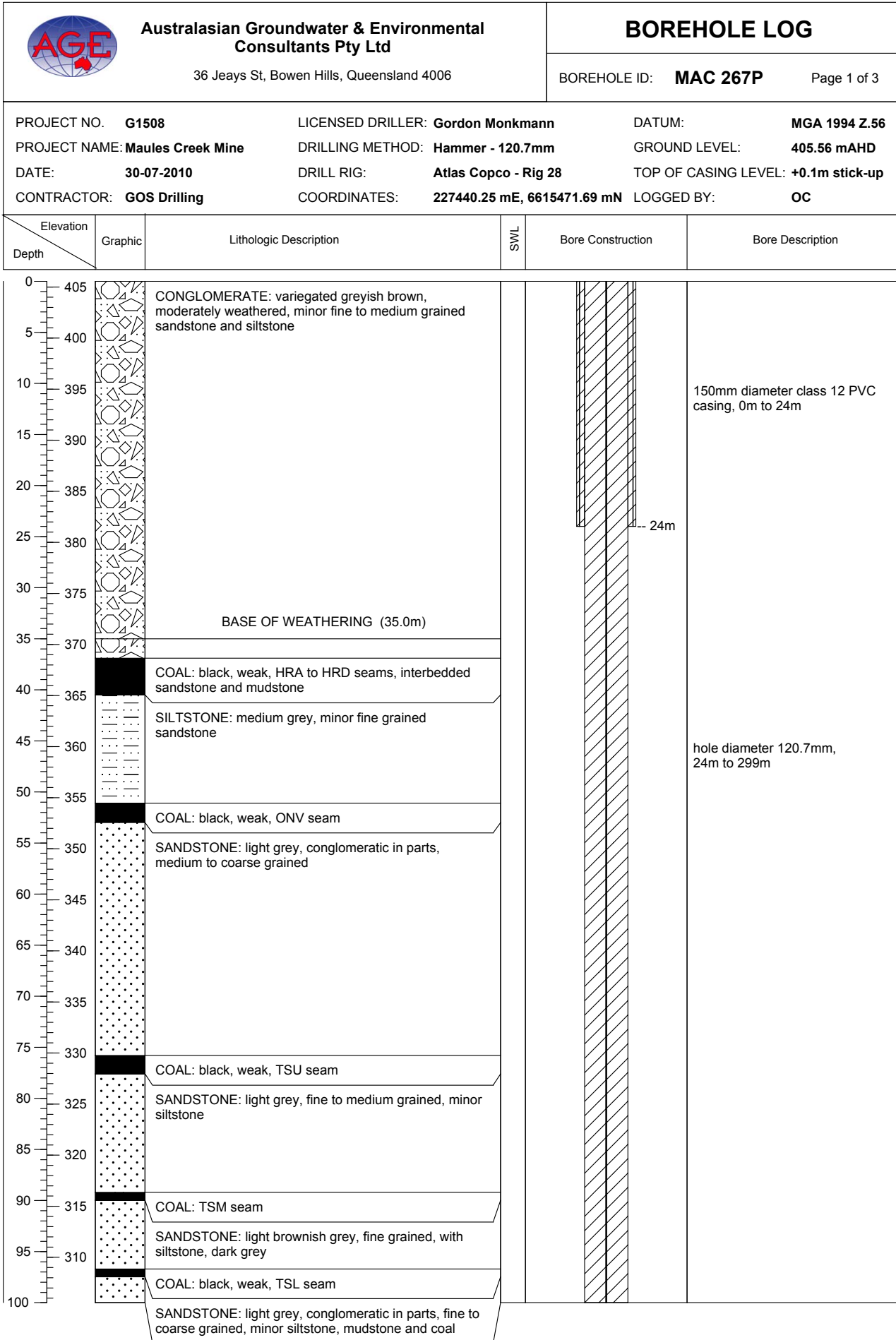
| Elevation | | Graphic | Lithologic Description | SWL | Bore Construction | Bore Description |
|-----------|--|-------------------------------|--|-----|-------------------|---|
| Depth | | | | | | |
| 100 | | [Solid black pattern] | COAL: bright, black, medium strong, BRT and BRL seams, very minor laminated interbedded claystone | | | vibrating wire piezometer pressure sensor, 105m |
| 245 | | | | | | |
| 105 | | [Horizontal dashed pattern] | SILTSTONE: dark grey, strong laminated, minor sandstone, coal and claystone | | | |
| 240 | | | | | | |
| 110 | | [Irregular geometric pattern] | CONGLOMERATE: strong, pebbly, light grey-green, minor sandstone, siltstone and mudstone, laminated, very minor coal bands | | | |
| 235 | | | | | | |
| 115 | | [Irregular geometric pattern] | CONGLOMERATE: strong, pebbly, light grey-green, minor sandstone, siltstone and mudstone, laminated, very minor coal bands | | | |
| 230 | | | | | | |
| 120 | | [Irregular geometric pattern] | CONGLOMERATE: strong, pebbly, light grey-green, minor sandstone, siltstone and mudstone, laminated, very minor coal bands | | | |
| 125 | | | | | | |
| 125 | | [Irregular geometric pattern] | CONGLOMERATE: strong, pebbly, light grey-green, minor sandstone, siltstone and mudstone, laminated, very minor coal bands | | | |
| 130 | | | | | | |
| 130 | | [Dotted pattern] | SANDSTONE: fine to coarse grained, minor siltstone, claystone, conglomerate, laminated, light grey to grey | | | hole diameter 99mm, 9m to 233.96m |
| 215 | | | | | | |
| 135 | | [Solid black pattern] | COAL: bright black, medium strong, occasional sandstone bands, rare calcit, on cleat, JEA to JEC seams | | | |
| 210 | | | | | | |
| 140 | | [Dotted pattern] | SANDSTONE: fine to coarse grained, minor siltstone, claystone, conglomerate, laminated, light grey to grey | | | |
| 205 | | | | | | |
| 145 | | [Dotted pattern] | SANDSTONE: fine to coarse grained, minor siltstone, claystone, conglomerate, laminated, light grey to grey | | | |
| 200 | | | | | | |
| 150 | | [Solid black pattern] | COAL: bright, black, medium strong, MEA to MEC seams | | | |
| 195 | | | | | | |
| 155 | | [Dotted pattern] | SANDSTONE: fine to coarse grained, light grey to light grey-green, interbedded pebble conglomerate, siltstone, minor, carbonaceous laminations | | | cement-bentonite grout, 0m to 233.96m |
| 190 | | | | | | |
| 160 | | [Dotted pattern] | SANDSTONE: fine to coarse grained, light grey to grey, interbedded mudstone, siltstone, conglomerate, carbonaceous in parts | | | |
| 185 | | | | | | |
| 165 | | [Dotted pattern] | SANDSTONE: fine to coarse grained, light grey to grey, interbedded mudstone, siltstone, conglomerate, carbonaceous in parts | | | |
| 180 | | | | | | |
| 170 | | [Solid black pattern] | COAL: bright, black, medium strong, VEB, VEC, NAG and UPN seams | | | |
| 175 | | | | | | |
| 175 | | [Dotted pattern] | SANDSTONE: fine to coarse grained, light grey to grey, interbedded mudstone, siltstone, conglomerate, carbonaceous in parts | | | |
| 180 | | | | | | |
| 180 | | [Solid black pattern] | COAL: bright, black, medium strong, VEB, VEC, NAG and UPN seams | | | vibrating wire piezometer pressure sensor, 183m |
| 165 | | | | | | |
| 185 | | [Dotted pattern] | SANDSTONE: fine to coarse grained, light grey to grey, interbedded mudstone, siltstone, conglomerate, carbonaceous in parts | | | |
| 190 | | | | | | |
| 190 | | [Dotted pattern] | SANDSTONE: fine to coarse grained, light grey to grey, interbedded mudstone, siltstone, conglomerate, carbonaceous in parts | | | |
| 155 | | | | | | |
| 195 | | [Dotted pattern] | SANDSTONE: fine to coarse grained, light grey to grey, interbedded mudstone, siltstone, conglomerate, carbonaceous in parts | | | |
| 150 | | | | | | |
| 200 | | [Dotted pattern] | SANDSTONE: fine to coarse grained, light grey to grey, interbedded mudstone, siltstone, conglomerate, carbonaceous in parts | | | |
| | | | | | | |




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|  Australasian Groundwater & Environmental Consultants Pty Ltd 36 Jeays St, Bowen Hills, Queensland 4006 | BOREHOLE LOG | |
| | BOREHOLE ID: MAC 263 | Page 3 of 3 |

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|--|---|---|
| PROJECT NO. G1508 | LICENSED DRILLER: Gordon Monkman | DATUM: MGA 1994 Z.56 |
| PROJECT NAME: Maules Creek Mine | DRILLING METHOD: HQ - 99mm | GROUND LEVEL: 348.26 mAHD |
| DATE: 23-07-2010 | DRILL RIG: Atlas Copco - Rig 24 | TOP OF CASING LEVEL: +1.41m stick-up |
| CONTRACTOR: GOS Drilling | COORDINATES: 226036.93 mE, 6614512.96 mN | LOGGED BY: LT |

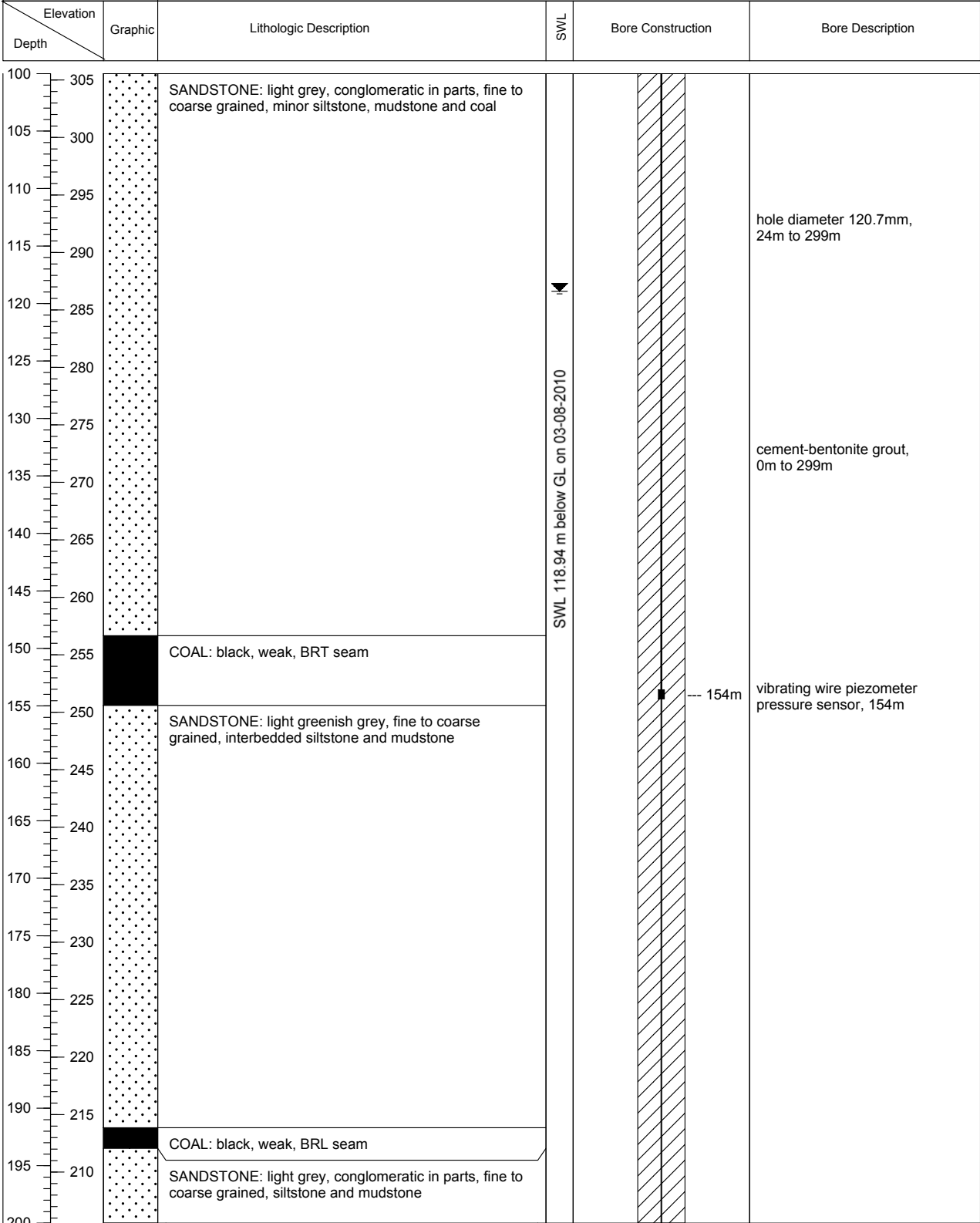
| Elevation Depth | Graphic | Lithologic Description | SWL | Bore Construction | Bore Description |
|--------------------|---------|---|-----|-------------------|---|
| 200 | | SANDSTONE: fine to coarse grained, light grey to grey, interbedded mudstone, siltstone, conglomerate, carbonaceous in parts | | | hole diameter 99mm, 9m to 233.96m cement-bentonite grout, 0m to 233.96m -233.96m total hole depth 233.96m |
| 145 | | COAL: bright, black, medium strong, LRN, TEA, TEB and FLX seams, minor claystone and siltstone interbeds | | | |
| 205 | | CARBONACEOUS MUDSTONE: dark grey, strong laminated, claystone and mudstone | | | |
| 140 | | VOLCANIC ROCK: red, clayey, strong (BOGGABRI VOLCANICS) | | | |
| 210 | | | | | |
| 135 | | | | | |
| 215 | | | | | |
| 130 | | | | | |
| 220 | | | | | |
| 125 | | | | | |
| 225 | | | | | |
| 120 | | | | | |
| 230 | | | | | |
| 115 | | | | | |
| 235 | | | | | |
| 110 | | | | | |
| 240 | | | | | |
| 105 | | | | | |
| 245 | | | | | |
| 100 | | | | | |
| 250 | | | | | |
| 95 | | | | | |
| 255 | | | | | |
| 90 | | | | | |
| 260 | | | | | |
| 85 | | | | | |
| 265 | | | | | |
| 80 | | | | | |
| 270 | | | | | |
| 75 | | | | | |
| 275 | | | | | |
| 70 | | | | | |
| 280 | | | | | |
| 65 | | | | | |
| 285 | | | | | |
| 60 | | | | | |
| 290 | | | | | |
| 55 | | | | | |
| 295 | | | | | |
| 50 | | | | | |
| 300 | | | | | |

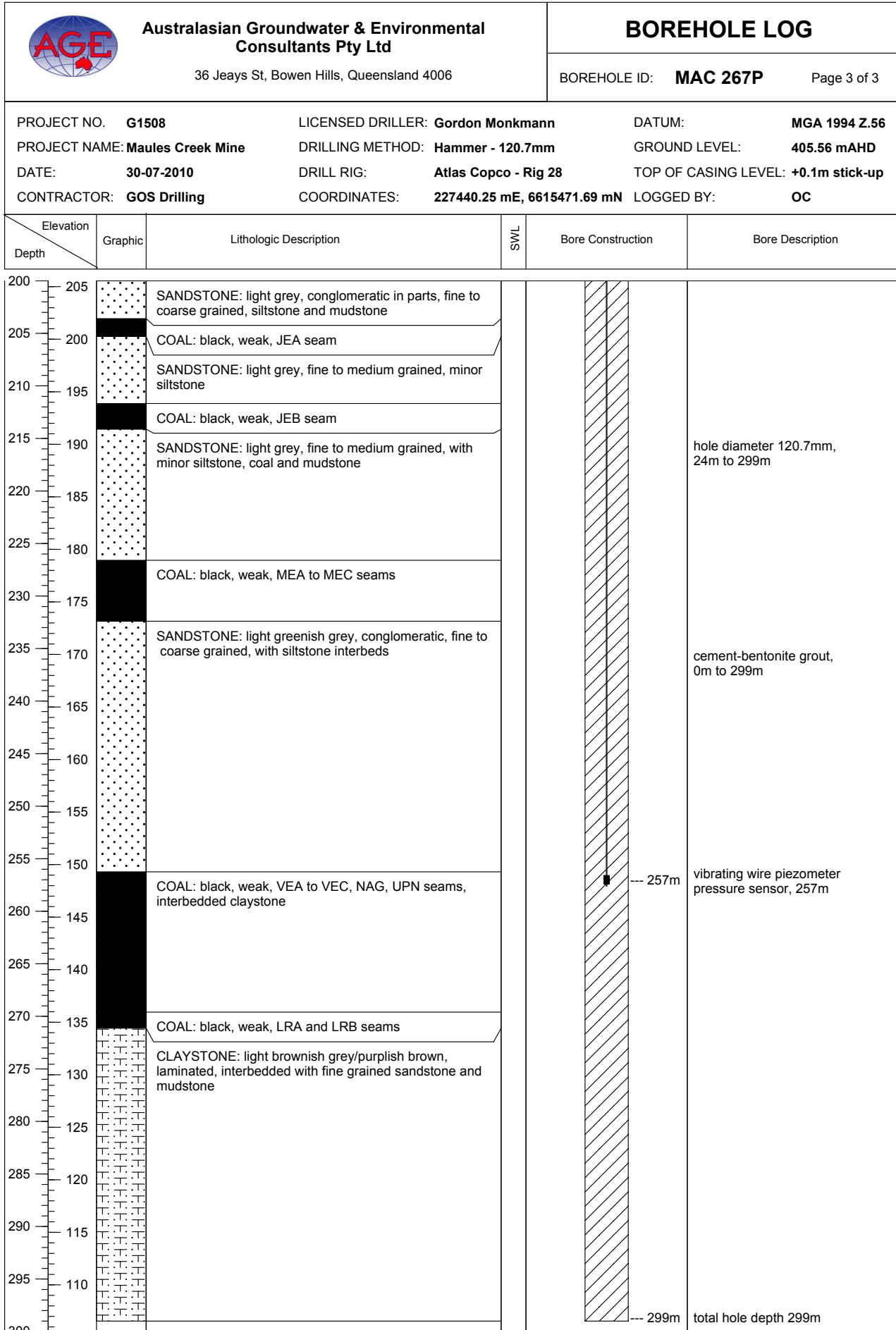




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|  Australasian Groundwater & Environmental Consultants Pty Ltd 36 Jeays St, Bowen Hills, Queensland 4006 | BOREHOLE LOG | |
| | BOREHOLE ID: MAC 267P | Page 2 of 3 |

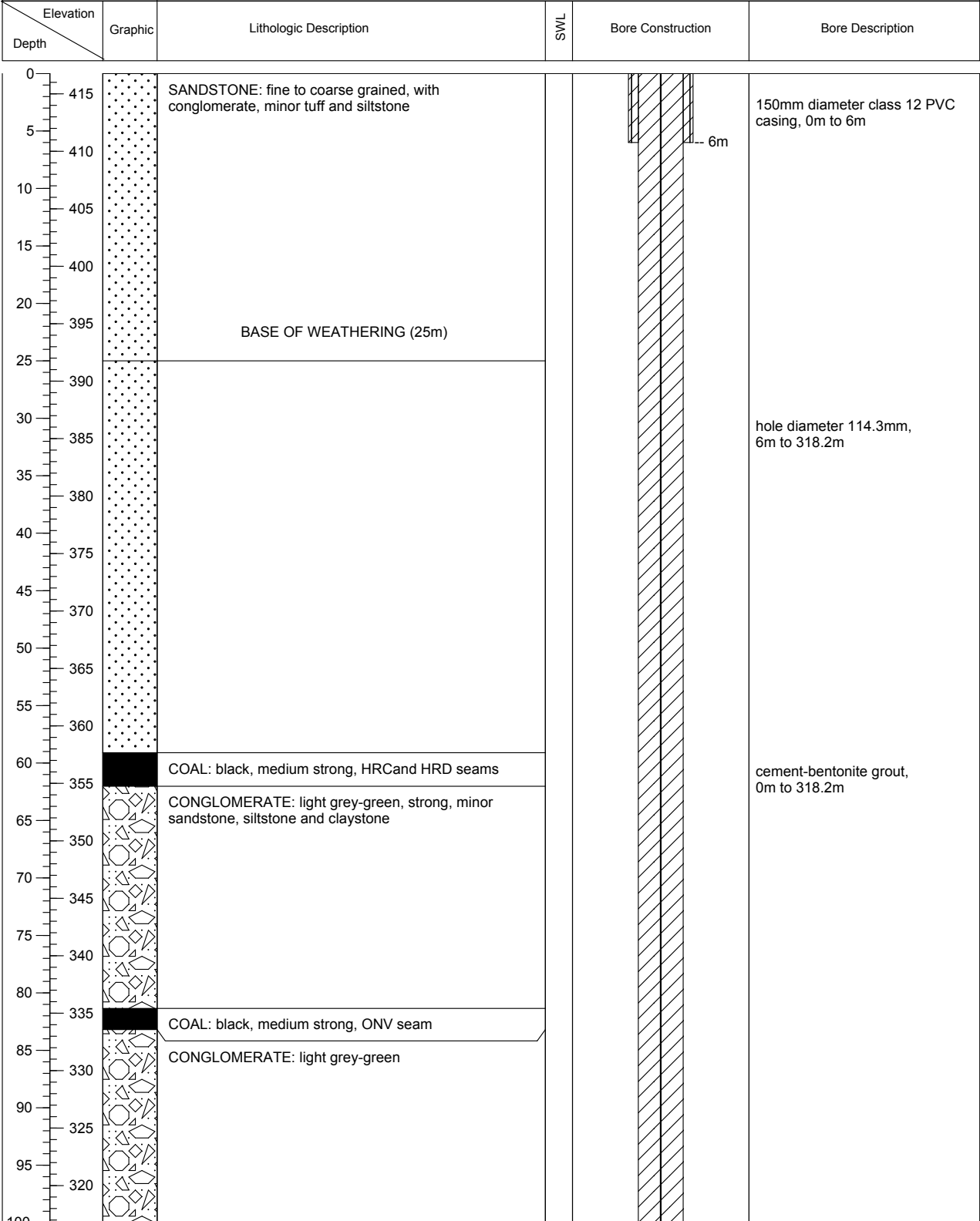
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|--|---|--|
| PROJECT NO. G1508 | LICENSED DRILLER: Gordon Monkmann | DATUM: MGA 1994 Z.56 |
| PROJECT NAME: Maules Creek Mine | DRILLING METHOD: Hammer - 120.7mm | GROUND LEVEL: 405.56 mAHD |
| DATE: 30-07-2010 | DRILL RIG: Atlas Copco - Rig 28 | TOP OF CASING LEVEL: +0.1m stick-up |
| CONTRACTOR: GOS Drilling | COORDINATES: 227440.25 mE, 6615471.69 mN | LOGGED BY: OC |






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| <p>Australasian Groundwater & Environmental Consultants Pty Ltd 36 Jeays St, Bowen Hills, Queensland 4006</p> | <h2>BOREHOLE LOG</h2> | |
| | BOREHOLE ID: MAC 268P | Page 1 of 4 |

| | | |
|--|---|---|
| PROJECT NO. G1508 | LICENSED DRILLER: Gordon Monkman | DATUM: MGA 1994 Z.56 |
| PROJECT NAME: Maules Creek Mine | DRILLING METHOD: Hammer - 114.3mm | GROUND LEVEL: 416.77 mAHD |
| DATE: 06-08-2010 | DRILL RIG: HYDCO 1200 - Rig 28 | TOP OF CASING LEVEL: 416.92 mAHD |
| CONTRACTOR: GOS Drilling | COORDINATES: 227498.49 mE, 6614521.00 mN | LOGGED BY: HJ |



| Elevation | | Graphic | Lithologic Description | SWL | Bore Construction | Bore Description |
|-----------|--|------------------------|--|-------------|-----------------------------|--|
| Depth | | | | | | |
| 100 | | [Conglomerate pattern] | CONGLOMERATE: light grey-green | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 315 | | | | | | |
| 105 | | [Coal pattern] | COAL: black, medium strong, TSU seam | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 310 | | | | | | |
| 110 | | [Sandstone pattern] | SANDSTONE: coarse grained, light grey, minor siltstone and claystone | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 305 | | | | | | |
| 115 | | [Coal pattern] | COAL: TSM seam | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 300 | | | | | | |
| 120 | | [Sandstone pattern] | SANDSTONE: coarse grained, light grey | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 120 | | | | | | |
| 125 | | [Coal pattern] | COAL: black, medium strong, TSL seam | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 295 | | | | | | |
| 130 | | [Conglomerate pattern] | CONGLOMERATE: light grey-green, minor siltstone and claystone | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 290 | | | | | | |
| 135 | | [Coal pattern] | COAL: TNN seam | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 285 | | | | | | |
| 140 | | [Conglomerate pattern] | CONGLOMERATE: light grey-green, with fine to coarse grained sandstone, siltstone | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 280 | | | | | | |
| 145 | | [Conglomerate pattern] | | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 275 | | | | | | |
| 150 | | [Conglomerate pattern] | | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 270 | | | | | | |
| 155 | | [Conglomerate pattern] | | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 265 | | | | | | |
| 160 | | [Coal pattern] | COAL: black, BRA and BRB seams | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 260 | | | | | | |
| 165 | | [Conglomerate pattern] | CONGLOMERATE: light grey-green, minor sandstone and siltstone | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 255 | | | | | | |
| 170 | | [Conglomerate pattern] | | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 250 | | | | | | |
| 175 | | [Conglomerate pattern] | | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 245 | | | | | | |
| 180 | | [Conglomerate pattern] | | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 240 | | | | | | |
| 185 | | [Conglomerate pattern] | | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 235 | | | | | | |
| 190 | | [Coal pattern] | COAL: black, weak, BRM and BRL seams | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 230 | | | | | | |
| 195 | | [Conglomerate pattern] | CONGLOMERATE: mottled grey green/red, interbedded sandstone and siltstone | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 225 | | | | | | |
| 200 | | [Conglomerate pattern] | | [SWL arrow] | [Bore construction pattern] | hole diameter 114.3mm, 6m to 318.2m |
| 220 | | | | | | |



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|  Australasian Groundwater & Environmental Consultants Pty Ltd 36 Jeays St, Bowen Hills, Queensland 4006 | BOREHOLE LOG | |
| | BOREHOLE ID: MAC 268P | Page 3 of 4 |

| | | |
|--|---|---|
| PROJECT NO. G1508 | LICENSED DRILLER: Gordon Monkman | DATUM: MGA 1994 Z.56 |
| PROJECT NAME: Maules Creek Mine | DRILLING METHOD: Hammer - 114.3mm | GROUND LEVEL: 416.77 mAHD |
| DATE: 06-08-2010 | DRILL RIG: HYDCO 1200 - Rig 28 | TOP OF CASING LEVEL: 416.92 mAHD |
| CONTRACTOR: GOS Drilling | COORDINATES: 227498.49 mE, 6614521.00 mN | LOGGED BY: HJ |

| Elevation Depth | Graphic | Lithologic Description | SWL | Bore Construction | Bore Description |
|--|---------|--|-----|-------------------|---|
| 200 215 205 210 205 215 200 220 195 225 190 230 185 235 180 240 175 245 170 250 165 255 160 260 155 265 150 270 145 275 140 280 135 285 130 290 125 295 120 300 | | <p>CONGLOMERATE: mottled grey green/red, interbedded sandstone and siltstone</p> <p>COAL: JEA and JEB seam</p> <p>CONGLOMERATE: mottled grey-green, minor medium grained sandstone</p> <p>COAL: dark grey, medium strong, MEA and MEB seams</p> <p>CONGLOMERATE: light grey green/red, minor siltstone and sandstone</p> <p>COAL: black, VEB, NAG and UPN seams</p> <p>CONGLOMERATE: mottled green/grey, with fine grained sandstone and siltstone, minor coal</p> | | | <p>hole diameter 114.3mm, 6m to 318.2m</p> <p>cement-bentonite grout, 0m to 318.2m</p> <p>vibrating wire piezometer pressure sensor, 280m</p> |

| Elevation | | Graphic | Lithologic Description | SWL | Bore Construction | Bore Description |
|-----------|-----|---------|---|-----|-------------------|--------------------------------------|
| Depth | | | | | | |
| 300 | 115 | | CONGLOMERATE: mottled green/grey, with fine grained sandstone and siltstone, minor coal | | | cement-bentonite grout, 0m to 318.2m |
| 305 | 110 | | COAL: black, LRA seam | | | |
| 310 | 105 | | CLAYSTONE AND CONGLOMERATE: dark grey, mottled green/red, LEARD FORMATION | | | |
| 315 | 100 | | VOLCANIC ROCK: dark red/purple (BOGGABRI VOLCANICS) | | | |
| 320 | 95 | | | | -318.2m | total hole depth 318.2m |
| 325 | 90 | | | | | |
| 330 | 85 | | | | | |
| 335 | 80 | | | | | |
| 340 | 75 | | | | | |
| 345 | 70 | | | | | |
| 350 | 65 | | | | | |
| 355 | 60 | | | | | |
| 360 | 55 | | | | | |
| 365 | 50 | | | | | |
| 370 | 45 | | | | | |
| 375 | 40 | | | | | |
| 380 | 35 | | | | | |
| 385 | 30 | | | | | |
| 390 | 25 | | | | | |
| 395 | 20 | | | | | |
| 400 | | | | | | |



Australasian Groundwater & Environmental Consultants Pty Ltd


36 Jeays St, Bowen Hills, Queensland 4006

BOREHOLE LOG

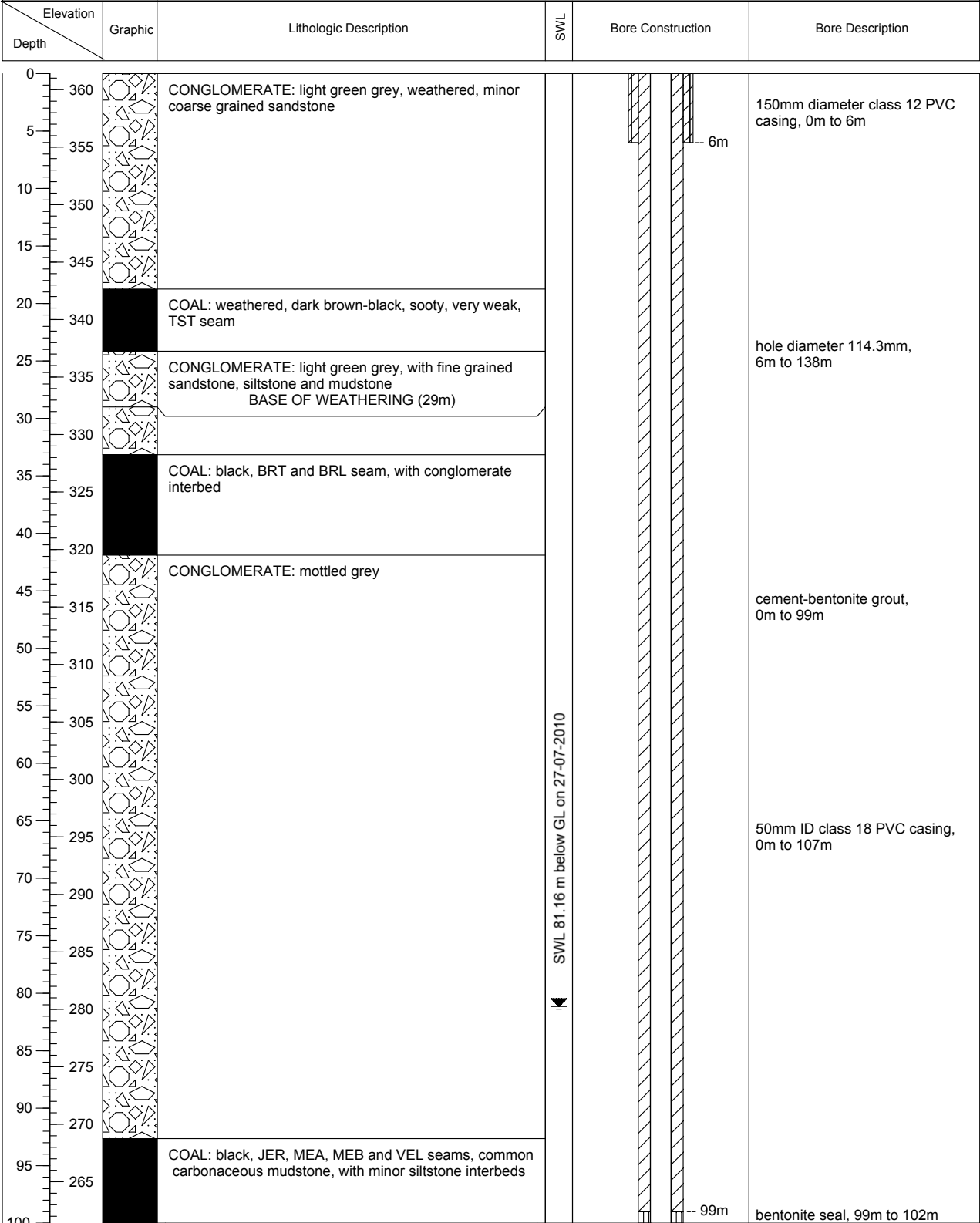
BOREHOLE ID: **MAC 268P** Page 4 of 4

PROJECT NO. **G1508** LICENSED DRILLER: **Gordon Monkman** DATUM: **MGA 1994 Z.56**
 PROJECT NAME: **Maules Creek Mine** DRILLING METHOD: **Hammer - 114.3mm** GROUND LEVEL: **416.77 mAHD**
 DATE: **06-08-2010** DRILL RIG: **HYDCO 1200 - Rig 28** TOP OF CASING LEVEL: **416.92 mAHD**
 CONTRACTOR: **GOS Drilling** COORDINATES: **227498.49 mE, 6614521.00 mN** LOGGED BY: **HJ**




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|  Australasian Groundwater & Environmental Consultants Pty Ltd 36 Jeays St, Bowen Hills, Queensland 4006 | BOREHOLE LOG | |
| | BOREHOLE ID: MAC 1218 | Page 1 of 2 |

| | | |
|--|---|--|
| PROJECT NO. G1508 | LICENSED DRILLER: Gordon Monkman | DATUM: MGA 1994 Z.56 |
| PROJECT NAME: Maules Creek Mine | DRILLING METHOD: | GROUND LEVEL: 361.40 mRL |
| DATE: 09-07-2010 | DRILL RIG: | TOP OF CASING LEVEL: 362.32 mRL |
| CONTRACTOR: GOS Drilling | COORDINATES: 224014.97 mE, 6613693.06 mN | LOGGED BY: HJ |

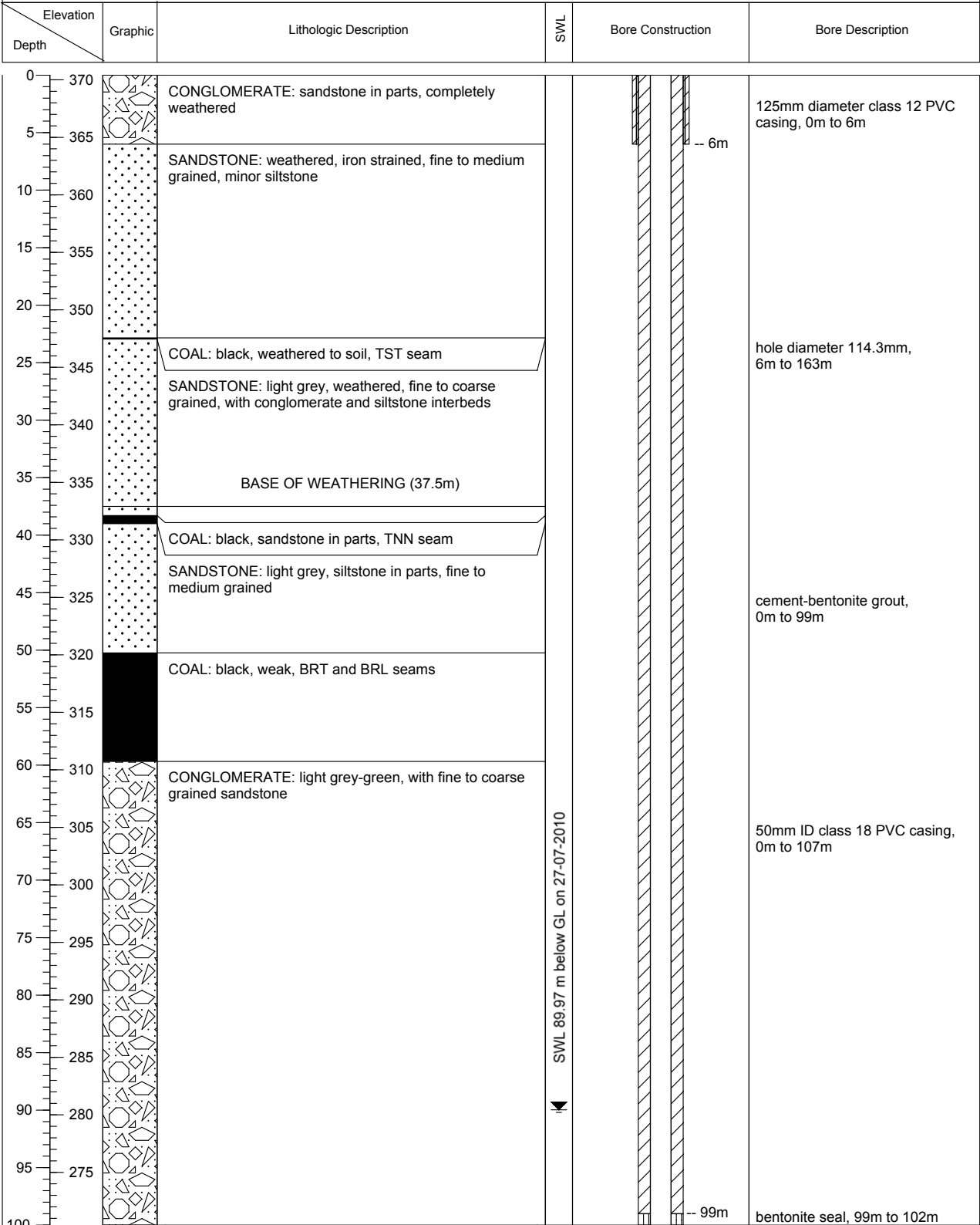


| Elevation | | Graphic | Lithologic Description | SWL | Bore Construction | Bore Description |
|-----------|-----|---------|--|-----|-------------------|--|
| Depth | | | | | | |
| 100 | 260 | | COAL: black, JER, MEA, MEB and VEL seams, common carbonaceous mudstone, with minor siltstone interbeds | | | bentonite seal, 99m to 102m |
| 105 | 255 | | COAL: black, NAG, UPN, LRN, TEA, TEB and FLX seams, with minor mudstone and claystone interbeds | | | gravel filter pack, 3-6mm washed rounded quartz, 102m to 112m |
| 110 | 250 | | SANDSTONE FINE GRAINED: dark grey, with conglomerate, mudstone and siltstone | | | 50mm ID class 18 PVC screen, machine slotted, aperture 0.4mm, 107m to 110m |
| 115 | 245 | | | | | 112m |
| 120 | 240 | | VOLCANIC ROCK: light red-green (BOGGABRI VOLCANICS) | | | cement-bentonite grout, 112m to 138m |
| 125 | 235 | | | | | 138m |
| 130 | 230 | | | | | |
| 135 | 225 | | | | | |
| 140 | 220 | | | | | |
| 145 | 215 | | | | | |
| 150 | 210 | | | | | |
| 155 | 205 | | | | | |
| 160 | 200 | | | | | |
| 165 | 195 | | | | | |
| 170 | 190 | | | | | |
| 175 | 185 | | | | | |
| 180 | 180 | | | | | |
| 185 | 175 | | | | | |
| 190 | 170 | | | | | |
| 195 | 165 | | | | | |
| 200 | 165 | | | | | |



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|  Australasian Groundwater & Environmental Consultants Pty Ltd 36 Jeays St, Bowen Hills, Queensland 4006 | BOREHOLE LOG | |
| | BOREHOLE ID: MAC 1219 | Page 1 of 2 |

| | | |
|--|---|---|
| PROJECT NO. G1508 | LICENSED DRILLER: Gordon Monkman | DATUM: MGA 1994 Z.56 |
| PROJECT NAME: Maules Creek Mine | DRILLING METHOD: Hammer - 114.3mm | GROUND LEVEL: 370.41 mAHD |
| DATE: 08-07-2010 | DRILL RIG: Rig 28 | TOP OF CASING LEVEL: 371.23 mAHD |
| CONTRACTOR: GOS Drilling | COORDINATES: 224171.82mE, 6613677.62mN | LOGGED BY: OC |



| Australasian Groundwater & Environmental Consultants Pty Ltd 36 Jeays St, Bowen Hills, Queensland 4006 | | BOREHOLE LOG | | | |
|--|---|---|-------------|-------------------|--|
| | | BOREHOLE ID: MAC 1219 | Page 2 of 2 | | |
| PROJECT NO. G1508 | LICENSED DRILLER: Gordon Monkman | DATUM: MGA 1994 Z.56 | | | |
| PROJECT NAME: Maules Creek Mine | DRILLING METHOD: Hammer - 114.3mm | GROUND LEVEL: 370.41 mAHD | | | |
| DATE: 08-07-2010 | DRILL RIG: Rig 28 | TOP OF CASING LEVEL: 371.23 mAHD | | | |
| CONTRACTOR: GOS Drilling | COORDINATES: 224171.82mE, 6613677.62mN | LOGGED BY: OC | | | |
| Elevation Depth | Graphic | Lithologic Description | SWL | Bore Construction | Bore Description |
| 100 270 | | CONGLOMERATE: light grey-green, with fine to coarse grained sandstone | | | bentonite seal, 99m to 102m gravel filter pack, 3-6mm washed rounded quartz, 102m to 112m |
| 105 265 | | COAL: black, JER and MEA seams | | | 50mm ID class 18 PVC screen, machine slotted, aperture 0.4mm, 107m to 110m |
| 110 260 | | SANDSTONE: fine to coarse grained, minor siltstone and claystone | | | 50mm ID class 18 PVC screen, machine slotted, aperture 0.4mm, 107m to 110m |
| 115 255 | | | | | |
| 120 250 | | | | | |
| 125 245 | | COAL: black, VEL, NAG, UPN, LRN, TEA, TEB and FLX seams, with claystone and siltstone interbeds | | | |
| 130 240 | | | | | |
| 135 235 | | | | | |
| 140 230 | | SILTSTONE: mottled grey, interbedded with fine grained sandstone | | | |
| 145 225 | | | | | |
| 150 220 | | | | | |
| 155 215 | | VOLCANIC ROCK: light greenish purple (BOGGABRI VOLCANICS) | | | |
| 160 210 | | | | | |
| 165 205 | | | | | |
| 170 200 | | | | | |
| 175 195 | | | | | |
| 180 190 | | | | | |
| 185 185 | | | | | |
| 190 180 | | | | | |
| 195 175 | | | | | |
| 200 | | | | | |
| | | | | | cement-bentonite grout, 112m to 163m |
| | | | | | total hole depth 163m |

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| Australasian Groundwater & Environmental Consultants Pty Ltd 36 Jeays St, Bowen Hills, Queensland 4006 | BOREHOLE LOG | |
| | BOREHOLE ID: MAC 1259 B | Page 1 of 1 |

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| PROJECT NO. G1508 | LICENSED DRILLER: Gordon Monkman | DATUM: MGA 1994 Z.56 |
| PROJECT NAME: Maules Creek Mine | DRILLING METHOD: Hammer - 114.3mm | GROUND LEVEL: 316.95 mAHD |
| DATE: 07-07-2010 | DRILL RIG: Rig 28 | TOP OF CASING LEVEL: +0.15m stick-up |
| CONTRACTOR: GOS Drilling | COORDINATES: 224958.50mE, 6615285.60mN | LOGGED BY: OC |

