

## 12. APPENDIX C – Swept Path Assessments

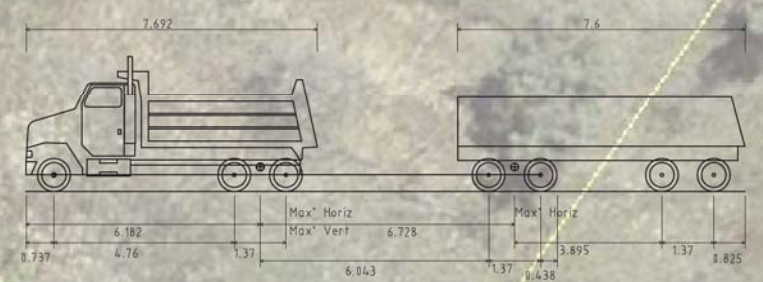
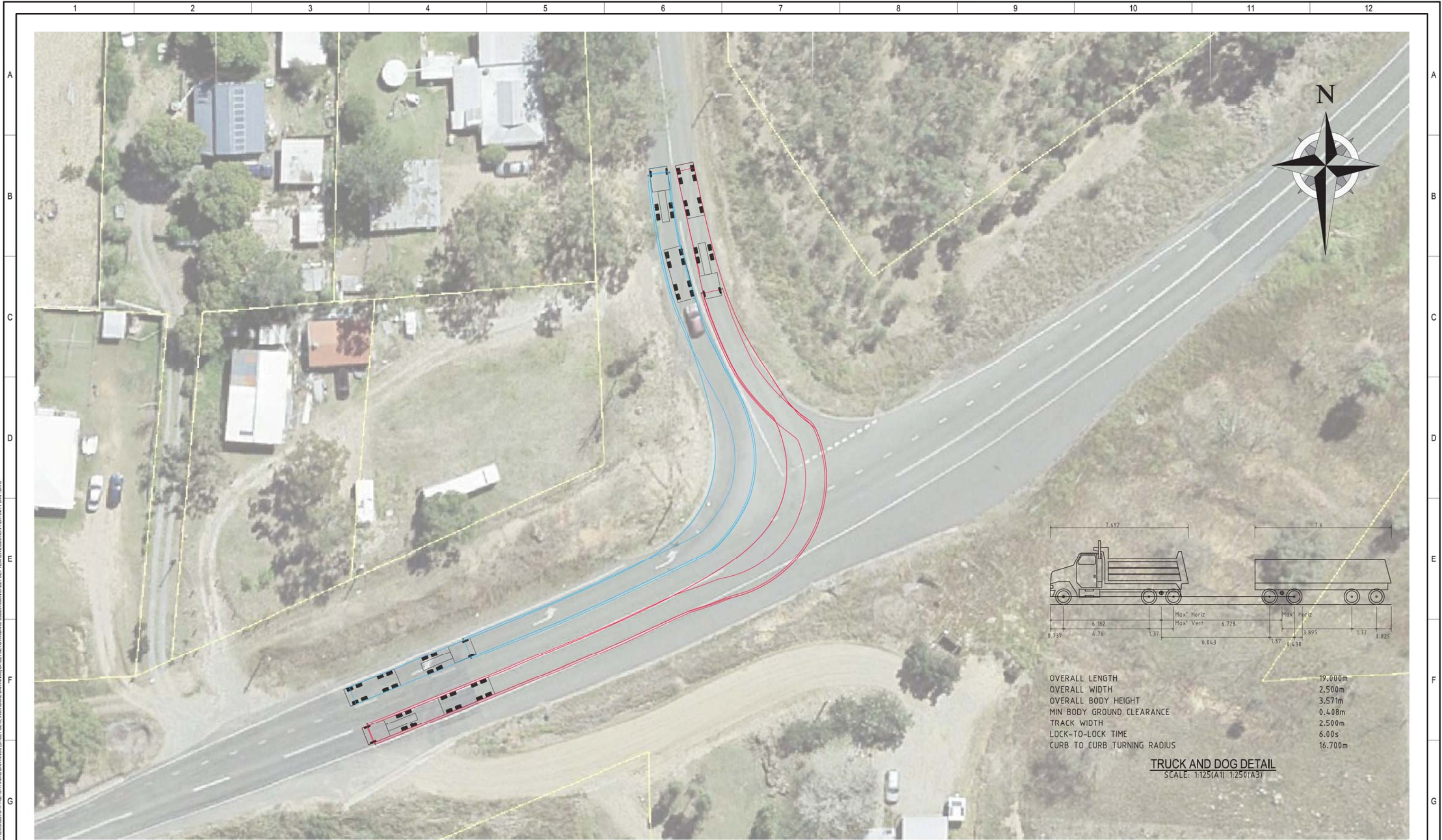






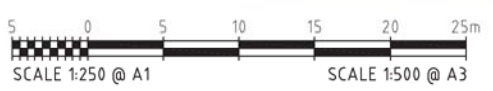






OVERALL LENGTH 19.000m  
 OVERALL WIDTH 2.500m  
 OVERALL BODY HEIGHT 3.571m  
 MIN BODY GROUND CLEARANCE 0.408m  
 TRACK WIDTH 2.500m  
 LOCK-TO-LOCK TIME 6.00s  
 CURB TO CURB TURNING RADIUS 16.700m

**TRUCK AND DOG DETAIL**  
SCALE: 1:125(A1) 1:250(A3)



**PLAN**  
SCALE: 1:250(A1) 1:500(A3)

**INFORMATION ONLY**

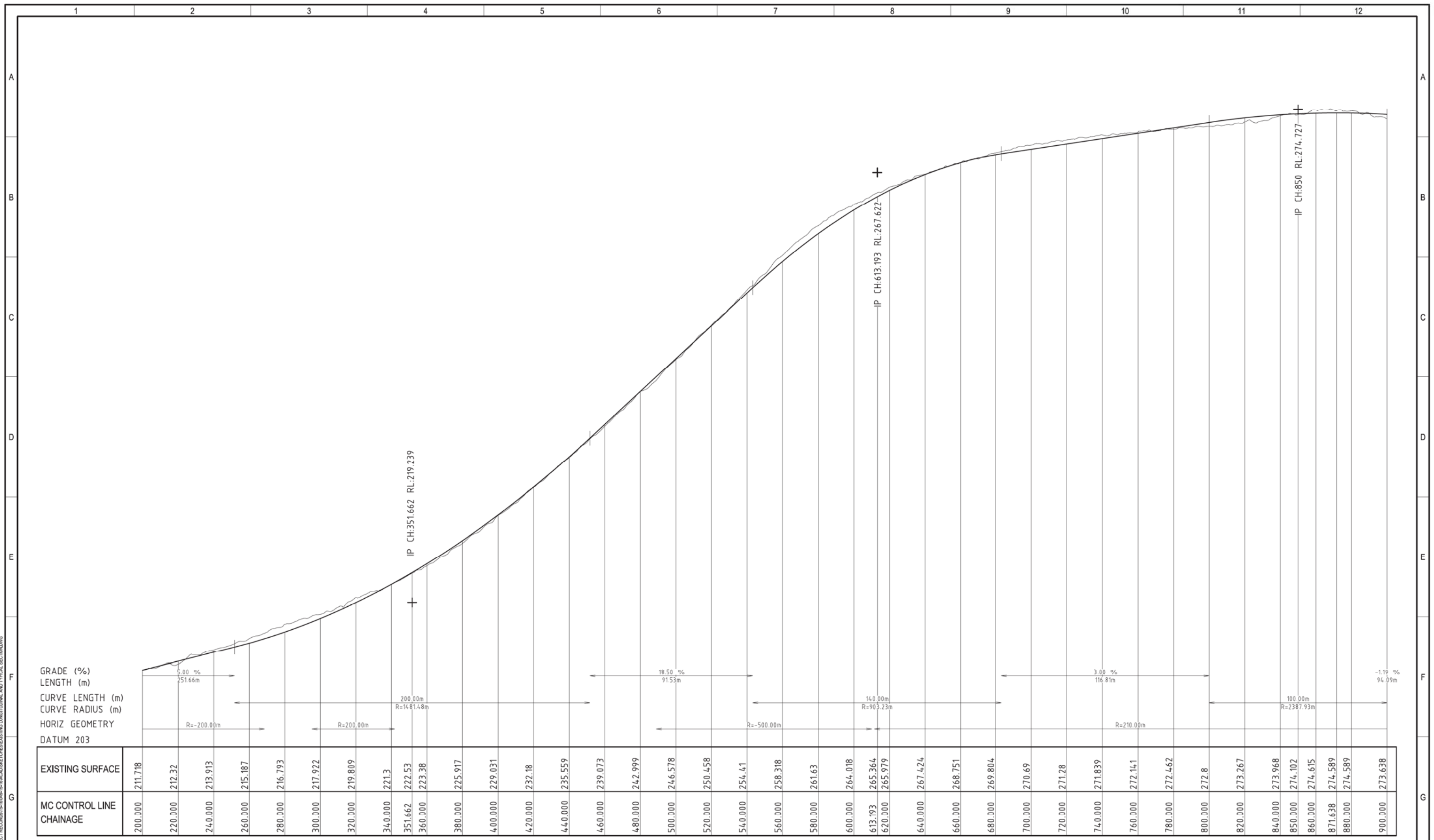
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| SURVEYOR          |  | BY         |  | DATE                 |  | CLIENT                           |  | PREPARED BY   |  | 1021617 CLIENT |  | CARBINE RESOURCES LIMITED                       |  |
| ADDRESS:          |  | REVIEWED   |  |                      |  |                                  |  |   |  | PROJECT        |  | MOUNT MORGAN MINE ROUTE UPGRADES                |  |
| CO-ORDINATE DATUM |  | RPEQ ENG   |  |                      |  |                                  |  | Address: 63 Charles Street<br>NORTH ROCKHAMPTON QLD 4701<br>Phone: (07) 4921 1780<br>Mobile: 0407 631 066<br>Fax: (07) 4921 1790<br>Post: PO BOX 2149, WANDAL QLD 4700<br>E-mail: mail@mcmengineers.com |  | TITLE          |  | BURNETT HIGHWAY AND RAZORBACK ROAD INTERSECTION |  |
| HEIGHT DATUM      |  | RPEQ No:   |  | SCALE: AS SHOWN      |  | © McMurtrie & Associates Pty Ltd |  | DRAWING NUMBER  |  | A1             |  | 1021617-7001                                    |  |
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| A                 |  | 13.04.2017 |  | PRELIMINARY ISSUE    |  |                                  |  |   |  |                |  |   |  |

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 PLOT DATE: 13/04/2017 10:28:51 AM



**13. APPENDIX D – Razorback Road 'jumpup' Details and Horizontal Curve Assessment**





LONGITUDINAL SECTION - RAZORBACK ROAD

**INFORMATION ONLY**

|                      |  |          |  |      |   |                                  |                              |                |                                   |                  |                 |          |   |
|----------------------|--|----------|--|------|---|----------------------------------|------------------------------|----------------|-----------------------------------|------------------|-----------------|----------|---|
| SURVEYOR             |  | BY       |  | DATE | CLIENT  | PREPARED BY                      |                              | 049-15-16      | CLIENT                            | CARBON RESOURCES |                 |          |   |
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| REV                  |  | APPROVED |  |      |   | E-mail:                          | PO BOX 2149, WANDAL QLD 4700 |                | Fax:                              | (07) 4921 1790   |                 |          |   |
| A                    |  | RPEQ ENG |  |      | SCALE: NTS  | © McMurtrie & Associates Pty Ltd |                              | DRAWING NUMBER |                                   | A1               | 0491516-SK-0001 | REVISION | A |
| 19.04.2016           |  | RPEQ No: |  |      |   |                                  |                              |                | 0491516-SK-0001                   |                  |                 |          |   |
| PRELIMINARY ISSUE    |  | DATE     |  |      |   |                                  |                              |                |                                   |                  |                 |          |   |
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| RC                   |  | DATE     |  |      |   |                                  |                              |                |                                   |                  |                 |          |   |
| DRAFT                |  | DATE     |  |      |   |                                  |                              |                |                                   |                  |                 |          |   |
| KF                   |  | DATE     |  |      |   |                                  |                              |                |                                   |                  |                 |          |   |
| DESIGN               |  | DATE     |  |      |   |                                  |                              |                |                                   |                  |                 |          |   |
| RPEQ ENG             |  | DATE     |  |      |   |                                  |                              |                |                                   |                  |                 |          |   |

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PLOT DATE: 28/03/2017 8:18:03 AM





FIGURE 1 - RAZORBACK ROAD



FIGURE 2 - RAZORBACK ROAD 18.5% MAX GRADE



FIGURE 3 - TYPICAL SHOULDERS



FIGURE 4 - TYPICAL SHOULDER AT BOTTOM OF 'JUMP UP'

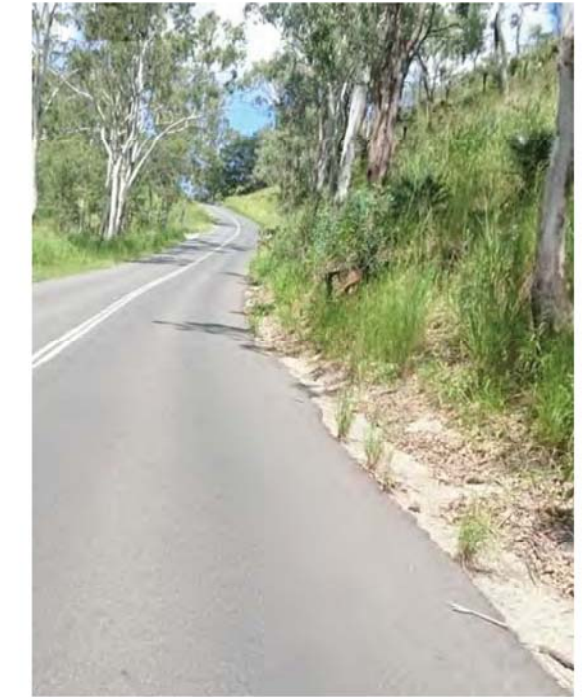


FIGURE 5 - CONCRETE SPOON DRAIN



FIGURE 6 - SHOULDER AND DRAIN



FIGURE 7 - TYPICAL SHOULDER AND DRAIN



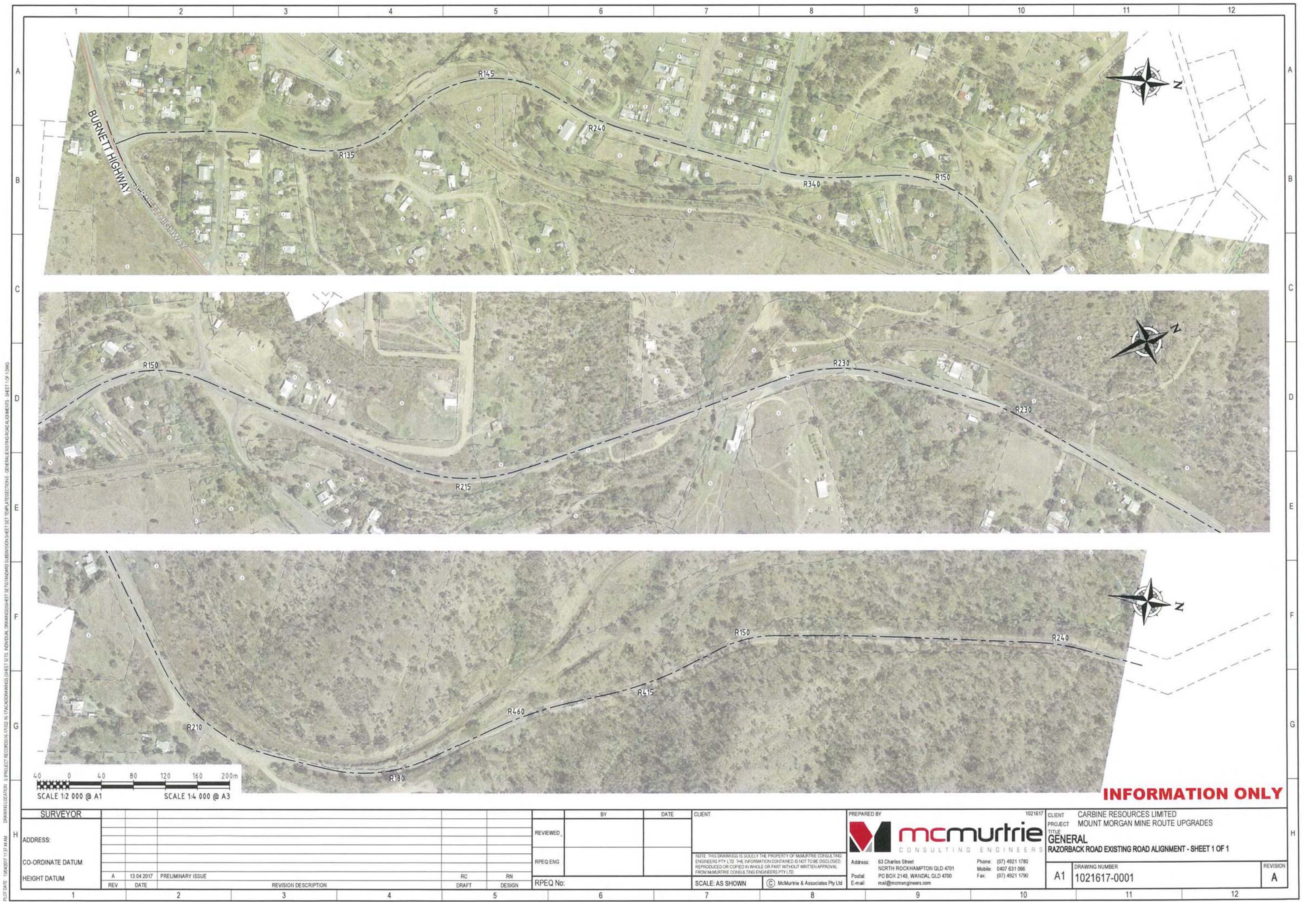
FIGURE 8 - TYPICAL SHOULDERS

**INFORMATION ONLY**

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|                           |   |                      |   |          |   |            |   |   |    |  |    |  |  |
|---------------------------|---|----------------------|---|----------|---|------------|---|---|----|--|----|--|--|
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| 1                         | 2 | 3                    | 4 | 5        | 6 | 7          | 8 | 9   | 10 | 11   | 12 |  |  |





DRAWING LOCATION: 5 PROJECT RECORDING: 17102 16 TACADRAWINGS SHEETS: INDIVIDUAL DRAWINGS SHEET SETS: STANDARD SUBDIVISION SHEET SET TEMPLATES/SECTION: GENERAL ROAD ALIGNMENTS - SHEET 1 OF 1 DWG

**INFORMATION ONLY**

|                   |      |                   |          |                 |  |                                  |  |  |  |   |  |                                  |  |                           |  |  |
|-------------------|------|-------------------|----------|-----------------|--|----------------------------------|--|--|--|---|--|----------------------------------|--|---------------------------|--|--|
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| CO-ORDINATE DATUM |      | RPEQ ENG          |          |                 |  |                                  |  | Address: 63 Charles Street<br>NORTH ROCKHAMPTON QLD 4701<br>Phone: (07) 4921 1780<br>Mobile: 0407 631 066<br>Fax: (07) 4921 1790<br>Postal: PO BOX 2149, WANDAL QLD 4700<br>E-mail: mal@mcmengineers.com |  | Title: GENERAL<br>RAZORBACK ROAD EXISTING ROAD ALIGNMENT - SHEET 1 OF 1 |  | DRAWING NUMBER                   |  | REVISION                  |  |  |
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14. APPENDIX E – Conceptual Layouts for Upgrades







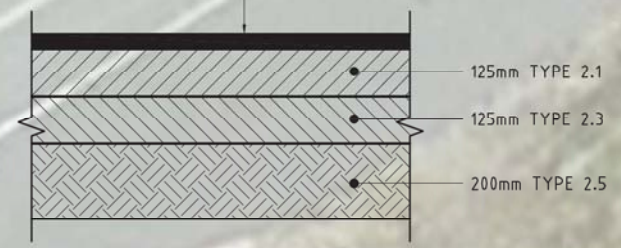






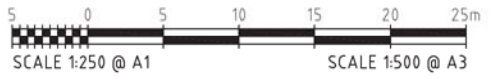
PAVEMENT WIDENING (REFER TO DETAIL)

2 COAT BITUMEN SEAL  
DOUBLE/DOUBLE SEAL  
C170 @ 1.5L/m<sup>2</sup> AND 14mm COVER AGGREGATE  
C170 @ 1.2L/m<sup>2</sup> AND 10mm COVER AGGREGATE



PAVEMENT WIDENING DETAIL  
SCALE: 1:100(A1) 1:200(A3)

PLAN  
SCALE: 1:250(A1) 1:500(A3)



**INFORMATION ONLY**

|                                 |  |          |  |                 |  |                                  |  |  |  |                |  |   |  |
|---------------------------------|--|----------|--|-----------------|--|----------------------------------|--|--|--|----------------|--|---|--|
| SURVEYOR                        |  | BY       |  | DATE            |  | CLIENT                           |  | PREPARED BY  |  | 1021617 CLIENT |  | CARBINE RESOURCES LIMITED                       |  |
| ADDRESS:                        |  | REVIEWED |  |                 |  |                                  |  |  |  | PROJECT        |  | MOUNT MORGAN MINE ROUTE UPGRADES                |  |
| CO-ORDINATE DATUM               |  | RPEQ ENG |  |                 |  |                                  |  | Address: 63 Charles Street<br>NORTH ROCKHAMPTON QLD 4701<br>Phone: (07) 4921 1780<br>Mobile: 0407 631 066<br>Post: PO BOX 2149, WANDAL QLD 4700<br>E-mail: mail@mcmengineers.com |  | TITLE          |  | BURNETT HIGHWAY AND RAZORBACK ROAD INTERSECTION |  |
| HEIGHT DATUM                    |  | RPEQ No: |  | SCALE: AS SHOWN |  | © McMurtrie & Associates Pty Ltd |  | 1021617<br>1021617-7002  |  | DRAWING NUMBER |  | A1 1021617-7002                                 |  |
| A<br>REV DATE PRELIMINARY ISSUE |  | RC DRAFT |  | RN DESIGN       |  |                                  |  |  |  | REVISION       |  | A   |  |

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PLOT DATE: 13/04/2017 10:31:59 AM













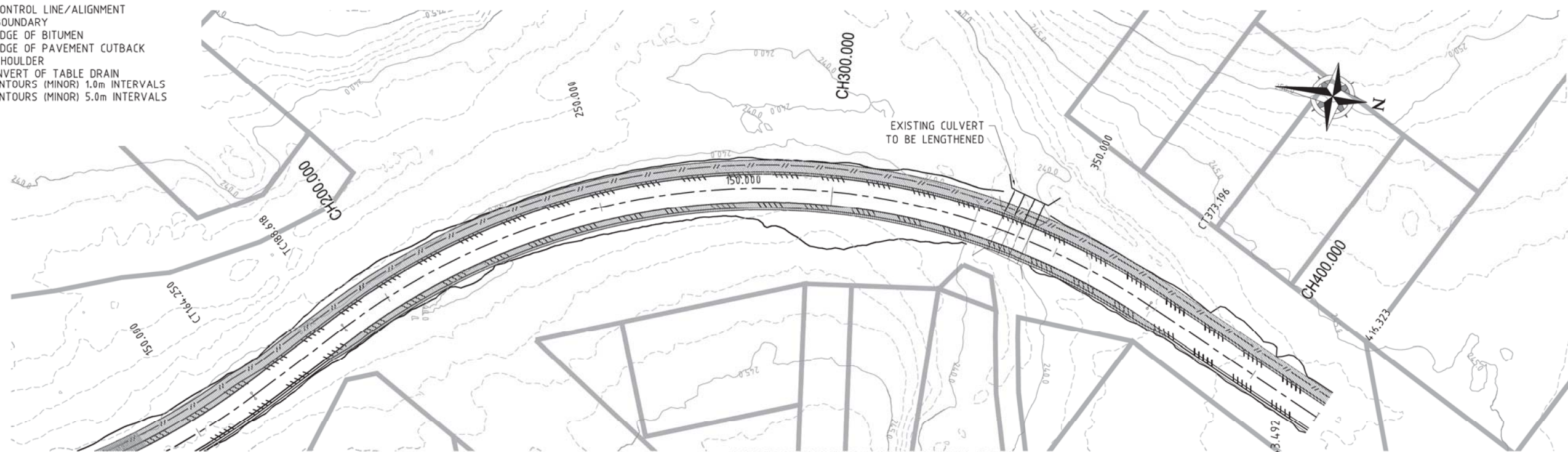






**LEGEND**

-  PROPOSED CONTROL LINE/ALIGNMENT
-  PROPERTY BOUNDARY
-  PROPOSED EDGE OF BITUMEN
-  PROPOSED EDGE OF PAVEMENT CUTBACK
-  PROPOSED SHOULDER
-  PROPOSED INVERT OF TABLE DRAIN
-  EXISTING CONTOURS (MINOR) 1.0m INTERVALS
-  EXISTING CONTOURS (MINOR) 5.0m INTERVALS



GRADE (%)  
LENGTH (m)  
CURVE LENGTH (m)  
CURVE RADIUS (m)  
HORIZ GEOMETRY

DATUM 234


| CONTROL LINE DESIGN HEIGHTS | EXISTING SURFACE | DEPTH TO EXISTING SURFACE | MC CONTROL LINE CHAINAGE |
|-----------------------------|------------------|---------------------------|--------------------------|
| 240.887                     | 240.998          | 0.111                     | 151.759                  |
| 240.789                     | 240.742          | -0.047                    | 160.010                  |
| 240.549                     | 240.57           | 0.022                     | 180.010                  |
| 240.309                     | 240.336          | 0.028                     | 200.000                  |
| 240.137                     | 240.22           | 0.083                     | 220.000                  |
| 240.133                     | 240.239          | 0.106                     | 223.197                  |
| 240.136                     | 240.244          | 0.108                     | 226.054                  |
| 240.232                     | 240.279          | 0.047                     | 240.000                  |
| 240.539                     | 240.663          | 0.124                     | 260.000                  |
| 240.782                     | 240.838          | 0.056                     | 280.000                  |
| 240.794                     | 240.834          | 0.039                     | 285.378                  |
| 240.794                     | 240.837          | 0.043                     | 286.554                  |
| 240.704                     | 240.888          | 0.185                     | 300.000                  |
| 240.362                     | 240.44           | 0.078                     | 320.000                  |
| 240.258                     | 240.313          | 0.055                     | 329.451                  |
| 240.329                     | 239.02           | -1.309                    | 337.054                  |
| 240.394                     | 239.123          | -1.271                    | 340.000                  |
| 241.317                     | 241.069          | -0.248                    | 360.000                  |
| 242.417                     | 242.357          | -0.06                     | 380.000                  |
| 243.367                     | 243.254          | -0.113                    | 399.554                  |
| 243.386                     | 243.276          | -0.11                     | 400.000                  |
| 243.992                     | 243.835          | -0.157                    | 416.323                  |

**REVERSE CURVES LONGITUDIAL SECTION**

HORIZ SCALE 1:500(A1) 1:1000(A3)  
VERT SCALE 1:100(A1) 1:200(A3)



**INFORMATION ONLY**

|                      |  |          |  |        |  |                                  |  |   |  |                              |  |  |  |
|----------------------|--|----------|--|--------|--|----------------------------------|--|---|--|------------------------------|--|--|--|
| SURVEYOR             |  | BY       |  | DATE   |  | CLIENT                           |  | PREPARED BY   |  | 1021617 CLIENT               |  | CARBINE RESOURCES LIMITED                |  |
| ADDRESS:             |  | REVIEWED |  |        |  |                                  |  |  |  | NORTH ROCKHAMPTON QLD 4701   |  | PROJECT MOUNT MORGAN MINE ROUTE UPGRADES |  |
| CO-ORDINATE DATUM    |  | RPEQ ENG |  |        |  |                                  |  | CONSULTING ENGINEERS  |  | PO BOX 2149, WANDAL QLD 4700 |  | TITLE CREEK STREET REVERSE CURVES        |  |
| HEIGHT DATUM         |  | RPEQ No: |  |        |  |                                  |  | Address: 63 Charles Street  |  | Phone: (07) 4921 1780        |  | ROADWORKS LAYOUT PLAN - SHEET 2 OF 2     |  |
| A                    |  | RC       |  | RN     |  | SCALE: AS SHOWN                  |  | Postal: PO BOX 2149, WANDAL QLD 4700  |  | Mobile: 0407 631 066         |  | DRAWING NUMBER                           |  |
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| REVISION DESCRIPTION |  |          |  |        |  |                                  |  |   |  |                              |  | REVISION                                 |  |
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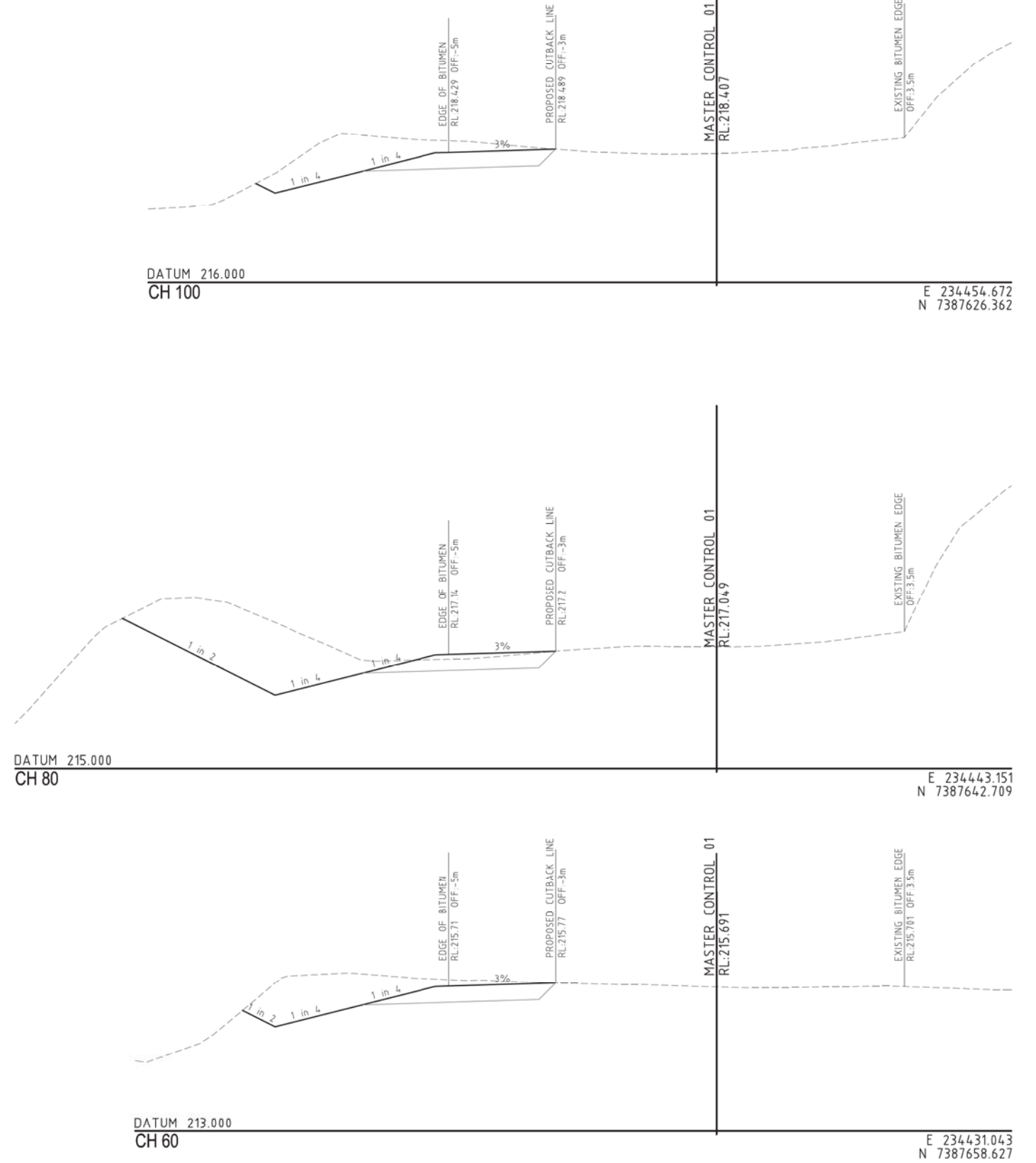
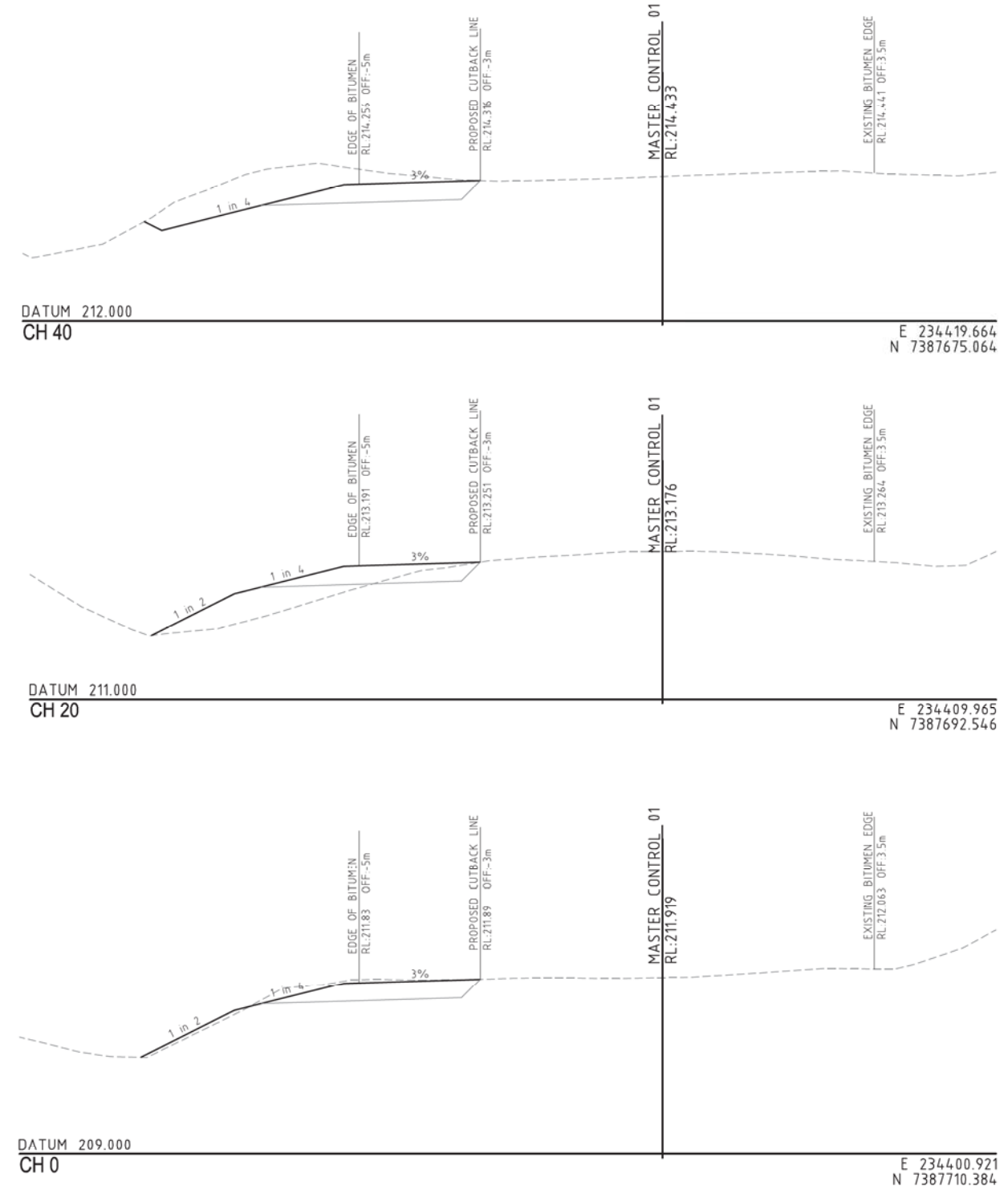








**NOTE**  
MATCH WIDENING CROSSFALL TO EXISTING PAVEMENT. PAVEMENT IS PROVISIONAL ONLY.



**RAZORBACK CROSS SECTIONS - CH: 0.000 - 100.000**  
SCALE: 1:50(A1) 1:100(A3)

**INFORMATION ONLY**

|                   |  |                                  |  |                      |  |        |  |                              |  |                       |  |                                  |  |
|-------------------|--|----------------------------------|--|----------------------|--|--------|--|------------------------------|--|-----------------------|--|----------------------------------|--|
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| CO-ORDINATE DATUM |  | RPEQ ENG                         |  |                      |  |        |  | CONSULTING ENGINEERS         |  | TITLE                 |  | RAZORBACK ROAD JUMP UP           |  |
| HEIGHT DATUM      |  | RPEQ No:                         |  |                      |  |        |  | Address: 63 Charles Street   |  | Phone: (07) 4921 1780 |  | DRAWING NUMBER                   |  |
| A                 |  | 13.04.2017                       |  | PRELIMINARY ISSUE    |  | RC     |  | NORTH ROCKHAMPTON QLD 4701   |  | Mobile: 0407 631 066  |  | A1                               |  |
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