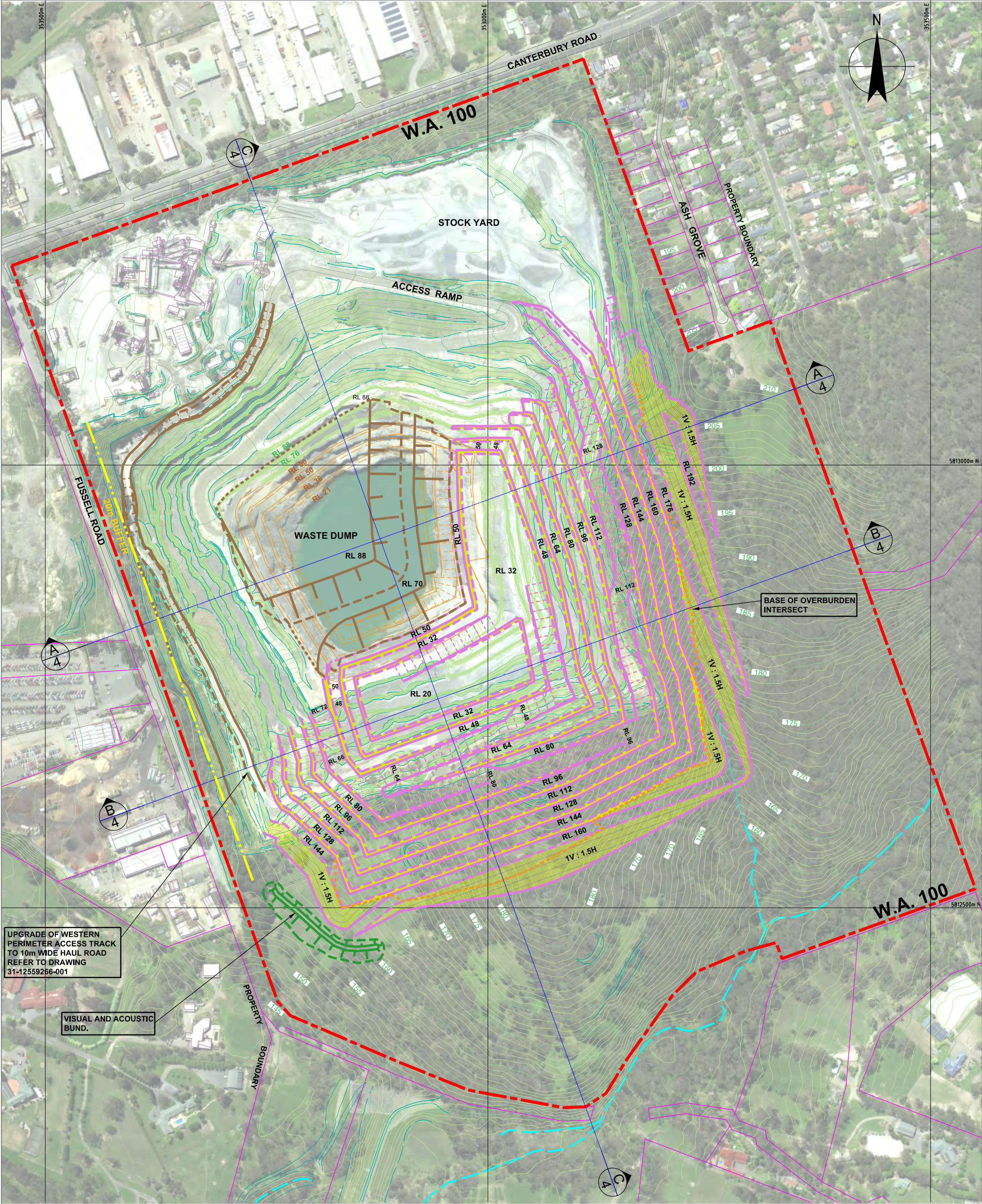


# Appendices

# Appendix A

Final Pit Model







0 20 40 60 80 100m

SCALE 1:2000 AT ORIGINAL SIZE

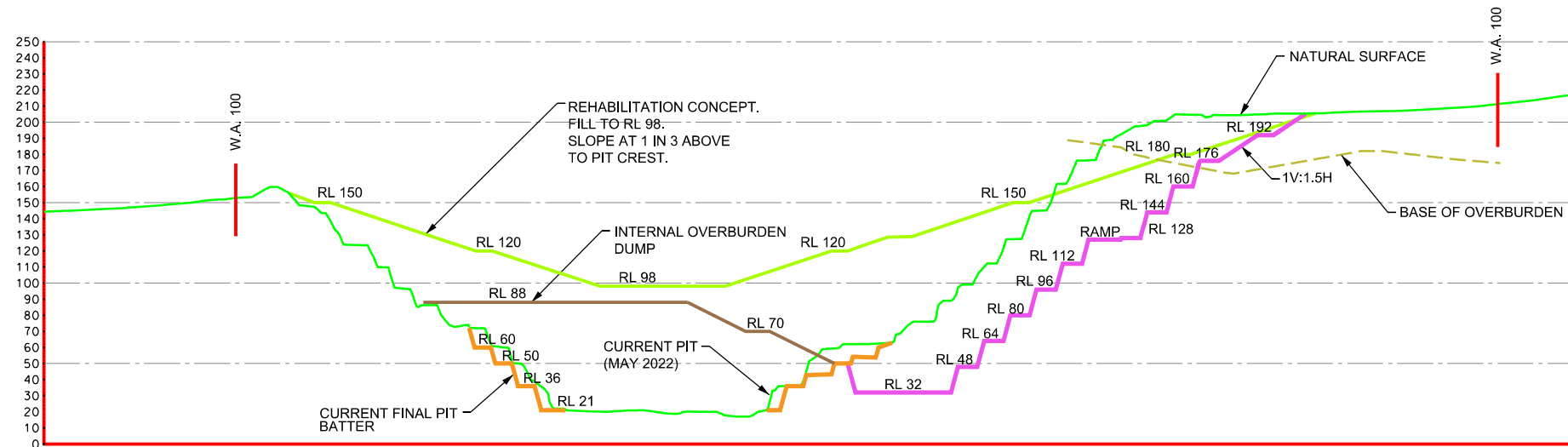
**LEGEND:**

- Existing Quarry Faces
- Current Design of Final Batters
- Proposed Expansion Final Batter

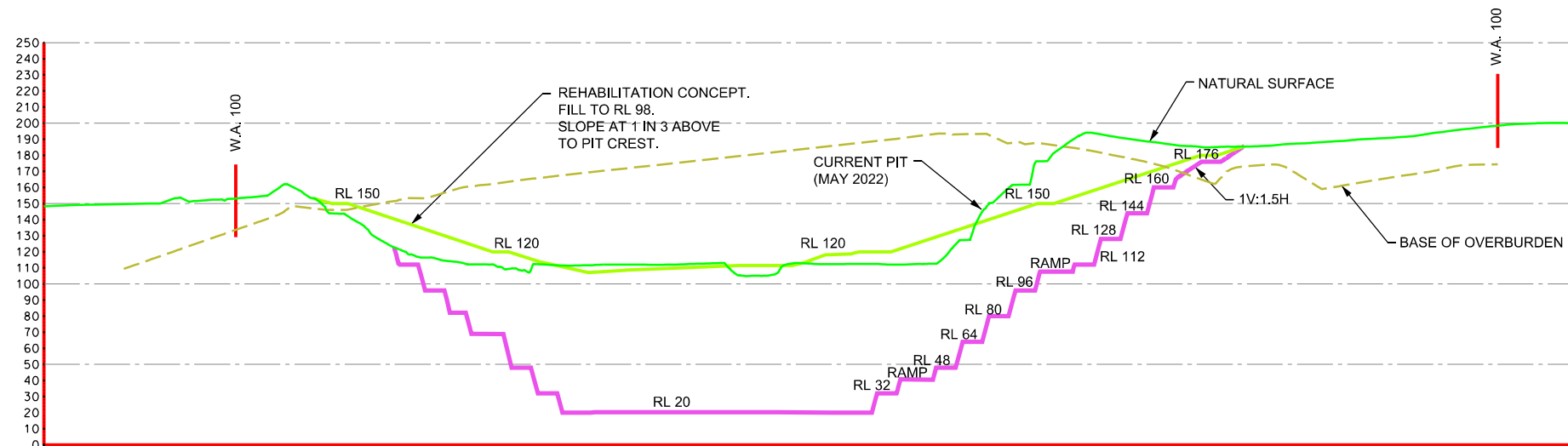
<b>Rev</b> Description Checked Approved Date		 <p>Level 8, 180 Lonsdale Street, Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E melm@ghd.com W www.ghd.com</p>	 <p>www.ghd.com</p>	Client <b>BORAL</b>	Project <b>MONTROSE QUARRY EXTENSION</b>	Drawing Title <b>Final Batters</b>	Size <b>A1</b>				
Author S. Verheijen Drafting Check								Status	Status Code	Drawing No. <b>21-12559266-003</b>	Rev <b>A</b>
Designer Design Check											

Plot Date: - Plotted by: - File Name: C:\Quarries\Montrose Quarry\test mform.dgn

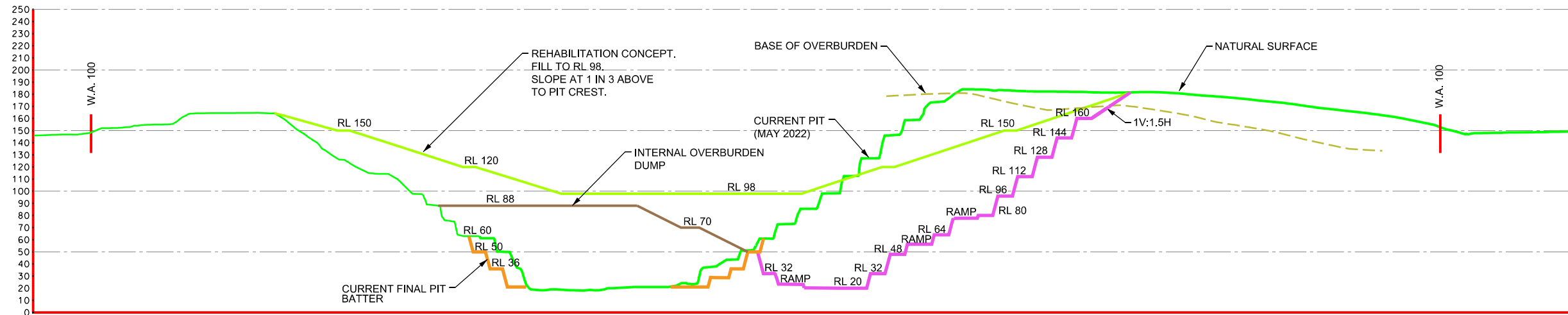




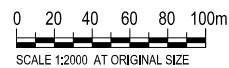
SECTION A - A WEST EAST SECTION THRU CENTER OF CURRENT PIT



SECTION B - B WEST EAST SECTION THRU EXPANSION



SECTION C - C NORTH SOUTH SECTION THRU CENTER OF CURRENT PIT



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Author	S. Verheijen	Drafting Check		
Designer		Design Check		

File Name: C:\Quarries\Montrose Quarry\test mfarm.dgn



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Project	MONTROSE QUARRY EXTENSION
Status	

Drawing Title TYPICAL SECTIONS

Drawing No. 21-12559266-004

Size A1 Rev A



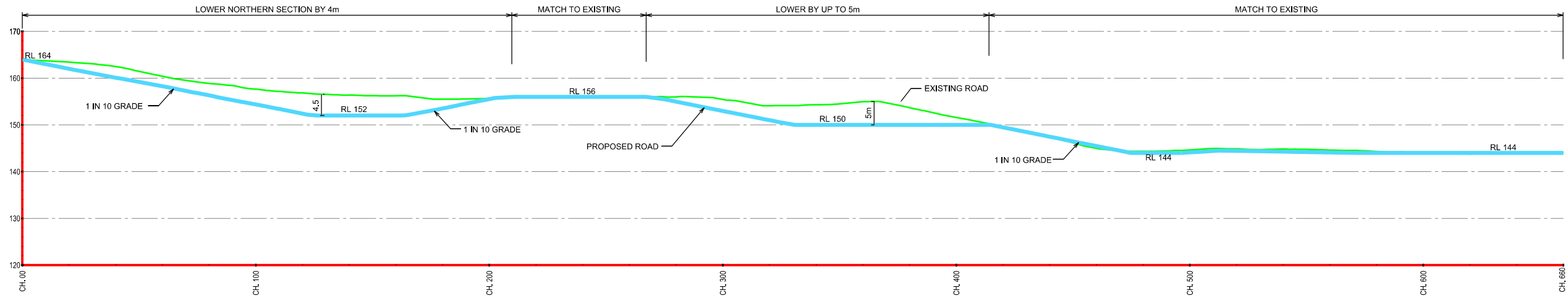
# **Appendix B**

## **Western Haul Road Concept**

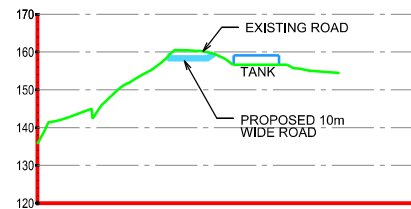




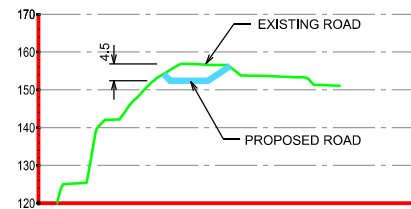




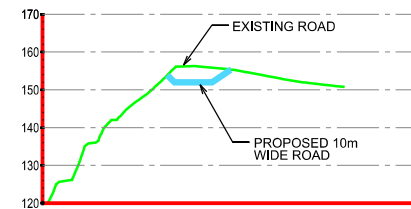
LONGITUDINAL SECTION - 2:1 VERTICAL EXAGGERATION



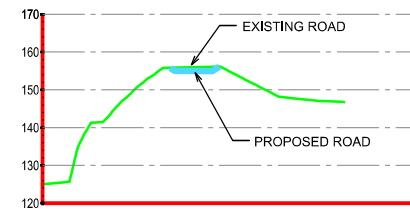
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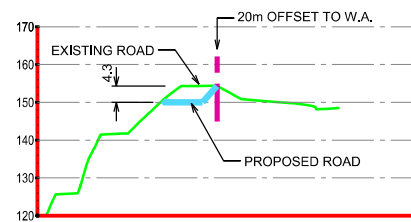
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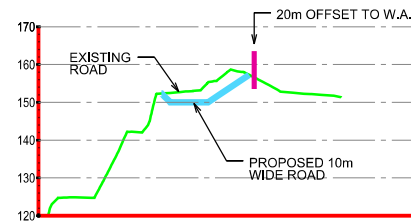
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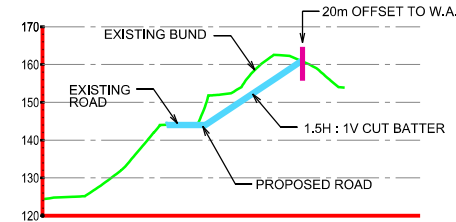
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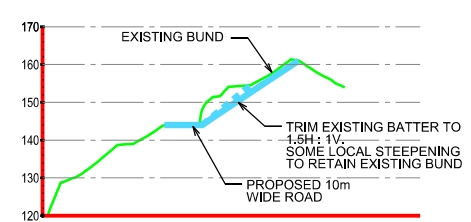
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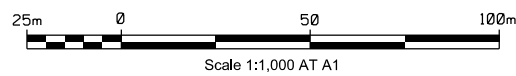


CHAINAGE 480.00



CHAINAGE 580.00

CROSS SECTIONS - 1:1



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Author	S. Verheijen	Drafting Check		
Designer		Design Check		

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Project No.

Client	BORAL
Project	MONTROSE QUARRY EXTENSION
Status	

Drawing Title  
**WESTERN ROAD UPGRADE SECTIONS**

Size  
**A1**

Drawing No.  
**21-12559266-002**

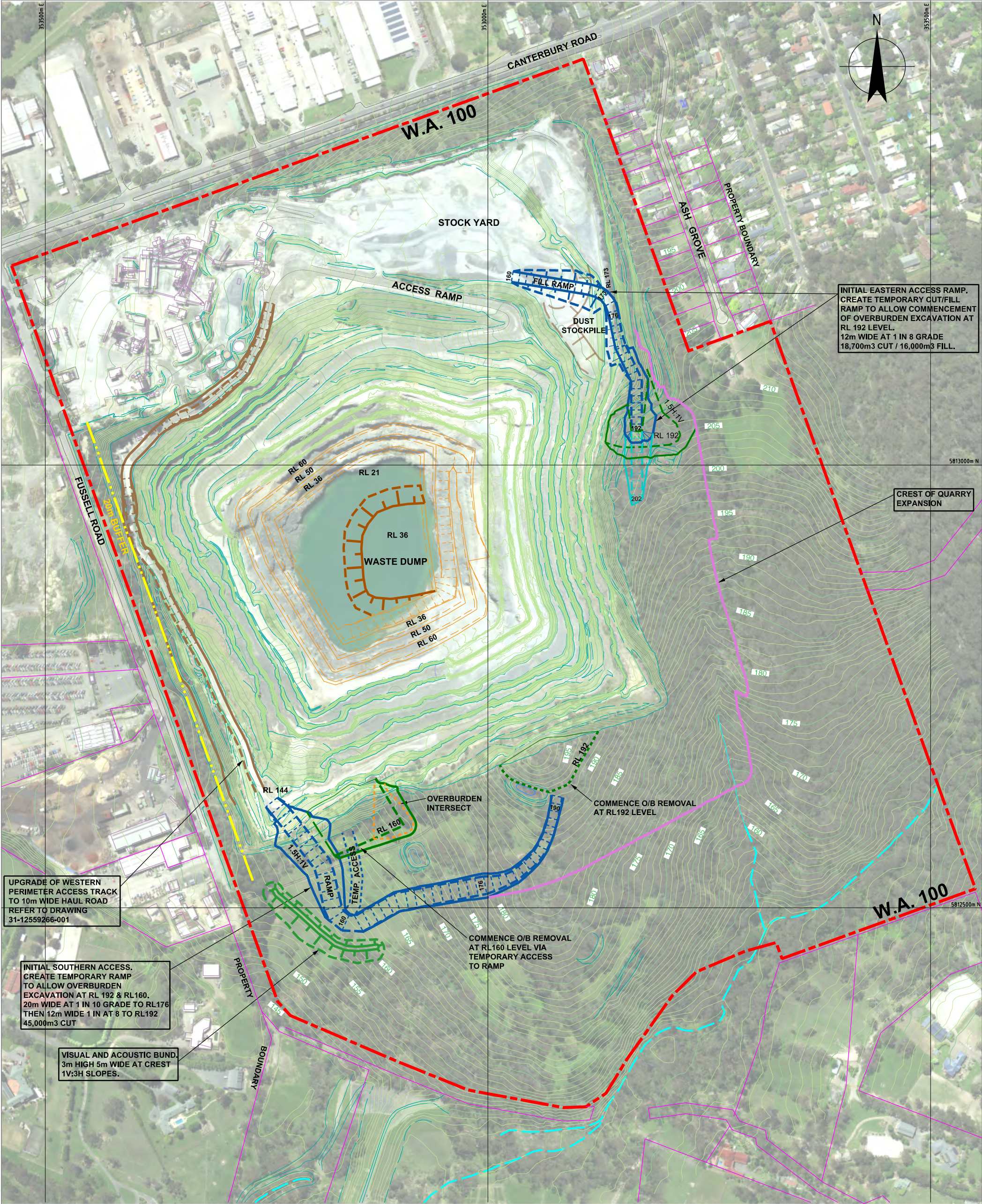
Rev  
**A**



# **Appendix C**

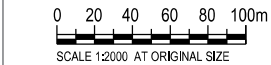
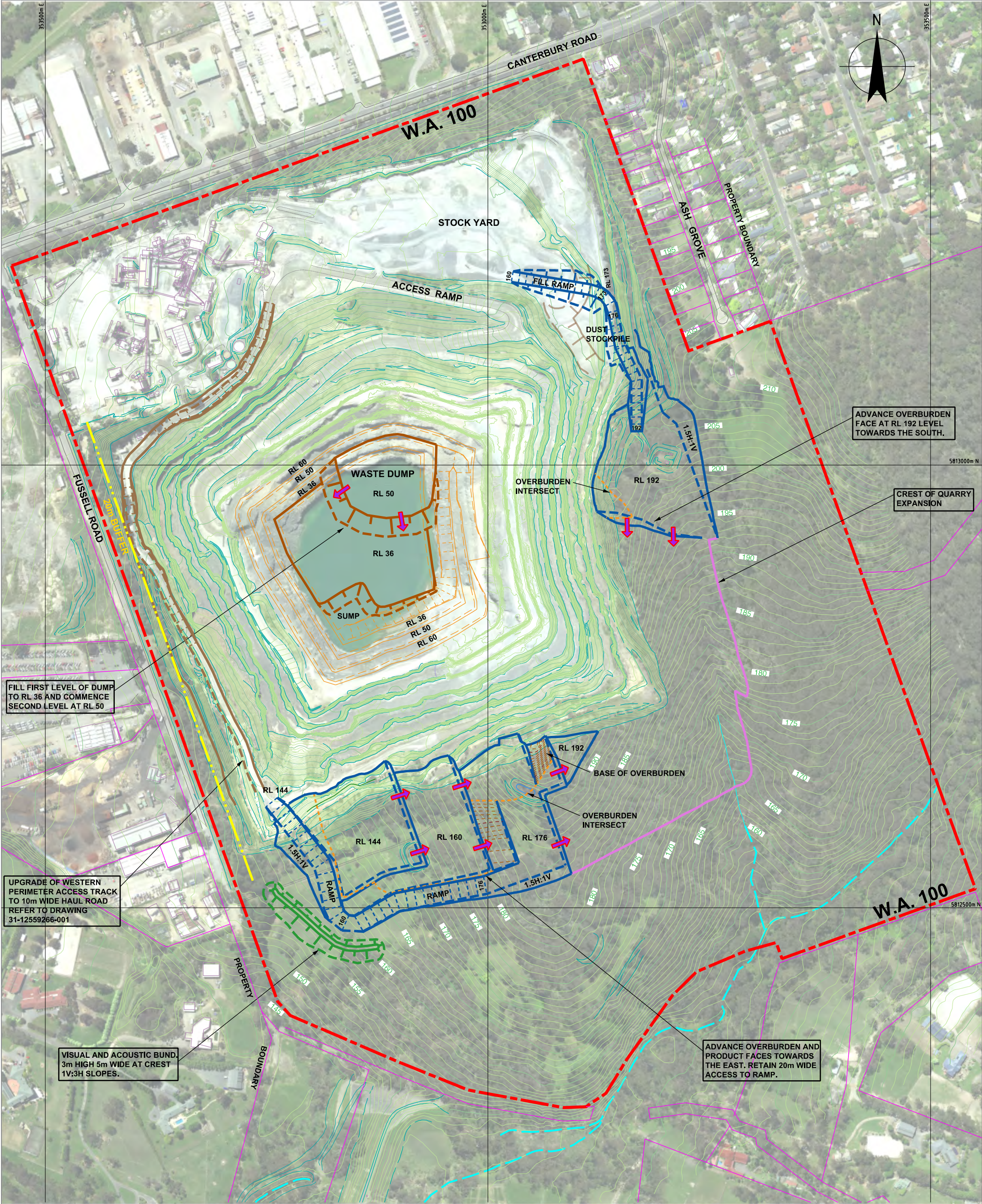
## **Overburden Isopach and Staging Plans**





<div>020406080100m</div> <div>SCALE 1:2000 AT ORIGINAL SIZE</div>		<div><div><div><div></div><div>GHD</div></div><div><div>Level 8, 180 Lonsdale Street, Melbourne</div><div>VIC 3000 Australia</div><div>T 61 3 8687 8000 F 61 3 8687 8111</div><div>E melm@ghd.com W www.ghd.com</div></div></div><div><div></div><div>www.ghd.com</div></div></div>		<div>Client<b>BORAL</b></div> <div>Project<b>MONTROSE QUARRY EXTENSION</b></div> <div>Status</div>		<div>Drawing Title<b>Extraction and Dumping Sequence Stage 1</b></div> <div>Drawing No.<b>21-12559266-005</b></div>		<div>Size<b>A1</b></div> <div>Rev<b>A</b></div>														
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Rev	Description	Checked	Approved	Date																		
Author	S. Verhellen	Drafting Check																				
Designer		Design Check																				





Rev	Description	Checked	Approved	Date
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Designer		Design Check		

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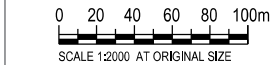
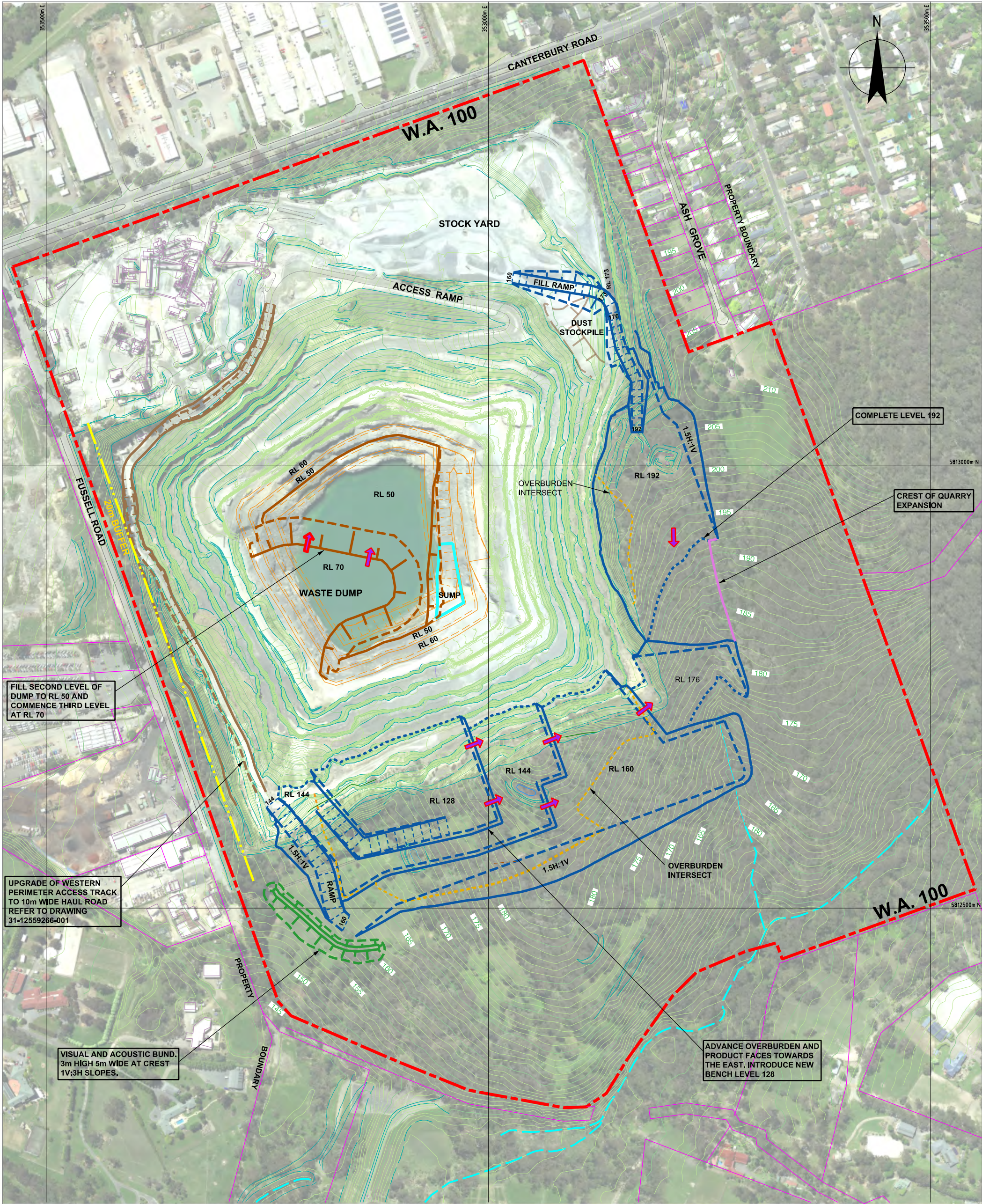


Project No.

Client	BORAL
Project	MONTROSE QUARRY EXTENSION
Status	

Drawing Title	Extraction and Dumping Sequence Stage 2	Size A1
Drawing No.	31-12559266-006	Rev A





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Designer		Design Check		

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Project No.

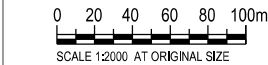
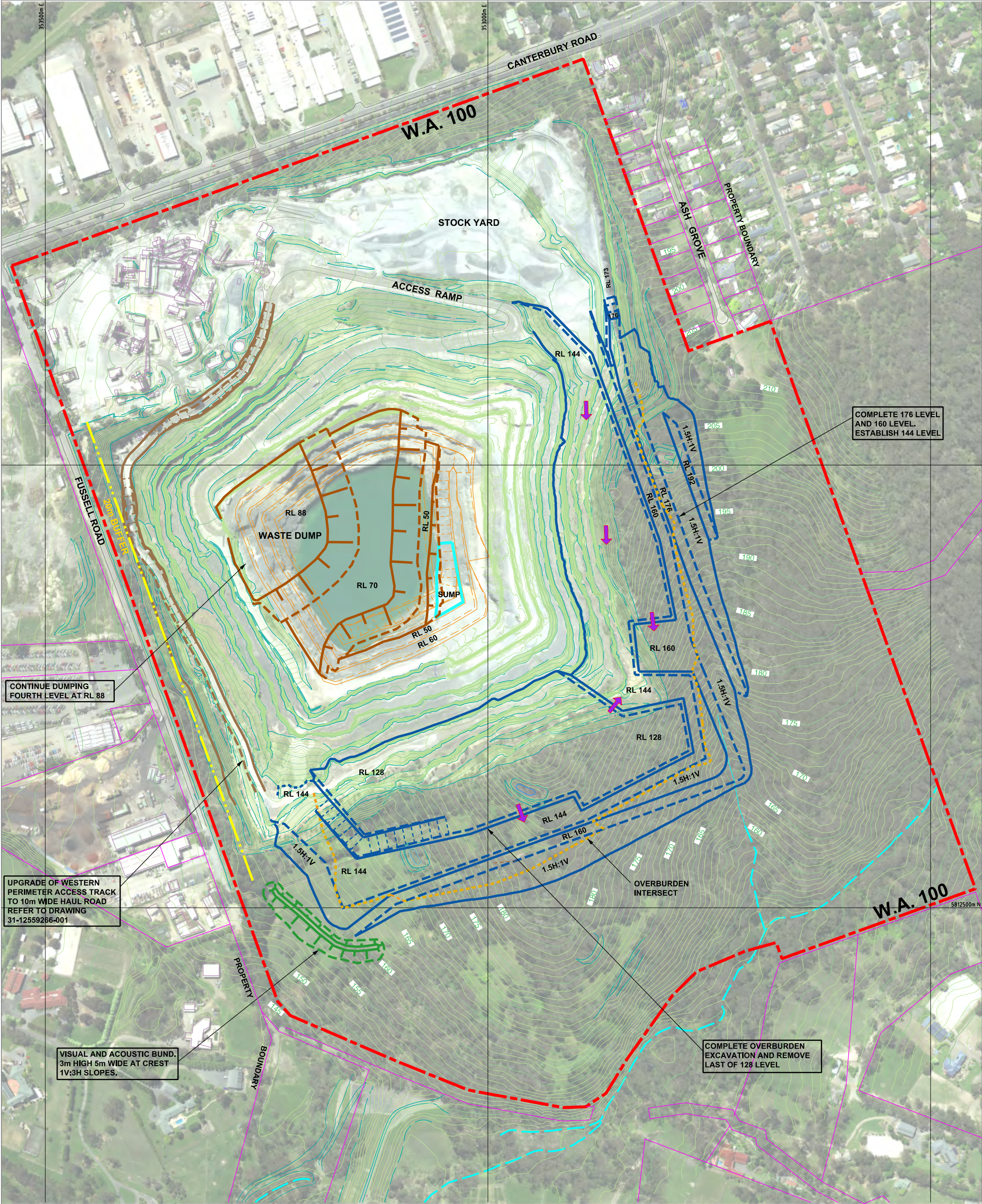
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Project	<b>MONTROSE QUARRY EXTENSION</b>
Status	

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Drawing No.	<b>31-12559266-007</b>	Rev <b>A</b>









Rev	Description	Checked	Approved	Date
Author	S. Verheijen	Drafting Check		
Designer		Design Check		

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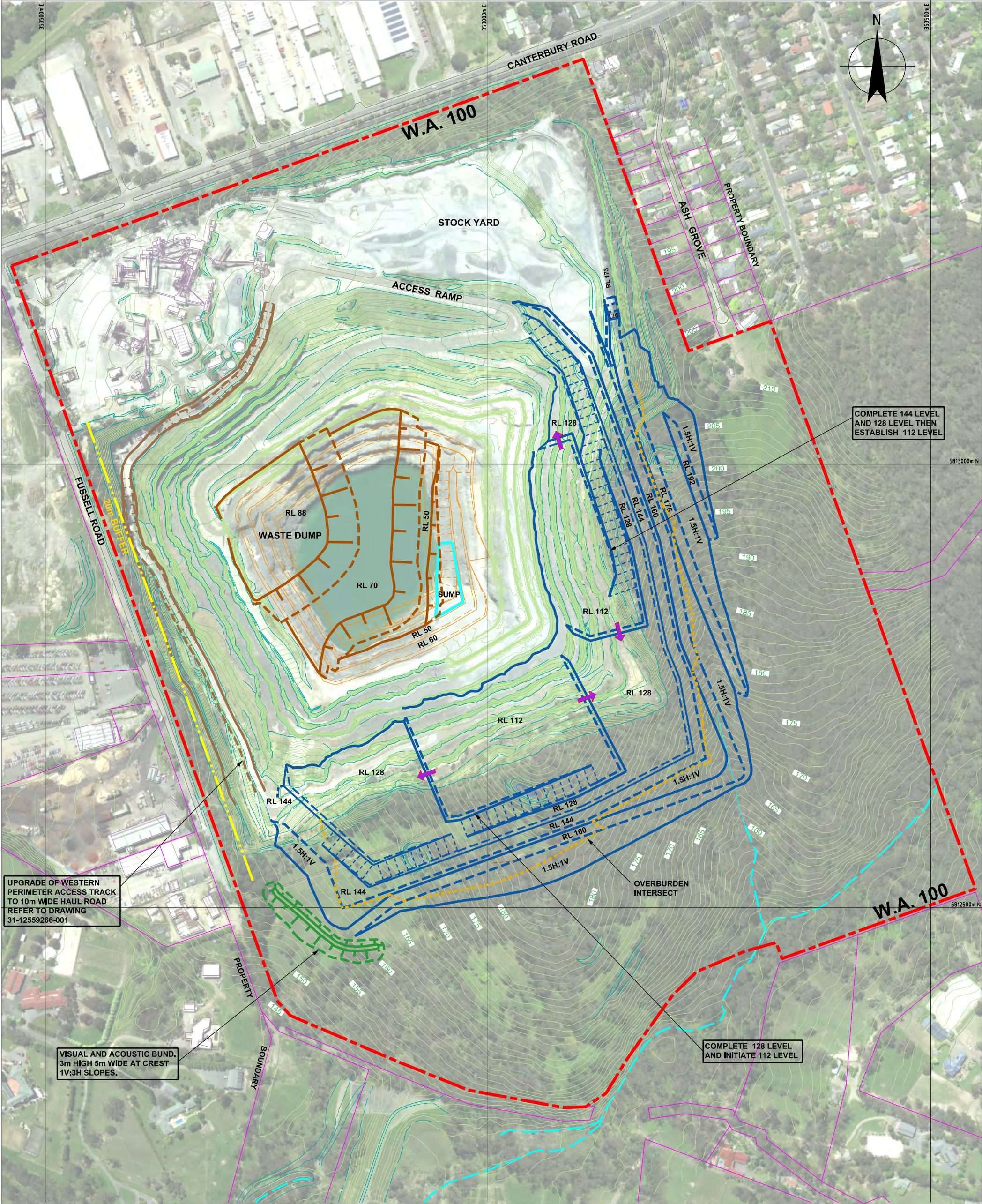


Project No.

Client	BORAL
Project	MONTROSE QUARRY EXTENSION
Status	
Status Code	

Drawing Title	Extraction and Dumping Sequence Stage 5	Size A1
Drawing No.	31-12559266-009	Rev A





UPGRADE OF WESTERN PERIMETER ACCESS TRACK TO 10m WIDE HAUL ROAD REFER TO DRAWING 31-12559266-001

VISUAL AND ACOUSTIC BUND. 3m HIGH 5m WIDE AT CREST 1V:3H SLOPES.

COMPLETE 144 LEVEL AND 128 LEVEL THEN ESTABLISH 112 LEVEL

COMPLETE 128 LEVEL AND INITIATE 112 LEVEL

0 20 40 60 80 100m  
SCALE 1:2000 AT ORIGINAL SIZE

Rev	Description	Checked	Approved	Date
Author	S. Verheijen	Drafting Check		
Designer		Design Check		

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Plotted by: -

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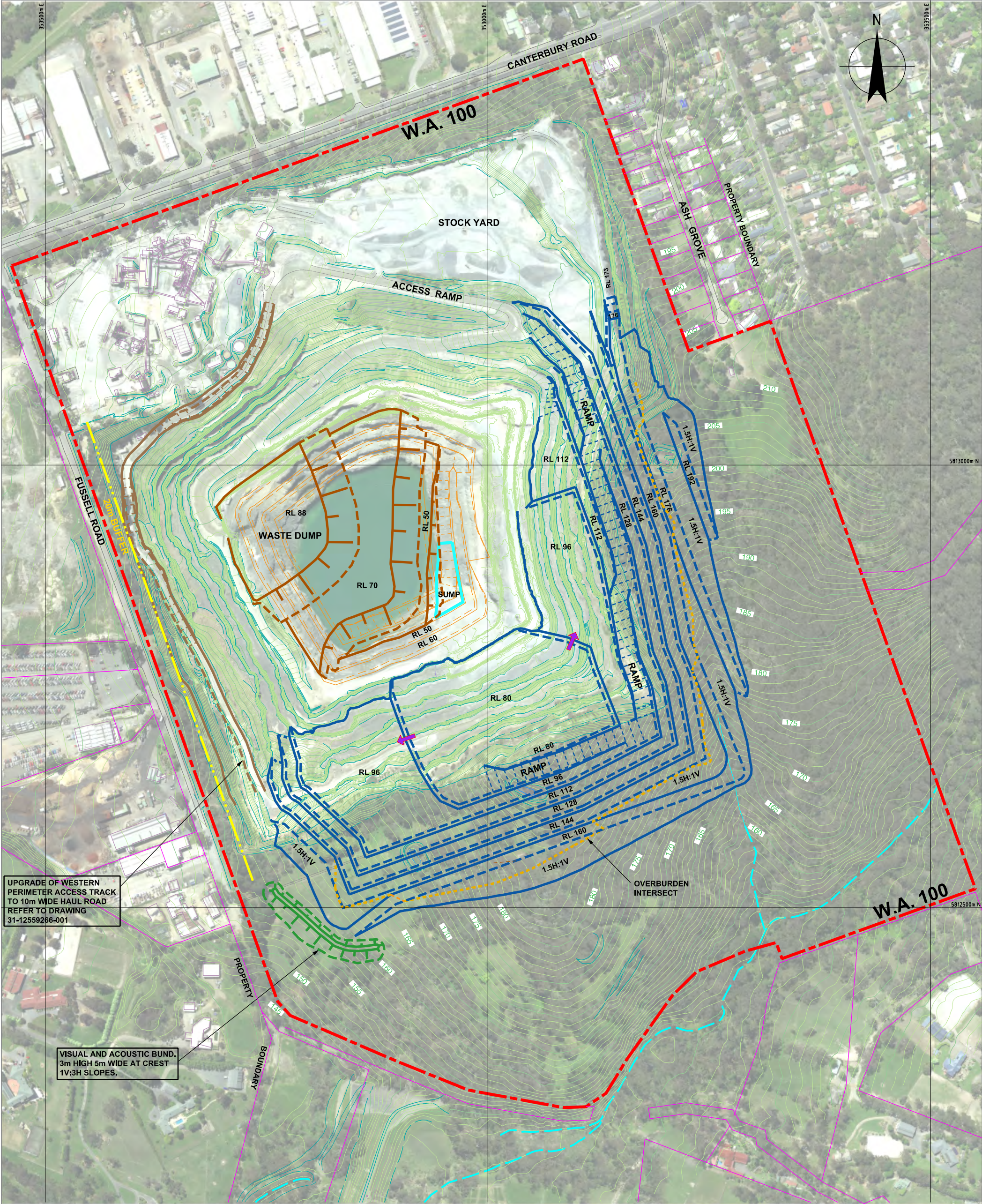


Project No.

Client	BORAL
Project	MONTROSE QUARRY EXTENSION
Status	

Drawing Title	Extraction and Dumping Sequence Stage 6	Size A1
Drawing No.	21-12559266-010	Rev A





Rev	Description	Checked	Approved	Date
Author	S. Verheijen	Drafting Check		
Designer		Design Check		



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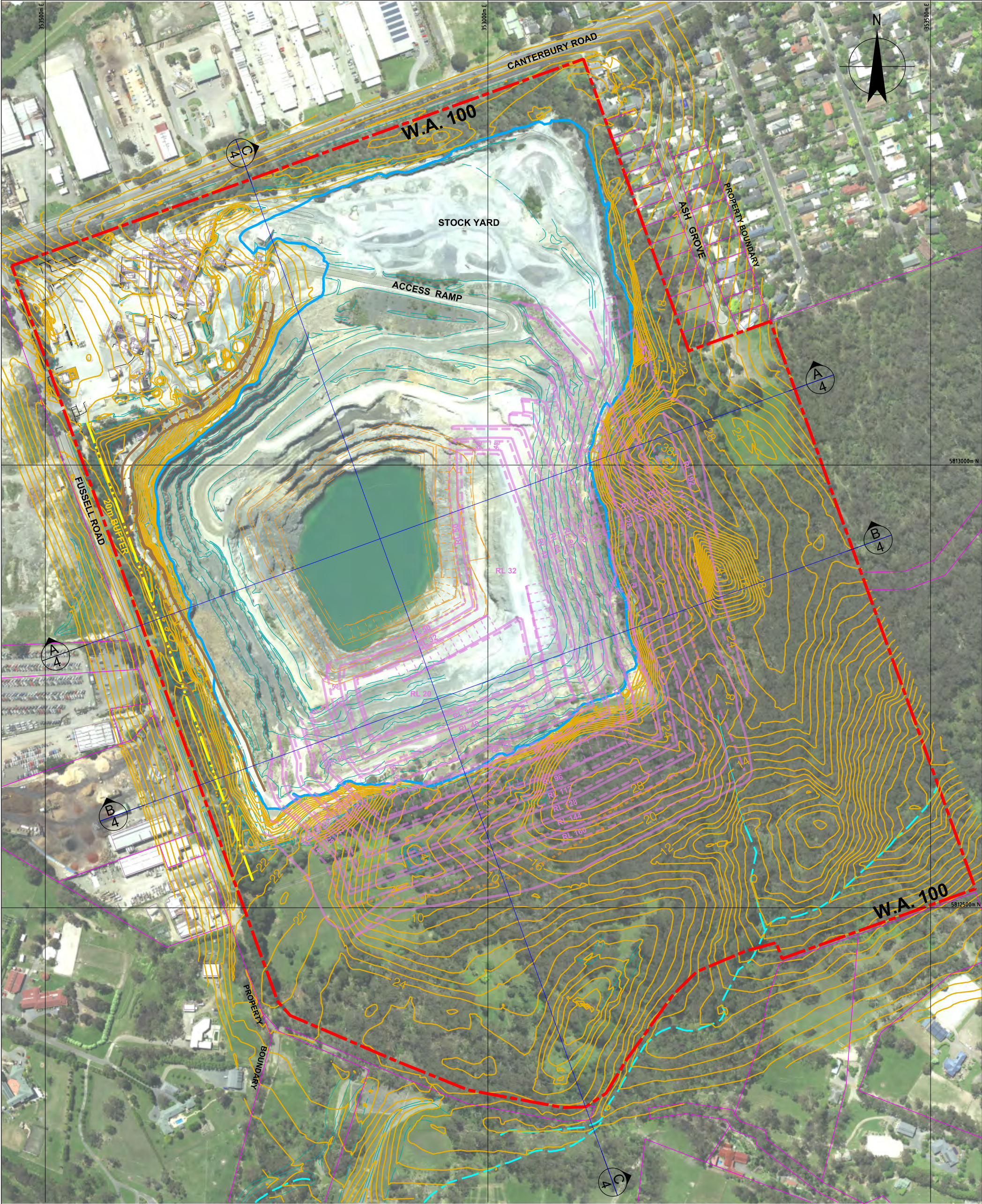
Client	BORAL
Project	MONTROSE QUARRY EXTENSION
Status	Status Code

Drawing Title	Extraction and Dumping Sequence Stage 7	Size A1
Drawing No.	21-12559266-011	Rev A









0 20 40 60 80 100m  
SCALE 1:2000 AT ORIGINAL SIZE

- LEGEND:
- 28 Overburden Isopach (Contour of O/B Thickness)
  - RL 35 Current Design of Final Batters
  - RL 96 Proposed Expansion Final Batter

Rev	Description	Checked	Approved	Date
Author	S. Verheijen	Drafting Check		
Designer		Design Check		



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Project No.

Client	<b>BORAL</b>
Project	<b>MONTROSE QUARRY EXTENSION</b>
Status	

Drawing Title	<b>Isopach of Overburden Thickness</b>	Size	<b>A1</b>
Drawing No.	<b>21-12559266-012</b>	Rev	<b>A</b>



# **Appendix D**

**Staging Plan and Bench Level Volumes**



## Extraction Summaries by Stage

### Stage 1

Bench	Volume (m³)	Overburden (m³)	Resource (m³)	Resource (t)
SOUTHERN RAMP				
BENCH_176	4,300	4,300	0	0
BENCH_160	14,800	14,800	0	0
BENCH_144	26,200	26,200	0	0
TOTAL	45,300	45,300	0	0
EASTERN RAMP				
BENCH_192	7,000	7,000	0	0
BENCH_176	3,100	3,100	0	0
TOTAL	10,100	10,100	0	0

### Stage 2

Bench	Volume (m³)	Overburden (m³)	Resource (m³)	Resource (t)
BENCH_192	12,300	12,300	-	-
BENCH_176	154,700	128,500	26,200	70,740
BENCH_160	250,000	123,700	126,300	341,010
BENCH_144	158,500	39,600	118,900	321,030
BENCH_192 EAST	110,000	107,000	3,000	8,100
STAGE 2 TOTAL	685,500	411,100	274,400	740,880
YEARS		2.3	0.9	

### Stage 3

Bench	Volume (m³)	Overburden (m³)	Resource (m³)	Resource (t)
BENCH_192	-	-	-	-
BENCH_176	219,600	202,900	16,700	45,090
BENCH_160	644,200	370,600	273,600	738,720
BENCH_144	395,100	30,000	365,100	985,770
BENCH_128	306,300	-	306,300	827,010
BENCH_192 EAST	43,800	35,300	8,500	22,950
STAGE 3 TOTAL	1,609,000	638,800	970,200	2,619,540
YEARS		3.2	3.2	

### Stage 4

Bench	Volume (m³)	Overburden (m³)	Resource (m³)	Resource (t)
BENCH_192	160,800	149,300	11,500	31,050
BENCH_176	427,900	247,200	180,700	487,890
BENCH_160	105,400	91,800	13,600	36,720



Bench	Volume (m³)	Overburden (m³)	Resource (m³)	Resource (t)
BENCH_144	206,700	10,500	196,200	529,740
BENCH_128	198,100	-	198,100	534,870
STAGE 4 TOTAL	938,100	349,500	588,600	1,589,220
YEARS		1.7	2.0	

## Stage 5

Bench	Volume (m³)	Overburden (m³)	Resource (m³)	Resource (t)
BENCH_192	-	-	-	-
BENCH_176	-	1,100	-	-
BENCH_160	431,800	40,400	398,900	1,077,030
BENCH_144	703,400	83,000	617,800	1,668,060
BENCH_128	219,100	-	219,100	591,570
STAGE 5 TOTAL	1,354,300	124,500	1,235,500	3,335,850
YEARS		0.7	4.1	

## Stage 6

Bench	Volume (m³)	Overburden (m³)	Resource (m³)	Resource (t)
BENCH_192	-	-	-	-
BENCH_176	-	-	-	-
BENCH_160	-	-	-	-
BENCH_144	51,300	-	51,300	138,510
BENCH_128	606,700	-	606,700	1,638,090
BENCH_112	678,700	-	678,700	1,832,490
STAGE 6 TOTAL	1,336,700	-	1,337,000	3,609,900
YEARS			4.5	



## Stage 7

Bench	Volume (m³)	Overburden (m³)	Resource (m³)	Resource (t)
BENCH_192	-	-	-	-
BENCH_176	-	-	-	-
BENCH_160	-	-	-	-
BENCH_144	-	-	-	-
BENCH_128	-	-	-	-
BENCH_112	565,900	-	565,900	1,527,930
BENCH_96	1,063,300	-	1,063,300	2,870,910
BENCH_80	503,700	-	503,700	1,359,990
STAGE 7 TOTAL	2,132,900	-	2,132,900	5,758,830
YEARS			7.1	

## Stage 8

Bench	Volume (m³)	Overburden (m³)	Resource (m³)	Resource (t)
BENCH_192	-	-	-	-
BENCH_176	-	-	-	-
BENCH_160	-	-	-	-
BENCH_144	-	-	-	-
BENCH_128	-	-	-	-
BENCH_112	-	-	-	-
BENCH_96	79,000	-	79,000	213,300
BENCH_80	505,100	-	505,100	1,363,770
BENCH_64	912,100	-	912,100	2,462,670
BENCH_48	523,100	-	523,100	1,412,370
BENCH_32	227,600	-	227,578	614,520
STAGE 8 TOTAL	2,246,900	-	2,246,900	6,066,630
YEARS			7.5	



## Extraction Summary by Bench Level

Bench	Volume (m³)	Overburden (m³)	Resource (m³)	Resource (t)
BENCH_192	173,100	161,600	11,500	31,050
BENCH_176	806,500	584,000	222,500	600,750
BENCH_160	1,450,200	641,300	808,900	218,4030
BENCH_144	1,529,300	189,300	1,340,000	3,618,000
BENCH_128	1,395,800	0	1,395,800	3,768,660
BENCH_112	1,244,300	0	1,244,300	3,359,610
BENCH_96	1,142,300	0	1,142,300	3,084,210
BENCH_80	1,008,800	0	1,008,800	2,723,760
BENCH_64	912,100	0	912,100	246,2670
BENCH_48	809,300	0	809,300	2,185,110
BENCH_32	603,700	0	603,700	1,629,990
BENCH_20	158,800	0	158,800	428,760
TOTAL	11,234,200	1,576,200	9,658,000	26,076,600

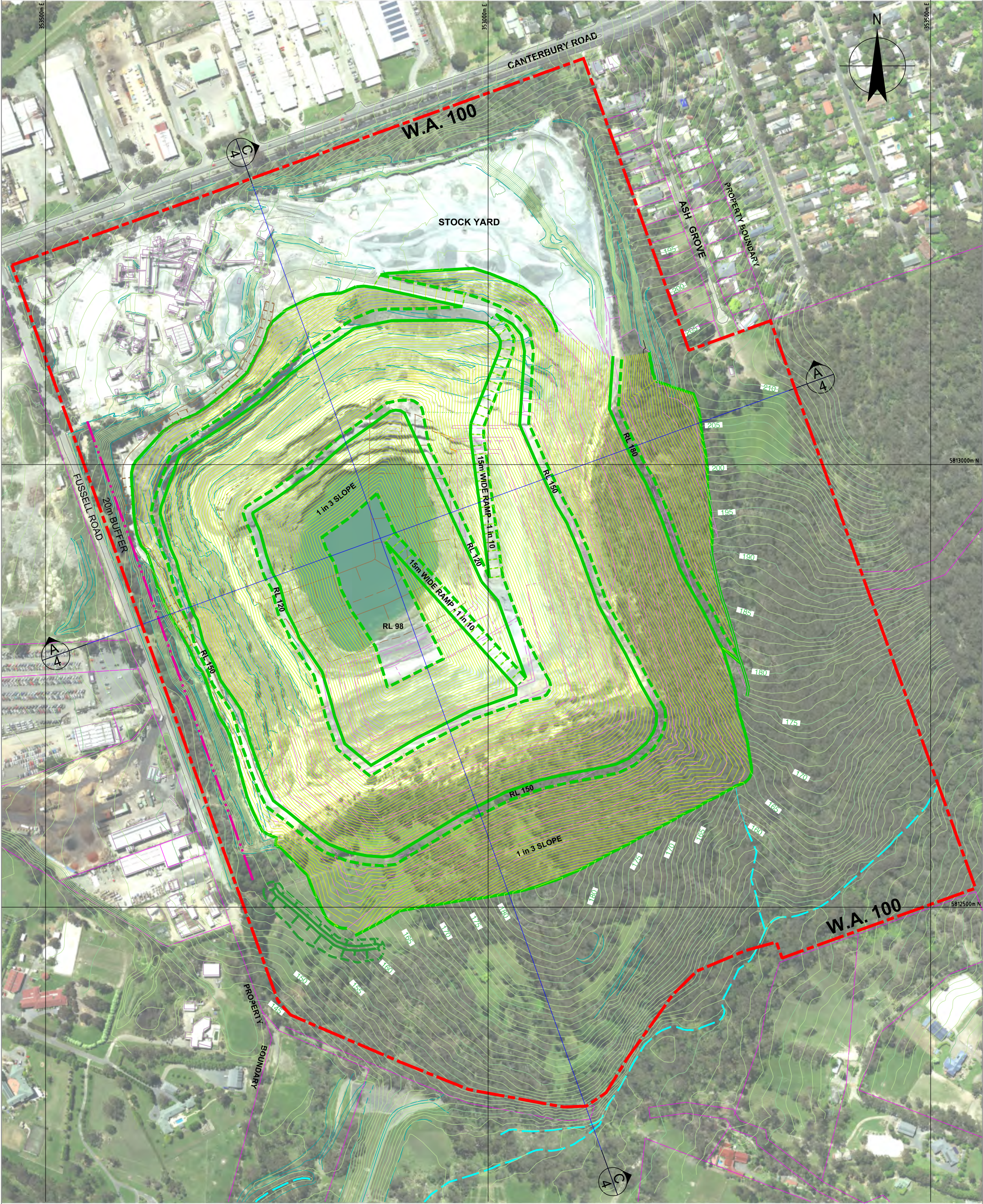
The bottom two levels (Bench 20 & Bench 32) are limited by the proposed internal waste dump.



# **Appendix E**

## **Rehabilitation Concept and Backfilling & Rehabilitation Sequencing**





0 20 40 60 80 100m

SCALE 1:2000 AT ORIGINAL SIZE

LEGEND:

Existing Quarry Faces

Internal Waste Dump

Proposed Expansion Final Batter

RL 96

		<div><div><div><div><div></div><div>GHD</div></div><div><div>Level 8, 180 Lonsdale Street, Melbourne VIC 3000 Australia T 61 3 8687 8000 F 61 3 8687 8111 E mel@mail@ghd.com W www.ghd.com</div></div></div><div><div>Conditions of Use. This document may only be used by GHD's client (and any other person who GHD has agreed can use this document) for the purpose for which it was prepared and must not be used by any other person or for any other purpose.</div></div></div></div>	<div><div><div><div></div><div>Client</div><div>BORAL</div></div><div><div></div><div>Project</div><div>MONTROSE QUARRY EXTENSION</div></div><div><div></div><div>Status</div><div></div></div></div></div> <div><div><div><div></div><div>Drawing Title</div><div>Rehabilitation Concept Void Filling Landform</div></div><div><div></div><div>Drawing No.</div><div>21-12559266-013</div></div></div></div> <div><div><div><div></div><div>Size</div><div>A1</div></div><div><div></div><div>Rev</div><div>A</div></div></div></div>
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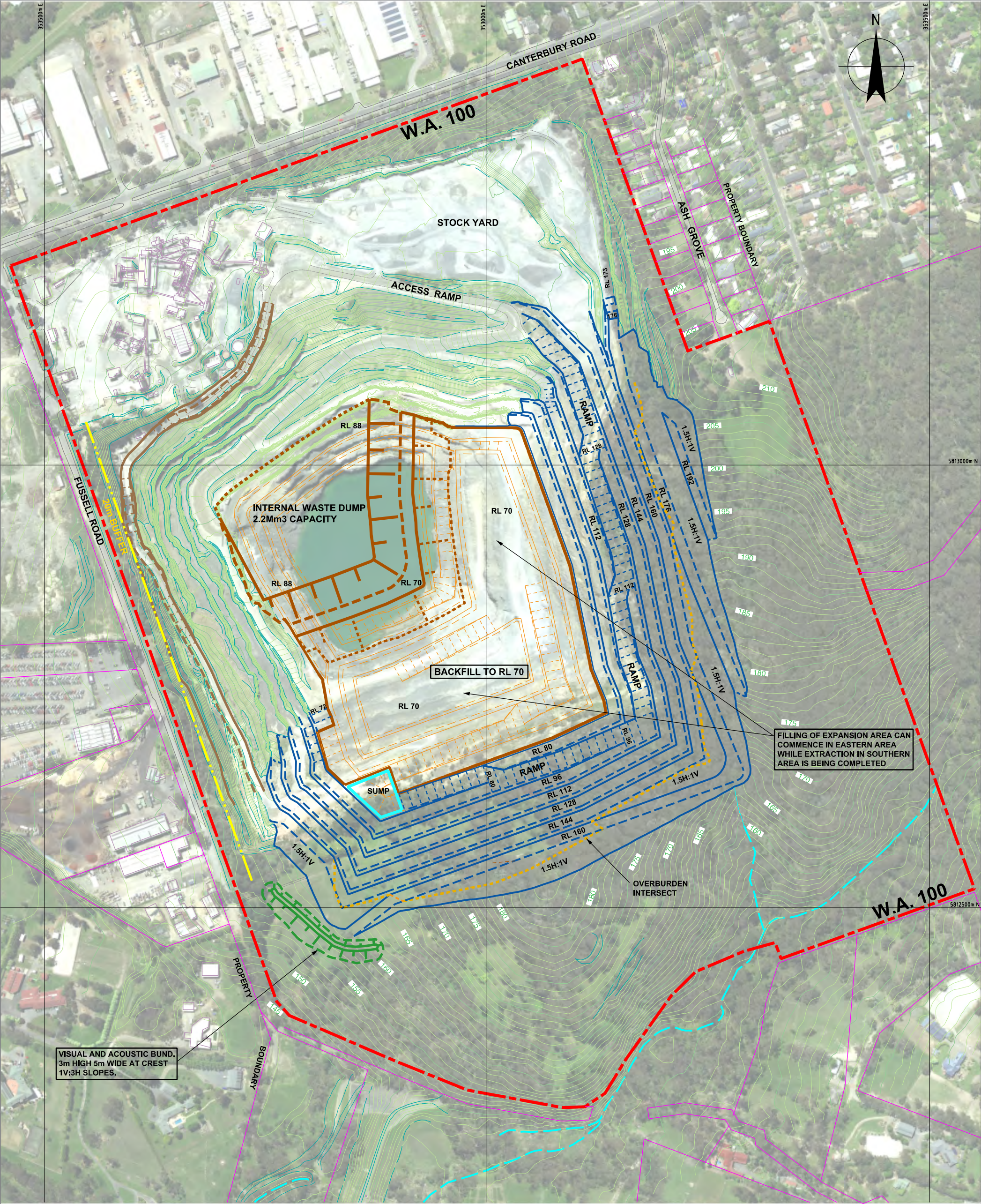
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Plotted by:

File Name:

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PIT FILLING AT YEAR 10 (2.5Mm3 TOTAL)

INTERNAL DUMP COMPLETED - 2.2Mm3 CAPACITY FILLED WITH 1.9Mm3 (1.576bcm) OF OVERBURDEN & 0.3Mm3 OF IMPORTED FILL. EXPANSION AREA FILLED TO RL 70 WITH 2.3Mm3 OF IMPORTED FILL

NOTE: 250,000 BCM per annum IMPORTED FILL ASSUMED AS BULKED AMOUNT

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Designer		Design Check		



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Project No.

Client	<b>BORAL</b>
Project	<b>MONTROSE QUARRY EXTENSION</b>
Status	

Drawing Title	<b>Backfilling &amp; Rehabilitation Sequence Year 10</b>
Drawing No.	21-12559266-015

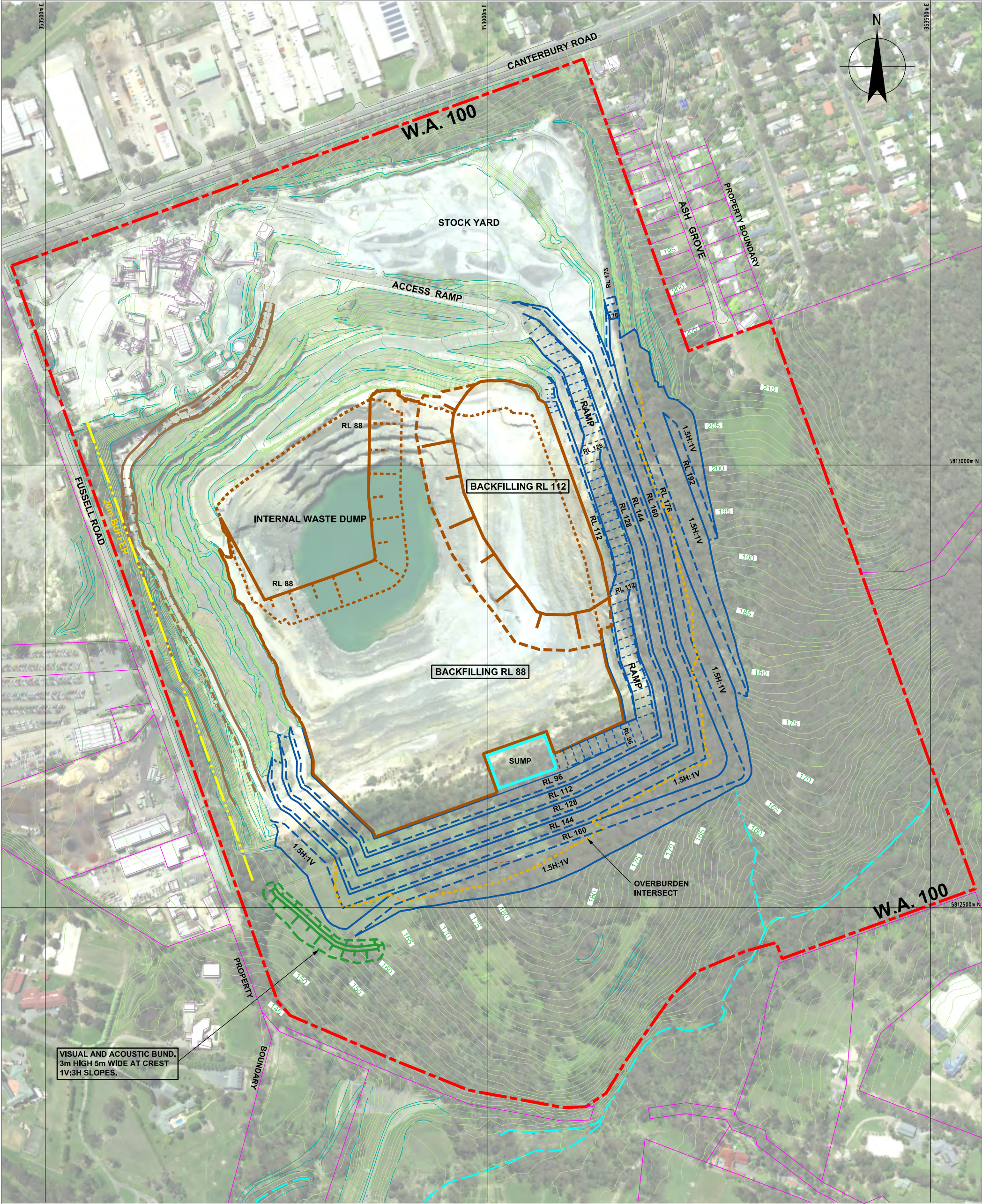
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Rev	<b>A</b>

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Plotted by: -

File Name: C:\Quarries\Montrose Quarry\test mfarm.dgn





PIT FILLING AT YEAR 20 (5.0Mm3 TOTAL)

INTERNAL DUMP COMPLETED - 2.2Mm3 CAPACITY FILLED WITH 1.9Mm3 (1.576bcm) OVERBURDEN & 0.3Mm3 REMAINDER WITH IMPORTED FILL. EXPANSION AREA FILLED TO RL 88 WITH 4.3Mm3 IMPORTED FILL. COMMENCE FILLING AT RL 112 (APPROX. 0.5Mm3 SHOWN)

NOTE: 250,000 BCM per annum IMPORTED FILL ASSUMED AS BULKED AMOUNT

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Designer		Design Check		



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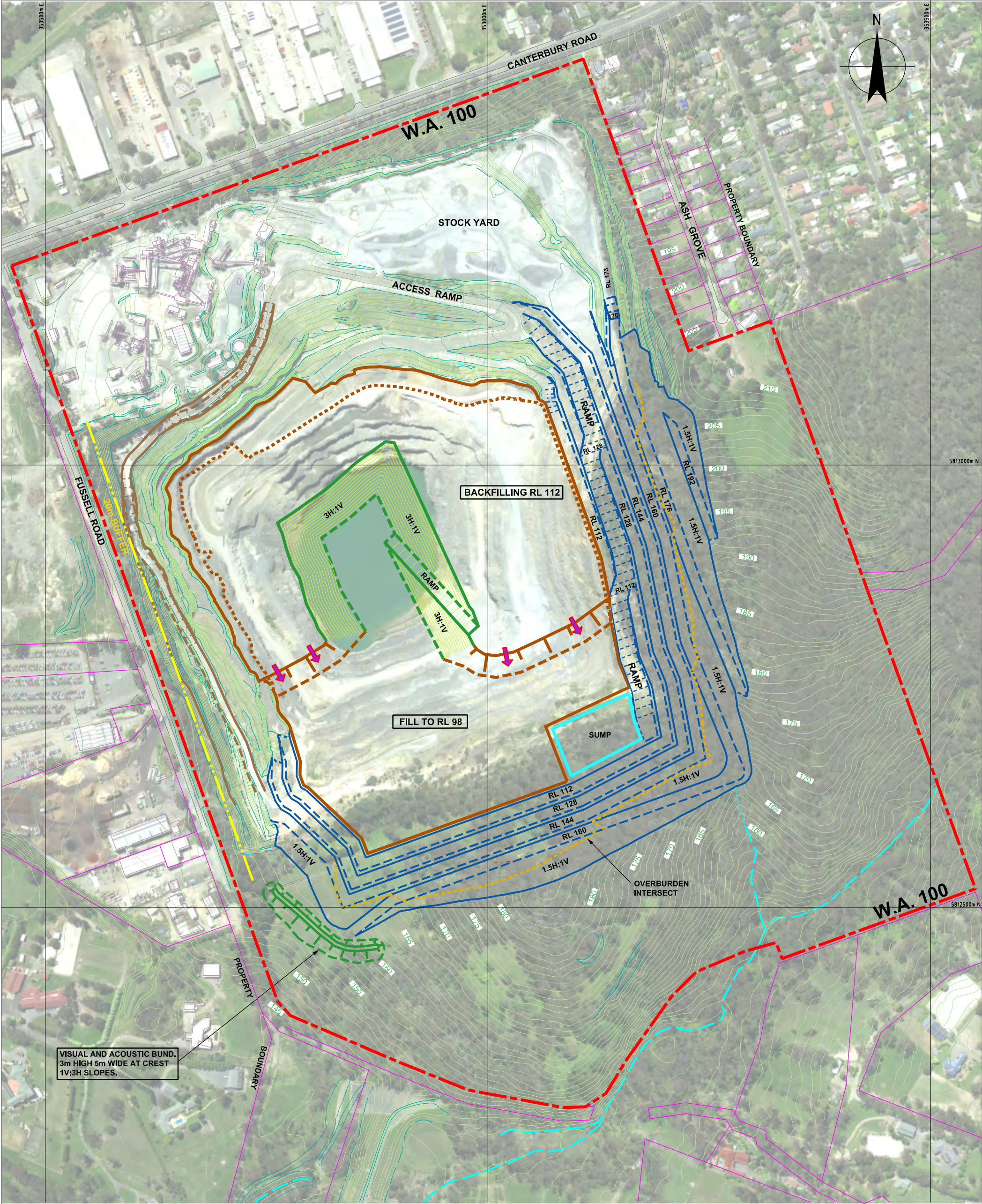
Project No.

Client	BORAL
Project	MONTROSE QUARRY EXTENSION
Status	

Drawing Title	Backfilling & Rehabilitation Sequence Year 20
Drawing No.	21-12559266-016

Size	A1
Rev	A





PIT FILLING AT YEAR 30 (7.5Mm3 TOTAL)

PIT VOID FILLED TO RL 98 WITH 5.9Mm3 IMPORTED FILL. CONTINUE FILLING AT RL 112 (APPROX. 1.4Mm3 SHOWN) INCLUDING CREATION OF 1 IN 3 SLOPE ABOVE RL 98

NOTE: 250,000 BCM per annum IMPORTED FILL ASSUMED AS BULKED AMOUNT



Rev	Description	Checked	Approved	Date
Author	S. Verheijen	Drafting Check		
Designer		Design Check		

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Project No.

Client	BORAL
Project	MONTROSE QUARRY EXTENSION
Status	

Drawing Title	Backfilling & Rehabilitation Sequence Year 30
Drawing No.	21-12559266-017

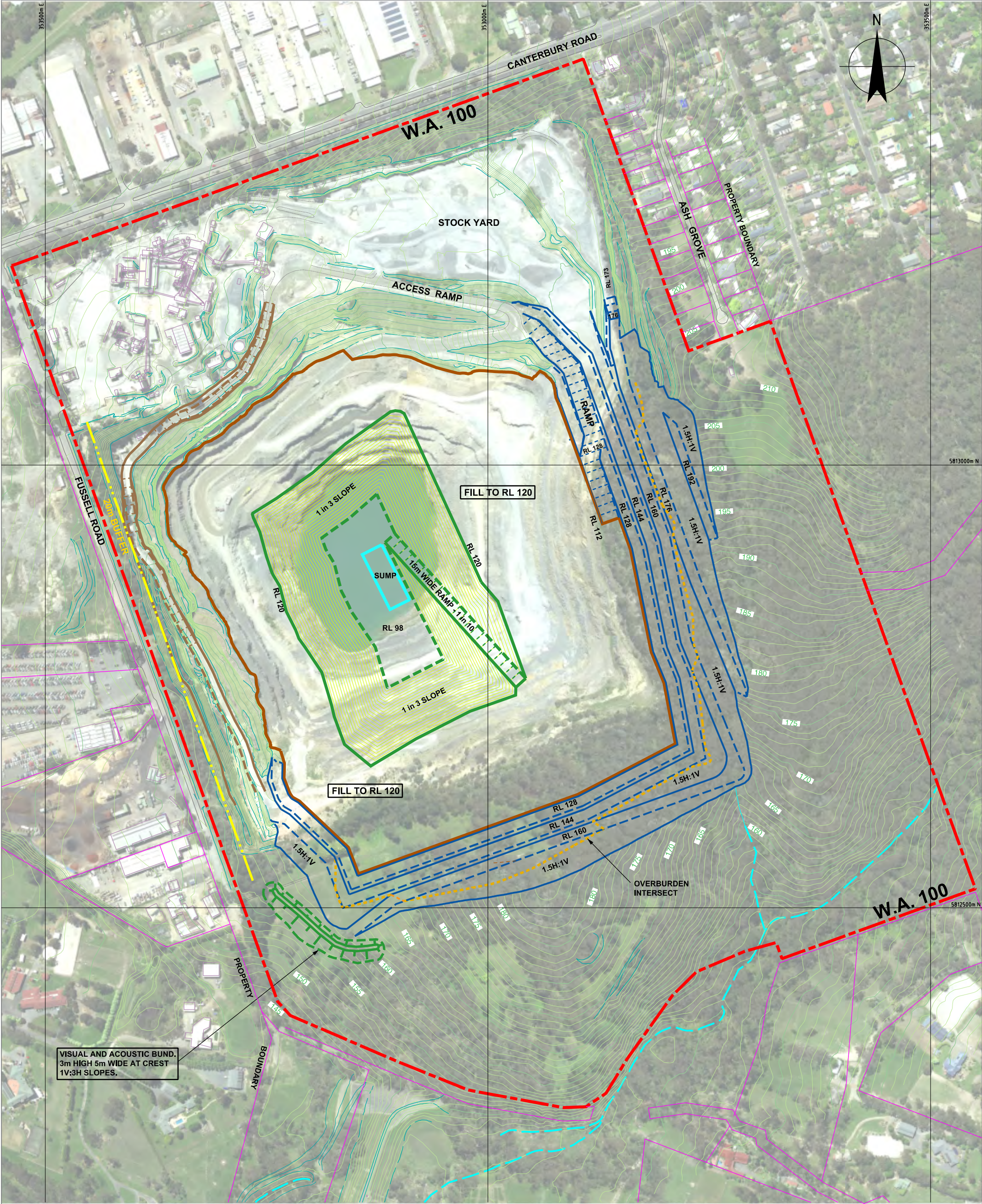
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Rev	A

Plot Date: -

Plotted by: -

File Name: C:\Quarries\Montrose Quarry\test mfarm.dgn





PIT FILLING AT YEAR 40 (10Mm3 TOTAL)

PIT VOID FILLED TO RL 120 WITH 9.6Mm3 IMPORTED FILL. CREATE 1 IN 3 SLOPE ABOVE RL 98

NOTE: 250,000 BCMper annum IMPORTED FILL ASSUMED AS BULKED AMOUNT



Rev	Description	Checked	Approved	Date
Author	S. Verheijen	Drafting Check		
Designer		Design Check		

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Project No.

Client	BORAL
Project	MONTROSE QUARRY EXTENSION
Status	

Drawing Title  
**Backfilling & Rehabilitation Sequence Year 40**

Drawing No.  
21-12559266-018

Size  
A1  
Rev  
A



