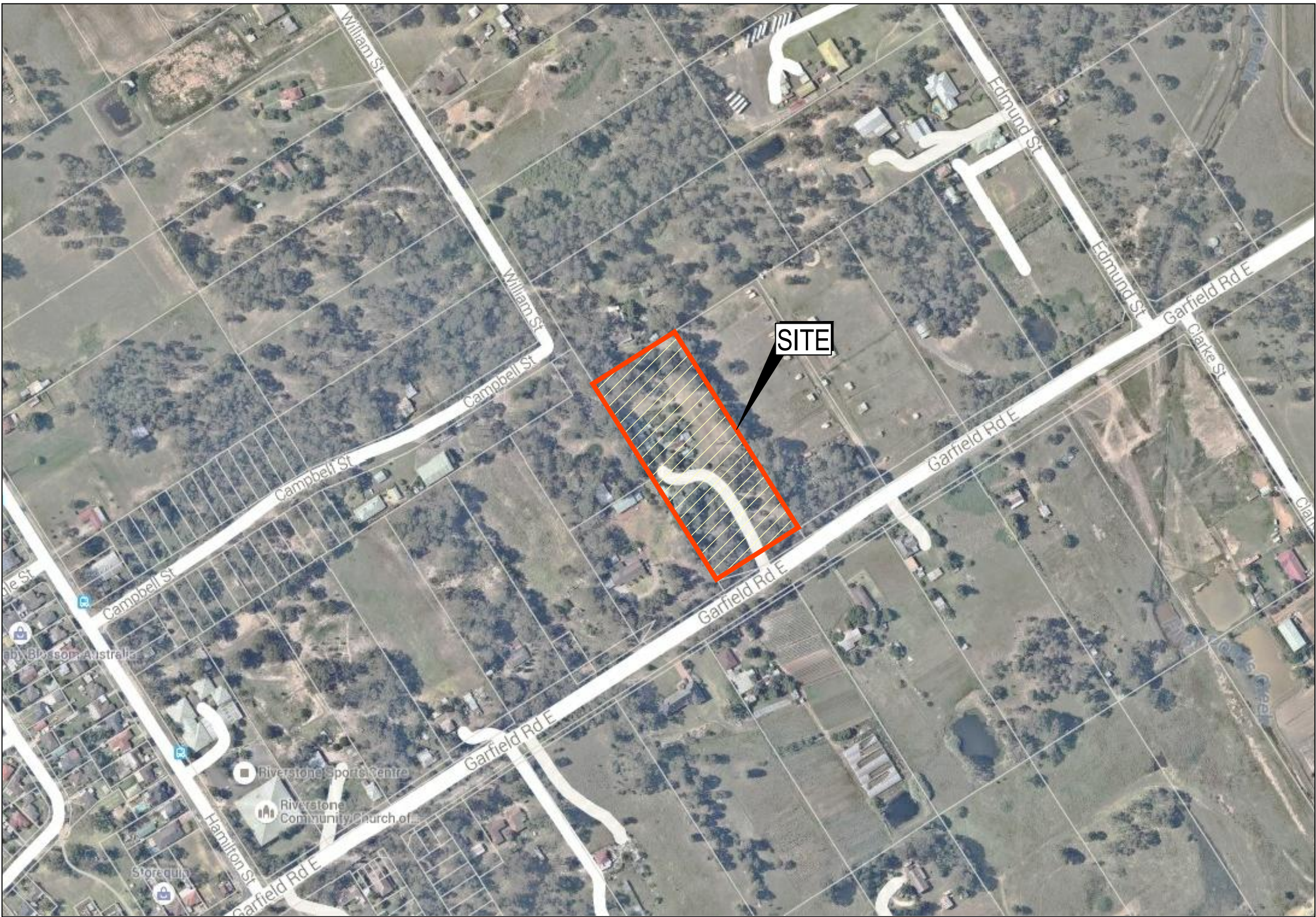


213 GARFIELD ROAD EAST - ROSEBANK COTTAGE ROAD AND DRAINAGE DESIGN DEVELOPMENT APPLICATION



CIVIL DRAWING LIST

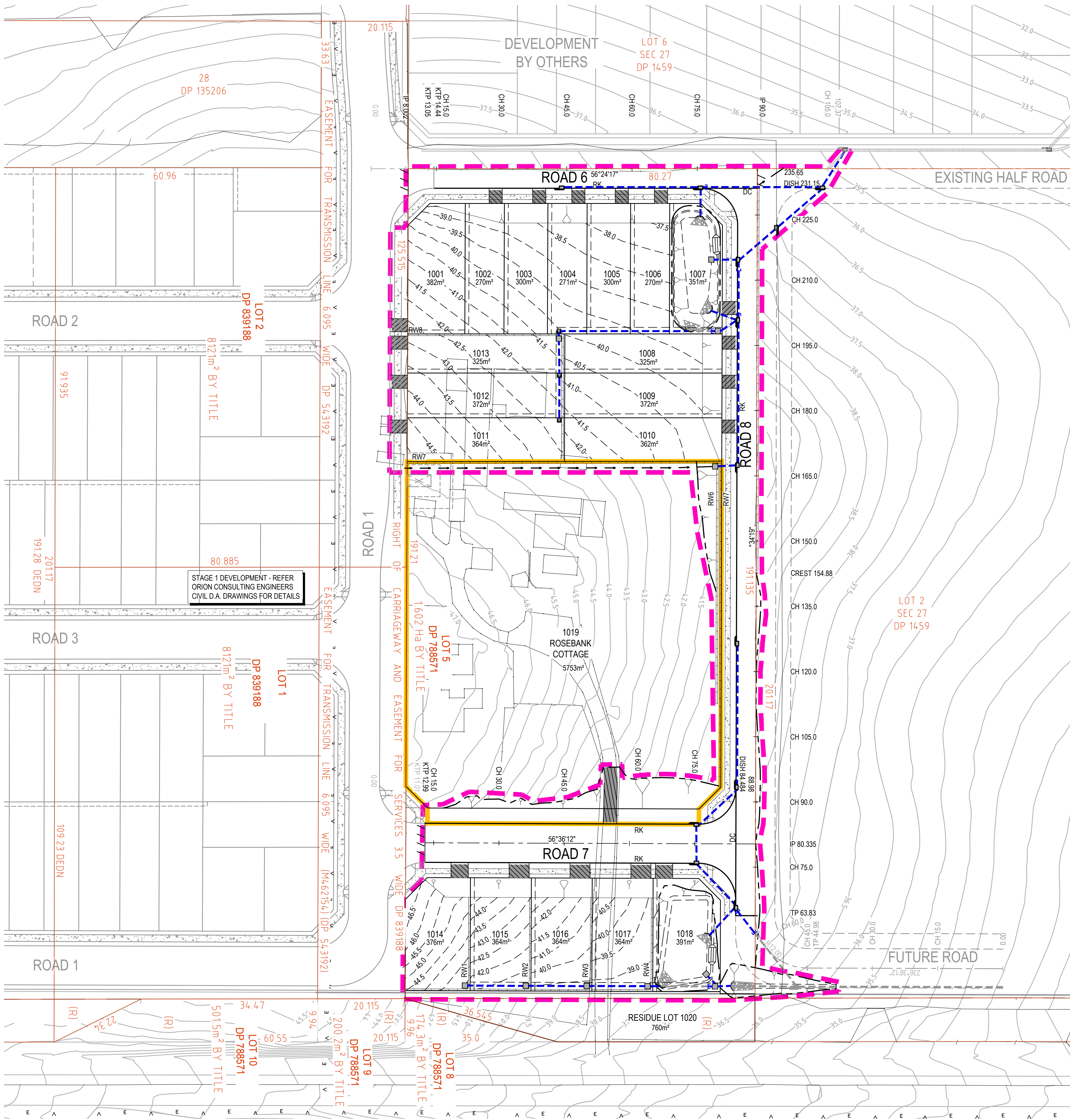
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GENERAL		
000	COVER SHEET	C
001	GENERAL LAYOUT PLAN	C
002	DEMOLITION PLAN & TREE REMOVAL PLAN	C
ROADWORKS		
101	ENGINEERING PLAN	C
201	ROAD LONG SECTIONS	C
202	TYPICAL ROAD CROSS SECTIONS	C
DRAINAGE		
501	CATCHMENT PLAN	C
551	BASIN 01 LAYOUT PLAN & SECTION	C
552	BASIN 02 LAYOUT PLAN & SECTION	C
SITE REGRADING		
601	SITE REGRADING PLAN & TREE REMOVAL PLAN	C
602	SITE REGRADING SECTIONS	C
SEDIMENT & EROSION CONTROL		
701	SEDIMENT & EROSION CONTROL PLAN	C
702	SEDIMENT & EROSION CONTROL DETAILS	C
STRUCTURAL		
901	RETAINING WALL PLAN & TYPICAL DETAIL	C
902	RETAINING WALL RW1, RW2, RW3 & RW4 LONG SECTION	C
903	RETAINING WALL RW5, RW6 & RW8 LONG SECTION	C
904	RETAINING WALL RW7 LONG SECTION	C



LOT 5, D.P. 788571

FILE: P:\PROJECTS\16-03142 GARFIELD ROAD EAST - ROSEBANK COTTAGE\DWG\DA-000.DWG PRINTED: 26/07/2017 USER: JANDREW

Scale:						 NORTH	Disclaimer and Copyright: ALL DIMENSIONS TO BE CHECKED ON SITE BY CONTRACTOR PRIOR TO CONSTRUCTION. USE WRITTEN DIMENSIONS ONLY. DO NOT SCALE. THESE DRAWINGS, PLANS, AND SPECIFICATIONS AND THE COPYRIGHT ARE THE PROPERTY OF ORION CONSULTING ENGINEERS PTY LTD AND MUST NOT BE REPRODUCED OR COPIED WHOLLY OR IN PART WITHOUT THE PERMISSION OF ORION CONSULTING ENGINEERS PTY LTD	Client: 	Prepared:  ABN: 25 604 069 981 PO Box 266, BAULKHAM HILLS NSW 1755 T: 0425 457 704 E: info@orionconsulteng.com	Project: 213 GARFIELD ROAD EAST - ROSEBANK COTTAGE ROAD AND DRAINAGE DESIGN	Drawing Title: COVER SHEET							
Revision Description											Project No.: 15-21		Approval Stg.: DA		Dwg No.: 000		Revision: C	



GENERAL NOTES

- ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH THE BLACKTOWN CITY COUNCIL'S WORKS SPECIFICATION CIVIL (CURRENT EDITION) AND/OR AS DIRECTED BY THEIR REPRESENTATIVE
- THE CONTRACTOR IS TO IDENTIFY, LOCATE AND LEVEL ALL EXISTING SERVICES PRIOR TO COMMENCEMENT OF CONSTRUCTION WORKS AND WHERE NECESSARY MAKE ARRANGEMENTS WITH THE RELEVANT AUTHORITY TO RELOCATE OR ADJUST WHERE NECESSARY.
- COUNCIL'S TREE PRESERVATION ORDER MUST BE OBSERVED AND NO TREE SHALL BE FELLED, LOPPED OR REMOVED WITHOUT THE PRIOR APPROVAL OF COUNCIL.
- DIMENSIONS SHALL NOT BE SCALED FROM THE PLANS. CLARIFICATION OF DIMENSIONS SHALL BE SOUGHT FROM THE SUPERINTENDENT OR REFERRED TO THE DESIGNER.
- ALL NEW WORK IS TO MAKE A SMOOTH JUNCTION WITH THE EXISTING CONDITIONS.

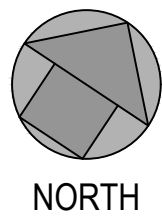
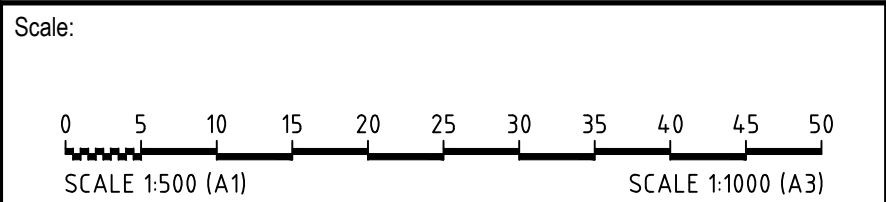
LEGEND

DESCRIPTION	PROPOSED	EXISTING	FUTURE
STORMWATER PIPELINE			
STORMWATER DRAINAGE PITS			
CONCRETE HEADWALL			
SUBSOIL DRAIN			
STANDARD ROLL KERB			
STANDARD KERB & GUTTER			
STANDARD DISH CROSSING			
VEHICULAR CROSSING			
ROAD			
BATTERS			
CONCRETE PATHWAY			
CONTOURS			
DRIVEWAY & VEHICULAR CROSSING			
CATCH DRAIN / DIVERSION DRAIN			
SERVICE LINES SEWER, GAS, WATER, ELECTRICITY			
SERVICE PITS TELECOM PIT, ACCESS CHAMBER, HYDRANT, STOP VALVE, AIR VALVE			
LIMIT OF STAGE			
LOT NUMBERS			
TREES TO RETAIN TREES TO REMOVE			
RETAINING WALL			
ELECTRICAL SUB STATION & EASEMENTS			
INDICATIVE ROSEBANK COTTAGE CURTLAGE BOUNDARY			

DEVELOPMENT APPLICATION

FILE: D:\PROJECTS\213 GARFIELD ROAD EAST\213 GARFIELD ROAD EAST\DWG\213 GARFIELD ROAD EAST.DWG, 2017 USER: JANDREW

Revisions	Drawn	Design	Appd.	Date	Revision Description
C	AS	AS	-	25/05/17	COUNCIL COMMENTS
B	PM	AS	-	10/08/16	COUNCIL COMMENTS
A	PM	AS	PB	26/02/16	ISSUED FOR DEVELOPMENT APPLICATION
First Issue	PM	AS	PB	26/02/16	



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Client:

GMR Goldmate Residential

Prepared:

Orion Consulting Engineers

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Project:

213 GARFIELD ROAD EAST -
ROSEBANK COTTAGE
ROAD AND DRAINAGE DESIGN

Drawing Title:			
GENERAL LAYOUT PLAN			
Project No.:	Approval Stg.:	Dwg No.:	Revision:
15-21	DA	001	C



EXISTING DRIVEWAY TO BE DEMOLISHED AND REMOVED OFFSITE TO APPROVED WASTE FACILITY

EXISTING RESIDENCE TO BE DEMOLISHED AND MATERIALS TAKEN TO APPROVED WASTE FACILITY

EXISTING CONCRETE TO BE DEMOLISHED AND REMOVED OFFSITE TO APPROVED WASTE FACILITY

EXISTING FENCE TO BE REMOVED

EXISTING TREES TO BE REMOVED

EXISTING TREES TO REMAIN

TREES REMOVED AS PART OF STAGE 1 DEMOLITION WORKS

EXISTING CONTOURS

NOTES

1. SURVEY PROVIDED BY RPS.

2. CONTRACTOR TO ESTABLISH EXTENT OF ALL EXISTING SERVICES WITHIN THE EXTENT OF WORKS.

3. CONTRACTOR TO GAIN ALL NECESSARY APPROVALS & PERMITS TO DEMOLISH, CAP OR REMOVE EXISTING SERVICES AS REQUIRED.

4. CONTRACTOR TO ALLOW FOR THE DEMOLITION OF EXISTING STRUCTURES & FEATURES (ABOVE & BELOW GROUND) ON THE SITE REQUIRED, INCLUDING BUILDINGS, FENCES, EXISTING PAVEMENT, DRAINAGE, SIGNS ETC.

5. ALL DEMOLITION WORKS SHALL COMPLY WITH THE PROVISIONS OF AS2601:2001 THE DEMOLITION OF STRUCTURES.

6. REMOVAL OF EXISTING ELECTRICAL

INFRASTRUCTURE TO BE COMPLETED IN ACCORDANCE ELECTRICAL CONSULTANTS SPECIFICATIONS & DRAWINGS.

7. EXISTING SERVICES TO BE LOCATED FROM DBVD PLANS AND ONSITE SERVICES LOCATION.

8. TREE REMOVAL SHALL BE IN ACCORDANCE WITH BLACKTOWN CITY COUNCIL'S REQUIREMENTS AND SPECIFICATIONS.

DEVELOPMENT APPLICATION

Revisions						
C	AS	AS	-	25/05/17	COUNCIL COMMENTS	
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A	PM	AS	PB	26/02/16	ISSUED FOR DEVELOPMENT APPLICATION	
First Issue	PM	AS	PB	26/02/16	Revision Description	
Drawn	Design	Appd.	Date			

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SCALE 1:500 (A1)

SCALE 1:1000 (A3)

NORTH

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Client:

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Goldmate Residential

Prepared:

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ABN: 25 604 069 981
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Project:

213 GARFIELD ROAD EAST - ROSEBANK COTTAGE ROAD AND DRAINAGE DESIGN

Drawing Title:

DEMOLITION PLAN & TREE REMOVAL PLAN

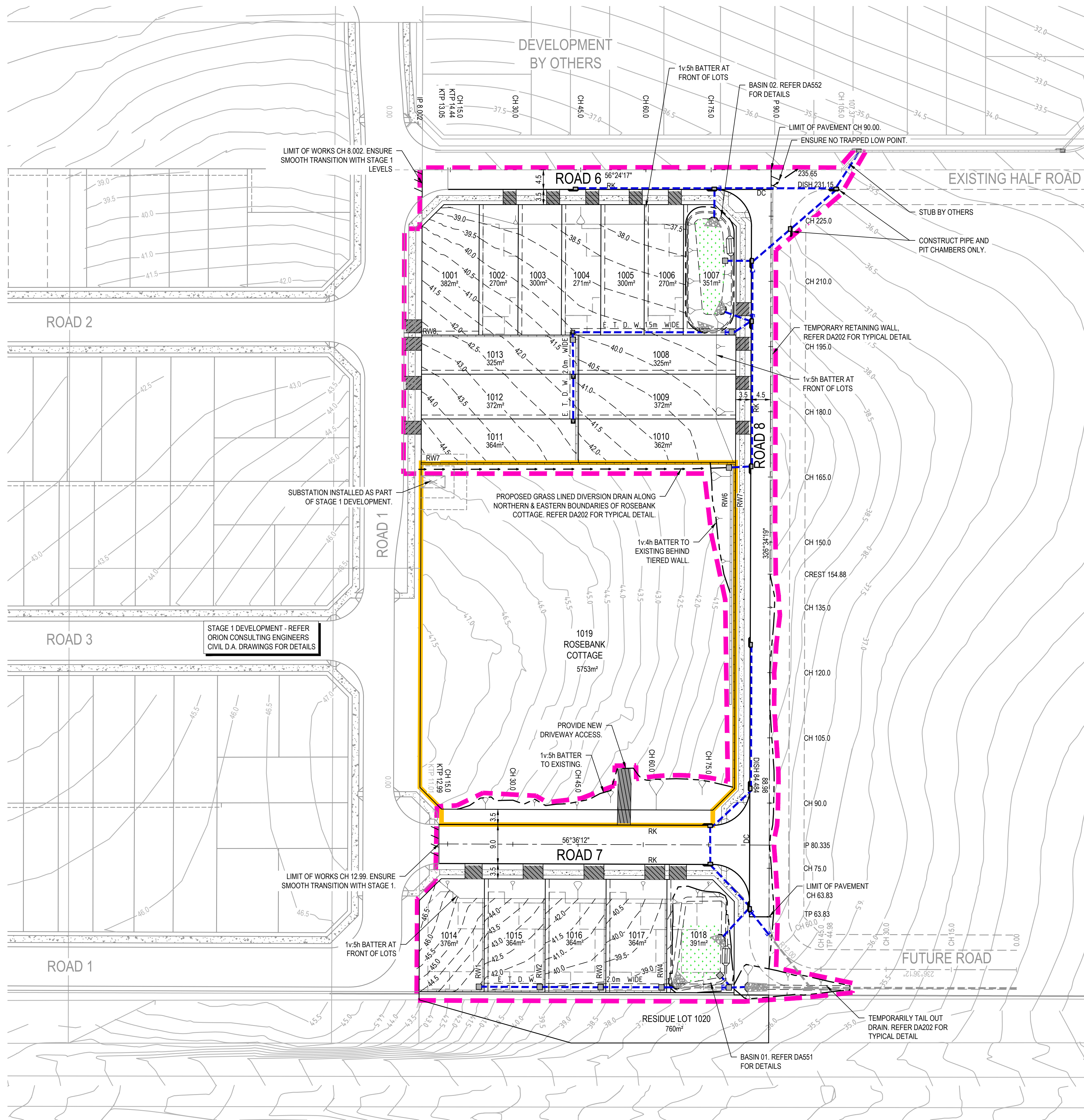
Project No.: 15 -21

Approval Stg: DA

Dwg No.: 002

Revision: C

FILE: D:\PROJECTS\15-21\213 GARFIELD ROAD EAST\DWG\DEMOLITION PLAN & TREE REMOVAL PLAN.DWG PLOT DATE: 26/02/16 USER: JANDREW



LEGEND

PROPOSED DRIVEWAY

PROPOSED INDICATIVE BUILDING ENVELOPE

DEVELOPMENT APPLICATION

Revisions					
C	AS	AS	-	25/05/17	COUNCIL COMMENTS
B	PM	AS	-	10/08/16	COUNCIL COMMENTS
A	PM	AS	PB	26/02/16	ISSUED FOR DEVELOPMENT APPLICATION
First Issue	PM	AS	PB	26/02/16	
Drawn	Design	Appd.	Date	Revision Description	

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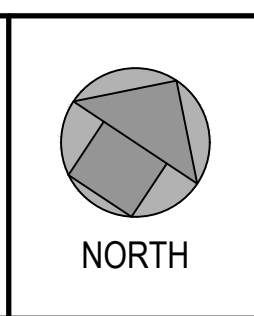
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SCALE 1:1000 (A3)



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Prepared:

Orion Consulting Engineers

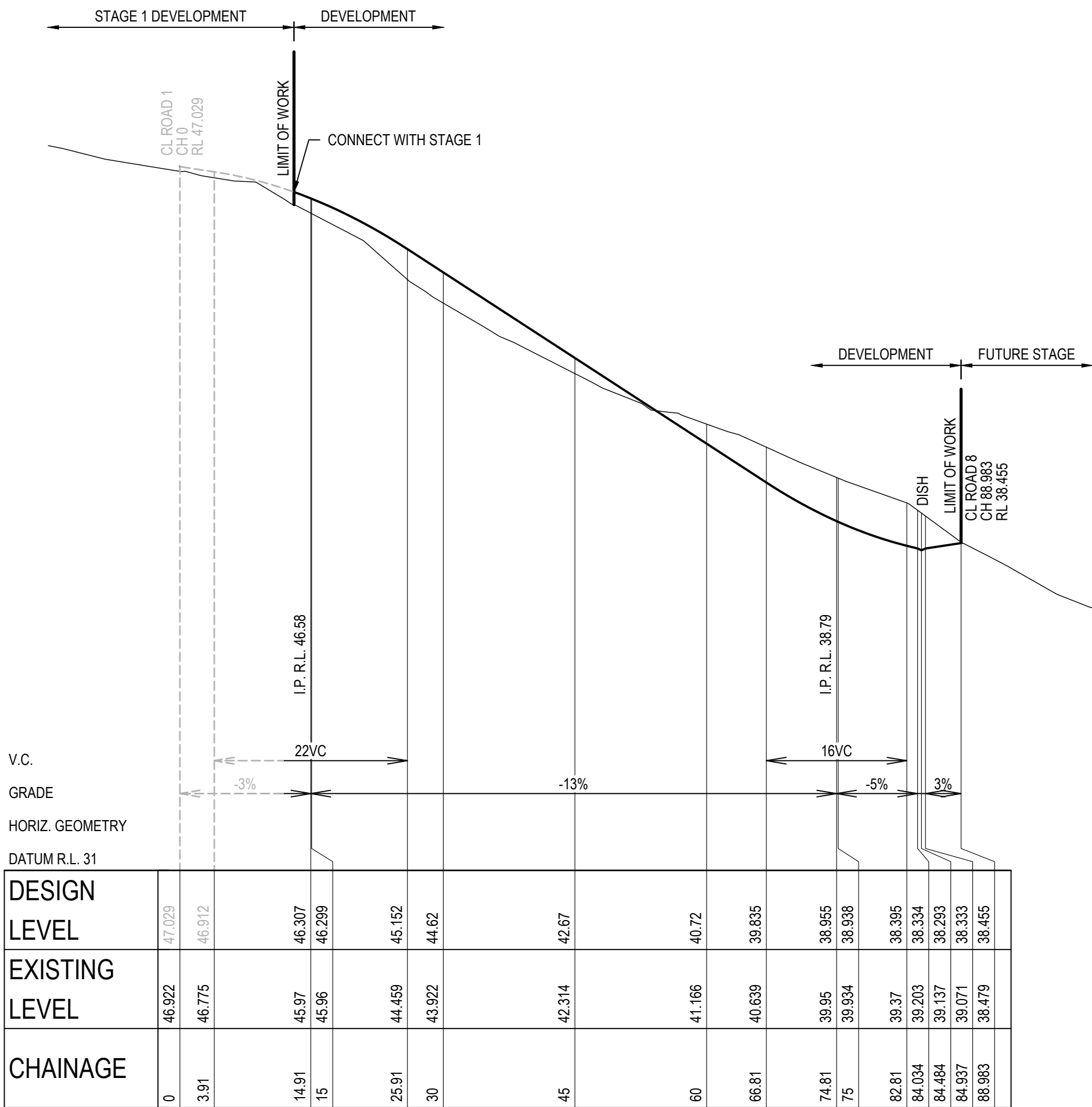
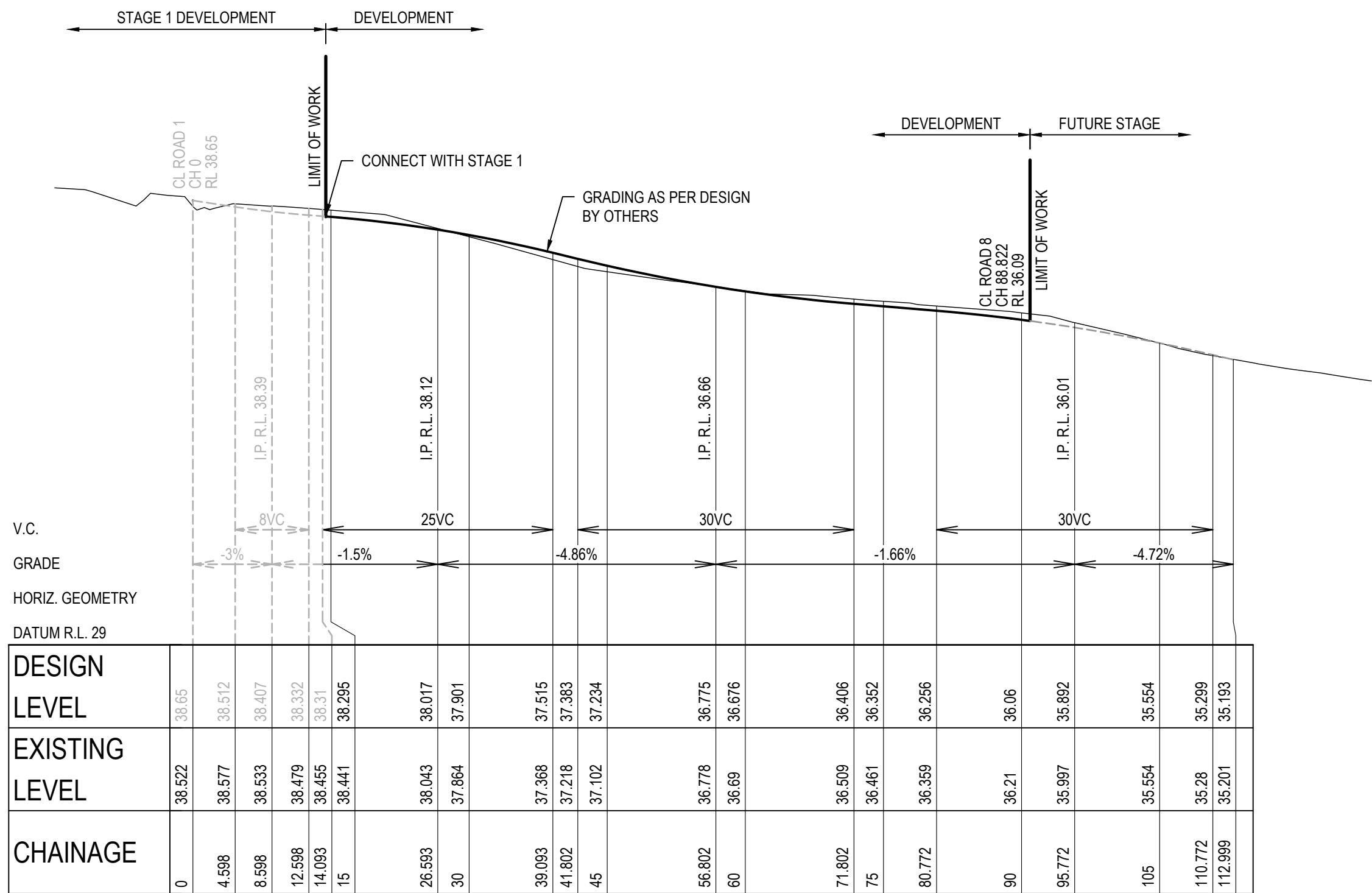
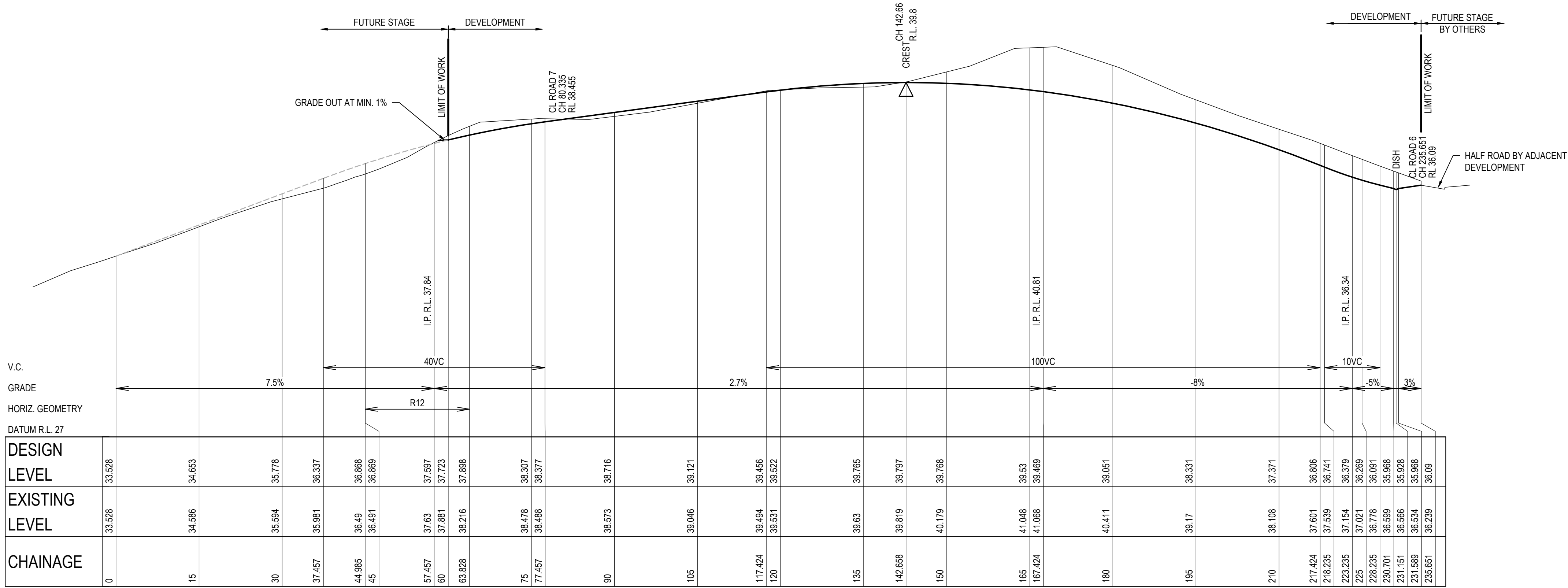
ABN: 25 604 069 981
PO Box 266, BAULKHAM HILLS NSW 1755

T: 0425 457 704
E: info@orionconsulting.com

Project:

213 GARFIELD ROAD EAST - ROSEBANK COTTAGE ROAD AND DRAINAGE DESIGN

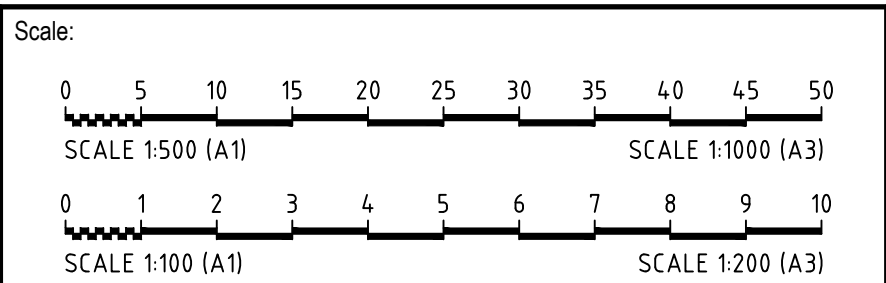
Drawing Title:			
ENGINEERING PLAN			
Project No.: 15-21	Approval Stg: DA	Dwg No.: 101	Revision: C



DEVELOPMENT APPLICATION

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Revisions					Revision Description	
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B	PM	AS	-	10/08/16	COUNCIL COMMENTS	
A	PM	AS	PB	26/02/16	ISSUED FOR DEVELOPMENT APPLICATION	
First Issue	PM	AS	PB	26/02/16		
Drawn	Design	Appd.	Date			



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Client:

GMR Goldmate Residential

Prepared:

Orion Consulting Engineers

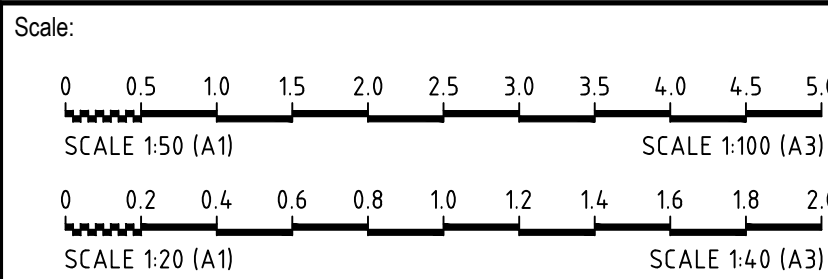
ABN: 25 604 069 981
PO Box 266, BAULKHAM HILLS NSW 1755

T: 0425 457 704
E: info@orionconsulting.com

Project:

213 GARFIELD ROAD EAST -
ROSEBANK COTTAGE
ROAD AND DRAINAGE DESIGN

Drawing Title:			
ROAD LONG SECTIONS			
Project No.: 15-21	Approval Stg.: DA	Dwg No.: 201	Revision: C



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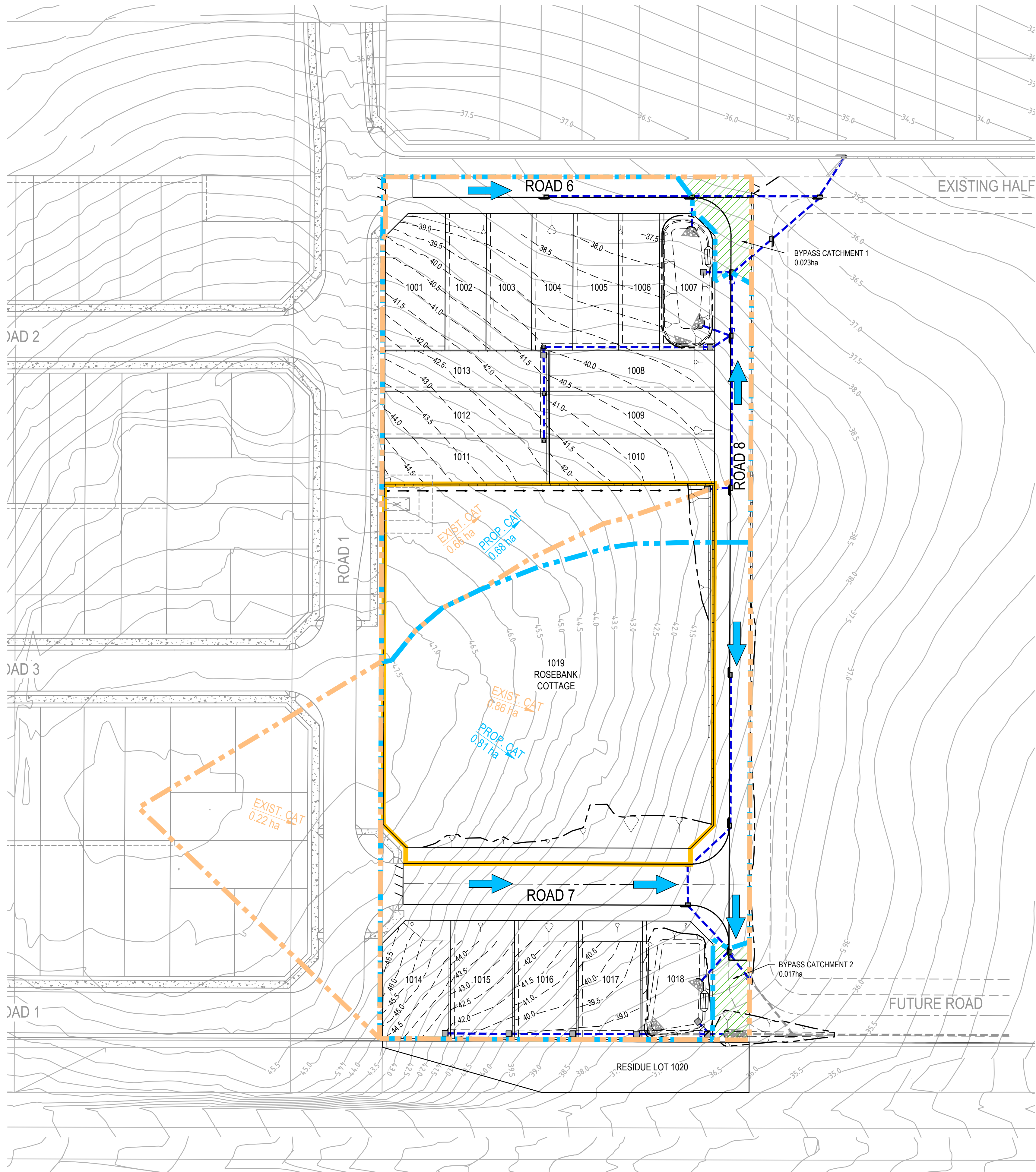
GMR Goldmate
Residential

Project: 213 GARFIELD ROAD EAST -
ROSEBANK COTTAGE
ROAD AND DRAINAGE DESIGN

Drawing Title:			
TYPICAL ROAD CROSS SECTIONS			
Project No.:	Approval Stg:	Dwg No.:	Revision:
15-21	DA	202	C

DEVELOPMENT APPLICATION

FILE: P:\PROJECTS\213-213 GARFIELD ROAD EAST - ROSEBANK COTTAGE\DWG\213-213 GARFIELD ROAD EAST - ROSEBANK COTTAGE.DWG
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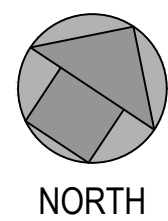
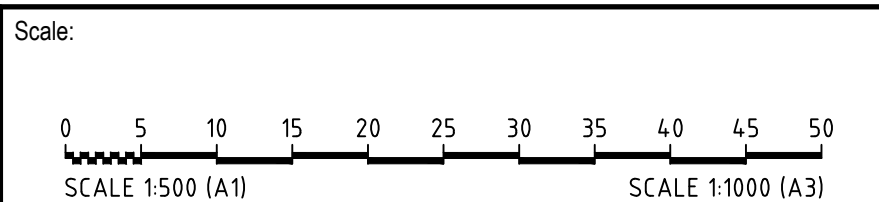


LEGEND

- CAT 1.511 ha DENOTES CATCHMENT NAME & CATCHMENT AREA
- 48.00 DENOTES PROPOSED DESIGN CONTOURS AT 0.5m INTERVAL
- 4.0 DENOTES EXISTING CONTOURS AT 0.5m INTERVAL
- CATCHMENT BOUNDARY, EXISTING & PROPOSED
- BYPASS CATCHMENT
- OVERLAND FLOW PATH

DEVELOPMENT APPLICATION

Revisions	Issue	Drawn	Design	Appd.	Date	Revision Description
C	AS	AS	-	25/05/17	COUNCIL COMMENTS	
B	PM	AS	-	10/08/16	COUNCIL COMMENTS	
A	PM	AS	PB	26/02/16	ISSUED FOR DEVELOPMENT APPLICATION	
First Issue	PM	AS	PB	26/02/16		



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Client:

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Prepared:

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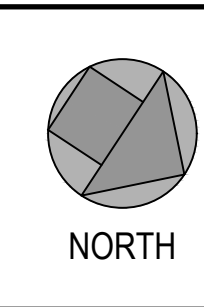
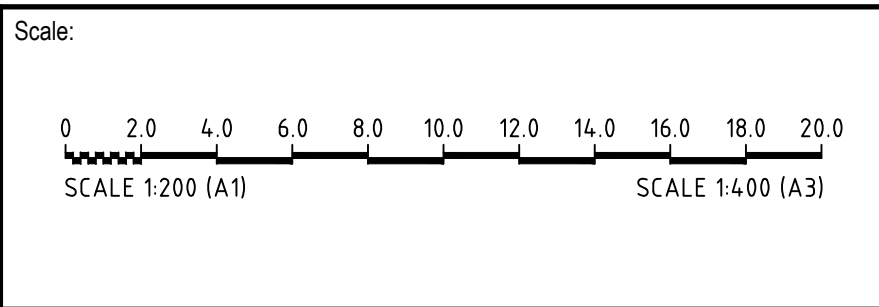
Project:

213 GARFIELD ROAD EAST - ROSEBANK COTTAGE ROAD AND DRAINAGE DESIGN

Drawing Title:	Project No.:	Approval Stg.:	Dwg No.:	Revision:
CATCHMENT PLAN	15-21	DA	501	C

FILE: P:\PROJECTS\15-17-213 GARFIELD ROAD EAST - ROSEBANK COTTAGE\DWG\BASIN01.DWG, 26/02/2017, USER: JANDREW

Revisions					
C	AS	AS	-	25/05/17	COUNCIL COMMENTS
B	PM	AS	-	10/08/16	COUNCIL COMMENTS
A	PM	AS	PB	26/02/16	ISSUED FOR DEVELOPMENT APPLICATION
First Issue	PM	AS	PB	26/02/16	Revision Description
Drawn	Design	Appd.	Date		



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Client:

GMR Goldmate Residential

Prepared:

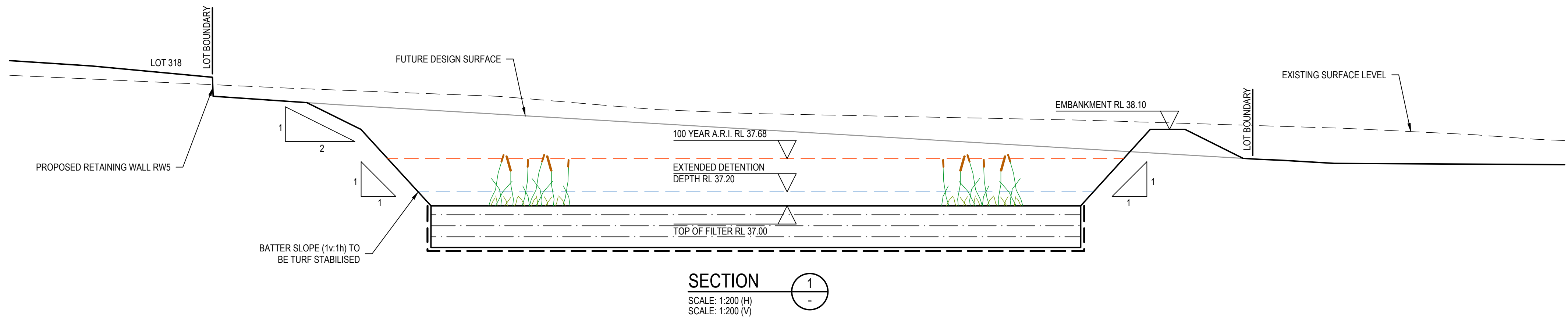
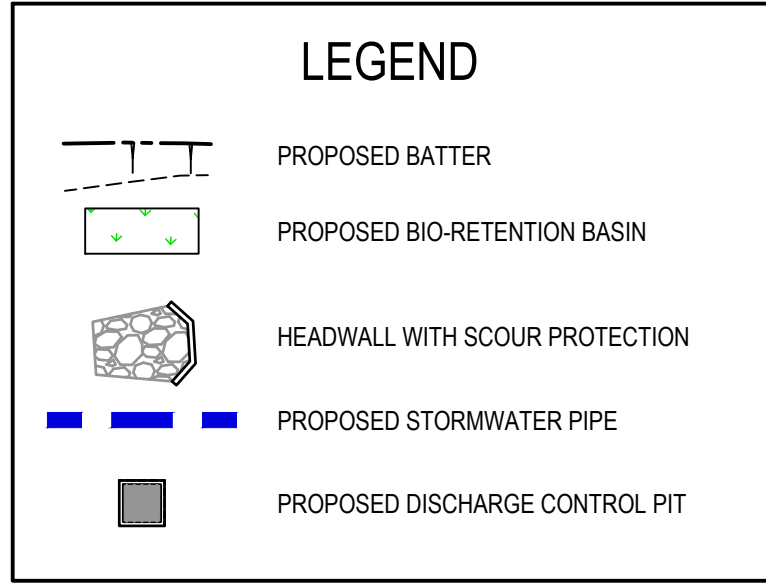
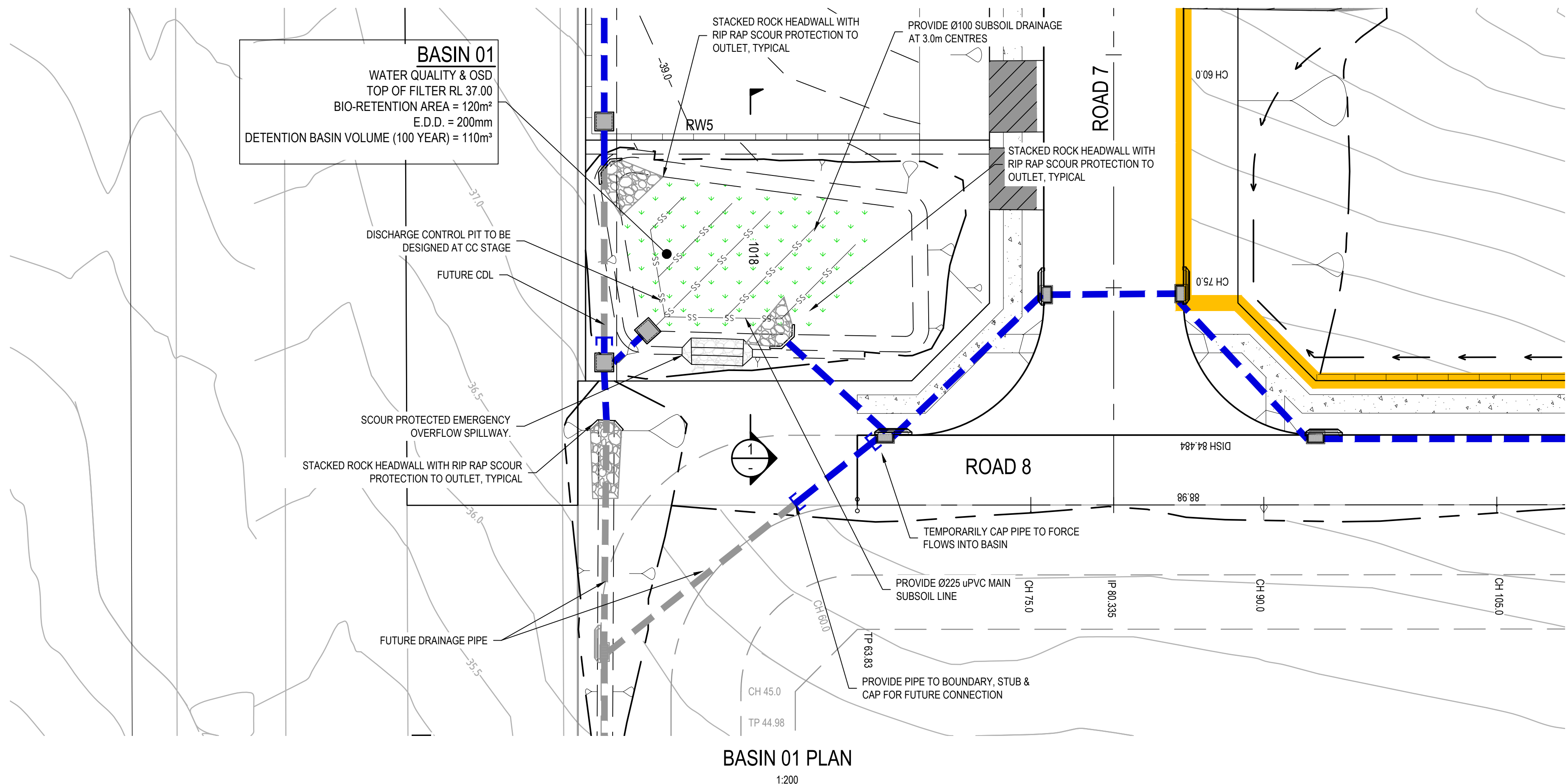
Orion Consulting Engineers

ABN: 25 604 069 981 T: 0425 457 704
PO Box 266, BAULKHAM HILLS NSW 1755 E: info@orionconsulteng.com

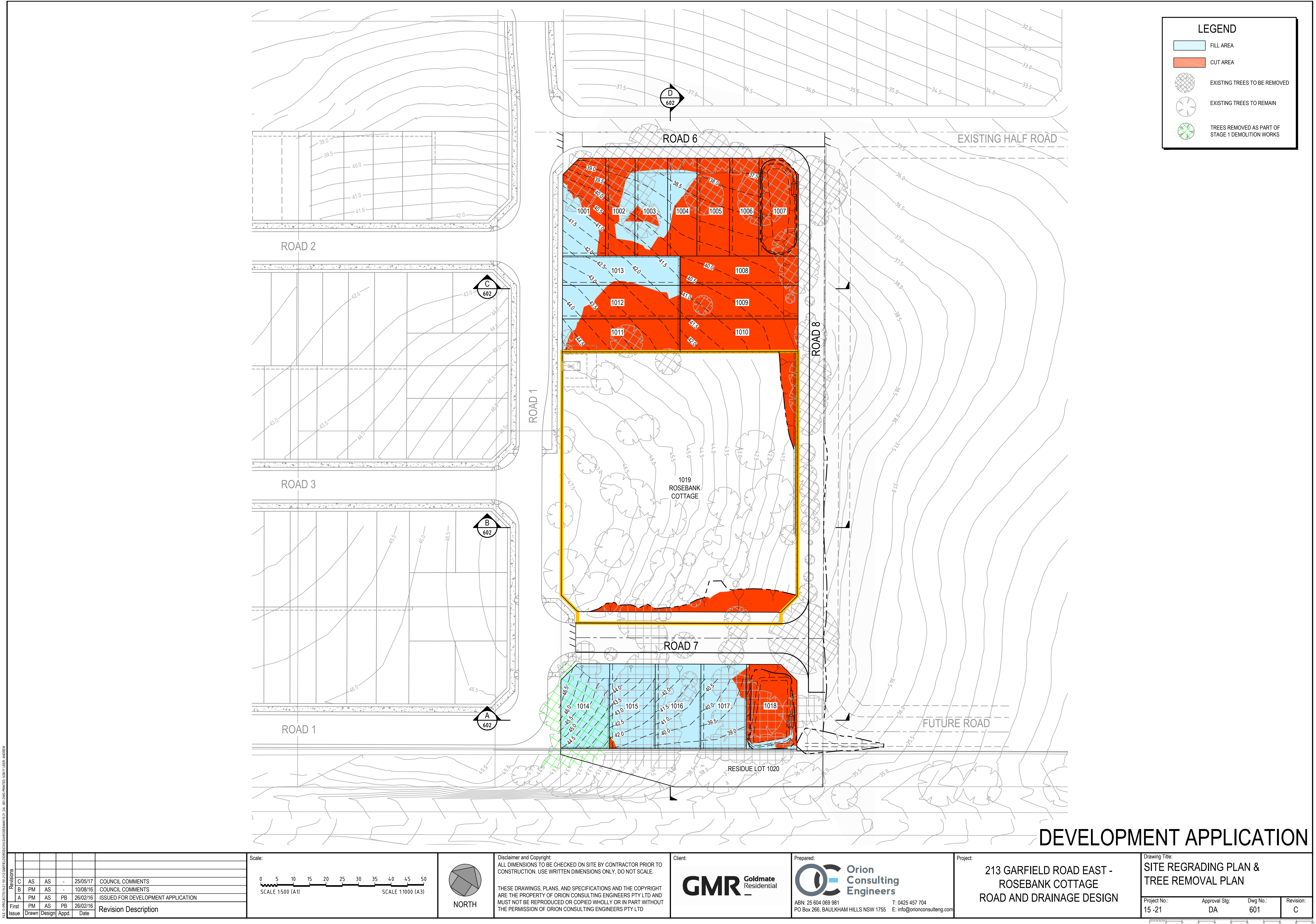
Project:

213 GARFIELD ROAD EAST - ROSEBANK COTTAGE ROAD AND DRAINAGE DESIGN

Drawing Title:			
BASIN 01 LAYOUT PLAN & SECTION			
Project No.:	Approval Stg.:	Dwg No.:	Revision:
15-21	DA	551	C

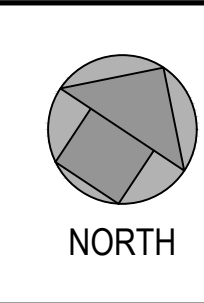
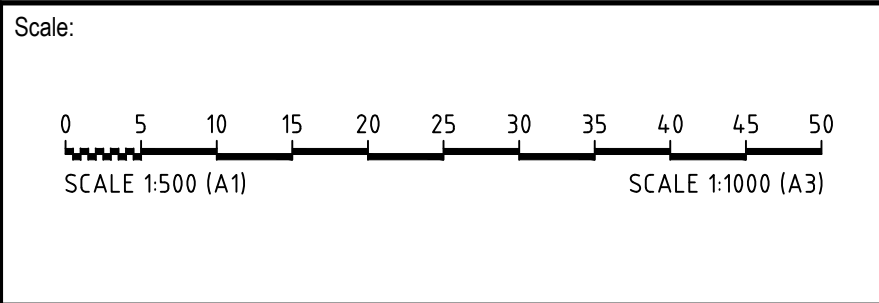


DEVELOPMENT APPLICATION



FILE: D:\PROJECTS\213 GARFIELD ROAD EAST\ROSEBANK\15-21.DWG PRINTED: 26/07/2017 USER: JANDREW

Revisions						
C	AS	AS	-	25/05/17	COUNCIL COMMENTS	
B	PM	AS	-	10/08/16	COUNCIL COMMENTS	
A	PM	AS	PB	26/02/16	ISSUED FOR DEVELOPMENT APPLICATION	
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	Drawn	Design	Appd.	Date		



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Client:

GMR Goldmate Residential

Prepared:

Orion Consulting Engineers

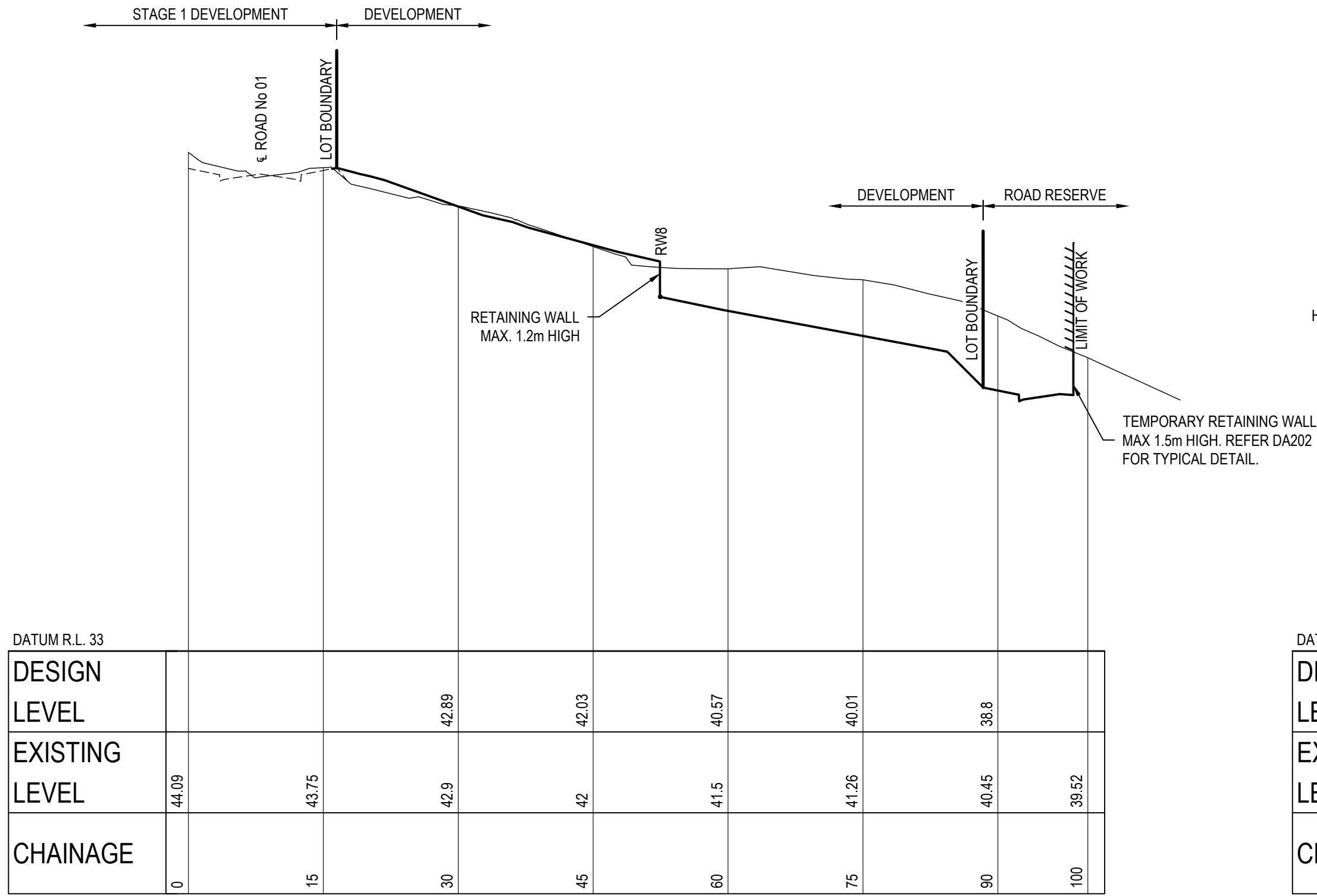
ABN: 25 604 069 981 T: 0425 457 704
PO Box 266, BAULKHAM HILLS NSW 1755 E: info@orionconsultingeng.com

Project:

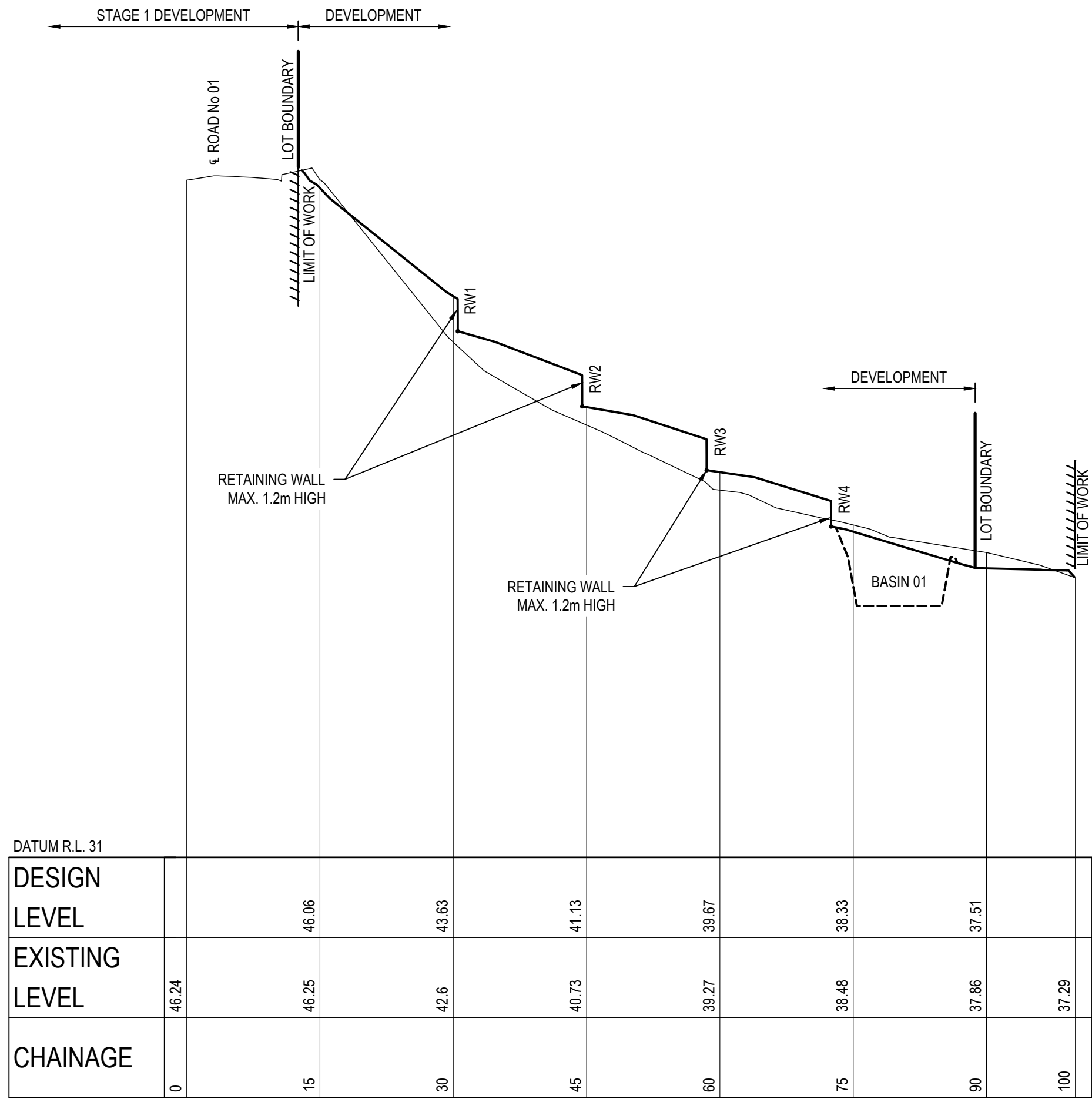
213 GARFIELD ROAD EAST - ROSEBANK COTTAGE ROAD AND DRAINAGE DESIGN

Drawing Title:			
SITE REGRADING PLAN & TREE REMOVAL PLAN			
Project No.: 15-21	Approval Stg: DA	Dwg No.: 601	Revision: C

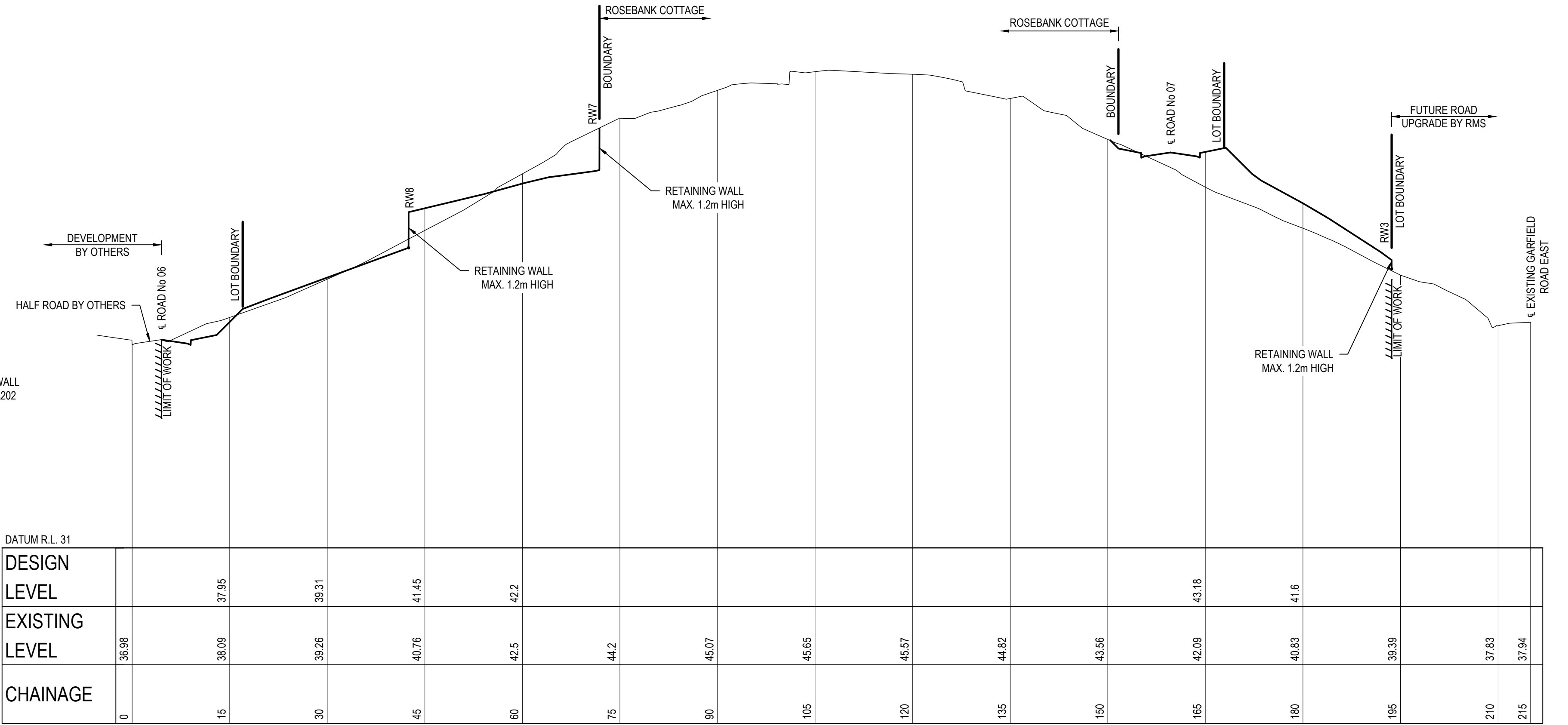
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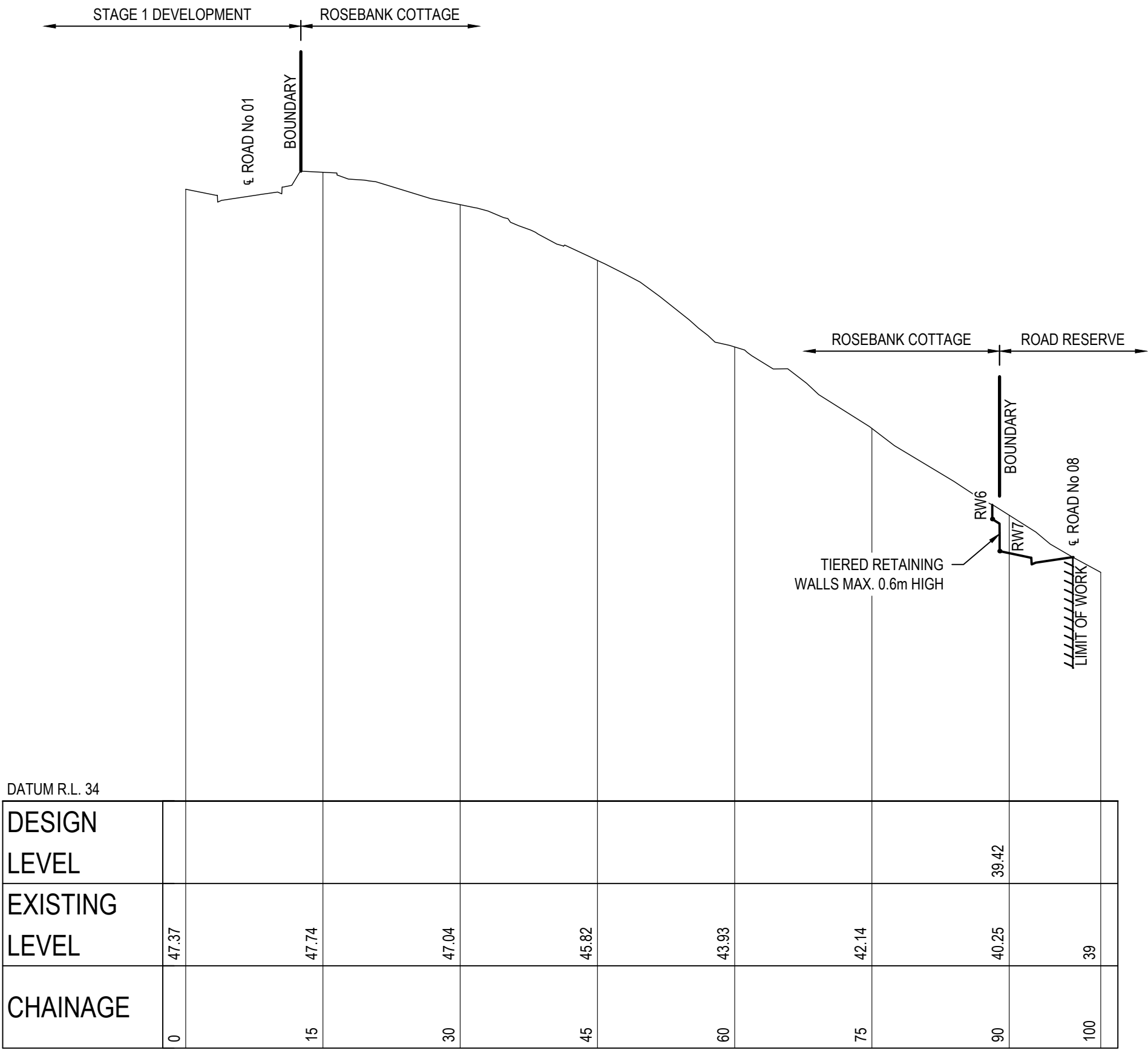
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SECTION A
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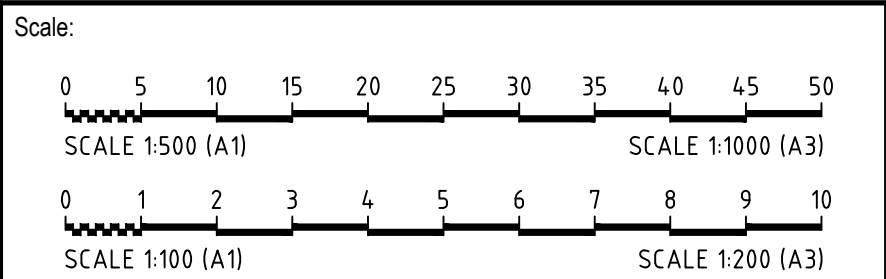
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DEVELOPMENT APPLICATION

Revisions					
C	AS	AS	-	25/05/17	COUNCIL COMMENTS
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Drawn	Design	Appd.	Date	Revision Description	



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Client:

GMR Goldmate Residential

Prepared:

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ABN: 25 604 069 981
PO Box 266, BAULKHAM HILLS NSW 1755

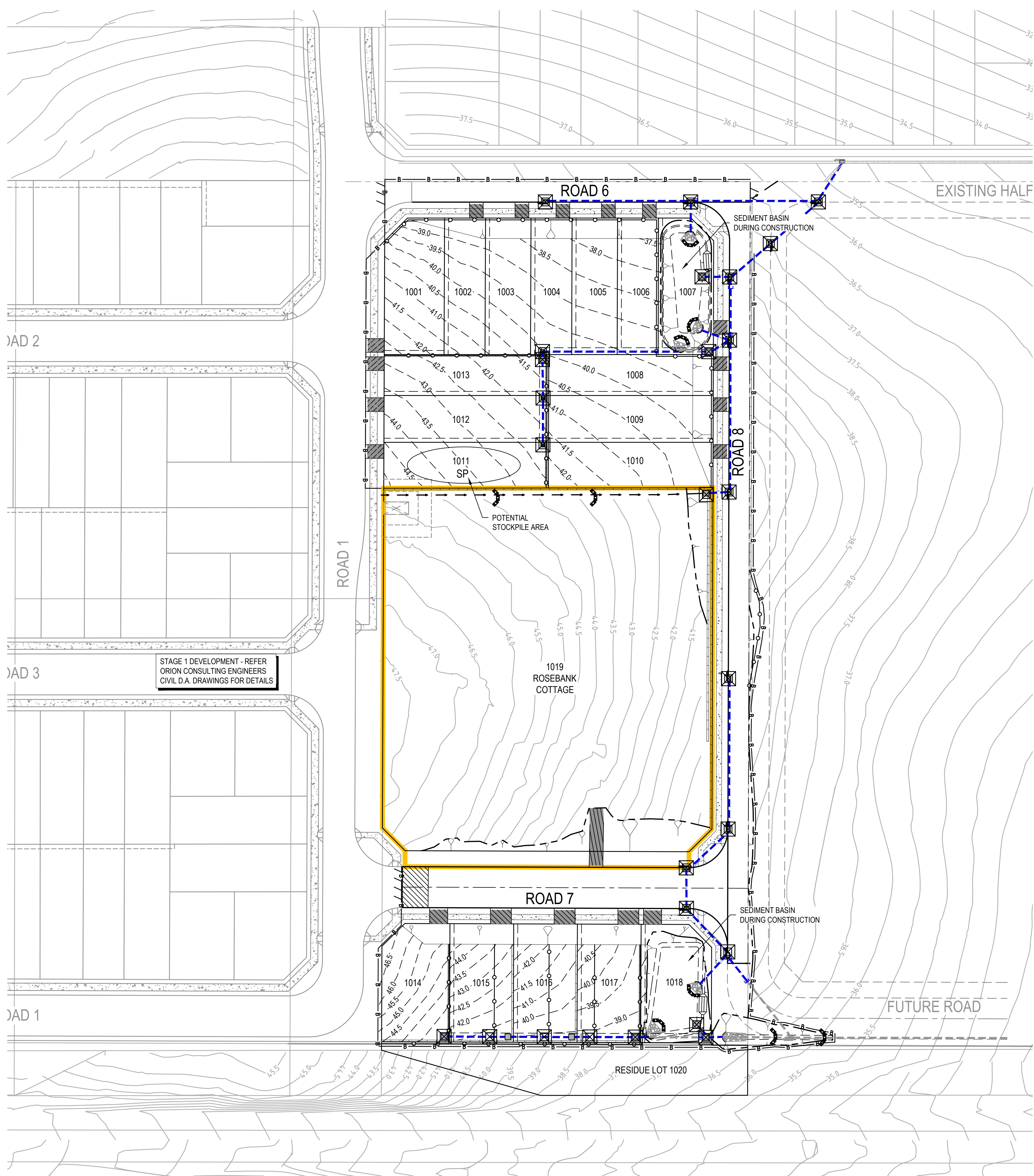
T: 0425 457 704
E: info@orionconsulteng.com

Project:

213 GARFIELD ROAD EAST - ROSEBANK COTTAGE
ROAD AND DRAINAGE DESIGN

Drawing Title:			
SITE REGRADING SECTIONS			
Project No.:	Approval Stg:	Dwg No.:	Revision:
15 -21	DA	602	C

FILE: D:\PROJECTS\213 GARFIELD ROAD EAST, ROSEBANK\213 DA - 701.DWG PRINTED: 26/07/2017 USER: JANDREW



LEGEND

SEDIMENT FENCE (SD 6-8)

BARRIER FENCE

EXISTING CONTOUR
(ORIGINAL NATURAL SURFACE)

PROPOSED CONTOUR

STABILISED SITE ACCESS (SD 6-14)

HAY BALE FILTER

CATCH DRAIN / DIVERSION BANK

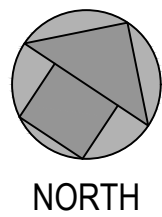
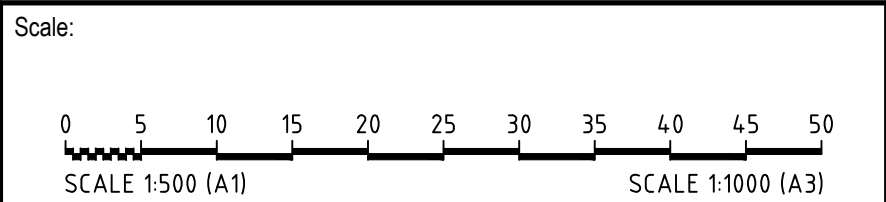
STOCKPILE

GEOTEXTILE INLET FILTER (SD 6-12)
DURING CONSTRUCTION
MESH AND GRAVEL INLET FILTER (SD 6-11)
AFTER CONSTRUCTION

Site Name: 213 Garfield Road East, Rosebank Cottage DA						
Site Location: Riverstone						
Precinct/Stage: 1 Stage						
Other Details: Residential development						
Site area	Sub-catchment or Name of Structure					Notes
Total catchment area (ha)	1	2				
Disturbed catchment area (ha)	0.7	0.83				
	0.58	0.43				
Soil analysis (enter sediment type if known, or laboratory particle size data)						
Sediment Type (C, F or D) if known:	D	D				From Appendix C (if known)
% sand (fraction 0.02 to 2.00 mm)						Enter the percentage of each soil fraction. E.g. enter 10 for 10%
% silt (fraction 0.002 to 0.02 mm)						
% clay (fraction finer than 0.002 mm)						
Dispersion percentage						E.g. enter 10 for dispersion of 10%
% of whole soil dispersible						See Section 6.3.3(e). Auto-calculated
Soil Texture Group	D	D				Automatic calculation from above
Rainfall data						
Design rainfall depth (no of days)	5	5				See Section 6.3.4 and, particularly, Table 6.3 on pages 6-24 and 6-25.
Design rainfall depth (percentile)	75	75				
x-day, y-percentile rainfall event (mm)	19.8	19.8				
Rainfall R-factor (if known)	2600	2600				Only need to enter one or the other here
IFD: 2-year, 6-hour storm (if known)	10.1	10.1				
RUSLE Factors						
Rainfall erosivity (R-factor)	2600	2600				Auto-filled from above
Soil erodibility (K-factor)	0.038	0.038				
Slope length (m)	70	45				
Slope gradient (%)	9	11				RUSLE LS factor calculated for a high rill/interill ratio.
Length/gradient (LS-factor)	2.16	2.18				
Erosion control practice (P-factor)	1.3	1.3	1.3	1.3	1.3	1.3
Ground cover (C-factor)	1	1	1	1	1	1
Sediment Basin Design Criteria (for Type D/F basins only. Leave blank for Type C basins)						
Storage (soil) zone design (no of months)	2	2				Minimum is generally 2 months
Cv (Volumetric runoff coefficient)	0.5	0.5				See Table F2, page F-4 in Appendix F
Calculations and Type D/F Sediment Basin Volumes						
Soil loss (t/ha/yr)	278	280				
Soil Loss Class	3	3				See Table 4.2, page 4-13
Soil loss (m ³ /ha/yr)	214	215				Conversion to cubic metres
Sediment basin storage (soil) volume (m ³)	21	15				See Sections 6.3.4(i) for calculations
Sediment basin settling (water) volume (m ³)	69	82				See Sections 6.3.4(i) for calculations
Sediment basin total volume (m ³)	90	97				

DEVELOPMENT APPLICATION

REVISIONS						
DATE OBJECTS IN DISCREPANCY	Revisions					
	C	AS	AS	-	25/05/17	COUNCIL COMMENTS
	B	PM	AS	-	10/08/16	COUNCIL COMMENTS
	A	PM	AS	PB	26/02/16	ISSUED FOR DEVELOPMENT APPLICATION
	First Issue	PM	AS	PB	26/02/16	Revision Description
	Drawn	Design	Appd.	Date		



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Project:

213 GARFIELD ROAD EAST -
ROSEBANK COTTAGE
ROAD AND DRAINAGE DESIGN

Drawing Title: SEDIMENT & EROSION CONTROL PLAN			
Project No.: 15-21	Approval Stg.: DA	Dwg No.: 701	Revision: C

GENERAL NOTES

- ALL EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING REVEGETATION AND STORAGE OF SOIL AND TOPSOIL, SHALL BE IMPLEMENTED TO THE REQUIREMENTS OF THE "ENVIRONMENT PROTECTION AUTHORITY" AND "DEPT OF LAND AND WATER CONSERVATION". MEASURES OUTLINED IN THE SEDIMENT & EROSION CONTROL PLAN MUST BE IMPLEMENTED PRIOR TO AND MAINTAINED DURING AND AFTER THE CONSTRUCTION WORKS.
- TOPSOIL FROM ALL AREAS TO BE DISTURBED SHALL BE STOCKPILED AND LATER RESPREAD TO AID REVEGETATION IN THOSE AREAS.
- ALL DRAINAGE WORKS SHALL BE CONSTRUCTED AND STABILIZED AS EARLY AS POSSIBLE DURING DEVELOPMENT.
- ALL TAIL-OUT DRAINS SHALL BE GRASSED AND TRAPEZOIDAL IN SECTION. STRAW BALES SHALL BE PLACED AS A SEDIMENT CONTROL DEVICE WHERE REQUIRED.
- VEHICULAR TRAFFIC SHALL BE CONTROLLED DURING DEVELOPMENT CONFINING ACCESS WHERE POSSIBLE TO PROPOSED OR EXISTING ROAD ALIGNMENTS. AREAS TO BE LEFT UNDISTURBED SHALL BE MARKED OFF.
- DISTURBANCE OF VEGETATION SHALL BE LIMITED TO FILL AREAS, ROADWAYS AND DRAINAGE LINES. NO LOT GRADING SHALL BE CARRIED OUT IN UNDISTURBED AREAS WITHOUT CONSULTATION WITH COUNCIL'S ENGINEER.
- ALL DISTURBED AREAS SHALL BE REVEGETATED WITHIN 14 WORKING DAYS FROM THE CONCLUSION OF LAND SHAPING.
- MINIMISE DUST BY WATERING WHEN REQUIRED.

STOCKPILE NOTES

- SPOIL AND TOPSOIL STOCKPILES SHALL BE LOCATED AWAY FROM DRAINAGE LINES AND AREAS WHERE WATER MAY CONCENTRATE.
- IF STOCKPILES ARE TO BE IN PLACE FOR LONGER THAN 14 DAYS THEN THEY SHALL BE STABILIZED BY COVERING WITH A MULCH OR WITH TEMPORARY VEGETATION.
- FOLLOWING CONSTRUCTION, TOPSOIL SHALL BE RESPREAD TO A MINIMUM DEPTH OF 100mm ON THE BARE SOIL SURFACES AND REVEGETATE.
- ALL STOCKPILES TO BE (MAX) 2m HIGH AND PROTECTED WITH SILT FENCE.

SPECIAL NOTES

- LOCATION AND EXTENT OF SOIL AND WATER MANAGEMENT DEVICES IS DIAGRAMMATIC ONLY AND THE ACTUAL REQUIREMENTS SHALL BE CONFIRMED ON SITE.
- THIS PLAN IS TO BE READ IN CONJUNCTION WITH THE GUIDELINES SET OUT IN "MANAGING URBAN STORMWATER SOILS AND CONSTRUCTION " -4TH EDITION AND THE ACCOMPANYING ROAD AND DRAINAGE PLANS.
- CONFORMITY WITH THIS PLAN SHALL IN NO WAY REDUCE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT AGAINST WATER DAMAGE DURING THE COURSE OF THE CONTRACT.
- MANAGEMENT DEVICES SHALL BE MAINTAINED ON A REGULAR BASIS. WHERE CLEANING IS REQUIRED, THE SEDIMENT SHALL BE REMOVED TO A POINT NOMINATED BY THE ENGINEER.
- PRIOR TO THE COMMENCEMENT OF ANY EARTHWORKS, AND AFTER THE ROAD CENTRELINES HAVE BEEN PEGGED AND/OR PERMANENTLY MARKED, THE SITE MUST BE INSPECTED BY COUNCIL'S REPRESENTATIVE AND THE APPLICANT'S REPRESENTATIVE TO IDENTIFY AND APPROPRIATELY MARK:-
 - THE TREES TO BE RETAINED.
 - ALL TREES TO BE LEFT UNDISTURBED AND TO BE CORDONED OFF.
- NO TREES SHALL BE REMOVED WITHOUT COUNCIL'S CLEARANCE.
- MANAGEMENT DEVICES TO REMAIN UNTIL THE END OF THE MAINTENANCE PERIOD.

SEDIMENTATION CONTROL DEVICES

- ALL STRAW BALES SHALL BE BOUND WITH WIRE. STRAW BALES SHALL BE PLACED END TO END IN A SINGLE ROW AND EMBEDDED INTO THE SOIL TO A DEPTH OF 100mm. EACH BALE SHALL BE SECURELY ANCHORED WITH TWO STEEL STAKES DRIVEN 450mm INTO THE GROUND AND LOCATED ON THE BALE CENTRE LINE.
- SILT FENCES SHALL BE CONSTRUCTED BY STRETCHING A FILTER FABRIC (PROPEX OR SIMILAR) BETWEEN POSTS AT 2m (3m MAX) CENTRES. FABRIC SHALL BE BURIED 150mm ALONG ITS LOWER EDGE.

Construction Notes

- Install filters to kerb inlets only at sag points.
- Fabricate a sleeve made from geotextile or wire mesh longer than the length of the inlet pit and fill it with 25 mm to 50 mm gravel.
- Form an elliptical cross-section about 150 mm high x 400 mm wide.
- Place the filter at the opening leaving at least a 100-mm space between it and the kerb inlet. Maintain the opening with spacer blocks.
- Form a seal with the kerb to prevent sediment bypassing the filter.
- Sandbags filled with gravel can substitute for the mesh or geotextile providing they are placed so that they firmly abut each other and sediment-laden waters cannot pass between.

MESH AND GRAVEL INLET FILTER

SD 6-11

Construction Notes

- Fabricate a sediment barrier made from geotextile or straw bales.
- Follow Standard Drawing 6-8 for installation procedures for geofabric. Reduce the picket spacing to 1 metre centres.
- In waterways, artificial sag points can be created with sandbags or earth banks as shown in the drawing.
- Do not cover the inlet with geotextile unless the design is adequate to allow for all waters to bypass it.

GEOTEXTILE INLET FILTER

SD 6-12

Construction Notes

- Construct at the gradient specified on the ESCP or SWMP, normally between 1 and 5 percent
- Avoid removing trees and shrubs if possible - work around them.
- Ensure the structures are free of projections or other irregularities that could impede water flow.
- Build the drains with circular, parabolic or trapezoidal cross sections, not V-shaped, at the dimensions shown on the SWMP.
- Ensure the banks are properly compacted to prevent failure.
- Complete permanent or temporary stabilisation within 10 days of construction following Table 5.2 in Landcom (2004).
- Where discharging to erodible lands, ensure they outlet through a properly constructed level spreader.
- Construct the level spreader at the gradient specified on the ESCP or SWMP, normally less than 1 percent or level.
- Where possible, ensure they discharge waters onto either stabilised or undisturbed disposal sites within the same subcatchment area from which the water originated. Approval might be required to discharge into other subcatchments.

EARTH BANK (HIGH FLOWS)

SD 5-6

Construction Notes

- Place stockpiles more than 2 (preferably 5) metres from existing vegetation, concentrated water flow, roads and hazard areas.
- Construct on the contour as low, flat, elongated mounds.
- Where there is sufficient area, topsoil stockpiles shall be less than 2 metres in height.
- Where they are to be in place for more than 10 days, stabilise following the approved ESCP or SWMP to reduce the C-factor to less than 0.10.
- Construct earth banks (Standard Drawing 5-5) on the upslope side to divert water around stockpiles and sediment fences (Standard Drawing 6-8) 1 to 2 metres downslope.

STOCKPILES

SD 4-1

Construction Notes

- Strip the topsoil, level the site and compact the subgrade.
- Cover the area with needle-punched geotextile.
- Construct a 200 mm thick pad over the geotextile using road base or 30 mm aggregate.
- Ensure the structure is at least 15 metres long or to building alignment and at least 3 metres wide.
- Where a sediment fence joins onto the stabilised access, construct a hump in the stabilised access to divert water to the sediment fence

STABILISED SITE ACCESS

SD 6-14

Construction Notes

- Construct sediment fences as close as possible to being parallel to the contours of the site, but with small returns as shown in the drawing to limit the catchment area of any one section. The catchment area should be small enough to limit water flow if concentrated at one point to 50 litres per second in the design storm event, usually the 10-year event.
- Cut a 150-mm deep trench along the upslope line of the fence for the bottom of the fabric to be entrenched.
- Drive 15 metre long star pickets into ground at 2.5 metre intervals (max) at the downslope edge of the trench. Ensure any star pickets are fitted with safety caps.
- Fix self-supporting geotextile to the upslope side of the posts ensuring it goes to the base of the trench. Fix the geotextile with wire ties or as recommended by the manufacturer. Only use geotextile specifically produced for sediment fencing. The use of shade cloth for this purpose is not satisfactory.
- Join sections of fabric at a support post with a 150-mm overlap.
- Backfill the trench over the base of the fabric and compact it thoroughly over the geotextile.

SEDIMENT FENCE

SD 6-8

Construction Notes

- Install a 400 mm minimum wide roll of turf on the footpath next to the kerb and at the same level as the top of the kerb.
- Lay 14 metre long turf strips normal to the kerb every 10 metres.
- Rehabilitate disturbed soil behind the turf strip following the ESCP/SWMP.

KERBSIDE TURF STRIP

SD 6-13

Construction Notes

- Build with gradients between 1 percent and 5 percent.
- Avoid removing trees and shrubs if possible - work around them.
- Ensure the structures are free of projections or other irregularities that could impede water flow.
- Build the drains with circular, parabolic or trapezoidal cross sections, not V shaped.
- Ensure the banks are properly compacted to prevent failure.
- Complete permanent or temporary stabilisation within 10 days of construction.

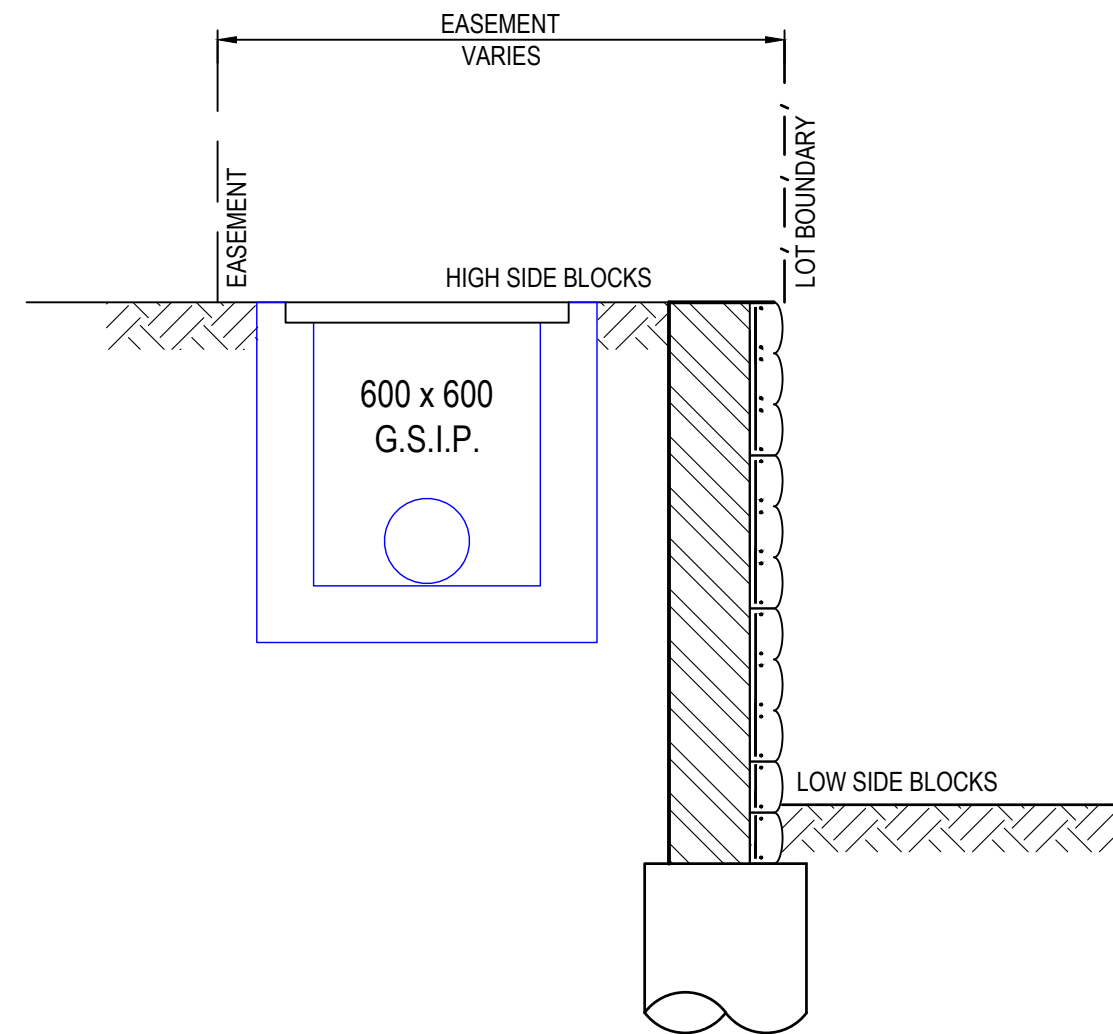
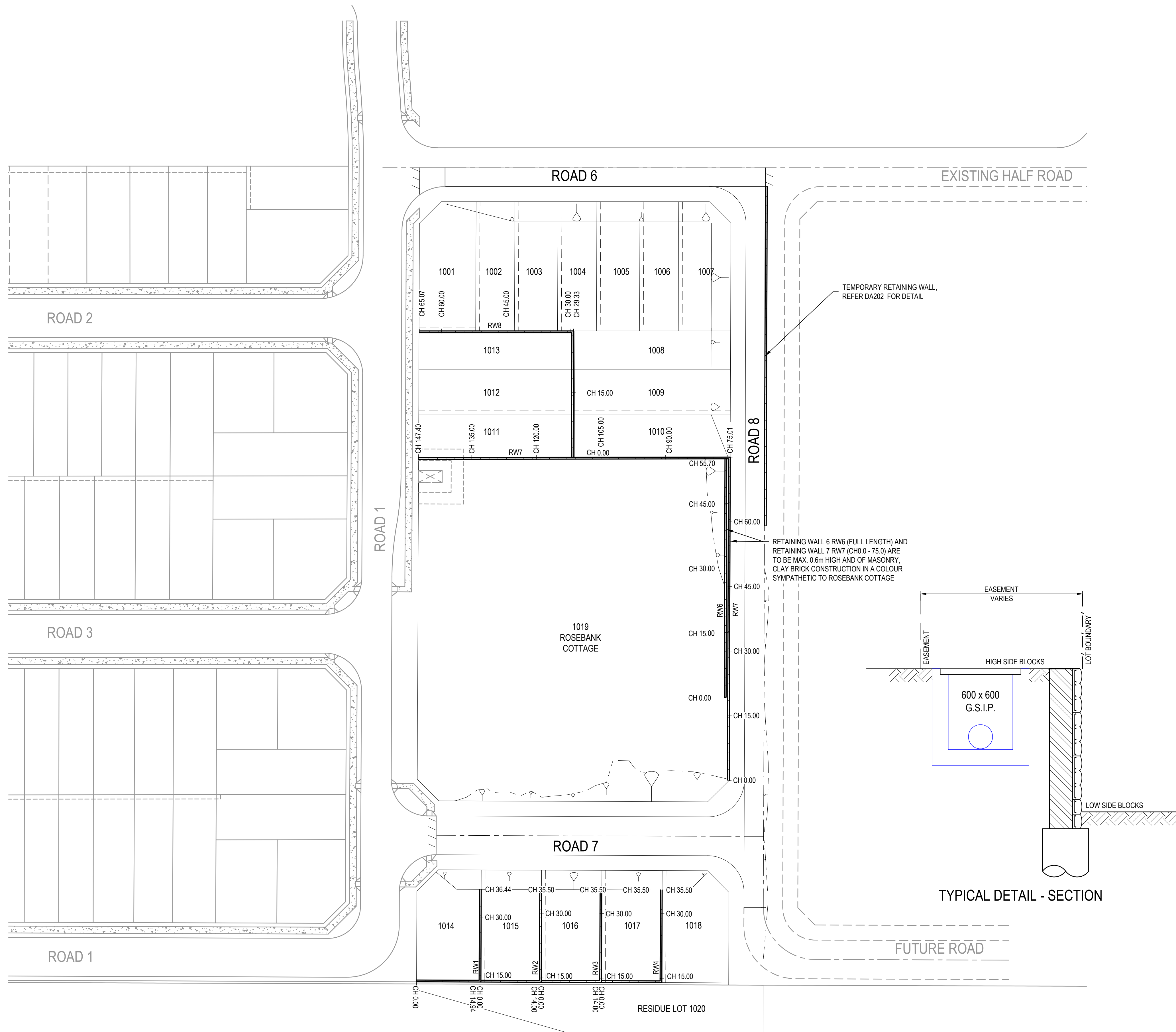
EARTH BANK (LOW FLOW)

SD 5-5

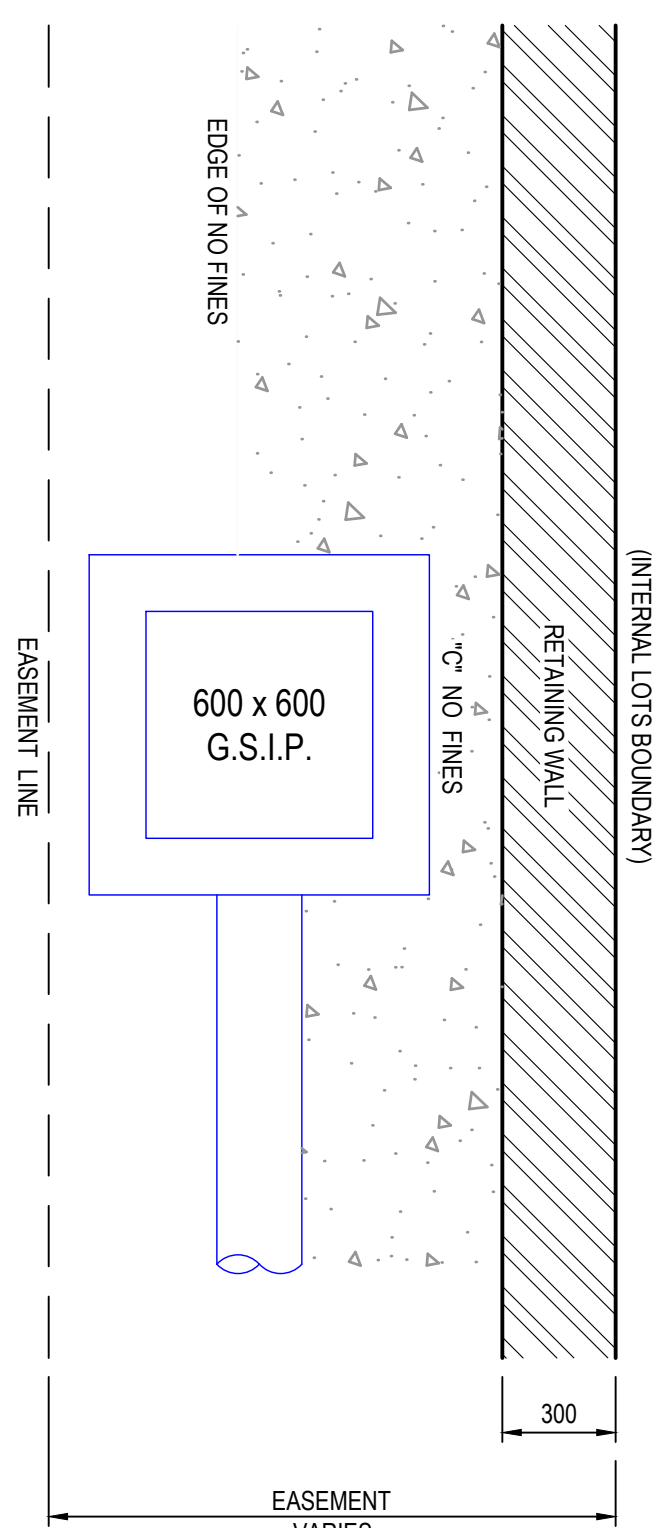
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Revisions	C	AS	AS	-	25/05/17	COUNCIL COMMENTS		THESE DRAWINGS, PLANS, AND SPECIFICATIONS AND THE COPYRIGHT ARE THE PROPERTY OF ORION CONSULTING ENGINEERS PTY LTD AND MUST NOT BE REPRODUCED OR COPIED WHOLLY OR IN PART WITHOUT THE PERMISSION OF ORION CONSULTING ENGINEERS PTY LTD		 ABN: 25 604 069 981 PO Box 266, BAULKHAM HILLS NSW 1755 T: 0425 457 704 E: info@orionconsultingeng.com	213 GARFIELD ROAD EAST - ROSEBANK COTTAGE ROAD AND DRAINAGE DESIGN	Project No.: 15 -21	Approval Stg: DA	Dwg No.: 702	Revision: C	
	B	PM	AS	-	10/08/16	COUNCIL COMMENTS										
	A	PM	AS	PB	26/02/16	ISSUED FOR DEVELOPMENT APPLICATION										
	First Issue	PM	AS	PB	26/02/16	Revision Description										
	Drawn	Design	Appd.	Date												



TYPICAL DETAIL - SECTION

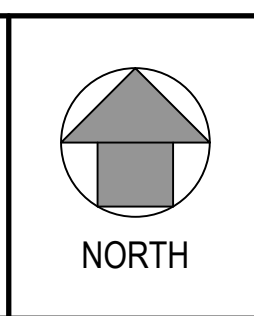
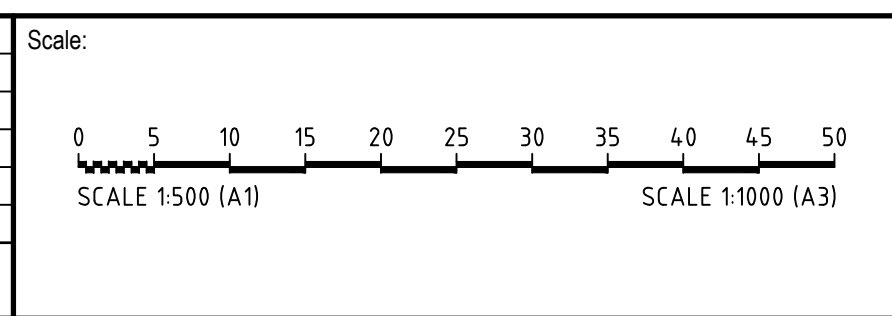


TYPICAL DETAIL - CONCRETE SLEEPER TYPE
RETAINING WALL PLAN LOCATION
NTS

DEVELOPMENT APPLICATION

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Revisions						
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	B	PM	AS	-	10/08/16	COUNCIL COMMENTS
	A	PM	AS	PB	26/02/16	ISSUED FOR DEVELOPMENT APPLICATION
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Client:

GMR Goldmate Residential

Prepared:

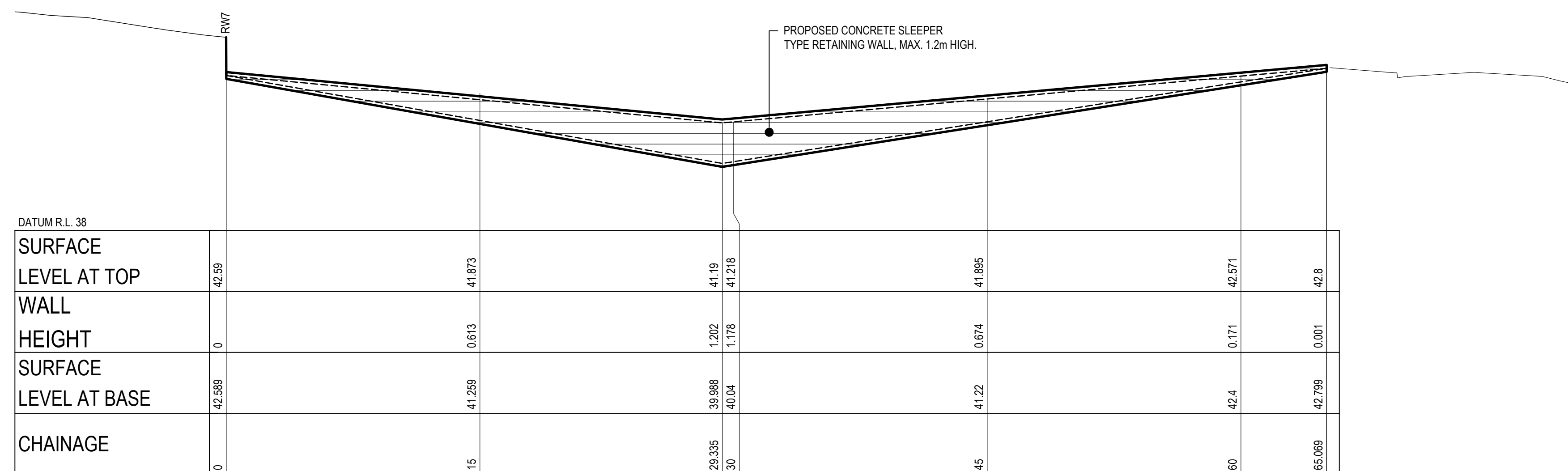
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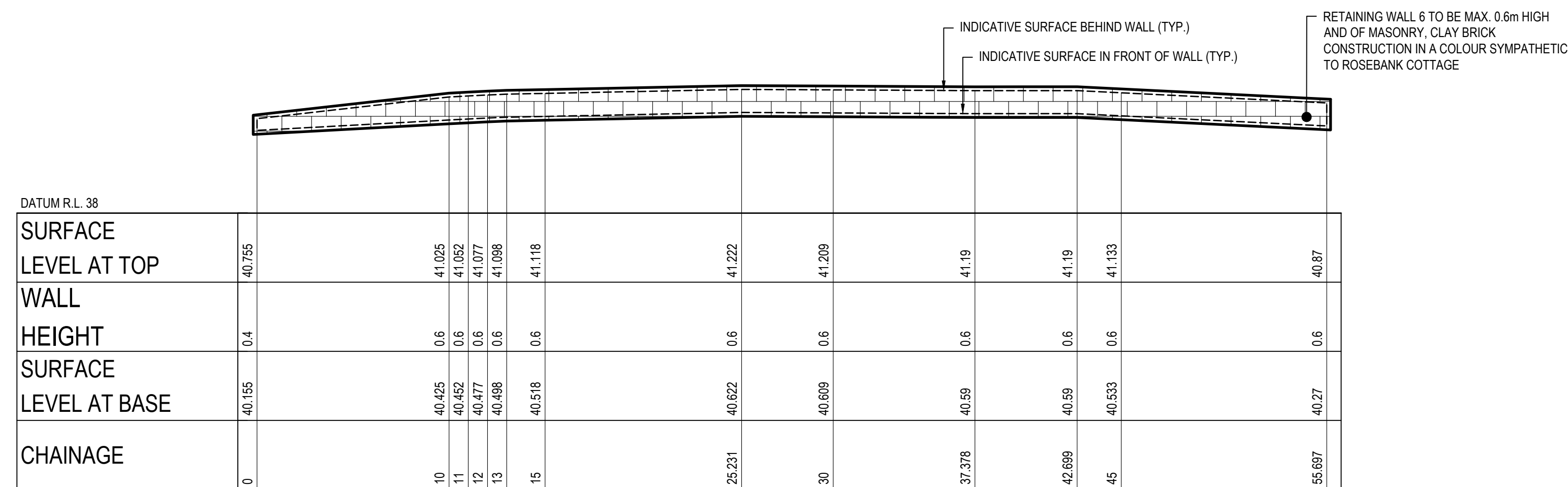
Project:

213 GARFIELD ROAD EAST - ROSEBANK COTTAGE ROAD AND DRAINAGE DESIGN

Drawing Title:			
RETAINING WALL PLAN & TYPICAL DETAIL			
Project No.: 15-21	Approval Stg: DA	Dwg No.: 901	Revision: C



LONG SECTION RETAINING WALL - RW8



LONGITUDINAL SECTION CENTRELINE - RW6

FILE: O:\PROJECTS\15-21181-213 GARFIELD\DRSS\CMILDA\ROSEBANK\15-21_DA - 903.DWG PRINTED: 5/28/17 USER: ANDREW

PROJECT: PROJECT 05-11-18-20 DATE: 06/01/2018						
Revisions						
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	A	AS	AS	PB	26/02/16	ISSUED FOR DEVELOPMENT APPLICATION
First Issue	PM	AS	PB	26/02/16	Revision Description	
	Drawn	Design	Appd.	Date		

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Client:

GMR Goldmate
Residential

Prepared:

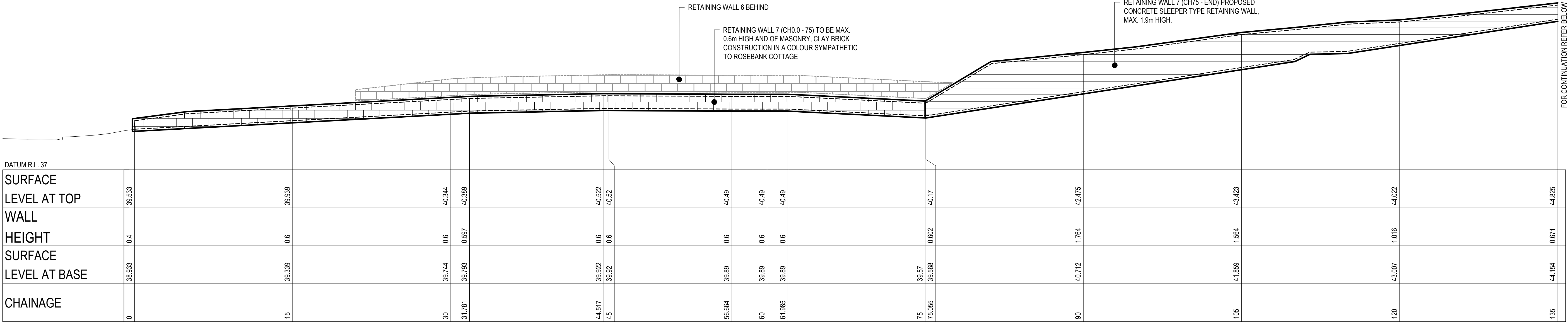
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Engineers**

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Project: 213 GARFIELD ROAD EAST -
ROSEBANK COTTAGE
ROAD AND DRAINAGE DESIGN

Drawing Title:			
RETAINING WALL RW5, RW6 & RW8 LONG SECTION			
Project No.:	Approval Stg.:	Dwg No.:	Revision:
15 -21	DA	903	C

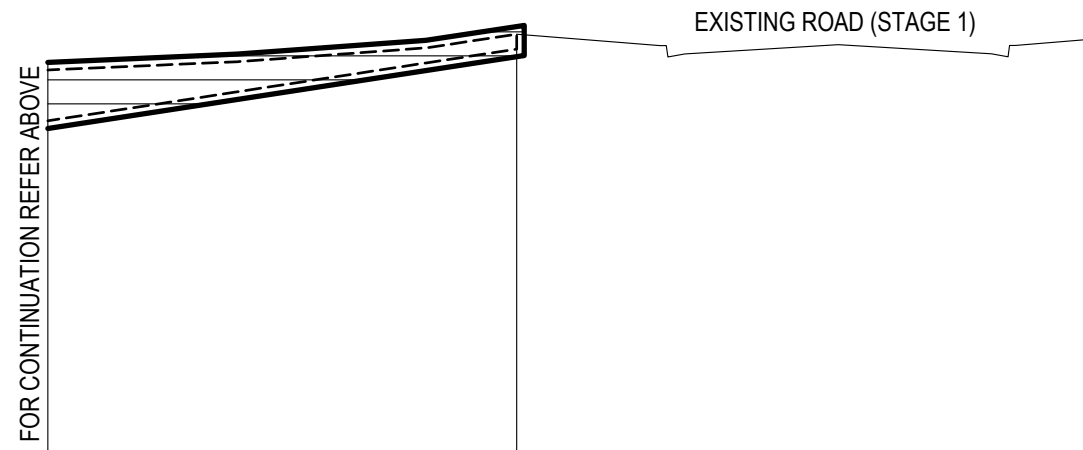
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LONGITUDINAL SECTION CENTRELINE - RW7

SCALE 1:200 (H)

SCALE 1:100 (V)



DATUM R.L. 37

SURFACE LEVEL AT TOP	44.825	45.3
WALL HEIGHT	0.671	0.197
SURFACE LEVEL AT BASE	44.154	45.103
CHAINAGE	135	147.403

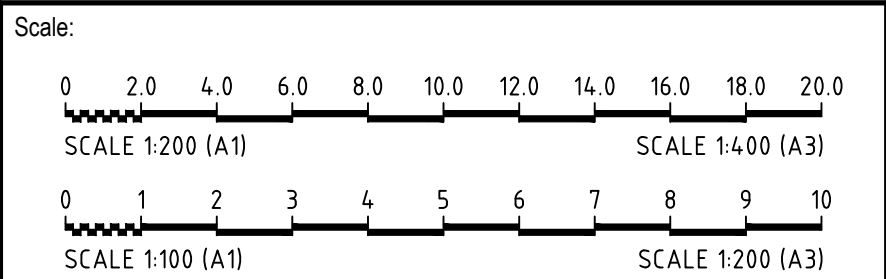
LONGITUDINAL SECTION CENTRELINE - RW7

SCALE 1:200 (H)

SCALE 1:100 (V)

DEVELOPMENT APPLICATION

Revisions						Revision Description
First Issue	Drawn	Design	Appd.	Date		
C	AS	AS	-	25/05/17	COUNCIL COMMENTS	
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Prepared:

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Project:

213 GARFIELD ROAD EAST - ROSEBANK COTTAGE ROAD AND DRAINAGE DESIGN

Drawing Title:			
RETAINING WALL RW7 LONG SECTION			
Project No.:	Approval Stg.:	Dwg No.:	Revision:
15 -21	DA	904	C