

PROJECT: SUBDIVISION WORKS  
 PLANSET: SUBDIVISION, DRIVEWAY AND DRAINAGE WORKS  
 CLIENT: CARISTE PTY LTD



LOCALITY PLAN  
N.T.S.

PITTWATER COUNCIL  
 62 HILLSIDE ROAD, NEWPORT, NSW  
 LOT 1 DP408800

DRAWING LIST		
DWG NO.	REV	DWG TITLE
<b>GENERAL</b>		
PS02-A000	C	COVERSHEET
PS02-A010	B	GENERAL NOTES
PS02-A050	C	GENERAL LAYOUT PLAN
PS02-A400	C	SUBDIVISION PLAN (LAYOUT 02)
<b>CONSTRUCTION MANAGEMENT WORKS</b>		
PS02-B300	C	SEDIMENT & EROSION CONTROL PLAN (LAYOUT 01)
PS02-B310	B	SEDIMENT & EROSION CONTROL DETAILS
PS02-B500	C	DEMOLITION PLAN (LAYOUT 01)
<b>EARTHWORKS</b>		
PS02-C100	C	EARTHWORKS PLAN (LAYOUT 01)
PS02-C600	C	EARTHWORKS CUT & FILL PLAN (LAYOUT 01)
<b>ROADWORK</b>		
PS02-D100	C	DRIVEWAY PLAN (LAYOUT 01)
PS02-D200	B	MC01 LONGITUDINAL SECTION
PS02-D201	B	NC01 TYPICAL SECTIONS
PS02-D600	B	DRIVEWAY CROSS SECTIONS - SHEET 1
PS02-D601	B	DRIVEWAY CROSS SECTIONS - SHEET 2
PS02-D200	C	SWEEP PATH PLAN (LAYOUT 01)
<b>WATER MANAGEMENT PLANS</b>		
PS02-E200	C	DRAINAGE PLAN (LAYOUT 01)
PS02-E500	C	ON-SITE DETENTION PLAN (LAYOUT 01)
<b>LANDSCAPE</b>		
PS02-F300	C	TREE PLAN (LAYOUT 02)
<b>UTILITIES AND SERVICES</b>		
PS02-H200	C	SEWER & WATER PLAN (LAYOUT 01)

THIS PLAN TO BE READ IN  
 CONJUNCTION WITH  
 N0317/16  
 NORTHERN BEACHES COUNCIL

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD	SCALE
C	FOR DA SUBMISSION	07/07/2016	RK	TH	TH	GT	
B	FOR CLIENT REVIEW	03/06/2016	RK	TH	TH	GT	
A	FOR CLIENT REVIEW	04/03/2016	RK	TH	TH	GT	

GRID	DATUM	PROJECT MANAGER	CLIENT
N/A	N/A	GT	CARISTE PTY LTD

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DRAWING TITLE				
COVERSHEET				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R03	PS02-A000	C



**GENERAL NOTES**

- 1 THIS PLAN IS FOR DEVELOPMENT APPLICATION PURPOSE AND NOT FOR CONSTRUCTION. DESIGN TO BE REVIEWED AND UPDATED FOR CONSTRUCTION CERTIFICATE.
- 2 ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH, AND THESE NOTES ARE TO BE READ IN CONJUNCTION WITH THE RELEVANT AUSTRALIAN STANDARDS, COUNCIL SPECIFICATIONS, AND ALL PROJECT CONSULTANT'S PLANS AND REPORTS.
- 3 INTERNAL SURVEY INFORMATION SHOWN BASED ON SURVEY INFORMATION PROVIDED BY ADAM CLERKE SURVEYORS PTY LTD (REF 9499P, 30/10/2015).
- 4 EXTERNAL SITE BOUNDARY BASED ON INFORMATION PROVIDED BY ADAM CLERKE SURVEYORS PTY LTD (REF 9499P, 30/10/2015).
- 5 LEVELS ARE TO AUSTRALIAN HEIGHT DATUM (AHD).

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<small>PROJECT NAME/PLANSSET TITLE</small> <b>SUBDIVISION WORKS</b> SUBDIVISION, DRIVEWAY AND DRAINAGE WORKS 62 HILLSIDE ROAD, NEWPORT NSW LOT 1 DP408800			

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DRAWING TITLE				
GENERAL NOTES				
PROJECT NO.	PLANSSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R03	PS02-A010	B

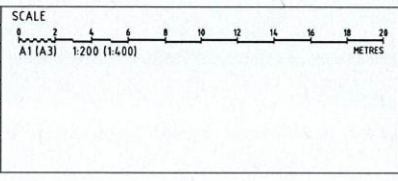




**NOTE:**  
- TO BE READ IN CONJUNCTION WITH SEDIMENT AND EROSION CONTROL DETAILS

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**GRID**  
MGA  
DATUM  
mAHD  
PROJECT MANAGER  
GT  
CLIENT

**CLIENT**  
CARISTE PTY LTD  
PROJECT NAME/PLANSET TITLE  
SUBDIVISION WORKS  
SUBDIVISION, DRIVEWAY AND DRAINAGE WORKS  
62 HILLSIDE ROAD, NEWPORT NSW  
LOT 1 DP4 08800

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<b>DRAWING TITLE</b>				
SEDIMENT AND EROSION CONTROL PLAN (LAYOUT 01)				
<b>PROJECT NO.</b>	<b>PLANSET NO.</b>	<b>RELEASE NO.</b>	<b>DRAWING NO.</b>	<b>REVISION</b>
P1203617	PS02	R03	PS02-B300	C

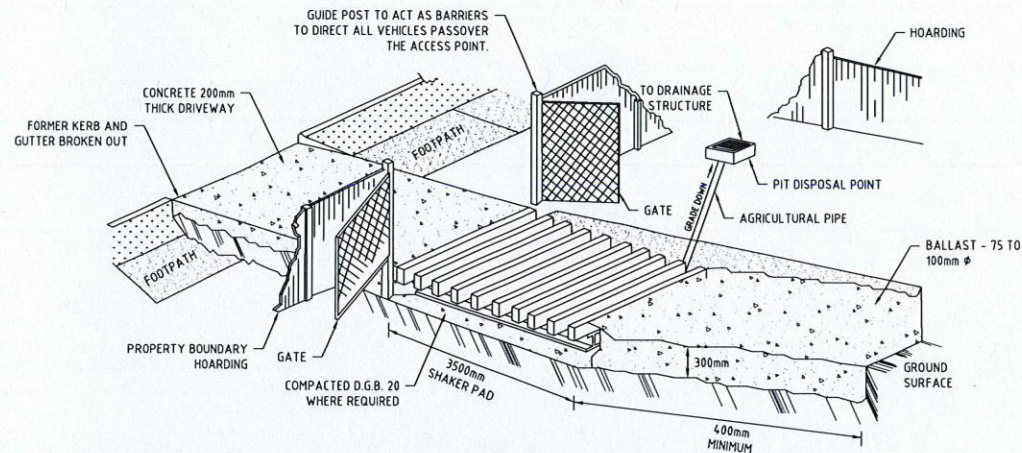


# STABILISED ACCESS POINT

## TYPE II SAP

THE TYPE II SAP DESIGN IS MORE DEFINED IN THAT IT REQUIRES AN AREA OF BALLAST WITHIN THE SITE COMBINED WITH A SHAKER PAD, ADJACENT TO THE SHAKER PAD AND IN THE PUBLIC WAY IS A TEMPORARY (CONCRETE) VEHICULAR CROSSING. (SEE DIAGRAM)

### STABILISED ACCESS POINT - TYPE 2



IN BOTH TYPE I AND TYPE II SAP'S, THE TEMPORARY VEHICULAR CROSSING MUST:

- CONNECT TO AN EXISTING GUTTER LAYBACK (WHERE THE KERB AND GUTTER EXIST). IF A GUTTER LAYBACK DOES NOT EXIST THEN THE CONNECTION MUST BE MADE TO THE GUTTER BY REMOVING THE ADJACENT KERB SECTION ONLY.
- CONNECT TO A DISH CROSSING (WHERE KERB AND GUTTER DOES NOT EXIST). IF A DISH CROSSING DOES NOT EXIST, THEN IT MUST BE CONSTRUCTED IN ACCORDANCE WITH DETAILS CONTAINED IN COUNCIL'S ISSUED FOOTPATH CROSSING LEVELS.

IT SHOULD BE NOTED THAT THESE TYPES OF SAPS ARE CONSIDERED TO BE APPLICABLE FOR THE MAJORITY OF ACTIVITIES HOWEVER SOME SITES MAY REQUIRE SPECIAL CONSIDERATION.

# SHAKER PAD (CATTLE GRID)

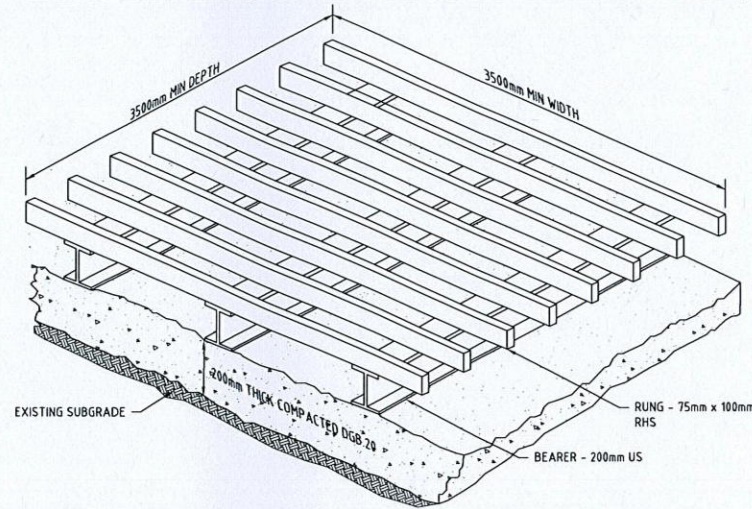
A CORRECTLY DESIGNED AND INSTALLED SHAKER PAD WILL ASSIST IN PREVENTING SEDIMENT TRANSFER FROM A SITE. ANY STABILISED ACCESS POINT (SAP) CAN BE DESIGNED WITH A SHAKER PAD (COMPULSORY IN TYPE II SAP'S)

SHAKER PADS CAN BE DESIGNED AND CONSTRUCTED TO ENABLE RE-USE ON FUTURE PROJECTS.

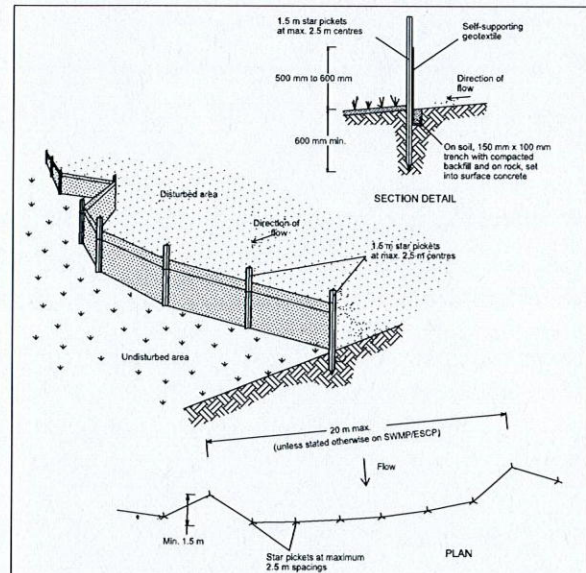
### THE SHAKER PAD:

- MUST BE DESIGNED AND CERTIFIED BY A PRACTISING STRUCTURAL ENGINEER. THE CERTIFIED DESIGN SHOULD BE SUBMITTED WITH THE RELEVANT APPLICATION.
- CAN BE CONSTRUCTED FROM ANY SUITABLE MATERIAL.
- MUST BE LOCATED ON A SUITABLY PREPARED AND COMPACTED SUB-GRADE/BASE MATERIAL.
- MUST BE SITUATED SUCH THAT THE RUNGS OF THE SHAKER PAD ARE LEVEL WITH THE ADJOINING NATURAL SURFACE.
- MUST BE A MINIMUM OF 3.5m IN LENGTH.
- MUST BE A MINIMUM OF 3.5m IN WIDTH.
- MUST HAVE CLEAR SPACING BETWEEN RUNGS OF 200 - 250mm.
- RUNGS MUST HAVE A MAXIMUM WIDTH (BEARING AREA) OF 75mm.
- MUST HAVE A MINIMUM CLEAR DEPTH OF 300mm IE FORM THE TOP OF THE RUNG TO THE FINISHED SUB-GRADE/BASE LEVEL.

THE SHAKER PAD MUST BE PROVIDED WITH SUITABLE BARRIERS AT THE SIDES TO ENSURE THAT ALL TYERS OF VEHICLES LEAVING THE SITE TRAVERSE THE DEVICE.



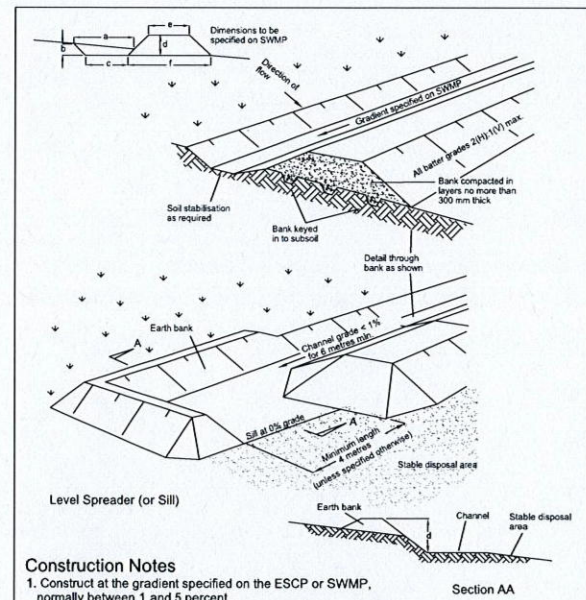
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### Construction Notes

- 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 1.5 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.

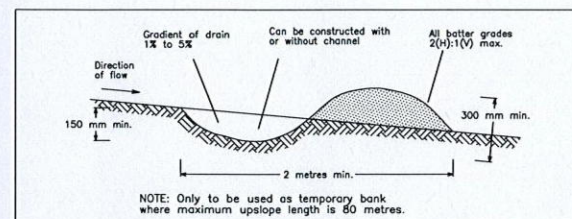
SEDIMENT FENCE SD 6-8



### Construction Notes

- 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.

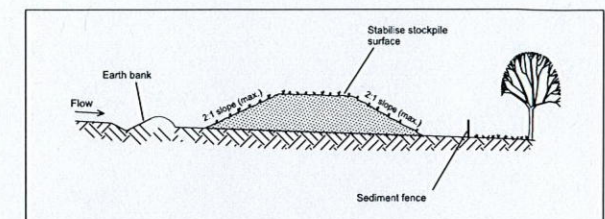
EARTH BANK (HIGH FLOWS) SD 5-6



### Construction Notes

- 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



### 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

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SUBDIVISION WORKS  
SUBDIVISION, DRIVEWAY AND DRAINAGE WORKS  
62 HILLSIDE ROAD, NEWPORT NSW  
LOT 1 DP4 08800

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DRAWING TITLE				
SEDIMENT AND EROSION CONTROL DETAILS				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R03	PS02-B310	B

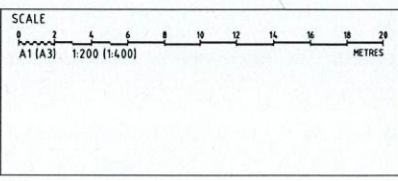




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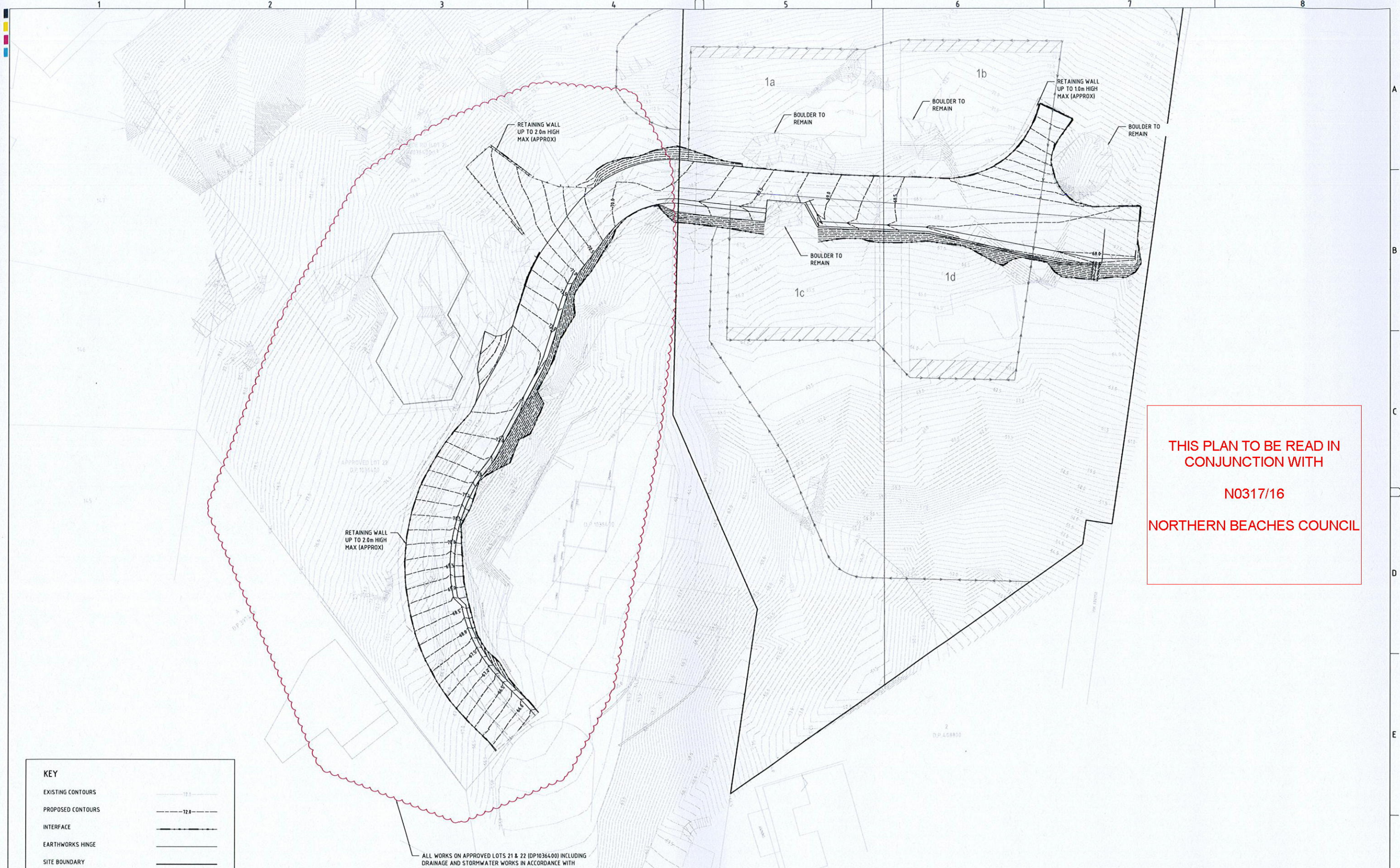
GRID MGA DATUM PROJECT MANAGER CLIENT  
MGA mAHD GT  
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DRAWING TITLE				
DEMOLITION PLAN (LAYOUT 01)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R03	PS02-B500	C





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KEY	
EXISTING CONTOURS	
PROPOSED CONTOURS	
INTERFACE	
EARTHWORKS HEDGE	
SITE BOUNDARY	

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SCALE	
A1 (A3)	1:200 (1:400)

GRID	MGA	DATUM	mAHD	PROJECT MANAGER	GT	CLIENT	CARISTE PTY LTD
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 LOT 1 DP408800

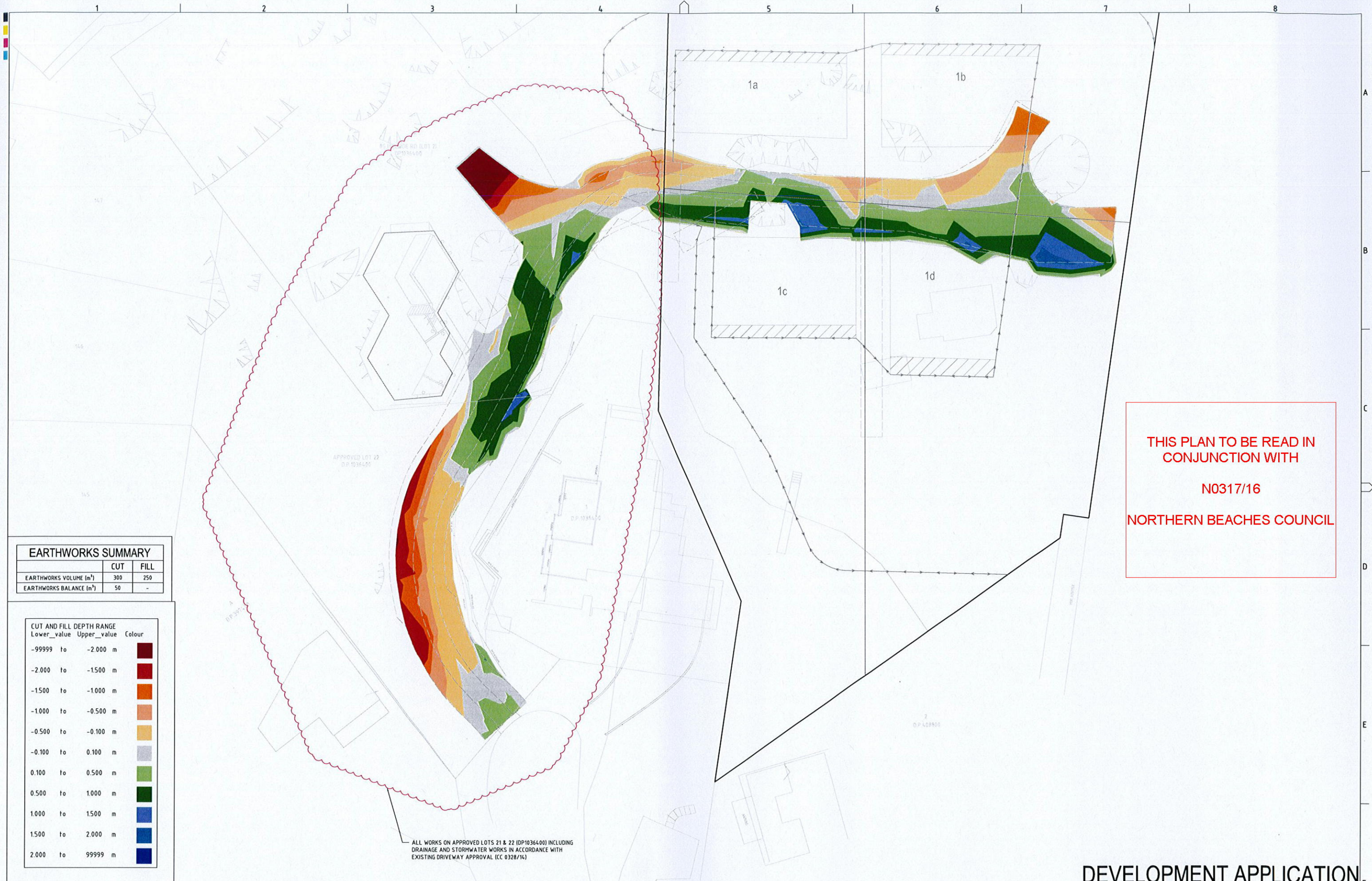
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EARTHWORKS PLAN (LAYOUT 01)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R03	PS02-C100	C

## DEVELOPMENT APPLICATION





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EARTHWORKS SUMMARY		
	CUT	FILL
EARTHWORKS VOLUME (m <sup>3</sup> )	300	250
EARTHWORKS BALANCE (m <sup>3</sup> )	50	-

CUT AND FILL DEPTH RANGE			Colour
Lower_value	Upper_value		
-99999	to -2.000	m	
-2.000	to -1.500	m	
-1.500	to -1.000	m	
-1.000	to -0.500	m	
-0.500	to -0.100	m	
-0.100	to 0.100	m	
0.100	to 0.500	m	
0.500	to 1.000	m	
1.000	to 1.500	m	
1.500	to 2.000	m	
2.000	to 99999	m	

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SCALE
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DRAWING TITLE				
EARTHWORKS CUT & FILL PLAN (LAYOUT 01)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R03	PS02-C600	C

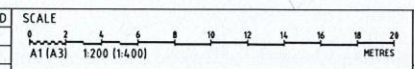




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KEY	
FINAL SURFACE CONTOURS	
ROAD ALIGNMENT	
EDGE OF CARIAGEWAY	
SITE BOUNDARY	

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GRID MGA  
DATUM mAHHD  
PROJECT MANAGER GT  
CLIENT

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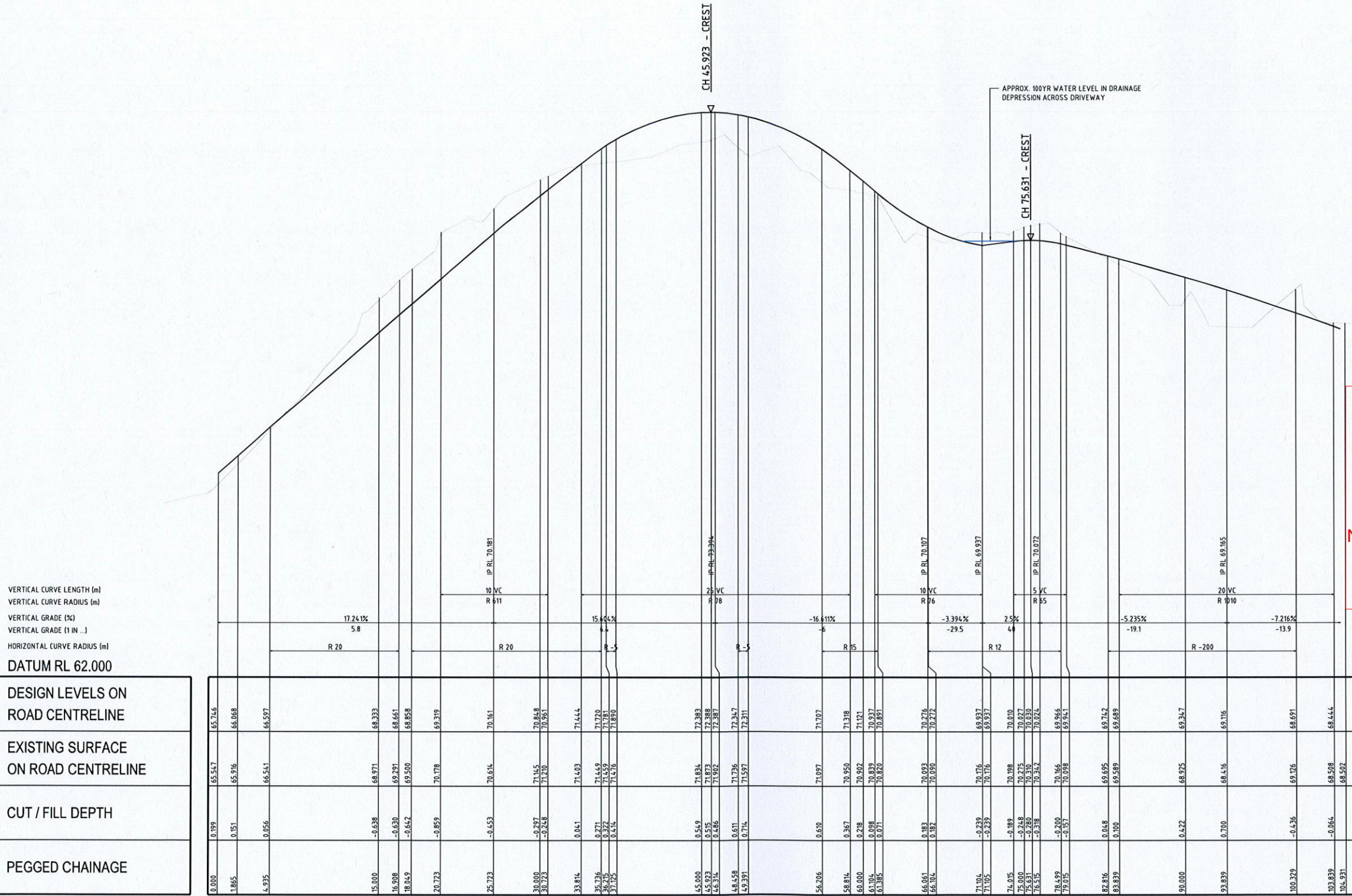
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P1203617	PS02	R03	PS02-D100	C

## DEVELOPMENT APPLICATION





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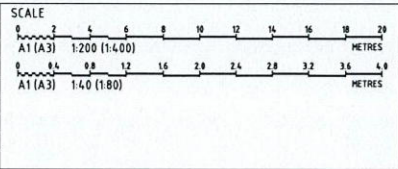
VERTICAL CURVE LENGTH (m)  
VERTICAL CURVE RADIUS (m)  
VERTICAL GRADE (%)  
VERTICAL GRADE (1 IN ...)  
HORIZONTAL CURVE RADIUS (m)  
DATUM RL 62.000

DESIGN LEVELS ON ROAD CENTRELINE	EXISTING SURFACE ON ROAD CENTRELINE	CUT / FILL DEPTH	PEGGED CHAINAGE
65.746	65.547	0.199	0.000
66.068	65.916	0.151	1.865
66.597	66.541	0.056	4.935
68.333	68.971	-0.638	15.000
68.661	69.291	-0.630	16.908
68.958	69.590	-0.632	18.849
69.319	70.178	-0.859	20.723
70.161	70.614	-0.453	25.723
70.848	71.145	-0.297	30.000
70.961	71.210	-0.248	30.723
71.444	71.403	0.041	33.814
71.720	71.449	0.271	36.736
71.881	71.459	0.322	38.215
71.890	71.476	0.414	37.795
72.383	71.834	0.549	45.000
72.388	71.873	0.515	45.923
72.387	71.962	0.425	46.314
72.347	71.796	0.611	48.458
72.311	71.597	0.714	49.391
71.707	71.097	0.610	56.206
71.318	70.950	0.367	58.814
71.121	70.902	0.218	60.000
70.937	70.899	0.038	61.194
70.891	70.820	0.071	61.395
70.276	70.093	0.183	66.061
69.937	70.099	0.162	66.194
69.937	70.176	-0.239	71.104
70.010	70.176	-0.239	71.105
70.010	70.198	-0.189	74.015
70.027	70.275	-0.248	75.000
70.030	70.310	-0.280	75.531
70.024	70.342	-0.318	76.515
69.966	70.446	-0.200	78.499
69.961	70.098	-0.157	79.015
69.742	69.695	0.048	82.816
69.689	69.589	0.100	83.839
69.347	68.975	0.422	90.000
69.116	68.416	0.700	93.839
68.691	69.176	-0.436	100.329
68.444	68.508	-0.064	103.839
68.502	68.502	0.000	104.931

MC01 LONGITUDINAL SECTION

SCALE: HORIZONTAL - 1:200  
VERTICAL - 1:40

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	FOR CLIENT REVIEW	03/06/2016	RK	TH	TH	GT
A	FOR CLIENT REVIEW	04/03/2016	RK	TH	TH	GT



GRID MGA  
DATUM mAHD  
PROJECT MANAGER GT  
CLIENT CARISTE PTY LTD  
PROJECT NAME/PLANSET TITLE  
SUBDIVISION WORKS  
SUBDIVISION, DRIVEWAY AND DRAINAGE WORKS  
62 HILLSIDE ROAD, NEWPORT NSW  
LOT 1 DP4 08800

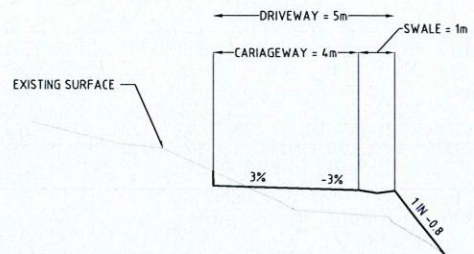
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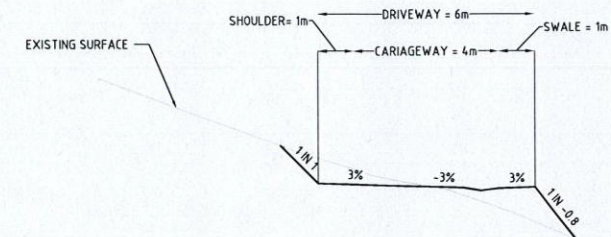
DRAWING TITLE				
MC01 LONGITUDINAL SECTION				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R03	PS02-D200	B

DEVELOPMENT APPLICATION

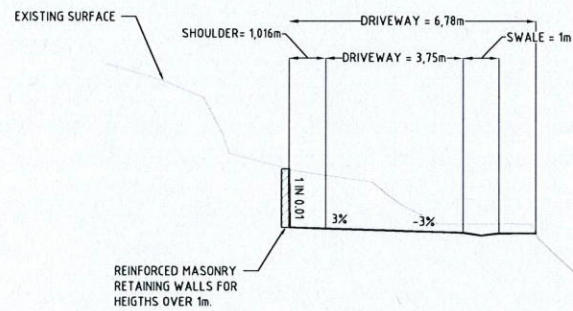




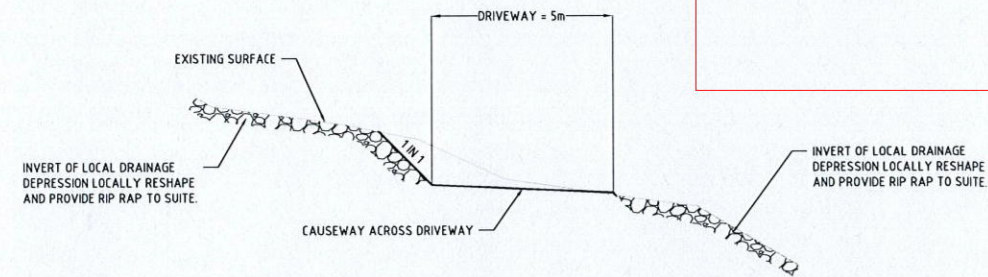
MC01 TYPICAL SECTION  
CH 40  
SCALE: 1:100



MC01 TYPICAL SECTION  
CH 80  
SCALE: 1:100



MC01 TYPICAL SECTION  
CH 20  
SCALE: 1:100



MC01 TYPICAL SECTION  
CH 70  
SCALE: 1:100

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CONJUNCTION WITH  
  
N0317/16  
  
NORTHERN BEACHES COUNCIL

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	FOR CLIENT REVIEW	03/06/2016	RK	TH	TH	GT
A	FOR CLIENT REVIEW	04/03/2016	RK	TH	TH	GT

SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT
A1(A3) 1:100 (1:200)	MGA	mAHD	GT	CARISTE PTY LTD

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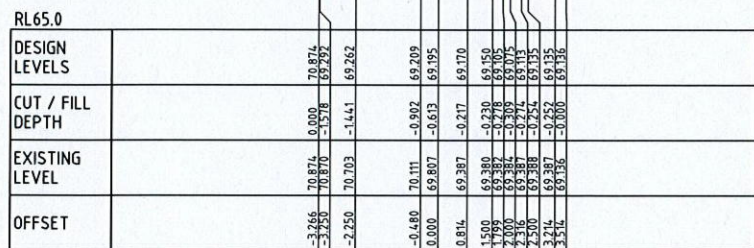
**PROJECT NAME/PLANSET TITLE**  
SUBDIVISION WORKS  
SUBDIVISION, DRIVEWAY AND DRAINAGE WORKS  
62 HILLSIDE ROAD, NEWPORT NSW  
LOT 1 DP408800

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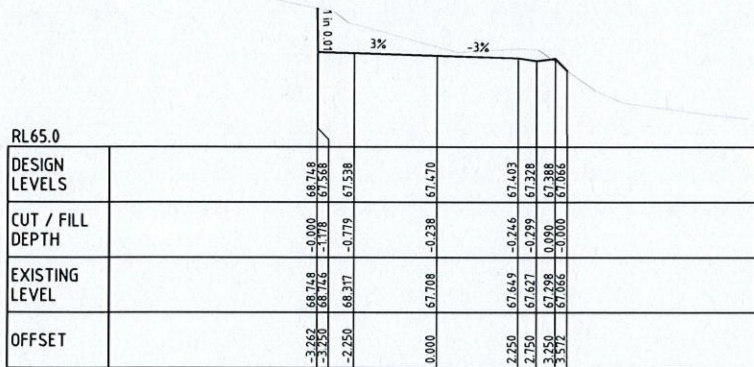
DRAWING TITLE				
MC01 TYPICAL SECTIONS				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R03	PS02-D201	B

## DEVELOPMENT APPLICATION

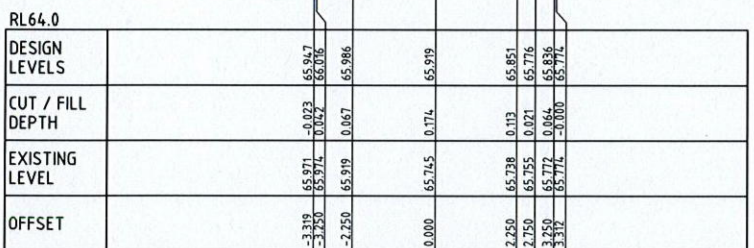




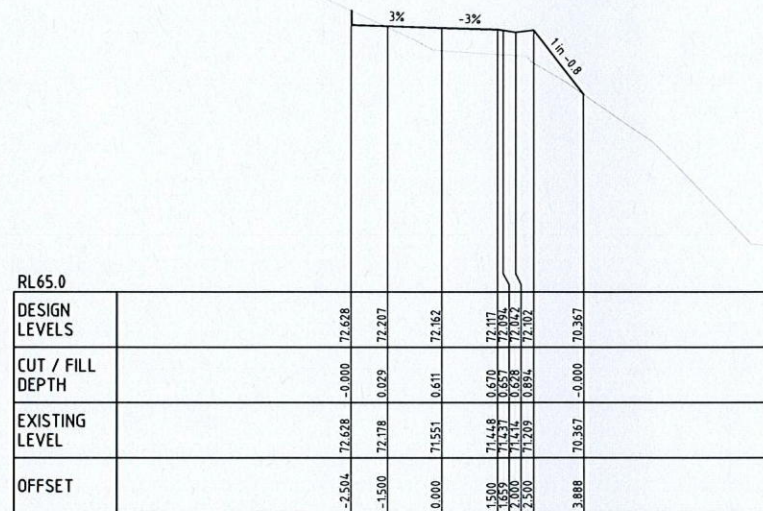
CH 20.000



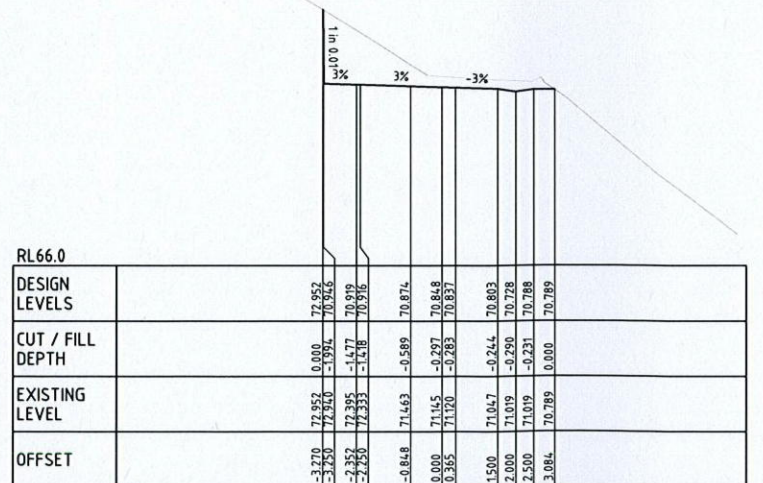
CH 10.000



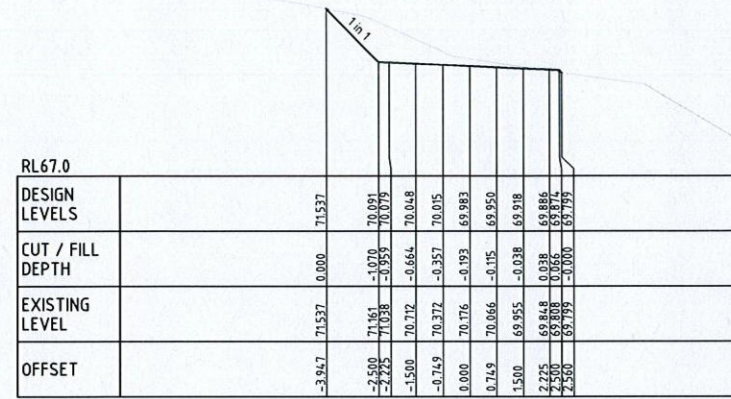
CH 1.000



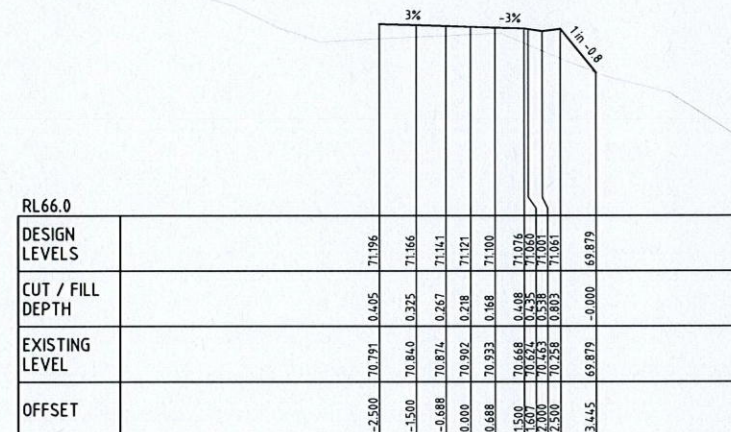
CH 40.000



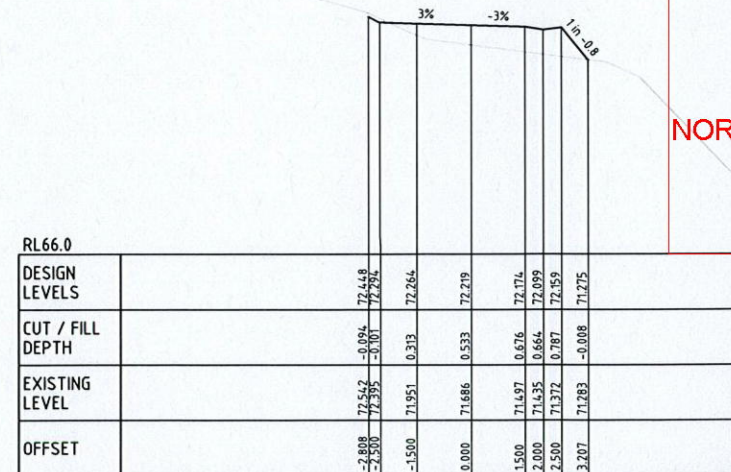
CH 30.000



CH 70.000



CH 60.000

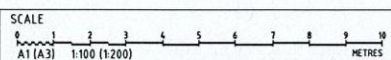


CH 51.000

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NORTHERN BEACHES COUNCIL

DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	FOR CLIENT REVIEW	03/06/2016	RK	TH	TH	GT
A	FOR CLIENT REVIEW	04/03/2016	RK	TH	TH	GT



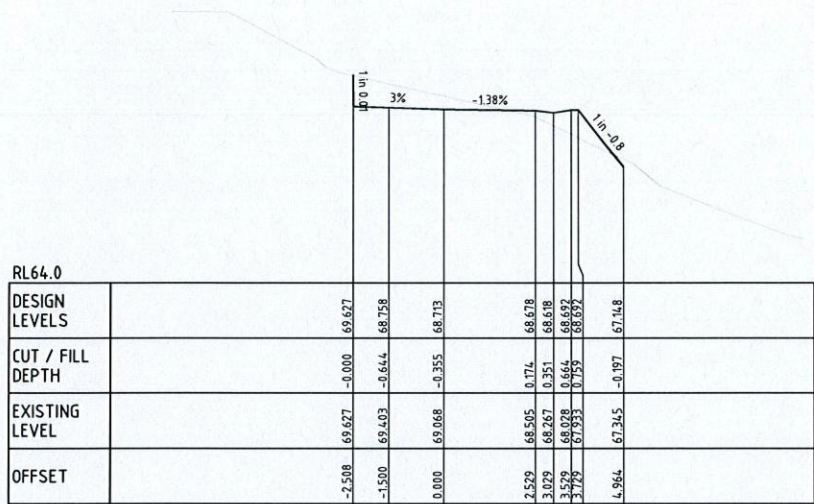
GRID MGA DATUM mAHD PROJECT MANAGER GT CLIENT CARISTE PTY LTD  
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PROJECT NAME/PLANSSET TITLE  
SUBDIVISION WORKS  
SUBDIVISION, DRIVEWAY AND DRAINAGE WORKS  
62 HILLSIDE ROAD, NEWPORT NSW  
LOT 1 DP4 08800

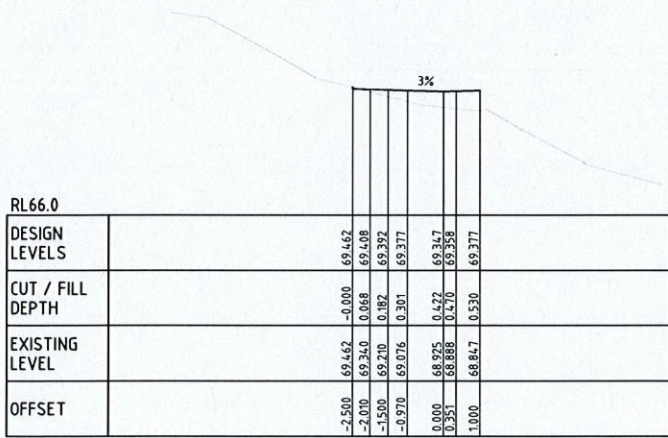
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DRAWING TITLE				
DRIVEWAY CROSS SECTIONS SHEET 1				
PROJECT NO.	PLANSSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R03	PS02-D600	B

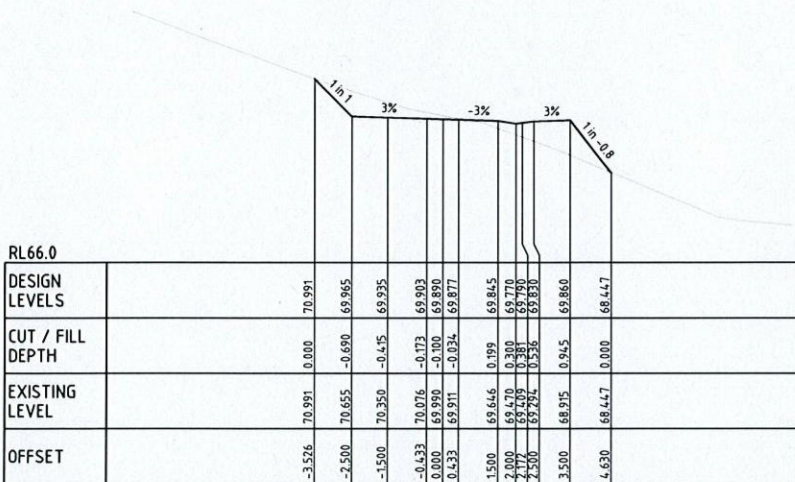




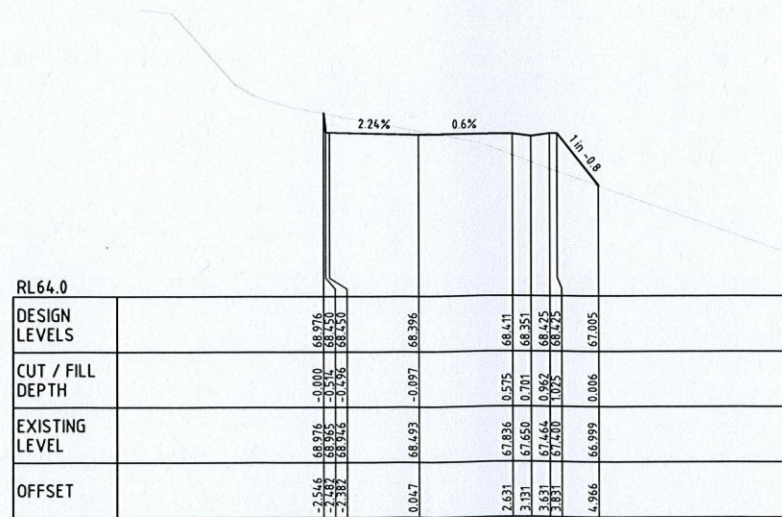
CH 100.000



CH 90.000



CH 80.000

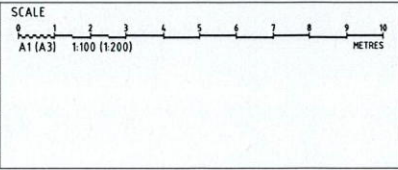


CH 104.931

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**DEVELOPMENT APPLICATION**

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	FOR CLIENT REVIEW	03/06/2016	RK	TH	TH	GT
A	FOR CLIENT REVIEW	04/03/2016	RK	TH	TH	GT



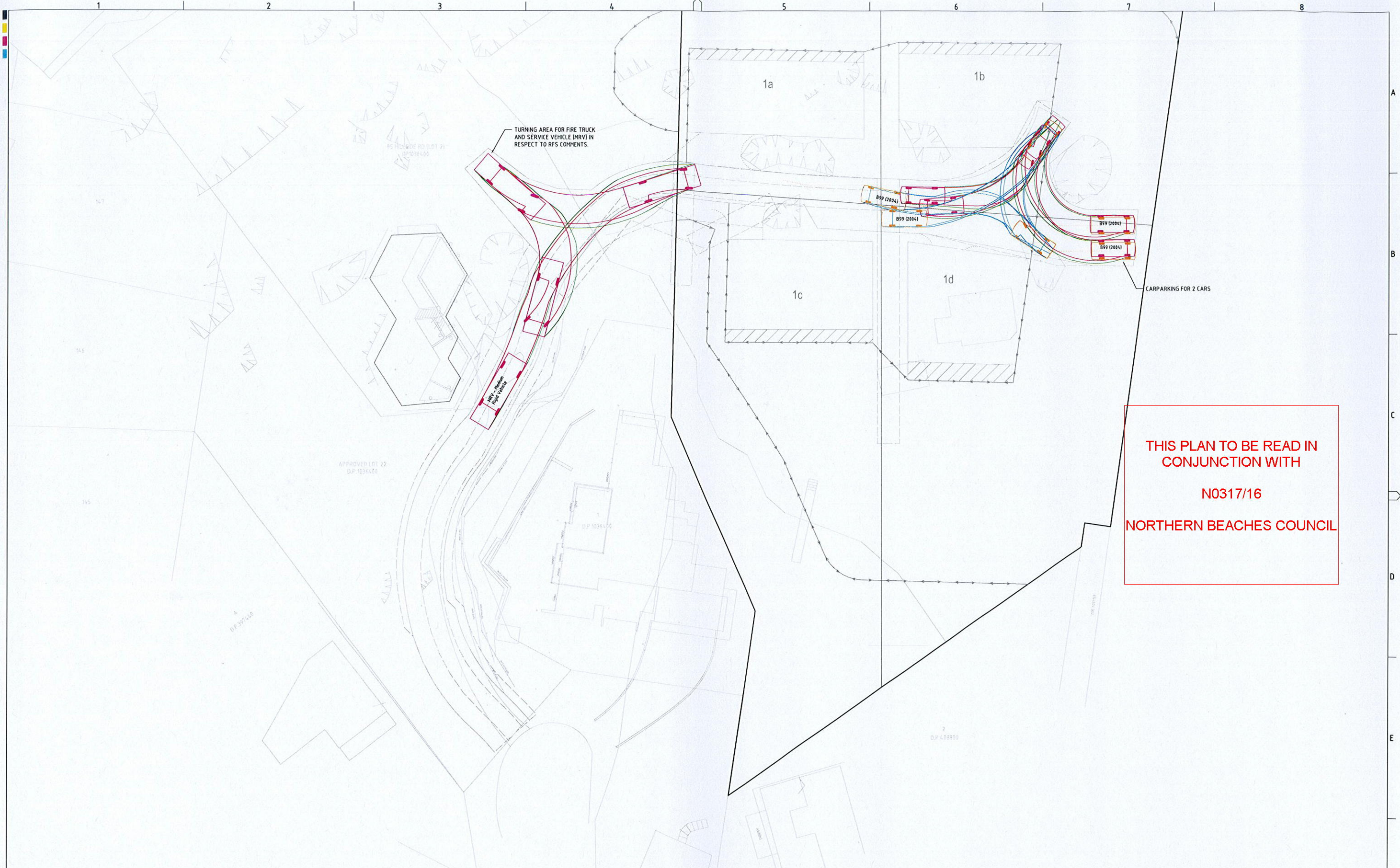
GRID	DATUM	PROJECT MANAGER	CLIENT
MGA	mAHD	GT	CARISTE PTY LTD
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PROJECT NAME/PLANSET TITLE <b>SUBDIVISION WORKS</b> SUBDIVISION, DRIVEWAY AND DRAINAGE WORKS 62 HILLSIDE ROAD, NEWPORT NSW LOT 1 DP4 08800			

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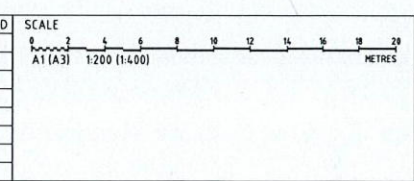
DRAWING TITLE				
DRIVEWAY CROSS SECTIONS SHEET 2				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R03	PS02-D601	B





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N0317/16  
  
NORTHERN BEACHES COUNCIL

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	FOR DA SUBMISSION	07/07/2016	RK	TH	TH	GT
B	FOR CLIENT REVIEW	03/06/2016	RK	TH	TH	GT
A	FOR CLIENT REVIEW	04/03/2016	RK	TH	TH	GT



GRID	DATUM	PROJECT MANAGER	CLIENT
MGA	mAHD	GT	CARISTE PTY LTD
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DRAWING TITLE				
SWEPT PATH PLAN (LAYOUT 01)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R03	PS02-DZ00	C

## DEVELOPMENT APPLICATION



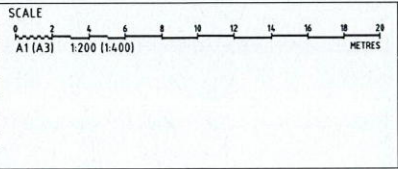


THIS PLAN TO BE READ IN  
CONJUNCTION WITH  
  
N0317/16  
  
NORTHERN BEACHES COUNCIL

**NOTE:**  
- TREE DATA PROVIDED BY ADAM CLERKE SURVEYORS PTY LTD REF 9499P, DATED 30/10/2015.

**DEVELOPMENT APPLICATION**

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	FOR DA SUBMISSION	07/07/2016	RK	TH	TH	GT
B	FOR CLIENT REVIEW	03/06/2016	RK	TH	TH	GT
A	FOR CLIENT REVIEW	04/03/2016	RK	TH	TH	GT



**GRID**  
MGA  
DATUM  
mAHD  
PROJECT MANAGER  
GT  
CLIENT  
CARISTE PTY LTD

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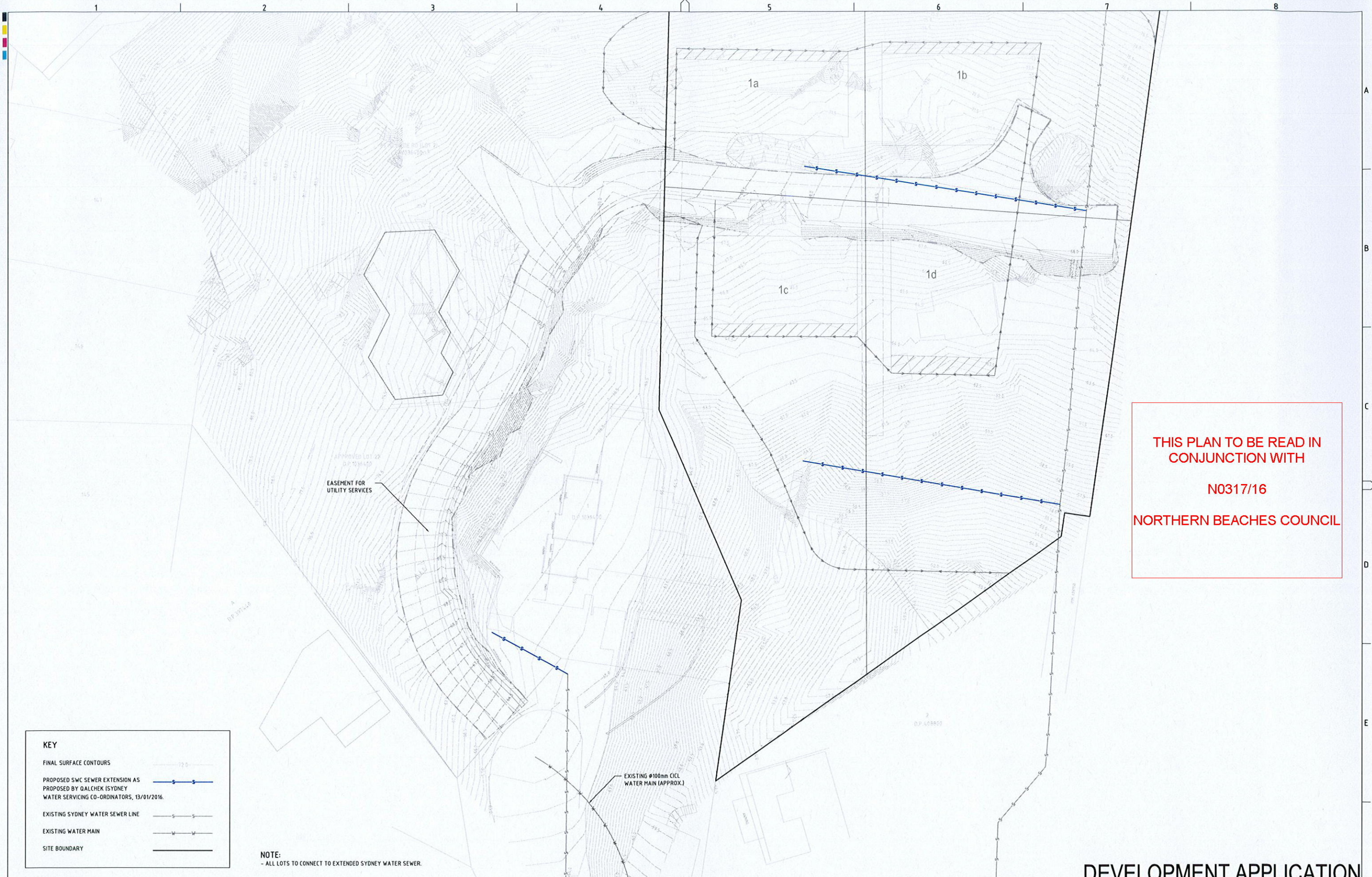
**PROJECT NAME/PLANSET TITLE**  
SUBDIVISION WORKS  
SUBDIVISION, DRIVEWAY AND DRAINAGE WORKS  
62 HILLSIDE ROAD, NEWPORT NSW  
LOT 1 DP4-08800

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DRAWING TITLE				
TREE PLAN (LAYOUT 02)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R03	PS02-F300	C





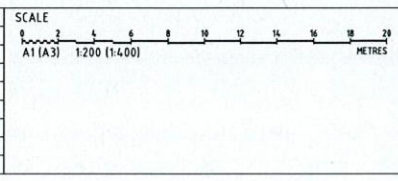
THIS PLAN TO BE READ IN  
CONJUNCTION WITH  
  
N0317/16  
  
NORTHERN BEACHES COUNCIL

KEY	
FINAL SURFACE CONTOURS	
PROPOSED SWC SEWER EXTENSION AS PROPOSED BY QALCHEK (SYDNEY WATER SERVICING CO-ORDINATORS, 13/01/2016.	
EXISTING SYDNEY WATER SEWER LINE	
EXISTING WATER MAIN	
SITE BOUNDARY	

**NOTE:**  
- ALL LOTS TO CONNECT TO EXTENDED SYDNEY WATER SEWER.

## DEVELOPMENT APPLICATION

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	FOR DA SUBMISSION	07/07/2016	RK	TH	TH	GT
B	FOR CLIENT REVIEW	03/06/2016	RK	TH	TH	GT
A	FOR CLIENT REVIEW	04/03/2016	RK	TH	TH	GT



**GRID** MGA  
**DATUM** mAHD  
**PROJECT MANAGER** GT  
**CLIENT** CARISTE PTY LTD

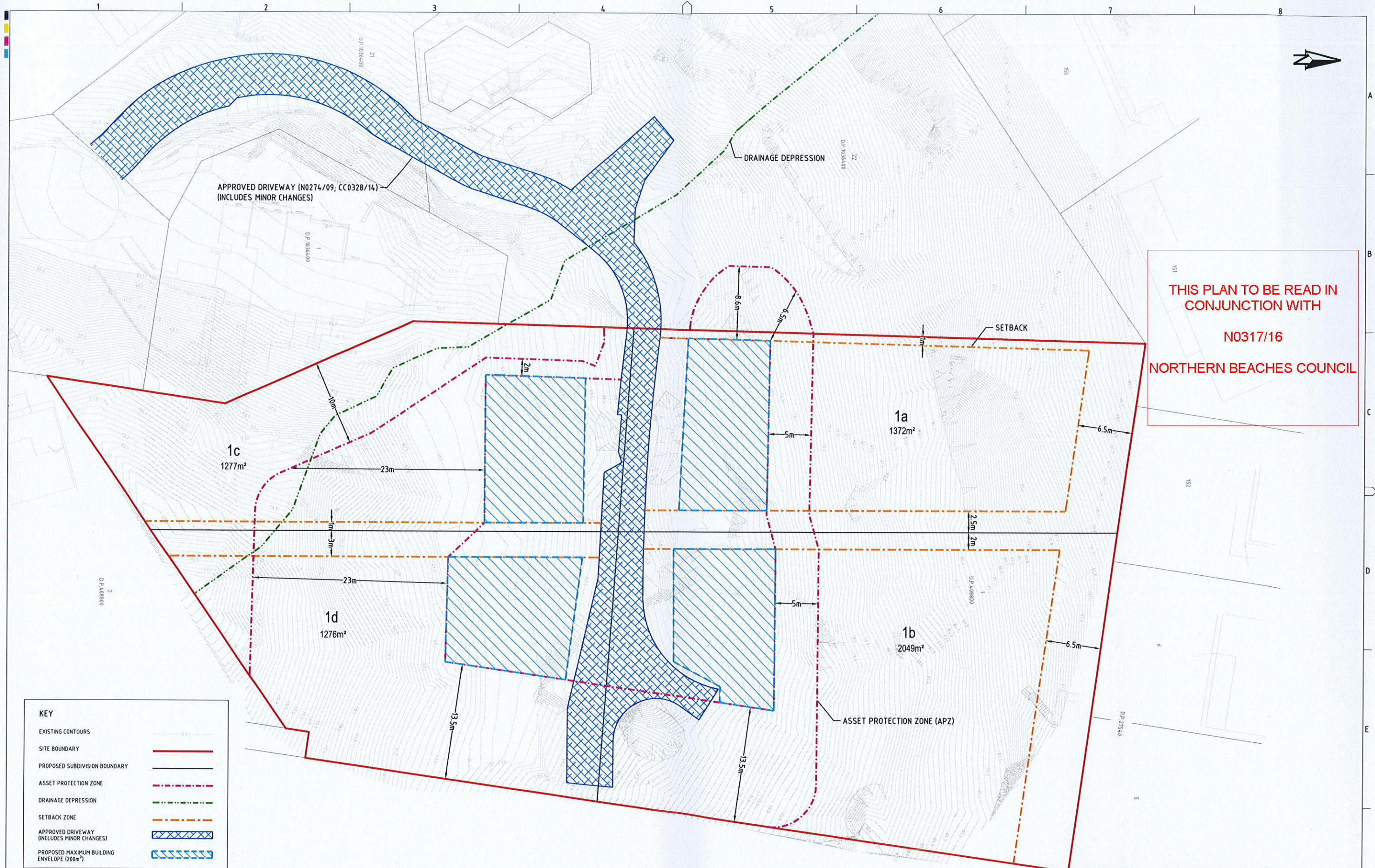
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**PROJECT NAME/PLANSET TITLE**  
SUBDIVISION WORKS  
SUBDIVISION, DRIVEWAY AND DRAINAGE WORKS  
62 HILLSIDE ROAD, NEWPORT NSW  
LOT 1 DP4/08809

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DRAWING TITLE				
SEWER & WATER PLAN (LAYOUT 01)				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R03	PS02-H200	C





THIS PLAN TO BE READ IN  
CONJUNCTION WITH  
  
N0317/16  
  
NORTHERN BEACHES COUNCIL

KEY	
EXISTING CONTOURS	
SITE BOUNDARY	
PROPOSED SUBDIVISION BOUNDARY	
ASSET PROTECTION ZONE	
DRAINAGE DEPRESSION	
SETBACK ZONE	
APPROVED DRIVEWAY (INCLUDES MINOR CHANGES)	
PROPOSED MAXIMUM BUILDING ENVELOPE (200m²)	

**DEVELOPMENT APPLICATION**

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	RESPONSE TO COUNCIL	23.11.2016	AW	AW	CS	GT
A	FOR STATEMENT OF ENVIRONMENTAL EFFECTS	02.06.2016	AW	AW	CS	GT

SCALE	1:1200 (1:400)
GRID	MGA
DATUM	MAHD
PROJECT MANAGER	GT
CLIENT	CARISTE PTY LTD

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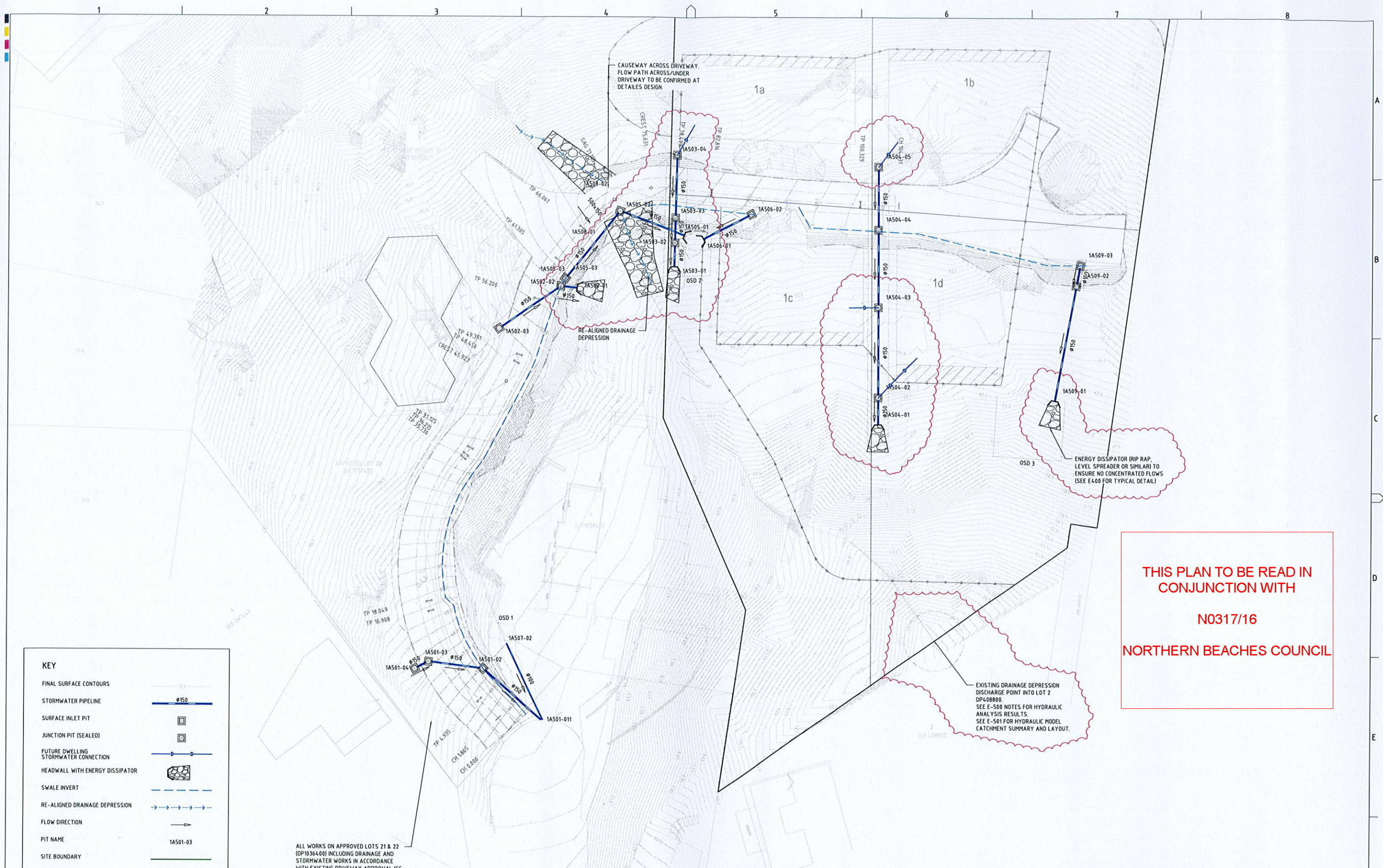
**STATEMENT OF ENVIRONMENTAL EFFECTS**  
**SUBDIVISION PLAN**  
 62 HILLSIDE ROAD  
 NEWPORT, NSW

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DRAWING TITLE SUBDIVISION PLAN				
PROJECT NO. P1203617	PLANSET NO. PS03	RELEASE NO. R02	DRAWING NO. PS03-A400	REVISION B





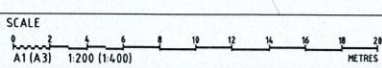
THIS PLAN TO BE READ IN  
CONJUNCTION WITH  
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KEY	
FINAL SURFACE CONTOURS	
STORMWATER PIPELINE	
SURFACE INLET PIT	
JUNCTION PIT (SEALED)	
FUTURE DWELLING STORMWATER CONNECTION	
HEADWALL WITH ENERGY DISSIPATOR	
SWALE INVERT	
RE-ALIGNED DRAINAGE DEPRESSION	
FLOW DIRECTION	
PIT NAME	1A501-03
SITE BOUNDARY	

ALL WORKS ON APPROVED LOTS 21 & 22 (DP1036400) INCLUDING DRAINAGE AND STORMWATER WORKS IN ACCORDANCE WITH EXISTING DRIVEWAY APPROVAL (CC 0328/14)

EXISTING DRAINAGE DEPRESSION DISCHARGE POINT INTO LOT 2 DP408800. SEE E-500 NOTES FOR HYDRAULIC ANALYSIS RESULTS. SEE E-501 FOR HYDRAULIC MODEL CATCHMENT SUMMARY AND LAYOUT.

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
D	FOR DA - ADDRESS COUNCIL LETTER DATED 24/10/2016	23/11/2016	BL	BL	GT	GT
C	FOR DA SUBMISSION	07/07/2016	RK	TH	TH	GT
B	FOR CLIENT REVIEW	03/06/2016	RK	TH	TH	GT
A	FOR CLIENT REVIEW	04/03/2016	RK	TH	TH	GT



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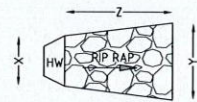
PROJECT NAME/PLANSET TITLE  
**SUBDIVISION WORKS**  
 SUBDIVISION, DRIVEWAY AND DRAINAGE WORKS  
 62 HILLSIDE ROAD, NEWPORT NSW  
 LOT 1 DP408800

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## DEVELOPMENT APPLICATION

DRAWING TITLE <b>DRAINAGE PLAN (LAYOUT 01)</b>				
PROJECT NO. <b>P1203617</b>	PLANSET NO. <b>PS02</b>	RELEASE NO. <b>R04</b>	DRAWING NO. <b>PS02-E200</b>	REVISION <b>D</b>

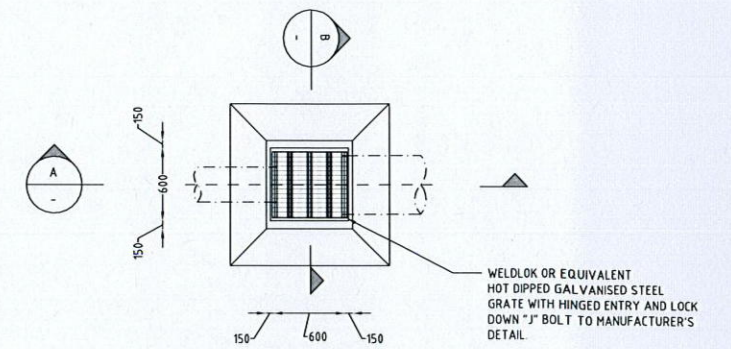




RIP RAP SIZING	Q10 (L/s)	VELOCITY (m/s)	DIA (mm)	X (mm)	Y (mm)	Z (mm)	d50 (mm)	RANGE (mm)	MINIMUM RIP RAP ROCK THICKNESS (mm)
TYPICAL HW	34	1.93	150	CULVERT APRON WIDTH + TBC	TBC	TBC	TBC	TBC	TBC

### TYPICAL RIP RAP SIZING

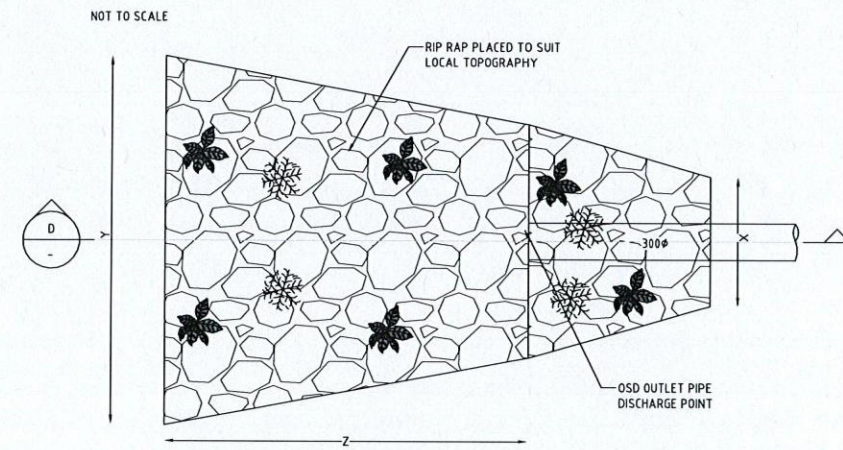
NOTES:  
 RIP RAP GEOMETRY TO BE CONFIRMED AT DETAIL DESIGN STAGE  
 PIPE FLOW RATE BASED ON INDICATIVE 150MM PIPE AT 5% GRADE.  
 FLOW RATE AND VELOCITY TBC AT DETAIL DESIGN STAGE.



### SURFACE INLET PIT

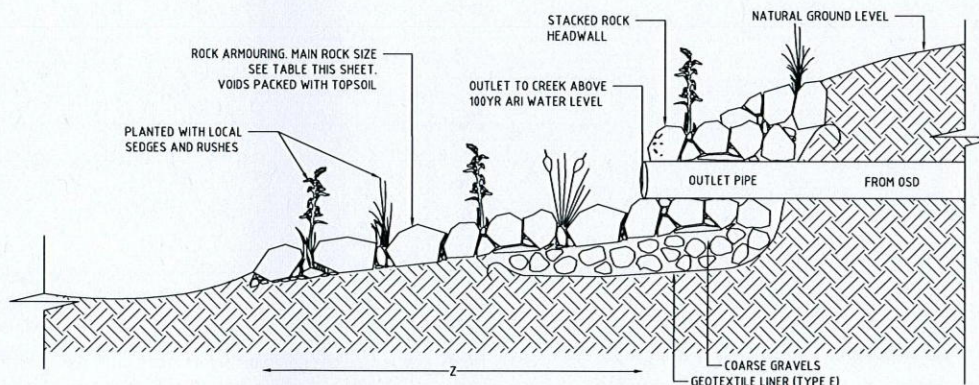
NOT TO SCALE

NOTES:  
 ALL PITS TO BE BENCHED AND STREAMLINED  
 PROVIDE SL72 REINFORCEMENT AND GALVANISED  
 STEP IRONS IN ALL PITS OVER 12m DEEP AS MEASURED  
 FROM THE TOP OF GRATES TO THE INVERT OF THE PIT.



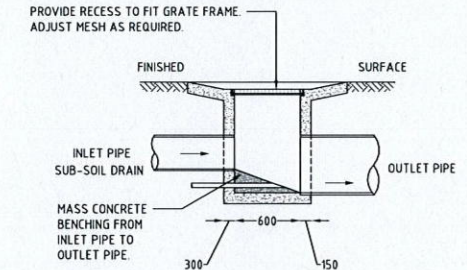
### TYPICAL HEADWALL OUTLET AND RIP RAP PLAN

NOT TO SCALE



### TYPICAL HEADWALL OUTLET AND RIP RAP SECTION D

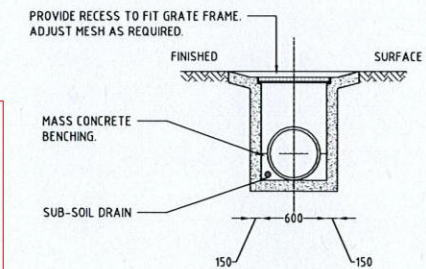
NOT TO SCALE



### SECTION A

GRATED SURFACE INLET PIT (600 x 600 GSIP)

NOT TO SCALE



### SECTION B

600 x 600 GSIP

NOT TO SCALE

THIS PLAN TO BE READ IN  
 CONJUNCTION WITH  
 N0317/16  
 NORTHERN BEACHES COUNCIL

- GENERAL NOTES:**  
 NOT FOR CONSTRUCTION - TYPICAL DETAILS ONLY.  
 FINAL ENERGY DISSIPATOR/RIP RAP SIZING AND CHARACTERISTICS TO BE PROVIDED AT DETAILED DESIGN STAGE.
1. COMPACT THE SUBGRADE FILL TO THE DENSITY OF THE SURROUNDING UNDISTURBED MATERIAL.
  2. PREPARE A SMOOTH, EVEN FOUNDATION FOR THE STRUCTURE THAT WILL ENSURE THAT THE CLASS E GEOTEXTILE DOES NOT SUSTAIN SERIOUS DAMAGE WHEN COVERED WITH ROCK.
  3. SHOULD ANY MINOR DAMAGE TO THE GEOTEXTILE OCCUR, REPAIR IT BEFORE SPREADING ANY AGGREGATE. FOR REPAIRS, PATCH ONE PIECE OF FABRIC OVER THE DAMAGE, WITH ALL JOINTS AND PATCHES OVERLAPPING MINIMUM 300 mm.
  4. RIP-RAP MEAN SIZE (d50) FROM TABLE PROVIDE AS BLENDED RANGE OF DIAMETERS BEDDED ON 50mm LAYER OF 10-20mm AGGREGATE OVER CLASS E GEOTEXTILE.
  5. RIP-RAP KEYED INTO BANKS & BED MINIMUM 300mm.

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD	SCALE
A	FOR DA - ADDRESS COUNCIL LETTER DATED 24/10/2016	23/11/2016	BL	BL	GT	GT	

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**PROJECT NAME/PLANSET TITLE**  
 CARISTE PTY LTD  
 SUBDIVISION WORKS  
 SUBDIVISION, DRIVEWAY AND DRAINAGE WORKS  
 62 HILLSIDE ROAD, NEWPORT NSW  
 LOT 1 DP4-08800

**martens**  
 & Associates Pty Ltd

Consulting Engineers  
 Environment  
 Water  
 Geotechnical  
 Civil

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 Email: mail@martens.com.au Internet: www.martens.com.au

## DEVELOPMENT APPLICATION

DRAWING TITLE				
ENERGY DISSIPATOR/RIP RAP TYPICAL DETAILS				
PROJECT NO	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R04	PS02-E400	A





**NOTE:**  
 - DRIVEWAY OSD CALCULATIONS IN ACCORDANCE WITH P21 DCP PART B AND APPROVED UNDER DRIVEWAY DA N0274/09

	ADDITIONAL IMPERVIOUS AREA (m <sup>2</sup> )	OSD VOLUME	PSD (l/s)	ORIFICE DIAMETER (mm)	OUTLET PIPE DIAMETER (mm) MIN
OSD 1	116.92	8	3	36	100
OSD 2	116.86	8	3	36	100
OSD 3	390.02	26	13	75	150
<b>TOTAL</b>	<b>623.80</b>	<b>42</b>			

**NOTE:**  
 - FUTURE LOTS TO PROVIDE OSD TO COUNCIL REQUIREMENTS AT DWELLING DA STAGE.  
 - ASSUMING 200M<sup>2</sup> OF ADDITIONAL IMPERVIOUS AREA PER NEW PROPOSED LOT, AN OSD VOLUME OF 15KL IS REQUIRED FOR EACH NEW LOT IN ACCORDANCE WITH NORTHERN BEACHES COUNCIL P21 DCP BS 7 (2014).  
 - EXISTING DRAINAGE DEPRESSION DISCHARGE POINT: PRELIMINARY DRAINS HYDRAULIC MODELLING SHOWS PRE-DEVELOPMENT UPSTREAM CATCHMENT FLOWS ONTO LOT 2 DP 408800 TO BE 1.17M<sup>3</sup>/SEC DURING THE PEAK 1% AEP STORM EVENT. UNDER POST-DEVELOPED CONDITION WITH MINIMUM 15KL OSD PER NEW LOT, POST-DEVELOPMENT UPSTREAM CATCHMENT FLOWS ONTO LOT 2 DP 408800 ARE MAINTAINED AT 1.16M<sup>3</sup>/SEC DURING THE PEAK 1% AEP STORM EVENT. REFER TO E501 FOR HYDRAULIC DRAINS MODEL AND CATCHMENT AREAS.  
 - WATER QUALITY IS PROVIDED IN ACCORDANCE WITH CURRENT APPROVED DRIVEWAY (CC 10/0569).  
 - WATER QUALITY FOR FUTURE LOTS TO EACH HAVE MINIMUM 5KL ROOF RAINWATER TANK (INCORPORATING FIRST FLUSH TREATMENT SYSTEM) AND COLLECTION PIT PRIOR TO DISCHARGE INTO OSD. COLLECTION PIT TO INCORPORATE SEDIMENT SUMP AND TRASH SCREEN.  
 - DESIGN FOR RAINWATER/WASTEWATER/GREYWATER ARE TO BE ADDRESSED AT DWELLING DA STAGE VIA A WATER MANAGEMENT PLAN FOR EACH LOT.

**THIS PLAN TO BE READ IN CONJUNCTION WITH**  
  
**N0317/16**  
  
**NORTHERN BEACHES COUNCIL**

EXISTING DRAINAGE DEPRESSION DISCHARGE POINT INTO LOT 2 DP408800 SEE E-500 NOTES FOR HYDRAULIC ANALYSIS RESULTS. SEE E-501 FOR HYDRAULIC MODEL CATCHMENT SUMMARY AND LAYOUT.

ALL WORKS ON APPROVED LOTS 21 & 22 (DP1036400) INCLUDING DRAINAGE AND STORMWATER WORKS IN ACCORDANCE WITH EXISTING DRIVEWAY APPROVAL (CC 0328/14)

**DEVELOPMENT APPLICATION**

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
D	FOR DA - ADDRESS COUNCIL LETTER DATED 24/10/2016	23/11/2016	BL	BL	GT	GT
C	FOR DA SUBMISSION	07/07/2016	RK	TH	TH	GT
B	FOR CLIENT REVIEW	03/06/2016	RK	TH	TH	GT
A	FOR CLIENT REVIEW	04/03/2016	RK	TH	TH	GT

GRID	DATUM	PROJECT MANAGER	CLIENT
MGA	mAHD	GT	CARISTE PTY LTD

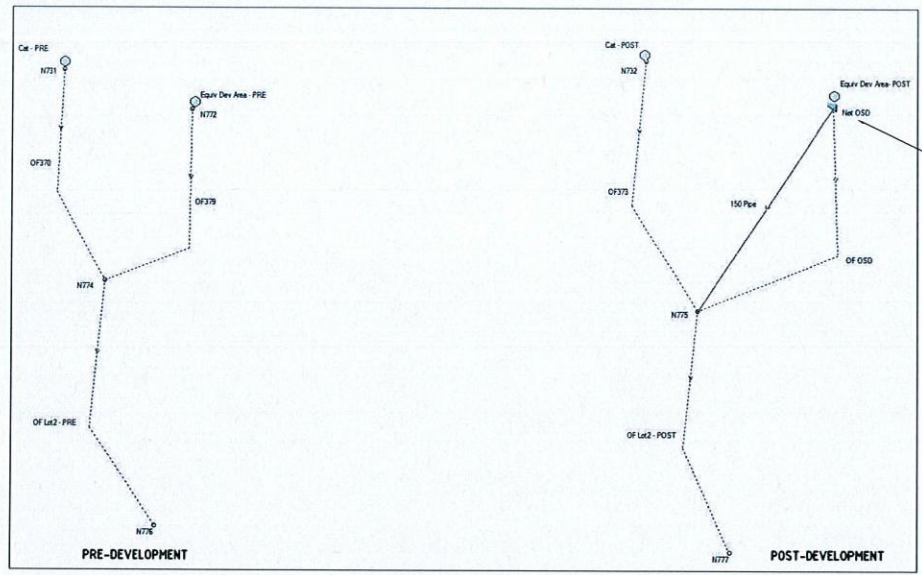
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**PROJECT NAME/PLANSET TITLE**  
**SUBDIVISION WORKS**  
 SUBDIVISION, DRIVEWAY AND DRAINAGE WORKS  
 62 HILLSIDE ROAD, NEWPORT NSW  
 LOT 1 DP408800

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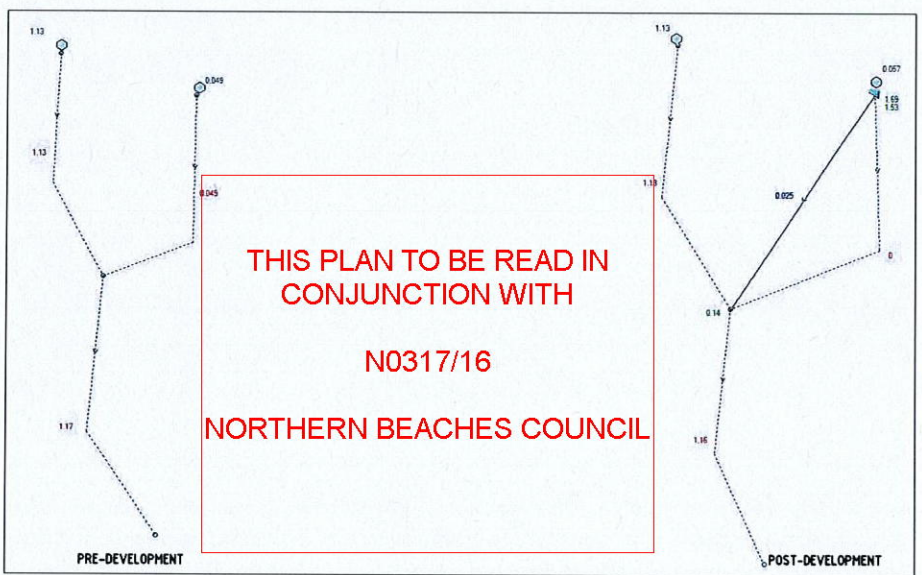
DRAWING TITLE				
<b>ON-SITE DETENTION PLAN (LAYOUT 01)</b>				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1203617	PS02	R04	PS02-E500	D





DRAINS MODEL LAYOUT

\*NET OSD - 4 X 15 KL PROPOSED LOT OSD TANKS HAVE BEEN MODELLED AS 1 X 60KL OSD TANK.



1% AEP DRAINS MODEL RESULT



ORANGE HATCHED AREAS REPRESENTS "EQUIVALENT DEVELOPMENT AREA" NET AREA = 0.0813 HA (INCLUDES EXISTING BUILDINGS TO BE REMOVED)

"CAT. RETAIN" DISCHARGING INTO LOT 2, DP 408800 NET AREA: 2.15 HA INCLUDES APPROVED DRIVEWAY AS PART OF PREDEVELOPMENT CONDITION

DEVELOPMENT APPLICATION

PROPOSED CATCHMENTS						
KEY	DRAINS CAT.	DESCRIPTION	AREA (ha)	% PAVED	Tc PAVED (min)	Tc GRASS (min)
	CAT-RETAIN	RETAINED UPSLOPE CATCHMENT	2.15	30%	11.25	8.75
	EQUIV DEV AREA-POST	DEVELOPMENT FOOTPRINT - POST	0.08	98%	1.25	5.5
TOTAL AREA			2.23	= 100% OF TOTAL AREA		
TOTAL IMPERVIOUS AREA			0.73	= 33% OF TOTAL AREA		
TOTAL PERVIOUS AREA			1.51	= 67% OF TOTAL AREA		

EXISTING CATCHMENTS						
KEY	DRAINS CAT.	DESCRIPTION	AREA (ha)	% PAVED	Tc PAVED (min)	Tc GRASS (min)
	CAT-RETAIN	RETAINED UPSLOPE CATCHMENT	2.15	30%	11.25	8.75
	EQUIV DEV AREA-PRE	DEVELOPMENT FOOTPRINT - EXISTING	0.08	8%	1.25	5.5
TOTAL AREA			2.23	= 100% OF TOTAL AREA		
TOTAL IMPERVIOUS AREA			0.66	= 29% OF TOTAL AREA		
TOTAL PERVIOUS AREA			1.58	= 71% OF TOTAL AREA		

REV <b>A</b>	DESCRIPTION FOR DA - ADDRESS COUNCIL LETTER DATED 24/10/2016	DATE 23/11/2016	DRAWN BL	DESIGNED BL	CHECKED GT	APPRVD GT	SCALE A1 (A3) 1:500 (1:1,000)	GRID	DATUM	PROJECT MANAGER GT	CLIENT CARISTE PTY LTD	<p>Consulting Engineers Environment Water Geotechnical Civil</p>	DRAWING TITLE OSD DETENTION CATCHMENT PLAN DRAINS MODEL & RESULT	
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