

3 April 2018

Warriewood Vale Pty Ltd
 Att: Joel Shanahan
 By Email

Dear Joel,

STAGE 1 STORMWATER ENGINEERING SCOPE OF WORKS: 8 FOREST ROAD, WARRIEWOOD

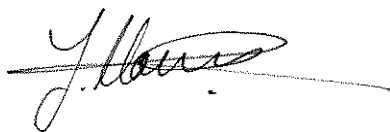
It is understood the approved development at 8 Forest Road, Warriewood, NSW (DA N0440/15) is to be a staged construction.

We recommend the stormwater engineering works approved for the development are constructed during Stage 1 works as highlighted on the attached approved plan (P1504988-PS01-R05), including changes approved by Council via a deferred commencement condition (attached engineering plan P1504988-PS02-R03).

Detailed design is yet to be undertaken, which we expect to involve minor changes to drainage line alignment, pipe sizes, OSD/Bio-retention system and construction certificate level detail.

Should you have any questions, please do not hesitate to contact the undersigned.

For and on behalf of
MARTENS & ASSOCIATES PTY LTD



TERRY HARVEY
 Senior Engineer / Project Manager

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 MARTENS & ASSOCIATES P/L
 ABN 85 070 240 890 ACN 070 240 890

STAGE 1 STORMWATER DRAINAGE PLAN

03/04/2018
REVISION 1

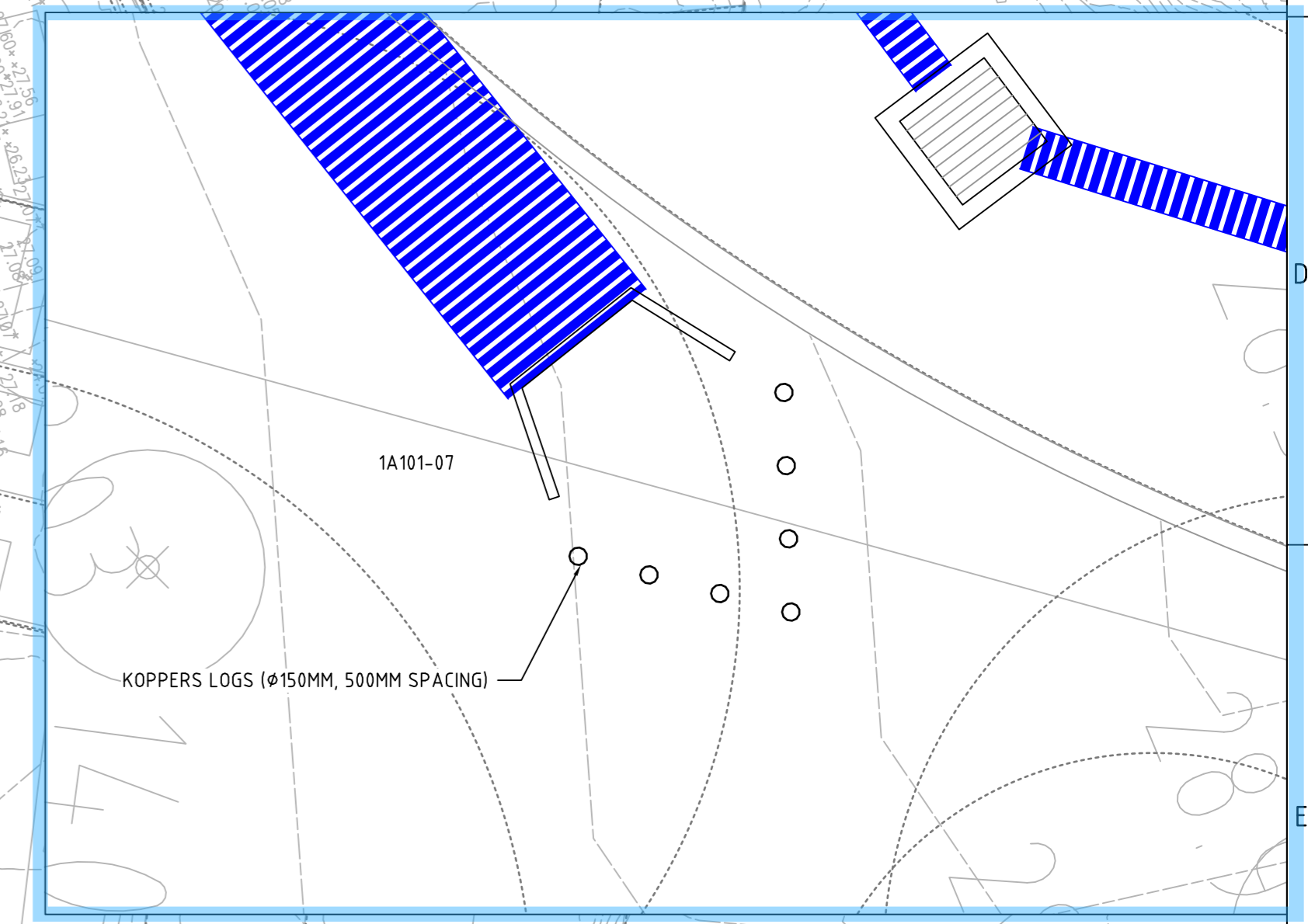
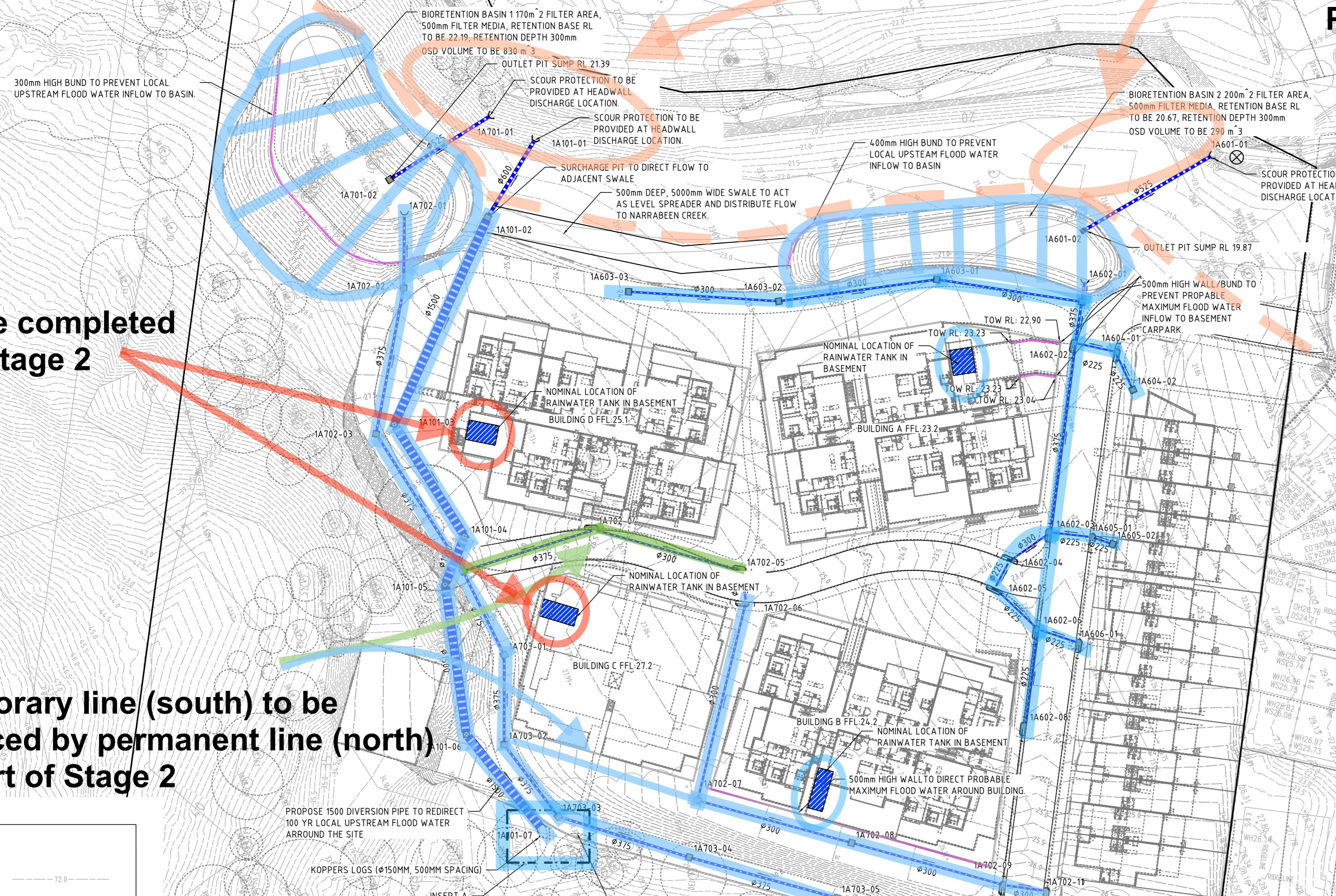


NB:
Refer to approved Deferred Commencement Conditions Plans P1504988-PS02-R03 for stage 1 works.

STAGE 1
STAGE 2

NB:
RWT's to be completed as part of Stage 2

NB:
Temporary line (south) to be replaced by permanent line (north) as part of Stage 2



INSERT A
SCALE: 1:50

KEY	
FINAL SURFACE CONTOURS	
STORMWATER PIPELINE	
KERB INLET PIT	
SURFACE INLET PIT WITH PIT INSERT	
FLOW DIRECTION	
WATER QUALITY MONITORING SITE	
SWALE	
WALL/BUND	
SITE BOUNDARY	

NOTE:
FINAL SURFACE CONTOURS ARE BASED ON PROPOSED, EXISTING AND LIDAR SURFACES.

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
C	FOR JOINT REPORT	24/02/2017	CT	AVG/DD	SL	DM
B	MINOR AMENDMENTS	23/02/2017	CT	AVG/CT	SL	
A	INITIAL RELEASE	10/02/2017	CT	AVG/CT	SL	

SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT
A1 (A3) 1:500 (1:1,000)	MGA	mAHD	SL	WARRIWOODVALE PTY LTD

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PROJECT NAME/PLANSSET TITLE
RESIDENTIAL DEVELOPMENT CIVIL WORKS
8 FOREST ROAD, WARRIWOOD, NSW

martens & Associates Pty Ltd
Consulting Engineers
Environment Water Geotechnical Civil
Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767 Email: mail@martens.com.au Internet: www.martens.com.au

DRAWING TITLE				
DRAINAGE PLAN				
PROJECT NO.	PLANSSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1504988	PS01	R05	PS01-E100	C

DEVELOPMENT APPLICATION

PROJECT: RESIDENTIAL DEVELOPMENT
 PLANSET: DEFERRED COMMENCEMENT CONDITIONS
 CLIENT: WARRIEWOODVALE PTY LTD

DRAWING LIST		
DWG No.	REV	DWG TITLE
GENERAL		
PS02-A000	C	COVER SHEET
ROADWORKS		
PS02-D100	C	ROADWORKS PLAN - BRIDGE WIDENING AND ENTRANCE TREATMENT
PS02-D200	B	BRIDGE AND TYPICAL ROAD CROSS-SECTIONS
PS02-D200	A	SWEPT PATH ANALYSIS
DRAINAGE		
PS02-E100	B	RIPARIAN WORKS DRAINAGE PLAN
PS02-E101	A	RIPARIAN WORKS DRAINAGE PLAN WITH AERIAL PHOTOGRAPH
PS02-E200	A	TYPICAL CREEK HEADWALL DETAIL
PS02-E300	A	RIPARIAN WORKS DRAINAGE LONG-SECTIONS



LOCALITY PLAN
N.T.S.

LGA: NORTHERN BEACHES COUNCIL
 8 FOREST ROAD, WARRIEWOOD, NSW

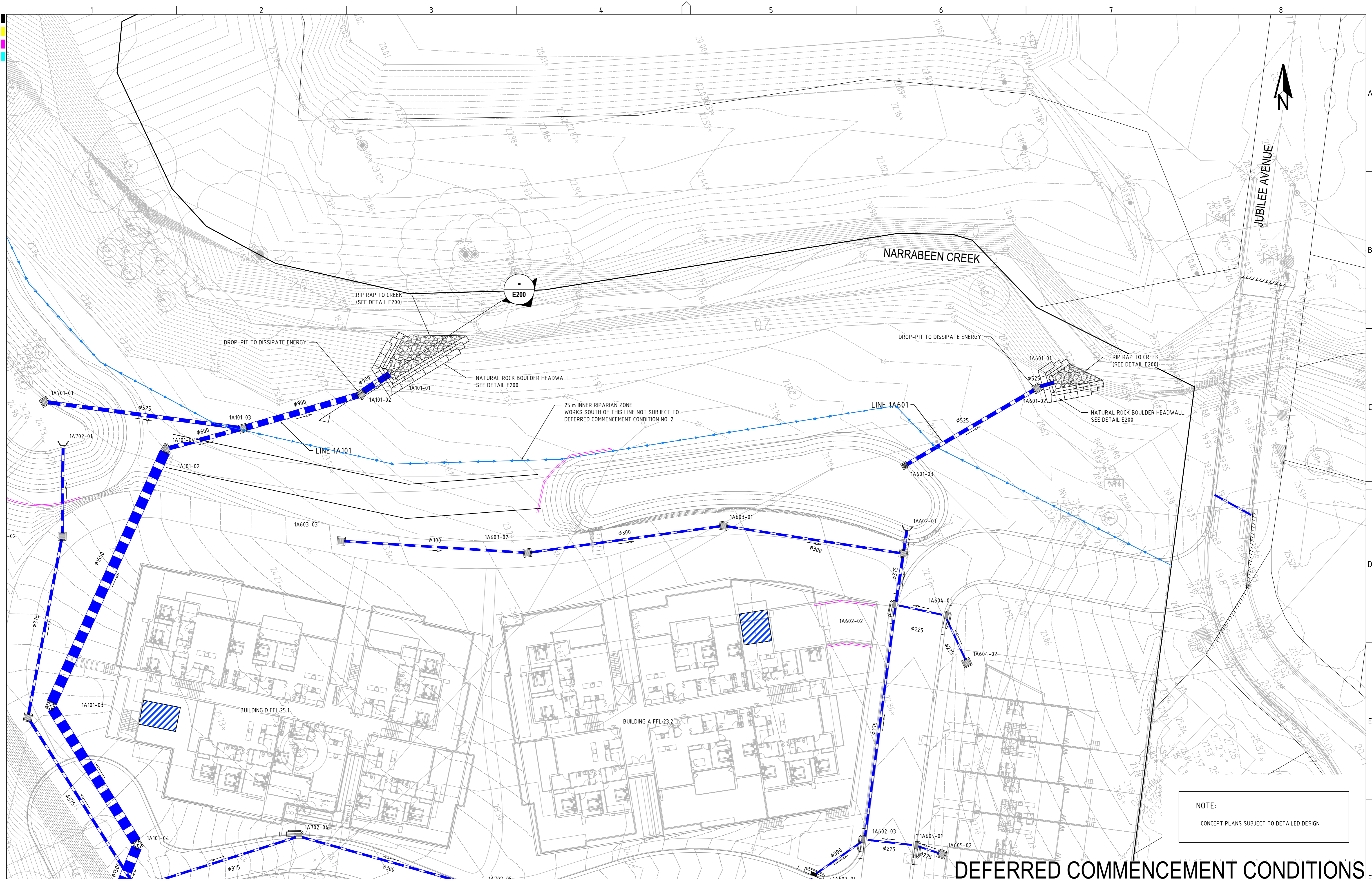
DEFERRED COMMENCEMENT CONDITIONS

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD	SCALE	GRID	DATUM	PROJECT MANAGER	CLIENT	DRAWING TITLE	PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
C	CLIENT COMMENTS	10/07/2017	JCF	JCF/TH	TH	TH				TH	WARRIEWOOD VALE PTY LTD	COVER SHEET PROJECT NO. P1504988 PLANSET NO. PS02 RELEASE NO. R03 DRAWING NO. PS02-A000 REVISION C					
B	MINOR AMENDMENTS	03/07/2017	JCF	JCF/TH	TH						martens & Associates Pty Ltd Consulting Engineers Environment Water Geotechnical Civil Suite 201, 20 George St, Hornsby, NSW 2077 Australia Phone: (02) 9476 9999 Fax: (02) 9476 8767 Email: mail@martens.com.au Internet: www.martens.com.au						
A	INITIAL RELEASE	23/06/2017	JCF	JCF	TH/SZ												
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PRINTED: 20/07/2017 - USER: jcf@martens.com.au

A1 / A3 LANDSCAPE (A1L_C_02.0.01)

DRAWING ID: P1504988-PS02-R03-A000



NOTE:
- CONCEPT PLANS SUBJECT TO DETAILED DESIGN

DEFERRED COMMENCEMENT CONDITIONS

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
B	MINOR AMENDMENTS	03/07/2017	JCF	JCF/TH	TH	
A	INITIAL RELEASE	23/06/2017	JCF	JCF	TH/SZ	

SCALE	0 2.5 5.0 7.5 10.0 12.5 15.0 17.5 20.0 22.5 25.0
	A1 (A3) 1:250 (1:500) METRES

GRID	DATUM	PROJECT MANAGER	CLIENT
MGA	m AHD	TH	WARRIWOOD VALE PTY LTD

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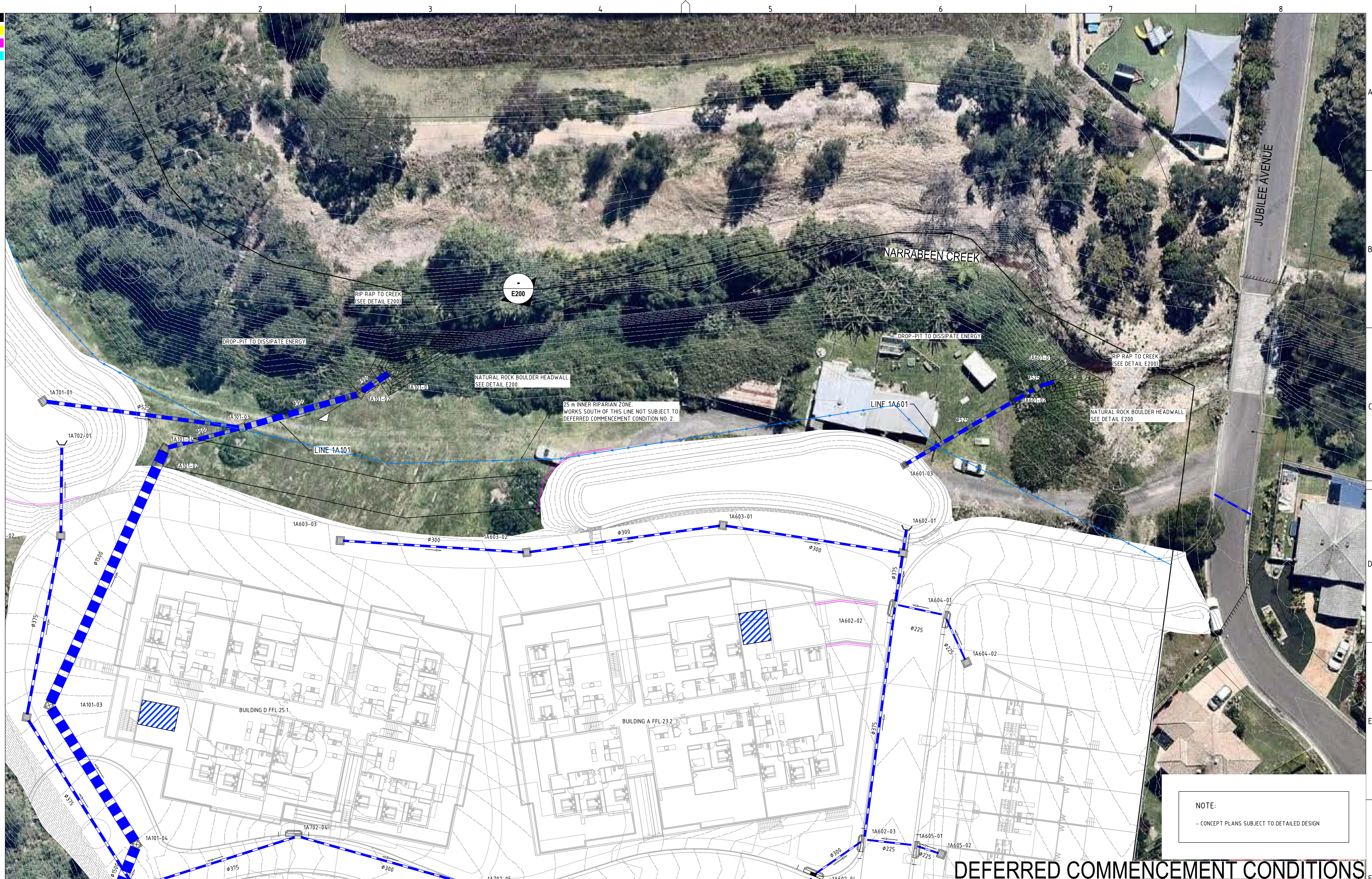
PROJECT NAME/PLANSSET TITLE
RESIDENTIAL DEVELOPMENT
CONCEPT BRIDGE AND RIPARIAN WORKS
8 FOREST ROAD, WARRIWOOD, NSW

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DRAWING TITLE				
RIPARIAN WORKS - DRAINAGE PLAN				
PROJECT NO.	PLANSSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1504988	PS02	R03	PS02-E100	B



NOTE:
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DEFERRED COMMENCEMENT CONDITIONS

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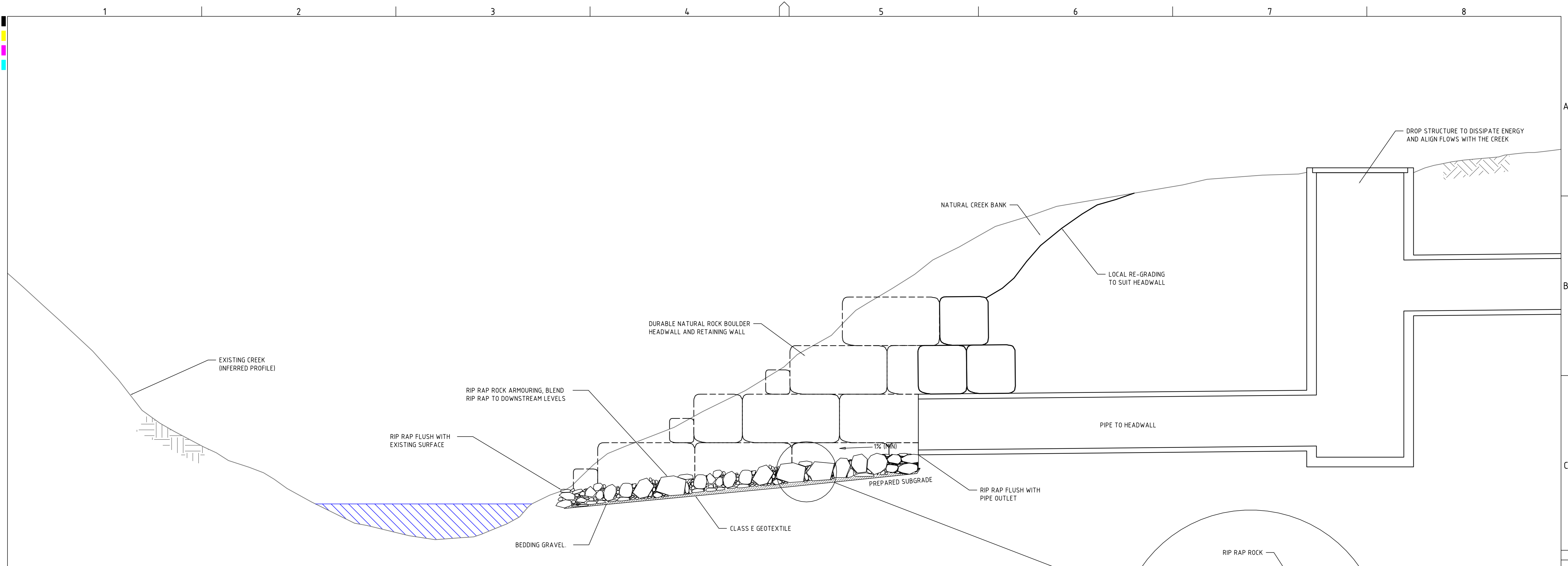
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A1 (A3)	1:250 (1:500)										
	METRES										

GRID
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DATUM
m AHD
PROJECT MANAGER
TH
CLIENT
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RESIDENTIAL DEVELOPMENT
CONCEPT BRIDGE AND RIPARIAN WORKS
8 FOREST ROAD, WARRIWOOD, NSW

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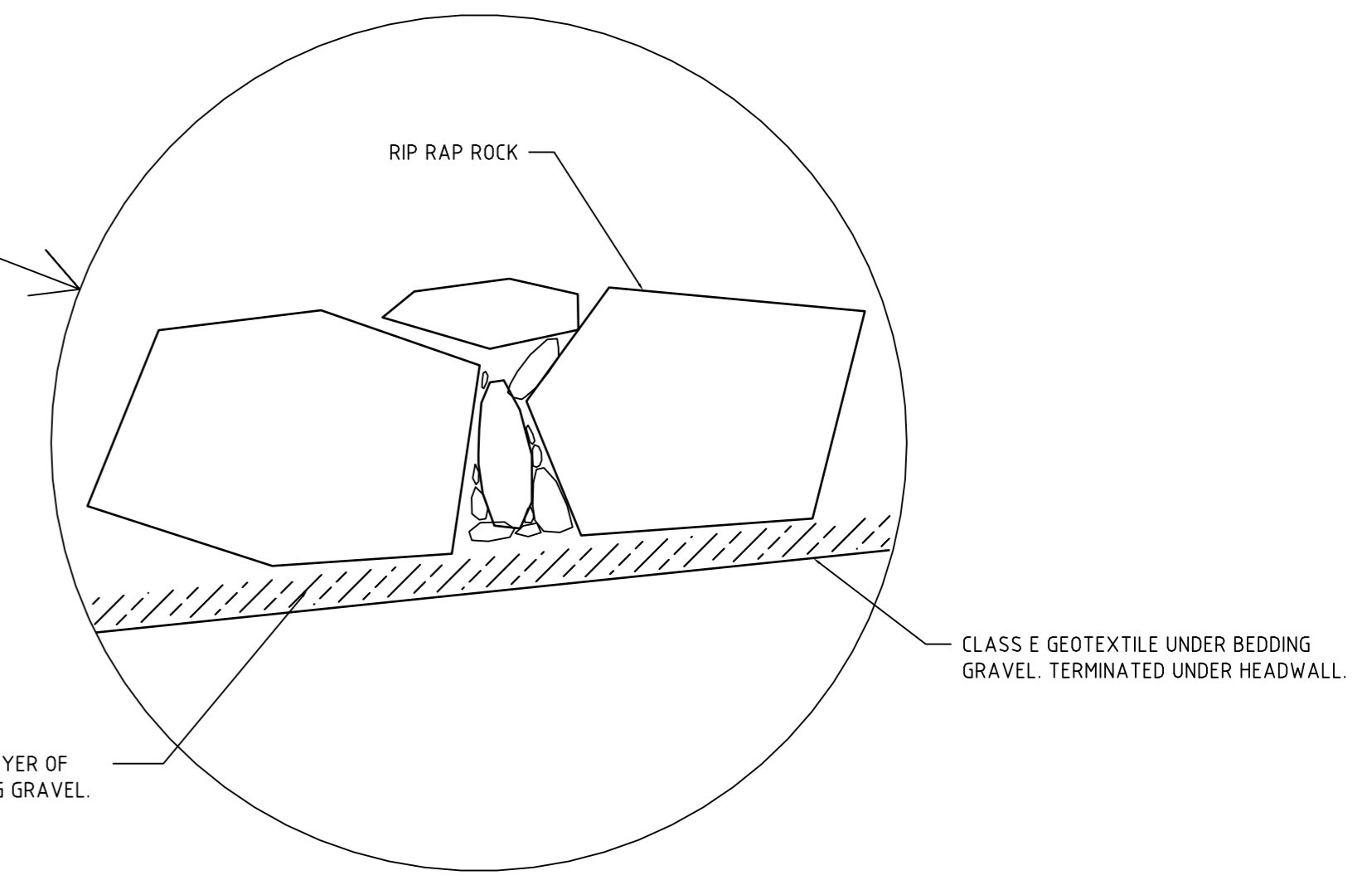
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DRAWING TITLE RIPARIAN WORKS - DRAINAGE PLAN WITH AERIAL PHOTGRAPH				
PROJECT NO. P1504988	PLANSSET NO. PS02	RELEASE NO. R03	DRAWING NO. PS02-E101	REVISION A



TYPICAL DETAIL: CREEK OUTLET TO NARRABEEN CREEK

SCALE 1:20

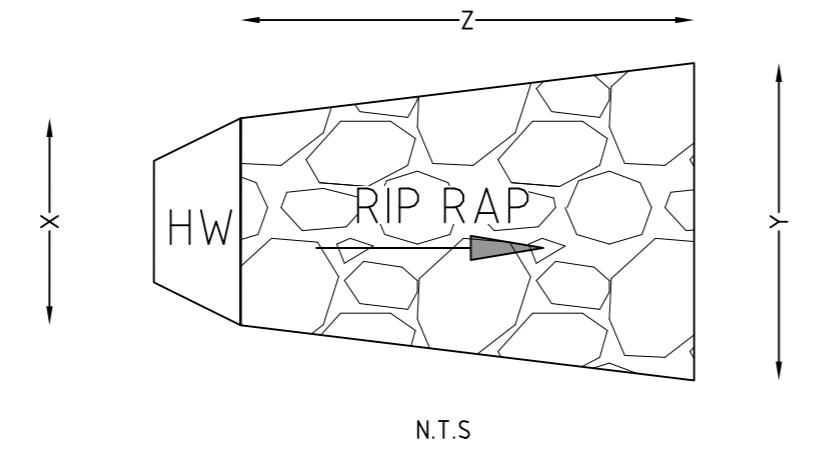


DETAIL: RIP RAP

N.T.S.

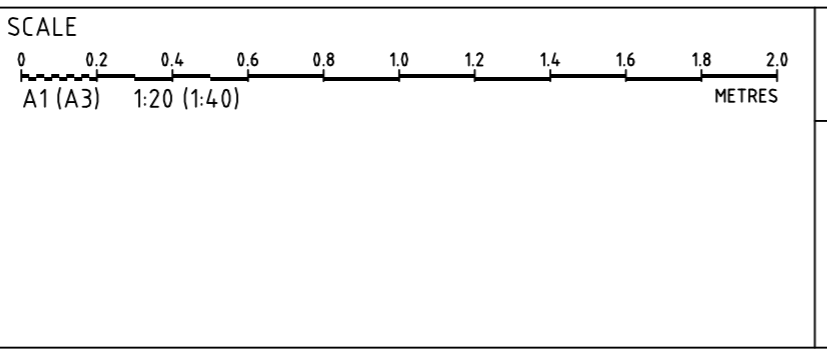
NOTE:
- CONCEPT PLANS SUBJECT TO DETAILED DESIGN

RIP RAP SIZING (HEADWALL OUTLET)								
DRAINAGE LINE	OUTLET DIAMETER (mm)	Q MAX (L/s)	X (m)	Y (m)	Z (m)	φ50 (mm)	RANGE (mm)	MINIMUM RIP RAP ROCK THICKNESS (mm)
1A101	900	1150	2.0	9.0	8.8	250	100-500	500
1A601	525	430	2.0	5.4	5.0	250	100-500	500



DEFERRED COMMENCEMENT CONDITIONS

REV	DESCRIPTION	DATE	DRAWN	DESIGNED	CHECKED	APPRVD
A	INITIAL RELEASE	23/06/2017	JCF	JCF	TH/SZ	



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TH

DATUM
m AHD
TH

PROJECT MANAGER
TH

CLIENT
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RESIDENTIAL DEVELOPMENT
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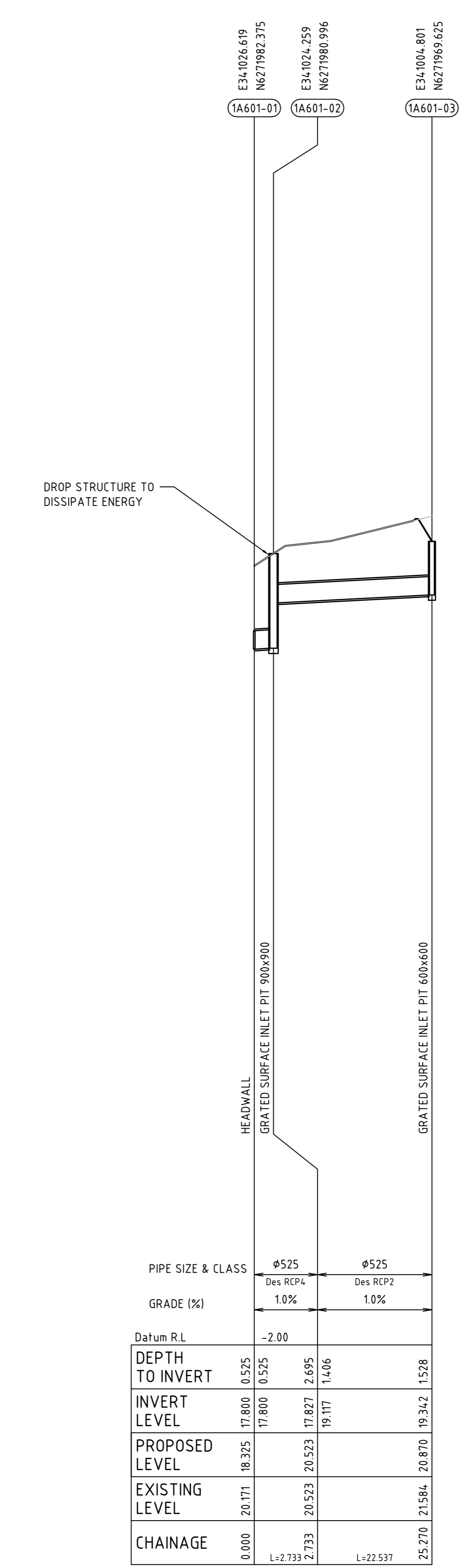
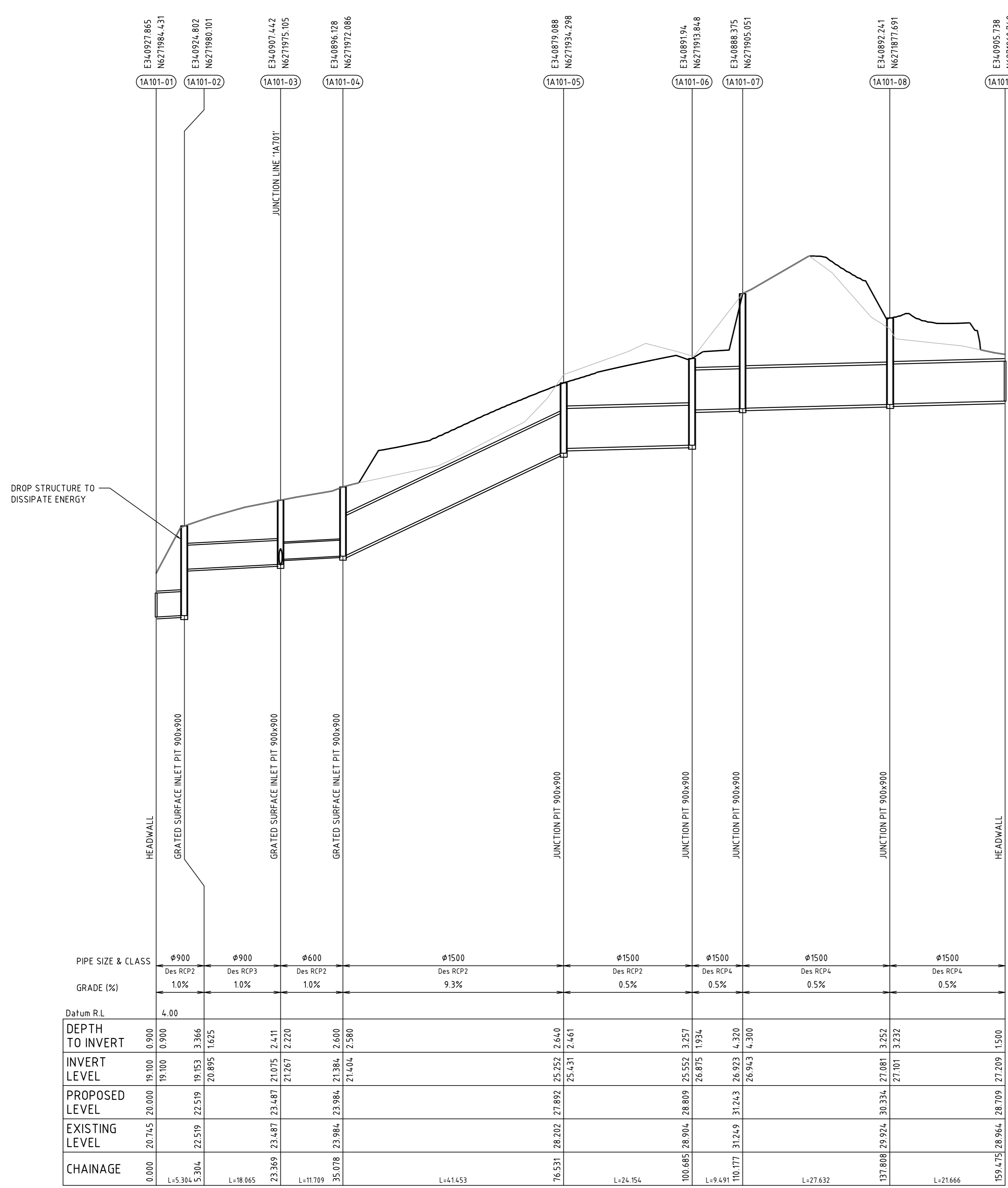
CLIENT
WARRIWOOD VALE PTY LTD

PROJECT NAME/PLANSET TITLE
RESIDENTIAL DEVELOPMENT
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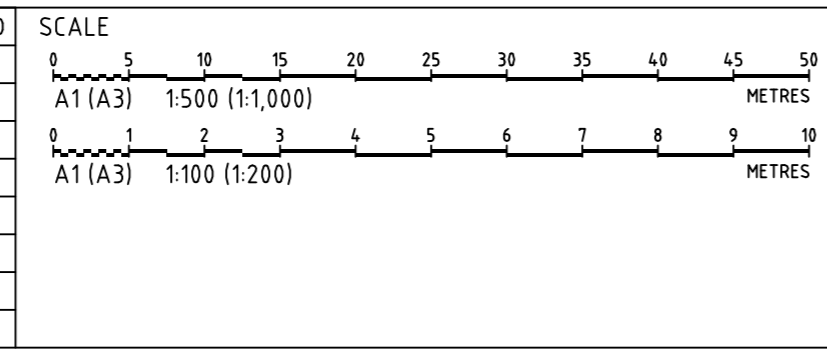
DRAWING TITLE				
TYPICAL CREEK HEADWALL DETAIL				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1504988	PS02	R03	PS02-E200	A



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DEFERRED COMMENCEMENT CONDITIONS

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A	INITIAL RELEASE	23/06/2017	JCF	JCF	TH/SZ	



GRID: MGA
DATUM: m AHD
PROJECT MANAGER: TH
CLIENT: WARRIEWOOD VALE PTY LTD
PROJECT NAME/PLANSET TITLE: RESIDENTIAL DEVELOPMENT CONCEPT BRIDGE AND RIPARIAN WORKS
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DRAWING TITLE				
RIPARIAN WORKS - DRAINAGE LONG SECTIONS				
PROJECT NO.	PLANSET NO.	RELEASE NO.	DRAWING NO.	REVISION
P1504988	PS02	R03	PS02-E300	A