
From: Rod McKelvey
Sent: 21/01/2022 10:29:39 AM
To: Council Northernbeaches Mailbox
Subject: Application Number: DA2021/2173
Attachments: 30.09.2016 Seawall Drawings Issued For Tender.pdf;

Hi Adam, (if your still the man?)


I'm awfully late to this but feel I should at least put an alternative beach friendly seawall plan on the table. The photos show the problems they faced and the final solution. As you see this was constructed at Kingscliff Beach. The 2017 construction costs for the wall including the steps is \$7.5M, however this is only the contracted construction costs. There were layers of specialised engineering design and detail prior to construction in the order of \$200,000 and also the costs for the various studies required for development approval. To provide adequate protection in storm events and taking into account sea level rise, the rock wall is built to a depth of RL -2 and a total height of RL 5 to 5.5. The total footprint from back of the wall to the toe is 17 metres. This requires around 50,000T of rock with individual rock sizes of 5.7t over a length of 360 metres. The construction costs for the rock wall segment is \$3.8M and the concrete steps (60 metres) \$2.9M with the balance being set up costs, demolition and earthworks.

I hope you agree it's a far better solution than Collaroy and from what I can work out the plans for Newport Beach

thx

Rod McKelvey MAICD

Life Member WSLSC





will

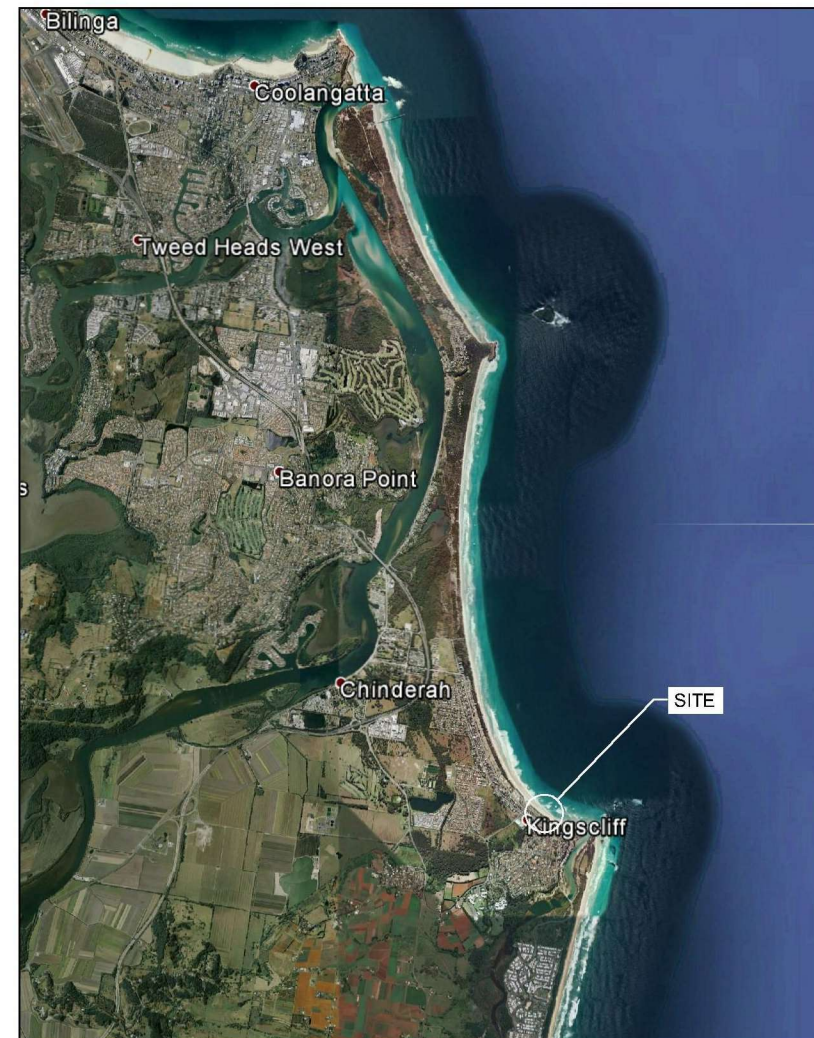






KINGSCLIFF SEAWALL FOR TWEED SHIRE COUNCIL

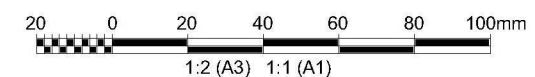
DRAWING LIST	
DRAWING NUMBER	DRAWING TITLE
PA1387/MA/0001	TITLE SHEET AND DRAWING LIST
PA1387/MA/1000	SITE PLAN
PA1387/MA/1100	ROCK REVETMENT SETOUT DETAILS
PA1387/MA/1101	ROCK REVETMENT GENERAL ARRANGEMENT PLAN SHEET 1
PA1387/MA/1102	ROCK REVETMENT GENERAL ARRANGEMENT PLAN SHEET 2
PA1387/MA/1200	ROCK REVETMENT DETAIL CROSS SECTION
PA1387/MA/1201	ROCK REVETMENT CROSS SECTIONS SHEET 1 OF 4
PA1387/MA/1202	ROCK REVETMENT CROSS SECTIONS SHEET 2 OF 4
PA1387/MA/1203	ROCK REVETMENT CROSS SECTIONS SHEET 3 OF 4
PA1387/MA/1204	ROCK REVETMENT CROSS SECTIONS SHEET 3 OF 4
PA1387/MA/1210	ROCK REVETMENT MISCELLANEOUS DETAILS
PA1387/MA/1230	BEACH ACCESS STAIRS ALONG ROCK REVETMENT - PLANS
PA1387/MA/1231	BEACH ACCESS STAIRS ALONG ROCK REVETMENT - SECTIONS AND DETAILS SHEET 1
PA1387/MA/1232	BEACH ACCESS STAIRS ALONG ROCK REVETMENT - SECTIONS AND DETAILS SHEET 2
PA1387/MA/1233	BEACH ACCESS STAIRS ALONG ROCK REVETMENT - PERSPECTIVE
PA1387/MA/1250	CENTRAL PARK - VIEWING PLATFORM - PILING PLAN, SECTIONS AND DETAILS
PA1387/MA/1251	CENTRAL PARK - VIEWING PLATFORM - BEAM LAYOUT PLAN SECTIONS AND DETAILS
PA1387/MA/1252	CENTRAL PARK - VIEWING PLATFORM TIMBER DECK PLAN, SECTIONS AND DETAILS
PA1387/MA/2000	CONCRETE STEPPED ACCESS STRUCTURE - SETOUT PLAN
PA1387/MA/2100	CONCRETE STEPPED ACCESS STRUCTURE - CONCRETE PLAN
PA1387/MA/2110	CONCRETE STEPPED ACCESS STRUCTURE - PILE PLAN
PA1387/MA/2111	CONCRETE STEPPED ACCESS STRUCTURE - PILE DETAILS
PA1387/MA/2301	CONCRETE STEPPED ACCESS STRUCTURE - SECTION AND DETAILS SHEET 1
PA1387/MA/2302	CONCRETE STEPPED ACCESS STRUCTURE - SECTION AND DETAILS SHEET 2
PA1387/MA/2303	CONCRETE STEPPED ACCESS STRUCTURE - SECTION AND DETAILS SHEET 3
PA1387/MA/2304	CONCRETE STEPPED ACCESS STRUCTURE - SECTION AND DETAILS SHEET 4
PA1387/MA/2305	CONCRETE STEPPED ACCESS STRUCTURE - SECTION AND DETAILS SHEET 5
PA1387/MA/2500	CONCRETE STEPPED ACCESS STRUCTURE - PERSPECTIVES



LOCALITY PLAN
1:50,000

FOR TENDER

NOT FOR CONSTRUCTION



REV	DATE	DESCRIPTION	BY	CHK	APPD
C	30.09.2016	ISSUED FOR TENDER	SGB	GPB	GPB
B	23.09.2016	FINAL DRAFT	SGB	GPB	GPB
A	22.08.2016	BOX FOR REVIEW	SGB	GPB	GPB

REVISIONS

CLIENT

PROJECT:

KINGSCLIFF SEAWALL

DRAWING TITLE:

TITLE SHEET AND LOCALITY PLAN

HASKONING AUSTRALIA PTY LTD SYDNEY

Level 14
50 Berry Street
North Sydney NSW 2060
+61 2 8954 9300
+61 2 9620 9800
www.royalhaskoningdhv.com

DRAWN SGB	DATE 26/09/2016	JOB No. PA1387
AUTOCAD REF. PA1387-MA-0001		
SCALE: A1 AS SHOWN		
DRAWING No. PA1387/MA/0001	REVISION C	



- NOTES**
1. ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
 2. CHAINAGES AND OFFSET ARE IN METRES, ALL DIMENSIONS ARE IN MILLIMETRES UNO.

FOR TENDER

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY	CHK	APPD
C	20.09.2016	ISSUED FOR TENDER	SGB	GPB	GPB
B	23.09.2016	FINAL DRAFT	SGB	GPB	GPB
AI	22.08.2016	ISSUED FOR 80% REVIEW	SGB	GPB	GPB
A	17.08.2016	ISSUED FOR REVIEW	SGB	GPB	GPB

REVISIONS

CLIENT



TWEED
SHIRE COUNCIL

PROJECT:

KINGSCLIFF SEAWALL

DRAWING TITLE:

SITE PLAN

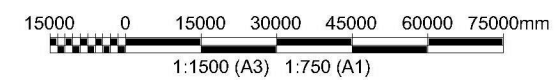
HASKONING AUSTRALIA PTY LTD
SYDNEY



Royal HaskoningDHV
Enhancing Society Together

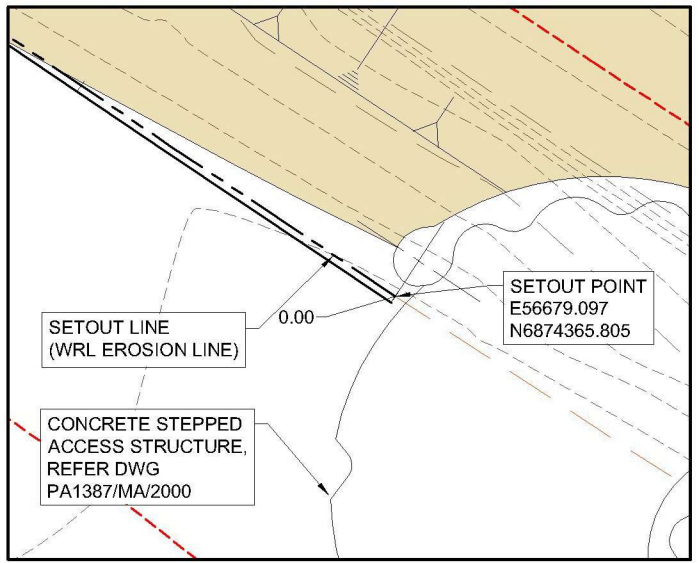
Level 14
50 Berry Street
North Sydney NSW 2060
+61 2 8956 9000 Telephone Fax
+61 2 9620 9000 www.royalhaskoningdhv.com Internet

DRAWN SGB	DATE 29/09/2016	JOB No. PA1087
AUTOCAD REF. PA1387-MA-1000		
SCALE AT A1 1:750 (A1)		
DRAWING No. PA1387/MA/1000	REVISION C	





SETOUT LINE DATA					
CHAINAGE	EAST	NORTH	LENGTH	Chord length	BEARING
0.000	556679.097	6874365.805	49.986	49.979	CURVE
49.990	556638.210	6874394.547	4.355		N54° 22' 29"W
54.340	556634.670	6874397.084	8.467		N53° 49' 32"W
62.810	556627.835	6874402.081	12.228		N55° 11' 49"W
75.040	556617.794	6874409.061	3.511		N55° 17' 03"W
78.550	556614.908	6874411.060	4.150		N51° 50' 46"W
82.700	556611.644	6874413.624	8.828		N51° 50' 46"W
91.530	556604.702	6874419.078	9.696		N53° 00' 39"W
101.220	556596.957	6874424.912	23.291		N46° 15' 28"W
124.510	556580.130	6874441.016	13.320		N45° 19' 10"W
137.830	556570.659	6874450.382	11.603		N48° 01' 31"W
149.440	556562.033	6874458.142	15.338		N43° 45' 49"W
164.770	556551.424	6874469.219	18.429		N44° 26' 46"W
183.200	556538.519	6874482.376	14.593		N45° 22' 09"W
197.800	556528.134	6874492.628	13.171		N42° 39' 08"W
210.970	556519.210	6874502.315	13.074		N44° 27' 39"W
224.040	556510.053	6874511.646	12.980		N42° 28' 46"W
237.020	556501.288	6874521.219	3.500		N38° 19' 16"W
240.520	556499.117	6874523.965	14.610		N39° 37' 15"W
255.130	556489.800	6874535.219	11.513		N40° 58' 02"W
266.640	556482.252	6874543.912	14.147		N39° 32' 52"W
280.790	556473.244	6874554.821	12.149		N42° 18' 40"W
292.940	556465.066	6874563.805	13.984		N40° 43' 53"W
306.920	556455.941	6874574.402	17.234		N38° 40' 22"W
324.160	556445.172	6874587.857	13.757		N37° 06' 32"W
337.920	556436.872	6874598.828	7.088		N36° 11' 43"W
345.000	556432.686	6874604.548	2.614		N36° 11' 43"W
347.620	556431.143	6874606.657	5.339		N40° 41' 36"W
352.960	556427.662	6874610.705	6.986		N39° 29' 42"W
359.940	556423.219	6874616.096			

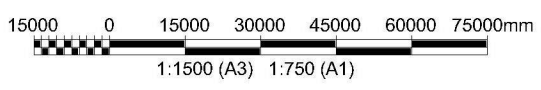


INSET A
1:100

- NOTES**
- ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
 - CHAINAGES AND OFFSET ARE IM METRES, ALL DIMENSIONS ARE IN MILLIMETRES UNO.

CURVE FROM 0.00 TO 49.99 DETAILS

CHORD DIRECTION N54° 53' 41"
 START DIRECTION W N56° 31' 50"
 END DIRECTION W N53° 15' 33"W
 MID ORDINATE 0.3570
 PI INCLUDED ANGLE 176.7286 (d)
 CENTER POINT 557161.9079, 6875096.0969
 PI POINT 556658.2431, 6874379.5920
 RADIUS 875.4610



FOR TENDER

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY	CHK	APPD
A	30.09.2016	ISSUED FOR TENDER	SGB	GPB	GPB

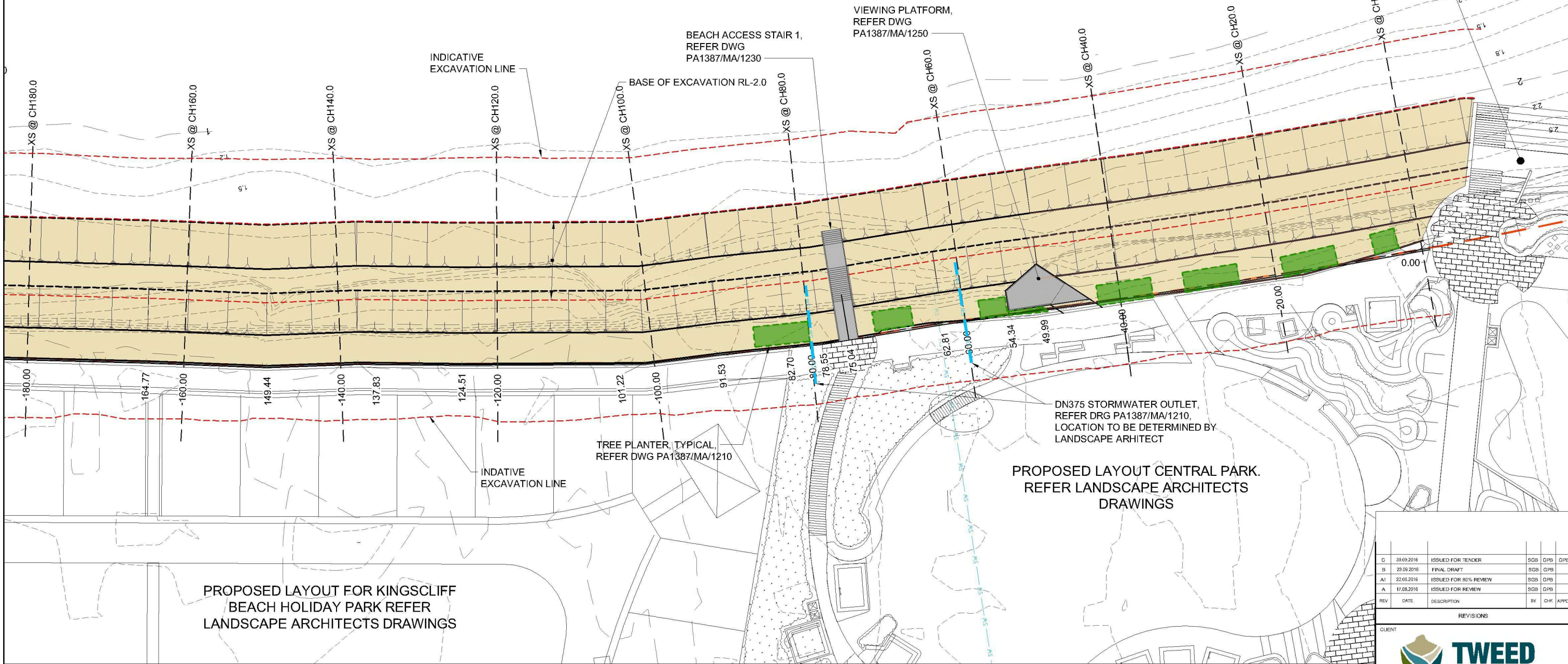


PROJECT:
KINGSCLIFF SEAWALL

DRAWING TITLE:
SETOUT PLAN



DRAWN SGB	DATE 29/09/2016	JOB No. PA1087
AUTOCAD REF. PA1387-MA-1100		
SCALE: A3: 1:750 (A1)		
DRAWING No. PA1387/MA/1100	REVISION	A



PROPOSED LAYOUT FOR KINGSCLIFF BEACH HOLIDAY PARK REFER LANDSCAPE ARCHITECTS DRAWINGS

REV	DATE	DESCRIPTION	BY	CHK	APPD
D	30.09.2016	ISSUED FOR TENDER	SCB	GPB	GPB
B	23.09.2016	FINAL DRAFT	SCB	GPB	GPB
A1	22.08.2016	ISSUED FOR 80% REVIEW	SCB	GPB	GPB
A	17.08.2016	ISSUED FOR REVIEW	SCB	GPB	GPB

CLIENT

TWEED
SHIRE COUNCIL

PROJECT:

KINGSCLIFF SEAWALL

DRAWING TITLE:

**ROCK REVETMENT
GENERAL ARRANGEMENT PLAN
SHEET 1**

HASKONING AUSTRALIA PTY LTD
SYDNEY

Royal HaskoningDHV
Enhancing Society Together

Level 14
50 Berry Street
North Sydney NSW 2060
+61 2 8954 9000
+61 2 9620 9000
www.royalhaskoningdhv.com
Internet

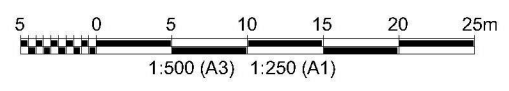
DRAWN SGB	DATE 29/09/2016	JOB No. PA1087
AUTOCAD REF: PA1387-MA-1101 TO 1102		
SCALE: A1: 1:250		
DRAWING No. PA1387/MA/1101	REVISION C	

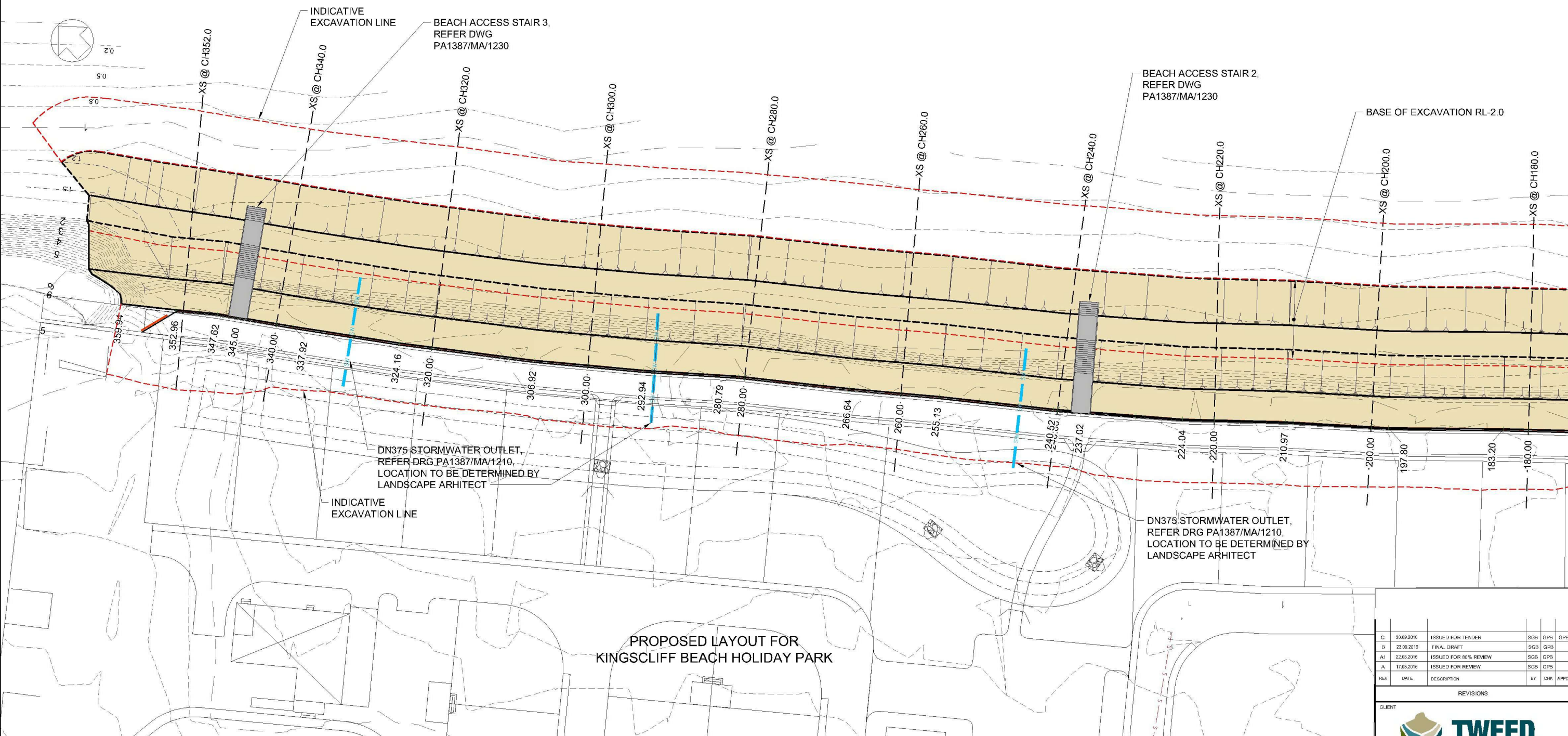


- NOTES**
1. ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
 2. CHAINAGES AND OFFSET ARE IN METRES, ALL DIMENSIONS ARE IN MILLIMETRES UNO. REFER TECHNICAL SPECIFICATION
 - 3.

FOR TENDER

NOT FOR CONSTRUCTION





REV	DATE	DESCRIPTION	BY	CHK	APPD
D	30.09.2016	ISSUED FOR TENDER	SGB	GPB	GPB
B	23.09.2016	FINAL DRAFT	SGB	GPB	GPB
AI	22.08.2016	ISSUED FOR 80% REVIEW	SGB	GPB	GPB
A	17.08.2016	ISSUED FOR REVIEW	SGB	GPB	GPB

CLIENT

TWEED
SHIRE COUNCIL

PROJECT:

KINGSCLIFF SEAWALL

DRAWING TITLE:

**ROCK REVETMENT
GENERAL ARRANGEMENT PLAN
SHEET 2**

HASKONING AUSTRALIA PTY LTD
SYDNEY

Royal HaskoningDHV
Enhancing Society Together

Level 14
50 Berry Street
North Sydney NSW 2060
+61 2 8954 9000 Telephone
+61 2 9620 9000 Fax
www.royalhaskoningdhv.com.au Internet

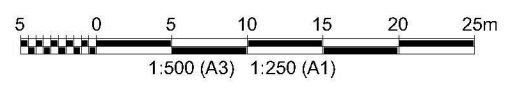
DRAWN	SGB	DATE	29/09/2016	JOB No.	PA1087
AUTOCAD REF.	PA1387-MA-1101 TO 1102				
SCALE AT A1	1:250				
DRAWING No.	PA1387/MA/1102				REVISION
					C

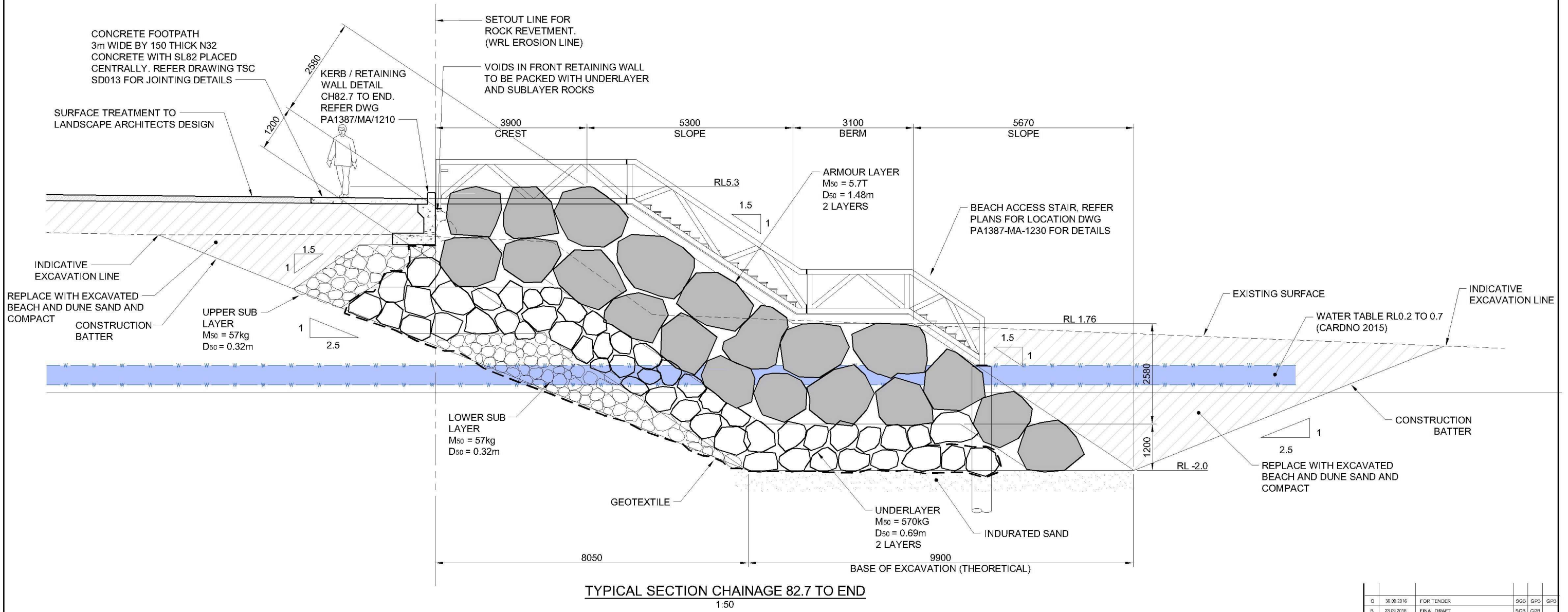
NOTES

1. ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
2. CHAINAGES AND OFFSET ARE IN METRES, ALL DIMENSIONS ARE IN MILLIMETRES UNO.
3. REFER TECHNICAL SPECIFICATION

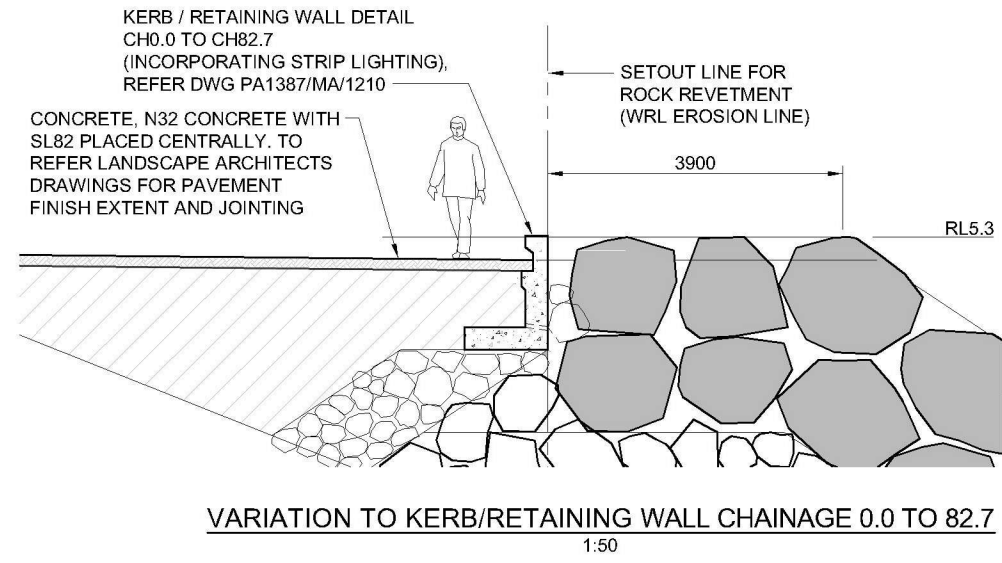
FOR TENDER

NOT FOR CONSTRUCTION



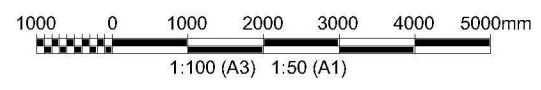


TYPICAL SECTION CHAINAGE 82.7 TO END
1:50



VARIATION TO KERB/RETAINING WALL CHAINAGE 0.0 TO 82.7
1:50

FOR TENDER
NOT FOR CONSTRUCTION



REV	DATE	DESCRIPTION	BY	CHK	APPD
C	30.09.2016	FOR TENDER	SGB	GPB	GPB
B	23.09.2016	FINAL DRAFT	SGB	GPB	GPB
AI	22.08.2016	80% FOR REVIEW	SGB	GPB	GPB
A	17.08.2016	ISSUED FOR REVIEW	SGB	GPB	GPB

REVISIONS

CLIENT

TWEED
SHIRE COUNCIL

PROJECT:

KINGSCLIFF SEAWALL

DRAWING TITLE:

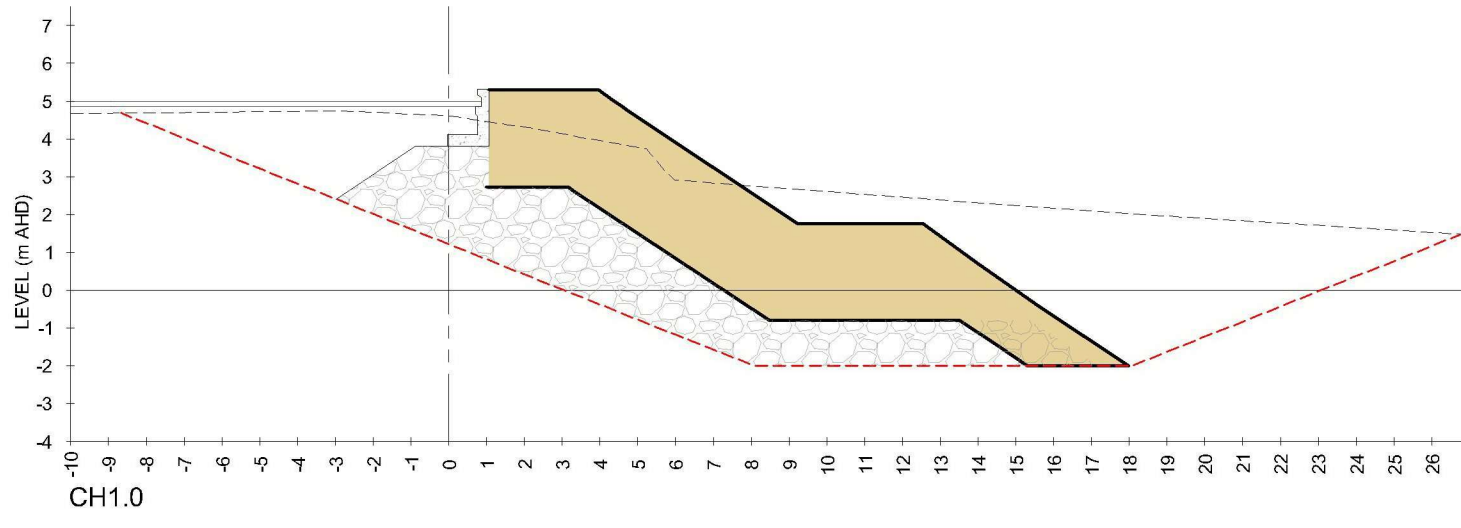
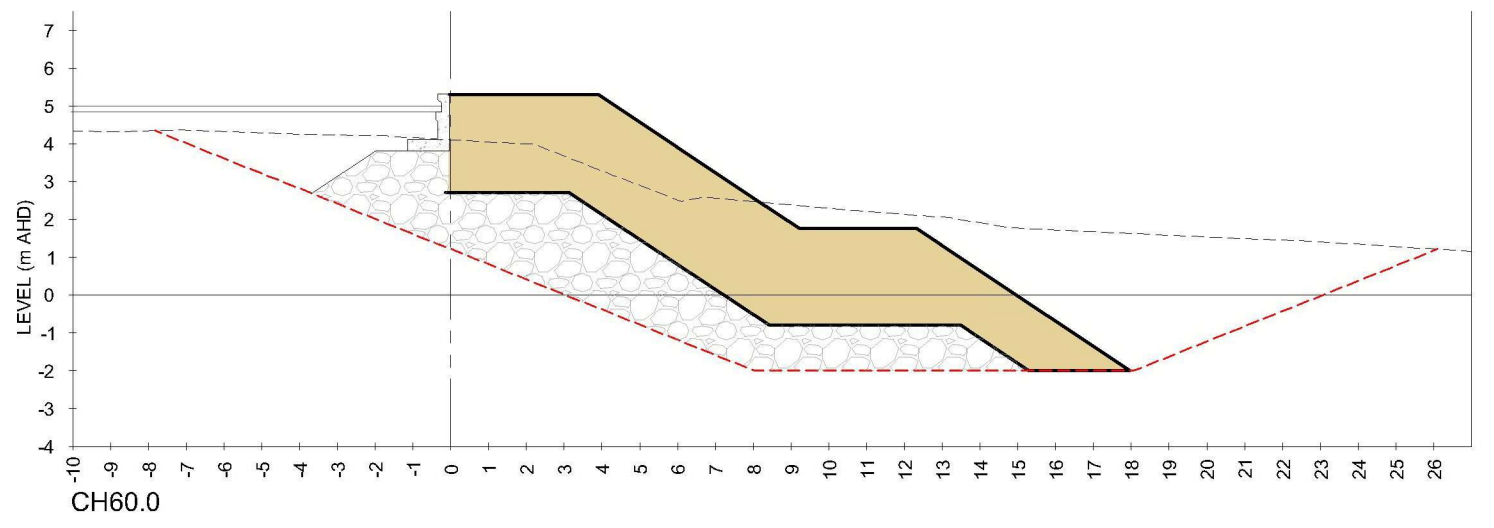
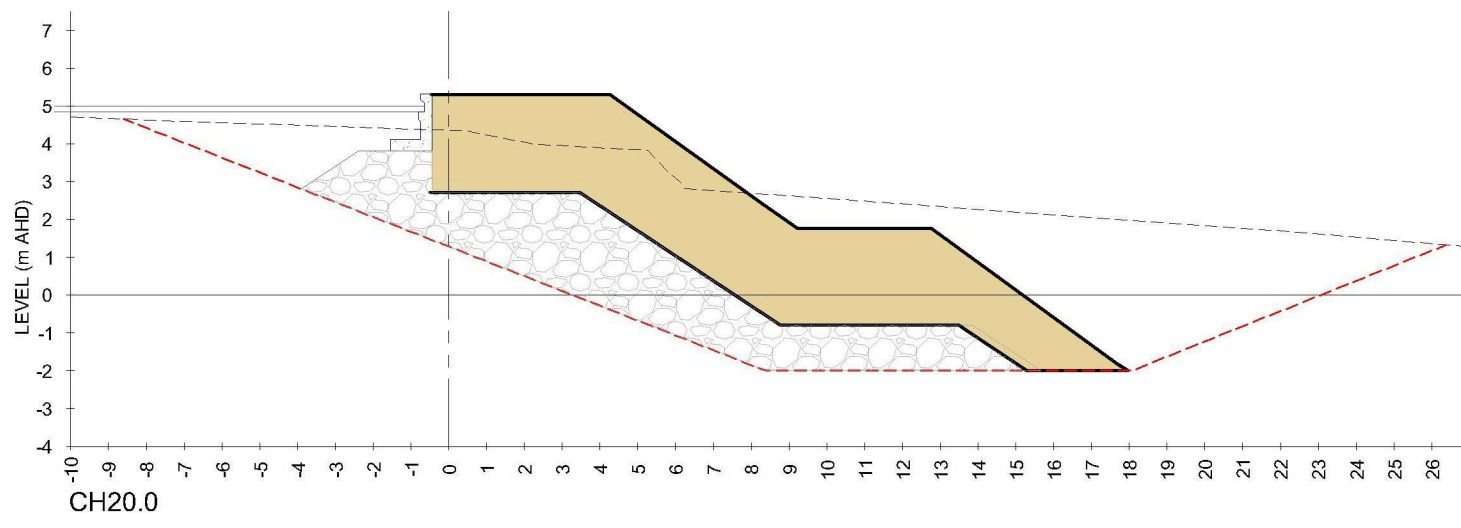
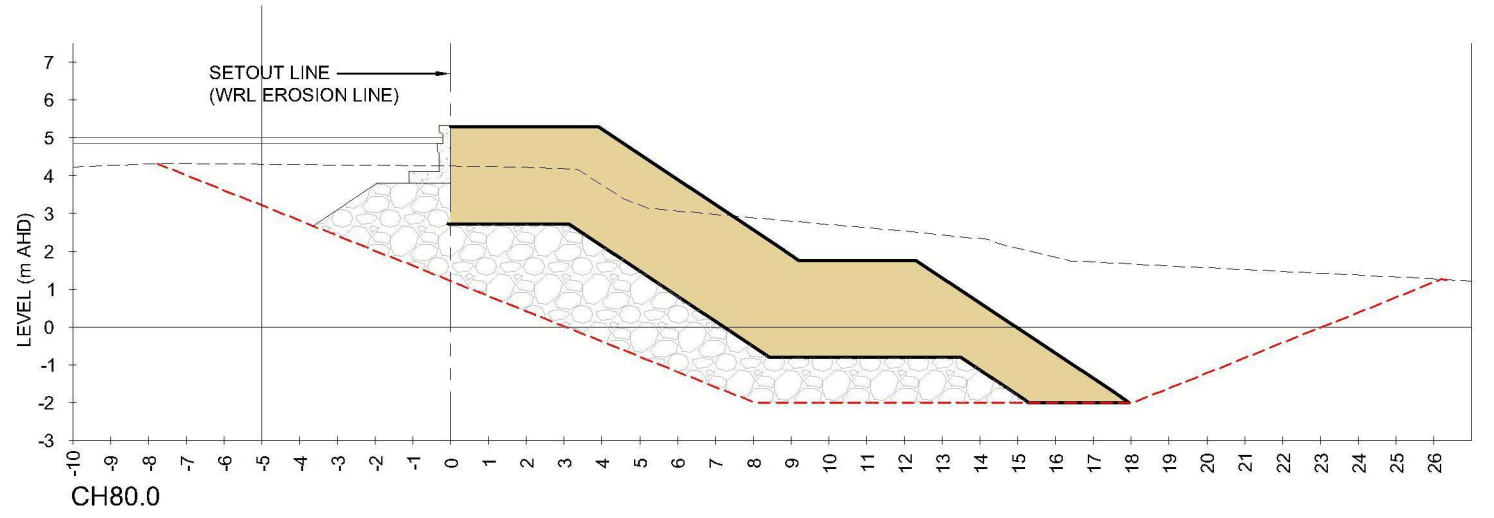
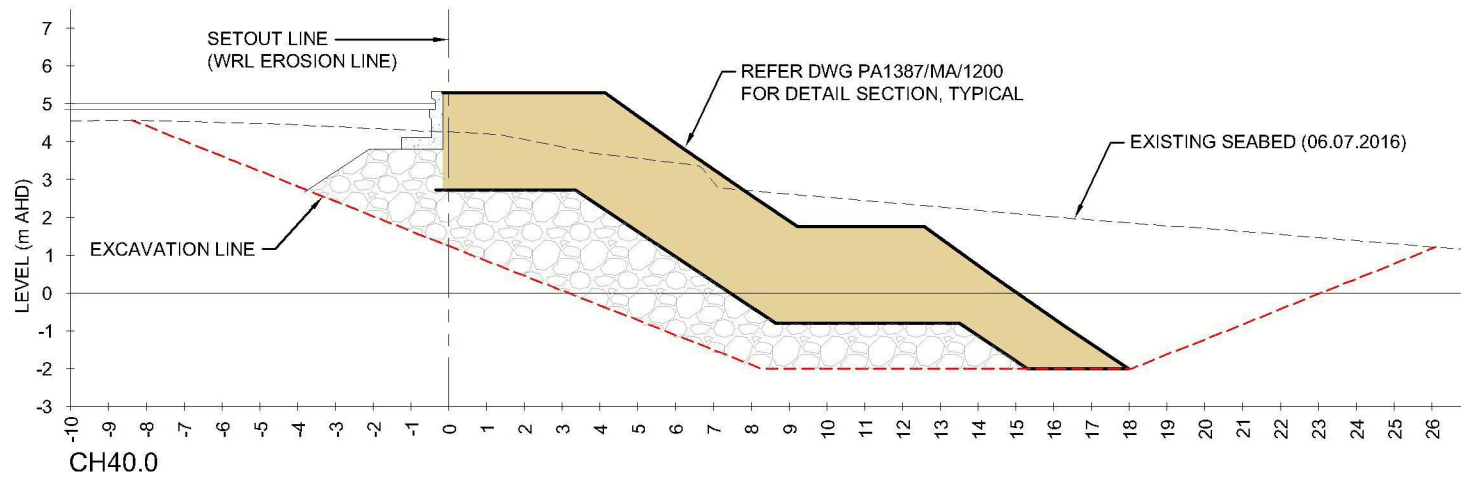
**ROCK REVETMENT
DETAIL SECTION**

HASKONING AUSTRALIA PTY LTD
SYDNEY

Royal HaskoningDHV
Enhancing Society Together

Level 14
50 Berry Street
North Sydney NSW 2060
+61 2 8954 9300
+61 2 9220 9800
www.royalhaskoningdhv.com

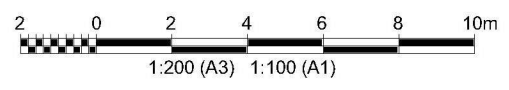
DRAWN SGB	DATE 30/09/2016	JOB No. PA1087
AUTOCAD REF. PA1387-MA-1200		
SCALE AT A1 1:50		
DRAWING No. PA1387/MA/1200	REVISION C	



FOR TENDER

AUSTRALIAN HEIGHT DATUM

NOT FOR CONSTRUCTION



REV	DATE	DESCRIPTION	BY	CHK	APPD
D	30.09.2016	ISSUED FOR TENDER	SGB	GPB	GPB
B	23.09.2016	FINAL DRAFT	SGB	GPB	GPB
A1	22.08.2016	80% FOR REVIEW	SGB	GPB	GPB
A	17.08.2016	ISSUED FOR REVIEW	SGB	GPB	GPB

CLIENT

TWEED
SHIRE COUNCIL

PROJECT:

KINGSCLIFF SEAWALL

DRAWING TITLE:

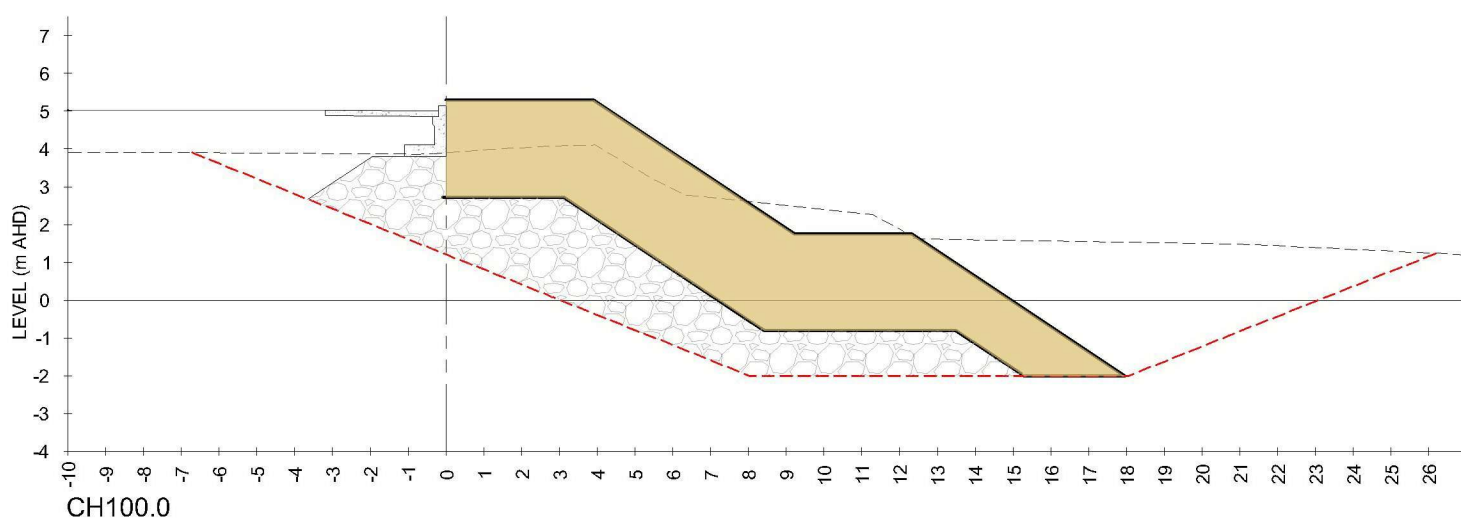
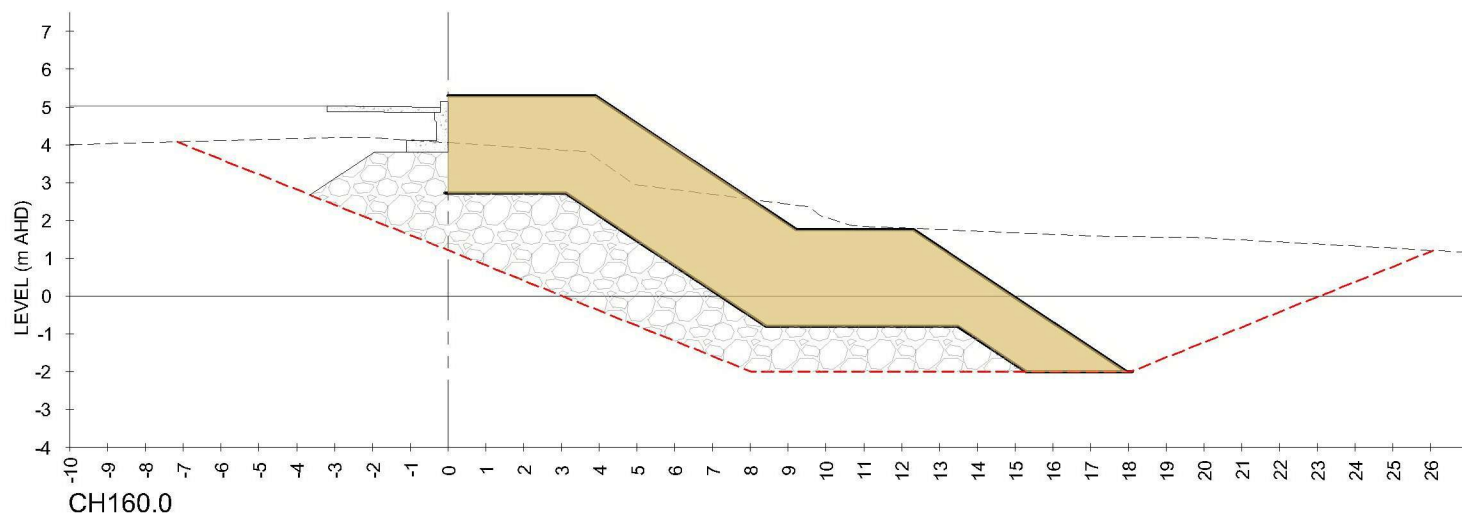
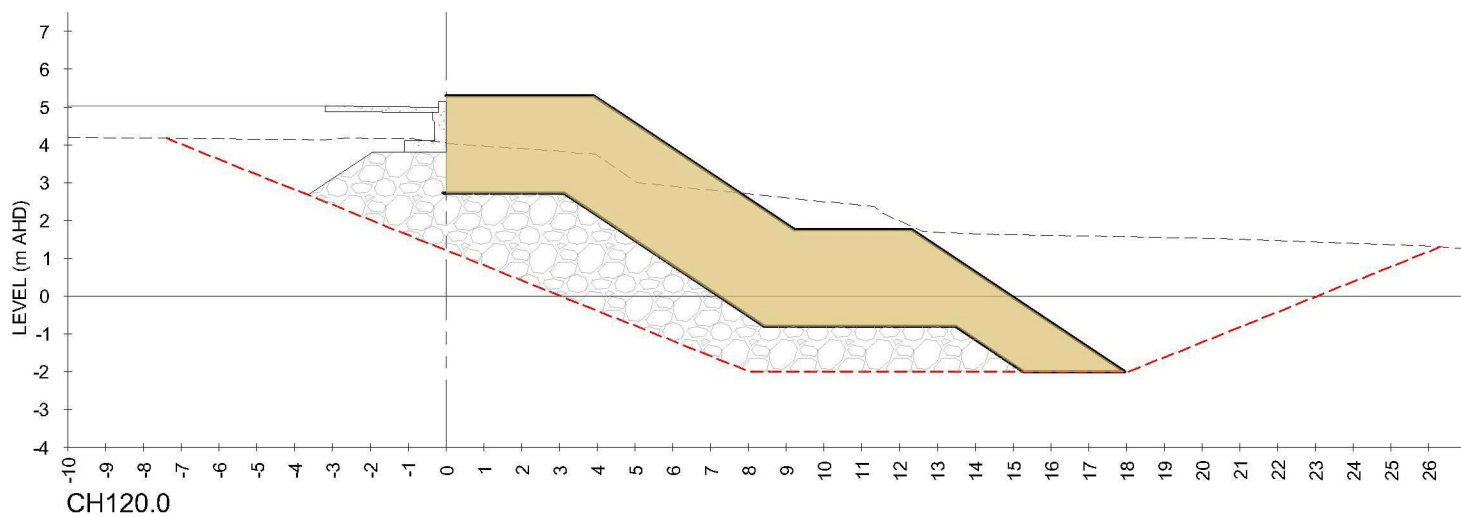
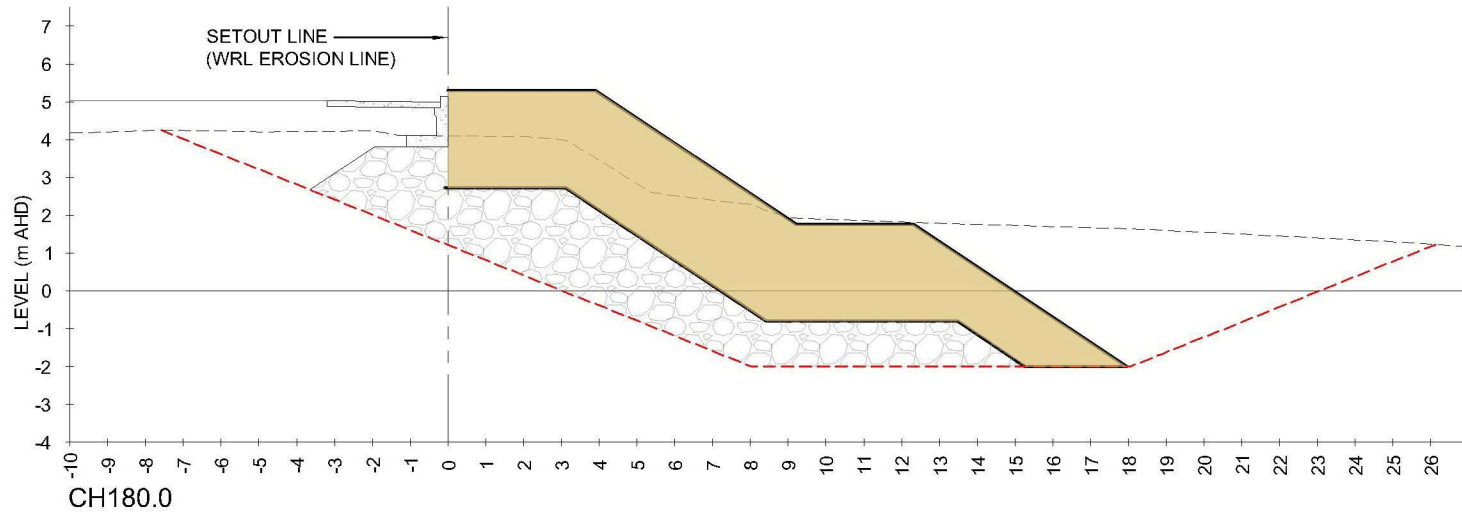
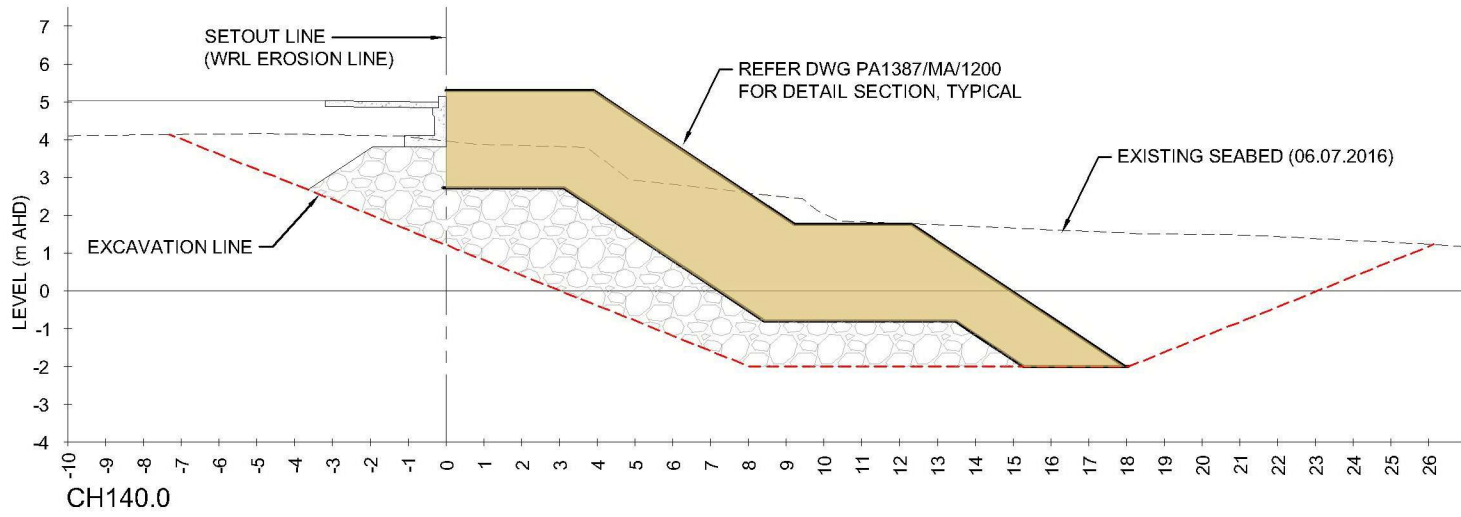
**ROCK REVETMENT
CROSS SECTIONS
SHEET 1 OF 4**

HASKONING AUSTRALIA PTY LTD
SYDNEY

Royal HaskoningDHV
Enhancing Society Together

Level 14
50 Berry Street
North Sydney NSW 2060
+61 2 8954 9000
+61 2 9620 9000
www.royalhaskoningdhv.com

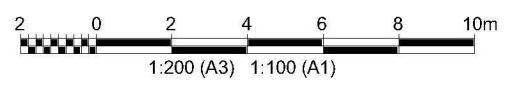
DRAWN SGB	DATE 29/09/2016	JOB No. PA1087
AUTOCAD REF: PA1387-MA-1201 TO 1204		
SCALE AT A1 1:100		
DRAWING No. PA1387/MA/1201	REVISION C	



FOR TENDER

AUSTRALIAN HEIGHT DATUM

NOT FOR CONSTRUCTION



REV	DATE	DESCRIPTION	BY	CHK	APPD
C	29.09.2016	ISSUED FOR TENDER	SGB	GPB	GPB
B	23.09.2016	FINAL DRAFT	SGB	GPB	
A1	22.08.2016	80% FOR REVIEW	SGB	GPB	
A	17.08.2016	ISSUED FOR REVIEW	SGB	GPB	



PROJECT:

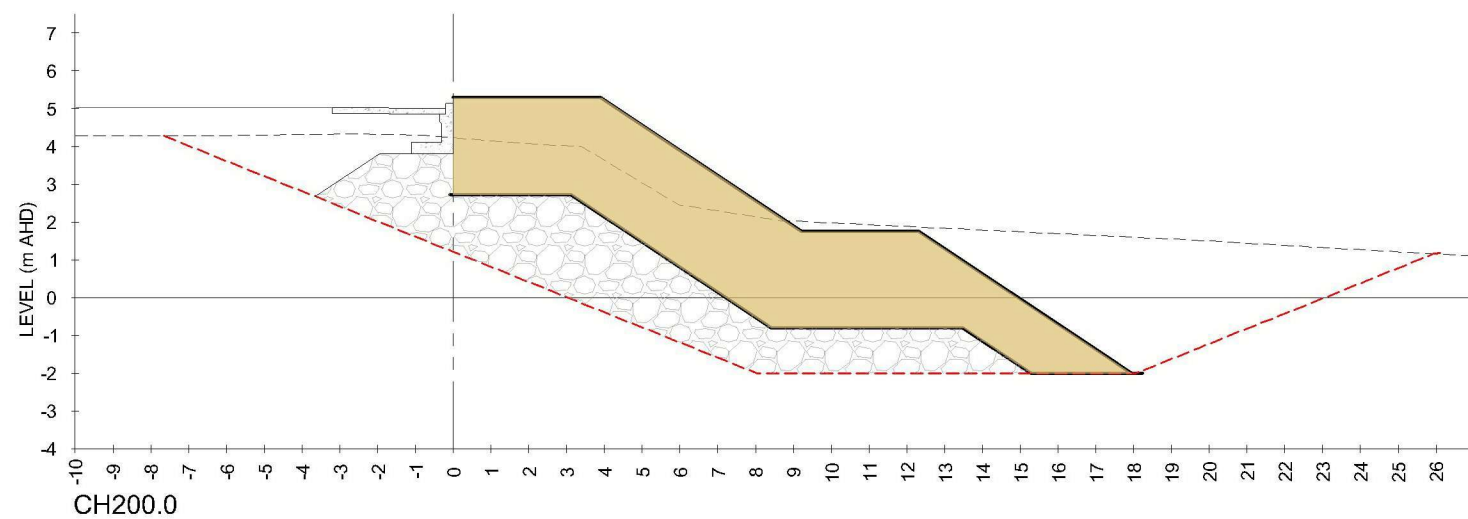
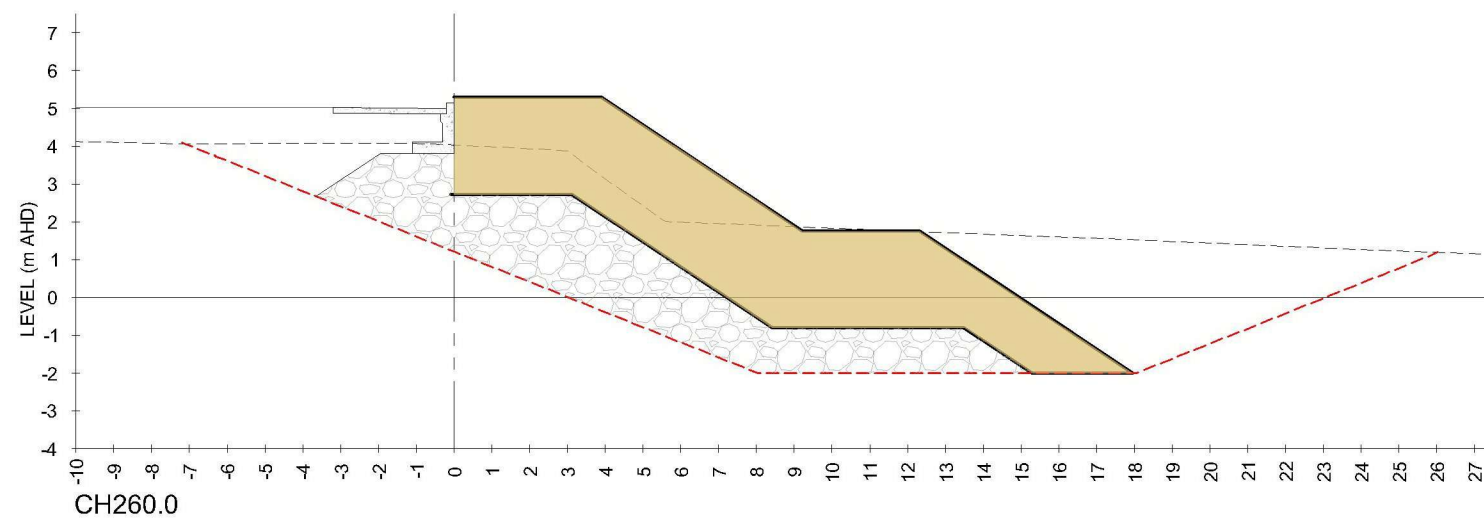
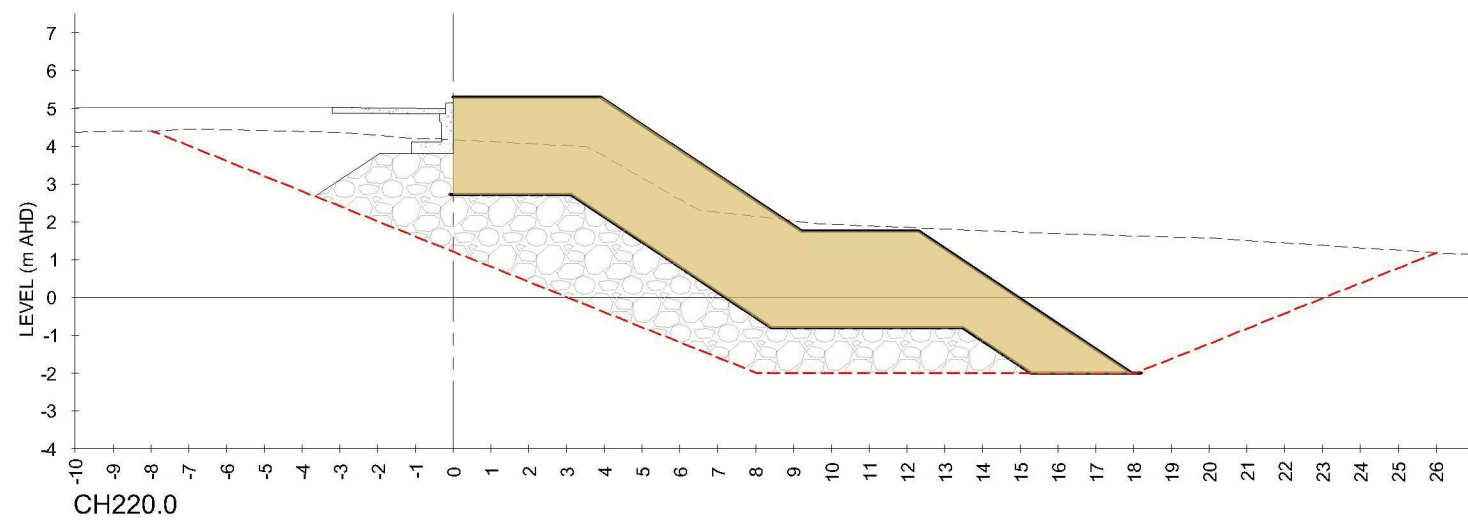
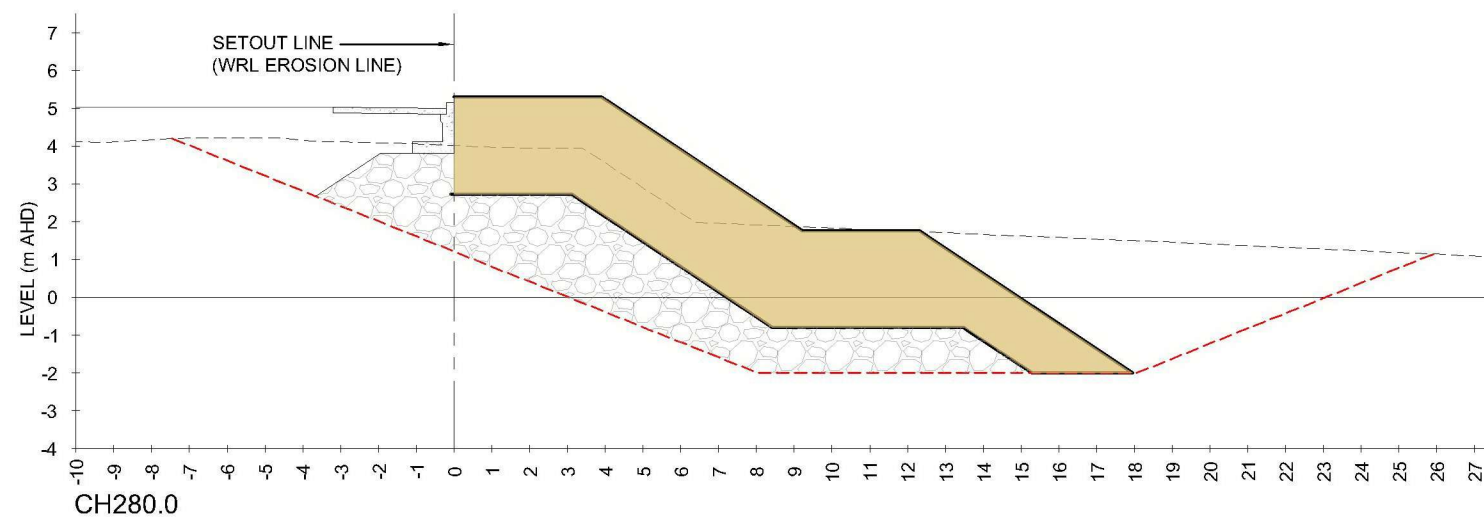
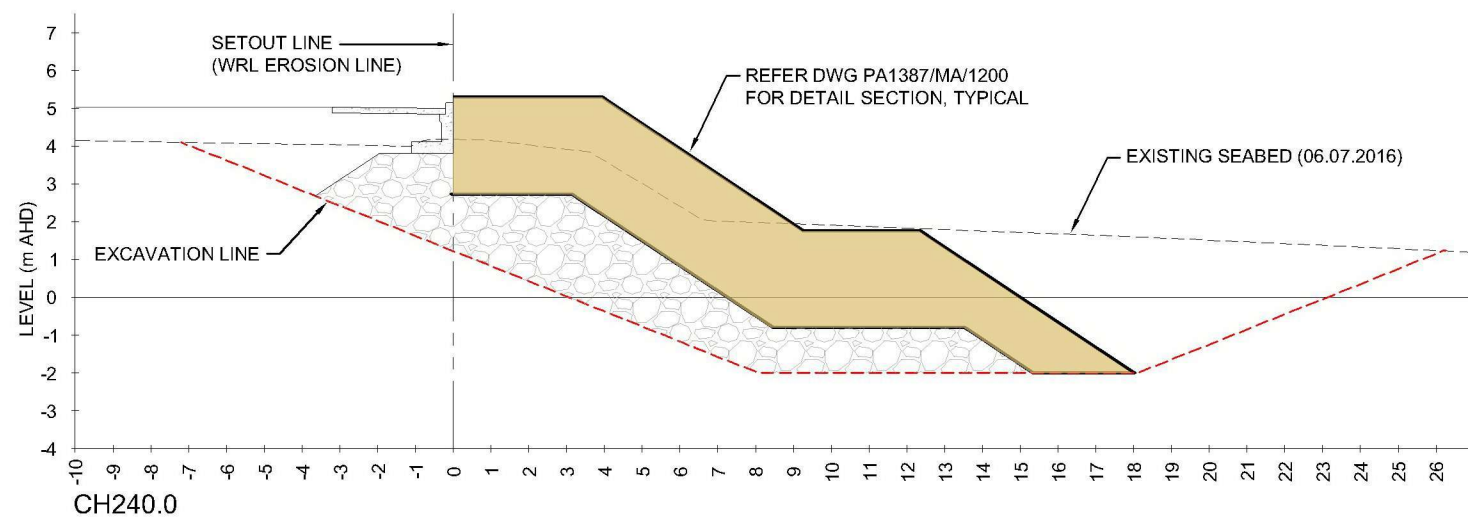
KINGSCLIFF SEAWALL

DRAWING TITLE:

**ROCK REVETMENT
CROSS SECTIONS
SHEET 2 OF 4**



DRAWN SGB	DATE 29/09/2016	JOB No. PA1087
AUTOCAD REF: PA1387-MA-1201 TO 1204		
SCALE AT A1 1:100		
DRAWING No. PA1387/MA/1202	REVISION C	



FOR TENDER

AUSTRALIAN HEIGHT DATUM

NOT FOR CONSTRUCTION



REV	DATE	DESCRIPTION	BY	CHK	APPD
C	29.09.2016	ISSUED FOR TENDER	SGB	GPB	GPB
B	23.09.2016	FINAL DRAFT	SGB	GPB	GPB
A1	22.08.2016	80% FOR REVIEW	SGB	GPB	GPB
A	17.08.2016	ISSUED FOR REVIEW	SGB	GPB	GPB

REVISIONS

CLIENT

PROJECT:

KINGSCLIFF SEAWALL

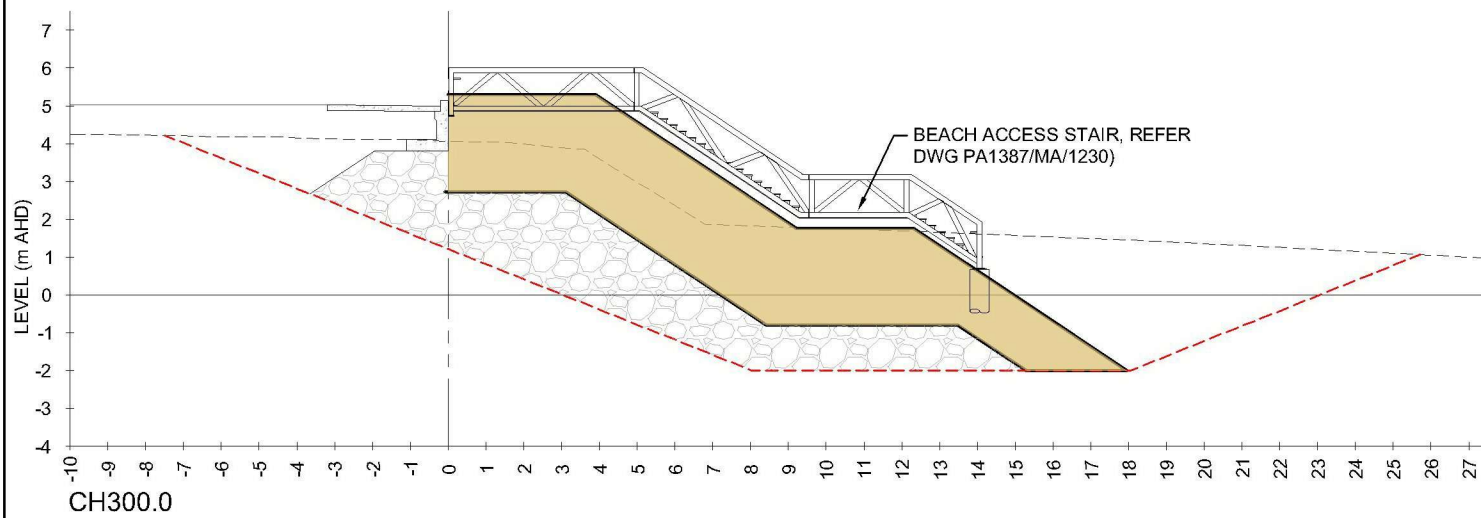
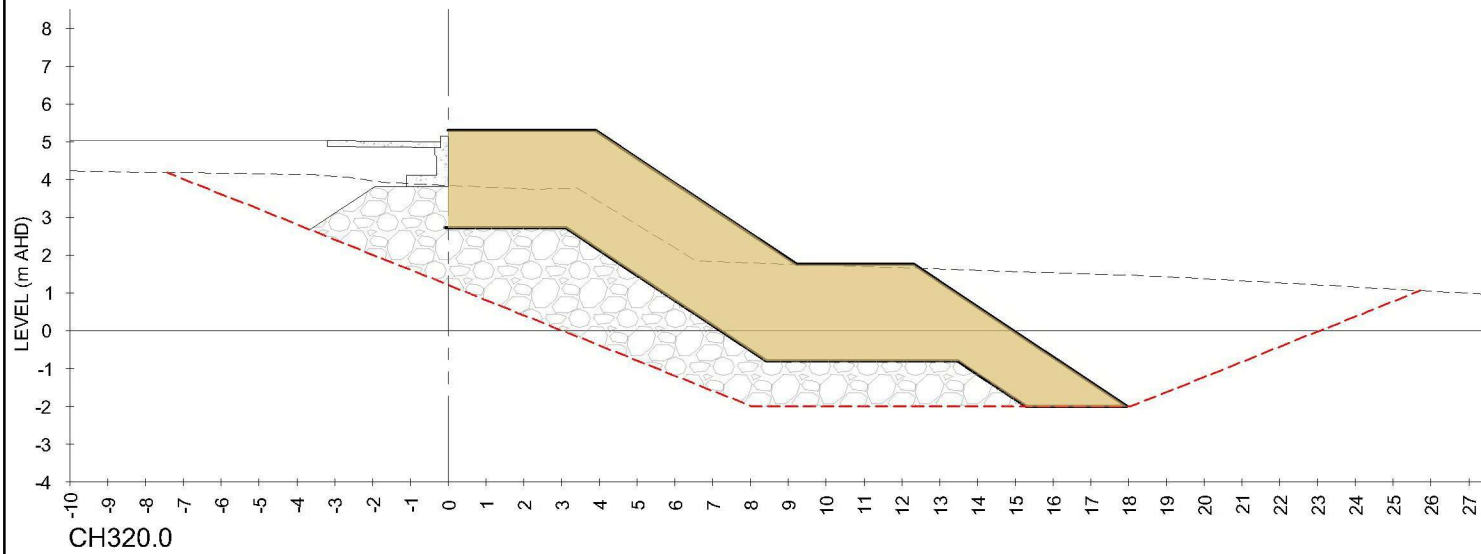
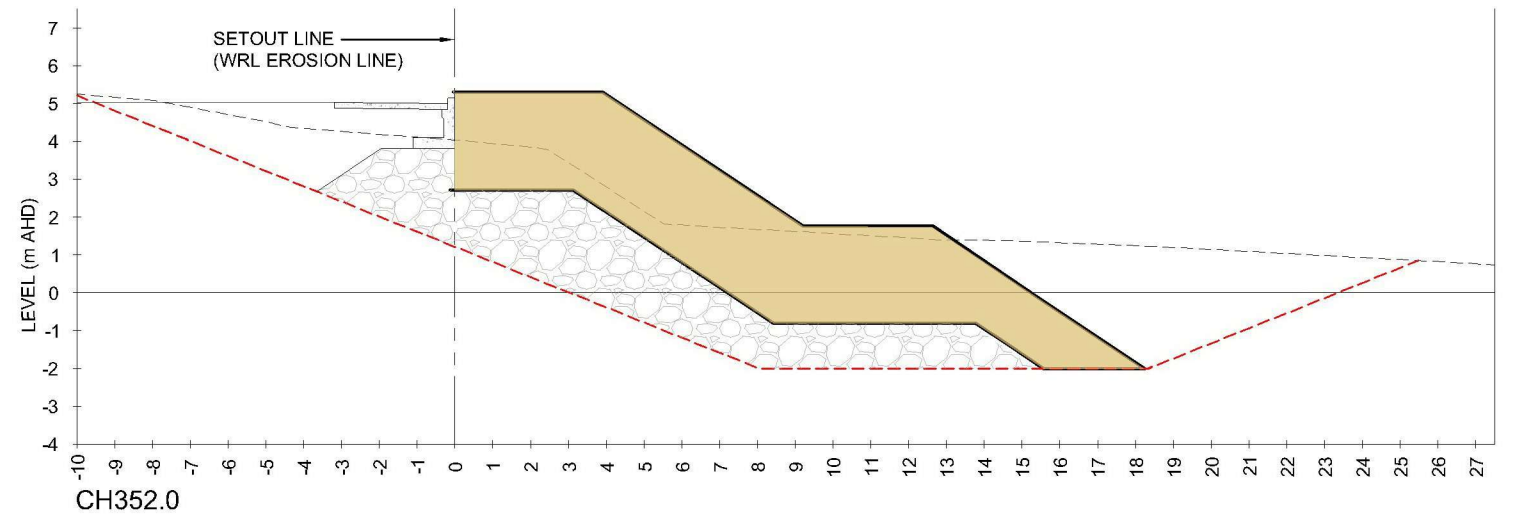
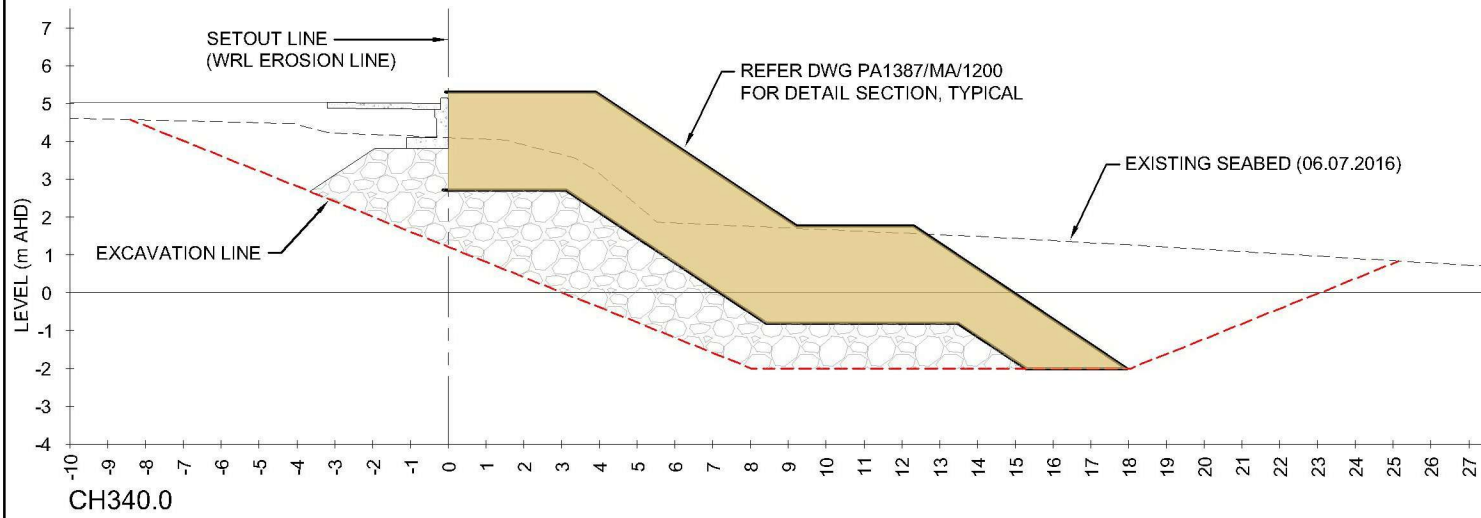
DRAWING TITLE:

ROCK REVETMENT CROSS SECTIONS SHEET 3 OF 4

HASKONING AUSTRALIA PTY LTD SYDNEY

Level 14
50 Berry Street
North Sydney NSW 2060
+61 2 8954 9000 Telephone
+61 2 9620 9000 Fax
www.royalhaskoningdhv.com Internet

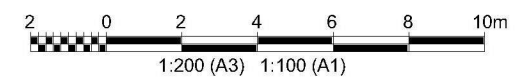
DRAWN SGB	DATE 29/09/2016	JOB No. PA1087
AUTOCAD REF: PA1387-MA-1201 TO 1204		
SCALE AT A1 1:100		
DRAWING No. PA1387/MA/1203	REVISION C	



FOR TENDER

AUSTRALIAN HEIGHT DATUM

NOT FOR CONSTRUCTION



REV	DATE	DESCRIPTION	BY	CHK	APPD
D	20.09.2016	ISSUED FOR TENDER	SGB	GPB	GPB
B	23.09.2016	FINAL DRAFT	SGB	GPB	GPB
A1	22.08.2016	80% FOR REVIEW	SGB	GPB	GPB
A	17.08.2016	ISSUED FOR REVIEW	SGB	GPB	GPB

REVISIONS

CLIENT

TWEED
SHIRE COUNCIL

PROJECT:

KINGSCLIFF SEAWALL

DRAWING TITLE:

**ROCK REVETMENT
CROSS SECTIONS
SHEET 4 OF 4**

HASKONING AUSTRALIA PTY LTD
SYDNEY

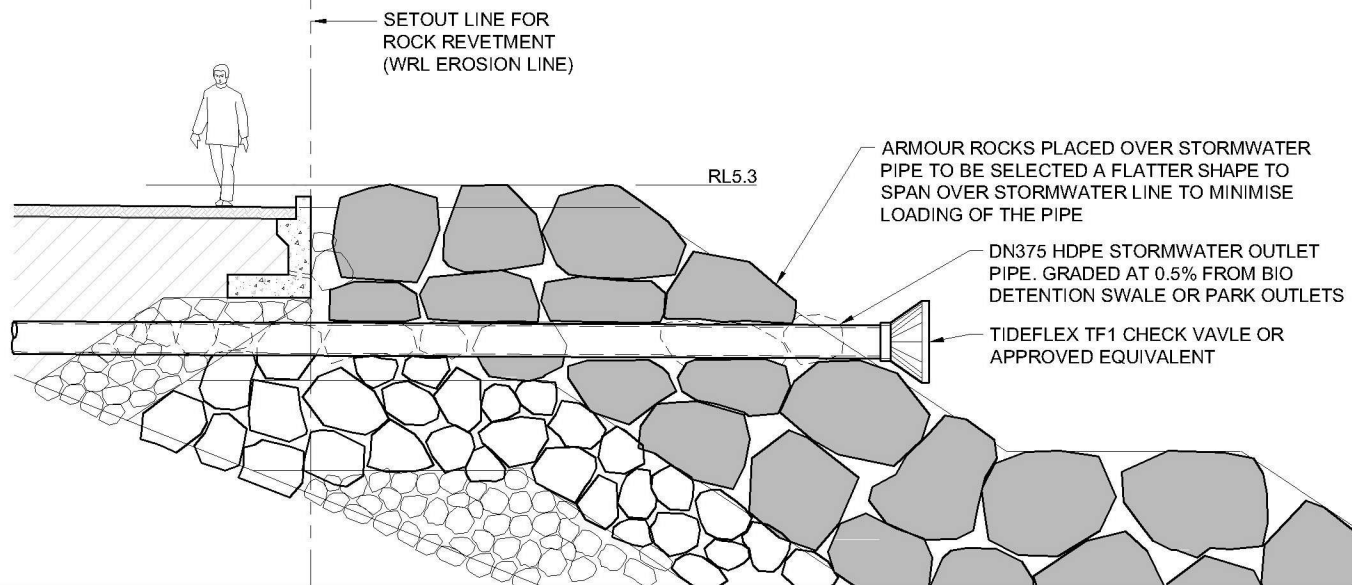
Royal HaskoningDHV
Enhancing Society Together

Level 14
50 Berry Street
North Sydney NSW 2060
+61 2 8954 9000 Telephone Fax
+61 2 9620 9000 www.royalhaskoningdhv.com Internet

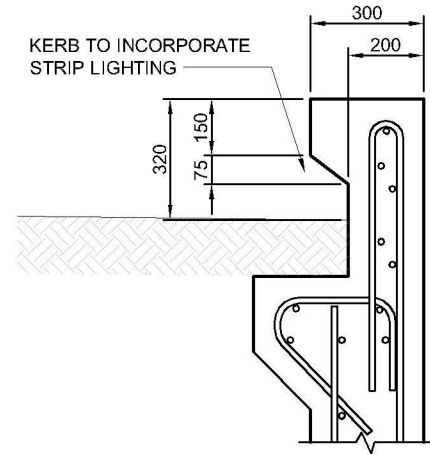
DRAWN SGB	DATE 29/09/2016	JOB No. PA1087
AUTOCAD REF: PA1387-MA-1201 TO 1204		
SCALE AT A1 1:100		
DRAWING No.	REVISION	
PA1387/MA/1204	C	

PA1387/MA/1210

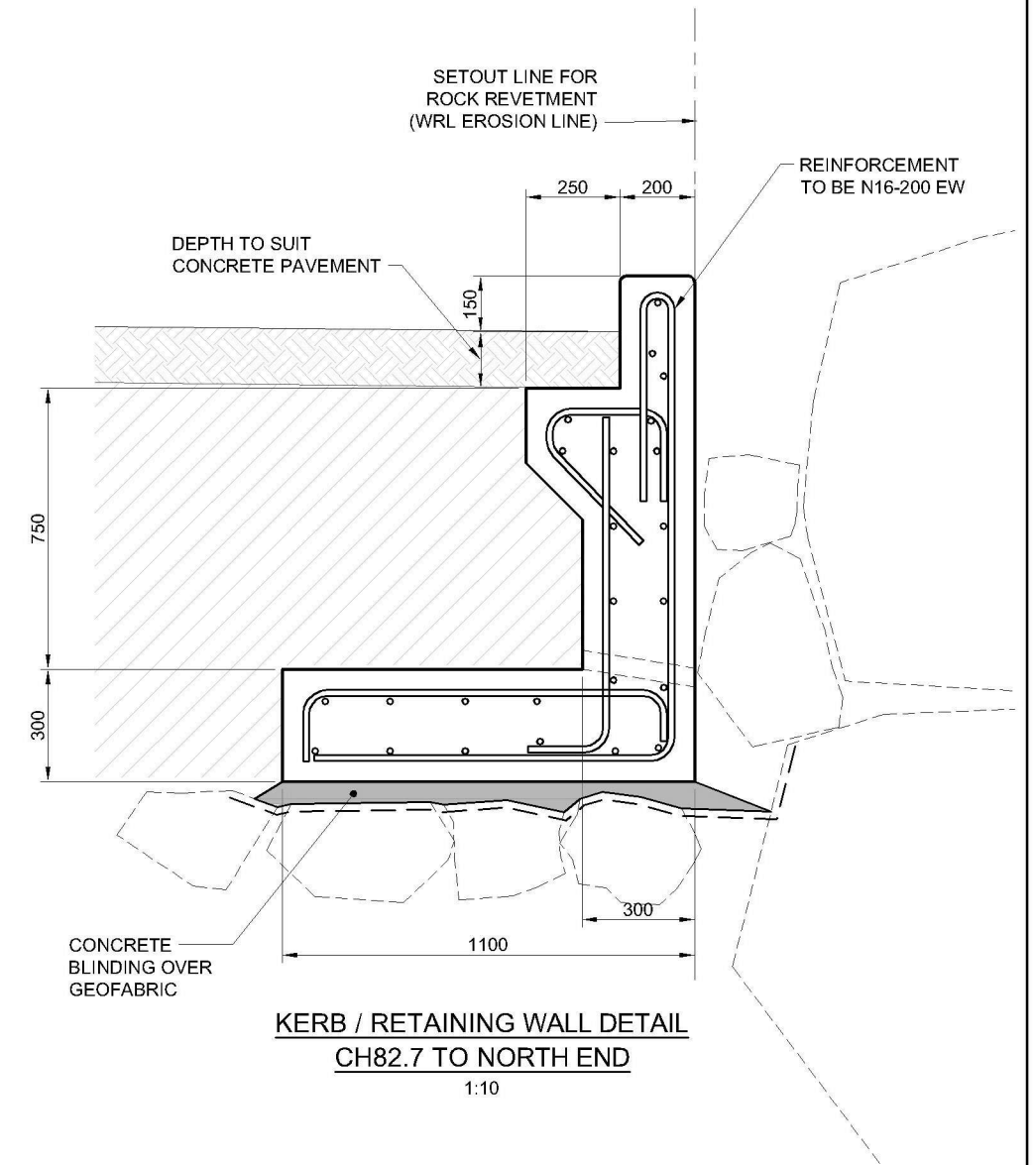
DO NOT SCALE



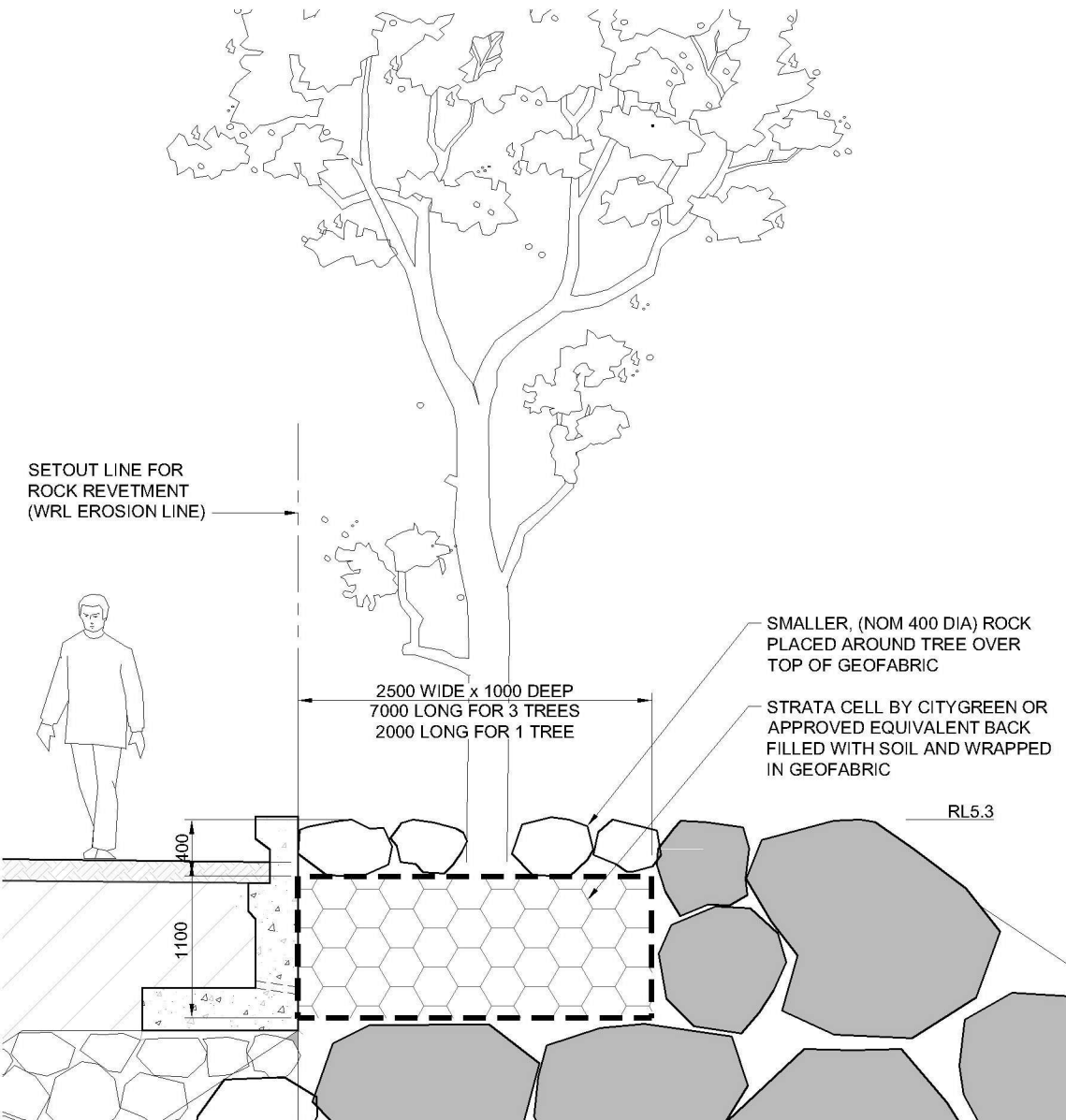
TYPICAL STORMWATER OUTLET
FOR DETAILS OF REVETMENT REFER TYPICAL SECTIONS ON DRAWING PA1387/MA/1200
1:50



KERB / RETAINING WALL DETAIL
STH END TO CH82.7
1:10



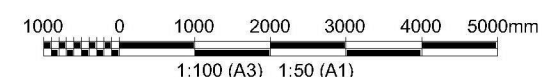
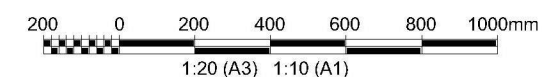
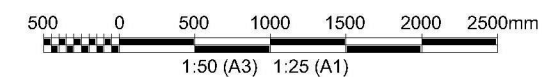
KERB / RETAINING WALL DETAIL
CH82.7 TO NORTH END
1:10



TREE PLANTER DETAIL
1:25

FOR TENDER

NOT FOR CONSTRUCTION



REV	DATE	DESCRIPTION	BY	CHK	APPD
C	30.09.2016	FOR TENDER	SGB	GPB	GPB
B	23.09.2016	FINAL DRAFT	SGB	GPB	GPB
A	-	NOT ISSUED			

REVISIONS



CLIENT: **TWEED SHIRE COUNCIL**

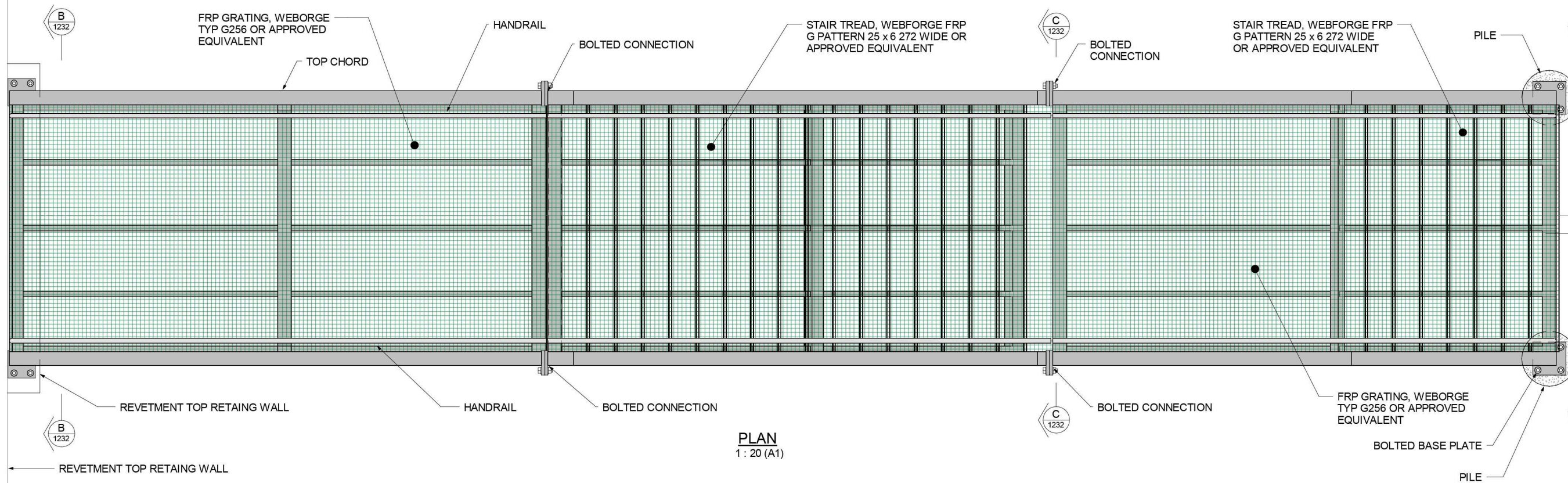
PROJECT: **KINGSCLIFF SEAWALL**

DRAWING TITLE: **ROCK REVETMENT STORMWATER OUTLET AND RETAINING WALL DETAILS**



DRAWN: SGB DATE: 30/09/2016 JOB No: PA1087
AUTOCAD REF: PA1387-MA-1210
SCALE AT A1: 1:50

DRAWING No: **PA1387/MA/1210** REVISION: **C**



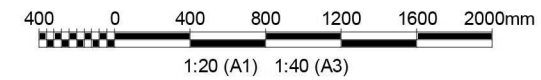
PLAN
1:20 (A1)

MEMBER SCHEDULE

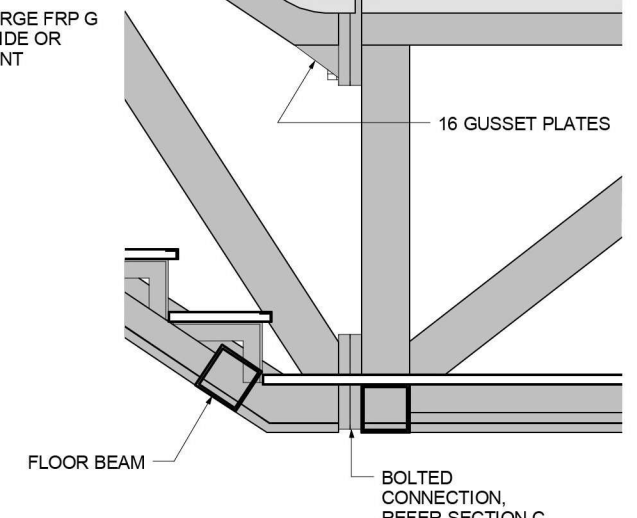
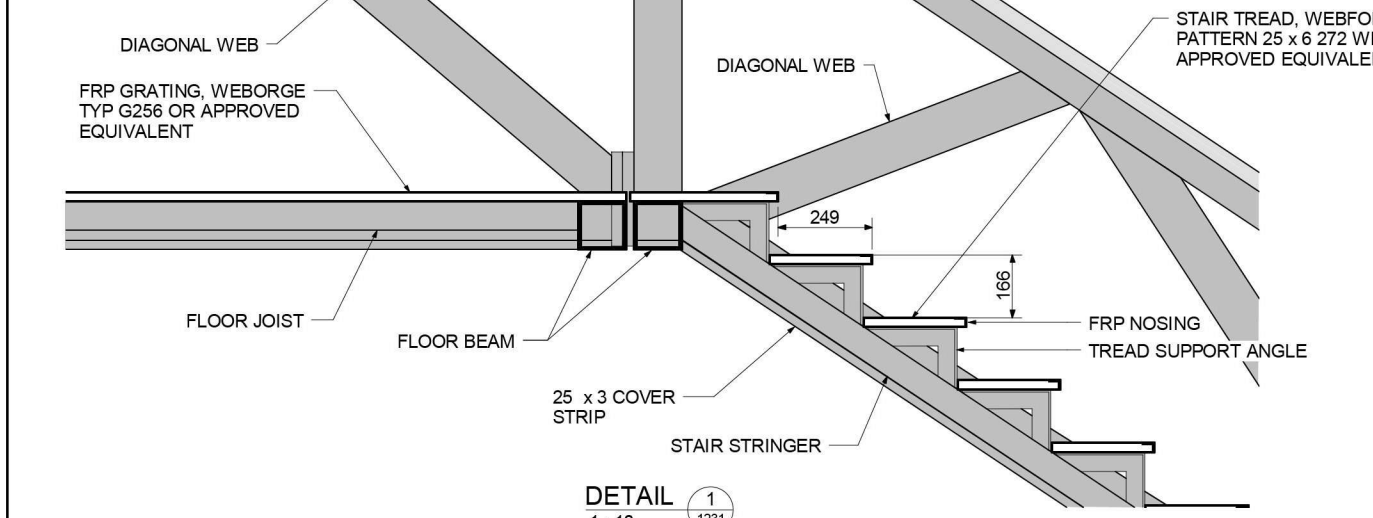
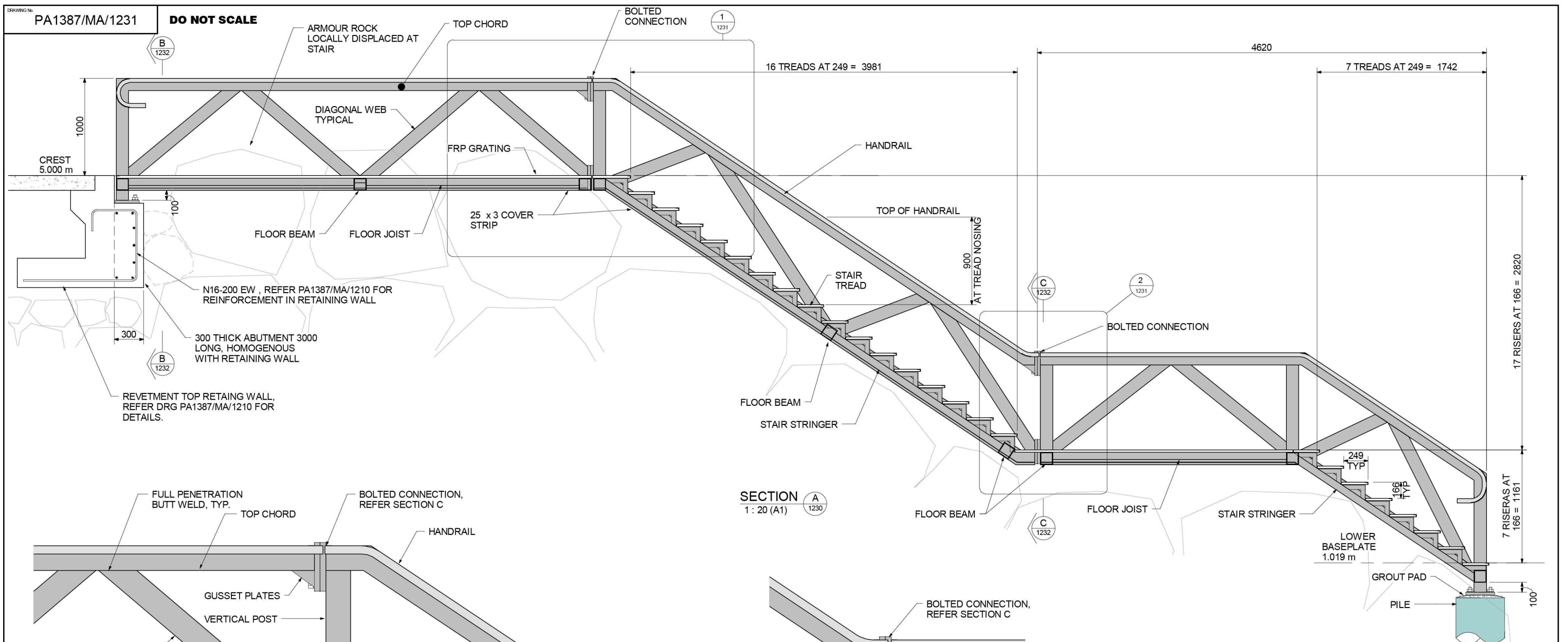
TOP CHORD	127 x 127 x 6.35 ALUMINIUM SHS
VERTICAL POST	127 x 127 x 6.35 ALUMINIUM SHS
DIAGONAL WEB	127 x 127 x 6.35 ALUMINIUM SHS
BOTTOM CHORD	127 x 127 x 6.35 ALUMINIUM SHS
FLOOR BEAM	127 x 127 x 6.35 ALUMINIUM SHS
FLOOR JOIST	75 x 50 x 6 ALUMINIUM RHS
STAIR STRINGER	75 x 50 x 6 ALUMINIUM RHS
HANDRAIL	42.2 x 3.36 ALUMINIUM CHS
STAIR TREAD SUPPORT	EX 50 x 50 x 6 ALUMINIUM EA
GRATING	FRP GRATING, WEBFORGE TYP G256 OR APPROVED EQUIVALENT
STAIR TREAD	STAIR TREAD, WEBFORGE FRP G256 PATTERN 25 x 6 272 WIDE OR APPROVED EQUIVALENT

NOT FOR CONSTRUCTION

TENDER

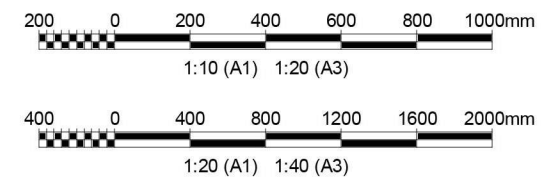


REV	DATE	FOR TENDER	DESCRIPTION	BY	CHK	APPRO
C	30.09.2016	FOR TENDER		SGB	SH	AHP
REVISIONS						
CLIENT						
PROJECT:						
KINGSCLIFF SEAWALL						
DRAWING TITLE:						
BEACH ACCESS STAIR PLAN						
DRAWN BY						
DRAWN						
SGB	DATE	30.09.2016	JOB No.	PA1387		
AUTOCAD REF.						
SCALE AT A1 AS SHOWN						
DRAWING No.						
PA1387/MA/1230						
REVISION						
C						



NOT FOR CONSTRUCTION

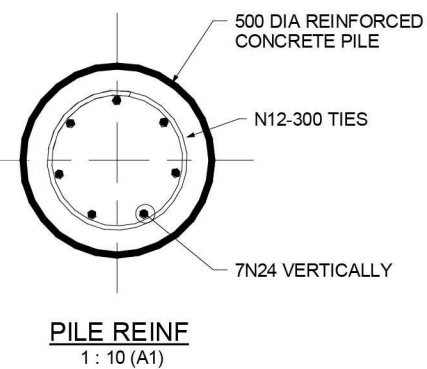
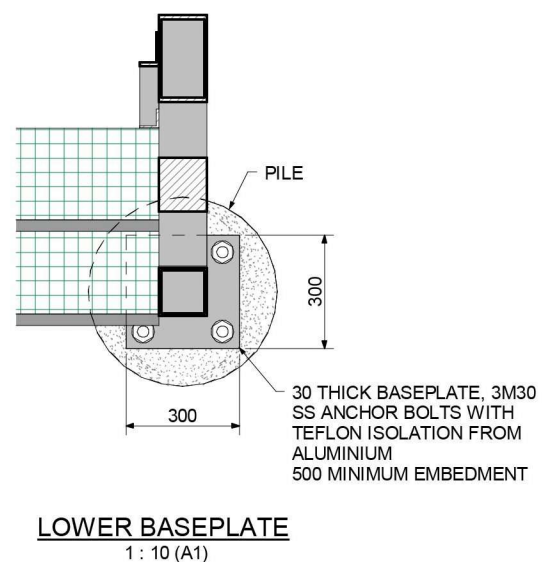
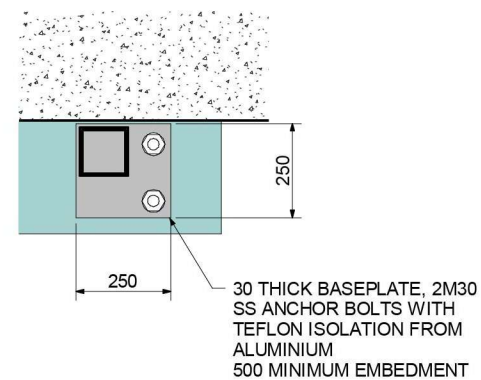
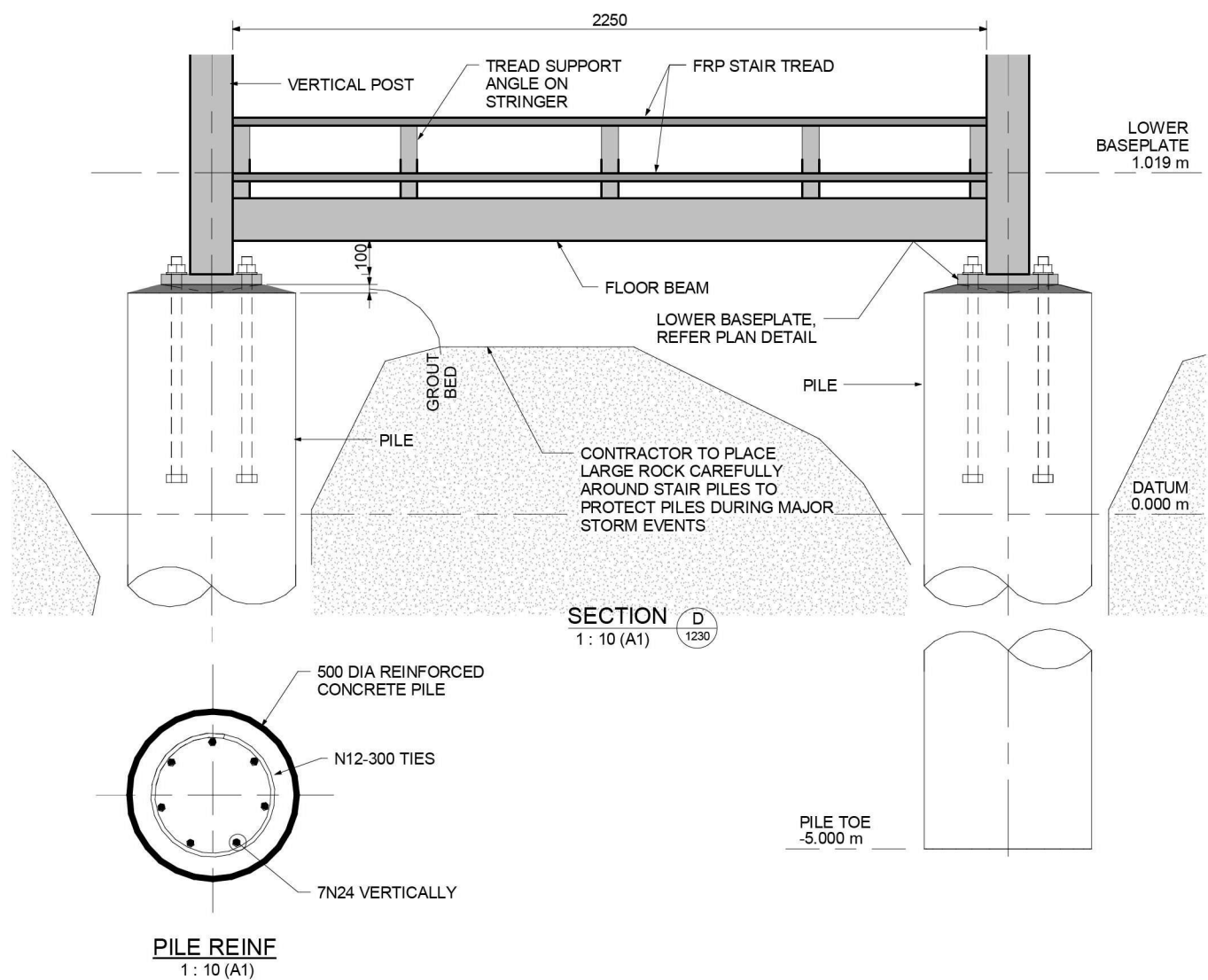
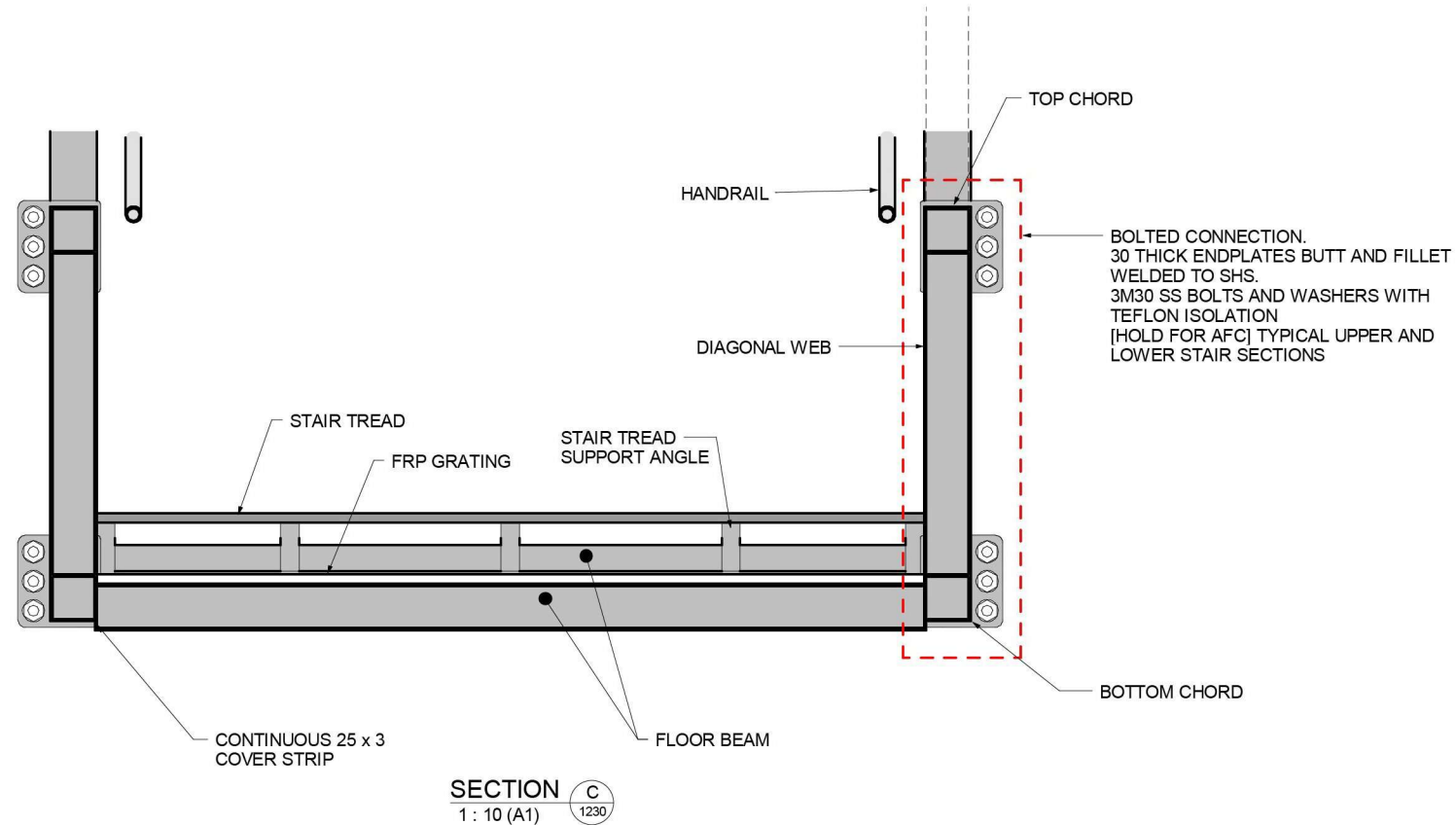
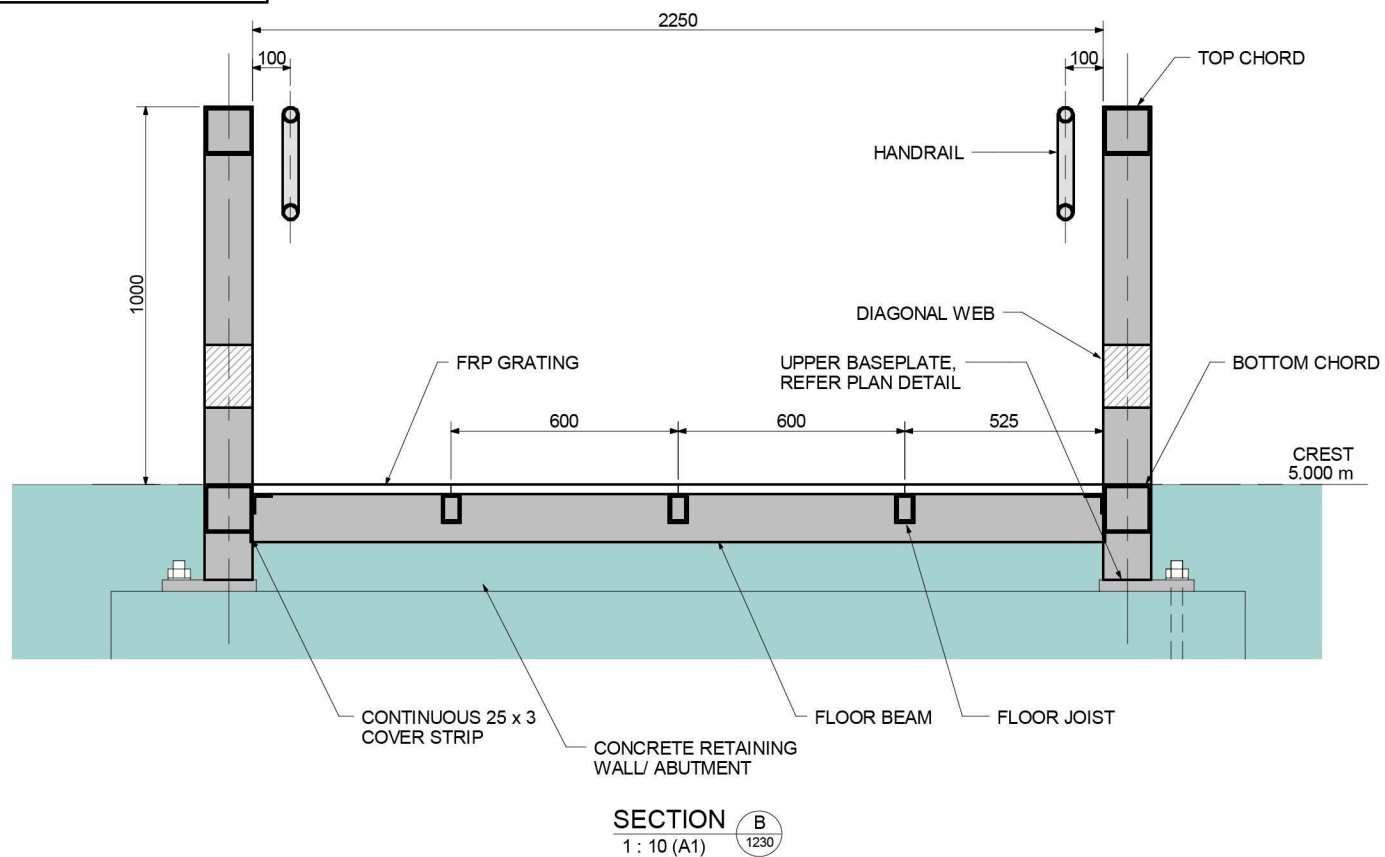
TENDER



REV	DATE	DESCRIPTION	BY	CHK	APP
C	30.09.2016	FOR TENDER	SGB	SH	AHP
REVISIONS					
CLIENT					
TWEED SHIRE COUNCIL					
PROJECT					
KINGSCLIFF SEAWALL					
DRAWING TITLE					
BEACH ACCESS STAIR					
SECTIONS AND DETAILS					
SHEET 1					
A MEMBER OF HASKONING AUSTRALIA PTY LTD SYDNEY Level 14 66 Berry Street North Sydney NSW 2060 +61 2 9554 9200 Telephone +61 2 9559 0950 Fax www.royalhaskoningdhv.com Internet					
DRAWN	SGB	DATE	30.09.2016	JOB No.	PA1387
AUTOCAD REF.					
SCALE AT A1 AS SHOWN					
DRAWING No.					
PA1387/MA/1231					
REVISION					
C					

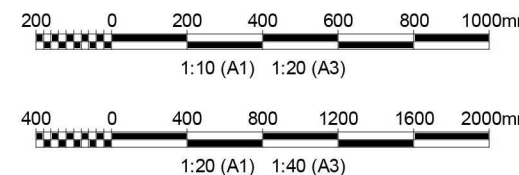
PA1387/MA/1232

DO NOT SCALE



NOT FOR CONSTRUCTION

TENDER



REV	DATE	DESCRIPTION	BY	CHK	APPD
C	30.09.2016	FOR TENDER			

REVISIONS

CLIENT



PROJECT

KINGSCLIFF SEAWALL

DRAWING TITLE

BEACH ACCESS STAIR
SECTIONS AND DETAILS
SHEET 2

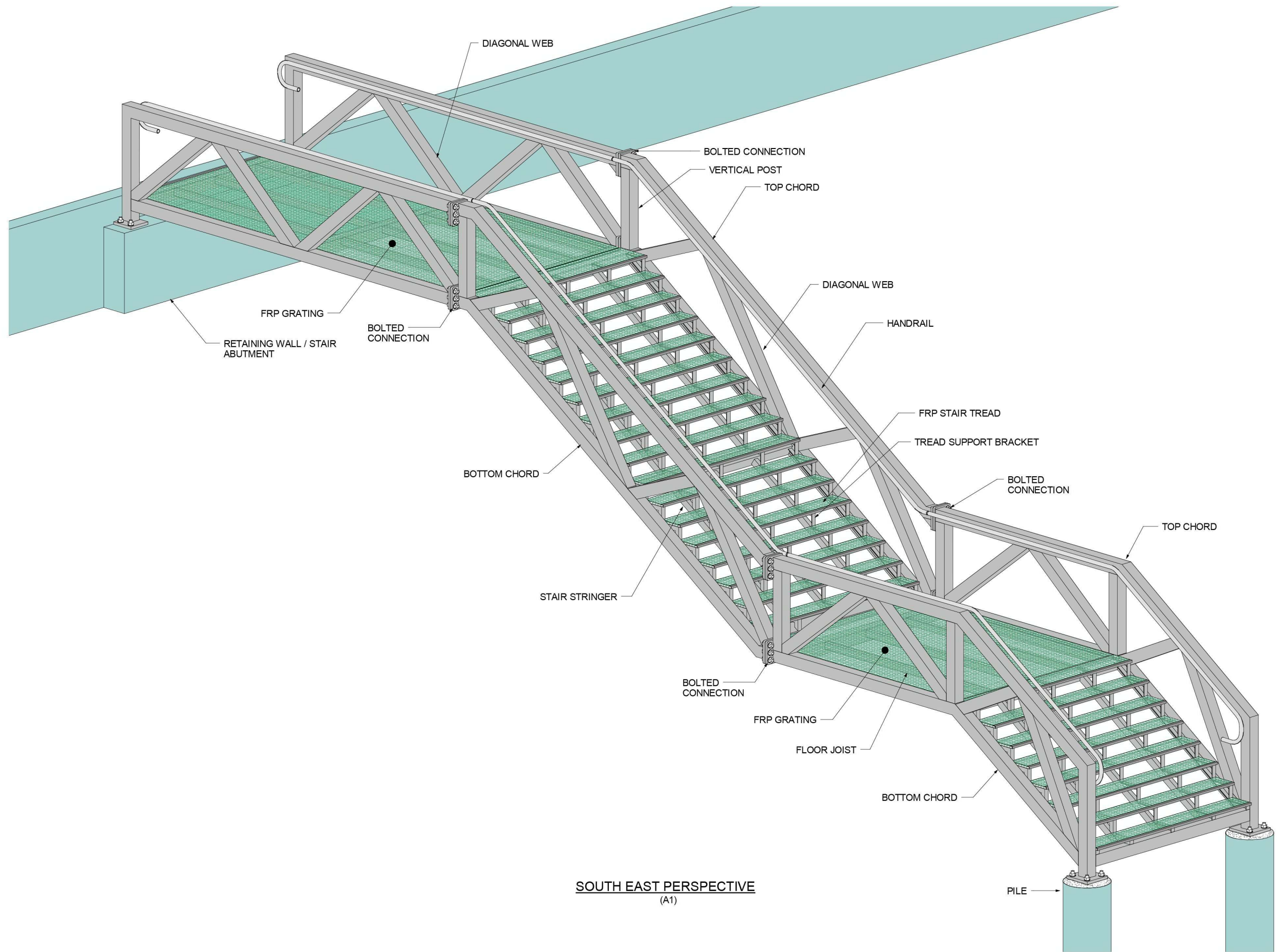
DESIGNED BY



DRAWN SGB DATE 30.09.2016 JOB No. PA1387

AUTOCAD REF. SCALE AT A1 AS SHOWN

DRAWING No. PA1387/MA/1232 REVISION C



SOUTH EAST PERSPECTIVE
(A1)

TENDER

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY	CHK	APPD
C	30.09.2016	FOR TENDER			

REVISIONS

CLIENT

TWEED
SHIRE COUNCIL

PROJECT:

KINGSCLIFF SEAWALL

DRAWING TITLE:

BEACH ACCESS STAIR
PERSPECTIVE VIEW

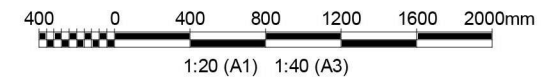
AS A DIVISION OF

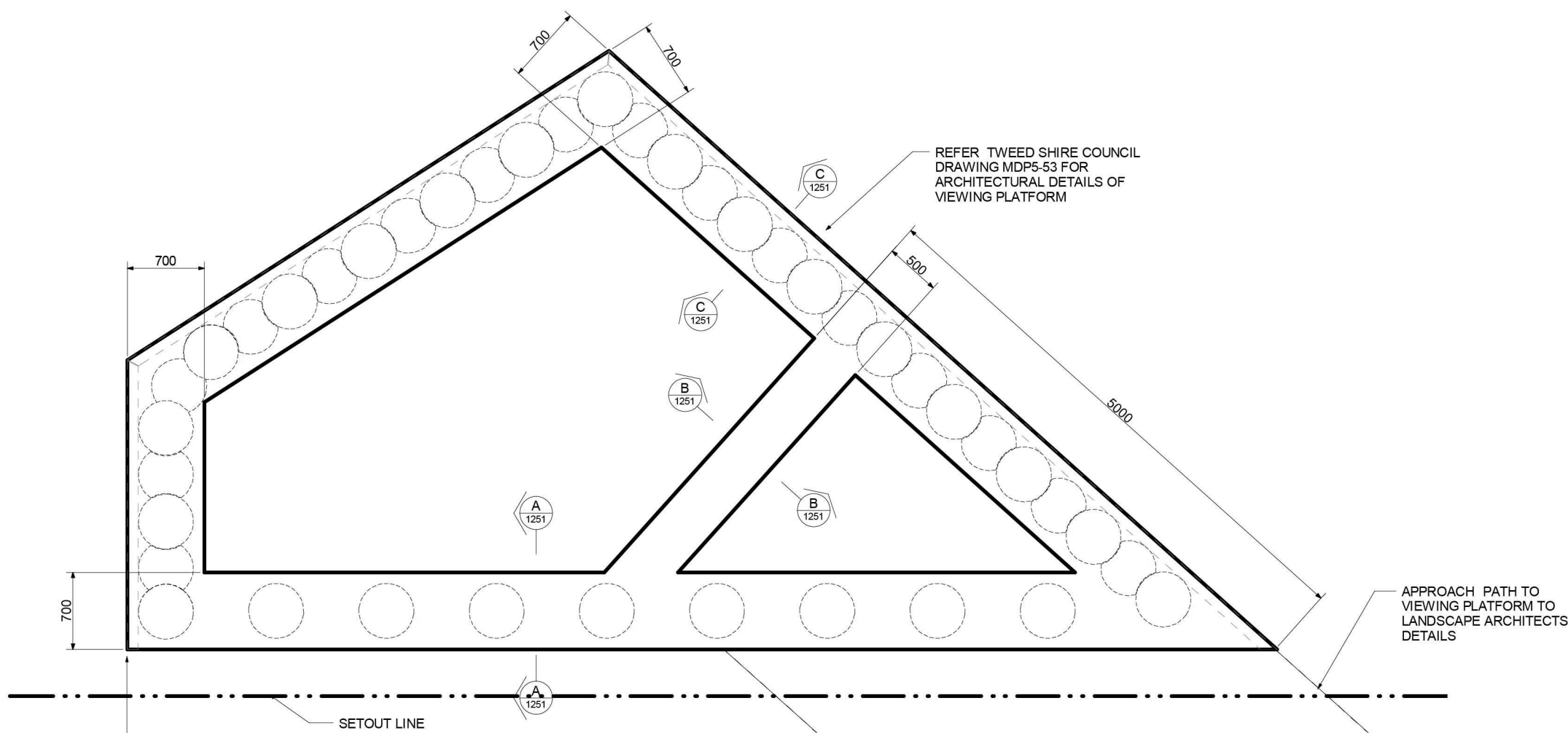
Royal HaskoningDHV
Enhancing Society Together

Level 14
66 Berry Street
North Sydney NSW 2060
+61 2 9554 1000 Telephone
+61 2 9559 0950 Fax
www.royalhaskoningdhv.com Internet

DRAWN	SGB	DATE	30.09.2016	JOB No.	PA1387
AUTOCAD REF.					
SCALE AT A1			AS SHOWN		

DRAWING No.	PA1387/MA/1233	REVISION	C
-------------	----------------	----------	---

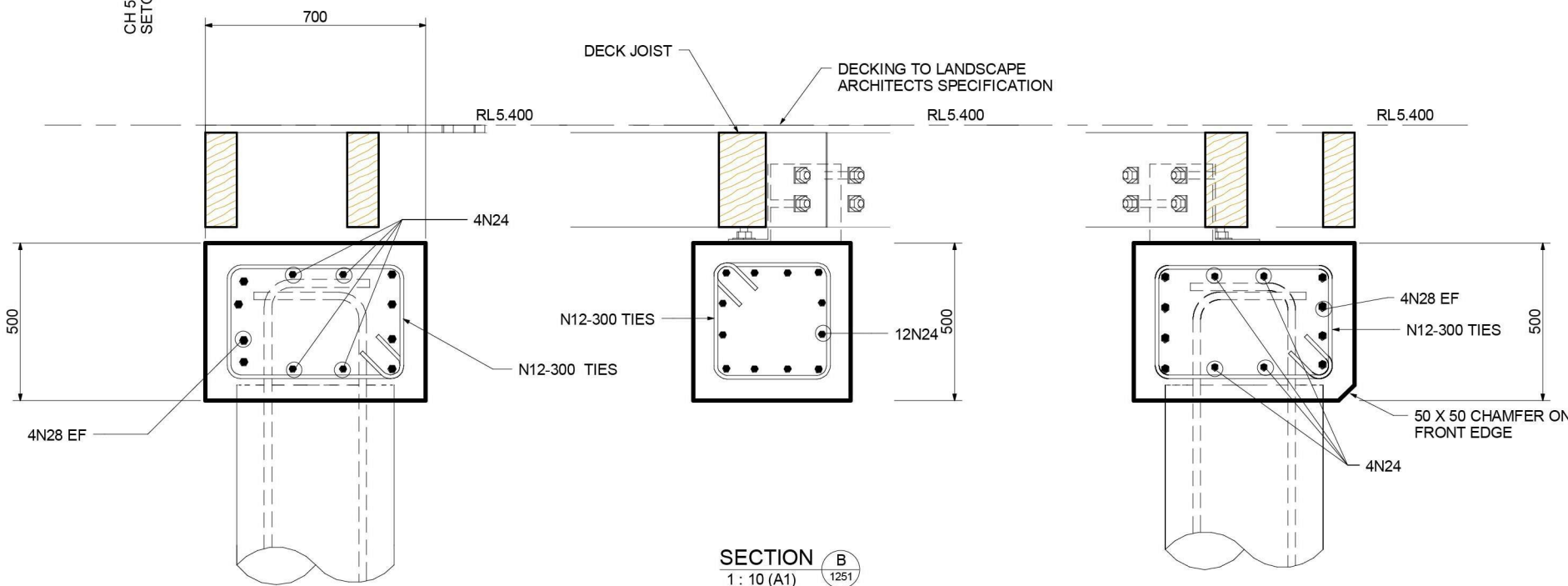




CONCRETE BEAM LAYOUT
1:25

NOTES

1. REFER DRG PA1387/MA/1101 FOR LOCATION
2. REFER TECHNICAL SPECIFICATION
3. ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNO.
5. ALL REINFORCEMENT TO BE HOT DIP GALVANISED.
6. MINIMUM 28 DAY CONCRETE COMPRESSIVE STRENGTH = 50mPa
7. CLEAR COVER TO REINFORCEMENT = 70mm
8. FINISHED EXPOSED SURFACES OF CONCRETE TO BE COATED WITH TWO FLOOD COATS OF SILANE SUCH AS DRYTREAT 100N OR APPROVED EQUIVALENT.

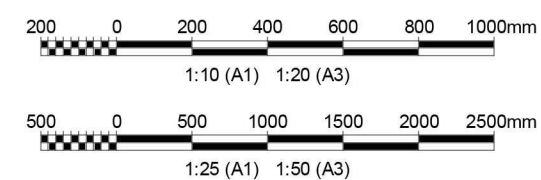


SECTION A
1:10 (A1)

SECTION B
1:10 (A1)

SECTION C
1:10 (A1)

TENDER
NOT FOR CONSTRUCTION



REV	DATE	DESCRIPTION	BY	CHK	APPD
B	30.09.2016	FOR TENDER	SGB	AHP	AHP

REVISIONS

CLIENT
TWEED SHIRE COUNCIL

PROJECT
KINGSCLIFF SEAWALL

DRAWING TITLE
**CENTRAL PARK VIEWING PLATFORM
CONCRETE BEAM PLAN,
SECTIONS AND DETAILS**

DESIGNED BY
HASKONING AUSTRALIA PTY LTD SYDNEY

Drawn by
Royal HaskoningDHV
Enhancing Society Together

Level 14
66 Berry Street
North Sydney NSW 2060
+61 2 9554 1000 Telephone
+61 2 9559 0950 Fax
www.royalhaskoningdhv.com Internet

DRAWN SGB DATE 30.09.2016 JOB No. PA1387

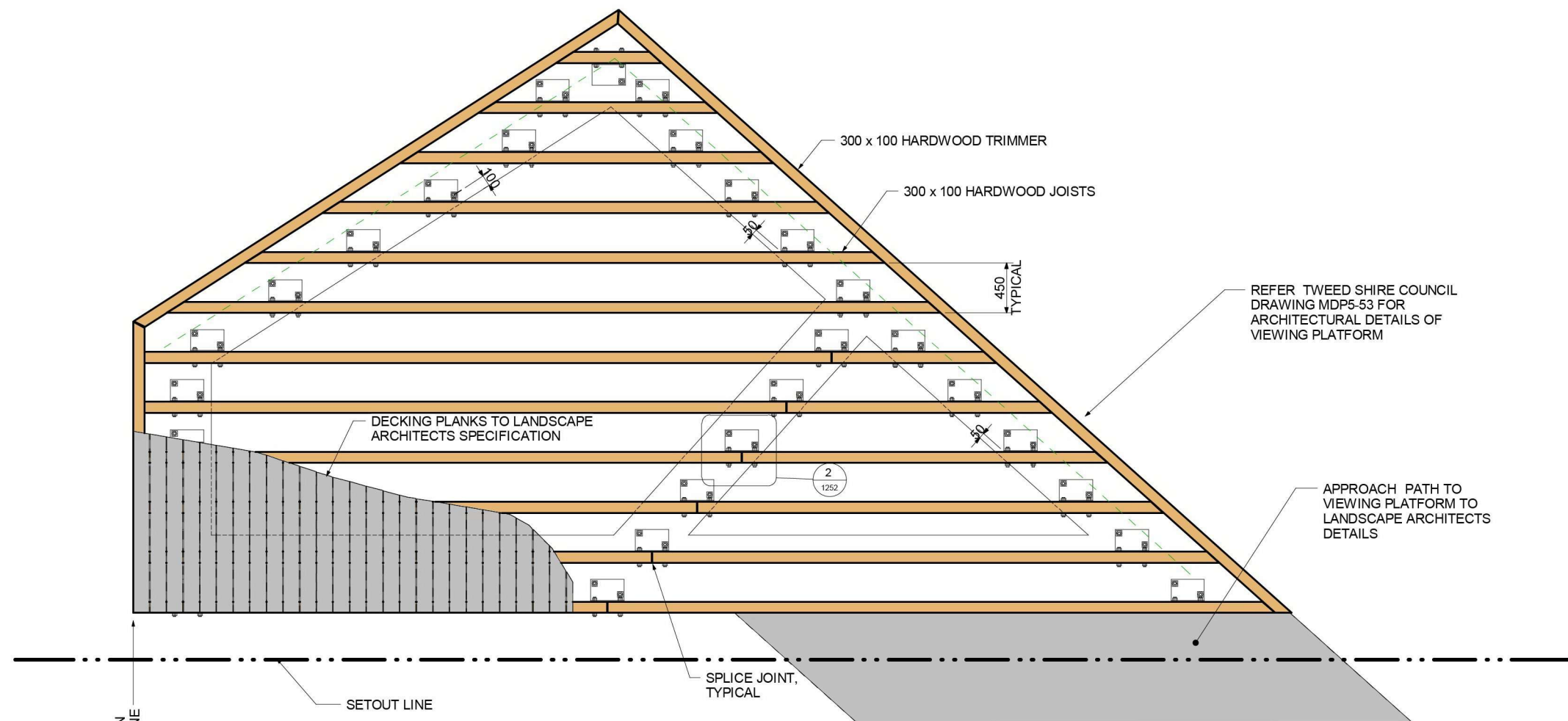
AUTOCAD REF.

SCALE AT A1 AS SHOWN

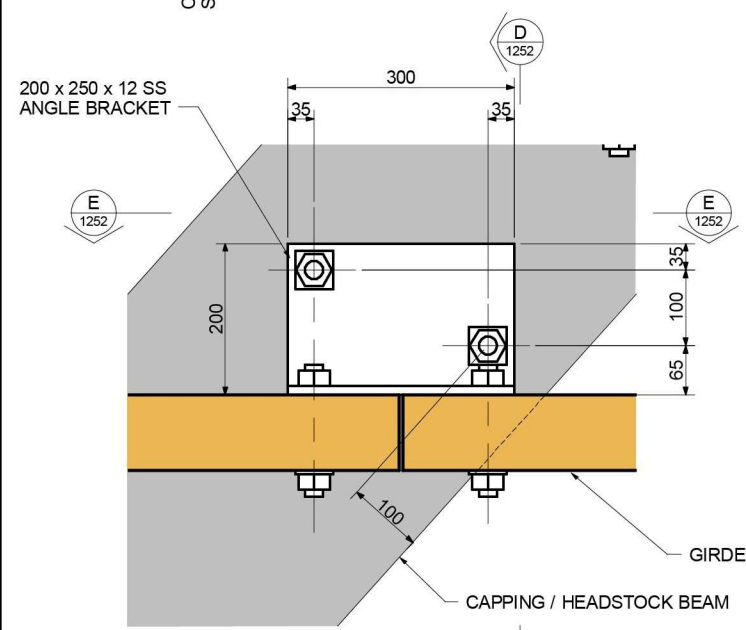
DRAWING No. PA1387/MA/1251 REVISION B

NOTES

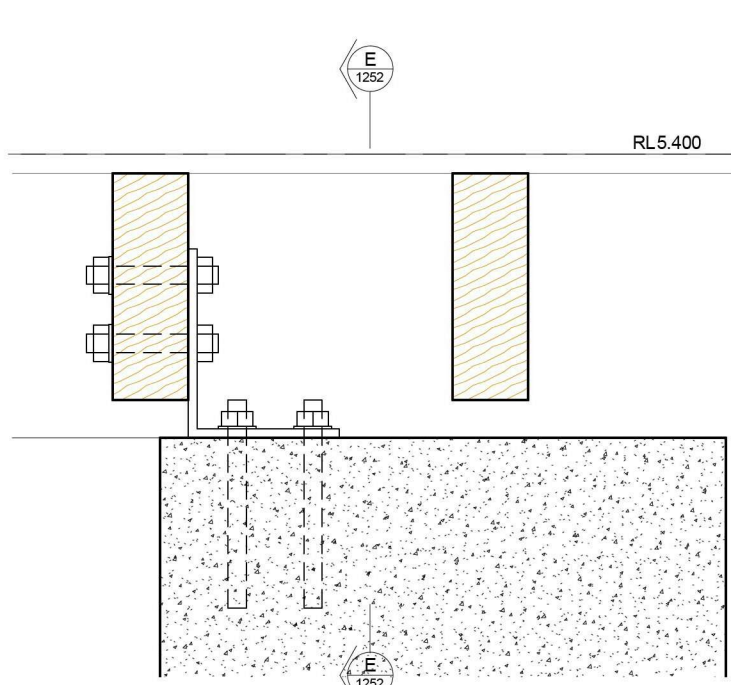
1. REFER DRG PA1387/MA/1101 FOR LOCATION
2. REFER TECHNICAL SPECIFICATION
3. ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
4. ALL DIMENSIONS ARE IN MILLIMETRES UNO.



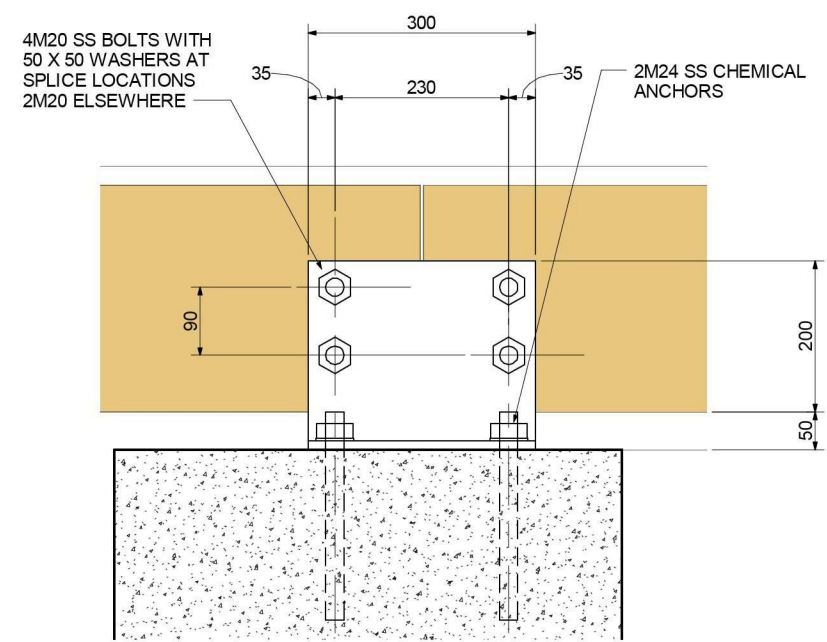
DECK PLAN
1: 25



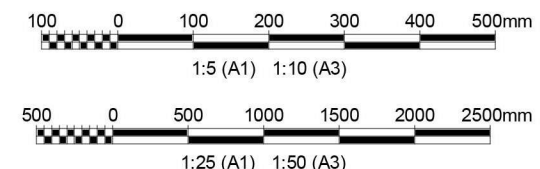
DETAIL 2
1: 5



SECTION D
1: 5 (A1)



SECTION E
1: 5 (A1)



TENDER

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY	CHK	APPD
C	30.09.2016	FOR TENDER	SGB	AHP	AHP

REVISIONS

CLIENT



PROJECT:

KINGSCLIFF SEAWALL

DRAWING TITLE:

CENTRAL PARK VIEWING PLATFORM
TIMBER DECK PLAN,
SECTIONS AND DETAILS

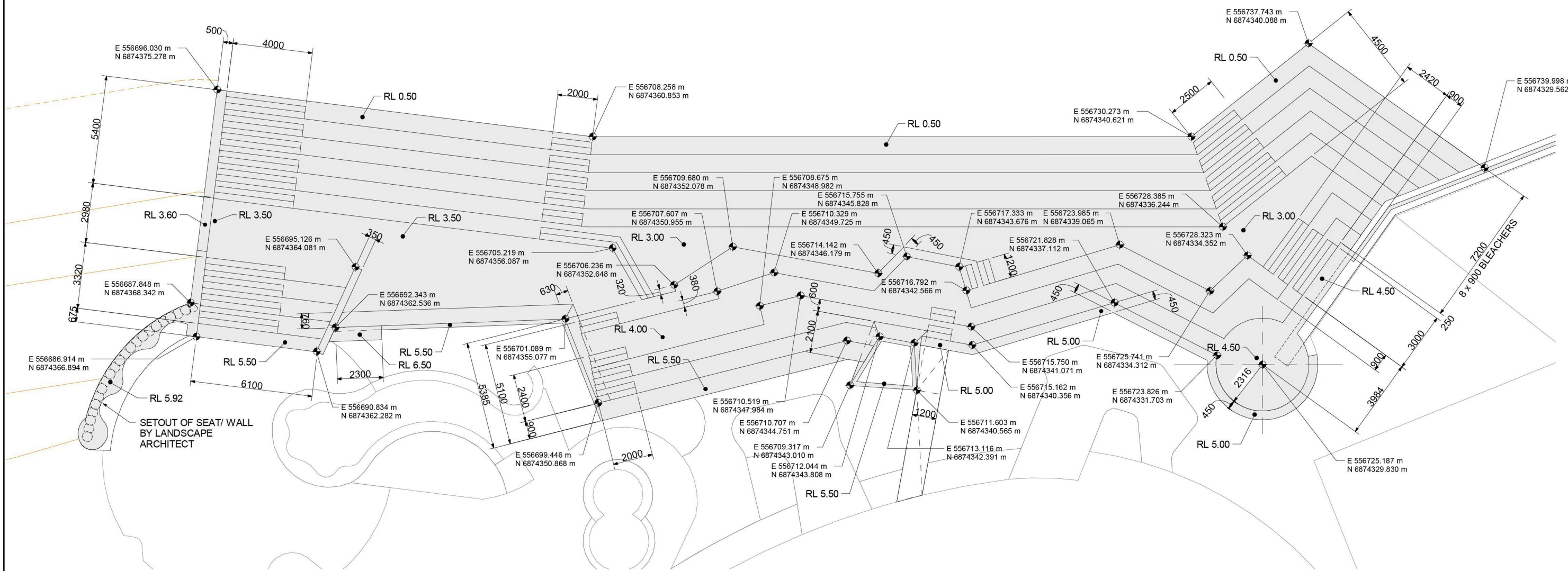
HASKONING AUSTRALIA PTY LTD SYDNEY



DRAWN SGB DATE 30.09.2016 JOB No. PA1387

AUTOCAD REF. SCALE AT A1 AS SHOWN

DRAWING No. PA1387/MA/1252 REVISION C



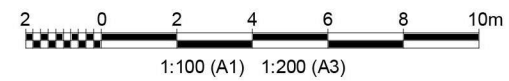
SETOUT PLAN
1 : 100

NOTES

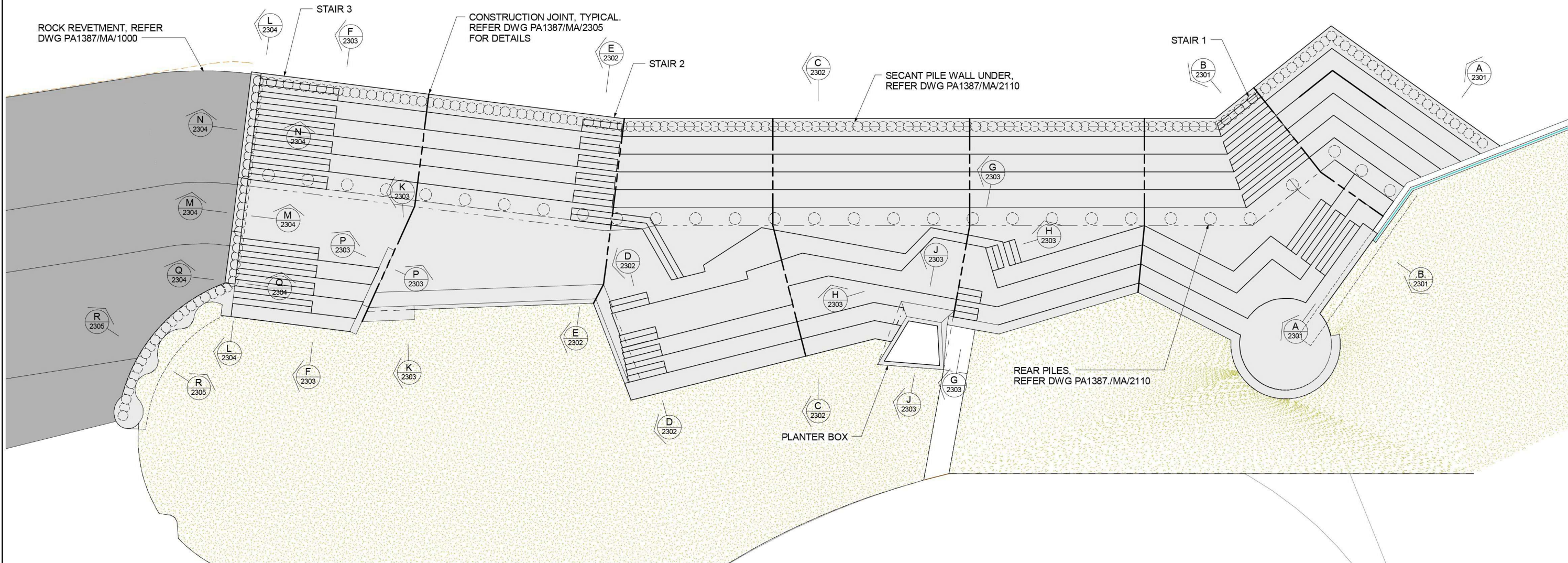
1. ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNO.
3. REFER TECHNICAL SPECIFICATION

FOR TENDER

NOT FOR CONSTRUCTION



C	30.09.2016	FOR TENDER	SGB	SH	AHP
REV	DATE	DESCRIPTION	BY	CHK	APPO
REVISIONS					
CLIENT					
					
PROJECT					
KINGSCLIFF SEAWALL					
DRAWING TITLE					
CONCRETE STEPPED ACCESS STRUCTURE SETOUT PLAN					
DRAWN BY					
					
DRAWN					
SGB	DATE	30.09.2016	JOB No.	PA1387	
AUTOCAD REF.					
SCALE AT A1 AS SHOWN					
DRAWING No.					
PA1387/MA/2000					
REVISION					
C					



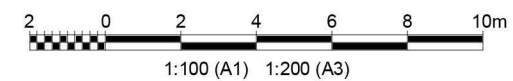
CONCRETE PLAN
1 : 100

NOTES

1. ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNO.
3. REFER SPECIFICATION

FOR TENDER

NOT FOR CONSTRUCTION



REV	DATE	DESCRIPTION	BY	CHK	APPRO
C	30.09.2016	FOR TENDER	SGB	SH	AHP

REVISIONS

CLIENT



PROJECT:

KINGSCLIFF SEAWALL

DRAWING TITLE:

CONCRETE STEPPED ACCESS STRUCTURE
CONCRETE PLAN

DESIGNED BY
HASKONING AUSTRALIA PTY LTD
SYDNEY



DRAWN SGB DATE 30.09.2016 JOB No. PA1387

AUTOCAD REF. AS SHOWN

DRAWING No. PA1387/MA/2100 REVISION C

CONSTRUCTION SEQUENCE
 CONSTRUCT CONCRETE STEPPED ACCESS STRUCTURE PRIOR TO EXCAVATING IN FRONT OF RETURN SECANT PILE WALL FOR PLACEMENT OF ROCK REVETMENT.

OUTLINE OF CAPPING BEAM, SEAWARD FACE OF CONCRETE STEPPED ACCESS STRUCTURE

HARD PILE (REINFORCED), TYPICAL

SOFT PILE (UNREINFORCED), TYPICAL

SECANT PILE WALL

CONNECTION FOR NEW SECANT PILE WALL AND EXISTING SECANT PILE WALL. LOCALLY EXCAVATE AND DEWATER BEHIND TO INDURATED SAND LEVEL, (APPROXIMATELY RL-2.0) AND PLACE AND TAMP DRY 20MPa CONCRETE TO RL0.0.

GEOFABRIC PLACED BEHIND CONNECTION

400 TYP

850 TYP

2000 MAX TYPICAL

4650 TYP

REAR PILES

EXISTING SECANT PILE WALL IN FRONT OF SURF LIFESAVING CLUB

TEMPORARY EXCAVATION BEHIND WALL TO BE INFILLED AND COMPACTED AS SOON AS PRACTICABLE. NO OPEN EXCAVATION TO BE PRESENT UNDER ANY STORM CONDITIONS AS THIS MAY COMPROMISE PILED STRUCTURES.

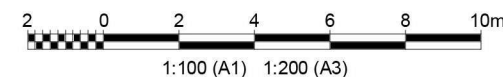
PILE PLAN
 1:100

NOTES

1. ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNO.
3. ALL REINFORCEMENT TO BE HOT DIP GALVANISED.
4. MINIMUM PILE AXIAL CAPACITIES AND MINIMUM PILE EMBEDMENT INTO INDURATED SAND SHALL BOTH BE MET
5. REFER SPECIFICATION

FOR TENDER

NOT FOR CONSTRUCTION



REV	DATE	DESCRIPTION	BY	CHK	APPD
C	30.09.2016	FOR TENDER	SGB	SH	AHP

REVISIONS

CLIENT



PROJECT:

KINGSCLIFF SEAWALL

DRAWING TITLE:

CONCRETE STEPPED ACCESS STRUCTURE PILE PLAN

DESIGNED BY **HASKONING AUSTRALIA PTY LTD** SYDNEY



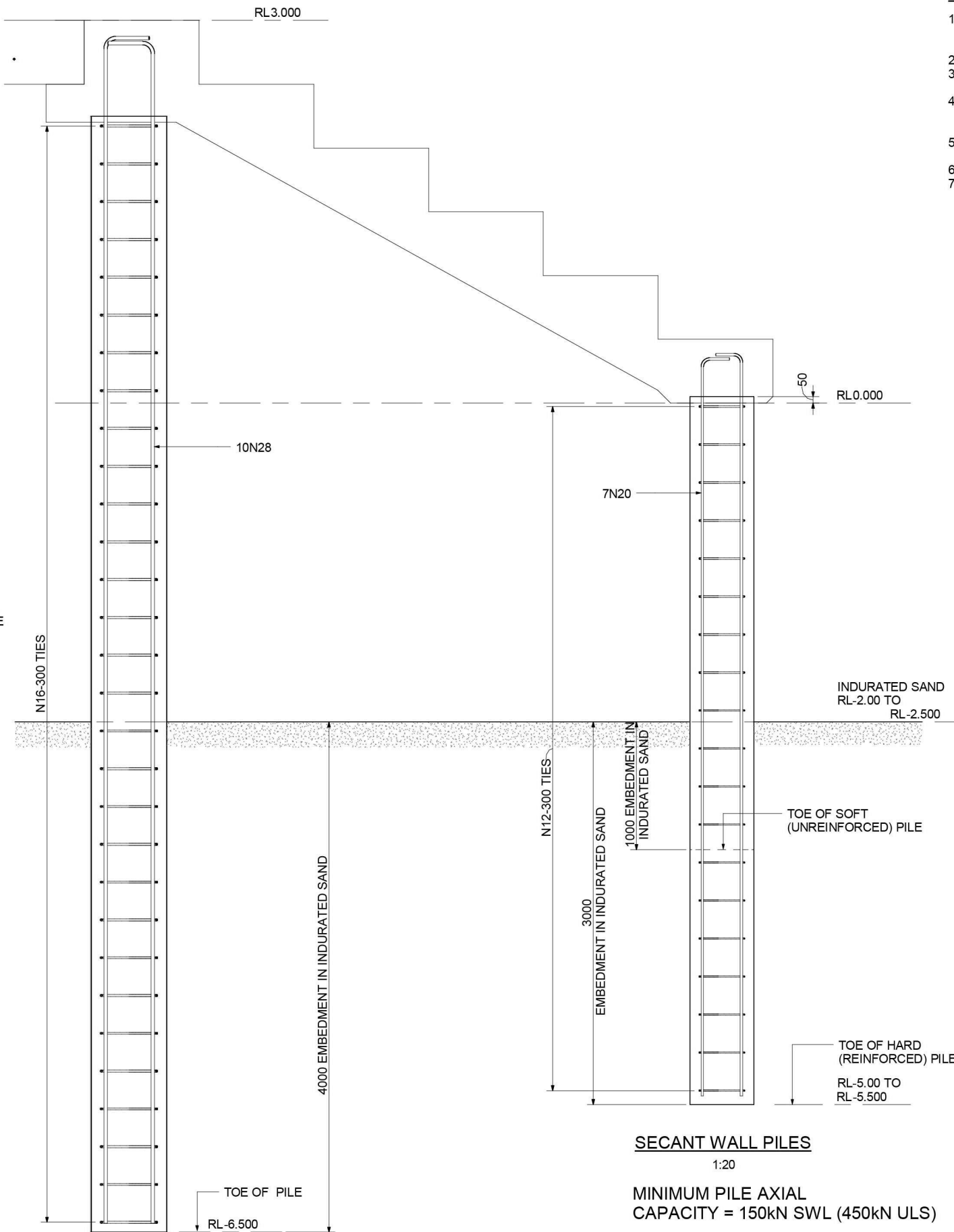
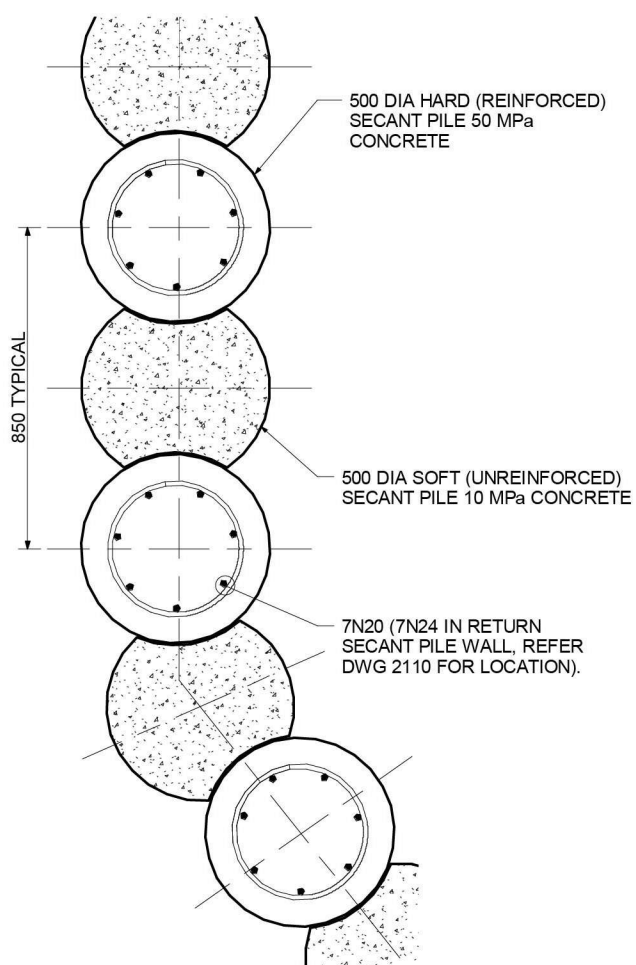
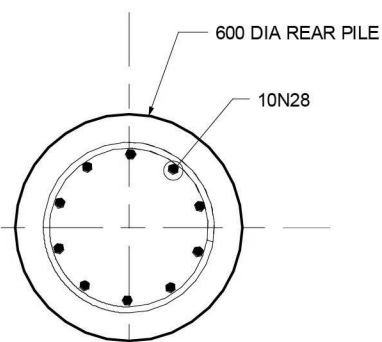
DRAWN: SGB DATE: 30.09.2016 JOB No: PA1387

AUTOCAD REF. AS SHOWN

DRAWING No. **PA1387/MA/2110** REVISION **C**

NOTES

1. ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNO.
3. ALL REINFORCEMENT TO BE HOT DIP GALVANISED.
4. MINIMUM PILE AXIAL CAPACITIES AND MINIMUM PILE EMBEDMENT INTO INDURATED SAND SHALL BOTH BE MET
5. MINIMUM 28 DAY CONCRETE COMPRESSIVE STRENGTH = 50MPa
6. CLEAR COVER TO REINFORCEMENT = 70mm
7. CONCRETE IN PILES TO HAVE LIQUID ORGANIC SILICATE BASED COMPOUND SUCH AS RADCON FORMULA #7, XYPEX, AQUARON OR APPROVED EQUIVALENT

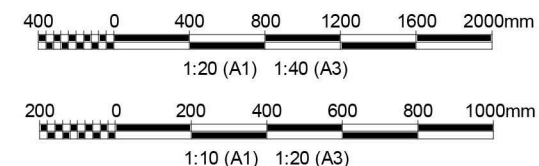


REAR PILES
1:20

MINIMUM PILE AXIAL CAPACITY = 250kN SWL (750kN ULS)

SECANT WALL PILES
1:20

MINIMUM PILE AXIAL CAPACITY = 150kN SWL (450kN ULS)



FOR TENDER

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY	CHK	APPRO
C	30.09.2016	FOR TENDER		SGB	SH AHP

CLIENT

TWEED
SHIRE COUNCIL

PROJECT:

KINGSCLIFF SEAWALL

DRAWING TITLE:

CONCRETE STEPPED ACCESS STRUCTURE PILE DETAILS

AS A DIVISION OF

Royal HaskoningDHV
Enhancing Society Together

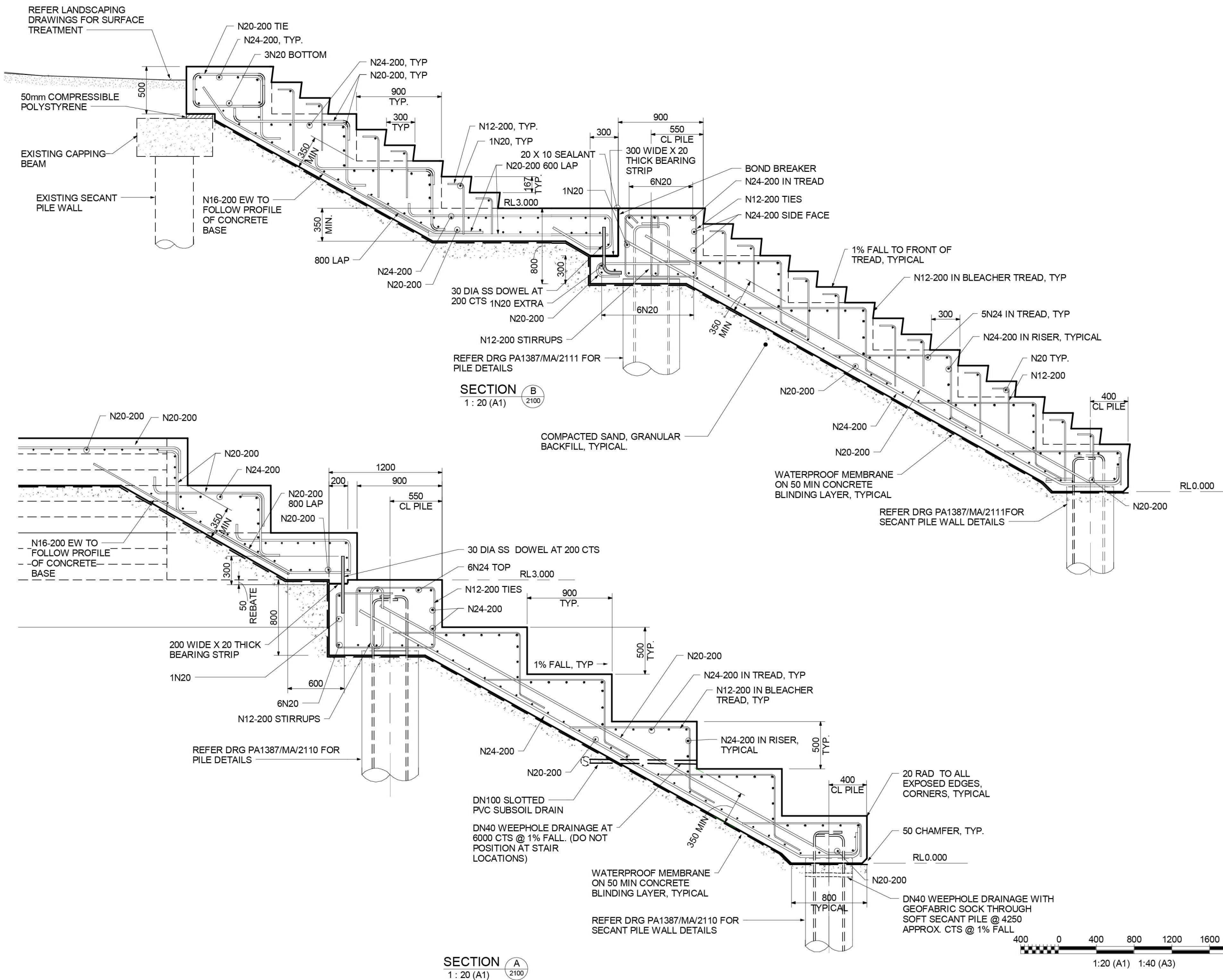
Level 14
66 Berry Street
North Sydney NSW 2060
+61 2 9554 9200 Telephone
+61 2 9559 0950 Fax
www.royalhaskoningdhv.com Internet

DRAWN	SGB	DATE	30.09.2016	JOB No.	PA1387
AUTOCAD REF.					
SCALE AT A1 AS SHOWN					

DRAWING No. **PA1387/MA/2111** REVISION **C**

NOTES

1. ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNO.
3. ALL REINFORCEMENT TO BE HOT DIP GALVANISED.
4. EMBEDDED ZINC ANODES (SUCH AS PARCHEM GALVASHIELD XP) TO BE TIED TO THE TOP LAYER OF REINFORCEMENT AND LOCATED ON A 750mm GRID.
5. MINIMUM 28 DAY CONCRETE COMPRESSIVE STRENGTH = 50mPa.
6. CLEAR COVER TO REINFORCEMENT = 70mm.
7. FINISHED EXPOSED SURFACES OF CONCRETE TO BE COATED WITH TWO FLOOD TREAT COATS OF SILANE SUCH AS DRYTREAT 100N OR APPROVED EQUIVALENT.



FOR TENDER

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY	CHK	APPD
C	30.09.2016	FOR TENDER	SGB	SH	AHP

REVISIONS

CLIENT

PROJECT

KINGSCLIFF SEAWALL

DRAWING TITLE

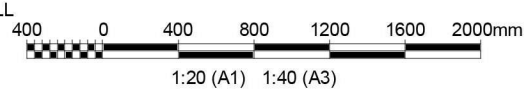
CONCRETE STEPPED ACCESS STRUCTURE SECTIONS AND DETAILS SHEET 1

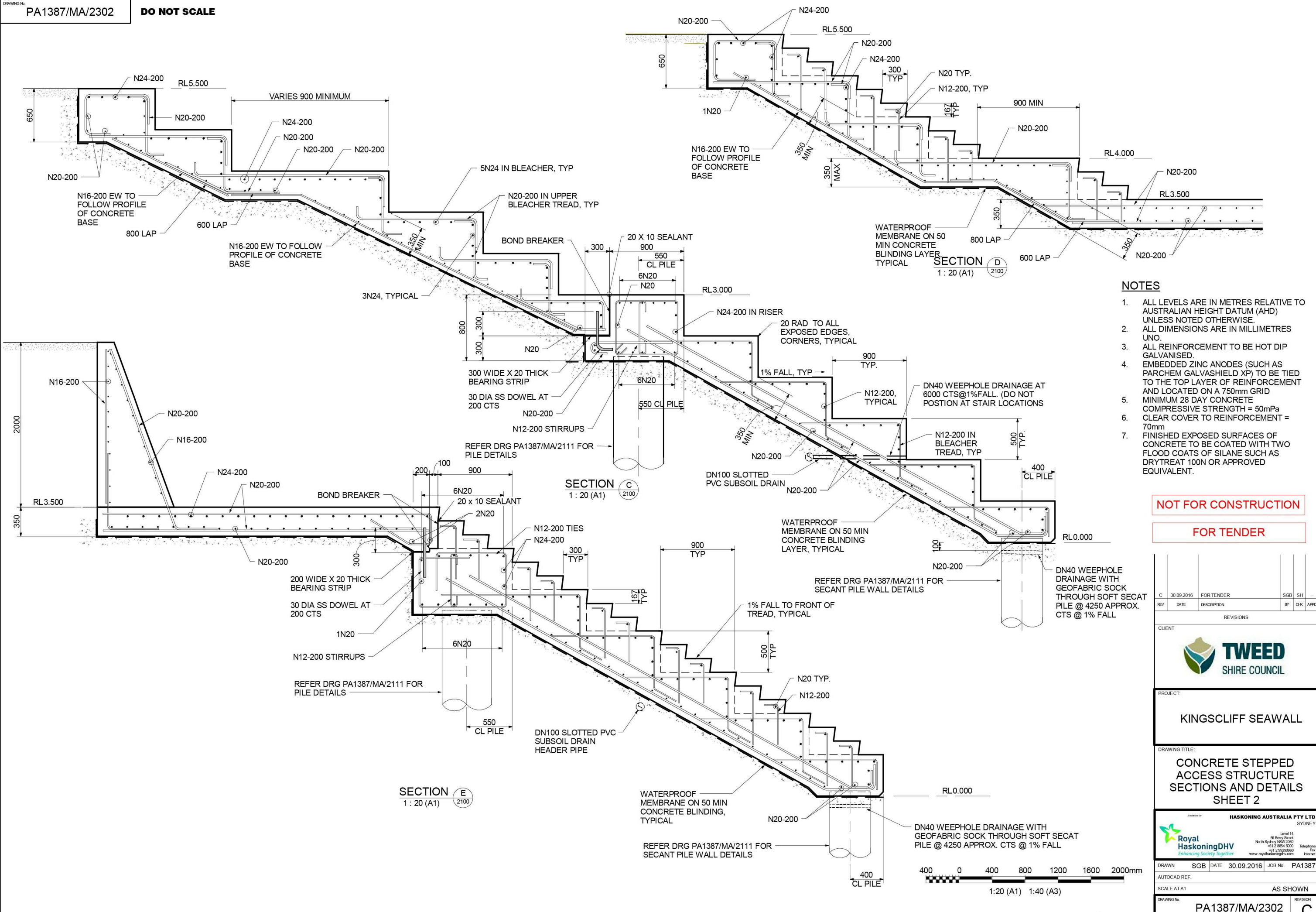
DESIGNED BY

Drawn by

Level 14
66 Berry Street
North Sydney NSW 2060
+61 2 9554 9200
+61 2 9559 0950
www.royalhaskoningdhv.com

DRAWN	SGB	DATE	30.09.2016	JOB No.	PA1387
AUTOCAD REF.					
SCALE AT A1	AS SHOWN				
DRAWING No.	PA1387/MA/2301				REVISION
					C





- NOTES**
1. ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
 2. ALL DIMENSIONS ARE IN MILLIMETRES UNO.
 3. ALL REINFORCEMENT TO BE HOT DIP GALVANISED.
 4. EMBEDDED ZINC ANODES (SUCH AS PARCHEM GALVASHIELD XP) TO BE TIED TO THE TOP LAYER OF REINFORCEMENT AND LOCATED ON A 750mm GRID MINIMUM 28 DAY CONCRETE COMPRESSIVE STRENGTH = 50mPa CLEAR COVER TO REINFORCEMENT = 70mm
 5. FINISHED EXPOSED SURFACES OF CONCRETE TO BE COATED WITH TWO FLOOD COATS OF SILANE SUCH AS DRYTREAT 100N OR APPROVED EQUIVALENT.

NOT FOR CONSTRUCTION

FOR TENDER

REV	DATE	DESCRIPTION	BY	CHK	APPD
C	30.09.2016	FOR TENDER	SGB	SH	-



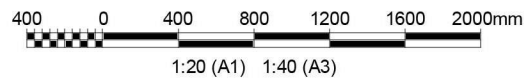
PROJECT: **KINGSCLIFF SEAWALL**

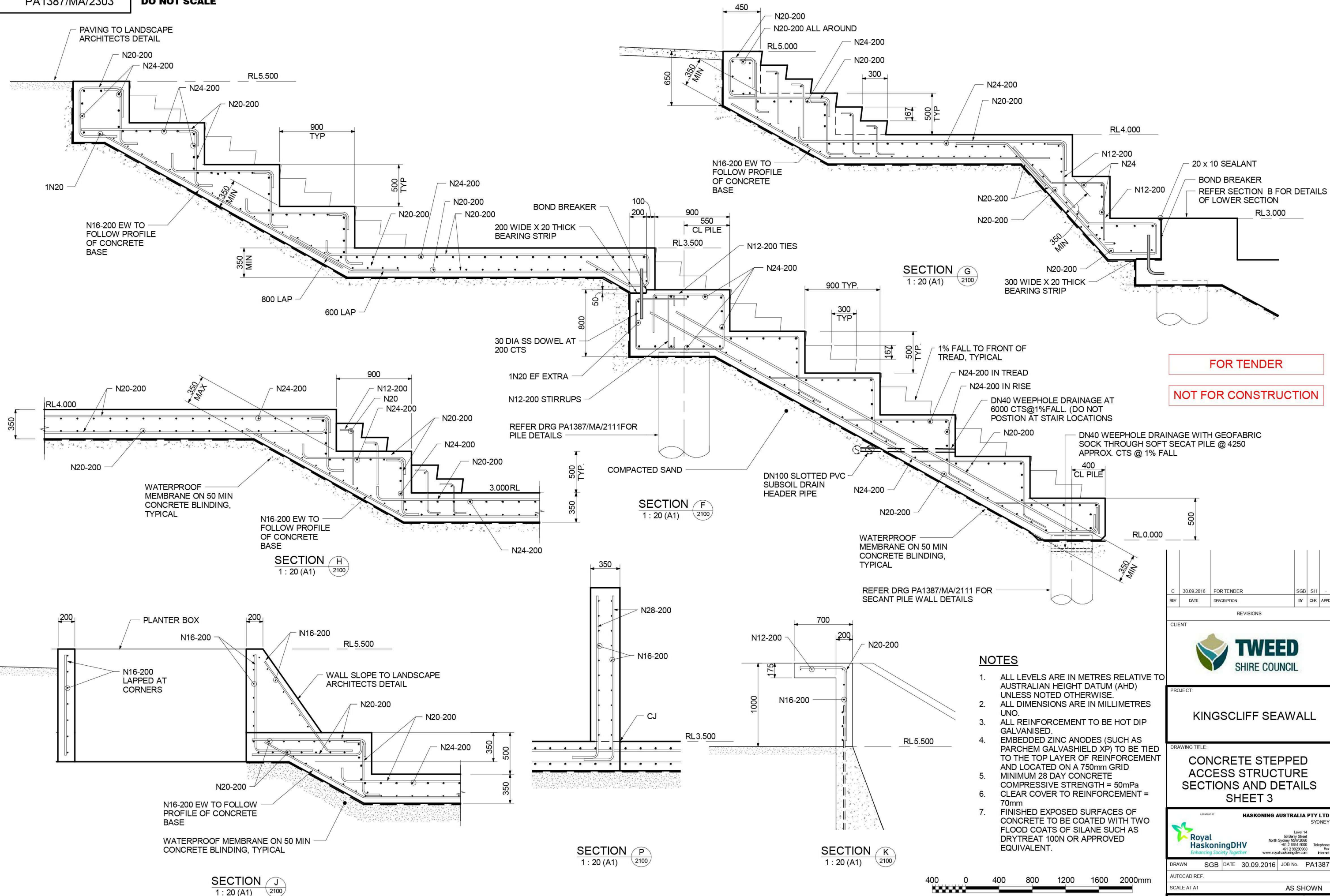
DRAWING TITLE: **CONCRETE STEPPED ACCESS STRUCTURE SECTIONS AND DETAILS SHEET 2**



DRAWN: SGB DATE: 30.09.2016 JOB No: PA1387
 AUTOCAD REF. SCALE AT A1 AS SHOWN

DRAWING No: **PA1387/MA/2302** REVISION: **C**



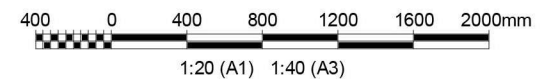


FOR TENDER

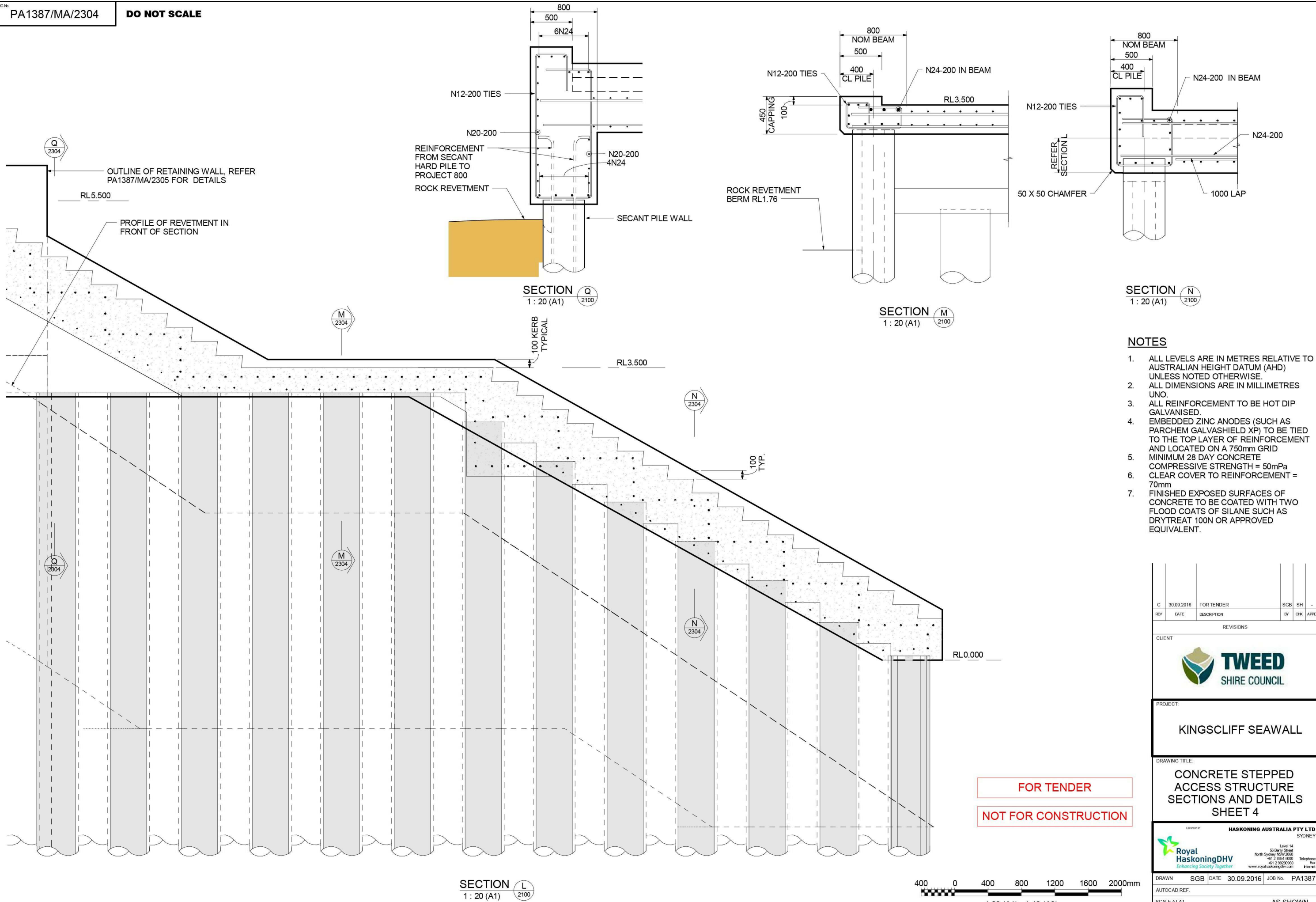
NOT FOR CONSTRUCTION

NOTES

1. ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNO.
3. ALL REINFORCEMENT TO BE HOT DIP GALVANISED.
4. EMBEDDED ZINC ANODES (SUCH AS PARCHEM GALVASHIELD XP) TO BE TIED TO THE TOP LAYER OF REINFORCEMENT AND LOCATED ON A 750mm GRID.
5. MINIMUM 28 DAY CONCRETE COMPRESSIVE STRENGTH = 50mPa.
6. CLEAR COVER TO REINFORCEMENT = 70mm.
7. FINISHED EXPOSED SURFACES OF CONCRETE TO BE COATED WITH TWO FLOOD COATS OF SILANE SUCH AS DRYTREAT 100N OR APPROVED EQUIVALENT.



C	30.09.2016	FOR TENDER	SGB	SH	-
REV	DATE	DESCRIPTION	BY	CHK	APPD
REVISIONS					
CLIENT					
PROJECT					
KINGSCLIFF SEAWALL					
DRAWING TITLE					
CONCRETE STEPPED ACCESS STRUCTURE SECTIONS AND DETAILS SHEET 3					
DRAWN BY					
DRAWN					
SGB	DATE	30.09.2016	JOB No.	PA1387	
AUTOCAD REF.					
SCALE AT A1 AS SHOWN					
DRAWING No.					
PA1387/MA/2303					
REVISION					
C					

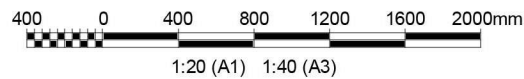


NOTES

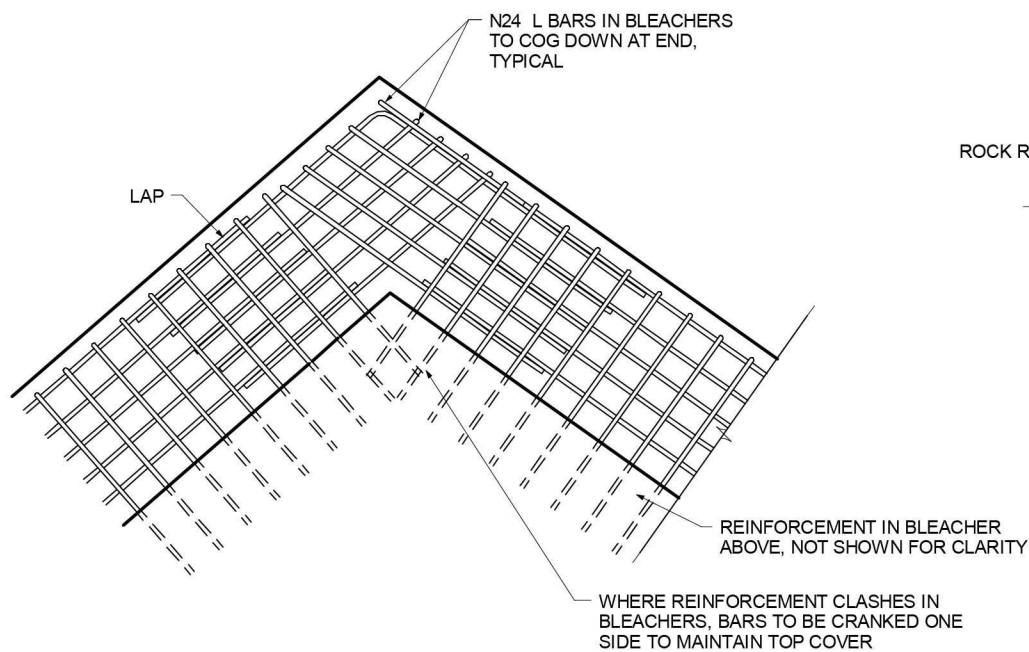
1. ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNO.
3. ALL REINFORCEMENT TO BE HOT DIP GALVANISED.
4. EMBEDDED ZINC ANODES (SUCH AS PARCHEM GALVASHIELD XP) TO BE TIED TO THE TOP LAYER OF REINFORCEMENT AND LOCATED ON A 750mm GRID
5. MINIMUM 28 DAY CONCRETE COMPRESSIVE STRENGTH = 50mPa
6. CLEAR COVER TO REINFORCEMENT = 70mm
7. FINISHED EXPOSED SURFACES OF CONCRETE TO BE COATED WITH TWO FLOOD COATS OF SILANE SUCH AS DRYTREAT 100N OR APPROVED EQUIVALENT.

FOR TENDER

NOT FOR CONSTRUCTION

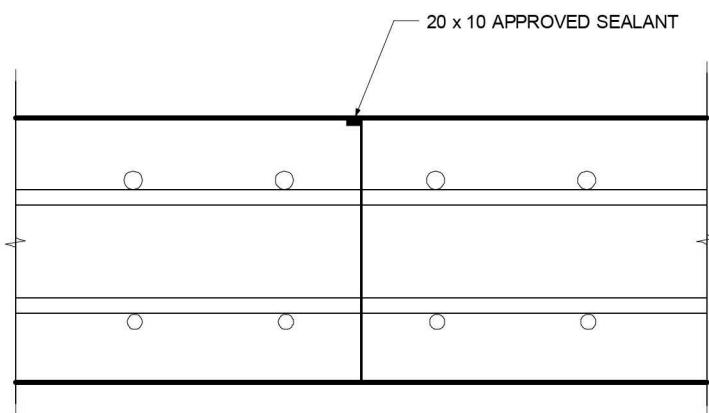


C	30.09.2016	FOR TENDER	SGB	SH	-
REV	DATE	DESCRIPTION	BY	CHK	APPD
REVISIONS					
CLIENT					
TWEED SHIRE COUNCIL					
PROJECT					
KINGSCLIFF SEAWALL					
DRAWING TITLE					
CONCRETE STEPPED ACCESS STRUCTURE SECTIONS AND DETAILS SHEET 4					
<small>MEMBER OF</small> ROYAL HASKONINGDHV <small>Enhancing Society Together</small>					
<small>Level 14 66 Berrys Street North Sydney NSW 2060 +61 2 9554 1000 Telephone +61 2 9559 0950 Fax www.royalhaskoningdhv.com Internet</small>					
DRAWN	SGB	DATE	30.09.2016	JOB No.	PA1387
AUTOCAD REF.					
SCALE AT A1 AS SHOWN					
DRAWING No. PA1387/MA/2304					
REVISION C					



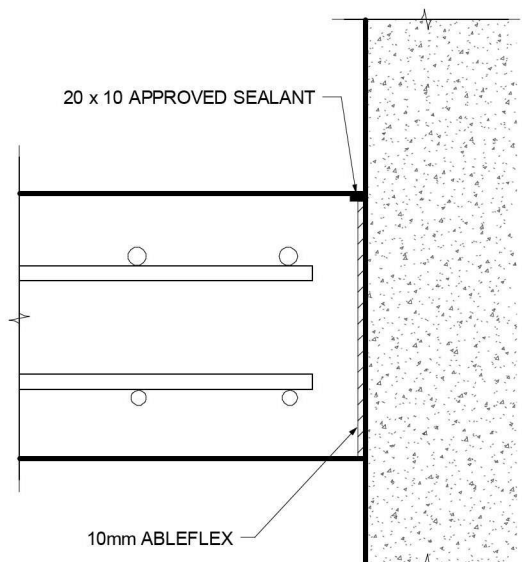
CORNER REINFORCEMENT DETAIL PLAN

1:20



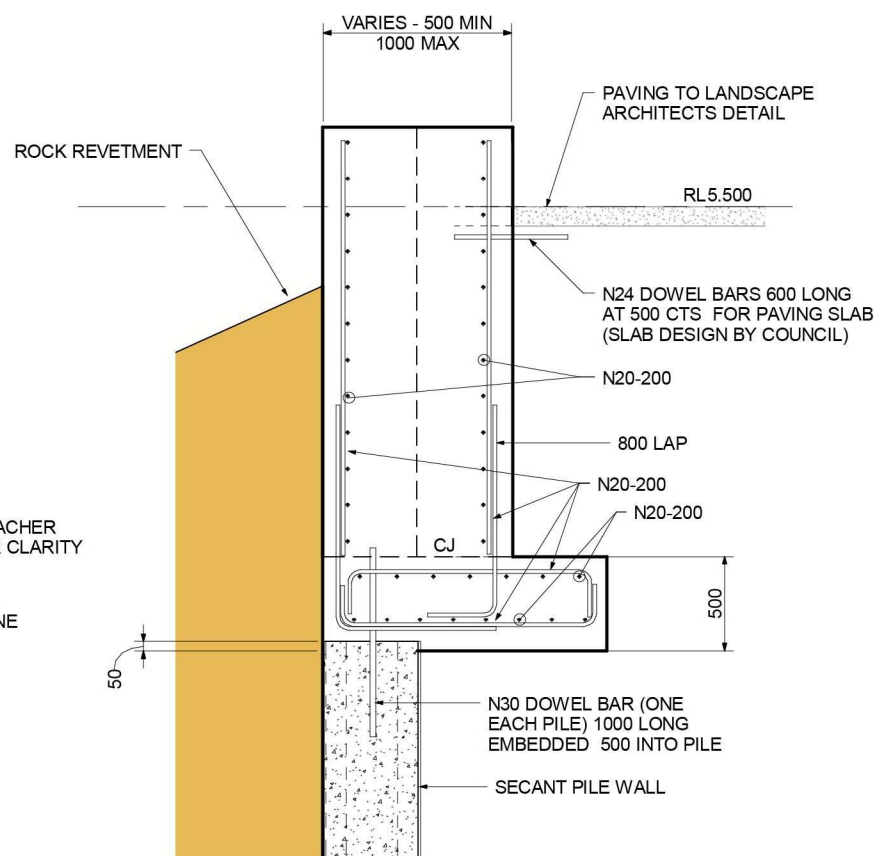
CONSTRUCTION JOINT

1:5



ISOLATION JOINT

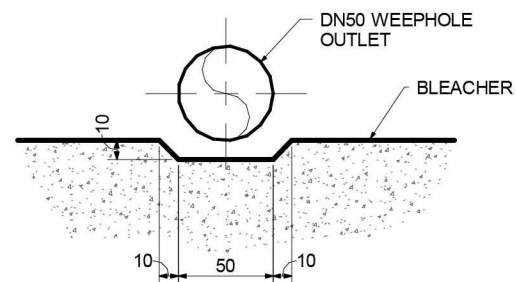
1:5



SECTION

1:20 (A1)

R 2100



WEEPHOLE DRAINAGE CHANNEL

1:2

NOTES

1. ALL LEVELS ARE IN METRES RELATIVE TO AUSTRALIAN HEIGHT DATUM (AHD) UNLESS NOTED OTHERWISE.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNO.
3. ALL REINFORCEMENT TO BE HOT DIP GALVANISED.
4. EMBEDDED ZINC ANODES (SUCH AS PARCHEM GALVASHIELD XP) TO BE TIED TO THE TOP LAYER OF REINFORCEMENT AND LOCATED ON A 750mm GRID
5. MINIMUM 28 DAY CONCRETE COMPRESSIVE STRENGTH = 50mPa
6. CLEAR COVER TO REINFORCEMENT = 70mm
7. FINISHED EXPOSED SURFACES OF CONCRETE TO BE COATED WITH TWO FLOOD COATS OF SILANE SUCH AS DRYTREAT 100N OR APPROVED EQUIVALENT.

FOR TENDER

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY	CHK	APPD
C	30.09.2016	FOR TENDER			

REVISIONS

CLIENT



PROJECT:

KINGSCLIFF SEAWALL

DRAWING TITLE:

CONCRETE STEPPED ACCESS STRUCTURE SECTIONS AND DETAILS SHEET 5

DESIGNED BY



DRAWN SGB DATE 30.09.2016 JOB No. PA1387

AUTOCAD REF.

SCALE AT A1 AS SHOWN

DRAWING No. PA1387/MA/2305 REVISION C

