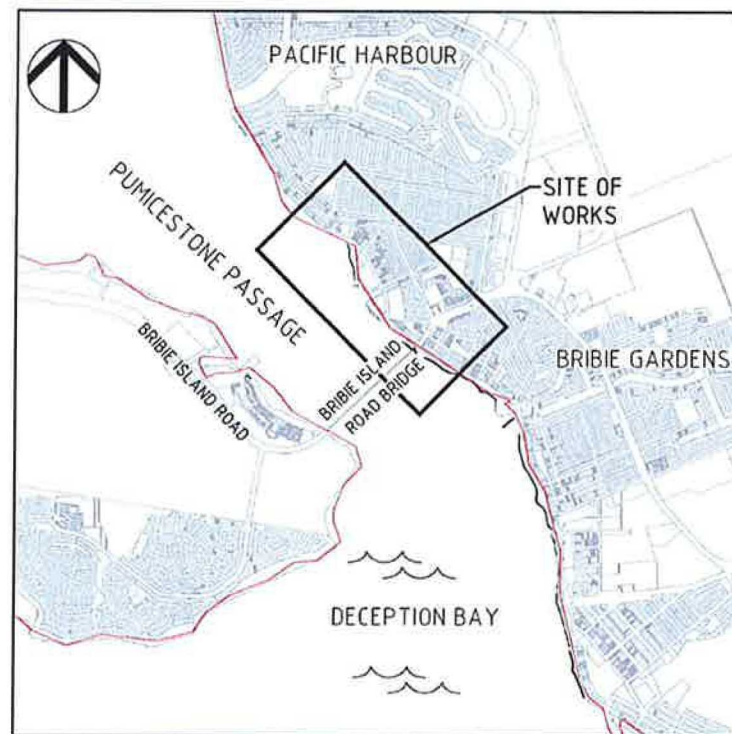


# SOUTHERN PUMICESTONE PASSAGE

## STAGE 1 - SEAWALL RENEWAL



LOCALITY PLAN  
N.T.S.

SOUTHERN PUMICESTONE PASSAGE SITE PLAN  
SCALE 1:1000

### DRAWING INDEX

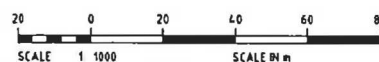
DRAWING No.	TITLE
13/671-101	LOCALITY PLAN, SITE PLAN & DRAWING INDEX
13/671-102	STANDARD NOTES
13/671-103	GENERAL ARRANGEMENT PLAN - SHEET 1 OF 2
13/671-104	GENERAL ARRANGEMENT PLAN - SHEET 2 OF 2
13/671-105	TYPICAL SECTION - SHEET 1 OF 2
13/671-106	TYPICAL SECTIONS - SHEET 2 OF 2
13/671-107	CONCRETE TOE SECTIONS AND DETAILS
13/671-108	ROCK PROTECTION SECTIONS AND DETAILS
13/671-109	CULVERT WINGWALLS - PLAN AND SECTION
13/671-110	CULVERT WINGWALLS - SECTIONS AND DETAILS

### SURVEY CONTROL DATA

MARK	EASTING	NORTHING
STN PSM 41584	514687.083	7006000.311

SOURCE: NORTH SURVEYS (24-01-2013)

FOR CONSTRUCTION



REV	DESCRIPTION	DATE	POSITION	NAME	SIGNATURE	ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd
			DRAFTING	J. BROOKER		
			DESIGN	M. WESTHUYZEN		
			DESIGN VERIFICATION	S. MURISWAMY		
			PROJECT APPROVAL	I. VAMVAKAS		
0	ISSUED FOR CONSTRUCTION	29/08/13				
1	ISSUED FOR TENDER	22/08/13				
2	ISSUED FOR CLIENT REVIEW	22/05/13				

KBR	
Kellogg Brown & Root Pty Ltd	
ADN 91 007 660 317	
KBR DRAWING No	BEJ351-DW-CV-GEN-0101
DRAFTER	B. CORNELIUS
REVISION	0



ENGINEERING  
CONSTRUCTION &  
MAINTENANCE

### AUTHORISATION

Director *[Signature]* Date 13.9.13  
Manager *[Signature]* Date 12/09/13

### PROJECT INFORMATION

Project Number  
Coordinator *[Signature]* Team Leader *[Signature]*  
Design *[Signature]* Checked  
Surveyor *[Signature]* Survey Date  
Survey Datum  
MGA (GDA94) ZONE 56 AUSTRALIAN HEIGHT DATUM (AHD)  
Horizontal Vertical

Scales

### ISSUE

Revisions
Appd. Date
Appd. Date
Appd. Date
Appd. Date
Original Issue Date

### PROJECT DESCRIPTION

PUMICESTONE  
PASSAGE SEAWALL  
RENEWAL

STAGE 1

LOCALITY PLAN,  
SITE PLAN  
& DRAWING INDEX

### DRAWING NUMBER

13/671-101  
Drawing Number Rev.  
Drawing 1 of 10 Original Plot Size A1



## GENERAL NOTES

- G1. THESE DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATIONS AND DRAWINGS ISSUED BY THE PROJECT MANAGER AND WITH SUCH OTHER WRITTEN INSTRUCTION AS MAY BE ISSUED DURING THE COURSE OF THE CONTRACT.
- G2. SETTING OUT AND OFF-SITE FABRICATION DIMENSIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE PROJECT MANAGER.
- G3. ALL DIMENSIONS ARE IN MILLIMETRES U.N.O, EXCEPT FOR CHAINAGES AND RL'S WHICH ARE IN METRES.
- G4. THE CONTRACTOR SHALL MAINTAIN ALL WORK SITES IN A SAFE AND STABLE CONDITION.
- G5. WORKMANSHIP AND MATERIALS ARE TO BE IN ACCORDANCE WITH THE RELEVANT CURRENT SAA, AND LOCAL STATUTORY AUTHORITIES REQUIREMENTS EXCEPT WHERE VARIED BY THE CONTRACT DOCUMENTS.
- G6. ALL CODES REFERRED TO ARE THOSE CURRENT (AS AMENDED) AT THE COMMENCEMENT OF THE CONTRACT UNLESS NOTED OTHERWISE.
- G7. DO NOT OBTAIN DIMENSIONS BY SCALING FROM DRAWINGS.
- G8. NOMINATION OF PROPRIETARY ITEMS DOES NOT INDICATE EXCLUSIVE PREFERENCE BUT INDICATES THE REQUIRED PROPERTIES OF THE ITEM. SIMILAR ALTERNATIVES HAVING THE REQUIRED PROPERTIES MAY BE OFFERED FOR APPROVAL.
- G9. FILL AND BACKFILL SHALL BE CLEAN GRANULAR MATERIAL COMPRISING SAND AND BROKEN ROCK LESS THAN 37.5mm GAUGE AND SHALL BE FREE OF ORGANIC MATTER AND ANY DELETERIOUS OR CHEMICAL CONTAMINANTS

## DESIGN DATA

- D1. THE SEAWALL HAS BEEN DESIGNED IN ACCORDANCE WITH THE FOLLOWING STANDARDS: AS3600-2009, AS4997-2005, AS4678-2002 DESIGN LOADS
- D2. a) FILL BEHIND WALL:  
 $\gamma$  (IN AIR) = 18kN/m<sup>3</sup>,  $\phi$  = 28°  
b) HYDROSTATIC LOAD AT GROUND SURFACE BEHIND WALL + LAT IN FRONT  
c) LIVE LOAD: 5kPa
- D3. NO CONSTRUCTION LOADS ARE TO BE APPLIED TO ANY INSTALLED ELEMENTS.

## FOUNDATION AND PILING NOTES

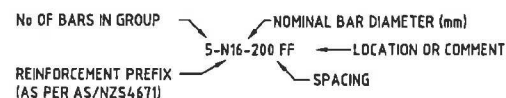
- P1. FOR GEOTECHNICAL INFORMATION REFER TO GEOTECHNICAL INVESTIGATION REPORT 112-14894 BY SOIL SURVEYS (FEB, 2013).
- P2. FOUNDING LEVELS ARE ESTIMATED LEVELS ONLY. ACTUAL FOUNDATION LEVELS SHALL BE CONFIRMED ON SITE IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ENGINEERS ADVICE.

## STRUCTURAL NOTES

- S1. STAINLESS STEEL PLATE TO AS 1444, STAINLESS STEEL SHEET TO AS/NZS 4673.
- S2. ALL STAINLESS STEEL TO BE GRADE 316, 2B FINISH, WELDING SYMBOLS CONFORM TO AS1101.3
- a) STAINLESS STEEL  
ALL WELDING TO CONFORM TO AS 1554.6  
WELD QUALITY 1B, II(a)  
WELDING CONSUMABLES TO BE E316L, UNO.
- ALL STAINLESS STEEL WHICH IS TO BE WELDED SHALL BE 316L SS. WHERE 316L IS NOT AVAILABLE THE PROJECT MANAGERS DIRECTION IS REQUIRED.
- S3. MEMBERS TO BE BRANDED WITH APPROPRIATE MARK AFTER FABRICATION.
- S4. THESE DRAWINGS MUST NOT BE USED AS FABRICATION DRAWINGS. ALL FABRICATED COMPONENTS MUST BE SHOP DETAILED BEFORE FABRICATION AND SUBMITTED FOR REVIEW AND APPROVAL. THE REVIEW DOES NOT INCLUDE CHECKING OF DIMENSIONS.
- S5. EXPOSED CONTACT SURFACES BETWEEN DISSIMILAR METALS (eg. ALUMINIUM AND GALVANISED STEEL, ALUMINIUM AND STAINLESS STEEL, STAINLESS STEEL AND GALVANISED STEEL) SHALL BE INSULATED WITH SEPARATOR TAPE OR FIBRE WASHERS, UNO.
- R9. THE MINIMUM LAP LENGTH SHOWN (AS SHOWN ABOVE) SHALL BE INCREASED BY 30% FOR HORIZONTAL BARS WITH 300mm OR MORE CONCRETE CAST BELOW THE BAR
- R10. LAPS IN REINFORCEMENT SHALL BE STAGGERED SO THAT NO MORE THAN 50% OF BARS ARE LAPPED IN ANY ONE CROSS SECTION AND THAT NO TWO ADJACENT BARS ARE LAPPED AT THE SAME LOCATION.
- R11. WELDING OF REINFORCEMENT IS NOT PERMITTED UNLESS SHOWN ON THE DRAWINGS OR APPROVED BY THE PROJECT MANAGER. WHERE WELDING IS APPROVED FOR USE THE FOLLOWING NOTES APPLY :-  
a) ALL WELDING SYMBOLS CONFORM TO AS 1101.3  
b) WELDING OF BAR SPLICES TO CONFORM TO AS/NZS 1554.3  
c) WELDING CONSUMABLES FOR DIRECT BUTT SPICE AND ANCHORAGE SPICE TO BE:  
E5518, E6218 OR W62X.  
OR  
d) WELDING CONSUMABLES FOR ALL OTHER WELDS TO BE:  
E4816, E4818 OR W50X, UNO.  
e) WELDING SHALL NOT BE CARRIED OUT WITHIN 75mm OF ANY BENT PORTION OF THE BAR.
- R12. TACK WELDING FOR LOCATION PURPOSES TO CONFORM TO AS/NZS 1554.3 CLAUSES 3.3.1 AND 3.3.2. WELDING CONSUMABLES TO BE E4816, E4818 OR W50X.

## CONCRETE REINFORCEMENT NOTES

- R1. REINFORCEMENT IS REPRESENTED DIAGRAMMATICALLY AND NOT NECESSARILY SHOWN IN TRUE PROJECTION.
- R2. ALL HOLES, BENDS AND COGS ARE STANDARD AND SHALL BE IN ACCORDANCE WITH AS 3600.
- R3. SPLICES IN REINFORCEMENT SHALL BE MADE ONLY IN THE POSITIONS SHOWN OR AS OTHERWISE APPROVED BY THE PROJECT MANAGER. ALL LAPS SHALL BE FULL STRENGTH SPLICES COMPLYING WITH AS 3600.
- R4. ALL REINFORCEMENT SHALL BE SECURELY SUPPORTED IN ITS CORRECT POSITION DURING CONCRETING BY APPROVED GRADE 316 STAINLESS STEEL BAR CHAIRS, OR CONCRETE SPACERS. PLASTIC SPACERS OR MILD STEEL BAR CHAIRS ARE NOT TO BE USED.
- R5. REINFORCING STEEL TO BE IN ACCORDANCE WITH AS/NZS 4671. REINFORCEMENT PREFIXES:  
N = GRADE D500N DEFORMED BARS.  
R = GRADE R250N PLAIN BARS.  
W = GRADE D500L HARD-DRAWN REINFORCING WIRE.  
RL & SL = GRADE D500L WELDED WIRE REINFORCING MESH.
- ALL REINFORCING STEEL TO BE ACRS CERTIFIED. THE CONTRACTOR SHALL PROVIDE EVIDENCE OF COMPLIANCE BEFORE ANY REINFORCEMENT IS SUPPLIED TO THE PROJECT.
- R6. REINFORCING STEEL NOMENCLATURE EXAMPLE :-



BAR	MINIMUM LAP LENGTH
N12	350
N16	500
N20	700
N24	900
MESH	2 TRANSVERSE BARS +25mm

## CONCRETE NOTES

- C1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT EDITION OF AS 3600, EXCEPT WHERE VARIED BY THE DRAWINGS OR TECHNICAL SPECIFICATION.
- C2. CONCRETE FINISHES SHALL BE IN ACCORDANCE WITH THE SPECIFICATION UNO.
- C3. ALL CONCRETE WORK SHALL BE CURED IN ACCORDANCE WITH THE SPECIFICATION.
- C4. CONCRETE SHALL BE SPECIAL CLASS PERFORMANCE CONCRETE AS SPECIFIED BELOW. CONCRETE GRADE AND MINIMUM COVER TO ALL REINFORCEMENT FOR VARIOUS ELEMENTS SHALL BE AS FOLLOWS :-

ELEMENT	CONCRETE GRADE	EXPOSURE CLASSIFICATION	MINIMUM COVER (mm)
STEPS CONCRETE	S0MPa	C2	75

NOTE: ALL COVER TO HAVE A TOLERANCE OF -0mm TO +5mm.

- C5. SIZES OF CONCRETE ELEMENTS DO NOT INCLUDE THICKNESS OF ANY APPLIED FINISHES.
- C6. NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE MADE IN CONCRETE MEMBERS WITHOUT PRIOR APPROVAL OF THE PROJECT MANAGER.
- C7. CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN OR SPECIFICALLY APPROVED BY THE PROJECT MANAGER. THE CONTRACTOR IS TO TAKE SPECIAL PRECAUTIONS TO IMPROVE THE LONG TERM DURABILITY OF THE EXPOSED FACES OF CONCRETE. BAR CHAIRS SHALL BE EITHER S50/10 CONCRETE BLOCKS OR GRADE 316 STAINLESS STEEL. OBSERVE NO NEGATIVE TOLERANCE REQUIREMENT ON COVER. TAKE SPECIAL CARE TO AVOID SCRAP TIE WIRE OR OTHER MATERIAL BEING PRESENT. PLASTIC BARS NOT ALLOWED. PLASTIC TIPPED MILD STEEL BAR CHAIRS NOT ALLOWED.
- C9. CHAMFERS TO EXPOSED EDGES SHALL BE 20mm WITH A 5mm RADIUS ROUNDED LEADING EDGE FOR ALL STEPS.
- C10. DETAILS OF CONCRETE MIX, AGGREGATE SIZE AND COLOUR, METHOD OF CURING AND FINISH ARE TO BE SUBMITTED TO THE PROJECT MANAGER FOR APPROVAL BEFORE COMMENCING CONCRETE WORKS.
- C11. ALL REINFORCED CONCRETE TO CONTAIN CEMENT WHICH HAS EITHER 30% FLY ASH PLUS 70% PORTLAND CEMENT OR 65% BLAST FURNACE SLAG PLUS 35% PORTLAND CEMENT, TO PREVENT ALKALI SILICA REACTION - ASR.
- C12. ALL REINFORCED CONCRETE TO HAVE A MAXIMUM WATER CEMENT RATIO OF 0.4 AND A MAXIMUM AGGREGATE OF 20mm
- C13. ALL EXPOSED CONCRETE SURFACES TO BE COATED WITH SILANE SILOXANE WATER REPELLENT (BASF MASTERSEAL 355 OR EQUIVALENT) AT 4.0m<sup>2</sup>/LITRE.
- C14. ALL CONCRETE TO HAVE CALCIUM NITRATE CORROSION INHIBITOR ADDMIXTURE, (BASF RHEOCRETE CN OR EQUIVALENT) AT 20L/m<sup>3</sup>. A RETARDER ADDMIXTURE MUST BE USED WITH CALCIUM NITRATE (BASF POZZOLITH 300 RI OR 122 RI).

## PENETRATIONS AND CAST-IN ITEMS

- C11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CO-ORDINATE THE LOCATION OF ALL REQUIRED PENETRATIONS AND CAST-IN ITEMS IN THE CONCRETE INCLUDING BOLTS, BRACKETS, SERVICES, STARTER BARS, POCKETS AND THE LIKE.
- C12. WHERE ANY PENETRATIONS OR CAST-IN ITEMS DISPLACE REINFORCEMENT, THE RE-ARRANGEMENT OF REINFORCEMENT SHALL BE APPROVED BY THE PROJECT MANAGER.
- C13. UNDER NO CIRCUMSTANCES IS REINFORCEMENT TO BE DISPLACED INTO THE COVER ZONE.
- C14. NO HOLES, CHASES OR EMBEDMENT OF PIPES OTHER THAN THOSE SHOWN ON THE DRAWINGS SHALL BE MADE WITHOUT THE PRIOR APPROVAL OF THE PROJECT MANAGER. ALL HOLES, CHASES OR EMBEDMENTS SHALL PROVIDE THE SPECIFIED COVER TO THE REINFORCEMENT.
- C15. TEMPLATES SHALL BE USED TO ACCURATELY LOCATE AND HOLD IN POSITION AND ALIGNMENT ALL CAST-IN BOLTS, FERRULES AND DOWELS DURING PLACEMENT OF CONCRETE.
- C16. EXPOSED DIS-SIMILAR METALS SHALL BE KEPT SEPARATED. THIS INCLUDES DIFFERENT TYPES OF STEEL (E.G. STAINLESS, REINFORCED, PRESTRESSING). DIS-SIMILAR METALS EMBEDDED IN CONCRETE ARE ALLOWED TO BE IN CONTACT.

## BOLT NOTES

- B1. ALL BOLTS NUTS AND WASHERS INCLUDING HOLD DOWN BOLTS SHALL BE GRADE 316 STAINLESS STEEL UNLESS SPECIFICALLY NOMINATED OTHERWISE ON THE DRAWINGS.
- B2. USE A NICKEL BASE LUBRICANT OR NICKEL IMPREGNATED TAPE ON THE THREADS OF ALL STAINLESS STEEL BOLTS BEFORE ASSEMBLY.
- B3. ALL STAINLESS STEEL FASTENERS SHALL BE FITTED WITH A STAINLESS STEEL 'NYLOC' NUT AND LOCK NUT AND STAINLESS STEEL WASHER UNDER NUT.

## FORMWORK NOTES

- F1. ALL FORMWORK AND STRIPPING OF FORMWORK SHALL COMPLY WITH AS 3610
- F2. FORMWORK SHALL NOT BE STRIPPED UNTIL THE CONCRETE STRENGTH IS SUFFICIENT TO SUPPORT THE LOADS WITHOUT EXCESSIVE DISTORTION OR CRACKING.
- F3. FORMWORK SHALL BE CLASS 2C TO AS 3610 FOR VISABLE FORMED SURFACES.

## SURVEY CONTROL DATA

- SD1. HORIZONTAL DATUM = GDA94, MGA ZONE 56
- SD2. ALL REDUCED LEVELS ARE EXPRESSED IN METRES TO AUSTRALIAN HEIGHT DATUM (AHD).
- SD3. TIDE LEVELS TO AHD ARE AS FOLLOWS -  
STORM TIDE LEVEL +2.10m 50 YEAR ARI  
INCLUDING SEA LEVEL RISE OF 0.4m  
HAT +1.25m HIGHEST ASTRONOMICAL TIDE  
MHWS +0.77m MEAN HIGH WATER SPRINGS  
MHWN +0.43m MEAN HIGH WATER NEAPS  
MSL -0.04m MEAN SEA LEVEL  
MLWN -0.45m MEAN LOW WATER NEAPS  
MLWS -0.78m MEAN LOW WATER SPRINGS  
LAT -1.10m LOWEST ASTRONOMICAL TIDE
- SD4. (MSQ 2013, 'BONGAREE')  
CONTOURS SHOWN ON PLANS AND SECTIONS ARE SUBJECT TO CHANGE AND THEREFORE MIGHT NOT PROVIDE AN ACCURATE ESTIMATE OF CUT AND FILL QUANTITIES. CONFIRM SURVEY ON SITE.

## TREE PROTECTION NOTES

- TP1. IF REQUIRED TREE PROTECTION ZONE TO BE DEFINED BY TEMPORARY FENCING OR APPROVED EQUIVALENT.
- TP2. PROJECT ARBORIST TO APPROVE TREE PROTECTION ZONE PRIOR TO WORK COMMENCING.
- TP3. ONCE ESTABLISHED, NO PART OF THE TREE PROTECTION ZONE IS TO BE ENTERED OR ALTERED WITHOUT THE PROJECT ARBORIST'S PERMISSION.

## ENVIRONMENT NOTES

- E1. ALL WORKS TO COMPLY WITH THE ENVIRONMENT MANAGEMENT PLAN.

## ABBREVIATIONS

AL	- ALUMINIUM	GALV	- GALVANISED
AGD	- AUSTRALIAN GEODETIC DATUM	HD	- HOLD DOWN
AHD	- AUSTRALIAN HEIGHT DATUM	ID	- INTERNAL DIAMETER
BTM	- BOTTOM	LIG	- LIGATURE
CFA	- CONTINUOUS FLIGHT AUGER	MAX	- MAXIMUM
CH	- CHAINAGE	MIN	- MINIMUM
C/H	- CUP HEAD	MSQ	- MARITIME SAFETY QUEENSLAND
CJ	- CONSTRUCTION JOINT	NF	- NEAR FACE
CL	- CENTRELINE	No	- NUMBER
COL	- COLUMN	NOM	- NOMINAL
CRS	- CENTRES	NTS	- NOT TO SCALE
DN	- NOMINAL DIAMETER	OD	- OUTSIDE DIAMETER
DRG	- DRAWING	QTY	- QUANTITY
DRGS	- DRAWINGS	RC	- REINFORCED CONCRETE
EF	- EACH FACE	REQD	- REQUIRED
EJ	- EXPANSION JOINT	RL	- REDUCED LEVEL
EQUIV	- EQUIVALENT	SS	- STAINLESS STEEL
EW	- EACH WAY	TBC	- TO BE CONFIRMED
EXP	- EXPANSION	UNO	- UNLESS NOTED OTHERWISE
FF	- FAR FACE		

## ROCK AMOUR NOTES

- RA1. ROCK AMOUR SHALL COMPRISE INDIVIDUAL STONE WHICH IS EITHER IGNEOUS OR METAMORPHIC IN ORIGIN AND WHICH IS DENSE, SOUND, RESISTANT TO ABRASION, FREE OF CRACKS, CLEAVAGE PLANES, SEAMS, AND OTHER DEFECTS WHICH WOULD RESULT IN BREAKDOWN OF THE ROCK IN A MARINE ENVIRONMENT.
- RA2. ANY ROCK WHICH WILL UNDERGO PHYSICAL CHANGE CAUSING SPALLING, WEATHERING, OR FRACTURING IN A MARINE ENVIRONMENT WILL NOT BE ACCEPTABLE.
- RA3. THE METHODS USED IN HANDLING AND PLACEMENT OF ROCK SHALL BE SUCH AS TO MINIMIZE BREAKDOWN AND THE PRODUCTION OF FINES.



## ENGINEERING CONSTRUCTION & MAINTENANCE

### AUTHORISATION

Director Date 13/9/13

Manager Date 12/09/13

### PROJECT INFORMATION

Project Number

Coordinator Team Leader

Design Checked

Surveyor Survey Date

Survey Datum

MGA (GDA94) ZONE 56 AUSTRALIAN HEIGHT DATUM (AHD)

Horizontal Vertical

Scales

### ISSUE

Revisions	Appd.	Date
Original Issue		

### PROJECT DESCRIPTION

## PUMICESTONE PASSAGE SEAWALL RENEWAL

STAGE 1

### STANDARD NOTES

### DRAWING NUMBER

13/671-102

Drawing Number Rev.

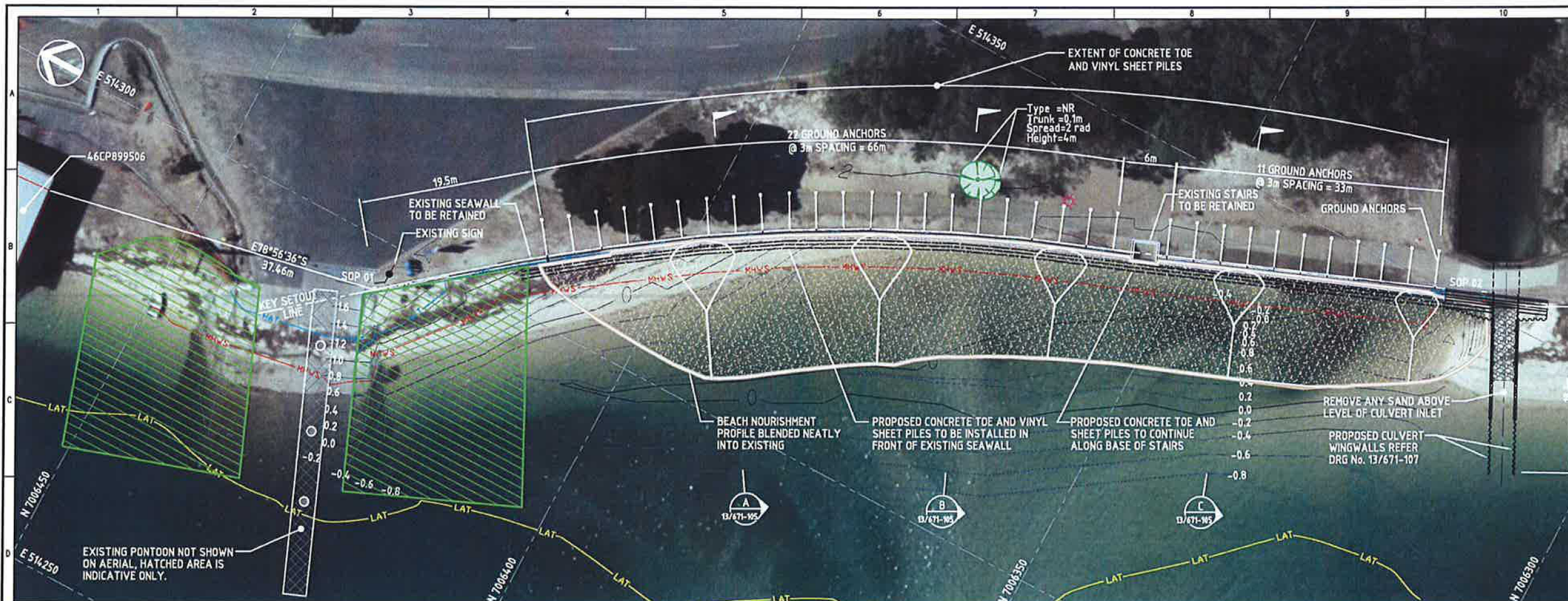
Drawing 2 of 10 Original Plan Size A1

### FOR CONSTRUCTION

REV	DESCRIPTION	DATE	POSITION	NAME	SIGNATURE	ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd
			DRAFTING	J. BROOKER		
			DESIGN	M. WESTHUYZEN		
			DESIGN VERIFICATION	S. MUNISWAMY		
			PROJECT APPROVAL	I. VAMVAKAS		
B	ISSUED FOR CONSTRUCTION	29/08/13				
B	ISSUED FOR TENDER	22/08/13				
A	ISSUED FOR CLIENT REVIEW	22/05/13				

KBR	
KBR Drawing No. BEJ351-DW-CV-GEN-0102	
REVISION	0
DRAFTER: B. CORNELIUS	





#### LEGEND

<span style="color: blue;">—</span> HAT	NEW HAT (+1.25m AHD)		BEACH NOURISHMENT
<span style="color: red;">—</span> MHWS	NEW MHWS (+0.77m AHD)		TREE TO BE RETAINED
<span style="color: yellow;">—</span> LAT	NEW LAT (-1.10m AHD)		BOAT RAMP EXCLUSION ZONE
<span style="color: magenta;">—</span> RP BOUNDARY			

#### NORTHERN SEAWALL SETOUT POINTS

SOP	EASTING	NORTHING
SOP 01	514294.742	7006428.380
SOP 02	514351.729	7006319.403

#### NORTHERN SEAWALL - BELLARA FORESHORE GENERAL ARRANGEMENT PLAN SCALE 1:250

\* AERIAL IMAGERY JULY 2011 - MORETON BAY REGIONAL COUNCIL  
\* SURVEY 24 JANUARY 2013 - NORTH SURVEYS PTY LTD

#### FOR CONSTRUCTION

REV	DESCRIPTION	DATE	POSITION	NAME	SIGNATURE	ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd
			DRAFTING	J. BROOKER		
			DESIGN	M. WESTHUYZEN		
			DESIGN VERIFICATION	S. MUNISWAMY		
			PROJECT APPROVAL	I. VAMVAKAS		
B	ISSUED FOR CONSTRUCTION	29/08/13				
C	ISSUED FOR TENDER	22/08/13				
B	RE-ISSUED FOR CLIENT REVIEW	16/07/13				
A	ISSUED FOR CLIENT REVIEW	22/05/13				

Kellogg Brown & Root Pty Ltd

**KBR**

Kellogg Brown & Root Pty Ltd  
ABN 91 007 440 317

KBR DRAWING No. BEJ351-DW-CV-GEN-0103

DRAFTER: B. CORNELIUS

RPEQ No. 2442

RPEQ DATE: 29/08/13

RPEQ NAME: M. CUMMINGS

RPEQ SIGNATURE:

#### NOTES:

REFER DRG No. 13/671-102 FOR STANDARD NOTES.

#### ENGINEERING CONSTRUCTION & MAINTENANCE

#### AUTHORISATION

Director Date 13/07/13  
Manager Date 12/07/13

#### PROJECT INFORMATION

Project Number  
Coordinator Team Leader   
Design Checked  
Surveyor Survey Date  
Survey Datum  
MGA (GDA84) ZONE 56 AUSTRALIAN HEIGHT DATUM (AHD)  
Horizontal Vertical

Scales

#### ISSUE

Revisions	Appd.	Date
Original Issue		

#### PROJECT DESCRIPTION

PUMICESTONE  
PASSAGE SEAWALL  
RENEWAL

STAGE 1

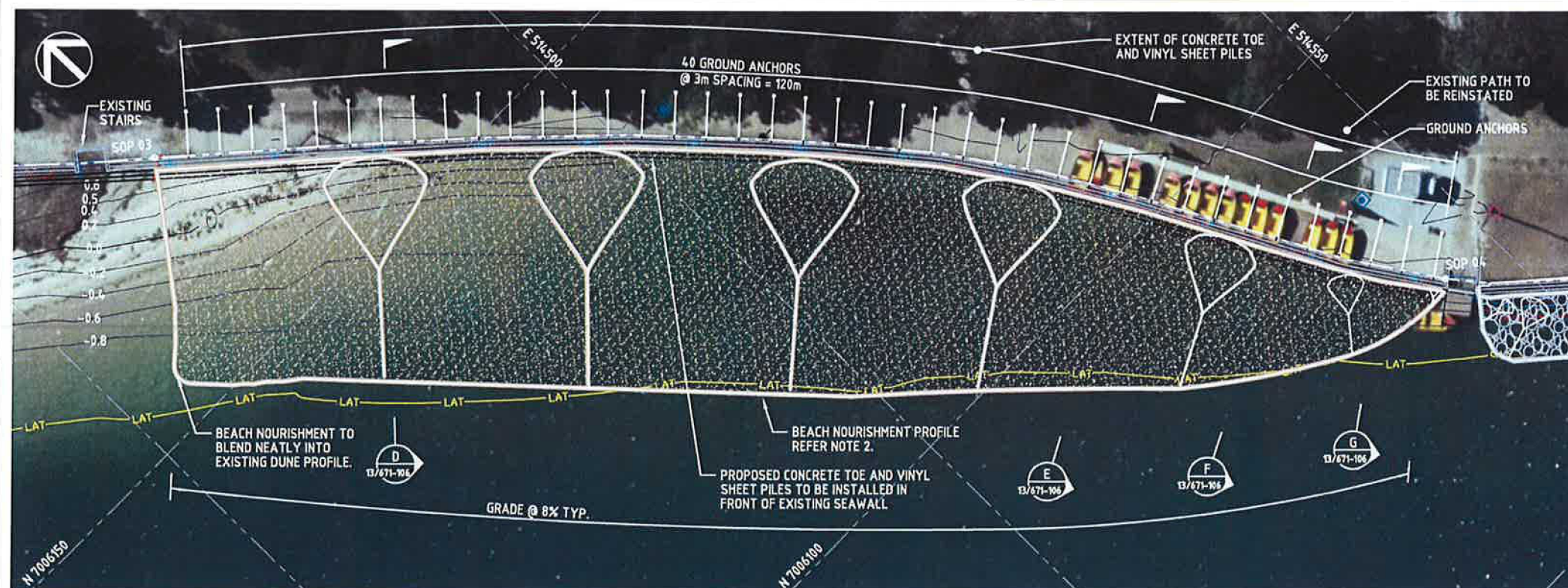
GENERAL ARRANGEMENT  
PLAN  
SHEET 1 OF 2

#### DRAWING NUMBER

**13/671-103**

Drawing Number 13/671-103 Rev.  
Drawing 3 of 10 Original Plan Size A1





#### SOUTHERN SEAWALL SETOUT POINTS

SOP	EASTING	NORTHING
SOP 03	514468.604	7006170.037
SOP 04	514544.293	7006076.648

#### ROCK PROTECTION SETOUT POINTS

RSP	EASTING	NORTHING
RSP 01	514546.163	7006074.303
RSP 02	514588.731	7006045.688

#### ENGINEERING CONSTRUCTION & MAINTENANCE

#### AUTHORISATION

Director: *[Signature]* Date: 13/9/13  
Manager: *[Signature]* Date: 12/09/13

#### PROJECT INFORMATION

Project Number: *[Blank]*  
Coordinator: *[Signature]* Team Leader: *[Signature]*  
Design: *[Blank]* Checked: *[Blank]*  
Surveyor: *[Blank]* Survey Date: *[Blank]*  
MGA (GDA84) ZONE 56 AUSTRALIAN HEIGHT DATUM (AHD)  
Horizontal: *[Blank]* Vertical: *[Blank]*

#### ISSUE

Revisions	Appd.	Date
Original Issue		

#### PROJECT DESCRIPTION

**PUMICESTONE  
PASSAGE SEAWALL  
RENEWAL**

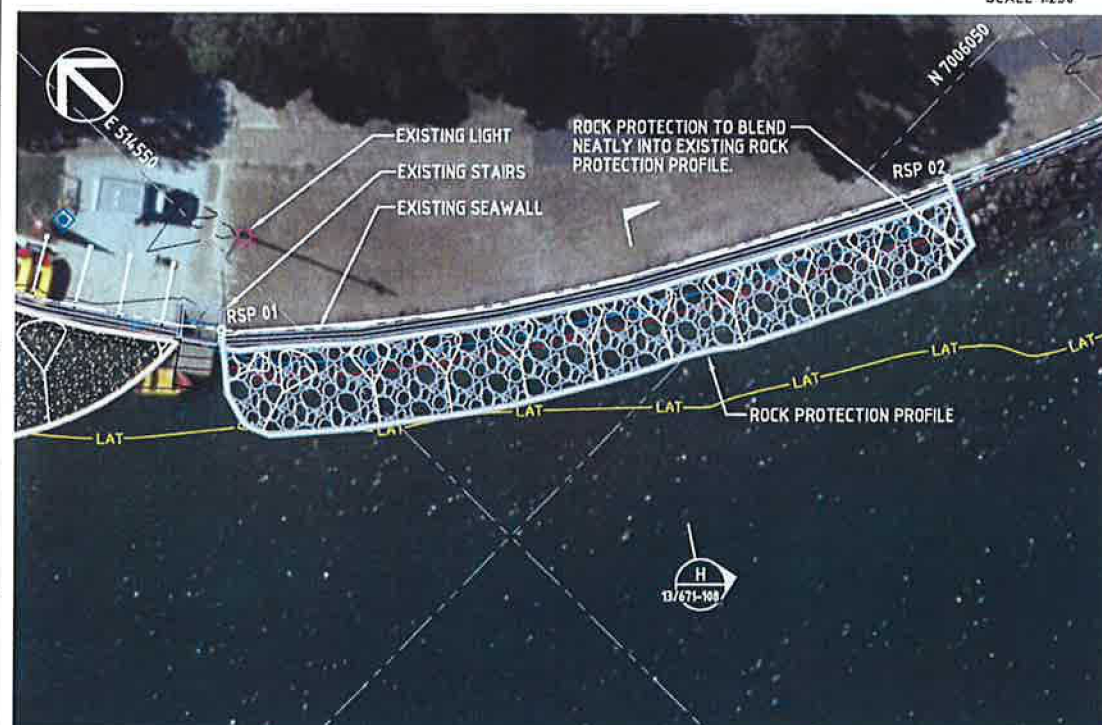
STAGE 1

GENERAL ARRANGEMENT  
PLAN  
SHEET 2 OF 2

#### DRAWING NUMBER

**13/671-104**  
Drawing Number: *[Blank]* Rev: *[Blank]*  
Drawing 4 of 10 Original Plan Size: A1

**SOUTHERN SEAWALL - BELLARA FORESHORE  
GENERAL ARRANGEMENT PLAN**  
SCALE 1:250



**SOUTHERN SEAWALL - BELLARA FORESHORE  
GENERAL ARRANGEMENT PLAN**  
SCALE 1:250

#### LEGEND

	HAT	NEW HAT (+1.25m AHD)		BEACH NOURISHMENT
	MHWS	NEW MHWS (+0.77m AHD)		ROCK REVETMENT
	LAT	NEW LAT (-1.10m AHD)		TREE TO BE RETAINED
	RP BOUNDARY			

#### FOR CONSTRUCTION

REV	DESCRIPTION	DATE	POSITION	NAME	SIGNATURE	ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd	KBR DRAWING No	REVISION
			DRAFTING	J. BROOKER	<i>[Signature]</i>	RPED SIGNATURE		
			DESIGN	M. WESTHUYZEN	<i>[Signature]</i>	RPED NAME	CUMMINGS	
			DESIGN VERIFICATION	S. MUNISWAMY	<i>[Signature]</i>	RPED No	2442	
			PROJECT APPROVAL	I. VAMVAKAS	<i>[Signature]</i>	RPED DATE	29/08/13	
D	ISSUED FOR CONSTRUCTION	29/08/13					BEJ351-DW-CV-GEN-0104	0
B	ISSUED FOR TENDER	22/08/13						
A	ISSUED FOR CLIENT REVIEW	22/05/13						

\* AERIAL IMAGERY JULY 2011 - MORETON BAY REGIONAL COUNCIL  
\* SURVEY 24 JANUARY 2013 - NORTH SURVEYS Pty Ltd

#### NOTES:

- REFER DRG No.13/671-102 FOR STANDARD NOTES
- TOE OF BEACH NOURISHMENT TO BE CLEAR OF CHANNEL.



ENGINEERING  
CONSTRUCTION &  
MAINTENANCE

AUTHORISATION

Director *[Signature]* Date 13/9/13  
Manager *[Signature]* Date 12/04/13

PROJECT INFORMATION

Project Number  
Coordinator *PP* *NM* Team Leader  
Design *[Signature]* Checked  
Surveyor Survey Date  
Survey Datum  
MGA (GDA84) ZONE 56 AUSTRALIAN HEIGHT DATUM (AHD)  
Horizontal Vertical

ISSUE

Revisions  
Appd. Date  
Appd. Date  
Appd. Date  
Appd. Date  
Original Issue Date

PROJECT DESCRIPTION

PUMICESTONE  
PASSAGE SEAWALL  
RENEWAL

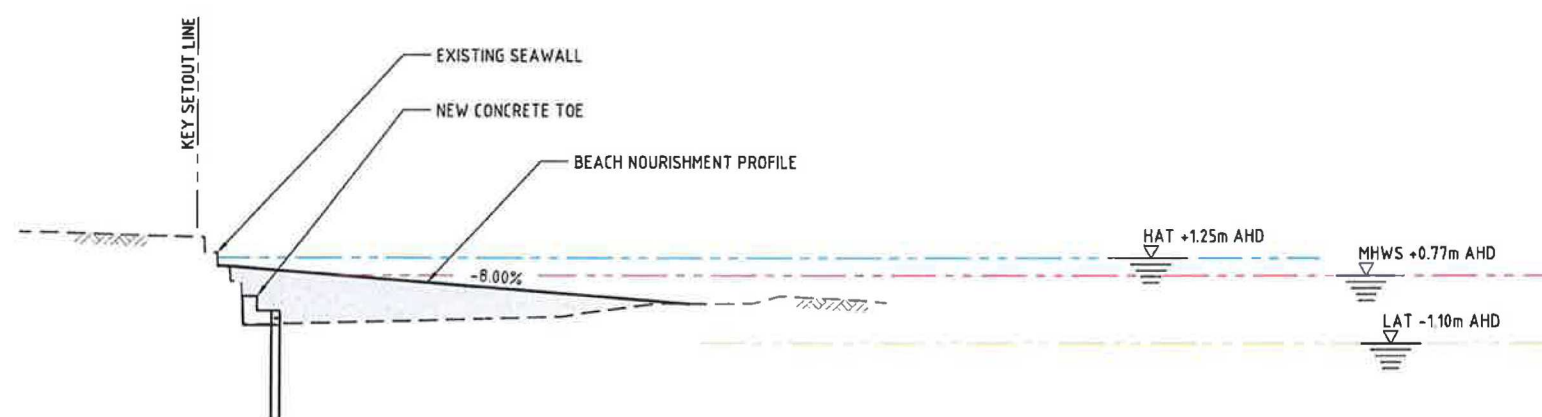
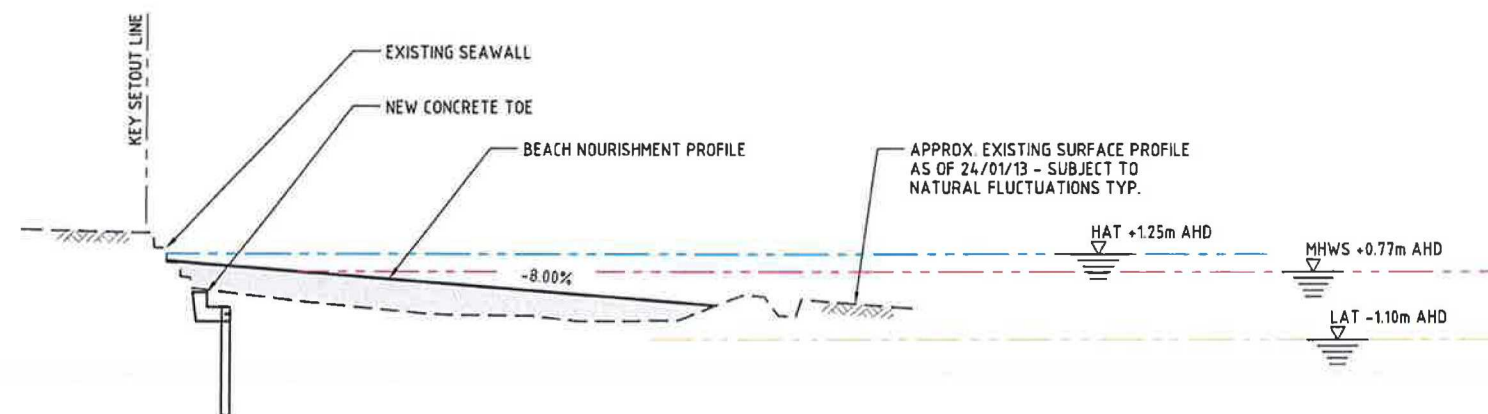
STAGE 1

TYPICAL SECTIONS  
SHEET 1 OF 2

DRAWING NUMBER

13/671-105

Drawing Number Rev.  
Drawing 5 of 10 Original Plan Size A1



FOR CONSTRUCTION



REV	DESCRIPTION	DATE	POSITION	NAME	SIGNATURE	ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd
			DRAFTING	J. BROOKER	<i>[Signature]</i>	
			DESIGN	H. WESTHUYZEN	<i>[Signature]</i>	
			DESIGN VERIFICATION	S. MUNISWAMY	<i>[Signature]</i>	
			PROJECT APPROVAL	I. VAMVAKAS	<i>[Signature]</i>	
0	ISSUED FOR CONSTRUCTION	29/08/13				
B	ISSUED FOR TENDER	22/08/13				
A	ISSUED FOR CLIENT REVIEW	22/05/13				

Kellogg Brown & Root Pty Ltd

KBR

Kellogg Brown & Root Pty Ltd  
ABN 91 007 660 317

KBR DRAWING No. BEJ351-DW-CV-GEN-0105

DRAFTER: B. CORNELIUS

REVISION

0

\* SURVEY 24 JANUARY 2013 - NORTH SURVEYS PTY LTD

NOTES:

REFER DRG No.13/671-102 FOR STANDARD NOTES.



ENGINEERING  
CONSTRUCTION &  
MAINTENANCE

AUTHORISATION

Director *[Signature]* Date 13/9/13  
Manager *[Signature]* Date 12/09/13

PROJECT INFORMATION

Project Number  
Coordinator *[Signature]* Team Leader *[Signature]*  
Design *[Signature]* Checked  
Surveyor *[Signature]* Survey Date  
Survey Datum  
MGA (GD84) ZONE 56 AUSTRALIAN HEIGHT DATUM (AHD)  
Horizontal Vertical

ISSUE

Revisions  
Appd. Date  
Appd. Date  
Appd. Date  
Appd. Date  
Original Issue Date

PROJECT DESCRIPTION

PUMICESTONE  
PASSAGE SEAWALL  
RENEWAL

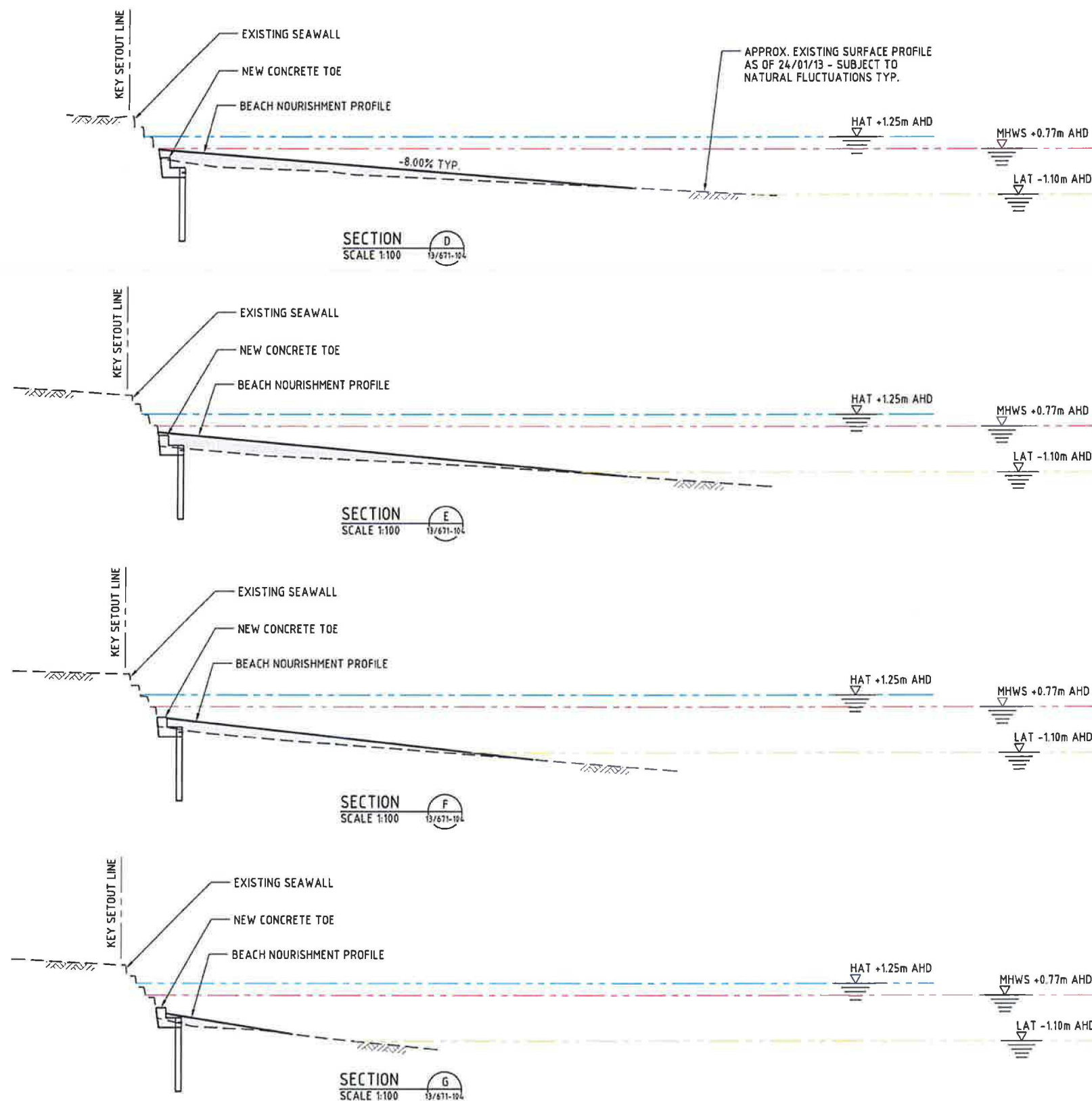
STAGE 1

TYPICAL SECTIONS  
SHEET 2 OF 2

DRAWING NUMBER

13/671-106

Drawing Number 13/671-106 Rev.  
Drawing 6 of 10 Original Plan Size A1



FOR CONSTRUCTION



REV	DESCRIPTION	DATE	POSITION	NAME	SIGNATURE	ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd
			DRAFTING	J. BROOKER	<i>[Signature]</i>	
			DESIGN	M. WESTHUYZEN	<i>[Signature]</i>	
			DESIGN VERIFICATION	S. MUNISWAMY	<i>[Signature]</i>	
			PROJECT APPROVAL	I. VAMVAKAS	<i>[Signature]</i>	
0	ISSUED FOR CONSTRUCTION	29/08/13				
B	ISSUED FOR TENDER	22/08/13				
A	ISSUED FOR CLIENT REVIEW	22/05/13				

Kellogg Brown & Root Pty Ltd

**KBR**  
Kellogg Brown & Root Pty Ltd  
ABN 91 007 660 317

KBR Drawing No BEJ351-DW-CV-GEN-0106

DRAFTER B.CORNELIUS

\* SURVEY 24 JANUARY 2013 - NORTH SURVEYS PTY LTD

NOTES:

REFER DRG No.13/671-102 FOR STANDARD NOTES.

REVISION

0



ENGINEERING  
CONSTRUCTION &  
MAINTENANCE

AUTHORISATION

Director *[Signature]* Date 13/9/13  
Manager *[Signature]* Date 12/09/13

PROJECT INFORMATION

Project Number  
Coordinator *[Signature]* Team Leader  
Design *[Signature]* Checked  
Surveyor Survey Date  
MGA (GDA94) ZONE 55 AUSTRALIAN HEIGHT DATUM (AHD)  
Horizontal Vertical

ISSUE

Revisions  
Appd. Date  
Appd. Date  
Appd. Date  
Appd. Date  
Original Issue Date

PROJECT DESCRIPTION

PUMICESTONE  
PASSAGE SEAWALL  
RENEWAL

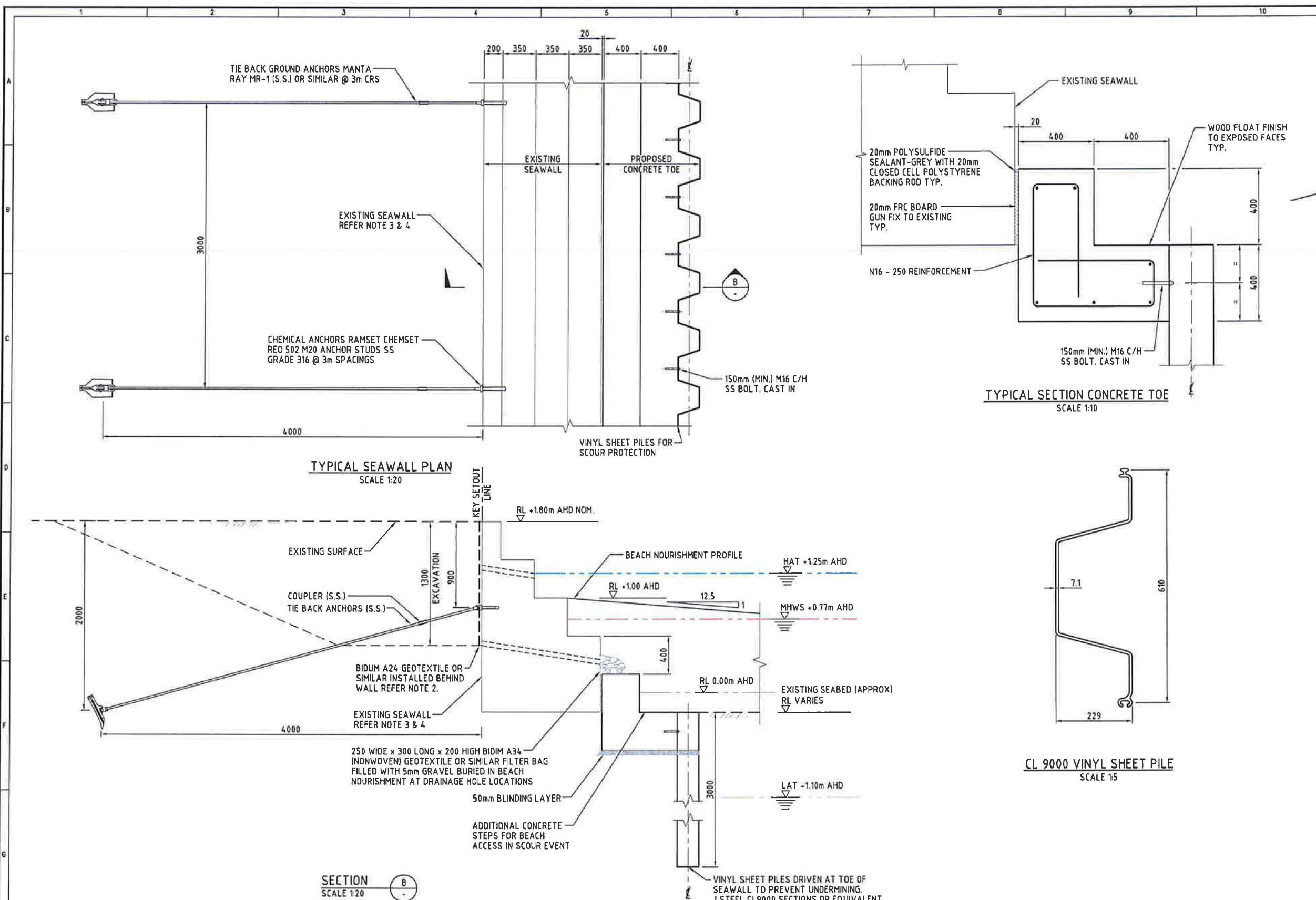
STAGE 1

CONCRETE TOE  
SECTION AND DETAILS

DRAWING NUMBER

13/671-107

Drawing Number Rev.  
Drawing 7 of 10 Original Plan Size A1



FOR CONSTRUCTION

REV	DESCRIPTION	DATE	POSITION	NAME	SIGNATURE	ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd
			DRAFTING	J. BROOKER	<i>[Signature]</i>	
			DESIGN	M. WESTHUYZEN	<i>[Signature]</i>	
			DESIGN VERIFICATION	S. MUNISWAMY	<i>[Signature]</i>	
			PROJECT APPROVAL	I. VAMVAKAS	<i>[Signature]</i>	
0	ISSUED FOR CONSTRUCTION	29/08/13				
B	ISSUED FOR TENDER	22/08/13				
A	ISSUED FOR CLIENT REVIEW	22/05/13				

Kellogg Brown & Root Pty Ltd

**KBR**

Kellogg Brown & Root Pty Ltd  
ABN 91 007 660 317

KBR Drawing No. BEJ351-DW-CV-GEN-0107

REVISION 0

DRAFTER: B. CORNELIUS



ENGINEERING  
CONSTRUCTION &  
MAINTENANCE

AUTHORISATION

Director Date 13/9/13  
Manager Date 12/09/13

PROJECT INFORMATION

Project Number  
Coordinator *JP NM* Team Leader  
Design Checked  
Surveyor Survey Date  
MGA (GDA94) ZONE 56 AUSTRALIAN HEIGHT DATUM (AHD)  
Horizontal Vertical

Scales

ISSUE

Revisions		
Appd	Date	
Appd	Date	
Appd	Date	
Appd	Date	
Original Issue	Date	

PROJECT DESCRIPTION

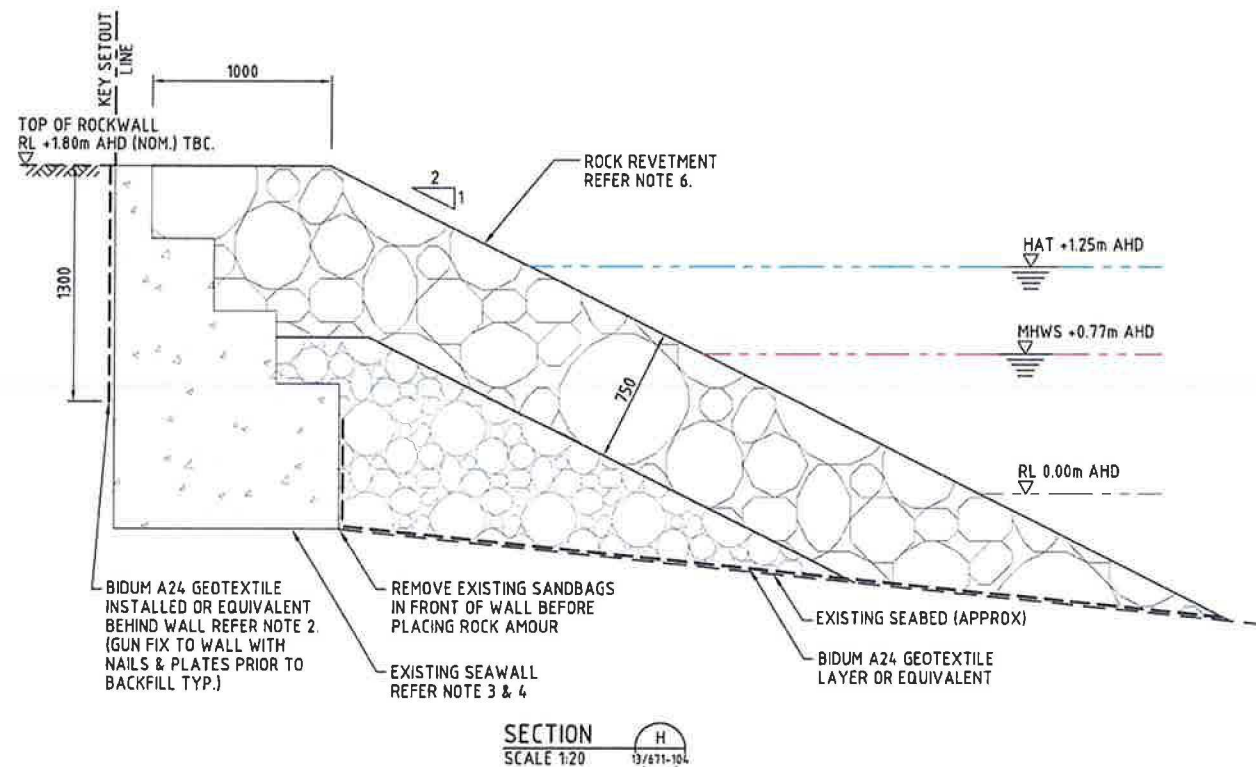
PUMICESTONE  
PASSAGE SEAWALL  
RENEWAL

STAGE 1

ROCK PROTECTION  
SECTION AND DETAILS

DRAWING NUMBER

13/671-108  
Drawing Number Rev.  
Drawing 8 of 10 Original Plan Size: A1



NOTES:

- REFER DRG No. 13/671-002 FOR STANDARD NOTES.
- DURING INSTALLATION OF GEOTEXTILE, WEEPHOLES IN EXISTING SEAWALL ARE TO BE UNBLOCKED.
- EXISTING WALL DIMENSIONS SHOWN AS PER HISTORICAL DRAWINGS AND MEASURED ON SITE.
- CONCRETE REPAIR WORKS TO EXISTING SEAWALL TO BE CARRIED OUT AS NECESSARY, DETAILS TBC. ON SITE.
- ASSUMED GEOTECHNICAL PROPERTIES  
- LONGTERM DRAINED SHEAR STRENGTH  $\phi = 28$  DEG  
- DENSITY  $\gamma = 18\text{KN/M}^3$  IN AIR
- ROCK REVETMENT:  
PRIMARY ROCK ARMOUR:  
D50 = 0.50m  
D15 = 0.40m  
D85 = 0.80m  
FILTER ROCK ARMOUR:  
D50 = 0.25m  
D15 = 0.20m  
D85 = 0.40m

FOR CONSTRUCTION



REV	DESCRIPTION	DATE	POSITION	NAME	SIGNATURE	ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd	Kellogg Brown & Root Pty Ltd	KBR DRAWING No	REVISION
			DRAFTING	J. BROOKER	<i>[Signature]</i>	RPEQ SIGNATURE	<i>[Signature]</i>		
			DESIGN	M. WESTHUYZEN	<i>[Signature]</i>	RPEQ NAME	CUMMINGS		
			DESIGN VERIFICATION	S. MUNISWAMY	<i>[Signature]</i>	RPEQ No	2442	BEJ351-DW-CV-GEN-0108	
			PROJECT APPROVAL	I. VAMVAKAS	<i>[Signature]</i>	RPEQ DATE	29/08/13	DRAFTER: B.CORNELIUS	0



ENGINEERING  
CONSTRUCTION &  
MAINTENANCE

AUTHORISATION

Director *[Signature]* Date 13/9/13  
Manager *[Signature]* Date 12/09/13

PROJECT INFORMATION

Project Number  
Coordinator *[Signature]* Team Leader *[Signature]*  
Design *[Signature]* Checked  
Surveyor Survey Date  
MGA (GDA94) ZONE 55 AUSTRALIAN HEIGHT DATUM (AHD)  
Horizontal Vertical

Scales

ISSUE

Revisions	Appd	Date
Original Issue	Date:	

PROJECT DESCRIPTION

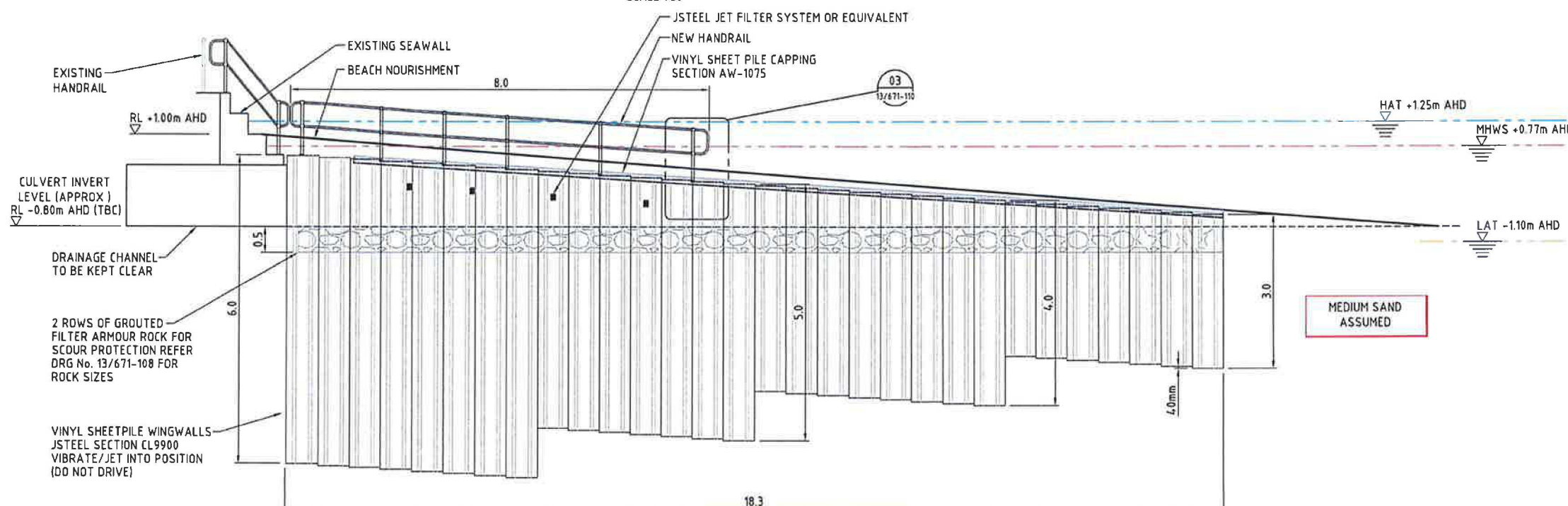
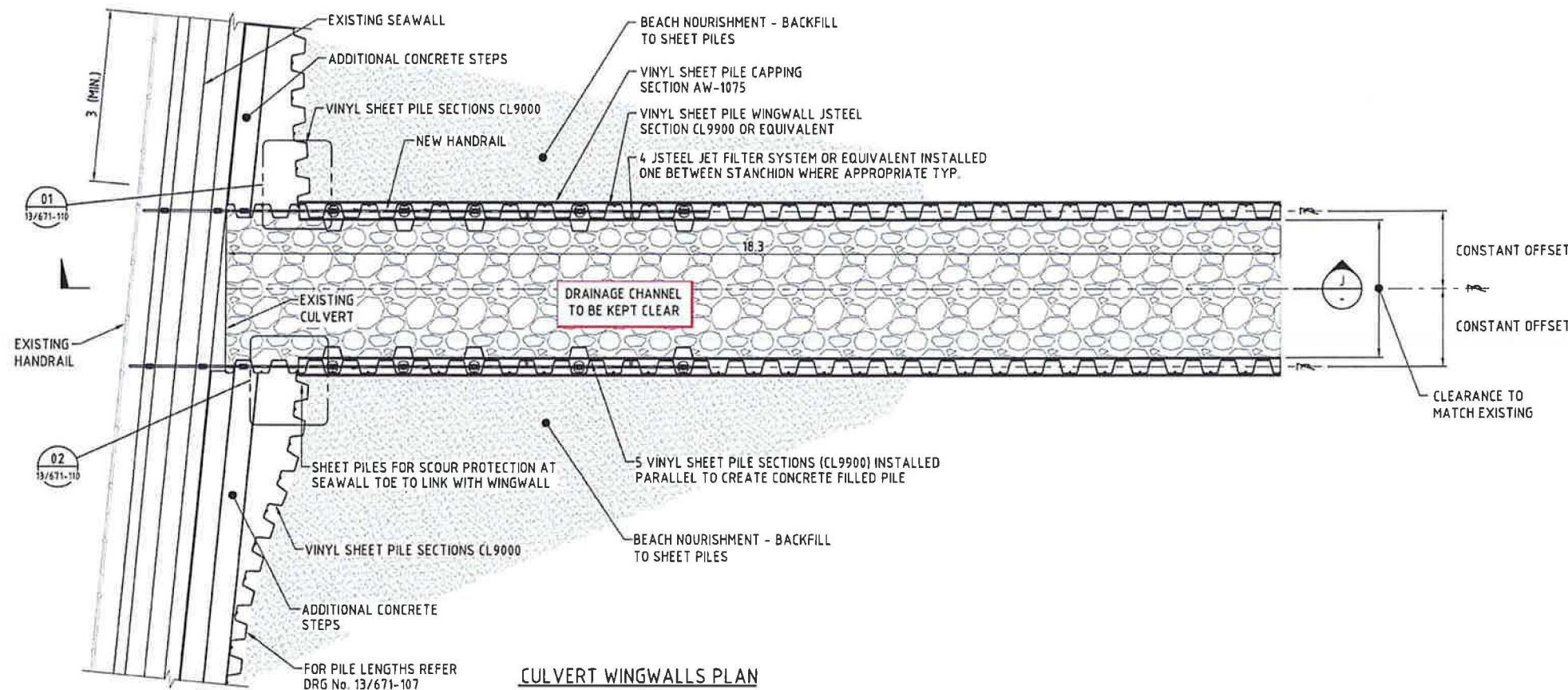
PUMICESTONE  
PASSAGE SEAWALL  
RENEWAL

STAGE 1

CULVERT WINGWALL  
PLAN AND SECTION

DRAWING NUMBER

13/671-109  
Drawing Number Rev.  
Drawing 9 of 10 Original Plan Size A1



FOR CONSTRUCTION

SCALE 1:50  
SCALE IN m

CULVERT WING WALLS

SECTION  
SCALE 1:50

REV	DESCRIPTION	DATE	POSITION	NAME	SIGNATURE	ENGINEERING CERTIFICATION FOR AND ON BEHALF OF KELLOGG BROWN & ROOT Pty Ltd
			DRAFTING	J. BROOKER	<i>[Signature]</i>	
			DESIGN	M. WESTHUYZEN	<i>[Signature]</i>	
			DESIGN VERIFICATION	S. MUNISWAMY	<i>[Signature]</i>	
			PROJECT APPROVAL	I. VAMVAKAS	<i>[Signature]</i>	
0	ISSUED FOR CONSTRUCTION	29/08/13				
B	ISSUED FOR TENDER	22/08/13				
A	ISSUED FOR CLIENT REVIEW	22/05/13				

Kellogg Brown & Root Pty Ltd

**KBR**  
Kellogg Brown & Root Pty Ltd  
ABN 91 007 660 317

KBR DRAWING No BEJ351-DW-CV-GEN-0109

DRAFTER: B CORNELIUS

NOTES:

- REFER TO DRG No. 13/671-102 FOR STANDARD NOTES.
- DURING INSTALLATION OF GEOTEXTILE, WEEPHOLES IN EXISTING SEAWALL ARE TO BE UNBLOCKED.
- EXISTING WALL DIMENSIONS SHOWN AS PER HISTORICAL DRAWINGS AND MEASURED ON SITE.
- CONCRETE REPAIR WORKS TO EXISTING SEAWALL TO BE CARRIED OUT AS NECESSARY.



