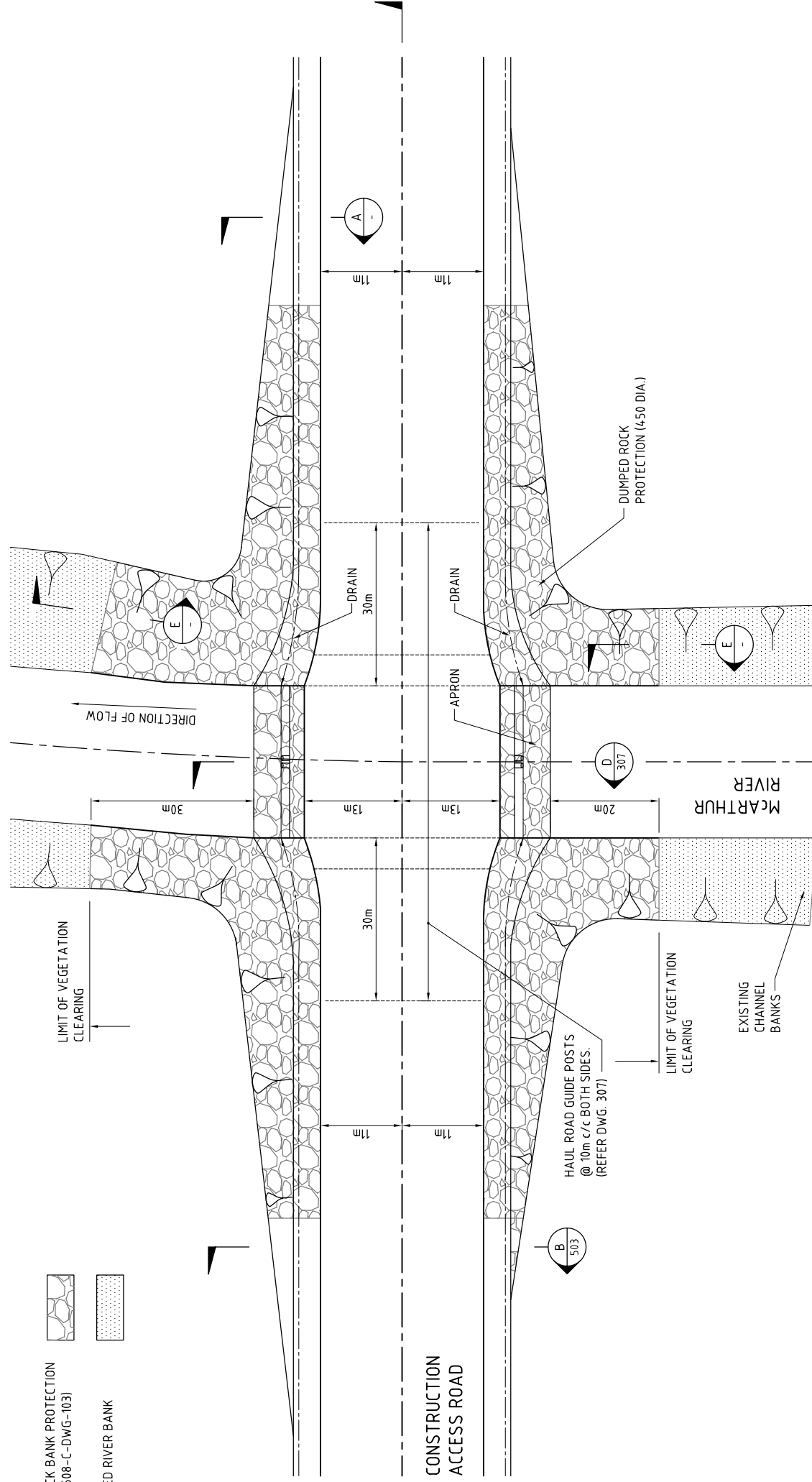


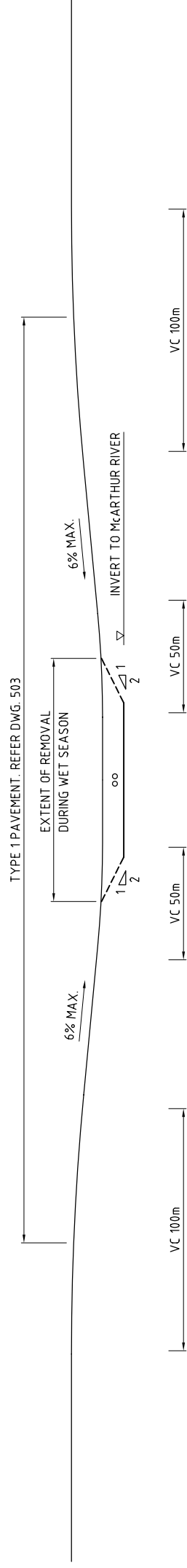
LEGEND

DUMPED ROCK BANK PROTECTION
(REFER BEE508-C-DWG-103)

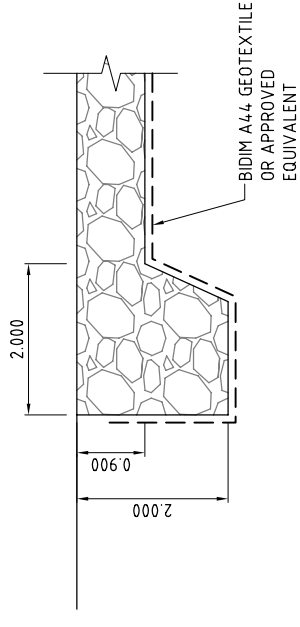
UNDISTURBED RIVER BANK



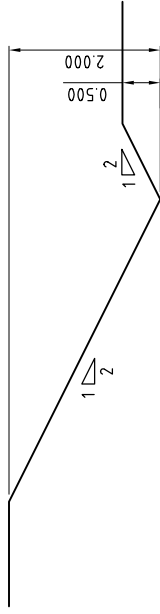
PLAN
SCALE 1:500



SECTION
NOT TO SCALE



SECTION
SCALE 1:50



SECTION
SCALE 1:50

NOTE: THIS DRAWING HAS BEEN COMPILED FROM SKETCHES PROVIDED BY CONNELL HATCH

NOT FOR CONSTRUCTION

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DRAWING No.	DESCRIPTION	REVISIONS
	REFERENCE DRAWINGS	

REV	DATE	DESCRIPTION
A	21.12.05	ISSUE FOR REVIEW
B	21.02.06	NUMBER OF PIPES REDUCES & HATCHING AMENDED
C	04.04.06	HATCH & URS CHANGES
D	16.05.06	HATCH & URS CHANGES
E	23.05.06	HATCH CHANGES

NAME	SIGNATURE	APPROVALS
S.LINK		
G.DUGDALE		
G.LOVELL		
D.VENESS		

DRAFTING SCALE	ORIG. SIZE	PROJECT No.	DRAWING No.
AS SHOWN	A1	BEE508	BEE508




TITLE	DRAWING No.	REVISION
Kellogg Brown & Root Pty Ltd KBR Kellogg Brown & Root Pty Ltd ABN 91 007 660 317 555 Coronation Drive, Toowoomba Brisbane, Queensland, 4666 ph (07) 3721-6555 fax (07) 3721-6500	BEE508-C-DWG-306	E

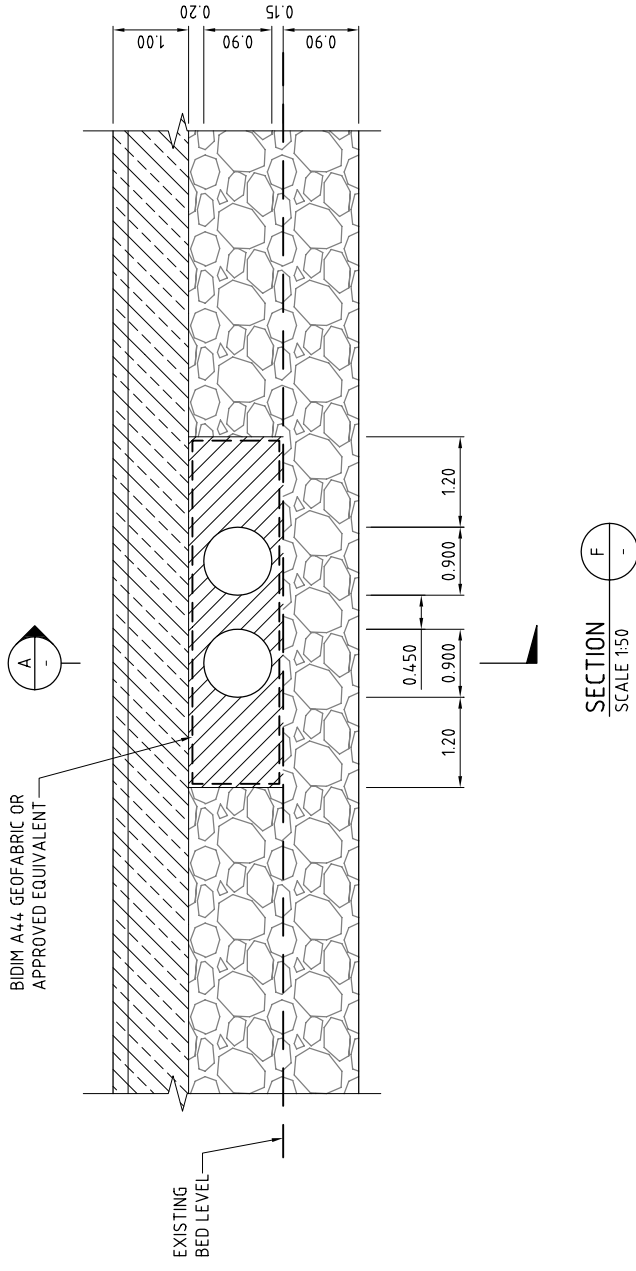
**McARTHUR RIVER MINE
EXPANSION PROJECT
TEMPORARY RIVER CROSSINGS
SHEET 1 OF 2**

NOTES:

- TEMPORARY RIVER CROSSING DESIGNED FOR CAT 777D HAUL TRUCKS.
- SELECT FILL AROUND PIPES IN ACCORDANCE WITH MANUFACTURERS SPECIFICATIONS.
- NOMINAL PIPE DIAMETER ADOPTED IN 900mm 1.6mm WALL THICKNESS IN GAL HELLCORE PIPE OR EQUIVALENT.
- SUGGESTED METHOD OF CONSTRUCTION:
 A. STRIP, LEVEL AND COMPACT CHANNEL BED.
 B. PLACE AND COMPACT ROCKFILL 2250mm DEEP.
 C. CUT ROCKFILL FOR PIPES AND LAY GEOTEXTILE BIDIM A4 OR EQUIVALENT.
 D. PLACE PIPES AND BACKFILL WILL SELECT FILL USING HAND COMPACTION EQUIPMENT.
 E. PLACE AND COMPACT 1000mm ROAD PAVEMENT MATERIAL.
 F. PLACE GUIDE POSTS.
- TEMPORARY RIVER CROSSINGS TO BE REMOVED PRIOR TO COMMENCEMENT OF 2006 'WET SEASON'.

LEGEND

-  ROCK FILL. ϕ 200mm MAX ROCK SIZE MACHINE COMPACTED IN 500mm THICK LAYERS
-  SELECT FILL. ϕ 40mm MAX. ROCK SIZE. HAND COMPACTED IN 150mm THICK LIFTS. CEMENT STABILIZED WITHIN 2m OF UPSTREAM & DOWNSTREAM.
-  PAVEMENT COMPRISING 200mm FRC, 800mm BASE (REFER DWG. 503)



ϕ 150 PVC PAVEMENT DELINEATORS
2.4m HIGH AT 10m SPACING. REFER
DETAIL ON THIS DWG.

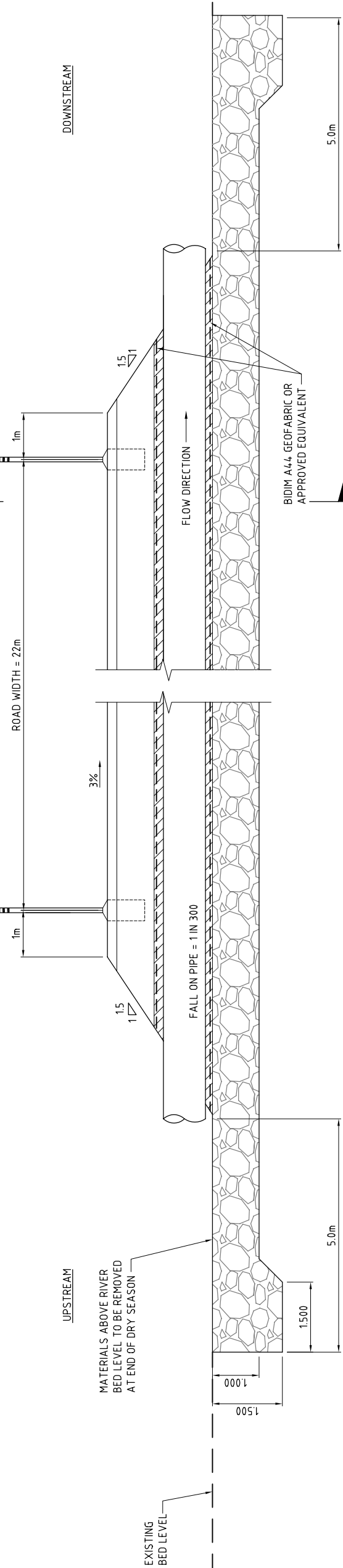
DETAIL A-A
NOT TO SCALE

HAUL ROAD GUIDE POSTS
NOT TO SCALE



UPSTREAM

DOWNSTREAM

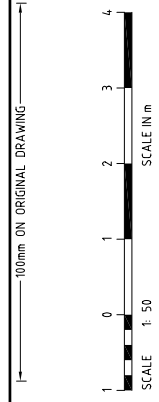


© Kellogg Brown & Root Pty Ltd XREFS:



NOTE: THIS DRAWING HAS BEEN COMPILED FROM SKETCHES PROVIDED BY CONNELL HATCH

NOT FOR CONSTRUCTION

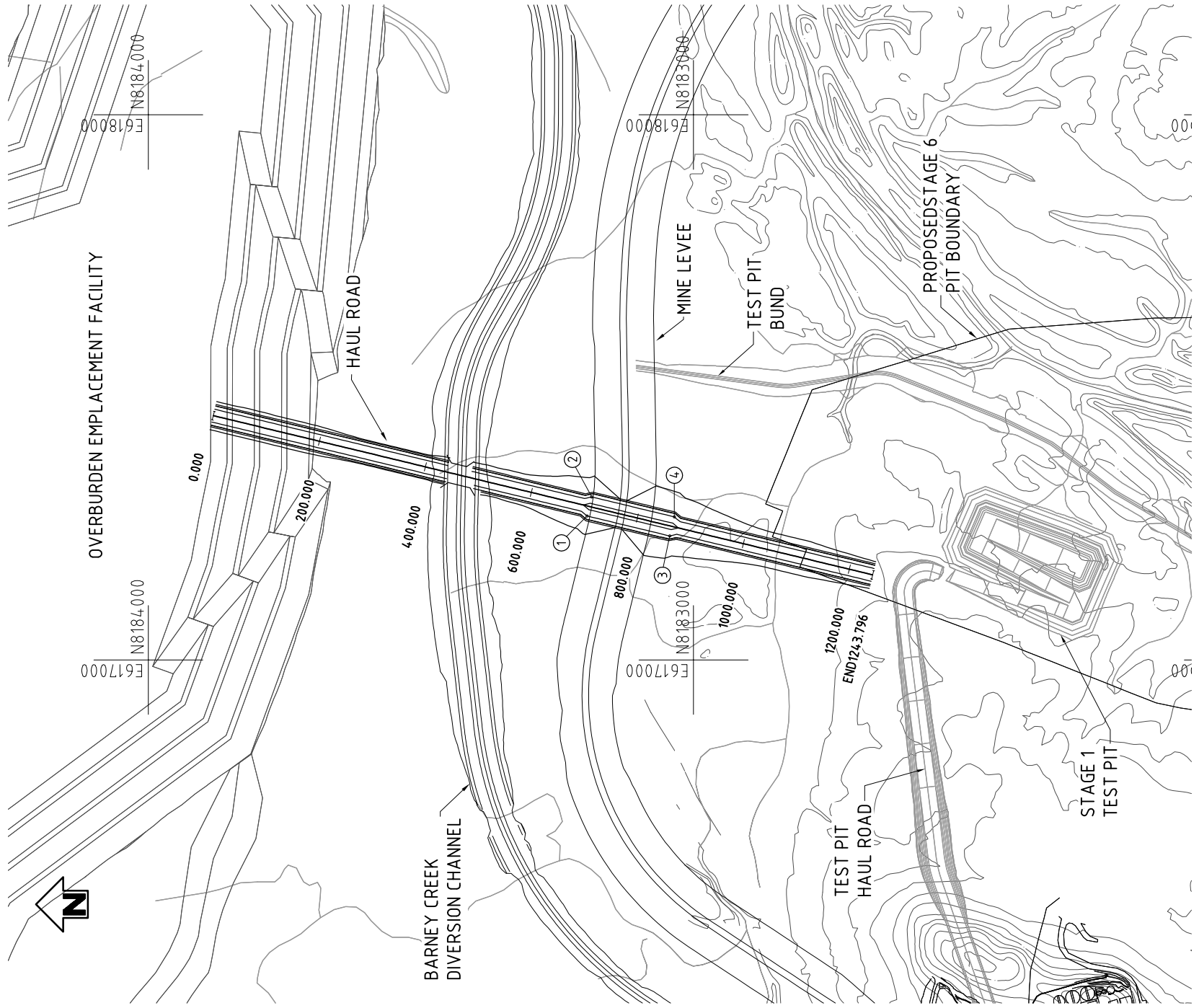


DRAWING No.	DESCRIPTION	REVISIONS	NOTES
	REFERENCE DRAWINGS		

DRAFTING	NAME	SIGNATURE	APPROVALS
DESIGN	G. SPILLANE		
DESIGN VERIFICATION	G. DUGDALE		
PROJECT APPROVAL	G. LOVELL		
CLIENT	D. VENESS		

DRAWING SCALE	ORIG. SIZE	PROJECT No.	DRAWING No.
AS SHOWN	A1	BEE508	BEE508-C-DWG-307.dwg

TITLE	REVISION
Kellogg Brown & Root Pty Ltd KBR Kellogg Brown & Root Pty Ltd ABN 91 007 660 317 555 Coronation Drive, Toowoomba Brisbane, Queensland, 4766 ph (07) 3721-6555 fax (07) 3721-6500	
McARTHUR RIVER MINE EXPANSION PROJECT TEMPORARY RIVER CROSSINGS SHEET 2 OF 2	B



HAUL ROAD ALIGNMENT SETOUT

PT	CHAINAGE	EASTING	NORTHING	BEARING
IP1	0.000	7448.267	3880.620	193d34'56"
	200.000	7401.299	3686.213	193d34'56"
	400.000	7354.331	3419.806	193d34'56"
	600.000	7307.363	3297.399	193d34'56"
	800.000	7260.395	3102.993	193d34'56"
	1000.000	7213.427	2908.586	193d34'56"
	1200.000	7166.459	2714.179	193d34'56"
IP2	124.3796	7156.174	2671.608	193d34'56"

SAFETY BERM SETOUT

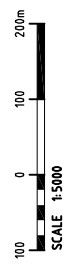
PT	CHAINAGE	EASTING	NORTHING
S1	709.500	7264.151	3195.189
S2	709.500	7299.144	3186.735
S3	865.500	7227.576	3043.551
S4	865.000	7262.509	3035.097

NOTE:

1. SURVEY DATUM:
DATUM HORIZONTAL - MRM TRUNCATED
DATUM VERTICAL - AHD
2. ALL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS - BEE508-Z-SPEC-001.

LAYOUT PLAN
SCALE 1:5000

© Kellogg Brown & Root Pty Ltd XREFS:XF-mine base 286605 /XF-existing-contours /XF-mine-roads-general-layout /XF-levee-ex-runway-envelope /XF-river-diversions /XF-haul /XF-grid
10mm ON ORIGINAL DRAWING



DRAFTING	NAME	SIGNATURE
DESIGN	G.DUDDALE	
DESIGN	G.LOVELL	
VERIFICATION	D.VENESS	
PROJECT APPROVAL		
CLIENT		

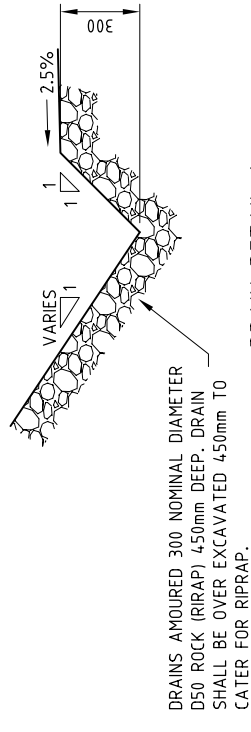
REV	DATE	DESCRIPTION	REVISIONS
F	22.06.06	HATCH & URS CHANGES	
E	23.05.06	DEF LAYOUT AMENDED	
D	04.04.06	HATCH & URS CHANGES	
C	21.02.06	BARNEY CREEK ALIGNMENT CHANGED	
B	14.02.06	MINE LEVEE WALL AMENDED	
A	21.12.05	ISSUE FOR REVIEW	

DRAWING No.	DESCRIPTION	NOTES
REFERENCE DRAWINGS		

NOT FOR CONSTRUCTION

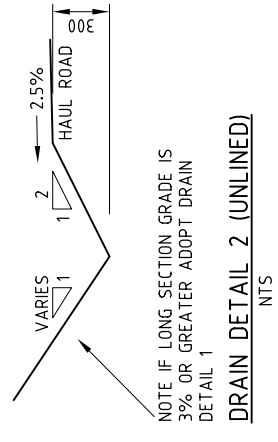
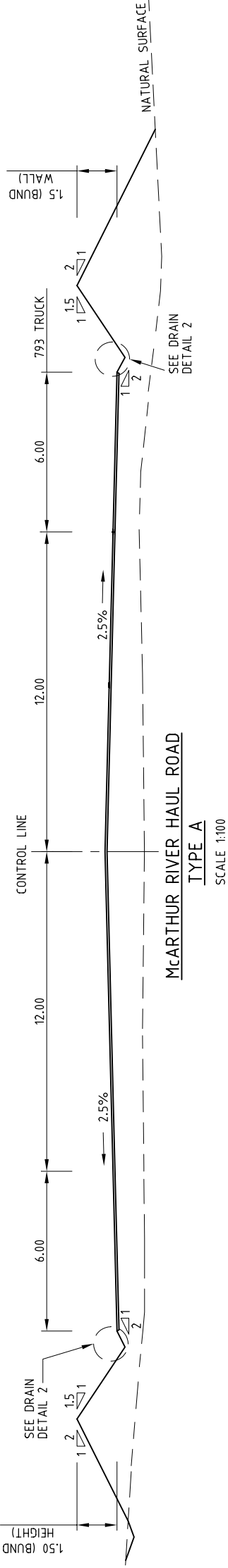
Kellogg Brown & Root Pty Ltd KBR Kellogg Brown & Root Pty Ltd ABN 91 007 640 317 555 Coronation Drive, Toowoomba, Brisbane, Queensland, 4066 ph (07) 3721-4555 fax (07) 3721-6500		TITLE McARTHUR RIVER MINE EXPANSION PROJECT HAUL ROAD SETOUT DETAILS
DRAWING SCALE AS SHOWN	ORIG. SIZE A1	PROJECT No. BEE508
DRAFTER: Y.FRASER	CAD FILE: BEE508-C-DWG-501.DWG	DRAWING No. BEE508-C-DWG-501
		REVISION F





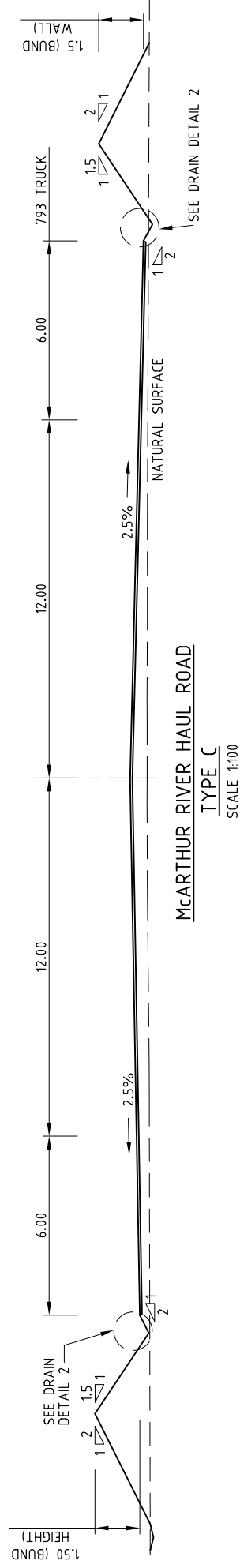
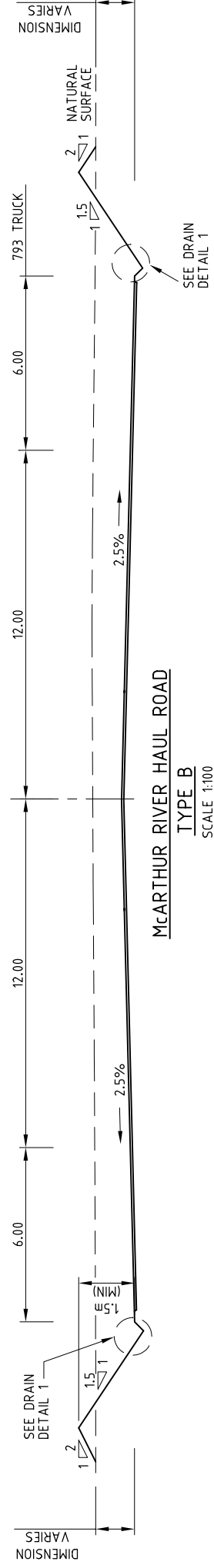
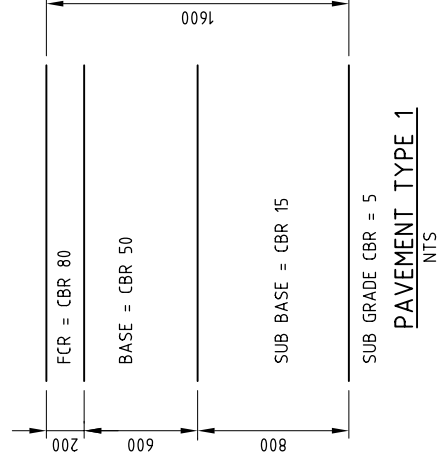
DRAINS AMOURED 300 NOMINAL DIAMETER D50 ROCK (RIRAP) 450mm DEEP. DRAIN SHALL BE OVER EXCAVATED 450mm TO CATER FOR RIPRAP.

DRAIN DETAIL 1
NTS

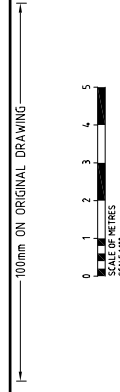


NOTE IF LONG SECTION GRADE IS 3% OR GREATER ADOPT DRAIN DETAIL 1

DRAIN DETAIL 2 (UNLINED)
NTS



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DRAWING No.	DESCRIPTION	REVISIONS	NOTES
	REFERENCE DRAWINGS		

DRAFTING	NAME	SIGNATURE
DESIGN	G.DJUGDALE	
DESIGN VERIFICATION	G.LOVELL	
PROJECT APPROVAL	D.VENESS	
CLIENT		
DATE		
REVISIONS		
DESCRIPTION		

DRAWING SCALE	ORIG. SIZE	PROJECT No.	DRAWING No.	DRAFTER
AS SHOWN	A1	BEE508	BEE508-C-DWG-503	

CAD FILE: BEE508-C-DWG-503.dwg

Kellogg Brown & Root Pty Ltd
KBR
ABN 91 007 660 317
555 Coronation Drive, Toowoomba
Brisbane, Queensland, 4066
ph (07) 3721-6555 fax (07) 3721-6500

Kellogg Brown & Root Pty Ltd
McARTHUR RIVER MINE
EXPANSION PROJECT
TYPICAL HAUL ROAD SECTIONS - PAVEMENT DETAILS

NOT FOR CONSTRUCTION

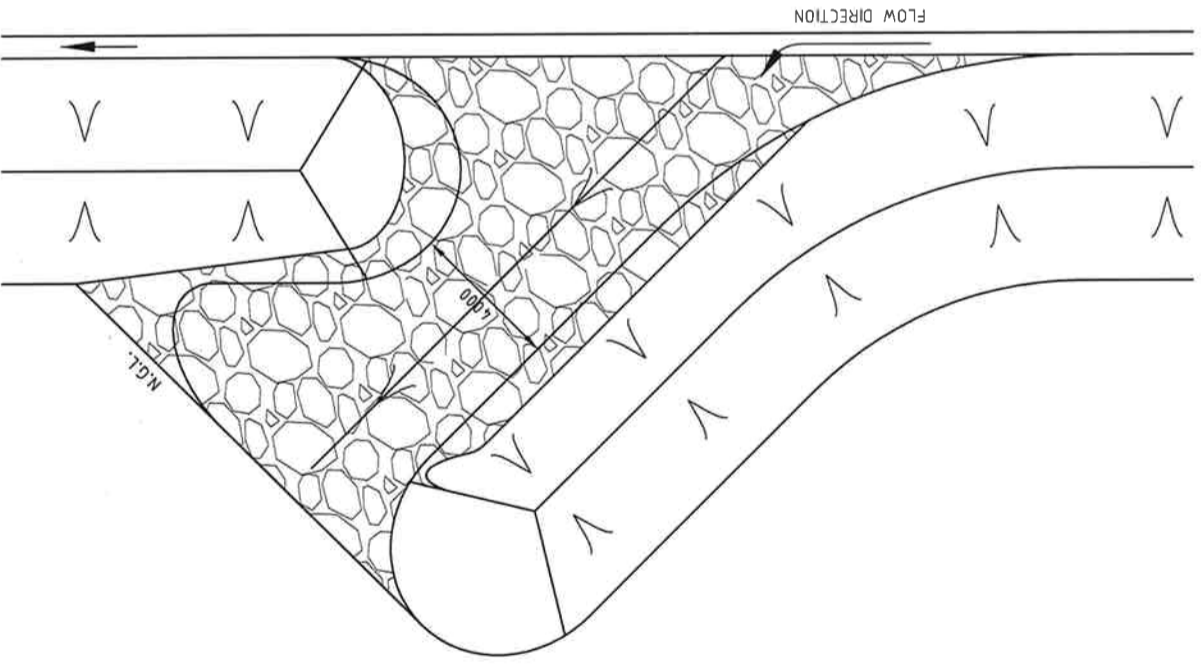
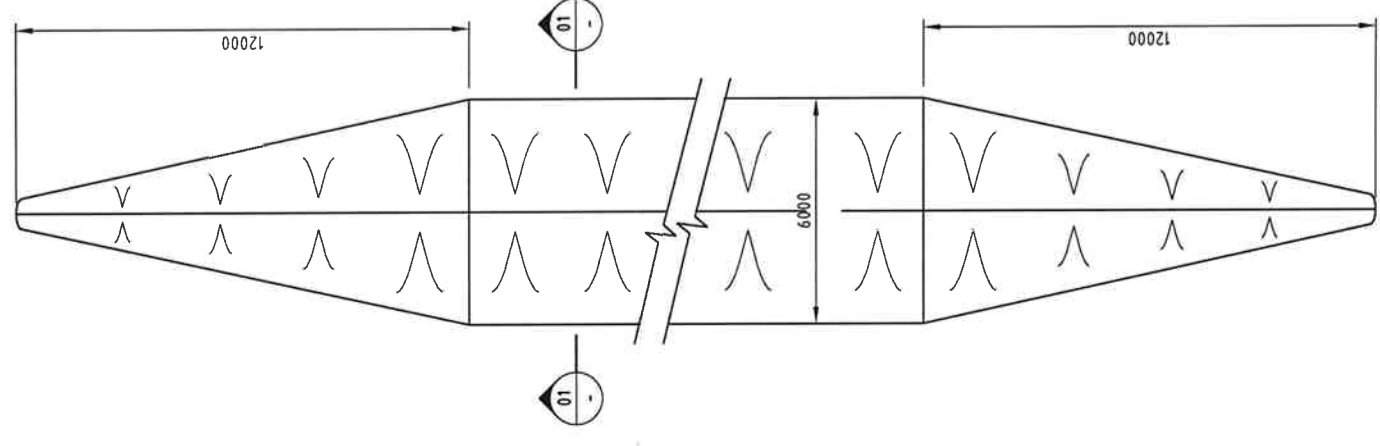
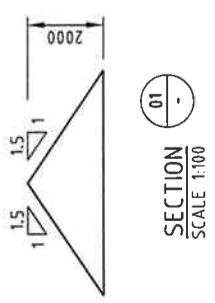
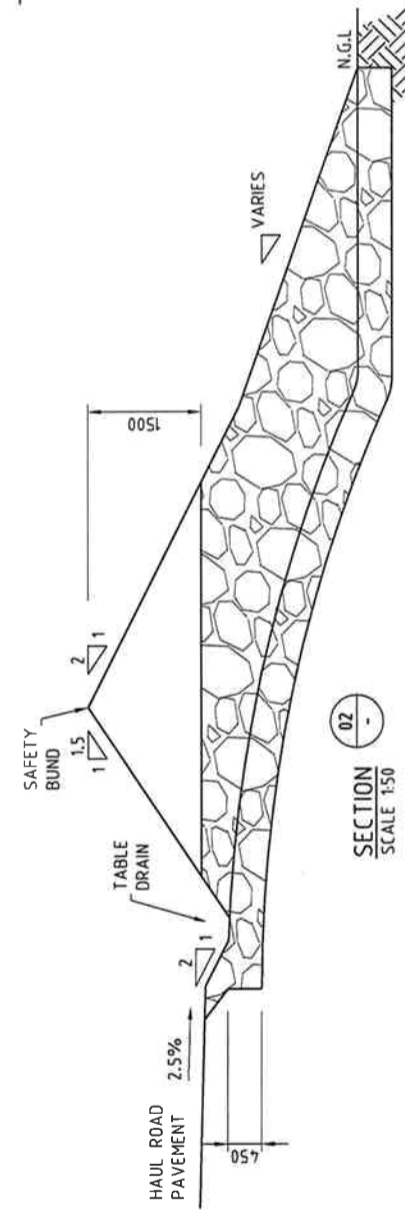


TABLE DRAIN OUTLET THROUGH SAFETY BERM TYPE 2
SCALE 1:100



SECTION 02
SCALE 1:50

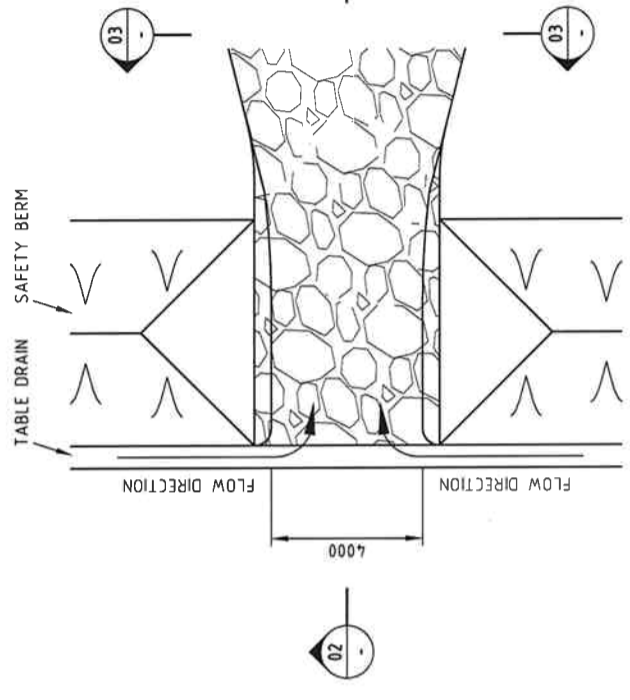
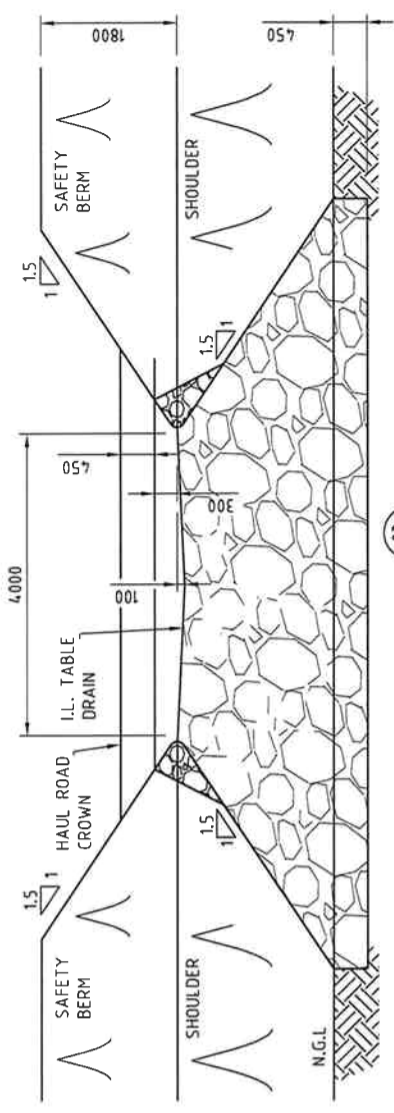


TABLE DRAIN OUTLET THROUGH SAFETY BERM TYPE 1
SCALE 1:100



SECTION 03
SCALE 1:50

NOTE:
1.) DRAINAGE OUTFALLS @ 100m CENTRES OR AS NOTED ON PLAN.
2.) OUTFALL TREATMENT TYPE TO BE CONFIRMED ON SITE BY SUPERINTENDENT.
3.) DRAINS ARMoured 300 NOMINAL DIAMETER D50 ROCK (RIPRAP) 450 mm DEEP. DRAIN SHALL BE OVER EXCAVATED 450mm TO CATER FOR RIPRAP.



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<p>Kellogg Brown & Root Pty Ltd KBR Kellogg Brown & Root Pty Ltd ABN 91 007 660 317 555 Corporation Drive, Forwoing, Queensland ph 1077 3727-6555 Fax 1071 3727-6500</p>		<p>TITLE MCARTHUR RIVER MINE EXPANSION PROJECT SAFETY BUND AND DRAINS DETAILS</p>	
<p>DRAFTING: S.LINK DESIGN: C.LOUGDALE DESIGN VERIFICATION: G.LOVELL PROJECT APPROVAL: D.VENESS CLIENT: []</p>		<p>DRAWING No. BEE508-C-DWG-504 AS SHOWN A1 DRAFTER: []</p>	
<p>SCALE: 1:100 DATE: 21/12/05</p>		<p>ORIG. SIZE PROJECT No. BEE508</p>	
<p>REV: A ISSUE FOR REVIEW</p>		<p>REVISIONS</p>	
<p>DESCRIPTION</p>		<p>APPROVALS</p>	
<p>NOTES</p>		<p>REVISIONS</p>	
<p>REFERENCE DRAWINGS</p>		<p>DATE: 15.3.06 10.48</p>	