

Appendix C

INTERVENTION BOOKLET

Intervention Summary

Baviaanskloof - Eastern Cape

Intervention Number	Description	Type	Reference Document	Design Revision
L81A-01-201-00	Earthworks	New	Baviaanskloof Rehabilitation Plan: 2015	A
L81B-01-201-00	Earthworks	New	Baviaanskloof Rehabilitation Plan: 2015	A
L81B-01-202-00	Earthworks	New	Baviaanskloof Rehabilitation Plan: 2015	A
L81C-05-201-00	Earthworks- Top River Berm	New	Baviaanskloof Rehabilitation Plan: 2015	A
L81C-05-202-00	Earthworks - Fields Berm	New	Baviaanskloof Rehabilitation Plan: 2015	A
L81C-05-203-00	Earthworks - Cropcircle	New	Baviaanskloof Rehabilitation Plan: 2015	A
L81C-05-204-00	Earthworks - River Rock Berm	New	Baviaanskloof Rehabilitation Plan: 2015	A
L81C-05-205-00	Earthworks - Mainstream berm	New	Baviaanskloof Rehabilitation Plan: 2015	A
L81C-06-201-00	Earthworks	New	Baviaanskloof Rehabilitation Plan: 2015	A

Details

Intervention	L81A-01-201
Designer	Morné Pienaar
Design Date	August 2015
Type	New
Description	Earthworks
Rehabilitation Objectives	To reduce the competency and capacity of the primary stream on the fan surface to encourage increased aggradation within the stream channel and flooding across the fan
Latitude (D°M'S")	33°31'06.410" S
Longitude (D°M'S")	23°43'09.880" E

Location Photograph: L81A-01-201**Bill of Quantities**

Item	Units	Rate	Quantity	Total
Earthworks (including lime if required)	m ³	R 313.50	1540	R 482 790.00
Revegetation	m ²	R 78.38	2000	R 156 760.00
Total				R 639 550.00

Construction notes for EMP

General construction notes as set out in the Construction Environmental Management Programme apply, along with all notes shown on design drawings and standard details. Where there is a conflict, the notes on design drawings apply.



REV	DATE	REVISION DETAILS
A	12/06/2015	DRAFT FOR REHAB PLAN

APPROVED	SCALE	SIZE
M/PIEWAR	AS SHOWN	A4

DESIGNED	CHECKED
M/PIEWAR	D.TOWNSEND

ENGINEER	DATE
<i>[Signature]</i>	28/7/15

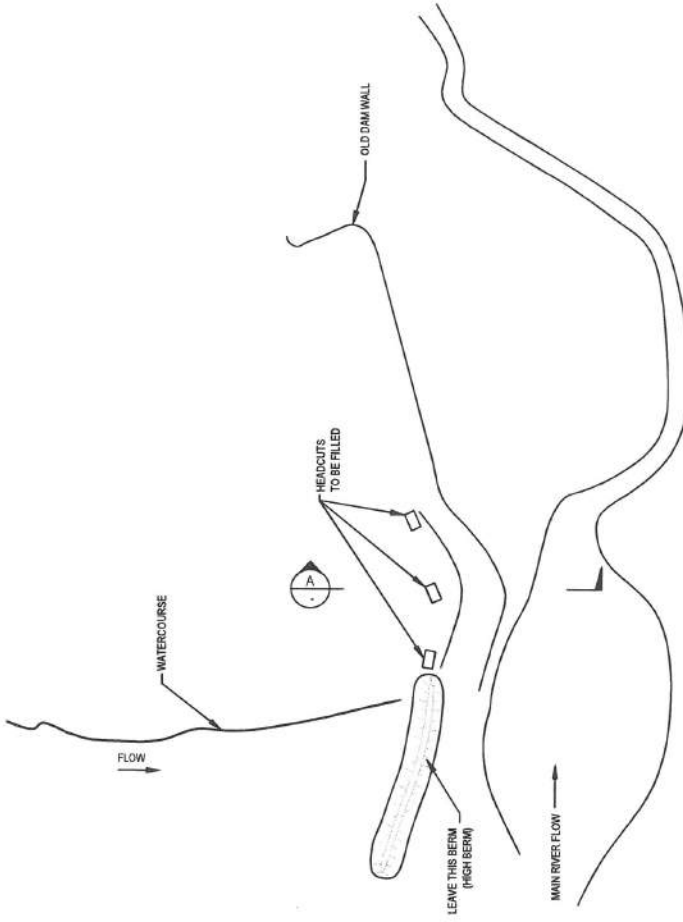
PROJECT	PROVINCE	PROJECT AREA	INTERVENTION DESCRIPTION	DRAWING NO.
WORKING FOR WETLANDS PROGRAMME 2014-2017	EASTERN CAPE	B-BAVAANSKLOOF	EARTHWORKS	LB1A - 01 - 201-00 - 01 OF 01 - A

CLIENT	SCALE	SIZE
Wetlands by Wetlands	AS SHOWN	A4

DESIGNED	CHECKED
M/PIEWAR	D.TOWNSEND

ENGINEER	DATE
<i>[Signature]</i>	28/7/15

PRELIMINARY	NOT FOR CONSTRUCTION
<i>[Signature]</i>	20130158



PLAN VIEW
N.T.S.



SECTION A
N.T.S.

NOTES

- AURECON ACCEPTS RESPONSIBILITY FOR THE ENGINEERING DESIGN TO THE EXTENT THAT THIS IS BASED ON AVAILABLE INFORMATION. THE AVAILABLE INFORMATION IS LIMITED TO WHAT COULD BE OBTAINED FROM VISUAL SURVEY, PHOTOGRAPHS, TOPOGRAPHICAL DATA, GEOMORPHOLOGICAL AND OTHER ENGINEERING RELATED SURVEYS HAVE BEEN UNDERTAKEN TO INFORM THE DESIGN. THIS IS NOT A GUARANTEE OF PERFORMANCE. AURECON AND ITS ENGINEERS ARE INDEMNIFIED BY THE CLIENT AND DO NOT ACCEPT RESPONSIBILITY FOR THE ASSOCIATED RISK OF FAILURE FROM THE ABOVE LIMITATIONS OR ANY DAMAGES THAT MAY OCCUR.
- AURECON AND ITS ENGINEERS ARE INDEMNIFIED AGAINST ANY ASSOCIATED DAMAGES AND ACCEPT NO LIABILITY ASSOCIATED WITH THE CONSTRUCTION AND IMPLEMENTATION OF ENGINEERING INTERVENTIONS. THE CLIENT AND ITS ENGINEERS SHALL FACTOR IN THE IMPACTS OF THE CONSTRUCTION PHASE, RESULTING IN OUR INABILITY TO DILIGENTLY SUPERVISE AND ASSESS ANY PROGRESS.

EARTHWORKS/ EARTH STRUCTURES:

- ALL CUT AND FILL SLOPES TO BE NOT STEEPER THAN 1:4, UNLESS OTHERWISE SPECIFIED.
 - ALL EXPOSED DISTURBED SURFACES TO BE REVEGETATED, UNLESS OTHERWISE SPECIFIED. 100mm OF TOP SOIL TO COVER BERM. BACKFILL TO BE REVEGETATED AT SUITABLE TIMING OF YEAR TO IMPROVE CHANCES OF TAKING.
 - SOIL FOR BERMS AND BACKFILL TO BE COMPACTED IN 100mm LAYERS AT OPTIMUM WATER CONTENT.
- DISPERSIVE SOILS:**
ONLY APPLICABLE IN AREAS WITH DISPERSIVE SOILS:
- IT IS CRITICAL TO ENSURE THAT THE FOUNDING SOIL NEVER DRIES OUT AND REMAINS AS UNDISTURBED AS POSSIBLE. THE BASE OF THE INTERVENTION SHOULD THEREFORE BE CONSTRUCTED AS SOON AS A PORTION OF EXCAVATION HAS BEEN FINISHED.
 - FILL MATERIAL TO BE GOOD QUALITY, WELL-GRADED GRAVEL OR CLAY (NOT DISPERSIVE CLAY FOUND IN PARTS OF THE FLOOD PLAN).
 - ALL MATERIAL THAT IS EXCAVATED FROM THIS SITE AND REUSED FOR BACKFILL SHALL BE WELL MIXED WITH 1000g OF LIME PER CUBIC METRE OF SOIL, AND PLACED AND COMPACTED AT OPTIMUM MOISTURE CONTENT.

Details

Intervention	L81B-01-201
Designer	Morné Pienaar
Design Date	August 2015
Type	New
Description	Earthworks
Rehabilitation Objectives	To reduce the competency and capacity of the primary stream on the fan surface to encourage increased aggradation within the stream channel and flooding across the fan
Latitude (D°M'S")	33°30'34.860" N
Longitude (D° M'S")	23°52'33.090" E

Location Photograph: L81B-01-201



Bill of Quantities

Item	Units	Rate	Quantity	Total
Rockpacks	m ³	R 978.40	90	R 88 056.00
Total				R 88 056.00

Construction notes for EMP

General construction notes as set out in the Construction Environmental Management Programme apply, along with all notes shown on design drawings and standard details. Where there is a conflict, the notes on design drawings apply.

NOTES

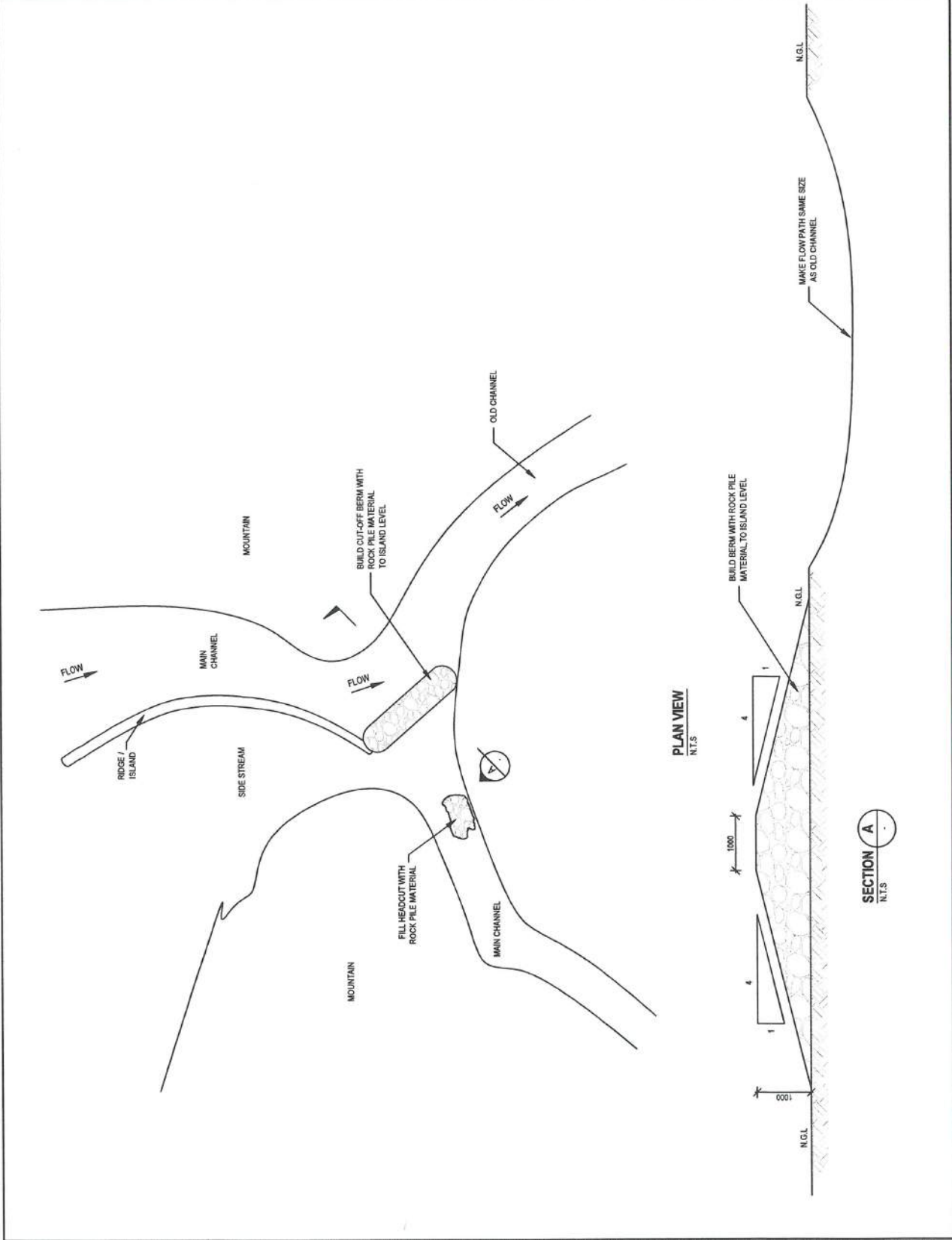
- AURECON ACCEPTS RESPONSIBILITY FOR THE ENGINEERING DESIGN TO THE EXTENT THAT THIS IS BASED ON AVAILABLE INFORMATION. THE INFORMATION IS THE PROPERTY OF AURECON AND IS NOT TO BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC, MECHANICAL, PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, WITHOUT THE WRITTEN PERMISSION OF AURECON. INTERFERED DURING A SINGLE SITE VISIT OF NO LONGER THAN A FEW HOURS. NO GEOTECHNICAL, TOPOGRAPHICAL, GEOMORPHOLOGICAL, AND OTHER ENGINEERING RELATED SURVEYS HAVE BEEN UNDERTAKEN TO INFORM THE DESIGN. THIS DESIGN IS BASED ON VISUAL INSPECTION OF THE SITE AND AURECON AND ITS ENGINEERS ARE INDICATED BY THE CLIENT AND DO NOT ACCEPT RESPONSIBILITY FOR THE ASSOCIATED RISK OF FAILURE FROM THE ABOVE LIMITATIONS ON ANY DAMAGES THAT MAY OCCUR.
- AURECON AND ITS ENGINEERS ARE INDEMNIFIED AGAINST ANY ASSOCIATED DAMAGES AND ACCEPT NO LIABILITY ASSOCIATED WITH THE CONSTRUCTION AND IMPLEMENTATION OF ENGINEERING INTERVENTIONS UNLESS IT IS CLEARLY SPECIFIED OTHERWISE IN CONTRACT DOCUMENTS. THE DESIGN IS BASED ON THE ASSUMPTION THAT THE INTERVENTION WILL BE UNDERTAKEN IN ACCORDANCE WITH THE CONTRACT RESULTING IN OUR INABILITY TO DILIGENTLY SUPERVISE AND ASSESS ANY PROGRESS.

EARTHWORKS/EARTH STRUCTURES:

- ALL CUT AND FILL SLOPES TO BE NOT STEEPER THAN 1:4, UNLESS OTHERWISE SPECIFIED.
- ALL EXPOSED DISTURBED SURFACES TO BE REVEGETATED, UNLESS OTHERWISE SPECIFIED. 100mm OF TOP SOIL TO COVER BERM. REVEGETATION TO BE UNDERTAKEN AT SUITABLE TIMING OF YEAR TO IMPROVE CHANCES OF TAKING.
- SOIL FOR BERMS AND BACKFILL TO BE COMPACTED IN 100mm LAYERS AT OPTIMUM WATER CONTENT.

DISPERSIVE SOILS:
(ONLY APPLICABLE IN AREAS WITH DISPERSIVE SOILS):

- IT IS CRITICAL TO ENSURE THAT THE FOUNDING SOIL LAYER DRIES OUT AND REMAINS AS UNDISTURBED AS POSSIBLE. THE BASE OF CUT AND BERMS SHOULD THEREFORE BE CONSTRUCTED AS SOON AS A PORTION OF EXCAVATION HAS BEEN FINISHED.
- FILL MATERIAL TO BE GOOD QUALITY, WELL-GRADED GRAVEL OR CLAY (NOT DISPERSIVE CLAY FOUND IN PARTS OF THE FLOOD PLAIN).
- ALL MATERIAL THAT IS EXCAVATED FROM THIS SITE AND REUSED FOR BACKFILL SHALL BE WELL MIXED WITH 100kg OF LIME PER CUBIC METRE OF SOIL AND PLACED AND COMPACTED AT OPTIMUM MOISTURE CONTENT.



Working For Wetlands Programme 2014-2017

Project: EASTERN CAPE - BAVIAANSKLOOF
Project File: EARTHWORKS
Drawing No.: L81B

Project Manager: [Signature] **Date:** 22/7/15
Engineer: [Signature] **Registration No.:** 20130158

REV	DATE	REVISION DETAILS	APPROVED	SCALE	SIZE	PRELIMINARY NOT FOR CONSTRUCTION APPROVED
A	12/06/2015	DRAFT FOR REMED PLAN	MPHENAR	AS SHOWN	A4	
				DESIGNED		
				CHECKED		
				D.TOWNSHEND		

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Working For Wetlands

Details

Intervention	L81B-01-202
Designer	Morné Pienaar
Design Date	August 2015
Type	New
Description	Earthworks
Rehabilitation Objectives	To reduce the competency and capacity of the primary stream on the fan surface to encourage increased aggradation within the stream channel and flooding across the fan
Latitude (D°M'S")	33°31'14.100" N
Longitude (D°M'S")	23°52'30.230" E

Location Photograph: L81B-01-202**Bill of Quantities**

Item	Units	Rate	Quantity	Total
Earthworks (including lime if required)	m ³	R 313.50	120	R 37 620.00
Revegetation	m ²	R 78.38	830	R 65 055.40
Total				R 102 675.40

Construction notes for EMP

General construction notes as set out in the Construction Environmental Management Programme apply, along with all notes shown on design drawings and standard details. Where there is a conflict, the notes on design drawings apply.

REV	DATE	REVISION DETAILS
A	12/06/2015	DRAFT FOR REHAB PLAN

APPROVED	SCALE	SIZE
M.PEIMAR	AS SHOWN	A4

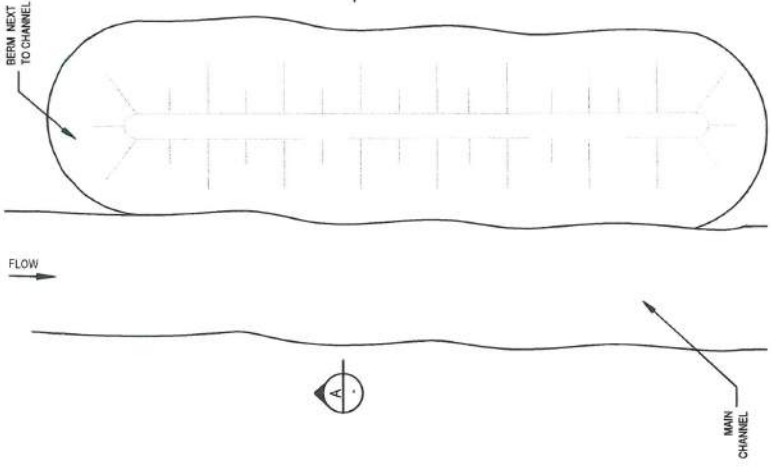
ENGINEER	DATE
<i>[Signature]</i>	22/7/15

PRELIMINARY NOT FOR CONSTRUCTION APPROVED

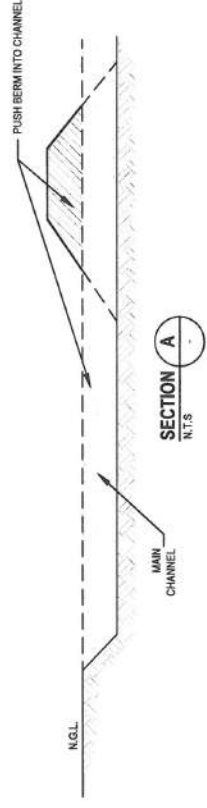
REGISTRATION NO. 2013 0158

PROJECT	PROVINCE	PROJECT AREA
WORKING FOR WETLANDS PROGRAMME 2014-2017	EASTERN CAPE - BAVIAANSKLOOF	EARTHWORKS

DRAWING No.	WATERWAY No.	WETLAND No.	INTERVENTION No.	PAGE No.	REV
L81B	- 01	- 202-00	- 01 OF 01	- A	- A



PLAN VIEW
N.T.S



SECTION A
N.T.S

NOTES

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2. AURECON AND ITS ENGINEERS ARE NOT INSURED AGAINST ANY ASSOCIATED DAMAGES AND ACCEPT NO LIABILITY ASSOCIATED WITH THE CONSTRUCTION AND IMPLEMENTATION OF ENGINEERING INTERVENTIONS DUE TO THE ENGINEERS HAVING LIMITED CONTACT WITH THE IMPLEMENTERS INCLUDING THE CONSULTANTS WHOSE RESPONSIBILITY IT IS TO OBTAIN NECESSARY INFORMATION AND ASSESS ANY PROGRESS.

EARTHWORKS/EARTH STRUCTURES:

1. ALL CUT AND FILL SLOPES TO BE NOT STEEPER THAN 1:4, UNLESS OTHERWISE SPECIFIED.
 2. ALL EXPOSED DISTURBED SURFACES TO BE REVEGETATED, UNLESS OTHERWISE SPECIFIED. 100mm OF TOP SOIL TO COVER BERM. REVEGETATION TO BE UNDERTAKEN AT SUITABLE TIMING OF YEAR TO IMPROVE CHANCES OF TAKING.
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1. IT IS CRITICAL TO ENSURE THAT THE FOUNDING SOIL NEVER DRIES OUT. THE INTERVENTION SHOULD THEREFORE BE CONSTRUCTED AS SOON AS A PORTION OF EXCAVATION HAS BEEN FINISHED.
 2. FILL MATERIAL TO BE GOOD QUALITY, WELL-GRADED GRAVEL OR CLAY (NOT DISPERSIVE CLAY FOUND IN PARTS OF THE FLOOD PLAIN).
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Details

Intervention	L81C-05-201
Designer	Morné Pienaar
Design Date	August 2015
Type	New
Description	Earthworks- Top River Berm
Rehabilitation Objectives	To restore the surface hydrology of the fan through the removal of berms.
Latitude (D°M'S")	33°35'46.230" N
Longitude (D°M'S")	24°06'18.410" E

Location Photograph: L81C-05-201



Bill of Quantities

Item	Units	Rate	Quantity	Total
Earthworks (including lime if required)	m ³	R 313.50	240	R 75 240.00
Revegetation	m ²	R 78.38	720	R 56 433.60
Total				R 131 673.60

Construction notes for EMP

General construction notes as set out in the Construction Environmental Management Programme apply, along with all notes shown on design drawings and standard details. Where there is a conflict, the notes on design drawings apply.

Details

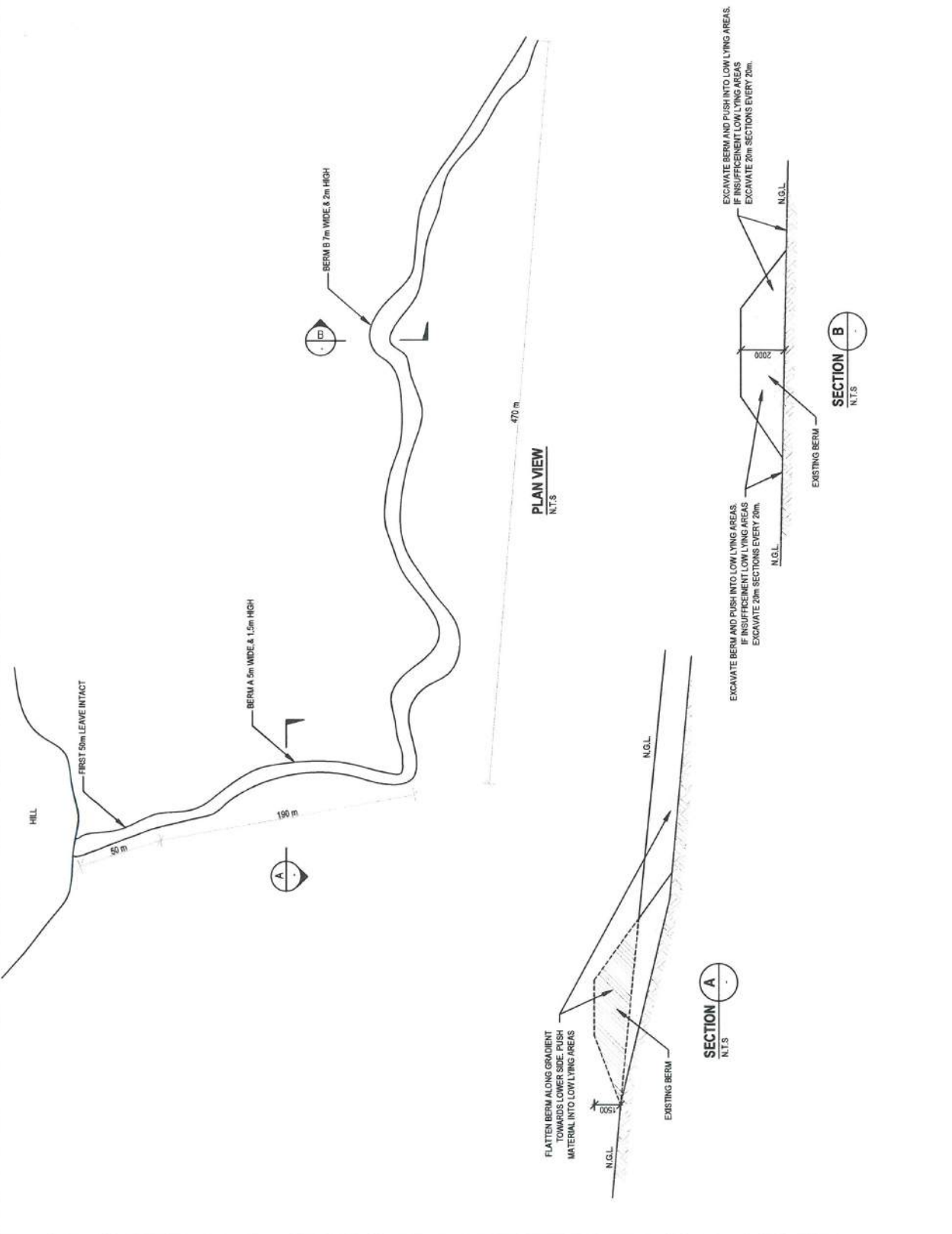
Intervention	L81C-05-202
Designer	Morné Pienaar
Design Date	August 2015
Type	New
Description	Earthworks - Fields Berm
Rehabilitation Objectives	To restore the surface hydrology of the fan through the removal of berms.
Latitude (D°M'S")	33°35'21.650" N
Longitude (D°M'S")	24°06'36.360" E

Location Photograph: L81C-05-202**Bill of Quantities**

Item	Units	Rate	Quantity	Total
Earthworks (including lime if required)	m ³	R 313.50	4240	R 1 329 240.00
Revegetation	m ²	R 78.38	6000	R 470 280.00
Total				R 1 799 520.00

Construction notes for EMP

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NOTES

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Working Wetlands

REV	DATE	REVISION DETAILS	APPROVED	SCALE	SIZE	PROJECT
A	12/04/2015	DRAFT FOR REHAB PLAN	M.PIENAR	AS SHOWN	A4	WORKING FOR WETLANDS PROGRAMME 2014-2017
PRELIMINARY NOT FOR CONSTRUCTION APPROVED			DATE: 22/7/15			
DRAWN: S. KIKOHLA			DESIGNED: M. PIENAR			
CHECKED:			REGISTRATION No. 2013 0158			
D.TOWNSHEND			DRAWING No. L8TC - 05 - 202-00 - 01 OF 01 - A			

EARTHWORKS - FIELDS BERM

Details

Intervention	L81C-05-203
Designer	Morné Pienaar
Design Date	August 2015
Type	New
Description	Earthworks - Cropcircle
Rehabilitation Objectives	To restore the surface hydrology of the fan through the removal of berms.
Latitude (D°M'S")	33°35'02.310" S
Longitude (D°M'S")	24°06'50.730" E

Bill of Quantities

Item	Units	Rate	Quantity	Total
Earthworks (including lime if required)	m ³	R 313.50	300	R 94 050.00
Revegetation	m ²	R 78.38	500	R 39 190.00
Total				R 133 240.00

Construction notes for EMP

General construction notes as set out in the Construction Environmental Management Programme apply, along with all notes shown on design drawings and standard details. Where there is a conflict, the notes on design drawings apply.

Details

Intervention	L81C-05-204
Designer	Morné Pienaar
Design Date	August 2015
Type	New
Description	Earthworks - River Rock Berm
Rehabilitation Objectives	To restore the surface hydrology of the fan through the removal of berms.
Latitude (D°M'S")	33°34'41.570" N
Longitude (D°M'S")	24°07'04.640" E

Location Photograph: L81C-05-204



Bill of Quantities

Item	Units	Rate	Quantity	Total
Earthworks (including lime if required)	m ³	R 313.50	400	R 125 400.00
Revegetation	m ²	R 78.38	600	R 47 028.00
Total				R 172 428.00

Construction notes for EMP

General construction notes as set out in the Construction Environmental Management Programme apply, along with all notes shown on design drawings and standard details. Where there is a conflict, the notes on design drawings apply.

NOTES

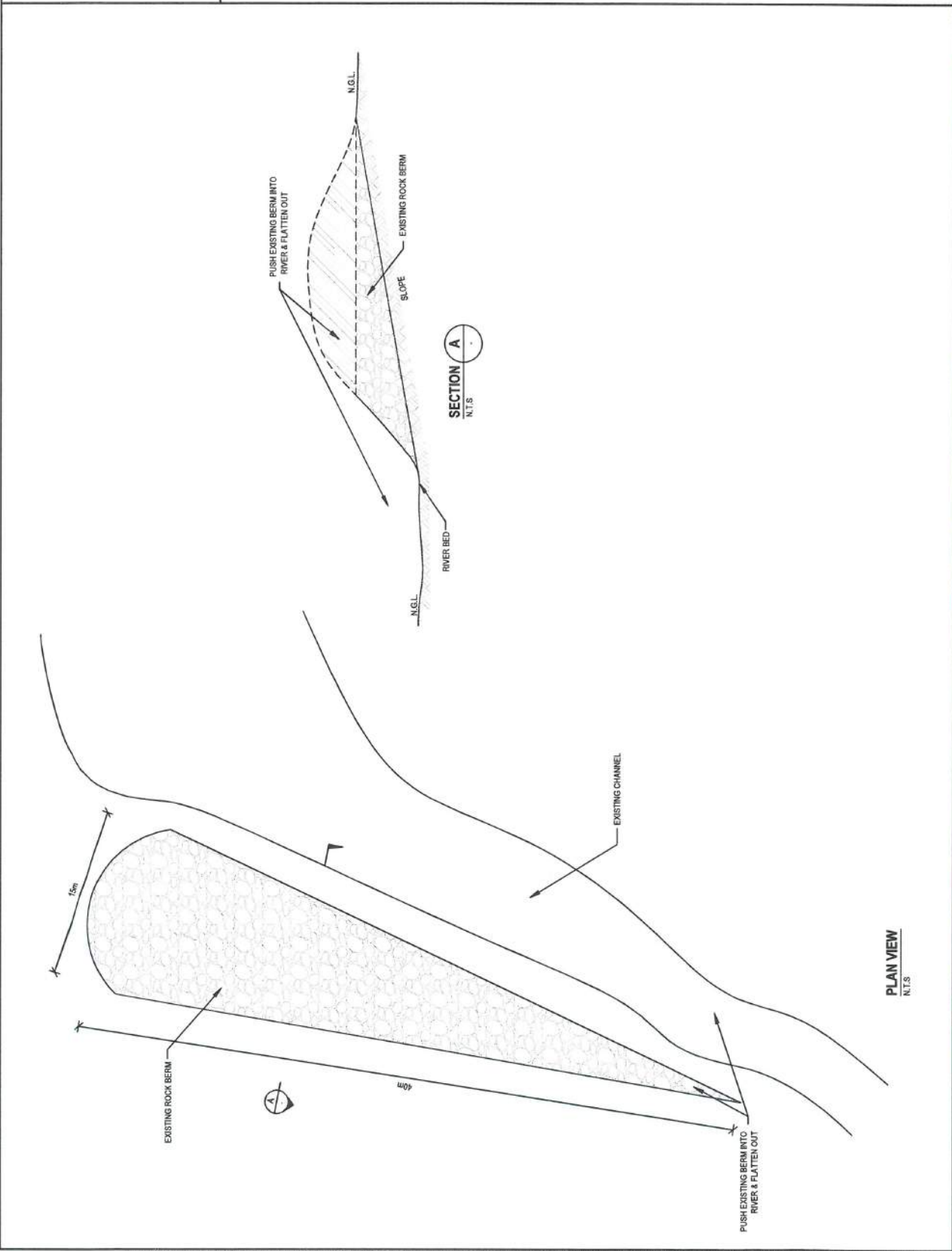
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- AURECON AND ITS ENGINEERS ARE INCARCATED AGAINST ANY ASSOCIATED DAMAGES AND ACCEPTANCE OF LIABILITY ASSOCIATED WITH THE CONSTRUCTION AND IMPLEMENTATION OF ENGINEERING INTERVENTIONS DUE TO THE ENGINEERS HAVING LIMITED CONTACT WITH THE IMPLEMENTER DURING THE CONSTRUCTION PHASE. AURECON WILL BE AVAILABLE TO OBTAIN INFORMATION TO IDENTIFY, SUPERVISE AND ASSESS ANY PROGRESS.

EARTHWORKS/ EARTH STRUCTURES:

- ALL CUT AND FILL SLOPES TO BE NOT STEEPER THAN 1:4, UNLESS OTHERWISE SPECIFIED.
- ALL EXPOSED DISTURBED SURFACES TO BE REVEGETATED, UNLESS OTHERWISE SPECIFIED. 100mm OF TOP SOIL TO COVER BERM. REVEGETATION TO BE UNDERTAKEN AT SUITABLE TIMING OF YEAR TO IMPROVE CHANCES OF TAKING.
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DISPERSIVE SOILS:
(ONLY APPLICABLE IN AREAS WITH DISPERSIVE SOILS)

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PLAN VIEW
N.T.S.

CLIENT		WORKING FOR WETLANDS PROGRAMME 2014-2017	
Working Wetlands		EASTERN CAPE - BAVIAANSKLOOF	
aurecon www.aurecongroup.com		EARTHWORKS - ROCK BERM	
REV	DATE	REVISION DETAILS	PROJECT
A	12/04/2015	DRAFT FOR REHAB PLAN	PROJECT AREA
APPROVED		DATE	
M.PENNAAR		22/7/15	
SCALE		ENGINEER	
A4		M.PENNAAR	
DRAWN		REGISTERED No.	
S. KOKHLE		20130158	
CHECKED		D.TOWNSHEND	
M.PENNAAR			
CHECKED			
		DRAWING No.	
		L81C - 05 - 204-00 - 01 OF 01 - A	

Details

Intervention	L81C-05-205
Designer	Morné Pienaar
Design Date	August 2015
Type	New
Description	Earthworks - Mainstream berm
Rehabilitation Objectives	To restore the surface hydrology of the fan through the removal of berms.
Latitude (D°M'S")	33°34'34.070" N
Longitude (D°M'S")	24°07'22.840" E

Location Photograph: L81C-05-205**Bill of Quantities**

Item	Units	Rate	Quantity	Total
Earthworks (including lime if required)	m ³	R 313.50	970	R 304 095.00
Revegetation	m ²	R 78.38	1500	R 117 570.00
Total				R 421 665.00

Construction notes for EMP

General construction notes as set out in the Construction Environmental Management Programme apply, along with all notes shown on design drawings and standard details. Where there is a conflict, the notes on design drawings apply.



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CLIENT	REV	DATE	#	REVISION DETAILS
Working Wetlands	A	12/06/2015	1	DRAFT FOR REHAB PLAN

APPROVED	SCALE	SIZE
M/PEENAR	AS SHOWN	A4

PRELIMINARY
NOT FOR CONSTRUCTION

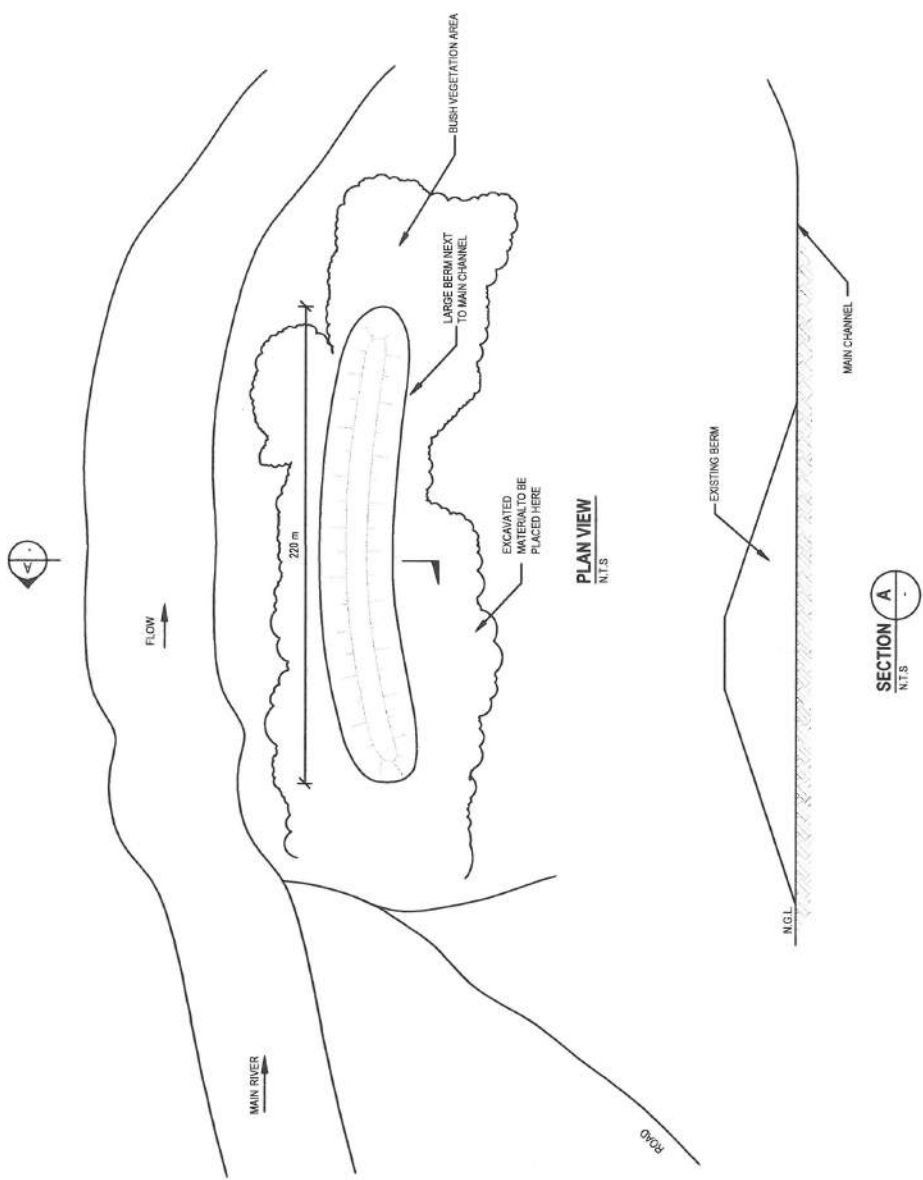
DATE: 23/7/15

ENGINEER: *[Signature]*

REGISTRATION NO: 201120859

PROJECT	PROVINCE	INTERVENTION	DESCRIPTION
WORKING FOR WETLANDS PROGRAMME 2014-2017	EASTERN CAPE	BAVIAANSKLOOF	EARTHWORKS - MAINSTREAM BERM

DRAWING No.	DATE	BY	CHKD
L81C	05	205-00	01 OF 01



NOTES

- AURECON ACCEPTS RESPONSIBILITY FOR THE ENGINEERING DESIGN TO THE EXTENT THAT THIS IS BASED ON AVAILABLE INFORMATION. THE AVAILABLE INFORMATION IS LIMITED TO WHAT COULD BE REASONABLY OBTAINED AT THE TIME OF DESIGN. THIS INCLUDES, BUT IS NOT LIMITED TO, VISUAL INSPECTION, SURVEYING, PHOTOGRAMMETRIC AND OTHER ENGINEERING RELATED SURVEYS. THE DESIGN IS BASED ON THE ASSUMPTION THAT THE SOILS ARE AS DESCRIBED IN THE GEOTECHNICAL TOPOGRAPHICAL, GEOMORPHOLOGICAL AND OTHER ENGINEERING RELATED SURVEYS. AURECON AND ITS ENGINEERS ARE NOT RESPONSIBLE FOR THE DESIGN OF ANY STRUCTURE OR WORKS WHICH ARE NOT DESIGNED BY AURECON AND ITS ENGINEERS ARE NOT RESPONSIBLE FOR THE ASSOCIATED RISK OF FAILURE FROM THE ABOVE LIMITATIONS OR ANY DAMAGES THAT MAY OCCUR.
- AURECON AND ITS ENGINEERS ARE INDEMNIFIED AGAINST ANY ASSOCIATED DAMAGES AND ACCEPTS LIABILITY ASSOCIATED WITH THE CONSTRUCTION AND IMPLEMENTATION OF ENGINEERING WORKS. THE CLIENT SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS AND FOR THE PROTECTION OF THE EXISTING UTILITIES AND STRUCTURES. THE CLIENT SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING UTILITIES AND STRUCTURES. THE CLIENT SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING UTILITIES AND STRUCTURES. THE CLIENT SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE EXISTING UTILITIES AND STRUCTURES.

- EARTHWORKS/ EARTH STRUCTURES:**
- ALL CUT AND FILL SLOPES TO BE NOT STEEPER THAN 1:4, UNLESS OTHERWISE SPECIFIED.
 - ALL EXPOSED DISTURBED SURFACES TO BE REVEGETATED. UNLESS OTHERWISE SPECIFIED, A 100mm OF TOP SOIL TO COVER EXPOSED SURFACES SHALL BE PLACED AT SUITABLE TYPING OF YEARS TO IMPROVE CHANCES OF TAKING.
 - SOIL FOR BERMS AND BACKFILL TO BE COMPACTED IN 100mm LAYERS AT OPTIMUM WATER CONTENT.
- DISPERSIVE SOILS (ONLY APPLICABLE IN AREAS WITH DISPERSIVE SOILS):**
- IT IS CRITICAL TO ENSURE THAT THE FOUNDING SOIL NEVER DRIES OUT AND REMAINS AS UNDISTURBED AS POSSIBLE. THE BASE OF THE EXCAVATION SHOULD THEREFORE BE CONSTRUCTED AS SOON AS A PORTION OF EXCAVATION HAS BEEN FINISHED.
 - FILL MATERIAL TO BE GOOD QUALITY, WELL-GRADED GRAVEL OR CLAY (NOT DISPERSIVE CLAY FOUND IN PARTS OF THE FLOOD PLAN).
 - ALL MATERIAL THAT IS EXCAVATED FROM THIS SITE AND REUSED FOR BACKFILL SHALL BE WELL MIXED WITH 100% OF LINE PER CUBIC METRE OF SOIL, AND PLACED AND COMPACTED AT OPTIMUM MOISTURE CONTENT.

Details

Intervention	L81C-06-201
Designer	Morné Pienaar
Design Date	August 2015
Type	New
Description	Earthworks
Rehabilitation Objectives	Reinstate the hydrological and geomorphic processes of the left-hand (north western) portion of the fan where the cultivation has been abandoned
Latitude (D°M'S")	33°33'35.700" N
Longitude (D°M'S")	24°02'55.850" E

Location Photograph: L81C-06-201**Bill of Quantities**

Item	Units	Rate	Quantity	Total
Earthworks (including lime if required)	m ³	R 313.50	90	R 28 215.00
Revegetation	m ²	R 78.38	140	R 10 973.20
Total				R 39 188.20

Construction notes for EMP

General construction notes as set out in the Construction Environmental Management Programme apply, along with all notes shown on design drawings and standard details. Where there is a conflict, the notes on design drawings apply.

NOTES

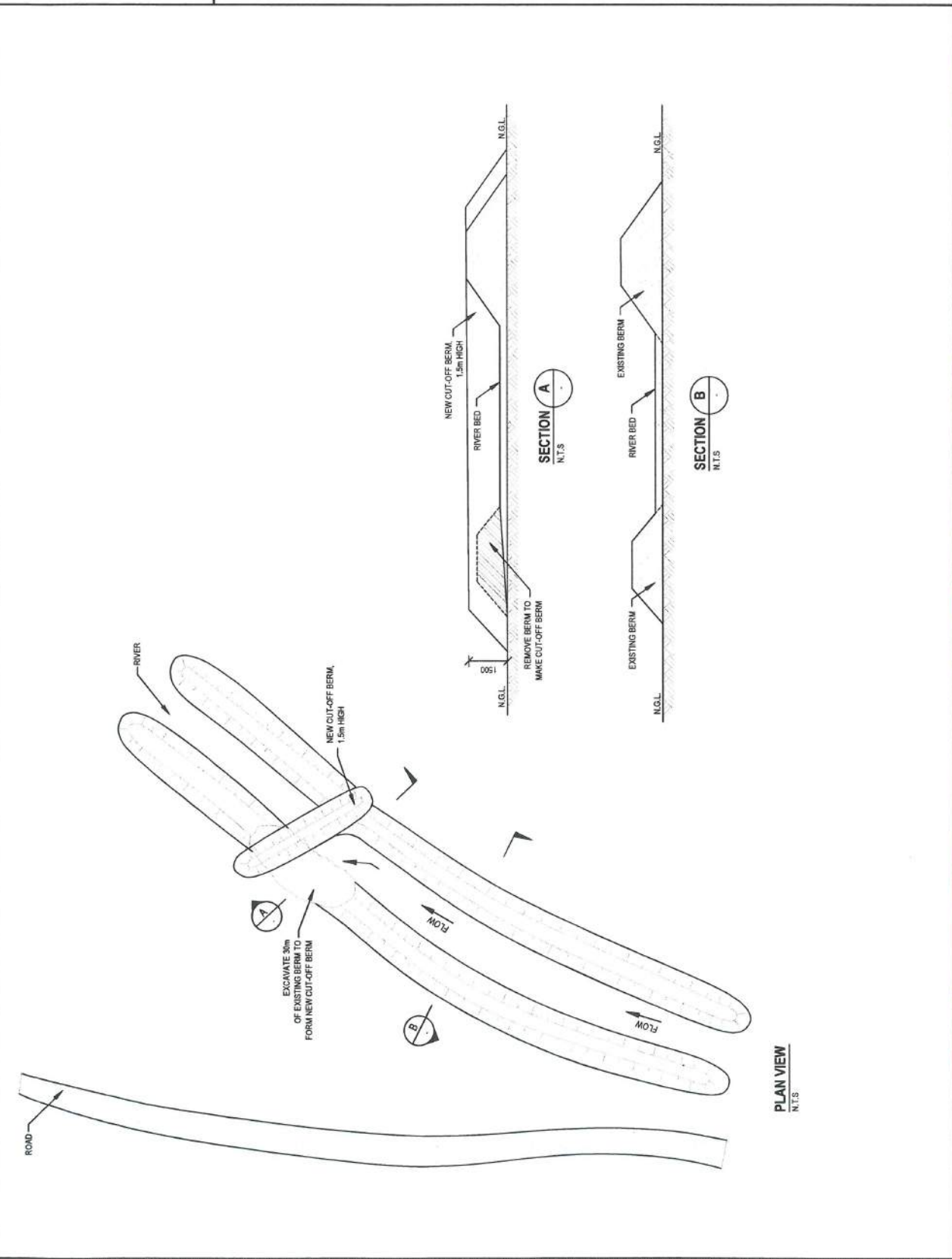
- AURECON ACCEPTS RESPONSIBILITY FOR THE ENGINEERING DESIGN TO THE EXTENT THAT THIS IS BASED ON AVAILABLE INFORMATION. THE AVAILABLE INFORMATION IS LIMITED TO WHAT COULD BE OBTAINED IN A REASONABLE PERIOD OF TIME UNDER FEW HOURS, NO GEO-TECHNICAL, TOPOGRAPHICAL, GEOMORPHOLOGICAL AND OTHER ENGINEERING RELATED SURVEYS HAVE BEEN UNDERTAKEN TO INFORM THE DESIGN. THIS IS THE RESPONSIBILITY OF THE CLIENT AND AURECON DOES NOT ACCEPT RESPONSIBILITY FOR THE ASSOCIATED RISK OF FAILURE FROM THE ABOVE LIMITATIONS ON ANY DAMAGES THAT MAY OCCUR.
- AURECON AND ITS ENGINEERS ARE INDEMNIFIED AGAINST ANY ASSOCIATED DAMAGES AND ACCEPT NO LIABILITY ASSOCIATED WITH THE CONSTRUCTION AND IMPLEMENTATION OF ENGINEERING INTERVENTIONS DUE TO THE ENGINEERS HAVING LIMITED CONTACT WITH THE CLIENT AND THE LIMITED INFORMATION AVAILABLE. THE RESULTING IN OUR INABILITY TO DILIGENTLY SERVE AND ASSESS ANY PROGRESS.

EARTHWORKS/EARTH STRUCTURES:

- ALL CUT AND FILL SLOPES TO BE NOT STEEPER THAN 1:4, UNLESS OTHERWISE SPECIFIED.
- ALL EXPOSED DISTURBED SURFACES TO BE REVEGETATED, UNLESS OTHERWISE SPECIFIED. 100mm OF TOP SOIL TO COVER BERM. REVEGETATION TO BE UNDERTAKEN AT SUITABLE TIMING OF YEAR TO IMPROVE CHANCES OF TAKING.
- SOIL FOR BERMS AND BACKFILL TO BE COMPACTED IN 100mm LAYERS AT OPTIMUM WATER CONTENT

DISPERSIVE SOILS:
(ONLY APPLICABLE IN AREAS WITH DISPERSIVE SOILS):

- IT IS CRITICAL TO ENSURE THAT THE FOUNDING SOILS USED DURING CUT AND REMAINS AS UNDISTURBED AS POSSIBLE. THE BASE OF THE INTERVENTION SHOULD THEREFORE BE CONSTRUCTED AS SOON AS A PORTION OF EXCAVATION HAS BEEN FINISHED.
- FILL MATERIAL TO BE GOOD QUALITY, WELL-GRADED GRAVEL OR CLAY (NOT DISPERSIVE CLAY FOUND IN PARTS OF THE FLOOD PLAIN).
- ALL MATERIAL THAT IS EXCAVATED FROM THIS SITE AND RE-USED FOR BACKFILL SHALL BE WELL MIXED WITH 10% OF LIME PER CUBIC METRE OF SOIL, AND PLACED AND COMPACTED AT OPTIMUM MOISTURE CONTENT.



CLIENT		WORKING FOR WETLANDS PROGRAMME 2014-2017	
Working Wetlands		EARTHWORKS	
aurecon www.aurecongroup.com		L81C - 06 - 201-00 - 01 OF 01 - A	
REV	DATE	REVISION DETAILS	PROJECT AREA
A	12/06/2015	DRAFT FOR REHAB PLAN	EARTHWORKS
APPROVED		DATE	PROJECT AREA
M.PENMAR		22/7/15	EARTHWORKS
SCALE		DATE	PROJECT AREA
AS SHOWN		22/7/15	EARTHWORKS
DRAWN		ENGINEER	REGISTRATION No.
S.NIKHOLA		M.PENMAR	2003 0159
DESIGNED		CHECKED	D.TOWNSHEND
M.PENMAR			
PRELIMINARY NOT FOR CONSTRUCTION APPROVED			