Appendix C Woodlane Reserve In-situ and Laboratory Data

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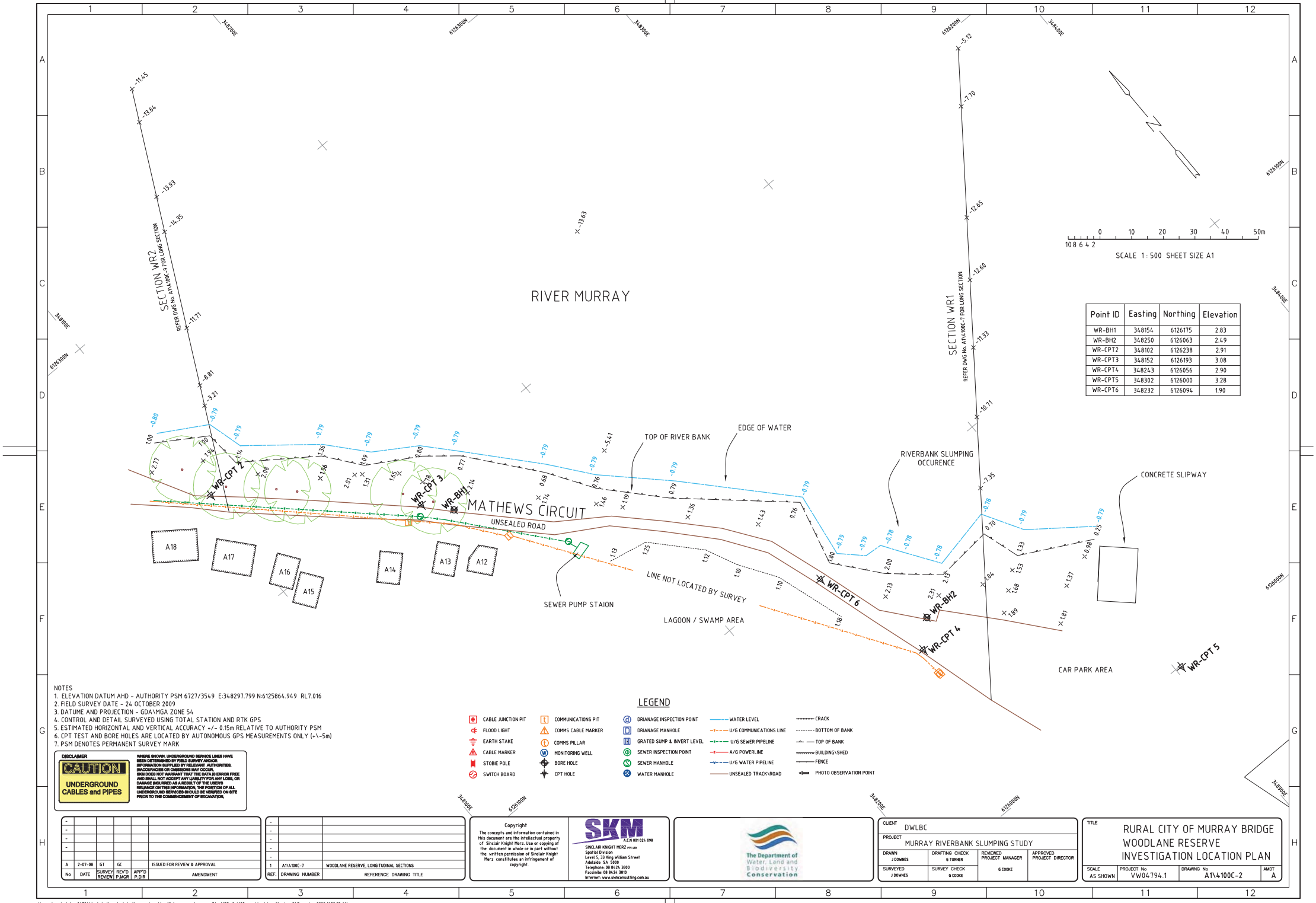


Point ID	Easting	Northing	Elevation
WR-BH1	348154	6126175	2.83
WR-BH2	348250	6126063	2.49
WR-CPT2	348102	6126238	2.91
WR-CPT3	348152	6126193	3.08
WR-CPT4	348243	6126056	2.90
WR-CPT5	348302	6126000	3.28
WR-CPT6	348232	6126094	1.90

NOTES
1. ELEVATION DATUM AHD - AUTHORITY PSM 6727/3549 E:348297.799 N:6125864.949 RL7.016
2. FIELD SURVEY DATE - 24 OCTOBER 2009
3. DATUME AND PROJECTION - GDA\MGA ZONE 54
4. CONTROL AND DETAIL SURVEYED USING TOTAL STATION AND RTK GPS
5. ESTIMATED HORIZONTAL AND VERTICAL ACCURACY +/- 0.15m RELATIVE TO AUTHORITY PSM
6. CPT TEST AND BORE HOLES ARE LOCATED BY AUTONOMOUS GPS MEASUREMENTS ONLY (+\-5m)
7. PSM DENOTES PERMANENT SURVEY MARK

LEGEND

CABLE JUNCTION PIT, FLOOD LIGHT, EARTH STAKE, CABLE MARKER, STOBIE POLE, SWITCH BOARD, COMMUNICATIONS PIT, COMMS CABLE MARKER, COMMS PILLAR, MONITORING WELL, BORE HOLE, CPT HOLE, DRIANAGE INSPECTION POINT, DRIANAGE MANHOLE, GRATED SUMP & INVERT LEVEL, SEWER INSPECTION POINT, SEWER MANHOLE, WATER MANHOLE, WATER LEVEL, U/G COMMUNICATIONS LINE, U/G SEWER PIPELINE, A/G POWERLINE, U/G WATER PIPELINE, UNSEALED TRACK\ROAD, CRACK, BOTTOM OF BANK, TOP OF BANK, BUILDING\SHED, FENCE, PHOTO OBSERVATION POINT

DISCLAIMER

CAUTION
UNDERGROUND CABLES and PIPES

WHERE SHOWN, UNDERGROUND SERVICE LINES HAVE BEEN DETERMINED BY FIELD SURVEY AND/OR INFORMATION SUPPLIED BY RELEVANT AUTHORITIES. INACCURACIES OR OMISSIONS MAY OCCUR. SKM DOES NOT WARRANT THAT THE DATA IS ERROR FREE AND SHALL NOT ACCEPT ANY LIABILITY FOR ANY LOSS, OR DAMAGE INCURRED AS A RESULT OF THE USER'S RELIANCE ON THIS INFORMATION. THE POSITION OF ALL UNDERGROUND SERVICES SHOULD BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF EXCAVATION.

No	DATE	SURVEY REVIEW	REV'D P.MGR	APP'D P.DIR	AMENDMENT
A	2-07-08	GT	GC		ISSUED FOR REVIEW & APPROVAL

REF.	DRAWING NUMBER	REFERENCE DRAWING TITLE
1	A1\4100C-7	WOODLANE RESERVE, LONGITUDINAL SECTIONS

SKM
A.C.N. 001 024 098
SINCLAIR KNIGHT MERZ PTY LTD
Spatial Division
Level 5, 33 King William Street
Adelaide SA 5000
Telephone: 08 8424 3800
Facsimile: 08 8424 3810
Internet: www.skmconsulting.com.au

The Department of Water, Land and Biodiversity Conservation

CLIENT	DWLBC
PROJECT	MURRAY RIVERBANK SLUMPING STUDY
DRAWN	J DOWNES
DRAFTING CHECK	G TURNER
REVIEWED PROJECT MANAGER	G COOKE
APPROVED PROJECT DIRECTOR	
SURVEYED	J DOWNES
SURVEY CHECK	G COOKE

TITLE: RURAL CITY OF MURRAY BRIDGE
WOODLANE RESERVE
INVESTIGATION LOCATION PLAN

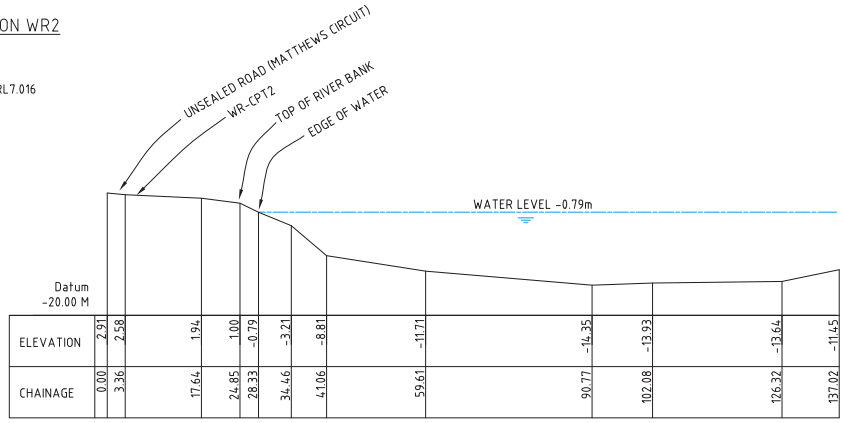
SCALE	PROJECT No	DRAWING No	AMDT
AS SHOWN	VW04794.1	A1\4100C-2	A

I:\vwes\projects\vw04794\technical\geotechnical\survey\working file\murray_river_mga54_4100c & 4100e combined.dwg Monday, 21 December 2009 11:38:05 AM

WOODLANE RESERVE

LONGITUDINAL SECTION WR2

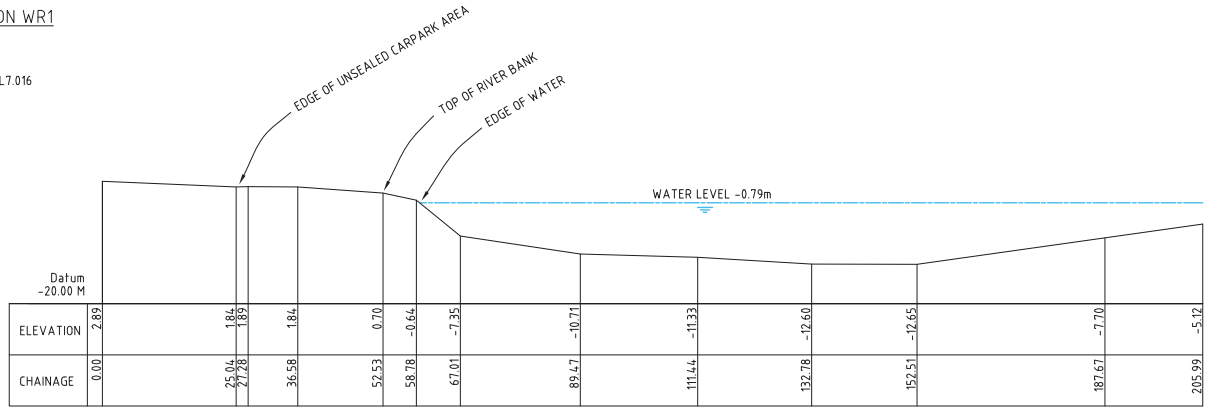
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:500
AUSTRALIAN HEIGHT DATUM
AUTHORITY PSM 6727/3549 RL7.016



ELEVATION	2.91	2.58	1.94	1.00	-0.79	-3.21	-8.81	-11.71	-14.35	-13.93	-13.64	-11.45
CHAINAGE	0.00	3.36	17.64	24.85	28.33	34.46	41.06	59.61	90.77	102.08	126.32	137.02

LONGITUDINAL SECTION WR1

HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:500
AUSTRALIAN HEIGHT DATUM
AUTHORITY PSM 6727/3549 RL7.016



ELEVATION	2.89	1.84	1.89	1.84	0.70	-0.64	-7.35	-10.71	-11.33	-12.60	-12.65	-7.70	-5.12
CHAINAGE	0.00	25.04	27.28	36.58	52.53	58.78	67.01	89.47	111.44	132.78	152.51	187.67	205.99

No	DATE	SURVEY REVIEW	REV'D P.MGR	APP'D P.DIR	AMENDMENT
A	2-07-08	GT	GC		ISSUED FOR REVIEW & APPROVAL

REF.	DRAWING NUMBER	REFERENCE DRAWING TITLE
1	A1\4100C-2	WOODLANE RESERVE, TOPOGRAPHICAL SURVEY

SKM
A.C.N. 001 024 098
SINCLAIR KNIGHT MERZ PTY LTD
Spatial Division
Level 5, 33 King William Street
Adelaide SA 5000
Telephone: 08 8424 3800
Facsimile: 08 8424 3810
Internet: www.skmconsulting.com.au

The Department of Water, Land and Biodiversity Conservation

CLIENT: DWLBC			
PROJECT: MURRAY RIVERBANK SLUMPING STUDY			
DRAWN: J DOWNES	DRAFTING CHECK: G TURNER	REVIEWED PROJECT MANAGER: G COOKE	APPROVED PROJECT DIRECTOR
SURVEYED: J DOWNES	SURVEY CHECK: G COOKE		

TITLE: RURAL CITY OF MURRAY BRIDGE
WOODLANE RESERVE
LONGITUDINAL SECTIONS

SCALE	PROJECT No	DRAWING No	AMDT
AS SHOWN	VW04794.1	A1\4100C-7	A

BOREHOLE No. WR-BH1

Project: Lwr Murray Riverbank Collapse Client: DWLBC
Location: Woodlane Reserve Start - Finish Date: 26/10 - 26/10/09
Job No: VW04794.1 Bore dia: 100mm
Driller: Drilling Solution Rig: Warman Scout 250 Surface Conditions: Grass
Northings: 6126175.0mN Eastings: 348154.0mE RL: 2.8mAHD
Logged: MT Checked: RT Oriented: -90

LABORATORY DATA						FIELD DATA			SOIL DESCRIPTION		SOIL CONDITION		COMMENTS
dry density (t/m^3)	moisture content (%)	liquid limit (%)	plasticity index (%)	percent fines (%)	design / test data	field & other tests	sample type	elevation (mAHD) / ground water / depth (m)	graphic log	soil type, unified classification, colour, structure, particle characteristics, minor components	consistency/ density	moisture condition	drilling method, well construction, water and additional observations
								2 / 1		FILL: Clayey SAND: (SC) brown, dark brown, mottled grey, fine to medium grained sand		M	Hollow Stem Augering 150mm diameter
						(1,3,6) (N=9)		1 / 2		Silty CLAY: (CH) dark grey-black, with fine grained gravel, trace of shells, with roots, with sand, with organic matter	F		
	35			78									
										grey, with roots, with organic matter			
	59												
						(0,0,0) (N=0)		0 / 3			VS		No sample recovered from SPT
	56									Sandy CLAY: (CH) dark grey, mottled brown, with black leaves, with organic matter		W	
								-1 / 4			VS		
	49			37		(0,0,1) (N=1)				Clayey SAND: (SC) dark grey-black, mottled orange-brown, with roots, with leaves, with organic matter	VL		No sample recovered from SPT
								-2 / 5		light grey, with coarse grained gravel			
				29		(4,3,5) (N=8)		-3 / 6		Silty SAND: (SM) light grey, fine grained sand, with fine to coarse grained gravel, trace of silt, trace of clay	MD		
								-4 / 7		Silty Gravel: (GM) pale grey, with cemented sands, coarse grained gravel sized pieces, sub-angular,	MD		
						(4,3,5) (N=8)				Silty SAND: (SM) light grey, fine grained sand, with fine to coarse grained gravel			
	22	37	22	68				-5 / 8		Sandy CLAY: (CL) light grey, dark grey, mottled yellow-brown, fine grained sand	F		
						(1,2,4) (N=6)		-6 / 9		Silty CLAY: (CL) light grey, with fine sand	S		
								-7 / 10					

LABORATORY DATA
- UQN Unconfined Comp. (Natural)
- UQC Unconfined Comp. (Compacted)
- TQN Uncons. Undrained Triax. (Natural)
- TQC Uncons. Undrained Triax. (Compacted)
- TRX Consolidated Undrained Triaxial with pwp measurement
- PSA Particle Size Analysis
- CS 1D oedometer Test
- LPM Laboratory Permeability

FIELD DATA ABBREVIATIONS
- Suv = Uncorrected vane shear (kPa)
- Sup = Pocket penetrometer (kPa)
- N = SPT blows per 300mm
- FPM = Field permeability

GROUNDWATER SYMBOLS
- = Water level (static)
- = Water level (during drilling)
- = Outflow / Inflow

FIELD DATA SYMBOLS
- = Shear vane test
- = Pocket Penetrometer test
- = Standard Penetration Test (SPT top = start of N blowcount)
- = SPT Spoon Sample (Pushed)
- = Undisturbed Tube Sample
- = Disturbed Sample
- = Environmental Sample

DENSITY (N-value)

VL	(very loose)	0 - 4
L	(loose)	4 - 10
MD	(medium dense)	10 - 30
D	(dense)	30 - 50
VD	(very dense)	50 - 100
CO	(compact)	>50/150mm

MOISTURE CONDITION
D = Dry M = Moist W = Wet

CONSISTENCY (Su)

VS	(very soft)	< 12 kPa
S	(soft)	12 - 25
F	(firm)	25 - 50
St	(stiff)	50 - 100
VSt	(very stiff)	100 - 200
H	(hard)	> 200 kPa

SKM 001 SOIL ELV - MC0 LOWER MURRAY.GPJ SKM_001_2008 05 07_DS.GDT 14/12/09

BOREHOLE No. WR-BH1

Project: Lwr Murray Riverbank Collapse Client: DWLBC
Location: Woodlane Reserve Start - Finish Date: 26/10 - 26/10/09
Job No: VW04794.1 Bore dia: 100mm

Driller: Drilling Solution Northings: 6126175.0mN Logged: MT
Rig: Warman Scout 250 Eastings: 348154.0mE Checked: RT
Surface Conditions: Grass RL: 2.8mAHD Oriented: -90

LABORATORY DATA						FIELD DATA			SOIL DESCRIPTION		SOIL CONDITION		COMMENTS
dry density (t/m^3)	moisture content (%)	liquid limit (%)	plasticity index (%)	percent fines (%)	design / test data	field & other tests	sample type	elevation (mAHD) / ground water depth (m)	graphic log	soil type, unified classification, colour, structure, particle characteristics, minor components	consistency/ density	moisture condition	drilling method, well construction, water and additional observations
						(3,6,5) (N=11)		-8 11		Silty CLAY: (CL) dark grey, mottled orange-brown, with fine sand	F	W	
	25	31	14			(2,5,7) (N=12)		-9 12		light grey, mottled orange-brown, with fine sand			
								-10 13					
						(8,14,17) (N=31)		-11 14		light grey	St		
				18		(10,17,21) (N=38)		-12 15		Silty SAND: (SM) light grey, with some cemented sands gravel sized	D		
								-13 16		Silty GRAVEL: (GM) / Silty SAND: (SM) light grey, with fine grained sand, with cemented sands fine grained gravel sized, with gravel light green-grey, lense of cemented sands gravel sized, fine to coarse grained			
				13		(18,34,34) (N=68)		-14 17		Silty SAND: (SM) orange-brown, fine grained sand, with coarse grained angular gravel with Clayey GRAVEL lense, mottled orange-brown, coarse grained	VD		
						(8,6,11) (N=17)		-15 18		SAND: (SP) grey- light green, fine grained sand	MD		
								-16 19		Silty SAND: (SM) / Sandy SILT: (MH) dark brown-grey, mottled orange-brown			
	22	23	1			(7,17,23) (N=40)		-17 20		SILT: (ML) dark brown, grey	H		
										Borehole terminated at 19.5m			

LABORATORY DATA
UQN Unconfined Comp. (Natural)
UQC Unconfined Comp. (Compacted)
TQN Uncons. Undrained Triax. (Natural)
TQC Uncons. Undrained Triax. (Compacted)
TRX Consolidated Undrained Triaxial with pwp measurement
PSA Particle Size Analysis
CS 1D oedometer Test
LPM Laboratory Permeability

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Suv = Uncorrected vane shear (kPa)
Sup = Pocket penetrometer (kPa)
N = SPT blows per 300mm
FPM = Field permeability

GROUNDWATER SYMBOLS
= Water level (static)
= Water level (during drilling)
= Outflow / Inflow

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= Shear vane test
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= Standard Penetration Test (SPT top = start of N blowcount)
= SPT Spoon Sample (Pushed)
= Undisturbed Tube Sample
= Disturbed Sample
= Environmental Sample

DENSITY (N-value)

VL	(very loose)	0 - 4
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MD	(medium dense)	10 - 30
D	(dense)	30 - 50
VD	(very dense)	50 - 100
CO	(compact)	>50/150mm

MOISTURE CONDITION
D = Dry M = Moist W = Wet

CONSISTENCY (Su)

VS	(very soft)	< 12 kPa
S	(soft)	12 - 25
F	(firm)	25 - 50
St	(stiff)	50 - 100
VSt	(very stiff)	100 - 200
H	(hard)	> 200 kPa

SKM 001 SOIL ELV - MC0 LOWER MURRAY.GPJ SKM_001_2008 05 07_DS.GDT 14/12/09

BOREHOLE No. WR-BH2

Project: Lwr Murray Riverbank Collapse Client: DWLBC
Location: Woodlane Reserve Start - Finish Date: 26/10 - 26/10/09
Job No: VW04794.1 Bore dia: 100mm
Driller: Drilling Solution Rig: Warman Scout 250 Surface Conditions: Grass
Northings: 6126063.0mN Eastings: 348250.0mE RL: 2.6mAHD
Logged: MT Checked: RT Oriented: -90

LABORATORY DATA						FIELD DATA			SOIL DESCRIPTION		SOIL CONDITION		COMMENTS
dry density (t/m^3)	moisture content (%)	liquid limit (%)	plasticity index (%)	percent fines (%)	design / test data	field & other tests	sample type	elevation (mAHD) ground water depth (m)	graphic log	soil type, unified classification, colour, structure, particle characteristics, minor components	consistency/ density	moisture condition	drilling method, well construction, water and additional observations
								2 1		FILL: SAND: (SP) orange-brown, fine to medium grained	MD	D-M	Hollow Stem Augering 150mm diameter
				87		(1,3,3) (N=6)		1 2		Silty CLAY: (CH) dark grey-black, mottled yellow-orange-brown, with roots, with some silty lenses, with organic matter	S	M	
	35	57	40										
	77	63	41			(0,0,0) (N=0)		0 3		dark grey, mottled black, with roots, with leaves, with organic matter			
								-1		Clayey SAND: (SC) dark grey, light grey, fine to medium grained sand	VL	W	
	23	31	17	38				4		mottled white and black, with roots, with organic matter			No sample recovered in push tube
				32		(1,1,3) (N=4)		-2 5		mottled white and black, decrease in clay content, with some cemented fine to coarse grained gravel sized pieces, with roots, with organic matter	VL-L		
						(0,2,1) (N=3)		-3 6					No sample recovered in push tube
								-4		SAND: (SP) grey-light green, mottled brown, mottled black, fine grained sand	L		
								7		fine grained sand			
								-5 8		Sandy SILT: (ML) dark green-grey, mottled yellow-orange-brown, fine grained sand	S		
						(1,3,4) (N=7)		-6 9		SILT: (ML) dark green-grey, mottled yellow-orange-brown	F		
	25							-7 10					

LABORATORY DATA
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TQN Uncons. Undrained Triax. (Natural)
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= Undisturbed Tube Sample
= Disturbed Sample
= Environmental Sample

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CO	(compact)	>50/150mm

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SKM 001 SOIL ELV - MC0 LOWER MURRAY.GPJ SKM_001_2008 05 07_DS.GDT 14/12/09

BOREHOLE No. WR-BH2

Project: Lwr Murray Riverbank Collapse Client: DWLBC
Location: Woodlane Reserve Start - Finish Date: 26/10 - 26/10/09
Job No: VW04794.1 Bore dia: 100mm
Driller: Drilling Solution Rig: Warman Scout 250 Surface Conditions: Grass
Northings: 6126063.0mN Eastings: 348250.0mE RL: 2.6mAHD
Logged: MT Checked: RT Oriented: -90

LABORATORY DATA						FIELD DATA				SOIL DESCRIPTION		SOIL CONDITION		COMMENTS
dry density (t/m^3)	moisture content (%)	liquid limit (%)	plasticity index (%)	percent fines (%)	design / test data	field & other tests	sample type	elevation (mAHD) / ground water depth (m)	graphic log	soil type, unified classification, colour, structure, particle characteristics, minor components	consistency/ density	moisture condition	drilling method, well construction, water and additional observations
						(2,3,5) (N=8)		-8 / 11		SILT: (ML) dark green-grey, mottled yellow-orange-brown *(continued)* dark green-grey, mottled orange-brown	F	W	
										compacted silt, decrease in moisture content			
						(2,6,9) (N=15)		-9 / 12		SAND: (SW) dark brown-black, fine to coarse grained	MD	W	
	24	26	3	59						Sandy SILT: (ML) dark brown-black			
						Suv=89 Sur=16		-10 / 13		with a sand lense with a clay lense			
						Suv=65 Sur=13				SILT: (ML) dark brown-black, with a lense of sand			
				11				-11 / 14		SAND: (SP) light green-grey, fine to coarse grained sand	MD		
						(5,30+,-) for 120mm (N>50)		-12 / 15		clayey matrix, with coarse gravel	D		
										light green-grey, fine to coarse grained sand	MD		
								-13 / 16 -14 / 17 -15 / 18 -16 / 19 -17 / 20		Borehole terminated at 15.2m			

LABORATORY DATA
UQN Unconfined Comp. (Natural)
UQC Unconfined Comp. (Compacted)
TQN Uncons. Undrained Triax. (Natural)
TQC Uncons. Undrained Triax. (Compacted)
TRX Consolidated Undrained Triaxial with pwp measurement
PSA Particle Size Analysis
CS 1D oedometer Test
LPM Laboratory Permeability

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Sup = Pocket penetrometer (kPa)
N = SPT blows per 300mm
FPM = Field permeability

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= Water level (during drilling)
= Outflow / Inflow

FIELD DATA SYMBOLS
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= Pocket Penetrometer test
= Standard Penetration Test (SPT top = start of N blowcount)
= SPT Spoon Sample (Pushed)
= Undisturbed Tube Sample
= Disturbed Sample
= Environmental Sample

DENSITY (N-value)

VL	(very loose)	0 - 4
L	(loose)	4 - 10
MD	(medium dense)	10 - 30
D	(dense)	30 - 50
VD	(very dense)	50 - 100
CO	(compact)	>50/150mm

MOISTURE CONDITION
D = Dry M = Moist W = Wet

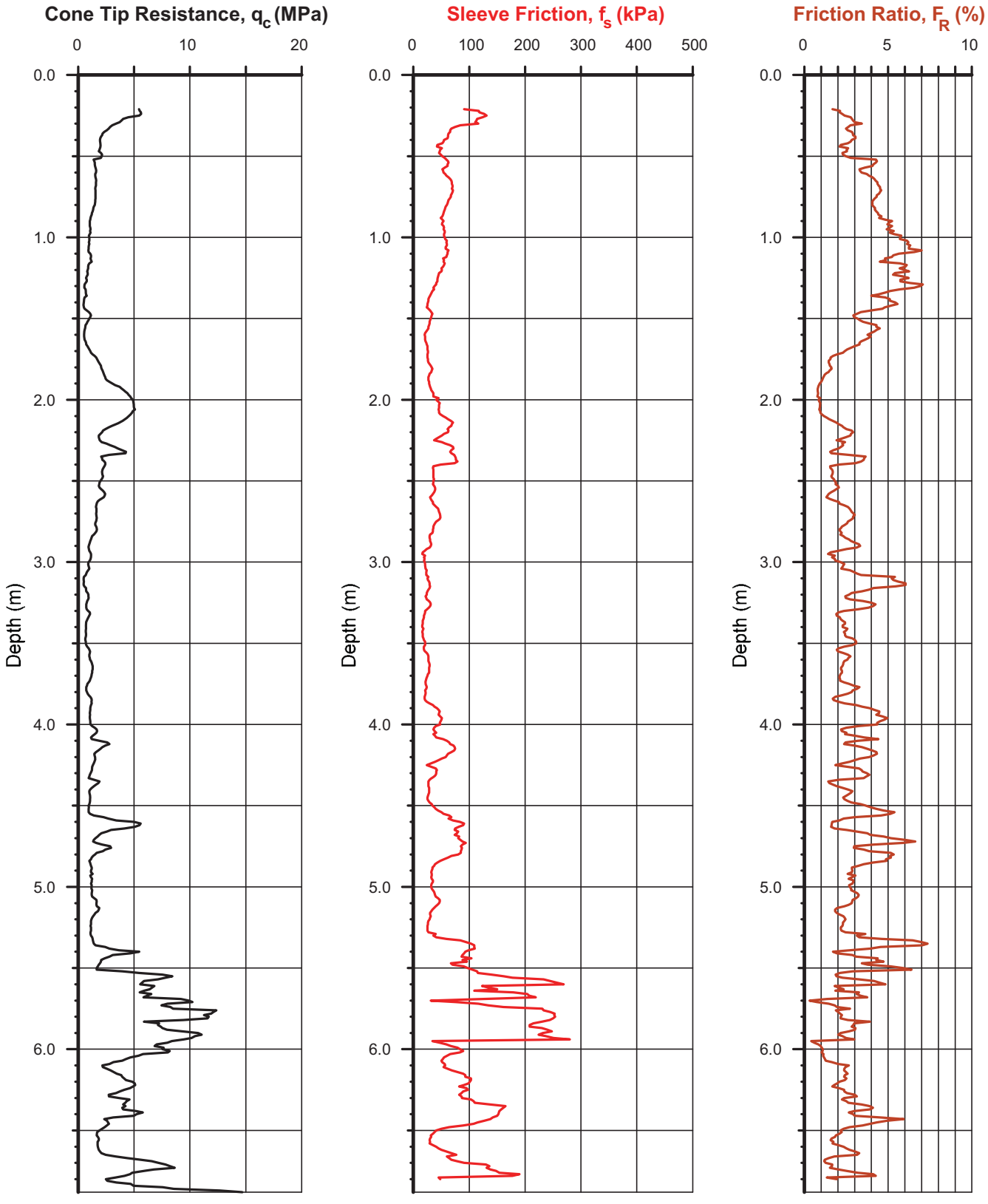
CONSISTENCY (Su)

VS	(very soft)	< 12 kPa
S	(soft)	12 - 25
F	(firm)	25 - 50
St	(stiff)	50 - 100
VSt	(very stiff)	100 - 200
H	(hard)	> 200 kPa

SKM 001 SOIL ELV - MC0 LOWER MURRAY.GPJ SKM_001_2008 05 07_DS.GDT 14/12/09

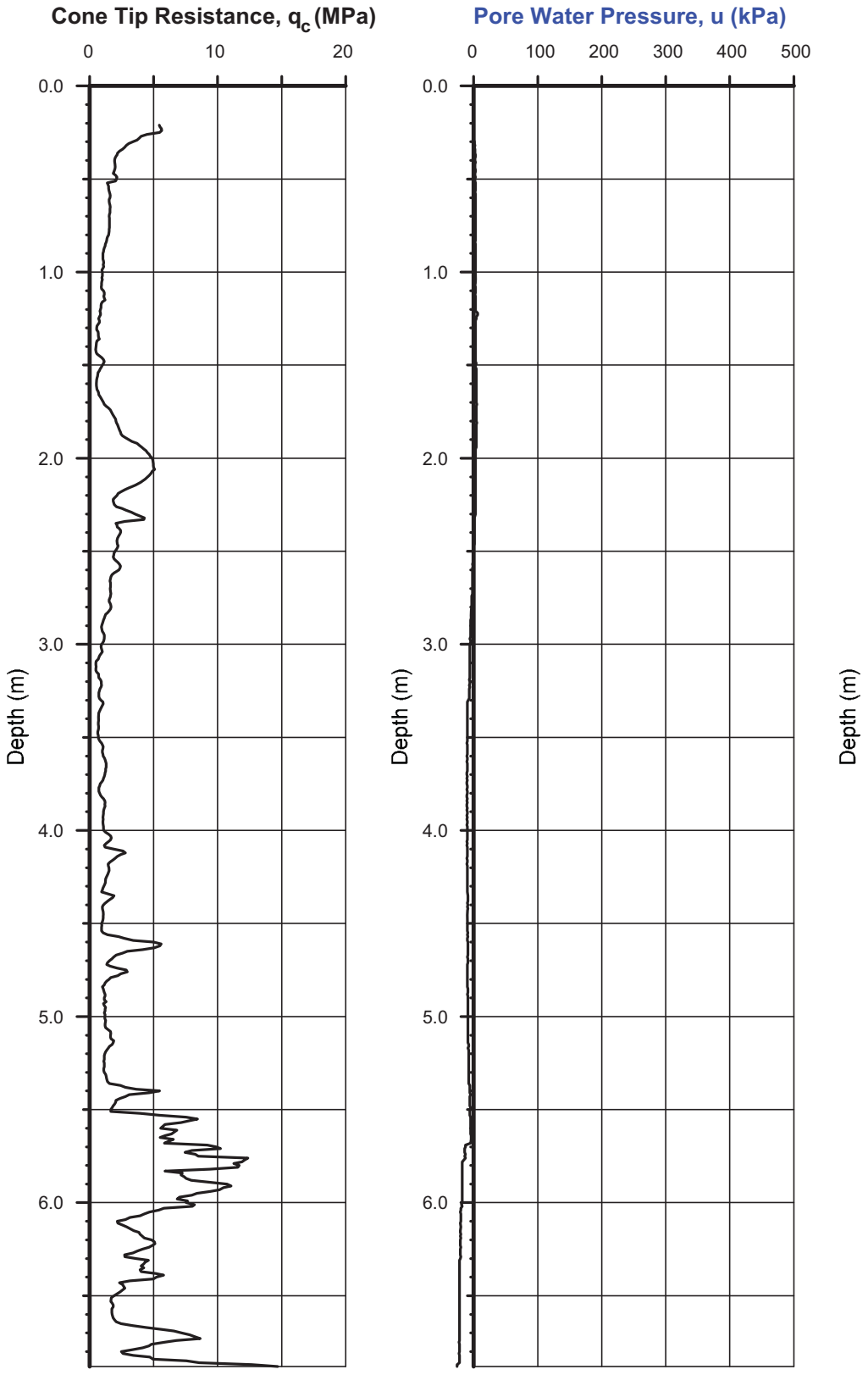
EngTest
CONE PENETRATION TEST

Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: Woodlane Reserve CPT2
Surface RL: NA **Date:** 23/10/2009



Test terminated at 6.9 m. Refusal.

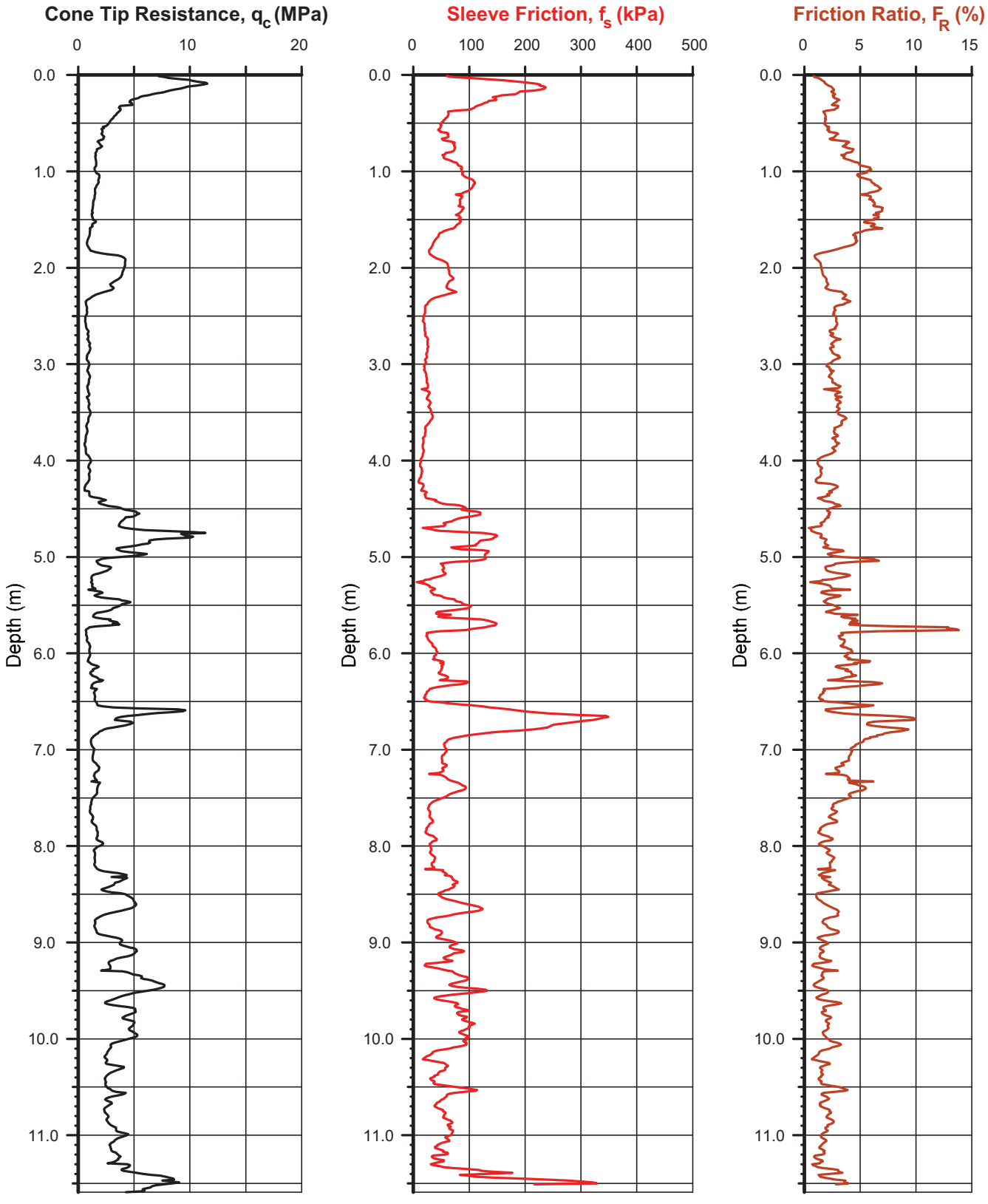
Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: Woodlane Reserve CPT2
Surface RL: NA **Date:** 23/10/2009



Test terminated at 6.9 m. Refusal.

EngTest
CONE PENETRATION TEST

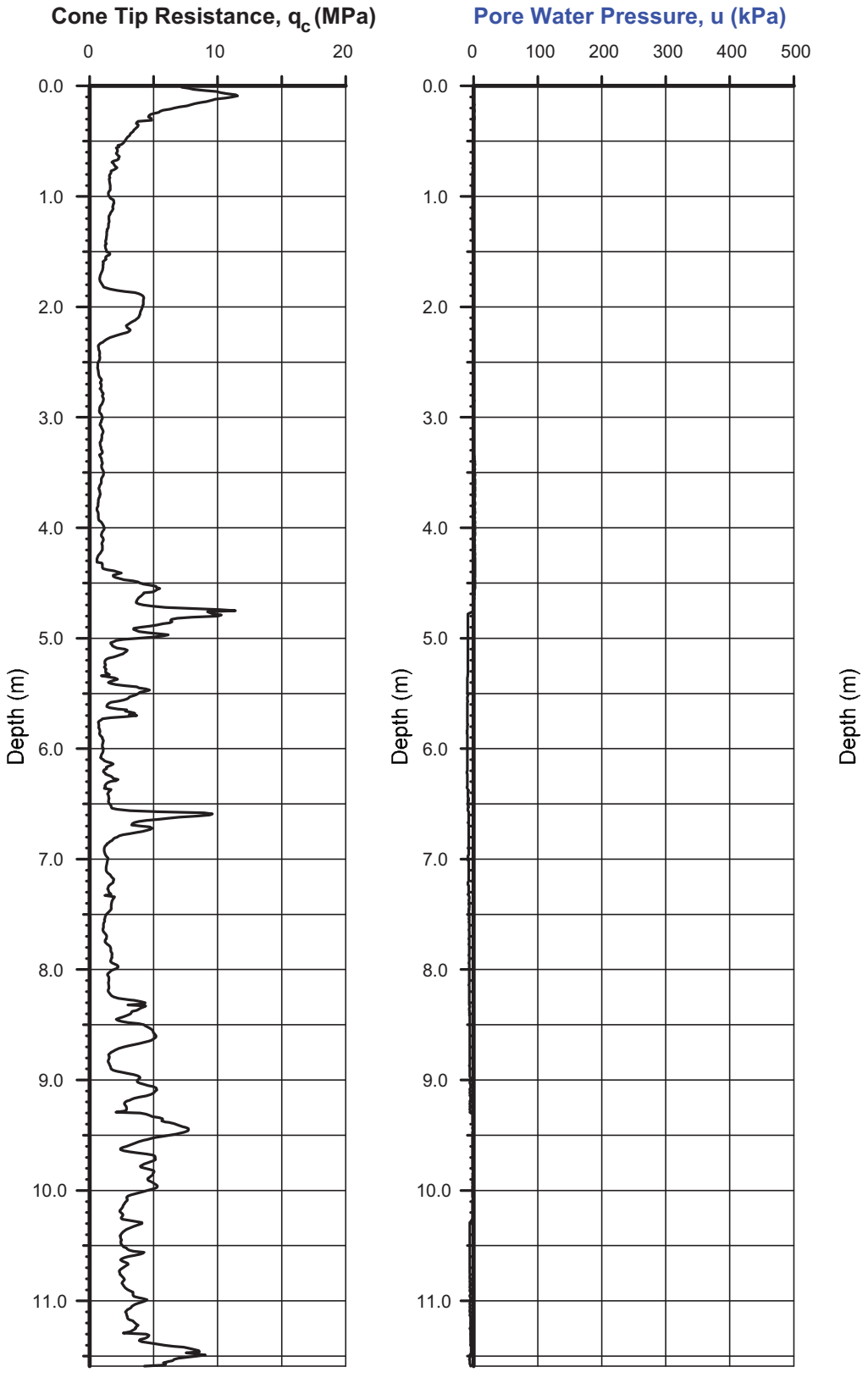
Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: Woodlane Reserve CPT3
Surface RL: NA **Date:** 23/10/2009



Test terminated at 11.6 m. Refusal.

EngTest
CONE PENETRATION TEST

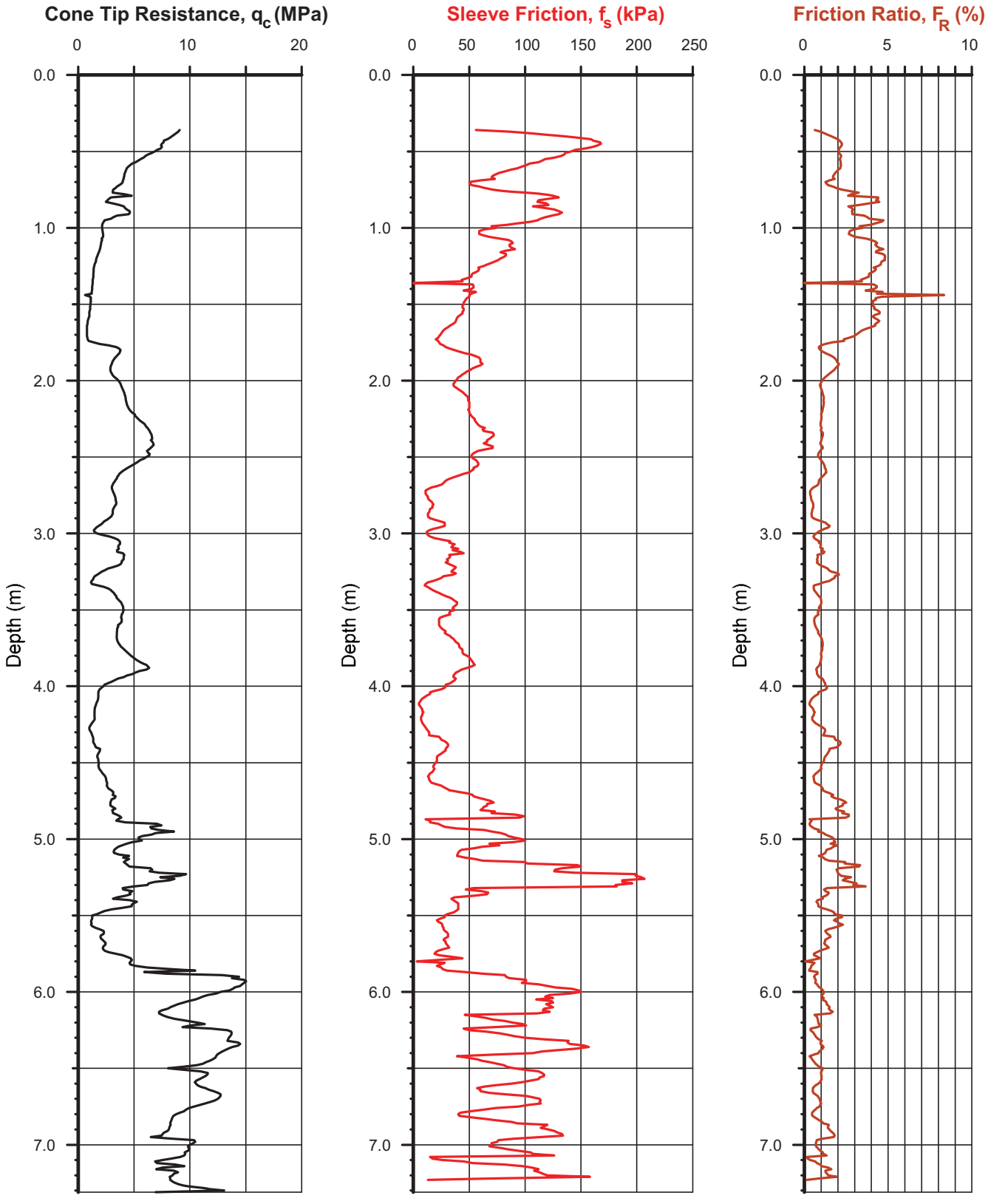
Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: Woodlane Reserve CPT3
Surface RL: NA **Date:** 23/10/2009



Test terminated at 11.6 m. Refusal.

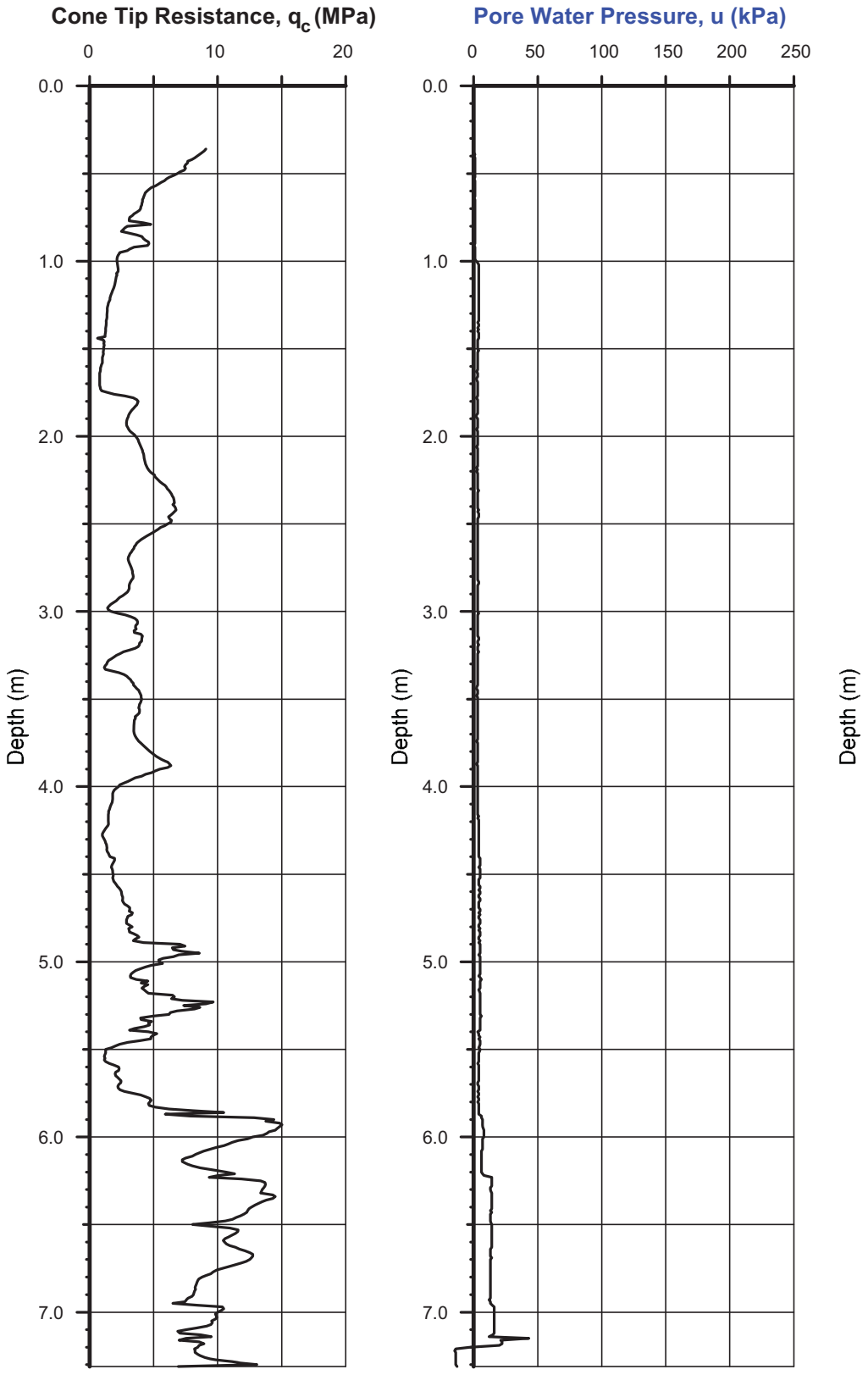
EngTest
CONE PENETRATION TEST

Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: Woodlane Reserve CPT4
Surface RL: NA **Date:** 23/10/2009



Test terminated at 7.3 m. Refusal.

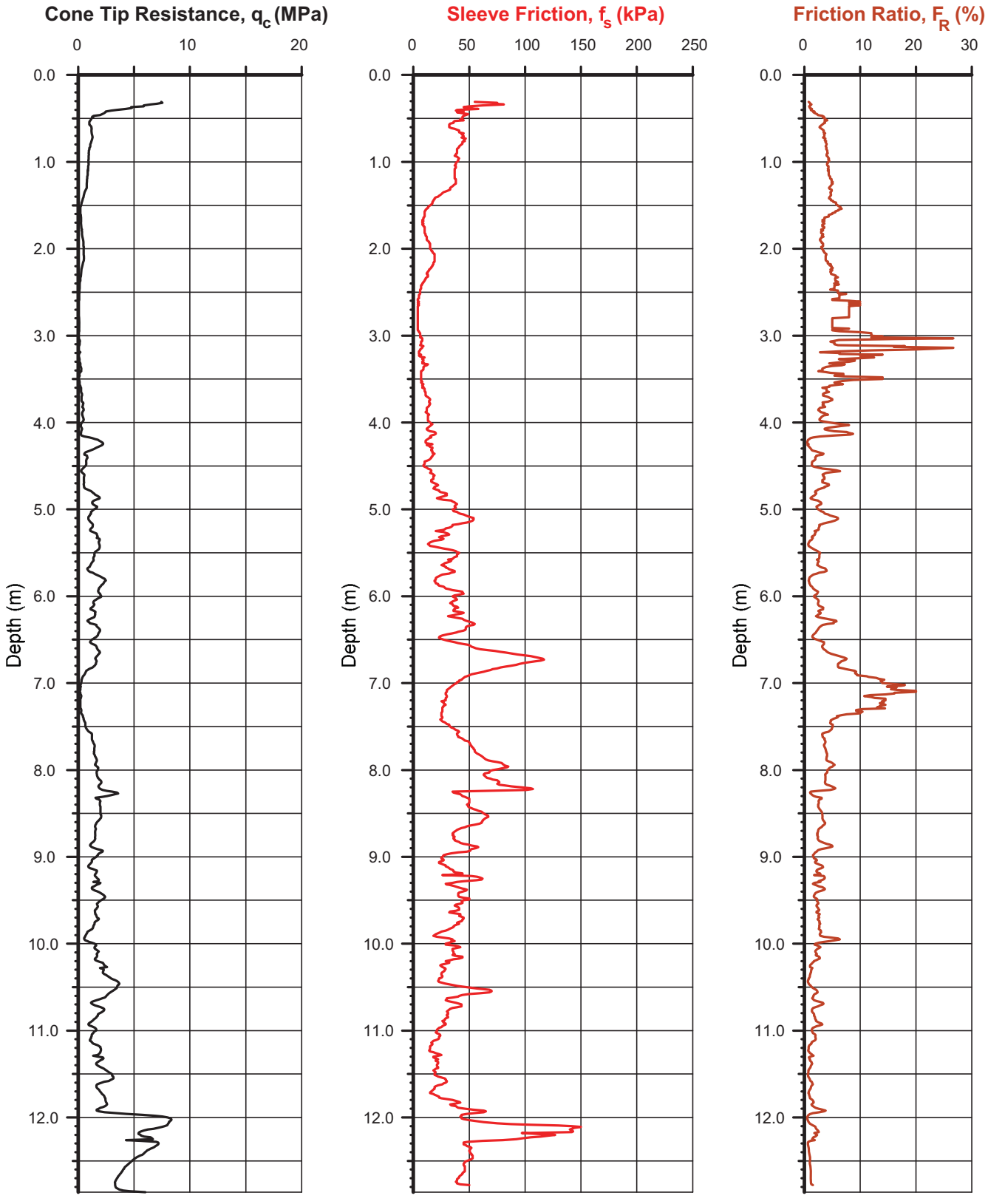
Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: Woodlane Reserve CPT4
Surface RL: NA **Date:** 23/10/2009



Test terminated at 7.3 m. Refusal.

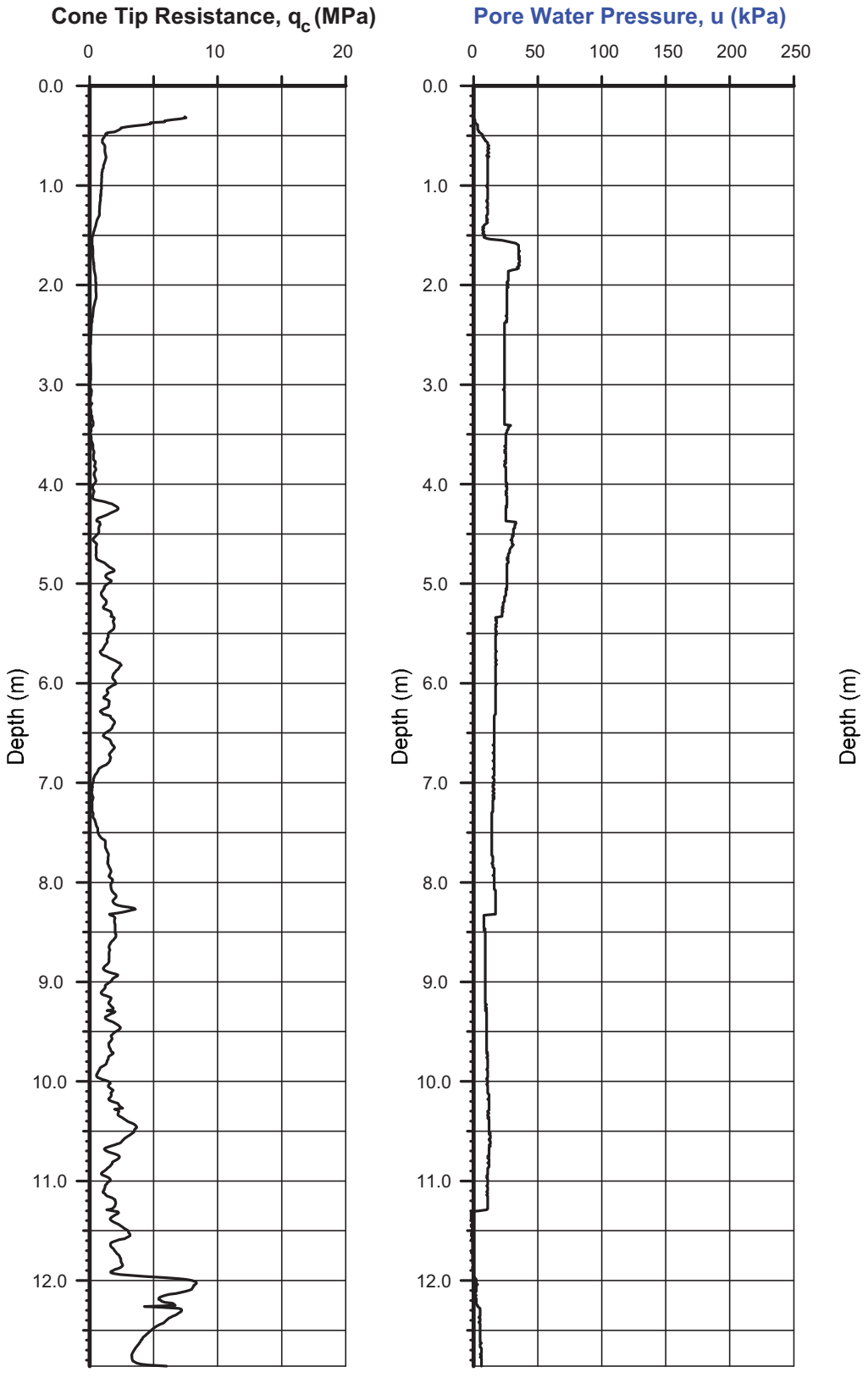
EngTest
CONE PENETRATION TEST

Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: Woodlane Reserve CPT5
Surface RL: NA **Date:** 23/10/2009



Test terminated at 12.9 m. Refusal.

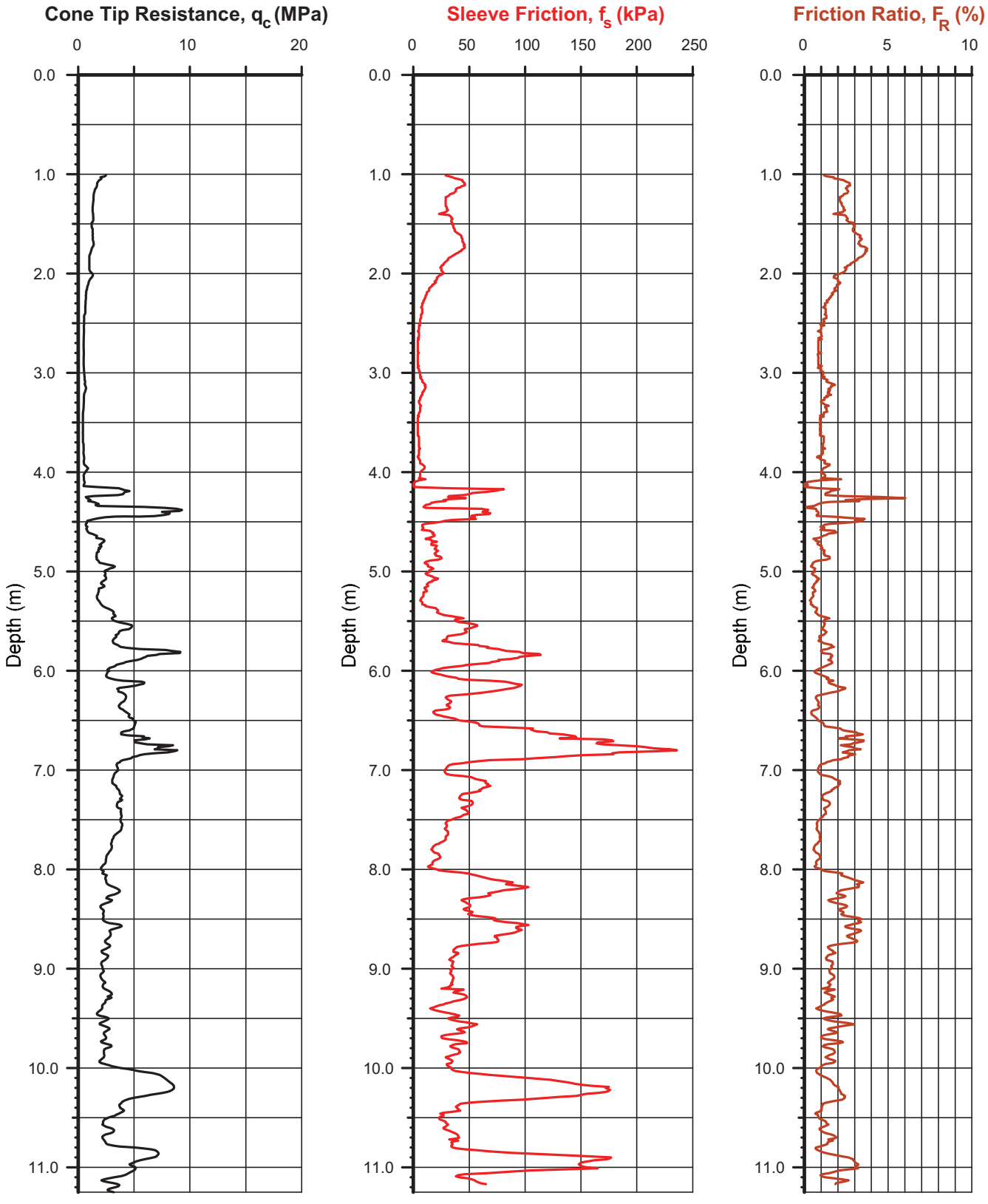
Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: Woodlane Reserve CPT5
Surface RL: NA **Date:** 23/10/2009



Test terminated at 12.9 m. Refusal.

EngTest
CONE PENETRATION TEST

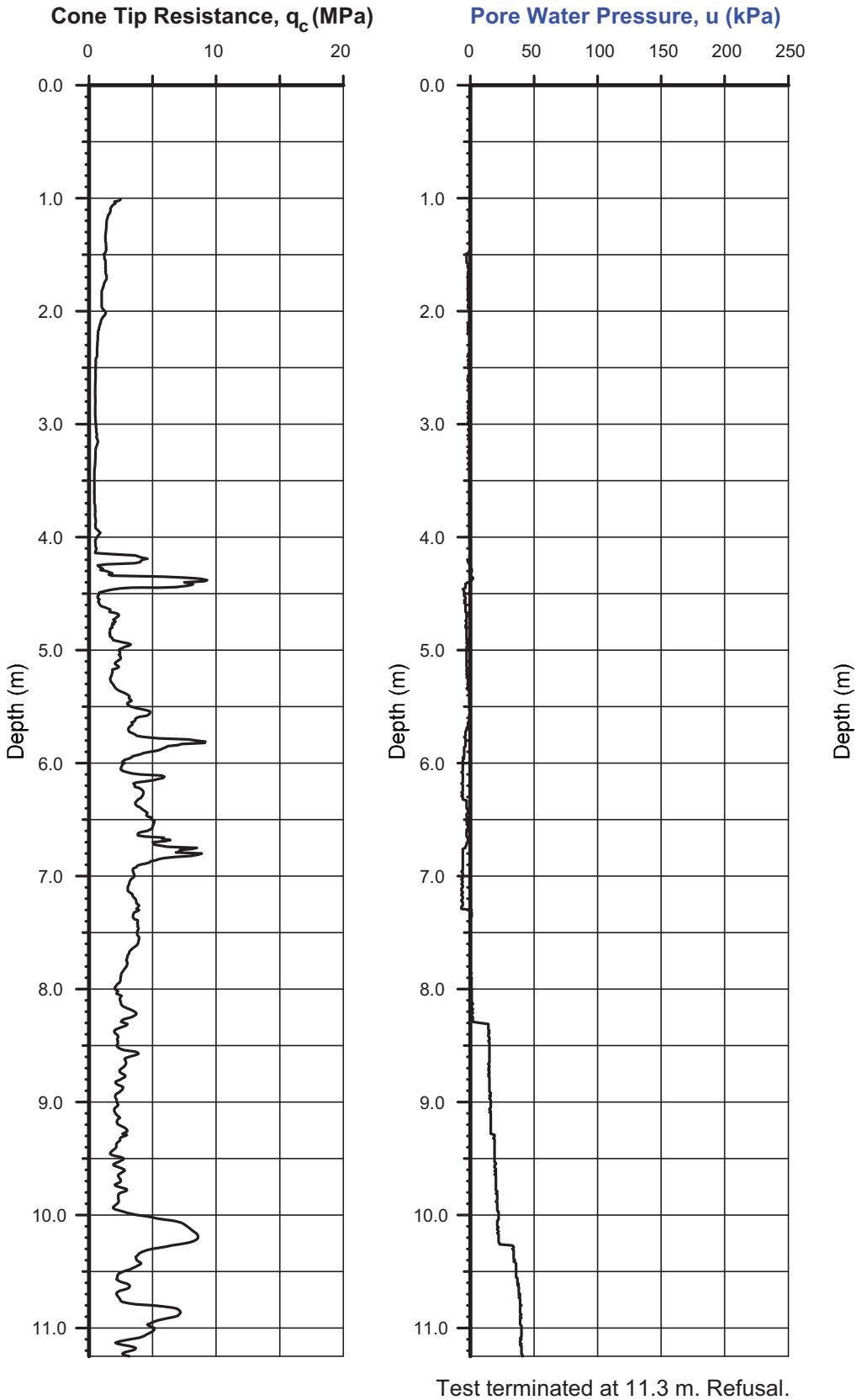
Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: Woodlane Reserve CPT6
Surface RL: NA **Date:** 23/10/2009



Test terminated at 11.3 m. Refusal.

EngTest
CONE PENETRATION TEST

Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: Woodlane Reserve CPT6
Surface RL: NA **Date:** 23/10/2009



Test terminated at 11.3 m. Refusal.

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12505
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 22/11/2009

Sample Details

Sample ID: MEND09S-12505
Client Sample: WR BH1
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 1.5-2.0m

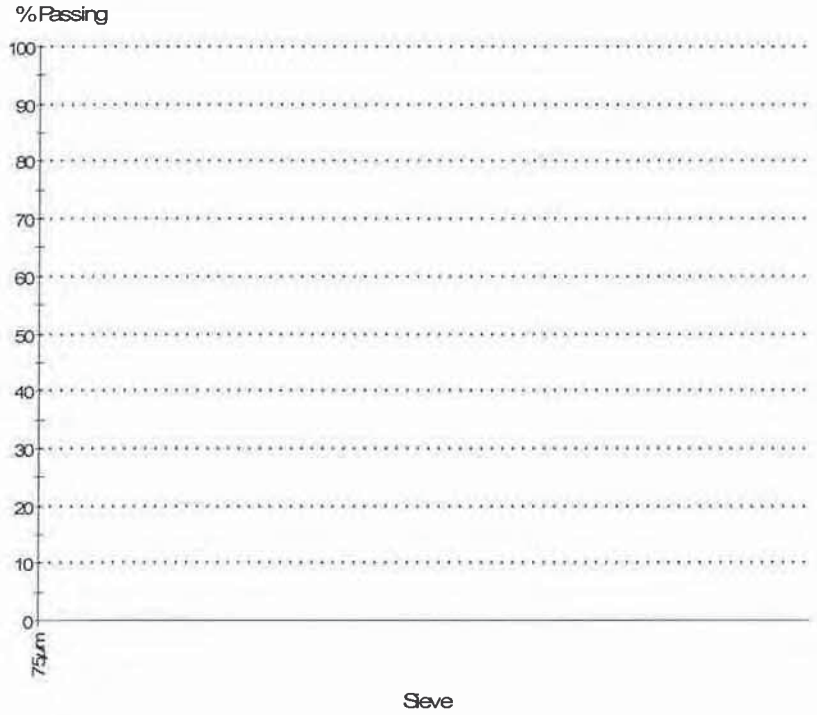
Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	35.4	

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:

Note: Sample Washed



Sieve Size	% Passing	Limits
75µm	78	

Comments
N/A

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12506
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 22/11/2009

Sample Details

Sample ID: MEND09S-12506
Client Sample: WR BH1
Date Sampled:
Source:
Material:
Specification:
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 2.0-2.5m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	58.5	

Comments
N/A

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12507
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 22/11/2009

Sample Details

Sample ID: MEND09S-12507
Client Sample: WR BH1
Date Sampled:
Source:
Material:
Specification:
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 3.0-3.5m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	56.0	

Comments
N/A

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12508
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 22/11/2009

Sample Details

Sample ID: MEND09S-12508
Client Sample: WR BH1
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 4.0-4.5m

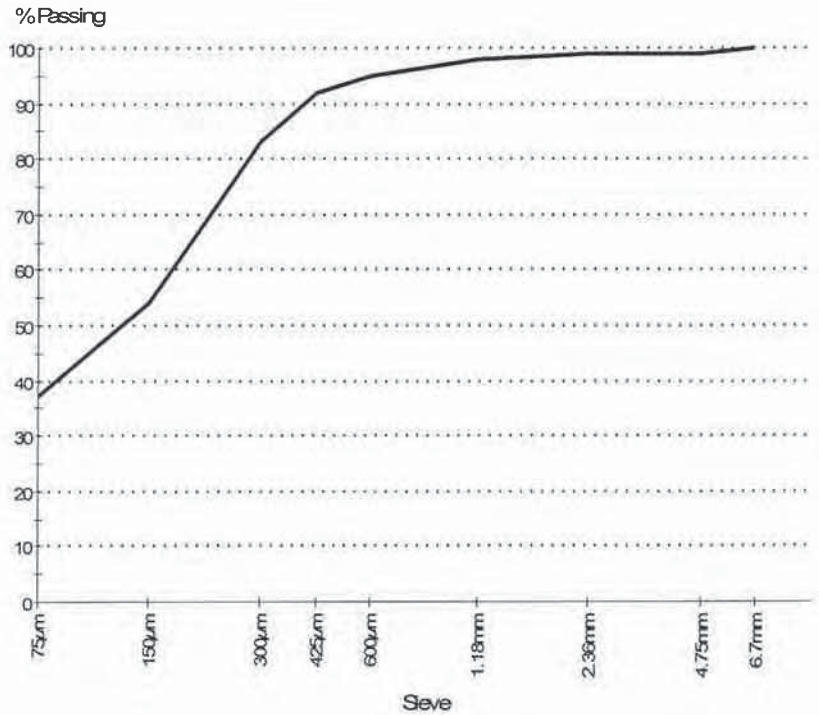
Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	48.6	

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:

Note: Sample Washed



Sieve Size	% Passing	Limits
6.7mm	100	
4.75mm	99	
2.36mm	99	
1.18mm	98	
600µm	95	
425µm	92	
300µm	83	
150µm	54	
75µm	37	

Comments
N/A

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Material Test Report

Report No: MAT:MEND09S-12509
Issue No: 2
This report replaces all previous issues of report no 'MAT:MEND09S-12509'.

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 22/11/2009

Sample Details

Sample ID: MEND09S-12509
Client Sample: WR BH1
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 5.5-6.0m

Other Test Results

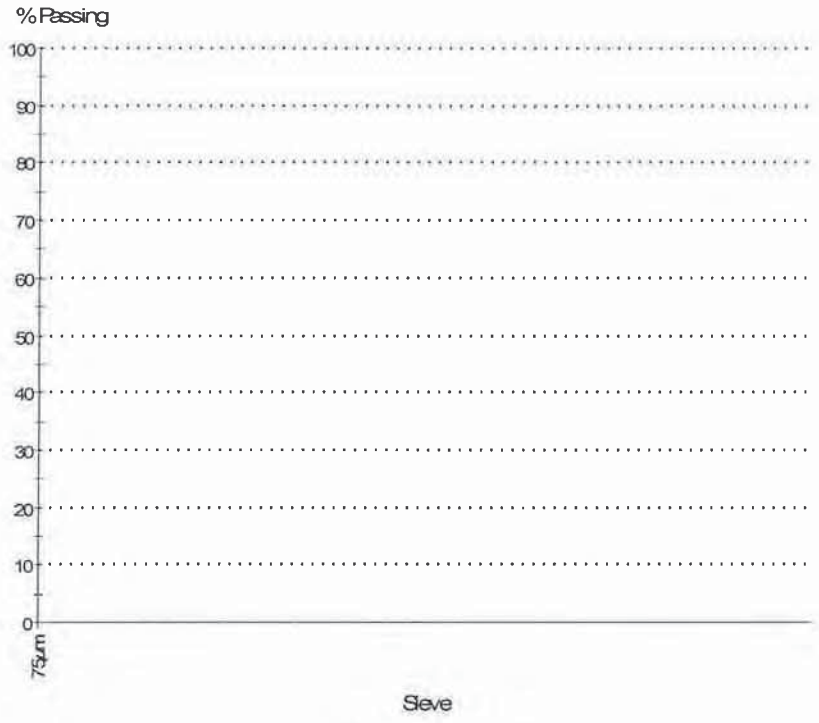
Description	Method	Result	Limits

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:

Note: Sample Washed

Sieve Size	% Passing	Limits
75μm	29	



Comments
N/A

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12510
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

Sample Details

Sample ID:	MEND09S-12510
Client Sample:	WR BH1
Date Sampled:	
Source:	
Material:	
Specification:	AS Grading
Sampling Method:	Submitted by client
Project Location:	MURRAY RIVERBANKS - VE04794
Sample Location:	7.5-8.0m

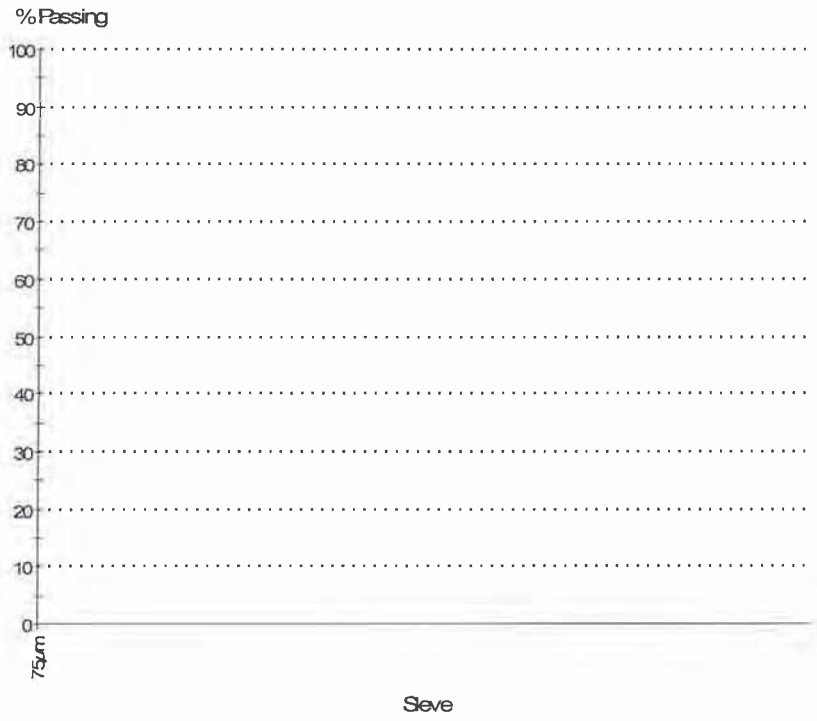
Other Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	22.0	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	6.5	
Mould Length (mm)		250	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	37	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	15	
Plasticity Index (%)	AS 1289.3.3.1	22	

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:

Note: Sample Washed



Sieve Size	% Passing	Limits
75μm	68	

Comments
N/A

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12511
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 22/11/2009

Sample Details

Sample ID: MEND09S-12511
Client Sample: WR BH1
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 11.5-12.0m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	24.6	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	5.0	
Mould Length (mm)		254	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	31	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	17	
Plasticity Index (%)	AS 1289.3.3.1	14	

Comments
N/A

Mile End, Adelaide Laboratory

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12512
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 22/11/2009

Sample Details

Sample ID: MEND09S-12512
Client Sample: WR BH1
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method:
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 14.5-15.0m

Other Test Results

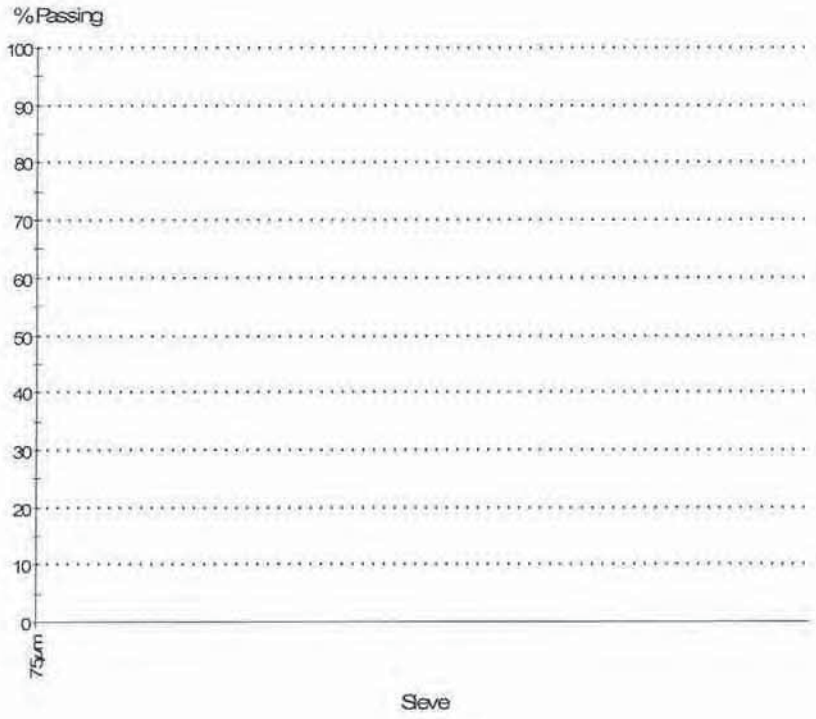
Description	Method	Result	Limits

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:

Note: Sample Washed

Sieve Size	% Passing	Limits
75μm	18	



Comments
N/A

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12513
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

Sample Details

Sample ID: MEND09S-12513
Client Sample: WR BH1
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 16.0-16.5m

Other Test Results

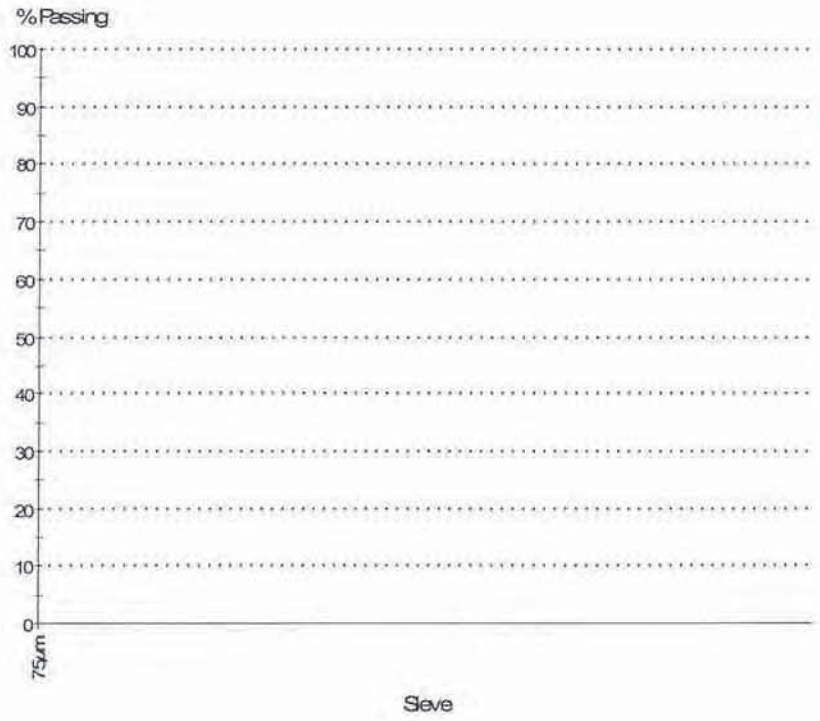
Description	Method	Result	Limits

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:

Note: Sample Washed

Sieve Size	% Passing	Limits
75μm	13	



Comments
N/A

Mile End, Adelaide Laboratory

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12514
Issue No: 1

Material Test Report

Client:	Sinclair Knight Merz Level 5, 33 King William Street Adelaide SA 5000
Principal:	
Project No.:	INFOMEND00211AA
Project Name:	SUBMITTED SAMPLES - 2009
Lot No.:	**TRN:**

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 22/11/2009

Sample Details

Sample ID:	MEND09S-12514
Client Sample:	WR BH1
Date Sampled:	
Source:	
Material:	
Specification:	AS Grading
Sampling Method:	Submitted by client
Project Location:	MURRAY RIVERBANKS - VE04794
Sample Location:	19.0-19.5m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	22.0	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	0.5	
Mould Length (mm)		254	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	23	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	22	
Plasticity Index (%)	AS 1289.3.3.1	1	

Comments
N/A

Mile End, Adelaide Laboratory

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12515
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12515
Client Sample: WR BH2
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 1.0-1.2m

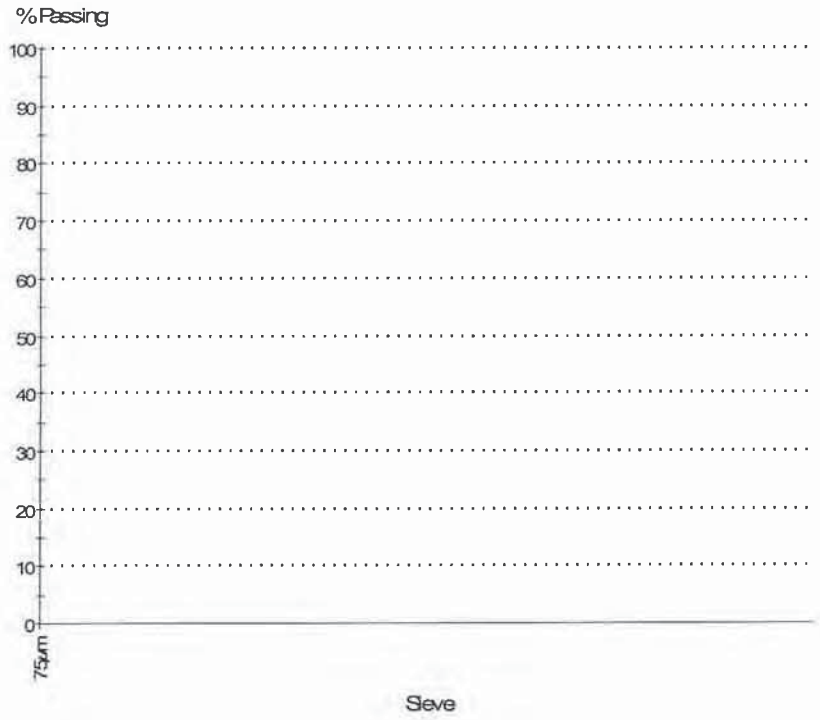
Other Test Results

Description	Method	Result	Limits

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:
Note: Sample Washed

Sieve Size	% Passing	Limits
75μm	87	



Comments

N/A

Mile End, Adelaide Laboratory

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12516
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12516
Client Sample: WR BH2
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 2.0-2.5

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	35.0	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	14.0	
Mould Length (mm)		254	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	57	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	17	
Plasticity Index (%)	AS 1289.3.3.1	40	

Comments
N/A

Mile End, Adelaide Laboratory

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12517
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12517
Client Sample: WR BH2
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 2.5-3.0

Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	13.0	
Mould Length (mm)		250	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	63	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	22	
Plasticity Index (%)	AS 1289.3.3.1	41	
Moisture Content (%)	AS 1289.2.1.1	77.0	

Comments
N/A

Mile End, Adelaide Laboratory

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Fax: +61 8 8234 0932

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12518
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12518
Client Sample: WR BH2
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 4.0-4.5m

Other Test Results

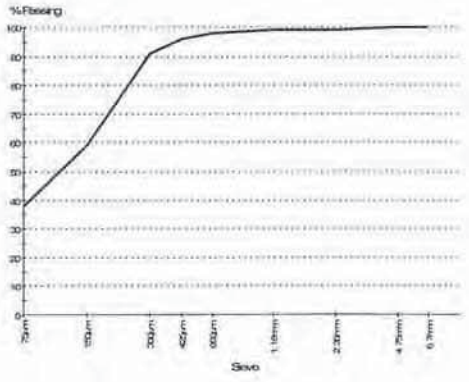
Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	23.0	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	6.0	
Mould Length (mm)		250	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	31	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	14	
Plasticity Index (%)	AS 1289.3.3.1	17	

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:
Note: Sample Washed

Sieve Size	% Passing	Limits
6.7mm	100	
4.75mm	100	
2.36mm	99	
1.18mm	99	
600µm	98	
425µm	96	
300µm	91	
150µm	59	
75µm	38	

Chart



Comments
N/A

Mile End, Adelaide Laboratory

Coffey Information Pty Ltd
ABN 92 114 364 046
14B Henley Beach Road
Mile End SA 5031

Phone: +61 8 8352 1744
Fax: +61 8 8234 0932

coffey information
SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12519
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12519
Client Sample: WR BH2
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 4.5-5.0m

Other Test Results

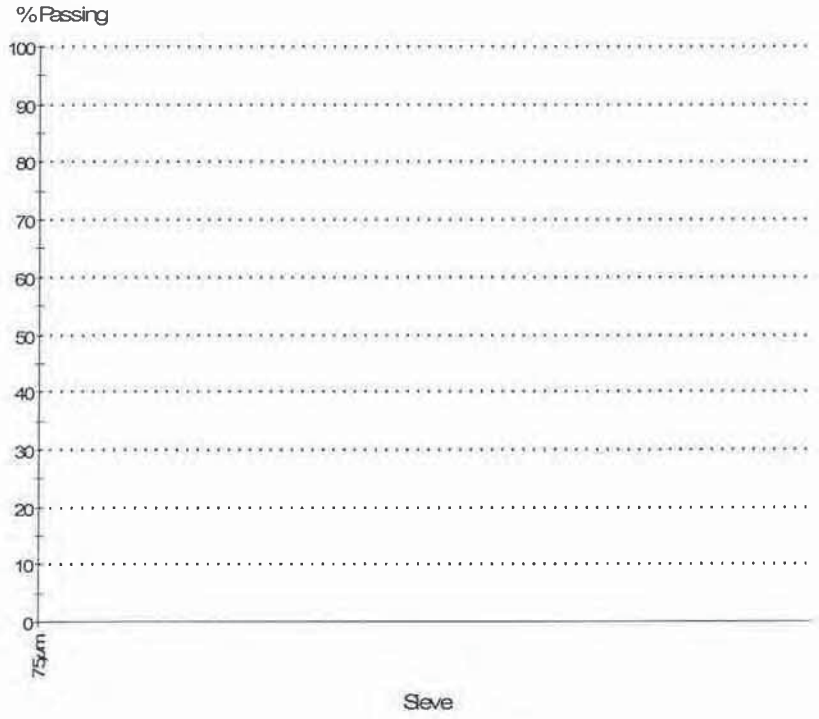
Description	Method	Result	Limits

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:

Note: Sample Washed

Sieve Size	% Passing	Limits
75μm	32	



Comments
N/A

Mile End, Adelaide Laboratory

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coffey information
SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12520
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

Sample Details

Sample ID: MEND09S-12520
Client Sample: WR BH2
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 7.0-7.5m

Other Test Results

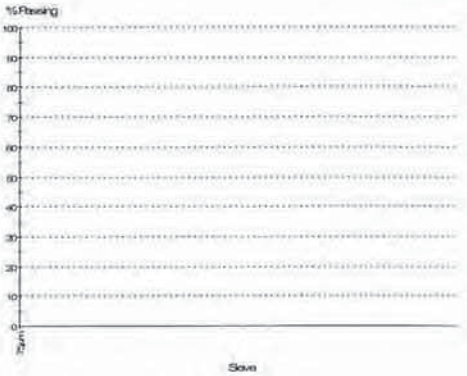
Description	Method	Result	Limits
Sample History		Oven-dried	
Preparation		Dry Sieved	
Linear Shrinkage (%)		0.0	
Mould Length (mm)		250	
Crumbling		No	
Curling		No	
Liquid Limit (%)		N/A	
Method			
Plastic Limit (%)		NP	
Plasticity Index (%)		NP	

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:
Note: Sample Washed

Sieve Size	% Passing	Limits
75μm	18	

Chart



Comments
N/A

Mile End, Adelaide Laboratory

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14B Henley Beach Road
Mile End SA 5031

Phone: +61 8 8352 1744
Fax: +61 8 8234 0932

coffey information
SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12521
Issue No: 1

Material Test Report

Client:	Sinclair Knight Merz Level 5, 33 King William Street Adelaide SA 5000
Principal:	
Project No.:	INFOMEND00211AA
Project Name:	SUBMITTED SAMPLES - 2009
Lot No.:	**TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID:	MEND09S-12521
Client Sample:	WR BH2
Date Sampled:	
Source:	
Material:	
Specification:	
Sampling Method:	Submitted by client
Project Location:	MURRAY RIVERBANKS - VE04794
Sample Location:	9.5- 10.0m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	25.2	

Comments
N/A

Mile End, Adelaide Laboratory

Coffey Information Pty Ltd
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Fax: +61 8 8234 0932

coffey information
SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12522
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12522
Client Sample: WR BH2
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 12.0-12.5m

Other Test Results

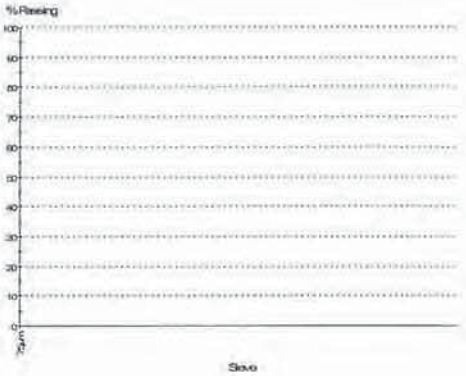
Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	2.5	
Mould Length (mm)		254	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	26	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	23	
Plasticity Index (%)	AS 1289.3.3.1	3	
Moisture Content (%)	AS 1289.2.1.1	24.2	

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:
Note: Sample Washed

Sieve Size	% Passing	Limits
75μm	59	

Chart



Comments
N/A

Mile End, Adelaide Laboratory

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14B Henley Beach Road
Mile End SA 5031

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Fax: +61 8 8234 0932

coffey information
SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12523
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accrediled Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12523
Client Sample: WR BH2
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 13.5-14.0m

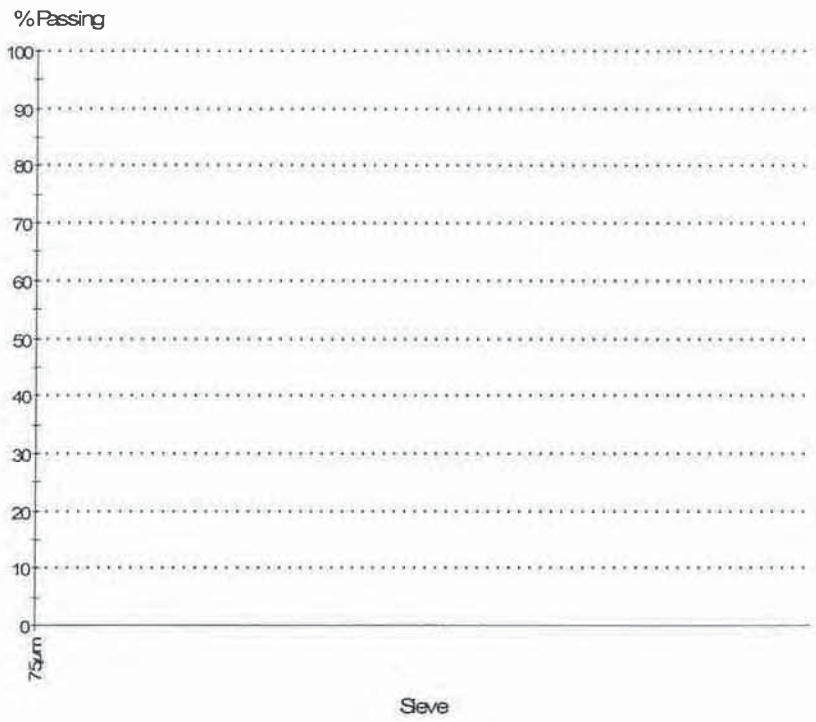
Other Test Results

Description	Method	Result	Limits

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:

Note: Sample Washed



Sieve Size	% Passing	Limits
75µm	11	

Comments
N/A

Mile End, Adelaide Laboratory

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coffey information
SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-14247
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: ROSS DINGLE
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 21/12/2009

Sample Details

Sample ID: MEND09S-14247
Client Sample: WR-BH-1
Date Sampled:
Source:
Material: SANDY CLAY, MEDIUM PLASTICITY, GREY
Specification: No Specification
Sampling Method: Submitted by client
Project Location: VW 04794
Sample Location: 4.5 - 5.0 m

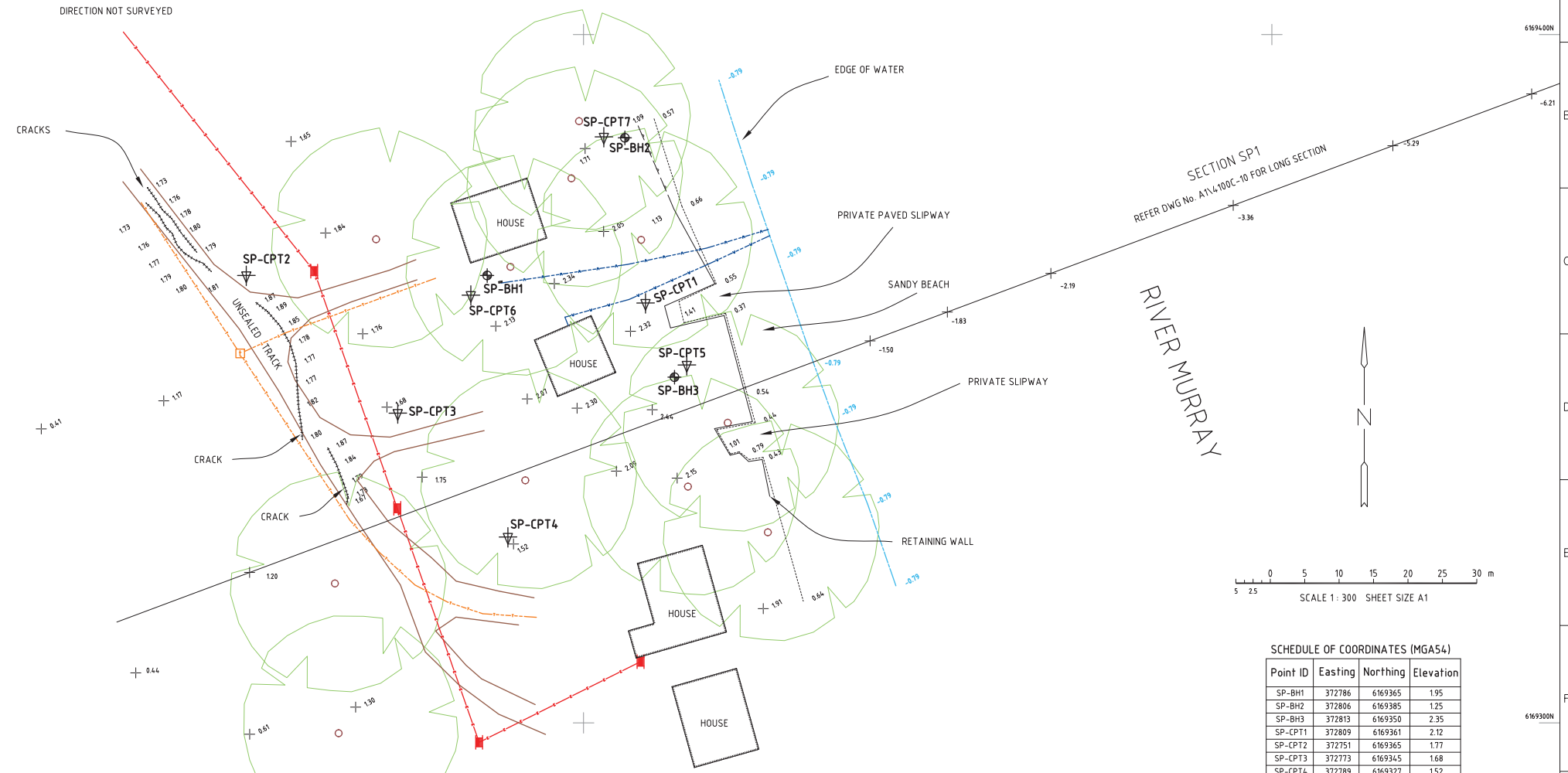
Test Results

Description	Method	Result	Limits
Emerson Class Number	AS 1289.3.8.1	Class 4	
Soil Description			
Type of Water		Distilled	
Temperature of Water (°C)		25.0	

Comments
N/A

Appendix D South Punyelroo In-situ and Laboratory Data

Table of Contents



SCHEDULE OF COORDINATES (MGA54)

Point ID	Easting	Northing	Elevation
SP-BH1	372786	6169365	1.95
SP-BH2	372806	6169385	1.25
SP-BH3	372813	6169350	2.35
SP-CPT1	372809	6169361	2.12
SP-CPT2	372751	6169365	1.77
SP-CPT3	372773	6169345	1.68
SP-CPT4	372789	6169327	1.52
SP-CPT5	372815	6169352	2.19
SP-CPT6	372783	6169362	2.34
SP-CPT7	372802	6169385	1.39

NOTES
1. ELEVATION DATUM AHD - AUTHORITY PSM 6828/1219 E:372126.805 N:6169675.291 RL4.406
2. FIELD SURVEY DATE - 23 OCTOBER 2009
3. DATUME AND PROJECTION - GDA\MGA ZONE 54
4. CONTROL AND DETAIL SURVEYED USING TOTAL STATION AND RTK GPS
5. ESTIMATED HORIZONTAL AND VERTICAL ACCURACY +/- 0.15m RELATIVE TO AUTHORITY PSM
6. CPT TEST AND BORE HOLES ARE LOCATED BY AUTONOMOUS GPS MEASUREMENTS ONLY (+\-5m)
7. PSM DENOTES PERMANENT SURVEY MARK

LEGEND

CABLE JUNCTION PIT	COMMUNICATIONS PIT	DRIANAGE INSPECTION POINT	WATER LEVEL
FLOOD LIGHT	COMMS CABLE MARKER	DRIANAGE MANHOLE	U/G COMMUNICATIONS LINE
EARTH STAKE	COMMS PILLAR	GRATED SUMP & INVERT LEVEL	U/G SEWER PIPELINE
CABLE MARKER	MONITORING WELL	SEWER INSPECTION POINT	A/G POWERLINE
STOBIE POLE	BORE HOLE	SEWER MANHOLE	U/G WATER PIPELINE
SWITCH BOARD	CPT HOLE	WATER MANHOLE	UNSEALED TRACK\ROAD

CRACK
BOTTOM OF BANK
TOP OF BANK
BUILDING\SHED
FENCE
PHOTO OBSERVATION POINT

DISCLAIMER
CAUTION
UNDERGROUND CABLES and PIPES
WHERE SHOWN, UNDERGROUND SERVICE LINES HAVE BEEN DETERMINED BY FIELD SURVEY AND/OR INFORMATION SUPPLIED BY RELEVANT AUTHORITIES. INACCURACIES OR OMISSIONS MAY OCCUR. SKM DOES NOT WARRANT THAT THE DATA IS ERROR FREE AND SHALL NOT ACCEPT ANY LIABILITY FOR ANY LOSS, OR DAMAGE INCURRED AS A RESULT OF THE USER'S RELIANCE ON THIS INFORMATION. THE POSITION OF ALL UNDERGROUND SERVICES SHOULD BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF EXCAVATION.

No	DATE	SURVEY REVIEW	REV'D P.MGR	APP'D P.DIR	AMENDMENT
A	2-07-08	GT	GC		ISSUED FOR REVIEW & APPROVAL

REF.	DRAWING NUMBER	REFERENCE DRAWING TITLE
1	A1\4100C-10	SOUTH PUNYELROO, LONGITUDINAL SECTIONS

SKM
A.C.N. 001 024 098
SINCLAIR KNIGHT MERZ PTY. LTD.
Spatial Division
Level 5, 33 King William Street
Adelaide SA 5000
Telephone: 08 8424 3800
Facsimile: 08 8424 3810
Internet: www.skmconsulting.com.au

The Department of Water, Land and Biodiversity Conservation

CLIENT: DWLBC
PROJECT: MURRAY RIVERBANK SLUMPING STUDY

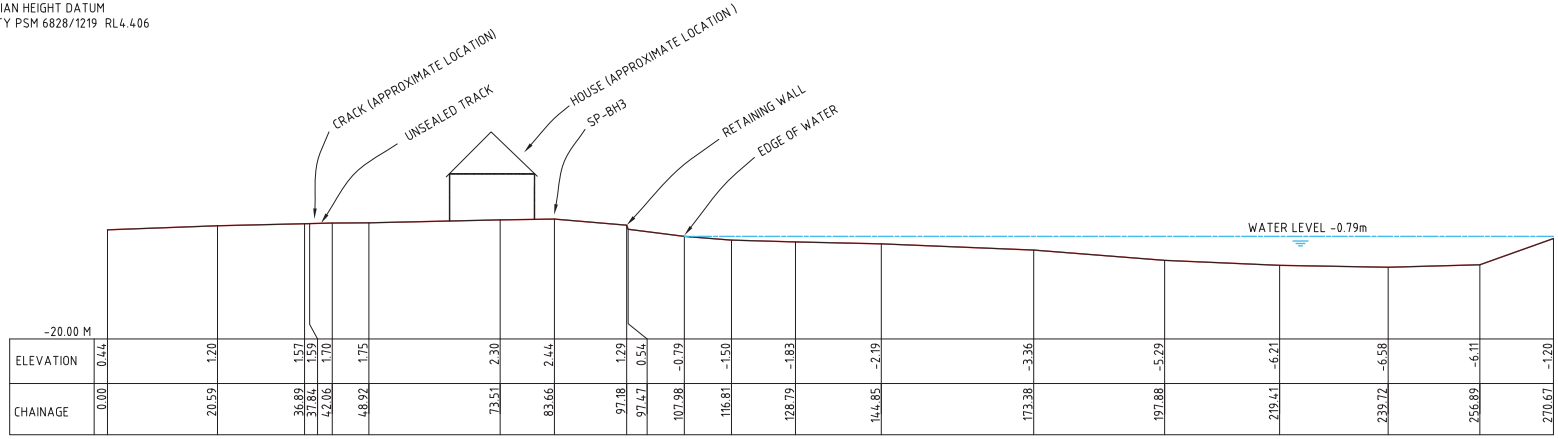
DRAWN	DRAFTING CHECK	REVIEWED PROJECT MANAGER	APPROVED PROJECT DIRECTOR
J DOWNES	G TURNER	G COOKE	
SURVEYED	SURVEY CHECK		
J DOWNES	G COOKE		

TITLE: MID-MURRAY COUNCIL
SOUTH PUNYELROO
INVESTIGATION LOCATION PLAN

SCALE	PROJECT No	DRAWING No	AMDT
AS SHOWN	VW04794.1	A1\4100C-5	A

SOUTH PUNYELROO

LONGITUDINAL SECTION SP1
HORIZONTAL SCALE 1:500
VERTICAL SCALE 1:500
AUSTRALIAN HEIGHT DATUM
AUTHORITY PSM 6828/1219 RL4.406



-20.00 M																			
ELEVATION	0.44	1.20	1.57	1.59	1.70	1.75	2.30	2.44	1.29	0.54	-0.79	-1.50	-1.83	-2.19	-3.36	-5.29	-6.21	-6.58	-6.11	-1.20
CHAINAGE	0.00	20.59	36.89	37.84	42.06	48.92	73.51	83.66	97.18	97.47	107.98	116.81	128.79	144.85	173.38	197.88	219.41	239.72	256.89	270.67

No	DATE	SURVEY REVIEW	REV'D P.MGR	APP'D P.DIR	AMENDMENT
-					
-					
-					
-					
A	2-07-08	GT	GC		ISSUED FOR REVIEW & APPROVAL

REF.	DRAWING NUMBER	REFERENCE DRAWING TITLE
-		
-		
-		
-		
-		
1	A1\4100C-5	SOUTH PUNYELROO, TOPOGRAPHICAL SURVEY

SKM
A.C.N. 001 024 098
SINCLAIR KNIGHT MERZ PTY LTD
Spatial Division
Level 5, 33 King William Street
Adelaide SA 5000
Telephone: 08 8424 3800
Facsimile: 08 8424 3810
Internet: www.skmconsulting.com.au

The Department of Water, Land and Biodiversity Conservation

CLIENT: DWLBC			
PROJECT: MURRAY RIVERBANK SLUMPING STUDY			
DRAWN: J DOWNES	DRAFTING CHECK: G TURNER	REVIEWED PROJECT MANAGER: P SANDERCOCK	APPROVED PROJECT DIRECTOR
SURVEYED: J DOWNES	SURVEY CHECK: G COOKE		

TITLE: MID-MURRAY COUNCIL
SOUTH PUNYELROO
LONGITUDINAL SECTIONS

SCALE	PROJECT No	DRAWING No	AMDT
AS SHOWN	VW04794.1	A1\4100C-10	A

BOREHOLE No. SP-BH1

Sheet 1 of 1

Project: Lwr Murray Riverbank Collapse Client: DWLBC
Location: South Punyelroo Start - Finish Date: 24/10 - 24/10/09
Job No: VW04794.1 Bore dia: 100mm

Driller: A & S Drilling Rig: 4X4 truck mounted Surface Conditions: Grass

Northings: 6169365.0mN Eastings: 372786.0mE RL: 2.0mAHD

Logged: MT Checked: RT Oriented: -90

LABORATORY DATA						FIELD DATA				SOIL DESCRIPTION		SOIL CONDITION		COMMENTS
dry density (t/m^3)	moisture content (%)	liquid limit (%)	plasticity index (%)	percent fines (%)	design / test data	field & other tests	sample type	elevation (mAHD) / ground water depth (m)	graphic log	soil type, unified classification, colour, structure, particle characteristics, minor components	consistency/ density	moisture condition	drilling method, well construction, water and additional observations
								1 1		FILL: Silty SAND: (SM) brown, fine to medium grained sand, trace of fine grained gravel	MD	D-M	Solid Flight Augering 100mm diameter
										Silty CLAY: (CL) dark grey-black, with some fine to medium grained sand, with roots, with organic matter	F		
	25	49	33	86		Sup=125		0 2		dark grey, mottled black and dark brown, with red-brown veins, with sand			
										light grey, increase in roots, with organic matter	S	M	
	30	45	25			Sup=85		-1 3		green-grey, with roots, with leaves, with organic matter			Pocket penetrometer test attempted
										increase in leaves, with organic matter	VS	W	Pocket penetrometer test attempted
	57	44	24					-2 4					
				3						SAND: (SW) light green-grey, fine to coarse grained quartz sand	MD		
								-3 5		Borehole terminated at 4.6m			
								-4 6					
								-5 7					
								-6 8					
								-7 9					
								-8 10					

LABORATORY DATA
- UQN Unconfined Comp. (Natural)
- UQC Unconfined Comp. (Compacted)
- TQN Uncons. Undrained Triax. (Natural)
- TQC Uncons. Undrained Triax. (Compacted)
- TRX Consolidated Undrained Triaxial with pwp measurement
- PSA Particle Size Analysis
- CS 1D oedometer Test
- LPM Laboratory Permeability

FIELD DATA ABBREVIATIONS
- Suv = Uncorrected vane shear (kPa)
- Sup = Pocket penetrometer (kPa)
- N = SPT blows per 300mm
- FPM = Field permeability

GROUNDWATER SYMBOLS
- = Water level (static)
- = Water level (during drilling)
- = Outflow / Inflow

FIELD DATA SYMBOLS
- × = Shear vane test
- ⊥ = Pocket Penetrometer test
- ▽ = Standard Penetration Test (SPT top = start of N blowcount)
- ▼ = SPT Spoon Sample (Pushed)
- ■ = Undisturbed Tube Sample
- ● = Disturbed Sample
- ○ = Environmental Sample

DENSITY (N-value)

VL	(very loose)	0 - 4
L	(loose)	4 - 10
MD	(medium dense)	10 - 30
D	(dense)	30 - 50
VD	(very dense)	50 - 100
CO	(compact)	>50/150mm

MOISTURE CONDITION
D = Dry M = Moist W = Wet

CONSISTENCY (Su)

VS	(very soft)	< 12 kPa
S	(soft)	12 - 25
F	(firm)	25 - 50
St	(stiff)	50 - 100
VSt	(very stiff)	100 - 200
H	(hard)	> 200 kPa

SKM 001 SOIL ELV - MC0 LOWER MURRAY.GPJ SKM_001_2008 05 07_DS.GDT 14/12/09

BOREHOLE No. SP-BH2

Sheet 1 of 1

Project: Lwr Murray Riverbank Collapse Client: DWLBC
Location: South Punyelroo Start - Finish Date: 24/10 - 24/10/09
Job No: VW04794.1 Bore dia: 100mm

Driller: Drilling Solution Northings: 6169385.0mN Logged: MT
Rig: 4X4 truck mounted Eastings: 372806.0mE Checked: RT
Surface Conditions: Grass RL: 1.3mAHD Oriented: -90

LABORATORY DATA						FIELD DATA			SOIL DESCRIPTION		SOIL CONDITION		COMMENTS
dry density (t/m^3)	moisture content (%)	liquid limit (%)	plasticity index (%)	percent fines (%)	design / test data	field & other tests	sample type	elevation (mAHD) ground water depth (m)	graphic log	soil type, unified classification, colour, structure, particle characteristics, minor components	consistency/ density	moisture condition	drilling method, well construction, water and additional observations
								1		FILL: SAND: (SP) orange, light grey, medium grained sand	MD	D-M	Solid Flight Augering 100mm diameter
	24							0		Silty CLAY: (CL) dark grey, mottled yellow-brown, with roots, with organic matter	F		Pocket penetrometer test attempted
	29					Sup=65		-1		with red-brown veins, light grey, with roots, with organic matter	S	M	
						Sup=75		-2		dark green-grey, with black leaves, increase in roots, with organic matter	VS	W	
	68							-3		dark grey			Pocket penetrometer test attempted
				11				-4		SAND: (SP) dark grey			
				2						Silty CLAY: (CH) dark grey, mottled yellow-brown, with roots, with organic matter			Pocket penetrometer test attempted
										SAND: (SP) light grey, fine grained quartz sand			
										Borehole terminated at 4.2m			

LABORATORY DATA
UQN Unconfined Comp. (Natural)
UQC Unconfined Comp. (Compacted)
TQN Uncons. Undrained Triax. (Natural)
TQC Uncons. Undrained Triax. (Compacted)
TRX Consolidated Undrained Triaxial with pwp measurement
PSA Particle Size Analysis
CS 1D oedometer Test
LPM Laboratory Permeability

FIELD DATA ABBREVIATIONS
Suv = Uncorrected vane shear (kPa)
Sup = Pocket penetrometer (kPa)
N = SPT blows per 300mm
FPM = Field permeability

GROUNDWATER SYMBOLS
= Water level (static)
= Water level (during drilling)
= Outflow / Inflow

FIELD DATA SYMBOLS
= Shear vane test
= Pocket Penetrometer test
= Standard Penetration Test (SPT top = start of N blowcount)
= SPT Spoon Sample (Pushed)
= Undisturbed Tube Sample
= Disturbed Sample
= Environmental Sample

DENSITY (N-value)

VL	(very loose)	0 - 4
L	(loose)	4 - 10
MD	(medium dense)	10 - 30
D	(dense)	30 - 50
VD	(very dense)	50 - 100
CO	(compact)	>50/150mm

MOISTURE CONDITION
D = Dry M = Moist W = Wet

CONSISTENCY (Su)

VS	(very soft)	< 12 kPa
S	(soft)	12 - 25
F	(firm)	25 - 50
St	(stiff)	50 - 100
VSt	(very stiff)	100 - 200
H	(hard)	> 200 kPa

SKM 001 SOIL ELV - MCO LOWER MURRAY.GPJ SKM_001_2008 05 07_DS.GDT 14/12/09

BOREHOLE No. SP-BH3

Project: Lwr Murray Riverbank Collapse Client: DWLBC
Location: South Punyelroo Start - Finish Date: 24/10 - 24/10/09
Job No: VW04794.1 Bore dia: 100mm

Driller: Drilling Solution Northings: 6169350.0mN Logged: MT
Rig: 4X4 truck mounted Eastings: 372813.0mE Checked: RT
Surface Conditions: Grass RL: 2.4mAHD Oriented: -90

LABORATORY DATA						FIELD DATA			SOIL DESCRIPTION		SOIL CONDITION		COMMENTS
dry density (t/m^3)	moisture content (%)	liquid limit (%)	plasticity index (%)	percent fines (%)	design / test data	field & other tests	sample type	elevation (mAHD) ground water depth (m)	graphic log	soil type, unified classification, colour, structure, particle characteristics, minor components	consistency/ density	moisture condition	drilling method, well construction, water and additional observations
								2		FILL: SAND: (SP) orange, light grey, medium grained sand light brown, fine grained sand	MD	D-M	Solid Flight Augering 100mm diameter
								1					
	23	39	22			Sup=100		1		Silty CLAY: (CL) dark grey-black, dark brown-red, mottled dark brown-dark grey	F		
								2					
								0			S	M	
										mottled black			
								3		dark grey, with roots and leaves, with organic matter			Pocket penetrometer test attempted
										dark green-grey	VS	W	
	59	47	25					-1					
								4					
								-2					
				3						SAND: (SP) light green-grey, fine grained sand			
								5		Borehole terminated at 4.6m			
								-3					
								6					
								-4					
								7					
								-5					
								8					
								-6					
								9					
								-7					
								10					

LABORATORY DATA
UQN Unconfined Comp. (Natural)
UQC Unconfined Comp. (Compacted)
TQN Uncons. Undrained Triax. (Natural)
TQC Uncons. Undrained Triax. (Compacted)
TRX Consolidated Undrained Triaxial with pwp measurement
PSA Particle Size Analysis
CS 1D oedometer Test
LPM Laboratory Permeability

FIELD DATA ABBREVIATIONS
Suv = Uncorrected vane shear (kPa)
Sup = Pocket penetrometer (kPa)
N = SPT blows per 300mm
FPM = Field permeability

GROUNDWATER SYMBOLS
= Water level (static)
= Water level (during drilling)
= Outflow / Inflow

FIELD DATA SYMBOLS
= Shear vane test
= Pocket Penetrometer test
= Standard Penetration Test (SPT top = start of N blowcount)
= SPT Spoon Sample (Pushed)
= Undisturbed Tube Sample
= Disturbed Sample
= Environmental Sample

DENSITY (N-value)

VL	(very loose)	0 - 4
L	(loose)	4 - 10
MD	(medium dense)	10 - 30
D	(dense)	30 - 50
VD	(very dense)	50 - 100
CO	(compact)	>50/150mm

MOISTURE CONDITION
D = Dry M = Moist W = Wet

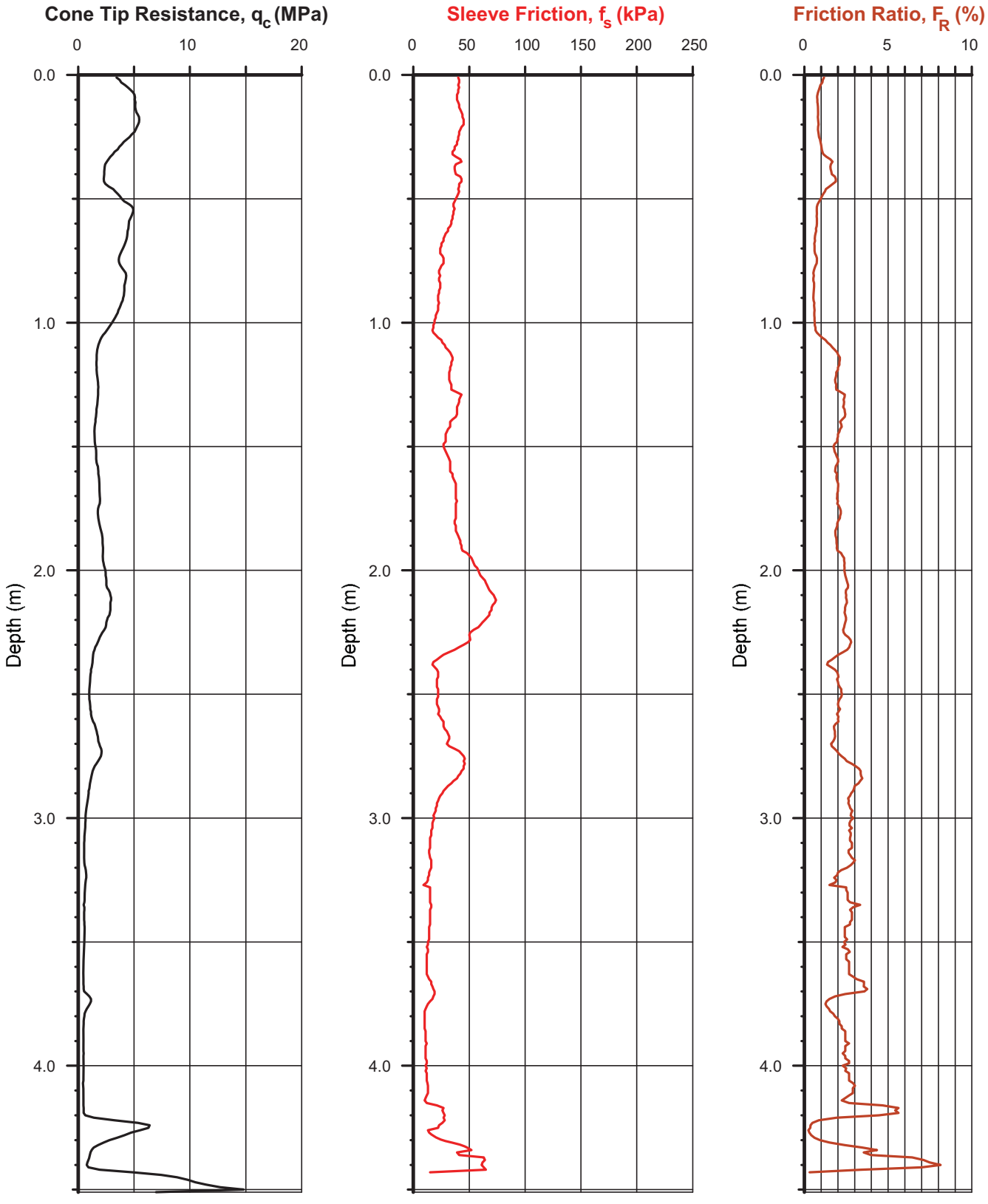
CONSISTENCY (Su)

VS	(very soft)	< 12 kPa
S	(soft)	12 - 25
F	(firm)	25 - 50
St	(stiff)	50 - 100
VSt	(very stiff)	100 - 200
H	(hard)	> 200 kPa

SKM 001 SOIL ELV - MC0 LOWER MURRAY.GPJ SKM_001_2008 05 07_DS.GDT 14/12/09

EngTest
CONE PENETRATION TEST

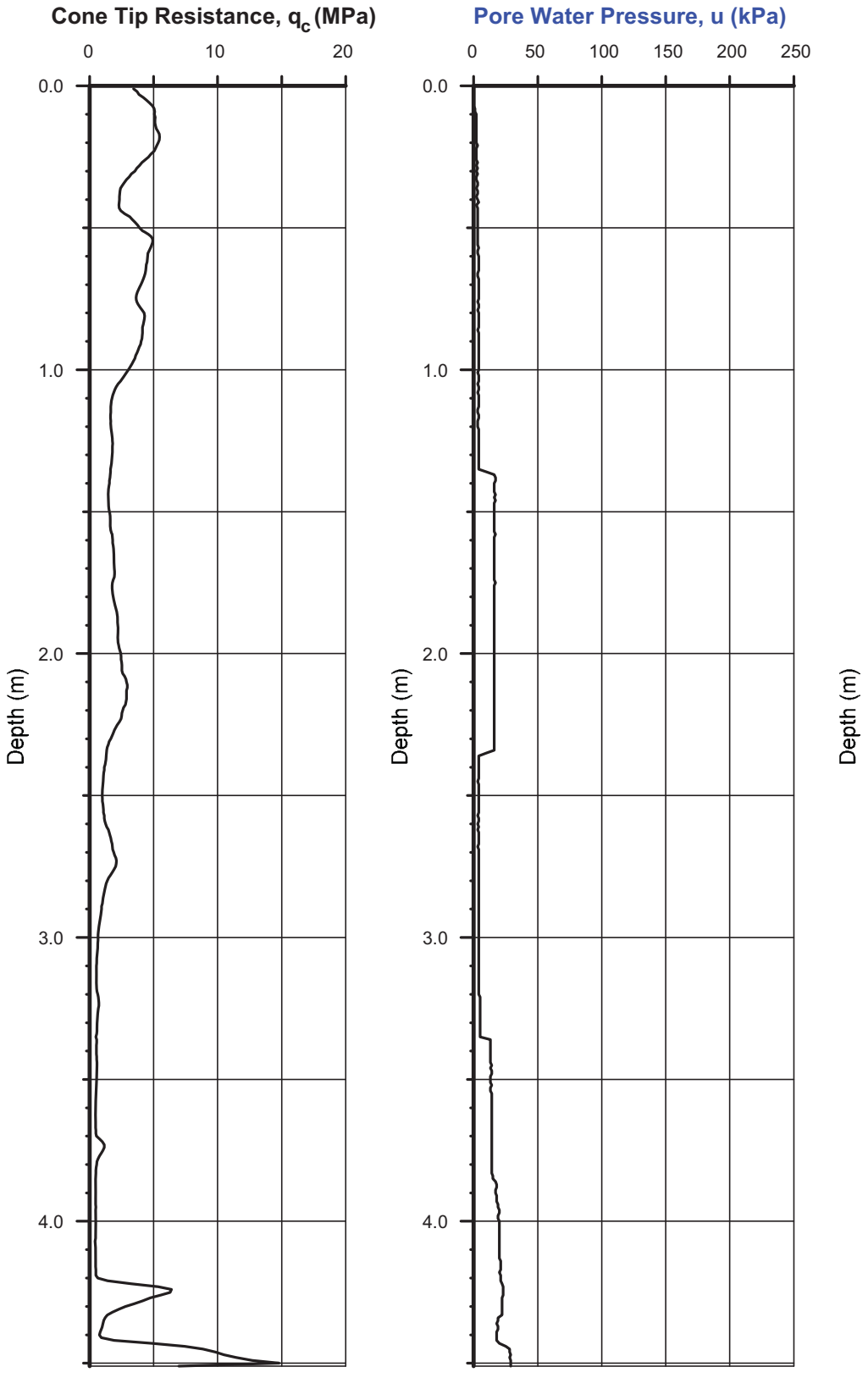
Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT1
Surface RL: NA **Date:** 24/10/2009



Test terminated at 4.5 m. Refusal.

EngTest
CONE PENETRATION TEST

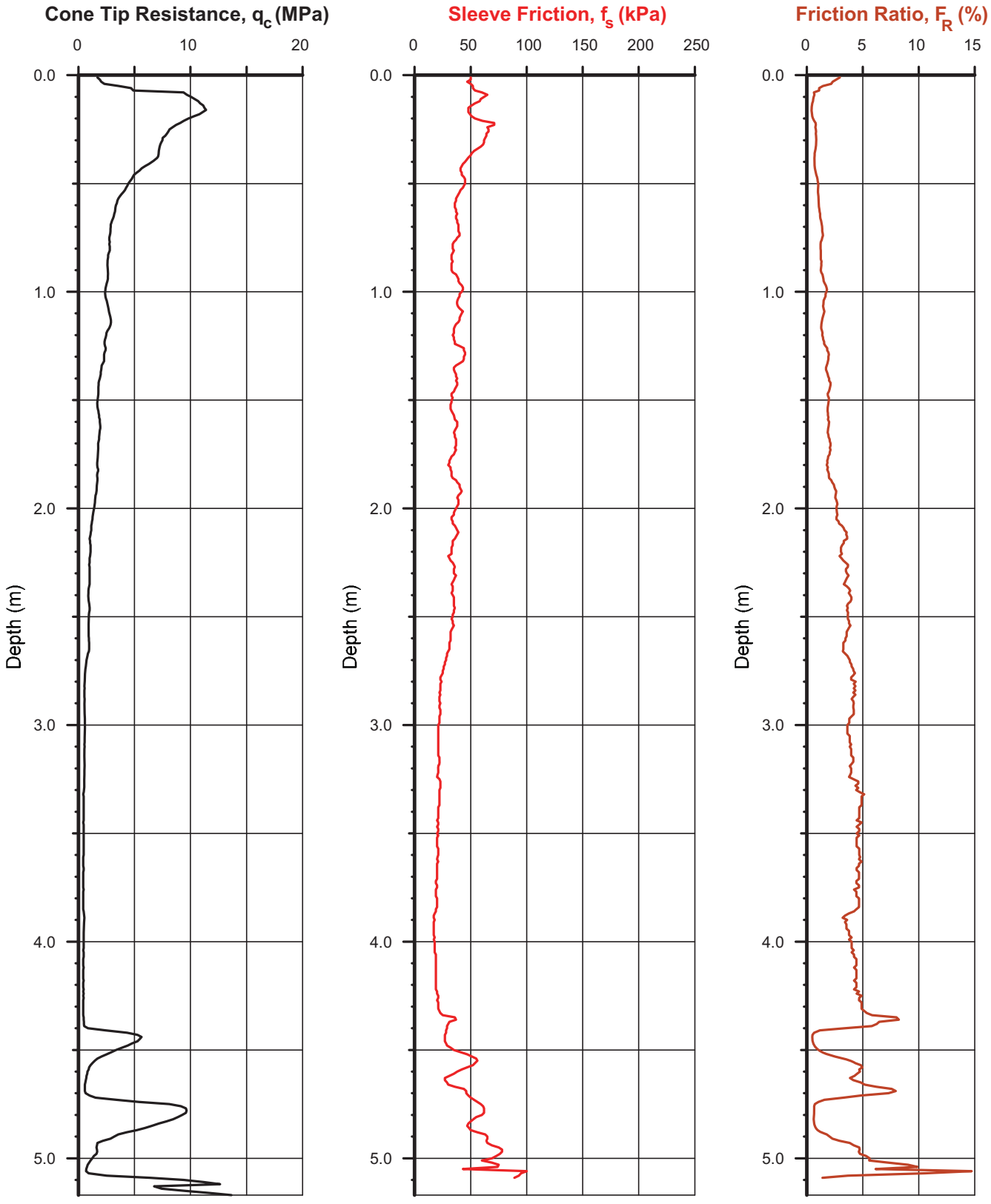
Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT1
Surface RL: NA **Date:** 24/10/2009



Test terminated at 4.5 m. Refusal.

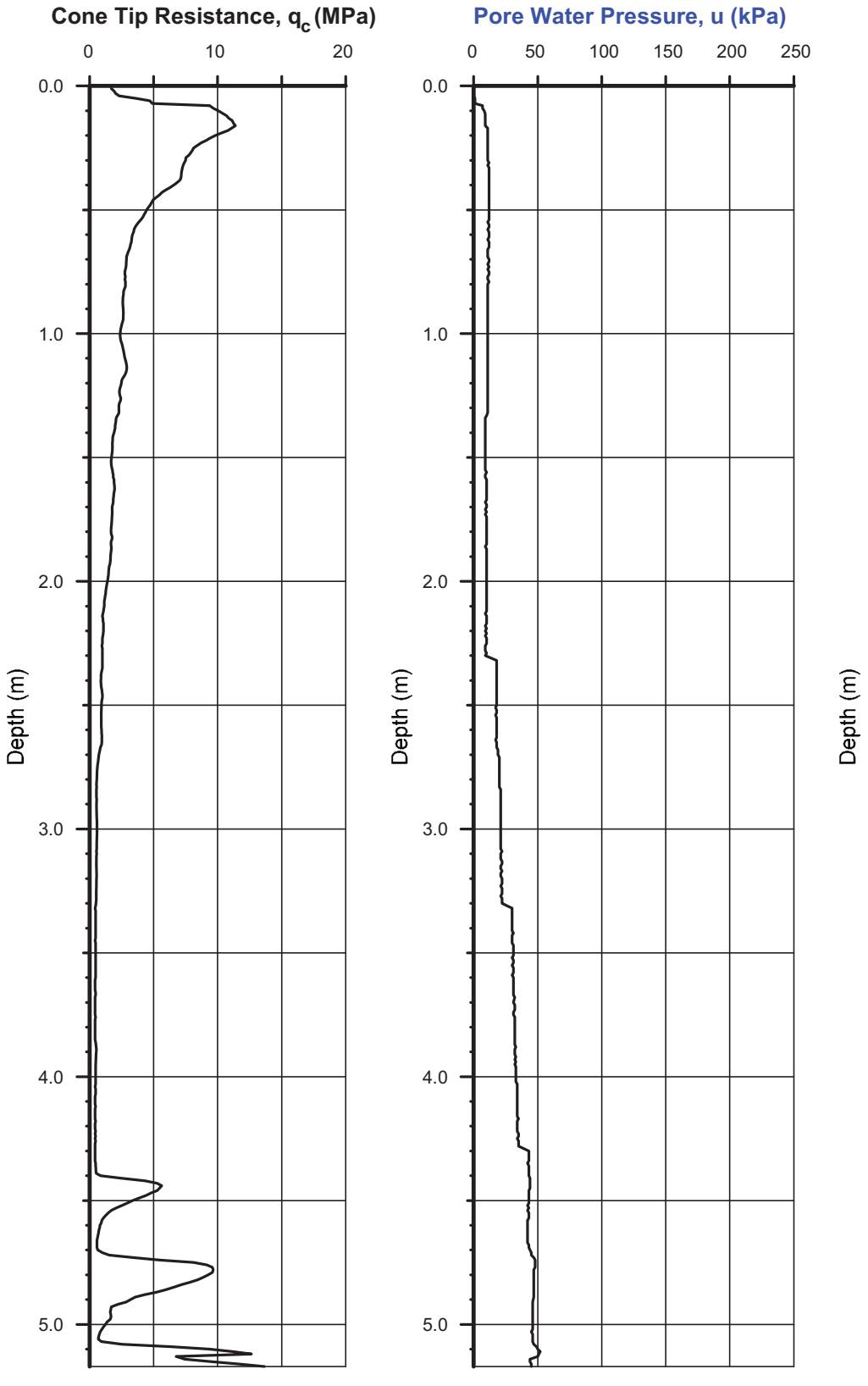
EngTest
CONE PENETRATION TEST

Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT2
Surface RL: NA **Date:** 24/10/2009



Test terminated at 5.2 m. Refusal.

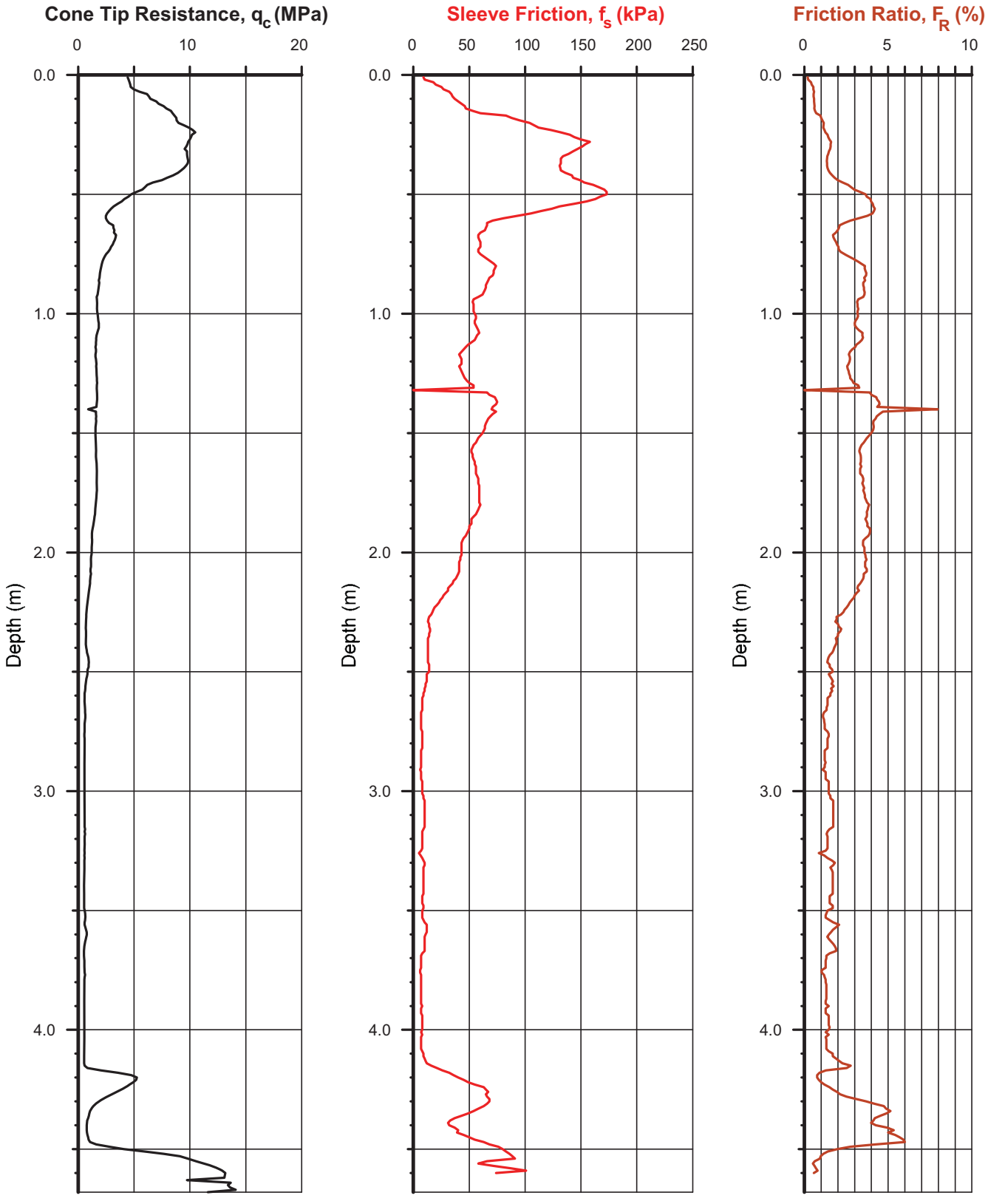
Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT2
Surface RL: NA **Date:** 24/10/2009



Test terminated at 5.2 m. Refusal.

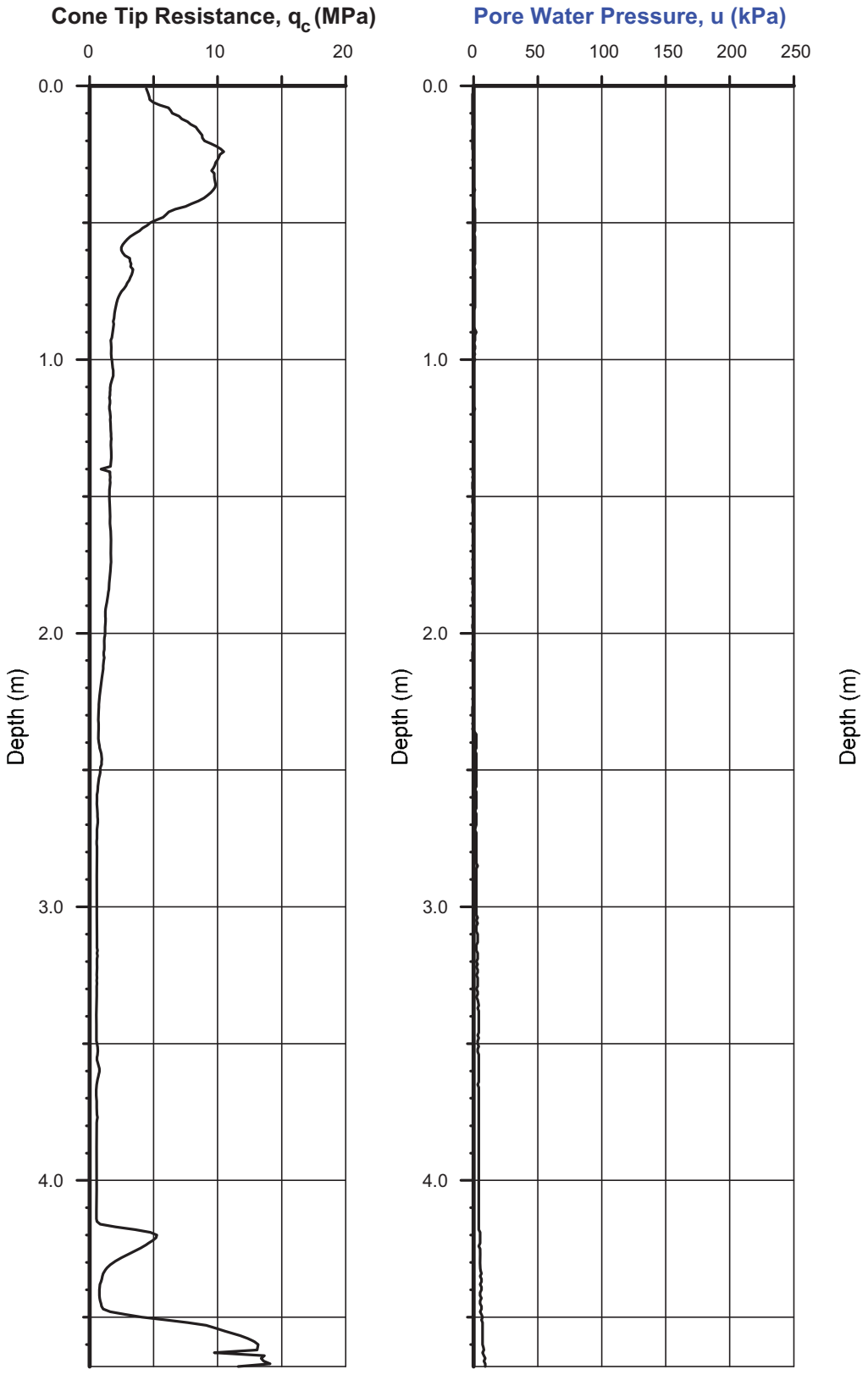
EngTest
CONE PENETRATION TEST

Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT3
Surface RL: NA **Date:** 24/10/2009



Test terminated at 4.7 m. Refusal.

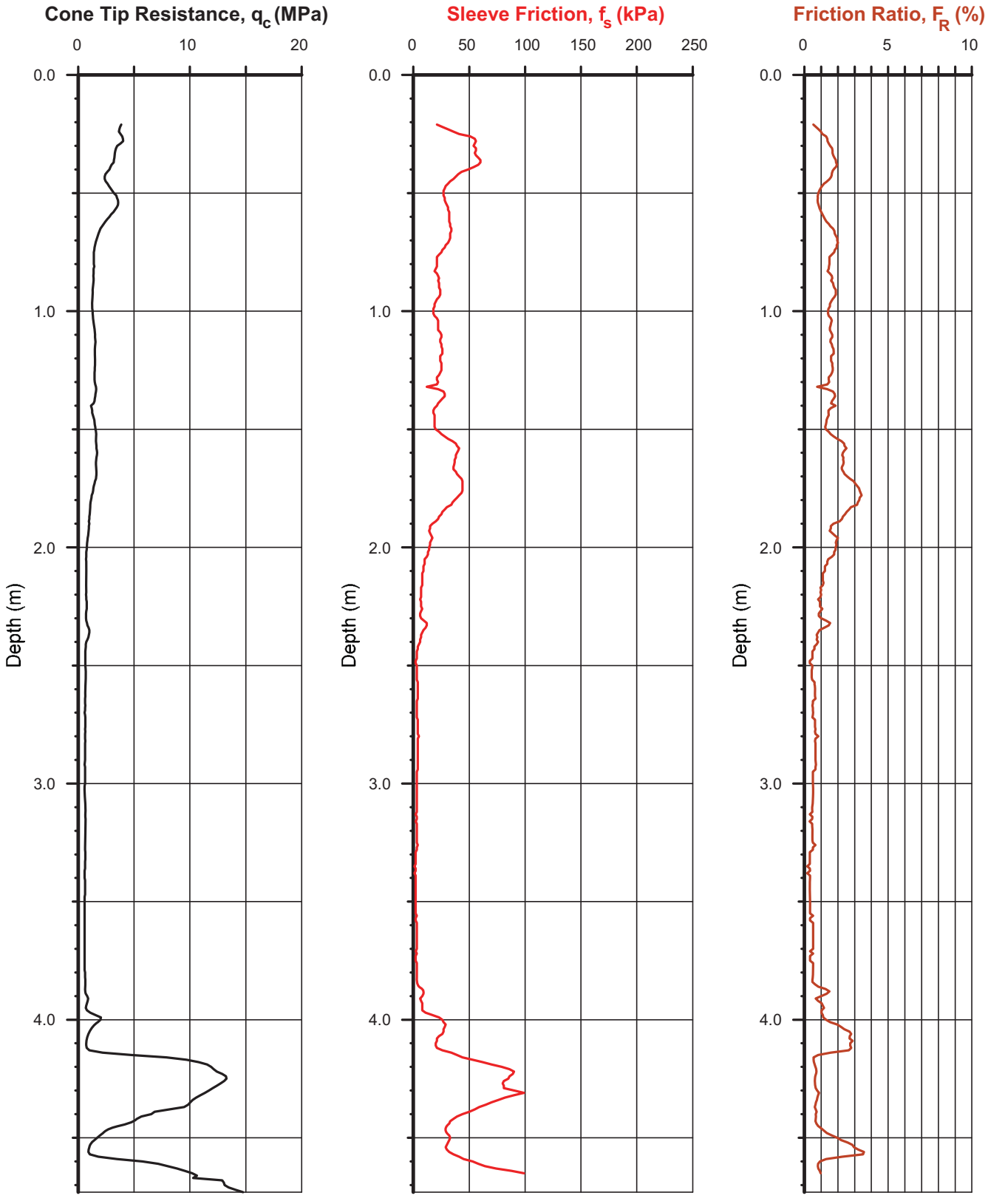
Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT3
Surface RL: NA **Date:** 24/10/2009



Test terminated at 4.7 m. Refusal.

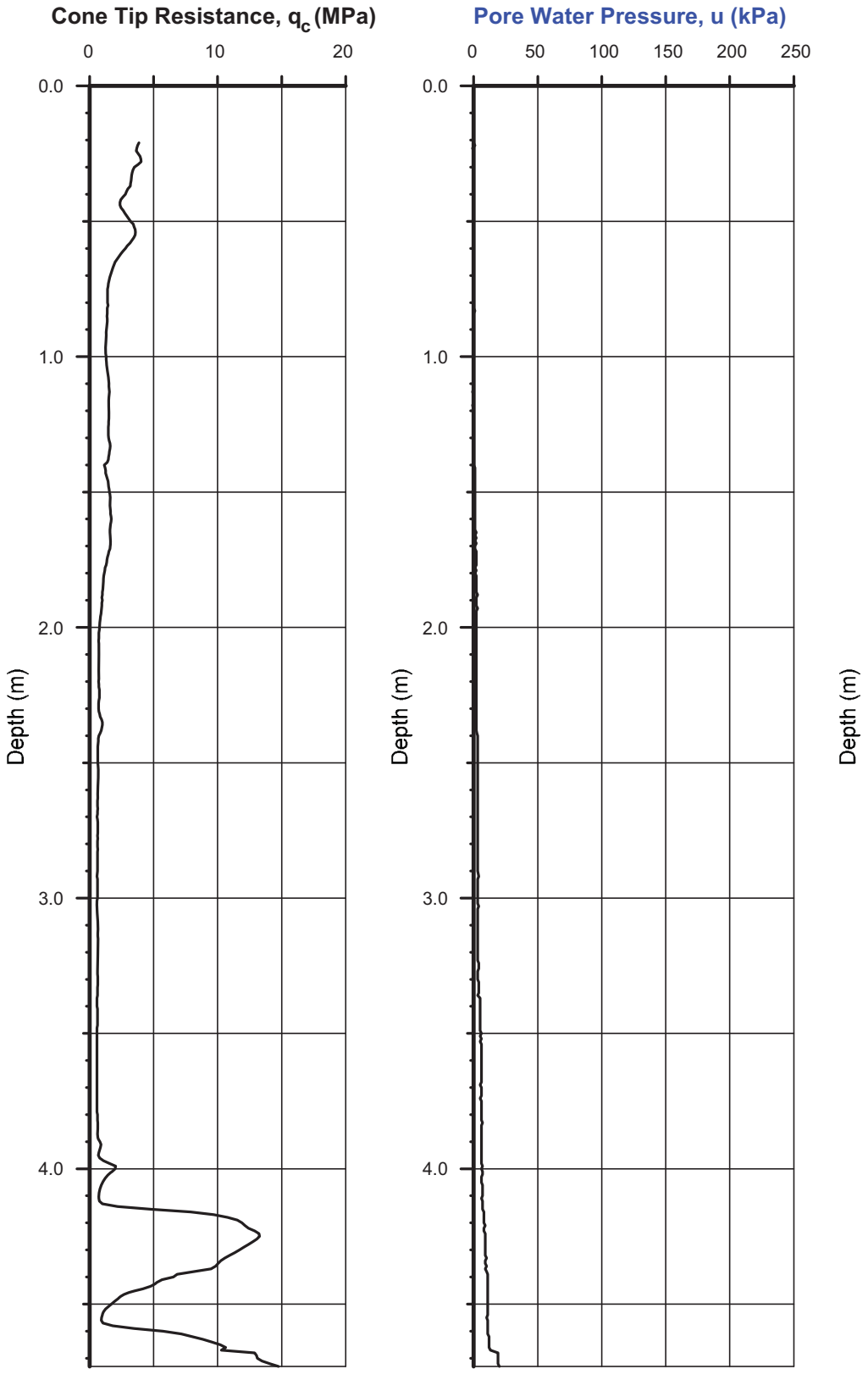
EngTest
CONE PENETRATION TEST

Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT4
Surface RL: NA **Date:** 24/10/2009



Test terminated at 4.7 m. Refusal.

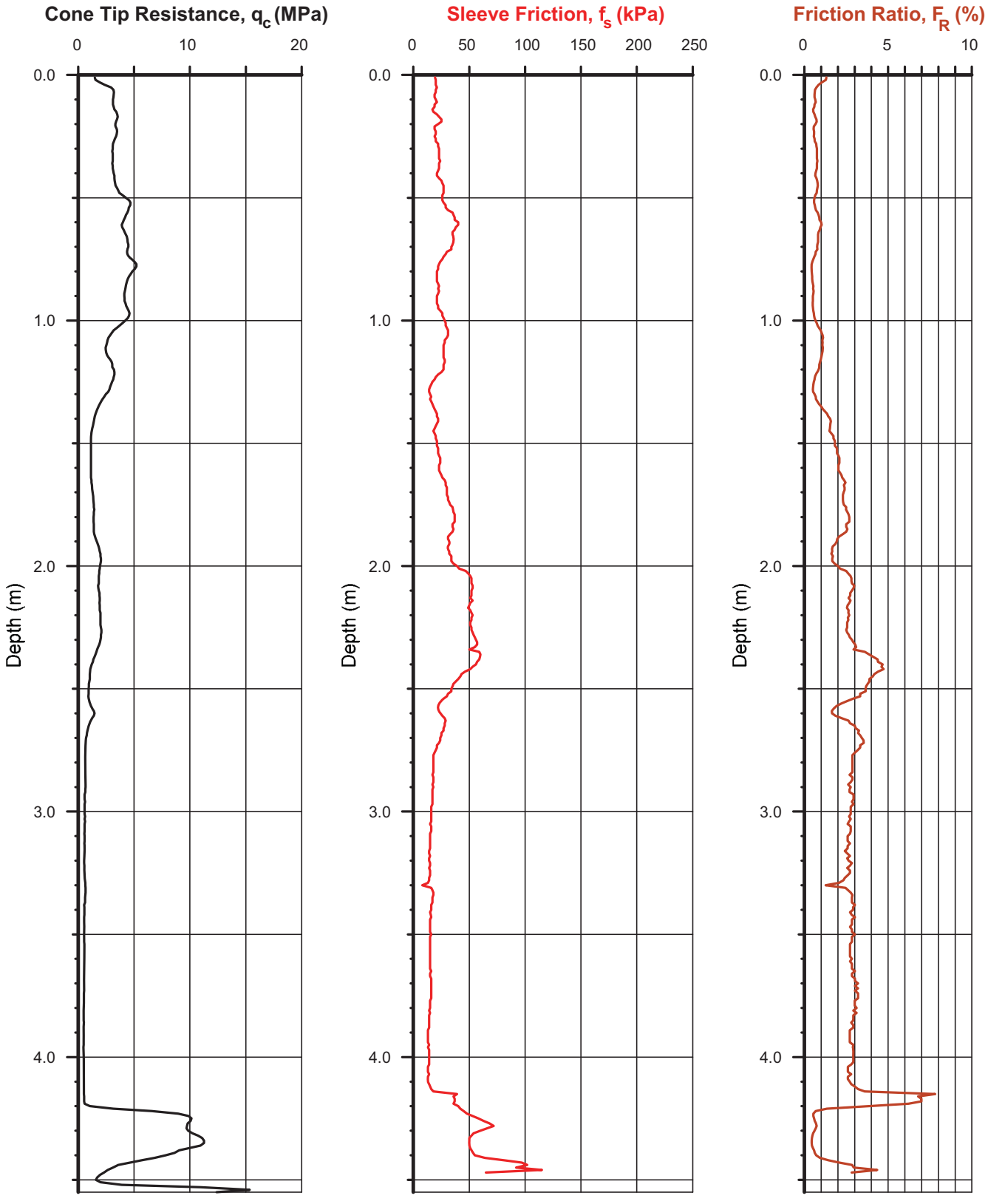
Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT4
Surface RL: NA **Date:** 24/10/2009



Test terminated at 4.7 m. Refusal.

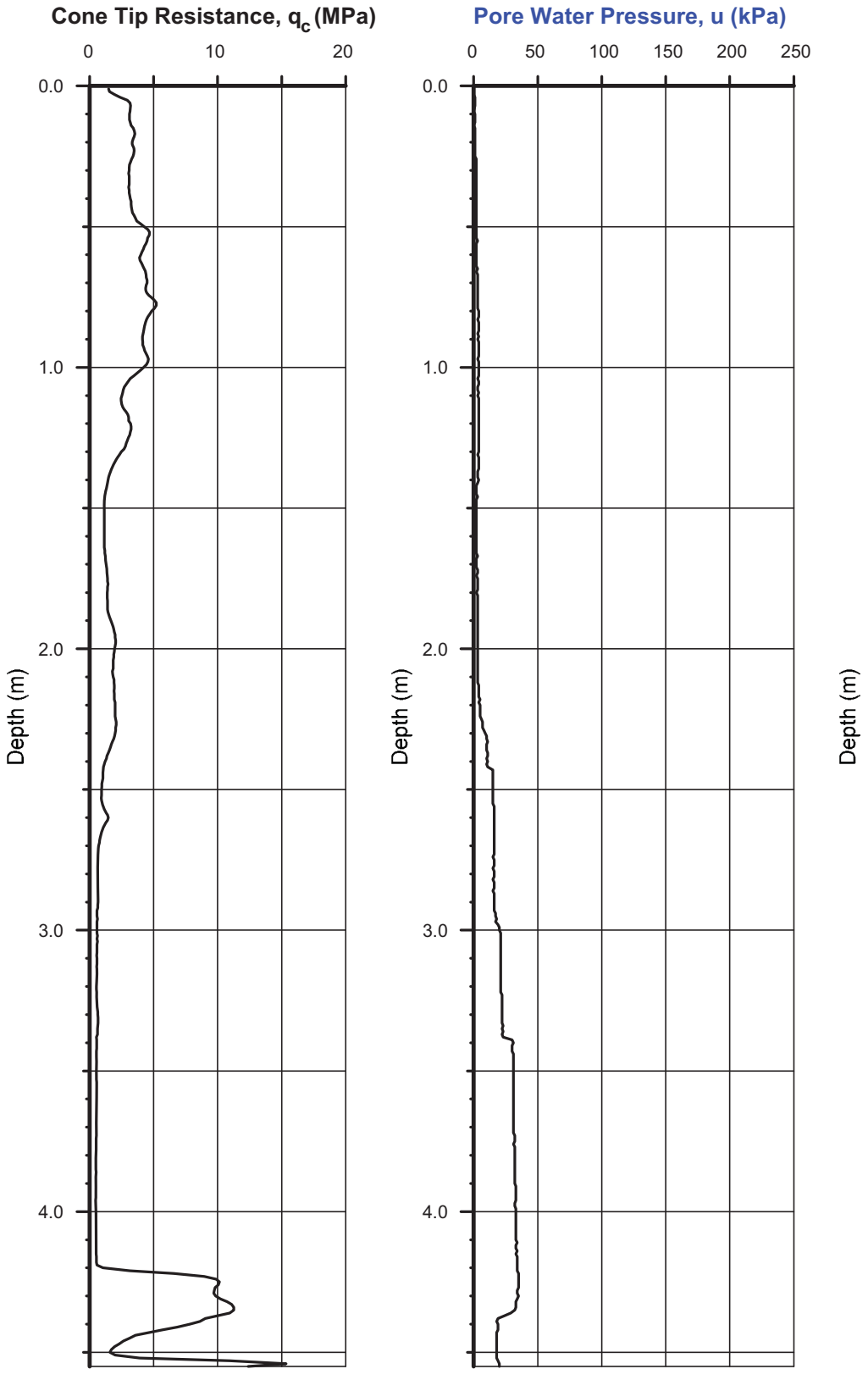
EngTest
CONE PENETRATION TEST

Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT5
Surface RL: NA **Date:** 24/10/2009



Test terminated at 4.6 m. Refusal.

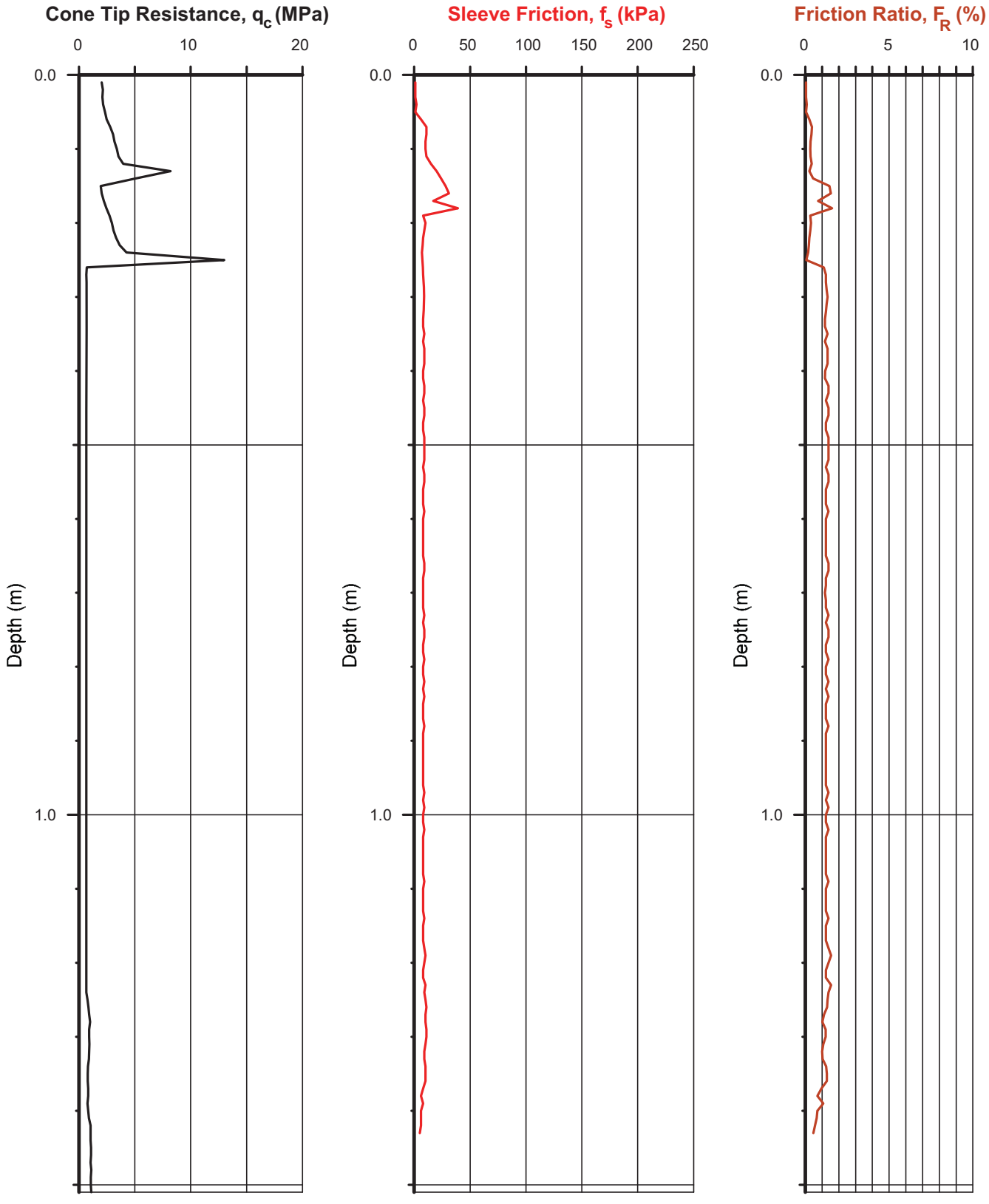
Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT5
Surface RL: NA **Date:** 24/10/2009



Test terminated at 4.6 m. Refusal.

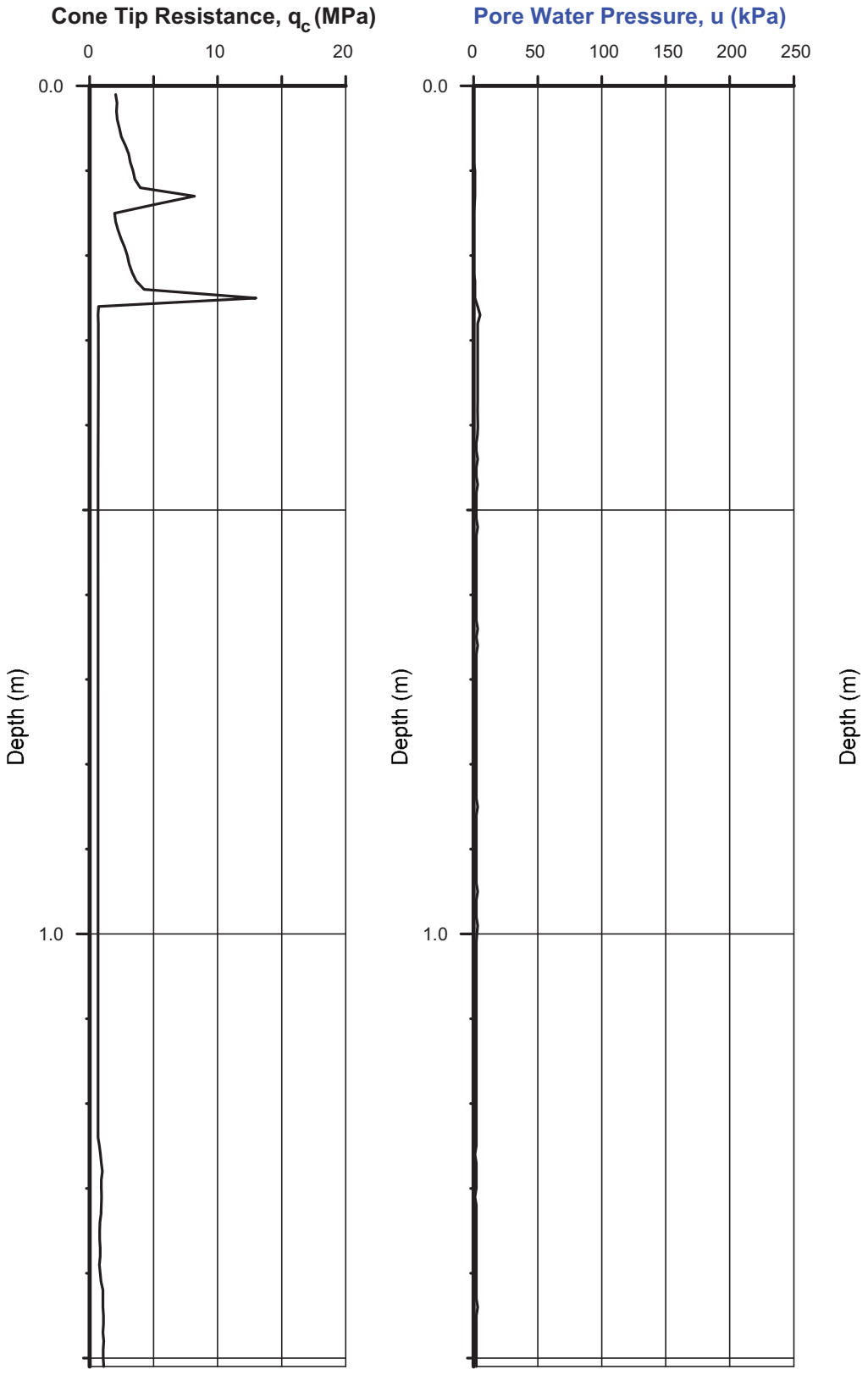
EngTest
CONE PENETRATION TEST

Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT6
Surface RL: NA **Date:** 24/10/2009



Test terminated at 1.5 m. Refusal.

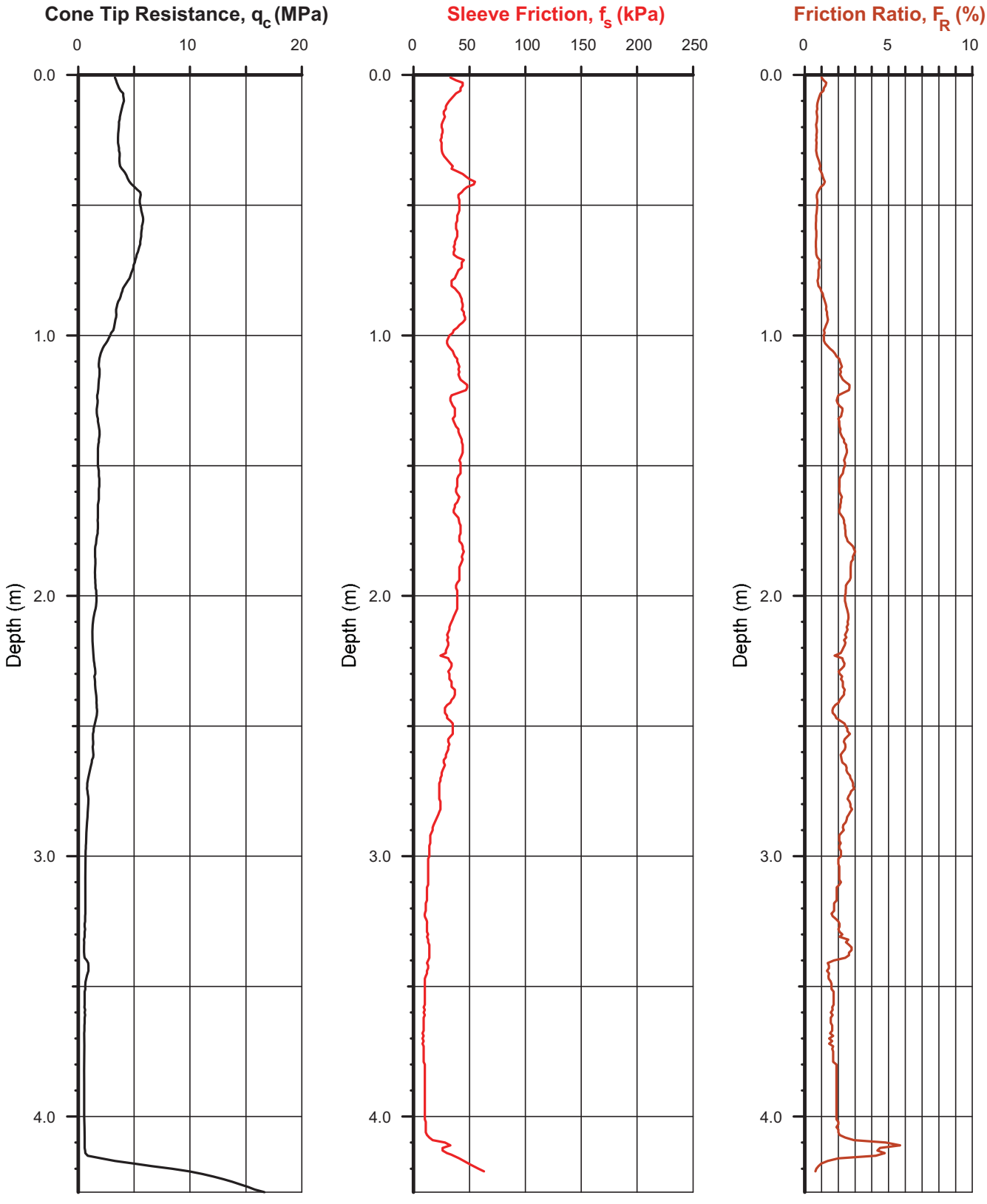
Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT6
Surface RL: NA **Date:** 24/10/2009



Test terminated at 1.5 m. Refusal.

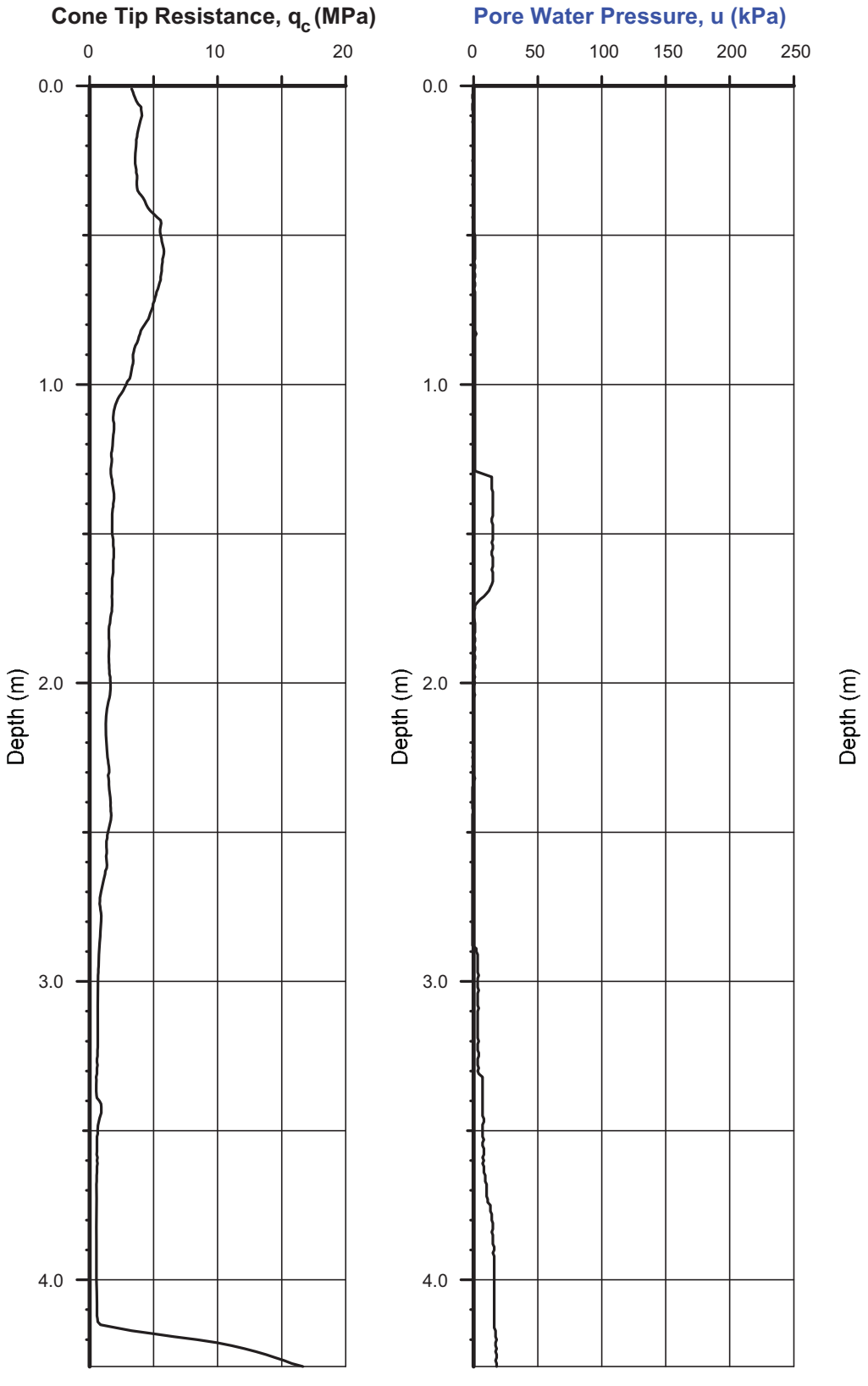
EngTest
CONE PENETRATION TEST

Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT6A
Surface RL: NA **Date:** 24/10/2009



Test terminated at 4.3 m. Refusal.

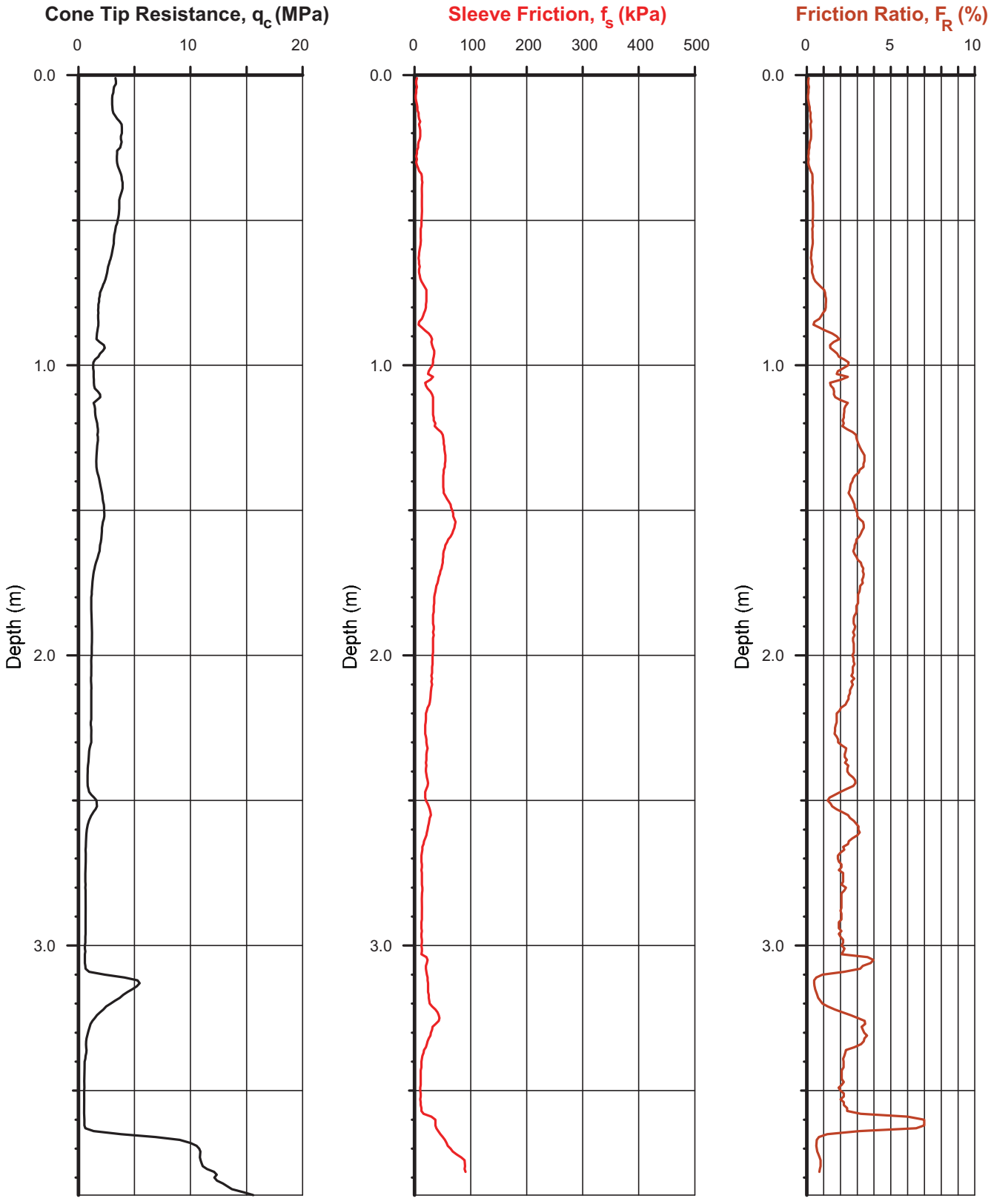
Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT6A
Surface RL: NA **Date:** 24/10/2009



Test terminated at 4.3 m. Refusal.

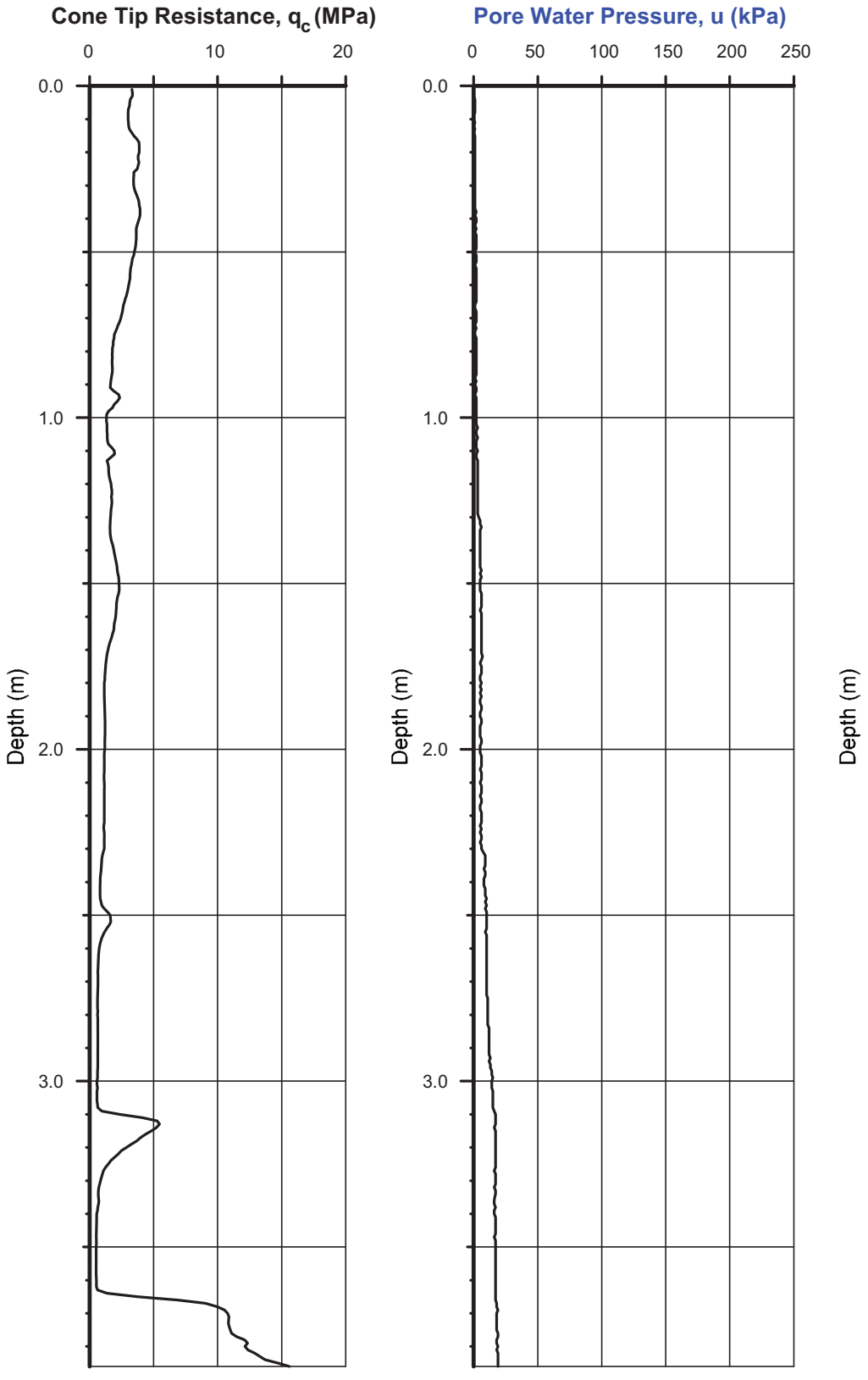
EngTest
CONE PENETRATION TEST

Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT7
Surface RL: NA **Date:** 24/10/2009



Test terminated at 3.9 m. Refusal.

Client: Sinclair Knight Mertz
Job Details: Murray Riverbank Geotechnical Investigations
Test Location: South Punyelroo CPT7
Surface RL: NA **Date:** 24/10/2009



Test terminated at 3.9 m. Refusal.

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12524
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

This document is issued in accordance with NATAs accreditation requirements. Accredited for compliance with ISO/IEC 17025.

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12524
Client Sample: PR BH1
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 1.4-1.7m

Other Test Results

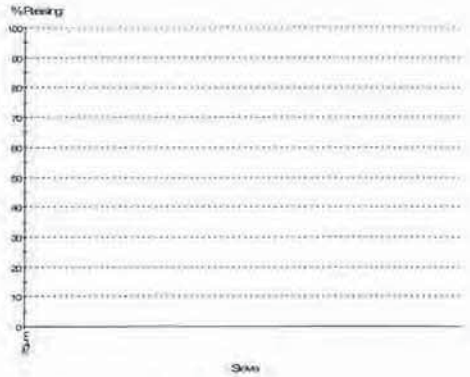
Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	13.5	
Mould Length (mm)		250	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	49	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	16	
Plasticity Index (%)	AS 1289.3.3.1	33	
Moisture Content (%)	AS 1289.2.1.1	25.0	

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:
Note: Sample Washed

Sieve Size	% Passing	Limits
75μm	86	

Chart



Comments
N/A

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12525
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12525
Client Sample: PR BH1
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 2.2-2.6m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	29.8	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	12.0	
Mould Length (mm)		254	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	45	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	20	
Plasticity Index (%)	AS 1289.3.3.1	25	

Comments
N/A

Mile End, Adelaide Laboratory

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12526
Issue No: 1

Material Test Report

Client:	Sinclair Knight Merz Level 5, 33 King William Street Adelaide SA 5000
Principal:	
Project No.:	INFOMEND00211AA
Project Name:	SUBMITTED SAMPLES - 2009
Lot No.:	**TRN:**

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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID:	MEND09S-12526
Client Sample:	PR BH1
Date Sampled:	
Source:	
Material:	
Specification:	AS Grading
Sampling Method:	Submitted by client
Project Location:	MURRAY RIVERBANKS - VE04794
Sample Location:	4.0-4.4m

Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	12.0	
Mould Length (mm)		254	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	44	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	20	
Plasticity Index (%)	AS 1289.3.3.1	24	
Moisture Content (%)	AS 1289.2.1.1	56.5	

Comments
N/A

Mile End, Adelaide Laboratory

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12527
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12527
Client Sample: PR BH1
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 4.4m

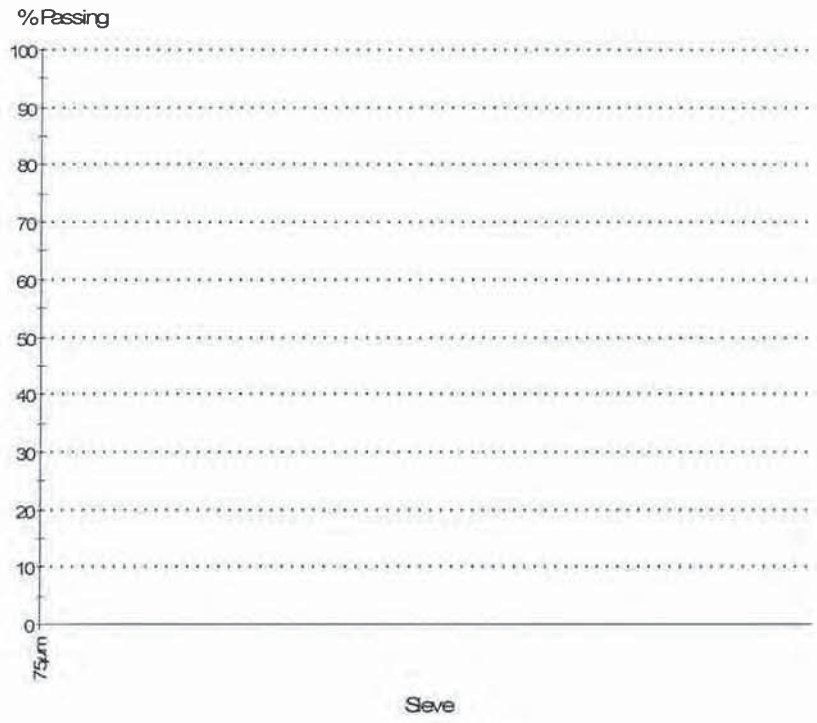
Other Test Results

Description	Method	Result	Limits

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:

Note: Sample Washed



Sieve Size	% Passing	Limits
75µm	3	

Comments

N/A

Mile End, Adelaide Laboratory

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12528
Issue No: 1

Material Test Report

Client:	Sinclair Knight Merz Level 5, 33 King William Street Adelaide SA 5000
Principal:	
Project No.:	INFOMEND00211AA
Project Name:	SUBMITTED SAMPLES - 2009
Lot No.:	**TRN:**

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID:	MEND09S-12528
Client Sample:	PR BH2
Date Sampled:	
Source:	
Material:	
Specification:	
Sampling Method:	Submitted by client
Project Location:	MURRAY RIVERBANKS - VE04794
Sample Location:	0.7-1.2m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	23.8	

Comments
N/A

Mile End, Adelaide Laboratory

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12529
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12529
Client Sample: PR BH2
Date Sampled:
Source:
Material:
Specification:
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 1.5-2.0m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	28.6	

Comments
N/A

Mile End, Adelaide Laboratory

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12530
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

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Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12530
Client Sample: PR BH2
Date Sampled:
Source:
Material:
Specification:
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 2.5-3.0m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	67.5	

Comments
N/A

Mile End, Adelaide Laboratory

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12531
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

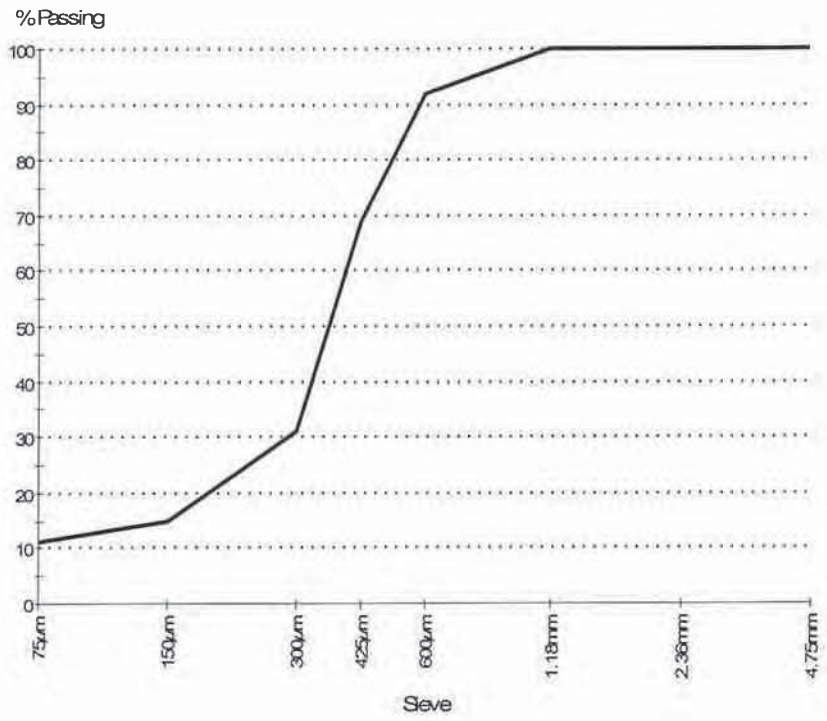
Sample Details

Sample ID: MEND09S-12531
Client Sample: PR BH2
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 3.3-3.6m

Other Test Results

Description	Method	Result	Limits

Particle Size Distribution



Method: AS 1289.3.6.1
Drying by:

Note: Sample Washed

Sieve Size	% Passing	Limits
4.75mm	100	
2.36mm	100	
1.18mm	100	
600µm	92	
425µm	69	
300µm	31	
150µm	15	
75µm	11	

Comments
N/A

Mile End, Adelaide Laboratory

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coffey information
SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12532
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

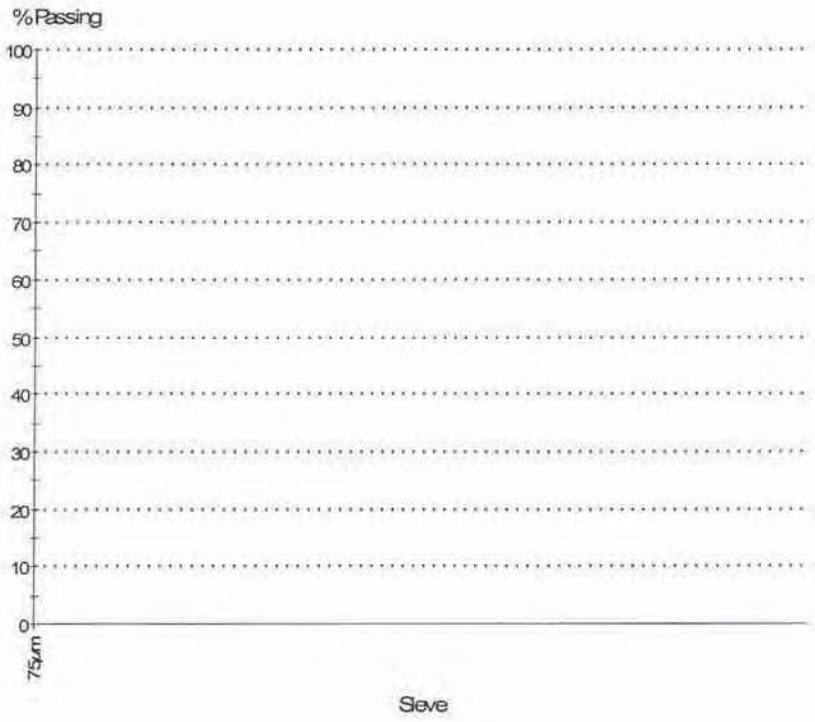
Sample ID: MEND09S-12532
Client Sample: PR BH2
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 3.8-4.2m

Other Test Results

Description	Method	Result	Limits

Particle Size Distribution

Method: AS 1289.3.6.1
Drying by:
Note: Sample Washed



Sieve Size	% Passing	Limits
75µm	2	

Comments
N/A

Mile End, Adelaide Laboratory

Coffey Information Pty Ltd
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coffey information
SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12533
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12533
Client Sample: PR BH3
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 1.5-2.0m

Test Results

Description	Method	Result	Limits
Moisture Content (%)	AS 1289.2.1.1	23.2	
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	12.5	
Mould Length (mm)		126	
Crumbling		No	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	39	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	17	
Plasticity Index (%)	AS 1289.3.3.1	22	

Comments
N/A

Mile End, Adelaide Laboratory

Coffey Information Pty Ltd
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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12534
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

This document is issued in accordance with NATAs accreditation requirements. Accredited for compliance with ISO/IEC 17025.

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

Sample Details

Sample ID: MEND09S-12534
Client Sample: PR BH3
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 3.2-3.7m

Test Results

Description	Method	Result	Limits
Sample History	AS 1289.1.1	Oven-dried	
Preparation	AS 1289.1.1	Dry Sieved	
Linear Shrinkage (%)	AS 1289.3.4.1	11.0	
Mould Length (mm)		250	
Crumbling		Yes	
Curling		No	
Liquid Limit (%)	AS 1289.3.1.2	47	
Method		One Point	
Plastic Limit (%)	AS 1289.3.2.1	22	
Plasticity Index (%)	AS 1289.3.3.1	25	
Moisture Content (%)	AS 1289.2.1.1	59.0	

Comments
N/A

Mile End, Adelaide Laboratory

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-12535
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

Approved Signatory: WESTLEY FIELDHOUSE
(Laboratory Manager)
NATA Accredited Laboratory Number:431
Date of Issue: 24/11/2009

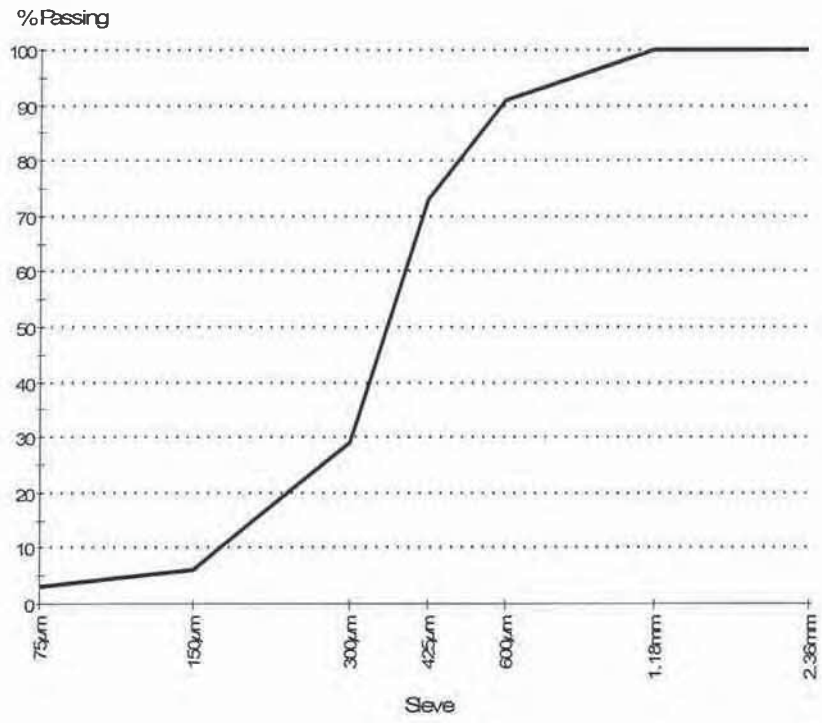
Sample Details

Sample ID: MEND09S-12535
Client Sample: PR BH3
Date Sampled:
Source:
Material:
Specification: AS Grading
Sampling Method: Submitted by client
Project Location: MURRAY RIVERBANKS - VE04794
Sample Location: 4.5-4.6m

Other Test Results

Description	Method	Result	Limits

Particle Size Distribution



Method: AS 1289.3.6.1
Drying by:

Note: Sample Washed

Sieve Size	% Passing	Limits
2.36mm	100	
1.18mm	100	
600µm	91	
425µm	73	
300µm	29	
150µm	6	
75µm	3	

Comments
N/A

Mile End, Adelaide Laboratory

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SPECIALISTS IN SCIENTIFIC TESTING SOLUTIONS

Report No: MAT:MEND09S-14248
Issue No: 1

Material Test Report

Client: Sinclair Knight Merz
Level 5, 33 King William Street
Adelaide SA 5000

Principal:
Project No.: INFOMEND00211AA
Project Name: SUBMITTED SAMPLES - 2009
Lot No.: **TRN:**

NATA
WORLD RECOGNISED ACCREDITATION

Approved Signatory: ROSS DINGLE
(Senior Geotechnician)
NATA Accredited Laboratory Number:431
Date of Issue: 21/12/2009

Sample Details

Sample ID: MEND09S-14248
Client Sample: PR-BH-3
Date Sampled:
Source:
Material: CLAY, HIGH PLASTICITY, MOTTLED GREY AND BROWN
Specification: No Specification
Sampling Method: Submitted by client
Project Location: VW 04794
Sample Location: 2.5 m

Test Results

Description	Method	Result	Limits
Emerson Class Number	AS 1289.3.8.1	Class 4	
Soil Description			
Type of Water		Distilled	
Temperature of Water (°C)		25.0	

Comments
N/A