

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Dubbo Base Hospital Redevelopment
LOCATION: Myall Street, Dubbo

SURFACE LEVEL: 279.6 m AHD **BORE No:** CW1
EASTING: 652852 **PROJECT No:** 72811
NORTHING: 6431917 **DATE:** 9/2/2012
DIP/AZIMUTH: 90°/-- **SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)
				Type	Depth	Sample	Results & Comments		
	0.3	FILLING - dark red brown and grey, clayey sandy gravel filling (roadbase), damp		E	0.2				10
		SILTY CLAY - hard, red brown silty clay, medium to high plasticity		B	0.5				15
					0.7				18
	1.5	SILTY CLAY - hard, yellow brown and yellow grey, silty clay with a trace of subrounded gravel		A	2.0				20
	3.7	SILTY CLAY - hard, grey yellow brown, silty clay with some subrounded and angular gravel, damp		A	3.8				20

Bore discontinued at 5.0m - target depth reached

RIG: Terrazo Pengo **DRILLER:** G Miles
TYPE OF BORING: 300mm diameter solid flight auger
WATER OBSERVATIONS: No free groundwater observed
REMARKS:

LOGGED: A Podnar

CASING: Uncased

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Dubbo Base Hospital Redevelopment
LOCATION: Myall Street, Dubbo

SURFACE LEVEL: 279.8 m AHD **BORE No:** CW2
EASTING: 652881 **PROJECT No:** 72811
NORTHING: 6431902 **DATE:** 9/2/2012
DIP/AZIMUTH: 90°/-- **SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)
				Type	Depth	Sample	Results & Comments		
	0.2	GARDEN BED MULCH							
		FILLING - dark red brown, silty clay filling with some gravel, moist		E	0.4				
				A	0.5				
	0.6	SILTY CLAY - hard, red brown silty clay with a trace of subangular gravel, medium plasticity			0.7				
				B					
	1				1.0				
	2								
	2.4	SILTY CLAY - very stiff, yellow grey brown, silty clay with a trace of sand		A	2.5				
	3								
	4			A	4.0				
	5.0								

Bore discontinued at 5.0m - target depth reached

RIG: Terrazo Pengo **DRILLER:** G Miles

LOGGED: A Podnar

CASING: Uncased

TYPE OF BORING: 300mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

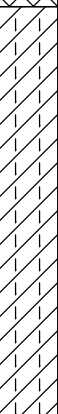
SAMPLING & IN SITU TESTING LEGEND

A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Dubbo Base Hospital Redevelopment
LOCATION: Myall Street, Dubbo

SURFACE LEVEL: 279.3 m AHD **BORE No:** CW3
EASTING: 652880 **PROJECT No:** 72811
NORTHING: 6431875 **DATE:** 9/2/2012
DIP/AZIMUTH: 90°/-- **SHEET** 1 OF 1

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)
				Type	Depth	Sample	Results & Comments		
	0.1	GARDEN BED MULCH							
		FILLING - dark red brown, gravelly clay filling, moist		E	0.2				
	0.3	SILTY CLAY - hard, red brown silty clay, medium plasticity		A	0.5				
					0.7				
				B					
					1.0				
		1.6m: with some subrounded to subangular gravel		A	1.7				
	1.8	CLAYEY GRAVEL - grey yellow brown, subrounded clayey gravel, damp							
	1.9	Bore discontinued at 1.9m - practical refusal on clayey gravel							

DRILLER: G Miles

CASING: Uncased

TYPE OF BORING: 300mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND			
A	Auger sample	G	Gas sample
B	Bulk sample	P	Piston sample
BLK	Block sample	U _t	Tube sample (x mm dia.)
C	Core drilling	W	Water sample
D	Disturbed sample	W _{seep}	Water seep
E	Environmental sample	W _{level}	Water level
		PID	Photo ionisation detector (ppm)
		PL(A)	Point load axial test (s(50) (MPa)
		PL(D)	Point load diametral test (s(50) (MPa)
		pp	Pocket penetrometer (kPa)
		S	Standard penetration test
		V	Shear vane (kPa)



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BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Dubbo Base Hospital Redevelopment
LOCATION: Myall Street, Dubbo

SURFACE LEVEL: 278.3 m AHD **BORE No:** CW4
EASTING: 652867 **PROJECT No:** 72811
NORTHING: 6431807 **DATE:** 9/2/2012
DIP/AZIMUTH: 90°/-- **SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
	0.05	ASPHALT								
	0.15	FILLING - grey brown, sandy gravel filling (roadbase), humid		E	0.1					
		SILTY CLAY - stiff to hard, orange brown silty clay with some gravel, low to medium plasticity		E/A	0.3					
					0.5					
				B	0.7					
	1			A	1.0					
	1.8	CLAYEY GRAVEL - orange brown and grey brown, subrounded medium to coarse grained clayey gravel, damp		A	2.0					
	2.1	SILTY CLAY - very stiff to hard, mottled light grey and brown, silty clay								
	2.8m:	with some gravel		A	3.0					
	3.5	SILTY CLAY - very stiff to hard, grey brown, silty clay with some gravel (to 30mm)		A	4.0					
	5.0									

Bore discontinued at 5.0m - target depth reached

RIG: Terrazo Pengo

DRILLER: G Miles

LOGGED: A Podnar

CASING: Uncased

TYPE OF BORING: 300mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Dubbo Base Hospital Redevelopment
LOCATION: Myall Street, Dubbo

SURFACE LEVEL: 266.2 m AHD **BORE No:** SD1
EASTING: 652584 **PROJECT No:** 72811
NORTHING: 6431995 **DATE:** 9/2/2012
DIP/AZIMUTH: 90°/-- **SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)
				Type	Depth	Sample	Results & Comments		
	0.2	FILLING - dark grey brown, sandy gravel filling with some clay and rootlets (topsoil), damp		E	0.1				5
		FILLING - red brown, silty clay filling with some gravel, moist to wet		E	0.4				10
	0.6	SILTY CLAY - very stiff then hard, red brown silty clay with a trace of gravel, medium plasticity							15
	1			A	1.0				20
	2								
	2.2	GRAVELLY CLAY - red brown and dark grey, gravelly and cobbly clay		A	2.0				
				A	2.4				
	2.5	Bore discontinued at 2.5m							
	3								
	4								

RIG: Terrazo Pengo

DRILLER: G Miles

LOGGED: A Podnar

CASING: Uncased

TYPE OF BORING: 300mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	▷	Water seep	S	Standard penetration test
E	Environmental sample	≡	Water level	V	Shear vane (kPa)

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Dubbo Base Hospital Redevelopment
LOCATION: Myall Street, Dubbo

SURFACE LEVEL: 267.1 m AHD **BORE No:** SD2
EASTING: 652592 **PROJECT No:** 72811
NORTHING: 6431978 **DATE:** 9/2/2012
DIP/AZIMUTH: 90°/-- **SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Dynamic Penetrometer Test (blows per 150mm)
				Type	Depth	Sample	Results & Comments		
	0.2	FILLING - dark grey brown, gravelly sand filling with a trace of clay and rootlets, damp		E	0.1				
		SILTY CLAY - hard, orange brown, silty clay with a trace of gravel, low to medium plasticity		A	0.5				
	0.7	GRAVELLY CLAY - orange and grey brown gravelly clay							
	0.9	Bore discontinued at 0.9m - refusal on gravel							
1									
2									
3									
4									

RIG: Terrazo Pengo

DRILLER: G Miles

LOGGED: A Podnar

CASING: Uncased

TYPE OF BORING: 300mm diameter solid flight auger

WATER OBSERVATIONS: No free groundwater observed

REMARKS:

☐ Sand Penetrometer AS1289.6.3.3
☒ Cone Penetrometer AS1289.6.3.2

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

BOREHOLE LOG

CLIENT: Health Infrastructure
PROJECT: Dubbo Base Hospital Redevelopment
LOCATION: Myall Street, Dubbo

SURFACE LEVEL: 268.2 m AHD **BORE No:** SD3
EASTING: 652604 **PROJECT No:** 72811
NORTHING: 6431955 **DATE:** 9/2/2012
DIP/AZIMUTH: 90°/-- **SHEET 1 OF 1**

RL	Depth (m)	Description of Strata	Graphic Log	Sampling & In Situ Testing				Water	Well Construction Details	
				Type	Depth	Sample	Results & Comments			
	0.2	FILLING - dark grey brown, sandy gravelly clay filling (topsoil), damp		E	0.1					
		FILLING - dark grey and orange brown, silty clay filling with some building fragments, damp		E	0.4					
	0.7									
	0.9	GRAVELLY CLAY - orange brown and dark grey, gravel and cobbly clay								
1		Bore discontinued at 0.9m - refusal on gravel								
2										
3										
4										

RIG: Terrazo Pengo **DRILLER:** G Miles **LOGGED:** A Podnar **CASING:** Uncased
TYPE OF BORING: 300mm diameter solid flight auger
WATER OBSERVATIONS: No free groundwater observed
REMARKS:

SAMPLING & IN SITU TESTING LEGEND					
A	Auger sample	G	Gas sample	PID	Photo ionisation detector (ppm)
B	Bulk sample	P	Piston sample	PL(A)	Point load axial test Is(50) (MPa)
BLK	Block sample	U	Tube sample (x mm dia.)	PL(D)	Point load diametral test Is(50) (MPa)
C	Core drilling	W	Water sample	pp	Pocket penetrometer (kPa)
D	Disturbed sample	W	Water seep	S	Standard penetration test
E	Environmental sample	W	Water level	V	Shear vane (kPa)

Results of Dynamic Penetrometer Tests

Client Health Infrastructure
Project Dubbo Base Hospital Redevelopment
Location Myall Street, Dubbo

Project No. 72811
Date 9/02/2011
Page No. 1 of 1

Test Locations	SD1	SD2	CW1	CW2	CW3	BW1	BW2	BW3		
RL of Test (AHD)	266.2	267.1	279.6	279.8	279.3	277.6	278.5	273.3		
Depth (m)	Penetration Resistance									
	Blows/150 mm									
0.00 – 0.15	4	1	10	1	1	1	12	3		
0.15 – 0.30	4	5	15	2	3	10	14	7		
0.30 – 0.45	5	13	14	3	12	12	5	4		
0.45 – 0.60	4	15	17	3	15	15	2	5		
0.60 – 0.75	8	22/100	13	15	19	25	20	7		
0.75 – 0.90	10	R	15	17	21	R	21	8		
0.90 – 1.05	13		19	19	R		23	17/140		
1.05 – 1.20	15		23	22			20	R		
1.20 – 1.35										
1.35 – 1.50										
1.50 – 1.65										
1.65 – 1.80										
1.80 – 1.95										
1.95 – 2.10										
2.10 – 2.25										
2.25 – 2.40										
2.40 – 2.55										
2.55 – 2.70										
2.70 – 2.85										
2.85 – 3.00										

Test Method AS 1289.6.3.2, Cone Penetrometer ☒
 AS 1289.6.3.3, Sand Penetrometer ☐
Remarks 22/100 = 22 BLOW COUNTS FOR 100MM PENETRATION
 R = REFUSAL

Tested By AP
Checked By PMO

TEST BORE REPORT

CLIENT: DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT: DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION: MYALL STREET, DUBBO

DATE: 23 MAY 1996
PROJECT No.: 23882
SURFACE LEVEL: 277.4 AHD

BORE No. 1
SHEET 1 OF 1

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	0.1				
	BITUMEN AND ROADBASE				
	FILLING - brown and red-brown sandy clay with fine to medium gravel				
	- some brick fragments below 0.5m - appears moderately well compacted	A	0.5		
1		A	1.0		
	1.2				
	CLAYEY SAND - hard, orange-brown and grey-brown, coarse grained clayey sand with quartz pebbles to 15mm diameter	A	1.5		
	- increasing quartz gravel below 1.6m				
2		A	2.0		
3	3.0				
	GRAVELLY CLAY - very stiff, light grey and brown clay and quartz gravel to 40mm diameter	A	3.0		
	3.8				
	SILTY CLAY - very stiff to hard, light grey-brown silty clay (extremely weathered bedrock)	A	3.8		
4	4.0				
	TEST BORE DISCONTINUED AT 4.0 METRES - in very stiff to hard, silty clay (extremely weathered rock)				
5					

RIG: PACIFIC 250

DRILLER: DUBBO TERRAZZO

LOGGED: MURRAY

CASING: -

TYPE OF BORING: 300mm DIAMETER AUGER

GROUND WATER OBSERVATIONS: NO FREE GROUND WATER OBSERVED

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plastic limit (%)

CHECKED:

Initials: DEM

Date: 28-5



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TEST BORE REPORT

CLIENT: DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT: DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION: MYALL STREET, DUBBO

DATE: 23 MAY 1996
PROJECT No.: 23882
SURFACE LEVEL: 277.1 AHD

BORE No. 2
SHEET 1 OF 1

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0					
0.1	BITUMEN AND ROADBASE				
	SILTY CLAY AND GRAVEL - very stiff, dark red-brown silty clay with some quartz gravel to 30mm diameter				
0.5	- possible filling	A	0.5		
	CLAY - very stiff orange-brown and brown slightly silty clay with some quartz gravel to 10mm maximum diameter				
1		A	1.0		
		U			
			1.3		
		A	1.5		
1.7		A	1.7		
	TEST BORE DISCONTINUED AT 1.7 METRES - due to auger refusal on possible low to medium strength bedrock (possible weathered basalt)				
2					
3					
4					
5					

RIG: PACIFIC 250

DRILLER: DUBBO TERRAZZO **LOGGED:** MURRAY

CASING: -

TYPE OF BORING: 300mm DIAMETER AUGER

GROUND WATER OBSERVATIONS: NO FREE GROUND WATER OBSERVED

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plastic limit (%)

CHECKED:

Initials: *DEM*

Date: 28-5



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TEST BORE REPORT

CLIENT: DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT: DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION: MYALL STREET, DUBBO

DATE: 23 MAY 1996
PROJECT No.: 23882

BORE No. 3
SHEET 1 OF 1

SURFACE LEVEL: 276.5 AHD

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	WOODCHIP AND TOPSOIL				
0.2	SILTY SAND - dark red-brown, fine silty sand - possible filling				
0.5	SILTY CLAY - hard, red-brown silty clay - slightly sandy in parts	A	0.5		
1		A	1.0		
1.4	SILTY CLAY - hard, grey and brown silty clay with some fine gravel (extremely low strength, extremely weathered, grey and brown basalt)	A	1.5		
2	TEST BORE DISCONTINUED AT 2.0 METRES - in hard, silty clay (extremely weathered bedrock) - non refusal	A	2.0		
3					
4					
5					

RIG: PACIFIC 250

DRILLER: DUBBO TERRAZZO

LOGGED: MURRAY

CASING: -

TYPE OF BORING: 300mm DIAMETER AUGER

GROUND WATER OBSERVATIONS: NO FREE GROUND WATER OBSERVED

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plastic limit (%)

CHECKED:

Initials: **DEM**

Date: **28-5**



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TEST BORE REPORT

CLIENT: DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT: DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION: MYALL STREET, DUBBO

DATE: 23 MAY 1996
PROJECT No.: 23882

BORE No. 4
SHEET 1 OF 1

SURFACE LEVEL: 276.2 AHD

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	TOPSOIL - dark brown, sandy clayey silt with rootlets	A	0.1		
0.2	SILTY CLAY - very stiff, red-brown silty clay (residual)	A	0.5		
1	TEST BORE DISCONTINUED AT 1.0 METRE - in very stiff silty clay	A	1.0		
2					
3					
4					
5					

RIG: HANDTOOLS

DRILLER: MURRAY

LOGGED: MURRAY

CASING: -

TYPE OF BORING: 150mm DIAMETER HANDAUGER

GROUND WATER OBSERVATIONS: NO FREE GROUND WATER OBSERVED

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plastic limit (%)

CHECKED:

Initials: **DEM**

Date: **28-5**



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TEST BORE REPORT

CLIENT: DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT: DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION: MYALL STREET, DUBBO

DATE: 23 MAY 1996

PROJECT No.: 23882

SURFACE LEVEL: 277.9 AHD

BORE No. 5

SHEET 1 OF 1

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	TOPSOIL - dark brown, clayey silt with rootlets				
0.2	SILTY CLAY - stiff, moist, red-brown silty clay - slightly sandy in parts	A	0.5		
1		A	1.0		
1.1	GRAVELLY CLAY - very stiff, grey and brown sandy clay with quartz pebbles to 15mm maximum diameter	A	1.5		
2	2.0	A	2.0		
	TEST BORE DISCONTINUED AT 2.0 METRES - in very stiff gravelly clay (non refusal)				
3					
4					
5					

RIG: PACIFIC 250

DRILLER: DUBBO TERRAZZO

LOGGED: MURRAY

CASING: -

TYPE OF BORING: 300mm DIAMETER AUGER

GROUND WATER OBSERVATIONS: NO FREE GROUND WATER OBSERVED

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plastic limit (%)

CHECKED:

Initials: **DEM**

Date: **28-5**



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TEST BORE REPORT

CLIENT: DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT: DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION: MYALL STREET, DUBBO

DATE: 23 MAY 1996
PROJECT No.: 23882
SURFACE LEVEL: 277.4 AHD

BORE No. 6
SHEET 1 OF 1

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	TOPSOIL - brown, fine grained silty sand with roots and rootlets				
0.2	SILTY CLAY - very stiff, red-brown slightly sandy silty clay with minor gravel				
		B	0.5		
	- hard below 1.0m		1.0		
		A	1.5		
	- hard, orange-brown below 1.6m				
2		A	2.0		
2.5	SILTY CLAY - very stiff to hard, dark brown, moist, silty clay with some fine gravel - (extremely weathered basalt)	A	2.5		
3		A	3.0		
4	- possible extremely low strength, extremely weathered basalt below 4.0m (grey and orange-brown)	A	4.0		
5		U	5.0		
5.3	TEST BORE DISCONTINUED AT 5.3 METRES - non refusal		5.3		
6					

RIG: PACIFIC 250

DRILLER: DUBBO TERRAZZO **LOGGED:** MURRAY

CASING: -

TYPE OF BORING: 300mm DIAMETER AUGER

GROUND WATER OBSERVATIONS: NO FREE GROUND WATER OBSERVED

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plastic limit (%)

CHECKED:

Initials: DEM

Date: 28-5



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TEST BORE REPORT

CLIENT: DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT: DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION: MYALL STREET, DUBBO

DATE: 23 MAY 1996
PROJECT No.: 23882
SURFACE LEVEL: 276.8 AHD

BORE No. 7
SHEET 1 OF 1

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	SILTY CLAY – hard, red-brown silty clay with some rootlets	A	0.5		
0.3	GRAVELLY CLAY – hard, red-brown silty clay and medium basalt gravel				
0.6	TEST BORE DISCONTINUED AT 0.6 METRES – due to hand auger refusal on hard gravelly clay				
1					
2					
3					
4					
5					

RIG: HANDTOOLS

DRILLER: MURRAY

LOGGED: MURRAY

CASING: –

TYPE OF BORING: 150mm DIAMETER HANDAUGER

GROUND WATER OBSERVATIONS: NO FREE GROUND WATER OBSERVED

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plastic limit (%)

CHECKED:

Initials: **DEM**

Date: **28-5**



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TEST BORE REPORT

CLIENT: DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT: DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION: MYALL STREET, DUBBO

DATE: 23 MAY 1996
PROJECT No.: 23882
SURFACE LEVEL: 276.4 AHD

BORE No. 8
SHEET 1 OF 1

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	TOPSOIL - dark brown, clayey silt with rootlets				
0.2	SILTY CLAY - very stiff, moist, red-brown silty clay with some fine to medium ironstone gravel (residual) - possibly disturbed above 0.5m	A	0.5		
	- minor, medium to coarse, high strength basalt gravel below 0.8m - maximum basalt gravel size is 60mm diameter - slow drilling through gravel below 1.3m	U	0.8		
1					
1.5	TEST BORE DISCONTINUED AT 1.5 METRES - due to virtual refusal on high to very high strength basalt gravel (possible bedrock)	A	1.5		
2					
3					
4					
5					

RIG: PACIFIC 250

DRILLER: DUBBO TERRAZZO

LOGGED: MURRAY

CASING: -

TYPE OF BORING: 300mm DIAMETER AUGER

GROUND WATER OBSERVATIONS: NO FREE GROUND WATER OBSERVED

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plastic limit (%)

CHECKED:

Initials: DEM

Date: 28-5



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TEST BORE REPORT

CLIENT: DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT: DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION: MYALL STREET, DUBBO

DATE: 23 MAY 1996
PROJECT No.: 23882
SURFACE LEVEL: 277.7 AHD

BORE No. 9
SHEET 1 OF 1

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	TOPSOIL - dark brown clayey silt and rootlets - possibly disturbed				
0.2		A	0.5		
	SILTY CLAY - stiff, red-brown silty clay with a trace of fine ironstone gravel (residual)		0.8		
1		U	1.2		
		A	1.5		
2	- very stiff, orange-brown below 1.8m with some fine to medium ironstone gravel	A	2.0		
3		A	3.0		
3.0	TEST BORE DISCONTINUED AT 3.0 METRES - in very stiff, silty clay (non refusal)				
4					
5					

RIG: PACIFIC 250

DRILLER: DUBBO TERRAZZO **LOGGED:** MURRAY

CASING: -

TYPE OF BORING: 300mm DIAMETER AUGER

GROUND WATER OBSERVATIONS: NO FREE GROUND WATER OBSERVED

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plastic limit (%)

CHECKED:

Initials: **DEM**

Date: **28-5**



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TEST BORE REPORT

CLIENT: DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT: DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION: MYALL STREET, DUBBO

DATE: 23 MAY 1996
PROJECT No.: 23882
SURFACE LEVEL: 276.8 AHD

BORE No. 10
SHEET 1 OF 1

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	TOPSOIL - dark brown, clayey silt with roots and rootlets				
0.3	SILTY CLAY - very stiff to hard, red-brown silty clay (residual) - minor fine ironstone gravel	B	0.5		
1	- hard, orange-brown below 1.4m		1.0		
1.5	SILTY CLAY - hard, dry, grey, brown and orange-brown silty clay (extremely low strength, extremely weathered basalt)	A	2.0		
2					
3		A	3.0		
4	TEST BORE DISCONTINUED AT 4.0 METRES (non refusal)	A	4.0		
5					

RIG: PACIFIC 250

DRILLER: DUBBO TERRAZZO **LOGGED:** MURRAY

CASING: -

TYPE OF BORING: 300mm DIAMETER AUGER

GROUND WATER OBSERVATIONS: NO FREE GROUND WATER OBSERVED

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
□ Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plastic limit (%)

CHECKED:

Initials: DEM

Date: 28-5



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TEST BORE REPORT

CLIENT: DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT: DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION: MYALL STREET, DUBBO

DATE: 23 MAY 1996
PROJECT No.: 23882
SURFACE LEVEL: 276.4 AHD

BORE No. 11
SHEET 1 OF 1

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	TOPSOIL - dark brown clayey silt with rootlets				
0.2	SILTY CLAY - very stiff to hard red-brown silty clay (residual)	A	0.5		
1		A	1.0		
1.5	SILTY CLAY - hard, grey and grey-brown silty clay with minor fine ironstone gravel (extremely weathered basalt)	A	1.5		
2	TEST BORE DISCONTINUED AT 2.0 METRES - in hard silty clay (extremely weathered basalt)	A	2.0		
3					
4					
5					

RIG: PACIFIC 250

DRILLER: DUBBO TERRAZZO

LOGGED: MURRAY

CASING: -

TYPE OF BORING: 300mm DIAMETER AUGER

GROUND WATER OBSERVATIONS: NO FREE GROUND WATER OBSERVED

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plastic limit (%)

CHECKED:

Initials: **DEM**

Date: **28-5**



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TEST BORE REPORT

CLIENT: DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT: DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION: MYALL STREET, DUBBO

DATE: 30 MAY 1996
PROJECT No.: 23882
SURFACE LEVEL: 275.0 AHD

BORE No. 12
SHEET 1 OF 1

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	TOPSOIL - dark brown clayey sandy silt with rootlets				
0.2	SILTY CLAY - stiff to very stiff, moist, red-brown silty clay (residual)	A	0.5		
1	- some medium quartz gravel below 1.0m	A	1.0		
1.2	TEST BORE DISCONTINUED AT 1.2 METRES - due to auger refusal on basalt gravel (probable high strength bedrock)	A	1.2		
2					
3					
4					
5					

RIG: PACIFIC 250

DRILLER: DUBBO TERRAZZO **LOGGED:** MURRAY

CASING: -

TYPE OF BORING: 300mm DIAMETER AUGER

GROUND WATER OBSERVATIONS: NO FREE GROUND WATER OBSERVED

REMARKS: BOTTOM OF BORE PROBED WITH PENETROMETER - BOUNCING REFUSAL

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plastic limit (%)

CHECKED:

Initials: **DEM**

Date: **1-6**



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TEST BORE REPORT

CLIENT: DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT: DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION: MYALL STREET, DUBBO

DATE: 30 MAY 1996

PROJECT No.: 23882

SURFACE LEVEL: 277.6 AHD

BORE No. 13

SHEET 1 OF 1

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	TOPSOIL - dark brown, clayey sandy silt with rootlets				
0.2	SILTY CLAY - stiff to very stiff, slightly moist, red-brown silty clay (residual)	A	0.5		
0.9	CLAY - hard, dry, brown coarse sandy clay	A	1.0		
1	- with some medium quartz gravel below 1.3m (extremely weathered sandstone)	A	1.5		
2		A	2.0		
2.1	SANDSTONE - extremely low to very low strength, grey-brown medium to coarse grained sandstone	A	2.5		
2.5	- quartz grains to 3mm diameter	A	2.5		
	TEST BORE DISCONTINUED AT 2.5 METRES - in very low strength sandstone (near refusal)				
3					
4					
5					

RIG: PACIFIC 250

DRILLER: DUBBO TERRAZZO

LOGGED: MURRAY

CASING: -

TYPE OF BORING: 300mm DIAMETER AUGER

GROUND WATER OBSERVATIONS: NO FREE GROUND WATER OBSERVED

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plastic limit (%)

CHECKED:

Initials: DEM

Date: 1-6



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TEST BORE REPORT

CLIENT: DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT: DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION: MYALL STREET, DUBBO

DATE: 30 MAY 1996
PROJECT No.: 23882
SURFACE LEVEL: 277.0 AHD

BORE No. 14
SHEET 1 OF 1

Depth m	Description of Strata	Sampling & In Situ Testing			
		Type	Depth (m)	Test Results	Core Recovery %
0	TOPSOIL - dark brown, clayey sandy silt with rootlets				
0.2					
	SILTY CLAY - stiff to very stiff, slightly moist, dark brown and brown silty sandy clay (residual)	A	0.5		
0.7	- possibly disturbed above 0.5m				
	CLAY - very stiff to hard, yellow-brown and red-brown clay	A	1.0		
1		U	1.3		
	- slightly sandy above 2.0m				
2		A	2.0		
	(extremely weathered siltstone/sandstone)				
		A	2.5		
3		A	3.0		
4		A	4.0		
4.5		A	4.5		
	SANDSTONE - extremely low to very low strength, grey, brown and red-brown medium grained sandstone				
5		A	5.0		
5.0	TEST BORE DISCONTINUED AT 5.0 METRES - in extremely low strength sandstone (non refusal)				

RIG: PACIFIC 250

DRILLER: DUBBO TERRAZZO

LOGGED: MURRAY

CASING: -

TYPE OF BORING: 300mm DIAMETER AUGER

GROUND WATER OBSERVATIONS: NO FREE GROUND WATER OBSERVED

REMARKS:

SAMPLING & IN SITU TESTING LEGEND

A Auger sample	M Moisture content (%)
B Bulk sample	pp Pocket Penetration (kPa)
D Disturbed sample	Ux x mm dia. tube
HV Hand Vane	Wp Plastic limit (%)

CHECKED:

Initials: 1-6

Date: DEM



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RESULTS OF DYNAMIC PENETROMETER TESTS

CLIENT DEPARTMENT OF PUBLIC WORKS AND SERVICES

DATE 23-30 MAY 1996

PROJECT DUBBO BASE HOSPITAL REDEVELOPMENT

PROJECT NO. 23882

LOCATION MYALL STREET, DUBBO

TEST LOCATIONS	1	2	3	4	5	6	7	8	9	10	11	12	13
RL OF TEST													
DEPTH m	PENETRATION RESISTANCE BLOWS/150mm												
0.00-0.15	---	---	1	6	1	11	12	3	4	3	3	3	3
0.15-0.30	6	9	7	5	4	18	17	7	4	9	4	1	2
0.30-0.45	2	8	9	6	2	9	34	3	3	8	5	2	3
0.45-0.60	4	6	19	9	3	6	21	8	2	14	5	2	5
0.60-0.75	12	8	24	9	3	6	13	9	3	35	7	5	6
0.75-0.90	31	8	12	9	7	16	18	9	3		10	4	9
0.90-1.05		11	18	9	22	18	26	9	7		9	9	9
1.05-1.20		10	27	8	30	17	20	18	10		12	ref	15
1.20-1.35													
1.35-1.50													
1.50-1.65													
1.65-1.80													
1.80-1.95													
1.95-2.10													
2.10-2.25													
2.25-2.40													
2.40-2.55													
2.55-2.70													
2.70-2.85													
2.85-3.00													

TEST METHOD AS 1289. F3.2, CONE PENETROMETER ✓
AS 1289. F3.3, FLAT END PENETROMETER

TESTED DEM
CHECKED DEM

LABORATORY LOCATION SYDNEY

REPORT NO 23882

SIGNED




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RESULTS OF DYNAMIC PENETROMETER TESTS

CLIENT DEPARTMENT OF PUBLIC WORKS AND SERVICES
PROJECT DUBBO BASE HOSPITAL REDEVELOPMENT
LOCATION MYALL STREET, DUBBO

DATE 30 MAY 1996
PROJECT NO. 23882

TEST LOCATIONS	14												
RL OF TEST													
DEPTH m	PENETRATION RESISTANCE BLOWS/150mm												
0.00-0.15	4												
0.15-0.30	3												
0.30-0.45	3												
0.45-0.60	3												
0.60-0.75	5												
0.75-0.90	7												
0.90-1.05	6												
1.05-1.20	8												
1.20-1.35													
1.35-1.50													
1.50-1.65													
1.65-1.80													
1.80-1.95													
1.95-2.10													
2.10-2.25													
2.25-2.40													
2.40-2.55													
2.55-2.70													
2.70-2.85													
2.85-3.00													

TEST METHOD AS 1289. F3.2, CONE PENETROMETER ✓
AS 1289. F3.3, FLAT END PENETROMETER

TESTED DEM
CHECKED DEM

LABORATORY LOCATION SYDNEY

REPORT NO 23882

SIGNED

Dh



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Appendix E

Results of Current Laboratory Testing

Results of Moisture Content, Plasticity and Linear Shrinkage Tests

Client:	Health Infrastructure	Project No:	72811.03
Project:	DUBBO Base Hospital Redevelopment	Report No:	1
Location:	Myall Road, Dubbo	Report Date:	19/04/2016
		Date Sampled:	30/03/2016
		Date of Test:	07/04/2016
		Page:	1 of 1

Test Location	Depth (m)	Description	Code	W _F %	W _L %	W _P %	PI %	*LS %
B1	2.5-2.8	Yellow brown and brown slightly sandy silty clay	2,5	-	56	33	23	-
B6	2.5-2.95	Grey-brown silty clay	2,5	-	63	36	27	-
B7	2.5-2.95	Brown, yellow and grey silty clay	2,5	-	55	23	32	-
B9	1.0-1.45	Red-brown and yellow-brown mottled silty clay	2,5	-	63	25	38	-
B12	1.0-1.45	Brown silty gravelly clay	2,5	-	40	15	25	-
B14	3.5-4.5	Orange-brown silty clay	2,5	-	57	31	26	-

Legend:

W_F Field Moisture Content
 W_L Liquid limit
 W_P Plastic limit
 PI Plasticity index
 LS Linear shrinkage from liquid limit condition (Mould lengthmm)

Code:

Sample history for plasticity tests

1. Air dried
2. Low temperature (<50°C) oven dried
3. Oven (105°C) dried
4. Unknown

Test Methods:

Moisture Content: AS 1289 2.1.1
 Liquid Limit: AS 1289 3.1.2
 Plastic Limit: AS 1289 3.2.1
 Plasticity Index: AS 1289 3.3.1
 Linear Shrinkage:

Method of preparation for plasticity tests

5. Dry sieved
6. Wet sieved
7. Natural

*Specify if sample crumbled CR or curled CU

Sampling Methods: Sampled by Engineering Department

Remarks:



NATA Accredited Laboratory Number: 828

The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards. Accredited for compliance with ISO/IEC 17025

Tested: LW
 Checked: MM


 Michael Gref
 Senior Technician

Determination of Emerson Class Number of Soil

Client : Health Infrastructure				Project No. : 72811.03			
Project : Dubbo Base Hospital Redevelopment				Report No. : 2			
Location : Myall Road, Dubbo				Report Date : 19/04/2016			
				Page: 1 of 1			

Sample No.	Depth (m)	Date of Test	Description	Water Type	Water Temp	Class No.
B13	1.0 - 1.5	8/04/2016	Orange-brown silty clay	Distilled	23	5
B15	4.5 - 5.0	12/04/2016	Light grey and orange silty clay	Distilled	23	2
B6	0.4 - 0.5	8/04/2016	Red-brown silty clay	Distilled	24	5
B9	0.9 - 1.0	8/04/2016	Brown gravelly silty clay	Distilled	23	5
P4	0.4 - 1.6	12/04/2016	Red-brown silty clay	Distilled	23	4
P6	0.2 - 1.6	12/04/2016	Brown silty clay	Distilled	24	2

Test Methods: AS 1289 3.8.1

Sampling Methods: Sampled by Engineering Department

Remarks:



NATA Accredited Laboratory Number: 828

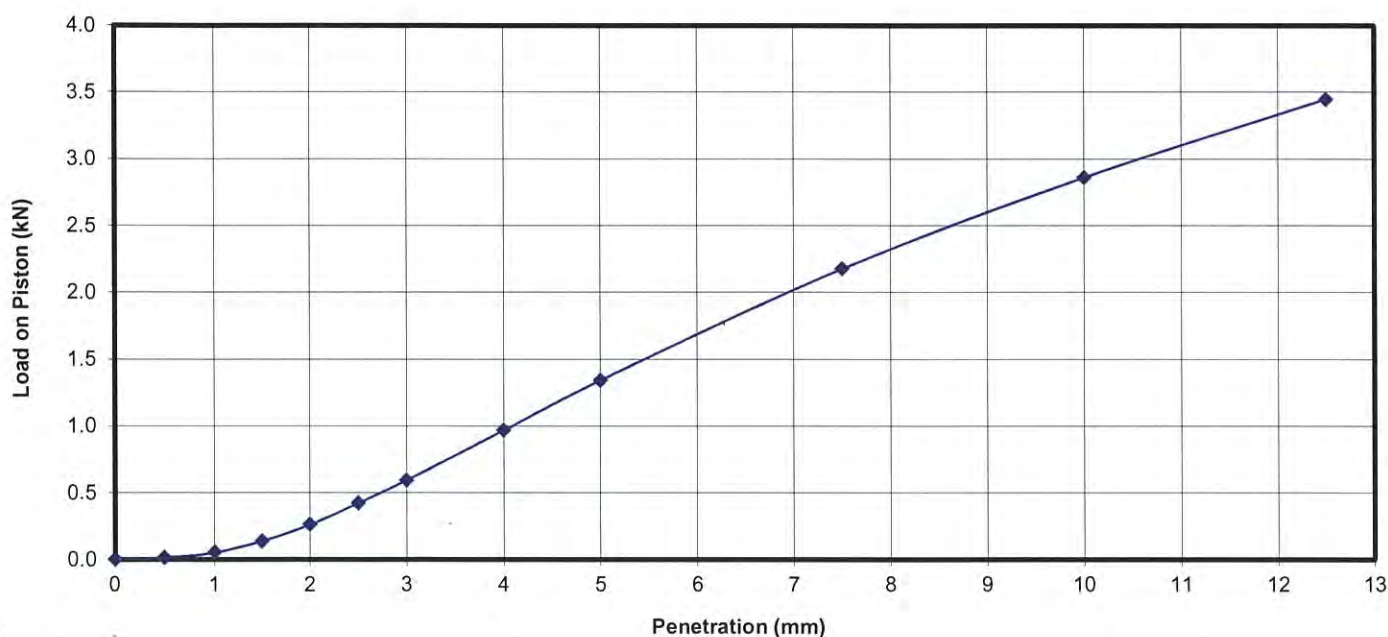
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Mark Matthews
Laboratory Manager

Results of California Bearing Ratio Test

Client :	Health Infrastructure	Project No. :	72811.03
Project :	Dubbo Base Hospital Redevelopment	Report No. :	3
Location :	Myall Road, Dubbo	Report Date :	19/04/2016
Test Location :	P1	Date Sampled :	30/03/2016
Depth / Layer :	0.05 - 0.70m	Date of Test:	18/04/2016
		Page:	1 of 1



Description: Brown gravelly, cobbly silty sand filling

Test Method(s): AS1289 6.1.1, AS1289 5.1.1, AS1289 2.1.1

Sampling Method(s): Sampled by Engineering Department

Percentage > 19mm: 18% Excluded

LEVEL OF COMPACTION: 100% of STD MDD

SURCHARGE: 4.5 kg

SWELL: 0.3%

MOISTURE RATIO: 100% of STD OMC

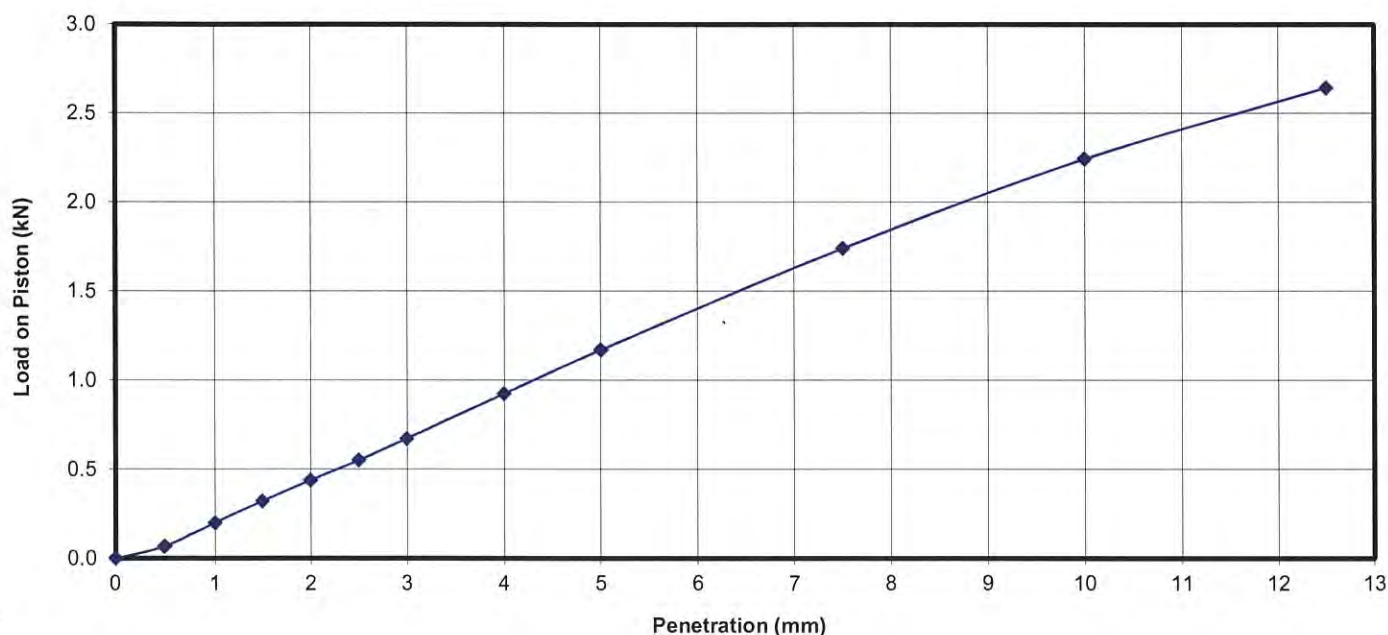
SOAKING PERIOD: 4 days

CONDITION	MOISTURE CONTENT %	DRY DENSITY t/m ³
At compaction	18.5	1.77
After soaking	19.8	1.77
After test		
Top 30mm of sample	19.6	-
Remainder of sample	18.7	-
Field values	20.3	-
Standard Compaction (OMC/MDD)	18.5	1.77

RESULTS		
TYPE	PENETRATION	CBR (%)
TOP	5.0 mm	9

Results of California Bearing Ratio Test

Client :	Health Infrastructure	Project No. :	72811.03
Project :	Dubbo Base Hospital Redevelopment	Report No. :	4
Location :	Myall Road, Dubbo	Report Date :	19/04/2016
Test Location :	P2	Date Sampled :	30/03/2016
Depth / Layer :	0.06 - 0.60m	Date of Test:	18/04/2016
		Page:	1 of 1



Description: Brown gravelly, cobbly silty sand filling
Test Method(s): AS1289 6.1.1, AS1289 5.1.1, AS1289 2.1.1
Sampling Method(s): Sampled by Engineering Department

Percentage > 19mm: 6% Excluded

LEVEL OF COMPACTION: 100% of STD MDD
MOISTURE RATIO: 100% of STD OMC

SURCHARGE: 4.5 kg
SOAKING PERIOD: 4 days

SWELL: 0.0%

CONDITION	MOISTURE CONTENT %	DRY DENSITY t/m ³
At compaction	11.6	1.95
After soaking	12.8	1.95
After test		
Top 30mm of sample	12.5	-
Remainder of sample	12.7	-
Field values	7.7	-
Standard Compaction (OMC/MDD)	11.6	1.95

RESULTS		
TYPE	PENETRATION	CBR (%)
TOP	5.0 mm	6

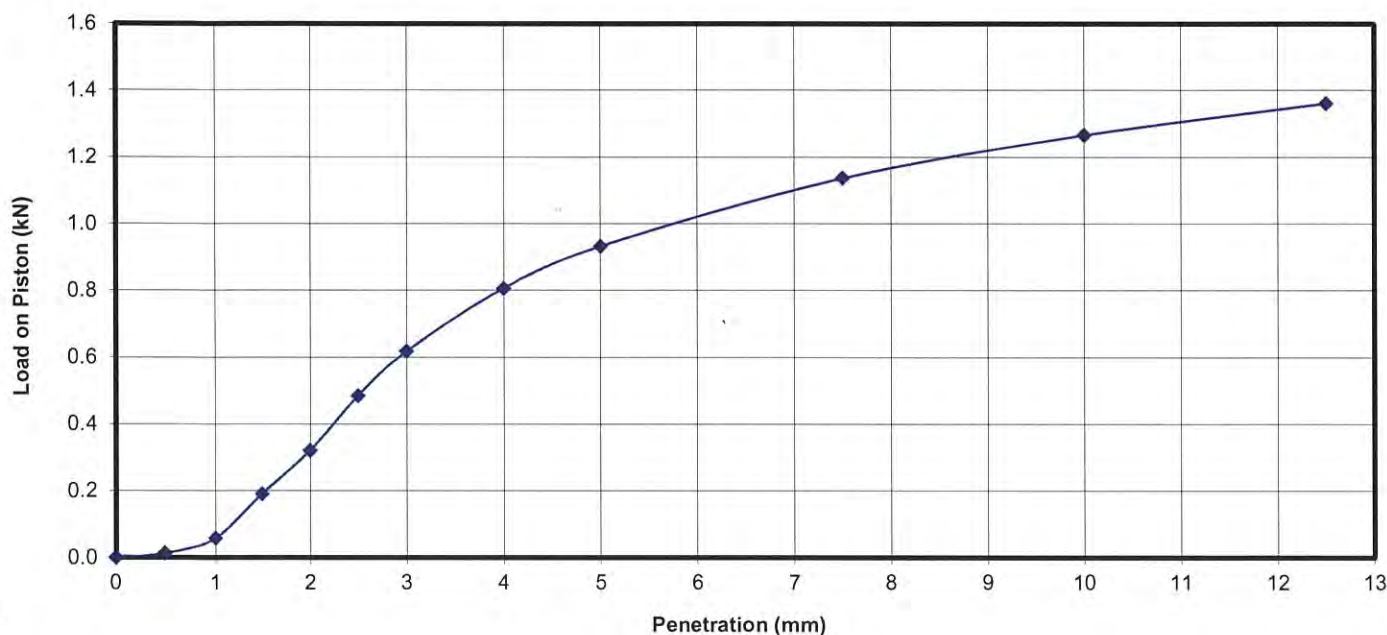


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Michael Gref
Senior Technician

Results of California Bearing Ratio Test

Client :	Health Infrastructure	Project No. :	72811.03
Project :	Dubbo Base Hospital Redevelopment	Report No. :	5
Location :	Myall Road, Dubbo	Report Date :	19/04/2016
Test Location :	P3	Date Sampled :	30/03/2016
Depth / Layer :	0.20 - 1.20m	Date of Test:	18/04/2016
		Page:	1 of 1



Description: Brown and red-brown silty clay
Test Method(s): AS1289 6.1.1, AS1289 5.1.1, AS1289 2.1.1
Sampling Method(s): Sampled by Engineering Department

Percentage > 19mm: 0%

LEVEL OF COMPACTION: 100% of STD MDD
MOISTURE RATIO: 100% of STD OMC

SURCHARGE: 4.5 kg
SOAKING PERIOD: 4 days

SWELL: 0.3%

CONDITION	MOISTURE CONTENT %	DRY DENSITY t/m ³
At compaction	17.5	1.80
After soaking	18.5	1.80
After test	19.0	-
Top 30mm of sample	18.2	-
Remainder of sample	22.9	-
Field values	17.5	1.80
Standard Compaction (OMC/MDD)		

RESULTS		
TYPE	PENETRATION	CBR (%)
TOP	5.0 mm	5



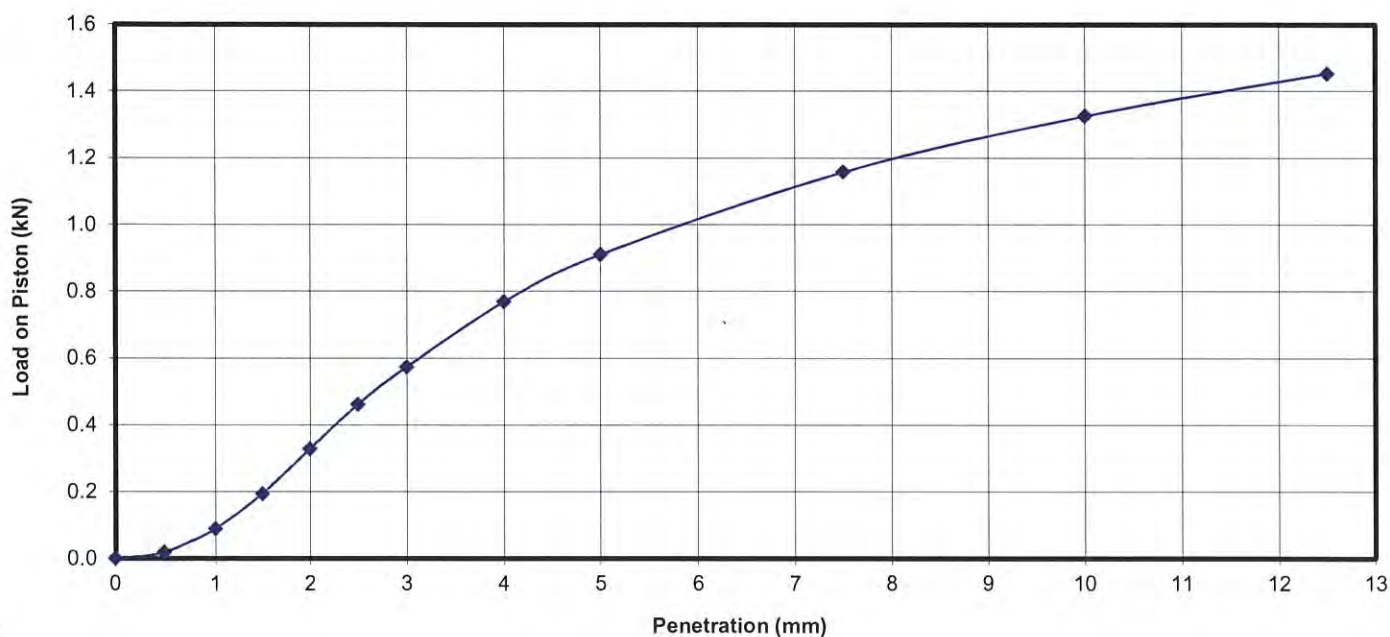
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Michael Gref

Michael Gref
Senior Technician

Results of California Bearing Ratio Test

Client :	Health Infrastructure	Project No. :	72811.03
Project :	Dubbo Base Hospital Redevelopment	Report No. :	6
Location :	Myall Road, Dubbo	Report Date :	19/04/2016
Test Location :	P4	Date Sampled :	30/03/2016
Depth / Layer :	0.40 - 1.60m	Date of Test:	18/04/2016
		Page:	1 of 1



Description: Red-brown silty clay
Test Method(s): AS1289 6.1.1, AS1289 5.1.1, AS1289 2.1.1
Sampling Method(s): Sampled by Engineering Department

Percentage > 19mm: 1% Excluded

LEVEL OF COMPACTION: 100% of STD MDD
MOISTURE RATIO: 100% of STD OMC

SURCHARGE: 4.5 kg
SOAKING PERIOD: 4 days

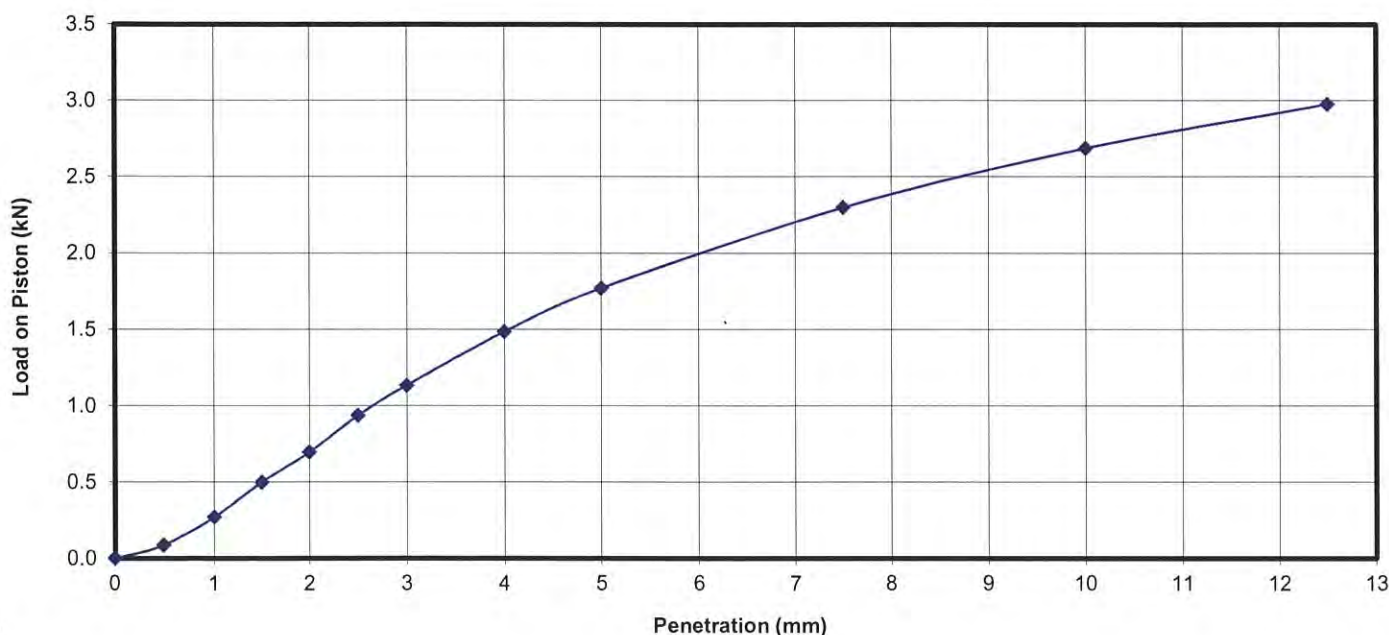
SWELL: 0.1%

CONDITION	MOISTURE CONTENT %	DRY DENSITY t/m ³
At compaction	12.7	1.94
After soaking	13.8	1.94
After test		
Top 30mm of sample	14.4	-
Remainder of sample	12.8	-
Field values	8.9	-
Standard Compaction (OMC/MDD)	12.7	1.94

RESULTS		
TYPE	PENETRATION	CBR (%)
TOP	5.0 mm	5

Results of California Bearing Ratio Test

Client :	Health Infrastructure	Project No. :	72811.03
Project :	Dubbo Base Hospital Redevelopment	Report No. :	7
Location :	Myall Road, Dubbo	Report Date :	19/04/2016
Test Location :	P5	Date Sampled :	30/03/2016
Depth / Layer :	0.20 - 0.50m	Date of Test:	18/04/2016
		Page:	1 of 1



Description: Brown gravelly, cobbly sandy clay

Test Method(s): AS1289 6.1.1, AS1289 5.1.1, AS1289 2.1.1

Sampling Method(s): Sampled by Engineering Department

Percentage > 19mm: 14% Excluded

LEVEL OF COMPACTION: 100% of STD MDD

SURCHARGE: 4.5 kg

SWELL: 0.3%

MOISTURE RATIO: 101% of STD OMC

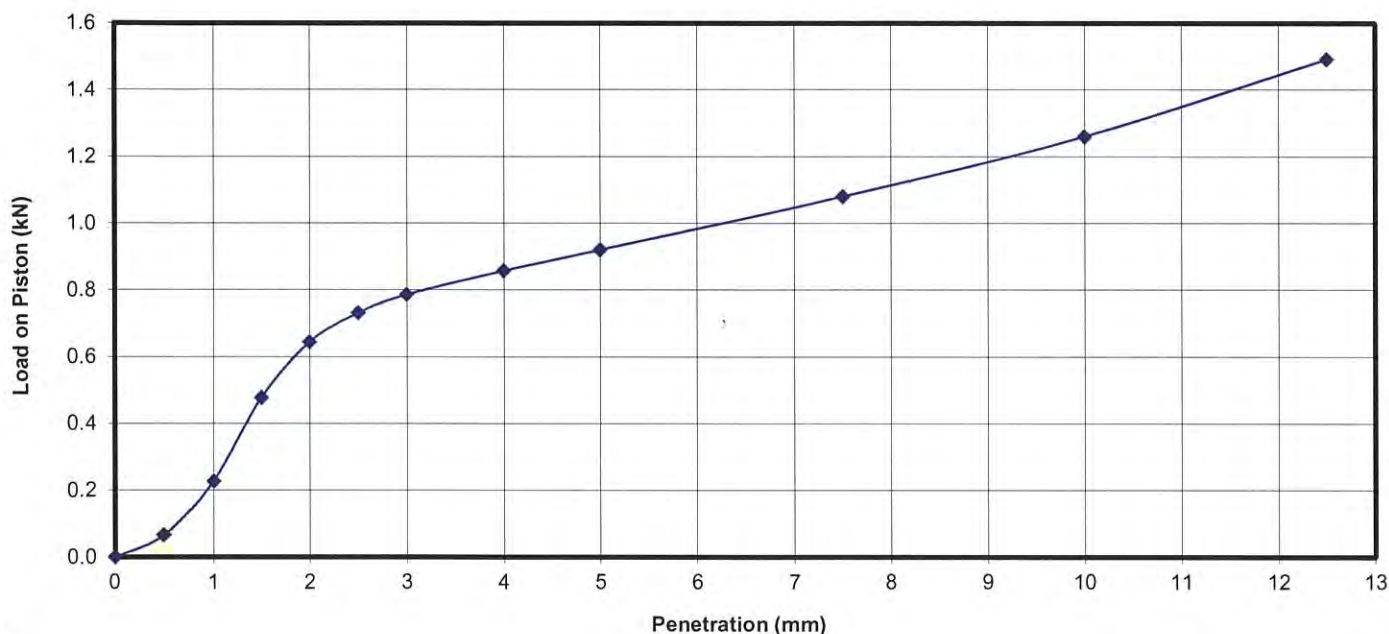
SOAKING PERIOD: 4 days

CONDITION	MOISTURE CONTENT %	DRY DENSITY t/m ³
At compaction	16.8	1.81
After soaking	18.3	1.81
After test		
Top 30mm of sample	18.4	-
Remainder of sample	16.9	-
Field values	18.6	-
Standard Compaction (OMC/MDD)	16.7	1.82

RESULTS		
TYPE	PENETRATION	CBR (%)
TOP	5.0 mm	10

Results of California Bearing Ratio Test

Client :	Health Infrastructure	Project No. :	72811.03
Project :	Dubbo Base Hospital Redevelopment	Report No. :	8
Location :	Myall Road, Dubbo	Report Date :	19/04/2016
Test Location :	P6	Date Sampled :	30/03/2016
Depth / Layer :	0.20 - 1.60m	Date of Test:	18/04/2016
		Page:	1 of 1



Description: Brown silty clay
Test Method(s): AS1289 6.1.1, AS1289 5.1.1, AS1289 2.1.1
Sampling Method(s): Sampled by Engineering Department

Percentage > 19mm: 0%

LEVEL OF COMPACTION: 100% of STD MDD
MOISTURE RATIO: 100% of STD OMC

SURCHARGE: 4.5 kg
SOAKING PERIOD: 4 days

SWELL: 1.1%

CONDITION	MOISTURE CONTENT %	DRY DENSITY t/m ³
At compaction	18.5	1.71
After soaking	20.8	1.71
After test	22.9	-
Top 30mm of sample	19.3	-
Remainder of sample	14.6	-
Field values	18.5	1.71
Standard Compaction (OMC/MDD)		

RESULTS		
TYPE	PENETRATION	CBR (%)
TOP	2.5 mm	6



NATA Accredited Laboratory No 828
The results of the tests, calibrations and/or measurements included in this document are traceable to Australian/national standards.
Accredited for compliance with ISO/IEC 17025

Michael Gref

Michael Gref
Senior Technician

Misc Inorg - Soil Our Reference: Your Reference	UNITS ----- -	144219-16 B1	144219-17 B6	144219-18 B10	144219-19 B15
Depth Date Sampled Type of sample	----- ----- -----	1-1.45 30/03/2016 Soil	2.5-2.95 30/03/2016 Soil	1-1.45 30/03/2016 Soil	4.5-4.95 30/03/2016 Soil
Date prepared	-	05/04/2016	05/04/2016	05/04/2016	05/04/2016
Date analysed	-	05/04/2016	05/04/2016	05/04/2016	05/04/2016
pH 1:5 soil:water	pH Units	7.4	8.3	8.7	4.8
Electrical Conductivity 1:5 soil:water	µS/cm	69	270	280	1,300
Chloride, Cl 1:5 soil:water	mg/kg	25	85	20	1,600
Sulphate, SO4 1:5 soil:water	mg/kg	46	190	51	390

Appendix F

Results of Previous Laboratory Testing

Results of Moisture Content, Plasticity and Linear Shrinkage Tests

Client:	HEALTH INFRASTRUCTURE	Project No:	72811
Project:	DUBBO BASE HOSPITAL REDEVELOPMENT	Report No:	S12-041 A
		Report Date:	23-02-12
Location:	MYALL ROAD, DUBBO	Date Sampled:	16/02/2012
		Date of Test:	21-02-12
		Page:	1 of 1

Test Location	Depth (m)	Description	Code	W _F %	W _L %	W _P %	PI %	*LS %
CW4	0.5 - 0.7	SILTY CLAY - Orange brown silty clay	2,5	21.5	51	26	25	-
CW3	0.5	SILTY CLAY - Red brown silty clay	2,5	15.4	44	21	23	-
BW2	1.0	SILTY CLAY - Orange brown silty clay with some fine gravel	2,5	12.0	33	17	16	-
BW1	0.5	SILTY CLAY - Red brown silty clay	2,5	11.0	43	23	20	-
SD2	0.5	SILTY CLAY - Orange brown silty clay with a trace of gravel	2,5	8.6	24	15	9	-

Legend:

W_F Field Moisture Content
 W_L Liquid limit
 W_P Plastic limit
 PI Plasticity index
 LS Linear shrinkage from liquid limit condition (Mould length 125mm)

Test Methods:

Moisture Content: AS 1289 2.1.1
 Liquid Limit: AS 1289 3.1.2
 Plastic Limit: AS 1289 3.2.1
 Plasticity Index: AS 1289 3.3.1
 Linear Shrinkage: AS 1289 3.4.1

Code:

Sample history for plasticity tests

1. Air dried
2. Low temperature (<50°C) oven dried
3. Oven (105°C) dried
4. Unknown

Method of preparation for plasticity tests

5. Dry sieved
6. Wet sieved
7. Natural

*Specify if sample crumbled CR or curled CU

Sampling Methods: Sampled by Engineering Department

Remarks:



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Tested: RR / AH
 Checked: NW

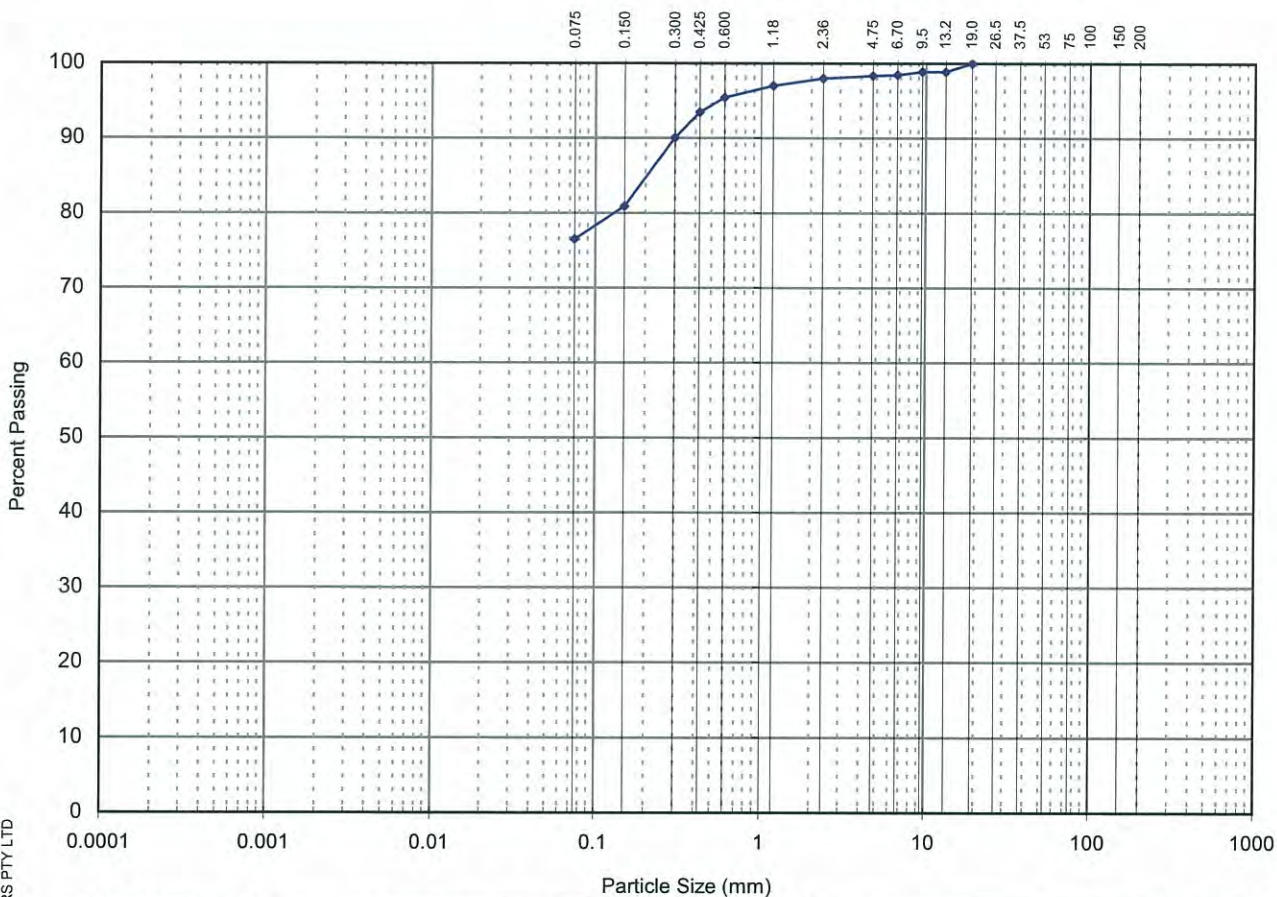


Norman Weimann
 Laboratory Manager

Results of Particle Size Distribution

Client :	HEALTH INFRASTRUCTURE	Project No. :	72811
Project :	DUBBO BASE HOSPITAL REDEVELOPMENT	Report No. :	S12041 B
Location :	MYALL ROAD, DUBBO	Report Date :	28-Feb-12
Road No:		Date Sampled:	16-Feb-12
Chainage:		Date of Test:	22-Feb-12
	Sample / Pit No: SD1	Depth / Layer:	1.0m
	Section / Lot No:	Test Request No:	
		Page:	1 of 1

AUSTRALIAN STANDARD SIEVE APERTURES



Sieve Size (mm)	% Passing
75.0	~
53.0	~
37.5	~
26.5	~
19.0	100%
13.2	99%
9.5	99%
6.7	98%
4.75	98%
2.36	98%
1.18	97%
0.600	95%
0.425	93%
0.300	90%
0.150	81%
0.075	76%

CLAY FRACTION			SILT FRACTION			SAND FRACTION			GRAVEL FRACTION			COBBLES
			Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
			0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60

Description: SILTY CLAY - Red brown silty clay with a trace of gravel.

Test Method(s): AS 1289.3.6.1

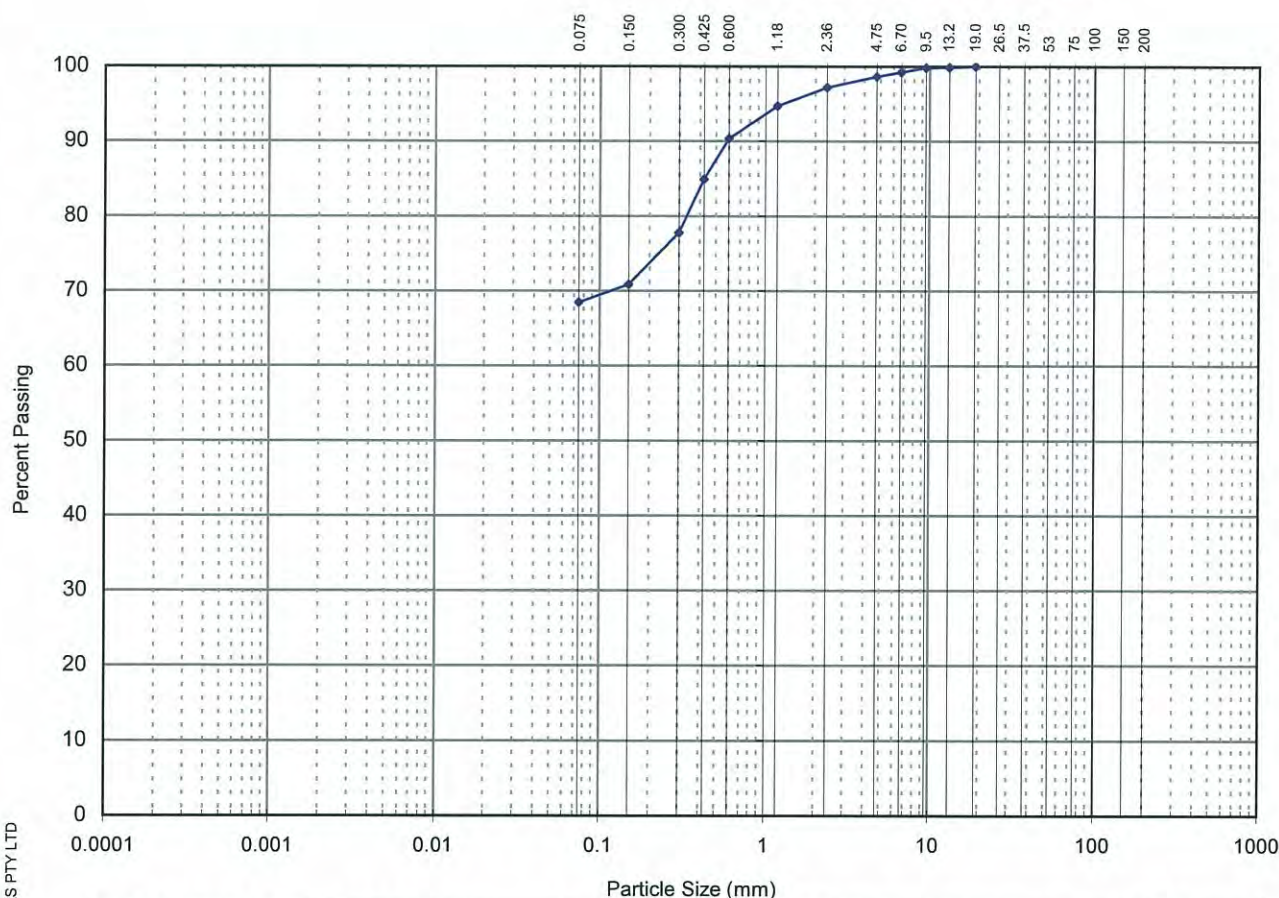
Sampling Method(s): By Engineering Department

Remarks:

Results of Particle Size Distribution

Client :	HEALTH INFRASTRUCTURE	Project No. :	72811
Project :	DUBBO BASE HOSPITAL REDEVELOPMENT	Report No. :	S12-041 C
Location :	MYALL ROAD, DUBBO	Report Date :	28-Feb-12
Road No:		Date Sampled:	16-Feb-12
Chainage:		Date of Test:	16-Feb-12
	Sample / Pit No: CW2	Depth / Layer:	0.7 - 1.0m
	Section / Lot No:	Test Request No:	
		Page:	1 of 1

AUSTRALIAN STANDARD SIEVE APERTURES



Sieve Size (mm)	% Passing
75.0	~
53.0	~
37.5	~
26.5	~
19.0	100%
13.2	100%
9.5	100%
6.7	99%
4.75	99%
2.36	97%
1.18	95%
0.600	90%
0.425	85%
0.300	78%
0.150	71%
0.075	68%

CLAY FRACTION			SILT FRACTION			SAND FRACTION			GRAVEL FRACTION			COBBLES
			Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
			0.002	0.006	0.02	0.06	0.2	0.6	2.0	6.0	20	60

Description: SILTY CLAY - Orange brown silty clay with some rounded gravel.

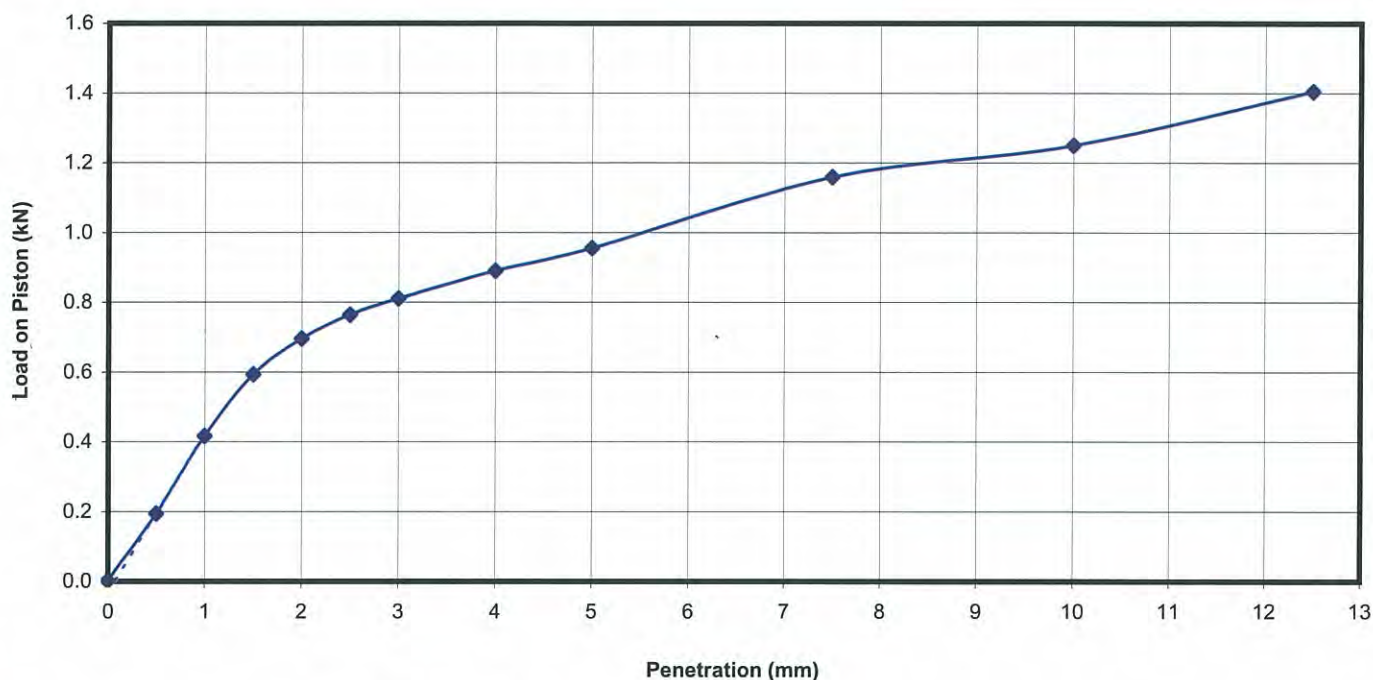
Test Method(s): AS 1289.3.6.1

Sampling Method(s): By Engineering Department

Remarks:

Results of California Bearing Ratio Test

Client :	HEALTH INFRASTRUCTURE	Project No. :	72811.00
Project :	DUBBO BASE HOSPITAL REDEVELOPMENT	Report No. :	S12-041 D
Location :	MYALL ROAD, DUBBO	Report Date :	27/02/2012
Test Location :	CW1	Date Sampled :	16/02/2012
Depth / Layer :	0.5 - 0.7m	Date of Test:	19/02/2012
		Page:	1 of 1



Description: SILTY CLAY - Red brown silty clay.

Test Method(s): AS1289.6.1.1, AS1289.2.1.1

Sampling Method(s): By Engineering Department.

Percentage > 19mm: 0.0%

LEVEL OF COMPACTION: 100% of STD MDD

SURCHARGE: 4.5 kg

SWELL: 1.6%

MOISTURE RATIO: 99% of STD OMC

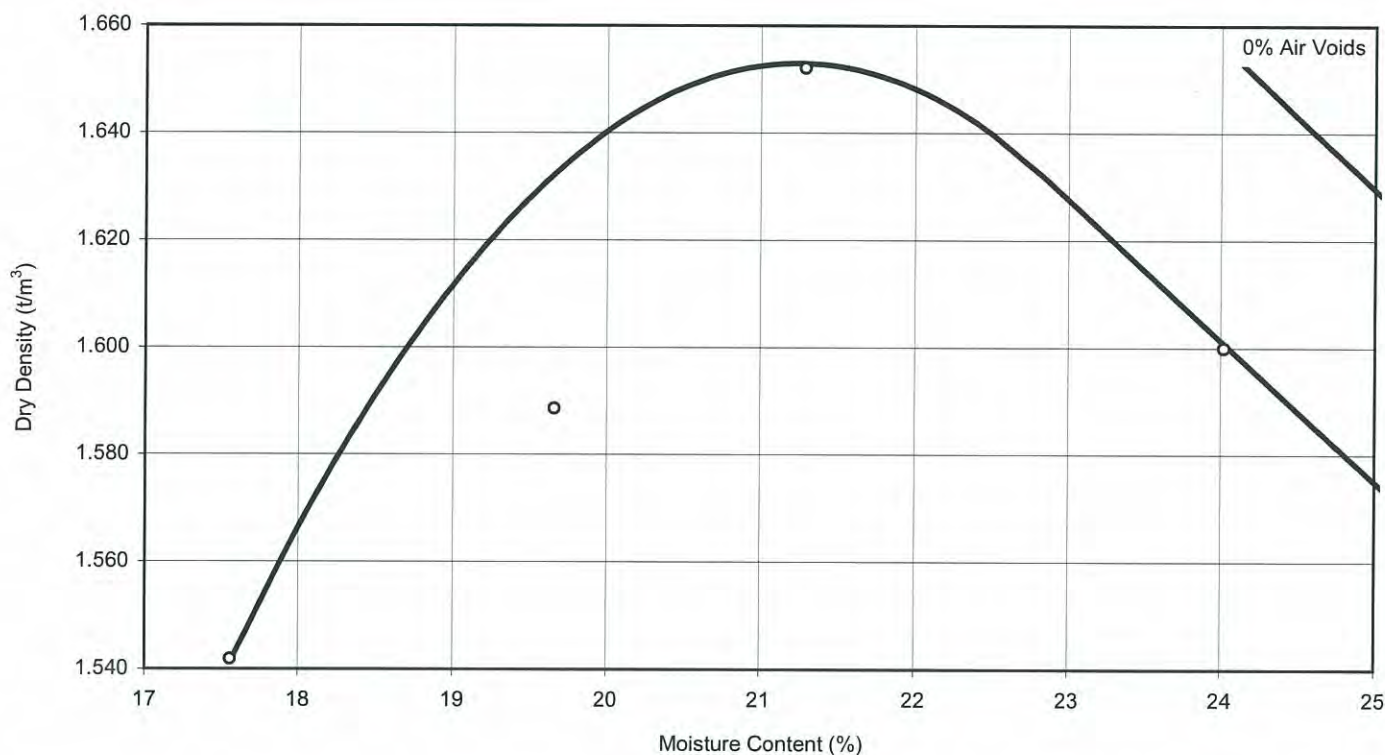
SOAKING PERIOD: 4 days

CONDITION	MOISTURE CONTENT %	DRY DENSITY t/m ³
At compaction	20.9	1.66
After soaking	24.2	1.63
After test		
Top 30mm of sample	25.0	-
Remainder of sample	24.2	-
Field values	17.6	-
Standard Compaction	21.2	1.65

RESULTS		
TYPE	PENETRATION	CBR (%)
TOP	2.5 mm	6
	5.0 mm	5.0

Results of Compaction Test

Client :	HEALTH INFRASTRUCTURE	Project No. :	72811
Project :	DUBBO BASE HOSPITAL REDEVELOPMENT	Report No. :	S12-041 E
Location :	MYALL ROAD - DUBBO	Report Date :	20/02/2012
		Date of Test:	17/02/2012
		Page:	1 of 1



Sample Details: Location: CW 1
Depth: 0.5 - 0.7m

Particles > 19mm: 0%

Description: SILTY CLAY - Red brown silty clay

Maximum Dry Density:	1.65 t/m³
Optimum Moisture Content:	21.0 %

Remarks:

Test Methods: AS1289.5.1.1, AS1289.2.1.1

Sampling Methods: Sampled by Engineering Dept



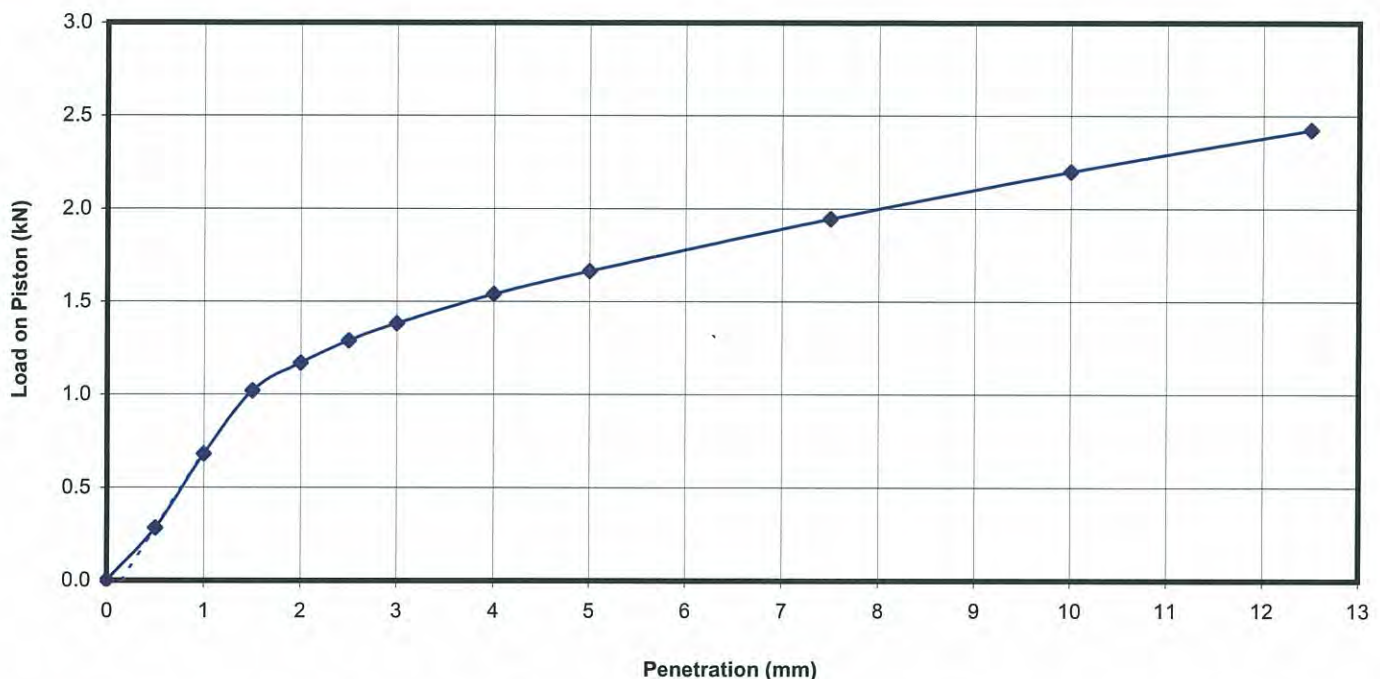
NATA Accredited Laboratory Number: 828
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Tested:	RA
Checked:	NW

Norman Weimann
Norman Weimann
Laboratory Manager

Results of California Bearing Ratio Test

Client :	HEALTH INFRASTRUCTURE	Project No. :	72811.00
Project :	DUBBO BASE HOSPITAL REDEVELOPMENT	Report No. :	S12-041 F
Location :	MYALL ROAD, DUBBO	Report Date :	27/02/2012
Test Location :	CW3	Date Sampled :	16/02/2012
Depth / Layer :	0.7 - 1.0m	Date of Test:	19/02/2012
		Page:	1 of 1



Description: SILTY CLAY - Red brown silty clay

Test Method(s): AS1289.6.1.1, AS1289.2.1.1

Sampling Method(s): By Engineering Department.

Percentage > 19mm: 0.0%

LEVEL OF COMPACTION: 100% of STD MDD
MOISTURE RATIO: 97% of STD OMC

SURCHARGE: 4.5 kg
SOAKING PERIOD: 4 days

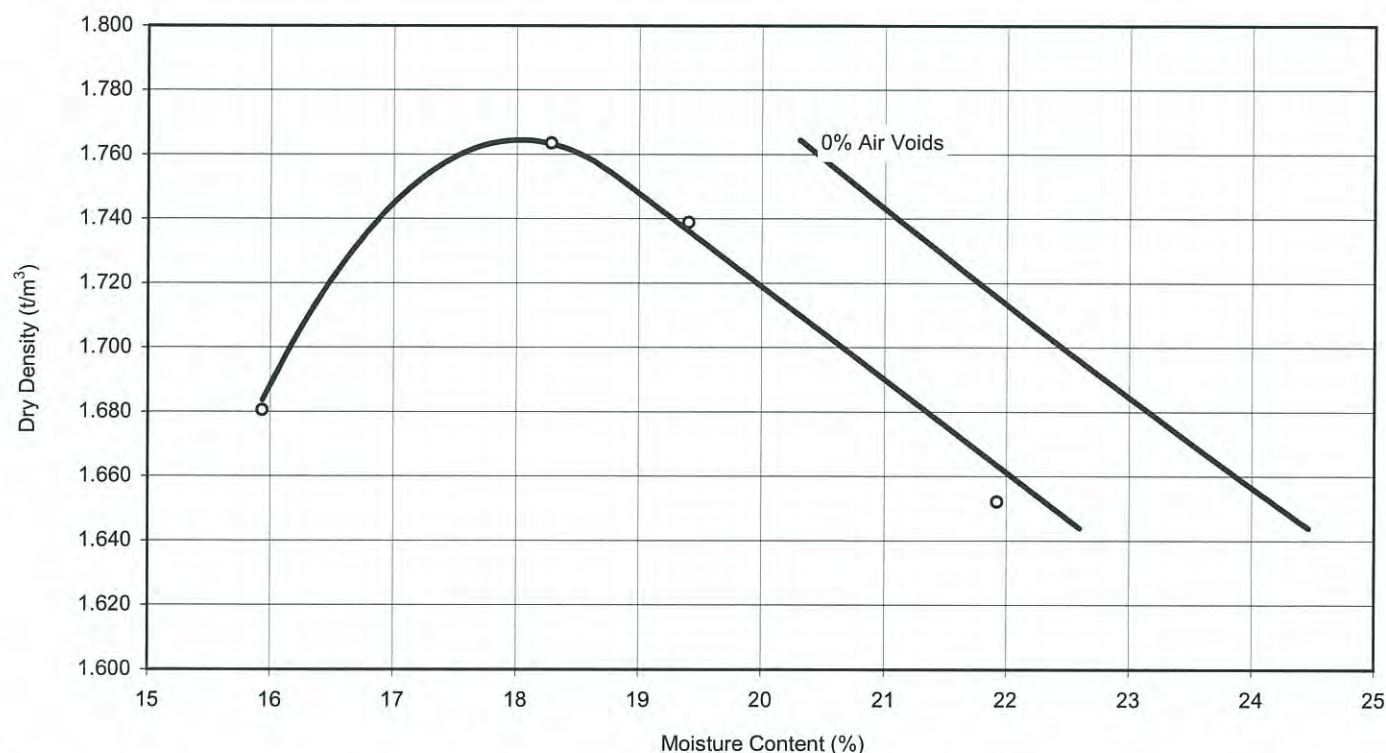
SWELL: 0.7%

CONDITION	MOISTURE CONTENT %	DRY DENSITY t/m ³
At compaction	17.5	1.77
After soaking	19.4	1.76
After test		
Top 30mm of sample	19.4	-
Remainder of sample	19.5	-
Field values	15.9	-
Standard Compaction	18.0	1.77

RESULTS		
TYPE	PENETRATION	CBR (%)
TOP	2.5 mm	10
	5.0 mm	8

Results of Compaction Test

Client :	HEALTH INFRASTRUCTURE	Project No. :	72811
Project :	DUBBO BASE HOSPITAL REDEVELOPMENT	Report No. :	S11-041 G
Location :	MYALL ROAD - DUBBO	Report Date :	20/02/2012
		Date of Test:	18/02/2012
		Page:	1 of 1



Sample Details: Location: CW 3
Depth: 0.7 - 1.0m

Particles > 19mm: 0%

Description: SILTY CLAY - Red brown silty clay

Maximum Dry Density:	1.76 t/m³
Optimum Moisture Content:	18.0 %

Remarks:

Test Methods: AS1289.5.1.1, AS1289.2.1.1

Sampling Methods: Sampled by Engineering Dept



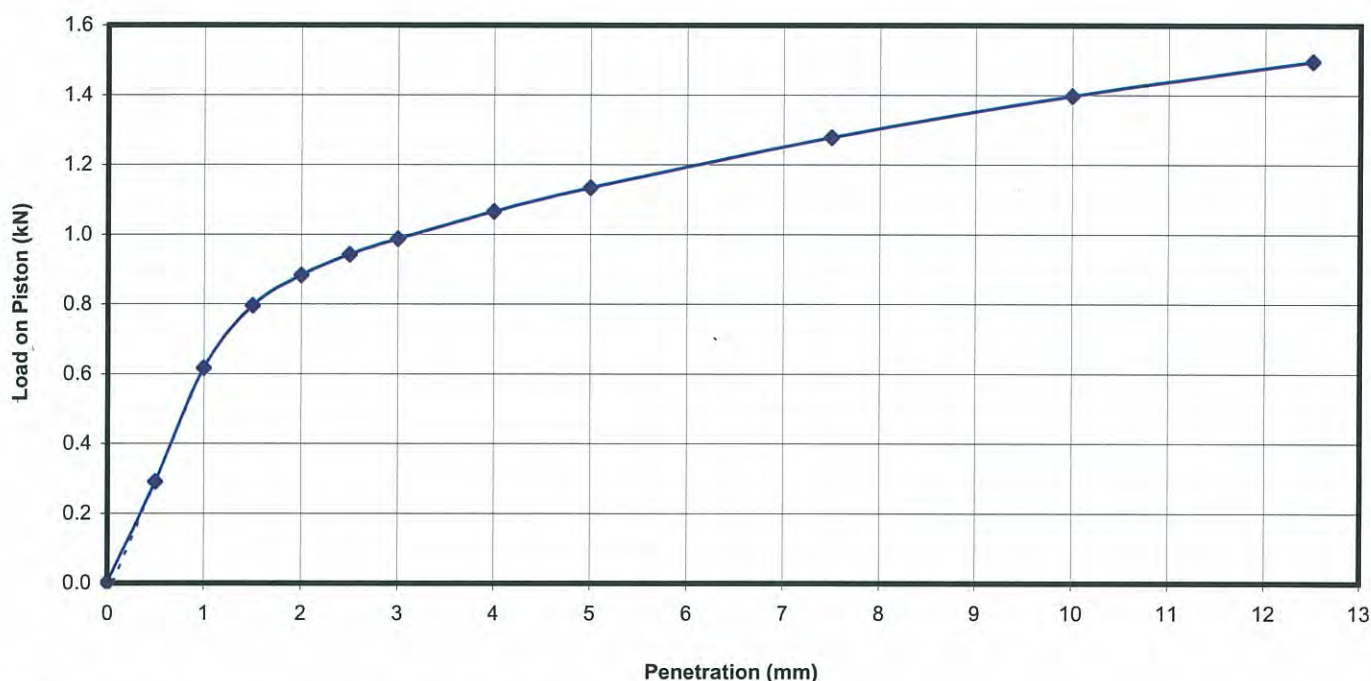
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Tested:	RA
Checked:	NW

Norman Weimann
Norman Weimann
Laboratory Manager

Results of California Bearing Ratio Test

Client :	HEALTH INFRASTRUCTURE	Project No. :	72811.00
Project :	DUBBO BASE HOSPITAL REDEVELOPMENT	Report No. :	S12-041 H
Location :	MYALL ROAD, DUBBO	Report Date :	27/02/2012
Test Location :	CW4	Date Sampled :	16/02/2012
Depth / Layer :	0.5 - 0.7m	Date of Test:	19/02/2012
		Page:	1 of 1



Description: SILTY CLAY - Red silty clay.

Test Method(s): AS1289.6.1.1, AS1289.2.1.1

Sampling Method(s): By Engineering Department.

Percentage > 19mm: 0.0%

LEVEL OF COMPACTION: 100% of STD MDD
MOISTURE RATIO: 119% of STD OMC

SURCHARGE: 4.5 kg
SOAKING PERIOD: 4 days

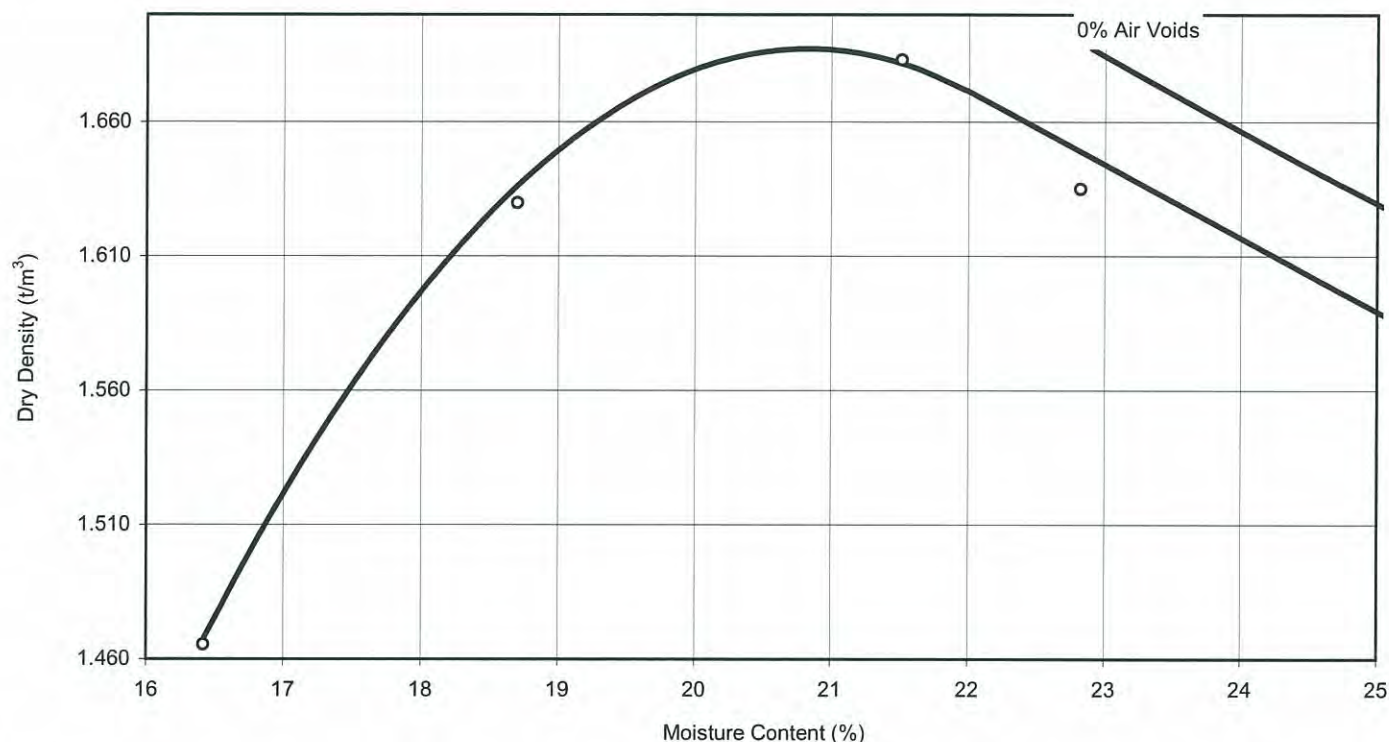
SWELL: 0.6%

CONDITION	MOISTURE CONTENT %	DRY DENSITY t/m ³
At compaction	21.3	1.68
After soaking	23.5	1.67
After test		
Top 30mm of sample	23.5	-
Remainder of sample	21.5	-
Field values	21.5	-
Standard Compaction	20.8	1.69

RESULTS		
TYPE	PENETRATION	CBR (%)
TOP	2.5 mm	7
	5.0 mm	6

Results of Compaction Test

Client :	HEALTH INFRASTRUCTURE	Project No. :	72811
Project :	DUBBO BASE HOSPITAL REDEVELOPMENT	Report No. :	S12-04 I
Location :	MYALL ROAD - DUBBO	Report Date :	20/02/2012
		Date of Test:	18/02/2012
		Page:	1 of 1



Sample Details: Location: CW 4
Depth: 0.5 - 0.7m

Particles > 19mm: 0%

Description: SILTY CLAY - Red silty clay

Maximum Dry Density:	1.69 t/m³
Optimum Moisture Content:	21.0 %

Remarks:

Test Methods: AS1289.5.1.1, AS1289.2.1.1

Sampling Methods: Sampled by Engineering Dept



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Tested:	RA
Checked:	NW

Norman Weimann
Norman Weimann
Laboratory Manager

Determination of Emerson Class Number of Soil

Client:	HEALTH INFRASTRUCTURE		Project No:	72811	
Project:	DUBBO BASE HOSPITAL REDEVELOPMENT		Report No:	S12-041 J	
Location:	MYALL ROAD, DUBBO		Report Date:	23/02/2012	
			Date Sampled:	16/02/2012	
			Date of Test:	20/02/2012	
			Page:	1 of 1	

Sample No.	Depth (m)	Description	Water Type	Water Temp	Class No.
CW3	0.7 – 1.0	SILTY CLAY – Red brown silty clay	Distilled	21°C	5
SD1	1.0	SILTY CLAY – Red brown silty clay with a trace of gravel	Distilled	21°C	3
BW1	1.0	SILTY CLAY – Brown silty clay with Some gravel	Distilled	21°C	3

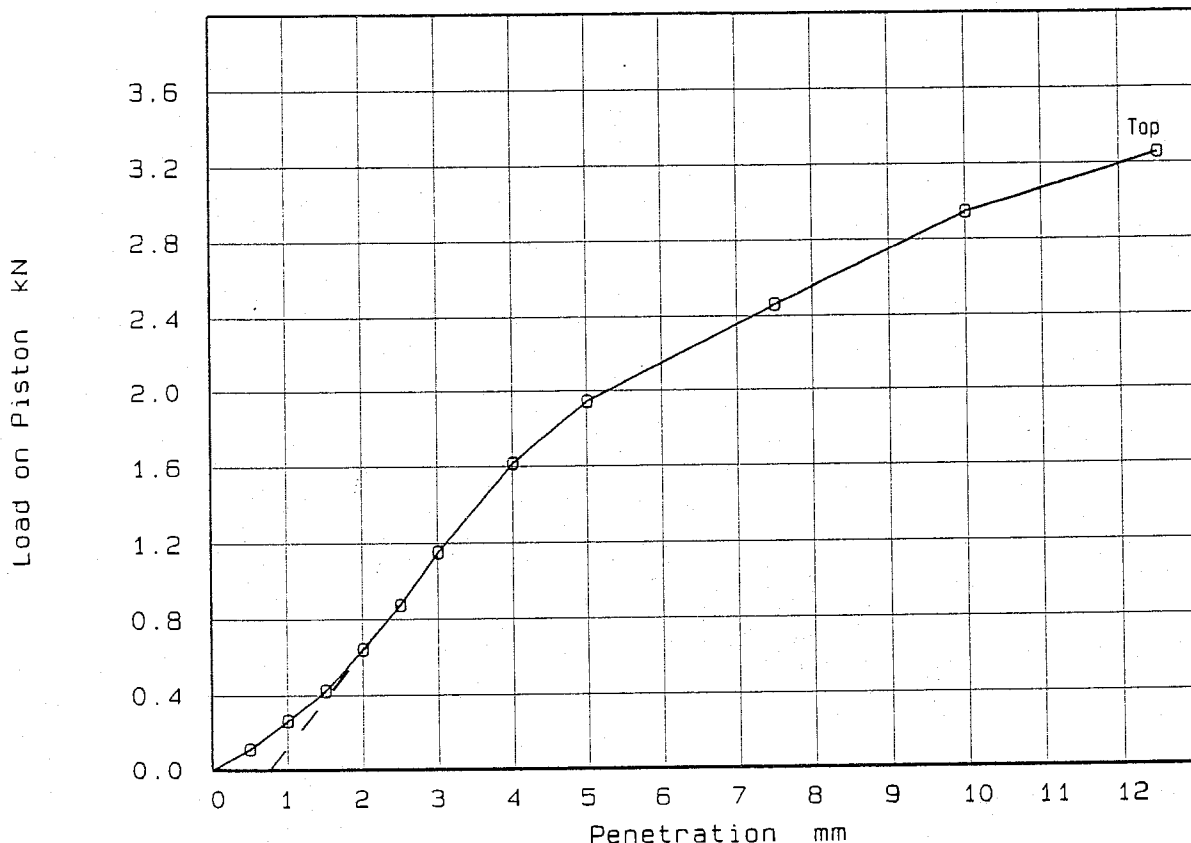
Test Methods: AS 1289 3.8.1

Sampling Methods: By Engineering Department

Remarks:

RESULTS OF CALIFORNIA BEARING RATIO TEST

CLIENT Department of Public Works & Services DATE 31/05/1996
 PROJECT Dubbo Base Hospital Redevelopment PROJECT No. 23882
 LOCATION Myall Street, Dubbo BORE DEPTH Bore 6 0.5-1.0m



DESCRIPTION SILTY SANDY CLAY - Red brown silty sandy clay.

PREPARATION Remoulded to approximately 100% Standard Maximum Dry Density and Optimum Moisture Content, then soaked for four days.

LEVEL OF COMPACTION 100 % Standard
 SURCHARGE 4.5 kg

SWELL 0.0 %

CONDITION	MOISTURE CONTENT %	DRY DENSITY t/m ³
At Compaction	13.6	1.96
After Soaking	14.3	1.96
After Test Top 30mm	15.4	-
- Remainder	15.0	-
Field Values	12.0	-
Standard Compaction	14.0	1.96

RESULTS		
Type	Penetration	CBR (%)
Top	- 2.5 mm	10
	- 5.0 mm	11

TEST METHOD AS 1289.F1.1

TESTED C.B.
 CHECKED I.K.

LABORATORY Central Coast

REPORT No CC96-152

SIGNED

I.G. Piper



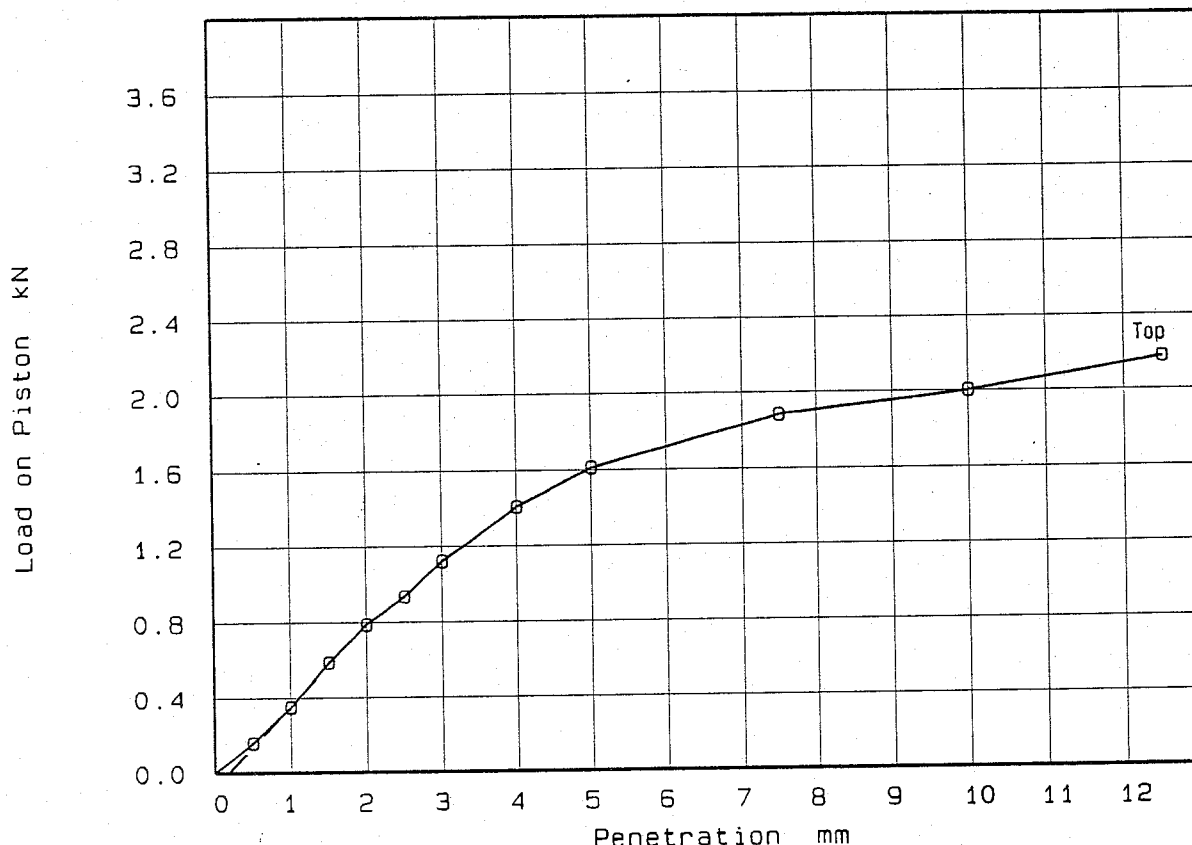
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RESULTS OF CALIFORNIA BEARING RATIO TEST

CLIENT Department of Public Works & Services DATE 31/05/1996
 PROJECT Dubbo Base Hospital Redevelopment PROJECT No. 23882
 LOCATION Myall Street, Dubbo BORE DEPTH Bore 10
 0.5-1.0m



DESCRIPTION SILTY CLAY - Red brown silty clay.

PREPARATION Remoulded to approximately 100% Standard Maximum Dry Density and Optimum Moisture Content, then soaked for four days.

LEVEL OF COMPACTION 101 % Standard
 SURCHARGE 4.5 kg

SWELL 0.2 %

CONDITION	MOISTURE CONTENT %	DRY DENSITY t/m ³
At Compaction	20.2	1.72
After Soaking	21.1	1.71
After Test Top 30mm	22.4	-
- Remainder	20.6	-
Field Values	16.9	-
Standard Compaction	21.0	1.70

RESULTS		
Type	Penetration	CBR (%)
Top	- 2.5 mm	8
	- 5.0 mm	8

TEST METHOD AS 1289.F1.1

TESTED C.B.
 CHECKED I.K.

LABORATORY Central Coast

REPORT No CC96-151

SIGNED

I.G. Piper



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RESULTS OF MOISTURE CONTENT, PLASTICITY AND LINEAR SHRINKAGE TESTS

CLIENT: Department of Public Works & Services
PROJECT: Dubbo Base Hospital Redevelopment
LOCATION: Myall Street, Dubbo

DATE: 7.6.96
PROJECT NO.: 23882
REPORT NO.: CC96-154

TEST LOCATION	DEPTH (m)	DESCRIPTION	CODE	W %	W _L %	W _p %	I _p %	* LS %
4	0.5	SILTY CLAY - red-brown silty clay.	3,5	24.7	51	20	31	15

Legend

W - Moisture content
W_L - Liquid limit
W_p - Plastic limit
I_p - Plasticity index
LS - Linear shrinkage from liquid limit condition (Mould length 125 mm)

Test Methods

Moisture Content: AS 1289.2.1.1-1992
Liquid Limit: AS 1289.3.0-1991, 3.1.1-1995, ~~3.1.2-1995~~ (delete)
Plastic Limit: AS 1289.3.2.1-1995
Plasticity Index: AS 1289.3.3.1-1995
Linear shrinkage: AS 1289.3.4.1-1995
* Specify if sample crumbed CR or curled CU

Code

Sample history for plasticity tests

1. Air dried
2. Low temperature (<50°C) oven dried
3. Oven (105°C) dried
4. Unknown

Method of preparation for plasticity tests

5. Dry sieved
6. Wet sieved
7. Natural

LABORATORY LOCATION: Central Coast (Reg. No. 2673)

TESTED: IK

CHECKED: MVH

SIGNED: I.G. PIPER



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Form No. A.3.1.1.2
Date of Issue: 10.4.1995

RESULTS OF INSTABILITY INDEX DETERMINATION

CLIENT: Department of Public Works & Services
PROJECT: Dubbo Base Hospital Redevelopment
LOCATION: Myall Street, Dubbo

DATE: 31-05-1996
PROJECT No: 23882
LOC No: Bore 9
DEPTH: 0.8-1.2m

Description: SILTY SANDY CLAY - Red brown silty sandy clay.

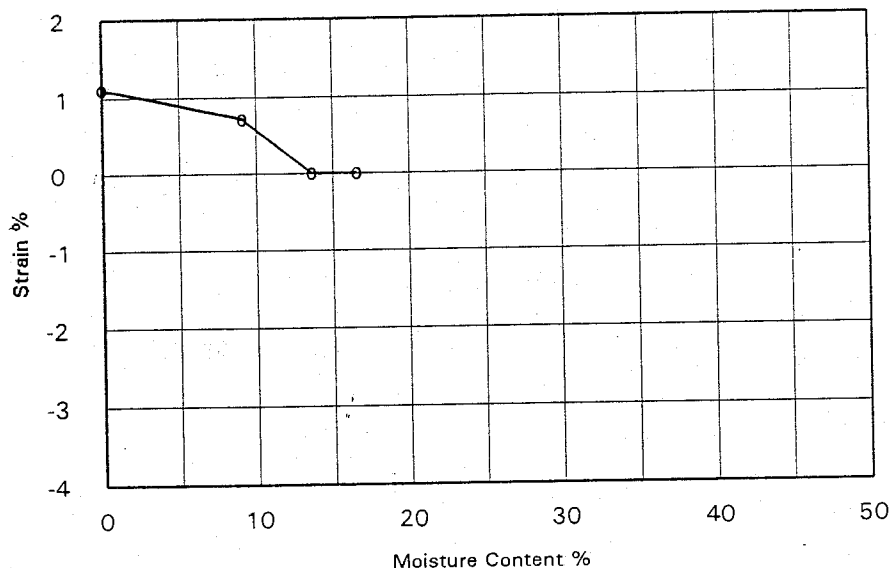
Initial Moisture Content: 13.7 %

CORE SHRINKAGE TEST

Air dried moisture content 9.1 %
Shrinkage - air dried 0.7 %
Shrinkage - oven dried 1.1 %

SWELL TEST

Pocket penetrometer reading
at initial moisture content 600 kPa
Pocket penetrometer reading
at final moisture content 200 kPa
Final moisture content 16.6 %
Swell under 24kPa 0.0 %



SHRINK-SWELL INDEX I_{ss} 0.6 % per Δ pF

Remarks:

Test Method: DJD 28

TESTED BY: I.K. DATE: 27-05-96
CHECKED BY: M.V.H. DATE: 31-05-96

LABORATORY: CENTRAL COAST

REPORT NO: CC96-153

I.G. PIPER



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