CBR DENSITY TEST

Five Elements Laboratories 13/42 Smith St, CAPALABA QLD 4157 - Tel: 07 3348 5533

Client:	Manjimup Shire Council
Origin of Sample:	Stockpile 1
Description of soil:	Laterite pebble gravel
Test No:	90014

Sample No.:	1
Date sampled:	8/03/2019
Date of test:	20/03/2019
Notes:	Treated with 20g/l Polychlor

Sample		
Dry density required ρd =		Kg/m3
Moisture content required w2 =		%
Mass of soil M1 =		g
Mass of water to be added =		g

Testing	
Mass of mould + compacted soil =	9948
Mass of mould = g	4956
Mass of compacted soil =	4992
Mass after stove drying	4692

Moisture content	Initial soil W1		Mixed soil W2	
Can No.	7			
Mass can + wet soil (g)	297			
Mass can + dry soil (g)	292			
Mass of moisture (g)	5		300	
Mass of container (g)	14			
Mass of dry soil (g)	278			
Moisture content (%)	1.8%		6.4%	
Bulk density (unsoaked)			2289.9	
Dry density (kg/m3)			2152.3	

Compaction	
No. of layers	5
No. of blows	25
Mass of rammer	4.5kg

Surcharge weights	
Soaking	0

After soaking mass data	
Soak duration (d)	2
Mass mould & soil	10134
Mass water absorbed	486
% water absorbed	9.74%

Swell data		
Time soaking (hrs)	Swell gauge reading (mm)	% Swell
0		
24		
48		
72		
96		
120		
144		

Dry density of soaked soil	
ρds = ρd/(1-(Ax/1000Vm))	
Where:	
ρd = initial dry density	
A = area of the mold	
x = increase in sample height	
Vm = volume of mould in cm3	
ρds =	

Dose rate (g/m3)	1,978

Operator	Date	Signed
Frank Dyrssen	27/3/19	

Notes: Sample was stove dried prior to soaking

CBR PENETRATION TEST

Five Elements Laboratories 13/42 Smith St, CAPALABA QLD 4157 - Tel: 07 3348 5533

Job:	Manjimup Shire Council
Origin of Sample:	Stockpile 1
Description of soil:	Laterite pebble gravel
Load ring:	50kN
Surcharge weight during soaking:	0

Test No.:	130014
CBR density test No.	90014
Date of test:	25/03/2019
Notes:	48h soak

Penetration test			
Penetration of plunger (mm)	Load ring deflection (mm)	Force (kN)	CBR
0.0	0.000	0.0	0.0
0.5	0.125		
1.0	0.200		
1.5	0.240		
2.0	0.270		
2.5	0.290		
3.0	0.310		
4.0	0.360		
5.0	0.400		
6.0	0.425		
7.0	0.450		
8.0	0.470	13.5	54.0
9.0			
10.0			
11.0			
12.0			
13.0			

Moisture content		
	CBR Sample	
Can No.		
Mass can + wet soil (g)		
Mass can + dry soil (g)		
Mass of moisture (g)		
Mass of container (g)		
Mass of dry soil (g)		
Moisture content (%)		

Accepted CBR
54

Operator	Date	Signed
Frank Dyrssen	27/3/19	

Notes: Treated with 20g/litre of Polychlor

CBR DENSITY TEST

Five Elements Laboratories 13/42 Smith St, CAPALABA QLD 4157 - Tel: 07 3348 5533

Client:	Manjimup Shire Council
Origin of Sample:	Stockpile 1
Description of soil:	Laterite pebble gravel
Test No:	90013

Sample No.:	1
Date sampled:	8/03/2019
Date of test:	20/03/2019
Notes:	Control - No treatment

Sample		
Dry density required ρd =		Kg/m3
Moisture content required w2 =		%
Mass of soil M1 =		g
Mass of water to be added =		g

Testing	
Mass of mould + compacted soil =	9803
Mass of mould = g	4825
Mass of compacted soil =	4978
Mass after stove drying	4635

Moisture content	Initial soil W1		Mixed soil W2	
Can No.	7			
Mass can + wet soil (g)	297			
Mass can + dry soil (g)	292			
Mass of moisture (g)	5.00		343	
Mass of container (g)	14			
Mass of dry soil (g)	278			
Moisture content (%)	1.8%		7.4%	
Bulk density (unsoaked)			2283.5	
Dry density (kg/m3)			2126.1	

Compaction	
No. of layers	5
No. of blows	25
Mass of rammer	4.5kg

Surcharge weights	
Soaking	0

After soaking mass data	
Soak duration (d)	2
Mass mould & soil	9903
Mass water absorbed	443
% water absorbed	8.90%

Swell data		
Time soaking (hrs)	Swell gauge reading (mm)	% Swell
0		
24		
48		
72		
96		
120		
144		

Dry density of soaked soil	
ρds = ρd/(1-(Ax/1000Vm))	
Where:	
ρd = initial dry density	
A = area of the mold	
x = increase in sample height	
Vm = volume of mould in cm3	
ρds =	

Dose rate (g/m3)	0

Operator	Date	Signed
Frank Dyrssen	27/3/19	

Notes: Sample was stove dried prior to soaking

CBR PENETRATION TEST

Five Elements Laboratories 13/42 Smith St, CAPALABA QLD 4157 - Tel: 07 3348 5533

Job:	Manjimup Shire Council
Origin of Sample:	Stockpile 1
Description of soil:	Laterite pebble gravel
Load ring:	50kN
Surcharge weight during soaking:	0

Test No.:	130013
CBR density test No.	90013
Date of test:	25/03/2019
Notes:	48h soak

Penetration test			
Penetration of plunger (mm)	Load ring deflection (mm)	Force (kN)	CBR
0.0	0.000	0.0	0.0
0.5	0.005		
1.0	0.010		
1.5	0.015		
2.0	0.020		
2.5	0.020		
3.0	0.025		
4.0	0.040		
5.0	0.055		
6.0	0.065		
7.0	0.075		
8.0	0.083	2.5	10.0
9.0			
10.0			
11.0			
12.0			
13.0			

Moisture content		
	CBR Sample	
Can No.		
Mass can + wet soil (g)		
Mass can + dry soil (g)		
Mass of moisture (g)		
Mass of container (g)		
Mass of dry soil (g)		
Moisture content (%)		

Accepted CBR
10

Operator	Date	Signed
Frank Dyrssen	27/3/19	

Notes: Control - No treatment