Project Name: **Improving Soil Survey Field Measurement and Interpretation. LWRRDC Project No. 90/R16**
Project Code: **Morphology** **Site ID:** **CP325** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	N.J. McKenzie	**Locality:**	
Date Desc.:	10/12/92	**Elevation:**	1075 metres
Map Ref.:	Sheet No. : 8724-4-N 1:25000	**Rainfall:**	No Data
Northing/Long.:	5955400 AMG zone: 55	**Runoff:**	Moderately rapid
Easting/Lat.:	697700 Datum: AGD66	**Drainage:**	Imperfectly drained

Geology

ExposureType:	Soil pit	**Conf. Sub. is Parent. Mat.:**	No Data
Geol. Ref.:	No Data	**Substrate Material:**	Soil pit, 0.6 m deep,Slightly porous, Basalt

Land Form

Rel/Slope Class:	Undulating rises 9-30m 3-10%	**Pattern Type:**	Rises
Morph. Type:	Mid-slope	**Relief:**	15 metres
Elem. Type:	Hillslope	**Slope Category:**	Gently inclined
Slope:	5 %	**Aspect:**	320 degrees

Surface Soil Condition (dry): Firm

Erosion:

Soil Classification

Australian Soil Classification:
Black Ferrosol
ASC Confidence:
No analytical data are available but confidence is fair.

Mapping Unit: N/A
Principal Profile Form: Gn4.52
Great Soil Group: N/A

Site Disturbance: Complete clearing. Pasture, native or improved, but never cultivated

Vegetation: Low Strata - Tussock grass, 0.26-0.5m, Closed or dense. *Species includes - None recorded
Tall Strata - Tree, 12.01-20m, Isolated plants. *Species includes - Eucalyptus pauciflora

Surface Coarse Fragments: 0-2%, coarse gravelly, 20-60mm, rounded platy, Basalt

Profile Morphology

A11	0 - 0.05 m	Dark reddish brown (5YR3/2-Moist); ; Silty clay loam; Weak grade of structure, 20-50 mm, Subangular blocky; Moderate grade of structure, 2-5 mm, Granular; Rough-ped fabric; Moist; Field pH 6 (Raupach); Many, fine (1-2mm) roots; Clear, Smooth change to -
A12	0.05 - 0.1 m	Dark reddish brown (5YR3/2-Moist); ; Silty clay loam; Weak grade of structure, 20-50 mm, Subangular blocky; Moderate grade of structure, 2-5 mm, Granular; Rough-ped fabric; Moist; 0-2%, coarse gravelly, 20-60mm, rounded platy, stratified, Basalt, coarse fragments; Field pH 6 (Raupach); Common, fine (1-2mm) roots; Diffuse, Smooth change to -
A3	0.1 - 0.22 m	Dark reddish brown (5YR3/2-Moist); ; Light clay; Weak grade of structure, 20-50 mm, Subangular blocky; Moderate grade of structure, 2-5 mm, Granular; Rough-ped fabric; Moist; 0-2%, medium gravelly, 6-20mm, rounded platy, undisturbed, Basalt, coarse fragments; Field pH 6.5 (Raupach); Common, very fine (0-1mm) roots; Gradual, Smooth change to -
B1	0.22 - 0.33 m	Dark brown (7.5YR3/2-Moist); ; Medium clay; Weak grade of structure, 10-20 mm, Polyhedral; Moderate grade of structure, 2-5 mm, Granular; Rough-ped fabric; Moist; 0-2%, medium gravelly, 6-20mm, rounded, undisturbed, Basalt, coarse fragments; Field pH 6.5 (Raupach); Common, very fine (0-1mm) roots; Gradual, Smooth change to -
B21	0.33 - 0.45 m	Brown (7.5YR4/2-Moist); , 2.5YR46, 20-50% , 15-30mm, Distinct; Medium heavy clay; Moderate grade of structure, 10-20 mm, Polyhedral; Rough-ped fabric; Wet; 2-10%, medium gravelly, 6-20mm, rounded, undisturbed, Basalt, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, faint; Field pH 6.5 (Raupach); Few, very fine (0-1mm) roots; Diffuse, Smooth change to -
B22	0.45 - 0.6 m	Brown (7.5YR4/2-Moist); , 2.5YR46, 20-50% , 15-30mm, Distinct; , 7.5YR44, 20-50% , 15-30mm, Distinct; Medium heavy clay; Moderate grade of structure, 10-20 mm, Polyhedral; Rough-ped fabric; Wet; 10-20%, medium gravelly, 6-20mm, rounded, undisturbed, Basalt, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, faint; Field pH 7 (Raupach); Few, very fine (0-1mm) roots; Clear, Smooth change to -
C	0.6 - 1 m	;

Morphological Notes

C Weathered fabric is 'ash-like' although it may be advanced weathering of basalt.

Observation Notes

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Difficult to assess whether concretions are present - many soft weathered basaltic gravels in B - produce mottles of redness. Basalt outcrops on both sides of the pit.

Site Notes

Yandra, 7km West of Nimmitabel (Morph 240

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Laboratory Test Results:

Depth	pH	1:5 EC	Exchangeable Cations Ca	Mg	K	Na	Exchangeable Acidity	CEC	ECEC	ESP
m		dS/m				Cmol (+)/kg				%
0 - 0.05	5.51A	0.55A	22.2B	10.7	1.1	0.08		39.6A		0.20
0.05 - 0.1	6.02A	0.08A	15.9B	10	0.58	0.2		32.2A		0.62
0 - 0.2										
0 - 0.2										
0.1 - 0.22	6.02A	0.06A	15B	10.5	0.58	0.24		30.2A		0.79
0.22 - 0.33	6.34A	0.04A	13B	11.6	0.4	0.28		30.1A		0.93
0.33 - 0.45	6.81A	0.03A	13.4B	15.8	0.18	0.63		32.8A		1.92
0.35 - 0.55										
0.35 - 0.55										
0.45 - 0.6	7.06A	0.04A	10.5B	11.2	0.1	0.88		33.6A		2.62
0.6 - 0.8	7.73A	0.04A	12.1B	14	0.02	1.1		31.2A		3.53

Depth	CaCO3	Organic C	Avail. P	Total P	Total N	Total K	Bulk Density	Particle Size Analysis GV	CS	FS	Silt	Clay
m	%	%	mg/kg	%	%	%	Mg/m3			%		
0 - 0.05		10.48B						0				
0.05 - 0.1		4.25B						3				
0 - 0.2							1.06					
							1.06					
							1.02					
							1.05					
0 - 0.2							1.06					
							1.06					
							1.02					
							1.05					
0.1 - 0.22		3.24B					1.11	4				
0.22 - 0.33		2.15B						3				
0.33 - 0.45		1.41B					1.06	0				
0.35 - 0.55							1.14					
							1.17					
							1.28					
							1.14					
0.35 - 0.55							1.14					
							1.17					
							1.28					
							1.14					
0.45 - 0.6		1.14B						0				
0.6 - 0.8	0.07B	0.03B						0				

Depth	COLE	Gravimetric/Volumetric Water Contents Sat.	0.05 Bar	0.1 Bar	0.5 Bar	1 Bar	5 Bar	15 Bar	K sat	K unsat
m					g/g - m3/m3				mm/h	mm/h
0 - 0.05										
0.05 - 0.1										
0 - 0.2		0.58E	0.52E	0.48E	0.41D		0.33F	0.29F	140.9D	16.3A
		0.57E	0.51E	0.47E	0.41D		0.29F	0.31F		
		0.5E	0.44E	0.4E	0.34D					
		0.53E	0.46E	0.43E	0.37D					

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0 - 0.2		0.58E	0.52E	0.48E	0.41D	0.33F	0.29F	140.9D	16.3A
		0.57E	0.51E	0.47E	0.41D	0.29F	0.31F		
		0.5E	0.44E	0.4E	0.34D				
		0.53E	0.46E	0.43E	0.37D				
0.1 - 0.22	0.042B								
0.22 - 0.33									
0.33 - 0.45	0.058B								
0.35 - 0.55		0.52E	0.47E	0.45E	0.43D	0.4F	0.34F	1666D	3A
		0.53E	0.47E	0.46E	0.43D	0.43F	0.39F		
		0.5E	0.46E	0.44E	0.4D				
		0.56E	0.51E	0.49E	0.46D				
0.35 - 0.55		0.52E	0.47E	0.45E	0.43D	0.4F	0.34F	1666D	3A
		0.53E	0.47E	0.46E	0.43D	0.43F	0.39F		
		0.5E	0.46E	0.44E	0.4D				
		0.56E	0.51E	0.49E	0.46D				
0.45 - 0.6									
0.6 - 0.8									

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Laboratory Analyses Completed for this profile

15A2_CA	Exchangeable bases (Ca2+,Mg2+,Na+,K+) - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_CEC	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_K	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_MG	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
15A2_NA	Exchangeable bases- 1M ammonium chloride at pH 7.0, pretreatment for soluble salts
19B1	Carbonates - manometric
3A1	EC of 1:5 soil/water extract
4A1	pH of 1:5 soil/water suspension
5A1	Chloride - 1:5 soil/water extract, potentiometric titration
6B2	Total organic carbon - high frequency induction furnace, volumetric
P10_GRAV	Gravel (%)
P10_S_0.20	0.20 micron (cumulative %) - Sedigraph
P10_S_0.48	0.48 micron (cumulative %) - Sedigraph
P10_S_1	1 micron (cumulative %) - Sedigraph
P10_S_1000	1000 micron (cumulative %) - Sedigraph
P10_S_125	125 micron (cumulative %) - Sedigraph
P10_S_15.6	15.6 micron (cumulative %) - Sedigraph
P10_S_2	2 micron (cumulative %) - Sedigraph
P10_S_20	20 micron (cumulative %) - Sedigraph
P10_S_2000	2000 micron (cumulative %) - Sedigraph
P10_S_250	250 micron (cumlative %) - Sedigraph
P10_S_3.9	3.9 micron (cumulative %) - Sedigraph
P10_S_31.2	31.2 micron (cumulative %) - Sedigraph
P10_S_500	500 micron (cumulative %) - Sedigraph
P10_S_53	53 micron (cumulative %) - Sedigraph
P10_S_63	63 micron (cumulative %) - Sedigraph
P10_S_7.8	7.8 micron (cumulative %) - Sedigraph
P3A1	Bulk density - g/cm3
P3B2VL_15	15 BAR Moisture m3/m3 - Volumetric using disturbed sample on pressure plate
P3B2VL_5	5 BAR Moisture m3/m3 - Volumetric using disturbed sample on pressure plate
P3B3VLb001	0.01 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb003	0.03 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb005	0.05 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb01	0.1 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLb05	0.5 BAR Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P3B3VLbSAT	Saturated Moisture m3/m3 - Volumetric using undisturbed 73mm diameter and 75mm height core on suction plate taken from center of large core (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P4_50_McK	Unsaturated Hydraulic Conductivity - 50mm potential (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P4_sat_McK	Saturated Hydraulic Conductivity (CSIRO Div of Soil, DR 125, McKenzie and Jacquier, 1996)
P5_LS_MOD	Modified linear shrinkage (McKenzie, Jacquier and Ringrose-Voase, AJSR, 1994, 32, 931-8)