Project Name: **Improving Soil Survey Field Measurement and Interpretation. LWRRDC Project No. 90/R16**
Project Code: **Morphology** **Site ID:** **CP328** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	N.J. McKenzie	**Locality:**	
Date Desc.:	31/03/93	**Elevation:**	1065 metres
Map Ref.:	Sheet No. : 9236-IV-S 1:25000	**Rainfall:**	800
Northing/Long.:	6610600 AMG zone: 56	**Runoff:**	Moderately rapid
Easting/Lat.:	362300 Datum: AGD66	**Drainage:**	Imperfectly drained

Geology

ExposureType:	Soil pit	**Conf. Sub. is Parent. Mat.:**	No Data
Geol. Ref.:	No Data	**Substrate Material:**	No Data

Land Form

Rel/Slope Class:	Undulating low hills 30-90m 3-10%	**Pattern Type:**	Low hills
Morph. Type:	Lower-slope	**Relief:**	40 metres
Elem. Type:	Hillslope	**Slope Category:**	No Data
Slope:	7 %	**Aspect:**	330 degrees

Surface Soil Condition (dry): Hardsetting

Erosion:

Soil Classification

Australian Soil Classification: Eutrophic Brown Chromosol
ASC Confidence: No analytical data are available but confidence is fair.

Mapping Unit: N/A
Principal Profile Form: Dy3.12
Great Soil Group: N/A

Site Disturbance: Complete clearing. Pasture, native or improved, cultivated at some stage

Vegetation: Low Strata - Tussock grass, <0.25m, Very sparse. *Species includes - None recorded

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

A11	0 - 0.08 m	Very dark greyish brown (10YR3/2-Moist); ; Sandy clay loam; Weak grade of structure, 5-10 mm, Polyhedral; Earthy fabric; Dry; Weak consistence; 0-2%, fine gravelly, 2-6mm, subangular, Basalt, coarse fragments; Field pH 6.5 (Raupach); Abundant, very fine (0-1mm) roots; Clear, Smooth change to -
A12	0.08 - 0.2 m	Very dark greyish brown (10YR3/2-Moist); ; Sandy clay loam; Weak grade of structure, 5-10 mm, Polyhedral; Earthy fabric; Dry; Firm consistence; 0-2%, fine gravelly, 2-6mm, subangular, Basalt, coarse fragments; Few (2 - 10 %), Ferromanganiferous, Medium (2 -6 mm), Concretions; Field pH 6.5 (Raupach); Many, very fine (0-1mm) roots; Abrupt, Smooth change to
A2	0.2 - 0.28 m	Brown (10YR5/3-Moist); Light brownish grey (10YR6/2-Dry); ; Clay loam; Massive grade of structure; Earthy fabric; Dry; Firm consistence; Many (20 - 50 %), Ferromanganiferous, Medium (2 -6 mm), Concretions; Field pH 7 (Raupach); Many, very fine (0-1mm) roots; Sharp, Wavy change to -
B21	0.28 - 0.5 m	Brown (10YR5/3-Moist); Mottles, 5YR46, 10-20% , 0-5mm, Distinct; , 7.5YR46, 10-20% , 0-5mm, Distinct; Medium heavy clay; Strong grade of structure, 50-100 mm, Prismatic; Smooth-ped fabric; Moderately moist; Very strong consistence; Few (2 - 10 %), Ferromanganiferous, Medium (2 -6 mm), Concretions; Field pH 7 (Raupach); Many, very fine (0-1mm) roots; Diffuse, Smooth change to -
B22	0.5 - 0.75 m	Brown (10YR5/3-Moist); Mottles, 10YR51, 10-20% , 5-15mm, Distinct; , 5YR46, 10-20% , 5-15mm, Distinct; Medium heavy clay; Strong grade of structure, 50-100 mm, Prismatic; Smooth-ped fabric; Moderately moist; Very strong consistence; Few (2 - 10 %), Ferromanganiferous, Medium (2 -6 mm), Concretions; Field pH 7 (Raupach); Many, very fine (0-1mm) roots; Diffuse, Smooth change to -
B23	0.75 - 1 m	Greyish brown (10YR5/2-Moist); Mottles, 10YR54, 20-50% , 5-15mm, Distinct; Medium heavy clay; Moderate grade of structure, 20-50 mm, Prismatic; Smooth-ped fabric; Moderately moist; Very strong consistence; Few (2 - 10 %), Ferromanganiferous, Medium (2 -6 mm), Concretions; Field pH 7 (Raupach); Common, very fine (0-1mm) roots; Diffuse, Smooth change to -
B31	1 - 1.3 m	Dark yellowish brown (10YR4/4-Moist); Mottles, 10YR51, 20-50% , 5-15mm, Distinct; Medium heavy clay; Moderate grade of structure, 20-50 mm, Prismatic; Smooth-ped fabric; Moderately moist; Very strong consistence; Common (10 - 20 %), Ferromanganiferous, Medium (2 -6 mm), Concretions; Field pH 7 (Raupach); Common, very fine (0-1mm) roots; Clear, Smooth change to

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B32	1.3 - 1.4 m	Dark yellowish brown (10YR4/4-Moist); Mottles, 10YR51, 20-50% , 5-15mm, Distinct; Massive grade of structure; Rough-ped fabric; Strong consistence; Very many (50 - 100 %), Ferromanganiferous, Medium (2 -6 mm), Concretions; Field pH 7 (Raupach); Common, very fine (0-1mm) roots;

Morphological Notes

Observation Notes

Site Notes

Chiswick (Morph 27)

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Laboratory Test Results:

Depth	pH	1:5 EC	Exchangeable Cations				Exchangeable	CEC	ECEC	ESP
			Ca	Mg	K	Na	Acidity			
m		dS/m	Cmol (+)/kg							%
0 - 0.08	5.63A	0.06A	4.9B	1.4	0.29	0.03		9.8A		0.31
0 - 0.2										
0 - 0.2										
0.08 - 0.2	5.8A	0.05A	5B	1.3	0.12	0.06		9.2A		0.65
0.2 - 0.28	6.32A	0.03A	3.8B	1.2	0.09	0.1		7.1A		1.41
0.28 - 0.5	6.37A	0.05A	8.8B	9.8	0.3	0.19		26A		0.73
0.3 - 0.5										
0.3 - 0.5										
0.5 - 0.75	6.23A	0.06A	8B	11.6	0.31	0.29		26.7A		1.09
0.5 - 0.7										
0.5 - 0.7										
0.75 - 1	7A	0.03A	6.5B	11.9	0.24	0.4		24.4A		1.64
1 - 1.3	7.04A	0.04A	6.1B	11	0.2	0.47		23A		2.04
1.3 - 1.4										

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 - 0.08		2.32B					1.25	7				
0 - 0.2							1.39					
							1.33					
							1.34					
							1.38					
0 - 0.2							1.39					
							1.33					
							1.34					
							1.38					
0.08 - 0.2		1.69B						15				
0.2 - 0.28		0.84B						33				
0.28 - 0.5		0.88B					1.56	0				
0.3 - 0.5							1.24					
							1.30					
							1.20					
							1.22					
0.3 - 0.5							1.24					
							1.30					
							1.20					
							1.22					
0.5 - 0.75		0.57B					1.20	0				
0.5 - 0.7												
0.5 - 0.7												
0.75 - 1		0.33B						0				
1 - 1.3		0.29B						11				
1.3 - 1.4												

Depth	COLE	Gravimetric/Volumetric Water Contents							K sat	K unsat
		Sat.	0.05 Bar	0.1 Bar	0.5 Bar	1 Bar	5 Bar	15 Bar		
m		g/g - m3/m3							mm/h	mm/h
0 - 0.08	0.008B									

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0 - 0.2		0.42E	0.37E	0.35E	0.28D	0.15F	0.13F	435.2D	117.4A
		0.43E	0.38E	0.36E	0.29D	0.15F	0.14F		
		0.39E	0.33E	0.31E	0.25D				
		0.43E	0.36E	0.33E	0.26D				
0 - 0.2		0.42E	0.37E	0.35E	0.28D	0.15F	0.13F	435.2D	117.4A
		0.43E	0.38E	0.36E	0.29D	0.15F	0.14F		
		0.39E	0.33E	0.31E	0.25D				
		0.43E	0.36E	0.33E	0.26D				
0.08 - 0.2									
0.2 - 0.28									
0.28 - 0.5	0.083B								
0.3 - 0.5		0.52E	0.5E	0.48E	0.44D	0.39F	0.36F	85.3D	0.1A
		0.48E	0.46E	0.45E	0.41D	0.37F	0.34F		
		0.52E	0.49E	0.47E	0.43D				
		0.52E	0.51E	0.49E	0.45D				
0.3 - 0.5		0.52E	0.5E	0.48E	0.44D	0.39F	0.36F	85.3D	0.1A
		0.48E	0.46E	0.45E	0.41D	0.37F	0.34F		
		0.52E	0.49E	0.47E	0.43D				
		0.52E	0.51E	0.49E	0.45D				
0.5 - 0.75	0.1B								
0.5 - 0.7						0.38F	0.35F	2.4D	0.1A
						0.45F	0.4F		
0.5 - 0.7						0.38F	0.35F	2.4D	0.1A
						0.45F	0.4F		
0.75 - 1									
1 - 1.3									
1.3 - 1.4									

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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
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)