Project Name: **Improving Soil Survey Field Measurement and Interpretation. LWRRDC Project No. 90/R16**
Project Code: **Morphology** **Site ID:** **CP324** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	N.J. McKenzie	**Locality:**	
Date Desc.:	07/12/92	**Elevation:**	975 metres
Map Ref.:	Sheet No. : 8626-11-S 1:25000	**Rainfall:**	No Data
Northing/Long.:	6016300 AMG zone: 55	**Runoff:**	Slow
Easting/Lat.:	665700 Datum: AGD66	**Drainage:**	Imperfectly drained

Geology

ExposureType:	Soil pit	**Conf. Sub. is Parent. Mat.:**	No Data
Geol. Ref.:	AL	**Substrate Material:**	Soil pit, 0.9 m deep,Porous, Alluvium

Land Form

Rel/Slope Class:	Level plain <9m <1%	**Pattern Type:**	Alluvial plain
Morph. Type:	Flat	**Relief:**	1 metres
Elem. Type:	Backplain	**Slope Category:**	Level
Slope:	1 %	**Aspect:**	No Data

Surface Soil Condition (dry): Firm

Erosion:

Soil Classification

Australian Soil Classification:
Melacic-Basic Regolithic Chernic Tenosol Medium Non-gravelly Silty Clayey Deep

Mapping Unit: N/A
Principal Profile Form: Gn2.82

ASC Confidence:
All necessary analytical data are available.

Great Soil Group: N/A

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

Vegetation: Low Strata - Tussock grass, 0.51-1m, Closed or dense. *Species includes - None recorded

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

A11	0 - 0.05 m	Very dark grey (10YR3/1-Moist); ; Silty clay loam; Moderate grade of structure, 2-5 mm, Granular; Rough-ped fabric; Moist; Weak consistence; Field pH 5.5 (Raupach); Many, fine (1-2mm) roots; Clear, Smooth change to -
A12	0.05 - 0.15 m	Very dark grey (10YR3/1-Moist); ; Silty clay loam; Moderate grade of structure, 2-5 mm, Granular; Rough-ped fabric; Moist; Weak consistence; Field pH 5.5 (Raupach); Many, fine (1-2mm) roots; Gradual, Smooth change to -
A13	0.15 - 0.25 m	Very dark grey (10YR3/1-Moist); ; Silty clay loam; Moderate grade of structure, 5-10 mm, Granular; Rough-ped fabric; Moist; Weak consistence; Field pH 6 (Raupach); Many, fine (1-2mm) roots; Gradual, Smooth change to -
A21	0.25 - 0.35 m	Very dark grey (10YR3/1-Moist); Mottles, 10YR52, 20-50% , 5-15mm, Faint; Silty clay loam; Weak grade of structure, 10-20 mm, Polyhedral; Rough-ped fabric; Moderately moist; Weak consistence; Very few (0 - 2 %), Manganiferous, , ; Field pH 6 (Raupach); Many, fine (1-2mm) roots; Gradual, Smooth change to -
A22	0.35 - 0.45 m	Dark grey (10YR4/1-Moist); Mottles, 7.5YR56, 0-2% , 5-15mm, Distinct; Light clay; Weak grade of structure, 10-20 mm, Polyhedral; Earthy fabric; Moderately moist; Weak consistence; Very few (0 - 2 %), Manganiferous, , ; Field pH 6.5 (Raupach); Common, fine (1-2mm) roots; Diffuse, Smooth change to -
B21	0.45 - 0.6 m	Dark grey (10YR4/1-Moist); Mottles, 7.5YR56, 20-50% , 5-15mm, Distinct; Light medium clay; Weak grade of structure, 20-50 mm, Polyhedral; Moderate grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Moist; Weak consistence; Very few (0 - 2 %), Ferromanganiferous, Medium (2 -6 mm), Concretions; Field pH 7 (Raupach); Common, very fine (0-1mm) roots; Diffuse, Smooth change to -
B22	0.6 - 0.8 m	Dark grey (10YR4/1-Moist); Mottles, 7.5YR56, 20-50% , 15-30mm, Prominent; Light medium clay; Weak grade of structure, 20-50 mm, Polyhedral; Moderate grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Moist; Weak consistence; Few (2 - 10 %), Ferromanganiferous, Medium (2 -6 mm), Concretions; Field pH 7 (Raupach); Common, very fine (0-1mm) roots; Clear, Smooth change to -
D1	0.8 - 1.1 m	Light brownish grey (2.5Y6/2-Moist); Mottles, 7.5YR56, 10-20% , 15-30mm, Prominent; Earthy fabric; Wet; 50-90%, coarse gravelly, 20-60mm, rounded tabular, stratified, coarse fragments; Field pH 7 (Raupach); Common, very fine (0-1mm) roots; Gradual, Smooth change to -

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D2	1.1 - 1.3 m	Light brownish grey (2.5Y6/2-Moist); ; Earthy fabric; Wet; 90-100%, coarse gravelly, 20-60mm, rounded tabular, stratified, coarse fragments; Field pH 7 (Raupach); Few, very fine (0-1mm) roots;

Morphological Notes

Observation Notes

2nd Terrace: younger terrace is more organic to depth: less differentiated. Textures may be overestimating clay - high fs/z present. Alluvial plain of the Murrumbidgee.

Site Notes

Bolaro East, Adaminaby (Morph 23)

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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	5.21A	0.14A	5.4B	3.3	0.37	0.02		13.4A		0.15
0 - 0.2										
0 - 0.2										
0.05 - 0.15	5.38A	0.08A	5.2B	3.4	0.16	0.05		12.2A		0.41
0.15 - 0.25	5.79A	0.04A	4.6B	3.4	0.12	0.08		10.2A		0.78
0.25 - 0.35	6.49A	0.02A	3.4B	3.7	0.07	0.11		8.6A		1.28
0.25 - 0.45										
0.25 - 0.45										
0.35 - 0.45	6.63A	0.02A	3.2B	4.1	0.07	0.13		7.9A		1.65
0.45 - 0.6	6.88A	0.02A	3.1B	4.9	0.08	0.12		7.8A		1.54
0.55 - 0.75										
0.55 - 0.75										
0.6 - 0.8	7.2A	0.02A	2.9B	4.6	0.1	0.13		7.9A		1.65
0.8 - 1.1	7A	0.02A	2.8B	4.5	0.11	0.15		7.8A		1.92
1.1 - 1.3										

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		4.16B						0				
0 - 0.2							1.18					
							1.16					
							1.22					
							1.30					
0 - 0.2							1.18					
							1.16					
							1.22					
							1.30					
0.05 - 0.15		2.36B					1.06	0				
0.15 - 0.25		1.33B						0				
0.25 - 0.35		0.74B						0				
0.25 - 0.45							1.57					
							1.61					
							1.59					
							1.54					
0.25 - 0.45							1.57					
							1.61					
							1.59					
							1.54					
0.35 - 0.45		0.58B					1.47	0				
0.45 - 0.6		0.47B					1.52	0				
0.55 - 0.75							1.57					
							1.58					
							1.55					
							1.54					
0.55 - 0.75							1.57					
							1.58					
							1.55					
							1.54					
0.6 - 0.8		0.34B						3				
0.8 - 1.1		0.28B						52				

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1.1 - 1.3

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 - 0.05										
0 - 0.2		0.5E	0.45E	0.43E	0.38D		0.18F	0.14F	184.2D	72.3A
		0.5E	0.45E	0.43E	0.38D		0.19F	0.16F		
		0.48E	0.45E	0.43E	0.38D					
		0.49E	0.47E	0.45E	0.39D					
0 - 0.2		0.5E	0.45E	0.43E	0.38D		0.18F	0.14F	184.2D	72.3A
		0.5E	0.45E	0.43E	0.38D		0.19F	0.16F		
		0.48E	0.45E	0.43E	0.38D					
		0.49E	0.47E	0.45E	0.39D					
0.05 - 0.15	0.025B									
0.15 - 0.25										
0.25 - 0.35										
0.25 - 0.45		0.34E	0.3E	0.28E	0.24D		0.17F	0.13F	71.9D	59.2A
		0.35E	0.31E	0.29E	0.24D		0.18F	0.12F		
		0.35E	0.31E	0.29E	0.24D					
		0.34E	0.3E	0.28E	0.23D					
0.25 - 0.45		0.34E	0.3E	0.28E	0.24D		0.17F	0.13F	71.9D	59.2A
		0.35E	0.31E	0.29E	0.24D		0.18F	0.12F		
		0.35E	0.31E	0.29E	0.24D					
		0.34E	0.3E	0.28E	0.23D					
0.35 - 0.45	0.025B									
0.45 - 0.6	0.025B									
0.55 - 0.75		0.35E	0.3E	0.28E	0.24D		0.19F	0.15F	50.3D	32.8A
		0.34E	0.29E	0.27E	0.23D		0.18F	0.15F		
		0.36E	0.3E	0.28E	0.24D					
		0.35E	0.3E	0.28E	0.24D					
0.55 - 0.75		0.35E	0.3E	0.28E	0.24D		0.19F	0.15F	50.3D	32.8A
		0.34E	0.29E	0.27E	0.23D		0.18F	0.15F		
		0.36E	0.3E	0.28E	0.24D					
		0.35E	0.3E	0.28E	0.24D					
0.6 - 0.8										
0.8 - 1.1										
1.1 - 1.3										

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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)