Project Name: **Improving Soil Survey Field Measurement and Interpretation. LWRRDC Project No. 90/R16**
Project Code: **Morphology** **Site ID:** **CP306** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	N.J. McKenzie	**Locality:**	
Date Desc.:	05/12/91	**Elevation:**	No Data
Map Ref.:	1:250000	**Rainfall:**	No Data
Northing/Long.:	147.667	**Runoff:**	No Data
Easting/Lat.:	-34.425	**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:	No Data	**Pattern Type:**	Alluvial plain
Morph. Type:	Flat	**Relief:**	No Data
Elem. Type:	Plain	**Slope Category:**	No Data
Slope:	1 %	**Aspect:**	No Data

Surface Soil Condition (dry): Hardsetting

Erosion:

Soil Classification

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

Mapping Unit: N/A
Principal Profile Form: Dr2.43
Great Soil Group: N/A

Site Disturbance: Cultivation. Rainfed

Vegetation:

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

A1	0 - 0.1 m	Reddish brown (5YR4/3-Moist); ; Sandy clay loam; Massive grade of structure; Rough-ped fabric; Dry; Very firm consistence; Field pH 6 (Raupach); ManySharp, Smooth change to -
A2	0.1 - 0.15 m	Reddish brown (5YR5/4-Moist); Light reddish brown (5YR6/4-Dry); ; Clay loam; Massive grade of structure; Rough-ped fabric; Dry; Strong consistence; Field pH 6.5 (Raupach); CommonAbrupt, Wavy change to -
B21	0.15 - 0.3 m	Reddish brown (5YR4/4-Moist); ; Medium clay; Massive grade of structure; Weak grade of structure, 200-500 mm, Columnar; Rough-ped fabric; Dry; Very strong consistence; Field pH 7 (Raupach); CommonGradual, Smooth change to -
B22	0.3 - 0.5 m	Reddish brown (5YR4/4-Moist); , 5YR43, 10-20% , 5-15mm, Distinct; Medium clay; Weak grade of structure, 20-50 mm, Angular blocky; Weak grade of structure, 200-500 mm, Columnar; Rough-ped fabric; Dry; Very strong consistence; Field pH 8.5 (Raupach); CommonGradual, Smooth change to -
B3	0.5 - 0.6 m	Reddish brown (5YR4/4-Moist); , 5YR43, 10-20% , 15-30mm, Distinct; Medium clay; Moderate grade of structure, 20-50 mm, Angular blocky; Rough-ped fabric; Dry; Strong consistence; Soil matrix is Slightly calcareous; Field pH 8 (Raupach); CommonAbrupt, Smooth change to -
2A	0.6 - 0.7 m	Red (2.5YR4/6-Moist); , 10YR54, 10-20% , 5-15mm, Distinct; Clay loam, sandy; Massive grade of structure; Rough-ped fabric; Moderately moist; Very strong consistence; Few (2 - 10 %), Ferromanganiferous, Medium (2 -6 mm), Nodules; Field pH 8.5 (Raupach); FewClear, Smooth change to -
2B21	0.7 - 1 m	Dark red (2.5YR3/6-Moist); , 5YR44, 10-20% , 5-15mm, Distinct; Medium heavy clay; Strong grade of structure, 5-10 mm, Polyhedral; Smooth-ped fabric; Moderately moist; Very firm consistence; Many cutans, >50% of ped faces or walls coated; Field pH 9 (Raupach); FewGradual, Smooth change to -
2B22	1 - 1.4 m	Reddish brown (5YR4/3-Moist); , 10YR53, 20-50% , 15-30mm, Distinct; , 2.5YR36, 20-50% , 15-30mm, Distinct; Medium heavy clay; Strong grade of structure, 5-10 mm, Polyhedral; Smooth-ped fabric; Moderately moist; Very firm consistence; Few cutans, <10% of ped faces or walls coated, distinct; Common (10 - 20 %), Manganiferous, Fine (0 - 2 mm), ; Field pH 9 (Raupach); FewClear, Smooth change to -

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2B3	1.4 - m	Brown (10YR5/3-Moist); , 5YR43, 20-50% , 30-mm, Prominent; , 2.5YR36, 20-50% , 30-mm, Prominent; Medium heavy clay; Strong grade of structure, 5-10 mm, Polyhedral; Smooth-ped fabric; Very firm consistence; Common cutans, 10-50% of ped faces or walls coated, distinct; Many (20 - 50 %), Manganiferous, Fine (0 - 2 mm), ; Field pH 9 (Raupach); Few

Morphological Notes

2B22	Segregations appear as coatings.
2B3	Segregations appear as coatings.

Observation Notes

Lucerne/barley grass pasture. At depth (>0.7m) the structure is very simlar to the 'parna' soils near Wagga. Mangans abundant and structure keeps on dividing.

Site Notes

Temora (Morph 5)

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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 - 0.1	6.61A	0.08A	4B	1.4	1.3	0.23		9.9A		2.32
0 - 0.17										
0 - 0.17										
0.1 - 0.15	6.56A	0.05A	3.6B	2.2	0.5	0.32		8.5A		3.76
0.15 - 0.3	6.58A	0.09A	5B	5.6	0.41	0.97		13.9A		6.98
0.3 - 0.5	7.8A	0.17A	4.1B	5.6	0.24	1.8		15.7A		11.46
0.3 - 0.46										
0.3 - 0.46										
0.5 - 0.6	8.62A	0.42A	3.6B	6.2	0.28	2.4		11.8A		20.34
0.6 - 0.7	9.02A	0.38A	2.1B	4.3	0.26	2.1		8.1A		25.93
0.7 - 1	8.94A	0.48A	5.6B	10.4	0.85	5.3		20.6A		25.73
0.7 - 0.86										
0.7 - 0.86										
1 - 1.4	9.06A	0.33A	4.1B	8	0.59	4.8		17.9A		26.82
1.4 -	9.19A	0.26A	4.1B	9.1	0.57	4.5		17.6A		25.57

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 - 0.1		1.66B						0				
0 - 0.17							1.57					
							1.54					
							1.57					
							1.52					
0 - 0.17							1.57					
							1.54					
							1.57					
							1.52					
0.1 - 0.15		0.77B					1.17	0				
0.15 - 0.3		0.38B						0				
0.3 - 0.5	0.33B	0.25B					1.58	0				
0.3 - 0.46							1.61					
							1.64					
							1.65					
							1.66					
0.3 - 0.46							1.61					
							1.64					
							1.65					
							1.66					
0.5 - 0.6	0.13B	0.11B						0				
0.6 - 0.7	0.2B	0.06B						0				
0.7 - 1	0.11B	0.18B					1.67	0				
0.7 - 0.86							1.47					
							1.48					
							1.54					
							1.56					
0.7 - 0.86							1.47					
							1.48					
							1.54					
							1.56					
1 - 1.4	0.08B	0.06B						0				

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1.4 -	0.13B	2.14B						0		

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 - 0.1										
0 - 0.17		0.36E	0.34E	0.31E	0.25D		0.17F	0.12F	9.7D	9.2A
		0.38E	0.36E	0.33E	0.26D		0.14F	0.11F		
		0.35E	0.34E	0.31E	0.25D					
		0.36E	0.34E	0.3E	0.25D					
0 - 0.17		0.36E	0.34E	0.31E	0.25D		0.17F	0.12F	9.7D	9.2A
		0.38E	0.36E	0.33E	0.26D		0.14F	0.11F		
		0.35E	0.34E	0.31E	0.25D					
		0.36E	0.34E	0.3E	0.25D					
0.1 - 0.15	0.021B									
0.15 - 0.3										
0.3 - 0.5	0.075B									
0.3 - 0.46		0.32E	0.3E	0.29E	0.28D		0.26F	0.23F	82.5D	2.7A
		0.36E	0.34E	0.32E	0.3D		0.27F	0.24F		
		0.33E	0.31E	0.3E	0.28D					
		0.33E	0.31E	0.3E	0.28D					
0.3 - 0.46		0.32E	0.3E	0.29E	0.28D		0.26F	0.23F	82.5D	2.7A
		0.36E	0.34E	0.32E	0.3D		0.27F	0.24F		
		0.33E	0.31E	0.3E	0.28D					
		0.33E	0.31E	0.3E	0.28D					
0.5 - 0.6										
0.6 - 0.7										
0.7 - 1	0.013B									
0.7 - 0.86		0.43E	0.42E	0.4E	0.38D		0.36F	0.33F	14.3D	3.3A
		0.44E	0.43E	0.41E	0.39D		0.36F	0.33F		
		0.4E	0.4E	0.38E	0.35D					
		0.4E	0.39E	0.38E	0.35D					
0.7 - 0.86		0.43E	0.42E	0.4E	0.38D		0.36F	0.33F	14.3D	3.3A
		0.44E	0.43E	0.41E	0.39D		0.36F	0.33F		
		0.4E	0.4E	0.38E	0.35D					
		0.4E	0.39E	0.38E	0.35D					
1 - 1.4										
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
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)