Project Name: **Improving Soil Survey Field Measurement and Interpretation. LWRRDC Project No. 90/R16**
Project Code: **Morphology** **Site ID:** **CP316** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	N.J. McKenzie	**Locality:**	
Date Desc.:	31/07/92	**Elevation:**	232 metres
Map Ref.:	Sheet No. : 9131-2-N 1:25000	**Rainfall:**	1200
Northing/Long.:	6306100 AMG zone: 56	**Runoff:**	Slow
Easting/Lat.:	342400 Datum: AGD66	**Drainage:**	Moderately well drained

Geology

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

Land Form

Rel/Slope Class:	Undulating low hills 30-90m 3-10%	**Pattern Type:**	Low hills
Morph. Type:	Mid-slope	**Relief:**	70 metres
Elem. Type:	No Data	**Slope Category:**	Gently inclined
Slope:	7 %	**Aspect:**	45 degrees

Surface Soil Condition (dry): Firm

Erosion:

Soil Classification

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

Mapping Unit: N/A
Principal Profile Form: Gn2.62
Great Soil Group: N/A

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

Vegetation: Low Strata - Sod grass, 0.26-0.5m, Closed or dense. *Species includes - None recorded

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

A11	0 - 0.1 m	Brown (10YR5/3-Moist); Very pale brown (10YR7/3-Dry); ; Sandy loam; Massive grade of structure; Earthy fabric; Moderately moist; Firm consistence; Field pH 7.5 (Raupach); Abundant, fine (1-2mm) roots; Abrupt, Smooth change to -
A3	0.1 - 0.2 m	Brown (10YR5/3-Moist); Biological mixing, 10YR66, 20-50% , 15-30mm, Distinct; Sandy loam; Massive grade of structure; Earthy fabric; Moist; Firm consistence; Field pH 7 (Raupach); Many, fine (1-2mm) roots; Abrupt, Smooth change to -
B1	0.2 - 0.35 m	Brownish yellow (10YR6/6-Moist); Biological mixing, 10YR53, 20-50% , 15-30mm, Faint; Loam; Massive grade of structure; Earthy fabric; Moist; Firm consistence; Field pH 6.5 (Raupach); Common, very fine (0-1mm) roots; Gradual, Smooth change to -
B21	0.35 - 0.5 m	Yellowish brown (10YR5/8-Moist); ; Loam; Massive grade of structure; Earthy fabric; Moist; Weak consistence; Field pH 6.5 (Raupach); Common, very fine (0-1mm) roots; Diffuse, Smooth change to -
B22	0.5 - 0.7 m	Brownish yellow (10YR6/8-Moist); Mottles, 2.5YR48, 0-2% , 15-30mm, Prominent; Loam; Massive grade of structure; Earthy fabric; Moist; Weak consistence; Field pH 6 (Raupach); Common, very fine (0-1mm) roots; Diffuse, Wavy change to -
B23	0.7 - 0.95 m	Brownish yellow (10YR6/6-Moist); Mottles, 2.5YR48, 20-50% , 15-30mm, Prominent; , 7.5YR68, 20-50% , 15-30mm, Prominent; Loam; Massive grade of structure; Earthy fabric; Moist; Firm consistence; 20-50%, medium gravelly, 6-20mm, rounded, dispersed, coarse fragments; Many (20 - 50 %), Ferruginous, Coarse (6 - 20 mm), Concretions; Field pH 6 (Raupach); Common, very fine (0-1mm) roots; Gradual, Wavy change to -
B3	0.95 - 1.15 m	Very pale brown (10YR7/4-Moist); Brownish yellow (10YR6/6-Moist); Mottles, 2.5YR48, 20-50% , 15-30mm, Distinct; , 7.5YR68, 20-50% , 15-30mm, Distinct; Sandy clay loam; Massive grade of structure; Earthy fabric; Moist; Firm consistence; 50-90%, coarse gravelly, 20-60mm, rounded, dispersed, coarse fragments; Very many (50 - 100 %), Ferruginous, Very coarse (20 - 60 mm), Concretions; Field pH 6 (Raupach); Common, very fine (0-1mm) roots; Gradual, Wavy change to -

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C1	1.15 - 1.4 m	Very pale brown (10YR7/4-Moist); Brownish yellow (10YR6/6-Moist); Mottles, 7.5YR68, 20-50% , 15-30mm, Distinct; Clay loam, sandy; Massive grade of structure; Rough-ped fabric; Moist; Firm consistence; 50-90%, coarse gravelly, 20-60mm, subrounded, dispersed, coarse fragments; Very many (50 - 100 %), Ferruginous, Very coarse (20 - 60 mm), Concretions; Field pH 6 (Raupach); Common, very fine (0-1mm) roots; Gradual, Wavy change to -
C2	1.4 - 1.6 m	White (10YR8/2-Moist); Mottles, 10YR73, 20-50% , 5-15mm, Faint; Clay loam, sandy; Weak grade of structure; Rough-ped fabric; Moist; Firm consistence; 50-90%, cobbly, 60-200mm, subrounded, dispersed, coarse fragments; Field pH 6 (Raupach); Common, very fine (0-1mm) roots;

Morphological Notes

Observation Notes

Gradational earth developed in transportational materials and overlying ferricrete and 'pallid' clayey material. Presumably regular groundwater at >0.95m (see matrix colours: less chroma). Pit is at lower side of Rep 4.

Site Notes

Somersby Horticultural Research Centre. (Morph 15)

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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	7.24A	0.04A	4.6B	2.1	0.12	0.01		5.1A		0.20
0 - 0.2										
0 - 0.2										
0.1 - 0.2	7.1A	0.04A	4.6B	2.1	0.11	0.03		5.3A		0.57
0.2 - 0.35	5.74A	0.03A	0.68B	0.66	0.07	0.04		2.5A		1.60
0.35 - 0.5	4.96A	0.03A	0.32B	0.37	0.03	0.03		1.9A		1.58
0.35 - 0.55										
0.35 - 0.55										
0.5 - 0.7	4.99A	0.03A	0.38B	0.45	0.03	0.02		1.8A		1.11
0.7 - 0.95	4.98A	0.03A	0.3B	0.43	0.01			1.8A		
0.75 - 0.95										
0.75 - 0.95										
0.95 - 1.15	4.89A	0.02A	0.34B	0.51	0.02	0.01		2.3A		0.43
1.15 - 1.4	4.89A	0.03A	0.3B	0.55	0.01	0.03		2.7A		1.11
1.4 - 1.6	4.74A	0.03A	0.18B	0.47	0.01	0.02		3.9A		0.51

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		1.54B						4				
0 - 0.2							1.26					
							1.33					
							1.34					
							1.40					
0 - 0.2							1.26					
							1.33					
							1.34					
							1.40					
0.1 - 0.2		1.27B					1.19	4				
0.2 - 0.35		0.61B						0				
0.35 - 0.5		0.29B					1.78	0				
0.35 - 0.55							1.61					
							1.64					
							1.64					
							1.61					
0.35 - 0.55							1.61					
							1.64					
							1.64					
							1.61					
0.5 - 0.7		0.18B						1				
0.7 - 0.95		0.2B					1.49	28				
0.75 - 0.95							1.45					
							1.46					
							1.57					
							1.54					
0.75 - 0.95							1.45					
							1.46					
							1.57					
							1.54					
0.95 - 1.15		0.15B						38				
1.15 - 1.4		0.15B						76				

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1.4 - 1.6		0.04B						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 - 0.1										
0 - 0.2		0.37E	0.26E	0.22E	0.16D		0.09F	0.08F	55.3D	20.6A
		0.39E	0.27E	0.23E	0.17D		0.11F	0.09F		
		0.41E	0.29E	0.25E	0.18D					
		0.42E	0.31E	0.27E	0.2D					
0 - 0.2		0.37E	0.26E	0.22E	0.16D		0.09F	0.08F	55.3D	20.6A
		0.39E	0.27E	0.23E	0.17D		0.11F	0.09F		
		0.41E	0.29E	0.25E	0.18D					
		0.42E	0.31E	0.27E	0.2D					
0.1 - 0.2	0B									
0.2 - 0.35										
0.35 - 0.5	0.004B									
0.35 - 0.55		0.35E	0.3E	0.27E	0.18D		0.11F	0.1F	18D	11.1A
		0.37E	0.3E	0.27E	0.18D		0.12F	0.1F		
		0.37E	0.31E	0.27E	0.18D					
		0.36E	0.3E	0.27E	0.18D					
0.35 - 0.55		0.35E	0.3E	0.27E	0.18D		0.11F	0.1F	18D	11.1A
		0.37E	0.3E	0.27E	0.18D		0.12F	0.1F		
		0.37E	0.31E	0.27E	0.18D					
		0.36E	0.3E	0.27E	0.18D					
0.5 - 0.7										
0.7 - 0.95	0.008B									
0.75 - 0.95		0.4E	0.3E	0.27E	0.19D		0.13F	0.12F	76.5D	41.2A
		0.37E	0.31E	0.27E	0.19D		0.13F	0.11F		
		0.37E	0.31E	0.28E	0.19D					
		0.37E	0.31E	0.28E	0.19D					
0.75 - 0.95		0.4E	0.3E	0.27E	0.19D		0.13F	0.12F	76.5D	41.2A
		0.37E	0.31E	0.27E	0.19D		0.13F	0.11F		
		0.37E	0.31E	0.28E	0.19D					
		0.37E	0.31E	0.28E	0.19D					
0.95 - 1.15										
1.15 - 1.4										
1.4 - 1.6										

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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
6B2	Total organic carbon - high frequency induction furnace, volumetric
P10_GRAV	Gravel (%)
P10_S_0.20	0.20 micron (cumulative %) - Sedigraph
P10_S_1000	1000 micron (cumulative %) - Sedigraph
P10_S_125	125 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_31.2	31.2 micron (cumulative %) - Sedigraph
P10_S_500	500 micron (cumulative %) - Sedigraph
P10_S_63	63 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)