Project Name: **Improving Soil Survey Field Measurement and Interpretation. LWRRDC Project No. 90/R16**
Project Code: **Morphology** **Site ID:** **CP315** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	N.J. McKenzie	**Locality:**	
Date Desc.:	28/07/92	**Elevation:**	No Data
Map Ref.:	1:250000	**Rainfall:**	1200
Northing/Long.:	151.217	**Runoff:**	Very slow
Easting/Lat.:	-33.183	**Drainage:**	Rapidly 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:**	No Data
Morph. Type:	Mid-slope	**Relief:**	No Data
Elem. Type:	No Data	**Slope Category:**	Gently inclined
Slope:	5 %	**Aspect:**	No Data

Surface Soil Condition (dry): Soft

Erosion:

Soil Classification

Australian Soil Classification:
Acidic Dystrophic Brown Kandosol Medium Non-gravelly Loamy Clay-loamy Deep

Mapping Unit: N/A
Principal Profile Form: Gn2.22

ASC Confidence:
All necessary analytical data are available.

Great Soil Group: N/A

Site Disturbance: No effective disturbance. Natural

Vegetation: Low Strata - Tussock grass, 0.51-1m, Sparse. *Species includes - None recorded
Mid Strata - Tree, 6.01-12m, Sparse. *Species includes - None recorded
Tall Strata - Tree, 20.01-35m, Sparse. *Species includes - None Recorded

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

A11	0 - 0.04 m	Brown (10YR5/3-Moist); Biological mixing, 10YR32, 20-50% , Faint; Sandy loam; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Moderately moist; Very weak consistence; Field pH 5 (Raupach); Abundant, medium (2-5mm) roots; Abrupt, Smooth change
A12	0.04 - 0.1 m	Brown (10YR4/3-Moist); Biological mixing, 10YR42, 20-50% , 5-15mm, Faint; Sandy loam; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Moderately moist; Weak consistence; Field pH 6.5 (Raupach); Many, medium (2-5mm) roots; Clear, Smooth change to -
A3	0.1 - 0.2 m	Brown (10YR4/3-Moist); Biological mixing, 7.5YR68, 20-50% , 5-15mm, Distinct; Sandy loam; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Moderately moist; Weak consistence; Field pH 6.5 (Raupach); Common, medium (2-5mm) roots; Gradual, Smooth change to -
B1	0.2 - 0.3 m	Strong brown (7.5YR5/8-Moist); Biological mixing, 10YR53, 20-50% , 5-15mm, Distinct; Sandy clay loam; Massive grade of structure; Earthy fabric; Moist; Weak consistence; Field pH 6.5 (Raupach); Common, medium (2-5mm) roots; Diffuse, Smooth change to -
B21	0.3 - 0.5 m	Strong brown (7.5YR5/8-Moist); ; Sandy clay loam; Massive grade of structure; Earthy fabric; Moist; Very weak consistence; Field pH 6.5 (Raupach); Few, fine (1-2mm) roots;
B21	0.5 - 0.7 m	Strong brown (7.5YR5/8-Moist); ; Sandy clay loam; Massive grade of structure; Earthy fabric; Moist; Very weak consistence; Field pH 6 (Raupach); Few, fine (1-2mm) roots; Diffuse, Smooth change to -
B22	0.7 - 1 m	Strong brown (7.5YR5/8-Moist); Mottles, 5YR58, 20-50% , 5-15mm, Faint; Sandy clay loam; Massive grade of structure; Earthy fabric; Moist; Very weak consistence; Field pH 6 (Raupach); Few, fine (1-2mm) roots; Diffuse, Smooth change to -
B3	1 - 1.4 m	Reddish yellow (7.5YR6/8-Moist); ; Sandy clay loam; Massive grade of structure; Earthy fabric; Moist; Very weak consistence; Very few (0 - 2 %), Ferruginous, Coarse (6 - 20 mm), Concretions; Field pH 6 (Raupach); Few, fine (1-2mm) roots;

Morphological Notes

Observation Notes

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Site Notes

Kulnura (Morph 14)

Regolith depth >3m and is Hawkesbury Sandstone. A few ant mounds at site. Very old surface (miocene) on an undulating

part of the somersby plateau.

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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 - 0.04	4.7A	0.06A	1.3B	0.61	0.09	0.03		6.3A		0.48
0 - 0.2										
0 - 0.2										
0.04 - 0.1	5.09A	0.03A	0.29B	0.29	0.05	0.04		3.2A		1.25
0.1 - 0.2	5.36A	0.02A	0.37B	0.37	0.05	0.04		2.5A		1.60
0.2 - 0.3	5.4A	0.02A	0.36B	0.38	0.04	0.04		2.1A		1.90
0.2 - 0.4										
0.2 - 0.4										
0.3 - 0.5	5.36A	0.01A	0.22B	0.31	0.05	0.05		1.7A		2.94
0.5 - 0.7	5.25A	0.01A	0.17B	0.36	0.05	0.05		1.4A		3.57
0.7 - 1	5.45A	0.01A	0.17B	0.61	0.04			1.4A		
0.7 - 0.9										
0.7 - 0.9										
1 - 1.4	5.37A	0.01A	0.11B	0.67	0.06			1.4A		

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 - 0.04		2.7B						0				
0 - 0.2							1.53					
							1.49					
							1.36					
							1.42					
0 - 0.2							1.53					
							1.49					
							1.36					
							1.42					
0.04 - 0.1		1.3B					1.27	0				
0.1 - 0.2		0.74B						0				
0.2 - 0.3		0.54B					1.51	0				
0.2 - 0.4							1.68					
							1.63					
							1.54					
							1.59					
0.2 - 0.4							1.68					
							1.63					
							1.54					
							1.59					
0.3 - 0.5		0.32B						0				
0.5 - 0.7		0.21B						0				
0.7 - 1		0.16B					1.39	0				
0.7 - 0.9							1.36					
							1.45					
							1.39					
							1.41					
0.7 - 0.9							1.36					
							1.45					
							1.39					
							1.41					
1 - 1.4		0.12B						3				

Depth	COLE	Gravimetric/Volumetric Water Contents	K sat	K unsat

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m		Sat.	0.05 Bar	0.1 Bar	0.5 Bar	1 Bar	5 Bar	15 Bar	mm/h	mm/h
					g/g - m3/m3					
0 - 0.04										
0 - 0.2		0.4E	0.33E	0.29E	0.21D		0.1F	0.09F	176D	107.7A
		0.39E	0.3E	0.27E	0.19D		0.09F	0.08F		
		0.39E	0.3E	0.27E	0.19D					
		0.4E	0.32E	0.28E	0.2D					
0 - 0.2		0.4E	0.33E	0.29E	0.21D		0.1F	0.09F	176D	107.7A
		0.39E	0.3E	0.27E	0.19D		0.09F	0.08F		
		0.39E	0.3E	0.27E	0.19D					
		0.4E	0.32E	0.28E	0.2D					
0.04 - 0.1	0B									
0.1 - 0.2										
0.2 - 0.3	0.004B									
0.2 - 0.4		0.32E	0.24E	0.21E	0.16D		0.12F	0.1F	69.9D	26.1A
		0.3E	0.24E	0.21E	0.16D		0.12F	0.11F		
		0.36E	0.29E	0.26E	0.2D					
		0.35E	0.24E	0.21E	0.16D					
0.2 - 0.4		0.32E	0.24E	0.21E	0.16D		0.12F	0.1F	69.9D	26.1A
		0.3E	0.24E	0.21E	0.16D		0.12F	0.11F		
		0.36E	0.29E	0.26E	0.2D					
		0.35E	0.24E	0.21E	0.16D					
0.3 - 0.5										
0.5 - 0.7										
0.7 - 1	0.004B									
0.7 - 0.9		0.43E	0.27E	0.22E	0.17D		0.13F	0.12F	352.9D	82.6A
		0.41E	0.28E	0.23E	0.18D		0.13F	0.12F		
		0.39E	0.26E	0.22E	0.16D					
		0.4E	0.27E	0.22E	0.17D					
0.7 - 0.9		0.43E	0.27E	0.22E	0.17D		0.13F	0.12F	352.9D	82.6A
		0.41E	0.28E	0.23E	0.18D		0.13F	0.12F		
		0.39E	0.26E	0.22E	0.16D					
		0.4E	0.27E	0.22E	0.17D					
1 - 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_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)