Project Name: **Improving Soil Survey Field Measurement and Interpretation. LWRRDC Project No. 90/R16**
Project Code: **Morphology** **Site ID:** **CP319** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	N.J. McKenzie	**Locality:**	
Date Desc.:	29/08/92	**Elevation:**	32 metres
Map Ref.:	Sheet No. : 9232-IV-S 1:25000	**Rainfall:**	No Data
Northing/Long.:	6385200 AMG zone: 56	**Runoff:**	Slow
Easting/Lat.:	375400 Datum: AGD66	**Drainage:**	Poorly drained

Geology

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

Land Form

Rel/Slope Class:	Undulating rises 9-30m 3-10%	**Pattern Type:**	Rises
Morph. Type:	Mid-slope	**Relief:**	15 metres
Elem. Type:	No Data	**Slope Category:**	Gently inclined
Slope:	4 %	**Aspect:**	315 degrees

Surface Soil Condition (dry): Hardsetting

Erosion: Minor (sheet)

Soil Classification

Australian Soil Classification:
Magnesic Mottled-Subnatric Brown Sodosol Thin Non-gravelly Loamy Clayey Shallow

Mapping Unit: N/A
Principal Profile Form: Dy3.41

ASC Confidence:
All necessary analytical data are available.

Great Soil Group: N/A

Site Disturbance: Extensive clearing, for example poisoning, ringbarking

Vegetation: Low Strata - Tussock grass, 0.26-0.5m, Sparse. *Species includes - None recorded
Tall Strata - Tree, 12.01-20m, Sparse. *Species includes - None Recorded

Surface Coarse Fragments: 0-2%, cobbly, 60-200mm, subangular tabular, Till

Profile Morphology

A11	0 - 0.08 m	Very dark grey (10YR3/1-Moist); ; Sandy loam; Massive grade of structure; Earthy fabric; Moist; Very firm consistence; Field pH 6 (Raupach); Common, fine (1-2mm) roots; Clear, Smooth change to -
A21	0.08 - 0.15 m	Pale brown (10YR6/3-Moist); White (10YR8/2-Dry); Biological mixing, 10YR41, 20-50% , 5-15mm, Distinct; Sandy loam; Massive grade of structure; Earthy fabric; Dry; Firm consistence; Field pH 6 (Raupach); Common, fine (1-2mm) roots; Gradual, Smooth change to -
A22	0.15 - 0.22 m	Very pale brown (10YR7/3-Moist); White (10YR8/2-Dry); Biological mixing, 7.5YR51, 20-50% , 5-15mm, Distinct; Sandy loam; Massive grade of structure; Earthy fabric; Dry; Firm consistence; Common cutans, 10-50% of ped faces or walls coated, distinct; Field pH 6 (Raupach); Common, fine (1-2mm) roots; Sharp, Tongued change to -
B21	0.22 - 0.35 m	Brown (10YR5/3-Moist); , 7.5YR58, 20-50% , 15-30mm, Distinct; , 2.5YR42, 20-50% , 15-30mm, Distinct; Medium heavy clay; Moderate grade of structure, 20-50 mm, Polyhedral; Rough-ped fabric; Moderately moist; Very firm consistence; Common cutans, 10-50% of ped faces or walls coated, distinct; Field pH 5.5 (Raupach); Common, coarse (>5mm) roots; Gradual, Wavy change to -
B22	0.35 - 0.5 m	Brown (10YR5/3-Moist); , 7.5YR58, 20-50% , 15-30mm, Distinct; , 2.5YR42, 20-50% , 15-30mm, Distinct; Medium heavy clay; Moderate grade of structure, 20-50 mm, Polyhedral; Rough-ped fabric; Moderately moist; Very firm consistence; Field pH 5 (Raupach); Common, coarse (>5mm) roots; Sharp, Smooth change to -
R	0.5 - m	Rock

Morphological Notes

Observation Notes

Very tough B horizon; jackhammer required

Site Notes

5km West of Seaham (Morph 18)

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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 - 0.08	5.56A	0.04A	1.5B	1.3	0.39	0.1		6.2A		1.61
0 - 0.15										
0 - 0.15										
0.08 - 0.15	5.43A	0.03A	0.37B	0.72	0.34	0.1		4.3A		2.33
0.15 - 0.22	5.4A	0.03A	0.09B	0.61	0.22	0.1		3A		3.33
0.22 - 0.35	5.42A	0.09A	0.04B	6.9	0.15	1.1		10.7A		10.28
0.25 - 0.42										
0.25 - 0.42										
0.35 - 0.5	5.21A	0.15A	0.06B	6.7	0.14	1.6		11.2A		14.29
0.5 -										

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		2.5B						3				
0 - 0.15							1.67					
							1.61					
							1.60					
							1.59					
0 - 0.15							1.67					
							1.61					
							1.60					
							1.59					
0.08 - 0.15		1.16B					1.40	8				
0.15 - 0.22		0.53B						6				
0.22 - 0.35		0.37B					1.75	1				
0.25 - 0.42							1.71					
							1.71					
0.25 - 0.42							1.71					
							1.71					
0.35 - 0.5		0.28B						5				
0.5 -												

Depth	COLE	Gravimetric/Volumetric Water Contents Sat.	0.05 Bar	0.1 Bar	0.5 Bar	1 Bar	5 Bar	15 Bar	K sat	K unsat
m					g/g - m3/m3				mm/h	mm/h
0 - 0.08										
0 - 0.15		0.32E	0.29E	0.26E	0.2D		0.1F	0.06F	30.2D	9.7A
		0.38E	0.29E	0.25E	0.19D		0.12F	0.08F		
		0.32E	0.28E	0.25E	0.2D					
		0.33E	0.31E	0.28E	0.22D					
0 - 0.15		0.32E	0.29E	0.26E	0.2D		0.1F	0.06F	30.2D	9.7A
		0.38E	0.29E	0.25E	0.19D		0.12F	0.08F		
		0.32E	0.28E	0.25E	0.2D					
		0.33E	0.31E	0.28E	0.22D					
0.08 - 0.15	0.004B									
0.15 - 0.22										
0.22 - 0.35	0.058B									
0.25 - 0.42		0.32E	0.28E	0.27E	0.25D		0.22F	0.17F	0.85D	0.1A
		0.32E	0.29E	0.28E	0.25D		0.21F	0.18F		

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0.25 - 0.42	0.32E	0.28E	0.27E	0.25D	0.22F	0.17F	0.85D	0.1A
	0.32E	0.29E	0.28E	0.25D	0.21F	0.18F		
0.35 - 0.5								
0.5 -								

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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)