Project Name: **Improving Soil Survey Field Measurement and Interpretation. LWRRDC Project No. 90/R16**
Project Code: **Morphology** **Site ID:** **CP311** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By:	N.J. McKenzie	**Locality:**	
Date Desc.:	02/06/92	**Elevation:**	705 metres
Map Ref.:	Sheet No. : 8826-1-N 1:25000	**Rainfall:**	No Data
Northing/Long.:	6060900 AMG zone: 55	**Runoff:**	No Data
Easting/Lat.:	764400 Datum: AGD66	**Drainage:**	Well drained

Geology

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

Land Form

Rel/Slope Class:	Undulating low hills 30-90m 3-10%	**Pattern Type:**	Low hills
Morph. Type:	Simple-slope	**Relief:**	50 metres
Elem. Type:	No Data	**Slope Category:**	Gently inclined
Slope:	3 %	**Aspect:**	45 degrees

Surface Soil Condition (dry): Soft

Erosion:

Soil Classification

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

Mapping Unit: N/A
Principal Profile Form: Gn2.12
Great Soil Group: N/A

Site Disturbance: Limited clearing, for example selective logging

Vegetation: Low Strata - Fern, 1.01-3m, Very sparse. *Species includes - None recorded
Mid Strata - Tree, 12.01-20m, Mid-dense. *Species includes - Eucalyptus fastigata
Tall Strata - Tree, >35.01m, Mid-dense. *Species includes - Eucalyptus fastigata

Surface Coarse Fragments: No surface coarse fragments

Profile Morphology

O1	0 - 0.05 m	Organic Layer; Dark reddish brown (5YR2.5/2-Moist); ; Earthy fabric; Moist; Field pH 4.5 (Raupach); Abrupt, Smooth change to -
A11	0.05 - 0.1 m	Dark reddish brown (5YR2.5/2-Moist); ; Loam; Moderate grade of structure, 5-10 mm, Granular; Earthy fabric; Moist; Very weak consistence; 0-2%, coarse gravelly, 20-60mm, rounded tabular, undisturbed, Quartzite, coarse fragments; Field pH 5 (Raupach); Abundant, coarse (>5mm) roots; Clear, Smooth change to -
A12	0.1 - 0.18 m	Dark brown (7.5YR3/2-Moist); Biological mixing, 7.5YR34, 10-20% , 5-15mm, Faint; Sandy clay loam; Moderate grade of structure, 5-10 mm, Granular; Earthy fabric; Moist; Very weak consistence; 0-2%, coarse gravelly, 20-60mm, rounded tabular, undisturbed, Quartzite, coarse fragments; Field pH 5.5 (Raupach); Abundant, coarse (>5mm) roots; Clear, Smooth change to -
B11	0.18 - 0.3 m	Reddish brown (5YR4/4-Moist); Biological mixing, 7.5YR32, 20-50% , 5-15mm, Faint; Clay loam; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Moist; Very weak consistence; 0-2%, coarse gravelly, 20-60mm, rounded tabular, undisturbed, Quartzite, coarse fragments; Few cutans, <10% of ped faces or walls coated, faint; Field pH 6 (Raupach); Many, coarse (>5mm) roots; Diffuse, Smooth change to -
B21	0.3 - 0.4 m	Red (2.5YR4/6-Moist); ; Light clay; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Moist; Weak consistence; 0-2%, coarse gravelly, 20-60mm, rounded tabular, undisturbed, Quartzite, coarse fragments; Few cutans, <10% of ped faces or walls coated, faint; Field pH 6 (Raupach); Common, coarse (>5mm) roots;
B21	0.4 - 0.6 m	Red (2.5YR4/6-Moist); ; Light medium clay; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Moist; Weak consistence; 0-2%, coarse gravelly, 20-60mm, rounded tabular, undisturbed, Quartzite, coarse fragments; Few cutans, <10% of ped faces or walls coated, faint; Field pH 6 (Raupach); Common, medium (2-5mm) roots; Diffuse, Smooth change to -
B21	0.6 - 0.8 m	Red (2.5YR4/6-Moist); ; Light medium clay; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Moist; Firm consistence; 0-2%, coarse gravelly, 20-60mm, rounded tabular, undisturbed, Quartzite, coarse fragments; Few cutans, <10% of ped faces or walls coated, faint; Field pH 6 (Raupach); Common, medium (2-5mm) roots; Diffuse, Smooth change to

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B22	0.8 - 1.1 m	Red (2.5YR4/6-Moist); ; Light medium clay; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Moist; Firm consistence; 2-10%, cobbly, 60-200mm, rounded tabular, undisturbed, Quartzite, coarse fragments; Few cutans, <10% of ped faces or walls coated, faint; Field pH 6 (Raupach); Few, fine (1-2mm) roots; Gradual, Smooth change to -
B3	1.1 - 1.4 m	Red (2.5YR4/6-Moist); , 5YR56, 20-50% , 5-15mm, Distinct; Weak grade of structure, 10-20 mm, Subangular blocky; Earthy fabric; Moist; Firm consistence; 50-90%, cobbly, 60-200mm, rounded tabular, undisturbed, Quartzite, coarse fragments; Few cutans, <10% of ped faces or walls coated, faint; Field pH 6 (Raupach); Few, fine (1-2mm) roots; Gradual, Smooth change to
C	1.4 - m	; 50-90%, cobbly, 60-200mm, rounded tabular, undisturbed, Quartzite, coarse fragments; Field pH 6 (Raupach); Few, fine (1-2mm) roots;

Morphological Notes

Observation Notes

Substrate appears to be 'rose' quartzite (Moderately weathered)

Site Notes

Monga (Morph 10)

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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	4.44A	0.2A	6B	2.8	0.59	0.19		21.8A		0.87
0.05 - 0.1	4.64A	0.12A	1.7B	1	0.36	0.14		16.2A		0.86
0.05 - 0.18										
0.05 - 0.18										
0.1 - 0.18	4.84A	0.07A	0.52B	0.52	0.29	0.13		12.7A		1.02
0.18 - 0.3	4.93A	0.04A	0.23B	0.39	0.2	0.11		10.2A		1.08
0.2 - 0.4										
0.2 - 0.4										
0.3 - 0.4	5.09A	0.03A	0.1B	0.42	0.19	0.1		8.4A		1.19
0.4 - 0.6	5.2A	0.02A	0.11B	0.53	0.15	0.12		7.6A		1.58
0.4 - 0.6	5.2A	0.02A	0.11B	0.53	0.15	0.12		7.6A		1.58
0.4 - 0.6	5.2A	0.02A	0.11B	0.53	0.15	0.12		7.6A		1.58
0.6 - 0.8	5.44A	0.01A	0.2B	0.61	0.14	0.11		6.9A		1.59
0.8 - 1.1	5.3A	0.01A	0.08B	0.43	0.08	0.12		6.3A		1.90
1.1 - 1.4	5.34A	0.01A		0.6	0.06	0.08		4.7A		1.70
1.4 -										

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		17.8B						10				
0.05 - 0.1		10.4B						2				
0.05 - 0.18							0.90					
							0.82					
							0.94					
0.05 - 0.18							0.90					
							0.82					
							0.94					
0.1 - 0.18		6.45B					0.88	9				
0.18 - 0.3		3.72B						8				
0.2 - 0.4							1.22					
							1.24					
							1.26					
							1.28					
0.2 - 0.4							1.22					
							1.24					
							1.26					
							1.28					
0.3 - 0.4		2.7B					1.05	4				
0.4 - 0.6		1.35B					1.11	4				
							1.32					
							1.42					
							1.36					
							1.30					
0.4 - 0.6		1.35B					1.11	4				
							1.32					
							1.42					
							1.36					
							1.30					

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0.4 - 0.6	1.35B	1.11	4
		1.32	
		1.42	
		1.36	
		1.30	
0.6 - 0.8	0.73B		3
0.8 - 1.1	0.55B		0
1.1 - 1.4	0.29B		61
1.4 -			

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										
0.05 - 0.1										
0.05 - 0.18		0.49E	0.42E	0.4E	0.34D		0.19F	0.18F	2799D	405.2A
		0.5E	0.41E	0.39E	0.33D		0.21F	0.18F		
		0.53E	0.42E	0.4E	0.34D					
0.05 - 0.18		0.49E	0.42E	0.4E	0.34D		0.19F	0.18F	2799D	405.2A
		0.5E	0.41E	0.39E	0.33D		0.21F	0.18F		
		0.53E	0.42E	0.4E	0.34D					
0.1 - 0.18	0B									
0.18 - 0.3										
0.2 - 0.4		0.44E	0.37E	0.34E	0.3D		0.21F	0.19F	293.6D	64.7A
		0.4E	0.34E	0.33E	0.29D		0.21F	0.19F		
		0.45E	0.41E	0.38E	0.34D					
		0.43E	0.38E	0.36E	0.32D					
0.2 - 0.4		0.44E	0.37E	0.34E	0.3D		0.21F	0.19F	293.6D	64.7A
		0.4E	0.34E	0.33E	0.29D		0.21F	0.19F		
		0.45E	0.41E	0.38E	0.34D					
		0.43E	0.38E	0.36E	0.32D					
0.3 - 0.4	0.008B									
0.4 - 0.6	0.017B	0.45E	0.39E	0.36E	0.31D		0.23F	0.2F	50D	18.8A
		0.42E	0.38E	0.35E	0.32D		0.22F	0.2F		
		0.43E	0.38E	0.36E	0.32D					
		0.45E	0.39E	0.35E	0.31D					
0.4 - 0.6	0.017B	0.45E	0.39E	0.36E	0.31D		0.23F	0.2F	50D	18.8A
		0.42E	0.38E	0.35E	0.32D		0.22F	0.2F		
		0.43E	0.38E	0.36E	0.32D					
		0.45E	0.39E	0.35E	0.31D					
0.4 - 0.6	0.017B	0.45E	0.39E	0.36E	0.31D		0.23F	0.2F	50D	18.8A
		0.42E	0.38E	0.35E	0.32D		0.22F	0.2F		
		0.43E	0.38E	0.36E	0.32D					
		0.45E	0.39E	0.35E	0.31D					
0.6 - 0.8										
0.8 - 1.1										
1.1 - 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
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)