Project Name: **SOIL STRUCTURE & MANAGEMENT**
Project Code: **SSM** **Site ID:** **SSM139** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (ACT)**

Site Information

Desc. By: G.M. Bowman
Date Desc.: 06/03/91
Map Ref.: Sheet No. : 7725 1:100000
Northing/Long.: 5959650 AMG zone: 55
Easting/Lat.: 258880 Datum: AGD66
Locality:
Elevation: 119 metres
Rainfall: No Data
Runoff: Moderately rapid
Drainage: Moderately well drained

Geology

ExposureType: Undisturbed soil core
Geol. Ref.: Qs
Conf. Sub. is Parent. Mat.: Probable
Substrate Material: No Data

Land Form

Rel/Slope Class: No Data
Morph. Type: Lower-slope
Elem. Type: Footslope
Slope: 1 %
Pattern Type: Low hills
Relief: No Data
Slope Category: No Data
Aspect: 315 degrees

Surface Soil Condition (dry): Loose

Erosion:

Soil Classification

Australian Soil Classification:
Hypercalcic Red Chromosol
ASC Confidence:
Confidence level not specified
Mapping Unit: N/A
Principal Profile Form: Dy2.23
Great Soil Group: Red-brown earth

Site Disturbance: Cultivation. Rainfed

Vegetation:

Surface Coarse Fragments:

Profile Morphology

Ap	0 - 0.12 m	Brown (7.5YR4/4-Moist); Brown (7.5YR5/4-Dry); ; Loam; Moderate grade of structure, 5-10 mm, Granular; 200-500 mm, Lenticular; Earthy fabric; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Dry; Weak consistence; Non-plastic; Non-sticky; Few, very fine (0-1mm) roots; Sharp, Smooth change to -
A12	0.12 - 0.26 m	Dark brown (7.5YR3/4-Moist); Brown (7.5YR4/4-Dry); ; Fine sandy clay loam; Moderate grade of structure, 10-20 mm, Platy; 20-50 mm, Prismatic; Earthy fabric; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Dry; Firm consistence; Non-plastic; Non-sticky; Few, very fine (0-1mm) roots; Abrupt, Smooth change to -
A2	0.26 - 0.42 m	Strong brown (7.5YR5/6-Moist); Reddish yellow (7.5YR7/6-Dry); ; Coarse sandy clay loam; Weak grade of structure, 10-20 mm, Subangular blocky; Sandy (grains prominent) fabric; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Very firm consistence; Non-plastic; Non-sticky; 2-10%, fine gravelly, 2-6mm, rounded tabular, dispersed, coarse fragments; Few, very fine (0-1mm) roots; Sharp, Smooth change to -
B21	0.42 - 0.58 m	Yellowish red (5YR5/6-Moist); Yellowish red (5YR5/8-Dry); ; Medium heavy clay; Moderate grade of structure, 20-50 mm, Subangular blocky; 50-100 mm, Columnar; Rough-ped fabric; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Firm consistence; Non-plastic; Non-sticky; 2-10%, medium gravelly, 6-20mm, rounded tabular, dispersed, coarse fragments; Few, very fine (0-1mm) roots; Clear, Smooth change to -
2A	0.58 - 0.73 m	Yellowish red (5YR4/6-Moist); Reddish yellow (5YR6/6-Dry); ; Coarse sandy clay loam; Weak grade of structure, 20-50 mm, Subangular blocky; Sandy (grains prominent) fabric; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Very firm consistence; Non-plastic; Non-sticky; 2-10%, fine gravelly, 2-6mm, rounded tabular, dispersed, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, prominent; Abrupt, Smooth change to -
2BC	0.73 - 1 m	Strong brown (7.5YR4/6-Moist); Reddish yellow (7.5YR6/6-Dry); Substrate influence, 7.5YR46; Substrate influence, 2.5YR58, 10-20% , Distinct; Medium heavy clay; Moderate grade of structure, 20-50 mm, Subangular blocky; 50-100 mm, Prismatic; Smooth-ped fabric; Few (<1 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Firm consistence; Non-plastic; Non-sticky; 2-10%, fine gravelly, 2-6mm, rounded tabular, dispersed, coarse fragments; 0-2%, fine gravelly, 2-6mm, subrounded, dispersed, Quartz, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, distinct; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Nodules, strong, segregations;Field pH 9 (Raupach);

Morphological Notes

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Ap	Plough layer, good consistence.	Fine sand present.
A12	Plough layer with platy structure.	
A2	Bleached? A2.	
B21	Thin clay B horizon	
2A	? buried A horizon	
2BC	? buried B horizon.	

Observation Notes
Wheat stubble, footslope near dam.

Site Notes
KEN LANDERMAN - KAMEROOKA

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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 - 0.02	5.07B									
0.01 - 0.085										
0.02 - 0.05	4.79B	0.213A	2.84J	1.59	0.73	0.32		4.96I		6.45
0.05 - 0.14	4.8B	0.125A	3.56J	1.62	0.77	0.3		5.23I		5.74
0.14 - 0.24	5.29B	0.048A	3.62J	1.97	0.38	0.29		6.57I		4.41
0.24 - 0.4	5.97B	0.045A	2.46J	2.44	0.37	0.28		3.83I		7.31
0.38 - 0.455										
0.42 - 0.65	6.48B	0.058A	4.73J	7.15	0.85	0.64		9.82I		6.52
0.65 - 0.73	6.83B	0.05A	3.29J	6.18	0.8	0.56		9.11I		6.15
0.73 - 0.9	7.1B	0.127A	4.27J	9.25	1.06	1.02		13.09I		7.79

Depth	CaCO3	Organic	Avail.	Total	Total	Total	Bulk	Particle Size Analysis				
		C	P	P	N	K	Density	GV	CS	FS	Silt	Clay
m	%	%	mg/kg	%	%	%	Mg/m3			%		
0 - 0.02		1.98C									38	15
0.01 - 0.085							1.62					
0.02 - 0.05		1.89C									20	15
0.05 - 0.14		1.82C									21	15
0.14 - 0.24		0.9C									23	18
0.24 - 0.4		0.15C									22	17
0.38 - 0.455							1.71					
0.42 - 0.65		0.14C									15	34
0.65 - 0.73		0.06C									12	20
0.73 - 0.9		0.12C									15	31

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 - 0.02									
0.01 - 0.085		0.33F	0.24F	0.22I		0.17F	0.14D	0.1G	
0.02 - 0.05									
0.05 - 0.14									
0.14 - 0.24									
0.24 - 0.4									
0.38 - 0.455		0.33F	0.29F	0.28I					
0.42 - 0.65									
0.65 - 0.73									
0.73 - 0.9									

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Laboratory Analyses Completed for this profile

13A1_AL	Oxalate-extractable aluminium
13A1_FE	Oxalate-extractable iron
13A1_MN	Oxalate-extractable manganese
13A1_SI	Oxalate-extractable silicon
13C1_AL	Citrate/dithionite-extractable iron, aluminium, Manganese and Silicon
13C1_FE	Citrate/dithionite-extractable iron, aluminium, Manganese and Silicon
13C1_MN	Citrate/dithionite-extractable iron, aluminium, Manganese and Silicon
13C1_SI	Citrate/dithionite-extractable iron, aluminium, Manganese and Silicon
14H1_CA	Soluble bases/SE (Ca,Mg,K,Na)
14H1_K	Soluble bases/SE (Ca,Mg,K,Na)
14H1_MG	Soluble bases/SE (Ca,Mg,K,Na)
14H1_NA	Soluble bases/SE (Ca,Mg,K,Na)
15F1_CA	Exchangeable bases by 0.01M silver-thiourea (AgTU)+, no pretreatment for soluble salts
15F1_K	Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts
15F1_MG	Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts
15F1_NA	Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts
15F3	CEC by 0.01M silver-thiourea (AgTU)+
15N1	Exchangeable sodium percentage (ESP)
3A1	EC of 1:5 soil/water extract
4B1	pH of 1:5 soil/0.01M calcium chloride extract - direct
6B3	Total organic carbon - high frequency induction furnace, infrared
MIN_EC	Exchange Capacity - Minerology
P10_CF_C	Clay (%) - Coventry and Fett pipette method
P10_CF_Z	Silt (%) - Coventry and Fett pipette method
P3A1	Bulk density - g/cm3
P3B3VLc001	0.01 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc003	0.03 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc005	0.05 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc01	0.1 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLc03	0.3 BAR Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLcSAT	Saturated Moisture m3/m3 - Volumetric using undisturbed 98mm diameter core on suction plate
P3B3VLd06	0.6 BAR Moisture m3/m3 - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd1	1 BAR Moisture m3/m3 - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd15	15 BAR Moisture m3/m3 - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd3	3 BAR Moisture m3/m3 - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P3B3VLd5	5 BAR Moisture m3/m3 - Volumetric using undisturbed 48mm diameter and 15mm height core on pressure plate
P6_LP	Dispersion Index (Loveday and Pyle, 1973)
PWS1-2mm	1000-2000 micron fraction (%) - Wet Sieving after chemical dispersion
PWS20-63	20-63 micron fraction (%) - Wet Sieving after chemical dispersion
PWS212-425	212-425 micron fraction (%) - Wet Sieving after chemical dispersion
PWS425-1mm	425-1000 micron fraction (%) - Wet Sieving after chemical dispersion
PWS63-212	63-212 micron fraction (%) - Wet Sieving after chemical dispersion
XRD_C_An	Anatase - X-Ray Diffraction
XRD_C_Hm	Hematite - X-Ray Diffraction
XRD_C_Il	Illite - X-Ray Diffraction
XRD_C_Is	Interstratified clay minerals - X-Ray Diffraction
XRD_C_Ka	Kaolin - X-Ray Diffraction
XRD_C_Qz	Quartz - X-Ray Diffraction