Project Name: Soil Changes under Agriculture

Project Code: Paired Site ID: M4 Observation ID: 1

Agency Name: CSIRO Division of Soils (SA)

**Site Information** 

Locality: Desc. By: N.J. McKenzie S.E. Rhvnie Elevation: Date Desc.: 05/04/89 No Data Sheet No.: 6629 1:100000 Map Ref.: Rainfall: No Data Northing/Long.: 6214600 AMG zone: 54 Runoff: No Data Easting/Lat.: 288900 Datum: AGD66 No Data Drainage:

<u>Geology</u>

ExposureType: Soil pit Conf. Sub. is Parent. Mat.: No Data

Geol. Ref.: No Data Substrate Material: No Data

**Land Form** 

Rel/Slope Class:No DataPattern Type:No DataMorph. Type:No DataRelief:No DataElem. Type:No DataSlope Category:No DataSlope:%Aspect:No Data

Surface Soil Condition (dry):

**Erosion:** 

**Soil Classification** 

Australian Soil Classification:Mapping Unit:N/AN/APrincipal Profile Form:Ug5.37

ASC Confidence: Great Soil Group: Red-brown earth

Confidence level not specified

Site Disturbance: No effective disturbance. Natural

**Vegetation:** 

R1

**Surface Coarse Fragments:** 

0.1 - 0.2 m

Profile Morphology

A1 0 - 0.1 m

Dark reddish brown (5YR3/3-Moist); Reddish brown (5YR4/4-Dry); ; Sandy clay loam, fine sandy; Weak grade of structure, 10-20 mm, Polyhedral; Rough-ped fabric; Medium, (5 - 10) mm crack;

Dry; Field pH 7.5 (Raupach); Gradual, Smooth change to -

Moderate grade of structure, 20-50 mm, Polyhedral; Moderate grade of structure, 5-10 mm, Polyhedral; Rough-ped fabric; Medium, (5 - 10) mm crack; Dry; Strong consistence; 0-2%, medium gravelly, 6-20mm, subangular tabular, dispersed, Shale, coarse fragments; Few cutans, <10% of ped faces or walls coated, distinct; Field pH 7.5 (Raupach); Gradual, Smooth

Dark reddish brown (5YR3/4-Moist); Mottles, 2.5YR44, 10-20%, 15-30mm, Faint; Silty clay loam;

change to -

B21 0.2 - 0.3 m Reddish brown (2.5YR4/4-Moist); Mottles, 2.5YR56, 20-50%, 15-30mm, Distinct; Heavy clay;

Strong grade of structure, 50-100 mm, Prismatic; Weak grade of structure, 10-20 mm, Polyhedral; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Dry; Very strong consistence; Common cutans, 10-50% of ped faces or walls coated, distinct; Field pH 7.5 (Raupach);

B21 0.3 - 0.4 m Reddish brown (2.5YR4/4-Moist); Mottles, 2.5YR56, 20-50%, 15-30mm, Distinct; Heavy clay;

Strong grade of structure, 50-100 mm, Prismatic; Weak grade of structure, 10-20 mm, Polyhedral; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Dry; Very strong consistence; Common cutans, 10-50% of ped faces or walls coated, distinct; Field pH 7.5 (Raupach);

B21 0.4 - 0.5 m Reddish brown (2.5YR4/4-Moist); Mottles, 2.5YR56, 20-50%, 15-30mm, Faint; Heavy clay;

Strong grade of structure, 50-100 mm, Prismatic; Weak grade of structure, 10-20 mm, Polyhedral; Smooth-ped fabric; Coarse, (10 - 20) mm crack; Dry; Very strong consistence; Common cutans, 10-50% of ped faces or walls coated, distinct; Field pH 7.5 (Raupach);

Gradual, Smooth change to -

B22 0.5 - 0.6 m Red (2.5YR4/6-Moist); ; Heavy clay; Moderate grade of structure, 20-50 mm, Polyhedral; Smooth-

ped fabric; Fine, (0 - 5) mm crack; Moderately moist; Strong consistence; 10-20%, coarse gravelly, 20-60mm, angular platy, stratified, Shale, coarse fragments; Many cutans, >50% of ped faces or walls coated, prominent; Common (10 - 20 %), Calcareous, Coarse (6 - 20 mm), Soft

segregations; Field pH 8.5 (Raupach); Abrupt, Wavy change to -

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B3 0.6 - 0.8 m Reddish yellow (5YR7/6-Moist); Mottles, 2.5YR56, 20-50%, 30-mm, Distinct; Mottles, 2.5YR58,

20-50%, 30-mm, Distinct; Medium heavy clay; Moderate grade of structure, 2-5 mm, Polyhedral; Smooth-ped fabric; Moderately moist; Strong consistence; 20-50%, coarse gravelly, 20-60mm, angular platy, stratified, Shale, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, distinct; Many (20 - 50 %), Calcareous, Fine (0 - 2 mm), Soft segregations; Field

pH 9 (Raupach); Gradual, Smooth change to -

BC 0.8 - 1.2 m Yellowish red (5YR5/6-Moist); Mottles, 2.5YR56, 10-20%, 15-30mm, Distinct; Medium heavy

clay; Smooth-ped fabric; Moderately moist; Strong consistence; 50-90%, cobbly, 60-200mm, angular platy, undisturbed, Shale, coarse fragments; Common cutans, 10-50% of ped faces or walls coated, distinct; Many (20 - 50 %), Calcareous, Fine (0 - 2 mm), Soft segregations; Field

pH 9 (Raupach); Gradual, Smooth change to -

R 1.2 - m Rock

## **Morphological Notes**

## **Observation Notes**

Undisturbed Transitional Red-Brown Earth - paired with M3

**Site Notes** 

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Observation ID: 1

## **Laboratory Test Results:**

Laboratory Test Results:													
Depth	pН	1:5 EC	Ex Ca	changeable Mg	Cations K	Na	Exchangeable Acidity	CEC		ECEC	E	ESP	
m		dS/m				Cmol (	(+)/kg				ç	%	
0 - 0.1	6.6C 7.1A	0.16A	15.8D	6.8	2.3	0.45		23.4	L	25.3D	1	.92	
0.1 - 0.2	7.1C 7.4A	0.1A	11.9D	5.4	1.6	0.69		20.21	L	19.6D	3	.42	
0.2 - 0.3	7.2C 7.8A	0.12A	12.9E	8.6	1.8	1.6		24.9	3	25D	6	.43	
0.3 - 0.4	7.6C 8.3A	0.18A	10.9E	10.9	1.6	3.5		27.1	3	26.9D	12	2.92	
0.4 - 0.5	8.5C 9.2A	0.47A	8.3E	16.2	1.6	6.4		30.8	0.8B 32.4D		20	0.78	
0.5 - 0.6	8.8C 9.7A	0.48A	5.2E	9.3	0.84	3		18.4	3	18.3D		6.30	
0.8 - 0.9	8.7C 9.9A	0.49A	3.4E	16.6	1.5	9.6		27.9B		31.2D 34		4.41	
Depth	CaCO3	Organic C	Avail. P	Total P	Total N	Tot K			rticle CS				
m	%	%	mg/kg	%	%	%	Mg/m3			%			
0 - 0.1 0.1 - 0.2	<0.1B <0.1B	2.6A 1.5A					1.36 1.36		2A 2A	45 42	17 17	33 37	
0.2 - 0.3	0.2B	0.9A					1.32		1A	29	12	55	
0.3 - 0.4	0.1B	0.9A					1.30		2A	27	13	55	
0.4 - 0.5 0.5 - 0.6	1.2B 6.3B	0.4A 0.3A					1.25 1.49		3A 19A	18 19	14 14	60 48	
0.8 - 0.9	1.7B	0.1A					1.40		2A	23	17	54	
Depth	Depth COLE Gravimetric/Volumetric Water Contents K sat K unsat												
Doptiii	00LL	Sat.		0.1 Bar	0.5 Bar	1 Bar		15 Bar		u.	it unout		
m				g/	g - m3/m	3			mm	/h	mm/h		
0 - 0.1	0.06A		0.39G					0.14F					
0.1 - 0.2	0.07A		0.4G					0.18F					
0.2 - 0.3	0.09A		0.41G					0.25F					
0.3 - 0.4	0.1A		0.44G					0.28F					
0.4 - 0.5	0.14A		0.47G					0.29F					
0.5 - 0.6 0.8 - 0.9	0.04A	l	0.37G					0.25F					

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## **Laboratory Analyses Completed for this profile**

15B2\_CA Exchangeable bases (Ca2+,Mg2+,Na+,K+) - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts

15B2\_CEC CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts

Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts

Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts

Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts

Exchangeable bases and CEC - 1M ammonium chloride at pH 7.0, pretreatment for soluble salts

Exchangeable bases (Ca2+,Mg2+,Na+,K+) - alcoholic 1M ammonium chloride at pH 8.5,

pretreatment for soluble salts

15C1\_CEC CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble salts

15C1\_K Exchangeable bases and CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble

salts

15C1\_MG Exchangeable bases and CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble

salts

15C1\_NA Exchangeable bases and CEC - alcoholic 1M ammonium chloride at pH 8.5, pretreatment for soluble

salts

15J\_BASES Sum of Bases

15N1 Exchangeable sodium percentage (ESP)

19B1 Carbonates - manometric 3A1 EC of 1:5 soil/water extract 4A1 pH of 1:5 soil/water suspension

4B2 pH of 1:5 soil/0.01M calcium chloride extract - following Method 4A1

5A2 Chloride - 1:5 soil/water extract, automated colour

6A1 Organic carbon - Walkley and Black

P10\_CF\_C
P10\_CF\_CS
Clay (%) - Coventry and Fett pipette method
Coarse sand (%) - Coventry and Fett pipette method
P10\_CF\_S
P10\_CF\_Z
Silt (%) - Coventry and Fett pipette method
Silt (%) - Coventry and Fett pipette method

P3A1 Bulk density - g/cm3

P3B2VL\_15 15 BAR Moisture m3/m3 - Volumetric using disturbed sample on pressure plate 0.05 BAR Moisture m3/m3 - Volumetric of soil clods (Soil Survey Staff,1967)

P5\_COLE Coefficient of Linear Extensibility (Grossman et al. 1968)