Project Name: **Soil Studies in the Lower Namoi Valley**
Project Code: **EDGEROI** **Site ID:** **ed037** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (QLD)**

Site Information

Desc. By:	W.T. Ward	**Locality:**	Auscott(Togo), Togo
Date Desc.:	06/01/87	**Elevation:**	190 metres
Map Ref.:	Sheet No. : 8837_N 1:50000	**Rainfall:**	No Data
Northing/Long.:	6673100 AMG zone: 55	**Runoff:**	No Data
Easting/Lat.:	744800 Datum: AGD66	**Drainage:**	No Data

Geology

ExposureType:	Undisturbed soil core	**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:	No Data	**Relief:**	No Data
Elem. Type:	Terrace plain	**Slope Category:**	Level
Slope:	0 %	**Aspect:**	No Data

Surface Soil Condition (dry): Self-mulching, Recently cultivated

Erosion:

Soil Classification

Australian Soil Classification:
N/A
ASC Confidence:
Confidence level not specified

Mapping Unit: N/A
Principal Profile Form: Ug5.16
Great Soil Group: Grey clay

Site Disturbance: Cultivation. Irrigated, past or present

Vegetation:

Surface Coarse Fragments:

Profile Morphology

A11p	0 - 0.1 m	Dark grey (10YR4/1-Moist); Grey (10YR5/1-Dry); ; Light medium clay; Moderate grade of structure, 2-5 mm, Granular; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very firm consistence; 0-2%, fine gravelly, 2-6mm, subangular, Quartz, coarse fragments; Field pH 8.5 (pH meter); Few, very fine (0-1mm) roots; Abrupt, Smooth change to -
A12	0.1 - 0.3 m	Dark grey (10YR4/1-Moist); ; Light medium clay; Moderate grade of structure, 50-100 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Field pH 8.5 (pH meter); Few, very fine (0-1mm) roots; Sharp, Smooth change to -
2A11k	0.3 - 0.6 m	Very dark grey (10YR3/1-Moist); , 10YR72, 0-2% , 0-5mm, Distinct; , 10YR53, 0-2% , 0-5mm, Distinct; Light medium clay; Moderate grade of structure, 100-200 mm, Prismatic; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 9 (pH meter); Gradual, Smooth change to -
2A12	0.6 - 1 m	Dark grey (10YR4/1-Moist); , 10YR72, 0-2% , 0-5mm, Faint; Light medium clay; Weak grade of structure, 50-100 mm, Angular blocky; Massive grade of structure; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 9 (pH meter); Diffuse, Smooth change to -
2B21	1 - 1.65 m	Brown (10YR5/3-Moist); , 10YR73, 0-2% , 0-5mm, Distinct; , 10YR51, 20-50% , 15-30mm, Prominent; Light medium clay; Weak grade of structure, 100-200 mm, Prismatic; Moderate grade of structure, 50-100 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very firm consistence; Field pH 9 (pH meter);
2B22	1.65 - 2.4 m	Brown (10YR5/3-Moist); , 10YR51, 0-2% , 5-15mm, Faint; , 10YR62, 0-2% , 0-5mm, Faint; Light medium clay; Weak grade of structure, 100-200 mm, Lenticular; Weak grade of structure, <2 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very firm consistence; Very few (0 - 2 %), Calcareous, Fine (0 - 2 mm), Nodules; Field pH 9 (pH meter); Gradual, Smooth change to -

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2B23	2.4 - 3.4 m	Brown (10YR5/3-Moist); , 10YR21, 2-10% , 0-5mm, Distinct; , 10YR42, 0-2% , 0-5mm, Distinct; Light medium clay; Massive grade of structure; Smooth-ped fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very firm consistence; Very few (0 - 2 %), Manganiferous, Fine (0 - 2 mm), Soft segregations; Field pH 9 (pH meter); Gradual, Smooth change to -
3A1	3.4 - 4 m	Brown (7.5YR5/4-Moist); , 10YR73, 0-2% , 5-15mm, Distinct; , 10YR41, 0-2% , 5-15mm, Distinct; Light medium clay; Moderate grade of structure, 20-50 mm, Subangular blocky; Moderate grade of structure, 2-5 mm, Cast; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very firm consistence; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Nodules; Field pH 9 (pH meter); Diffuse,
3AC1	4 - 5.05 m	Reddish yellow (7.5YR6/6-Moist); , 7.5YR42, 10-20% , 15-30mm, Distinct; , 10YR64, 2-10% , 5-15mm, Prominent; Fine sandy light clay; Weak grade of structure, 20-50 mm, Subangular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Few (2 - 10 %), Calcareous, Medium (2 -6 mm), Veins; Field pH 8.8 (pH meter);
3AC2	5.05 - 5.7 m	Strong brown (7.5YR5/6-Moist); , 7.5YR54, 0-2% , 0-5mm, Distinct; , 10YR82, 0-2% , 5-15mm, Prominent; Fine sandy light clay; Massive grade of structure; Moderate grade of structure, 2-5 mm, Cast; Earthy fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Nodules; Field pH 9 (pH meter);

Morphological Notes

A11p	Note thin band of sand at 28cm, possibly marking the base of fill above. Pedality at 70-80cm seems doubtful. A few small colourless gypsum crystals (10N0/0) occur from 110cm to 130cm. As 250-260cm contained small flecks of manganese, a more
A12	representative B2 sample [sic]. There are very few carbonate concretions at 200-210cm. The manganese concretions at 250-260cm are very fine. At 450-460cm there are carbonate nodules as well as veins. The tensile strength at 550-560cm is gr
2A11k	eater than 6000. Field pH for samples 9 and 10 estimated from lab pH.

Observation Notes

Parent Rock: alluvial sediment, clay, parna on fourth fan, Namoi

Site Notes

The target site is in a dam. This position is 100m to the east. Weak surface crust. Abundant fine waterworn gravels on surface, to 5mm diameter are possibly from a prior stream.

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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	8.98A	0.245A	22.73B	7.33	1.08	1.85				
0 - 0.1	8.61A	0.216A	18.97B	8.77	0.77	1.27				
0.1 - 0.2	8.92A	0.155A	17.86B	8.45	0.74	1.4				
0.3 - 0.4	9.27A	0.205A	16.72B	10.66	0.45	2.89				
0.7 - 0.8	9.36A	0.396A	14.74B	12.92	0.65	6.88				
1.2 - 1.3	8.72A	1.162A	11.71B	13.79	0.76	9.32				
2 - 2.1	8.84A	0.848A	13.51B	14.47	0.88	10.32				
2.5 - 2.6	8.88A	0.848A	10.7B	12.44	0.66	9.33				
3.5 - 3.6	9.33A	0.573A	10.96B	13.91	0.67	10.93				
4.5 - 4.6	9.4A	0.548A	9.33B	12.01	0.51	8.809999				
5.5 - 5.6	9.55A	0.325A	7.07B	7.72	0.24	8.18				

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 - 0.02	0.2B	0.53C									19	42.3
0 - 0.1	0.2B	0.55C	16.3J								18.4	41.6
0.1 - 0.2	0.3B	0.5C	15.6J								18.7	41.2
0.3 - 0.4	0.8B	0.39C	3J								21.3	45
0.7 - 0.8	1.1B	0.26C	3.6J								18.2	50.8
1.2 - 1.3	0.7B	0.19C	8.3J								17.7	50.6
2 - 2.1	0.3B	0.08C	6.8J								18	58
2.5 - 2.6	<0.1B	0.07C	7.4J								21.4	50.2
3.5 - 3.6	0.3B	0.05C	6.4J								18.4	46.8
4.5 - 4.6	2.7B	0.23C	2.9J								13.2	33.9
5.5 - 5.6	0.3B	0.03C	3.8J								13.3	30

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 - 0.1									
0.1 - 0.2									
0.3 - 0.4									
0.7 - 0.8									
1.2 - 1.3									
2 - 2.1									
2.5 - 2.6									
3.5 - 3.6									
4.5 - 4.6									
5.5 - 5.6									

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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_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
19B1	Carbonates - manometric
3A1	EC of 1:5 soil/water extract
4A1	pH of 1:5 soil/water suspension
5A2	Chloride - 1:5 soil/water extract, automated colour
6B3	Total organic carbon - high frequency induction furnace, infrared
7B1	Water soluble nitrate - automated colour
9B1	Bicarbonate-extractable phosphorus - manual colour
P10_CF_C	Clay (%) - Coventry and Fett pipette method
P10_CF_Z	Silt (%) - Coventry and Fett pipette method