Project Name: **Soil Studies in the Lower Namoi Valley**
Project Code: **EDGEROI** **Site ID:** **ed191** **Observation ID:** **1**
Agency Name: **CSIRO Division of Soils (QLD)**

Site Information

Desc. By: D. McGarry
Date Desc.: 04/06/86
Map Ref.: Sheet No. : 8837_N 1:50000
Northing/Long.: 6653000 AMG zone: 55
Easting/Lat.: 782400 Datum: AGD66
Locality: Arthur V. Melbourne, Mountain Valley
Elevation: 366 metres
Rainfall: No Data
Runoff: No Data
Drainage: No Data

Geology

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

Land Form

Rel/Slope Class: No Data
Morph. Type: No Data
Elem. Type: Pediment
Slope: 4 %
Pattern Type: No Data
Relief: No Data
Slope Category: Gently inclined
Aspect: 140 degrees

Surface Soil Condition (dry): Hardsetting

Erosion:

Soil Classification

Australian Soil Classification:
N/A
ASC Confidence:
Confidence level not specified
Mapping Unit: N/A
Principal Profile Form: Ug5.37
Great Soil Group: Red clay

Site Disturbance: Complete clearing. Pasture, native or improved, cultivated at some stage

Vegetation:

Surface Coarse Fragments:

Profile Morphology

A1	0 - 0.1 m	Reddish brown (5YR4/4-Moist); ; Light clay; Moderate grade of structure, 20-50 mm, Subangular blocky; Rough-ped fabric; Fine, (0 - 5) mm crack; Common (1-5 per 100mm2) Fine (1-2mm) macropores, Moderately moist; Firm consistence; 0-2%, cobbly, 60-200mm, subangular tabular, Quartz, coarse fragments; Field pH 6.5 (pH meter); Common, very fine (0-1mm) roots; Clear, Smooth change to -
B21	0.1 - 0.25 m	Yellowish red (5YR5/6-Moist); , 5YR43, 0-2% , 0-5mm, Prominent; Light medium clay; Moderate grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Firm consistence; 0-2%, coarse gravelly, 20-60mm, subangular tabular, Consolidated rock (unidentified), coarse fragments; Field pH 7.8 (pH meter); Common, fine (1-2mm) roots;
B22	0.25 - 0.55 m	Yellowish red (5YR5/6-Moist); , 5YR44, 0-2% , 0-5mm, Prominent; Medium clay; Moderate grade of structure, 20-50 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Firm consistence; Field pH 8 (pH meter); Common, fine (1-2mm) roots;
B23	0.55 - 0.85 m	Yellowish red (5YR4/6-Moist); , 10YR64, 2-10% , 5-15mm, Prominent; , 10YR21, 2-10% , 0-5mm, Distinct; Medium clay; Weak grade of structure, 20-50 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; 0-2%, medium gravelly, 6-20mm, subangular tabular, Consolidated rock (unidentified), coarse fragments; Few (2 - 10 %), Manganiferous, Fine (0 - 2 mm), Nodules; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Soft segregations; Field pH 8.8 (pH meter); Few, very fine (0-1mm) roots; Clear, Smooth change to -
C	0.85 - 1.9 m	Reddish brown (5YR5/4-Moist); , 2.5Y74, 2-10% , 5-15mm, Prominent; Medium clay; Moderate grade of structure, 20-50 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; 0-2%, medium gravelly, 6-20mm, subangular tabular, Sandstone, coarse fragments; Field pH 8.8 (pH meter);
2C	1.9 - 2.93 m	Strong brown (7.5YR5/8-Moist); , 10YR81, 20-50% , 30-mm, Prominent; Light medium clay; Moderate grade of structure, Lenticular; Moderate grade of structure, 10-20 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; 0-2%, coarse gravelly, 20-60mm, subangular tabular, Consolidated rock (unidentified), coarse fragments; Many (20 - 50 %), Calcareous, Very coarse (20 - 60 mm), Soft segregations; Field pH 9 (pH meter);

Morphological Notes

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A1	On soil surface: 1mm of fine organic and 2mm of light red, fine sand - not a crust, but loose, dispersed material. Below 70cm, there is a yellow mottling which is predominantly weathered sandstone, but also soft carbonate. Small, hard, sphe
B21	rical nodules of Mn are also present. At 96cm there is an abrupt break to a 5cm thick, fine-gravel bed, composed of Ca, Mn, sandstone gravel, held together by clay matrix. From 96cm there are repeated clay-sand layers, some well structured,
B22	with Mn and carbonate - all with obvious sedimentary breaks at top and bottom. From 145-180 there is a strongly structured B2 of a previous soil with Mn nodules. Difficult to describe 191.06 as a real mix of clay, bedded sand, large soft c
B23	arbonate, with varied grey, brown and white colours continues to 293cm. Carbonate occurs from 190 to 293cm. Below 270 the core enters Garrawilla Volcanics. From 200-270 is Purlawaugh Formation, above Purlawaugh is Pilliga or colluvial sands
C	tone.

Observation Notes

Parent Rock: , , Pilliga Sandstone

Site Notes

Vegetation Stipa ?scabra uncertain, poor material. Pediment upper slope. Surface very hard. Bluff above slope is sandstone and basalt, some basalt floaters seen nearby.

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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	6.75A	0.048A	6.71B	5.63	0.74	0.01				
0 - 0.1	6.69A	0.118A	8.83B	8.07	0.87	0.02				
0.1 - 0.2	7.36A	0.06A	14.79B	15.9	0.82	0.18				
0.3 - 0.4	8.06A	0.061A	12.27B	16.76	0.73	0.48				
0.7 - 0.8	8.86A	0.161A	6.22B	16.82	0.41	1.29				
1.2 - 1.3	8.71A	0.242A	7.23B	17.68	0.33	1.1				
2.5 - 2.6	9.05A	0.433A	7.77B	24.77	0.45	2.22				

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	<0.1B	1.3C									4	18.8
0 - 0.1	<0.1B	1.68C	15.2J								5.4	26.4
0.1 - 0.2	<0.1B	1.1C	1.8J								4.8	42.7
0.3 - 0.4	0.1B	0.51C	<1J								4.8	45.4
0.7 - 0.8	0.3B	0.2C	<1J								5.7	33.5
1.2 - 1.3	0.1B	0.11C	8.2J								6.1	30.8
2.5 - 2.6	44.7B	0.17C	10J								16.8	37.6

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									
2.5 - 2.6									

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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