

**Project Name:** Soil Studies in the Lower Namoi Valley  
**Project Code:** EDGEROI **Site ID:** na008 **Observation ID:** 1  
**Agency Name:** CSIRO Division of Soils (QLD)

#### Site Information

<b>Desc. By:</b>	W.T. Ward	<b>Locality:</b>	stock route, near Bohena
<b>Date Desc.:</b>	08/03/88	<b>Elevation:</b>	237 metres
<b>Map Ref.:</b>	Sheet No. : 8837_S 1:50000	<b>Rainfall:</b>	No Data
<b>Northing/Long.:</b>	6630300 AMG zone: 55	<b>Runoff:</b>	No Data
<b>Easting/Lat.:</b>	753100 Datum: AGD66	<b>Drainage:</b>	No Data

#### Geology

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

#### Land Form

<b>Rel/Slope Class:</b>	No Data	<b>Pattern Type:</b>	No Data
<b>Morph. Type:</b>	No Data	<b>Relief:</b>	No Data
<b>Elem. Type:</b>	Terrace plain	<b>Slope Category:</b>	Level
<b>Slope:</b>	0 %	<b>Aspect:</b>	No Data

**Surface Soil Condition (dry):** Self-mulching

#### Erosion:

#### Soil Classification

<b>Australian Soil Classification:</b>	N/A	<b>Mapping Unit:</b>	N/A
<b>ASC Confidence:</b>	Confidence level not specified	<b>Principal Profile Form:</b>	Ug5.16
		<b>Great Soil Group:</b>	Grey clay

#### Site Disturbance:

#### Vegetation:

#### Surface Coarse Fragments:

#### Profile Morphology

A11	0 - 0.1 m	Brown (10YR4/3-Moist); Brown (10YR5/3-Dry); , 10YR42, 10-20% , 5-15mm, Distinct; Light clay; Moderate grade of structure, 10-20 mm, Angular blocky; Moderate grade of structure, 2-5 mm, Granular; Smooth-ped fabric; Moderately moist; Strong consistence; Field pH 6 (pH meter);
A12	0.1 - 0.25 m	Brown (10YR4/3-Moist); , 10YR42, 0-2% , 5-15mm, Distinct; Light medium clay; 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; Strong consistence; Field pH 4.5 (pH meter); Few, very fine (0-1mm) roots; Gradual, Wavy change to -
B21	0.25 - 0.55 m	Brown (10YR5/3-Moist); ; Medium clay; Weak grade of structure, 50-100 mm, Angular blocky; Moderate grade of structure, 10-20 mm, Angular blocky; Smooth-ped fabric; Earthy fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Field pH 4.5 (pH meter); Few, very fine (0-1mm) roots;
B22	0.55 - 1 m	Greyish brown (10YR5/2-Moist); ; Medium heavy clay; Massive grade of structure; Weak grade of structure, 50-100 mm, Angular blocky; Earthy fabric; Fine, (0 - 5) mm crack; Moderately moist; Very strong consistence; Field pH 4.5 (pH meter); Few, coarse (>5mm) roots;
B23	1 - 1.9 m	Greyish brown (10YR5/2-Moist); ; Medium clay; Massive grade of structure; Earthy fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; Field pH 4.5 (pH meter); Few, very fine (0-1mm) roots;
B24	1.9 - 3 m	Greyish brown (10YR5/2-Moist); ; Medium heavy clay; Weak grade of structure, 100-200 mm, Lenticular; Massive grade of structure; Smooth-ped fabric; Earthy fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; Very few (0 - 2 %), Gypseous, Fine (0 - 2 mm), Crystals; Field pH 6 (pH meter); Diffuse, Smooth change to -
2B21	3 - 4.05 m	Greyish brown (10YR5/2-Moist); ; Medium heavy clay; Weak grade of structure, 100-200 mm, Lenticular; Massive grade of structure; Smooth-ped fabric; Earthy fabric; Fine, (0 - 5) mm crack; Moderately moist; Very strong consistence; Very few (0 - 2 %), Gypseous, Fine (0 - 2 mm), Crystals; Field pH 6 (pH meter);
2B22t	4.05 - 5.05 m	Light brownish grey (10YR6/2-Moist); , 5YR44, 0-2% , 5-15mm, Faint; Heavy clay; Weak grade of structure, Lenticular; Massive grade of structure; Smooth-ped fabric; Fine, (0 - 5) mm crack; Moderately moist; Very strong consistence; Very few (0 - 2 %), Gypseous, Fine (0 - 2 mm), Crystals; Field pH 6 (pH meter);

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2B23t	5.05 - 5.7 m	Dark yellowish brown (10YR4/4-Moist); , 7.5YR66, 0-2% , 0-5mm, Distinct; , 10YR62, 20-50% , 30-mm, Prominent; Medium heavy clay; Moderate grade of structure, 100-200 mm, Lenticular; Massive grade of structure; Smooth-ped fabric; Fine, (0 - 5) mm crack; Moderately moist; Very strong consistence; Field pH 6 (pH meter); Gradual, Smooth change to -
2B24	5.7 - 6.2 m	Red (2.5YR4/6-Moist); , 7.5YR66, 0-2% , 0-5mm, Distinct; , 10YR62, 10-20% , 5-15mm, Distinct; Light clay; Massive grade of structure; Earthy fabric; Sandy (grains prominent) fabric; Fine, (0 - 5) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; 0-2%, medium gravelly, 6-20mm, rounded, Sandstone, coarse fragments; Field pH 5.5 (pH meter);
2B25	6.2 - 6.6 m	Red (2.5YR4/6-Moist); , 7.5YR66, 2-10% , 5-15mm, Distinct; , 10YR74, 10-20% , 15-30mm, Prominent; Light clay; Massive grade of structure; Massive grade of structure; Earthy fabric; Sandy (grains prominent) fabric; Fine, (0 - 5) mm crack; Common (1-5 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; 0-2%, medium gravelly, 6-20mm, rounded, Sandstone, coarse fragments; Field pH 5.5 (pH meter); Diffuse, Smooth change to -
2C	6.6 - 7.4 m	Dark red (10R3/6-Moist); , 2.5Y62, 20-50% , 30-mm, Prominent; , 10YR66, 2-10% , 0-5mm, Distinct; Light clay; Massive grade of structure; Weak grade of structure, 10-20 mm, Angular blocky; Earthy fabric; 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 5.5 (pH meter); Few, very fine (0-1mm) roots;

#### **Morphological Notes**

A11	Brigalow 5. 30-102cm was very hard to split so I conclude this sample is mostly massive (with weak subangular blocky). The 'sand' below 240cm is associated with slickensides and is gypsum. 250-260cm has some conchoidal fracture. Manganese occupies slicked faces at 450cm and prominently at 550cm. At 570cm strongly mottled material appears. This whole profile is very dense. Notice slaking of soil in water. A marked discontinuity at 570cm separates red-weathered sandy alluvium from overlying grey clays but the reddening continues up into the grey clays, being traceable with increasing difficulty up to 450cm. 650-660cm has prominent red 2.5YR4/6 cutans from 570-610cm especially, with rounded sandstone iron-stained gravels between 600 and 630cm. Prior red soil grades to Fitzpatrick's "flambon", the lowermost part being clayey (sample). 008010 is lower prior B2; 00811 is transitional to 00812, representative "flambon". For sample 00811 texture sample b
B21	rom overlying grey clays but the reddening continues up into the grey clays, being traceable with increasing difficulty up to 450cm. 650-660cm has prominent red 2.5YR4/6 cutans from 570-610cm especially, with rounded sandstone iron-stained gravels between 600 and 630cm. Prior red soil grades to Fitzpatrick's "flambon", the lowermost part being clayey (sample). 008010 is lower prior B2; 00811 is transitional to 00812, representative "flambon". For sample 00811 texture sample b
B22	gravels between 600 and 630cm. Prior red soil grades to Fitzpatrick's "flambon", the lowermost part being clayey (sample). 008010 is lower prior B2; 00811 is transitional to 00812, representative "flambon". For sample 00811 texture sample b
B23	reaks down to very clayey sand.
2B24	horizon contains an inherited lithological discontinuity
2B25	horizon contains an inherited lithological discontinuity

#### **Observation Notes**

Parent Rock: aeolian sediment, clay, over weathered sands and clayey sands parna on fifth fan, Bohena

#### **Site Notes**

260m W of Brigalow 5. On top of puff N of road.

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**Laboratory Test Results:**

Depth	pH	1:5 EC	Exchangeable Cations			Exchangeable	CEC	ECEC	ESP
m		dS/m	Ca	Mg	K	Na	Acidity		%
						Cmol	(+)/kg		
0 - 0.02	6.39A	0.414A	10.63B	12.48	2.11	2.24			
0 - 0.1									
0.1 - 0.2	5.39A	0.565A	9.969999	16.04	1.05	3.88			
			B						
0.3 - 0.4	4.48A	0.891A	7.17B	16.74	0.62	5.8			
0.7 - 0.8	4.32A	1.42A	4.57B	16.89	0.54	9.13			
1.2 - 1.3	4.54A	1.498A	3.67B	16.47	0.78	11.21			
2.5 - 2.6	5.3A	1.574A	2.9B	17.86	1.22	13.76			
3.5 - 3.6	5.35A	1.697A	3.02B	17.72	1.29	13.57			
4.5 - 4.6	5.31A	1.597A	2.77B	17.2	1.11	13.19			
5.5 - 5.6	5.29A	1.63A	2.76B	16.55	1.23	13.73			
5.8 - 5.9	5.27A	0.935A	0.8B	6.23	0.55	6.46			
6.5 - 6.6	5.09A	0.9A	0.7B	5.39	0.5	5.66			
7.3 - 7.4	5.06A	1.474A	2.59B	15.02	0.82	12.42			

Depth m	CaCO3	Organic C	Avail. P mg/kg	Total P %	Total N %	Total K %	Bulk Density Mg/m3	Particle		Size FS %	Analysis	
	%	%						GV	CS		Silt	Clay
0 - 0.02 0 - 0.1	<0.1B	2.71C	14.3J									
0.1 - 0.2	<0.1B	2.37C	3.2J									
0.3 - 0.4	<0.1B	0.78C	1.4J									
0.7 - 0.8	<0.1B	0.51C	1.2J									
1.2 - 1.3	<0.1B	0.28C	1.3J									
2.5 - 2.6	1.6B	0.09C	1.7J									
3.5 - 3.6	<0.1B	0.18C	2.1J									
4.5 - 4.6	<0.1B	0.09C	3.5J									
5.5 - 5.6	<0.1B	0.12C	2J									
5.8 - 5.9	<0.1B	0.05C	2.6J									
6.5 - 6.6	<0.1B	<0.01C	3J									
7.3 - 7.4	<0.1B	0.04C	2J									

[illegible]

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**Laboratory Analyses Completed for this profile**

15A2_CA	Exchangeable bases (Ca <sup>2+</sup> ,Mg <sup>2+</sup> ,Na <sup>+</sup> ,K <sup>+</sup> ) - 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