

**Project Name:** Soil Studies in the Lower Namoi Valley  
**Project Code:** EDGEROI **Site ID:** na009 **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> 6630200 AMG zone: 55	<b>Runoff:</b> No Data
<b>Easting/Lat.:</b> 753600 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> Ug5.14
	<b>Great Soil Group:</b> Grey clay

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

#### Vegetation:

#### Surface Coarse Fragments:

#### Profile Morphology

A11	0 - 0.1 m	Dark brown (7.5YR3/2-Moist); Brown (7.5YR4/2-Dry); ; Light clay; Strong grade of structure, 20-50 mm, Angular blocky; 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; Field pH 8 (pH meter); Few, very fine (0-1mm) roots;
A12	0.1 - 0.25 m	Dark brown (7.5YR3/2-Moist); ; Medium clay; Strong 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; Strong consistence; Few (2 - 10 %), Calcareous, Medium (2 -6 mm), Soft segregations; Field pH 8.8 (pH meter); Few, very fine (0-1mm) roots;
A13	0.25 - 0.55 m	Brown (7.5YR4/2-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; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Soft segregations; Field pH 8.8 (pH meter); Few, very fine (0-1mm) roots;
A14	0.55 - 0.85 m	Dark greyish brown (10YR4/2-Moist); , 10YR63, 2-10% , 5-15mm, Distinct; Light medium clay; Weak grade of structure, 100-200 mm, Angular blocky; Earthy fabric; Few (<1 per 0.01m2) Medium (2-5mm) macropores, Moderately moist; Strong consistence; 0-2%, medium gravelly, 6-20mm, subrounded, Quartz, coarse fragments; Field pH 8.8 (pH meter); Few, fine (1-2mm) roots; Clear, Smooth change to -
2A	0.85 - 2 m	Greyish brown (10YR5/2-Moist); ; Light medium clay; Weak grade of structure, 100-200 mm, Lenticular; Massive grade of structure; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Rigid consistence; Field pH 5.5 (pH meter); Few, very fine (0-1mm) roots; Diffuse, Smooth change to -
3A	2 - 3.2 m	Light brownish grey (10YR6/2-Moist); , 10YR62, 20-50% , 5-15mm, Faint; Light clay; Massive grade of structure; Sandy (grains prominent) fabric; Smooth-ped fabric; Moderately moist; Rigid consistence; Field pH 4.5 (pH meter); Diffuse, Smooth change to -
3B21	3.2 - 4.05 m	Weak red (10R4/4-Moist); , 10YR62, 20-50% , 30-mm, Prominent; Light clay; Massive grade of structure; 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);

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3B22	4.05 - 5.05 m	Dusky red (10R3/4-Moist); , 10YR62, 20-50% , 30-mm, Prominent; Light clay; Massive grade of structure; Moderate grade of structure, 5-10 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Field pH 4 (pH meter);
3B23	5.05 - 6.49 m	Dusky red (10R3/4-Moist); , 10YR72, 20-50% , 30-mm, Prominent; Light clay; Massive grade of structure; Weak grade of structure, 10-20 mm, Angular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm <sup>2</sup> ) Very fine (0.075-1mm) macropores, Moderately moist; Strong consistence; Very few (0 - 2 %), Ferruginous, Coarse (6 - 20 mm), Nodules; Field pH 4 (pH meter);

#### **Morphological Notes**

A11	Brigalow 6 is the original site 4, missed on the first pass. The gypsum forms a band from 10-24cm; pores at 70-80cm form an ants nest. Second core is very, very hard to cut. At about 200cm the core becomes steadily sandier, without slickens
A12	ides (the last slickenside being at 190). This suggests that the sediment is alluvium. The major part of the segregation is carbonate, but some gypsum is present. 270-280cm was sampled by mistake for 250-260cm, no change in morphology. Ped
A13	faces at 475-520cm show surface horizontal striations, proving relative movement of soil along structural faces. There are only a very few concretions at 560cm. Note slickenside at 575cm. 350-360cm includes inwashed sand. The buried altered
A14	prior soil might start at 85cm (i.e., burials 2 & 3 might be the same); it is difficult to pick the contact but the profile seems to be sandier below 85cm.
2A	horizon contains an inherited lithological discontinuity

#### **Observation Notes**

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

#### **Site Notes**

Site was missed at first pass.

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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 Cmol (+)/kg	Acidity		%
0 - 0.1	7.34A	0.239A	22.13B	9.01	0.78	1.16			
0.1 - 0.2	8.44A	0.331A	21.2B	13.51	0.73	2.7			
0.2 - 0.3	8.86A	0.741A	9.64B	16.39	0.55	6.92			
0.7 - 0.8	8.08A	0.724A	6.86B	16.22	0.3	8.04			
1.2 - 1.3	5.05A	0.757A	4.62B	14.87	0.2	8.55999			
						9			
2.7 - 2.8	4.64A	0.509A	1.05B	8.530001	0.11	5.63			
3.5 - 3.6	4.76A	0.415A	0.66B	6.56	0.13	4.99			
4.5 - 4.6	4.56A	0.598A	0.69B	8.74	0.21	6.65			
5.5 - 5.6	4.55A	0.581A	0.53B	6.07	0.16	5.11			

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 - 0.1	0.2B	2.79C	9.8J									
0.1 - 0.2	0.7B	2.06C	5.2J									
0.2 - 0.3	1.6B	0.76C	1.5J									
0.7 - 0.8	<0.1B	0.21C	2J									
1.2 - 1.3	<0.1B	0.25C	1.8J									
2.7 - 2.8	<0.1B	0.15C	1.9J									
3.5 - 3.6	<0.1B	0.04C	2.8J									
4.5 - 4.6	<0.1B	0.08C	1.4J									
5.5 - 5.6	<0.1B	0.04C	1.4J									

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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