Soil Studies in the Lower Namoi Valley **Project Name:**

Project Code: EDGEROI Site ID: Observation ID: 1 ed172

Agency Name: **CSIRO Division of Soils (QLD)**

Site Information

Locality: I.O.(lan) Falkiner, Murrumbilla D. McGarry

Desc. By: Date Desc.: Elevation: 06/06/86 299 metres Sheet No.: 8837_N 1:50000 Map Ref.: Rainfall: No Data Northing/Long.: 6655500 AMG zone: 55 Runoff: No Data Easting/Lat.: 778400 Datum: AGD66 Drainage: No Data

Geology

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

Land Form

Rel/Slope Class: No Data Pattern Type: No Data Morph. Type: Elem. Type: No Data Relief: No Data

Hillslope **Slope Category:** Very gently sloped Slope: 1 % Aspect: 180 degrees

Surface Soil Condition (dry): Soft

Erosion:

Soil Classification

Australian Soil Classification: Mapping Unit: N/A Principal Profile Form: Dg3.42 **ASC Confidence: Great Soil Group:** Soloth

Confidence level not specified

Site Disturbance:

Vegetation:

Surface Coarse Fragments:

Profil	e Morphology	
A11	0 - 0.1 m	Dark brown (7.5YR3/4-Moist); ; Sand; Single grain grade of structure, <2 mm; Weak grade of structure, 5-10 mm, Granular; Sandy (grains prominent) fabric; Earthy fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very weak consistence; Field pH 6.5 (pH meter); Few, very fine (0-1mm) roots;
A12	0.1 - 0.2 m	Dark brown (10YR3/3-Moist); ; Sand; Weak grade of structure, 5-10 mm, Angular blocky; Weak grade of structure, 2-5 mm, Granular; Rough-ped fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very weak consistence; Field pH 5.8 (pH meter); Few, very fine (0-1mm) roots; Diffuse, Smooth change to -
A21	0.2 - 0.65 m	Strong brown (7.5YR5/6-Moist); ; Sand; Massive grade of structure; Sandy (grains prominent) fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very weak consistence; Field pH 6 (pH meter); Few, very fine (0-1mm) roots; Clear, Smooth change to -
A22	0.65 - 0.85 m	Yellowish red (5YR5/6-Moist); , 10YR21, 0-2% , 0-5mm, Distinct; Clayey sand; Massive grade of structure; Sandy (grains prominent) fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very weak consistence; Very few (0 - 2 %), Ferruginous, Medium (2 -6 mm), Tubules; Field pH 6 (pH meter); Few, very fine (0-1mm) roots;
A23	0.85 - 1.1 m	Red (2.5YR4/6-Moist); ; Clayey sand; Massive grade of structure; Sandy (grains prominent) fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Weak consistence; Many (20 - 50 %), Ferruginous, Very coarse (20 - 60 mm), Soft segregations; Field pH 5.7 (pH meter); Few, very fine (0-1mm) roots;
A24	1.1 - 1.38 m	Strong brown (7.5YR5/8-Moist); ; Clayey sand; Massive grade of structure; Sandy (grains prominent) fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Weak consistence; Very few (0 - 2 %), Ferruginous, Fine (0 - 2 mm), Soft segregations; Field pH 5.7 (pH meter); Few, very fine (0-1mm) roots;
A25	1.38 - 1.55 m	Very pale brown (10YR7/3-Moist); ; Clayey sand; Massive grade of structure; Sandy (grains prominent) fabric; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Weak consistence; Very few (0 - 2 %), Ferruginous, Fine (0 - 2 mm), Soft segregations; Field pH 7 (pH meter); Few, very fine (0-1mm) roots; Sharp, Smooth change to -
B2	1.55 - 2.14 m	Light grey (10YR7/2-Moist); ; Clayey sand; Massive grade of structure; Sandy (grains prominent) fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Fine (1-2mm) macropores,

Moderately moist; Strong consistence; Field pH 6.5 (pH meter); Sharp, Smooth change to -

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2B2 2.14 - 2.7 m Strong brown (7.5YR5/6-Moist); , N20, 0-2% , 0-5mm, Prominent; Light 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; Strong consistence; 2-10%, cobbly, 60-200mm, angular tabular, Consolidated rock (unidentified), coarse fragments; Field pH

8.5 (pH meter);

Morphological Notes

A11 0-3cm is 7.5YR4/4 sand, loose, single grain - i.e., lighter than 3-10cm. The A2 is very

slightly bleached. Though 65-130 is brightened ferruginous material, it has formed in the

A2. Sample .05 is very ferruginized (red) layer, .06 is below

A12 the bright red material, .07 is immediately (10cm) above the B2, .08 is the top of the B2.

The break at 214 marks the break from grey/white (perhaps silicified) brittle sand(stone)

above to structured clay (with soil attributes) below. At 2

A21 45-250 there are plates of silicified sandstone and quartz gravels in a band, horizontal to

the surface - similar to contact with Garawilla Volcanics.

Observation Notes

Parent Rock: alluvial sediment, sandstone, Pilliga Sandstone, weathered

Site Notes

Very soft sandy surface, beneath which is a hard setting, dark grey layer. Depth of surface (dispersed?) sand is 0.1-2cm. The small tree is quinine, the deep subsoil is ? prior soil ferruginous horizon.

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Laboratory Test Results:

Depth	рН	1:5 EC		hangeable			Exchangeable	e CEC		ECEC	1	ESP
m		dS/m	Ca I	Mg	K	Na Cmol (+	Acidity)/kg					%
0 - 0.02	6.3A	0.0164	0.000	0.20	0.27	-0.01						
0 - 0.02	5.74A	0.016A 0.087A	0.92B 1.07B	0.28 0.22	0.27 0.26	<0.01						
0.1 - 0.2	5.74A 5.72A	0.037A	0.5B	0.22	0.20	<0.03						
0.1 - 0.2	5.72A 5.52A	0.036A		0.14	0.3	<0.01						
0.7 - 0.8	6.13A	0.011A		0.55	0.42	<0.01						
0.9 - 1	5.78A	0.011A		0.53	0.34	<0.01						
1.2 - 1.3	5.98A	0.013A	0.7B	0.38	0.45	< 0.01						
1.45 - 1.55	6.73A	0.019A	<0.1B	0.62	0.36	< 0.01						
1.55 - 1.65	6.98A	0.03A	<0.1B	1.89	0.53	0.21						
2.5 - 2.6	8.35A	0.117A	<0.1B	17.86	2.5	2.22						
Depth	CaCO3	Organic	Avail.	Total	Total	Total	Bulk	P	article	Size	Analysis	
- op		C	P	P	N	K	Density		CS	FS	Silt	
m	%	%	mg/kg	%	%	%	Mg/m3			%		•
0 - 0.02	<0.1B										3.3	5.7
0 - 0.1	<0.1B	1.11C	39.5J								2.1	6.2
0.1 - 0.2	<0.1B		83.9J								3	7.8
0.3 - 0.4	<0.1B	0.2C	18.5J								3.2	8
0.7 - 0.8 0.9 - 1	<0.1B <0.1B		1.8J 1.2J								3.4 3.6	11.1 11.5
1.2 - 1.3	<0.1B		1.2J 1.3J								3.4	11.3
1.45 - 1.55	<0.1B		1.3J								3.5	7.4
1.55 - 1.65	<0.1B		<1J								6.9	17.9
2.5 - 2.6	<0.1B		3.5J								5.7	41.7
2.0 2.0	10.15	0.000	0.00								0.7	
Depth	COLE	COLE Gravimetric/Volumetric Water Contents K sat								K unsa		
Dopu.	0011	Sat.		0.1 Bar	0.5 Bar	1 Bar		15 Bar	3			-
m					/g - m3/m				mm	/h	mm/h	
0 - 0.02												
0 - 0.02												

0 - 0.1 0.1 - 0.2 0.3 - 0.4 0.7 - 0.8

0.7 - 0.8 0.9 - 1 1.2 - 1.3 1.45 - 1.55 1.55 - 1.65 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 Silt (%) - Coventry and Fett pipette method