

**Project Name:** Soil Studies in the Lower Namoi Valley  
**Project Code:** EDGEROI **Site ID:** ed171 **Observation ID:** 1  
**Agency Name:** CSIRO Division of Soils (QLD)

#### Site Information

|   |  |
|---|--|
| <b>Desc. By:</b> W.T. Ward                  | <b>Locality:</b> A.O.(Gus) Falkiner, Murrumbilla |
| <b>Date Desc.:</b> 04/12/86                 | <b>Elevation:</b> 274 metres                     |
| <b>Map Ref.:</b> Sheet No. : 8837_N 1:50000 | <b>Rainfall:</b> No Data                         |
| <b>Northing/Long.:</b> 6655600 AMG zone: 55 | <b>Runoff:</b> No Data                           |
| <b>Easting/Lat.:</b> 775700 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> Hillslope    | <b>Slope Category:</b> Gently inclined |
| <b>Slope:</b> 6 %               | <b>Aspect:</b> 190 degrees             |

**Surface Soil Condition (dry):** Hardsetting, Trampled

#### 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> Dy5.13 |
|   | <b>Great Soil Group:</b> Solodic soil |

**Site Disturbance:** Cultivation. Rainfed

#### Vegetation:

#### Surface Coarse Fragments:

#### Profile Morphology

|     |              |   |
|-----|--------------|---|
| A11 | 0 - 0.1 m    | Dark brown (7.5YR3/2-Moist); Brown (10YR5/3-Dry); ; Sandy clay loam (Light); Weak grade of structure, 5-10 mm, Platy; 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; Very firm consistence; Field pH 5.5 (pH meter); Few, very fine (0-1mm) roots;  |
| A12 | 0.1 - 0.3 m  | Dark brown (7.5YR3/2-Moist); ; Sandy clay loam (Light); Moderate 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; Weak consistence; Field pH 6 (pH meter); Few, very fine (0-1mm) roots; Abrupt, Smooth change to -  |
| B21 | 0.3 - 0.55 m | Yellowish red (5YR4/6-Moist); , 5YR51, 10-20% , 5-15mm, Distinct; , 7.5YR42, 0-2% , 0-5mm, Distinct; 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; Very firm consistence; Field pH 7 (pH meter); Few, very fine (0-1mm) roots;   |
| B22 | 0.55 - 1.2 m | Strong brown (7.5YR5/6-Moist); , 5YR51, 2-10% , 5-15mm, Distinct; , 7.5YR42, 0-2% , 0-5mm, Distinct; Light clay; Moderate grade of structure, 100-200 mm, Prismatic; 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; Field pH 8.5 (pH meter); Gradual, Smooth change to -   |
| B23 | 1.2 - 1.9 m  | Brown (7.5YR5/4-Moist); , 2.5YR44, 10-20% , 5-15mm, Distinct; , 7.5YR74, 0-2% , 5-15mm, Distinct; Light clay; Weak grade of structure, 100-200 mm, Prismatic; Weak grade of structure, 20-50 mm, Platy; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; 0-2%, fine gravelly, 2-6mm, subangular, Quartz, coarse fragments; Very few (0 - 2 %), Calcareous, Medium (2 -6 mm), Nodules; Field pH 9 (pH meter); |
| 2B2 | 1.9 - 2.83 m | Dark red (10R3/6-Moist); , 10YR62, 10-20% , 15-30mm, Prominent; , 10YR82, 2-10% , 5-15mm, Prominent; Light clay; Weak grade of structure, 20-50 mm, Platy; Smooth-ped fabric; Fine, (0 - 5) mm crack; Few (<1 per 100mm2) Very fine (0.075-1mm) macropores, Moderately moist; Very strong consistence; Few (2 - 10 %), Calcareous, Coarse (6 - 20 mm), Nodules; Field pH 8.5 (pH meter);  |

#### Morphological Notes

A11 Colour for Horizon 2 is drainage mottle. Large cracks in subsoil faced with top soil sand, extends through 171.03, 171.04. Carbonate nodules appear below 80cm. Approx. 60% of core consists of red material. Horizon 5 has a fourth colour 7.5Y

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A12      R5/2, poor drainage. Prominent red colouring in subsoil again an indication of prior red weathering; the grey is in fissures Residual Jurassic alluvium. One or two small scattered pebbles in lower part of core.

**Observation Notes**

Parent Rock: residual, mixed texture, with lime, clay Pilliga Sandstone, weathered

**Site Notes**

Large shear vane will not penetrate. Very hard just beneath surface, which is hardsetting rather than crusted. Note red paleosol in subsurface.

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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  | 5.73A | 0.194A | 2.85B                | 1.42  | 1.01 | <0.01        |         |      |     |
| 0 - 0.1   | 5.58A | 0.065A | 2.11B                | 1.67  | 0.85 | 0.04         |         |      |     |
| 0.1 - 0.2 | 6.15A | 0.037A | 4.12B                | 2.15  | 0.68 | 0.11         |         |      |     |
| 0.3 - 0.4 | 7.33A | 0.052A | 5.02B                | 6.36  | 0.63 | 0.91         |         |      |     |
| 0.7 - 0.8 | 8.76A | 0.173A | 3.7B                 | 11.42 | 0.67 | 2.51         |         |      |     |
| 1.2 - 1.3 | 8.77A | 0.663A | 1.88B                | 12.47 | 0.48 | 4.29         |         |      |     |
| 2.5 - 2.6 | 9.01A | 0.484A | 0.2B                 | 7.1   | 0.14 | 3.56         |         |      |     |

[illegible][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   |
| P10_CF_C | Clay (%) - Coventry and Fett pipette method  |
| P10_CF_Z | Silt (%) - Coventry and Fett pipette method  |