**Project Name:** RR
**Project Code:** RR **Site ID:** B554 **Observation ID:** 1
**Agency Name:** CSIRO Division of Soils (QLD)

## Site Information

| | | | |
|---|---|---|---|
| **Desc. By:** | G.D. Hubble | **Locality:** | |
| **Date Desc.:** | 21/09/66 | **Elevation:** | 305 metres |
| **Map Ref.:** | Sheet No. : 9044 1:100000 | **Rainfall:** | 690 |
| **Northing/Long.:** | 150.6 | **Runoff:** | Moderately rapid |
| **Easting/Lat.:** | -26.7166666666667 | **Drainage:** | Imperfectly drained |

## Geology

| | | | |
|---|---|---|---|
| **ExposureType:** | Soil pit | **Conf. Sub. is Parent. Mat.:** | No Data |
| **Geol. Ref.:** | No Data | **Substrate Material:** | Undisturbed soil core, 3.5 m deep,No Data |

## Land Form

| | | | |
|---|---|---|---|
| **Rel/Slope Class:** | Gently undulating plains <9m 1-3% | **Pattern Type:** | Plain |
| **Morph. Type:** | No Data | **Relief:** | 9 metres |
| **Elem. Type:** | Plain | **Slope Category:** | No Data |
| **Slope:** | 0 % | **Aspect:** | No Data |

## Surface Soil Condition (dry):

## Erosion:

## Soil Classification

**Australian Soil Classification:**
Epiacidic Self-Mulching Grey Vertosol
**ASC Confidence:**
All necessary analytical data are available.

**Mapping Unit:** N/A
**Principal Profile Form:** Ug5.24
**Great Soil Group:** Grey clay

**Site Disturbance:** Extensive clearing, for example poisoning, ringbarking

**Vegetation:** Low Strata - , , . *Species includes - None recorded
Tall Strata - Tree, , Isolated plants. *Species includes - Acacia harpophylla, Brachychiton rupestre

**Surface Coarse Fragments:** No surface coarse fragments

## Profile Morphology

| | | |
|---|---|---|
| A1 | 0 - 0.05 m | Dark greyish brown (10YR4/2-Moist); ; Light medium clay; Strong grade of structure, 5-10 mm, Granular; Dry; Loose consistence; 0-2%, fine gravelly, 2-6mm, Quartz, coarse fragments; Field pH 6.9 (pH meter); Abrupt change to - |
| B2 | 0.05 - 0.1 m | Brown (7.5YR4/2-Moist); ; Medium heavy clay; Strong grade of structure, 20-50 mm, Angular blocky; 10-20 mm, Angular blocky; Moist; Very firm consistence; 0-2%, fine gravelly, 2-6mm, Quartz, coarse fragments; Very few (0 - 2 %), Manganiferous, , Soft segregations; Field pH 6 (pH meter); |
| B2 | 0.1 - 0.2 m | Brown (7.5YR4/2-Moist); ; Medium heavy clay; Strong grade of structure, 20-50 mm, Angular blocky; 10-20 mm, Angular blocky; Moist; Very firm consistence; 0-2%, fine gravelly, 2-6mm, Quartz, coarse fragments; Very few (0 - 2 %), Manganiferous, , Soft segregations; Field pH 5.3 (pH meter); Gradual change to - |
| B2 | 0.2 - 0.3 m | Brown (7.5YR5/2-Moist); ; Medium heavy clay; Strong grade of structure, 20-50 mm, Angular blocky; 10-20 mm, Angular blocky; Moist; Firm consistence; 0-2%, fine gravelly, 2-6mm, Quartz, coarse fragments; Very few (0 - 2 %), Manganiferous, , Soft segregations; Field pH 5 (pH meter); |
| B2 | 0.3 - 0.45 m | Brown (7.5YR5/2-Moist); ; Medium heavy clay; Strong grade of structure, 20-50 mm, Angular blocky; 10-20 mm, Angular blocky; Moist; Firm consistence; 0-2%, fine gravelly, 2-6mm, Quartz, coarse fragments; Very few (0 - 2 %), Manganiferous, , Soft segregations; Field pH 4.7 (pH meter); Diffuse change to - |
| B2 | 0.45 - 0.6 m | Brown (10YR5/3-Moist); ; Medium heavy clay; Moderate grade of structure, 20-50 mm, Polyhedral; 5-10 mm, Polyhedral; Moist; Slightly plastic; 0-2%, fine gravelly, 2-6mm, Quartz, coarse fragments; Very few (0 - 2 %), Manganiferous, Fine (0 - 2 mm), Nodules; Field pH 4.6 (pH meter); |
| B2 | 0.6 - 0.9 m | Brown (10YR5/3-Moist); ; Medium heavy clay; Moderate grade of structure, 20-50 mm, Polyhedral; 5-10 mm, Polyhedral; Moist; Slightly plastic; Very few (0 - 2 %), Manganiferous, Fine (0 - 2 mm), Nodules; Field pH 4.4 (pH meter); Diffuse change to - |
| B2 | 0.9 - 1.2 m | Greyish brown (10YR5/2-Moist); ; Medium heavy clay; Moderate grade of structure, 100-200 mm, Lenticular; 5-10 mm, Lenticular; Moist; Slightly plastic; Very few (0 - 2 %), Manganiferous, Fine (0 - 2 mm), Nodules; Field pH 4.4 (pH meter); |

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| | | |
|---|---|---|
| B2 | 1.2 - 1.5 m | Greyish brown (10YR5/2-Moist); ; Medium heavy clay; Moderate grade of structure, 100-200 mm, Lenticular; 5-10 mm, Lenticular; Moist; Slightly plastic; Very few (0 - 2 %), Manganiferous, Fine (0 - 2 mm), Nodules; Field pH 4.4 (pH meter); Diffuse change to - |
| B2 | 1.5 - 1.8 m | Light brownish grey (10YR6/2-Moist); , 2.5Y54, 2-10% , 15-30mm, Faint; , 7.5YR53, 2-10% , 15-30mm, Faint; Medium heavy clay; Strong grade of structure, 100-200 mm, Lenticular; 5-10 mm, Lenticular; Moist; Moderately plastic; Field pH 4.5 (pH meter); |
| B2 | 1.8 - 2.1 m | Light brownish grey (10YR6/2-Moist); , 2.5Y54, 2-10% , 15-30mm, Faint; , 7.5YR53, 2-10% , 15-30mm, Faint; Medium heavy clay; Strong grade of structure, 100-200 mm, Lenticular; 5-10 mm, Lenticular; Moist; Moderately plastic; |
| B2 | 2.1 - 2.4 m | Light brownish grey (10YR6/2-Moist); , 2.5Y54, 2-10% , 15-30mm, Faint; , 7.5YR53, 2-10% , 15-30mm, Faint; Medium heavy clay; Strong grade of structure, 100-200 mm, Lenticular; 5-10 mm, Lenticular; Moist; Moderately plastic; |
| B2 | 2.4 - 2.7 m | Light brownish grey (10YR6/2-Moist); , 2.5Y54, 2-10% , 15-30mm, Faint; , 7.5YR53, 2-10% , 15-30mm, Faint; Medium heavy clay; Strong grade of structure, 100-200 mm, Lenticular; 5-10 mm, Lenticular; Moist; Moderately plastic; Diffuse change to - |
| B3 | 2.7 - 3 m | Light brownish grey (10YR6/2-Moist); , 5YR53, 10-20% , 0-5mm, Distinct; , 10YR83, 10-20% , 0-5mm, Distinct; Medium heavy clay; Strong grade of structure, 100-200 mm, Lenticular; 5-10 mm, Lenticular; Moist; Moderately plastic; Very few (0 - 2 %), Manganiferous, , Soft segregations; |
| B3 | 3 - 3.3 m | Light brownish grey (10YR6/2-Moist); , 5YR53, 10-20% , 0-5mm, Distinct; , 10YR83, 10-20% , 0-5mm, Distinct; Medium heavy clay; Strong grade of structure, 100-200 mm, Lenticular; 5-10 mm, Lenticular; Moist; Moderately plastic; Very few (0 - 2 %), Manganiferous, , Soft segregations; Diffuse change to - |
| B3 | 3.3 - 3.4 m | Light brownish grey (10YR6/2-Moist); , 10YR82, 20-50% , 0-5mm, Distinct; , 5YR58, 20-50% , 0-5mm, Distinct; Medium heavy clay; Moderate grade of structure, 100-200 mm, Lenticular; 5-10 mm, Polyhedral; Moderately plastic; 0-2%, medium gravelly, 6-20mm, Silcrete, coarse fragments; Gradual change to - |
| B3 | 3.4 - 3.5 m | Light brownish grey (10YR6/2-Moist); , 10YR82, 20-50% , 5-15mm, Distinct; , 20-50% , 5-15mm, Distinct; Medium heavy clay; Weak grade of structure, 100-200 mm, Lenticular; 5-10 mm, Polyhedral; Moderately plastic; 2-10%, medium gravelly, 6-20mm, Silcrete, coarse fragments; Gradual change to - |
| C | 3.5 - 3.75 m | ; |

## Morphological Notes

C BW(10YR8/2) & VPB(10YR7/3) weat'd siltstone with clay veins

## Observation Notes

ORIGINAL VEGETATION WAS MID-HIGH CLOSED FOREST;BRIGALOW DOMINANT THIN SURFACE CRUST. BW(10YR8/2) & VPB(10YR7/3) WEATH ERED SANDSTONE WITH CLAY VEINS.

## Site Notes

CHINCHILLA

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## Laboratory Test Results:

| Depth | pH | 1:5 EC | Exchangeable Cations Ca | Mg | K | Na | Exchangeable Acidity | CEC | ECEC | ESP |
|---|---|---|---|---|---|---|---|---|---|---|
| m | | dS/m | | | | Cmol (+)/kg | | | | % |
| 0 - 0.05 | 6.9A | 0.06A | 14.6B | 11.5 | 0.97 | 1.3 | 0D | | | |
| 0.05 - 0.1 | 6A | 0.41A | 10.8B | 11.1 | 0.96 | 2.5 | 2.4D | | | |
| 0.1 - 0.2 | 5.3A | 0.7A | 7.7B | 11.4 | 1 | 3.2 | 2.2D | | | |
| 0.2 - 0.3 | 5A | 1.03A | | | | | | | | |
| 0.3 - 0.45 | 4.7A | 1.27A | 4.4B | 13.2 | 0.81 | 6 | 2D | | | |
| 0.45 - 0.6 | 4.6A | 1.46A | 3.5B | 11.5 | 0.8 | 7 | 3.6D | | | |
| 0.6 - 0.9 | 4.4A | 1.7A | 2.9B | 10.9 | 0.74 | 7.6 | 3.4D | | | |
| 0.9 - 1.2 | 4.4A | 1.78A | 2.6B | 11.3 | 0.7 | 8.3 | 3.4D | | | |
| 1.2 - 1.5 | 4.4A | 2.03A | | | | | | | | |
| 1.5 - 1.8 | 4.5A | 2A | 2.5B | 11.4 | 0.75 | 9.1 | 2.6D | | | |
| 1.8 - 2.1 | 4.7A | 1.97A | | | | | | | | |
| 2.1 - 2.4 | 4.6A | 2.16A | | | | | | | | |
| 2.4 - 2.7 | 4.6A | 2.59A | | | | | | | | |
| 2.7 - 3 | 4.5A | 2.97A | 2.5B | 9.8 | 0.7 | 10.1 | 0.92D | | | |
| 3 - 3.3 | 4.6A | 2.97A | | | | | | | | |
| 3.3 - 3.4 | 4.5A | 2.7A | | | | | | | | |
| 3.4 - 3.5 | 4.5A | 2.43A | 52.1B | 7.9 | 0.58 | 6.9 | 0D | | | |
| 3.5 - 3.75 | 4.4A | 2.27A | | | | | | | | |

| 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 - 0.05 | | 1.74A | 36A | 0.027A | 0.14B | 0.44A | 1.04 | 1 | 3C | 22 | 16 | 54 |
| 0.05 - 0.1 | | 1.28A | 15A | 0.021A | 0.1B | 0.42A | 1.42 | 1 | 2C | 19 | 16 | 58 |
| 0.1 - 0.2 | | 1.28A | | 0.015A | 0.098B | 0.42A | 1.42 | 1 | 2C | 16 | 16 | 60 |
| 0.2 - 0.3 | | | | | | | | | | | | |
| 0.3 - 0.45 | | 0.76A | | 0.014A | 0.061B | 0.41A | 1.45 | 1 | 1C | 15 | 17 | 63 |
| 0.45 - 0.6 | | | | 0.01A | 0.048B | 0.42A | 1.50 | 1 | 0C | 17 | 16 | 64 |
| 0.6 - 0.9 | | | | 0.011A | 0.036B | 0.4A | 1.50 | 1 | 0C | 16 | 18 | 64 |
| | | | | | | | 1.50 | | | | | |
| 0.9 - 1.2 | | | | 0.01A | 0.03B | 0.41A | 1.54 | 1 | 0C | 14 | 19 | 67 |
| 1.2 - 1.5 | | | | | | | 1.57 | | | | | |
| 1.5 - 1.8 | | | | 0.009A | 0.028B | 0.43A | | 1 | 0C | 13 | 20 | 65 |
| 1.8 - 2.1 | | | | | | | | | | | | |
| 2.1 - 2.4 | | | | | | | | 1 | 0C | 12 | 20 | 68 |
| 2.4 - 2.7 | | | | | | | | | | | | |
| 2.7 - 3 | | | | | | | | 1 | 0C | 10 | 21 | 70 |
| 3 - 3.3 | | | | | | | | | | | | |
| 3.3 - 3.4 | | | | | | | | | | | | |
| 3.4 - 3.5 | | | | | | | | 1 | 0C | 10 | 35 | 56 |
| 3.5 - 3.75 | | | | | | | | 1 | 0C | 11 | 45 | 44 |

| Depth | COLE | Gravimetric/Volumetric Water Contents Sat. | 0.05 Bar | 0.1 Bar | 0.5 Bar | 1 Bar | 5 Bar | 15 Bar | K sat | K unsat |
|---|---|---|---|---|---|---|---|---|---|---|
| m | | | | g/g - m3/m3 | | | | | mm/h | mm/h |
| 0 - 0.05 | | | | 0.34F | | | | 0.2H | | |
| 0.05 - 0.1 | | | | 0.31F | | | | 0.21H | | |
| 0.1 - 0.2 | | | | 0.39F | | | | 0.26H | | |
| 0.2 - 0.3 | | | | | | | | | | |

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| | | |
|---|---|---|
| 0.3 - 0.45 | 0.41F | 0.28H |
| 0.45 - 0.6 | 0.43F | 0.3H |
| 0.6 - 0.9 | 0.43F | 0.32H |
| 0.9 - 1.2 | 0.41F | 0.31H |
| 1.2 - 1.5 | 0.42F | 0.33H |
| 1.5 - 1.8 | | |
| 1.8 - 2.1 | | |
| 2.1 - 2.4 | | |
| 2.4 - 2.7 | | |
| 2.7 - 3 | | |
| 3 - 3.3 | | |
| 3.3 - 3.4 | | |
| 3.4 - 3.5 | | |
| 3.5 - 3.75 | | |

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**Laboratory Analyses Completed for this profile**

| | |
|---|---|
| 10A1 | Total sulfur - X-ray fluorescence |
| 15_NR_H | Hydrogen Cation - meq per 100g of soil - Not recorded |
| 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 |
| 17A1 | Total potassium - X-ray fluorescence |
| 2_LOI | Loss on Ignition (%) |
| 2A1 | Air-dry moisture content |
| 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 |
| 6A1 | Organic carbon - Walkley and Black |
| 7_NR | Total nitrogen (%) - Not recorded |
| 9A1 | Total phosphorus - X-ray fluorescence |
| 9B_9C | Available P (mg/kg) - Bicarbonate P - 0.5M NaHCO3 extractable |
| P10_GRAV | Gravel (%) |
| P10_NR_C | Clay (%) - Not recorded |
| P10_NR_CS | Coarse sand (%) - Not recorded |
| P10_NR_FS | Fine sand (%) - Not recorded |
| P10_NR_Z | Silt (%) - Not recorded |
| P3A_NR | Bulk density - Not recorded |
| P3A1 | Bulk density - g/cm3 |
| P3B3VLe004 | 0.04 BAR Moisture m3/m3 - Volumetric using undisturbed 60mm diameter and 34mm height core on suction plate |
| P3B3VLe01 | 0.1 BAR Moisture m3/m3 - Volumetric using undisturbed 60mm diameter and 34mm height core on suction plate |
| P3B3VLe03 | 0.3 BAR Moisture m3/m3 - Volumetric using undisturbed 60mm diameter and 34mm height core on suction plate |
| P3B3VLe06 | 0.6 BAR Moisture m3/m3 - Volumetric using undisturbed 60mm diameter and 34mm height core on pressure plate |
| P3B3VLe15 | 15 BAR Moisture m3/m3 - Volumetric using undisturbed 60mm diameter and 34mm height core on pressure plate |
| P3B3VLe2 | 2 BAR Moisture m3/m3 - Volumetric using undisturbed 60mm diameter and 34mm height core on pressure plate |
| P3B3VLe7 | 7 BAR Moisture m3/m3 - Volumetric using undisturbed 60mm diameter and 34mm height core on pressure plate |