

**Project Name:** Preliminary Assessment and Survey of Land Degradation in the Dalrymple Shire, QLD  
**Project Code:** DLR **Site ID:** T502 **Observation ID:** 1  
**Agency Name:** QLD Department of Primary Industries

#### Site Information

|   |                                 |
|---|---------------------------------|
| <b>Desc. By:</b> M.G. Cannon                | <b>Locality:</b>                |
| <b>Date Desc.:</b> 03/12/91                 | <b>Elevation:</b> 207 metres    |
| <b>Map Ref.:</b> Sheet No. : 8356 GPS       | <b>Rainfall:</b> No Data        |
| <b>Northing/Long.:</b> 7723427 AMG zone: 55 | <b>Runoff:</b> Moderately rapid |
| <b>Easting/Lat.:</b> 508921 Datum: AGD66    | <b>Drainage:</b> Well drained   |

#### Geology

|                              |   |
|------------------------------|---|
| <b>ExposureType:</b> No Data | <b>Conf. Sub. is Parent. Mat.:</b> No Data                          |
| <b>Geol. Ref.:</b> Cls       | <b>Substrate Material:</b> Undisturbed soil core, 30 m deep, Basalt |

#### Land Form

|   |   |
|---|---|
| <b>Rel/Slope Class:</b> Undulating plains <9m 3-10% | <b>Pattern Type:</b> Plain                |
| <b>Morph. Type:</b> Mid-slope                       | <b>Relief:</b> No Data                    |
| <b>Elem. Type:</b> Plain                            | <b>Slope Category:</b> Very gently sloped |
| <b>Slope:</b> 3 %                                   | <b>Aspect:</b> 60 degrees                 |

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

**Erosion:** 1 m1 m;

#### Soil Classification

|   |                                       |
|---|---------------------------------------|
| <b>Australian Soil Classification:</b>  | <b>Mapping Unit:</b> N/A              |
| Epicalcareous Self-Mulching Brown Vertosol Gravelly Medium fine Medium fine Shallow | <b>Principal Profile Form:</b> Ug5.32 |
| <b>ASC Confidence:</b>  | <b>Great Soil Group:</b> Brown clay   |

All necessary analytical data are available.

**Site Disturbance:** No effective disturbance other than grazing by hoofed animals

**Vegetation:** Low Strata - Tussock grass, 0.26-0.5m, Mid-dense. \*Species includes - Bothriochloa pertusa, Bothriochloa ewartiana, Chrysopogon fallax Mid Strata - Tree, 3.01-6m, Very sparse. \*Species includes - Eucalyptus papuana, Eucalyptus erythrophloia, Acacia farnesiana

Tall Strata - Tree, 6.01-12m, Sparse. \*Species includes - Eucalyptus erythrophloia, Eucalyptus papuana

**Surface Coarse Fragments:** 10-20%, medium gravelly, 6-20mm, subrounded, Basalt

#### Profile Morphology

|     |             |   |
|-----|-------------|---|
| A11 | 0 - 0.1 m   | Dark brown (7.5YR3/2-Moist); ; Medium heavy clay; Moderate grade of structure, 20-50 mm, Subangular blocky; Weak grade of structure, 10-20 mm, Subangular blocky; Smooth-ped fabric; Fine, (0 - 5) mm crack; Dry; Very strong consistence; 0-2%, fine gravelly, 2-6mm, subangular, dispersed weak, Basalt, coarse fragments; , Calcareous, , , , Gypseous, , ; Field pH 7.5 (Raupach, 0.05); Many, medium (2-5mm) roots; Gradual, Wavy change to -  |
| B2  | 0.1 - 0.3 m | Brown (7.5YR4/3-Moist); ; Medium heavy clay; Strong grade of structure, 10-20 mm, Subangular blocky; Strong grade of structure, 2-5 mm, Subangular blocky; Smooth-ped fabric; Dry; Firm consistence; 10-20%, medium gravelly, 6-20mm, angular, dispersed moderately strong, Basalt, coarse fragments; , Calcareous, , , , Gypseous, , ; Field pH 8 (Raupach, 0.2); Common, fine (1-2mm) roots; Gradual, Wavy change to -  |
| C1  | 0.3 - 0.4 m | Dark yellowish brown (10YR4/4-Moist); ; Medium heavy clay; Strong grade of structure, 10-20 mm, Subangular blocky; Strong grade of structure, 5-10 mm, Subangular blocky; Smooth-ped fabric; Dry; Firm consistence; 20-50%, medium gravelly, 6-20mm, angular, reoriented moderately strong, Basalt, coarse fragments; Many (20 - 50 %), Calcareous, Medium (2 -6 mm), Soft segregations; , Gypseous, , ; Soil matrix is Moderately calcareous; Field pH 8.5 (Raupach, 0.35); Common, very fine (0-1mm) roots; Gradual, Smooth change to - |
| C2  | 0.4 - 0.6 m | Dark yellowish brown (10YR4/4-Moist); ; Light clay; Moderate grade of structure, 10-20 mm, Subangular blocky; Moderate grade of structure, 5-10 mm, Subangular blocky; Smooth-ped fabric; Dry; Weak consistence; 20-50%, medium gravelly, 6-20mm, angular, reoriented moderately strong, Basalt, coarse fragments; Many (20 - 50 %), Calcareous, Medium (2 -6 mm), Soft segregations; , Gypseous, , ; Soil matrix is Highly calcareous; Field pH 9.5 (Raupach, 0.5); Few, very fine (0-1mm) roots;  |

#### Morphological Notes

#### Observation Notes

SURFACE WAS MOIST FROM RECENT RAIN MULCHING WAS FROM PREVIOUS DESCRIPTION NEAR SITE. C1 & C2 ARE STRONGLY WEATHERED BASALTIC SAPROLITE./FLINDERS GRASS, ISEILEMA SP. DLR1008:

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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 - 0.1   | 7.42A | 0.06A  | 44B                  | 7.2  | 2.3  | 0.14         |         | 44.9I | 0.31 |
|           |       |        | 38.3J                | 4.81 | 0.49 | 0.03         |         |       | 0.07 |
| 0.1 - 0.3 | 7.7A  | 0.03A  | 40.9J                | 3.71 | 0.08 | 0.02         |         | 55.4D | 0.04 |
|           |       |        |                      |      |      |              |         | 45.7I |      |
| 0.3 - 0.4 | 7.96A | 0.07A  |                      |      |      |              |         |       |      |
| 0.4 - 0.6 | 8.45A | 0.07A  | 61B                  | 4.3  | 0.74 | 0.16         |         | 41.4I | 0.39 |
|           |       |        | 39.9J                | 2.42 | 0.06 | 0.02         |         |       | 0.05 |

| Depth     | CaCO3 | Organic C | Avail. P | Total P | Total N | Total K | Bulk Density | Particle GV | Particle CS | Size FS | Analysis Silt | Analysis Clay |
|-----------|-------|-----------|----------|---------|---------|---------|--------------|-------------|-------------|---------|---------------|---------------|
| m         | %     | %         | mg/kg    | %       | %       | %       | Mg/m3        |             |             | %       |               |               |
| 0 - 0.1   | 0.1A  | 2.3B      |          | 0.035A  | 0.11A   | 0.984A  |              |             | 8A          | 16      | 19            | 57            |
| 0.1 - 0.3 | 0.1A  | 1.3B      |          |         |         |         |              |             | 14A         | 14      | 18            | 54            |
| 0.3 - 0.4 |       |           |          |         |         |         |              |             |             |         |               |               |
| 0.4 - 0.6 |       |           |          | 0.045A  |         | 0.496A  |              |             |             |         |               |               |

[illegible]

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**Laboratory Analyses Completed for this profile**

|           |  |
|-----------|--|
| 10A1      | Total sulfur - X-ray fluorescence  |
| 10B       | Extractable sulfur(mg/kg) - Phosphate extractable sulfur   |
| 12A1_CU   | DTPA - extractable copper, zinc, manganese and iron  |
| 12A1_FE   | DTPA - extractable copper, zinc, manganese and iron  |
| 12A1_MN   | DTPA - extractable copper, zinc, manganese and iron  |
| 12A1_ZN   | DTPA - extractable copper, zinc, manganese and iron  |
| 13A1_FE   | Oxalate-extractable iron   |
| 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   |
| 15D2_CEC  | CEC - 1M ammonium acetate at pH 7.0, pretreatment for soluble salts; automatic extractor   |
| 15F1_CA   | Exchangeable bases by 0.01M silver-thiourea (AgTU)+, no pretreatment for soluble salts   |
| 15F1_K    | Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts   |
| 15F1_MG   | Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts   |
| 15F1_NA   | Exchangeable bases by 0.01m (AgTU)+, no pretreatment for soluble salts   |
| 15F3      | CEC by 0.01M silver-thiourea (AgTU)+   |
| 15N1      | Exchangeable sodium percentage (ESP)   |
| 17A1      | Total potassium - X-ray fluorescence   |
| 19A1      | Carbonates - rapid titration   |
| 3A1       | EC of 1:5 soil/water extract   |
| 4A1       | pH of 1:5 soil/water suspension  |
| 6B2       | Total organic carbon - high frequency induction furnace, volumetric  |
| 7A2       | Total nitrogen - semimicro Kjeldahl , automated colour   |
| 9A1       | Total phosphorus - X-ray fluorescence  |
| P10_CF_C  | Clay (%) - Coventry and Fett pipette method  |
| P10_CF_CS | Coarse sand (%) - Coventry and Fett pipette method   |
| P10_CF_FS | Fine sand (%) - Coventry and Fett pipette method   |
| P10_CF_Z  | Silt (%) - Coventry and Fett pipette method  |