

Accessing soil characterisation sites and data sheets in ESRI® ArcMap®

LANDSCAPE_Soil_CharacterisationSites_shp.zip contains:

- LANDSCAPE_Soil_CharacterisationSites.shp: ArcMap shapefile
- LANDSCAPE_Soil_CharacterisationSites.lyr: ArcMap layer file

Over 1100 *Soil characterisation sites* have been described in detail, providing representative examples of soils across southern South Australia. At these sites, pits were excavated to depths of 1.5–2 m. Soil profiles were described and photographed. Samples were taken from each soil layer, dried, ground and analysed for a range of properties relevant to plant growth and agricultural land management.

For these sites, information has been published as two-page *data sheets* that are stored on [Enviro Data SA](#) and can be hyperlinked within your ArcMap project. To open, view and save the *data sheets* directly from your GIS, use the included ArcMap layer file as explained overleaf.


SE161C Soil Characterisation Site data sheet DEWNR Soil and Land Program

SHALLOW RED CLAY ON CALCRETE

General Description: Dark reddish brown well structured clay over calcrete shallower than 50 cm

Landform: Very low rises (islands in ancient back lagoons) on flat plains

Substrate: Calcreted limestone of the Padthaway Formation.

Vegetation: 

Type Site: Site No.: SE161C 1:50,000 mapsheet: 7023-2 (Penola)
 Hundred: Comaum Easting: 485840
 Section: 471 Northing: 5869310
 Sampling date: 27/02/2008 Annual rainfall: 655 mm average

Slight rise. Firm (inter-row) to hard (row) surface with no stones. Non irrigated grape vines.

Soil Description:

Depth (cm)	Description
0-10	Dark reddish brown friable light clay with moderate fine polyhedral structure. Clear to:
10-20	Dark reddish brown firm light medium clay with moderate fine polyhedral structure and 10-20% calcrete fragments to 20 mm. Sharp to:
20-40	Mainly hard calcrete, with some softer pockets and minor clay infill. Gradual to:
40-60	Mainly soft carbonate with some hard fragments.

Classification: Haplic, Petrocalcic, Red Dermosol; medium, non-gravelly, clayey / clayey, very shallow

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Summary of Properties

Drainage: Rapidly drained. The profile is rarely saturated for more than a couple of hours at a time.

Fertility: Inherent fertility is moderately high, as indicated by the exchangeable cation data. This is due to the high clay and organic matter contents of the surface layers. Laboratory data indicate satisfactory levels of all tested nutrients.

pH: The soil is slightly alkaline, the carbonate layers are alkaline.

Rooting depth: 20 cm in sampling pit (calcrete).

Barriers to root growth:

Physical: The calcrete is a significant barrier to root growth, although there is generally some fracturing, allowing limited exploration of deeper layers below the calcrete cap. These soils are usually ripped pre-establishment. Variations in depth to the calcrete are more significant in dry vineyards than where irrigation is used.

Chemical: There are no chemical limitations.

Waterholding capacity: Approximately 40 mm in the potential rootzone.

Seedling emergence: Satisfactory.

Workability: Satisfactory.

Erosion Potential:

Water: Low.

Wind: Low.

Laboratory Data

Depth (cm)	pH	pH H ₂ O	CO ₂ (%)	EC1:2 (%)	ECe (%)	Cl (g/kg)	Org C (%)	NO ₃ -N (mg/kg)	Avail N (mg/kg)	Avail P (mg/kg)	Avail K (mg/kg)	SO ₄ -S (mg/kg)	Racet (mg/kg)	Boron (mg/kg)	Cu (mg/kg)	Fe (mg/kg)	Mn (mg/kg)	Zn (mg/kg)	Trace Elements (mg/kg) (DTPA)	Sum cations (cmol (+)/kg)	Exchangeable Cations (cmol (+)/kg)	ESP			
0-10	7.9	7.2	0	0.18	0.54	5	4.22	21	147	643	10.7	-	1.5	3.87	143	19.2	4.15	-	-	29.1	25.6	1.79	0.11	1.63	0.4
10-20	7.8	7.0	0	0.07	0.47	11	2.33	-	44	251	7.1	1060	-	-	-	-	-	-	-	21.5	19.7	1.00	0.17	0.64	0.8
20-40	8.9	7.9	-	0.07	0.35	26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40-60	8.6	7.6	-	0.07	0.27	7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: Sum of cations, in a neutral to alkaline soil, approximates the CEC (cation exchange capacity), a measure of the soil's capacity to store and release major nutrient elements.
 ESP (exchangeable sodium percentage) is derived by dividing the exchangeable sodium value by the CEC, in this case estimated by the sum of cations.



Further information: [DEWNR Soil and Land Program](#)

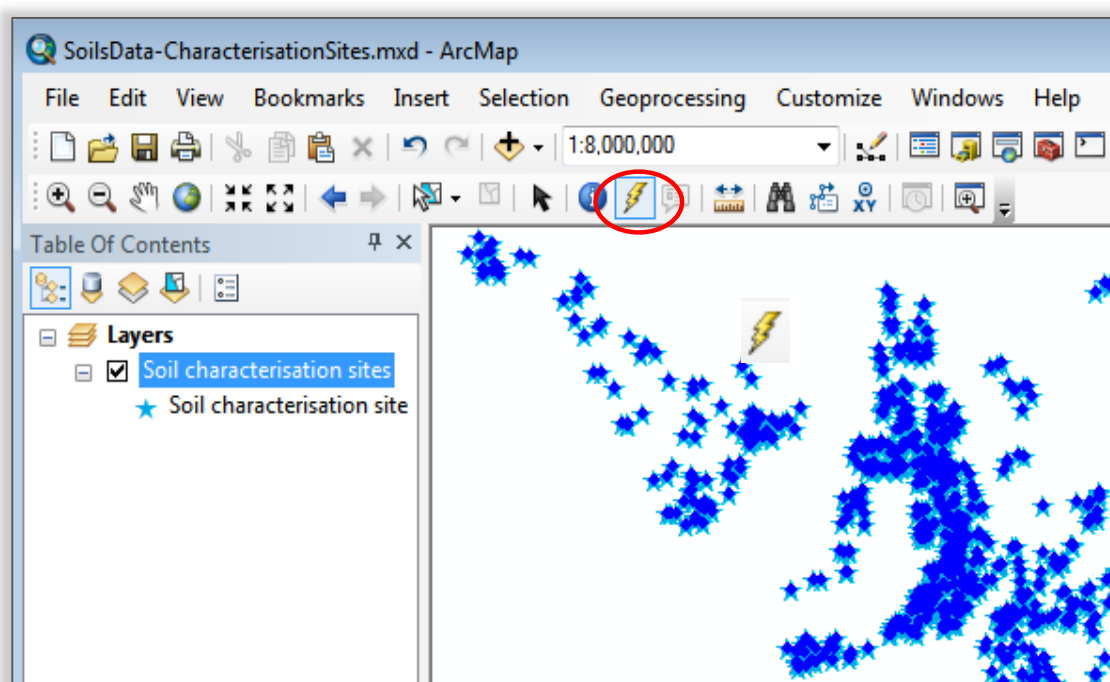
Example Soil characterisation site two-page data sheet



Viewing *Soil characterisation sites and data sheets* in ArcMap

The following guide will help you access *Soil characterisation site data sheets* in ArcMap (basic GIS knowledge is expected):

1. Extract contents of **LANDSCAPE_Soil_CharacterisationSites_shp.zip** to your computer
2. Open ArcMap
3. Add the **LANDSCAPE_Soil_CharacterisationSites.lyr** layer file to your ArcMap map document
4. Select the Hyperlink Tool  from the Tools toolbar. Click on a *Soil characterisation site*  of interest. This will automatically open the associated *Soil characterisation site data sheet*.
Hyperlinks have been set up in the layer file to view *Soil characterisation site data sheets* that are stored on the Enviro Data SA website (<http://data.environment.sa.gov.au/>)



5. The *data sheet* can be viewed and saved.


Further information

- [Soil characterisation sites & data sheets](#) fact sheet
- View data on [NatureMaps](#) (→ Soils)
- Read the [metadata](#) for this layer
- Read more about [soil and land information](#)
- Contact [Mapland](#)

Downloads:

- [Spatial dataset](#)
- [Describing and Interpreting Soil Profiles](#)
- [Assessing Agricultural Lands](#) (Maschmedt 2002)
- Soils of Southern SA book [Part 1](#) and [Part 2](#)

Troubleshooting

- Q:** Why does the layer name have a red exclamation mark  next to it and why isn't the layer displaying in ArcMap?
- A:** The link to the source data has been lost. To set the data source, right-click the check box next to the exclamation mark. In the Set Data Source dialog, navigate to the data to re-establish the link.



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