

SAND OVER POORLY STRUCTURED CLAY ON CALCRETE

General Description: *Organic sand over bleached sand on poorly structured grey clay, shallow on calcrete.*

Landform: Gently undulating dune-corridor plain

Substrate: Calcareous lagoonal sediments

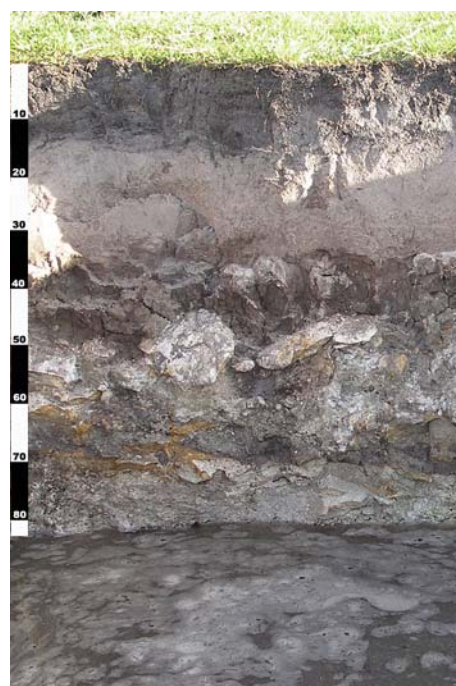
Vegetation: -



Type Site: Site No.: SE090
 1:50,000 sheet: 6924-3 (Minecrow) Hundred: Townsend
 Annual rainfall: 640 mm Sampling date: 14/10/04
 Landform: Flat poorly drained plain
 Surface: Soft with no stones. Water table at 85 cm.

Soil Description:

Depth (cm)	Description
0-15	Very dark grey single grain sand. Abrupt change to:
15-35	Dark greyish brown (bleached) sand. Sharp change to:
35-50	Dark grey mottled brown heavy clay with strong 50-100 mm columnar structure. Clear change to:
50-70	Hard concretionary calcrete with abundant chert stones. Abrupt change to:
70-100	Semi- hard calcareous grey marly material with many rounded to platy cherty stones.



Classification: Eutrophic, Petrocalcic, Grey, Sodosol; thick, non-gravelly, sandy/clayey, moderate.

Summary of Properties

- Drainage:** Poorly drained. Parts of the profile remain saturated for several months during the winter-spring period due to a combination of low-lying landscape position, shallow water table, and poorly structured, slowly permeable subsoil clay.
- Fertility:** Organic-rich surface layer has high nutrient retention capacity, but subsurface layer is nutritionally poor. Phosphorus, potassium, copper and manganese levels all appear to be low at sampling site.
- pH:** Slightly acidic surface, strongly alkaline below 15cm.
- Rooting depth:** 50 cm in pit, but some roots will penetrate cracks in the calcrete layer.
- Barriers to root growth:**
- Physical:** Poor structure in subsoil restricts root development, as will the hard calcrete pan with cemented chert cobbles. The sodic subsoil disperses and seals on wetting, drying to very hard consistence. Shallow water table sets a limit on root penetration.
- Chemical:** There are no apparent chemical barriers above the calcrete layer, but high sodicity can be expected below.
- Water holding capacity:** Approximately 30 mm above the calcrete.
- Seedling emergence:** Satisfactory.
- Workability:** The soil is easily worked, but extended wetness restricts machinery access.

Erosion Potential

- Water:** Low
- Wind:** Moderate.

Laboratory Data

Depth cm	pH H ₂ O	pH CaCl ₂	CO ₃ %	EC 1:5 dS/m	ECe dS/m	Org.C %	Avail. P mg/kg	Avail. K mg/kg	Cl mg/kg	SO ₄ -S mg/kg	Boron mg/kg	Trace Elements mg/kg (EDTA)				Sum cations cmol (+)/kg	Exchangeable Cations cmol(+)/kg				Est. ESP
												Cu	Fe	Zn	Mn		Ca	Mg	Na	K	
0-15	6.1	5.0	0.6	0.06	0.36	3.9	8	70	21	4.8	1.4	0.6	80	1.8	1.8	13.3	11.1	1.7	0.4	0.2	2.9
15-35	8.3	7.3	0.5	0.07	0.12	0.3	2	46	8	2.2	0.4	0.5	46	0.2	1.3	3.2	2.4	0.6	0.2	0.1	5.2
35-50	8.7	7.9	2.1	0.30	1.19	0.7	3	455	71	17	2.1	0.3	90	0.4	0.7	24.6	12.9	7.2	3.3	1.2	13.4

- 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.