

CST Charleston Land System

- Area:** 311.3 km²
- Landscape:** Rounded hills formed on granite, and overlain by highly calcareous aeolian Woorinen Formation sediments, in turn overlain by low to moderate parallel siliceous sandhills.
- Annual rainfall:** 275 – 325 mm average
- Main soils:**
- Wiabuna - A4 (Regolithic, Supracalcic / Lithocalcic Calcarosol)
Calcareous loamy sand to sandy loam grading to carbonate rubble (Class III B or C).
 - Moornaba (deep) - H2a (Calcareous, Arenic, Red-Orthic / Yellow-Orthic Tenosol)
Very thick red to brown sand, becoming weakly calcareous and often grading to an orange clayey sand with depth, usually overlying fine or rubbly carbonate.
 - Midgee - D5 (Calcic, Red Sodosol)
Medium thickness loamy sand to sandy loam abruptly overlying a red sandy clay loam to clay, calcareous with depth, grading to gritty alluvium derived from granite, or highly weathered granite.
- Minor soils:**
- Heggaton - G3 (Calcic, Brown Chromosol)
Thick sand to loamy sand with a bleached A2 layer, abruptly overlying a weakly structured brown sandy clay to clay, calcareous with depth, grading to Tertiary sediments.
 - Skeletal soil - L1 (Lithic / Petroferric, Leptic Tenosol / Rudosol)
Variable gravelly loamy sand to sandy clay loam over basement rock or massive ironstone at depths usually less than 50 cm.
 - Mitchellville - B2 (Petrocalcic Calcarosol)
Calcareous sandy loam to sandy clay loam with variable carbonate rubble over calccrete within 50 cm.
 - Moornaba (shallow) - G1 (Hypercalcic, Red Sodosol)
Very thick sand to loamy sand, overlying a thin reddish brown massive sandy clay loam, highly calcareous at the base, grading to weathering basement rock at about 100 cm.
 - Moornaba (mod. deep) - H2b (Calcareous, Arenic, Red-Orthic / Yellow-Orthic Tenosol)
Thick to very thick red to brown sand, becoming weakly calcareous and often grading to an orange clayey sand with depth, overlying calccrete below 80 cm.
- Summary:** The co-dominant soils are deep Moornaba sands (mainly on sandhills), which are infertile, commonly water repellent, and highly susceptible to wind erosion; and calcareous Wiabuna soils which are more fertile although alkaline, and not water repellent. They are moderately susceptible to wind erosion, and may have restricted waterholding capacities. The sub-dominant Midgee soils are moderately deep and moderately fertile, but are highly susceptible to water erosion, and slightly susceptible to wind erosion. Minor features include shallow stony soils on granite rises, and sand over clay soils on some slopes, with associated saline seepage.



Soil Landscape Unit summary: 16 Soil Landscape Units (SLUs) mapped in the Charleston Land System:

SLU	% of area	Component	Main soils	Prop#	Notes
A-g	3.5	Granite hills	Skeletal	D	Very rocky, non arable and often inaccessible.
A-gs	0.4	Granite hills	Skeletal	V	As for A-g, with 20-30% sand spreads with potential for wind erosion if over-grazed.
		Sand spreads	Moornaba sandhills	C	
AKH	2.0	Moderate slopes (non arable)	Skeletal	D	Moderately steep with shallow stony soils and eroded water courses.
DuC	1.8	Gentle slopes	Midgee	V	Soils as for DTI , overlain by 10-20% sandhills with low fertility and moderate wind erosion potential. There are minor saline seepages.
		Low to moderate sandhills	Moornaba sandhills	L	
ETB	2.2	Rocky rises (semi arable)	Midgee	E	Rocky reefs restrict arable areas.
			Skeletal	E	
HEB	12.9	Rises	Midgee / Wiabuna	E	Complex of moderately fertile soils and low fertility sand over clay soils, susceptible to wind erosion and waterlogging. There are minor saline seepages.
		Sandy slopes	Heggaton	E	
SMA	10.9	Sandy calcareous flats	Wiabuna	D	Light textured calcareous soils with moderate fertility, restricted water holding capacity and slight wind erosion potential.
SXA	1.8	Sandy calcareous flats	Wiabuna	V	As for SMA , with 10-20% sandhills and minor saline seepages.
		Moderate to low sandhills	Moornaba depressions	L	
SgB	11.5	Rises	Wiabuna / Midgee	V	Complex of calcareous and non calcareous sandy loams with slight fertility and water holding limitations, and 10-20% sandhills with low fertility and wind erosion potential.
		Low sandhills	Moornaba depressions	L	
U-C	0.2	Moderate sandhills	Moornaba depressions	D	Sandhills with low fertility, moderate to high wind erosion susceptibility, and water repellence.
UBF	37.3	Moderate sandhills	Moornaba depressions	V	Sandhills: low fertility, wind erosion potential and water repellence. Swales: complex of calcareous and non calcareous sandy loams with slight fertility and water holding limitations.
		Swales	Wiabuna / Midgee	E	
UBI	6.6	Moderate sandhills	Moornaba depressions	E	As for UBF , but sandhills and swales are in roughly equal proportions.
		Swales	Wiabuna / Midgee	E	
UBK	0.5	Sandy rises	Moornaba depressions	E	Mainly sandy soils of variable depth. Wind erosion potential and low fertility are limiting factors.
			Wiabuna	E	
UIH	0.5	Swales	Wiabuna	E	Mainly sandy soils, with some highly wind erosion susceptible sandhills.
		Moderate to high sandhills	Moornaba depressions	E	
UII	7.1	Swales	Wiabuna	E	As for UIH , but with less vulnerable sandhills.
		Moderate to low sandhills	Moornaba depressions	E	
UUJ	0.8	Stony swales	Mitchellville	V	Sandhill - swale country with stony swales where water holding capacity is more limiting.
		Low sandhills	Moornaba (mod deep)	E	

PROPORTION codes assigned to Soil Landscape Unit (SLU) components:

D Dominant in extent (>90% of SLU)

V Very extensive in extent (60–90% of SLU)

E Extensive in extent (30–60% of SLU)

C Common in extent (20–30% of SLU)

L Limited in extent (10–20% of SLU)

M Minor in extent (<10% of SLU)

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

