

# HAT Hatherleigh Land System

<b>Area:</b>	34.6 km <sup>2</sup>
<b>Landscape:</b>	Rocky calcarenite dune range with very shallow soils, near Hatherleigh
<b>Annual rainfall:</b>	725 – 755 mm average
<b>Geology:</b>	Calcreted aeolianite of the Pleistocene Bridgewater Formation barrier shoreline deposits. Pleistocene Padthaway Formation lacustrine deposits occur in corridor plains.
<b>Main soils:</b>	<p><b>B3</b> (27%) Shallow sandy loam on calcrete (Petrocalcic Red Tenosol-Kandosol-Rudosol)</p> <p><b>RR</b> (19%) Bare calcrete</p> <p><b>B2</b> (16%) Shallow calcareous loam on calcrete (Petrocalcic Calcarosol-Rudosol)</p> <p><b>B6</b> (11%) Shallow loam over red-brown clay on calcrete (Petrocalcic Red Chromosol-Kandosol)</p>
<b>Minor soils:</b>	<p><b>B7</b> (5%) Shallow sand over clay on calcrete (sandy Petrocalcic Sodosol-Chromosol)</p> <p><b>N3</b> (5%) Wet soil (non to moderately saline) (Sodosolic-Calcarosolic-Dermosolic Hydrosol)</p>
<b>Summary:</b>	Rocky calcarenite dune range with very shallow soils. The main limitations for land use are lack of rooting depth and associated low water holding capacity, which may be ameliorated by deep ripping. Rockiness will restrict the successful cultivation of most root crops.

## Soil Landscape Unit summary: Hatherleigh Land System (HAT)

SLU	% of area	Component	Main soils	Prop#	Notes
MAB	35.5	Rise	B3RR	D	Gently sloping calcarenite rises with shallow sandy loam over calcrete. 50% or more bare calcrete.  Main soils: <u>Shallow sandy loam on calcrete - B3</u> and <u>Rock or exposed calcrete - RR</u> .
MDB	1.9	Rise	B6	D	Gently sloping calcarenite rises with shallow sandy loam on red clay on calcrete. 10-30% each of shallow sandy loam over calcrete or bare calcrete.  Main soils: <u>Shallow sandy loam over red-brown clay on calcrete - B6</u> .
MEB	2.4	Stony rise	B3	V	Calcreted former beach ridges, dunes and plains with shallow sand on calcrete soils. 10-20% dunes with deep, water repellent, acid bleached siliceous sands.  <b>MEB</b> Gently sloping calcarenite rises with shallow sand over calcrete soils. 10-20% dunes with water repellent, deep siliceous sands. <b>MEC</b> Undulating rises as above.  Main soils: <b>Stony rises:</b> <u>Shallow sandy loam on calcrete - B3</u> . <b>Dunes:</b> <u>Highly leached sand - I1</u> , <u>Bleached siliceous sand - H3</u> and <u>Shallow sand on calcrete - B8</u> .
MEC	13.0	Dune	B3	V	
		Dune	I1H3B8	L	



MGA	7.0	Plain	N1B5 B7	D	Low lying plain with peat and shallow dark clay loam over dark or brown clay on calcrete.  Main soils: <u>Peaty soil – N1</u> , <u>Shallow dark clay loam on limestone – B5</u> and <u>Sand over friable brown clay on calcrete – B7</u> .
MHC	11.0	Dune range	H311B7	D	Undulating rises or low hills with deep well drained, water repellent acid sands; and shallow sand over poorly structured brown clay; on calcarenite.  Main soils: <u>Bleached siliceous sand – H3</u> , <u>Highly leached sand – I1</u> and <u>Sand over friable brown clay on calcrete – B7</u> .
M-Q	0.5	Stony rise	RRB3	D	Undulating rocky rises and hills, mostly with exposed calcrete and very shallow sand over calcreted calcarenite soils. <10% swales with wet organic loam and shallow, dark loam grading to dark clay loam on calcrete soils.  Main soils: <b>Rises:</b> <u>Rock or exposed calcrete – RR</u> and <u>Shallow sandy loam on calcrete – B3</u> . <b>Swales:</b> <u>Wet clay loam – N3</u> and <u>Shallow dark clay loam on limestone – B5</u> .
		Swale	N3B5	M	
MSB	0.8	Dune range	B8H3I2	D	Gently sloping dune range with shallow sand over poorly structured yellow-brown clay; and water repellent, deep, bleached, acid siliceous sands. 10-30% shallow sandy loam over red clay on calcrete soils.  Main soils: <u>Shallow sand on calcrete – B8</u> , <u>Bleached siliceous sand – H3</u> and <u>Wet highly leached sand – I2</u> .
MxA	24.2	Plain	B2	D	Plain with very shallow calcareous loam over calcreted calcarenite. 10-30% each of bare calcrete and shallow wet loamy soils in swampy areas.  Main soils: <u>Shallow calcareous loam on calcrete – B2</u> .
NJA	1.6	Plain	A7C5	D	Plains with deep clayey calcareous soils and wet soils. 10-30% each of shallow black, or calcareous grey, clay loam on calcrete; <10% swamps with wet soils and peats.  Main soils: <u>Calcareous clay loam on marl – A7</u> and <u>Gradational dark clay loam – C5</u> .
XOC	1.5	Swamp	B5N3 N1	D	Swamps with, often wet, shallow black loam over clay loam on calcrete; and peat. 10-30% water filled.  Main soils: <u>Shallow dark clay loam on limestone – B5</u> , <u>Wet clay loam – N3</u> and <u>Peaty soil – N1</u> .
XtC	0.2	Swamp	N1	D	<b>XtC</b> Peat swamps. 10-30% frequently, wet loam over dark clay soils <b>Xtf</b> Swamps with, often wet, shallow dark clay loam over dark clay on calcrete. 10-30% peat soils. 20-30% stony rises with shallow calcareous loam, or sand, over calcrete. 20-30% stony rises with shallow calcareous loam, or siliceous sand on calcrete, 10-30% bare calcrete.  Main soils: <b>Swamps:</b> <u>Peaty soil – N1</u> , <u>Shallow dark clay loam on limestone – B5</u> and <u>Wet clay loam – N3</u> . <b>Stony rises:</b> <u>Shallow calcareous loam on calcrete – B2</u> and <u>Shallow sandy loam on calcrete – B3</u> .
Xtf	0.2	Swamp Rise	B5N3 B2B3	V C	

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

D	Dominant in extent (>90% of SLU)	C	Common in extent (20–30% of SLU)
V	Very extensive in extent (60–90% of SLU)	L	Limited in extent (10–20% of SLU)
E	Extensive in extent (30–60% of SLU)	M	Minor in extent (<10% of SLU)



**Detailed soil profile descriptions:**

- A7** Calcareous clay loam on marl (Marly Calcarosol)  
Dark calcareous clay with a marly subsoil (often saline in Upper SE). Often with shells and a peaty surface.
- B2** Shallow calcareous sandy loam on calcrete (Petrocalcic Calcarosol)  
Up to 40 cm calcareous loamy sand to sandy loam with variable calcrete rubble overlying calcreted calcarenite - rises.
- B3** Shallow sandy loam on calcrete (Petrocalcic Rudosol)  
Medium thickness non calcareous sandy loam, often having a slight clay increase with depth, over calcreted calcarenite shallower than 50 cm - rises.
- B5** Shallow dark clay loam on limestone (Petrocalcic, Black Dermosol)  
Black clay loam to light clay over calcreted limestone at shallow depth, grading to highly calcareous clay - flats.
- B6** Shallow sandy loam over red-brown clay on calcrete (Petrocalcic, Red Kandosol)  
Medium thickness sandy loam with slight ironstone gravel overlying a weakly structured reddish brown sandy clay on calcarenite within 50 cm - rises.
- B7** Shallow sand over sandy clay on calcrete (Petrocalcic, Brown Chromosol)  
Medium thickness sand overlying brown friable sandy clay to clay on limestone or calcreted sandy clay within 50 cm - flats.
- B8** Shallow sand on calcrete (Petrocalcic, Bleached-Leptic Tenosol)  
Thick bleached sand over calcreted calcarenite within 50 cm - rises.
- C5** Gradational dark clay loam (Calcic-Hypercalcic Brown-Grey-Black Dermosol-Calcarosol)  
Dark clay loam over abundant 'soft lime'. >10% carbonate is the cut off between this and M2 soils.
- H3** Deep bleached sand (Basic, Arenic, Bleached-Orthic Tenosol)  
Grey sand over a very thick bleached sand grading to yellow sand continuing below 100 cm.
- I1** Highly leached sand (Fragic, Pipey, Aeric Podosol)  
Grey sand with a very thick bleached A2 layer, over dark brown and yellow massive soft to semi-hard clayey sand (coffee rock), grading to softer yellow and brown sand to sandy clay loam from about 80 cm.
- I2** Wet highly leached sand (Fragic, Humic, Aquic Podosol)  
Grey sand with a thick bleached A2 horizon, overlying a thin to thick layer of coffee rock, grading to pale brown sand sharply overlying a grey, brown and yellow mottled sandy clay loam to light clay.
- N1** Peat (Organosol)  
Peaty soil
- N3** Seasonally waterlogged, non-to-marginally saline equivalents of associated soils listed above, viz.:  
**N3c** Wet **G3**  
**N3d** Wet **B5**  
**N3e** Wet **B7**
- RR** Bare rock

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

