



BLOEMFONTEIN 2002



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This map was approved by the Director-General of the Department: Water Affairs and Forestry. Precipitation and elevation data were obtained from the Computing Centre for Water Research, University of Natal, and compiled by H. Mullin, Information on roads, rivers, towns, provincial and international boundaries were obtained from the Chief Directorate: Surveys and Mapping, Department: Land Affairs, and edited by the Department: Water Affairs and Forestry. Permission from these respective institutions to make use of their information is gratefully acknowledged. Borehole data were obtained from the National Groundwater Data Base (NGDB).

Principal groundwater occurrence

Aquifer type	Borehole yield class (median l/sec) (excluding dry boreholes)				
	0.0 - 0.1	0.1 - 0.5	0.5 - 2.0	2.0 - 5.0	> 5.0
Intergranular					
Fractured		d2	d3	d4	d5
Karst			d3		
Intergranular and fractured	d1	d2	d3	d4	

Legend:
* Borehole yields boundary (main map only)
** Only appears on the schematic cross-section

Note: Groundwater occurrence depicts the aquifer types with the highest borehole yield, and does not always correlate with surface lithology.

Surface / Sub-surface lithology

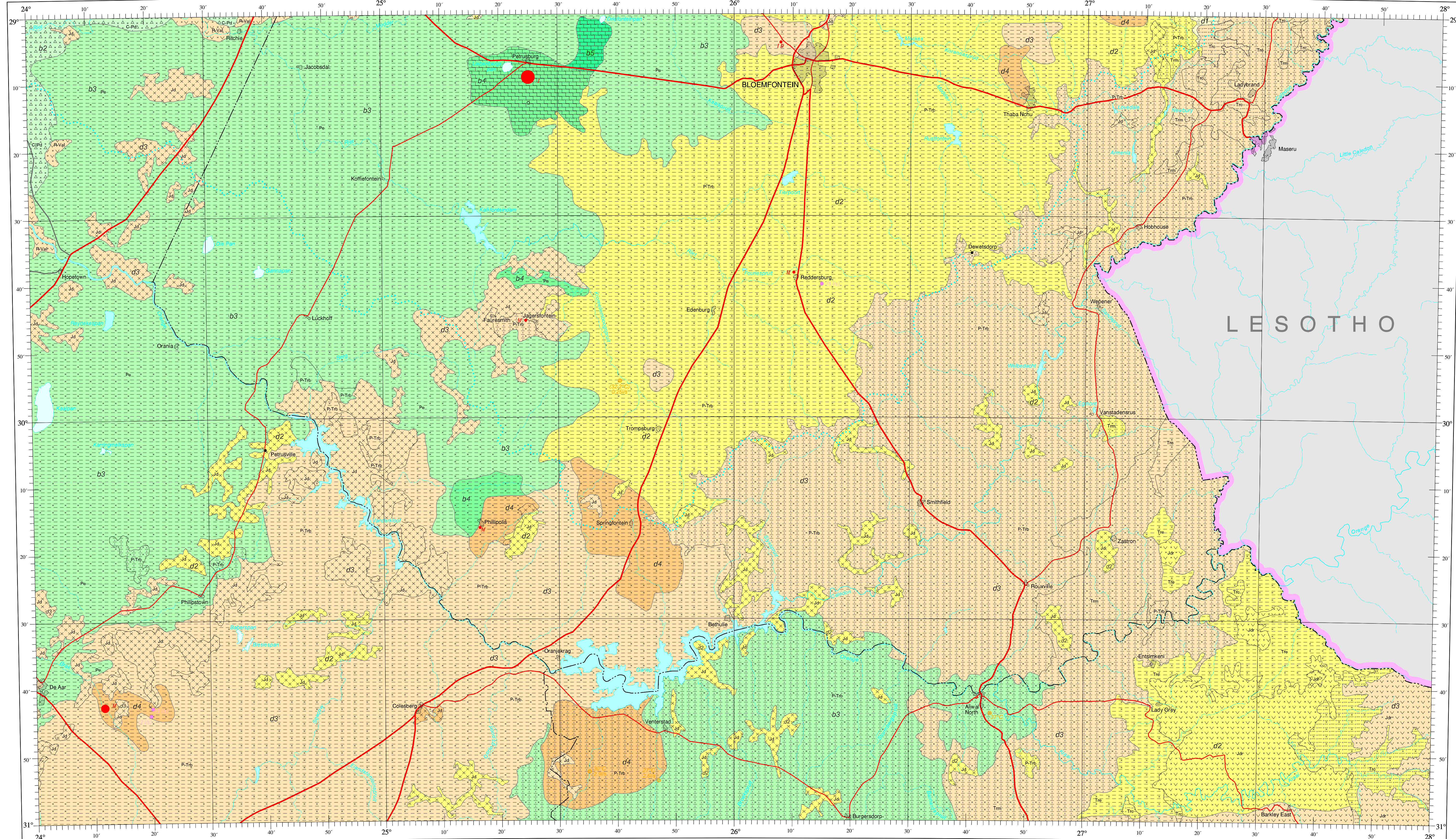
- Predominantly argillaceous rocks (shale, mudstone and subordinate siltstone)
- Predominantly meta-calcareous rocks (marble) - on schematic cross-section only
- Predominantly arenaceous rocks (sandstone)
- Argillaceous and arenaceous rocks (approximately equal proportions)
- Predominantly diamictite (siltite)
- Predominantly calcareous rocks (calcrete)
- Predominantly meta-calcareous rocks (marble) - on schematic cross-section only
- Predominantly pyroclastic rocks (tuff, agglomerate and breccia)
- Basic intrusive rocks (diabase and norite (Mz))
- Basic and intermediate extrusive rocks (basalt and andesite)
- Lithological / stratigraphical boundary
- Dolerite / diatase intruded

Large scale groundwater abstraction

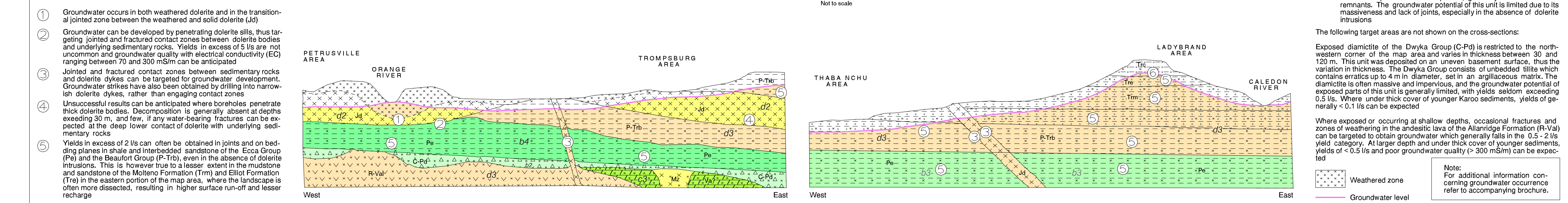
- >10 million m³/a
- 2-5 million m³/a
- 0.1 - 1 million m³/a
- Irrigation
- Domestic
- Municipal

Chronostratigraphy

1	2	3	4	5	6	
Cretaceous						
1.8	Quaternary	Q	Unnamed native (Q)			
65	Tertiary	T				
142	Cretaceous	K				
142	Jurassic	J	Dolerite (J); Dolerite (J); Dolerite (J); Dolerite (J)			
205	Triassic	Tr	Clarens F. (Tr); Eka F. (Tr); Mafika F. (Tr)			
248	Permian	P	Beaufort G. (P-Tr); Eka G. (P)			
280	Carboniferous	C	Dwyka G. (C-P)			
354	Devonian	D				
417	Sturlian	S				
443	Ordovician	O				
495	Cambrian	C				
545	PHANEROZOIC					
900	Namibian	N				
2050	Mokolian	M	Unnamed Mokolian rocks (M); Unnamed Mokolian rocks (M); Unnamed Mokolian rocks (M); Unnamed Mokolian rocks (M)			
2650	Vaalian	V	Ghaik G. (V); Unnamed Vaalian rocks (V); Unnamed Vaalian rocks (V); Unnamed Vaalian rocks (V); Unnamed Vaalian rocks (V)			
3100	Randian	R				
3100	Swazian	Z				
ARCHEOZOIC						



Schematic cross-sections to illustrate typical groundwater occurrence



This general hydrogeological map is part of the 1:500 000 Hydrogeological map series of the Republic of South Africa. Simplified lithology may be considered as guidelines only. Further geological information can be obtained from the Council for Geoscience. The map series is produced with ArcInfo software.

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Groundwater quality

