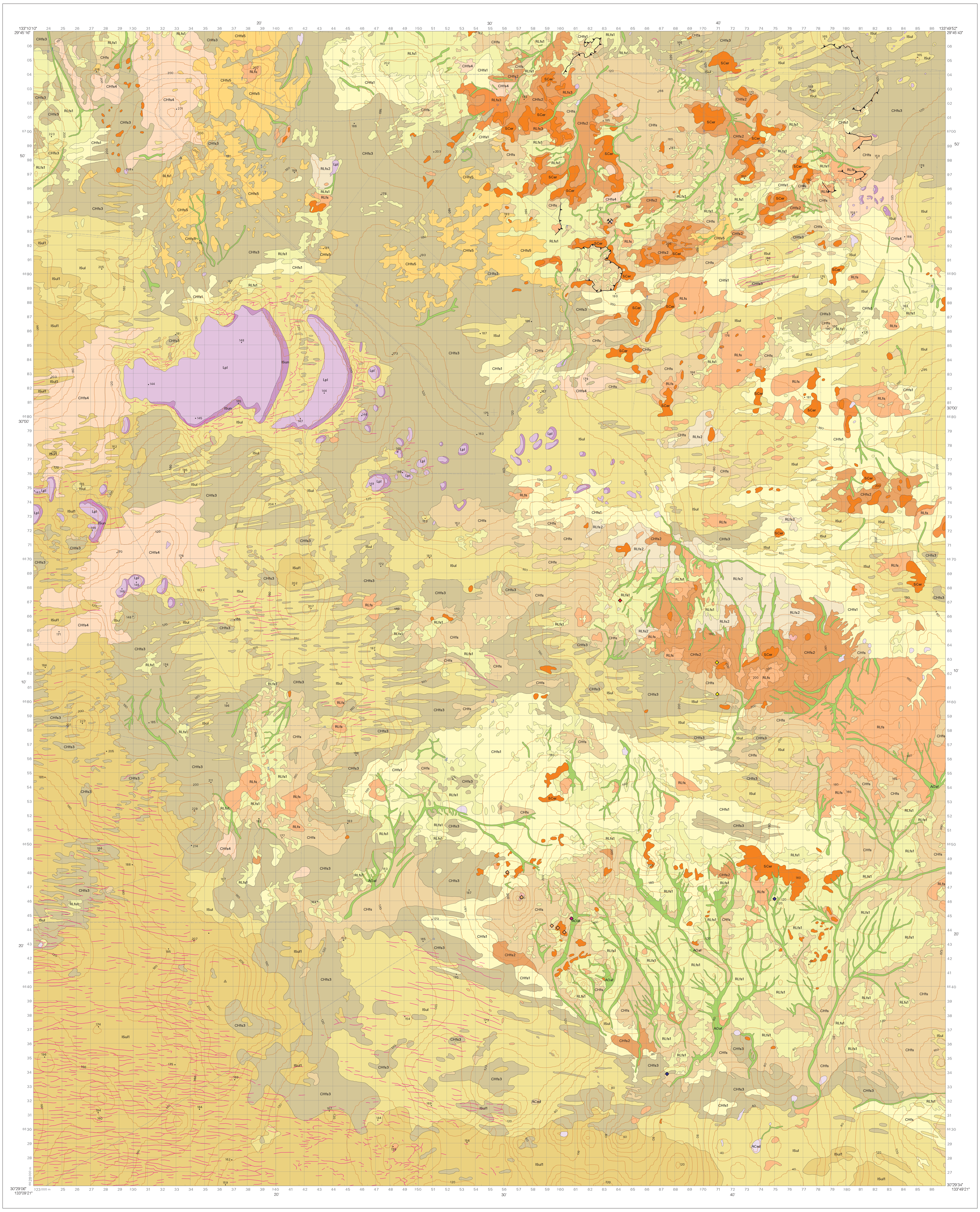
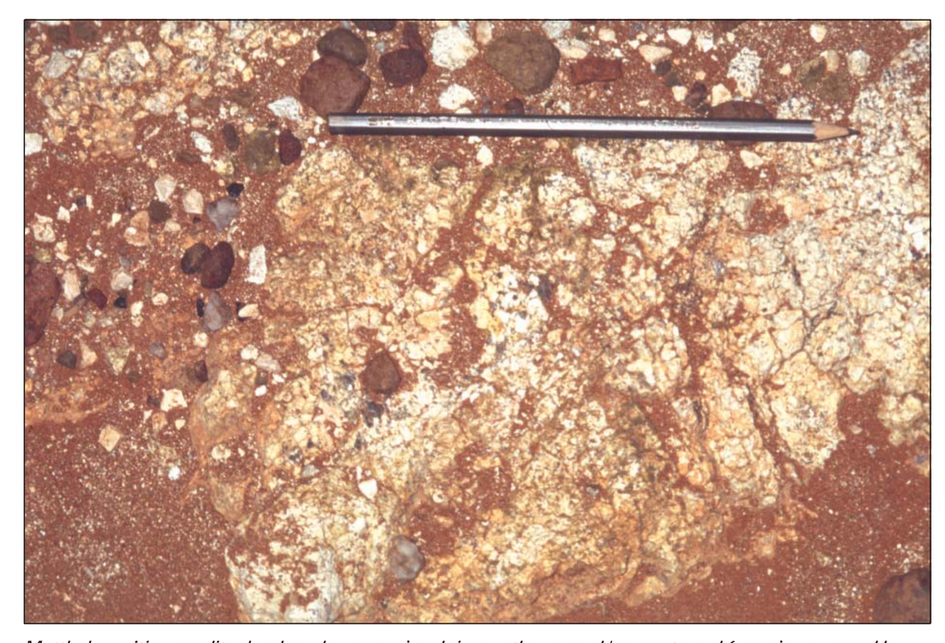
HALF MOON LAKE Regolith - Landforms



Columnar to lozenge and pod shaped silcrete cobbles enclosing sand textures similar to that of surrounding sandplain (371694E:6688265N).

Sheetflow deposits consisting of red calcareous medium to coarse grained sand with carbonate granules and nodular lags (373389E:6694411N).

Erosional plain covered with granular/very coarse sand sized iron and quartz lag over a reddish-brown medium-fine sand. Lag consists of 75% Fe granules and 25% quartz and brown lithic fragments (355999E:6702300N).



Mottled granitic saprolite developed as a erosional rise partly covered by quartz and ferruginous gravel lags. Soils consist of very fine sandy light clay buff-brown sand with rare carbonate nodules (397651E:6678523N).

Lag of carbonate nodules and minor silcrete, quartz and lithic fragments over calcareous red sandy clay soils. Lag and soils developed on sheetflow plain (339351E: 6656783N).

Swale of dune field consisting of fine aeolian reddish-brown quartz sand (338199E:6635157N).

Banded ironstone forming a rocky resistant ridge. Angular ironstone gravels form colluvial footslopes flanking the ridge (357321E:6646423N).

Erosional rise covered by a lag of geothitic and hematitic nodules over ferruginous quartz sand (363890E:6656783N).

SCALE 1:100 000

1 0 1 2 3 4 5 6 7 8 9 10 Kilometres

UNIVERSAL TRANSVERSE MERCATOR PROJECTION
DATUM: AUSTRALIAN GEODETIC DATUM . ZONE: 53
LATITUDE OF ORIGIN: 0°. LONGITUDE OF ORIGIN: 135°

REGOLITH TYPES

Transported regolith

Alluvial sediments

Code	Description
AOaf	*Alluvial sediments consisting of clays, fine to medium sandy red clays, and gravels. In places sediments are partly covered by ferruginous silcrete lags. Sediments are ommonly hardpanised 30-40cm below the surface. Drainage patterns are poorly defined and consist largely of shallow alluvial depressions.*
ACed	*Alluvial depressions and playa lakes consisting of floors of alluvial and lacustrine sediments including sands, clays and silts. Halite and gypsum crust on lake floors.*

Aeolian sediments

Code	Description
ISul	*Undifferentiated reddish orange fine grained aeolian quartz parabolic dunes and reworked undulating sandplains. Dunes trend mainly east-west. Sand grains are well rounded and sorted, and stained by iron. Slight increases in clay content in swales. Calcrete bars may occur on dune crests. Calcareous sands and nodules are common below -80cm.*
ISul1	*Undifferentiated reddish orange, fine grained, aeolian, quartz sands forming well developed longitudinal dune fields , and minor reworked undulating and plains. Dunes trend mainly east-west. Sands are ferruginous, well rounded and sorted. Deep, uniform textured, sandy soils with slight increases in clay content > 1.2 metres. Calcareous sands and minor carbonate nodules common at > 1 metre depth. Occasional ferruginous silcrete and carbonate nodules*

Colluvial sediments

Code	Description
CHfs	*A variable unit of sheetflow sands, in part, modified by aeolian processes into sandplain. Soils consist of ferruginous medium/coarse red clayey sands to granules with clay content typically increasing with depth, and calcareous sands with carbonate nodules common at 50cm depth. Erosional rises are mantled by extensive lags consisting of quartz, ferruginous silcrete, buckshot gravels, ferruginous lithic fragments and granules/nodules of carbonate*
CHfs1	*Sheetflow sand now modified by aeolian reworking and showing minor dune forms. Sands are ferruginous, well sorted, very fine to medium grained. Calcrete nodules commonly occur 50-60cm below the surface. Rare calcrete nodules and ferruginous silcrete lags.*
CHfs2	*Sheetflow deposits consisting of ferruginous, quartzose sands, medium/coarse red clayey sands and granules. Ferruginous saprolite, silcrete and Fe nodules form scattered gravel lags. In places, silcretes form indurated pavements Carbonate may occur at depths (> 40cm) as calcareous sands or nodules. Colluvial sheetflow plains and ersional plains.*
CHfs3	*Sheetflow mantles and sandplain modified in places by aeolian reworking and showing some dune forms. Sheetflow sands are ferruginous medium to fine grained and typically calcareous at depth (> 30cm). Modified aeolian sandplains consist of well rounded and polished grains with calcareous sands common at < 1 metre depth. Sheetflow, modified sandplains and minor erosional plains are common.*
CHfs4	*Extensive sheetflow sandplain and minor dune forms. Sands are ferruginous, well sorted, very fine to medium grained. Calcareous sands and nodules rare at the surface but are common at depths > 60cm.*
CHfs5	*Reddish orange, fine to medium quartzose sands, silts and minor clays. Carbonate nodules form scattered float. Calcareous sands and are common at > 40cm depth. Forms extensive sheetflow sand plains and minor residual plains.*

Lacustrine sediments

Code	Description
Lpl	*Lacustrine sediments consisting of reddish brown clays, silt and sand forming playa lake floors. Halite and gypsum crusts on lake floors.*

Lacustrine sediments

Code	Description
ISun	*Lunettes consisting of fine-medium quartz aeolian sand with some iron staining. Gypsum and carbonate fragments common in places. Gypsum in places exposed and reworked to form crusts, indurated horizons and blocks. Crystals of gypsum common in dune sands. Surface sands commonly dusted by halite adjacent to players. Minor spherulites derived from lake clays.*

In-situ regolith

Saprolite

Code	Description
SCer	*Ferruginous (haematite/goethite) lags consisting of buckshot gravels, ferruginous granules and minor vein quartz and ferruginous silcrete. Red sandy light clay soils with numerous ferruginous gravels. Occasional carbonate nodules as scattered float. Forms erosional plains and modified sheetflow plains.* **Detailed investigations may demonstrate, in some cases, that the deposits represent relief-inverted transported materials.**
SCer1	*Diffusely iron-stained and mottled granitic saprolite partly covered by sheetflow medium to coarse iron stained quartzose sands. Drainage depressions erosional plains.*
SHer	*Highly ferruginous saprolite partly covered by ferruginous lags and lithosols. Lags and lithosols consist of ferruginous lithic fragments and quartz gravels. Fe is haematitic and goethitic. Saprolite is either partly covered by calcareous, aeolian and sheetflow sands, or forms prominent low hills consisting mostly of banded iron lithologies. The low hills are partly covered by ferruginous skeletal soils surrounded by aprons of angular colluvium*

Lags
(May be developed on either transported or in-situ substrates)

Code	Description
RLfs	*Ferruginous silcrete gravel lag over either diffusely iron stained silcrete, silicified saprolite or ferruginous sheetflow sands. Micro-crystalline silcrete (grey billy) also common. Minor quartz lags and buckshot gravels. Sheet-flood fans developed over erosional plains.*
RLfs1	*Reddish orange to brown calcareous and quartzose fine to medium sands, silts, minor clays and coarse sands. Reworked carbonate nodules/granules common over surface. Minor silcrete and quartz lags. Some carbonate nodules are developed in sand and increase in number with depth. Carbonate bars with a platy appearance are common at between 20-60cm depth. Extensive sheet-flood fans developed over erosional plains.*
RLfs2	*Gravel and pebble lags consisting of silicrete, ferruginous nodules and gravels, and lithic fragments over sheetflow red sands. Calcareous, red sands with calcareous nodular and granular lags are also common. Sheet-flood fans developed over erosional plains.*
RLfs3	*Lags consisting mostly of granular to very coarse sand-sized Fe (haematite & goethite) sediments including ferruginous lithic fragments. Ferruginous silcrete and quartz gravel lags are also common. In places, calcrete occurs as scattered float. Soils consist of reddish brown medium fine sands. Sheet-flood fans developed over erosional plains.*

Regolith landform unit boundary
Minor erosional scarp
Contour Line
Sand ridge
Vehicle track
Fence
Landing ground
Spot height in metres
Water tank
Trigonometrical station
Bore
Windpump
Yard

*MINERAL OCCURRENCES (DEPOSITS) **

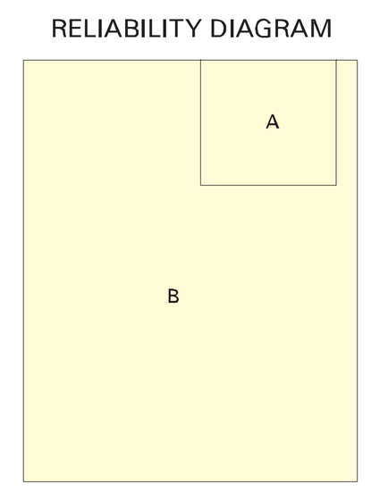
Gold (Au)
Chromium (Cr)
Iron (Fe)
Lead (Pb)
Nickel (Ni)

** Data provided by Bureau of Resource Science from MINLOC database*

Challenger Prospect

REGOLITH CODES		*LANDFORM CODES*	
AC	Channel deposits	af	Flood plain
AO	Overbank deposits	ed	Drainage depression
CH	Sheet flow deposits	er	Rises
IS	Aeolian sand	fs	Sheet-flood fan
L	Lacustrine sediments	pl	Lacustrine plain
RL	Lag	un	lunettes
SC	Completely weathered bedrock	ul	Longitudinal dunefield
SH	Highly weathered bedrock		

RELIABILITY DIAGRAM

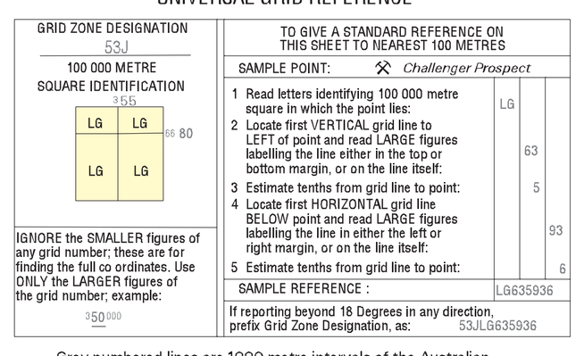


A *Compiled using 1:82,000 colour air photographs, enhanced Landsat Thematic Mapper (TM), Airbourne Radiometrics and Digital Elevation Model (20 metre resolution). Moderate to detailed reconnaissance field control.*

B *Compiled using enhanced Landsat Thematic Mapper (TM), airbourne radiometrics and Digital Elevation Model (250 metre resolution). Moderate to sparse reconnaissance field control.*

FIELD OBSERVATION LOCALITIES

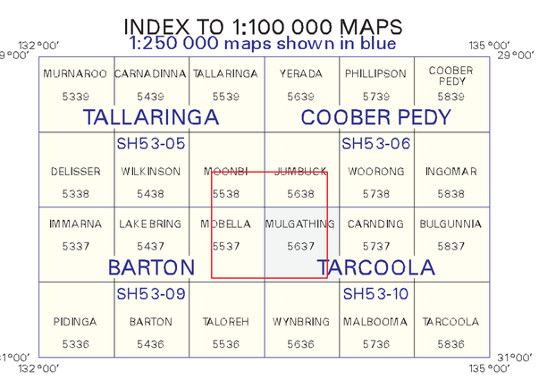
UNIVERSAL GRID REFERENCE



GRID ZONE DESIGNATION
53J
100 000 METRE SQUARE IDENTIFICATION
TO GIVE A STANDARD REFERENCE ON THIS SHEET TO NEAREST 100 METRES
SAMPLE POINT: Challenger Prospect
1 Read letters identifying 100 000 metre square in which the point lies:
2 Locate first VERTICAL grid line to LEFT of point and read LARGE figures labelling the line either in the top or bottom margin, or on the line itself:
3 Estimate tenths from grid line to point:
4 Locate first HORIZONTAL grid line BELOW point and read LARGE figures labelling the line in either the left or right margin, or on the line itself:
5 Estimate tenths from grid line to point:
SAMPLE REFERENCE :
LG635936
IGNORE the SMALLER figures of any grid number; these are for finding the full co ordinates. Use ONLY the LARGER figures of the grid number; example:
If reporting beyond 18 Degrees in any direction, prefix Grid Zone Designation, as:
53JLG635936

Grey numbered lines are 1000 metre intervals of the Australian Map Grid, Zone 53. Grid values are shown in full only at the southwest corner of the map

INDEX TO 1:100 000 MAPS
1:250 000 maps shown in blue



MURNAROO 5339
CARNADINNA 5439
TALLARINGA 5539
YERADA 5639
PHILLIPSON 5739
COOBER PEDY 5839
TALLARINGA
COOBER PEDY
SH53-05
SH53-06
DELISSER 5338
WILKINSON 5438
MOONBI 5538
JUMBUCK 5638
WOORONG 5738
INGOMAR 5838
IMMARNA 5337
LAKE BRING 5437
MOBELLA 5537
MULGATHING 5637
CARNDING 5737
BULGUNNIA 5837
BARTON
TARCOOLA
SH53-09
SH53-10
PIDINGA 5336
BARTON 5436
TALLAREH 5536
WYNBRING 5636
MALBOOMA 5736
TARCOOLA 5836

MAP LOCALITY

Compiled by J.R.Wilford and M.A.Craig (AGSO), 1998
Regolith by J.R.Wilford and M.A.Craig (AGSO), 1998

Cartography by A.I.Johnston C.Johnson (AGSO), 1998
Geographic Information Systems by A.I.Johnston and J.R.Wilford (AGSO), 1998
Image Processing by A.Mauger (MESA), J.R.Wilford and A.I.Johnston (AGSO), 1998

It is recommended that this map be referred to as: Wilford, J.R and Craig, M.A -: Half Moon Lake Regolith - Landforms (1:100,000 map scale). Cooperative Research Centre for Landscape Evolution and Mineral Exploration. (CRC LEME) Perth/Canberra

Regolith-Landforms polygons are based on interpretation of 1:82,000 colour airphotos, enhanced Landsat TM imagery, airborne gamma-ray imagery, Digital Elevation Models (DEMS) and field observations.

We acknowledge Gawler Joint Venture for their contribution in producing this map.

Published by CRC LEME, Canberra, Australia.

CRC LEME is an unincorporated joint venture between the Australian National University, University of Canberra, Australian Geological Survey Organisation and CSIRO Exploration and Mining, established and supported under the Australian Government's Cooperative Research Centres' Programme.

PRIMARY INDUSTRIES AND RESOURCES SA

CRCLEME
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