TR18_40-45

8. Australian map grids and grid references.

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Map grids have been used on Australian maps for over 30 years, and grid references have been used as an aid to locality identification in many geological and other publications. Unfortunately there has been considerable variation in the form and in the order in which grid references have been given and this has lead to much confusion and error.

The recent introduction of a metric Australian Map Grid which replaces the Australian National Grid, which was based on the yard, has added a further complication.

The following notes provide a brief outline of the two grid systems and the recommended forms of giving a grid reference.

AUSTRALIAN NATIONAL GRID

A map grid reference system was developed for use on Australian military maps during World War II. It became known as the Australian National Grid (ANG) and has been in general use for topographic and geological maps using the Transverse Mercator projection.

For the purposes of the ANG, Australia was divided into a number of N-S zones, each extending for 5° of longitude, and each with a separate grid net which was symmetrically disposed with respect to the central meridian of the zone. Tasmania is included in Zone 7 (fig. 8) which extends from 143°30' to 148°30'E. The central meridian of the zone is 146°E, corresponding to a grid easting of 400,000 yards.

The principal grid lines are at 100,000 yard intervals. The preferred grid interval is 1,000 yards for medium scale maps and 10,000 yards for maps at scales smaller than 1:100,000.

AUSTRALIAN MAP GRID

The recently introduced Australian Map Grid (AMG) is basically similar to the ANG but is based on metric units. Each grid zone extends for 6° of longitude and coincides with the N-S numbered zones of the International Map of the World on which the sheet numbering system for the Australian 1:250,000 map series is based.

The whole of Tasmania, with the exception of the western part of King Island*, is included in Zone 55 (fig. 9) which extends from 144° to 150°E. The central meridian of Zone 55 is 147°E, which coincides with the 500,000 metre grid line. The difference in the central meridians of the ANG and AMG results in an angular discordance between the two grid nets.

The principal grid lines are at 100 kilometre intervals. The preferred grid interval is one kilometre for medium scale maps and 10 km for maps at scales smaller than 1:100,000.

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*This will be regarded as forming part of Zone 55 on Tasmanian maps. Each grid zone is divided into bands extending for 4° of latitude, the bands are denoted by letters. A grid zone designation consists of the zone number followed by this letter (*e.g.* 55G for Tasmania, south of latitude 40°S). Grid zone designations enable a unique grid reference to be given for any point in Australia; but may normally be ignored.

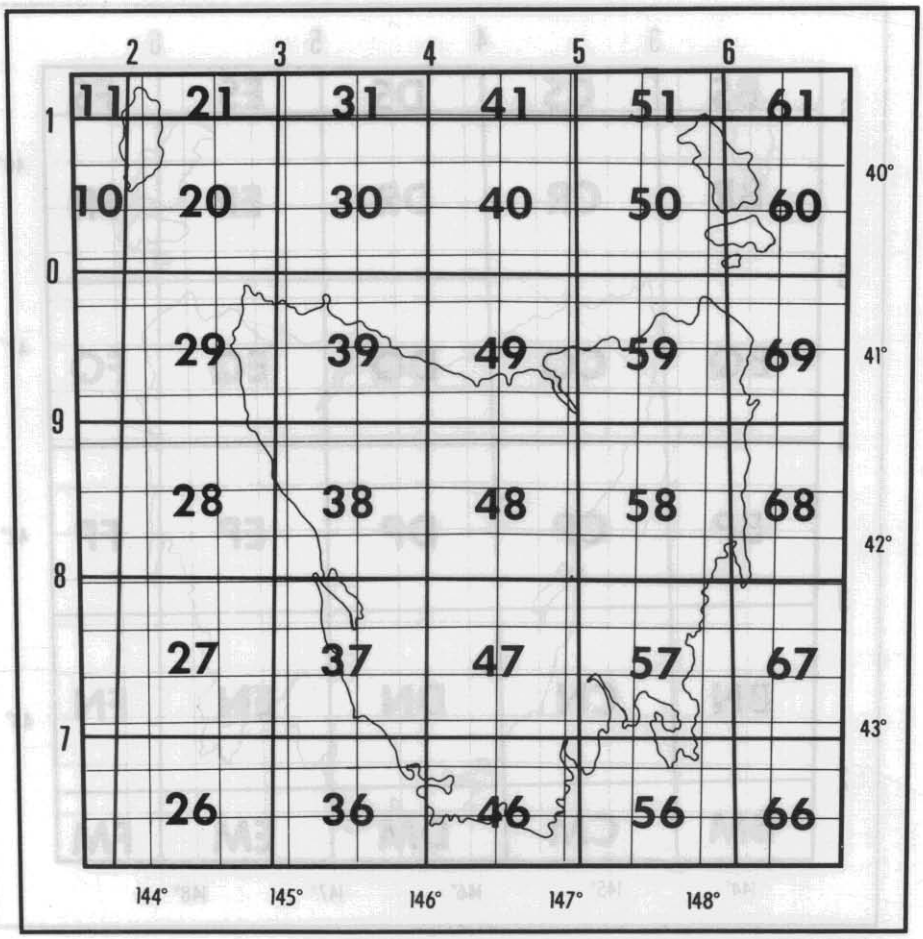


Figure 8. *Incidence of Australian National Grid 100 000 yard squares.*

5 cm

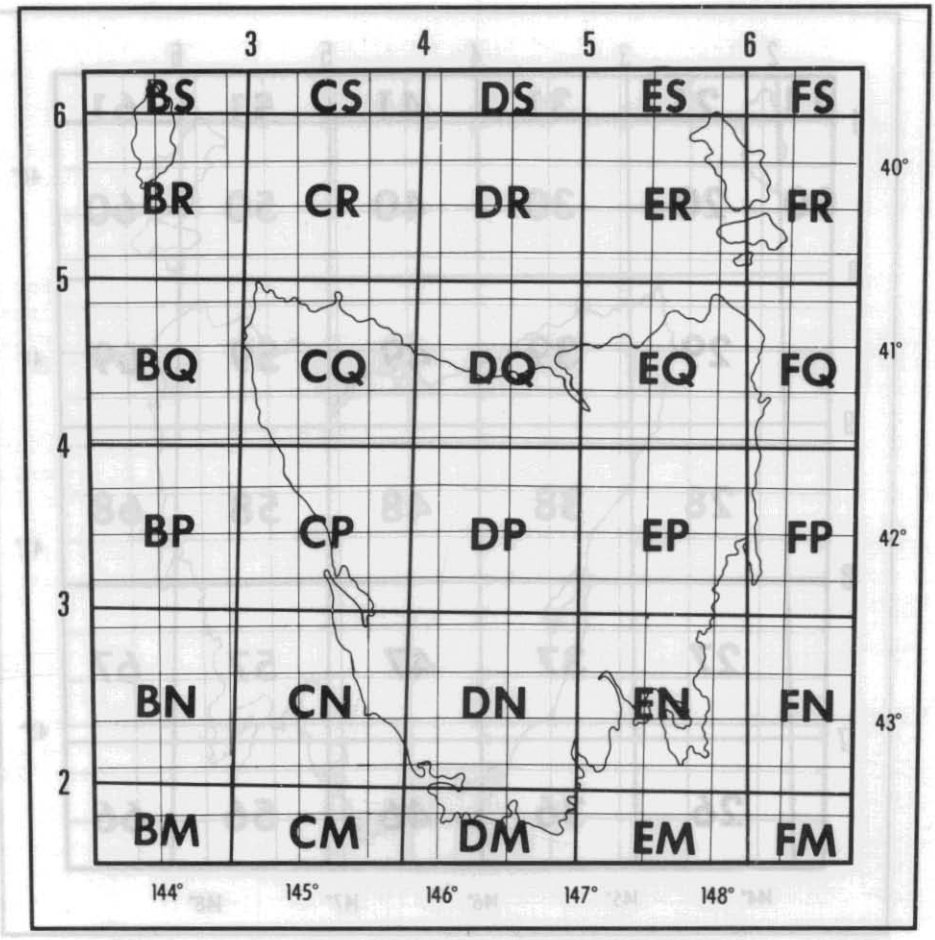
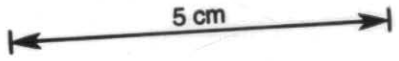


Figure 9. *Incidence of Australian Map Grid 100 000 metre squares.*



GIVING A GRID REFERENCE

The method of giving a grid reference is similar for both map grids, except that the AMG 100 kilometre squares are designated by letters.

The standard grid reference of a point on a map to the nearest 100 m (100 yd), is obtained as follows:

(1) Identify the 100 km (100,000 yard) square in which the point lies.
(2) Locate the first vertical grid line to the left of the point and read the LARGE figures printed opposite this line in either the top or bottom margin of the map.
(3) Estimate tenths from this grid line to the point.
(4) Locate the first horizontal grid line below the point and read the LARGE figures printed opposite this line in either the left- or right-hand margin of the map.
(5) Estimate tenths from this grid line to the point.

Examples are given in Figures 10,11. The procedure to be used for small scale maps which have a 10 km or 10,000 yard interval is the same as that outlined above, but the reference will be to the nearest kilometre or 1000 yards. On small-scale maps in which the grid lines are denoted by two large figures the first of these figures should be ignored.

Although the preferred grid interval is used on most Lands and Surveys Department maps it has not been used on the Geological Survey of Tasmania one mile and 1:50,000 map sheets. These maps have a grid interval of 10,000 yards or 10 kilometres, which is too large to permit the estimation of the position of a point to the nearest 100 yards or 100 metres. The position of a point must either be measured or a transparent overlay, ruled with the grid lines at the preferred interval, must be placed on the map.

GRID REFERENCES IN DEPARTMENTAL PUBLICATIONS

The standard form of grid reference should normally be used (*e.g.* EQ 242302 or 57/239347), except where there are numerous references to a restricted area, when the grid square identification may be omitted (*e.g.* 242302 or 239347), the grid used must be stated in a footnote (fig. 9).

When using large scale maps (∿1:10 000) grid references to the nearest 10 metres or 10 yards (*e.g.* EQ24213024 or 57/23943471) may be appropriate, whereas for small scale maps (*e.g.* 1:250 000) grid references to the nearest kilometre or 1000 yards may be adequate.

AMG references should be used in preference to the yard grid, but this will be dependent on the availability of maps with the metric grid. For Explanatory Reports the grid references must correspond with the grid used on the corresponding geological map.

[5 July 1973]

Postscript

Yet another form of grid reference has been introduced on 1:100 000 topographic maps. Known as the Unique Grid Reference, it uses the 1:100 000 sheet number instead of the two-letter 100 000 metre grid square identification (*e.g.* 8015-958207). There appears to be no way of converting a National or Universal Grid Reference to a Unique Grid Reference (or *vice versa*) as the sheet lines do not correspond to the grid lines. It is not clear if or how a Unique Grid Reference might be applied to maps at other scales.

[22 April 1975]

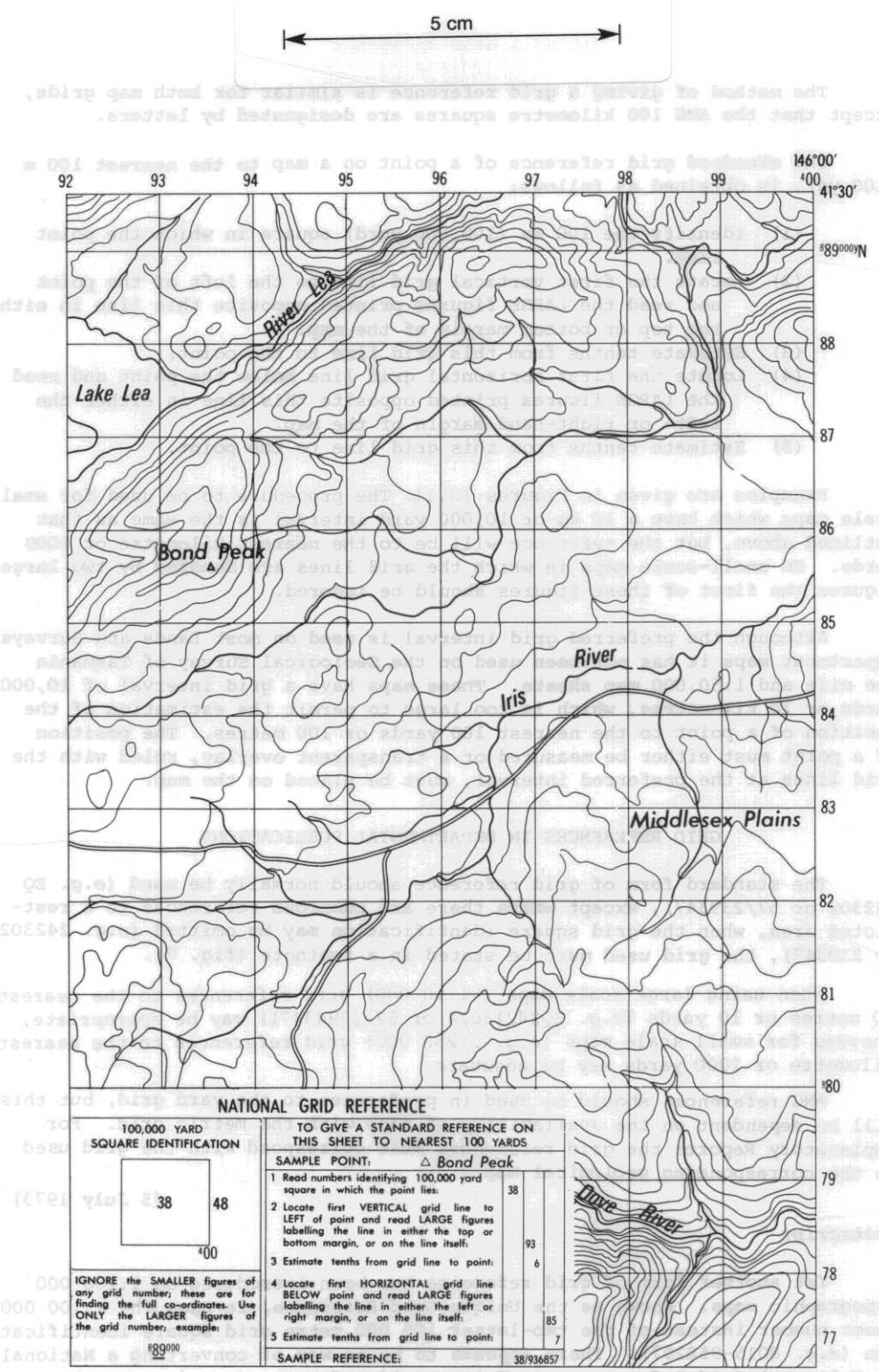


Figure 10. *Example of Australian National Grid reference system.*

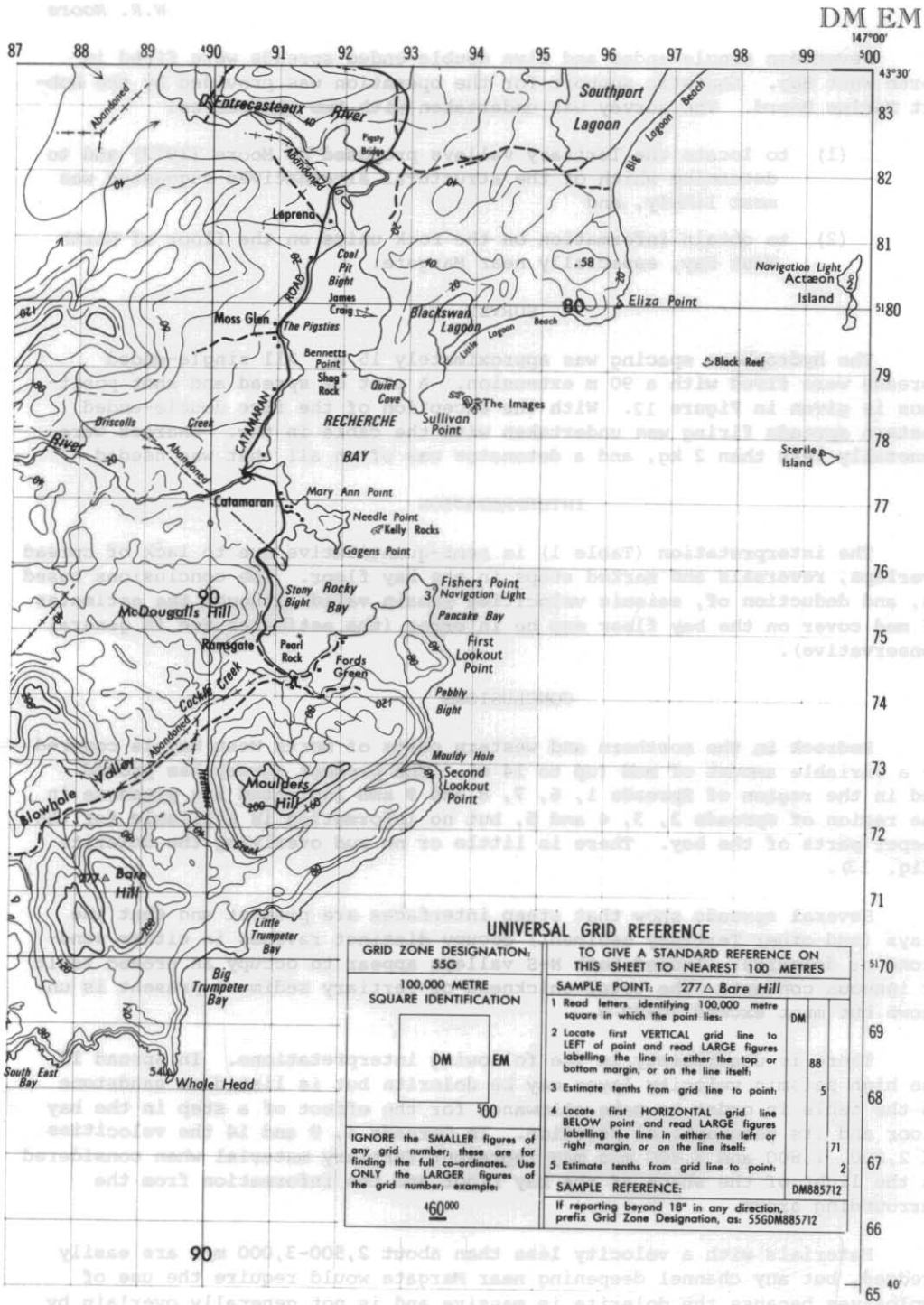


Figure 11. *Example of Universal Map Grid reference system.*