



## Mapping & map reading

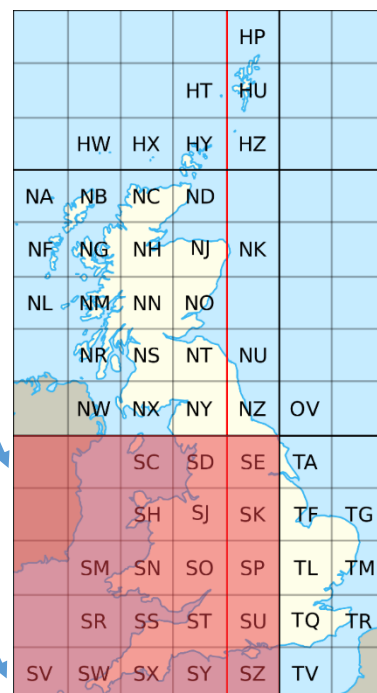
**1:500,000 Aviation Chart (1/2 Mil)**  
**1:250,000 Aviation Chart (1/4 Mil)**  
**1:50,000 Ordnance Survey Landranger series map (OS)**  
**1:18,000 Street Atlas or A to Z**

For the purposes of all TFO assessments, the 1:50,000 scale Landranger series mapping and Street Atlas's and 6 figure grid references will be utilised throughout as these are easily available for candidates to procure and practice with prior to assessment.

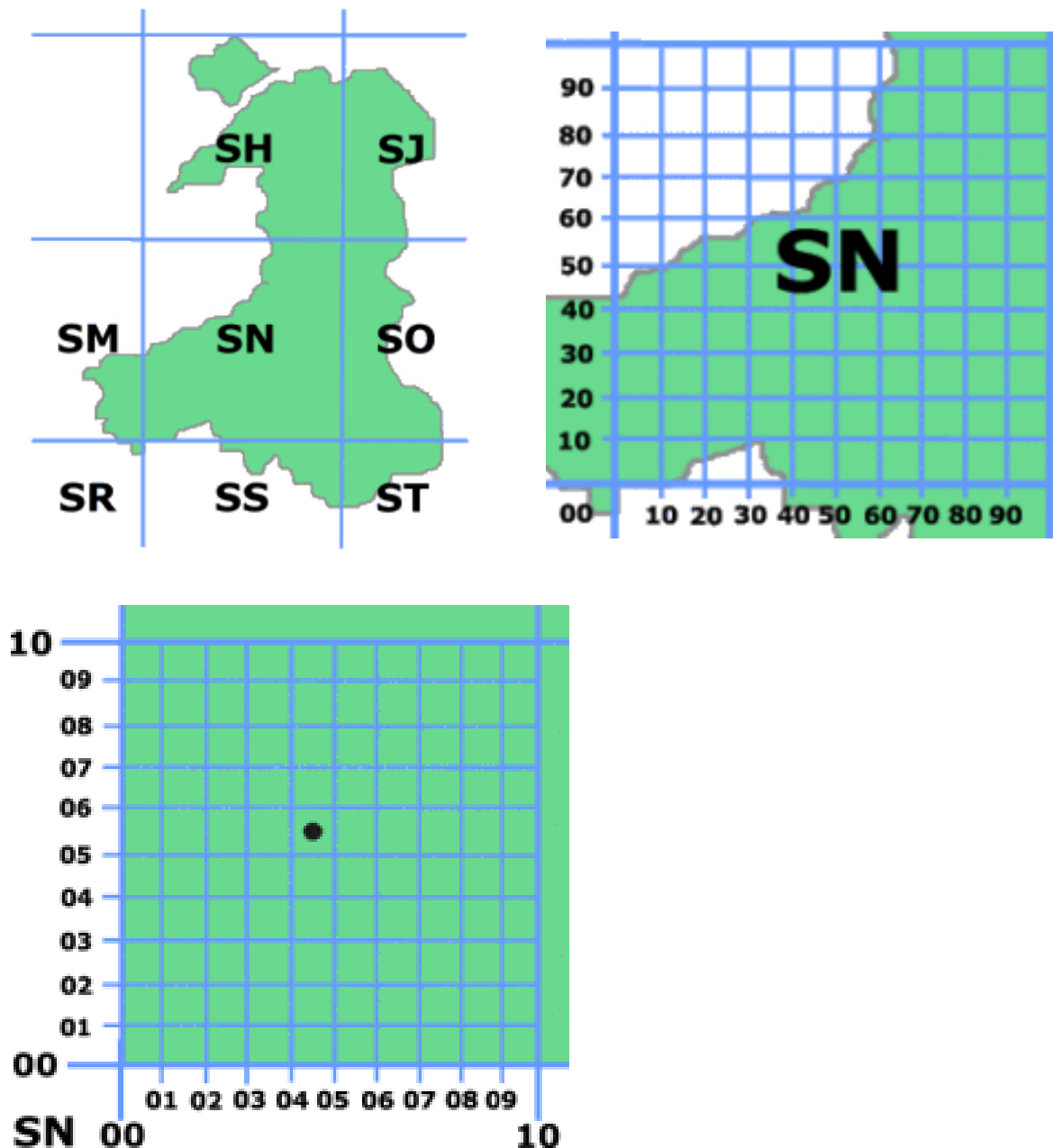
The Ordnance Survey divides the UK into a number of 500 kilometre squares, each with a unique identifying letter:

These squares are subdivided into twenty five 100 kilometre squares and given their own identifying letter (excluding i) (here it is SV)

This is the 2 letter prefix that must go before all 6 figure grid references

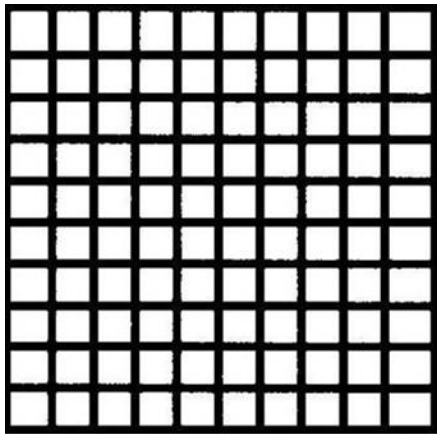


These 100 kilometre squares are further divided into individual square kilometres and referenced from 00 to 99 along the sides giving four figure grid references accurate to 1km (1000m).



Each of these squares kilometres is divided into 100 smaller squares (10 x 10), which allows us to given six figure grid references, accurate to 100 metres.

**A useful way of remembering how to plot a grid reference - “Along the corridor and up the stairs”**



✗ **TQ 935 504**

### **Map use/flight planning**

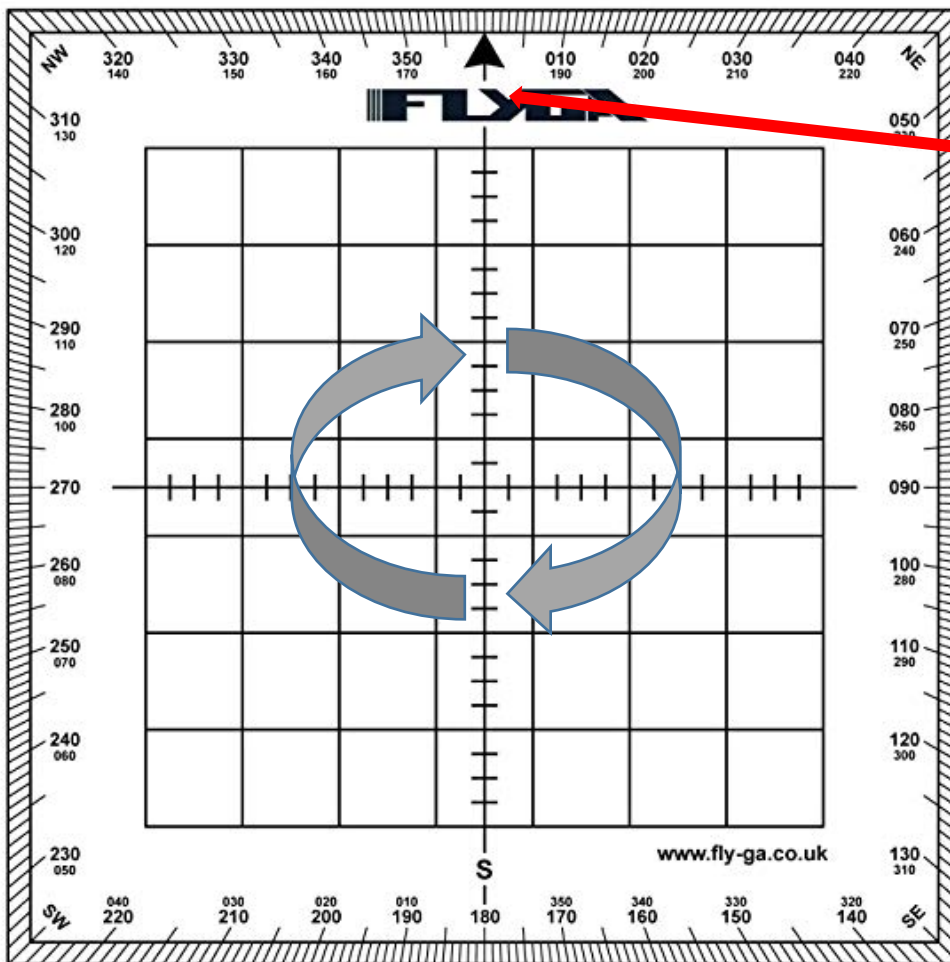
There are exercises during ground based assessment that will require you to plot locations using 6 figure grid references, drawing lines between them and accurately measuring. This is also relevant during subsequent flight assessment using 1:50,000 OS Landranger map and Street Atlas / A to Z.

Our aircraft for planning purposes travel at 120 nautical miles per hour (Knots)  
That's 2 Nautical Miles per minute!

Lets go from A to B.

Firstly, we'll look at some navigation equipment.....

## Aviation protractor (provided)



Always line up arrow with North grid lines

Read clockwise around the outside for bearing

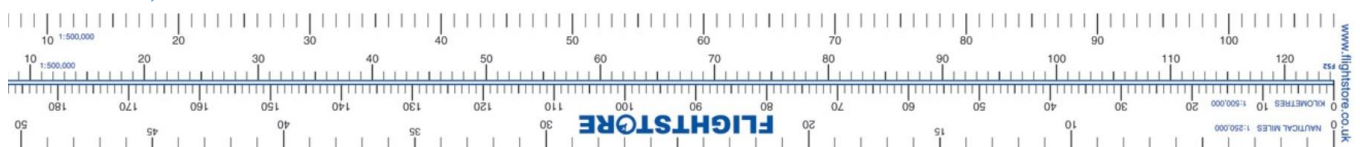
i.e. 080°

or 263°

## Aviation ruler (provided)

1:500,000 Scale side then divide by 10 to use on 1:50,000 OS Map

Measuring distances in NAUTICAL MILES



**DO NOT** use the 1:250,000 scale

Accuracy is key!



Identify your first location 'A' and plot accurately on the OS map.  
Be careful not to cover your map in pen as you could obscure essential information that you may require in flight.



Identify your target location 'B' and plot accurately on the OS map. Draw a line between the two using your aviation ruler (provided).  
Again be careful not to make your line too thick as this can build in inaccuracies and also hide essential information on the map



Measure the bearing from A to B with the protractor  
Accuracy is required within  $\pm 2$  degrees.



Measure the distance using your aviation ruler in **NAUTICAL MILES** (nm).  
Remember to use the 1:500,000 scale then divide your reading by 10 to get 1:50,000 scale.  
Accuracy is required  $\pm 0.1$ nm.  
For example if the distance is 2.4nm then answers of 2.3 or 2.5 will be acceptable.





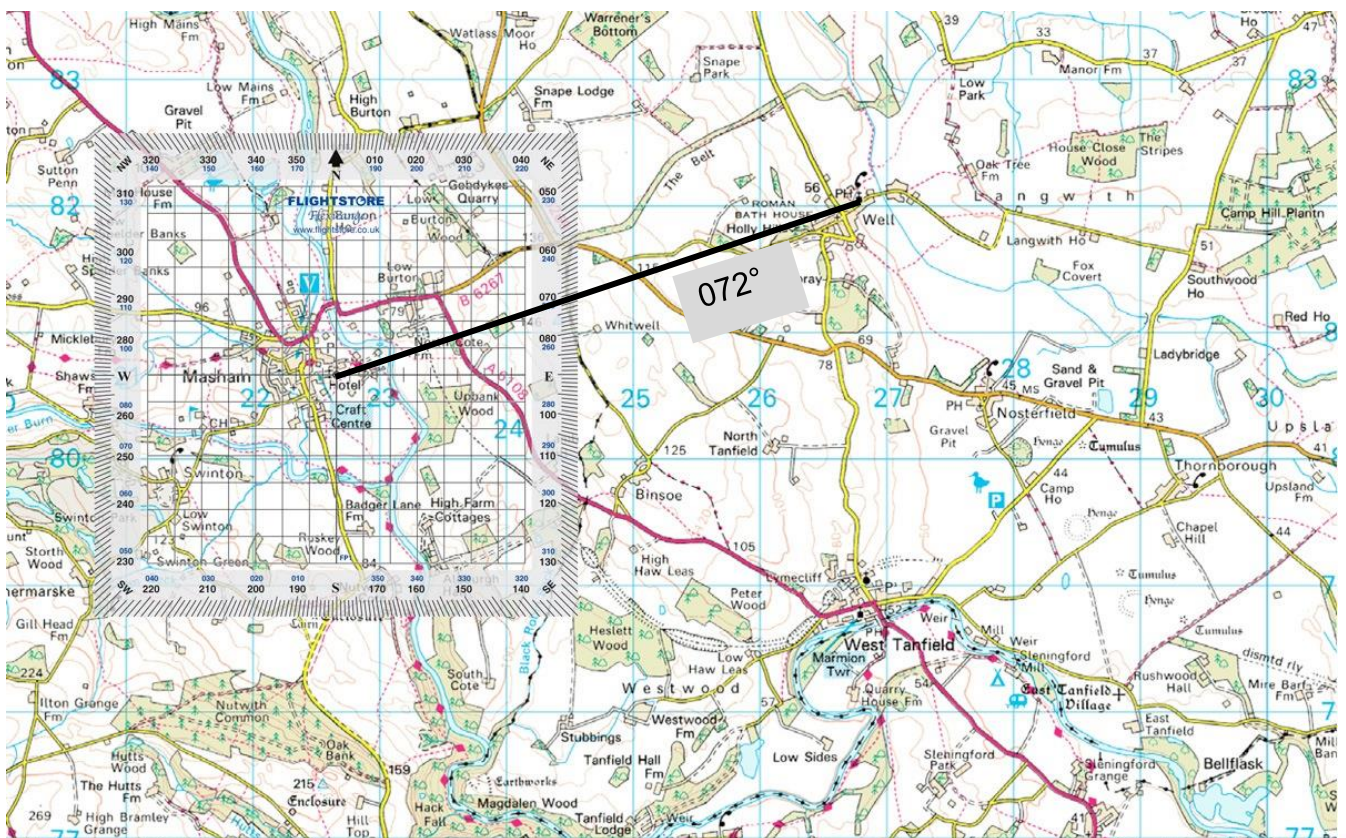
## Map use / flight planning example



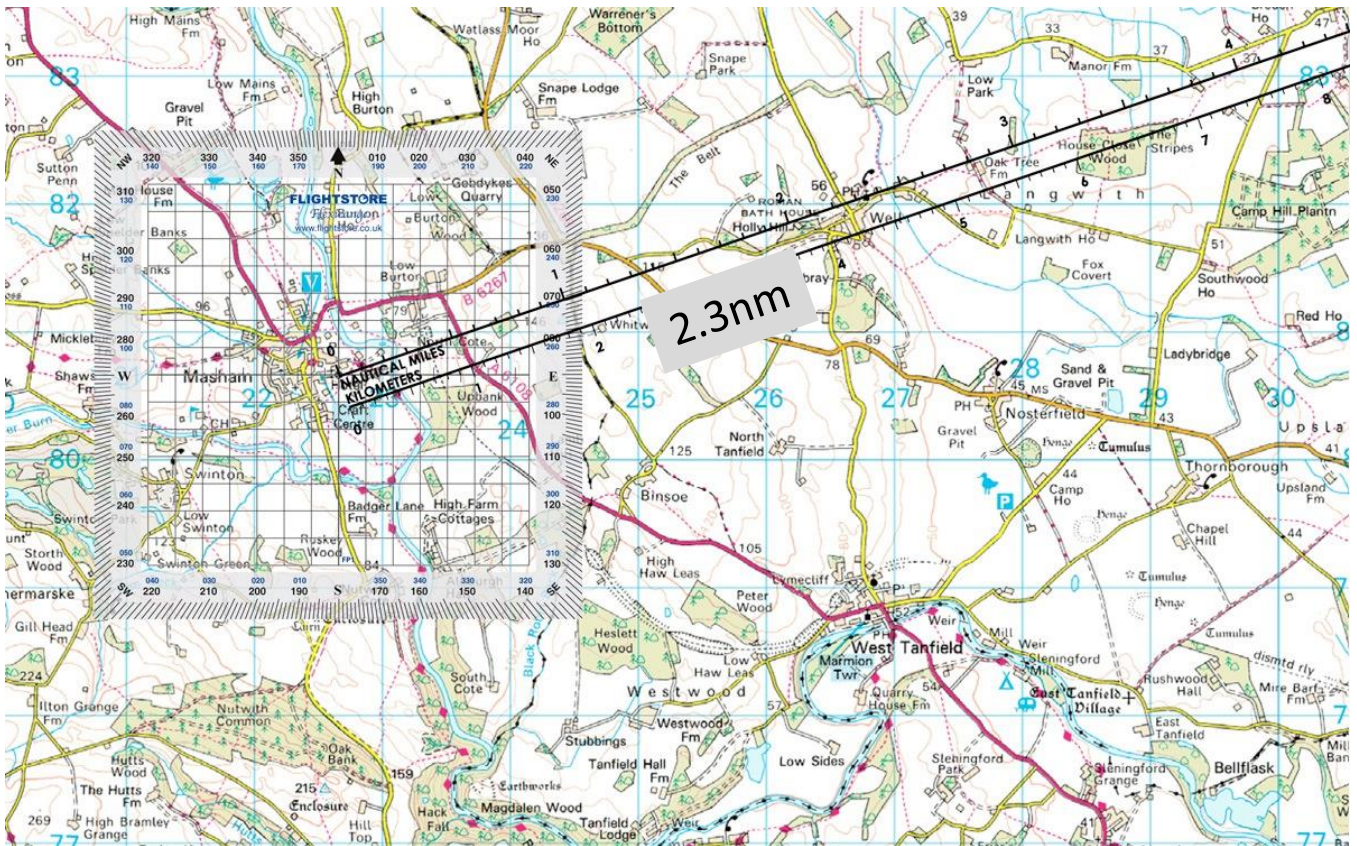
Point A - Current or former  
place of worship with a spire,  
dome, or minaret  
**SE 227 808**

TO

Point B – Current or former  
place of worship with a tower  
**SE 268 821**







## Ordnance Survey Landranger series 1:50,000 legend

As a part of the pre reading / learning for the ground based assessments, we ask candidates to learn 'verbatim' the 1:50,000 scale Landranger series map legend (small extract shown opposite).

This is available to be downloaded from the Ordnance survey website free of charge.

<https://www.ordnancesurvey.co.uk/documents/50k-raster-legend.pdf>

During the assessment, candidates will be shown symbology and asked to interpret what it is, conversely they could be given a 6 figure grid reference and asked what feature is at that location.

NPAS crews need to be able to interpret this layer of mapping without reference to the legend whether on paper maps or electronically within the aircraft.



## LEGEND

1: 50 000 scale

