Generalisation Part 3

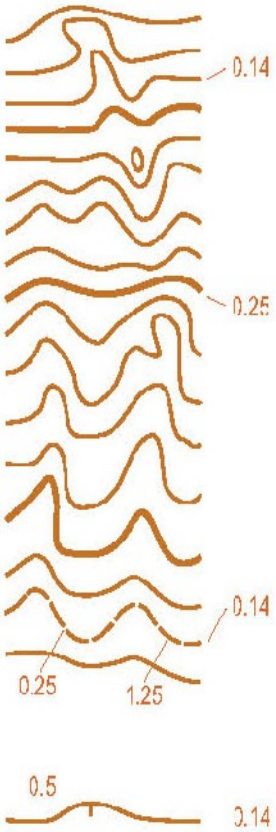
I should like to consider

- Point features
- Linear features
- Area features

LINEAR FEATURES

- There are two symbols an an O map that you will never see on the ground?
- One is the contour
- The other the magnetic north lines

Contours



101 Contour
A line joining points of equal height. The standard vertical interval between contours is 5 metres. The smallest bend in a contour is 0.25 mm from centre to centre of the lines.
Colour: brown.

102 Index contour
Every fifth contour shall be drawn with a thicker line. This is an aid to the quick assessment of height difference and the overall shape of the terrain surface. Where an index contour coincides with an area of much detail, it may be shown with a normal contour line.
Colour: brown.

103 Form line
An intermediate contour line. Form lines are used where more information can be given about the shape of the ground. They are used only where representation is not possible with ordinary contours. Only one form line may be used between neighbouring contours.
Colour: brown.

104 Slope line
Slope lines may be drawn on the lower side of a contour line, e.g. along the line of a re-entrant or in a depression. They are used only where it is necessary to clarify the direction of slope.
Colour: brown.

Linear features
Contours

- A contour line is formed by joining places with the same height.

Linear features

Contours

- It is easy to demonstrate a contour in the field and is a useful exercise for both mappers and participants

Linear features
Contours

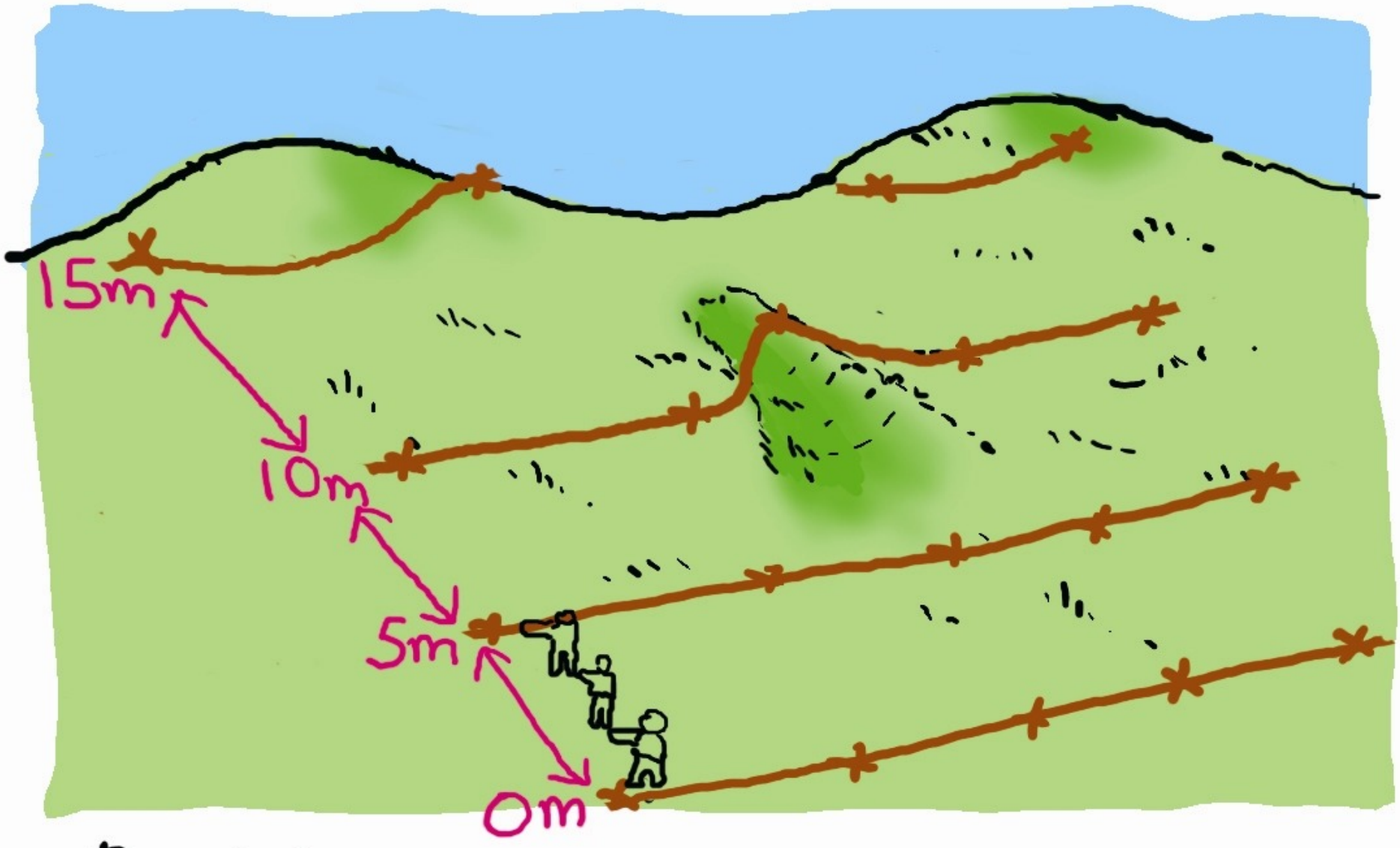
Linear features
Contours

This can be repeated along the slope and you will soon get a picture of contours.

But O maps have 5 m contours?

5m contours

5m contours



But contours have a size?

- The contour is 0.14mm in width on the map.
- Some simple maths
- (0.14x5000)/1000
- 2.1m on the ground.

Demonstrating contours

Now let us show you a contour.

Demonstrating a contour

You can use a section of plastic 2m wide and as long as possible.
Garden fleece provides a good demonstration and is light and easy to handle.
Spread out it is impressive .

Demonstrating a contour

This photograph was taken at a British Orienteering Federations Mapping Workshop in 2001.

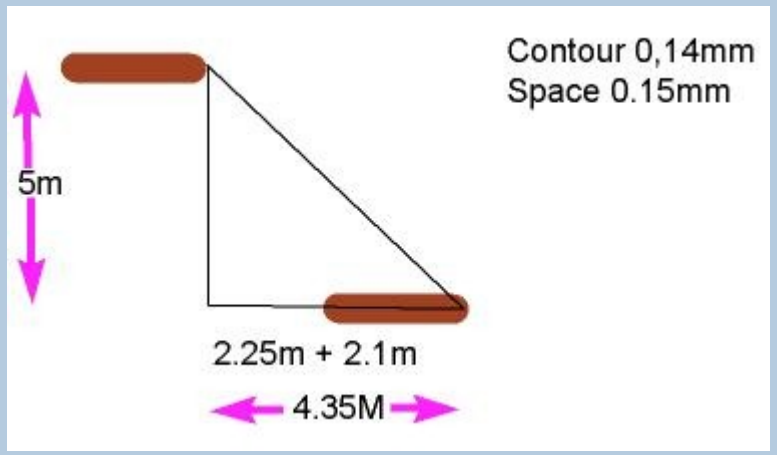
Demonstrating contours

Demonstrating contours

- The strips of plastic were laid on the ground to represent the contour following the ideas in the previous slide.

Demonstrating contour features

- Some interesting numbers?
-
- Some simple maths will show you that the steepest slope that can be shown is about 50^0



Demonstrating contour features

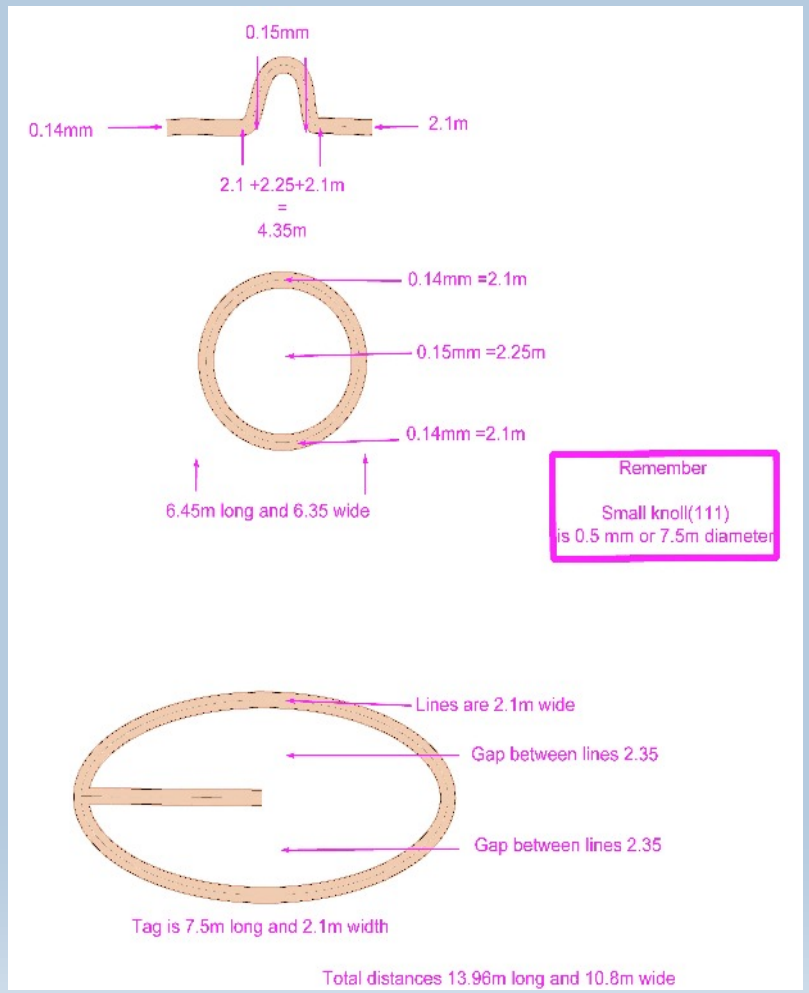
- If the contours are closer than that they should be GENERALISED
- ISOM already contains some generalised symbols
- The Earth bank(106)
- Passable rock face(203)
- or Impassable cliff(201).

Demonstrating contour features

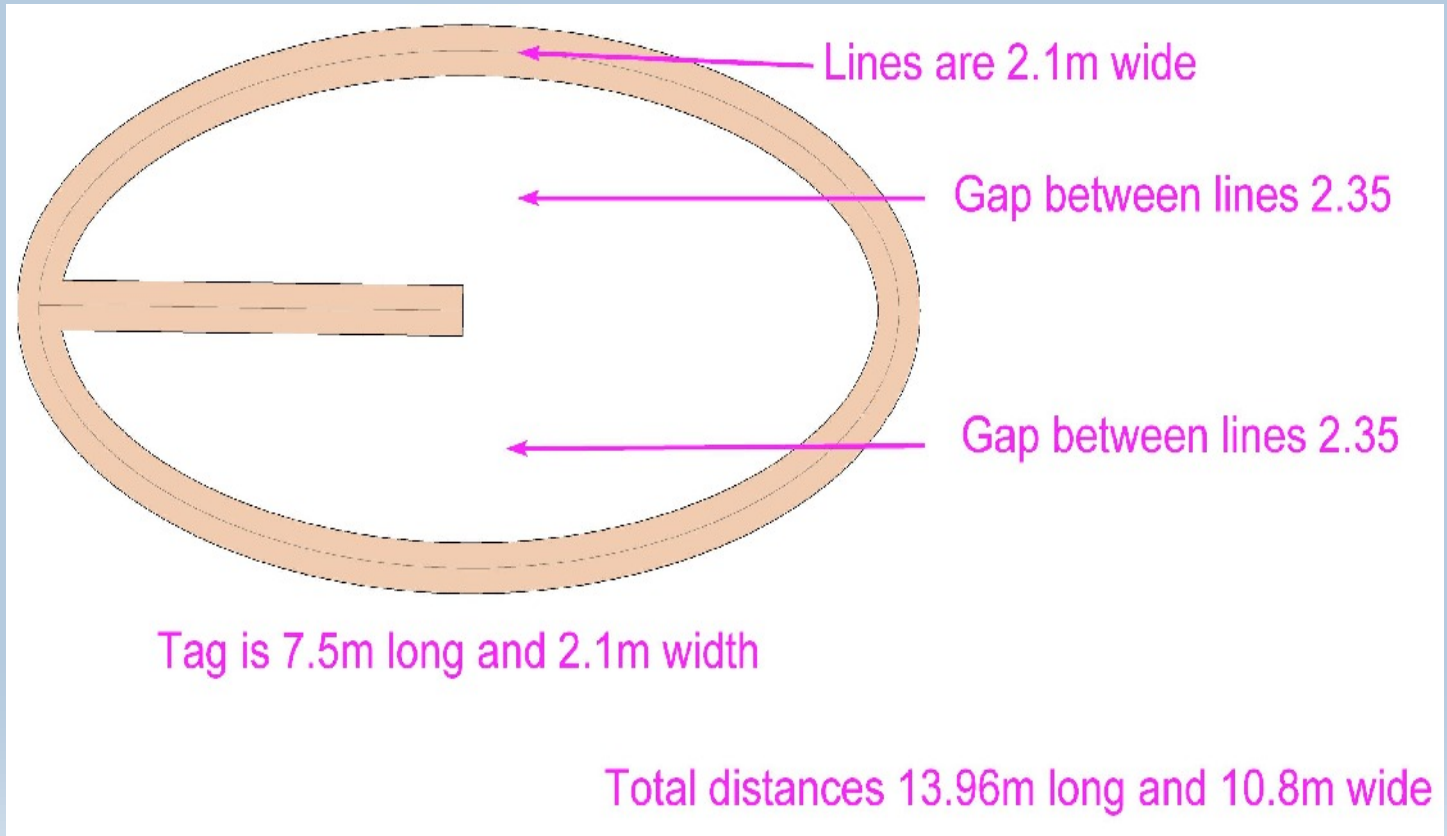
- What are the minimum sizes you could draw contour features?

Demonstrating contour features

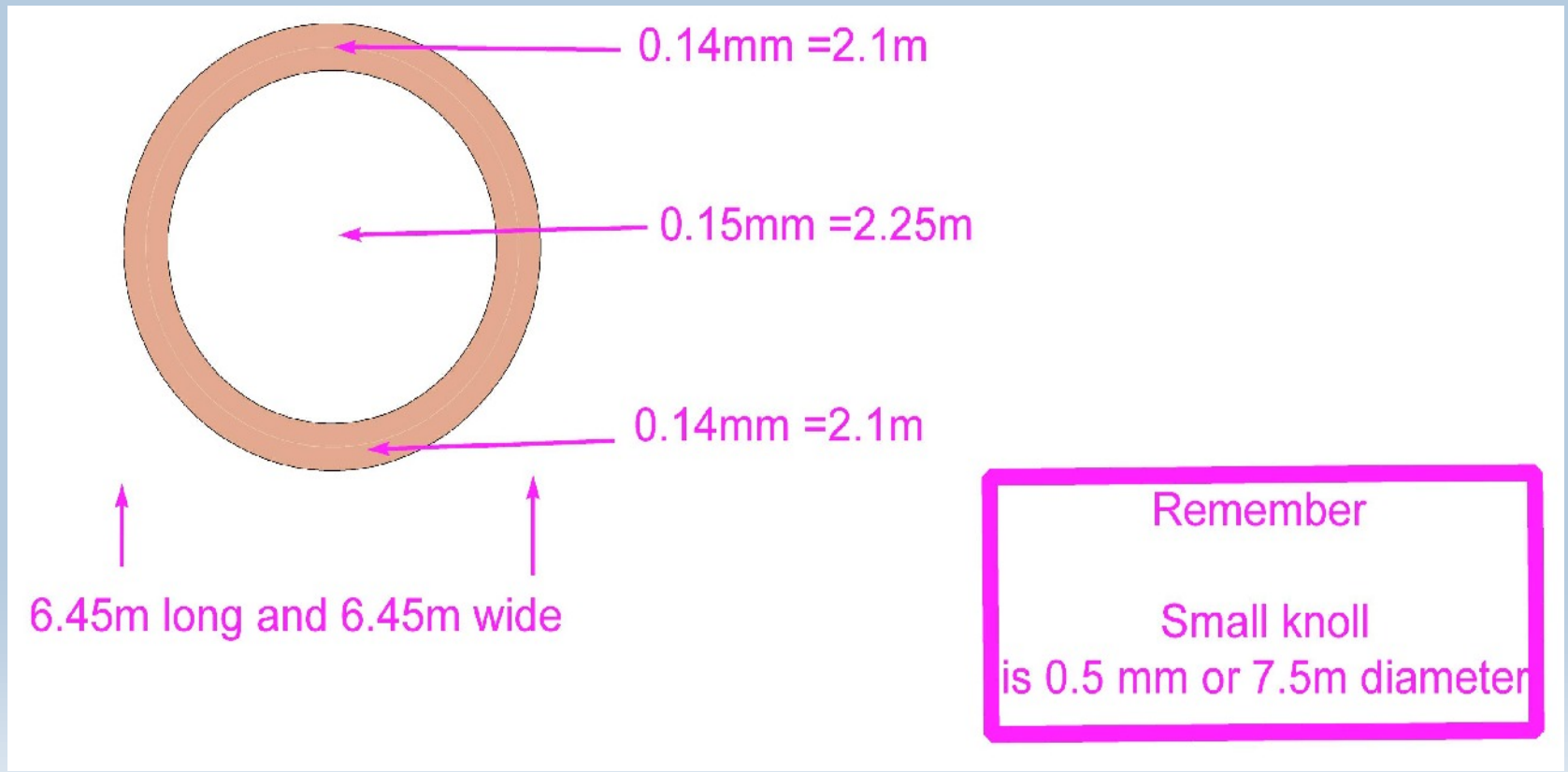
- Re-entrant or spur
- Knoll / small hill
- Large depression



What is the smallest size you can draw a large depression

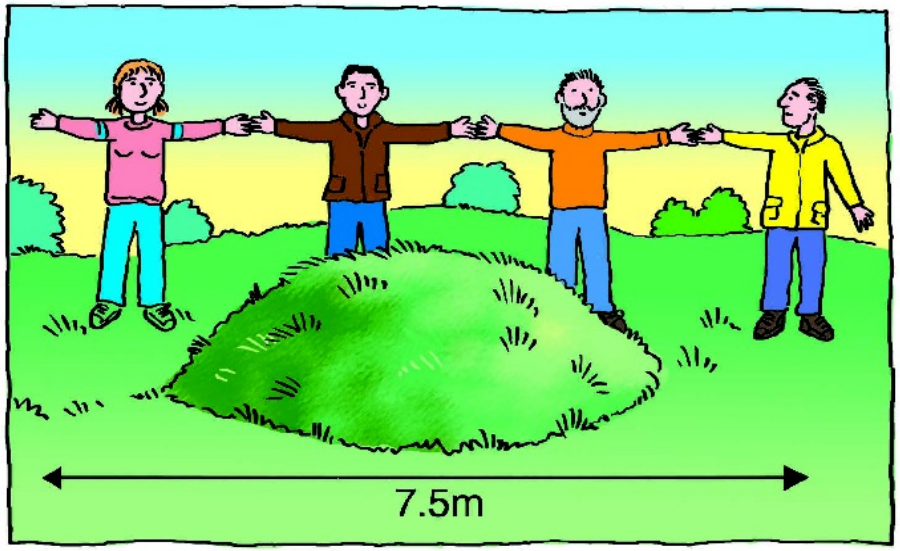


Demonstrating contour features
A hill

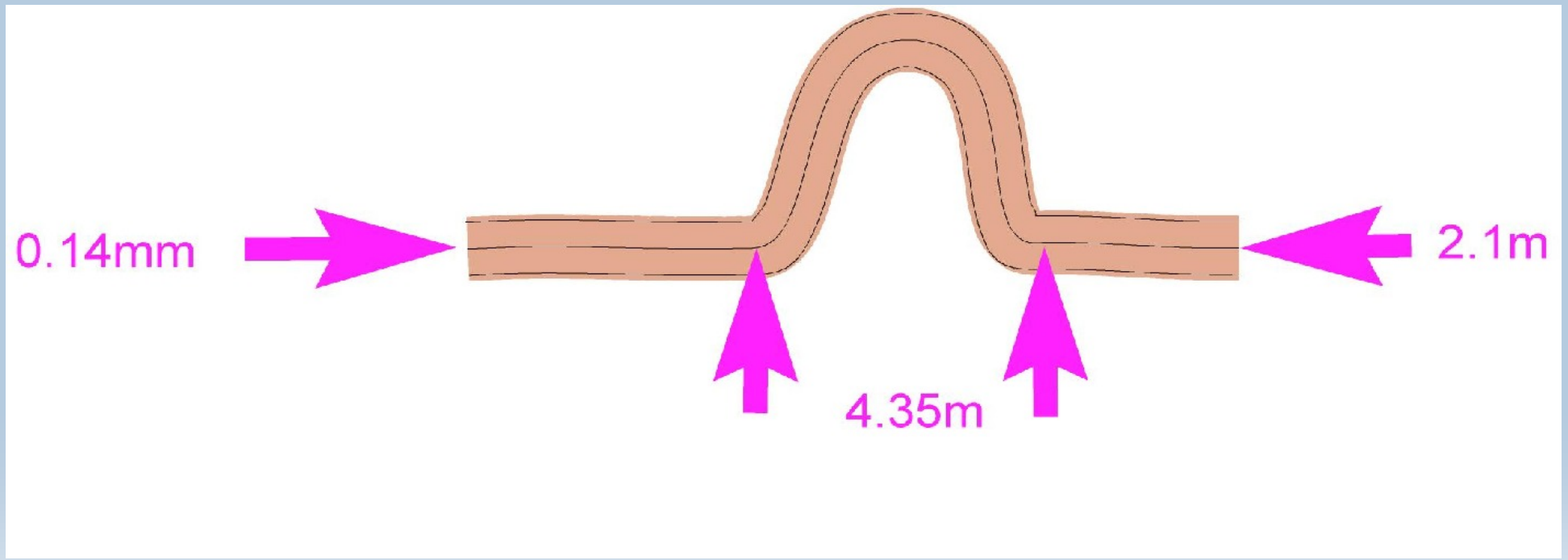


Demonstrating contour features
A hill

- But what about the small knoll (112) 0.5 diameter or 7.5m on the ground.
-
- It follows that the smallest contour knoll should be larger than 7.5m



Demonstrating contour features
A reentrant or spur



Contour features

Contours although invisible have a size. Any shape shown on a map should be larger than the minimum size.

If the feature is smaller than these sizes then you should consider leaving them off your map. If they are larger then put them on your map with enthusiasm.

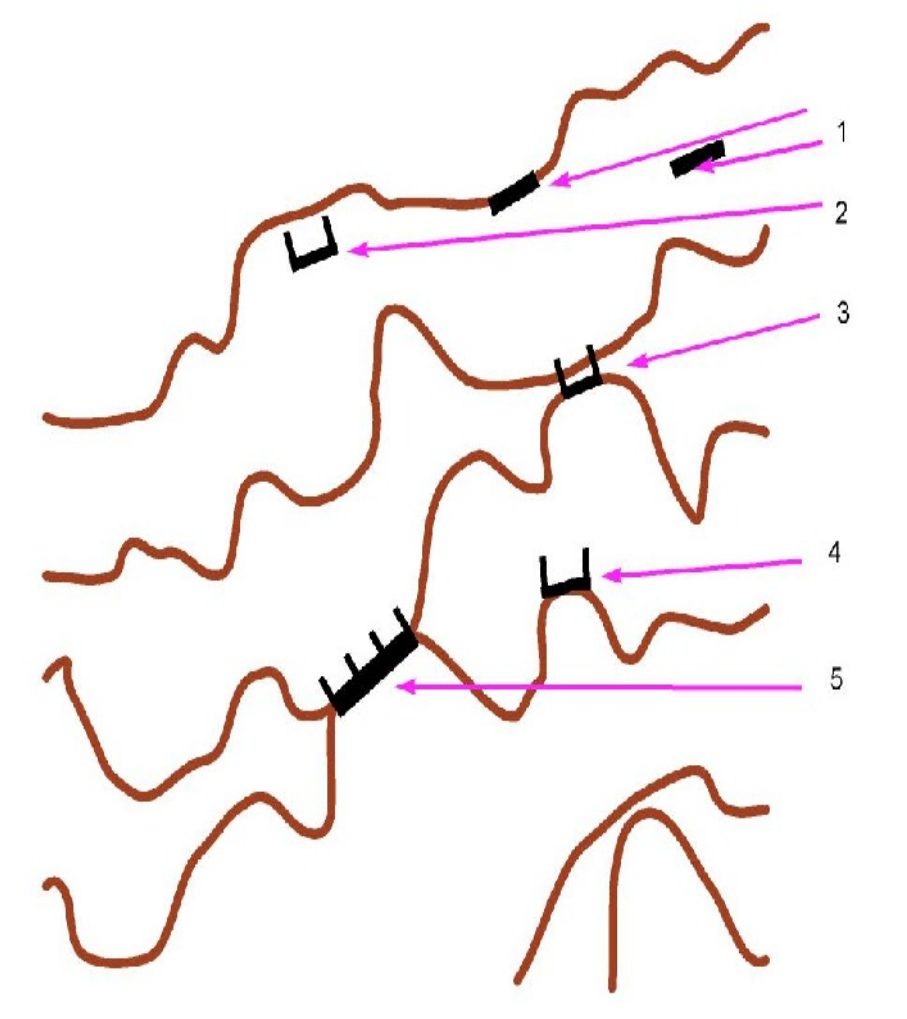
Contours closer than 0.15mm with slopes greater than 50^0 will have to be shown with the cliff, passable rock face or steep slope symbols.

Cliffs and passable rock faces

Cliffs and passable rock faces should be considered together with contours. They have also a minimum size both horizontally and vertically.

They should be placed on the map in the correct position and the contours drawn to fit the shape.

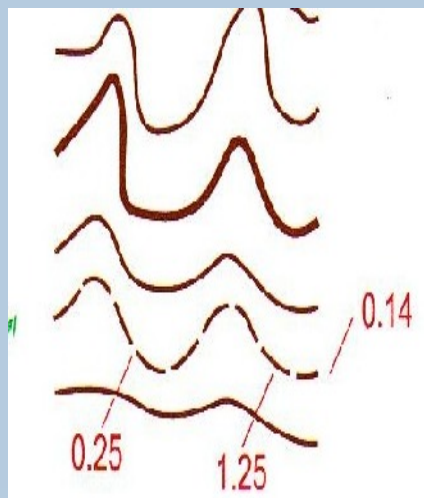
Cliffs and passable rock faces



- 1 Passable rock face more than 1m high but less than 5m
- 2 Passable rock face: tags used to show direction of slope.
- 3 Passable rock face 5m high
- 4 Passable rock face less than 5m but on the end of a spur
- 5 Cliff more than 5m high

Contour features

- Form lines

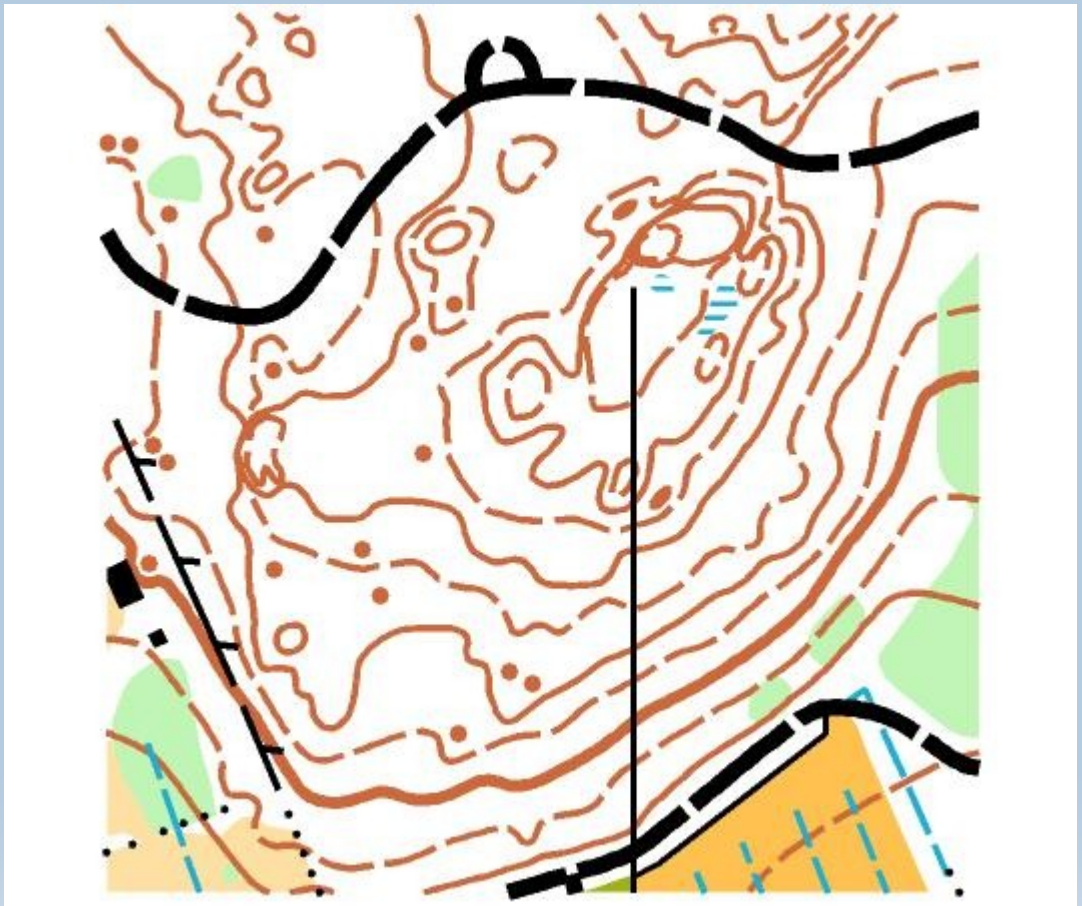


103 Form line

An intermediate contour line. Form lines are used where more information can be given about the shape of the ground. They are used only where representation is not possible with ordinary contours. Only one form line may be used between neighbouring contours.

Colour: brown.

Form lines

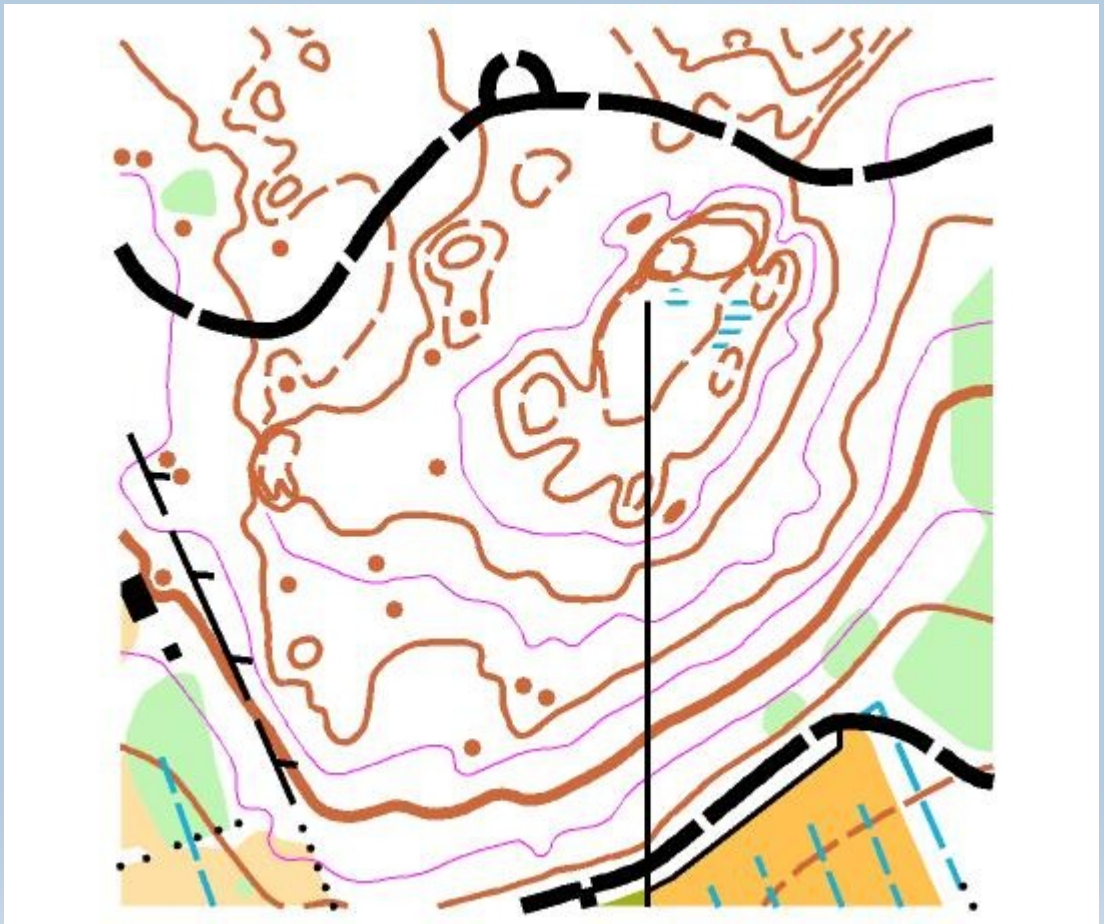


- Are they necessary?

Form lines

- Form lines that do not contribute to the picture of the terrain should be removed.
- First look at those that come between a 5m contour.
- If there is any shape? Can it be incorporated into the contour line above or below?
- Form lines on top of hills or in flat areas at the base may be worth keeping.

Form lines

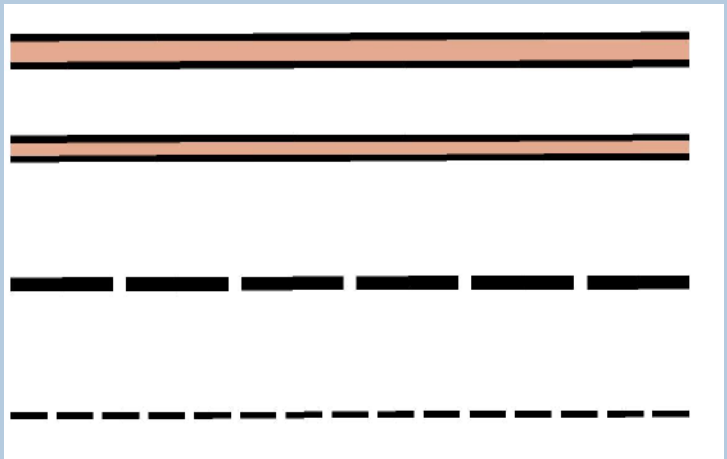


- Eliminate the purple lines?

Form lines

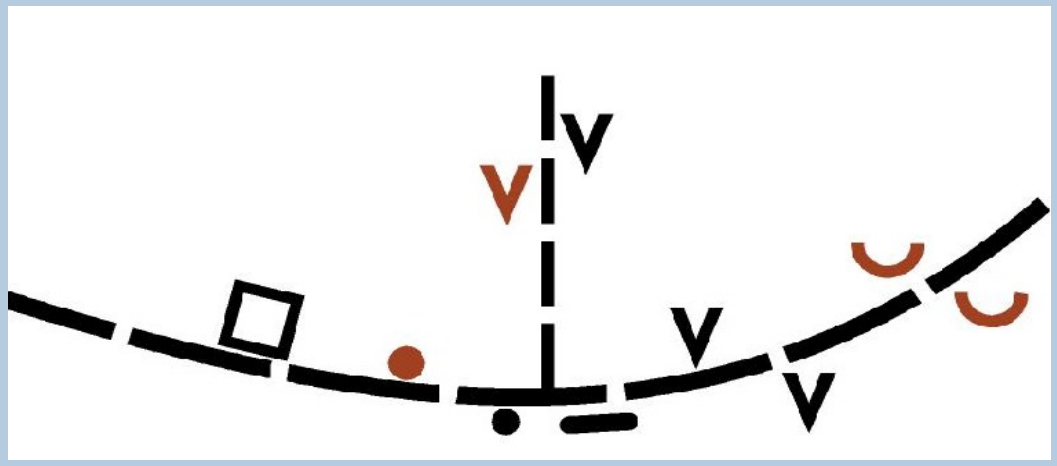
In most cases maps, with too many form lines, are generated by photo plots at 2.5m?

Other linear symbols



- Roads, track and paths have an exaggerated width.
- Major road (502) 13m
- Minor road (503) 10m
- Track (505) 5.25m
- Footpath (506) 3.75

Other linear symbols



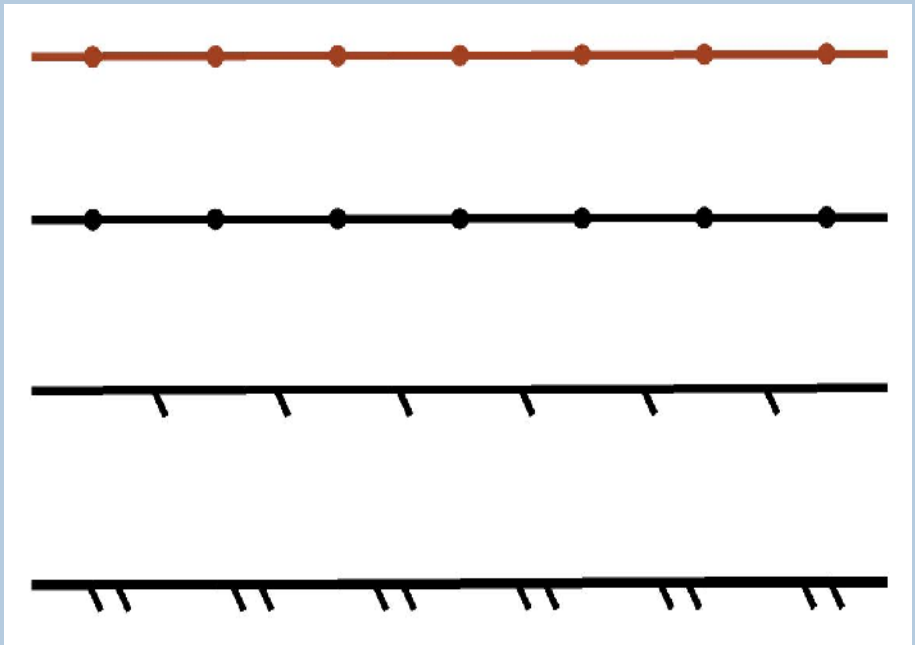
- Problems can arise when a point feature is close to a linear one.
- Examples would be boulders and passable rock faces.
- The position should be adjusted to clear the linear feature. And maintain the minimum distances for legibility.
- Particularly difficult is the Passable rock face without tags close to path or track. A rounded end may help.

Other linear symbols

Linear features such as earth or stone walls and fences have an enhanced size due to the tags.

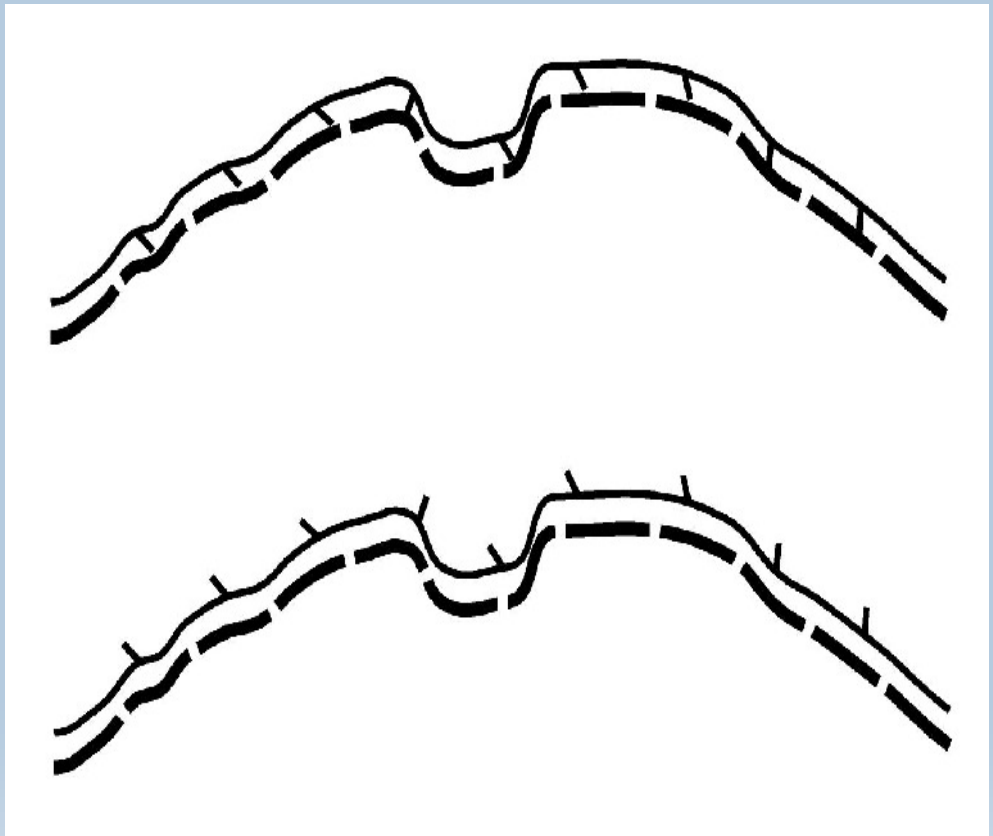
They become more of a problem when there is another symbol along side them.

Other linear symbols



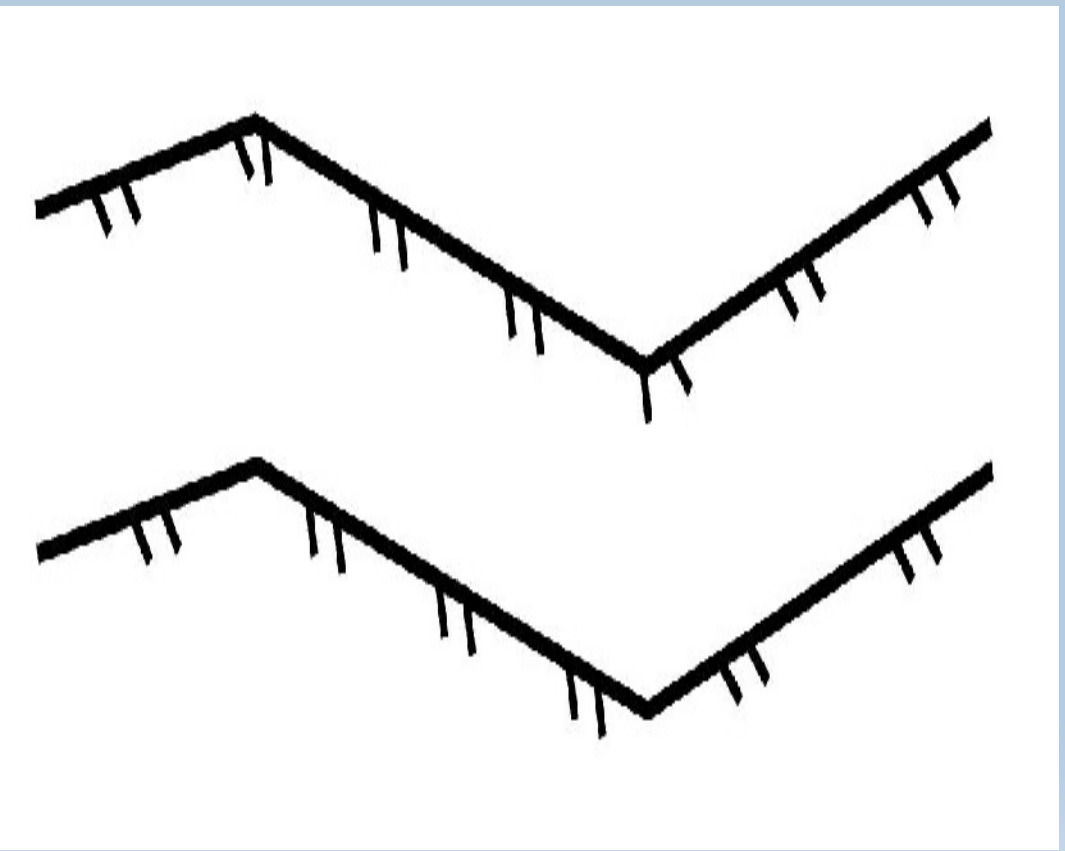
- Earth wall(107) brown dot 6m 3 arm spans
- Stone wall(519) black dot 6m 3 arm spans
- Fence (522) black tag 4.2m 2+ arm spans
- High fence black tags 4.8m 2+ arm spans

Other linear symbols



- A fence parallel to a track
- Flip the tags to the other side so that they do not cross the path.

Other linear symbols



- Fence corners can be made neater by putting a corner point at the bends.
- Similarly for walls.

I should like to consider

- Point features
- Linear features
- Area features

AREA SYMBOLS

MINIMUM DIMENSION for a 1:15000 map

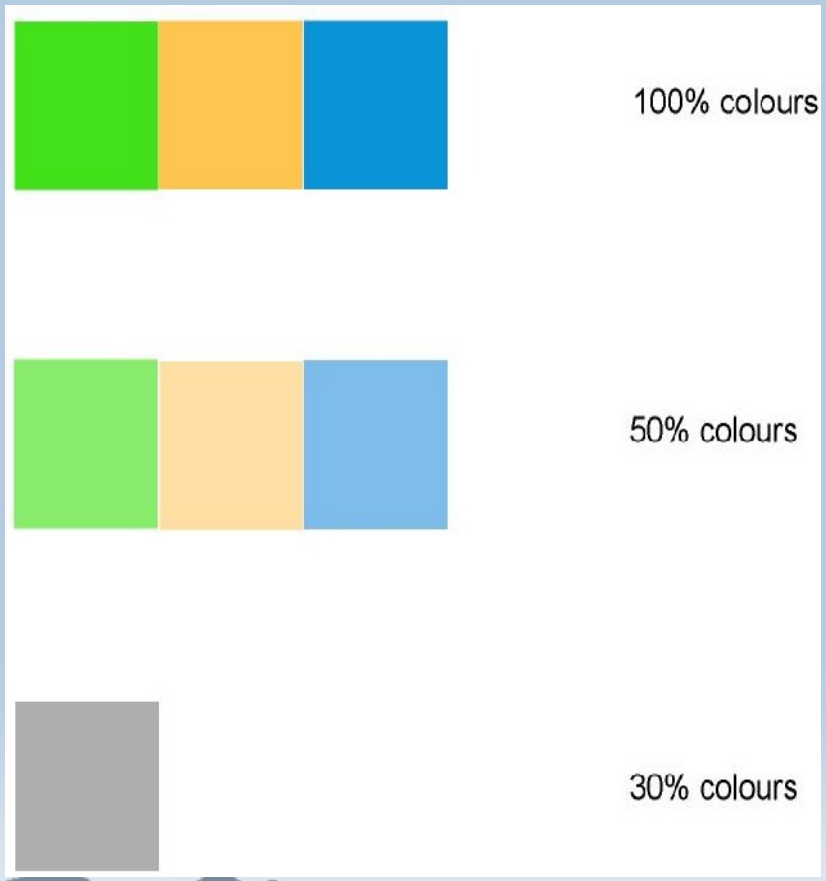
The gap between two fine lines of the same colour, in brown or black: 0.15mm
The smallest gap between two blue lines :0.25mm
The shortest dotted line: at least two dots
Shortest dashed line: at least two dashes
Smallest area enclosed by a dotted line:1.5mm (diameter) with 5 dots

Smallest area of colour

Blue, green or yellow full colour: 0.5mm
Black dot screen: 0.4mm
Blue, green or yellow dot screen: 1.0mm

All features smaller than the dimensions above must be exaggerated or omitted, depending on whether or not they are of significance to the orienteer. When features are enlarged, neighbouring features must be displaced so that their correct relative positions are maintained.

Minimum areas



- 100% colours (0.5mm^2)
- 115m^2 or 7x4 arm spans
-
- 50% colours (1.0mm^2)
- 225m^2 or 7 x 7 arm spans
-
- 30% colours (0.5mm^2)
- 115m^2 or 7 x 4 arm spans

Minimum areas

Some examples

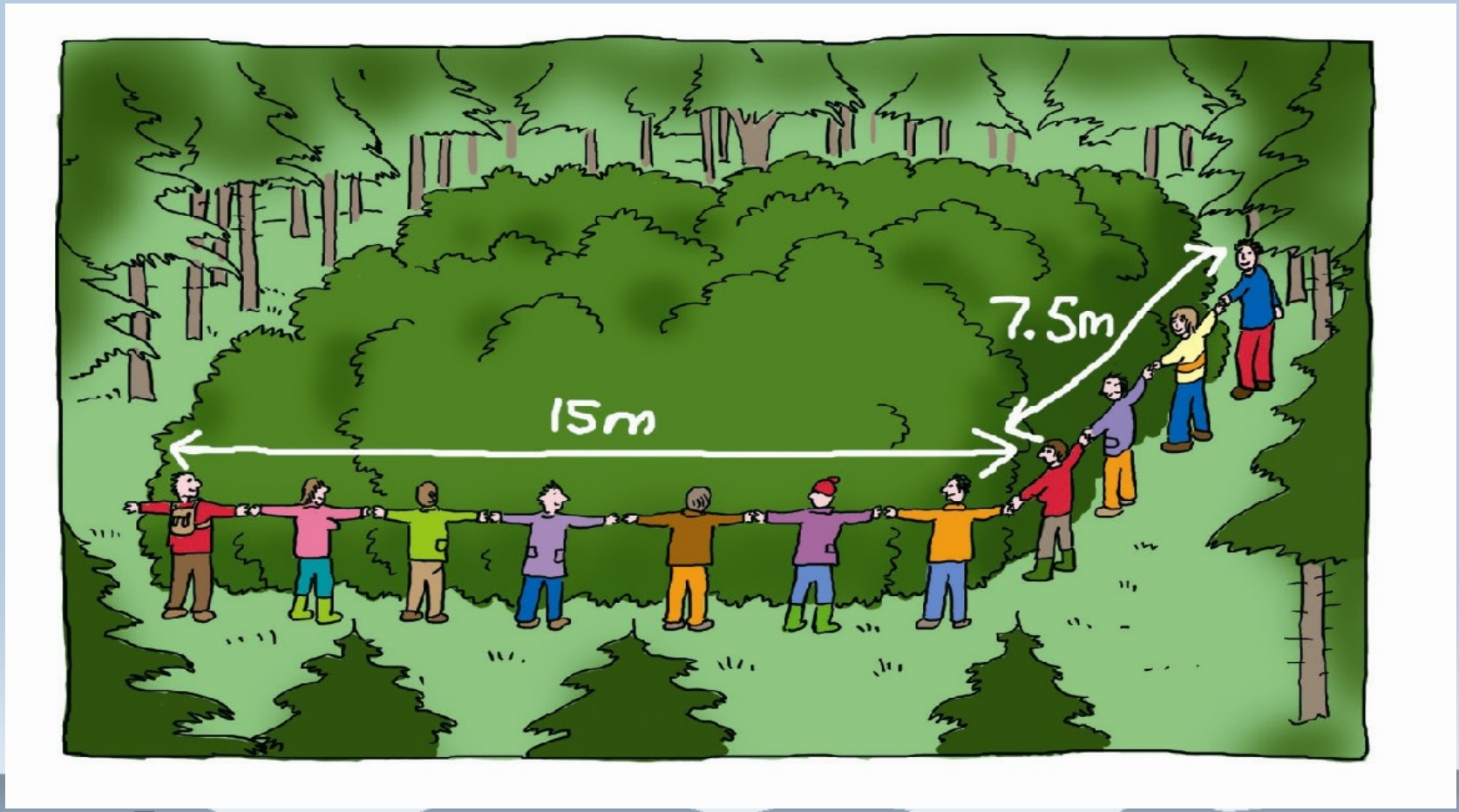
A thicket (410) 115m^2

A clearing
Open land (401) 115m^2
more likely
Rough open(403) 225m^2

Bare rock (212) 115m^2

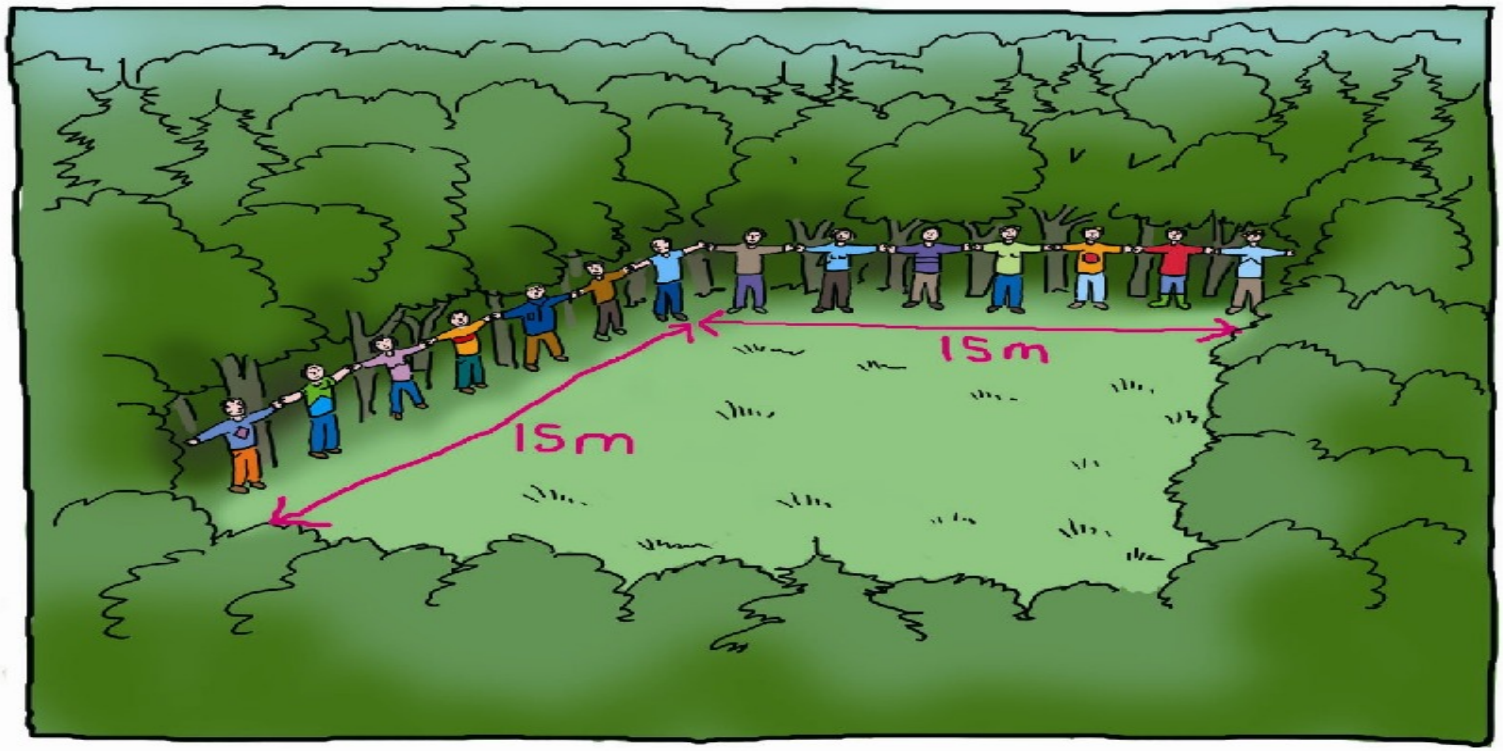
Minimum areas

- A thicket (410) 115m^2 or 4x4 arm spans

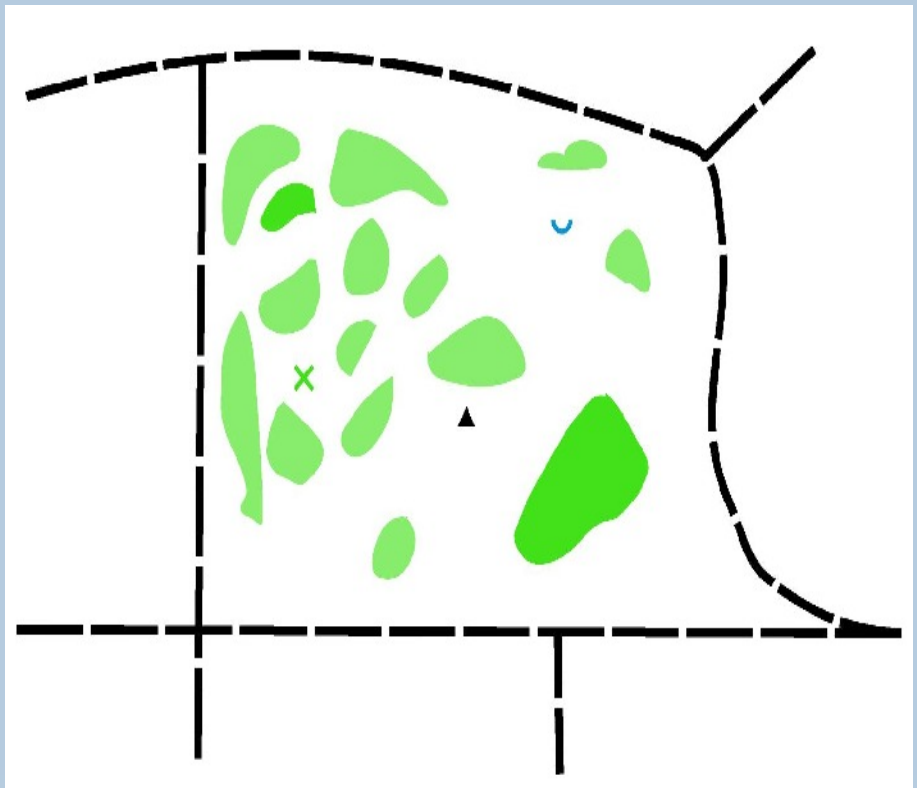


Minimum areas

- A Clearing Rough open(403) 225m^2
- or 7x7 arm spans

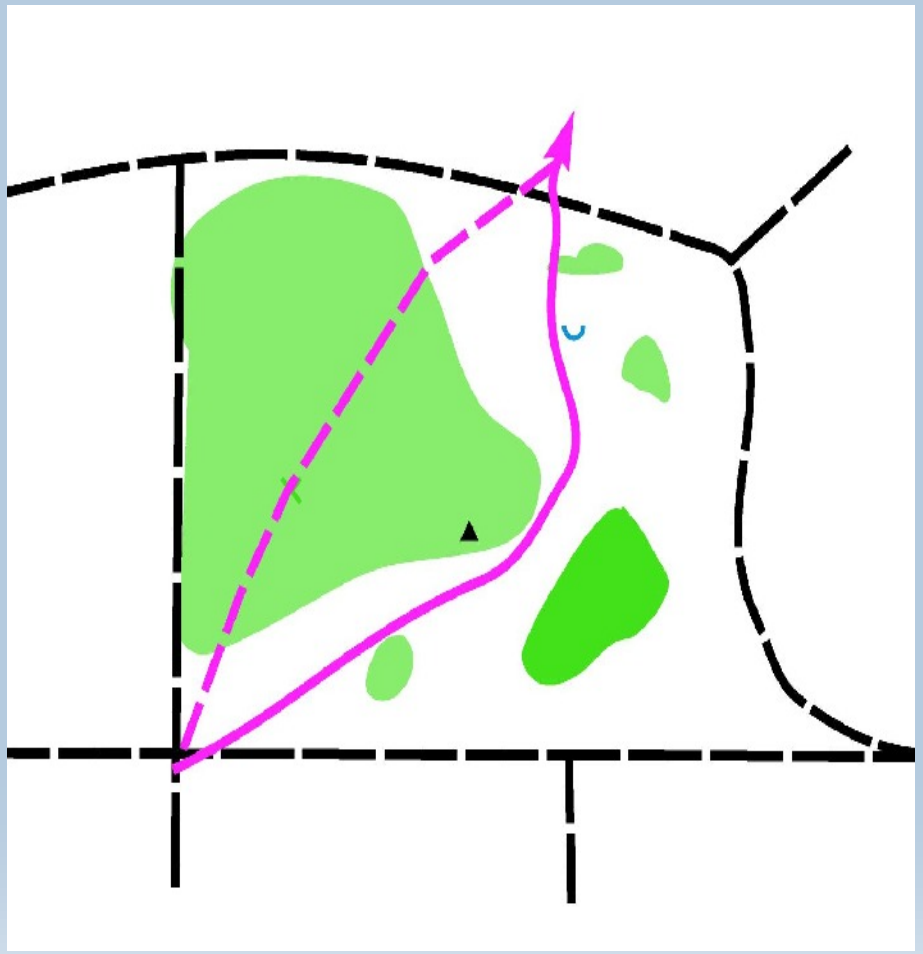


Minimum areas



- A skilled mapper should be able to mark every bush or tree in an area.
- It is better to generalise them to Slow run(406) or walk(408)
- Because?

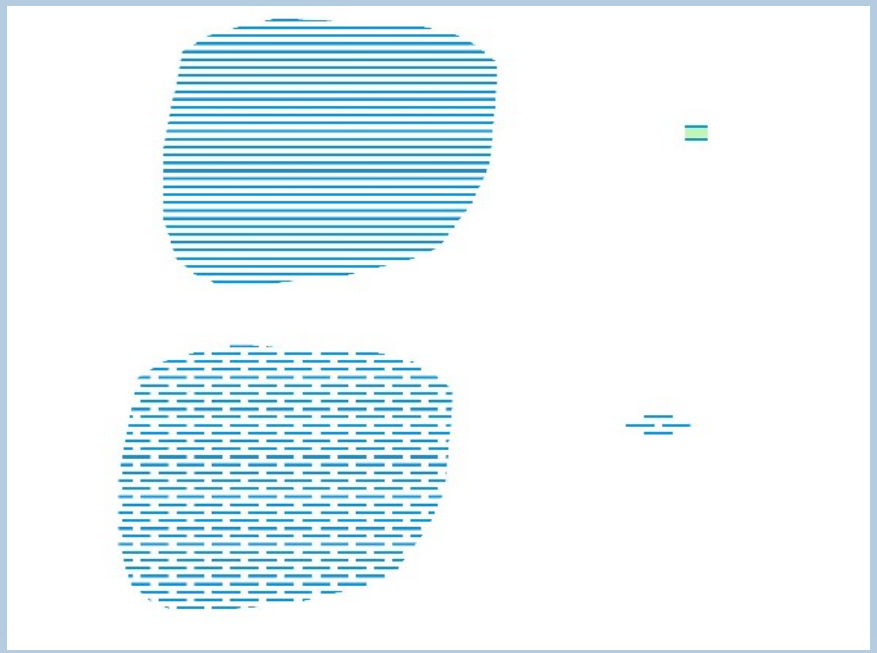
Minimum areas



- The skilled competitor will ignore them and run through or around to the next section of the terrain.

Minimum areas

Marshes



- Minimum sizes
- Marsh(310) 60m^2
- or 4x4 arm spans
-
- Indistinct marsh (311)
- 415m^2
- or 15x6 arm spans

Area symbols

- All area symbols can be treated in the same way.
- What is the smallest area of that symbol that you can show.
- If the feature is smaller than the minimum then unless it is very prominent then ignore.
- If there are several then consider generalising them.
- Most of the area symbols are generalised anyway.

Generalisation ICOM 2007

- Conclusions

Generalisation ICOM 2007 Conclusions

- Most symbols on the map have a cartographic size that is larger than their physical size on the ground.
- If there are too many 1m boulders then the threshold of size needs to be raised.

Generalisation ICOM 2007 Conclusions

- Symbols should be placed so as to maintain the minimum gap laid down in the specifications.
- If the symbols will be too close together then the space that is available you will need to select a generalised symbol.

Postscript

- I hope that this presentation will have given you some ideas of why you should generalise your maps and how to do it.

Postscript

- We hope that you as an individual or as part of a group will have found these thoughts and ideas useful.
- If so would you let us know.
- If you have any ideas please feel free to let us know.
- We would welcome photographs, drawing or diagrams and samples of maps tho illustrate these ideas

Postscript

- We hope that document will be published in a narrative form and be available for individuals or groups to use
- Erik Peckett
- IOF Mapping Commission
- September 2007