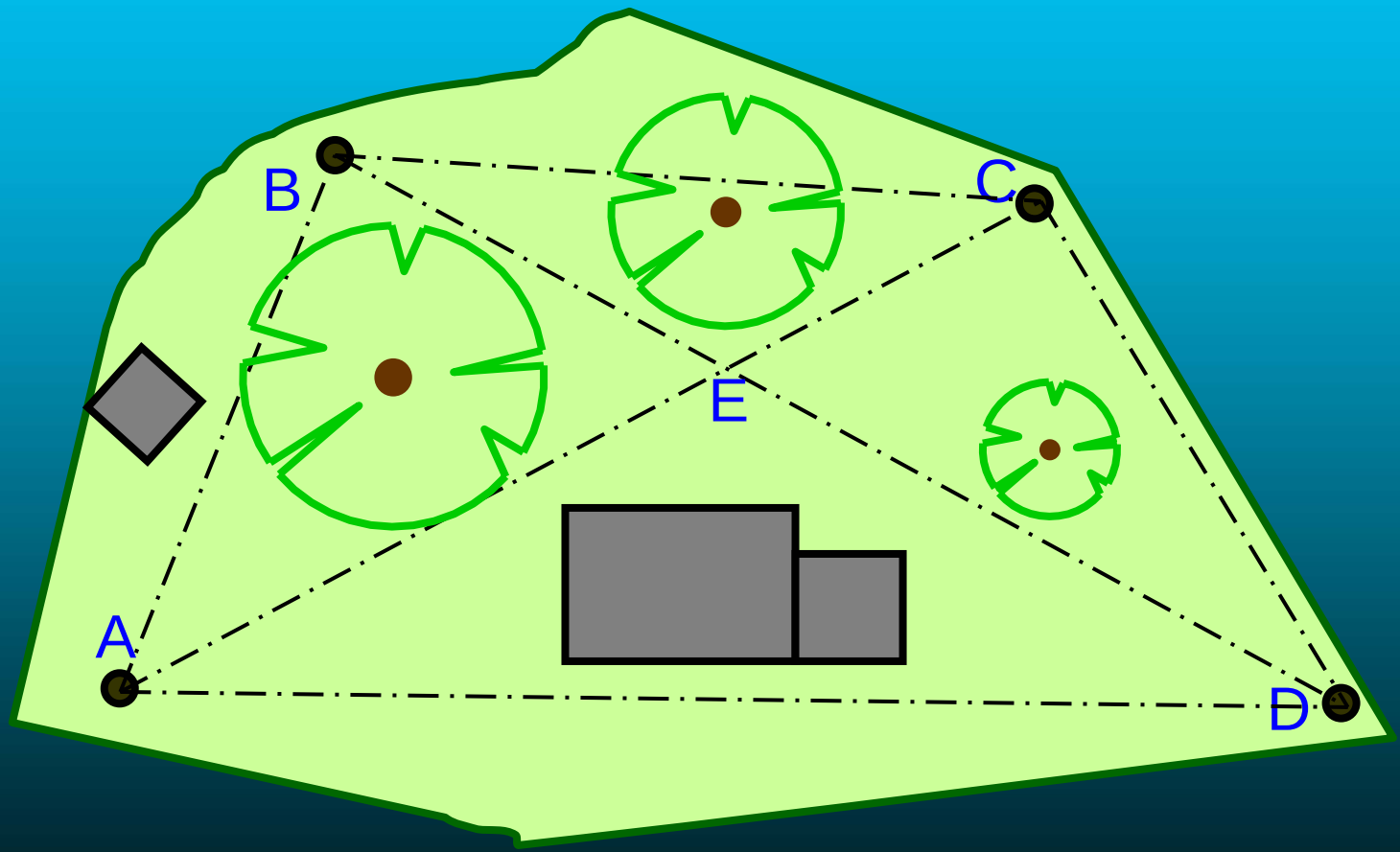
Linear Surveying (tape & offset)

No angles are measured in Linear Surveying, only distances

Contents

1. Control Lines
2. Detail measurements
3. Levels
4. Plotting

Control Lines

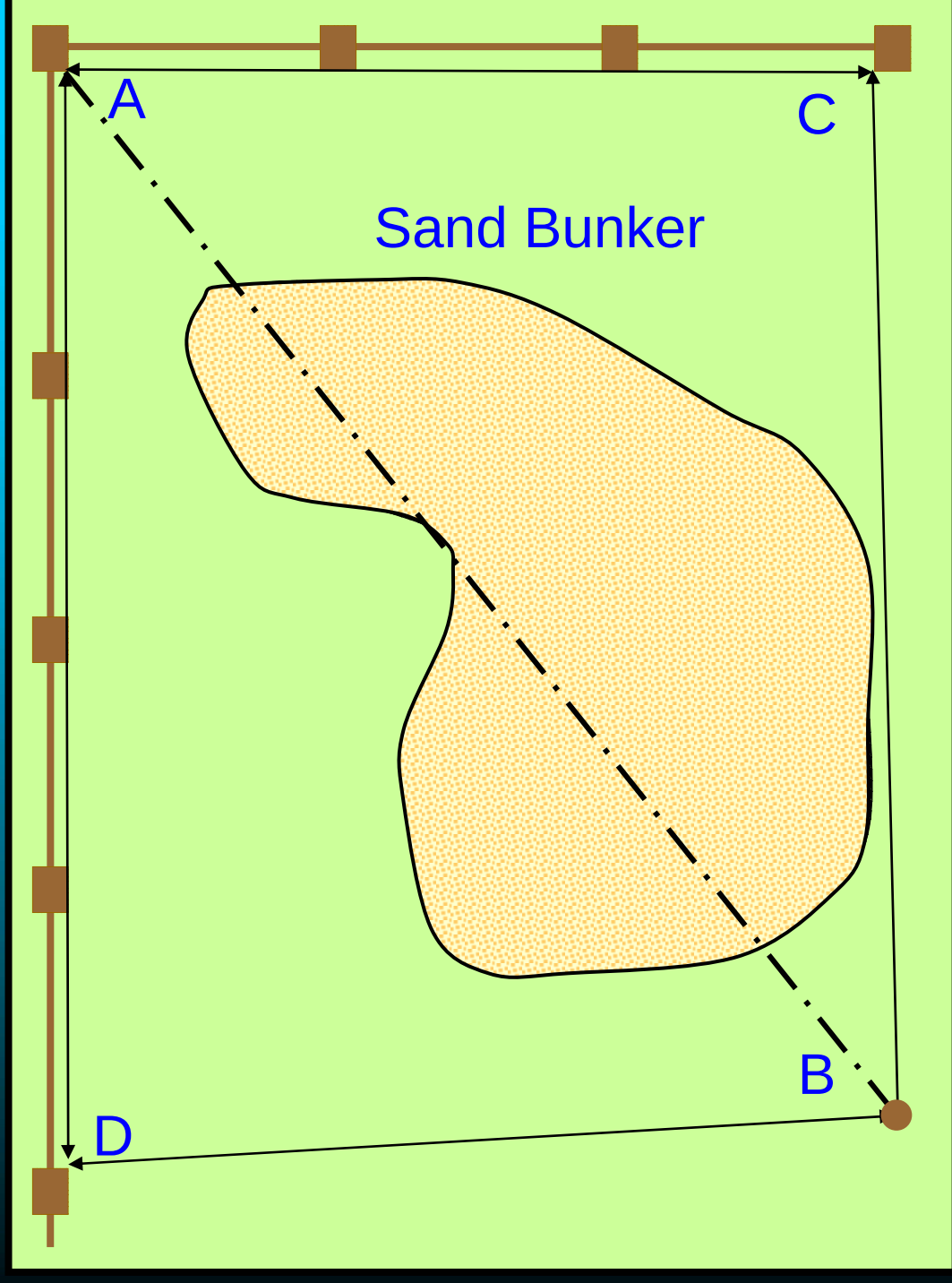


Control Lines

In this case only one control line, A to B, is needed.

A is a permanent post and B is referenced to posts D and C.

A to D, A to C, B to D, and B to C must be measured to provide a check.



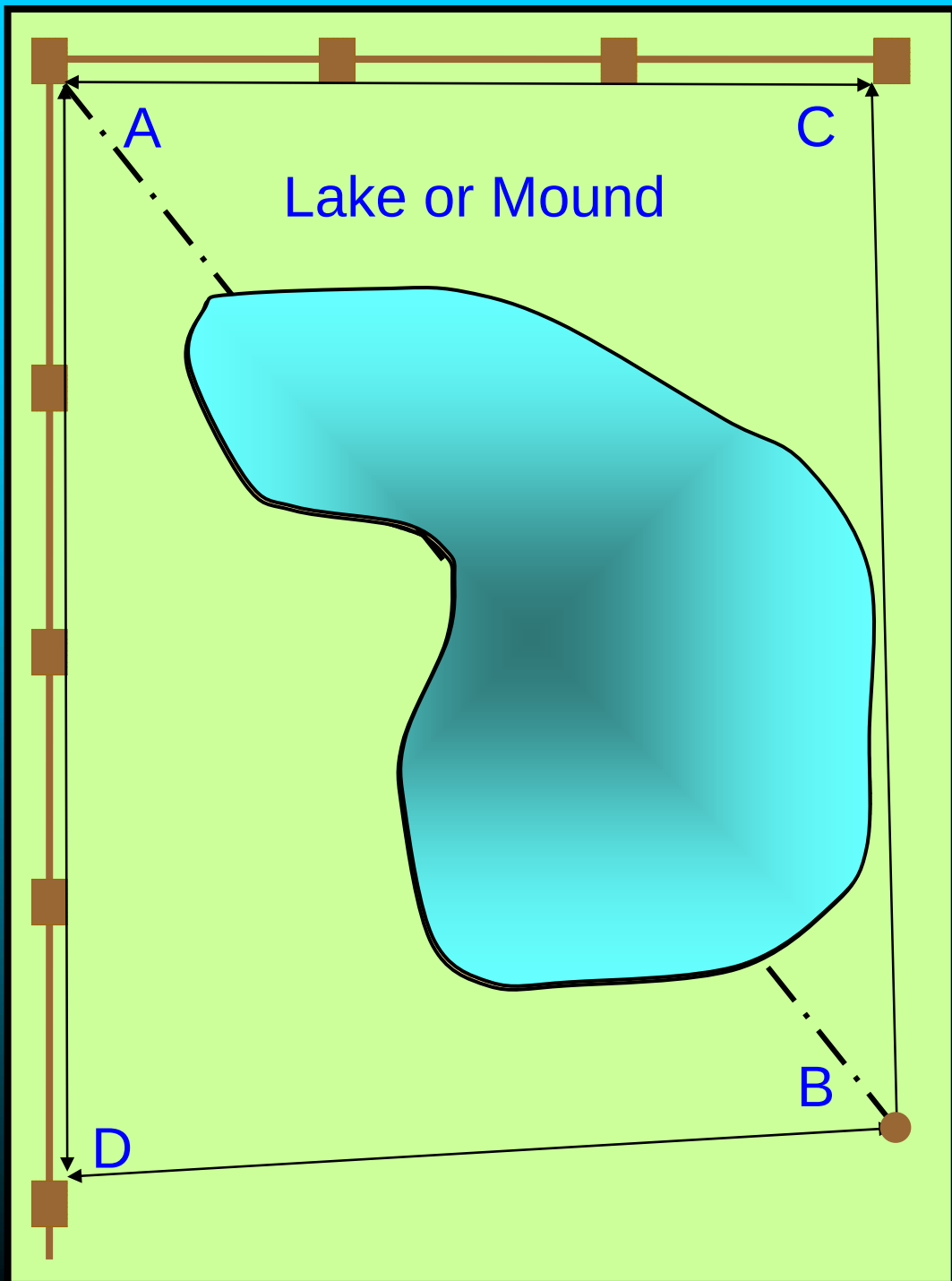
Control Lines

A to B is now unsuitable to use as a control line.

In this case use A to C, C to B, B to D, and D to A.

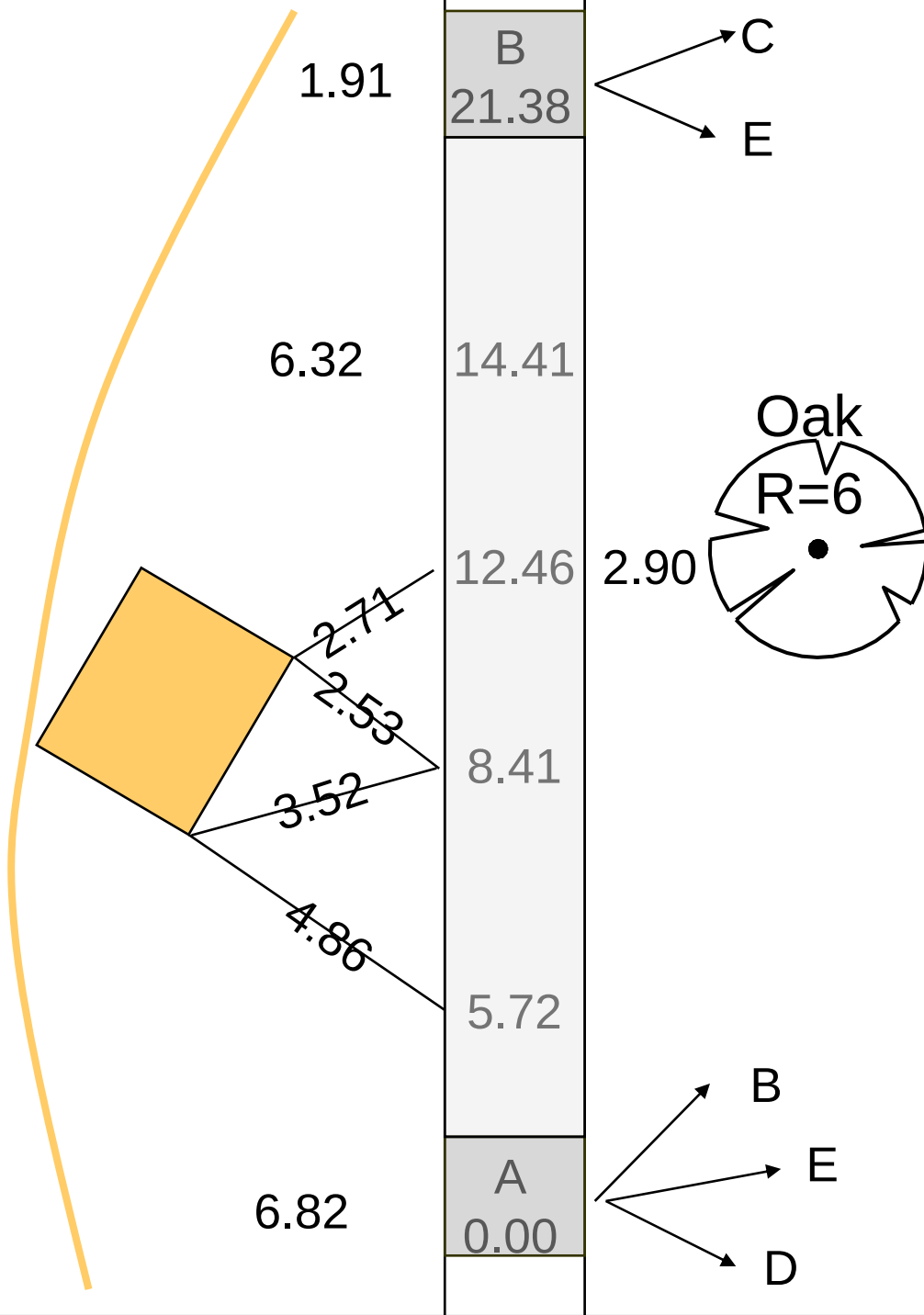
If A to B cannot be measured, further check distances are needed.

Any Suggestions?

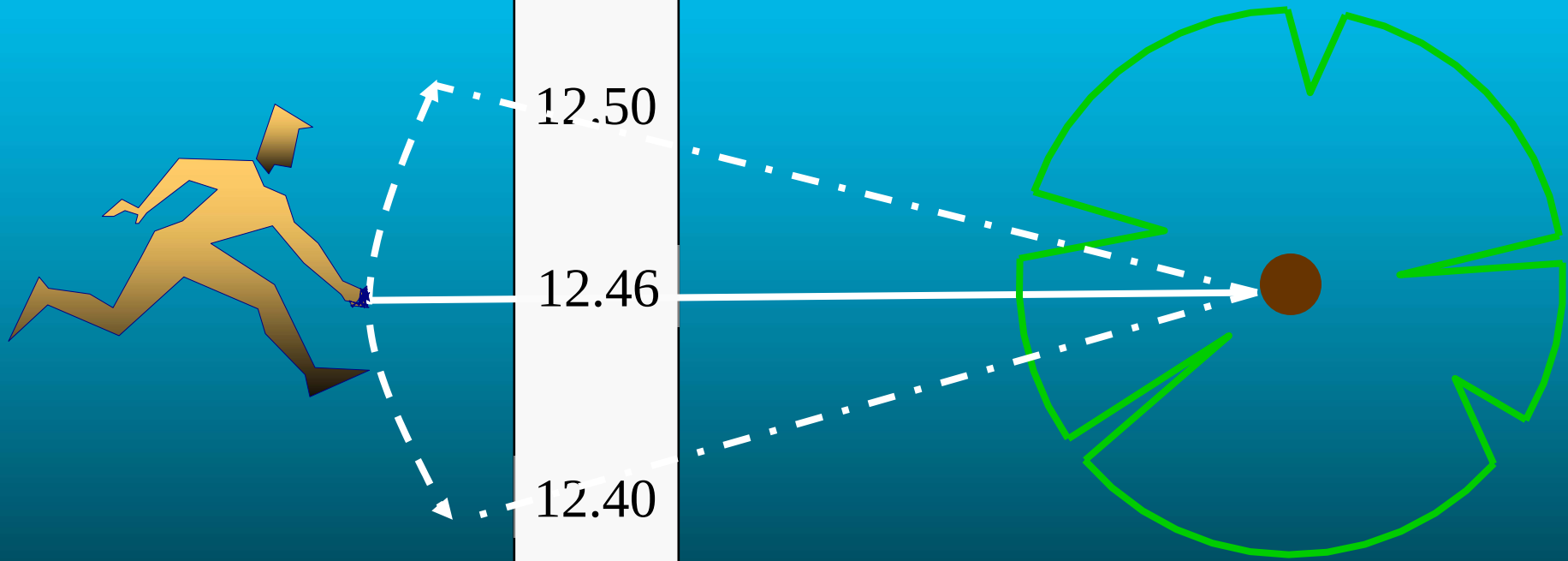


Detail Measurements

- The double centre line is the tape on the control line.
- Enclose the control stations in boxes.
- Indicate the directions to the other stations.
- Start booking from the bottom of the page.
- Do not crowd your booking.



Detail Measurements



Levels

- Take levels on the detail points you have flagged and labelled.

Plotting

- Plotting by computer means that you can produce plots at any size, any scale, and editing is easy.

THE END

Slide 1
Often called “Tape and Offset”

Slide 2

Slide 3

- Walk the site to determine what is to be surveyed.
- Locate the Bench Mark.
- Choose a main control line from which to build the control triangles.
- Use a marching compass to find the Magnetic Bearing of this main control line.
- Select control lines to be close to the features to be measured including the boundary
- Control lines should be as few as possible, but cover the site in a triangular network
- The triangles should not have small internal angles
- Control stations should be intervisible.
- Control points should be as permanent as possible, and should be referenced to permanent features
- Checks should be incorporated into the triangle layout to give confidence in the results e.g.
- Measure A to E, B to E, C to E, D to E in addition to the six main control lines.
- Make a sketch of the site and the control lines.

Slide 4

- There are five lines to measure here.

Slide 5

- This could be quite a big lake.

Slide 6

- Number your pages
- Record the Date, Location, and Personnel.
- A sketch of the site showing the control lines should be drawn on the first page.
- Finish one control line before starting another.
- Taped triangles, (tie lines), are more accurate than square lines, but triangles should be as near equilateral as possible.
- Do not draw square lines, only tie lines.
- Flag and label any detail points that require levels.

Slide 7

- Zero on the offset tape is held on the feature to be measured.
- The tape is swung as shown and the minimum reading on the offset tape indicates the perpendicular to the control tape.
- The trunk radius is added to the offset tape distance before booking.

Slide 8

- It is useful to possess an A4 sized preliminary plot while taking levels.
  You can record your levels on this plot rather than on a separate sheet.