

UNIVERSITY OF NEW SOUTH WALES

SCHOOL OF SURVEYING

29.001 SURVEYING 1

FIELD EXERCISE - PLANE TABLE

1. EQUIPMENT

- 1 x *Umbrella with Steel Base*
- 1 x *Plane Table + Tripod*
- 1 x *Plain Alidade*
- 1 x *Plumbing Fork*
- 1 x *Plumb-bob*
- 1 x *Sheet of Drawing Paper*
- 1 x *Linen or Fibreglass Tape*
- 1 x *Hammer*
- 4 x *Terry Clips*
- 3 x *Ranging Rods*
- 4 x *Pegs*
- 1 x *Spot Bubble*
- 1 x *Box Compass*

2. OBJECT

2.1 To establish a small control network by graphic triangulation.

2.2 To plot the positions of 5 points of detail relative to the control points, at a scale of 1:100 metric. The detail points should be selected at the same time as the control points. Rays can then be drawn to them as required while the control points are occupied by the table.

3. EXERCISE

3.1 Drive the four pegs into the ground forming a rough square of side length 50 m. Designate the pegs as A, B, C and D.

3.2 Measure the length AB. Draw the line a b, representing AB at the plan scale in a convenient position on the plan.

3.3 Set the table with a over A and the table oriented along AB. Draw pencil rays to C and D (see 3.6). Use a sharp and hard pencil (4H - 6H).

3.4 Move the table to B. Set up with b over B and orient along BA. Draw pencil rays to C and D. The resulting intersections will be the plane positions of C and D. Call them c and d respectively (see 3.6).

3.5 Move the table to C. Set with c over C, and orient along the *longer* of the lines CA and CB. Draw check rays in pencil to B (or A) and to D. These may not pass exactly through b(a) and d, but should pass very close to them (see 3.6). Plot direction of magnetic north (box compass)

3.6 During 3.3, 3.4 and 3.5 the 5 points of detail should have been chosen and fixed according to the following principles:

3.6.1 All points of detail to be either within the figure ABCD, or within 20 m of its perimeter.

3.6.2 Only points within 10 metres of a control station may be located by radiation. Such points must be *checked* by a ray from

another control station.

3.6.3 All other points must be fixed by intersection from all *three* of the control stations occupied by the table.

#### 4. REPORT

*Individual* reports are *not* required.

The actual field sheet is to be submitted for marking, prepared as follows:-

4.1 Control points and points of detail are to be shown *in ink* by suitable conventional symbols. A legend explaining the symbols is to appear in ink.

4.2 A block incorporating the usual details is to be placed in the lower right hand corner (in ink).

4.3 A north-point, and locality sketch should be shown in ink.

4.4 All pencilled rays drawn in the field are to be left visible for checking and marking purposes.

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*Prepared by A. Stolz, 1977.*