

How to determine Area of Field using Cross Staff Survey?

Object: – To determine area of field using cross staff survey.

Equipments: -

1. Ranging rod – 7 Nos.
2. 30 m Chain – 1 Nos.
3. Arrow – 5 Nos.
4. Metallic tape (30m) – 1 Nos.
5. Cross staff with stand – 1 Nos.

Procedure: -

1. Field work
2. Classroom work

(1.) Field work

1. First of all first ranging rod is established at point A and makes fixed station taking measurement revising point A to two permanent structures.
2. Second ranging rod is established at point B and for makes fixed station taking measurement revising point B to two permanent structures.
3. Established grid line A to B using ranging procedure by judgment of eye and laying chain on it.
4. Remaining ranging rod established at point P, Q, R, and S, T on right and left side of the grid line and its may be point of permanent structure at different location.
5. Sight point P perpendicular to grid line using cross staff, let's meeting point is P' on grid line.
6. Measure distance of AP' and PP' by chain (on grid line) and metallic tape (between P to P').
7. Write all observation in field book or level book immediately.
8. Repeat Sighting procedure using cross staff, let's meeting point is Q', R', S', and T' on grid line.
9. Measure distance of AQ', AR', AS' and AT' by chain (on grid line) and QQ', RR', SS', TT' using Metallic tape respectively.
10. Write all observation in field book or level book respectively.

11. When complete all observation removes all ranging rods and packed in its cover.

(2) Classroom work: -

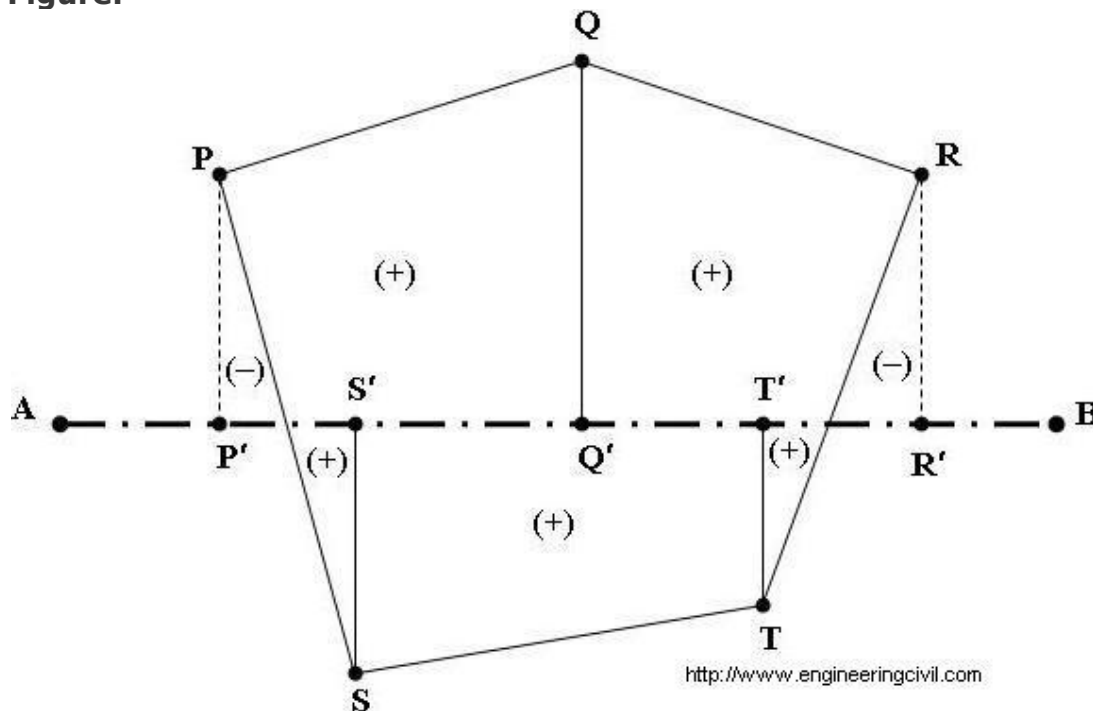
1. Draw a complete figure in field book using field observation.
2. Draw a line meeting point P to S and R to T on field book or level book.
3. Calculate the area of field by subtract out side (remaining) area of meeting line in total area in field book

Observation table: -

S.No.	Chainage	Offset	Mean Offset	Subtract Area (in sq. m)	Additive Area (In sq. m)

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Figure: -



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Precautions: -

1. The ranging rod should be established correctly state at all points.
2. The judgment of line should be taking correctly during established ranging rod at a point.

3. Distance between surveyor's eye and reference station (eg. A, B and C) should be minimum one meter.
4. The cross staff should be states during sight both station and observations take accurately.

We are thankful to Er. Praveen Kumar Pandey for submitting this very useful topic to us.

Source: <http://www.engineeringcivil.com/to-determine-area-of-field-using-cross-staff-survey.html>