

FIELD RECONNAISSANCE

Reconnaissance must consider special factors as determined by the objective of the survey and the methods, techniques, and equipment.

Reconnaissance provides opportunity for surveyors to gather information about fieldwork such as terrain information and other potential effects on surveying.

FIELD RECONNAISSANCE

The proper gathering of all existing survey data in reference to the target area.

- The proper testing and determination of the usability and visibility of existing stations.
- The selection of sites for the main and supplemental stations.
- The collection of terrain and climatic information.
- The availability of billeting, medical, maintenance, and other required support

FIELD RECONNAISSANCE

Ground Sketch:

A sketch, which reflects current condition of work area, must be drawn. Sketches will illustrate survey and thus resolve any possible ambiguities. Sketches are used to clarify the field notes.

Although the sketches are not scale drawing, they are usually roughly to scale to help order the inclusion of details. Also, sketches should be properly oriented by the inclusion of a north arrow. Roads, buildings, trees are shown on the sketches. In addition sketches must be titled and dated, name of surveyors must be emphasized.

FIELD RECONNAISSANCE

Ground Sketch:

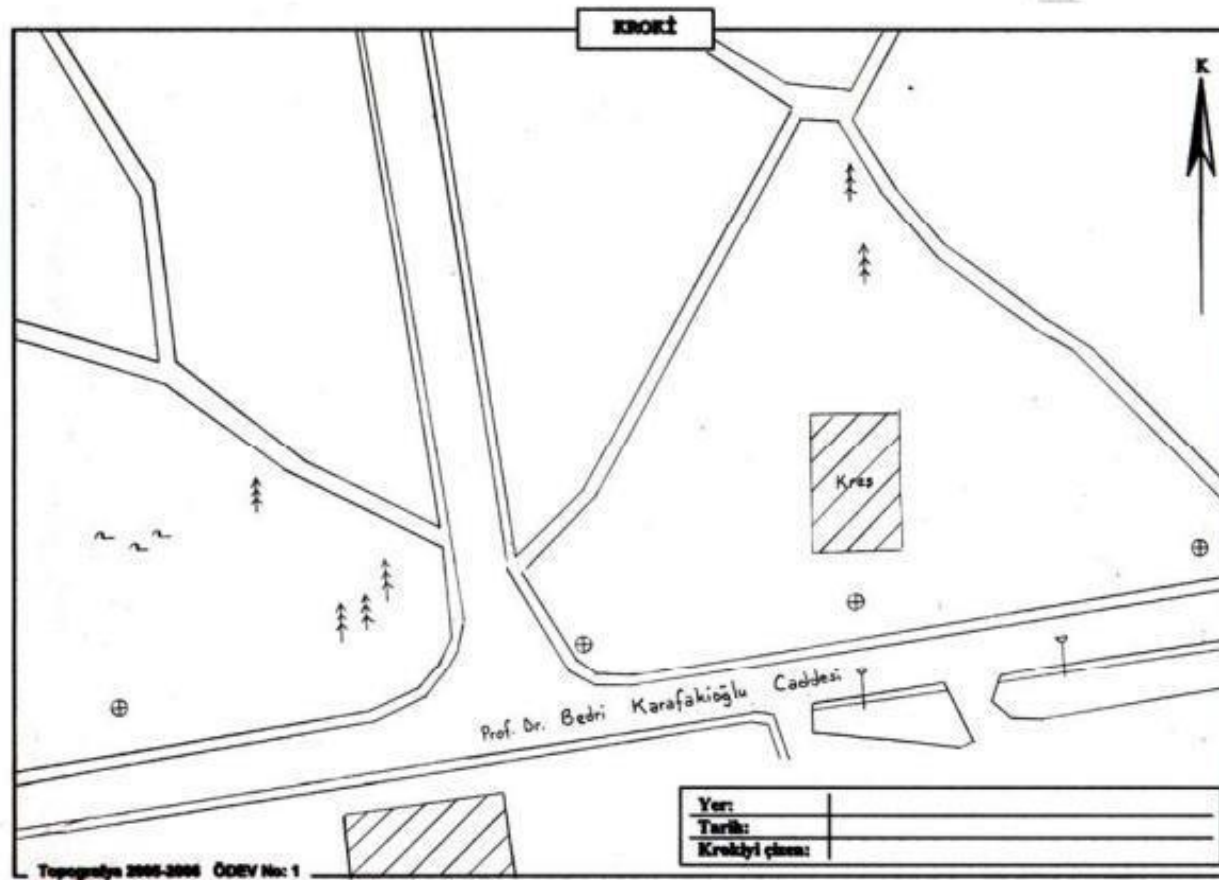


Figure:1 (U.Özerman, 2010)

Semi – permanent/ temporary monuments **(points - markers):**

This type of established monuments (points) on the ground is used until the end of whole surveying on the work area, or they are established and used at the moment of surveying and they are not required after the surveying at these points are finished.

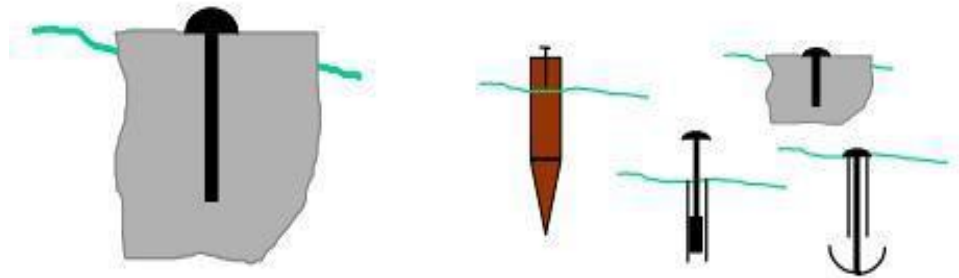


Figure:2 (U.Özerman, 2010)

For the first explanation, wooden stakes are established on the ground. They are about 20 -to 30 cm long . One side of wooden stake is sharp and they are round (5 – 14 cm diameter) or square (2X2 , 3X3 cm²) cross section. In addition, nails and metal stake , thin pipe can be used on the asphalt and concrete floor. When driving nails or stakes into soil , about 2 cm of stakes or nail can be seen above the ground. Also, in some case, surveyors may put a mark on stakes on the ground.

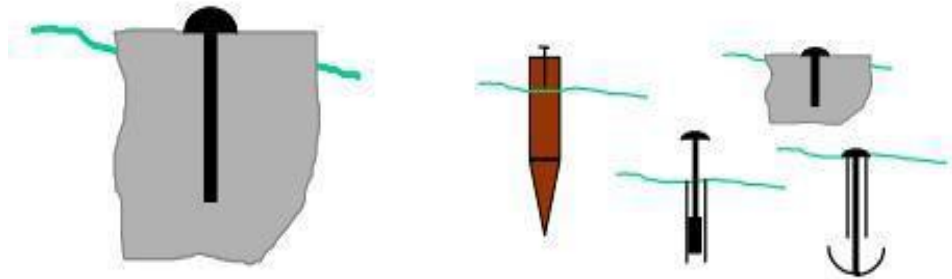
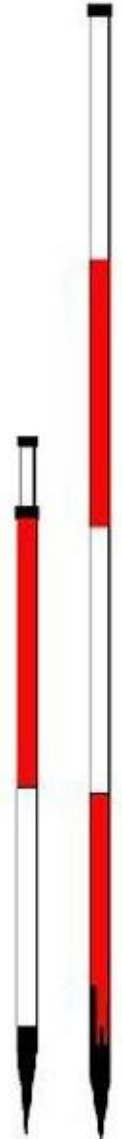


Figure:2 (U.Özerman, 2010)

If the established points is removed as soon as surveying at these points is finished, range poles (lining rods) or plumb bobs can be used for marking points.

Range poles (lining rods) made of wood, steel, or aluminum are about 2 cm thick and 2 meter long. They are usually round cross section and marked with alternate 50 cm red and white bands to be easily seen. The main utility of range poles is to mark the line being measured. The range pole is held vertically on a point or plumbed over a point so that the point may be observed through an optical instrument. It is primarily used as a sighting rod for either linear or angular measurements.



Plumb bobs are normally made of brass with different weights. Plumb bobs have a string which can be different long (about 2 meter) and a sharp tip, replaceable screw – on point. Plumb bob is used to show vertical line, which is a line that follows the direction of gravity as indicated by a plumb line. If the tip becomes bent, the string from which the bob is suspended will not occupy the true plumb line over the point indicated by the tip.



Permanent monuments (points - markers) :

These points are permanently monumented and adequately described to ensure recovery by future potential users. Permanent markers are used to mark points that are to be used for along period of time. All permanent markers should be referenced so that they can be replaced if disturbed. These points can also related to national horizontal or vertical control networks. Horizontal and vertical control stations are generally marked with permanent markers. They are established in respect to Production Regulation of Large Scale Map standards.

Procedures for establishing permanent monuments vary with the type of soil or rock, climatic conditions, and intended use for monument.

In addition, marking materials can be used to be seen and identified easily.

Pillars:

PİLYE TESİSLERİ C1 ve C2 Derece Nokta Tesisleri

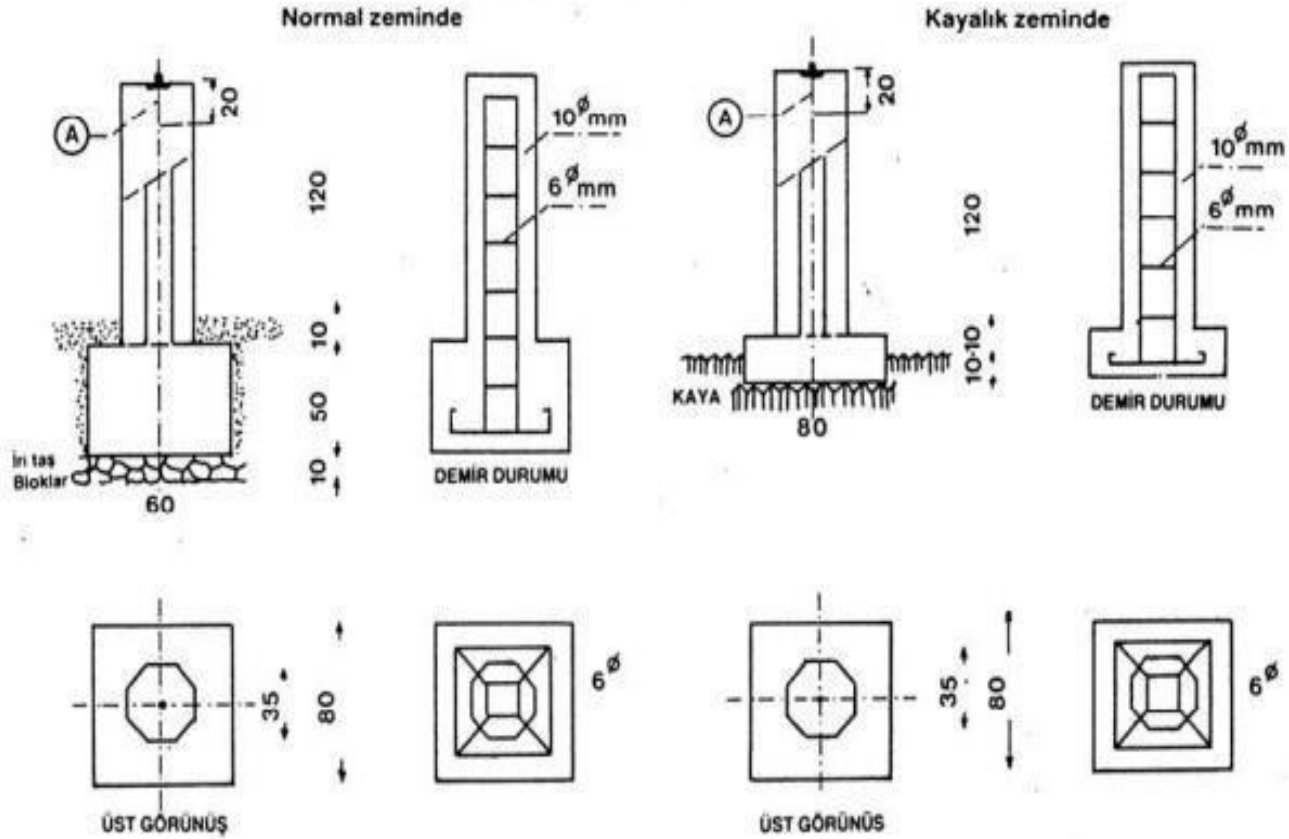
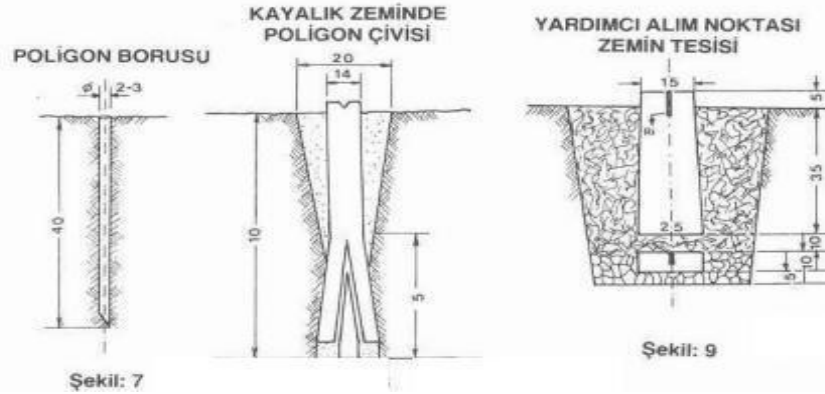
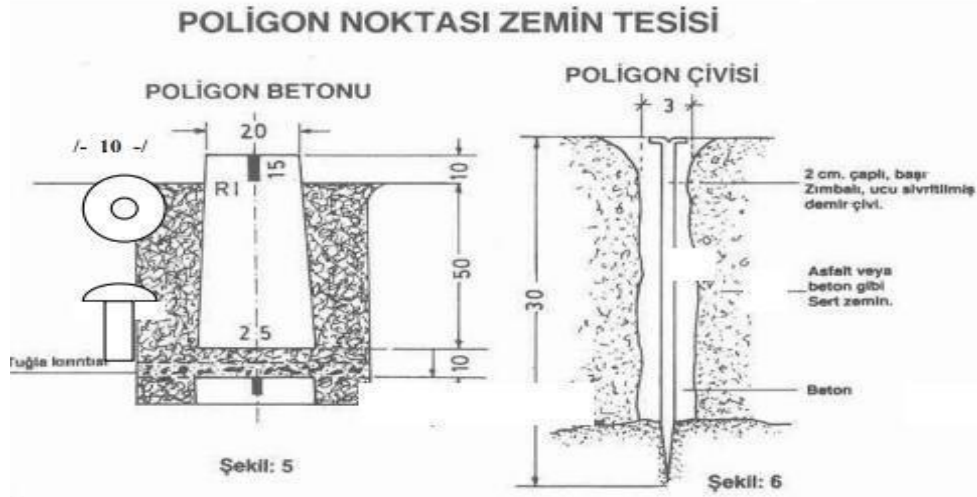


Figure:3 (Production Regulation of Large Scale Map , 2005)

Triangulation station- nirengi noktası

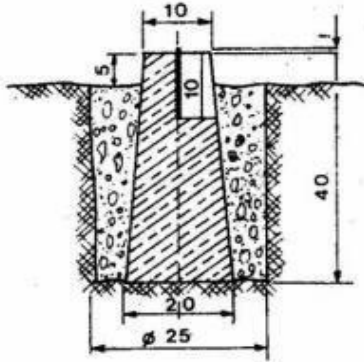


Traverse Stations:

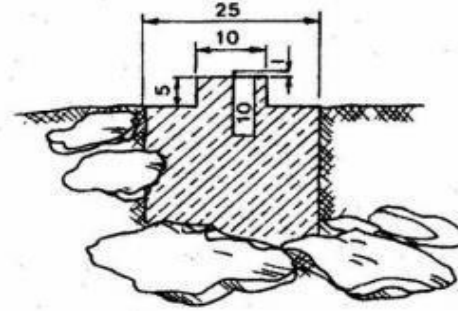


PARSEL KÖŞE NOKTALARI ZEMİN TESİSİ

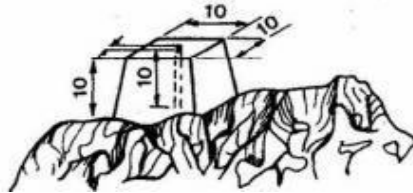
YUMUŞAK ZEMİNDE
PARSEL KÖŞESİ TESİSİ



GEVŞEK KAYALIK ZEMİNDE
PARSEL KÖŞESİ TESİSİ



BLOK KAYALIK ZEMİNDE
PARSEL KÖŞESİ TESİSİ



SERT ZEMİNDE
BORU

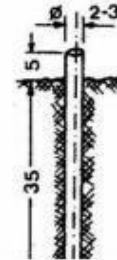


Figure:7 (Production Regulation of Large Scale Map , 2005)

Benchmark:

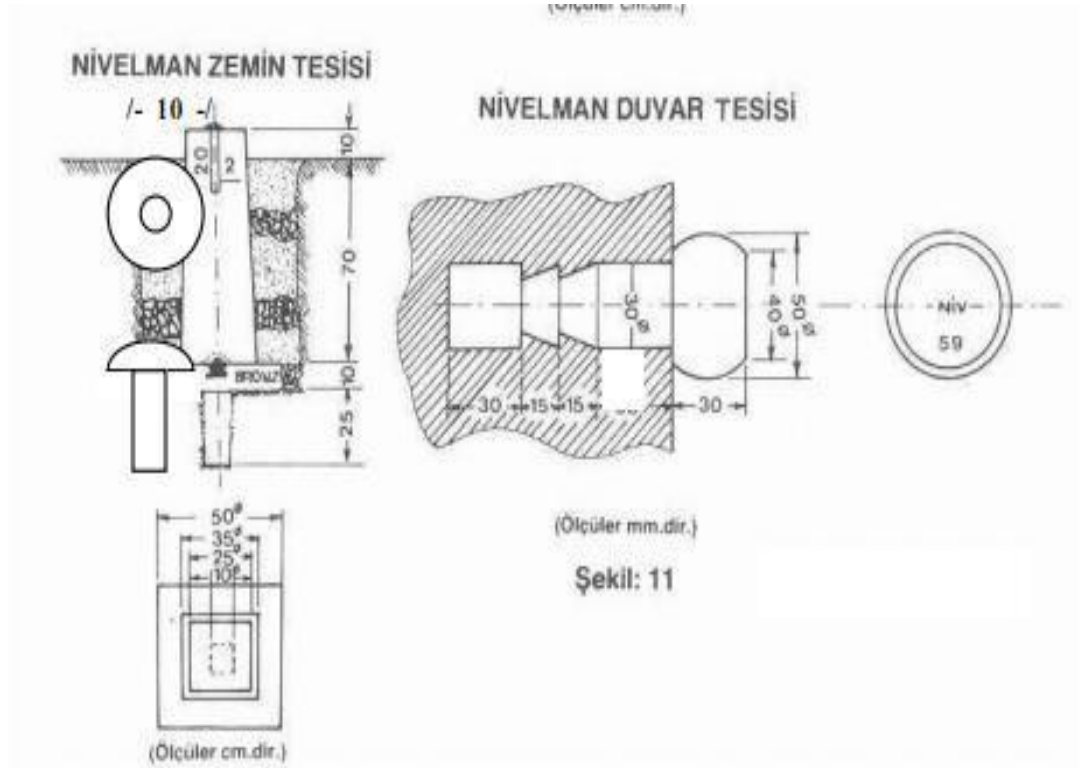


Figure:8 (Production Regulation of Large Scale Map , 2005)

REFERENCING TRAVERSE STATION:

Referencing is the process of measuring the distances and directions from station points to near fixed points or objects which can be identified easily on the ground.

Traverse stations often must be found and reoccupied months or even years after they are established. They may be destroyed through construction or other activity. Therefore, it is important that they be referenced by creating observational ties to them. Therefore, they can be relocated if obscured or reestablished if destroyed.

REFERENCING TRAVERSE STATION:



Figure: 10 (C.D. Ghilani, P.R. Wolf, 2008)

This figure represents a typical traverse tie. This tie consist of distance observation made to nearby fixed objects. Short length are convenient, also that length of ties is shorter than a steel tape being used is convenient.

Three ties must be used to allow for the possibility that one reference mark may be destroyed. Also , at least three ties, which are well – distributed around the traverse stations, are used to find where the stations exist clearly.

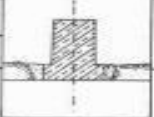
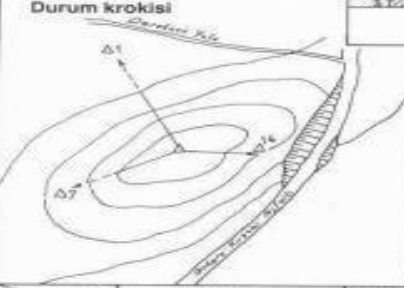


REFERENCING TRAVERSE STATION:

- WITNESS SKETCH:
 - A witness sketch is drawn to represent traverse station to be referenced by creating observational ties to them, and show the distances between traverse station and each ties (horizontal distance).
 - Sufficient description are recorded on the witness sketch in order to find the traverse station easily, relocate if they obscured or reestablish if they destroyed.
 - For instance , location of points, types of monuments, distance to mark, how measurements are made are shown. It is oriented by north. Also, it is drawn in respect to Production Regulation of Large Scale Map.

WITNESS SKETCH:

POLİGON NOKTALARI RÖPER ÖLÇÜ KROKİSİ

İl: Ankara İlçe: Cankaya Mahalle (veya köy): Yıldız Sayfa: 4

No	Adı	Çiftlik tepesi	Zemin tesisi kot durumu	Tanıtıcı not
		X : 542 2598 Y : 4 507 456 4 H : 286 78		Kasabamın doğu cihetinde, Ankara Eskişehir yolunun batısında, Çiftlik tepenin zirve noktasındadır.
Zemin tesisi cinsi		Pilye		
Durum krokisi			Röper ölçü krokisi	
				
No	Adı	Kale	Zemin tesisi kot durumu	Tanıtıcı not
		X : 542 244 0 Y : 4 510 232 7 H : 119 76		Kasabamın Güney-Batısında hava alanının kuzeyinde, Edirne yolu kenarındadır.
Zemin tesisi cinsi		Beton Piramit		
Durum krokisi			Röper ölçü krokisi	
				

Düzenleyen:

Düzenlendiği tarih:

DETERMINING THE DIRECTIONS IN THE FIELD:

The straight line is determined by driving stakes at the starting and final points of the line. Rod lining is used to prolong the straight lines, or find the intermediate position over long distances (maximum 200 meter) and often very difficult terrain. In some case, plumb bobs can be used instead of rod linings.

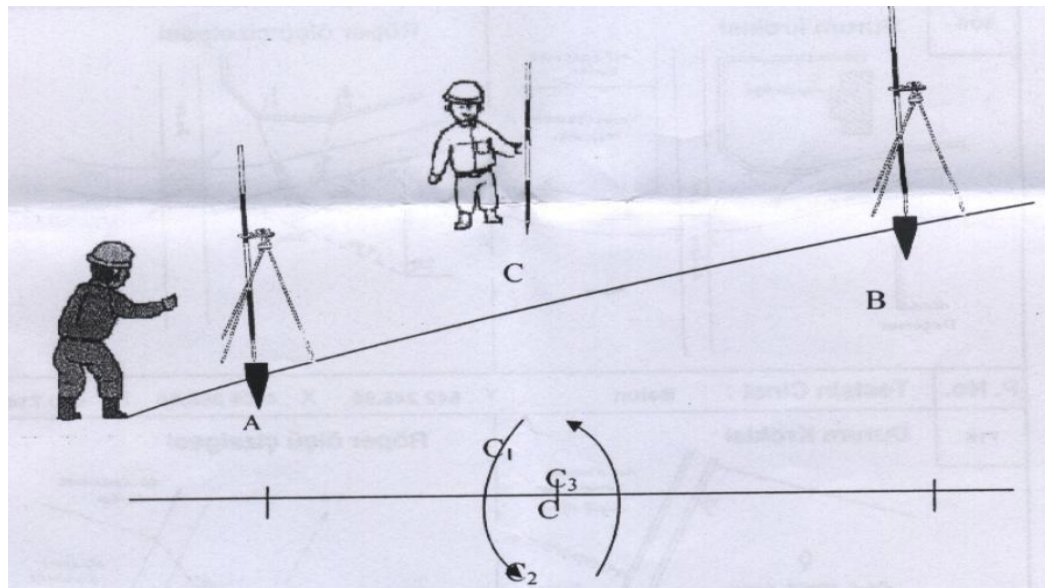
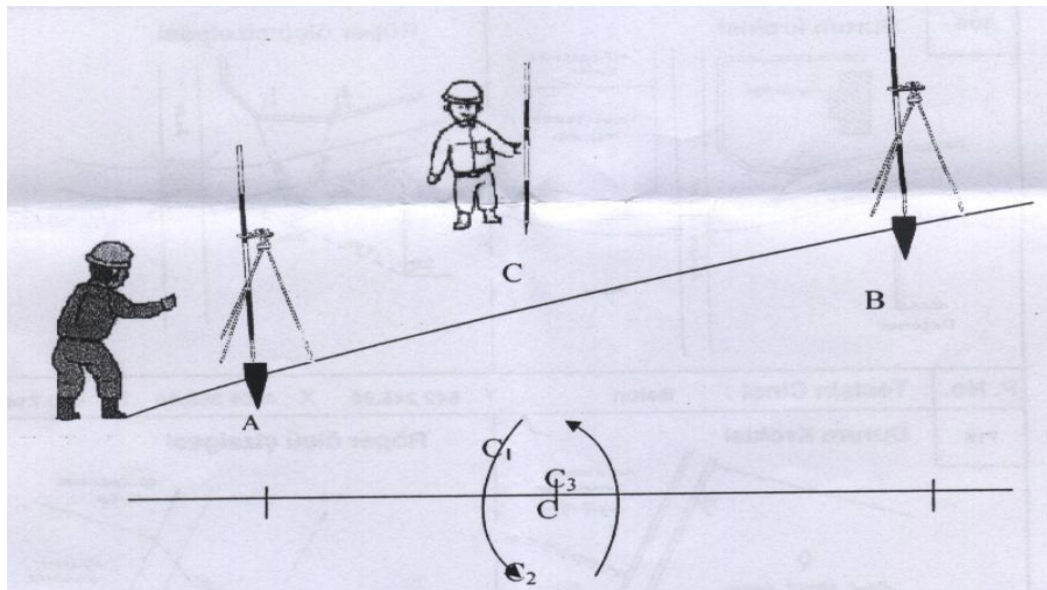


Figure:13.a (Ü.Öğün, Topografya Ders Notları)

In (figure 13.a); two rod linings are set up at A and B points. Two rod linings are kept in a vertical line. Both points A and B are on the straight line. Point C is the area from which both A and B can be seen. The sight is made behind of rod lining which is set up at point A by an operator. Operator signals to other operator keeping the rod lining at Point C. By the help of signals from operator at Point A, the rod lining to be kept at point C is slowly moved to be on the line AB by the other operator at point C. If the operator at C is on the AB line, operator standing behind the rod lining at point A can not see other two rod linings (C-B) and this process is accomplished by operators.



In some surveys, two established points that are not intervisible (mutually visible) because of obstructions and difficult terrain conditions .

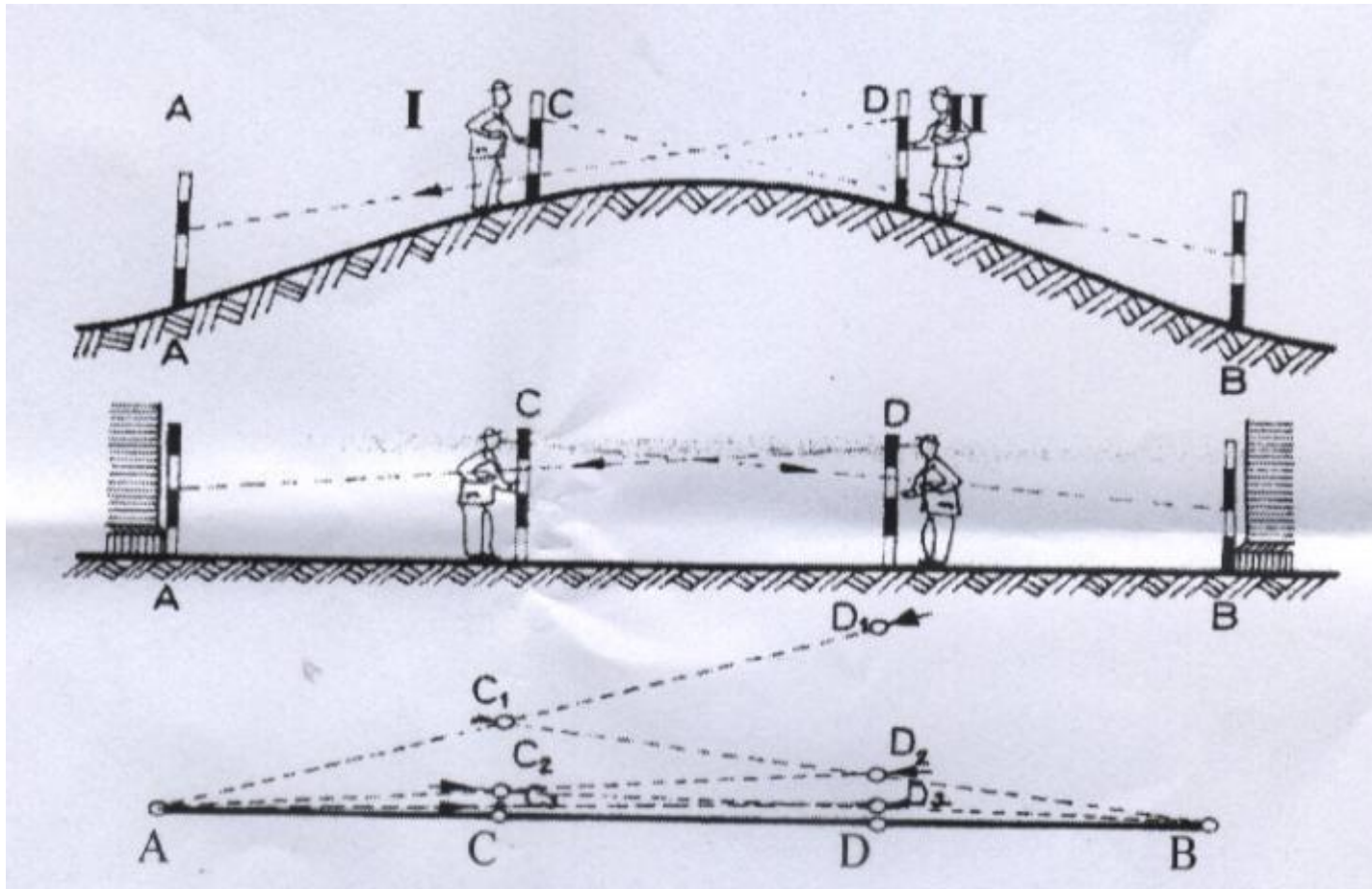


Figure:13.b (Ü.Öğün, Topografya Ders Notları)

In (figure 13.b) because of undulating ground or an obstruction which does not allow to pass behind the rod linings , intermediate points on AB line can be aligned by following procedures;

Surveyor I must see both the rod lined kept on point D_1 and B. And also the Other surveyor (surveyor II) must see the both rod lined kept on point C and A.

Surveyor I is moved to be on C_1 by Surveyor II on point D_1 . Therefore, D_1A Straight line is made up. Then Surveyor II is moved to be on D_2 by Surveyor I on point C_1 . C_1D_2B straight line is made up. Then this process is repeated. D_2C_2A , C_2D_3B and $D_3 C_3 A$ straight lines are made up. At the end of these process , that rod linings on point C and D are on the straight line between A and B can be seen easily.