

Field Work No. 3

Title: Differential Leveling

Objective: To determine the elevation of points by differential leveling

Instruments & Accessories: Any leveling Equipment available, Leveling rod, Hubs or Pegs, Range Poles, Hammer or Mallet, and Chalk

Procedure:

1. Designate the initial or reference point of the level route as BM-1 and the final or terminal point as BM-2.
2. Set up and level the instrument at a convenient location along the general designated route between the two points.
3. Take and record a backsight on BM-1.
4. Direct the rodman to move forward along the level route (not necessarily in a straight line between BM-1 and the next point) and establish TP-1.
5. Take and record a foresight in TP-1.
6. Transfer and set up the level at another suitable location beyond TP-1 and take and record a backsight on TP-1.
7. Direct the rodman to move on a convenient distance ahead of the instrument and establish TP-2.
8. Take and record a foresight on TP-2.
9. Repeat the procedure until a foresight is finally taken on BM-2.
10. Refer to the accompanying sample tabulation for the recording of observed field data.

DATA

STA.	BS	HI	FS	Elevation

Computations:

1. Computing the Height of the Instrument (HI) and Elevation (Elev).

In differential leveling, the following two equations are repeatedly used

$$\text{HI} = \text{Elev} + \text{BS}$$

$$\text{Elev} = \text{HI} - \text{FS}$$

2. Arithmetic Check

To check the accuracy of the arithmetical computations, add all backsights as well as all the foresights. The difference between these two sums must be equal to the difference in elevation between the initial and the final points of the level line.

Conclusion