

Tishk International University
Department of Architecture

Practical part -3-

Differential Leveling



Tishk International University

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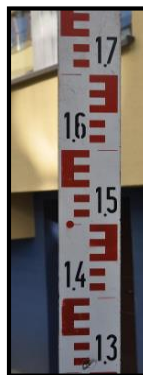
2. Objective

To determine the required level of given points by ;

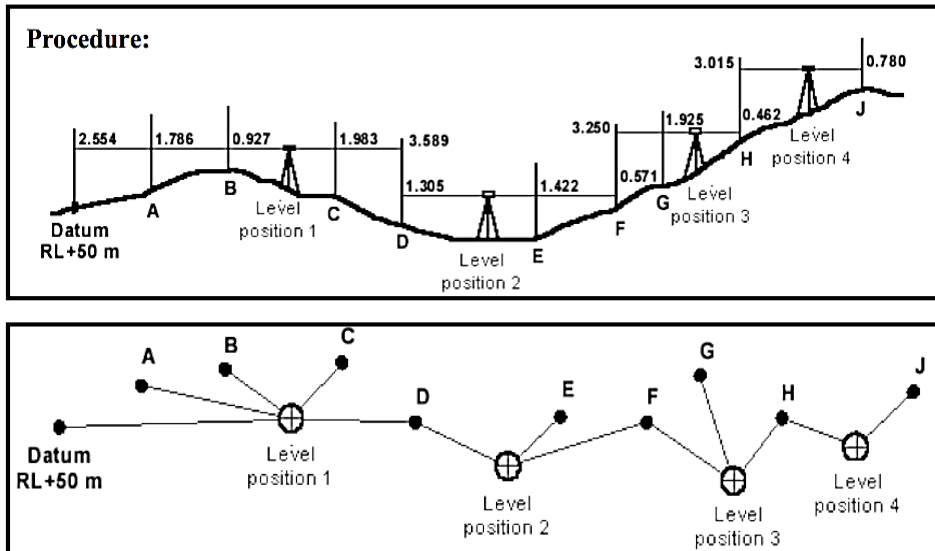
1. Rise and fall method
2. HI method

3. Apparatus Used

- a) Level Instrument
- b) Staff
- c) Pegs



4. Procedure



4. Procedure

1. Set up the leveling instrument at Level position 1.
2. Hold the staff on the Datum (RL+50 m) and take a reading. This will be a backsight, because it is the first staff reading after the leveling instrument has been set up.
3. Move the staff to **A** and take a reading. This will be an I.S.
4. Move the staff to **B** and take a reading. This also will be an I.S.
5. Move the staff to **C** and take a reading. This will be another I.S.
6. Move the staff to **D** and take a reading. This will be a F.S.; because after this reading the level will be moved. (A change-plate should be placed on the ground to maintain the same level.)

4. Procedure

7. The distance between the stations should be measured and recorded in the field book (see Table 1).
8. Set up the level at Level position 2 and leave the staff at D on the change plate. Turn the staff so that it faces the level and take a reading. This will be a backsight.
9. Move the staff to E and take a reading. This will be an I.S.
10. Move the staff to F and take a reading. This will be a foresight; because after taking this reading the level will be moved.
11. Now move the level to Leveling position 3 and leave the staff at F on the change plate.
12. Now repeat the steps describe 8 to 10 until you finished at point J.

5. Calculations and Results

(BOOKING)					(REDUCTION)		
Station	remark	BS	IS	FS	Rise	Fall	RL
1	BM						50
1	A						
1	B						
2	B						
2	C						
2	D						
2	E						
3	E						
3	F						
3	BM						
Sum							

5. Calculations and Results

Arithmetic checks (necessary for checking the reduction)

$$\Sigma (\text{BS}) - \Sigma (\text{FS}) =$$

$$\Sigma (\text{RISES}) - \Sigma (\text{FALLS}) =$$

$$\text{LAST (RL)} - \text{FIRST (RL)} =$$

6. Discussions and Conclusions

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