

Total Station Training - Traverse and Detailing, Data Auto Recording and Saving Mode

*Presentation for RAP3 Senior Technical
Management Course*

C.L. Gurung, East Consult Pvt. Ltd.

September 2016

CONTENTS

- Guideline Summary
- Important Notes
- Operation procedures/steps summary
- Road Survey 1- IP/Centerline
2- DTM
- Downloading data from instrument
- Data interpretation – Contour generation

Guideline Summary

There may be different field conditions while field survey. Suppose work is at starting stage using TOTAL STATION (say starting station Trv-1).

Such as:

Guideline Summary cont.

a) Coordinate of first Station

Suppose Arbitrary E, N, Z of first **occupied Station**, required to measure orientation of the line - **compass bearing** or set an **arbitrary reference** line.

b) E, N, Z of first **occupied Station** obtained by **pocket GPS**, required to measure **orientation for reference line-** **compass bearing.**

Guideline Summary cont.

c) Known (E, N, Z) Control Stations

If 2 already fixed Control Stations are available on site, it is not necessary to measure orientation of Traverse line by compass.

d) Resection from National Geo-reference control station and transfer coordinate to the project site establishing **Baseline Stations.**

Guideline Summary cont.

Now a days **Resection method is replaced by** application of high precision DGPS receiver which is more reliable.

NOTES

i) “Working from whole to part”

- The finally adjusted **Base Line NEZ** data is **uploaded** to the **TOTAL STATION** or input manually to conduct detail survey.
- It is important to **upload** the data to the **TOTAL STATION**. Manually input method may lead to blunder.

NOTES

ii) Traverse and Detailing simultaneously

- Traverse data are recorded both in paper Field Book and instrument memory
- **After production of map, if the orientation of map has been misled it can be verified and adjusted by traverse data of Paper Field Book.**

NOTES

iii) Always keep in mind while performing **detail survey** by TOTAL STATION instrument :

The telescope should be at Face Left or Vertical Angle at zenithal 90 degree face.

LET US START THE PRACTICE

**The proposed training
for
TOTAL STATION handling
is based on
field conditions
(a) and (e)**

Procedure Summary

1. Temporary adjustment of the instrument (centering, leveling) on the station also known as **OCCUPIED POINT**.
2. Open the **Data Recording/Saving mode Menu** in instrument and **create a new file** or **search existing file**, set the **OCCUPIED** station **name, ID, INS. HT., NEZ** of **occupied station** and **REC** (record/save) it.

Procedure Summary Contd.

3. After completion of **step-2** saving data of **OCCUPIED POINT**, sight to **BACK Sight station (BS)** as a reference line, input **station name**, **PCODE**, **R.HT** (reflector height). Input the value manually **NEZ of BS (Back Sight) Station**.

If the data of control stations is already saved or uploaded in the instrument, search the BS station in LIST or input the station name. After that measure to BS (Back Sight) station.

Procedure Summary Contd.

- 4. Detailing:** The display shows **F3: FS/SS (Fore Sight & Sight Shot)**. The display automatically shows **increment of station number**. Now change the **station name and number to detail number** by inputting manually for first point. Continue to sight detail points, the number will **increase automatically**.

Procedure Summary Contd.

5. After **step-4**, shift the instrument to the **next station** and repeat the work done in **step-2** to search the existing file name. The recent **occupied point** is to be searched in instrument memory. **Be careful to search correct name.** If the name does not match in case of manual input, it will display **point not exist.** **If the name and data matched to the wrong station, all the traverse orientation and details will be misled.**

Procedure Summary Contd.

6. After completion of **step-5 (setup of occupied point)**, repeat the work done in **step-3 for Back Sight (BS) referencing**. In this step **Back Sight (BS)** station is to be searched in memory file.
7. After completion of **step-6**, repeat the work done in **step-4** and continue the work forward.

ROAD SURVEY

Methods

1. Traditional method – IP, Centerline
2. DTM – Digital Terrain Model

Road Alignment is surveyed as an Open traverse. It is best to check it by close link, setting control points along the alignment.

TOTAL STATION – Remarkable working efficiency in Construction Layout

PRACTICAL

THANK YOU