CHAPTER FOUR

DATA PROCESSING AND ANALYSIS OF RESULT

Data processing is also referred to as the computation stage. It is the intermediary between the field observation and data presentation stage. At this stage, all the data acquired from the field were processed and analyzed in order to proceed to the final stage.

Data processing and analysis comprises of the following

Traverse field book reduction

Traverse computation

Computation of leveling

Detailing computation

Traverse field book reduction – Angular

STEPS IN DATA PROCESSING

Data Collection (Field Work)\

Perimeter Survey: Involves identifying and measuring the boundary lines of the school property using surveying instruments like a Total Station, GPS, or Theodolite.

Detail Survey: Captures topographic features within the boundary (e.g., buildings, road, trees, drainage, fences, utility poles.)

4.1 DATA DOWNLOAD AND EDITING

This is the transfer of data from the memory unit of digital instrument into the computer system for the processing and storage stage for easy retrieval. The total station was connected to the computer through a data transfer cable using a data processing software for the downloading.

DATA TRANSFER

Data collected during the fieldwork were downloaded from the Total Station to a computer system through a USB connection using the instrument's proprietary software. The exported data included;

Horizontal and Vertical angles

Distances between survey points

Coded representing different features (building, trees and roads etc)

Control and detail points coordinates.

DATA EDITING

Error Checking: Field notes were cross checked with downloaded data to detect and correct any inconsistencies

Traverse Adjustment: The survey was adjusted to minimize closure error

Reclassification: features codes were verified and edited to correspond with standard plotting symbol

DATA PROCESSING IN AUTOCAD

To open AUTOCAD software and following the underlisted procedure:

* Switch on the computer and allowed it to boot

* Start menu was clicked

* Select program was clicked

* From the Notepad, a script files for the coordinates, line, text and other was structured.

* Files were saved with the extension Script.

* AUTOCAD was launched

* File menu was clicked

* Sub menu (New) was clicked and the name was saved.

* Format was clicked and all necessary settings were carried out (i.e units, dimension etc.)

* Then 'OK' was clicked to the aspect of parameter setting.

* Tools were selected

* Run script was clicked on.

other.

* Text was clicked

* Escape key was pressed, Z then E enter.

* Text writing and other necessary editing were done.

* Coordinates of the details were all typed.

* Coordinates were pasted and then the point were all displayed.

* With polyline the point were joined as they were sketched.

AREA COMPUTATION

	ΔE	ΔN
2 – 1	+103.16	-35.53
3–2	-67.46	-16.02
4 – 3	+39.62	-34.23
1 – 4	-75.32	+229.96

Using Double Latitude and Departure

+103.16 x - 35.53= - 3665.275

+103.16

+206.32

- 67.46 x - 106.20= + 10807.092

+138.86

- 67.46

+71.400

+ 39.62 x - 34.23= - 1356.193

+111.02

+ 39.62

+150.64

- 75.32 x + 229.96= + 34641.174

+ 75.32

- 75.32

00.00

Sum of + - Sum of –

2

= (10807.092 + 34641.174) – (-3665.275 + (-1356.193)

2

Sum of Positive = 45448.266

Sum of Negative = 5021.468

A = 45448.266 - 5021.468

2

A = 40426.798= 20213.399 square

2

= 20213.399 = 2.021 Hectares

10,000

= 4.99 Acres

Stn.	Bearing	Distance	Δ East	Δ North	Easting	Northing	Stn.
					675605.928	938052.240	A
A	073˚ 10’ 02”	110.05	-57.891	-254.551	675548.031	937793.689	B
B	185˚ 19’ 46”	120.54	-150.574	34.798	675397.457	937832.487	C
C	254˚ 09’ 58”	110.78	103.191	-23.065	675500.648	937809.422	D
D	345˚ 16’ 25”	121.66	105.280	242.819	675605.928	938052.240	A

BACK COMPUTATION

PRODUCT APPLICATION

Uses of Detail Plan

- Detail plan is regularly used when designing for roads, buildings, extension and other new infrastructure.
- It is used to show the location and height of any number of varieties of features of an area.

COSTING

RECCI

S/N	Personnel	Quantity	Daily Rate	Days	Remark
1.	Principal Surv.	1	40,000	1	40,000
2.	Sen Surv.	1	30,000	1	30,000
3.	Asst. Surv.	1	18,000	1	18,000
4.	Basic Equipment	1	18,000	1	18,000
5.	Transportation	1	18,000	1	18,000
				TOTAL	**₦124,000**

BEACON = 5,000 x 4 = 20,000

BEACONING/EMPLACEMENT OF PROPERTY BEACON

S/N	Personnel	Quantity	Daily Rate	Days	Remark
1.	Asst. Surv	1	18,000	1	18,000
2.	Skilled Labour	4	10,000	1	40,000
3.	Unskilled Labour	3	8,000	1	24,000
4.	Transportation	2	18,000	1	36,000
5.	Basis Equipment	1	18,000	1	18,000
				TOTAL	**₦136,000**

TRAVERSING & CORRECTION TO CONTROL

S/N	Personnel	Quantity	Daily Rate	Days	Remark
1.	Sen. Surv	1	30,000	1	30,000
2.	Asst. Surv.	1	18,000	1	18,000
3.	Skilled Labour	4	10,000	1	40,000
4.	Unskilled Labour	3	8,000	1	24,000
5.	Transportation	2	18,000	1	36,000
6.	Basis Equipment	2	18,000	1	36,000
				TOTAL	**₦184,000**

PLOTTING & DRAFTING (TOPOGRAPHY)

S/N	Personnel	Quantity	Daily Rate	Days	Remark
1.	Principal Surv.	1	40,000	2	80,000
2.	Senior Surv.	1	30,000	2	60,000
3.	Asst. Surv.	1	18,000	2	36,000
4.	System	1	46,000	2	92,000
5.	Consumable (Paper)	1	15,000	2	30,000
				TOTAL	**₦298,000**

TECHNICAL REPORT

S/N	Personnel	Quantity	Daily Rate	Days	Remark
i.	Principal Surv.	1	40,000	1	40,000
ii.	Senior Surv.	1	30,000	1	30,000
ii.	Asst. Surv.	1	18,000	1	18,000
v.	System	1	46,000	1	46,000
v.	Consumable (Paper)	1	15,000	1	15,000
vi.	Secretary	1	18,000	1	18,000
				TOTAL	**₦167,000**

Cumulative Total = ₦929,000

ESTIMATE

i. Accommodation 1.5% = $\frac{1.5}{100}$ x 929,000 = 139,350
ii. Mobilization/D. Mob = 10% = $\frac{10}{100}$ x 929,000 = 92,900
iii. Contingencies = 5% = $\frac{5}{100}$ x 929,000 = 46,450
iv. V.A.T = 7.5% = $\frac{75}{100}$ x 929,000 = 696,750

Then Assumed Total + Acct + Mob/D mob + Contingencies + VAT = Amount of Charge (For the Project)

929,000 + 139,350+ 92,900+ 46,450 + 696,750=1,904,450

= ₦1,904,450