**ROUTE SURVEY FROM AMA JOHN AKABO ROAD,**

**THROUGH AMATTA TO ORIE AKABO,**

**IKEDURU L.G.A, IMO STATE**

**TABLE OF CONTENTS**

Title page

Certification

Approval

Dedication

Acknowledgement

Table of contents

Abstract

**CHAPTER ONE**

**1.0 INTRODUCTION**1.1 Background of the Study

1.2 Statement of the Problem

1.3 Aim and Objectives of the Project

1.3.1 Aim of the Project

1.3.2 Objectives of the Project

1.4 Significance of the Study

1.5 Scope of the Project

1.6 Limitations

1.7 Study Area

1.7.1 Geographical Location

1.7.2 Population

1.7.3 Climate

1.7.4 Religion

1.8 Length of the Route

1.9 Purpose of the Study

1.10 Definition of Terms

**CHAPTER TWO**

**2.0 LITERATURE REVIEW**

**CHAPTER THREE**

**3.0 METHODOLOGY**3.1  Reconnaissance
3.1.1 Field Reconnaissance

3.1.2 Office Reconnaissance

3.2 Instrument Choice

3.2.1 Station Selection

3.2.2 Observation
3.3 Insitu – Check

3.3.1 Traversing Procedures

3.3.2 Field Procedure

3.3.3 Detailing

**CHAPTER FOUR**

**4.0 DATA ANALYSIS AND PRESENTATION**

4.1 Introduction

4.2 Total Station Downloading

4.3 Total Station Processing

4.4 Plan Production

4.4.1 Design Procedure

4.4.2 Longitudinal Profile

4.4.3 Detailed Plan

4.4.4 Information Presentation/ Plan Production

**CHAPTER FIVE**

**5.0 SUMMARY, PROBLEM ENCOUNTERED, RECOMMENDATION AND CONCLUSION**

5.1 Summary

5.2 Problem Encountered

5.3 Conclusion

5.4 Recommendations

References

**CHAPTER ONE**

**1.0 INTRODUCTION
1.1 Background of the Study**

The scope of the project was to carry out a route survey of the road, detailing of listing features, and spot heighten to determine the longitudinal profile with a view defining the slope of the area. This project carried out in line with Survey Rules and Regulations including guidelines for Large Scale Cadastral and Engineering Surveys.

Route surveying deals with road construction; it may be defined as the survey operation carried out in establishing the horizontal and vertical alignments of
area of land needs for social utilities such as highways, railways, transmission lines, pipelines etc.

Route surveying is a major type of surveying under broad engineering surveying which is one of the branches of surveying. Route survey is a large scale engineering survey carried out for the purpose of obtaining necessary data required by the engineers work for planning, and design of any route such as highways, railways, canals and pipelines etc. This kind of information is obtained by the Surveyor for proper assessment of natural and manmade features as well as to provide information for vertical and horizontal alignment along the route for setting out routes and constructions. It requires surveyors with excellent experience in planning, designing and setting out for the construction works. For such projects, there is usually a need to closely study both topographical and cadastral map covering the project site in order to ascertain where the route design passes through to minimize cost and effects on route users.

Route surveying can also be applied when alignment is needed in expansion or rehabilitation of existing routes (roads) e.g. for traffic purpose. Increase in population explosion in the recent times has triggered the search for more route ways in the provision of the aforementioned as a whole has an impact in the healthy livelihood of man in his environment.

**1.2 Statement of the Problem**

The purpose of the project is aimed at obtaining the longitudinal profile of
a section of Ama John Akabo Road,Through Amatta To Orie Akabo, Ikeduru *L.G.A, Imo State*. Due to the undulating nature of the terrain the residents finds it difficult to transport both goods and persons along this road during the raining season.

Hence, there’s a need for the road to be worked on. But before construction will
commence the surveyors needs to step in to produce a plan showing the longitudinal profile of the route which shows cut and fill areas for the purpose of road construction.

**1.3 Aim and Objectives of the Project**

**1.3.1 Aim of the Project**

The aim of this project is to provide the longitudinal profile of a section ofthe road from Ama John Akabo Road,Through Amatta To Orie Akabo, Ikeduru L.G.A,Imo statewhich will serve as the information to be used for volume calculation and designing of the road. Total distance is 5.425km.

**1.3.2 Objectives of the Project**

The objectives of the project included the following:

1. Carryout proper reconnaissance which involves office planning and field
2. Reconnaissance for route survey of Ama John Akabo Road,Through Amatta To Orie Akabo, Ikeduru L.G.A, Imo state.
3. Carryout the three (3) dimensional observation (X,Y,Z) of the profile and cross section of the route as well as fixing of all the details along the route of the project site.
4. To detail all existing structures within 20m from the road centerline on both sides of the road.
5. Present all the information in both soft and hardcopy of the road from Ama John Akabo Road,Through Amatta To Orie Akabo, Ikeduru L.G.A, Owerri, Imo state,
6. The plan and profile information would be used to produce the required data needed for the design and costing of the road project.
To plot the various plans using the appropriate scale.

**1.4 Significance of the Study**

Route survey is a branch of survey that spans through a long distance. It is essential for the acquisition of necessary data that would be required for the construction of road at the project area, it provide a 3D data that can be used for generating of profile, cross section and for volume computation of the cut and fill. However, proper care was taken so as to ensure the safety of vehicles that will apply the route. It also provides the following solutions:

1. Reduce the time of travel between the villages.
2. Help in the transportation of local agricultural products to nearby markets.
3. Facilitate the poultry and fishery farms of the area by ensuring good transportation of farm product.
4. Facilitate access to the raw materials.
5. Speed up the development rate of the area.

**1.5 Scope of the Project**

1. This project covers a total distance of 5.0km (5000m) with chainage interval of 25m except in change of point. It is limited to planning, reconnaissance, control establishment, cross sectioning for profile, linear measurement, traversing, detailing, office computation and plotting, office check, The chainage 0+0000m started at the Ama John Akabo Road,Through Amatta To Orie Akabo, Ikeduru L.G.A, Owerri, Imo state

**1.6 LIMITATIONS**

1. Financial problem: Because of the distance of the project site, most a times we the group members find it difficult to finance ourselves to the project site.
2. Atmospheric condition: There was the problem of incessant rainfall, especially on the days which interrupted our field work on various occasion.
3. Random movement of cars: we had issues of taking measurement on the center of the road as cars kept passing.
4. Another limitation was noncompliance of the group members and their inability to work with time

**1.7 Study Area**

**1.7.1 Geographical Location**

1. The project site was at from Ama John Akabo Road,Through Amatta To Orie Akabo, in IkeduruLocal Government Area, Imo State. It covers a total distance 5.425 kilometres with geographical coordinates at starting point 005,33,9.487=LAT 007,04,59.716=LONG, Bending point 005,32,53.525, 007,06,13.407, Ending point 005,34,2.002 007,05,28.925.
2. Latitude - 050, 33’, 09”.487

Longitude - 070,04’,59”.716

1. Latitude- 050,32’,53”.525

Longitude- 070,06’,13”.407

1. Latitude - 050,34’,2”.002

Longitude- 070,05’,28”.925



Fig1

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 **Fig2**

**1.7.2 Population**

Population is the total numbers of people who lives in the same geographical area and has the capability of inter breeding. the population of the last census (2014), was given to be 686% where 163% of them were civil servants, 67% are engaged in menial job, then 445%of them which is the highest number are known to be farmers and means of transporting their product to nearby town has always being a problem as a result of bad road.

**1.7.3 Climate**

Theclimate of Owerri west is 27°c as the temperature is found within the tropical in which rainfall last for a period of five months which spans from February to August.

**1.7.4 Religion**

Thepeople of Owalla community and Umuorii community are said to be mostly Christians, in which at least 95% are Christians with the remaining 5%are mixture of both Muslims and Traditionalist in which they celebrate the festivals on stipulated days.

**1.8 Length of the Route**

The length of the route is 5.00km.

**1.9 Purpose of the Study**

It is expected that the result of this project work will assist in providing the required data so as to ascertain the undulation, volume of earth work, areas of cutting and filling, size, shape and other features on the area of study. It also entails marking control stations which can be used to tie other survey works and for future purpose.

**DEFINITION OF TERMS**

**PROFILE LEVELING: This is a leveling done across a line, for example along the** centerline of a road, to get a sketch profile of the nature of the road in the real world.

1. **CONTROL POINTS:** A series of points whose relative positions have been determined accurately by any of the survey methods.
2. **RECONNAISSANCE**: The rapid examination of the entire project site. The purpose of the reconnaissance is to determine different possible routes (in the case of a virgin road, railway etc.), the proper positions of traverse stations and to mark them so that they will be relatively permanent. It is also to determine the length of the route and to know the nature of the terrain and topography of the area so as to know the right survey method, instruments and safety wears to use.
3. **TRAVERSE**: The use of line method of surveying as opposed to an area method such as triangulation or plane tabling. A traverse consists of a series of survey stations connected by lines whose lengths and directions are measured. The positions of the traverse stations are determined based on the already determined positions of the stations behind.
4. **CHAINAGE:** A distance mark along a route
5. **LONGITUDINAL PROFILE:** A plot along the center line of the route, showing the height relationship from one chainage to another along the route.

**CROSS-SECTION:** A plot of levels taken along lines perpendicular to the

route at regular and or chosen chainages.

1. **DETAILS:** Natural and man-made features within and around the area of

survey.

1. **GPS:** Global positioning system equipment.
2. **LOSS OF LOCK**: Loss of communication between the GPS master equipment

and the rover or between the total station and the reflecting prism due to

obstruction on the line of sight.

**TOPOGRAPHY:** The complete location of points on the earth's surface in three dimension i.e. in X, Y and Z dimensions.

**BENCH MARK (BM):** This is the most precise height. It is usually a permanent mark cut on a stone built into a wall or on the side of a triangulation pillar. The height given is the height of the mark and not the level of the ground.