IMPLEMENTATION OF RELATIONAL DATABASE SYSTEMFOR CADASTRAL INFORMATION PRODUCTION (RDBS) OF IREWOLEDE ESTATE ALONG NEW YIDI ROAD ILORIN, ILORIN SOUTH LOCAL GOVERNMENT AREA, KWARA STATE

By

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HND/22/SGI/FT/086

SUBMITIED TO

THE DEPARTMENT OF SURVEYING AND GEOINFORMATICS.

KWARA STATE POLYTECHNIC, ILORIN KWARA STATE.

IN PARTIAL FULFILLMENT OF THE REQUIREMENT

FOR AWARD OF HIGHER NATIONAL DIPLOMA (HND) IN

SURVEYING AND GEOINFORMATICS.

JULY, 2025

CERTIFICATE

I hereby certify that all field work and information contained in this project were obtained as a result of the observation and measurement carried out in the field by me and that the survey was executed in accordance with the survey laws, regulations and department instruction.

Name of student……

Matric No……..

Signature of student……..

Date ……

CERTIFICATION

This is to certify that **Mr. Odeniran Taiwo Kayode** With the Matric Number **HND/22/SGI/FT/086** has satisfactorily carried out survey duties contained therein in this project under my instruction and direct supervision.

…… ……

SUV. R.S AWOLEYE **DATE**

(Project Supervisor)

…… ……...

SUV. R.S AWOLEYE **DATE**

(Project Coordinator)

…… ……...

SUV. ISAU ABIMBOLA **DATE**

(Head of Department)

…… ……...

(External Coordinator) **DATE**

DEDICATION

The project is dedicated to Almighty God the giver of knowledge and understanding and to my parent **MR. & MRS. ODENIRAN**.

ACKNOWLEDGEMENTS

I acknowledge the love guidance and favour of God almighty for the successful completion of the programme

I also appreciate the professional of my supervisor SURV. R.S AWOLEYE , during the course of writing this project, l shall forever be grateful to you

This acknowledge will not be complete if I did not appreciate the great work and effort of some personnel in great and noble institution; SURV. ISAU ABIMBOLA (H.O.D) Surveying and Geo-informatics

I am also grateful to all my lecture that made my stay in school inevitable and without forgetting those that contributed in several way towards the successful completion of my academic career in this institution and towards the complete of my project work most especially SURV. R.O ASONIBARE and SURV A.G AREMU, SURV BELLO FELIX DIRAN, SURV BANJI, SURV WILLIAMS KAZEEM, SURV BABATUNDE KABIR, SURV ABDULSALAM AYUBA

MY unreserved gratitude goes to my lovely mummy and daddy and my brother, sister, and my lovely wife ADEYEMO IFEOLUWA RODAH for their immeasurable support financially, spiritually, love and advice towards the success of this programme may God in his infinite mercy be with you and strengthen you the more in Jesus name (Amen). I love you so much; you are such a wonderful family.

I want to personally appreciate my in-law Olowokanga Omosuyi Olumide for his great support based on finance, advice and my well being. God will rewards you, and continue to bless you.

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ABSTRACT

The cadaster is a land information system containing up-to-date records of interest in land. This system will normally have a base expressing the location of the land as one of the important components of a cadaster system is the cadastral map, but existing system consisting of paper maps and convention on land registry are becoming obsolete and ineffective. This project centers on cadastral information system of part of Irewolede Estate, Along New Yidi Roadilorin, of Ilorin South local government area Ilorin, Kwara state Nigeria, it covers reconnaissance survey,

database design of the area, fieldworks, data processing and analysis, social survey, data presentation. The project content includes the reconnaissance survey which is made up of the office and field reconnaissance, this study describes the design and implementation of a cadastral database with a spatial modeling approach. The objectives are to produce a design of a spatial database that fulfills the requirement for spatial queries for cadastral data. Implementing this design in the study area, and enforce the development of multipurpose cadastral data, data acquisition, physical designs, analysis and implementation of the database system. Attribute data were also obtained by personal enquires and observation (social survey), the graphics drafting was done in Auto CAD land development and later imported to Arc GIS 10.2 for the data analysis, queries and presentation of final results. Queries were performed and generated to demonstrate the capabilities of the software used and the database created. The outputs were then presented in graphical form. In conclusion the automated land registration provides effective and efficient documentation and reduces the need for paper records duplication.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE PROJECT

Land is an ultimate resource for without it life on earth cannot be sustained. Land has been identified as perhaps the single most natural resource of any nation on which human and economic activities takes place. It is at the basis of all societies, it is so basic that it affects the people's way of living, the agricultural system practiced, the food, shelter, clothing etc. has been identified as a function of virtually all form of production (Rafdif, 1976) and is required for various uses in both urban and rural area of all societies. In African countries, the tremendous importance of land is not only reflected in its economic value, but also its spiritual significance The growth and sustainable development of any nation is that nation's access to reliable and sufficient geo-information (ATBU 2011) Surveying, which is also interchangeably called geomatics has traditionally been defined as the science, art and technology of determining the relative position of points above, on or beneath the earth surface, or of establishing such points in a more general sense, however surveying can be regard as that discipline which encompasses all method for measuring and collecting information about the physical earth and our environment, processing that information and disseminating a variety of resulting product to a wide range clicnts.(Charles D. Ghilani and Paul R. Wolf 2012).

Cadastral information system (CIS) as the name implies is the combination of cadastral surveying and geographic information system. So for better knowledge of what cadastral information system (CIS) entails, cadastral surveying and geographic information system (GIS) cannot be over emphasized.

Cadastral surveying answers the questions where is the land located,and what is the extent (size) of its boundaries and surface area? It also indicate the land parcel's separate identity both ge graphically on a map or record and physically on the ground by means of survey beacons. Cadastre on the other hand answers the questions concerning ownership of the land and the conditions under which it is held. Because of the close connection of cadastral surveying to land, it is directly controlled by law. Thus chapter 194 of the laws of the federation of Nigeria and Lagos of June 1958, deals with this aspect of surveying profession. cichocinski, (1999).

or cards is not only inefficient but also cumbersome to operate. Parcel-related information cannot be collected and disseminated systematically and regularly, nor can they be managed effectively to support user's needs. In classical method, Land records stand the risk of physical damage from rain, fire or other forms of hazard. Moreover, manual data handling exposes the original records to excessive wear and tear due to rough handling of the paper maps.

1.2 AIM AND OBJECTIVE OF THE PROJECT

1.2.1 AIM OF THE PROJECT

The project was aimed at coming out with a plan showing a comprehensive information of part of Hajj Camp for use most especially for Planning purpose, policy making and implementation of part of Hajj Camp area Ilorin west local government area Ilorin Kwara state, Nigeria.

1.2.2 OBJECTIVES OF THE PROJECT

In executing this project, the following objectives were strictly adhere to.

1. Reconnaissance
2. Database design
3. Data acquisition
4. Data downloading and processing

5. Database creation

6. Map production

7. Comprehensive report writing

1.3 SCOPE OF THE PROJECT

The scope of this project includes the following;

a) Reconnaissance: locating controls and fixing point

b) Data acquisition: office planning, fieldwork (field observation) using digital equipment with total station.

c) Data downloading and processing: Data downloading and editing from sokkia, computations, design and creation of database and spatial analysis, linking of attribute data with geometric data.

d) Database creation: Design and construction of data base, spatial analysis, and query ArcGIS.

e) Database Design: view of reality, conceptual design and logical design

f) Map production: composite maps and soft and hard copies

g) Technical report: comprehensive report on the topic

1.4 PERSONNEL

The student listed below were the members of this group who participated in the execution of the project

Matric Number	Name	Remark
1. HND/22/SGI/FT/086	Odeniran Kayode Taiwo	Author
2. HND/23/SGI/FT/0061	Adebayo Uthman Dolapo	Member
3. HND/23/SGI/FT/0058	Jamiu Muftau Opeyemi	Member
4. HND/23/SGI/FT/0049	Yunus Zainab Titilayo	Member

5. HND/23/SGI/FT/0062	Aina Samuel Ayomide	Member
6. HND/23/SGI/FT/0050	Idris Halimat Alata	Member
7. HND/23/SGI/FT/0121	Elijah Toyin Deborah	Member
8. HND/23/SGI/FT/0053	Olarewaju Tolulope O.	Member

1.5 STUDY AREA

The study area for the project is situated on Part of Irewolede Estate, Ilorin West Local Government Area, Kwara State. The geographic location of the study area lies between latitude 08º 27' 29.94"N to 08º 27' 49.59"N and longitude 04º 32' 56.74"E to 04º 33' 21.36"E. The area covered is approximately found to be 27.2

hectares.

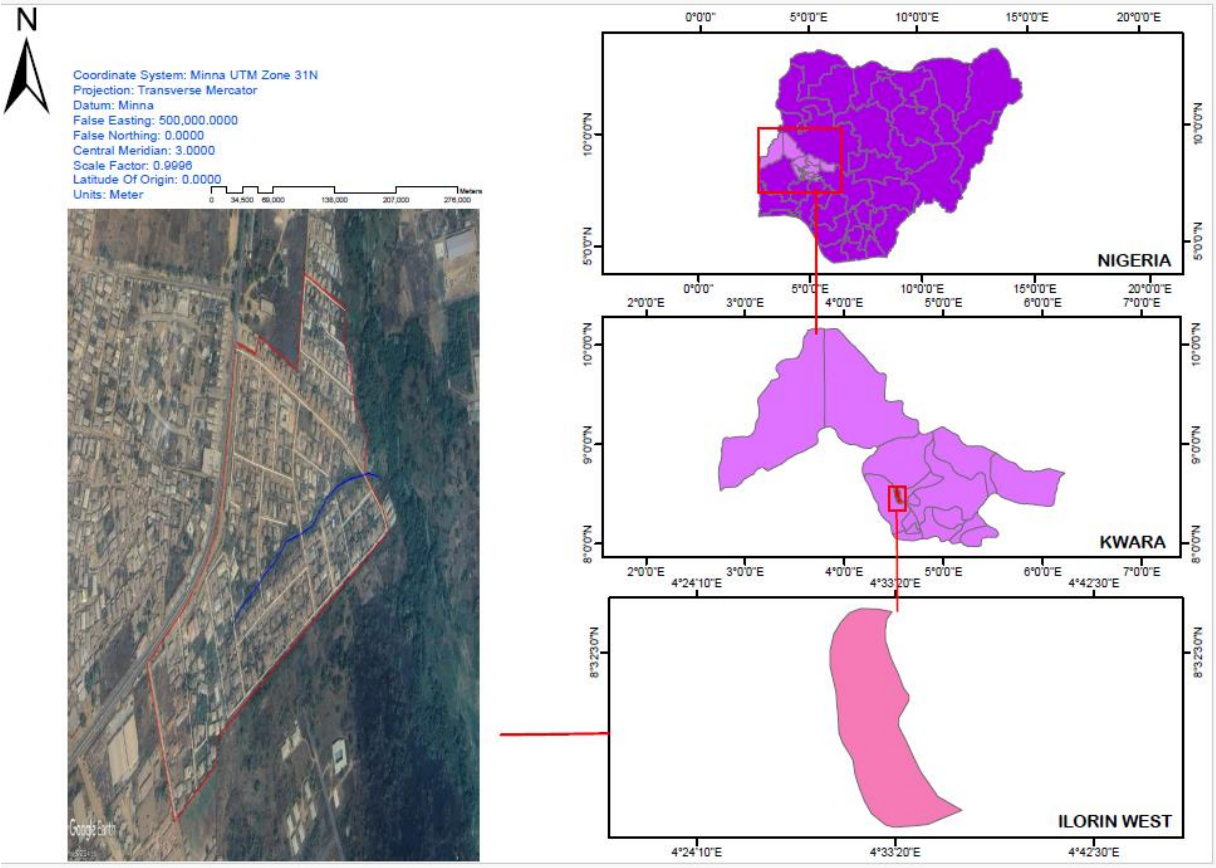


Figure 1.1 Map of the Study Area

CHAPTER TWO

LITERATURE REVIEW

2.0 BASIC CONCEPT AND DEFINITION

Technology evolution is a term that has become a household name today. It cuts across every aspect of human activity and its uniqueness is in the fact that it is dynamic in nature, With every passing day there is a new phase of physical development embarked upon and the bulk of these activities are land-based hence there is a great need for the effective utilization and management of land which is irreplaceable natural resources. Information on land parcels and its attributes (e.g title, size, shape, and location e. t. c) and other properties on the land are very vital when planning for any form of physical development hence the production of cadastral maps.

As technology developed further, these cadastral maps which were predominantly in analogue forms could not meet the need of the day as regards planning and development. Sophistication had taken over virtually all men"s operations in the area of physical planning and development and the input spatial data format needed in modern day decision making process is now strange compared to what was earlier obtainable. Relevant information could not beaccessed at will and there was no flexibility in the form that these maps existed, these limitations lead to series of research and with the advent of Geography information system (GIS) a great relief came. Cadastral information which earlier existed in analogue forms are now represented in digital forms and could be further integrated into an information system which supports certain spatial operation Demers. In this project certain keywords will he encountered. We shall in this chapter attempt to look critically into these keywords for better understanding. They include; land, cadastral, data, information, system, spatial, database, database management system (DBMS),

information system, geographic information system (GIS), and cadastral information system (CIS).

The International Federation of Surveyors (FIG, 1995) defines a cadastre as a parcel based and up-to-date land information system containing a record of interests" inland (e.g. rights, restrictions and responsibilities). It usually includes a description of land parcels linked to other records describing the nature of the interest, ownership or control of those interests, and often the value of the parcel improvements. It may be established for fiscal purposes (valuation and taxation), legal purposes (conveyance), to assist in the management of land and land-use (planning and administration) and enables sustainable development and environmental improvement The cadastral infrastructure includes a unique identification of the land parcels deriving from the cadastral survey.

The cadastral identification is then seen as the core component of any land information system. It is argued that within the next ten years such land information systems will form an integral part of I model of our man made and natural environment. The model will build on the core cadastral and topographic data base which will be complete on a country wide basis and kept up-to-date. The focus will be on providing land information to the mass market to support the land market, financial and business sectors, environment management, land administration, urban systems and community information systems. This definition of cadastre incorporates the component of land registration, which is the recording of right in land, through deeds or titles.

Such systems, in principle, thus consist of two basic parts:

(i) A cartographic part, consisting of large-scale rnaps, based on surveys including aerial photographs, which indicate the division into parcels of an area, along with appropriate parcel identifier.

(ii) A descriptive part containing registers or files which record legal facts (deeds) or legal consequences and other physically or abstract attribute concerning the parcels depicted on the map

To individual or citizen

(1) The documented evidence of land ownership, which a cadastre provides, supplies security, reduces or eliminates the risk of eviction and thus enhances the incentives to invest in the landor property.

(2) This legal security affects the availability of resources for financial investment. The supply of credit, especially from institutional of formal resources (e.g. banks), depends usually on the borrower's ability to provide cadastre documented evidence of ownership.

(3) Dealing in land become easier, cheaper, faster and safer. Access to land is consequently improved. Conveyance of unregistered land is often expensive, unsafe and takes a long time.

(4) Increased legal security results in a decrease of title and boundary disputes and related litigation, which saves costs for both government and citizen and promotes good relationship between neighbors Aremu (2014).

To the government or society

(1) A cadastral system enables the government to establish an efficient and equitable levying land or property taxes.

(2) For land development through reform, consolidation or readjustment, the data from the cadastral system provide an inventory of the existing land use to be used in determining the desire fixture situation and its implementation and management that transaction meet the amount of land

(3) A mechanism becomes available to the government to assurance requirement of planning, spatial management, the allowed maximum amount of land per owner (land ceiling), maximum sales price or restriction of lands ownership by foreigners.

(4) Useful tools were also created for the execution of a multitude of other government tasks.

The collected basic data of the cadastral map can also serves as a basis for other large scale maps, which will in the long term result in considerable saving of time and cost it not only facilitate transaction but it also a critical efficient land administration and expedites land market factor in the economic development of a people and country Aremu (2014). Improvements in the study of Cadastral Information System have been witnessed over time. In some countries some projects have been undertaken to extend the conventional system to cover new issues suchas:

i Automation of administrative tasks.

ii. Development of applications for managing the cadastral reg

iii. Development of analytical tools for setting up digital cadastral maps and plans.

iv. Automation of land management for consolidation.

v. Implementation of land information system

Land" according to Webster's 1913 Dictionary referred to as the solid part of the earth surface opposed to water as constituting a part of such surface, especially to ocean and seas. There is array of natural resources available to humans but land is the basic natural resources of a nation on which any human and economic activities take place. It is the means of life without which his continued existence and progress depends. Land is often referred to as real property which, in every basic terms means property which is fixed and immovable -as distinct from personal property which, again in basic terms, means property (as in goods and chattels) which is not fixed and can be moved. The general principles of ownership at common law have long been

established in the courts of equity although the concept of extent of ownership has changed significantly in interpretation from the nineteenth to the twenty first century. In addition, statutory laws continue to place increasing restrictions on the rights and benefits which would otherwise accrue with land ownership Donnelly (1985).

According to Adeniran (1999), a system is a collection of a component part, or a set of interrelated elements linked up with one another towards achieving a define goal. A system could be a network of components that functions upon the intervention of an operator (human) having peculiar skills or techniques which work together in a given environment for the soleaim of attaining a particular goal.

For the purpose of this project, a system is a set of computer components closely linked together and controlled by qualified personnel to perform a predefined task or set of tasks that are aimed at meeting a particular need, these tasks follow a laid down routine or procedure. Thisterm is used to describe any object located in space or a phenomenon that is occurring within a region of space on the earth. This implies that the earth forms the basis for all spatial objects, phenomenon or activities. All entities encountered in the course of this project are regarded as spatial because they are all referenced to the earth.

A database is a collection of persistent data that is used by the application systems of a given enterprise. By persistent we men, intuitively that is database data differs in kind from other more ephemeral data, such as input data, output data, control segments, work queues, software control block et.c. Enterprise refers to a single convenient generic term for any reasonably self-contained commercial, scientific, technical or other organization. This particular project involved the use of data in large volumes and as such these data cannot be conveniently handled unless stored in a database so that they can be easily accessed at will.

A database management system (DBMS) is a program product for keeping computerized records about an enterprise. It is a computerized system whose overall purpose is to store information and to allow users to retrieve and update that Information on demand. The information in question can be anything that is of significance to the individual or organization concerned anything in other words, that is needed to assist in the general process of running the business of that individual or organization Abraham, korth and sudarshan (2000). For Land resource to be effectively and judiciously managed, all data and information pertaining to it must be in a form that it can be easily stored in a database and such data information set must be flexible. Since the essence of creating this Cadastral Information System (CIS) is to aid physical planning and development and also serve as a Decision Support System (DSS) it is a matter of necessity that an effective database management system (DBMS) be developed to achieve this aim.

An information system is a collection of people, resources, and procedures for collecting, storing, manipulating, retrieving and management of data for the purpose of processing them into information to impact knowledge or otherwise and to support decision making Oyinloye (2002). Calkins (1977) defined information system as "a chain of operations that takes place from planning the observation to the collection of the data through the storage and analysis of such data and the use of the derived information in a decision making process". An information system is an all important asset if land is to be effectively managed, all information relating to land must be integrated into an information system for it to become relevant to modern day planning and development processes. This is a process of collection, storing, manipulating, analyzing, retrieving, managing and presenting of geographic information in a conceptualized form such that it is relevant in physical development and decision making, It is a decision making tool.

Marble (1987), simply puts geographic information system as an essential tool for handling information in spatial context. GIS has four sub-systems namely: Data input sub- system, data storage and retrieval sub-system, data manipulation and analysis sub-system and information presentation subsystem and these four sub-systems apply evidently to this project. Geographic information technology can be employed in providing planners developers as well as decision makers with the they need to confidently confront a wide variety of threats including natural disasters, crimes, terrorist and similar vices. The college authorities can also employ the use of GIS as a tool in decisions that bother sitting and location of building and structure generally as well as drainage systems to curb and control erosion among many. Geographic information allows geoscientist to apply general principles to specific condition of each location on the earth surface, allows for the tracking of what is happening at a place and helps to explain and provide the understanding on how one place differ from another. GIS is relevant and valuable tool in the information harvest and planning of natural physical, bio-medical, social-cultural, eco-climate economics, engineering sciences and business environments. The global community is now so dependent on computers and computerized information that we cannot do without them, Computerization has opened vast new potential in making decision. The way we communicate, analyze our surroundings and make decision. The power of GIS comes from the ability to relate different information in a spatial context and reach a conclusion about this relationship. Most of the information we have about our world contain a location reference, placing that information at some point on the globe. When parcel or land information is collected it is important to know where the plot is located and its topology. This is done by using a location reference system, such as longitude and latitude and perhaps elevation. Comparing the parcel information with other information such as the location of roads in the vicinity, may show the strategic location of

the parcel of the economic value, this fact may indicate that these roads are likely to assist the easy conveyance of building material to site, and this inference can help us make the most appropriate decision about how busy the road might be during physical development. during physical development.

A GIS therefore, can reveal important new information that leads to better decision making, Different kind of data in map form can be entered into a GIS. A GIS can also convert existing digital information, which may not be in map form into forms it can be recognize and use. For example digital satellite images can be analyzed to produce a map of digital information about land use and land cover. The application of GIS to property and parcel management is fast becoming widespread. In the more developed countries of North America, Australia, and Europe, several municipal countries and local government authorities now usethe GIS technology to handle various aspect of land and property (building) management. The World Bank and some other international organization are beginning to spearhead moves towards assisting some less developed countries to implement GIS for land parcel and property management.

In Nigeria, the establishment of Abuja Geographic Information System (AGIS) which has changes the general approach of land. Administration in the City is an eloquent testimony of the usefulness of GIS inland information management. The analogue cadastre was converted to digital format and accordingly, new certificate of occupancy were issued out to former holder of land titles within the capital territory. Prior to the creation of AGIS land transactions in the city was characterized by duplication of titles, delay in searches and land conveyance not properly registered (www.abujagis.com). The effective administration of land and property depends largely on accurate and up-to-date cadastral maps, which can conveniently be created using GIS. Such maps at appropriate scales are useful in a number of ways including description,

registration and scales of land, generation of revenue, planning, administrative and engineering works Dale (1976). However, some of the common areas of GIS application to land and property management include:

i. Land/Property taxation

ii. Assessment of housing quality

iii. Housing allocation

iv. Land/Property inventory

v. Production/updating of land property map

vi. Districting and master plan

vii.Reviewing/approving site plans etc.

At this juncture there is need to mention some of the scholars and contributors that have apply GIS in solving cadastral problem in their previous project and which have yielded good result. This includes:

Akinpelu, (1995):in his own work cadastral information system explained that a relational database management system was used to develop a Land Information system(LIS) for Federal School of Surveying, Oyo, in which full detail of all the cultural(man-made) features on the campus were been represented. The location and topological information for the databasewas acquired by conventional field survey methods which includes Theodolites (Wild T-16) Traversing, Tacheometry and spirit Levelling (Tilting Level BH-1468). The information gathered consist of three types of features which are point, line and area or surface features obtained after various rigorous mathematical computation processes was carried out, on the obtained data and various correction applied. The data collected from the field structural techniques such as programming for data processing developed in BASIC language and dBase

III+ for database structural design. These features were used to represent the real world in LIS applications, in order to provide different types of product results, information" through queries in Base III+ that can aid decision-making.

In similar way, Babatunde, (1998) employed Leica TC600 Total station used for subsidiary traversing, grid leveling and detailing in his data in the field book since the instrument used had no memory for data storage and transfer. The various data sets were processed using applicable mathematical computation processes which yielded the needed information. There was no need for applying corrections to obtained data since the instrument employed had inbuilt programs which corrects for the errors automatically. This information was used to plot the plan showing the various features within the project area. The contouring was done by joining points of equal height together with lines. Since its work centered basically on the data acquisition phase, he does not give explanation on the management of information collected.

Afolabi, (2002), in his own work Geography system provided detailed analysis of features and application of GIS to a more framework of cadastral management for decision making on land investment and development. In its project, spatial and attribute data were acquired through the use of digital equipment (e.g GPS and Total station) and social survey. GIS AJIB and other software were used to link the data in the created database using dBase IV with graphic in AutoCAD Querying and analysis was done through this medium for subsequent information on land.

Yahaya, (2001), in his work Information System his project on the application of Geographic Information System (GIS) in cadastral management, expatiated on the capability ofGIS as a tool for managing spatial data for cadastral purposes. He employed a GPS receiver and Total Station (Leica TC600) for geometric and topological data acquisition processes using Land surveying

method. Attribute data were obtained through social survey. TCTOOLS software was used for downloading data. The graphic representation of the network in both composite and separate layers of the acquired spatial data, and the ability of the created databaseto be queried using GIS software, IDRISI for windows, ensures the realization of the major objectives of the executed project

Udabor, (2000), claimed that a cadastral information system was created and implemented to monitor and manage land in Olivet Baptist High School, Oyo, Oyo East local Government Area of Oyo State. Here database was created, to meet management needs, which consist of spatial and attribute data. The data sources are from easting topographic map and survey records of the study area. Acquisition of data was carried out through CoGo system. AutoCAD was used for plotting and attribute data was created using ILWIS. ILWIS was also used for linking the spatial data and attribute component to answer queries on land. Queries were used and the result were analyze for land parcels, land use distribution, areas of parcelsless than 12883.387square meters, fish pond and overlay maps.

Cadastral information system, on the other hand refers to the geographic extent of past, current and future right and interest of private individual and corporate bodies in the land of a country. Such properties are systematically identified by means of some separate designation. The boundaries of the on properties (parcels) and the parcel identifier are normally shown on large-scale maps together with each properly, the legal right, the nature use, size and value Akin (2009). Therefore, Cadastral Information System (CIS) had been defined as computerized systems for capture, storage, retrieve, manipulate, analysis and display of land and property related information (Adeoye 1998). It is normally and generally considered to involve a spatially referenced and structured digital database and appropriate application software. These provisions

of the Act leave owners and occupiers of land anywhere in the country vulnerable to the claims of any other individuals who may succeed in getting a statutory or even a customary right of occupancy over the land which was declared to have possessory right under the Act. Forsuch individual, lack of information, cost or fear of bureaucratic hassles likely to be involved have made them unable to avail themselves of the opportunity offered in sections 34(3) and 36(3) to apply to the Governor or Local Government Chairman respectively Certificate of occupancy. Essentially, it is this anomaly in the Land use Act, among other issues that the Land Reform Programme of the president Umaru musah Yar"Adua administration seeks to address.

Geographic information allows geoscientist to apply general principles to specific condition of each location on the earth surface, allows for the tracking of what is happening at a place and helps to explain and provide the understanding on how one place differ from another. GIS is relevant and valuable tool in the information harvest and planning of natural physical, bio-medical, social cultural, eco-climate economics, engineering sciences and business environments. The global community is now so dependent on computers and computerized information that we cannot do without them, Computerization has opened vast new potential in make decision. The way we communicate, analyze our surroundings and make decision.

Therefore, Cadastral Information System (CIS) had been defined as computerized systems for capture, storage, retrieve, manipulate, analysis and display of land and property related information (Adeoye 1998). It is normally and generally considered to involve a spatially referenced and structured digital database and appropriate application software Furthermore, cadastral information is in various forms which are generally referred to as cadastre. Cadastre was therefore divided to juridical and fiscal. The juridical cadastre refers to legally recognized

record of land tenure as in documents showing the type of right and obligation to landed property properties. The fiscal cadastre refers to cases of taxation and revenue recovering.

The design of geographic database proceeds through several steps. After user's requirement definition, the database structure is created conceptually. The physical design is documented to meet user's requirements. The database is finally constructed and implemented to run a computer. In order to meet the future requirement, expansion capacities must be taken into account. Kufoniyi (1998) further defined the process of structuring as the logical arrangement of data used by a system for data management. Database creation comes after the database has been logically designed. It is the imputing of data into the computer environment of the database for further manipulation in DBMS. Since I have thoroughly examined the opinion of various researchers and scholars on the effectiveness of this project work, the next chapter shall examine the methodology adopted in the execution of the project.

Buragohain (2002) developed a land information system using integrated remote sensing and GIS Technology for Guwahati city, India, in order to come up with an advanced database management system (DBMS) for the city. The methodology adopted in the study was the mapof Guwahati city and its surrounding areas were digitized. The industrial data comprised of the characteristics of the draining network, road and railway network as well as infrastructure facilities in the city. Also satellite data are processed and classified using supervised classification method to prepare the land use land cover map. The spatial and temporal changes in growth pattern are recognized from the digital data. At the end, plot- wise urban land use mapwas map out.

In 1925 Turkey"s cadastral system was formed by the state with several legal and organizational modifications. These modifications have resulted in a lack of standardization and inconsistency

in the geometric aspect of the cadastral data, such as the cadastral maps without a co-ordinate system or indifferent coordinate system.

The problem arising from data standardization, data quality, data inconsistency, digital archiving and the slowness in cadastral services forced Turkey to reform its cadastral system to a computer based cadastral information system. In the study, the requirements of a cadastral database were analysed and a spatiotemporal database was designed and developed to fulfill the requirement for spatial, temporal database and spatiotemporal queries for cadastral data. The Spatiotemporal uses Entity-Relationship (STEP) model in combination with the Enhanced Entity Relationship (EER) model.

The result of the Study was a creation of database tables defined in logical schema, where the cadastral and land registry data of the study area were loaded into the database tables created. GIS software was used to retrieve, display, manipulate and analyze the cadastral data. Tella and Rably (2002) was a study that merged the old cadastral records with the new cadastral records, creating a robust cadastral database named VMDS. The VMDS contained both the georeferenced special data and the attribute data. Reghavendran (2002) described how an automated cadastral mapping and land information system could be created. He outlined two main issues of concern for setting up a cadastral information system, i.e., spatial component/survey data parcels in the real world cadastral maps and Non-spatial component describing details such as ownership, tax value e.tc. He uses spatial database (SDE) for the spatial components and micro station geographic for the non-spatial data. For customized query and reported generation, the database was put in Oracle format. At the end, analysis with the new CIS was unlimited, though it depended on the data that has been put as well as the user requirement.

In his work, "Cadastral Land Information System for Sustainable Land Conveyance in Bauchi state", Shulabu (2008) used the existing analogue map which he converted to digital/.environmentalist, and the economist, Specially in an environment where baseline data is Seam, The lack of adequate functional and coordinated land information system and networks underpins this weak system, requiring that land related agencies maintain up-to-date scientific data, maps, and plans Baba Wuro (2010).

Conclusively, to propagate the switching from analogue system of storing, assessing and retrieving cadastral data, there is need for an urgent application of GIS in cadastral management so as to be able to solve many cadastral related problems in order to build a well-planned, conducive and favorable environment to assist in formulating polices on land use.

CHAPTER THREE

METHODOLOGY

This explain the method and techniques used to achieve the aims and objectives

This work, the execution of this project was based on the following basic principle of surveying

- Working from whole to the part.
- The principle of choosing the method of survey most appropriate to meet the desired result.
- The principle of provision for adequate checks to 1ncet the required accuracy

3.1 OFFICE PLANNING

Office planning which could be termed as office reconnaissance involved knowing the type e of instruments, purpose, specification and accuracy require of the survey to be carried out. This led to the choosing of appropriate equipment and method to be employed, also costing of the survey operation was done in the office. Information related related to the give project was collected from various sources the coordinate (x, y, and z) of the initial and that of the three choosing controls used for orientation were all obtained from department office.

3.1.1 FIELD RECONNAISSANCE

The project site was visited by all the group members to have the true picture of site for the better planning. The recce diagram was drawn alongside the carrying out and the reasonable artificial features were fixed along and with in the traverse lines, the traverse was fixed to maintain perfect indivisibility.

3.2 INSTRUMENT USED

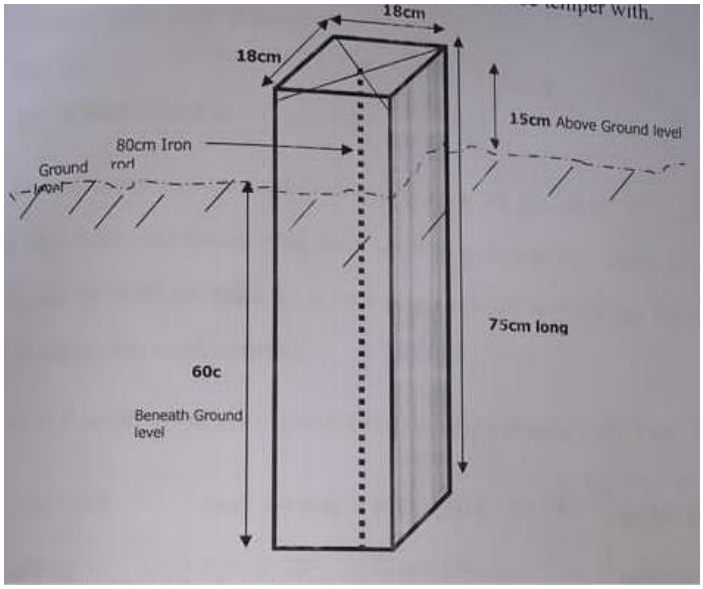
Selection of instrument to be used is:

- Total station

- Tripod
- Linear tape
- Steal tape
- Field book
- Pencil
- Targets and their tripod
- Reflectors stand and target
- Nails
- Pegs

3.3 MONUMENTATION

In selecting station to represent the perimeter of the while carved, establishment of the station were done so as to define the boundaries of the project study area using a temporary Pegs since the place is Government property, station was established and they were marked with pegs. The peg was firmly even into the ground hence, ensuring that stability of the station pegs in such w away that they cannot be temper with.



3.4 TESTS OF DIFFERENTIAL GPS

The two GPS receivers (Tersus Differential GNSS) were tested to ascertain its working capability on two known established points. The reference receiver (base) and rover receiver were setup using the RTK (Real Time Kinematics) mode with boosts from external radio to increase the communication linkup and range between the two receivers. The interface was access using S1 controller to set the parameter. The data acquired was downloaded using beam methods (Bluetooth) of the windows mobile platform in text format

However, the result displayed the following on the controller:

Status (P):	**Fixed**
Horizontal Root Mean Square (H):	0.014
Vertical Root Mean Square (V):	0.021
Satellite Number (S):	10-4
Communication Mode (Channel):	4
Time (T)	11:05:38

3.5 CONTROL CHECK

Control check was carried out on the beacons PT 02 and PT 03 in order to ensure whether they were still maintaining their original positions. The reference receiver (base receiver) was set on PT 01 while the rover receiver was set on PT 02 and PT 03 respectively. The following are the result obtained

Table 3.5.1: Coordinate of the observed and the original values of PT 02

PILLAR	NORTHING	EASTING	STATUS	REMARKS
PT 02	935768.084	670900.867		ORIGINAL
PT 02	935768.099	670900.847	FIXED	OBESRVED
DISREPANCY	0.015	0.020		

Table 3.5.2: Coordinate of the observed and the original values of PT 03

PILLAR	NORTHING(m)	EASTING(m)	STATUS	REMARKS
PT 03	935791.554	670975.362		ORIGINAL
PT 03	935791.575	670975.384	FIXED	OBESRVED
DISREPANCY	0.021	0.022		

The result shows that the control pillars were in Situ and in good condition for the survey operation. In the case of the instrument, it can be concluded to be in good working condition.

3.6 DATA SOURCE

Control coordinate was given from existing map, which is considered as secondary data. This was plotted using AutoCAD.

3.7 GEOMETRIC DATA ACQUISITION

This involve the acquisition of both northing and easting value of features that are present on the project site. During the data acquisition, Real Time Kinematic method was employed coordinates of boundary points, as well as details and notable features along the perimeter using total station. Boundary pillars are established and accurately measured. These points serve as reference markers and are essential for maintaining consistency and accuracy throughout the survey. Additionally, these coordinates serve as valuable information for future reference, analysis, or planning purposes. They can also be used to assess potential impacts on the survey area and aid in making informed decisions during the project's development or construction phases.

Data Acquisition

To gather the necessary data for the project, observations and measurements were carried out. Obtaining the information needed to create the project plan was the focus of this stage. The processes listed below were completed.

i. Selection of control points. Perimeter Traverse

ii. Detailing

Complete surveying programs with the ability to record data and set parameters are included with the instrument used. Additionally, it uses software modules with built-in memory and has convenient memory management capabilities.

Perimeter Traverse

The act of traversing is the survey of a group of interconnected lines, known as traverse legs, the ends of which have been marked in the field and the lengths and directions of which have been established by observation. Traverse stations are places of changes or turning. Open and Closed Traverses are the two basic categories into which traversing can be placed.

Closed traverse always begins and end on sets of known points (points with known coordinates previously established). Perimeter are frequently encircled by shapes, such as polygons, in closed traverse surveying. Although this type is expected to be employed in all projects in surveying generally.

An open traverse consists of a collection of traverse lines that are connected but do not begin and end at a known point. When no controls are present where the traverse action is to stop, this type is typically utilized. In this kind of traverse, the observer's main responsibility is to make sure that the task is being checked at each stage. Surveys of this kind are frequently used in the engineering industry, such as route surveys.

The closed traverse type was employed in this project as it was started on an existing control point (PT 02) and closed on the same control (PT 02).

Base Station Setup

The base station is required in order to ensure an accurate position to be used in the topographic survey of Extension to Textile Factory. The use of a base station is now a standard routine in surveying practice; this is to validate the fundamental principle of carrying out a survey **"from whole to part"**. This means that networks of horizontal and vertical control points are first established. The temporary adjustment (centering and leveling) was performed on it. All the connections necessary for RTK mode stated below was carried out,

1. The base station comprising of Tersus GNSS GPS receiver shown in figure 3.1 below was setup on a tripod stand on PT 02.

Figure 3.1 Tersus *GNSS GPS receiver*

NB: The position of the base station used is 935768.084mN, 670900.867mE. It was located in an area free from obstruction and interferences. It has been set to the WGS 84 system with Clarke 1880 ellipsoid.

The procedure for the data capturing is stated below;

i. The instrument was switched on using the power button and also the data lodger (**TC20**).

ii. Then the instrument was placed on the tribrach which was already attached to the tripod and levelled.

iii. On the data lodger, the **Nuwa app**, Survey Office software was launched.

iv. The software was allowed to load and then, on the Project creation page, a project folder called '**CIS'** was created and then opened.

v. On the series of pages that followed however, the datum was selected as 'Minna', the mask angle as '15^{o}', while the minimum observation time was set at '5 minute'. After this page, the Base page was loaded.

vi. On the instrument **Connect page** (the Bluetooth connection page), the base station instrument serial number 52000754 was selected and down the page, the 'connect' button was clicked. This connects the lodger to the base instrument.

vii. On the Base page, the **get location** icon was click, and this bring the approximate coordinate of PT 2 control, the coordinate was then corrected to the values obtained after this, the 'start' button was clicked and the base observation commenced.

viii. The Rover instrument's battery was then fixed into it and switched on using the power button then mounted on the tracking rod (a single legged pole) and tightened.

x. The tracking rod was set at 2.00m as height of the instrument.

xi. On the instrument **Connect page** (the Bluetooth connection page), the base station instrument serial number 52000754 was then disconnected and the Rover instrument serial number 52000764 was selected and down the page, the 'connect' button was clicked. This connect the lodger to the Rover instrument. The voice information **FIXED** was then heard from the instrument.

A complete setup of the base and the interface of the Project Creation page are shown

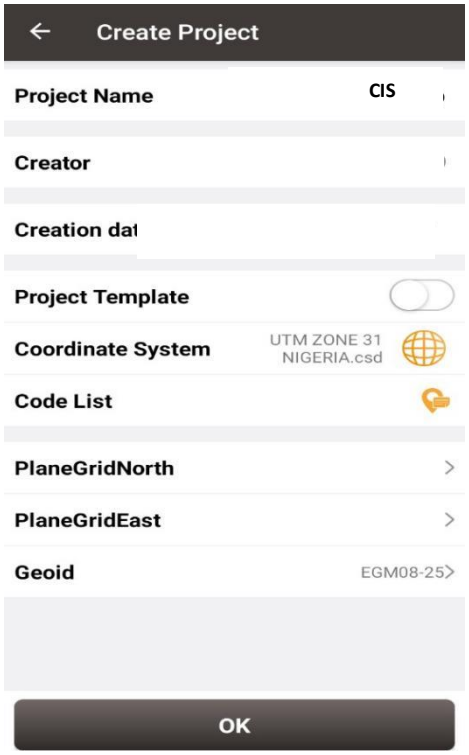


Figure 3.2 Showing the project creation page on Nuwa app

FIELD OBSERVATION

1. After setting up the base, the rover instrument with serial number 52000764 was taken to site.
2. **NOTE: -** Each station in a differential GPS observation is typically observed independently (though with direct reference to the base station), i.e., the instrument is placed on each station one at a time until the final point or detail in the site is observed.
3. The instrument was placed on the first station i.e. the base of the tracking rod was placed on the center of the pillar.
4. On the data lodger, the Nuwa app was launched and the Survey page of the app was click. On the Survey page, the **get location** icon was click to obtained the Northing and Easting of the station.

5. **NB:** Given that the time segment of the instrument has been set to 5secs already, the observation automatically ends when its period of the time segment already pre-set elapsed

iii. The Station ID was then changed from pt1 to P1.

6. After 5sec of observation, the observation stopped automatically and then the instrument was moved to the next station i.e. P2
7. NOTE: - that the data lodger was not switched off after the first station had been observed since the stations are not far from one another i.e. not more than 50m from each another.
8. On the data lodger with the Survey page on, the 'get location' icon was clicked and the observation started since the instrument had automatically given the next station name. The observation was allowed for 5sec again.
9. The process in step (v) was repeated for all the subsequent stations and other details that were observed on the site.
10. At the end of the observation, the instrument was switched off. The Survey page on the data logger was closed and the data lodger was also switched off (though in the warm boot mode).
11. The data logger was taken to the base station and switched on again. The instrument's serial number was selected on the Bluetooth page which also led to the Base station page.
12. On the base station page, the 'stop base' button was clicked and then the instrument was
13. switched off including the data lodger.

3.7.1 ATTRIBUTE/ SOCIAL SURVEY

This aspect of data acquisition entails the collection of other data which geometric in nature. Such data were directly related to the features to which geometric data was acquired. They included building names, the purpose of which the building is used for. etc.

To collect attribute data, survey was employed. This involves oral interviews, reading information from sign posts, wall signs, virtual observation, etc.

3.8 DATABASE CREATION/IMPLEMENT

For efficient and effective management of data in the computer environment, data item are usually arranged and stored in a database or databank. The content of this database could be in form of a text, number, polygon or graphics. The creation of this database involved the combination and storage of the acquired graphical and attributes data obtained in former designed GIS database of a generic structure for the purpose in spatial analysis and queries on project site

In the creation of a land information system data mode, a widely used technique called layering was employed. The features that are present within the project site have been classified into different layers in the AutoCAD software independently. The polyline entities were joined using the polyline tool while appropriate symbols were used for the point entities. These layers were then exported to ArcGIS environment where shape files were created using attributes fields as conceptualized in the schema. These attribute table were then populated accordingly with attributes values for each particular entity as observed in the field and from the social survey template (attached as appendix)

The personal Geodatabase was then created finally in Arc Catalog environment. Where other tables that are non-geometric where created while the already created shape files where imported. Relationship between these tables were also established and the tables were later populated in the Arc Map environment. The following are some of the tables created

3.8.1. DATABASE MANAGEMENT SYSTEM (DBMS)

According to Dale and McLaughlin (1998), database management system was defined as a computer program to control the storage, retrieval and modification of data in the database. DBMS comprises of set of programmers which are used to maintain and manipulate the data orderly and acts as the central control over all the interactions. It manages that data using alphanumeric data with limited capabilities of performing spatial queries

A DBMS must allow the definition of data and their attributes and relationships as well as providing security and on interface between the end users and their application and the data themselves it reduces redundancy. Therefore, Arc GIS 10.2 version was used to create, manipulate, maintain and access the database easily.

3.8.2. DATA QUALITY

Some forms of quality control and quality assurance were incorporated in the project at every phase. These include conformity with data templates, data competences and data accuracy. Conformity with data templates in this premises refers to the degree to which the captured data conformed with the designed templates, while data competence was understood as the degree to which the available data in the report and for which there are specific templates have been extracted.

3.8.3 DATA INTEGRITY

The data captured as exactly downloaded into the system then exported to AutoCAD via notepad and eventually into Arc GIS. The process involves ensuring that the data in the database were accurate and setting of certain constraint to prevent inconsistency in the database.

3.8.4 DATA SECURITY

Security is of great concern to land administration because of the legal implication of cadastral records. Security of the records is of almost importance to all concerned. These includes:

- Physical and system security
- Physical security: The use of burgling proof, fire-fighting equipment-controlled access, proper records of the moment of personal and our of the office circuit break
- System Security: Uninterrupted power supply (UPS) will be used to control voltage, use of passwords and backups

In view of the foregoing, locking mechanism was adopted to protect the data in the database from unconscious deletion. Password was used to prevent unauthorized user from breaking into the database and a backup was created for the whole project on the rentable DVD.

Having succeeded in analysis the methodology employed in the execution of this project to arrive at the successful completion. it is equally necessary to examine the processes undertaken to ascertain the reliability and effectiveness of the created land information system

CHAPTER FOUR

4.0 DATA PROCESSING AND PRESENTATION

4.1 SPATIAL ANALYSIS

Spatial analysis is a specialized function that distinguish GIS from other information systems. It entails the examination of spatial and attributes characteristics of geographic features that are within the database to establish relationships from which spatial problems can be tackled. In this project work, spatial analyses were performed to select, combine and intersect existing geospatial data-sets in order to generate new information suitable for answering specific spatially-related questions.

The results from these analyses can be shown in a number of ways depending on the required output format. Where attribute information about map features is required, they can be presented as tables containing such valves as are needed from the query analysis. They can also be presented as maps with legend information showing the queried features and their topological relationships with other features shown on the map.

For this project AutoCAD 2007 was used to carry out the plotting of all the parcels. The drawing was exported to ArcGIS 10.3 where all other operations were carried out.

4.2 Spatial Query

Searching of data components using certain criteria of retrieving them from the database is known as spatial query. The information retrieved is used to support decision making. The Cadastral Information System (CIS) plays its role when a relational database is linked to graphics in real time.

A good Cadastral Information System (CIS) allows the user to select records or attributes in the database and to view the result on coverage displayed which can be printed on a hardcopy.

4.3 Query Design

A query design is a precise definition of what is to be selected from the database. For example, the following queries designs were used in this project:

1. Query by P Status=Developed, P use=commercial
2. Query by P use = Residential
3. Query by P use = Residenial, P area = 1345.624sqm and Owners name = Mr Qudus

4.4 Testing Of Database

This is the test carried out to determine whether the relationship between the geometric data about the objects and their attributes is capable of being retrieved. This was done by designing a simple query and running the query to see if the desired result is achieved. The query ran, hence the database was confirmed fit for analysis.

4.5 Existing Parcels and Blocks

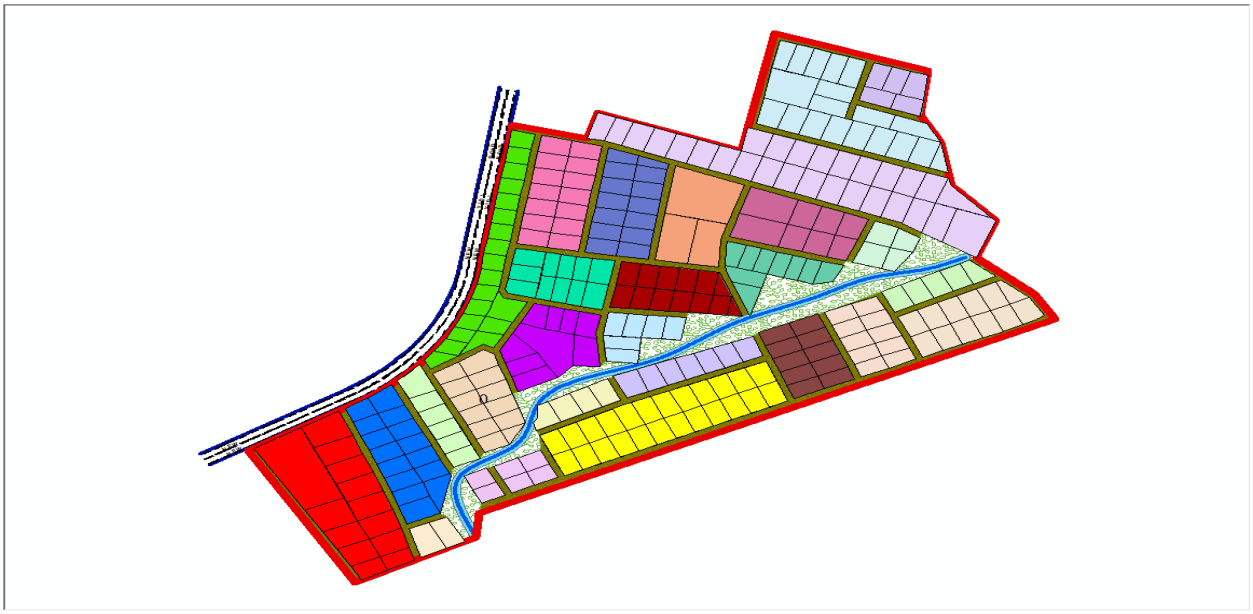


Fig 4.5.1:- the exported cadastral plan of the study area showing the blocks within the area

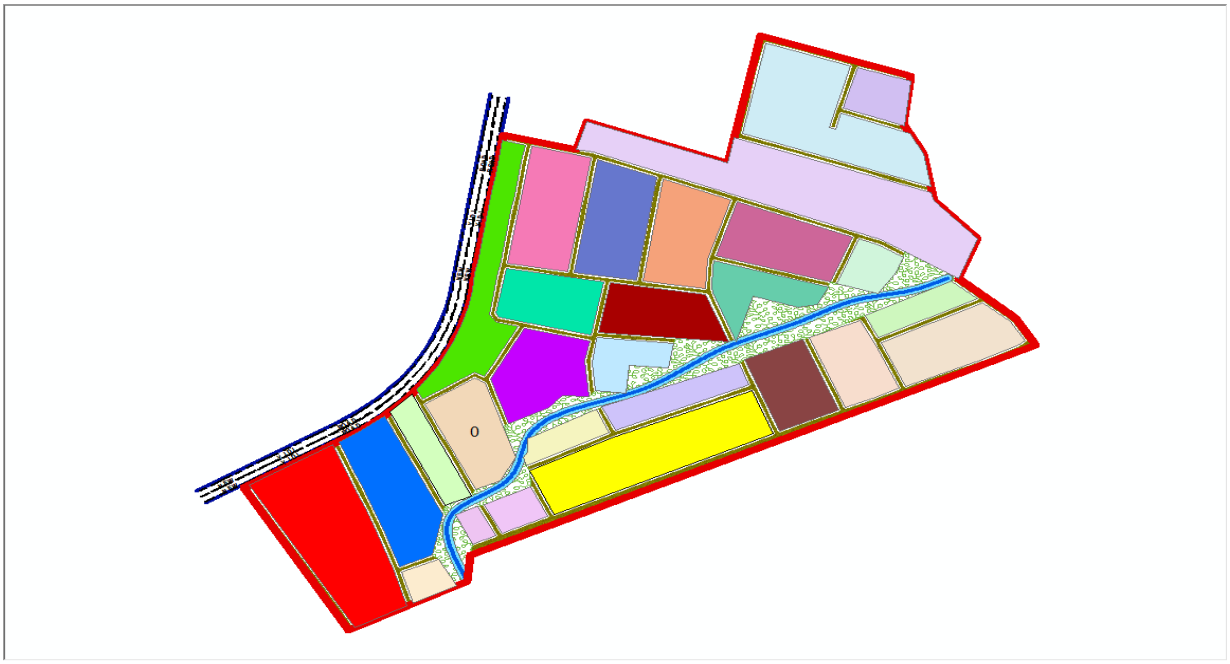


Fig 4.5.2:- the exported cadastral plan of the study area showing the all the parcels within the area.

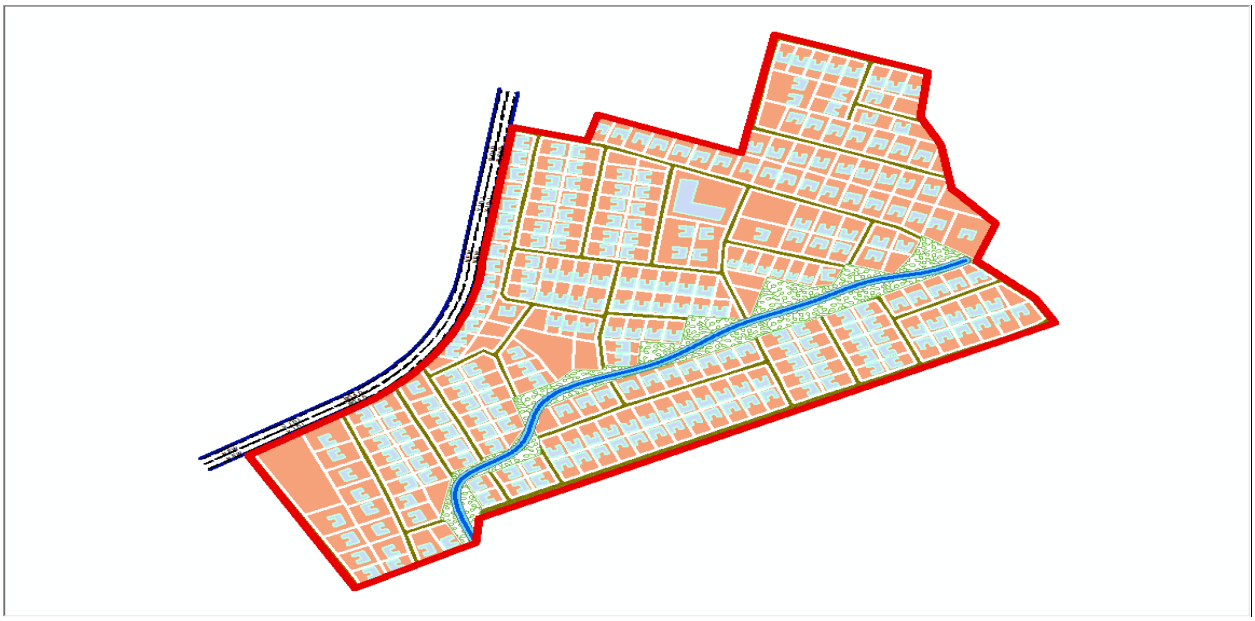
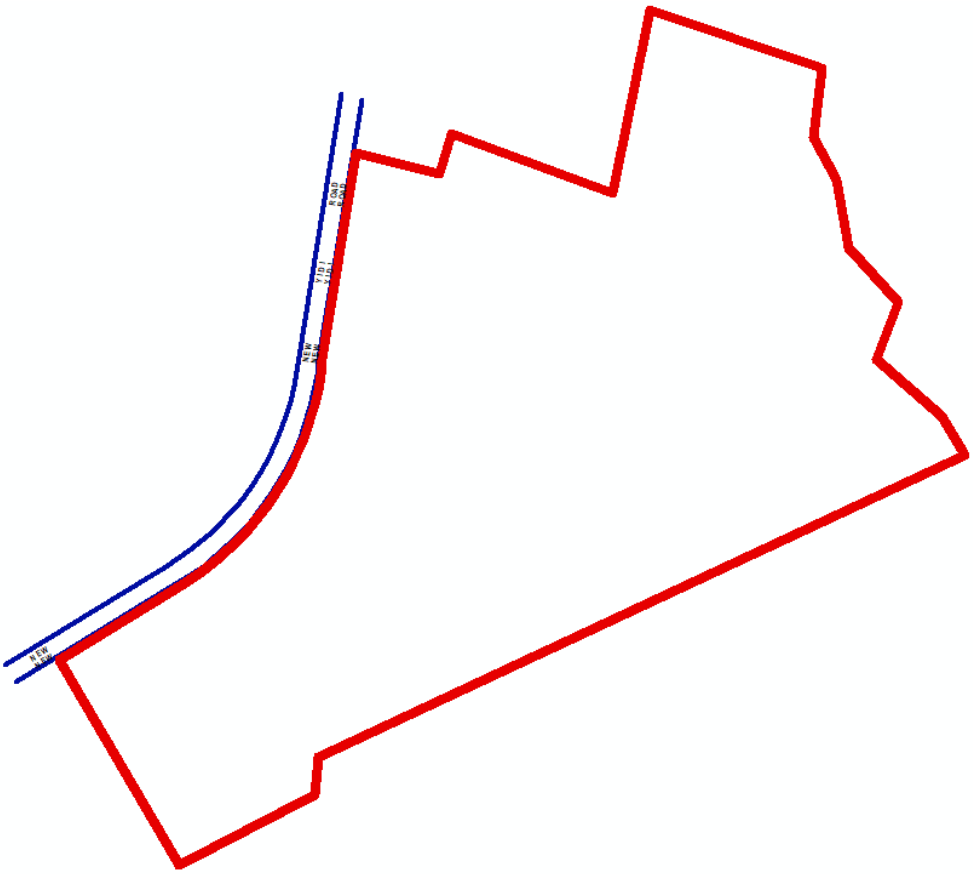


Fig 4.5.3:- the cadastral plan of the study area showing the boundary,



4.6 Spatial Query

Queries were designed for the purpose of retrieving information from the database. The queries performed in this project gave answers to certain generic questions asked from the database. This was made possible as a result of the implicit link of both the spatial and attributes data. The queries were based on the products from the analysis carried out on the database.

4.6.1 Single Criterion Query

A single criterion is carried out where one condition is used to design query. This condition is used to retrieve the information from the database.

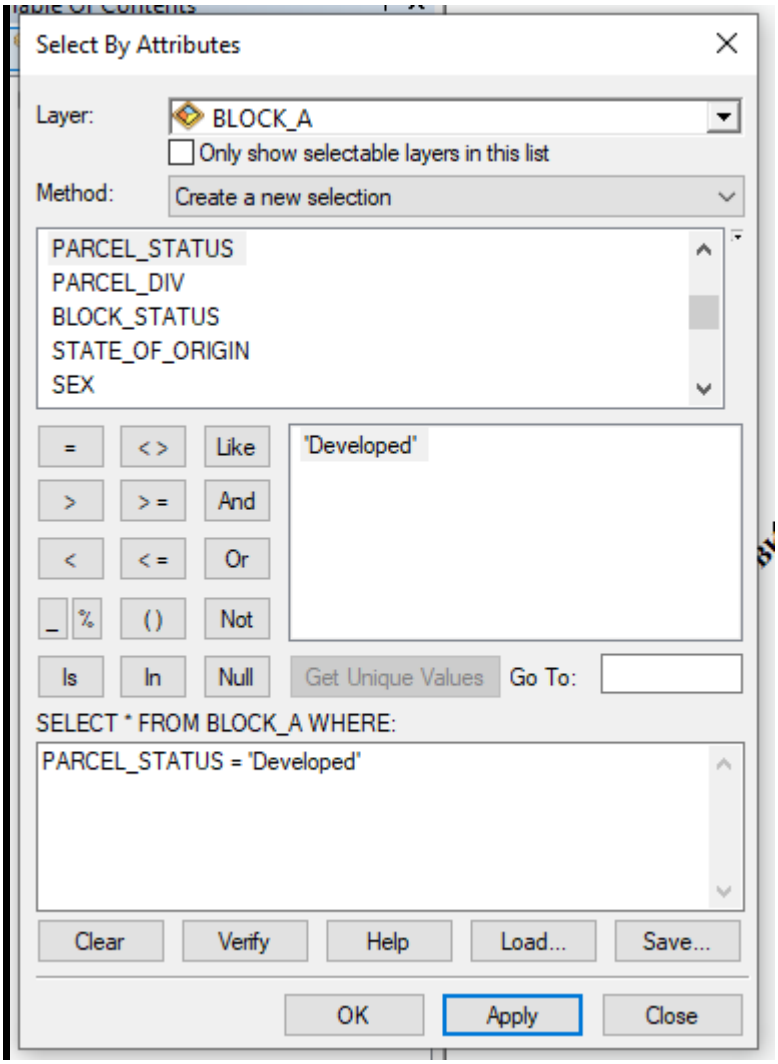


Fig 4.6.1.1:- Query for Parcel status for developed Purposes in the Study Area

SYNTAX; ([Parcel_status]) =’developed’)

4.6.2 Query by Parcel Status (Developed)

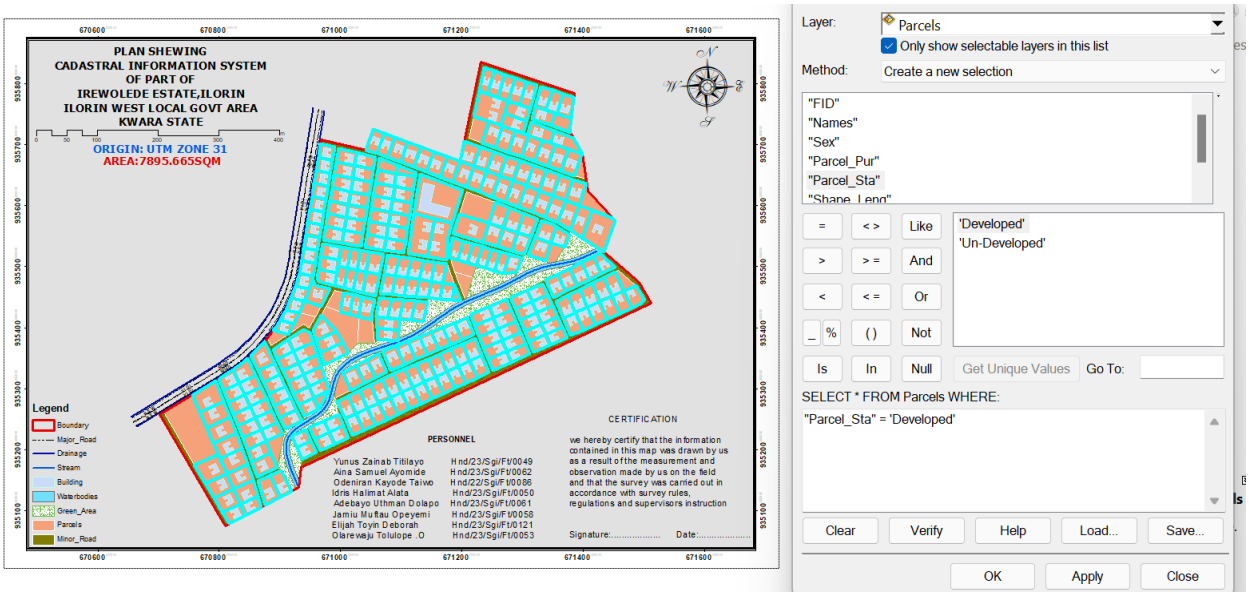


Fig 4.6.2.1: Result of Query for Parcel Used for Residential area in block A in the study area

SYNTAX; ([Parcel_status]) =’developed’)

4.6.3 <u>Discussion of Result</u>

Figure 4.6.2.1 Shows parcels that are meant for developed purposes. It consists of the syntax model or the query builder box, attribute table as well as the map of the selected plot in light green color. The result shows that 8 parcels out of the 20 parcels are meant for commercial purposes.

4.6.4 Query by Parcel Status (commercial)

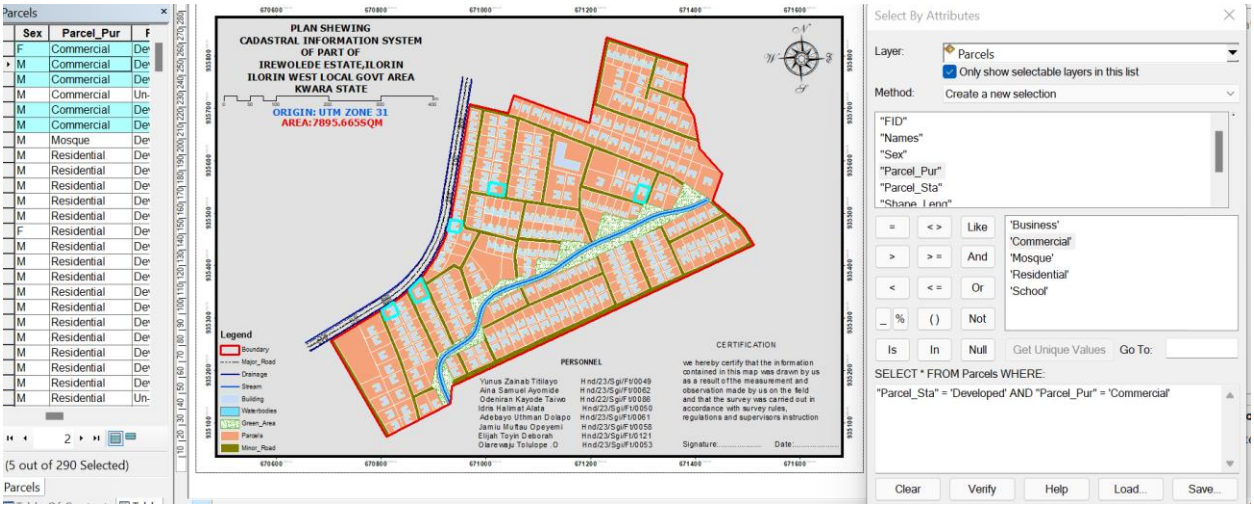


Fig 4.6.4.1: Result of Query for Parcels that are commercial purpose in the study area.

SYNTAX; ([Parcel status]) =’commercial’)

4.7 Discussion of Result

Figure 4.6.4.1 shows parcels that already have some type of commercial on it. It consists of the syntax model or the query builder box, attribute table as well as the map of the selected plot in light green color. The result shows that 5 parcels out of the 290 parcels have been developed. This information, however will help in informing the necessary quarters the level of development within the layout.

4.8 Multiple Criteria Query

The database created is then used for implementing several selection queries in determination of user-defined requirements such as parcels whose occupiers are actual owners,

occupier's citizenship, occupier's occupation, number of residents in each flat, selection of unoccupied flats and other such security.

4.8.1 Query By Parcel Use And Parcel Status (Parcels meant for school, residential, commercial purposes that are "Developed"

Query was carried out in two stages, parcels meant for residential purposes were first queried by means of the parcel use field. In this case parcel use was selection criteria. The shape file data of the query was exported as a layer and named accordingly. Next, the attribute table of the query result was queried by means of parcels meant for residential purposes that are yet to be developed i.e. Developed Parcels using the "Developed" selection criteria. This gives result for the parcels meant for residential purposes that are developed this also will help inform on the level of development within the layout.

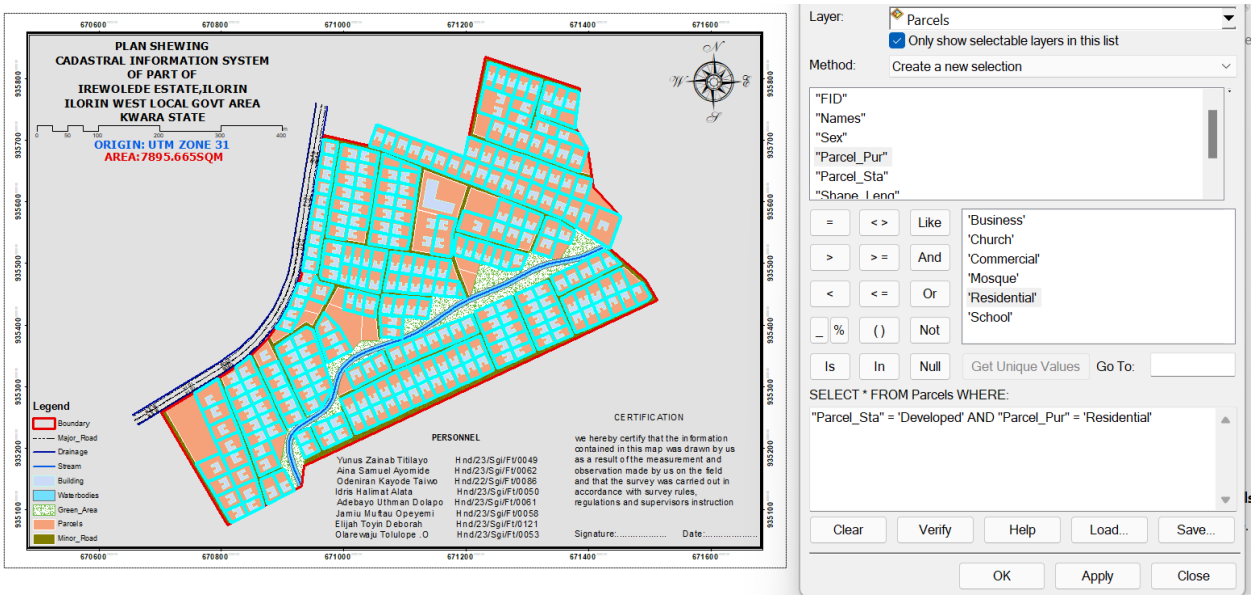


Fig 4.8.1.1: Screen print showing parcel use and parcel status in the layout.

SYNTAX; PARCEL_USE = 'Residential' AND PARCEL_STATUS = 'Developed'

Discussion of Result

Figure 4.8.1.1 shows the syntax modeled, the attribute table and the map of the multiple criteria queries ran on parcel meant for residential purposes and number of

Developed residential purpose parcels within the study area, they are highlighted in

Light green color. The result showed that 265 of the 290 parcels are developed.

4.8.2 Query By Parcel Use (Commercial) And Parcel Status (Parcels meant for commercial purposes that are "Developed")

Following the procedure in the query for parcels meant for residential purposes that are yet to be developed. All parcels meant for commercial purposes were first queried and then, the resulting attribute table, query was carried out for parcel for which are Developed.

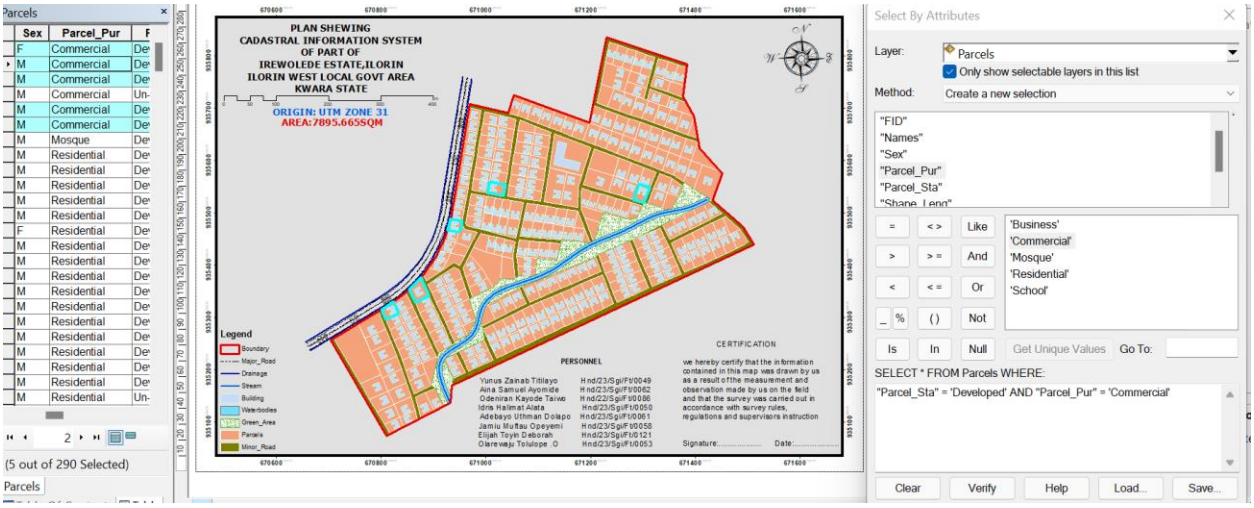


Fig 4..8.2.1: Screen print showing parcel meant for commercial purpose that are Developed in the layout.

SYNTAX; PARCEL_USE = 'Commercial' AND PARCEL_STATUS = 'Developed'4.7.2.1

Discussion of Result

Fig 4..8.2.1 shows the result of syntax modeled, attribute table as well as unformatted map of developed parcels meant for commercial purposes. The table shows that all the 5 parcels meant for commercial purposes are developed. This is a pointer to the high rate of commercial developments in the study area.

4.8.3 Query By 10m Proximity to the stream (Parcel within 10m proximity to the stream).

Following the procedure in the query for parcels within close proximity to the stream (10m), query was carried out to show the parcels within close range to the stream.

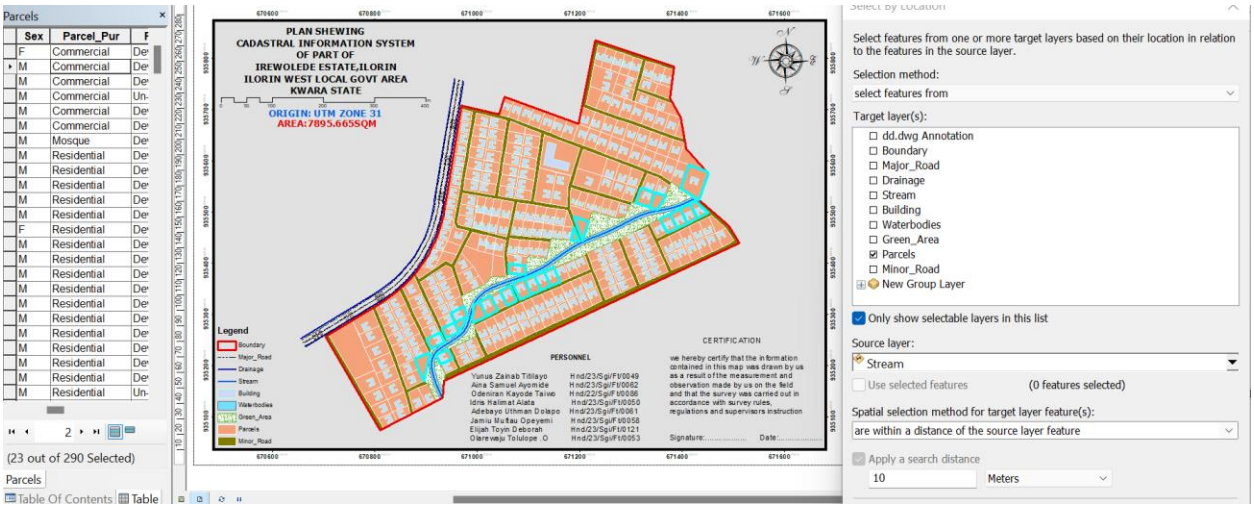


Fig 4.8.3.1: Screen print showing parcel parcel within 10m proximity to the stream

4.8.3.2 Discussion Of Result

Figure 4.8.3.1 shows the result of syntax modeled, attribute table. The table shows that only two out of all the parcels, only 25 parcel are within 10m proximity to the stream.

Fig4.8.5.4 Screen-shot showing the database created for the study area

Screen-shot showing the database created for the study area

FID	Names	Sex	Parcel_Pur	Parcel_Sta	Shape_Leng	Area
48	YIO CONCEPT CYBER CAFE	F	Commercial	Developed	105.914363	676.531684
151	R.C.C.G	M	Commercial	Developed	105.345676	669.423255
187	MUSODIQ ABIOLA	M	Commercial	Un-Developed	304.781768	5048.847502
254	LIVING FAITH CHURCH IREWOLED	M	Commercial	Developed	100.327469	618.174764
273	VALENTINE CHICKEN LIMITED	M	Commercial	Developed	88.233768	495.630147
288	LIVING FAITH CHURCH IREWOLE	M	Commercial	Developed	128.147568	983.450418
283	MOSQUE	M	Mosque	Developed	195.909955	2149.344222
1	MUHAMMAD ABDULKAREEM	M	Residential	Developed	117.881686	847.942861
2	IBRAHEEM AMEEN	M	Residential	Developed	119.731431	849.18719
3	OLUDIRAN SOLIU	M	Residential	Developed	118.871832	839.260543
4	OLAYANJU MUSTAPHA	M	Residential	Developed	118.012234	829.333896
5	TAJUDEEN SODEEQ	M	Residential	Developed	117.152635	819.407249
6	KOLAWOLE AISHAT	F	Residential	Developed	116.293036	809.480602
7	ABDULRAHEEM TOHEEB	M	Residential	Developed	115.433437	799.553955
8	ALABI YUNUS	M	Residential	Developed	114.573839	789.627308
9	GAMBARI ABDULFATAI	M	Residential	Developed	113.71424	779.700661
10	ABDULSAMOD UTHMAN	M	Residential	Developed	120.06245	853.055973
11	ABDULGANIYU KOLAWOLE	M	Residential	Developed	120.06245	853.055973
12	OLAITAN ABIMBOLA	M	Residential	Developed	120.06245	853.055973
13	AYINDE ISAAC	M	Residential	Developed	120.06245	853.055973
14	BAMIDELE QUDUS	M	Residential	Developed	120.06245	853.055973
15	ABDULLAHI OLAJUWON	M	Residential	Developed	120.06245	853.055973
16	MAKINDE OLUWAKAYODE	M	Residential	Developed	120.06245	853.055973
17	QUDUS OLUWATOYIN	M	Residential	Un-Developed	122.475602	891.287531
18	AINA SAMUEL	M	Residential	Developed	102.289974	629.173672
19	OLARINDE MONSURAT	F	Residential	Developed	102.143306	627.668487
20	OLAONIPEKUN SHUKURAT	F	Residential	Developed	101.988709	626.043204
21	BERNAD OLUWASEGUN	M	Residential	Developed	101.846527	624.606378
22	BELLO OLAYOMI	M	Residential	Developed	101.695862	623.041457
23	YEMI OLUWATOSIN	M	Residential	Developed	101.548053	621.519234
24	ABDULRAHMON ABDULSALAM	M	Residential	Developed	101.400245	619.997012
25	ADELOLU DANIEL ADEWALE	M	Residential	Developed	101.252436	618.474789
26	DAHUNSI OLAWUNMI	F	Residential	Developed	101.104627	616.952566
27	ARWOLO NURUDEEN AYINDE	F	Residential	Developed	100.956818	615.430344
28	ISAAC JOY SALOMI	M	Residential	Developed	100.80901	613.908121

FID	Names	Sex	Parcel_Pur	Parcel_Sta	Shape_Leng	Area
28	ISAAC JOY SALOMI	M	Residential	Developed	100.80901	613.908121
29	OJERINDE HABEEBAT	F	Residential	Developed	101.56164	625.181046
30	ABASS KAFAYAT OPEYEMI	F	Residential	Developed	103.03259	636.631459
31	ABDULLAH YUSUF	M	Residential	Developed	104.31244	649.67201
32	BAMIGBOSE IDOWU	M	Residential	Developed	105.587483	662.625595
33	SOFIYULLAHI RIDWAN	M	Residential	Developed	106.939212	676.822452
34	MAYOWA DANIEL	M	Residential	Developed	108.038574	689.65928
35	MUHAMMAD MUSTAPHA	M	Residential	Developed	107.936789	687.097715
36	SOLIU AMEEN	M	Residential	Developed	106.822062	675.62187
37	OLUDIRAN IBRAHEEM	M	Residential	Developed	105.707409	664.146024
38	OLAYANJU ABDULKAREEM	M	Residential	Developed	104.592834	652.670179
39	TAJUDEEN AISHAT	F	Residential	Developed	103.478341	641.194334
40	KOLAWOLE SODEEQ	M	Residential	Developed	102.363935	629.718489
41	ABDULRAHEEM KAFAYAT	F	Residential	Developed	104.76305	671.155649
42	TOHEEB GAFAR	M	Residential	Un-Developed	175.151405	1870.663541
43	ABDULGAFAR BOLATITO	M	Residential	Developed	167.495547	1681.039498
44	DAUDA MONSURAT	F	Residential	Developed	120.066864	877.183459
45	ISIAKA RASHEEDAT GBOLAGADE	F	Residential	Developed	115.204924	816.467938
46	AYOOLA TOMILOLA	F	Residential	Developed	117.09239	839.705946
47	ADEBAYO ISLAMIYAT ADEDIRE	F	Residential	Developed	114.007468	801.380015
49	AJIMOTI JOSHUA	M	Residential	Developed	111.854357	765.940963
50	OYINDA TUNMININU	F	Residential	Developed	106.137332	683.281183
51	HASSAN TEMITOPE	M	Residential	Developed	105.754043	679.277089
52	DAUDA AYOTUNDE	M	Residential	Developed	106.364176	685.988525
53	ISIAKA RASHEEDAT ABIODUN	F	Residential	Developed	107.475154	697.997219
54	AYOOLA MEHEENAT	F	Residential	Developed	108.812981	712.71332
55	OLAMIDE ISLAMIYAT	F	Residential	Developed	106.97466	692.705467
56	HASSAN ZAINAB	F	Residential	Developed	110.150814	727.429484
57	JOHNSON MATHEW	M	Residential	Developed	107.465341	698.101328
58	OYINDAMOLA?á FOLASHADE	F	Residential	Developed	110.139162	719.678061
59	HASSAN ALAMEEN	M	Residential	Developed	106.530199	685.661637
60	OLATAYO OLUDAYO?á	M	Residential	Developed	106.649733	710.133671
61	ADENIKE?áBAMIDELE	M	Residential	Un-Developed	99.073175	469.546933
62	LAWAL RIDWAN OLATAYO	M	Residential	Developed	106.450458	685.5898
63	OLURONBI SHAKIRAH ABIODUN	F	Residential	Developed	106.83852	691.40124
64	IBIYEMI OLUWATOBI MATTEW	M	Residential	Developed	106.838996	691.408691

FID	Names	Sex	Parcel_Pur	Parcel_Sta	Shape_Leng	Area
62	LAWAL RIDWAN OLATAYO	M	Residential	Developed	106.450458	685.5898
63	OLURONBI SHAKIRAH ABIODUN	F	Residential	Developed	106.83852	691.40124
64	IBIYEMI OLUWATOBI MATTEW	M	Residential	Developed	106.838996	691.408691
65	AMUDA KEHINDE TEMIDAYO	M	Residential	Developed	106.838996	691.408691
66	ADEWUYI TEMITAYO ADEWUMI	F	Residential	Developed	100.327653	553.09928
67	AZEEZ MALIK OLALEKAN	M	Residential	Developed	123.095783	853.297997
68	OJO OLAOTAN OLANREWAJU	M	Residential	Developed	139.806614	908.769314
69	OLAYANJU YINKA BLESSING	F	Residential	Developed	110.894569	718.296953
70	RAJI IBRAHIM BABATUNDE	M	Residential	Developed	105.742356	643.551136
71	ADEJOKUN ISAAC JESUFEMI	M	Residential	Developed	106.367158	654.047973
72	ALONGE WAHEED BABATUNDE	M	Residential	Developed	109.975857	712.726061
73	FAKUNLE FUNMIBI JULIANAH	F	Residential	Developed	105.782383	650.464244
74	OBASI DANIEL AKUMA	M	Residential	Developed	103.842071	620.792513
75	TAJUDEEN RASHIDAT OLUWASEU	F	Residential	Developed	105.600637	647.695938
76	AYELAAGBE YEKEEN KUNLE	M	Residential	Developed	105.180614	647.923936
77	ADELEKE SAMUEL DAMILARE	M	Residential	Developed	106.408896	661.613404
78	OLUSOLA GRACE OLANIKE	F	Residential	Developed	104.710897	644.819371
79	LAWAL AZEEZ	M	Residential	Developed	106.421191	661.613404
80	OLURONBI OLUWATOBI	M	Residential	Developed	103.767315	635.971153
81	ABIODUN SHAKIRAH	F	Residential	Developed	106.409224	661.388425
82	IBIYEMI AMUDA	M	Residential	Developed	102.454796	622.371739
83	ADEWUYI ADEBOLA	M	Residential	Developed	106.398654	661.332571
84	AZEEZ MALIK OLALEKAN	M	Residential	Developed	96.142082	541.059423
85	OJO OLAOTAN	M	Residential	Developed	98.986545	583.983402
86	BLESSING AINA	F	Residential	Developed	99.789708	596.083747
87	RAJI MUSBAUDEEN	M	Residential	Developed	99.789669	596.083175
88	ADEDOKUN ISAAC	M	Residential	Developed	99.789691	596.083482
89	ALONGE	M	Residential	Developed	95.057574	524.773433
90	FAKUNLE OLADAYO	M	Residential	Developed	97.849432	570.481191
91	AKUMA ADEBAYO	M	Residential	Developed	98.051886	578.826988
92	OLUWASEUN ABIODUN	M	Residential	Developed	96.910756	569.289355
93	AYELAAGBE JOMILOJU	M	Residential	Developed	94.988402	548.170267
94	ADELEKE ABDULGAFAR	M	Residential	Developed	116.63727	747.931273
95	OLUSOLA GRACE OLANIKE	M	Residential	Developed	115.262386	721.813479
96	OLANREWAJU BABATUNDE	M	Residential	Developed	115.262386	721.813479

FID	Names	Sex	Parcel_Pur	Parcel_Sta	Shape_Leng	Area
96	OLANREWAJU BABATUNDE	M	Residential	Developed	115.262386	721.813479
97	DADA TOSIN DAVID	M	Residential	Developed	115.262386	721.813479
98	SAMUEL DAMILARE	M	Residential	Developed	111.283872	638.355329
99	TAJUDEEN RASHIDAT	F	Residential	Developed	119.409724	815.247505
100	GBOLAGADE HAJARAT	F	Residential	Developed	121.845887	849.391306
101	OBASI DANIEL	M	Residential	Developed	109.190771	669.871424
102	FUNMIBI JULIANAH	F	Residential	Developed	182.273922	2057.040934
103	WAHEED BABATUNDE	M	Residential	Developed	119.353972	844.734413
104	WAHEED BABATUNDE	M	Residential	Developed	119.353972	844.734413
105	ADEPOJU HIKMAT	F	Residential	Developed	120.086227	853.190484
106	OLAYANJU YINKA	M	Residential	Developed	120.452354	857.418519
107	RIDWAN ABDULKHALID	M	Residential	Developed	120.818481	861.646555
108	OLUDIRAN SOLIU	M	Residential	Developed	122.246264	868.054214
109	SALAM HAFSAT	F	Residential	Developed	128.735422	946.188877
110	YEKEEN KUNLE	M	Residential	Developed	138.509838	1059.063842
111	IBRAHIM BABATUNDE	M	Residential	Developed	118.987845	840.506377
112	MUHAMMAD HALIMAH ADESOLA	F	Residential	Developed	118.620388	836.254701
113	MUSBAU TIMILEYIN FARIDAH	F	Residential	Developed	118.255612	832.050547
114	YUSUF BUSIRAT BUKOLA	F	Residential	Developed	117.889485	827.822511
115	AKINOLA MUNIRAT TOMIWA	F	Residential	Developed	117.270363	820.710958
116	ADEBIYI TOHEEB MAYOWA	M	Residential	Developed	116.573081	812.636845
117	OGUNMOLA CHRISTIANAH	F	Residential	Developed	116.040248	806.483688
118	SANNI?áOLUWASHIKEMI	F	Residential	Developed	106.870159	645.847431
119	OLABUKOLA BUSHIRAT	F	Residential	Developed	186.382937	2152.773883
120	TOHEEB ADEBIYI	M	Residential	Developed	114.849098	836.551344
121	OLUWASIKEMI MUSBAU	M	Residential	Developed	110.150299	711.530616
122	YUSUF HAMZAT	M	Residential	Developed	106.14791	669.905777
123	AKINOLA MUSHAFAR	M	Residential	Developed	102.145522	628.280938
124	MUHEEANAT OLAKUNLE	M	Residential	Developed	98.143134	586.656099
125	TIMILEYIN TOHEEBAT	F	Residential	Developed	82.520746	282.92184
126	OLUWATOSIN KOLAWOLE	M	Residential	Developed	92.998738	534.492959
127	AHMED OYINDAMOLA	F	Residential	Developed	93.038564	534.907143
128	OLADEPO MUHAMMAD	M	Residential	Developed	93.517586	539.91052
129	OLATAYO IBRAHEEM	M	Residential	Developed	94.439949	549.50309
130	ONI OLUBUNMI	M	Residential	Developed	96.284673	568.688229

FID	Names	Sex	Parcel_Pur	Parcel_Sta	Shape_Leng	Area
131	USMAN ADEWALE	M	Residential	Developed	97.207036	578.280799
132	ADEWALE ADETUNJI	M	Residential	Developed	98.129398	587.873369
133	ABDULROFIU KHADIJAT	F	Residential	Developed	99.051761	597.465938
134	ADEBAYO ABDULKHADIR	M	Residential	Developed	99.974123	607.058508
135	SAHEED OLALEKAN	M	Residential	Developed	97.948325	567.904525
136	AWELE AFEEZ	M	Residential	Developed	115.534201	813.220951
137	OLOLADE GBAYESOLA	M	Residential	Developed	106.822062	675.62187
138	EMMANUEAL OLUWAPELUMI	M	Residential	Developed	105.707409	664.146024
139	HIKMOT OLAMIDE	F	Residential	Developed	104.592834	652.670179
140	AMEERAT ORIYOMI	F	Residential	Developed	103.478341	641.194334
141	ABDULSALAM YUSUF	M	Residential	Developed	102.363935	629.718489
142	ADEYEMO BOLUWATIFE	M	Residential	Developed	104.457933	666.706041
143	ABDULSALAM ORIYOMI	M	Residential	Developed	112.861811	784.981667
144	MUSTAPHA ABDULBASIT	M	Residential	Developed	105.587483	662.625595
145	KAMALDEEN BOLAKALE	M	Residential	Developed	108.099246	695.541056
146	NASIRUDEEN ISSA	M	Residential	Developed	103.728473	645.854738
147	ADESHINA MISTURAH	F	Residential	Developed	104.871396	664.341344
148	MUHAMAD KAFAYAT	F	Residential	Developed	104.966252	665.357726
149	SULAIMON TAIWO	M	Residential	Developed	105.061108	666.374108
150	KOFOWOROLA MISTURAH	F	Residential	Developed	105.155964	667.39049
152	AFEEZ KAYODE	M	Residential	Developed	105.25082	668.406872
153	IBARAHEEN AZEEZ	M	Residential	Developed	96.012846	509.538655
154	OLORIEGBE ABDULGAFAR	M	Residential	Developed	106.137303	677.868689
155	AHMAD IBRAHIM	M	Residential	Developed	106.327309	679.904609
156	AMINAT DAMILOLA	F	Residential	Developed	106.517316	681.940528
157	OPEYEMI SAMSON	M	Residential	Developed	106.707322	683.976448
158	MUSA SAHEED	M	Residential	Developed	105.762841	666.956727
159	ADEWALE ABDULWASIU	M	Residential	Developed	106.897329	686.012367
160	HAMEED SHAMSUDEEN	M	Residential	Developed	106.057288	676.952074
161	ADEBAYO MUBARAQ	M	Residential	Developed	106.266681	679.195718
162	BILAL MUBARAK	M	Residential	Developed	106.476073	681.439362
163	AWWAL SULAIMAN	M	Residential	Developed	106.685466	683.683005
164	MUBARAK BABATUNDE	M	Residential	Developed	103.621752	632.560233
165	SAKARIYAU ABDULGAFAR	M	Residential	Developed	106.894859	685.926649
166	ADEROGBA USMAN	M	Residential	Developed	84.76798	329.619361

FID	Names	Sex	Parcel_Pur	Parcel_Sta	Shape_Leng	Area
161	ADEBAYO MUBARAQ	M	Residential	Developed	106.266681	679.195718
162	BILAL MUBARAK	M	Residential	Developed	106.476073	681.439362
163	AWWAL SULAIMAN	M	Residential	Developed	106.685466	683.683005
164	MUBARAK BABATUNDE	M	Residential	Developed	103.621752	632.560233
165	SAKARIYAU ABDULGAFAR	M	Residential	Developed	106.894859	685.926649
166	ADEROGBA USMAN	M	Residential	Developed	84.76798	329.619361
167	ISHOLA ABDULRASAQ	M	Residential	Developed	107.048974	697.279724
168	AROYINKOLA ABDULRASAQ	M	Residential	Developed	104.880825	664.463334
169	AYANYEMI FEYISAYO	M	Residential	Developed	104.973611	665.457536
170	OYEYIPO DAMILOLA	M	Residential	Developed	105.066397	666.451738
171	ABDULLATEED SHIFAU	M	Residential	Developed	105.159183	667.44594
172	IBRAHEEM ABDULGANIYU	M	Residential	Developed	105.344755	669.434345
173	ABDULYEKEEN ABDULQUADRI	M	Residential	Developed	105.251969	668.440143
174	OLAJIDE ABISOLA	M	Residential	Developed	97.405171	523.182346
175	FAOLA ABIDEMI	M	Residential	Developed	97.405165	523.182251
176	QUAWIYY ABDULRAZAQ	M	Residential	Developed	97.405165	523.182251
177	ABDULMATEEN ADETAYO	M	Residential	Developed	95.116731	485.856985
178	ADENIYI SOBURI	M	Residential	Developed	99.598485	565.285502
179	QUAWIYY ABDULRAZAQ	M	Residential	Developed	97.405165	523.182251
180	ABIODUN AKANJI	M	Residential	Developed	97.773547	534.423671
181	QUADRI OLAYINKA	M	Residential	Developed	111.633271	783.920583
182	OLUWAKEMI MORENIKEJI	F	Residential	Developed	98.585427	598.522623
183	SULYMAN LATEEFAT	F	Residential	Developed	119.586726	891.16926
184	OJO IFEOLUWA	F	Residential	Un-Developed	101.073955	586.912038
185	BABALOLA MOSES	M	Residential	Un-Developed	118.598617	766.583058
186	AJETUNMOBI OLAMILEKAN	M	Residential	Un-Developed	121.121618	619.306252
188	IDRIS FAWAS	M	Residential	Developed	155.336624	1476.345022
189	RAFIU WASIU	M	Residential	Developed	140.527237	1175.925869
190	ALATISE NAFISAT	F	Residential	Developed	139.266985	1158.592264
191	ABDULRASAQ ABDULLAHI	M	Residential	Developed	137.09612	1128.09418
192	ALUKO GBOLAHAN	M	Residential	Developed	133.524555	1078.536389
193	ABDULKAREEM IBRAHIM	M	Residential	Developed	129.492805	1023.083373
194	OJO AYODEJI	M	Residential	Developed	123.785237	941.726444
195	AJADI RIDWAN	M	Residential	Developed	100.360977	589.302437
196	ADIGUN FARUQ	M	Residential	Developed	151.485667	1420.606256

FID	Names	Sex	Parcel_Pur	Parcel_Sta	Shape_Leng	Area
195	AJADI RIDWAN	M	Residential	Developed	100.360977	589.302437
196	ADIGUN FARUQ	M	Residential	Developed	151.485667	1420.606256
197	ADIGUN FARUQ	M	Residential	Developed	151.485667	1420.606256
198	JIBRIL AISHAT	F	Residential	Developed	129.517626	1022.399818
199	BALOGUN MUBARAK	M	Residential	Developed	122.94143	931.95028
200	ABDULKAREEM SALAM	M	Residential	Developed	103.189952	636.539792
201	SULYMAN ABUBAKAR	M	Residential	Developed	103.663116	631.173955
202	ARINDE TIMILEYIN	M	Residential	Developed	103.563212	630.618443
203	IDRIS RUKAYAT	F	Residential	Developed	103.36353	628.436266
204	SANNI SAMUEL	M	Residential	Developed	103.196188	626.796311
205	ABDULGANIYU MUBARAK	M	Residential	Developed	103.028846	625.156356
206	BABALOLA TAIWO	M	Residential	Developed	96.081722	556.233193
207	ZAKARIYAU ABDULRAHMAN	M	Residential	Developed	98.306298	578.034039
208	AKINOLA OLABODE	M	Residential	Developed	100.548359	600.117406
209	ISIAQ TOYYIB	M	Residential	Developed	102.736622	621.35321
210	LAWAL AL-AMEEN	M	Residential	Developed	93.857146	534.432347
211	IDRIS QUADRI	M	Residential	Developed	91.589722	512.107197
212	ALIYU ZAINAB	F	Residential	Un-Developed	88.895261	328.187234
213	ABIOLA OBAMO	M	Residential	Developed	69.417057	197.739844
214	AMINU RIDWAN	M	Residential	Developed	103.949944	632.536154
215	AJAO MUYIDEEN	M	Residential	Developed	103.949944	632.536154
216	ABDULLATEEF JAMIU	M	Residential	Developed	103.952026	632.569579
217	ISHAQ OPEYEMI	M	Residential	Developed	103.275745	631.647422
218	HABEEB OLOLADE	M	Residential	Developed	95.506804	501.495726
219	IBRAHEEM ABDULGANIYU	M	Residential	Developed	105.344755	669.434345
220	ABDULYEKEEN ABDULQUADRI	M	Residential	Developed	105.251969	668.440143
221	AKOLADE FAROUQ	M	Residential	Developed	95.471994	500.924011
222	KEHINDE SHERIFF	M	Residential	Developed	95.935536	505.120846
223	ADEWOLE MICHEAL	M	Residential	Developed	111.748665	754.933129
224	LAMBE ISREAL ADEGOKE	M	Residential	Developed	96.850869	512.337052
225	AKINWUNMI MUJTABAH	F	Residential	Developed	98.318847	520.72802
226	ABDULMUHMEEN ABDULAKEEM	M	Residential	Developed	110.395729	666.833258
227	AKANBI ADEWUNMI	F	Residential	Developed	103.760936	607.120116
228	ADEDAMOLA WAHEED	M	Residential	Un-Developed	107.528117	649.556432
229	NURENI ABIBAT	F	Residential	Developed	131.016289	1003.311342

FID	Names	Sex	Parcel_Pur	Parcel_Sta	Shape_Leng	Area
237	ADEYANJU WASIU	M	Residential	Developed	102.539606	639.030066
238	ADEOYE OLUWASOLA	M	Residential	Developed	101.378377	621.675671
239	ADEOYE OLUWASOLA	F	Residential	Developed	101.378377	621.675671
240	ADEYANJU WASIU	M	Residential	Developed	102.539606	639.030066
241	ADEOYE OLUWASOLA	M	Residential	Developed	101.378377	621.675671
242	ADEYANJU WASIU	M	Residential	Developed	102.539606	639.030066
243	ADEYEMI HALIMAH	F	Residential	Developed	98.330782	589.782734
244	ADEOLA JAMIU	M	Residential	Developed	102.427839	632.186308
245	GIWA JAMIU	M	Residential	Developed	101.563058	628.37608
246	AUDU ELIZABETH	F	Residential	Developed	107.857008	687.167634
247	IBRAHIM KAYODE	M	Residential	Developed	105.710867	671.839668
248	SANUSI YUSUF	M	Residential	Developed	109.809204	705.627485
249	ARANSIOLA EMMANUEL	M	Residential	Developed	122.950681	922.850128
250	AMINULLAH ABDULSAMAD	M	Residential	Un-Developed	134.165209	782.735016
251	ABEGUNDE MATHEW	M	Residential	Developed	100.244701	536.868271
252	OLARINDE MOJEED	M	Residential	Developed	115.343536	784.62058
253	LUKMAN FARUQ	M	Residential	Developed	102.170205	642.354092
255	NURUDEEN UTHMAN	M	Residential	Un-Developed	104.403706	643.09282
256	ISIAKA ABUBAKAR	M	Residential	Developed	95.648743	499.983496
257	MASTUROH ADEOLA	M	Residential	Developed	95.755765	502.01636
258	ABDULRASAQ ABDULQUDUS	M	Residential	Developed	108.75849	680.367296
259	SANUSI MUHYDEEN	M	Residential	Developed	115.841274	764.688077
260	AJADI BOLAKALE	M	Residential	Developed	124.29152	851.210708
261	ADULQODIR SULTON	M	Residential	Developed	117.571799	794.08127
262	ADEFOWOJU ADENIKE	F	Residential	Un-Developed	133.509657	1025.302157
263	OGEDENGBE ODUNAYO	M	Residential	Developed	91.912897	526.812222
264	OLADIMEJI YEMISI	F	Residential	Developed	89.939474	504.364005
265	SANUSI JAMIU	M	Residential	Developed	89.822314	503.108632
266	EZEKIEL VICTOR	M	Residential	Developed	89.705153	501.853259
267	SAMMIAT AYOMIPOSI	F	Residential	Developed	89.587993	500.597886
268	YUSUF ZAINAB	F	Residential	Developed	89.36159	498.088917
269	RAPHEAL OLUWASEGUN	F	Residential	Developed	89.310953	497.435076
270	ALLI BOLUWADURO	M	Residential	Developed	89.312951	497.768963
271	YUNUS MUSEFIU	M	Residential	Developed	88.297788	486.60079
272	AWODELE OLUSEGUN	M	Residential	Developed	88.048589	484.164676

FID	Names	Sex	Parcel_Pur	Parcel_Sta	Shape_Leng	Area
252	OLARINDE MOJEED	M	Residential	Developed	115.343536	784.62058
253	LUKMAN FARUQ	M	Residential	Developed	102.170205	642.354092
255	NURUDEEN UTHMAN	M	Residential	Un-Developed	104.403706	643.09282
256	ISIAKA ABUBAKAR	M	Residential	Developed	95.648743	499.983496
257	MASTUROH ADEOLA	M	Residential	Developed	95.755765	502.01636
258	ABDULRASAQ ABDULQUDUS	M	Residential	Developed	108.75849	680.367296
259	SANUSI MUHYDEEN	M	Residential	Developed	115.841274	764.688077
260	AJADI BOLAKALE	M	Residential	Developed	124.29152	851.210708
261	ADULQODIR SULTON	M	Residential	Developed	117.571799	794.08127
262	ADEFOWOJU ADENIKE	F	Residential	Un-Developed	133.509657	1025.302157
263	OGEDENGBE ODUNAYO	M	Residential	Developed	91.912897	526.812222
264	OLADIMEJI YEMISI	F	Residential	Developed	89.939474	504.364005
265	SANUSI JAMIU	M	Residential	Developed	89.822314	503.108632
266	EZEKIEL VICTOR	M	Residential	Developed	89.705153	501.853259
267	SAMMIAT AYOMIPOSI	F	Residential	Developed	89.587993	500.597886
268	YUSUF ZAINAB	F	Residential	Developed	89.36159	498.088917
269	RAPHEAL OLUWASEGUN	F	Residential	Developed	89.310953	497.435076
270	ALLI BOLUWADURO	M	Residential	Developed	89.312951	497.768963
271	YUNUS MUSEFIU	M	Residential	Developed	88.297788	486.60079
272	AWODELE OLUSEGUN	M	Residential	Developed	88.048589	484.164676
274	WAHAB ABDULQUDUS	M	Residential	Developed	87.637533	465.985829
275	RAHEEM LATEEF	M	Residential	Developed	0	0
276	ODESANYA ZIKIRULLAH	M	Residential	Developed	85.229076	433.400436
277	AWODELE SEGUN	M	Residential	Developed	89.148246	466.829478
278	MUSTAPHA ABDULBASIT	M	Residential	Un-Developed	88.197345	410.311278
279	NASSIRUDEEN ISSA	M	Residential	Un-Developed	130.441349	635.53933
280	ADESHINA MOJEED	M	Residential	Developed	133.971627	959.84878
281	SULAIMAN SAMAD	M	Residential	Un-Developed	216.100791	2432.308468
282	MUHAMMAD RAHEEM	M	Residential	Developed	185.907985	1811.965151
284	IBRAHEEM AZEEZ	M	Residential	Un-Developed	99.498708	382.396351
285	IBRAHEEM AYODEJI	M	Residential	Un-Developed	168.808748	957.228857
286	ABDULKADIR IBRAHIM	M	Residential	Un-Developed	96.169848	552.346149
287	AKEEM OPEYEMI	M	Residential	Developed	88.178251	487.942293
289	ADEBAYO SODEEQ	M	Residential	Developed	114.802792	804.456108
0	BOUNTIFUL SEED ACADEMY	M	School	Developed	261.829598	4234.238527

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 SUMMARY

This project refers to a computer based record keeping storage, management and retrieval systems for land and property records attempts to demonstrate the one with which meal data can be converted min a powerful information system is recognized the acquisition and effective use of information is fundamental to the survival of any organization hence attempts were made to show how geographic information system can Se used to solve problems associated with cadastral management, Total station set 450 wed to acquire geometric data and attribute data was acquired through social surveys. Database was created from the acquired data in order to make retrieval, manipulation and data update relatively easy. Analysis of result was done using relational database model (Tables); and structured query Languages (SQL) in ArcGIS 13. The Queries invoked in the database, generated information that could be used in decision making and physical planning of the study area in the future. The results are manned in both soft copy and hard copy. The process of data acquisition, data processing and information presentation, accumulated in the writing of a comprehensive report

5.2 PROBLEMS ENCOUNTERED

The following problems were encountered in the course of the project,

1. Method of data acquisition. Acquiring cadastral data using land surveying method posed a lot of challenges. Some of the parcels were fenced and access denied. Hence only buildings which could be measured were included. This implies that the data acquired were less than what were actually available in the site. Remote Sensing method Using high resolution satellite imageries

though expensive for small scale project like this would be the best method of data acquisition since it overcomes all these challenges.

2. Lack of cooperation of some of the parcel owners. It was difficult to obtain non-patial data from parcel owners. The structured interview did stot yield the most expected results as some of them were not around because they were not informed while some respond to us reluctantly and not too sure of their answer to our questions. Unavailability of information about the estate. The Kwara State Department of Lands and Housing could not provide any data about the Estate. If the master plan of the Estate were available, it would become a guide to check violations in the estate. Availability of the socio-economic and demographic data would aid in the spatial analysis of service area.

3. During the execution of this project incessant power failure causes delay in the processing and manipulation of the acquired data which extended the time used for processing and report writing of the project.

5.3 CONCLUSION

Land is a natural resource and its potentials may be harnessed effectively where there is proper documentation of title and constant updating of records pertaining to ownership and transfers. The project has succeeded in demonstrating the usefulness of GIS in cadastral management of Irewolede Estate Arca as it is essential for the development of any community. The database created will definitely aid efficient planning, sustainable physical development, easy retrieval and updating of land related information of the study area. The basic cadastral queries invoked, showed that a cadastral database should store historical information on land parcels and related objects.

The technologies available will not only allow integrate the various spatial and non- spatial datasets, but will enable online gathering, recording, warehousing rtheving, disseminating and employing the data, which will lead to improve the effectiveness and efficiency of land management both from the perspective of the comminn man as well as that of decision makers implementing land based development activities at grass root level.

Having been part of the field work, data processing, analysis and information presentation, it is expedient to conclude that the aims and objectives of this project have been achieved. Hence this cadastral database has the capacity to provide current and near sufficient data within reach for the implementation of large scale or multipurpose cadastral information system in Kwara State with possible potential of being transferred to other States in Nigeria.

5.4 RECOMMENDATIONS

Having executed this project successfully, the following recommendations are suggested:

i. It imperative for the authorities to set in motion machinery that would encourage the creation of a database for all the properties and ensure the proper management of the information derived from time to time, in this way, a comprehensive land information system could be established.
ii. There is need to unify all fragmented cadastral digital database executed all over the country to form a larger pool. This would reduce man hour and time lost to accessing file of cadastral plan/maps
iii. There is need for the Federal Government, state government and Local Governments to keep land occupants informed about changing land policies.

iv. Kwara West Local Government should use the product in aiding their Town planning department, internal revenue board to mention a few, in the discharge of their constituted duties.

v. Efficient planning for provision of utilities (like electricity, sewage and water) to meet the needs of the residents and monitoring of illegal structures.

vi. Providing complete and up to date information for prospective investors and stakeholders in the housing sector.

vii. This implementation of this system should be encouraged at the lowest tier of governance as this would help reduce execution time and costs in situations where similar system is to be executed all over the country. This would also aid in the overall integration of spatial databases in the country.

viii. The project products, stages and the lessons learned should be presented to relevant departments, establishments or institution that may be willing to implement similar system in the future as part of their corporate service responsibility to their host community.

ix. Aspect of GIS development since land management requires that sound management to be performed with Surveyors should be encouraged to extend their operations to include some the support of an effective decision support system.

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COSTING OF THE CADASTRAL INFORCATION SYSTEM (PROJECT) OF PART OF IREWOLEDE ESTATE,ILORIN

RECONNAISANCE

S/NO	PERSONEL OFFICER	DAYS	UNIT RATE	AMOUNT
1	Senior Surveyor	6	98,800	592,800
2	Assistant Surveyor	6	58,000	340,000
3	Chain Mem	6	30,000	180,000
4	Transportation	6	40,000	240,000
5	Basic Equipment	6	65,000	270,000
	Total			1,622,800

TRAVERSING

S/NO	PERSONNEL OFFICER	DAY(S)	UNIT RATE	AMOUNT
1	Assistant Surveyor	1	85,700	85,700
2	Labourer Crew	1	12,500	12,500
3	Transportation	1	40,000	40,000
4	Basic Equipment	1	65,000	65,000
5	Consumable	1	20,000	20,000
	Total			222,500

DATA DOWNLOADING

S/NO	PERSONNEL OFFICER	DAY(S)	UNIT RATE	AMOUNT
1	Principal Surveyor	1	95,000	95,000
2	Senior Surveyor	1	65,500	65,500
3	Assistant Surveyor	1	45,700	45,700
4	Basic Equipment	1	65,000	65,000
5	Transportation	1	40,000	40,000
	Total			311,200

DATA PROCESSING

S/NO	PERSONNEL OFFICER	DAY(S)	UNIT RATE	AMOUNT
1	Senior Surveyor	6	95,000	570,000
2	Assistant Surveyor	6	65,500	393,000
3	Basic Equipment	6	65,000	390,000
4	Transportation	6	45,000	270,000
	Total			1,272,000

INFORMATION PRESENTATION

S/NO	PERSONNEL OFFICER	DAY(S)	UNIT RATE	AMOUNT
1	Principal Surveyor	1	95,000	95,000
2	Senior Surveyor	1	65,500	65,000
3	Basic Equipment	1	65,000	65,000
4	Transportation	1	45,000	45,000
	Total			270,000

VAT (5% of the Total Cost of Project) 3,738,500 * 0.05= 1,869,250

CONTEGENCY (5% of the Total Cost of Project) 3,738,500 * 0.05= 1,869,250

SUMMARY OF THE COSTING

PROJECT QUATITY	UNIT RATE (
Reconnaissance	1,662,800
Traversing	222,500
Data downloading	311,200
Data processing	1,272,000
Information Presentation	270,000
VAT (5% of the Total Cost of Project)	186,925
CONTIGENCY (5% of the Total Cost of Project)	186,925
TOTAL	**₦ 4,112,350:00**

APPENDIX

NORTHING	EASTING	NORTHING	EASTING
935609.976	671158.208	935610.110	671030.195
935685.660	671212.601	935588.956	671026.735
935622.014	671387.359	935546.647	671019.817
935629.861	671365.636	935567.802	671023.276
935637.708	671343.913	935664.242	671076.822
935645.555	671322.190	935645.404	671074.784
935653.402	671300.467	935624.237	671071.395
935661.249	671278.745	935603.069	671068.005
935669.097	671257.022	935581.902	671064.616
935676.944	671235.299	935539.915	671057.753
935716.912	671249.292	935560.735	671061.227
935709.268	671271.086	935639.619	671105.861
935701.623	671292.881	935618.433	671102.569
935693.979	671314.675	935597.248	671099.278
935686.334	671336.469	935576.062	671095.987
935678.690	671358.263	935534.572	671089.394

935671.046	671380.057	935554.877	671092.696
935725.350	671227.181	935655.785	671106.863
935240.915	671022.720	935679.816	671010.043
935249.541	671041.425	935658.092	671006.633
935258.168	671060.131	935636.946	671003.128
935266.794	671078.837	935615.800	670999.623
935275.421	671097.543	935594.655	670996.117
935284.048	671116.249	935552.364	670989.106
935292.674	671134.955	935573.509	670992.612
935301.301	671153.660	935524.068	671205.203
935309.927	671172.366	935515.221	671235.964
935318.554	671191.072	935519.645	671220.583
935327.180	671209.777	935510.884	671250.773
935336.027	671228.624	935504.090	671283.194
935269.006	671010.266	935506.546	671265.582
935277.890	671028.849	935529.850	671189.894
935286.775	671047.415	935557.110	671337.973
935295.653	671065.988	935547.745	671361.057

935304.533	671084.563	935528.420	671327.953
935313.039	671103.241	935522.537	671351.230
935321.370	671122.060	935498.124	671202.080
935329.702	671140.880	935472.693	671203.593
935338.033	671159.699	935231.108	670754.994
935346.365	671178.518	935285.608	670781.967
935354.696	671197.337	935257.017	670793.476
935363.530	671216.911	935231.699	670804.245
935596.725	671224.596	935206.333	670814.776
935563.069	671214.309	935180.802	670825.001
935584.247	671260.588	935155.206	670835.135
935552.140	671250.658	935129.538	670844.802
935575.974	671284.398	935107.378	670852.546
935544.888	671274.792	935167.868	670786.896
935538.411	671297.333	935167.868	670786.896
935568.137	671307.769	935140.042	670801.171
935433.953	671370.158	935115.530	670813.691
935405.605	671382.624	935093.982	670824.527

935414.568	671402.715	935502.026	671084.189
935443.362	671390.053	935499.132	671103.593
935452.770	671409.947	935496.224	671123.004
935423.531	671422.806	935493.321	671142.406
935462.179	671429.842	935490.418	671161.809
935432.518	671442.880	935463.704	671136.585
935471.388	671449.462	935466.019	671117.070
935441.629	671462.734	935468.337	671097.552
935451.108	671483.132	935470.649	671078.036
935476.286	671467.271	935461.388	671156.099
935468.597	671353.972	935459.070	671175.602
935478.261	671373.662	935483.156	671177.142
935487.975	671393.422	935453.430	671189.700
935497.690	671413.182	935427.021	671129.515
935504.834	671432.220	935428.791	671109.892
935719.739	671329.150	935430.561	671090.268
935704.331	671369.279	935432.350	671070.662
935762.962	671371.238	935514.752	671006.514

935770.229	671352.385	935503.179	670980.879
935776.532	671334.275	935524.324	670984.384
935747.563	671333.903	935511.905	671021.844
935736.698	671363.979	935509.146	671037.212
935358.509	671292.218	935506.012	671056.247
935345.200	671261.646	935482.715	671001.291
935376.305	671285.023	935479.456	671016.515
935363.475	671254.509	935406.672	671077.743
935394.616	671277.589	935388.609	671077.778
935381.896	671247.186	935304.276	671001.256
935412.976	671270.160	935132.843	670881.560
935400.358	671239.962	935143.924	670901.723
935431.389	671262.824	935199.080	670944.115
935418.907	671232.943	935217.901	670935.258
935374.037	671327.634	935325.946	670882.117
935391.311	671320.459	935287.781	670900.075
935409.422	671312.917	935306.864	670891.097
935427.707	671305.270	935249.617	670918.034

935445.993	671297.622	935268.699	670909.055
935386.102	671355.184	935305.492	670850.972
935402.922	671348.018	935267.327	670868.931
935420.838	671340.270	935286.409	670859.952
935439.009	671332.411	935229.162	670886.889
935457.067	671324.282	935248.245	670877.910
935781.749	671308.542	935293.188	670824.574
935787.881	671290.829	935254.605	670841.591
935793.688	671273.367	935273.888	670833.084
935799.496	671255.905	935215.952	670858.275
935805.767	671239.660	935235.332	670850.059
935755.833	671291.382	935196.705	670865.611
935735.338	671285.147	935174.652	670873.956
935705.906	671056.621	935203.130	670893.197
935759.977	671246.836	935476.149	671031.692
935635.714	671245.297	935472.246	671050.137
935627.491	671266.888	935482.431	670977.757
935619.441	671288.540	935313.233	670816.342

935611.305	671310.162	935443.675	670992.243
935603.168	671331.783	935439.993	671009.974
935594.978	671353.413	935436.238	671025.075
935585.241	671374.680	935431.771	671042.892
935574.896	671395.501	935376.631	670980.972
935643.850	671223.675	935357.973	670989.395
935651.986	671202.055	935397.772	670970.938
935660.122	671180.433	935394.162	671041.033
935668.259	671158.812	935687.989	670976.739
935676.332	671137.182	935666.376	670973.276
935684.392	671115.525	935645.229	670969.777
935692.489	671093.889	935624.082	670966.277
935699.732	671074.318	935602.936	670962.778
935560.442	671424.725	935560.723	670955.792
935379.334	670934.082	935581.827	670959.299
935358.770	670942.090	935539.550	670952.250
935339.340	670949.618	935518.387	670948.846
935319.912	670957.145	935497.160	670945.233

935300.484	670964.672	935476.333	670940.522
935282.407	670967.180	935435.900	670925.461
935242.796	670988.892	935417.749	670916.522
935223.786	670997.339	935400.550	670906.629
935212.953	670973.883	935384.335	670893.462
935231.870	670965.236	935409.826	670937.803
935269.705	670947.943	935454.280	670960.722
935288.622	670939.296	935401.806	671004.824
935307.540	670930.650	935544.173	671162.659
935326.457	670922.003	935551.179	671132.073
935345.374	670913.356	935659.225	671395.568
935363.828	670905.558	935604.088	671414.051
935350.086	671086.877	935430.315	670949.641
935358.537	671107.690	935455.752	670933.596
935366.356	671126.728	935350.755	670871.399
935374.174	671145.766	935327.572	670841.425