JIMMA UNIVERSITY

JIMMA INSTITUTE OF TECHNOLOGY

SCHOOL OF GRADUATE STUDIES

FACULTY OF CIVIL AND ENVIRONMENTAL ENGINEERING

CONSTRUCTION ENGINEERING AND MANAGEMENT CHAIR

ASSESSMENT OF CHALLENGES OF ROAD CONSTRUCTION PROJECTS AND ASSOCIATED EFFECTS; A CASE STUDY ON ROAD PROJECTS IN JIMMA CITY.

A Thesis Submitted to School of Graduate Studies, Jimma University, Jimma Institute of Technology, Faculty of Civil and Environmental Engineering in Partial Fulfillment of the Requirements for the Degree Master of Science in Construction Engineering and Management

By:

Mohammedawel Temam Aba Gumbul

September 2021
Jimma, Ethiopia

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Advisor: Engr. Bien Maunaham
Co-Advisor: Engr. Mamaru Dessalegn

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DECLARATION

I declare that this research entitled "Assessment of Challenges of Road Construction Projects and Associated Effects; A Case Study on Road Projects in Jimma City" is my own original work, and has not been submitted as a requirement for the award of any degree in Jimma University or elsewhere.

Mohammedawel Temam	_____	_____
Researcher	Signature	Date

As research adviser, I hereby certify that I have read and evaluated this thesis paper prepared under my guidance, by Mohammedawel Temam AbaGumbul entitled "ASSESSMENT OF CHALLENGES OF ROAD CONSTRUCTION PROJECTS AND ASSOCIATED EFFECTS; A CASE STUDY ON ROAD PROJECTS IN JIMMA CITY" and recommend and would be accepted as a fulfilling requirement for the Degree Master of Science in Construction Engineering and Management.

Engr.Bien Maunaham	_____	_____
Advisor	Signature	Date
Engr. Mamaru Dessalegn	_____	_____
Co-Advisor	Signature	Date

ABSTRACT

The road network in Ethiopia provides the dominant mode of freight and passenger transport and thus plays a vital role in the economy of the country. The network comprises a huge national asset that have to be successfully completed with required quality on time and cost. Road projects in Jimma town are completed with cost variation; time above planned on the agreement and its quality was below the required one. Since Objective of this study was assessing challenges and their associated effects in order to achieve it the researcher identified challenges, their associated effect and finally method to minimize these challenges. Questionnaire, desk study and site observation were carried out in achieving the objective of the study. The research design used in this study was descriptive and explanatory survey types using quantitative and qualitative method. Finally the gathered data was analyzed using SPSS then interpreted according to the research objectives. According to the study findings twenty two challenges were identified among them the top challenge was Right of way problem (RII =0.77) and nine associated effects were identified among them the main was Time over run (RII=0.69). Regarding methods of minimization sixteen methods were identified among that providing the Designer with necessary design input data was the first with RII value of 0.89. From the identified challenges the top was right of way problem (RII =0.77) and geographically dispersed teams being the least (RII=0.58), concerning the effects Time overrun with (RII=0.69) was the major effect while Loosing chance of fund from World Bank (RII=0.61) was the least finally regarding methods of minimization the major was Providing the Designer with necessary design input data (RII=0.89) and the least was Ensure to prepare Wastes disposal around the site. Hence the client need to restructure its organization to focus on the clearance of obstructions and capacitate the professionals through capacity building, Regarding consultants they required to be committed in producing designs which is appropriate for the site and the document also be clear and neat finally contractors should study the Site conditions before start of construction and obey the standards to progress the work effectively.

Keywords: *Challenges, Effect, Minimizing, Management design and analysis.*

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ACRONYMS

BC	Building Contractor
CM	Construction Manager
DL	Daily Labor
ECSPG	Ethiopian Cities Sustainable Prosperity Goal
EEPCo	Ethiopian Electric Power Corporation
ERA	Ethiopian Roads Authority
ETC	Ethiopian Telecommunications Corporation
GC	General Contractor
GoE	Government of Ethiopia
GNP	Gross National Product
GTP	Growth and Transformation Program
PI	Principal Investigator
PM	Project Management
PMI	Project Management Institute
RA	Research Assistance
ROW	Right of Way
RC	Road Contractor
RSDP	Road Sector Development Program
SW	Secretary Work
TSP	Transport Sector Project in Support of RSDP4
UIIDP	Urban Institutional and Infrastructure Development Program
UK	United Kingdom
ULGDP	Urban Local Government Development Program

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Transportation is fundamental to the development and operation of any society. It permits that geographically distant resources to become accessible, connect people, exchange of technology and also goods needed in different places. This make evident that the economic growth of any society in any part of the world is directly related to the availability of transportation.

The construction industry everywhere faces problems and challenges; these difficulties and challenges are present together with a general situation of socio-economic stress, chronic resource shortages, institutional weaknesses and inability to deal with the key issues in the developing countries (Department of Building, 2010).

The GoE specifically recognized that the size and quality of the road network needed to keep pace with rising demand, and that this had been a long-term constraint to economic growth and poverty reduction. As early as 1977, the GoE formulated the Road Sector Development Program (RSDP), which identified investments and crucial reforms needed to restore and expand the road network and to reform and modernize the sector. Since then, the GoE had four stages of RSDP as of 2012. Under those stages of RSDP there had been some recognized improvements in key transport and trade corridors through upgrading of priority road links, strengthening road management and financing, developing the capacity and participation of domestic contractors and consultants, and addressing social, environmental and development issues. However, the environmental, social, health and safety issues were increasingly being recognized during TSP preparation, and these issues were being recognized as a substantial risk for implementing the project (World Bank, 2019). In the context of Ethiopia's geography, pattern of settlement and economic activity, transport plays vital role in facilitating economic development. In particular, it is road transport that provides the means for the movement of people, utilization of land and natural resources, improved agricultural production and marketing, access to social services, and opportunities for sustainable growth. Recognizing the importance of the road transport in supporting social and economic growth and its role as a catalyst to meet poverty reduction targets, the

Government of Ethiopia has placed increased emphasis on improvement of the quality and size of road infrastructure in the country (Ethiopian Roads Authority , 2013).

The construction industry in Ethiopia, especially in urban areas is affected by numerous problems. Almost all road projects in Jimma city are over ending with additional cost and time with qualities below that was stipulated in the contract and leading to their deterioration before the designed lifecycle period. There are several causes for these problems and the main ones being the existence of obstructions in the ROW limit, lack of belongingness among the stakeholders and lack of experienced professionals faced during planning, designing, implementation and operation of road projects and the lack of proper managements (Temesgen, 2015).

Therefore, in this research the researcher going to assess the types of challenges on ongoing road construction projects under Jimma City Administration. These papers report on identify the major challenges and determine their effects on the ongoing road construction projects. Finally, to reduce the road construction challenges in the study area, identification, analysis and impacts needs to be done in order to better support the economic, social and management on road construction development.

1.2 Statement of the Problem

Construction projects in congested urban corridors have been a challenge for many years. High-traffic volume is just one of many concerns that need to be resolved. Adding significant utility conflicts and relocations, complex right-of-way (ROW), a diverse stakeholder makes normally difficult work even more complicated. Road construction project is a complicated process which requires massive manpower, machineries and technical as well as financial capacity (National Academies of Sciences, 2011)

The importance of roads extends to all aspects of development of rural and urban communities, including demand for access to health, education, market and others (RRNDS Final Main Report, 2012).

Generally, the development of the construction industry in Ethiopia, especially in urban areas is affected by numerous problems. Almost all road projects in Jimma city are completed ending with additional cost and time above the planned or signed agreement and with qualities below that was stipulated in the contract and leading to their deterioration before the

designed lifecycle period. There are varieties of internal issues such as environmental, contractual, financial, stakeholders, communication risk etc. And external risks such as political and regulatory risks. Consequently, the project's success could be influenced in many aspects such as cost, time, and quality if these issues are not handled. The issues and challenges stated above are important at this time when construction industry in Jimma is facing problems such as cost overruns, time overruns and construction defects. To avoid the impact of these issues and threats, the project management becomes an essential topic for jimma city road construction projects in order to deliver them successfully.

Jimma road construction projects frequently face cost overrun and taking longer construction time. Among the challenging conditions, the crowded working environment which decreases the efficiency of work and complex right of way issues are observed. The everyday construction method is currently bringing large interruptions because their cost overrun, extended period of time and disturbance of adjacent businesses, construction defects, loosing trust from Stakeholders and the public.

1.3 Research Questions

The main research question of the study was:

1. What are the challenges faced in road construction projects in Jimma City?
2. What are the effects associated with the challenges on road construction projects in Jimma City?
3. How can the challenges in road construction projects be minimized?

1.4 Objectives

1.4.1 General Objectives

The main objective of the study was to assess challenges of road construction projects in Jimma City and its associated effect.

1.4.2 Specific Objectives

The specific objectives of the study were:

- To identify the challenges of road construction projects in Jimma City.
- To assess the effects associated with the challenges of road construction projects in Jimma City.
- To find out how challenges on road construction projects be minimized.

1.5 Scope of the Study

This study was conducted to assess challenges of ongoing road construction projects in Jimma City which are found under the construction process. The selection of projects was made in due consultation with the Jimma City Administration by selecting projects which are ongoing road construction. Furthermore, the respondents of the questionnaires are limited to the client (Jimma City Administration), consultants, and contractors who work in Jimma City road construction projects. In addition to this; the study was limited on the challenges found from desk study, literature review and site observation of the selected road projects under Jimma City Administration.

1.6 Significance of the Study

The study will help to know the challenges on road construction under jimma city and to prepare a plan on resolving them, and also for future studies on challenges of road construction project in Jimma city and for other cities and the surrounding woredas by identifying the major challenges of the selected road construction projects in Jimma City and determine their effects on the construction projects progress.

1.7 Limitation of the Study

- ❖ The researcher faced following points as limitation:

- ➢ The respondents were not returned the questionnaires on time even some of them lost it.
- ➢ The researcher has been in hospital for about three months

- ❖ Solution for the above limitation

- ➢ The researcher tries to finish this paper with big patient and effort
- ➢ The lost papers were replaced.

CHAPTER TWO

LITERATURE REVIEW

2.1Background

The government established the UIIDP (the government program) as a follow-on phase of the ULGDP. The GoE started the ULGDP in 2008 as a performance grant to ULGs. This is the predecessor to UIIDP. The main goal of both government programs is to leverage institutional capacity at the ULG level to improve urban infrastructure and services. Its overall objective is to support improved institutional performance in the planning, delivery, and sustained provision of urban services and infrastructure by ULGs. The GoE envisions the implementation timeframe for UIIDP to coincide with the ECSPGs, GTP 2, and the country's goal of achievement of middle-income status by the year 2025. The intention is to mobilize funding and resources from development partners, regions, and ULGs (as matching funds). The government will also explore the possibilities of mobilizing private sector financing for revenue generating investments, including through public private partnerships (UIIDP, 2018).

The construction industry, by nature, has many special problems and requirements. The importance of taking measures to improve the performance of the construction industry has now been recognized in several countries at various levels of socio-economic development. Dedicated agencies have been formed in many countries to administer the continuous improvement of the industry, although they have different objectives, responsibilities and levels of authority. In the UK, the Construction Industry Board is an industry initiative, whereas its counterpart institutions in developing countries are government agencies. Considering the nature of the industry's needs and problems, and in many developing countries, the resource constraints, formation of an agency does not guarantee the success of construction industry development (Department of Building, 2010).

The construction industry is one of the main sectors that provide important ingredients for the development of an economy. The construction industry is the tool through which a society achieves its goals of urban and rural development. However, it is becoming more complex because of the sophistication of the construction process itself and the large number of parties involved in the construction process, i.e., clients, users, designers, regulators, contractors, suppliers, subcontractors, and consultants (Divya.R, S.Ramya., 2015).

This broad category of construction, sometimes called engineering construction, is characterized by designs prepared by engineers rather than architects, the provision of facilities usually related to the public infrastructure and thus owned by public-sector entities and funded through bonds, rates or taxes and a high degree of mechanization and the use of much heavy equipment and plant in the construction process (F.Lawrence, 2003).

2.2 Classification of Construction Industry

1. Building Construction Industry: -All general contractors and operative builders primarily engaged in the construction of residential, industrial, commercial, or other buildings.

2. Heavy Construction Industry: - All general contractors primarily engaged in heavy construction other than building, such as highways and streets, bridges, sewers, railroads, irrigation projects, and flood control projects and marine construction. This includes special trade contractors primarily engaged in activities not normally performed on buildings, such as highway grading or underwater rock removal (Démarre, 2010).

2.3 Construction Projects

A project is a temporary endeavor undertaken to create a unique product, service, or result. Projects are undertaken to fulfill objectives by producing deliverables. An objective is defined as an outcome toward which work is to be directed, a strategic position to be attained, a purpose to be achieved, a result to be obtained, a product to be produced, or a service to be performed. A deliverable is defined as any unique and verifiable product, result, or capability to perform a service that is required to be produced to complete a process, phase, or project. Deliverables may be tangible or intangible.

Fulfillment of project objectives may produce one or more of the following deliverables:

- ✓ A unique product that can be either a component of another item, an enhancement or correction to an item, or a new end item in itself (e.g., the correction of a defect in an end item);
- ✓ A unique service or a capability to perform a service (e.g., a business function that supports production or distribution);
- ✓ A unique result, such as an outcome or document (e.g., a research project that develops knowledge that can be used to determine whether a trend exists or a new process will benefit society); and

- ✓ A unique combination of one or more products, services, or results (e.g., a software application, its associated documentation, and help desk services).

Repetitive elements may be present in some project deliverables and activities. This repetition does not change the fundamental and unique characteristics of the project work. For example, office buildings can be constructed with the same or similar materials and by the same or different teams. However, each building project remains unique in key characteristics (e.g., location, design, environment, situation, people involved).

Projects are undertaken at all organizational levels. A project can involve a single individual or a group. A project can involve a single organizational unit or multiple organizational units from multiple organizations (PMI, 2017).

Governments and non-Governments organizations usually embark on different projects with the aim of creating new service or improving the functional efficiency of the existing ones. Such projects require appropriate skills and techniques that encompass good and sound skills to manage limited budgets, monitor shrinking schedules and unpredicted outcomes while at the same time dealing with people and organizational issues. Developmental facilities like housing, roads, and power plants are undertaken with strategic aims of developing infrastructure to facilitate economic growth (Olateju, 2011).

2.4 Road Construction Project

Road construction is part and parcel of construction projects. A road project is a linear repetitive engineered construction project requiring an external organization for its implementation and is a temporary endeavor undertaken to produce a unique product, the road infrastructure (Assefa A. , 2008).

Urban roads serve a variety of mobility needs including general public use, commercial, merchandise, and emergency vehicle traffic. Maintaining traffic flow during construction is an important issue. The number of complex projects in urban areas will likely continue to increase in the future. Aging road infrastructures, right-of-way (ROW) constraints, and increasing urban populations lead to difficulties for construction projects on existing, congested, urban road projects. Overall system mobility must be considered in a congested urban area undergoing construction (National Academies of Sciences, 2011).

Complexity is the key element when looking into the specifics of urban road construction projects. Urban road projects are constructed in a physically constrained environment. Existing road networks are dense and often intertwined with other infrastructures. Scarcity of

land in an urban setting implies high land acquisition costs this in turn makes it very difficult to relocate those affected by the road project (Démarre, 2010).

2.4.1 Implementation of Urban Road Construction Project

Implementation is the execution of planned activities which converts human and physical resources into a product or service of value to the customers. The way in which the project is implemented can have a significant impact on whether it will be successful or not. Projects are influenced by a multiple of factors which can be external or internal to the organization responsible for its management and execution. These include poor project management, inadequate opportunities for potential beneficiaries to participate in project identification and design, poor linkages between project activities and project purpose, insufficient attention to external environment during project design, among others. The external factors making up this environment are the client (customer), consultants, contractors, suppliers, competitors, politicians, national and local government agencies, public utilities, pressure groups, the end users and the general public. Internal influences include the organization management, the project team, internal departments, and stakeholders (Collins, 2013).

2.4.2 Challenges for Implementation of Urban Road Construction

A) Utility Conflicts

Utilities are the ‘conduits’ or ‘technological systems’ which support the rapid movement of waste, water, energy and information up on which their integration together into economic and social structure depends (Marvin, 1994).

Urban corridors are not only congested with vehicles and people but also filled with utilities, each one a potential conflict for the planned work. For many years, the natural pattern has been to install utilities in streets and highways. It can take many forms, whether aerial or underground. Some are privately owned and others owned by municipalities, such as a local water company (National Academies of Sciences, 2011).

Urban utilities infrastructure accounts the water supply, sewerage facilities, drainage systems, power distribution networks, communication transmissions and other related underground, surface and overhead services and facilities (Zegeye, July 2012).

A variety of telecommunications providers have facilities in public ROWs. Power and gas lines are often public utilities regulated by a public utilities commission and found in the

highway ROWs. In addition, local irrigation districts, sewer districts, and others may have facilities in urban corridors under construction. Almost all projects require the relocation or adjustment of existing utilities. When conflicts exist, either the utility owner or the agency's contractor must make necessary changes. The extent of relocation depends on the corridor and the nature of the work. Those familiar with urban corridor construction may recall projects where the actual corridor improvements (e.g., new pavement, drainage, traffic signals, and bridge construction) appeared almost incidental to the amount of preliminary utility work. Ultimately, the presence of utilities on these projects represents a potentially high-cost/high-risk factor during construction. Utility conflicts, impacts on the actual construction work, and the best strategies agencies use to prevent negative outcomes on urban projects (National Academies of Sciences, 2011).

In Jimma City, when utility companies (i.e. ETC, JCWSA, and EEPCO) needed to install new lines or to improve the existing ones underneath the roads, they used to apply to Jimma City Administration for permit and ERA to cut paved roads. Very often permits were not granted promptly. Besides, the permits given were not based on adequate information and database. The concerns of the utility company that secured such a permit were limited only to laying its own utility lines. As a result, such developments often took place at the expense of the other utility lines that were already in place. In fact this has resulted in the cutting and destruction of other infrastructure lines that were otherwise functioning in good conditions. It has also resulted in delaying in the implementation of projects thereby adversely affecting overall city infrastructure and services provision (consult, 2006).

From the perspective of utility companies, delays in ROW acquisition and frequent changes to the design are the main reasons for delays in utility relocation. Past experience with frequent design changes keep utility companies from getting involved earlier in the project development process, for fear of wasting time, effort, and money on a relocation that a project may no longer need after a design change (Edgar Kraus, 2007).

Utility companies often lack accurate records on precise locations of underground utility lines. In this case, they will not identify if utility lines are required to be moved, especially in urban areas where utility lines have been installed years ago. In cases where a utility conflict is anticipated, the problems should be studied with utility companies and a contractor to come up with a best possible solution. The project design should be revised and updated in order to expedite the construction and minimize the delays. A delay mostly occurs when the prime

contractor cannot work as a result of utility conflicts. That is why it is important for the utility company and the contractor to establish good cooperation between them during the actual construction of the project. Using some type of utility locater is costly to use but it would be even more costly and time consuming if a utility line is detected in the process of construction (Vidalis, 2002).

Since no proper records exist of the underground utilities like water supply, sewerage lines, electrical and telephone cables etc., these utilities get identified as encumbrance only during the implementation stage of the project. Similarly shifting of overhead electrical and telephone lines (which are visible including poles) takes a long time. This leads to delay as the shifting of these utilities brings in hardships to the general population and suitable alternate arrangements are required to be made. There are numerous government agencies involved from which clearances/approvals/permissions are required to be obtained before the utilities can be shifted or relocated. This takes a great deal of time. There are cumbersome procedures involved and sometimes the relevant laws and regulations are also not very clear (H. L. Chawla, 2010).

B) Row Problem

Right-of-way (ROW) clearance is defined as those instances where there is an interest in land acquired and includes all necessary procedures to acquire the property. In some cases land and interests in land must be acquired outside existing ROW for or by the utility. ROW acquisition and utility adjustment are almost always on the critical path of an infrastructure project. It is important to identify and focus on all parcels within the ROW, but especially those that might cause delay, such as those that may require eminent domain acquisition or have other inherent problems. Utilities with a history of slow response in making adjustments should be aggressively managed. It should be noted that ROW and utility adjustment issues may be of concern even in cases where the parcel or utility is owned by a separate public entity. A strategy must be developed to address these problematic parcels and/or utility adjustment. (Bingham, 2010)

In the context of Jimma City road construction projects the ROW problem is related to land acquisition issue from the community for the purpose of the infrastructure development and relocating of utility facilities. The land required for these projects includes the land to be used for the construction of the road which includes appropriate ROW according to the requirements of the Jimma City master plan standards and other part of the land which will be

used by the contractors as local material sources such as quarry site, spoil area, and temporary land for material stock piling, pre-casting yards, warehouse, workshops, parking lots, etc. ROW obstructions are one of the prevailing risks hindering the progress of road construction in urban areas unless intensive intervention measures are adopted. (Temesgen, 2015)

C) Performance Of Stakeholder Issues

The construction industry is complex in its nature because it comprises large numbers of parties as clients, contractors, consultants, stakeholders, and regulators. Despite this complexity, the industry plays a major role in the development and achievement of society's goals. It is one of the largest industries and contributes to about 10% of the gross national product (GNP) in industrialized countries, many local construction projects report poor performance due to many evidential project-specific causes such as: unavailability of materials; excessive amendments of design and drawings; poor coordination among participants, ineffective monitoring and feedback, and lack of project leadership skills. Project performance can be measured and evaluated using a large number of performance indicators that could be related to various dimensions (groups) such as time, cost, quality, client satisfaction, client changes, business performance, health and safety. Many factors as having influence on project cost performance, these include: project manager's competence, top management support, project manager's coordinating and leadership skills, monitoring and feedback by the participants, decision-making, coordination among project participants, owners' competence, social condition, economic condition, and climatic condition. Coordination among project participants, however, was identified as the most significant of all the factors, having maximum influence on cost performance. (Adnan Enshassi, 2009)

A negative attitude to a construction project by stakeholders can severely obstruct its implementation. Such obstruction will cause cost overruns and exceeded time schedules due to conflicts and controversies concerning project design and implementation. Inadequate management of the concerns of stakeholders often leads to conflicts and controversies about the implementation of a construction project. (Olander, 2005)

D) Scope Change

Changes to scope during a project would be best to be avoided as they bring the challenge of increasing cost and schedule. It would be difficult to get additional finance resource. This is why it is important to justify the causes of any scope request. (Jones, 2011) elaborate on different causes of project scope change. The proposed common causes of scope changes are the following

1) External event: Changes in the competitive environment or a new regulation can cause the team or the stakeholders to reconsider the product Scope.

2) Error in defining product scope: If a requirement was left out in defining the scope originally, the scope will have to be changed to include the new requirement.

3) Error in defining project scope: An error in defining the project scope, such as needed to employ specific procedures or processes, could entail changing the project scope.

4) Value-adding change: Sometimes a team member finds a better way of accomplishing the work or determines how to improve quality by doing things differently.

5) Implementing a contingency plan or work around: If a risk event occurs and there is need to take actions to respond to it, the actions could cause a change to either the project or product scope.

6) Beneficiaries see the outcome and wants changes: Some outcome development projects employ a life cycle that allows for iterative development as the beneficiaries see interim deliverables. This is still a scope change, but the project team is planning for the design and the deliverables to evolve with each of iteration.

E) Contractor Capacity

Road contractor's performance problem appears in many aspects in developing countries. Many road projects fail in time performance, others fail in cost performance and others fail in other performance indicators. In the past there were many road projects which finished with poor performance because of many evidential reasons such as: obstacles by client, non-availability of materials, road closure, amendment of the design and drawing, additional

works, waiting the decision, handing over, variation order, amendments in Bill of Quantity and delay of receiving drawings. There are other indicators for problems of road contractor's performance in developing countries such as project management, coordination between participants, monitoring, and feedback and leadership skills. In addition, political, economic and cultural issues are three important indicators related to failures of road projects' performance in the Country (Research, November 2015).

The major issues of concern during urban road construction are mentioned as follows:

Concerns on the capacity of the contractors

- Management organization needs adjustment towards professionalism (the General Managers position of the construction company is to be hold by professionals like civil engineers related fields.
- Less effort towards curbing the prevailing high turnover of professionals and skilled workers.
- Poor recording keeping of activities related with construction
- Financial capacity of the contractors to be built, financial institutions need to
- Facilitate the liquid assets.
- Poor practice of subletting parts of the works to Subcontractors.
- Little effort towards the establishment of specialized contractors like for asphalt work, concrete works, pipe production, prefabricated elements, quarry, crushed aggregate, formwork, earthwork, rock blasting, etc.

F) Consultant Capacity

The major issues of concern during urban road construction are mentioned as follows (Temesgen, 2015).

Concerns on the short comings of the consultants are

- Faulty designs, errors in quantity estimation, discrepancy in the drawings and Specifications, etc.
- Lack of commitment and feeling ownership of the project
- Follow the contractor‘s work accomplishment rather than proactively contributing valuable input towards the achieving the project objectives.

G) Client Capacity

The major issues of concern during urban road construction are mentioned as follows:

Concerns on the capacity of the client

- Absence of pre-project planning
- Lack of strong contract Administration (better to allow all road projects including
- maintenance works to be done by contractors and focus on contract administration and ROW clearances)
- Shortage of professionals competent enough to thoroughly check the designs submitted by the consultants.
- Frequent change of requirements
- Delay in responding to questions raised by the contractors and consultants
- To closely work with relevant offices so that master plan for road classifications needs to be verified based on the actual topographic data and traffic volume
- Absence of updating traffic management study for road network based on the Current developments
- Lack of giving priority for road intersections, taxi bays, parking areas to minimize the prevailing traffic jams
- Lack of updating integrated drainage network study in relation to the road networks,
- Non standardization of drawings and details
- Project procurement method to be revised to avoid award for lowest bid price offers, etc. (Temesgen, 2015).

H) Schedule Constraint

Road construction operations, rules governing the actions and interactions of the resources should be identified, developed, classified and modeled through a comprehensive analysis of several road construction projects. For every road construction operations (activities), project templates in advance should be defined and developed. Through the templates, which summarize productivity, factors influencing the productivity of resources and the sequence of works, the basics towards complete executions planning and scheduling are achieved (Assefa A. , May 2008)

Project scheduling involves charting the resources requirements or anticipated progress in completing component activities over the project's time horizon. Scheduling is an inevitable part of life and essential part of every plan. Without scheduling, managers cannot be certain that they are actually processing towards their goals. It could be said that scheduling put the plan on calendar basis. Therefore, a time schedule outlines the project work programmed; hence, it is a time table of work planned. Development of accurate work schedules is a challenge to managers due incompetence into consideration the factors that affect work scheduling. Construction project with effective work schedule is a recipe for progress monitoring and control as it depicts the activities to be executed on a time scale. Without scheduling of work activities, it could be difficult to monitor activity progress and take corrective and control actions on the control milestone. It will also provide platform for measurement of the actual work progress and comparing it with the schedule work progress, determine if there is any deviation for corrective action. Project control puts the project plan on course again after determination of activities variance (Moneke .U, February 2012)

Construction planning and scheduling tasks are fundamental and challenging activities in the management of executing construction projects. It involves choice of construction technologies, definition of work tasks, estimation of the required resources and durations for individual tasks, and identification of any interactions or constraints among the different tasks. A good construction plan is the basis for developing the project budget and the schedule of work. Poor estimates or schedules can easily result in large construction cost increases or delays (Chotchai, 2002).

I) Environmental Problem

Road construction is by its nature a complex task that needs a thorough planning and controlled management throughout the lifetime of the project. Its progress can be affected by lots of reasons that results the project to lag behind its scheduled time. Rainy seasons are one of the focal reasons that delay construction projects especially for roads. During rainy seasons, the ground will not be suitable for execution of works, machinery movement and over all construction works. Since most parts of Ethiopia have three months of rainy season each year, these times of the year are usually known to disturb ongoing road constructions. rainy seasons are also known to have their own negative impact on road delay of the construction Due to this, construction time is extended and detour roads does not give the expected services resulting in inconvenience of transport (Belay.M, February,2015)

J) Poor Project Management

The role of a project manager is distinct from that of a functional manager or operations manager. Typically, the functional manager focuses on providing management oversight for a functional or business unit. Operations managers are responsible for ensuring that business operations are efficient. The project manager is the person assigned by the performing organization to lead the team that is responsible for achieving the project objectives (PMI, 2017).

Recent PMI studies applied the Project Manager Competency Development (PMCD) Framework to the skills needed by project managers through the use of The PMI Talent Triangle® shown in Figure 3.2. The talent triangle focuses on three key skill sets:

1. **Technical Project Management.** The knowledge, skills, and behaviors related to specific domains of project, program, and portfolio management. The technical aspects of performing one's role.
2. **Leadership.** The knowledge, skills, and behaviors needed to guide, motivate, and direct a team, to help an organization achieve its business goals.
3. **Strategic and Business Management.** The knowledge of and expertise in the industry and organization that enhanced performance and better delivers business outcomes.

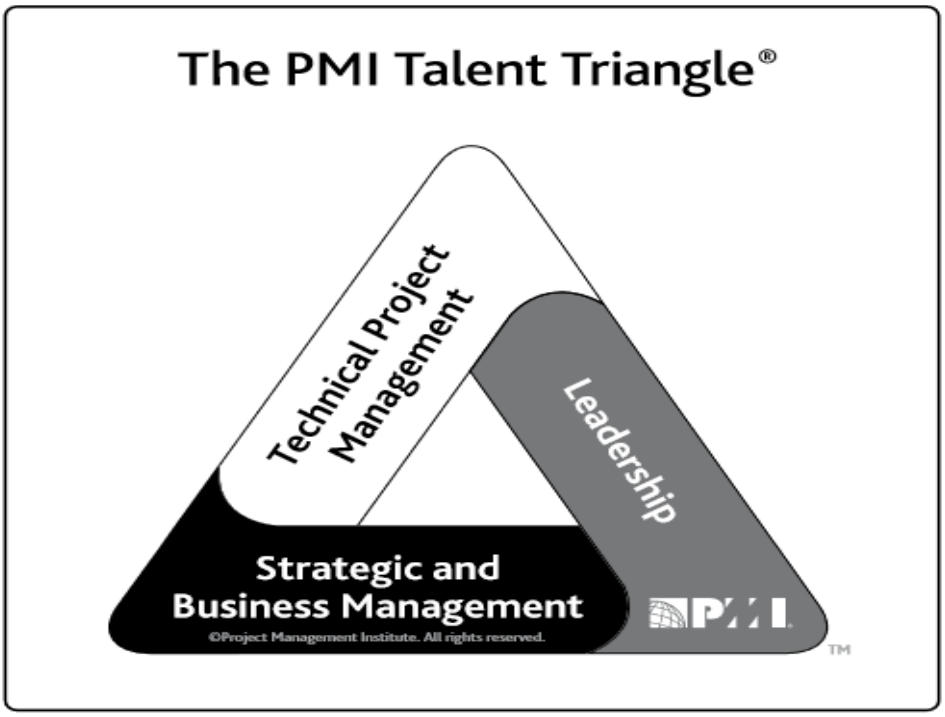

Figure 2.1 The PMI Talent triangle (PMI, 2017)

The project manager is the key person in the project. They must demonstrate multi-dimensional abilities including interpersonal, technical and administrative skills. The most important element is that the project manager must clearly understand their role as project leader, clearly defining their extent of involvement, and the authority and control they exercise over personnel.

Poor project management is a problem on the implementation of road construction. This situation comes from the lack of experience of the project manager; Poor site management reflected the weakness and incapability of contractors. And also Skillful and experience human resource is insufficient in site management.

K) Variation Order

Incompatible layout plan and engineering design of the project's structures can undermine the overall aesthetic beauty and ambience of the project area. Also low utilization of the available spaces and not designing the structures taking into account, the prospective and futuristic needs can result in structures with low social acceptability and functionality (Gujran, 2013).

A construction contract is a business agreement that is subject to variability. Contractual clauses relating to changes allow parties involved in the contract to freely initiate variation orders within the ambit of the scope of the works without alteration of the original contract. Variation orders involve additions, omissions, alterations and substitutions in terms of quality, quantity and schedule of works. Unfortunately, because construction projects involve complex operations which cannot be accurately determined in advance, variation orders occur. Variation orders are issued to correct or modify the original scope of work because changes during construction of projects are unavoidable. Variations in construction projects are very common and likely to occur from different sources, by various causes, at any stage of a project, and may have considerable negative impacts on items such as costs and schedule delays. A critical variation may cause consecutive delays in project schedule, re-estimation of work statement, and extra demands of equipment, materials, labor, and overtime. Variations, if not resolved through a formalized variation management process, can become the major source of contract disputes, which is a severe risk contributing to project failure (Andualem, 2014)

L) Scarcity of Financial & Material Resources

Construction materials can be purchased by two procedures, either purchasing directly, or purchasing for entire lump sum contract. However, purchasing materials before due time is very important in the construction, because the delay in purchasing will delay the completion date, and interrupt the schedule. Consequently, the contractor will be exposed to penalty which might sometimes cause contractor to fail thus monitoring and evaluation is essential (Erick, 2015).

2.3.3 Effects of the Challenges on Road Construction Projects

Delay is one of the biggest problem's construction firms face. Delays can lead to many negative effects such as lawsuits between owners and contractors, increased costs, loss of productivity and profits, and contract termination. The construction companies in many countries around the world experience significant delays. So, what is construction delay? Construction delay can be defined as time overrun or extension of time to complete the project. It is a situation when the actual progress of a construction project is slower than the planned schedule or late completion of the project. However, delay situations are complex in nature because multiple delays can occur concurrently and because they can be caused by more than one party, or by none of them principal parties. One delay may contribute to the formation of other delays. In complex and big projects having many activities, delays are analyzed only based on the two major parameters i.e. time and cost because recording each activity schedules is difficult. Since the delay in infrastructure projects affects the economy of the country, it is important for the projects to be completed within the budgeted cost and time (Asish Ram, Dr Pratheeba Paul., 2015).

These causes of construction delay were categorized into the following eight major groups (Murali Sambasivan Yau Wen Soon, 2006).

1. Client related factors: finance and payments of completed work, owner interference, slow decision making and unrealistic contract duration imposed by owners.
2. Contractor related factors: delays caused by subcontractor, site management, improper construction methods, improper planning and errors during construction, and inadequate contractor experience.
3. Consultant related factors: contract management, preparation and approval of drawings, quality assurance and waiting time for approval of test and inspection.

4. Material related factors: quality of material and shortage in material.
5. Labor and equipment related factors: labor supply, labor productivity and equipment availability and failure.
6. Contract related factors: change orders and mistakes or discrepancies in contract document.
7. Contract relationship related factors: major disputes and negotiations, inappropriate overall organizational structure linking to the project and lack of communication between the parties.
8. External factors: weather condition, regulatory changes, problem with neighbors and unforeseen site condition

2.3.4 Time Over Run

The timely completion of road infrastructure projects is an important objective. A significant annoyance to the public occurs when projects are not completed in a timely manner and when actual progress of the construction work is longer than necessary, thereby prolonging the inconvenience and disrupted business access. Economic & social welfare and safety are all related to timely completion. In spite of the importance of timely completion, construction delays remain a common occurrence (Asish Ram, Dr Pratheeba Paul., 2015).

Client-related and contractor-related factors have impact on the time overrun. Factors such as inadequate planning by the contractors, improper site management by the contractors, inadequate project handling experience of contractors, and delay in the payments for the work completed directly affect the completion of the project and cause time overrun (Murali Sambasivan Yau Wen Soon, 2006)

2.3.5 Cost Over Run

Cost overruns have obvious effects for the key stakeholders in particular, and on the construction industry in general. To the client, cost overrun implies added costs over and above those initially agreed upon at the onset, resulting in less returns on investment. To the end user, the added costs are passed on as higher rental/lease costs or prices. To the professionals, cost overrun implies inability to deliver value for money and could well tarnish their reputations and result in loss of confidence reposed in them by clients. To the contractor, it implies loss of profit for non-completion, and defamation that could jeopardize his/her chances of winning further jobs, if at fault. To the industry as a whole, cost overruns

could bring about project abandonment and a drop in construction activities, bad reputation, and inability to secure project finance or securing it at higher costs due to added risks (Jemal, August, 2015).

Construction industry now-a-days is facing severe problem of poor cost management resulting in huge amount of cost overrun. The problem of poor cost management and overrun in project cost is serious issue in both developed and developing countries. The success measure for a project is defined by completing it within specified cost, time and quality. However, the construction industry is full of projects that were completed with significant cost deviation (Ahamed, F., Zahra, L. & Juma, T, 2010).

2.3.6 Termination of a Project

Termination is a permanent stoppage of work of all or a portion of the contract and the contract is terminated. For a party to possess the right for termination, a termination clause must be specifically included in the contract. Most contracts allow the owner the right to terminate the contract, while some contracts grant the contractor this right (ArcuriJohn C. Hildreth Virginia Tech, May 2007).

2.3.7 Dispute Between Parties

Disputes are the effects of major causes of poor performance in construction projects such as causes of client related, contractor related, and consultant related and external related that might be arisen during the construction projects among the project parties. Lack of communication may also leads to misunderstandings, conflicts, and disputes. Hence, it necessitates the project managers to have effective communication skills that are one of the significant soft skills (People skills) with the project parties involving in construction projects (Abedi, Apr 2011).

2.4.1 Construction Requirement for Right of way Problem

Construction requirement for demolition and removal of existing structures

1. Existing structures and installations shall be demolished as described in the contract or as instructed by the engineer. The existing structures and installations shall be removed such a way as to leave no obstruction to the new works. Those structures and installations, which are to be partially demolished, shall be shored, braced and

supported in such a manner that the integrity of the structure shall be maintained. All supports should be kept outside the right of way.

2. The contractor shall carefully remove and store materials salvaged from demolished structures and installations. Unless otherwise stated in the contract, such materials shall become the property of the owner. This material shall be carefully transported and stored in an acceptable manner upon the owner's adjacent property or at location to be identified by the engineer.
3. Whenever materials are stored within right-of-way, the contractor shall be responsible for its care and preservation until its authorized removal. The contractor shall satisfactorily dispose of all material designated by the engineer as having no salvage value by means of its legal removal from the site, burning using a high intensity burning process that produces few emissions, burying in trenches or pits in approved areas within the right-of-way in accordance with the requirements
4. The contractor shall remove structures and installations or part of structure and installations, which obstruct with the installation of a new structure or installation.
5. Unless otherwise directed by the engineer any voids below ground level in existing structures or installations shall be filled with natural sand or crushed fine aggregate. Latrine pits, septic tanks etc. shall be cleaned out and disinfected and the contents disposed of generally in accordance with the requirements for hazardous materials before the filling with approved materials (AACRA, November 2004).

2.4.2 Construction Requirements for Existing Public Utility

A. Disconnections

Before the commencement of demolition operations, the Contractor shall notify the Engineer who shall arrange for the disconnection of all disused public utilities, including electricity, telephone, sewer, water and other facilities encountered.

B. Protection of Existing Public Utilities

Existing utilities, which are to remain in place, such as sewers, drains, water pipes, conduits, poles, etc. are to be carefully protected from injury and are not to be displaced.

C. Relocation of Existing Public Utilities

The Contracting Authority shall arrange with the appropriate authorities for the necessary relocation of any public utilities, which would otherwise obstruct the Works (ERA, 2002).

The lack of integration of urban infrastructure and services planning in Ethiopia could be said to have its basis in three major areas: lack of technical knowhow, poor institutional arrangements and weak legal frame works. Due to uncoordinated planning and design and weak institutional arrangements redoing Faulty designs and rebuilding utility lines have wasted a significant number of resources. Frequent cutting of city streets by various utility companies has severely affected the Environmental quality and the efficiency of the urban transport system (GOFORI).

In order to promote the exchange of information before excavation start, governments might consider introduction of "a single information system" based permitting legislation for all the municipal services and utilities providing authorities within the city. Another option for municipalities might be to set up a "common clearing-house for inquires and to issue digging licenses". Such licenses might also be an effective way of "controlling digging activities" (Bogale, 2012).

As the planning dimension, the institutional dimension used to assess the partners' coordination as the main point of interest. The concept of institutional coordination is used to express official inter and intra-sectorial relationships among the city administration and utility infrastructure providing institutions in the course of the city's utility infrastructures provision. The problem of the institutional dimension is characterized in terms of: inefficient use of resources(financial, material, land, labor and time resources), an expenditure of large amount of money for the relocation utilities compensation, problem in access of the revised city plan, lack of institutional coordination when one institution builds the other destroys, inconsistency in compensation payment, cumbersome procedures during the process of utility infrastructure relocation and during the work of the city redevelopment projects (Asish Ram, Dr Pratheeba Paul., 2015).

2.4.3 Prepare Temporary Traffic Management Plan During the Construction Phase

The extent of work includes the design, construction, maintenance and provision of temporary road ways and side tracks, the provision of traffic controllers ,lights ,barriers signs ,road markings, fences, diversions, and any other items required for the safe and easy passage of all public traffic shall apply where any public place or road is affected by the works .Unless otherwise specified all temporary traffic arrangements required by works and under the contract are included under this specification. The contractor must follow to the

requirement of the specification, and the drawing where planning and carrying out traffic control and shall conduct operation with the least possible obstruction and inconvenience to the public. The contractor should have under construction no greater length or amount of work than can be prosecuted properly with due regards to the right of the public. To the extent possible, the contactor shall finish each section before beginning work on the next (Cheung, 2004).

A) Install and maintain temporary traffic control devices adjacent to and within the project as required by the traffic control plan. The engineer installs and maintains the traffic control devices as follow

1. Furnish and install traffic control devices before the start of construction operations.
2. Install only those traffic control devices needed to for each stage or phase;
3. Relocate temporary traffic control devices as necessary
4. Immediately replace any devices that is lost, stolen, destroyed

B) Traffic safety officer

The safety of the travelling public is of most important and every effort must be made to ensure that all road signs, barricades, delineators, flag men and speed controls are maintained and effective and that courtesy is extended to the public at all times.

1. Exercise control in terms of traffic safety over the safe movement of personnel, Visitors and plant on sites including wearing high visible clothing, the operation of amber flicker lights and the display and cleanliness of "construction vehicle" signs, all as specified.
2. Compile and maintain a complete daily record of traffic signs installed and the traffic signs sequence at each location during the execution of the contract (Cheung, 2004).

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Study Area

This study was conducted in Jimma town different kebeles. Jimma City is situated at the junction point of three important regional roads, i.e.; the road to Addis Ababa, road to Bonga and Mizan Aman, and road to Mettu and Gambella, and other rural roads of the surrounding Woredas. This makes the city an important nodal point in the south-western part of the country as it is accessible from different regions and also connecting a number of zones in Oromia Region.

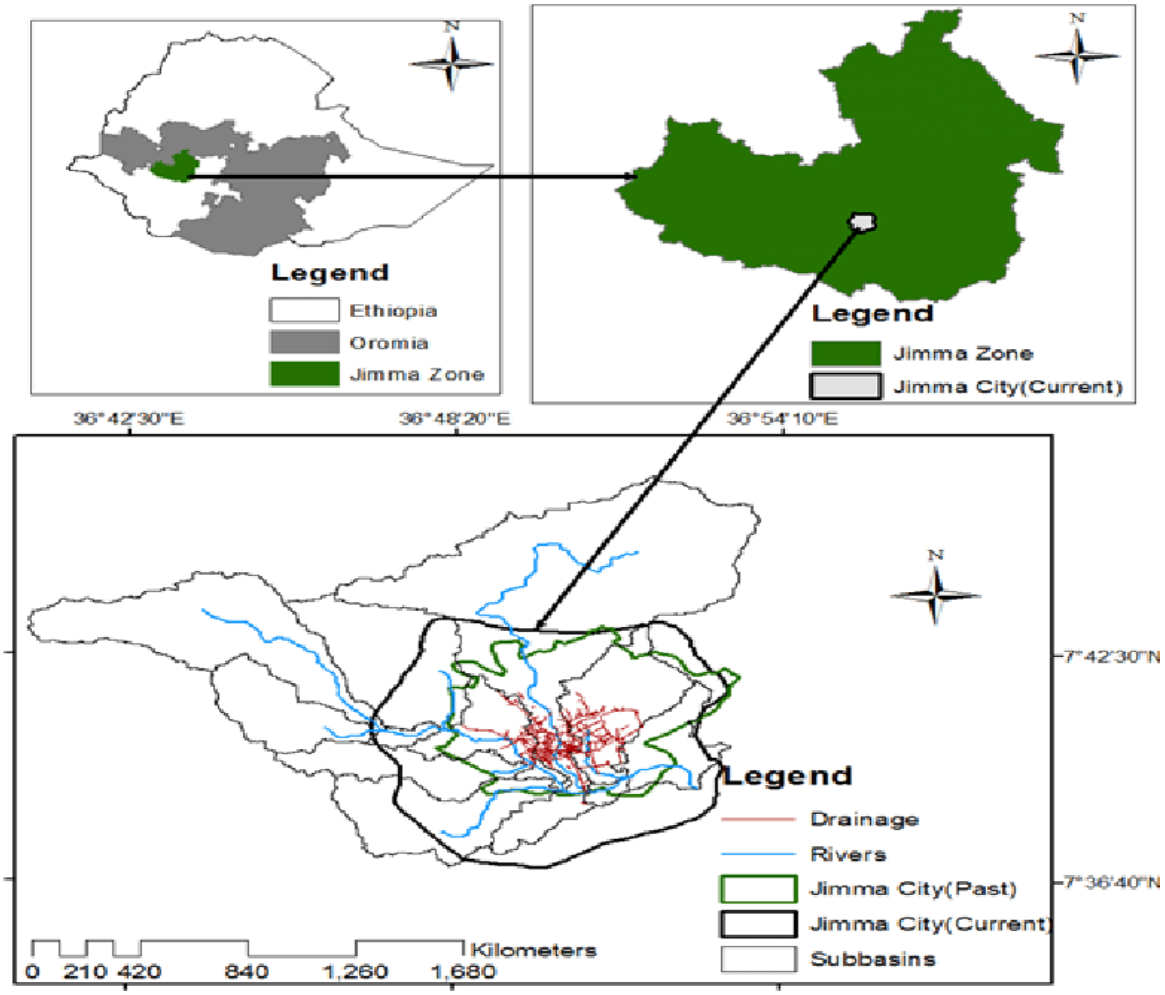

Figure 3.1 Location map of Jimma City.(WWW.Jimma City map.com)

3.2 Study Period

The research was conducted from January 2021 to August 2021.

3.3 Study Design

There are various methods that can be used to conduct research and these can be either quantitative, qualitative or combination of both (mixed method). According to (Leedy P.D. & Ormrod J.E, 2010) quantitative research is based on positivist theory and is a systematic, objective investigation of phenomena and their relationships. Quantitative research is normally characterized by quantification and mathematical model development. Qualitative research on the other hand is based on interpretive theory and involves in depth understanding within a context and is characterized by rich, complete and detailed descriptions. Usually, the research problem will define how the study will be conducted and the investigator selects the study methodology based on the purpose of the study. If the purpose is to explain, predict, confirm, validate or test a theory, then quantitative method is selected. However, if the purpose of the study is to describe, explain, explore, interpret or build a theory then qualitative research method is recommended (Leedy P.D. & Ormrod J.E, 2010).

The research design used in this study were descriptive and explanatory survey types because it deals with causal relationship between the variables and it needs to describe the challenges of ongoing road construction and effect of these challenges on the selected road construction projects.

3.4 Populations

In this case the population is road construction projects which are located under Jimma city administration.

3.5 Sampling Technique

Sampling is the process by which respondents are picked out of the population to represent that population. This process can either be done through probability or non-probability methods (Leedy P.D. & Ormrod J.E, 2010).

A purposive sampling method was followed to select respondents of the study In addition, a sample of available design and contract documents of selected projects on going were taken for desk study based on same technique.

There were three different parties involved in each project which are the client, contractor and the consultant. Purposive sampling techniques was used to select the respondents from each party. After due consultation with the client and consultant(construction office) respondents to be included were decided to be projects which are facing challenge during execution and has a total number of 30 professionals: 10 from Client (Jimma city administration), 10 from contractors and 10 from Jimma city construction office.

3.6 Study Variables

Dependent Variable:

The dependent variable, which is the output and its result, depend on the independent variables, which directly related to the general objectives.

- Challenges of Ongoing Road Construction.

Independent variable:

These independent variables are more relating with specific objectives but each specific objective is affecting one another.

- ROW problem
- Design problem
- Utility conflict
- Traffic and
- social problem

3.7 Method of Data Analysis

Data collection tools were adapted after review of relevant literatures and data collection was free from any bias and all collected data were included in the output. Assistances were trained to collect the data carefully.

The score assigned to each factor by the respondents represents the degree to which the factor contributes to overall project success. This degree of agreement value varies from 1 (strongly dis agree up to 5 (strongly agree). All the collected information from the survey were checked

and verified for the correctness by principal investigator. The data were subjected to statistical analysis for further insights using the Statically Package for Social Science (SPSS) v20.

3.7.1 Relative Importance Index

The Relative Importance Index (RII) is a statistical method which is used to determine the ranking of different challenges of road construction project. As this survey was designed to investigate the relative importance of various major success factors, the method was adopted in this study within various groups. The RII five-point scale, ranging from 1 (strongly disagree) to 5 (strongly agree) was adopted and transformed the relative importance indices' for each success factors as follows;

$$RII = \frac{\sum W}{A * N} \quad \text{.....Equestion-1}$$

Where **w** is weighting given to each factor by respondents ranging from 1 to 5.

In the case of identifying challenges of road construction projects management and assessing the effects associated with them.

n_1 =number of respondents for strongly dis agree,

n_2 = number of respondents for disagree,

n_3= number of respondents for neutral,

n_4 = number of respondents for agree,

n_5 = number of respondents for strongly agree

A= is the highest weight (i.e. 5 in this case), and

N = is the total number of respondents.

In the case of recommending suggested methods which can help to minimize challenges in road construction projects.

n_1 =number of respondents for Unimportant,

n_2 = number of respondents for Less important,

n_3= number of respondents for Important,

n_4 = number of respondents for Very important,

n_5 = number of respondents for Very high important

A= is the highest weight (i.e. 5 in this case), and

N = is the total number of respondents.

The RII value had a range between $0<RII \leq 1$. The highest value of RII indicates, the more important challenge of road construction project and it is the major challenge of road construction project. The RII was used to rank the relative importance index of the different major challenge of road construction project during the study. These ranking made it possible to cross compare the relative importance of the factors as perceived by the group of respondents i.e. owners, contractors and consultants (construction office). Each individual challenge's RII, as challenge of road construction project perceived by all respondent was used to assess the general and an overall ranking in order to give an overall picture of major challenge of road construction project of road construction under Jimma city administration. The numbers on questionnaire assigned to the respondents' agreement scale (1, 2, 3, 4, 5) do not indicate that the interval between the scales are equal, nor do they indicate absolute quantities except they are representative for future analysis of the research. (Bayisa, February 2018)

Table 3.1 Value assigned for Likert scale in the questionnaire

Scale	1	2	3	4	5
Item	Strongly Dis -Agree	Dis-Agree	Neutral	agree	Strongly Agree

Scale	1	2	3	4	5
Item	Unimportant	Less important	Important	Very important	Very high important

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Basic Information on Respondents

This section is mainly designed to provide general information about respondent's position and experience in road construction projects. Thirty (30) questionnaires were distributed to the respondents as follows: ten to client (Jimma city administration), ten to consulting firms or construction office and ten to contractor organizations. which are engaged in road projects in Jimma city administration and all are collected from respondents this yields a response rate of 100% as shown on table 4.1 below. Before starting the analysis, the returned questionnaire was checked for their reliability and out of the 30 questionnaires 30 were found to be suitable for data analysis with a valid response rate of 100%.

Table 4.1 Distribution of questionnaire and response rate

Respondents Category	Questionnaires Distributed	Questionnaires Returned	Percentage (%)	Valid response	Valid Response rate (%)
Contractor	10	10	100	10	100
Consultant	10	10	100	10	100
Client	10	10	100	10	100
Total	30	30	100	30	100

4.1.1 Experience of the Respondent

As shown on table 4.2 years of experience of respondents involved in road construction were listed. Among the listed experience 56.7% of respondents have less than 3 years, 36.7% of those have between 5 to 8 years and 6.7% of respondent have more than 8 years' experience This indicates that the respondents have enough insight in the subject area being researched and therefore proffer responses well enough to warrant adequate conclusion on the findings.

Table 4.2 Experience of the respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
< 3years	17	56.7	56.7	56.7
3-8years	11	36.7	36.7	93.3
> 8years	2	6.7	6.7	100.0
Total	30	100.0	100.0	

4.1.2 Current Job Title in the Organization/Company

Among the respondents about 20% are managers at different level, 73% are Site Engineers, 3.3% of respondents are resident engineers and 3.3% are project coordinators see table 4,3 below. The respondents were contacted since they are practitioners in the road construction industry and have adequate knowledge on the issues being ascertained. This shows that the questionnaires were filled by professionals in the road construction industry thereby ensuring the credibility and reliability of the findings.

Table 4.3 Job title of the respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Project Manager	6	20.0	20.0	20.0
Site Engineer	22	73.3	73.3	93.3
Resident Engineer	1	3.3	3.3	96.7
Project Coordinator	1	3.3	3.3	100.0
Total	30	100.0	100.0	

4.2 Identified Challenges of Road Construction Projects in Jimma City from Information Gathered from desk study and Site Observation

The projects for assessing were selected in due consulting with the client. Desk study and site observation were conducted in addition to questionnaire on gathering challenges listed in the tables 4.4 and all of these challenges were identified as challenges of road construction in jimma city road construction projects.

4.2.1 Construction of Standard Gravel Road With Side Drainage at Ginjo Guduru Kebele

Challenges encountered on Yetebaberut-Wuha Fisash and Dippo-Firustale gravel road construction project were; Non removal of right of way obstruction house and fence, Utility not relocated at the appropriate time of the project such as Copper and optical fibre cables crossing the road at both sites , DCI (ductile cast iron) water pipe line crossing the road Electric pole and wires, Design change and Un experienced project manager which create high turnover of project manager, create social problem and rain.

Due to lack of coordination between utility institutions (i.e. Tele, Electric and JWSA) utilities were not disconnected, relocated and installed at the appropriate time of the construction phase. Due to such reason the project was delayed by 1 year ant 8 month from the contract completion period and also face cost overrun of 6,027,320.9ETB.

Figure 4.1 Yetebaberut-Wuhafisash and Dipo-Firustale road project

4.2.2 Construction of Compacted Earth Road With Side Drainage at Different Keble

The above listed compacted earth Road Construction Project is one of the road construction projects undertaken by Jimma city administration.

Challenges observed from the site were ; Right of way, obstruction of fiber Cable and main water supply line, rain, Design and scope change was a challenge which created discontinuity of the routine earthwork, pavement and drainage works. It also affects the next activities and ultimately the cost and time of the project.

The construction work especially base course and wearing course have been interrupted due to unfavorable weather condition, Shortage of base course material has become a main problem to complete the road way construction due to this challenges the project incur additional cost and delayed 5 months from the contract completion period.

Figure 4.2 Compacted earth road project at different Kebeles.

4.2.3 Construction of Gravel Road from Yetebaberut Asphalt Junction Through Poly Technic School

The above listed gravel road Construction Project is one of the road construction projects undertaken by Jimma city administration.

Challenges observed from the site were ; right of way, obstruction of fiber cable, main water supply line, rain, geographically dispersed team and Existence of High traffic was a challenge which created discontinuity of the routine earthwork, pavement and drainage works. It also affects the next activities and ultimately the time of project completion and delivery.

Due to what was encountered as a challenge these are right of way, No relocation of utilities, Design change, Scope change High traffic problem, and Unfavorable weather condition. The project delayed by 1 year.

Figure 4.3 Yetebaberut-Poly technic road project

2.2.4 Construction of Cobblestone Road from Lina International Hotel to Yetebaberut Asphalt Road Junction

The challenge encountered was right of way obstruction fence, No relocation of utilities(i.e. Electric and JWSA), Design change, High traffic problem, Shortage of material, Unfavorable weather condition(at the beginning of the project during drainage construction) and lack of coordination between Utility institutions decrease the project progress speed from summited schedule time and the Design change causes addition omission.

Figure 4.4 Lina International Hotel to Yetebaberut asphalt road project

4.2.5 Construction of Cobble Stone Road from Zakir Residence to Ato Melkamu Residence

The Challenges encountered was Right of way problem, Poor performance of stakeholders, Poor workmanship on contractor side Variation order, Poor public awareness and Design change (change in width and depth of the road and drainage), lack of coordination between Utility institutions decrease the project progress speed from expected time and the Design change causes addition omission process and also the project faces cost overrun.

Figure 4.5 Zakir Residence to Ato Melkamu residence road project.

4.2.6 Construction of Cobblestone Road With Side Drainage from Circus Cobble Junction to Medanialem Church Asphalt Junction

The challenge encountered was right of way obstruction fence, No relocation of utilities(ELPA), Design change, Shortage of select material, Unfavorable weather condition(at the beginning of the project during drainage construction) and lack of coordination between Utility institutions decrease the project progress speed from expected time.

Figure 4.6 Cobblestone road From Circus to Medanialem church Asphalt

4.2.7 Construction of Cobble Stone Road from JU Main Gate to Abdi Guddina Electronics Shop

The challenge encountered was right of way obstruction fence, No relocation of utilities, Design change, Shortage of material, Unfavorable weather condition(at the beginning of the project during drainage construction) and lack of coordination between Utility institutions(ELPA) decrease the project progress speed from expected time, decrease in width of the road and increase in length in addition to that making change drainage causes addition omission to the project.

Figure 4.7 Cobblestone road from JU Main gate to Abdi guddina electronics shop

4.2.8 Construction of Cobble Stone Road With Side Drainage from Adjacent Mariam Church To Demadamu Cobble Junction

The challenge encountered was right of way obstruction fence, No relocation of utilities, Design change, Shortage of material, Unfavorable weather condition(at the beginning of the project during drainage construction) and lack of coordination between Utility institutions decrease the project progress speed from summited schedule and the change in width of the road and making change on depth of drainage and making them constructed on both side of the road which were first agreed to construct only on one side causes addition omission to project.

Figure 4.8 Cobble stone road from adjacent mariam church to Demadamu cobble

4.2.9 Construction of Cobble Stone Road With Side Drainage from Meweda Secondary School to Mohammed Aliyyi Residence Cobble Junction

Regarding this site though the ground this firm and easy to construct there was different challenge encountered those were right of way obstruction fence, No relocation of utilities(ELPA) Design change, Shortage of select material which was happened around the beginning of the project, Unfavorable weather condition(at the beginning of the project during drainage construction) and lack of coordination between Utility institutions specially Ethiopian electric power agency, though they are tolled to early they are inactive in removing the poles which are within the right of way and subsequently it decreases the project progress speed from expected time and the Design which did not consider the difference in elevation(slope change) which is not considered during design causes addition omission.

Figure 4.9 cobble stone road from Meweda Secondery School to M/Aliyi residence

4.2.10 Construction of Cobblestone Road from Alhadi Jihad Cobble Junction to Feysel A/Meca Residence

The challenge encountered was right of way obstruction fence, No relocation of utilities(ELPA) Design change, Shortage of select material, Unfavorable weather condition(at the beginning of the project during drainage construction) and lack of coordination between Utility institutions decrease the project progress speed from expected time and the Design which did not include enough masonry drainage quantity for the project causes addition omission and variation.

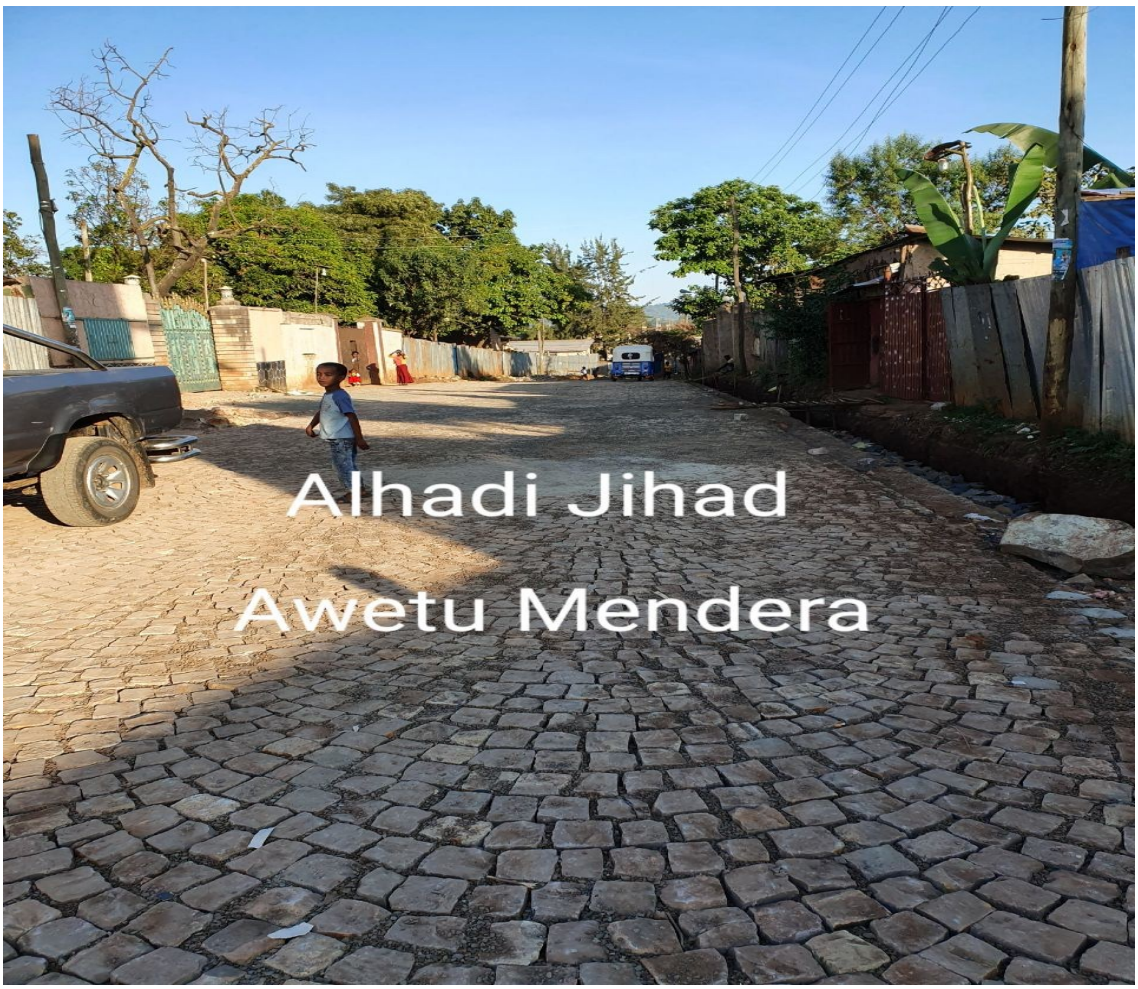

Figure4.10 From Alhadi Jihad coble junction to feysel A/meca residence

4.3 Summary of The Finding of Challenges on Ongoing Road Project

Based on the information that obtained from literature review, desk study and also site observation the challenges on the above specified projects were summarized as follows

Table 4.4 identified challenges during assessment period

List of challenges
Right of way problem
Design problem
Un experienced project manager
Weather condition
Poor procurement process
Scope Change
Delay in decision making process
Change in specifications
Poor planning and scheduling of the project
Lack of coordination and communication between stakeholders
Unforeseen problems
Existence of High traffic
Lack of stakeholders commitment
Inappropriate construction methods
Utility conflict
Poor workmanship
delay of payment
Shortage of material supply
financial Scarcity
Corruption
In adequate supervision and monitoring/ inspection at construction site
Geographically dispersed teams

4.4 Rank of Identified Challenges of Road Construction

Though the challenges identified in table 4.4 were about twenty two in number The researcher try to select and discuss on some of them after performing their Analysis and ranking them in Table 4.5 which simplify the selection. From the following table it was possible to rank challenges of road construction projects by comparing their RII.

Table 4.5 Ranking the challenges

List of challenges of road construction project	RII	Rank
Right of way problem	0.77	1
Design problem	0.75	2
Un experienced project manager	0.75	3
Weather condition	0.75	4
Poor procurement process	0.72	5
Scope Change	0.71	6
Delay in decision making process	0.71	7
Change in specifications	0.69	8
Poor planning and scheduling of the project	0.68	9
Lack of coordination and communication between stakeholders	0.65	10
Unforeseen problems	0.65	11
Existence of High traffic	0.65	12
Lack of stakeholders commitment	0.64	13
Inappropriate construction methods	0.63	14
Utility conflict	0.62	15
Poor workmanship	0.62	16

delay of payment	0.61	17
Shortage of material supply	0.61	18
financial Scarcity	0.61	19
Corruption	0.60	20
In adequate supervision and monitoring/ inspection at construction site	0.59	21
Geographically dispersed teams	0.58	22

Even if they all are identified as challenges their weight different from each other and the researcher selected up to seventh stage for discussion. The following is a brief discussion of these challenges. Regarding the ranks since they depends on RII value some of them become the same, therefore the researcher tried to differentiate them depending on what was found from site observation and desk study.

I. Right of Way Problem

As shown on the above chart (Figure 4.11) ROW problem got the first rank with RII value of 0.767. Clearing or relocation of obstructions within the right of way of Jimma town has become a serious challenge on the progress of works. These challenges include: underground utility lines (Tele phone cables and water line pipes), electric poles, residential houses, fences and High traffic movement on the construction area were obstructions in the construction of road projects in Jimma city. Unless due attention is paid to these obstructions, project progress is still hinder and can also affect the further work progress.

Figure 4.111 Right of way problem and high traffic on the site.

II. Design Problem

Design problem was ranked secondly with RII = (0.753) as shown Figure 4.11 above. Design problem is indeed one of the challenging factors and this fact is supported by the site observations, desk study and questionnaire. Projects under Jimma city administration faced project design challenge which is inappropriate to local conditions among these the designs prepared for cobblestone road, Compacted earth road, gravel road are in appropriate. Which means cobble stone road design prepared for all site with different soil type (weak and firm ground) is similar as shown on Figure APB12 in the appendix and the design for low volume roads did not have geotechnical investigation which are cause for design problem and become challenges during execution. On other hand the researcher found that though the design of compacted earth road need both side drainage it is designed for only one side which lead the road to different factors which reduce the expected service life of the road.

Figure 4.122 Roads with design problem.

III. Weather Condition

Weather condition was ranked fourth by the analysis. The questionnaire and desk study indicated that bad or adverse weather condition is common cause of delay which lead to time extension and economic losses for projects under Jimma city administration see Figure 4.11 below which is collected during site observation.

Figure 4.133 Bad weather condition as a challenge

IV. Poor Procurement Process

Poor procurement process is ranked fifth with (RII= 0.72) as it was found from desk study some of the documents were not accurately quantified and correctly qualified with the materials needed along with its specification; due to this after the project is awarded to the contractor, the contractor did not do the project according to the agreement and it led to dispute not only that it also take additional cost and time As shown in Figure APB9.

V. Delay in Response to Decision Making Process

Delay in response to decision making process was on the six position in the analysis with (RII=0.713). The questionnaire and desk study shows that let decision making by the client and construction office make the project to lag from project completion date. When they do not make decisions on time regarding project matters, they slow down activities at the project sites. These organization's internal bureaucracy and absence of good communication are among causes of slow decision-making according to the desk study and respondents opinion.

VI. Scope Change

Scope change is ranked seventh with (RII= 0.707) value. As shown in Figure APB13 what faced in some of Jima city road projects (i.e. in gravel road, compacted earth road and some of cobble stone roads) was that their scope change related to length of the road which were not included in the document and in other case there is change from one type of structure to other (from drainage to retaining wall, from drainage to road way vice versa and including road span which is not in the agreement) which lead to time and cost overrun.

4.5 Associated Effects of the Identified Challenges on Road Construction Projects.

Table 4.6 Effects associated with challenges of road construction projects

List of effects associated with challenges of road construction project	RII	Rank
Time overrun	0.69	1
Quality degradation	0.69	1
Creating social problems during construction	0.68	3
Dispute between parties	0.68	4
Cost overrun	0.67	5
Creating Social riot	0.65	6
Project termination	0.64	7
Reduce work motivation	0.63	8
Loosing chance of fund from World Bank	0.61	9

As it can be seen in Table 4.6, the effects associated with the challenges of road construction projects were identified these were Time overrun and Quality degradation with (RI=0.69), followed by Creating social problems during construction and Dispute between parties with (RI=0.68), Cost overrun (RI=0.67), Creating Social riot (RI=0.65), Project termination (RI=0.64), Reduce work motivation (RI=0.63), Loosing chance of fund from World Bank (RI=0.61).

The effects were ranked up to nine and the researcher selected up to fifth stage for discussion as their results founded from respondents the selection depends on their rank after prioritizing.

Collected data from respondents and desk study from ten road projects under jimma city administration seven cobblestone roads are completed on time and two gravel roads, one compacted earth road and one cobble stone road which is about 33% of the projects delayed and adding one cobble stone road to the above specified road about 40% of the projects were faced cost overrun because of challenges specified on table 4.1. Regarding quality degradation what is indicated by respondents is that even if there is super vision and correction of works it is not enough in number and also there is lack of logistic, knowledge and commitment of professionals. Some of the projects are creating social problems during construction when the project is not completed on time, not providing ditch cover, cutting of water line and electric line, not providing access for society at the points of excavation for ditch and culvert. Concerning dispute between parties its usually happened by the time of supervision.

4.6 Methods to Minimize Challenges in Road Construction

Table 4.7 Methods to minimize challenges in road construction

List of methods to minimize challenges in road construction	RII	Runk
Providing the Designer with necessary design input data	0.89	1
Ensure that suitable management arrangements are made for the project	0.89	2
Establish organizational structures	0.87	3
Scheduling and Sequencing of work	0.86	4
Checking, through the joint team, that the corrective action has been implemented.	0.85	5
Prepare education and training for all levels of staff to improve their skill	0.85	6
checking that there is good co-operation and communication between designers and contractors	0.85	6
Select & appoint a competent and resourced Principal Designer and contractor.	0.85	8
Appoint an election team and Setting criteria to select project participants.	0.83	9
Solving disputes immediately with the assistance of team members	0.83	10
Identifying problem areas, deficiencies and deviations.	0.81	11
Conducting meeting at regular intervals and ensure that all parties attend the meetings continuously	0.81	12
Make decisions and monitor progress at pre-determined stages	0.81	12
Through the joint team conduct a regular measurement of performance and progress	0.81	12
Propose solution for Unexpected weather	0.81	12
Ensure to prepare Wastes disposal around the site	0.80	16

Challenges and their associated effects on road construction project were interpreted based on the results in table 4.5 and 4.6. As explained above the listed challenges are challenges of road projects under Jimma city. This challenge has to be minimized in order to save the city resource and complete projects successfully. Therefore, respondents have given their response of minimization mechanism as shown on table 4.7. According to the result sixteen factors were identified as method of minimizing these challenges and ranked as follow Providing the Designer with necessary design input data(RII=0.89), Ensure that suitable management arrangements are made for the project(RII=0.89), Establish organizational structures(RI=0.87), Scheduling and Sequencing of work(RII=0.86), Checking, through the joint team, that the corrective action has been implemented(RII=0.85), Prepare education and training for all levels of staff to improve their skill(RII=0.85), checking that there is good co-operation and communication between designers and contractors, (RII=0.85), Select & appoint a competent and resourced Principal Designer and contractor (RII=0.85), Appoint an election team and Setting criteria to select project participants (RII=0.83), Solving disputes immediately with the assistance of team members (RII=0.83), Identifying problem areas, deficiencies and deviations (RII=0.81), Conducting meeting at regular intervals and ensure that all parties attend the meetings continuously (RII=0.81), Make decisions and monitor progress at pre-determined stages (RII=0.81), Through the joint team conduct a regular measurement of performance and progress (RII=0.81), (RII=0.81), Propose solution for Unexpected weather (RII=0.81), Ensure to prepare Wastes disposal around the site (RII=0.80). In general, the above cases are arranged according to the respondent's view and ranked by their RII. Therefore, all stakeholders should have to focus and work together on methods of minimizing challenges which are sources of project failure.

Triangulation

Relating what the researcher found from site observation, desk study and the questionnaire regarding the challenges they are almost similar. Concerning the associated effect respondent’s response on the questionnaire were time overrun (RII=0.69) was ranked first and Creating social problems during construction (RII=0.68) was ranked third but what I face during site observation is different. That is all projects were Creating social problems during construction which implies it was the first in rank.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.1 CONCLUSION

According to the result from the study, the identified challenges of ongoing road construction found under Jimma city administration were about twenty-two. Among the challenges which were discussed on the top four were right of way problem with RII =0.77,design problem with RII =0.75,inexperienced project manager with RII =0.75,weather condition with RII=0.75 and geographically dispersed teams is the least with RII value of 0.58.

This study found that, the identified challenges have associated effect on road projects. According to their rank the top was time overrun with RII =0.69 and the list is losing chance of fund from World Bank with RII value of 0.61.

Since the identified challenges have associated effect we need to minimize them, So that the researcher identified about sixteen methods of minimization. From these identified methods providing the designer with necessary design input data (RII=0.89), ensure suitable management arrangements are made for the project (RII=0.89) and establish organizational structures (RII=0.87) were the top three methods according to their rank and the least was Ensure to prepare Wastes disposal around the site with RII=0.8.

Therefore, as it was found from site observation, questionnaire and desk study most of the challenges and effects was occurred on the big projects which are projects other than cobblestone roads which are executed with higher budget and wider in scope.

5.2 RECOMMENDATIONS

Based on the finding of the research, the following recommendation were given in order to minimize challenges and associated effects of roads construction found under Jimma city administration

CLIENT/JIMMA CITY ADMINISTRATION INFRASTRUCTURE DEPARTMENT

The client is required

- To undergo a restructuring of its organization to focus on the clearance of obstructions, before the contractor handing over the site in order to minimize right of way and utility conflict problems
- To avoid time overrun and budget overrun, the client shall properly evaluate the design done by consultants or by their own force and bring the issue to a public debate before awarding construction work. In this case the ultimate need of the client and the public my satisfied and considerable variation and addition omission will be avoided.
- They also have to ensure the design and specification fall within the allocated budget. In addition to that they have to avoid low effective project management system by capacity building mechanism

Before the construction starts, the client has to fulfill all the necessary requirements for delivering the site. Since failure to deliver the site will cause time and cost overrun.

CONTRACTOR

- Site conditions should be studied before start of construction,
- The contractor should comply with the standards to progress the work effectively & with a good quality.
- The movement of vehicles crossing construction site should not be allowed during construction in order to reduce accident and delay from the construction project and Alternative routes must be made
- Also any activity which in danger the safety of the community and workers should have to be avoided with big consideration.

CONSULTANT/CONSTRUCTION AUTHORITY

- They Are required be committed in producing designs which is appropriate for the site in a case of Jimma city most of their projects are designed by their own force.
- Each Design should be correctly designed after taking detail site investigation and its document also be clear and neat.
- The slope of the drainage structure also need to be designed correctly in order to save the structure from deterioration since pavement is to be properly constructed with the material as per the specification to prolong the life of the road as per the design period.
- They should have a strong accountability of monitoring project and provide completed project design where variation order and addition omission will be negligible. In addition to that they have to avoid low effective project management system by capacity building mechanism.

Utility Institutions/JWSA, ELPA AND TELE

Utility institutions are major challenges in road construction projects under Jimma city specially ELPA therefore the concerned utility institutions should have meetings and discussion in every phase of the road projects to reduce the conflict and delay of the road projects and utilities disruption which is also the cause for chaos and conflict between the community and other participants of the project.

For the governing body

In order to came out with successful project the concerned body need have to provide the city infrastructure department and construction office logistics which is the big issue to enable them executing their works independently specially for Jimma city construction authority.

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APPENDIX A

QUESTIONNAIRE

The aim of this questionnaire is to assess challenges of road construction projects in Jimma City and its associated effect. The research is conducted for fulfilling the requirements for the degree of MSc in Construction Engineering and Management at Jimma University. This questionnaire is required to be filled with exact relevant facts as much as possible. All information provided in this questionnaire will be treated with strict confidentiality and allowed to serve only for the purpose of the academic research under consideration. Interested participants of this study will be given feedback on the overall research results after the completion of the research work.

Sincerely yours,

Mohammedawel Temam

Email: mamray17@gmail.com

MSC.CEM Department of civil engineering JIT, Jimma University

PART ONE

A. General Information

Please put (✓) and/or fill in the blanks as appropriate.

1. Name of the project: _____

2. Name of Organization: _____

3. Type of Organization:

Client ☐ Contractor ☐ Consultant ☐

Other, Please specify: _____

4. Current Job title in the organization/company.

Project Manager ☐ Site Engineer ☐

Resident Engineer ☐ Project Coordinator ☐

Other, Please specify: _____

5. Years of experience of the road construction Projects in Jimma.

< 3years ☐ 3-8years ☐ > 8years ☐

SECTION B: Challenges of Road Construction Projects

Please use the scale below to rate the degree of consent of the following statement based on your experience.

1 = Strongly Disagree 2 = Disagree 3 = Neutral

4 = Agree 5 = Strongly Agree

Following are list of challenges of road construction projects. From your experience, what are the challenges of road construction projects in Jimma City?

S.N	List of challenges of road construction project	1	2	3	4	5
1	Design problem					
2	Poor procurement process					
3	Scope Change					
4	Change in specifications					
5	Utility conflict					
6	Unforeseen problems					
7	delay of payment					
8	Poor workmanship					
9	Right of way problem					
10	Existence of High traffic					
11	Weather condition					
12	Un experienced project manager					
13	Lack of stakeholders commitment					
14	financial Scarcity					
15	Shortage of material supply					
16	In adequate supervision and monitoring/ inspection at construction site					
17	Inappropriate construction methods					
18	Lack of coordination and communication between stakeholders					
19	Delay in decision making process					
20	Geographically dispersed teams					
21	Corruption					
22	Poor planning and scheduling of the project					
	Specify if other					

SECTION C: Effects Associated with the Challenges of Road Construction Projects

Please use the scale below to rate the degree of consent of the following statement based on your experience.

1 = Strongly Disagree

2 = Disagree

3 = Neutral

4 = Agree

5 = Strongly Agree

Following are list of effects associated with challenges of road construction projects. From your experience, what are the effects associated with challenges of road construction projects in Jimma City?

S.N	List of effects associated with challenges of road construction project	1	2	3	4	5
1	Time overrun					
2	Project termination					
3	Cost overrun					
4	Dispute between parties					
5	Loosing chance of fund from World Bank					
6	Creating Social riot					
7	Reduce work motivation					
9	Creating social problems during construction					
10	Quality degradation					
	Please Specify if other					

SECTION D: Methods to minimize challenges in road construction projects.

Please use the scale below to rate the degree of consent of the following statement based on your experience.

1 = Unimportant

2 = Less important

3 = Important

4 = Very important

5 = Very high important

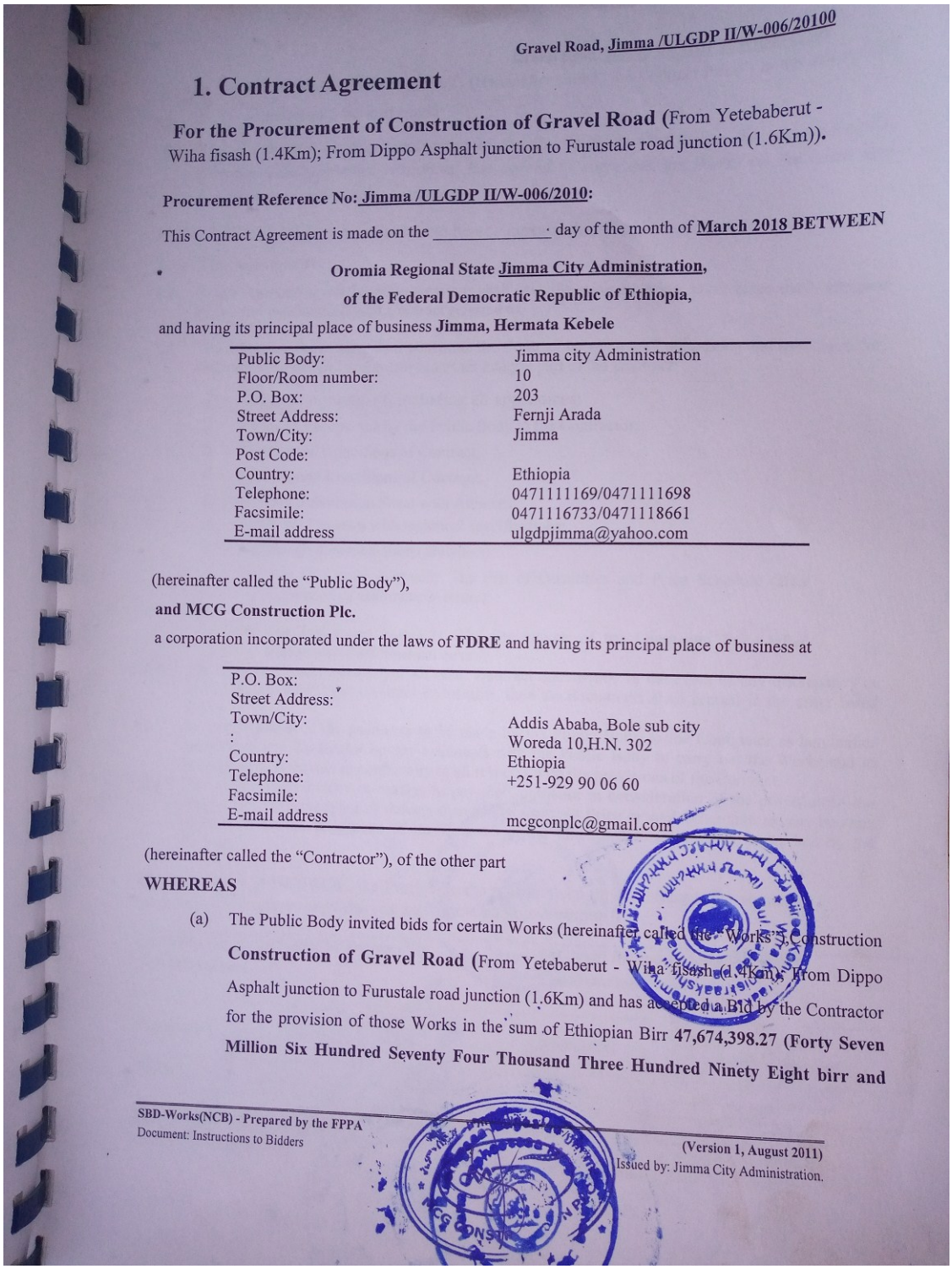
Following are suggested methods which can help to minimize challenges in road construction projects. From your experience, what are the best methods which help in minimize challenges in road construction projects in Jimma City?

S. N	List of method to minimize challenges in road construction	1	2	3	4	5
1	Establish organizational structures					
2	Prepare education and training for all levels of staff to improve their skill.					
3	Scheduling and Sequencing of work.					
4	Ensure that suitable management arrangements are made for the project.					
5	Appoint an election team and Setting criteria to select project participants.					
6	Select & appoint a competent and resourced Principal Designer and contractor.					
7	checking that there is good co-operation and communication between designers and contractors					
8	Solving disputes immediately with the assistance of team members					

9	Conducting meeting at regular intervals and ensure that all parties attend the meetings continuously.					
10	Providing the Designer with necessary design input data					
11	Make decisions and monitor progress at pre-determined stages.					
12	Through the joint team conduct a regular measurement of performance and progress.					
13	Identifying problem areas, deficiencies and deviations.					
14	Checking, through the joint team, that the corrective action has been implemented.					
15	Ensure to prepare Wastes disposal around the site					
16	Propose solution for Unexpected weather					
	Please Specify if other					

Thank you very much for your time.

APPENDIX B



Gravel Road, Jimma /ULGDP II/W-006/20100

1. Contract Agreement

For the Procurement of Construction of Gravel Road (From Yetebaberut - Wiha fisash (1.4Km); From Dippo Asphalt junction to Furustale road junction (1.6Km)).

Procurement Reference No: Jimma /ULGDP II/W-006/2010:

This Contract Agreement is made on the _____ day of the month of **March 2018** **BETWEEN**

Oromia Regional State Jimma City Administration,
of the Federal Democratic Republic of Ethiopia,

and having its principal place of business **Jimma, Hermata Kebele**

Public Body:	Jimma city Administration
Floor/Room number:	10
P.O. Box:	203
Street Address:	Fernji Arada
Town/City:	Jimma
Post Code:	
Country:	Ethiopia
Telephone:	0471111169/0471111698
Facsimile:	0471116733/0471118661
E-mail address	ulgdpjimma@yahoo.com

(hereinafter called the "Public Body"),

and MCG Construction Plc.

a corporation incorporated under the laws of **FDRE** and having its principal place of business at

P.O. Box:	
Street Address:	
Town/City:	Addis Ababa, Bole sub city
:	Woreda 10,H.N. 302
Country:	Ethiopia
Telephone:	+251-929 90 06 60
Facsimile:	
E-mail address	mcgconplc@gmail.com

(hereinafter called the "Contractor"), of the other part

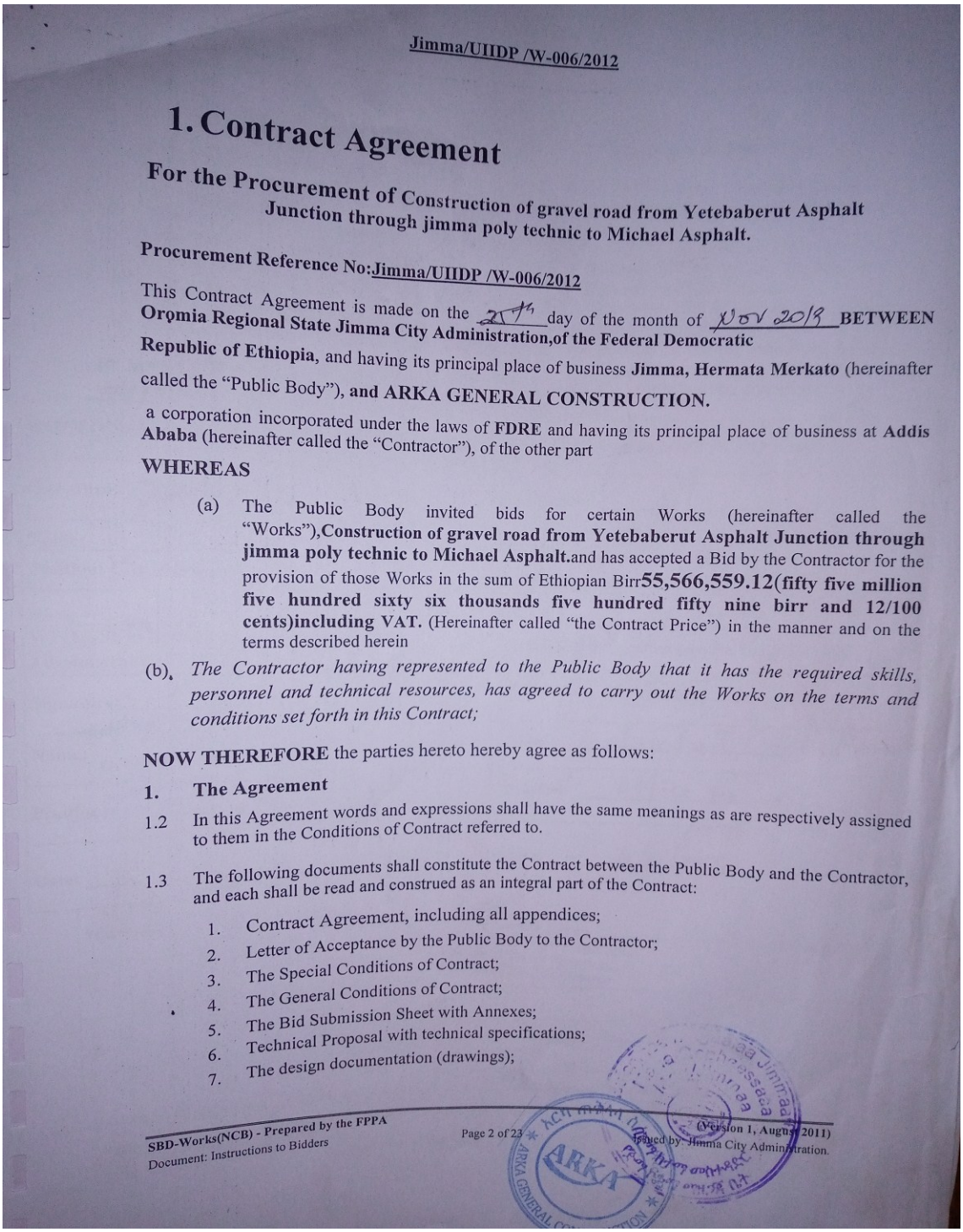
WHEREAS

(a) The Public Body invited bids for certain Works (hereinafter called the "Works") Construction **Construction of Gravel Road** (From Yetebaberut - Wiha fisash (1.4Km); From Dippo Asphalt junction to Furustale road junction (1.6Km) and has accepted a Bid by the Contractor for the provision of those Works in the sum of Ethiopian Birr **47,674,398.27 (Forty Seven Million Six Hundred Seventy Four Thousand Three Hundred Ninety Eight birr and**

SBD-Works(NCB) - Prepared by the FPPA
Document: Instructions to Bidders

(Version 1, August 2011)
Issued by: Jimma City Administration.

Figure APB1 Contract Agreement



Jimma/UIIDP /W-006/2012

1. Contract Agreement

For the Procurement of Construction of gravel road from Yetebaberut Asphalt Junction through jimma poly technic to Michael Asphalt.

Procurement Reference No:Jimma/UIIDP /W-006/2012

This Contract Agreement is made on the 21st day of the month of Nov 2019 **BETWEEN Oromia Regional State Jimma City Administration,of the Federal Democratic Republic of Ethiopia**, and having its principal place of business **Jimma, Hermata Merkato** (hereinafter called the "Public Body"), **and ARKA GENERAL CONSTRUCTION.**

a corporation incorporated under the laws of **FDRE** and having its principal place of business at **Addis Ababa** (hereinafter called the "Contractor"), of the other part

WHEREAS

(a) The Public Body invited bids for certain Works (hereinafter called the "Works"),**Construction of gravel road from Yetebaberut Asphalt Junction through jimma poly technic to Michael Asphalt.**and has accepted a Bid by the Contractor for the provision of those Works in the sum of Ethiopian Birr**55,566,559.12(fifty five million five hundred sixty six thousands five hundred fifty nine birr and 12/100 cents)including VAT.** (Hereinafter called "the Contract Price") in the manner and on the terms described herein

(b). *The Contractor having represented to the Public Body that it has the required skills, personnel and technical resources, has agreed to carry out the Works on the terms and conditions set forth in this Contract;*

NOW THEREFORE the parties hereto hereby agree as follows:

1. The Agreement

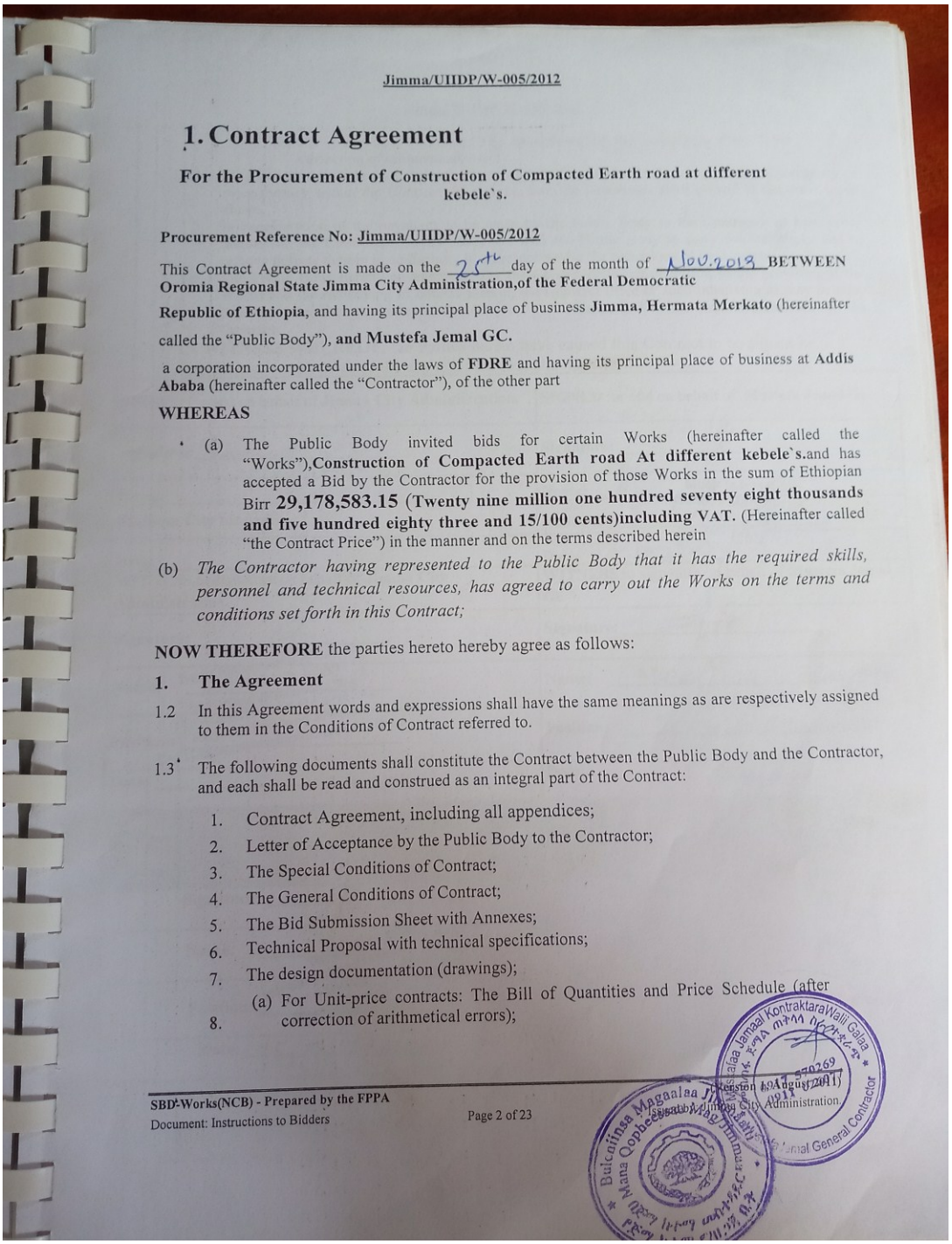
1.2 In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

1.3 The following documents shall constitute the Contract between the Public Body and the Contractor, and each shall be read and construed as an integral part of the Contract:

1. Contract Agreement, including all appendices;
2. Letter of Acceptance by the Public Body to the Contractor;
3. The Special Conditions of Contract;
4. The General Conditions of Contract;
5. The Bid Submission Sheet with Annexes;
6. Technical Proposal with technical specifications;
7. The design documentation (drawings);

SBD-Works(NCB) - Prepared by the FPPA (Version 1, August 2011)
Document: Instructions to Bidders Page 2 of 23 Issued by: Jimma City Administration.

Figure APB2 Contract Agreement



Jimma/UIIDP/W-005/2012

1. Contract Agreement

For the Procurement of Construction of Compacted Earth road at different kebele`s.

Procurement Reference No: Jimma/UIIDP/W-005/2012

This Contract Agreement is made on the 25th day of the month of Nov.2013 BETWEEN **Oromia Regional State Jimma City Administration,of the Federal Democratic Republic of Ethiopia**, and having its principal place of business **Jimma, Hermata Merkato** (hereinafter called the "Public Body"), **and Mustefa Jemal GC.**

a corporation incorporated under the laws of **FDRE** and having its principal place of business at **Addis Ababa** (hereinafter called the "Contractor"), of the other part

WHEREAS

(a) The Public Body invited bids for certain Works (hereinafter called the "Works"),**Construction of Compacted Earth road At different kebele`s.**and has accepted a Bid by the Contractor for the provision of those Works in the sum of Ethiopian Birr **29,178,583.15 (Twenty nine million one hundred seventy eight thousands and five hundred eighty three and 15/100 cents)including VAT.** (Hereinafter called "the Contract Price") in the manner and on the terms described herein

(b) *The Contractor having represented to the Public Body that it has the required skills, personnel and technical resources, has agreed to carry out the Works on the terms and conditions set forth in this Contract;*

NOW THEREFORE the parties hereto hereby agree as follows:

1. The Agreement

1.2 In this Agreement words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract referred to.

1.3 The following documents shall constitute the Contract between the Public Body and the Contractor, and each shall be read and construed as an integral part of the Contract:

1. Contract Agreement, including all appendices;
2. Letter of Acceptance by the Public Body to the Contractor;
3. The Special Conditions of Contract;
4. The General Conditions of Contract;
5. The Bid Submission Sheet with Annexes;
6. Technical Proposal with technical specifications;
7. The design documentation (drawings);
8. (a) For Unit-price contracts: The Bill of Quantities and Price Schedule (after correction of arithmetical errors);

SBD-Works(NCB) - Prepared by the FPPA
Document: Instructions to Bidders

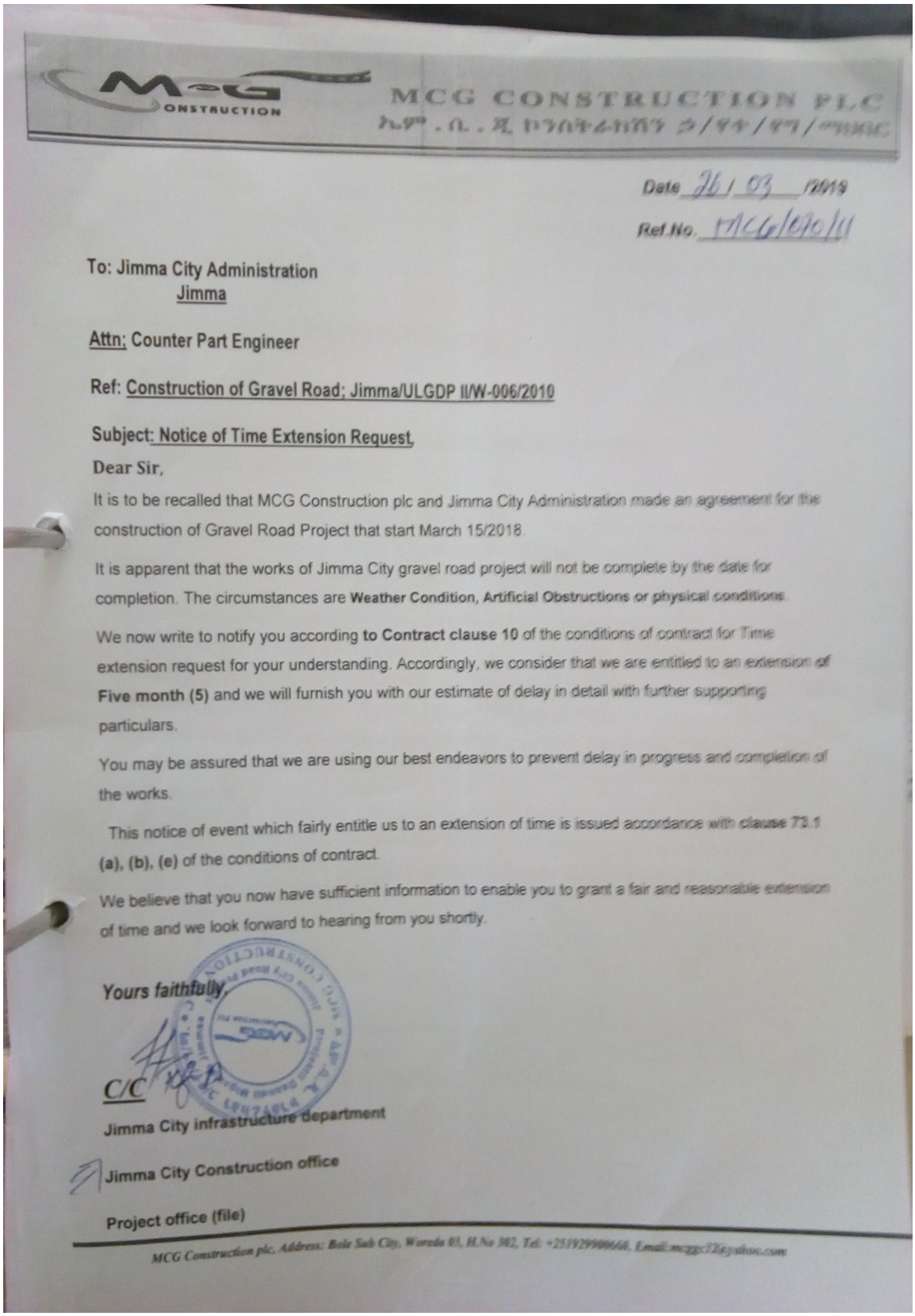
Page 2 of 23

Effective from 19 August 2011)

Issued by Jimma City Administration

Mustefa Jemal General Contractor

Figure APB3 Contract Agreement



MCG CONSTRUCTION PLC

Date 26/03/2018

Ref.No. MCG/020/11

To: Jimma City Administration
Jimma

Attn: Counter Part Engineer

Ref: Construction of Gravel Road; Jimma/ULGDP II/W-006/2010

Subject: Notice of Time Extension Request,

Dear Sir,

It is to be recalled that MCG Construction plc and Jimma City Administration made an agreement for the construction of Gravel Road Project that start March 15/2018.

It is apparent that the works of Jimma City gravel road project will not be complete by the date for completion. The circumstances are **Weather Condition, Artificial Obstructions or physical conditions**.

We now write to notify you according **to Contract clause 10** of the conditions of contract for Time extension request for your understanding. Accordingly, we consider that we are entitled to an extension of **Five month (5)** and we will furnish you with our estimate of delay in detail with further supporting particulars.

You may be assured that we are using our best endeavors to prevent delay in progress and completion of the works.

This notice of event which fairly entitle us to an extension of time is issued accordance with **clause 73.1 (a), (b), (e)** of the conditions of contract.

We believe that you now have sufficient information to enable you to grant a fair and reasonable extension of time and we look forward to hearing from you shortly.

Yours faithfully,

C/C

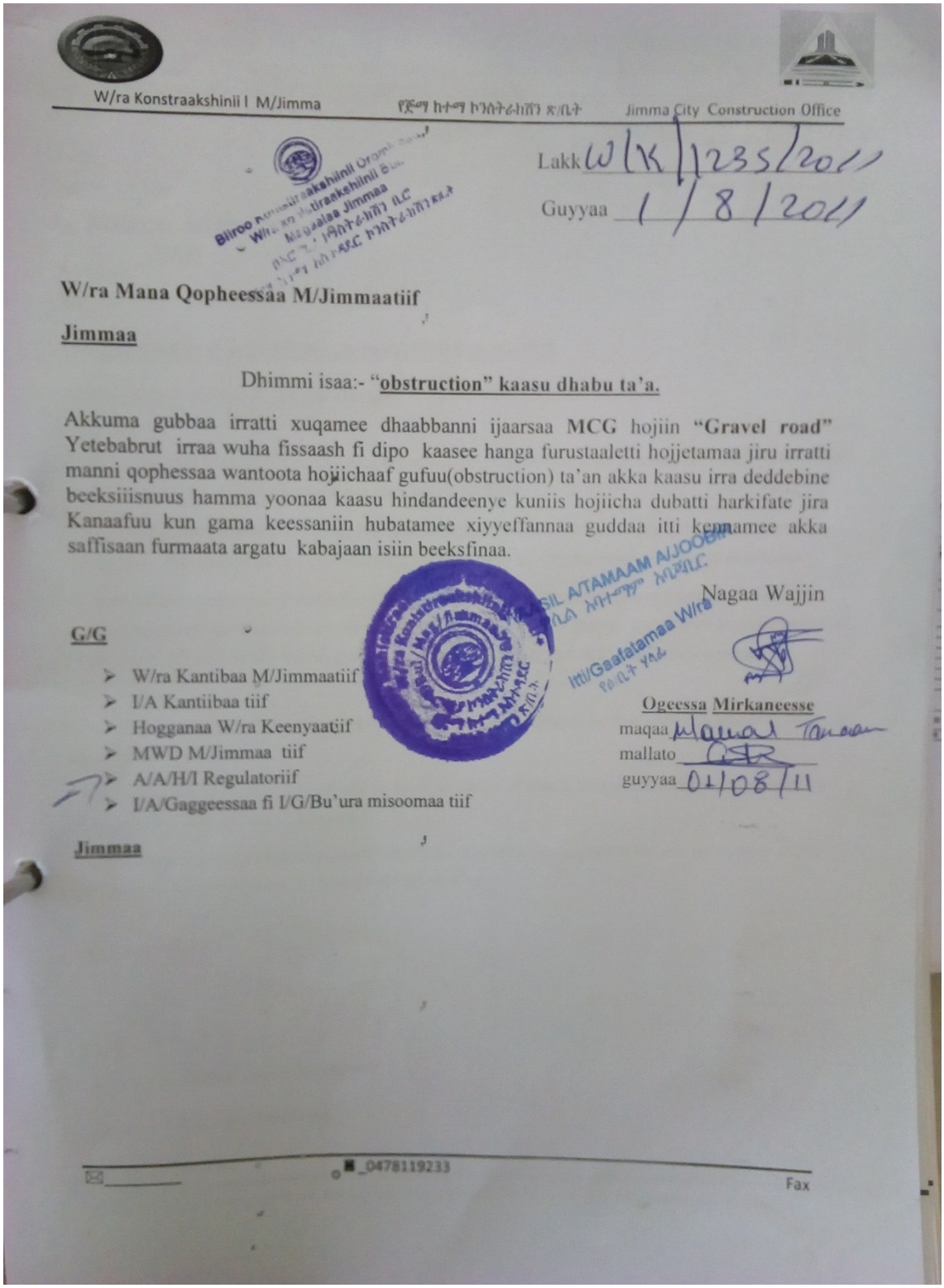
Jimma City infrastructure department

Jimma City Construction office

Project office (file)

MCG Construction plc, Address: Bale Sub City, Woreda 03, H.No 302, Tel: +251929900660, Email:mcgc72@yahoo.com

Figure APB4 Letter Regarding Notice for time extension



W/ra Konstraakshinii I M/Jimma የጅማ ከተማ ኮንስትራክሽን ጽ/ቤት Jimma City Construction Office

Lakk W/K/1235/2011

Guyyaa 1/8/2011

W/ra Mana Qopheessaa M/Jimmaatiif

Jimmaa

Dhimmi isaa:- "**obstruction" kaasu dhabu ta'a.**

Akkuma gubbaa irratti xuqamee dhaabbanni ijaarsaa MCG hojiin **"Gravel road"** Yetebabrut irraa wuha fissaash fi dipo kaasee hanga furustaaletti hojjetamaa jiru irratti manni qophessaa wantoota hojiichaaf gufuu(obstruction) ta'an akka kaasu irra deddebine beeksiisnuus hamma yoonaa kaasu hindandeenye kuniis hojiicha dubatti harkifate jira Kanaafuu kun gama keessaniin hubatamee xiyyeffannaa guddaa itti kennamee akka saffisaan furmaata argatu kabajaan isiin beeksfinaa.

Nagaa Wajjin

Itti/Gaafatamaa W/ra

G/G

- W/ra Kantibaa M/Jimmaatiif
- I/A Kantiibaa tiif
- Hogganaa W/ra Keenyaatiif
- MWD M/Jimmaa tiif
- A/A/H/I Regulatoriif
- I/A/Gaggeessaa fi I/G/Bu'ura misoomaa tiif

Ogeessa Mirkaneesse

maqaa

mallato

guyyaa 01/08/11

Jimmaa

_0478119233 Fax

Figure APB5 Letter About removing of obstruction

MCG CONSTRUCTION PLC

Date 22/04/2019

Ref.No. MCG/033/11

To: Jimma City Administration
Jimma

Attn: Counter Part Engineer

Ref: Construction of Gravel Road; Jimma/ULGDP II/W-006/2010

Subject; Partial suspension of the activities for major (ROW) problem

Dear Sir,

MCG Construction plc has made a contract agreement with Jimma city administration for the construction of Gravel Road (Dipo-Furstale and Yetababerut-WuhaFisash) in jimma town.

Apart our previous reputed notification and site discussion concerning the (ROW) problem

I. Electric line along the ditch to be excavated all right side and crossing the main road (Dipo-Furstale and Yetababerut-WuhaFisash)
II. Main water supply line crossing the road (Dipo-Furstale); Totally no action was taken from your side until today.

Considering the current bad weather condition and the less concern from your side about the problem the contractor will clearly notify your esteemed office to partially suspended the activities at Dippo site until you take action

Please be aware that we will submittal our claim breakdown accordingly.

Thank you for the attention, we remain

Very truly yours,

MCG Construction PLC.

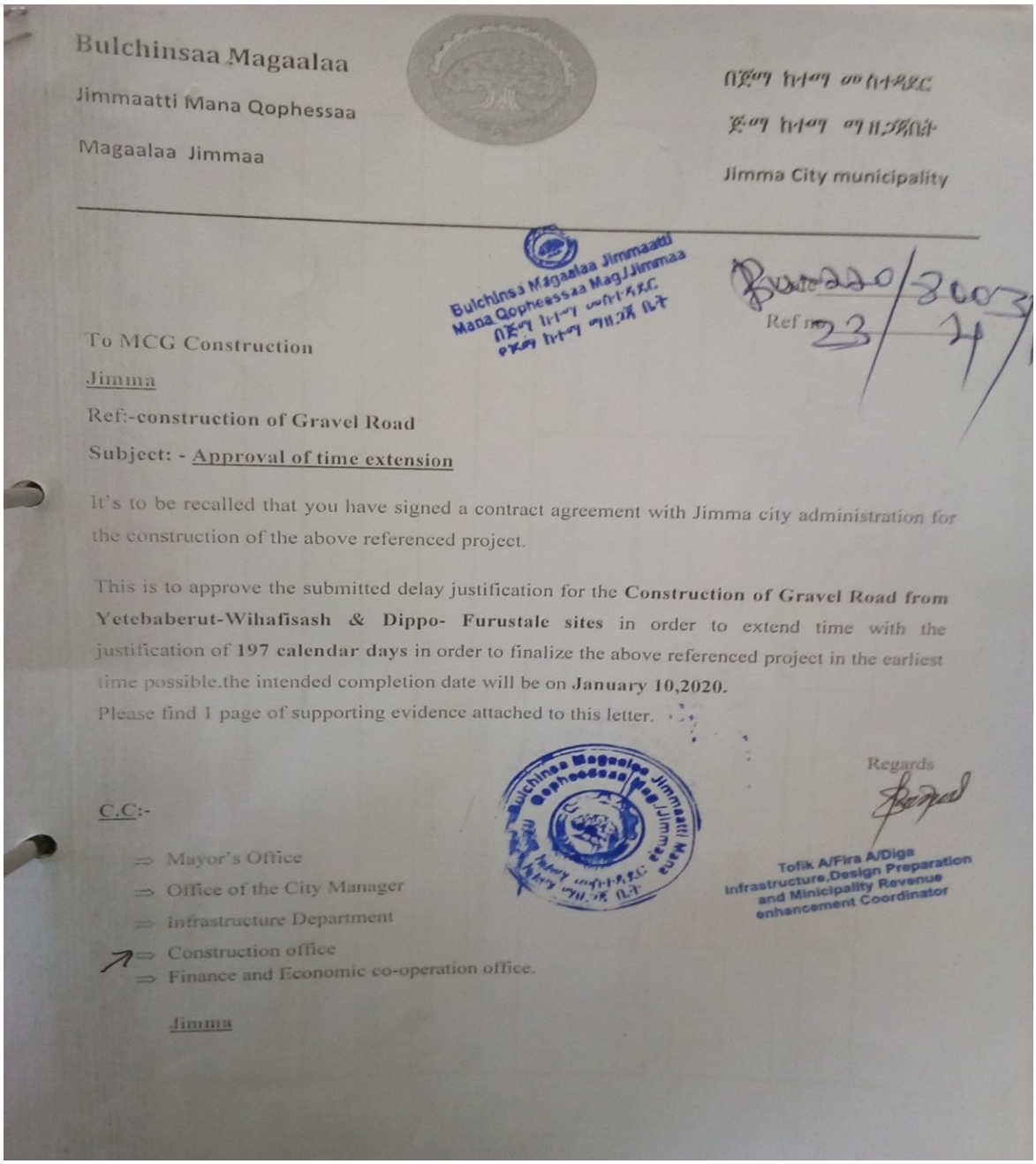
Project Manager

C/C

- Jimma City infrastructure department
- Jimma City Construction office
- MCG Construction plc. Head office (A.A)
- Project office (file)

MCG Construction plc, Address: Bole Sub City, Woreda 03, H.No 302, Tel: +251929900660, Email:mcggc32@yahoo.com

Figure APB 6 Suspension of activities because of ROW



Bulchinsaa Magaalaa
Jimmaatti Mana Qophessaa
Magaalaa Jimmaa

በጅማ ከተማ መስተዳደር
ጅማ ከተማ ማዘጋጃቤት
Jimma City municipality

Bulchinsa Magaalaa Jimmaatti
Mana Qophessaa Mag/Jimmaa
በጅማ ከተማ መስተዳደር
የጽህፈት ቤት ማዘጋጃ ቤት

Ref no 23/14

To MCG Construction
Jimma
Ref:-construction of Gravel Road
Subject: - Approval of time extension

It's to be recalled that you have signed a contract agreement with Jimma city administration for the construction of the above referenced project.

This is to approve the submitted delay justification for the **Construction of Gravel Road from Yetebaberut-Wihafisash & Dippo- Furustale sites** in order to extend time with the justification of **197 calendar days** in order to finalize the above referenced project in the earliest time possible.the intended completion date will be on **January 10,2020.**
Please find 1 page of supporting evidence attached to this letter.

Regards

Tofik A/Fira A/Diga
Infrastructure,Design Preparation and Minicipality Revenue enhancement Coordinator

C.C:-
⇒ Mayor's Office
⇒ Office of the City Manager
⇒ Infrastructure Department
⇒ Construction office
⇒ Finance and Economic co-operation office.

Jimma

Figure APB 7 Approval of Time extension

Abbaa Taayitaa Konstraakshinii Magaalaa Jimma
የጅማ ከተማ ኮንስትራክሽን ባለሥልጣን
Jimma City Construction Authority

Lakk ወ/ጽ/1270
Guyyaa 26/10/2011

Abbaa Taayitaa Konistiraakshiinii Oromiyaatti Abbaa Taayitaa Konistirakshinii Bulchiinsa Magaalaa Jimmaa
የኦሮሚያ ኮንስትራክሽን ባለስልጣን የጅማ ከተማ አስተዳደር ኮንስትራክሽን ባለስልጣን

Mana Qopheessa M/Jimmaatiif

Jimma

Dhimmi isaa:-**Gatii Baqqee (Unit price) Meeshale Ijaarsaa Kan Kurmaana 4ffaa Isiniif Erguu ta'a**

Akkuma gubba irraati ibsuuf yaalametti wajjiri keenya gatii meeshalee ijaarsaaf olu gatii gabaa yeroo isaa eegate irraatti hundaa'uun gati baqqee (**Unit price**) hojjeechuun kurmana kurmaanan oggeessaan akka qoratu ni beekama.

Buu'uuruma kanaan gatii baqqee (**Unit price**) kan kurmaa 4ffaa gatiin gabaa isaa koreedhaan qoratamee dhiyaate irraatii hunda'uun kan hojjetame ta'u isaa ibsaa waraqaa fuula 10 xalaaya gaggeesitu kanan isiini erguu keenya kabaajan isiin beeksifna.

Abbaa Taayitaa Konistiraakshiinii Oro Magaalaa Jimmaa

Nagaa Wajjiin

Asraat Asheetuu Tashomaa
I/G/A/Taayitichaa

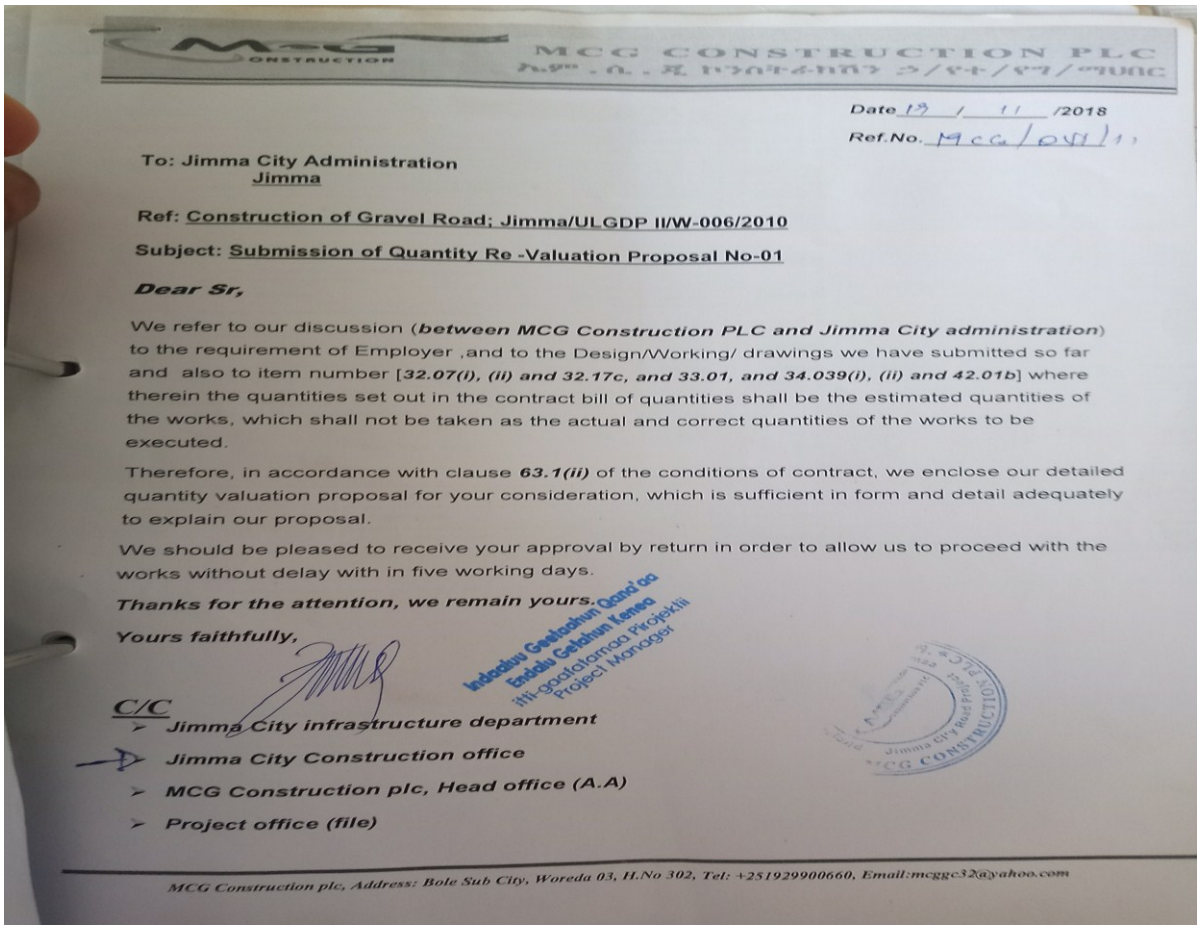
G/G

- W/ra Kantibaatiif
- W/ra MWD tiif
- Q/G/Diz/To'o/Ija/Pir/Daandii,Bishaanitiif fi Jaliisitif
- Q/G/Gam/ fi Mirk/Diz/;To'a/fi Hor/Gamoowwaniitiif
- Q/G/Gahuumsa industiiri koonistrakshiniitiif
- Itti Gafatama w/ra keenyaatiif

Jimma

_0478119233 Fax

Figure APB 8 Unit rate preparation



MCG CONSTRUCTION PLC

Date 13 / 11 /2018

Ref.No. MCG/041/11

To: Jimma City Administration
Jimma

Ref: Construction of Gravel Road; Jimma/ULGDP II/W-006/2010

Subject: Submission of Quantity Re -Valuation Proposal No-01

Dear Sr,

We refer to our discussion (*between MCG Construction PLC and Jimma City administration*) to the requirement of Employer ,and to the Design/Working/ drawings we have submitted so far and also to item number [*32.07(i), (ii) and 32.17c, and 33.01, and 34.039(i), (ii) and 42.01b*] where therein the quantities set out in the contract bill of quantities shall be the estimated quantities of the works, which shall not be taken as the actual and correct quantities of the works to be executed.

Therefore, in accordance with clause *63.1(ii)* of the conditions of contract, we enclose our detailed quantity valuation proposal for your consideration, which is sufficient in form and detail adequately to explain our proposal.

We should be pleased to receive your approval by return in order to allow us to proceed with the works without delay with in five working days.

Thanks for the attention, we remain yours.

Yours faithfully,

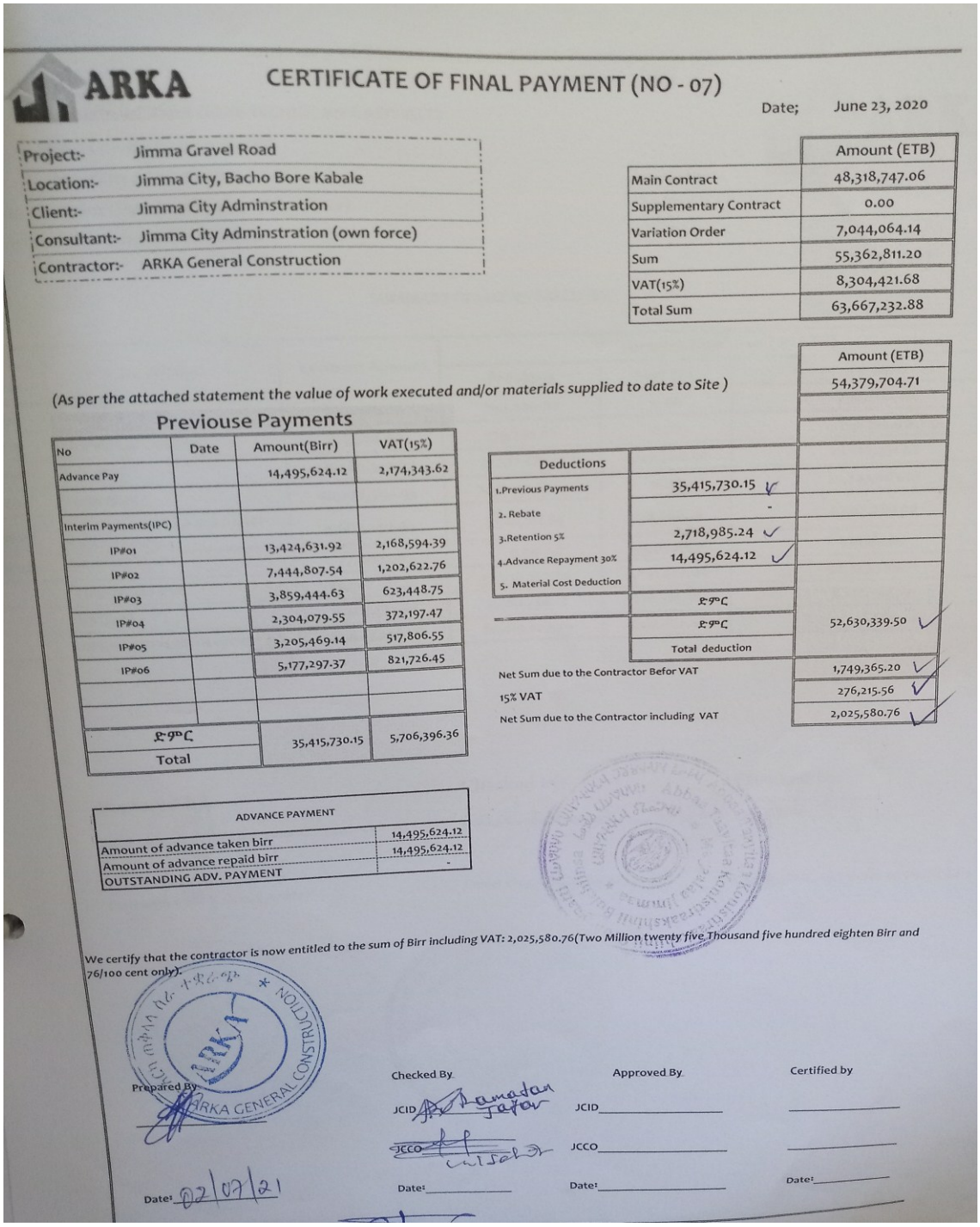
Project Manager

C/C

- *Jimma City infrastructure department*
- *Jimma City Construction office*
- *MCG Construction plc, Head office (A.A)*
- *Project office (file)*

MCG Construction plc, Address: Bole Sub City, Woreda 03, H.No 302, Tel: +251929900660, Email:mcggc32@yahoo.com

Figure APB 9 Quantity revaluation



ARKA

CERTIFICATE OF FINAL PAYMENT (NO - 07)

Date; June 23, 2020

Project:-	Jimma Gravel Road
Location:-	Jimma City, Bacho Bore Kabale
Client:-	Jimma City Adminstration
Consultant:-	Jimma City Adminstration (own force)
Contractor:-	ARKA General Construction

	Amount (ETB)
Main Contract	48,318,747.06
Supplementary Contract	0.00
Variation Order	7,044,064.14
Sum	55,362,811.20
VAT(15%)	8,304,421.68
Total Sum	63,667,232.88

(As per the attached statement the value of work executed and/or materials supplied to date to Site)

Previouse Payments

No	Date	Amount(Birr)	VAT(15%)
Advance Pay		14,495,624.12	2,174,343.62
Interim Payments(IPC)			
IP#01		13,424,631.92	2,168,594.39
IP#02		7,444,807.54	1,202,622.76
IP#03		3,859,444.63	623,448.75
IP#04		2,304,079.55	372,197.47
IP#05		3,205,469.14	517,806.55
IP#06		5,177,297.37	821,726.45
ድምር		35,415,730.15	5,706,396.36
Total			

		Amount (ETB)
		54,379,704.71
Deductions		
1.Previous Payments	35,415,730.15 ✓	
2. Rebate	-	
3.Retention 5%	2,718,985.24 ✓	
4.Advance Repayment 30%	14,495,624.12 ✓	
5. Material Cost Deduction		
	ድምር	
	ድምር	52,630,339.50 ✓
	Total deduction	
Net Sum due to the Contractor Befor VAT		1,749,365.20 ✓
15% VAT		276,215.56 ✓
Net Sum due to the Contractor including VAT		2,025,580.76 ✓

ADVANCE PAYMENT	
Amount of advance taken birr	14,495,624.12
Amount of advance repaid birr	14,495,624.12
OUTSTANDING ADV. PAYMENT	-

We certify that the contractor is now entitled to the sum of Birr including VAT: 2,025,580.76(Two Million twenty five Thousand five hundred eighten Birr and 76/100 cent only).

Prepared By ARKA GENERAL CONSTRUCTION

Date: 02/07/21

Checked By JCID Ramadan Jafar JCCO Irisa

Date:

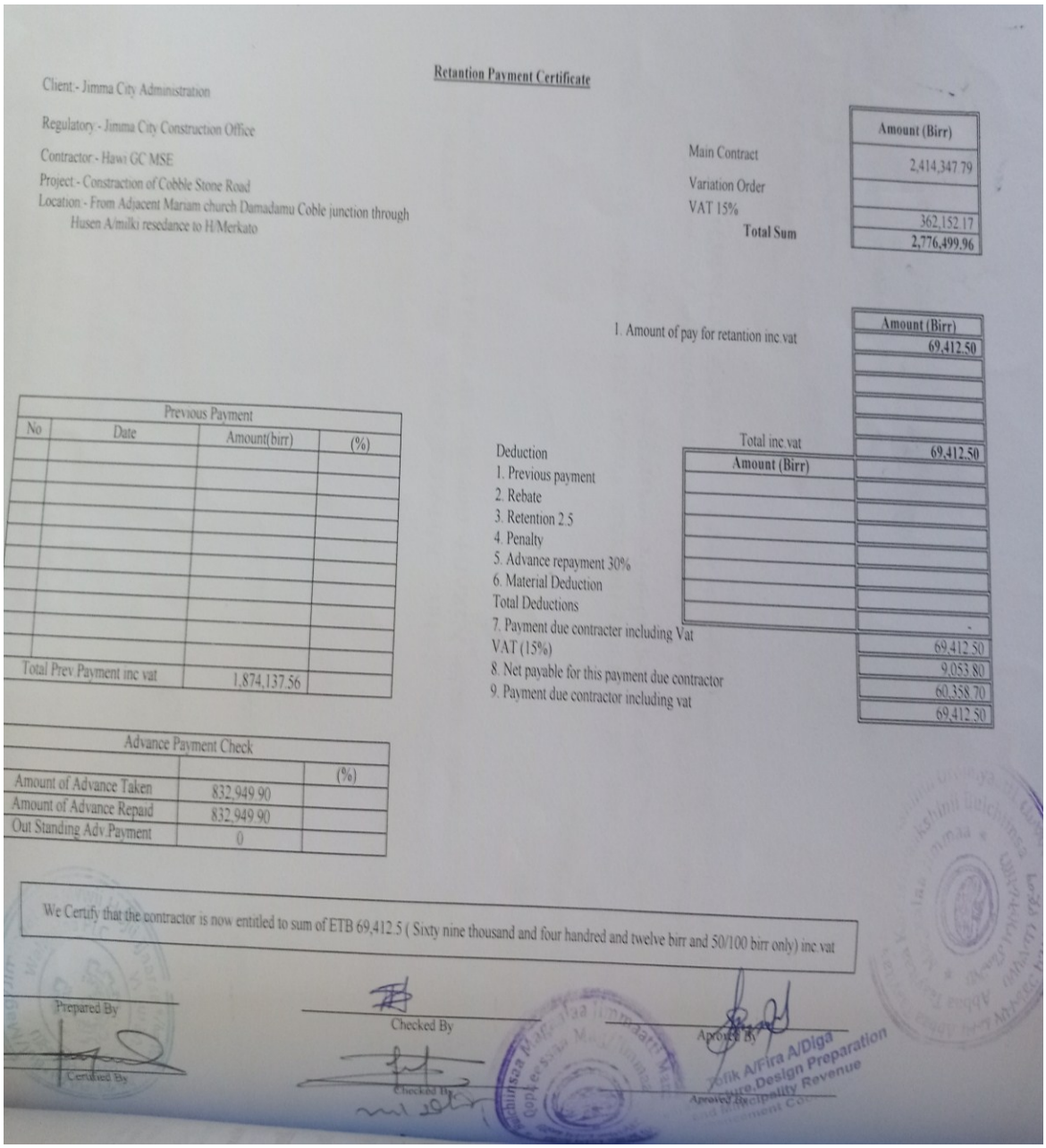
Approved By JCID JCCO

Date:

Certified by

Date:

Figure APB 10 Payment certificate and bureaucracy



Retantion Payment Certificate

Client:- Jimma City Administration

Regulatory:- Jimma City Construction Office

Contractor:- Hawi GC MSE

Project:- Constraction of Cobble Stone Road

Location:- From Adjacent Mariam church Damadamu Coble junction through Husen A/milki resedance to H/Merkato

	Amount (Birr)
Main Contract	2,414,347.79
Variation Order	
VAT 15%	362,152.17
Total Sum	2,776,499.96

	Amount (Birr)
1. Amount of pay for retantion inc vat	69,412.50
Total inc vat	69,412.50

Deduction	Amount (Birr)
1. Previous payment	
2. Rebate	
3. Retention 2.5	
4. Penalty	
5. Advance repayment 30%	
6. Material Deduction	
Total Deductions	-
7. Payment due contracter including Vat	69,412.50
VAT (15%)	9,053.80
8. Net payable for this payment due contractor	60,358.70
9. Payment due contractor including vat	69,412.50

Previous Payment			
No	Date	Amount(birr)	(%)
Total Prev Payment inc vat		1,874,137.56	

Advance Payment Check		
		(%)
Amount of Advance Taken	832,949.90	
Amount of Advance Repaid	832,949.90	
Out Standing Adv.Payment	0	

We Certify that the contractor is now entitled to sum of ETB 69,412.5 (Sixty nine thousand and four handred and twelve birr and 50/100 birr only) inc vat

Prepared By

Certified By

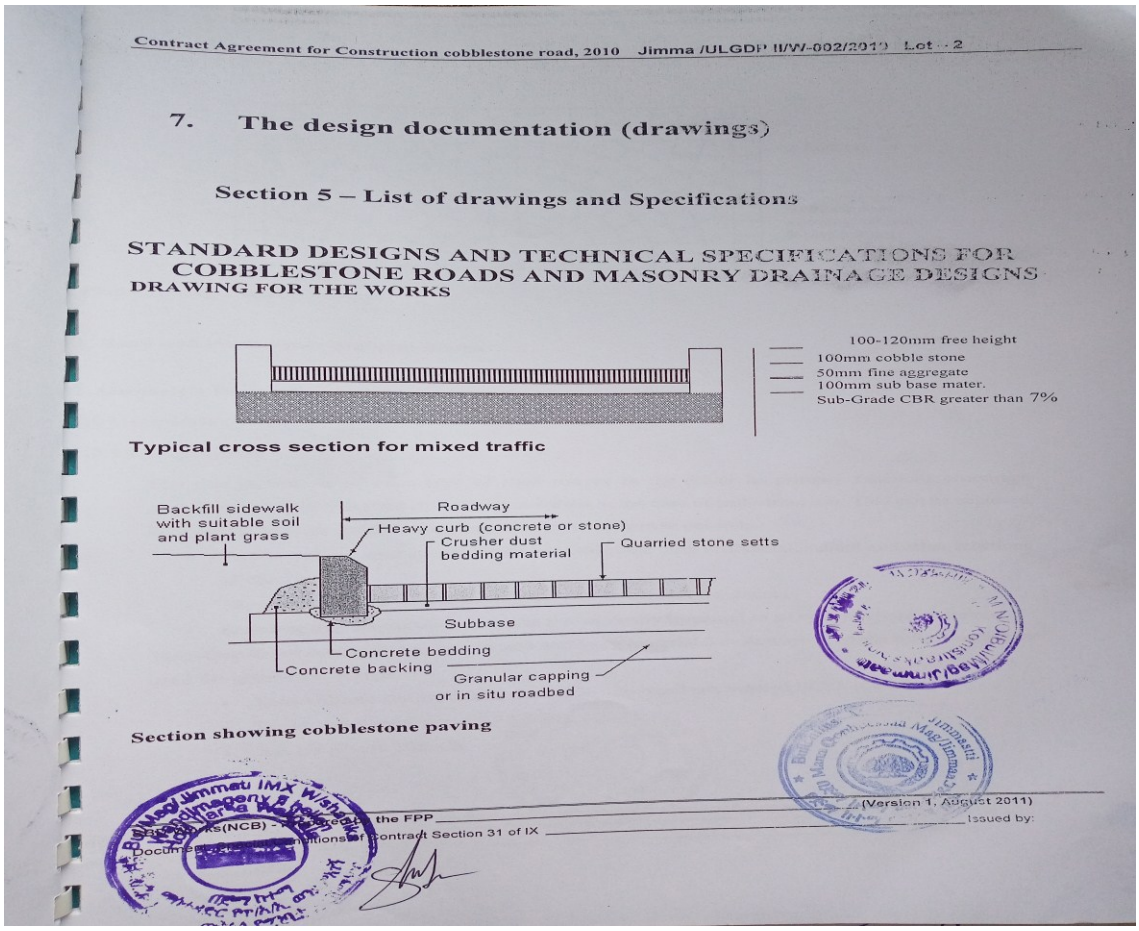
Checked By

Checked By

Approved By

Tofik A/Fira A/Diga
Jimma Design Preparation
Jimma Municipality Revenue

Figure APB 11 Payment certificate and bureaucracy



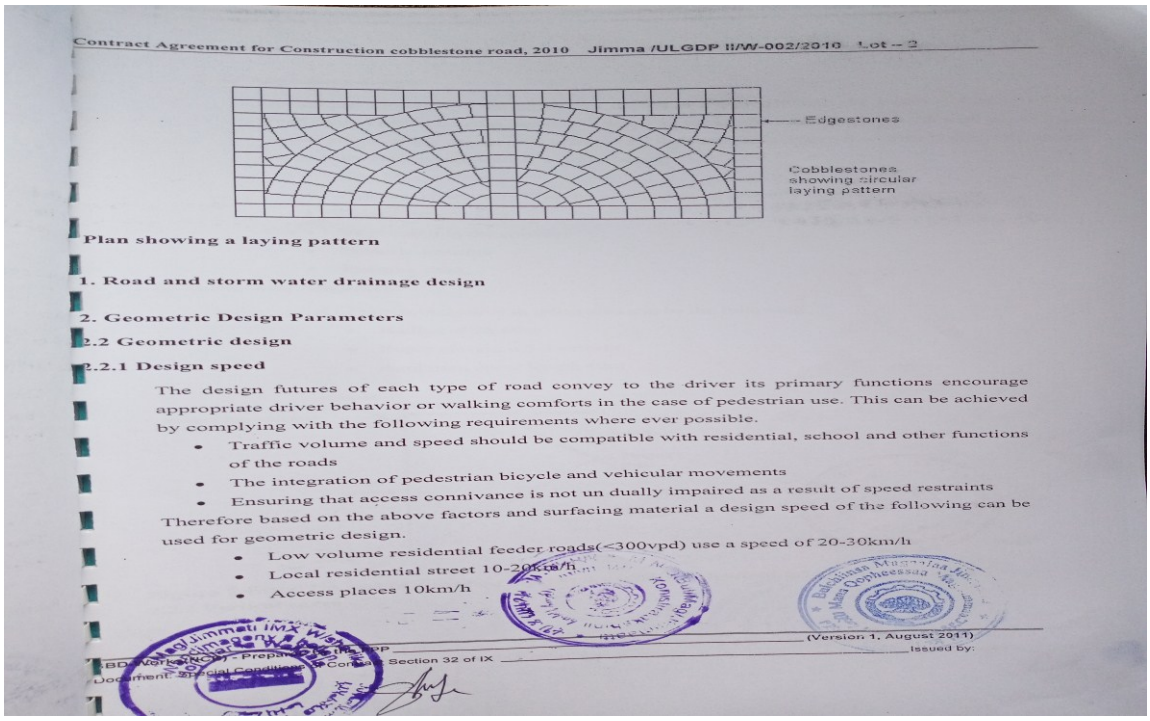
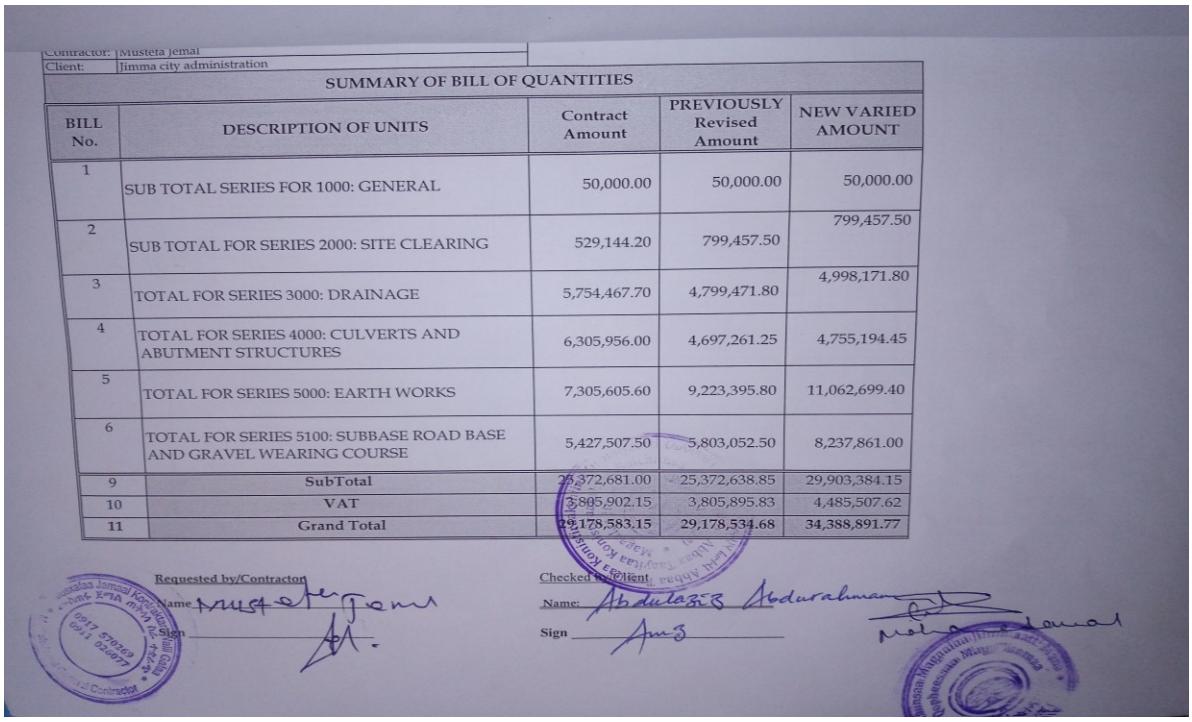


Figure APB12 Design of cobblestone road for all sites



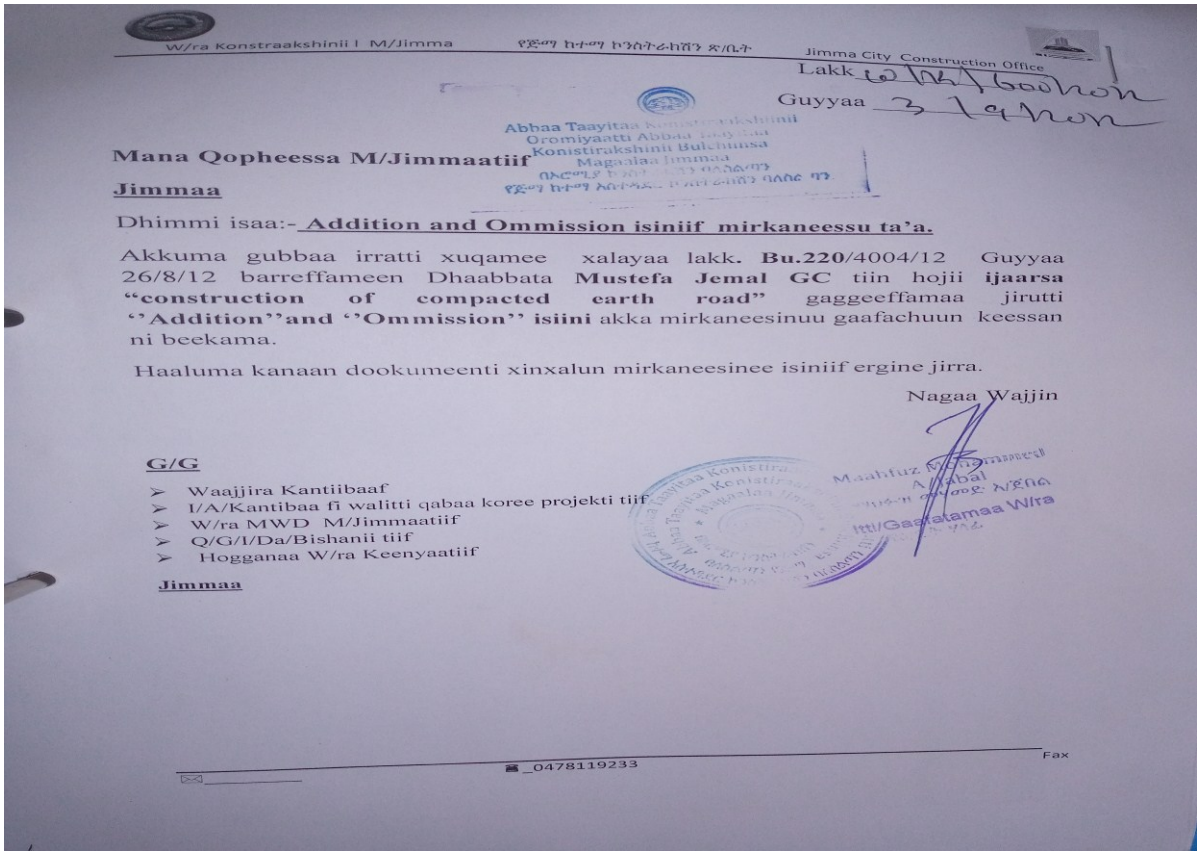
Contractor: Mustefa Jemal
Client: Jimma city administration

SUMMARY OF BILL OF QUANTITIES

BILL No.	DESCRIPTION OF UNITS	Contract Amount	PREVIOUSLY Revised Amount	NEW VARIED AMOUNT
1	SUB TOTAL SERIES FOR 1000: GENERAL	50,000.00	50,000.00	50,000.00
2	SUB TOTAL FOR SERIES 2000: SITE CLEARING	529,144.20	799,457.50	799,457.50
3	TOTAL FOR SERIES 3000: DRAINAGE	5,754,467.70	4,799,471.80	4,998,171.80
4	TOTAL FOR SERIES 4000: CULVERTS AND ABUTMENT STRUCTURES	6,305,956.00	4,697,261.25	4,755,194.45
5	TOTAL FOR SERIES 5000: EARTH WORKS	7,305,605.60	9,223,395.80	11,062,699.40
6	TOTAL FOR SERIES 5100: SUBBASE ROAD BASE AND GRAVEL WEARING COURSE	5,427,507.50	5,803,052.50	8,237,861.00
9	SubTotal	25,372,681.00	25,372,638.85	29,903,384.15
10	VAT	3,805,902.15	3,805,895.83	4,485,507.62
11	Grand Total	29,178,583.15	29,178,534.68	34,388,891.77

Requested by/Contractor
Name
Sign

Checked by/Client
Name: Abdulazis Abdurahman
Sign



W/ra Konstraakshinii I M/Jimma
Jimma City Construction Office
Lakk
Guyyaa

Abbaa Taayitaa Konistirakshinii
Oromiyaantti Abbaa Taayitaa
Konistirakshinii Bulchiinsa
Magaalaa Jimmaa

Mana Qopheessa M/Jimmaatiif
Jimmaa

Dhimmi isaa:- **Addition and Ommission isiniif mirkaneessu ta'a.**

Akkuma gubbaa irratti xuqamee xalayaa lakk. **Bu.220**/4004/12 Guyyaa 26/8/12 barreffameen Dhaabbata **Mustefa Jemal GC** tiin hojii **ijaarsa "construction of compacted earth road"** gaggeeffamaa jirutti **''Addition''and ''Ommission'' isiini** akka mirkaneesinuu gaafachuun keessan ni beekama.

Haaluma kanaan dookumeenti xinxalun mirkaneesinee isiniif ergine jirra.

Nagaa Wajjin

G/G

- Waajjira Kantiibaaf
- I/A/Kantibaa fi walitti qabaa koree projekti tiif
- W/ra MWD M/Jimmaatiif
- Q/G/I/Da/Bishanii tiif
- Hogganaa W/ra Keenyaatiif

Jimmaa

Maahfuz Abdal
Itti/Gaafatamaa W/ra

_0478119233
Fax

Figure APB13 Addition and omission and variation works.

APPENDIX C

Tables of the selected road projects include project name, location, start date, original Contract completion date, physical and financial achievement of the project, revised Contract amount, revised Completion date as shown below.

Table C 1 Project data of Gravel Road at Ginjo Guduru kebele.

Project Title	Construction of standard Gravel Road with side Drainage at Ginjo Guduru kebele (Rolled)
Road width	Variable
Client	Jimma city administration
Consultant	Own force
Contractor	MCG G.C
Contract signing date	03-15-2018
Commencement date	03/29/2018
Original Contract period	365 calendar days
Original Contract Completion date	29-Mar-19
Revised Contract Completion date	09 December 2020
Original Contract Amount	47,673,018.27
Revised contract amount	53,700,339.17
Physical works progress	100%
Financial progress	100%

Table C 2 Construction of compacted Earth Road at different Kebele

Project Title	Construction of compacted Earth Road with side drainage from Agarober /ELPA/ asphalt junction to Badir mosque (To Bebela road) (S/Semero Kebele); from pisoner (Kerchelle) through Abahasan Meda to Ababor Residence (M/Kochi) ; from Gibe Hall asphalt to Cross land gravel road beside Kito Stadium (B/ Kito Kebele) & Barkume zone From Residence Arka Compacted earth road, From Taju Residence to to Arka Compacted Earth road , From Fati Conjugation to Arka Compacted Earth road (B/Bore Kebele)
Road width	Variable
Client	Jimma city administration
Consultant	Own force
Contractor	Mustefa Jemal G.C
Contract signing date	03/30/2012
Commencement date	4/15/2012
Original Contract period	239 calendar days (8 months)
Original Contract Completion date	12/15/2012
Revised Contract Completion date	4/13/2013
Original Contract Amount	29,178,583.15
Revised contract amount	34,388,940.25
Physical works progress	100%
Financial progress	99.9%

Table C 3 gravel road from Yetebaberut asphalt junction through Poly Technic school

Project Title	Construction of gravel road from Yetebaberut asphalt junction through Poly Technic school to Haji Biya building Michael asphalt junction (B/Bore Kebele) (New)
Road width	Variable
Client	Jimma city administration
Consultant	Own force
Contractor	Arka G.C
Contract signing date	12/10/2019
Commencement date	27/10/2019
Original Contract period	239 calendar days (8 months)
Original Contract Completion date	27/6/2020
Revised Contract Completion date	20/4/2021
Original Contract Amount	55,566,559.12
Revised contract amount	63,667,232.88
Physical works progress	100%
Financial progress	98.2%

Table C 4 Cobblestone road from Lina International Hotel to Yetebaberut asphalt

Project Title	Construction of Cobblestone road from Lina International Hotel to Yetebaberut asphalt road Junction (G/GuduruKebele)
Road width(avg)	380m
Client	Jimma city administration
Consultant	Own force
Contractor	Umer And Mohammedjemal G.C
Contract signing date	11/15/2019
Commencement date	11/30/2019
Original Contract period	150 calendar days (5 months)
Original Contract Completion date	4/15/2020
Original Contract Amount	ETB 4,507,526.92
Physical works progress	100%
Financial progress	100%

Table C 5 Cobble stone road from Zakir Residence to Ato Melkamu residence

Project Title	Construction of Cobble stone road from Zakir Residence to Ato Melkamu residence (B/Bore Kebele)
Road width(avg)	216m
Client	Jimma city administration
Consultant	Own force
Contractor	Juwar & Zemzem MSE
Contract signing date	11/15/2019
Commencement date	11/30/2019
Original Contract period	150 calendar days (5 months)
Original Contract Completion date	4/15/2020
Revised Contract Completion date	7/15/2020
Original Contract Amount	ETB 2,289,368.26
Revised contract amount	ETB 2,575,111.13
Physical works progress	100%
Financial progress	100%

Table C 6 Cobblestone road From Circus Cobble to Medanialem church

Project Title	" Construction of Cobblestone road with side drainage From Circus Cobble Junction through Zelalem wood work to Medanialem church Asphalt junction including from Circus end junction to Zelalem Wood Works (A/Mendera Kebele)"
Road width(avg)	274m
Client	Jimma city administration
Consultant	Own force
Contractor	Hanan & Feriha MSE
Contract signing date	12-25-2019
Commencement date	1/10/2020
Original Contract period	150 calendar days (5 months)
Original Contract Completion date	6/10/2020
Original Contract Amount	ETB 1,945,159.66
Physical works progress	100%
Financial progress	99.9%

Table C 7 cobble stone road from JU Main gate to Abdi guddina electronics shop

Project Title	" Construction of cobble stone road from JU Main gate to Abdi guddina electronics shop (B/Addis Ketema)"
Road width(avg)	500m
Client	Jimma city administration
Consultant	Own force
Contractor	Ismail & Nebil MSE
Contract signing date	11/15/2019
Commencement date	11/30/2019
Original Contract period	150 calendar days (5 months)
Original Contract Completion date	4/15/2020
Original Contract Amount	ETB 5,983,230.03
Physical works progress	100%
Financial progress	95.11%

Table C 8 Cobblestone road from Ato Gebeyehu shop to adjacent mariam church

Project Title	" Construction of Cobble stone road with side drainage from adjacent mariam church to Demadamu cobble Junction through Husen A/Milki Residence to H/Merkato Cobble Junction (H/MntinaKebele& "
Road width(avg)	360m
Client	Jimma city administration
Consultant	Own force
Contractor	Hawi GC MSE
Contract signing date	11/15/2019
Commencement date	11/30/2019
Original Contract period	150 calendar days (5 months)
Original Contract Completion date	5/25/2020
Original Contract Amount	ETB 2,776,499.96
Physical works progress	100%
Financial progress	100%

Table C 9 Cobble stone road from Meweda Secondery School to M/Aliyyi Residence

Project Title	" Construction of cobble stone road with side drainage from Meweda Secondery School to Mohammed Aliyyi Residence Cobble Junction (B/Kitto Kebele) "
Length	463m
Client	Jimma city administration
Consultant	Own force
Contractor	Sintayehu & Getinet MSE
Contract signing date	02/20/2012
Commencement date	03/05/2012
Original Contract period	150 calendar days (5 months)
Original Contract Completion date	08/05/2012
Original Contract Amount	ETB 3,747,138.41
Physical works progress	100%
Financial progress	99.8%

Table C 10 Cobblestone road from Alhadi Jihad coble to feysel A/meca residence

Project Title	" From Alhadi Jihad coble junction to feysel A/meca residence coble junction (Awetu Mendera)"
Length	173m
Client	Jimma city administration
Consultant	Own force
Contractor	Mifta & Fate MSE
Contract signing date	11/15/2019
Commencement date	11/30/2019
Original Contract period	150 calendar days (5 months)
Original Contract Completion date	4/15/2020
Original Contract Amount	ETB 1,398,094.14
Revised contract amount	ETB 1,504,427.30
Time Elapsed	150 Cal days
Physical works progress	100%
Financial progress	99.18%