UNIVERSIDAD PARA LA COOPERACION INTERNACIONAL
(UCI)

PROJECT MANAGEMENT PLAN FOR THE CONSTRUCTION OF MADANG CHRISTIAN ACADEMY PERIMETER FENCE

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DEDICATION

This research project is dedicated to my late mother Anna Yaropo, my father Andrew Kindiye Wapea and my children: Fatima Yara, Delilah Rakae, Samantha, Nicole and Fidelis for their tolerance and understanding during the course of this journey. My children, who without a mother supported me in silence and pushed for tenacity. Love you all.

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ABSTRACT

The main objective of this document is to develop a comprehensive project management plan for the construction of a perimeter fence for Madang Christian Academy, a privately run school in Papua New Guinea.

Madang Christian Academy faces a lot of security related problems, which disrupts teaching and learning for both teachers and teachers. Parents and guardians are also worried about the welfare and safety of their children. Thieves have broken into the administration block, computer laboratory and the staff room on numerous occasions and made off with computers, printers, and other valuable items. On two occasions, two fourth graders were kidnapped. These bad experiences prompted the school administration to construct the perimeter fence, which is anticipated to prevent such bad experiences from happening and provide a conducive environment for both teachers, students and the school administrators to enhance teaching and learning.

The construction of a perimeter fence around Madang Christian Academy is the final product of this project. The project team will ensure that the project is delivered on schedule, within budget and the product is of quality that can stand the test of time and serve its purpose as long as the school exists on the same location.

This plan incorporates all the ten knowledge areas identified by the Project Management Institute (PMI) and describes how these knowledge areas will be applied throughout the project management life cycle. The plan describes the final deliverables, which include specific plans in each of the ten knowledge areas: scope, schedule, quality, resources, risk, communications, procurement and stakeholder. In order to effectively deliver the abovementioned deliverables, the analytical method is used as it enlightens the project manager and team to assess existing project documents, especially case studies or documents relating similar projects and generate new ideas to improve in the planning and implementation of the fencing project.

The project plan when implemented well is anticipated to deliver a successful project, the completion of the Madang Christian Academy perimeter fence, which in the end will protect the school from criminal elements and provide a conducive, child-friendly teaching and learning environment for all.

TABLE OF CONTENTS

INDEX OF FIGURES

INDEX OF TABLES

ABBREVIATIONS AND ACRONYMS

ASTM	American Society of Testing and Materials
CFS	Child Friendly School
COVID 19	Coronavirus Disease 2019
CPM	Critical Path Method
FGP	Final Graduation Project
HD	High Definition
MCA	Madang Christian Academy
MCH	Melanesian Caring Hands
MOA	Memoranda of Agreement
NGO	Non-Governmental Organization
PETT	Program Evaluation Review Technique
PMI	Project Management Institute
PMBOK	Project Management Body of Knowledge
PNG	Papua New Guinea
QA	Quality Assurance
QC	Quality Control
RACI	Responsible, Accountable, Consulted, Informed
SLA	Service Level Agreement
SWOT	Strength, Weaknesses, Opportunities, Threats
WaSH	Water, Sanitation and Hygiene
WBS	Work Breakdown Structure

EXECUTIVE SUMMARY

Melanesian Caring Hands (MCH) is a local non-governmental organization that partners with the government, development partners, churches and the civil society to improve the well-being and lives of ordinary Papua New Guineans through program interventions and projects with a bottom up, caring, considerate approach. What makes Melanesian Caring Hands stand out in the distance is that, it makes every endeavor to take the local people at heart by considering their views and concerns before embarking on and engaging in development initiatives. Allowance for local participation is really the cornerstone for any development initiative to take root in the community and bear good fruit which can be replicated in other communities. So far Melanesian Caring Hands has delivered some successful projects, but not without problems. In some instances, projects were terminated early because of poor project management practices. This has prompted Melanesian Caring Hands to develop capacity in project knowledge and skills to improve performance in the delivery of future projects. One of such projects that was delivered through proper project management practice is the construction of the Madang Christian Academy (MCA) Perimeter Fence.

Melanesian Caring Hands was selected among other bidders to construct the Madang Christian Academy Fence, partly because of its bottom-up driven approach to delivering projects, where wider consultation and engagement of affected individuals and communities play critical roles in projects and programs. As soon as the contract was awarded to Melanesian Caring Hands, it moved quickly to recruit the project team, and following from this conducted a proper stakeholder analysis to map out the key players and others affected by the project. As part of project initiation, this was critical because the project team in consultation with the stakeholders documented the basic premises upon which the expectations of the customer was based. The recruitment of the project team helped generate dialogue amongst project players to engage in analysis, logical thinking and translating information gleaned from these dialogues into the initiation and scope definition document.

Amongst others, one of the key roles the project manager and the team did was to develop a proper project management plan that incorporated all knowledge areas. These include:

scope plan to define the boundaries of the project and detail the requirements of the final product; schedule plan to create a schedule for the project and determine who is responsible; cost management plan to budget and itemize the costs involved, quality plan to deliver the product as per the quality specifications; human resource to recruit qualified and appropriately skilled people to deliver the project; communication plan to communicate effectively to different stakeholders; risk management plan to mitigate and minimize risk occurrence; procurement plan to properly obtain goods and services; and a stakeholder plan to map out and closely manage the players in the project.

The general objective of the project was to develop a Project Management Plan that integrates the ten knowledge areas of project management to achieve an efficient management of the Madang Christian Academic Perimeter Fence Project. The specific objectives of the project were to: develop a project charter that outlined the purpose of the project, the way the project will be structured and how it will be successfully implemented; a scope management plan, that provided the detailed description of the work to be done to deliver the output of the project on time, within the allotted budget and of quality; a time management plan for defining and sequencing activities, estimating activity resources and durations, and developing and control schedule; a cost management plan for allocation and control of costs to activities identified in work packages; a quality management plan for outlining the conformance criterion of the final deliverable to the customer's requirements; a human resource management plan for identifying the types and numbers of resources required to complete the project; a communications management plan for defining the type of information to be delivered, the format for communicating it, who, when and how to delivery it; a risk management plan that outlines the foreseeable project risks and provides a set of actions to be taken to both prevent the risk from occurring and reduce the impact of the risk should it eventuate; a procurement management plan for identifying and acquiring products and services from external suppliers to the project; and a stakeholder's management plan that identifies key stakeholders, their level of interest and involvement in project decisions and execution throughout the life cycle of the project.

To assist the project team to develop the Project Plan, the analytical research method was used to analyze case studies to improve project management practice. This was done through document analysis, meetings and interviews with key stakeholders for the school perimeter fence project and similar projects undertaken in the past.

The result is a very comprehensive project plan, that integrates the ten knowledge areas of project management. This extensive and comprehensive plan gives the management team all the information they need to deliver the perimeter fence project successfully.

1. INTRODUCTION

1.1 Background

The school fencing project will be undertaken by Melanesian Caring Hands, a local nongovernment organization that specializes in the child friendly school (CFS) program, which includes safety and welfare of children. A major component of the child friendly school program is to provide safe teaching and learning environment for both teachers and students.

A well secured school ground provides an environment that is fun, healthy and engaging – a place where they can play, be protected from harm, express their views and actively participate in the learning process. It is also caring and protective as it safeguards and provides security for all children and ensures that the school is truly a “second home” to children. In doing so, a child-friendly school works closely with children’s families and engages the support and interaction of community and institutions so that children’s rights are met in and out of school.

To achieve the abovementioned targets and others, one of the major projects undertaken by Melanesian Caring Hands in partnership with schools and education authorities in districts and communities is to construct good perimeter fences to deter criminal acts, disturbances and provide a conducive environment for teachers to perform well and for children to attain higher academic achievements.

The perimeter fencing at Madang Christian Academy is the 15th such project undertaken by Melanesian Caring Hands in the last three years. The organization has the expertise, skilled manpower and the experience to undertake this project. The perimeter fence will cover 854 meters.

The security fencing will be constructed from panels comprised of black spear-top steel pickets and rails, manufactured of galvanized steel tube by Altas Steel (PNG) Limited and is typically 2100mm in height. The specification is based on the Papua New Guinea Standards, which is adapted from the Australian

Standards related to the construction and installation of relevant materials and products for security fencing and in accordance with School Security Guidelines of the country's National Department of Education.

There are big construction companies in the country that carry out similar fencing projects, but Melanesian Caring Hands was awarded the contract because it is an NGO that is rights-based, caring, considerate and specializes in school fencing. Melanesian Caring Hands has the expertise, capacity and the heart to deliver the project at a minimal cost, and use best practice project management methodologies and tools.

1.2 Statement of the problem

As a nongovernmental organization, Melanesian Caring Hands concentrates its efforts in improving the quality of education through programs such as: Accelerating Girl's Education, Child Friendly School Teacher In-service Training, Girl's Education Advocates Training, Education in Emergencies, School-in-a-box and School Protection and Safety. Under these programs there are projects that have been undertaken, but improper project planning has resulted in poor project output. The planning processes and practices described by PMBOK (2017) and other sources were not followed. A lot of donor funded projects failed over the years, and development partners have slowly pulled out, leaving Melanesian Caring Hands to scavenge without much luck. This has challenged the board and management of Melanesian Caring Hands to relook at their current practices and search for ways to improve. They have realized that there is no other way except to send some of their officers to Divine Word University to undertake Diploma or Bachelor of Project Management, and to recruit people with knowledge, skills and expertise in project management to properly manage this and future projects. While training of staff will take some time, recruiting people with project management skills is more practicable, as they will use their knowledge and skills to plan the project using the ten project management knowledge areas, which should coincide with the process groups of initiation, planning, execution, monitoring and controlling and closing.

1.3 Purpose

Literature reveal that project planning is an important contributor to project success, (Wang & Gibson, 2008). A good project management plan will reduce risk and increase project success, (Dvir, Raz, & Shenhar, 2003). On the other hand, inadequate analysis and poor project planning leads to failed projects, (Thomas, Jacques, Adamd, & Kihneman-Woote, 2008). Some of the previous projects undertaken by Melanesian Caring Hands failed because proper analysis and planning was not done. And, this happened because the organization did not have people with project management knowledge and skills. Melanesian Caring Hands has awoken from its slumber after experiencing a string of project failures and has started to recruit and train people in project management.

Melanesian Caring Hands does not want to go down the same path again with the Madang Christian Academy Perimeter Fencing Project. They want to do it right and that is through proper project management planning using the Project Management Institute's Guide (PMI) and other best practice resources. The project team will develop a project management plan by detailing every step, from initiation through to closure. Some of the steps that will be looked at during the planning process are: collect stakeholder requirements, define project scope, create a work breakdown structure, define and sequence project activities, estimate activity duration, cost and resources, assign resources to work packages and activities according to skills and interests, build in contingencies, create a performance measurement baseline, and develop all subsidiary plans (scope management plan, schedule management plan, cost management plan, quality management plan, resource management plan, communications management plan, risk management plan, procurement management plan and stakeholder management plan). Thus, the main purpose of this activity is to achieve what is clearly stated above.

1.4 General objective

To develop a Project Management Plan that integrates the ten knowledge areas of project management to achieve an efficient management of the Madang Christian Academic Perimeter Fence Project.

1.5 Specific objectives

- To develop a project charter that outlines the purpose of the project, the way the project will be structured and how it will be successfully implemented.
- To develop a scope management plan, that provides the detailed description of the work to be done to deliver the output of the project on time, within the allotted budget and of quality.
- To develop time management plan for defining and sequencing activities, estimating activity resources and durations, and developing and control schedule.
- To develop a cost management plan for allocation and control of costs to activities identified in work packages.
- To develop a quality management plan for outlining the conformance criterion of the final deliverable to the customer's requirements.
- To create a human resource management plan for identifying the types and numbers of resources required to complete the project.
- To develop a communications management plan for defining the type of information to be delivered, the format for communicating it, who, when and how to delivery it.
- To develop a risk management plan that outlines the foreseeable project risks and provides a set of actions to be taken to both prevent the risk from occurring and reduce the impact of the risk should it eventuate.
- To develop a procurement management plan for identifying and acquiring products and services from external suppliers to the project.

- To develop a stakeholder's management plan that identifies key stakeholders, their level of interest and involvement in project decisions and execution throughout the life cycle of the project.

2.0 THEORETICAL FRAMEWORK

2.1 Company/Enterprise background

Melanesian Caring Hands is a small, unique and valuable addition to Papua New Guinea's development opportunities.

It is a local development agency that contributes towards the growth of this country by trying to meet the societal development needs of our local, down trodden and forgotten people tucked away in isolated hamlets, harsh urban settlements, and other sectors of our vast country. Melanesian Caring Hands partners with the government, development partners, churches, other NGOs, and the civil society to improve the lives of our people by engaging in meaningful efforts with a bottom up, caring, considerate approach.

Melanesian Caring Hands provides consultancy and development work in line with the priorities of the PNG Government's Medium Term Development Strategy (2014-2020), the Vision 2050, the PNG Organic Law on Provincial Governments and Local Level Governments and the Department of Community Development's Integrated Community Development Policy; as well as the Millennium Development Goals. We work in and with local communities in districts and provinces providing an integrated approach to promote development efforts through projects and programs in education emphasizing on gender parity issues, health, WaSH, law and order; and strengthen community/district/provinces through capacity building to enhance effective delivery of services.

The name, Melanesian Caring Hands was carefully coined to foster a genuine partnership spirit, where people from all parts of Papua New Guinea build up a

harmonious unity as a true model of Papua New Guinea and the wider Melanesian community. The management wanted to promote unity among Papua New Guineans and other Melanesians in Asia and the Pacific, so that is why Melanesian Caring Hands was carefully coined to embrace and promote this thriving culture and its flamboyant people. Melanesian Caring Hands is registered with the Investment Promotion of Papua New Guinea under the Business Names Act on 19 September 2019.

2.2 Mission and Vision Statements

Vision

Melanesian Caring Hands was established with a vision to serve society through our partners in development; government, companies, international organizations, non-governmental organizations, community-based organizations in reaching out to the general populous with the Melanesian art of caring clearly shining out in the distance for others to see and emulate.

Mission

As a national development agency, Melanesian Caring Hands makes every endeavor to take the local people at heart by considering their views and concerns before embarking on and engaging in development initiatives. Allowance for local participation is really the cornerstone for any development initiative to take root in the community and bear good fruit which can be replicated in other communities.

2.3 Organizational structure

Melanesian Caring Hands' organizational structure was developed to position itself well among development partners and organizations, and to play its part in the development efforts of the country. The programs and projects delivered under this structure are designed to complement and cover areas of significance that the government and other development partners are not able to reach,

especially at the community and grassroots level. Policies are developed by the government to address key social and related issues but translating them into programs and projects is always a challenge. This is where Melanesian Caring Hands comes in with its unique blend of programs and projects, with a bottom-up approach, which embraces human rights and acknowledges stakeholder engagement from the grassroots level upwards.

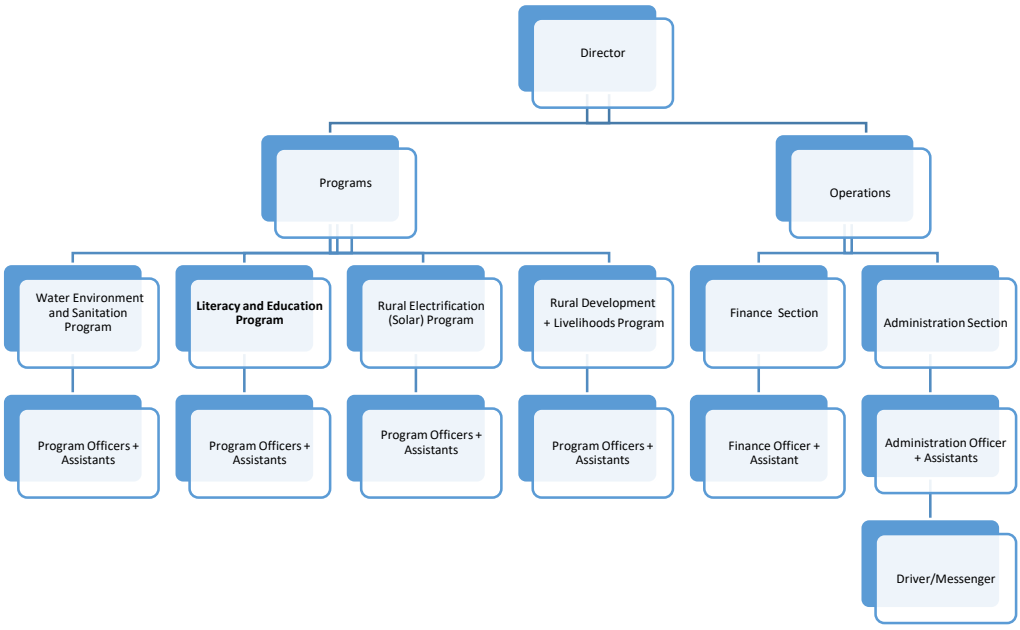


Figure 1.1: Melanesian Caring Hands Organizational Structure

2.4 Products offered

Melanesian Caring Hands has the expertise and the credentials to assist in four key areas to make greater and lasting impact in the lives of the people and these are: education, water, sanitation and hygiene (WaSH), district electrification (solar powered) and rural development and livelihood programs. The programs and projects delivered by Melanesian Caring Hands have the potential to transform the lives of many people including struggling entrepreneurs, and change the social and economic landscape of improvised rural and settlement communities. The delivery of these programs and projects is predicted on the assumption that the people already have 90% of what it takes to improve their livelihood and

compete in the marketplace - *intelligence, ambition, initiative, the land and the talent.* After many years of observing the rapid developmental changes taking place in Papua New Guinea, Melanesian Caring Hands has fashioned a superb community development model that can easily take a firm grip in the rural communities. Everybody in the community feel part of the projects and contribute meaningfully to better their lives through its unique bottom-up approach.

With full support of the government, development partners, churches, NGOs and others, Melanesian Caring Hands is able to make that 10% difference in the lives of the down trodden hard-working people and the future of rural communities in Papua New Guinea. Melanesian Caring Hands is always eager to partner with the government and others to deliver all or a few of its tailored programs. The ordinary people of Papua New Guinea will reap the benefits and we all will see the markedly measurable results and impacts. Melanesian Caring Hands guarantees that its efforts will harvest the intended outcomes and surpass the pass mark point to show their worth.

2.5 Project Management Concepts

2.5.1 Projects

According to PMBOK (2017), a project is a temporary activity undertaken by a group of individuals put together to produce a product, deliver a service or an outcome. A project meets unique goals and objectives, typically to bring about beneficial change or add value.

It is unique in that it is not a routine operation, but a specific set of operations designed to accomplish a certain task for an interested party. A project is carried out by a project team comprising of skilled people who are pulled from different organizations and locations.

2.5.2: Project management

According to PMBOK (2017), Project management is the application of knowledge, skills, tools and techniques to a broad range of activities in order to meet the requirements of a particular project.

Although the concept is new, the actual practice of managing projects was applied in great projects like the pyramids in Egypt, the Great Wall of China, the first Olympic Games Stadium in Athens, more recently the Panama Canal and thousands of others. All projects are driven by one of the following reasons: business requirements, opportunities, problems, ecological impacts, social needs and others, but all involve the following premises:

1. Project management is no small challenge and requires special knowledge, skills and expertise.
2. The management of a project has a definite start and end. It's not an ongoing method.
3. Unlike the normal management practice, project management utilizes different instruments and techniques to evaluate performance and monitor project tasks. These include structures for work breakdown, charts for Gantt and charts for PERT.
4. Projects often need resources that are ad-hoc rather than committed, prevalent full-time positions in organizations.
5. Good project management practice lowers risk and improves opportunities for achievement.
6. Project management targets at delivering the project on time, within budget and scope and satisfy the demands of the client quality.

2.5.3: Project life cycle

The project manager and project team have one shared goal, to carry out the project to meet the project's objectives, and this has to be managed well from the beginning, the middle period during which implementation takes place and end it

successfully. Usually, a standard project typically follows four phases, each with its own agenda of tasks and issues: initiation, planning, implementation, and closure. It is a series of interrelated phases used by project managers to ensure project success. This is the order and path in which the project management follow from the beginning to the end and is normally referred to as the “project life cycle”. According to PMBOK (2017), a project life cycle is a collection of project phases; that vary from one industry to another, but in general they include the five mentioned above. A project must successfully complete each phase before moving onto the next, this approach to project cycle provides better management control and builds the appropriate links with the general environment.

In the initiation phase, the organization defines the business need and commissions the project to meet it. It includes the project aims, why the project needs to meet those aims, who are involved in the delivery of the project and how the project will be managed and controlled. During the initiation phase, a proposal is done to formalize the project so that it has a specific vision that needs to be achieved in order to determine its success. It captures the business case, which may be backed by a feasibility study. After approval is granted, the next step is to write a Business Case which justifies the project financially. This is then followed by a Project Charter to scope out the project and ensure that everyone is clear about what needs to be done. After the Project Charter is approved, the next stage is to do the planning. Creating a comprehensive Project Plan is critical to the success of the project. A Project Plan is a document which lists the activities, tasks and resources required to complete the project and realize the business benefits outlined in the Project Business Case.

This project plan basically documents and describes the major phases undertaken to complete the Madang Christian Academy Perimeter Fence Project, the schedule of activities, tasks, durations, dependencies, resources and timeframes, and the list of assumptions and constraints identified during the planning process.

After the planning is complete, the project work must begin. This is the execution phase, during which the resources will be acquired, people are trained and the tasks and milestones outlined in the plan are carried out to produce the deliverable to the client's satisfaction. Although we won't dwell too much on this, the Execution Phase is really the crunch of the matter and typically the longest phase of the project (in terms of duration). This is where the project manager ensures that the customer's requirements are met by closely monitoring and controlling the activities, resources and expenditure required to build each deliverable. Monitoring and control of the project takes place from the beginning to the end. The project manager's role is to minimize risks and ensure that the project is delivered as per the scope, within budget and on schedule. In order to do this effectively, the organization must recruit a right project manager with skillful and experienced team members who have the expertise and knowledge in how to do the work assigned to them.

Figure 1.2: Project Life Cycle, Source: MPMM

During the monitoring phase, variances may be observed, which need to be addressed through the change management process to ensure the project is completed successfully. Changes are inevitable, they are a normal part of project management, but managing them through the proper control management is critical, otherwise budgets can be blown out and projects can close prematurely.

Every good thing must come to close, this is project closing phase, which at times is neglected but is quite significant. During this phase, the project manager carries out all closure activities and hands over the completed project to the client. One good practice is for the project manager to create a Project Closure Report that should contain:

- The scope statement, including the changes made.
- The financial report, including any cost variances.
- The final schedule information, including changes made
- The project milestones documenting the actual completion dates.
- Lessons learned that are relevant and can be used for future projects.

2.5.4: Project management processes

According to Roseke. B, (2016), the foundation for project management theory is the *process groups***,** which is composed of five phases that each project goes through, and these are: initiation, planning, execution, monitoring and control and closing. They all occur in chronological order from initiating to closing activities except Monitoring & Controlling which occurs in parallel to Project Execution.

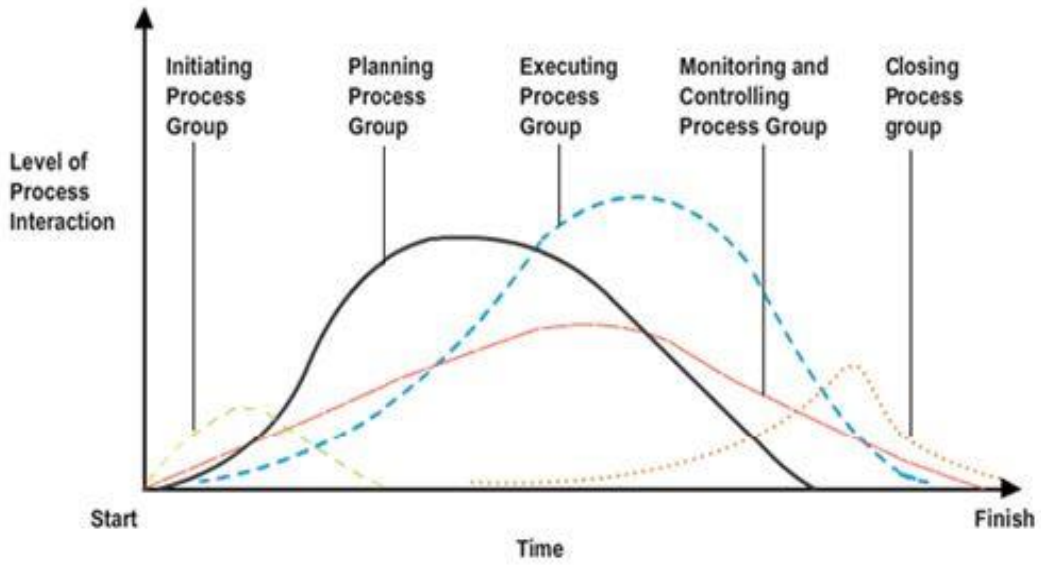


Figure 1.3: Project Management Process, Source: Google

The process group is really the methods through which the project manager and the team execute the processes required to do the project management. It is also important to note that all projects and all project phases need to include all five process groups in order to deliver a successful project.

In the development of the project plan for the Madang Christian Academy Project, only the initiation and planning processes will be used. Once the plan is approved and implemented, the rest of the processes will click into motion.

Project Initiation

In the first process group, the project *is* created and defined from the organization's point of view, in this case Madang Christian Academy. Things like project funding, goals and objectives, and the important stakeholders are defined, and project expectations are communicated. One of important things created during this process is the Project Charter, which assigns a project manager and authorizes the project to proceed.

For this project, a Project Charter has been developed and Mr. Chris Gundu has been appointed as the project manager.

The Project Charter for the Perimeter Fencing Project is the document which will authorize the project by Madang Christian Academy. It outlines Madang Christian Academy's vision for the project and the business case for it. The charter kind of puts a foundation under the planning phase and contains the following information: scope statement, milestone, project purpose, assumptions, constraints, preliminary risks, budget, stakeholders etc.

The project charter sets up the project for success from the beginning. Signing off the Project Charter by Madang Christian Academy and appointing a project manager is a strong statement and establishes the basis for managing the project from commencement to closure.

Figure 1.4: Steps in Project Initiation, Source: Method 123

Project Planning

The project planning process group has one major deliverable: The Project Management Plan, which defines how the project is going to be carried out. It basically outlines the scope, goals, budget, timeline, and deliverables of a project. Project planning is simply critical. One can't deliver a project without a plan, those who chose to do fail. Events, both good and bad will trigger schedule challenge, affect cost, resources and the quality of the work. Only proper planning will ensure projects are delivered as per the scope, time and budget with approved variations.

The planning process captures all ten of the PMBOK's knowledge areas. The project management plan is really the master plan for the project and contains all of the information necessary to acquire and manage the resources to complete the finished product or to deliver the service.

Any information that is required to implement the project must be captured in the plan. Following are some of the things that should be included in the plan, although not exhaustive: critical success factors, scope statement, deliverables, budget, schedule, quality, human resources, communication, risk and control.

Project Execution

Project execution is the longest phase where all of the project plans are set in motion. The project manager takes full control of all of the subsidiary project plans and ensures that changes are effected through the control management process. The project manager organizes his/her project team to deliver the project work to the stakeholder's requirements. The project manager has a daunting task of balancing the needs of the diverse stakeholders; the sponsor, the project team, sub-contractors, suppliers, beneficiaries and others.

The project team

The recruitment and management of the project team is critical. To ensure the best possible project outcome, the project manager must recruit the best skilled human resource that are equipped with the with the right tools to complete the job, interact well with the other team members, and are motivated to provide the highest quality of work.

The stakeholders

Project success or failure is determined by the stakeholders, not the project manager. For this reason, proper identification and management of stakeholders is essential. Identification of all stakeholders and identifying their expectations is necessary and must be captured in the project management plan. During execution the project manager should manage the stakeholders according to the plan. Those stakeholders with high interest and higher power can vet and approve the phase or project or can hold back from entering the next phase.

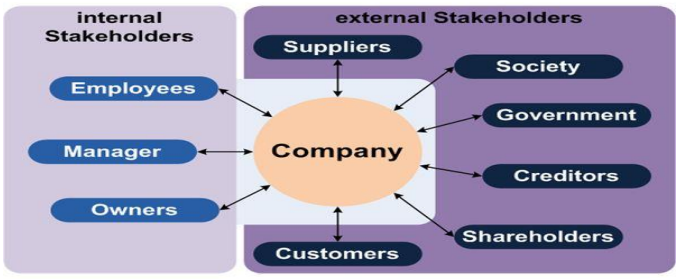


Figure 1.5: Stakeholder analysis. Source: Google.org

Communication

The project has to use the communication plan, developed during the planning phase as part of the project management plan. Having a clear Communications Plan is vital to the success of a project as it ensures that all of the staff, managers, suppliers and customers are kept properly informed of the progress of a project.

Quality assurance

The project manager must audit the systems in use by the project during the execution phase as it relates to quality. Different auditing and quality control tools can be used to ensure the deliverables and the entire project is of quality and meets stakeholder expectations.

Project Closure

According to *(PMBOK® Guide)* – Sixth Edition, "The Project Closing Process Group consists of those processes performed to conclude all activities across all Project Management Process. It contains the knowledge areas that are involved with closing well. The project team is responsible for following all processes and procedures required to formally complete the project, phase, or contractual obligations. According to Project Engineer (n. d), here is a checklist of some of things that need to be done:

- *Formal Closure***:** The contract with the client must be closed and a completion certificate issued.
- *Procurements***:** Issue completion certificates to sub-contractors to give assurances that work under the contract has been completed.
- *Final Details:* Organize and archive the project data in a format that can be referenced in the future. This will enable proper planning for future projects.
- *Liabilities***:** Warranties, insurance coverage, and bonds must be put in place as needed depending on the project. The final product must be

inspected to ensure it meets the requirements of the various legal agencies.

- *Release of Resources***:** All project resources must be formally released to their respective organizations. This includes the people resources, equipment, tools, and any other item that is no longer required.
- *Lessons Learned:* Lessons learnt must be fully documented and achieved for future use. These will be used to improve project management practice in future projects.

2.5.5: Project management knowledge areas

The *process groups* are the chronological phases that the project goes through, and the *knowledge areas* occur throughout any time during the process groups. Project management knowledge areas coincide with the process groups, which are project initiation, project planning, project execution, monitoring and controlling, and project closing, (PMBOK, 2017). It is important to note that the knowledge areas take place during anyone of these process groups.

It is also vital to note that the ten knowledge areas listed below are key technical areas, which are necessary for effective project management, and these will be used throughout the entire Final Graduation Project (FGP) process.

1. Project Integration Management
2. Project Scope Management
3. Project Schedule Management
4. Project Cost Management
5. Project Quality Management
6. Project Resource Management
7. Project Communications Management
8. Project Risk Management
9. Project Procurement Management
10. Project Stakeholder Management

2.5.6: Project Integration Management

Projects are initiated, planned, and executed in pieces using different knowledge areas, and all those pieces are related to each other and need to come together. Integration management simply does this by holding the overall project together and integrate it into a unified whole, (PMBOK, 2017).

Basically, the integration management knowledge area offers processes to define, identify, coordinate, and integrate various activities and processes within each project management process group.

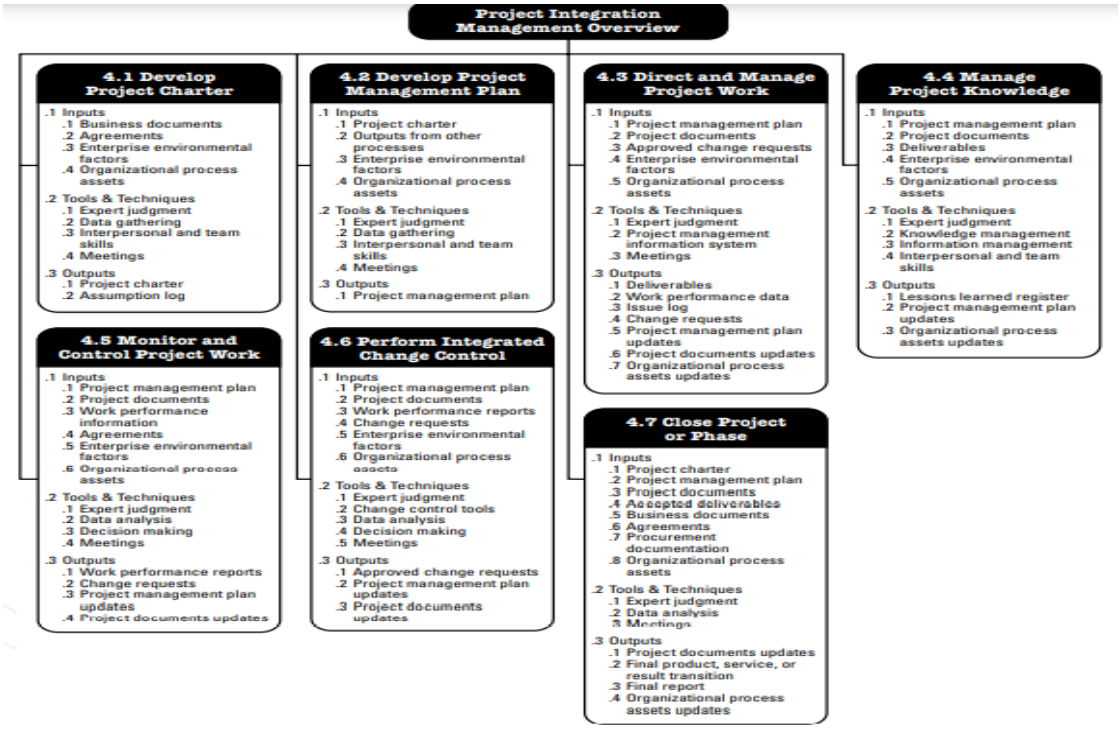


Figure 1.6: Project Integration Management Overview. Source: (PMBOK. 2017)

2.5.7: *Project Charter*

As described by (Project Management Institute, (2017) “Develop Project Charter is the process of developing a document that formally authorizes the existence of a project and provides the project manager with the authority to apply

organizational resources to project activities." (p.55). As Figure 1.7 shows, the Project Charter is the result or "output" of applying various tools and techniques to incorporate inputs.

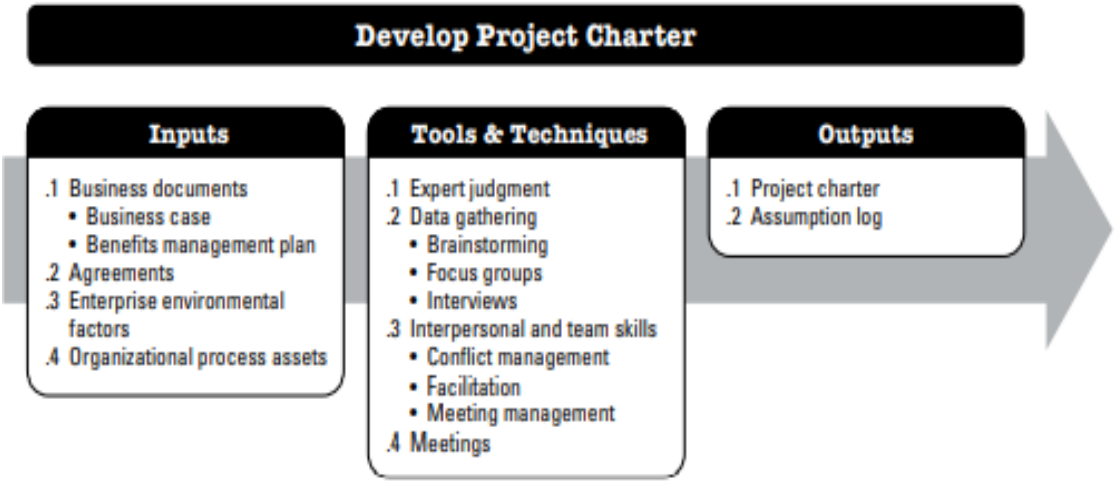


Figure 1.7: Inputs, Tools and Techniques to the Project Charter (Source: PMBOK, 2017)

2.5.8 Develop Project Management Plan

The Project Management Plan is the primary guiding document for the project manager and an end result of the planning phase. According to PMBOK (2017, p.82), "Develop Project Management Plan is the process of defining, preparing and coordinating all planned components and consolidating them into an integrated project management plan". The project management plan defines how the project is executed, monitored and controlled, and closed.

(a) Project Scope Management

Project Scope Management is the knowledge area concerned with managing how the scope will be defined, verified, and controlled. Scope is really the summary of all the work that is required to produce the end product, service, or result. Following are the four primary parts of a scope management plan:

1. Requirements
2. Scope Statement
3. Work Breakdown Structure
4. WBS Dictionary

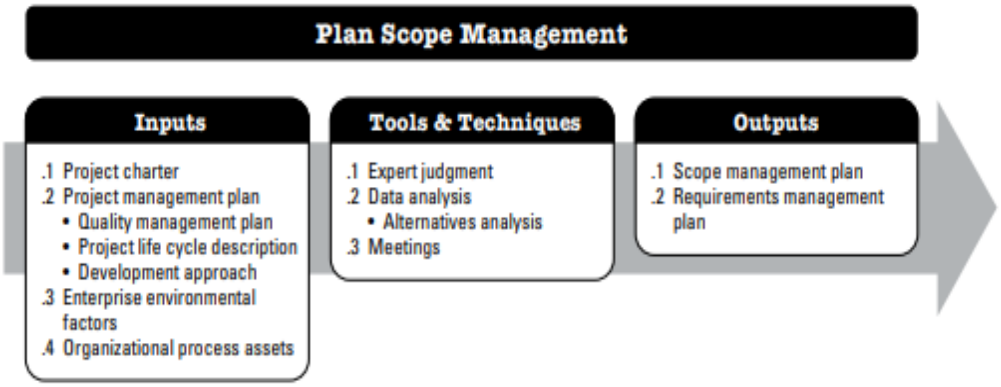


Figure 1.8: Inputs, Tools and Techniques to the Project Scope Plan (Source: PMBOK, 2017)

Requirements: This is the step where the requirements that the project must meet are assembled and documented. The project team and stakeholders need to know and have in hand the requirements that the project must meet.

Scope Statement: This written statement defines the boundaries of the project. It contains the following items: description of the deliverables, end result or product, justification for the project, and should attempt to answer the questions: Who? What? When? Where? Why? How? and How Many?

Work Breakdown Structure: A work breakdown structure (WBS) is a visual, hierarchical and deliverable-oriented deconstruction of a project. It is a helpful diagrammatical tool for the project managers to plan and schedule work since it lists all tasks which compose the project.

WBS Dictionary: The WBS is usually displayed in graphical form. This is where the details of the tasks, activities, and deliverables of the work breakdown structure are located. The content includes whatever milestones are related, the project scope and in some instances dates, resources, cost and quantity.

Validate Scope. During the project, the deliverables are “validated” or are approved by the recipient. It refers to the formal acceptance of the deliverables after they have been submitted.

Control Scope. The project manager must revisit the scope statement regularly in light of the project work that has been completed and current project status. Decisions needed to be made and changes must be effected to if for example the work is behind schedule.

(b) Project Schedule Management

Schedule management includes the processes required to ensure timely completion of the project. A project manager should have a work breakdown structure (WBS) before setting overall completion dates by the project team and key stakeholders.

The processes involved in schedule management as described in PMBOK (2017, p.173) are:

- *Plan Schedule Management*—The process of establishing the policies, procedures, and documentation for planning, developing, managing, executing, and controlling the project schedule.
- *Define Activities*—The process of identifying and documenting the specific actions to be performed to produce the project deliverables.
- *Sequence Activities*—The process of identifying and documenting relationships among the project activities.
- *Estimate Activity Durations*—The process of estimating the number of work periods needed to complete individual activities with the estimated resources.
- *Develop Schedule*—The process of analyzing activity sequences, durations, resource requirements, and schedule constraints to create the

project schedule model for project execution and monitoring and controlling.

- *Control Schedule* – The process of monitoring the status of the project to update the project schedule and manage changes to the schedule baseline.

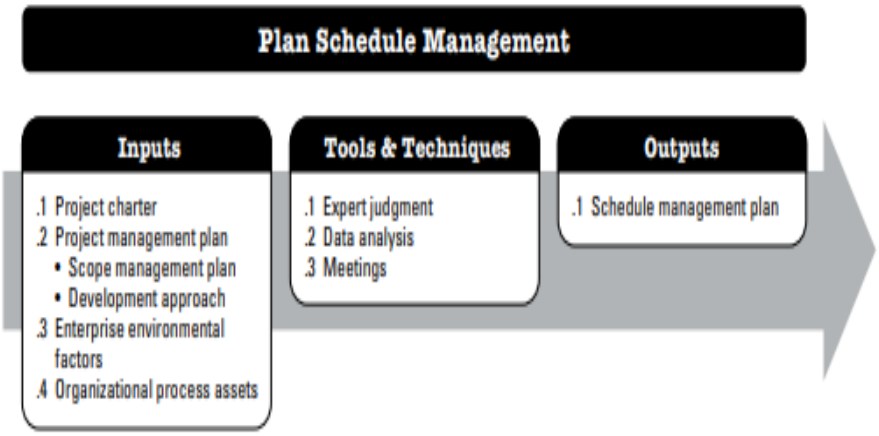


Figure 1.9: Plan Schedule Management: Inputs, Tools & Techniques, and Outputs. Source PMBOK (2017)

(c) Project Cost Management

A cost management plan basically outlines the project's estimation, allocation, and control of costs for the various resources to complete all project-related tasks captured in the WBS. Having such a plan helps the project manager set cost controls that help them minimize the chance of the project going over budget. The process involved in planning cost management as described in PMBOK (2017, p.231) are:

1. *Plan Cost Management.* The Cost Management Plan establishes things like the methodologies with which the project budget will be established, the criteria for changes, and control procedures.

2. *Estimate Costs.* The cost of each task is estimated, taking into account the resources, labor, materials, equipment and any other item of cost necessary to complete the task.
3. *Determine Budget.* The task budgets are rolled up into an overall project budget.
4. *Control Costs.* Earned value analysis is performed on regular project status intervals to determine the project status at that status point.

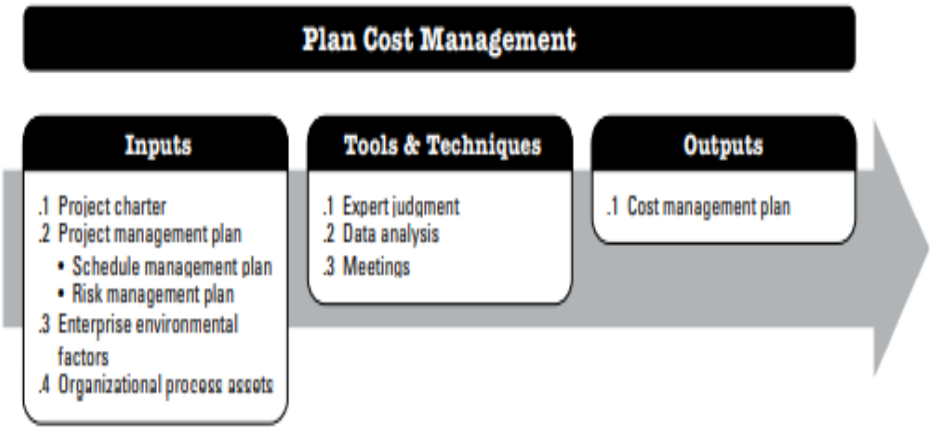


Figure 1.9.1: Plan Cost Management: Inputs, Tools & Techniques, and Outputs. Source: PMBOK (2017).

(d) Project Quality Management

Quality management is the process for ensuring that all project activities necessary to design, plan and implement a project are effective and efficient with respect to the purpose of the objective and its performance. According to PMBOK (2017, p.271), Project Quality Management also supports continuous process improvement activities as undertaken on behalf of the performing organization. The Project Quality Management processes are:

Plan Quality Management—The process of identifying quality requirements and/or standards for the project and its deliverables, and documenting how the project will demonstrate compliance with quality requirements and/ or standards.

Manage Quality—The process of translating the quality management plan into executable quality activities that incorporate the organization's quality policies into the project.

Control Quality—The process of monitoring and recording the results of executing the quality management activities to assess performance and ensure the project outputs are complete, correct, and meet customer expectations.

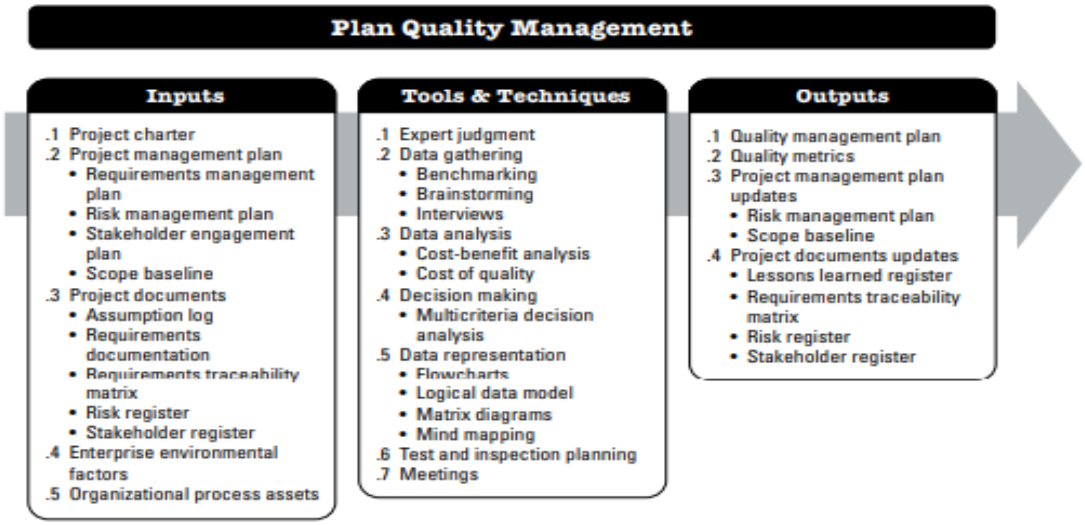


Figure 1.9.2: Plan Quality Management: Inputs, Tools & Techniques, and Outputs. Source: PMBOK (2017).

(e) Project Resources Management

Project resources include everything necessary to complete the project. These are: people, materials, tools/equipment, knowledge/expertise, facilities and infrastructure. Having a proper plan to manage these resources is critically important in project management.

According to PMBOK (2019, p.307), "Project Resource Management includes the processes to identify, acquire, and manage the resources needed for the successful completion of the project. These processes help ensure that the right resources will be available to the project manager and project team at the right time and place. The Project Resource Management processes are":

- *Plan Resource Management*—The process of defining how to estimate, acquire, manage, and utilize physical and team resources.
- *Estimate Activity Resources*—The process of estimating team resources and the type and quantities of material, equipment, and supplies necessary to perform project work.
- *Acquire Resources*—The process of obtaining team members, facilities, equipment, materials, supplies, and other resources necessary to complete project work.
- *Develop Team*—The process of improving competencies, team member interaction, and the overall team environment to enhance project performance.
- *Manage Team*—The process of tracking team member performance, providing feedback, resolving issues, and managing team changes to optimize project performance.
- *Control Resources*—The process of ensuring that the physical resources assigned and allocated to the project are available as planned, as well as monitoring the planned versus actual use of resources, and performing corrective action as necessary.

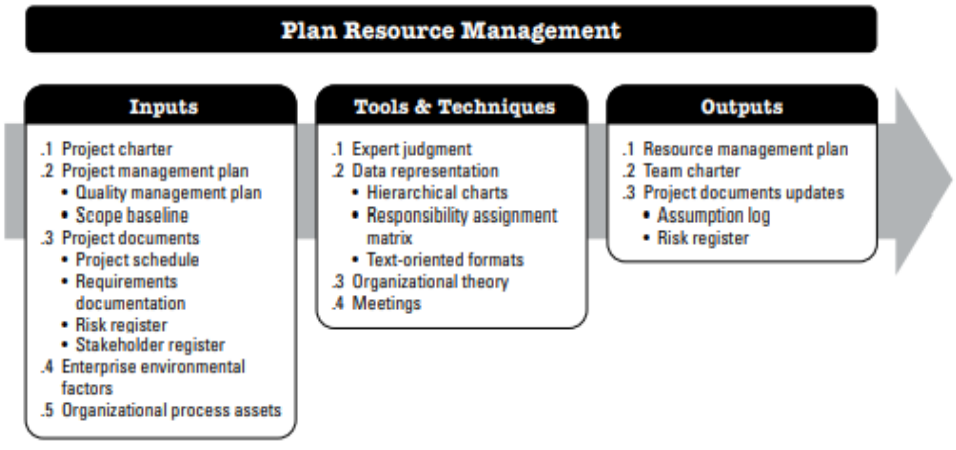


Figure 1.9.3: Plan Resource Management: Inputs, Tools & Techniques, and Outputs. Source: PMBOK (2017).

(f) Project Communications Management

Communication is the glue that holds an entire project together, and poor communication management can derail and affect the project so much. Just like others, the project manager needs to develop a good communications plan. Project communications management is not only about status updates, but it deals with the distribution and storage of project information, communication among the project team members, technical meetings, and many other things.

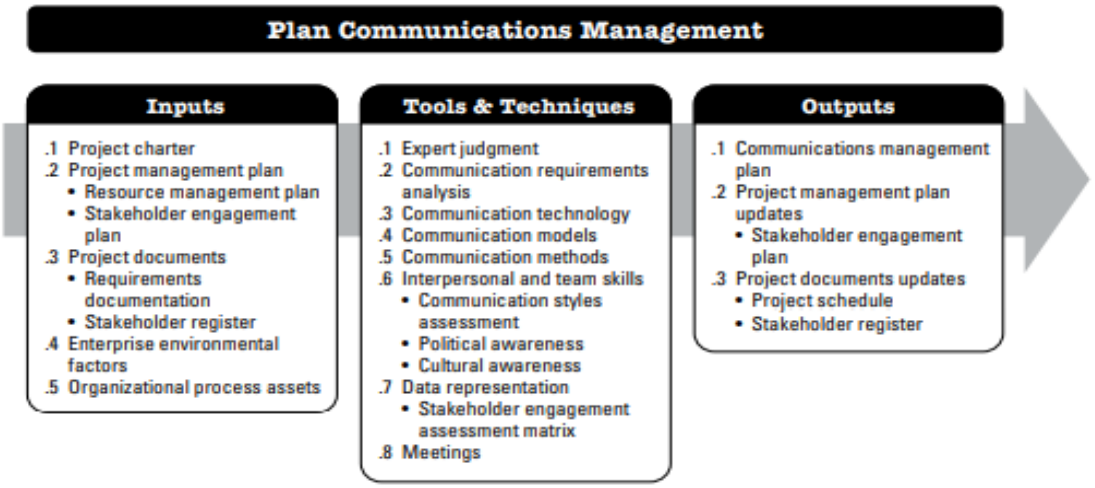


Figure 1.9.4: Plan Communication Management: Inputs, Tools & Techniques, and Outputs. Source: PMBOK, 2017).

According to PMBOK (2017, p. 359), "Project Communications Management includes the processes necessary to ensure that the information needs of the project and its stakeholders are met through development of artifacts and implementation of activities designed to achieve effective information exchange. The Project Communications Management processes are:

- Plan Communications Management—The process of developing an appropriate approach and plan for project communication activities based on the information needs of each stakeholder or group, available organizational assets, and the needs of the project.

- Manage Communications—The process of ensuring timely and appropriate collection, creation, distribution, storage, retrieval, management, monitoring, and the ultimate disposition of project information.
- Monitor Communications—The process of ensuring the information needs of the project and its stakeholders are met”

(g) Project Risk Management

All projects contain risk, by definition. Delivering a successful project is all about mitigating the risks encountered throughout the project life. Having a proper risk management plan is the strategy that all project managers use to ensure successful completion of the project. A Risk Management Plan communicates to stakeholders what the most important risks to the project are and how they will be managed.

According to PMBOK (2017, p.395), “Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, response implementation, and monitoring risk on a project. The objectives of project risk management are to increase the probability and/or impact of positive risks and to decrease the probability and/or impact of negative risks, in order to optimize the chances of project success”.

The Project Risk Management processes are:

- Plan Risk Management—The process of defining how to conduct risk management activities for a project.
- Identify Risks—The process of identifying individual project risks as well as sources of overall project risk, and documenting their characteristics.

- Perform Qualitative Risk Analysis—The process of prioritizing individual project risks for further analysis or action by assessing their probability of occurrence and impact as well as other characteristics.
- Perform Quantitative Risk Analysis—The process of numerically analysing the combined effect of identified individual project risks and other sources of uncertainty on overall project objectives.
- Plan Risk Responses—The process of developing options, selecting strategies, and agreeing on actions to address overall project risk exposure, as well as to treat individual project risks.
- Implement Risk Responses—The process of implementing agreed-upon risk response plans.
- Monitor Risks—The process of monitoring the implementation of agreed-upon risk response plans, tracking identified risks, identifying and analysing new risks, and evaluating risk process effectiveness throughout the project

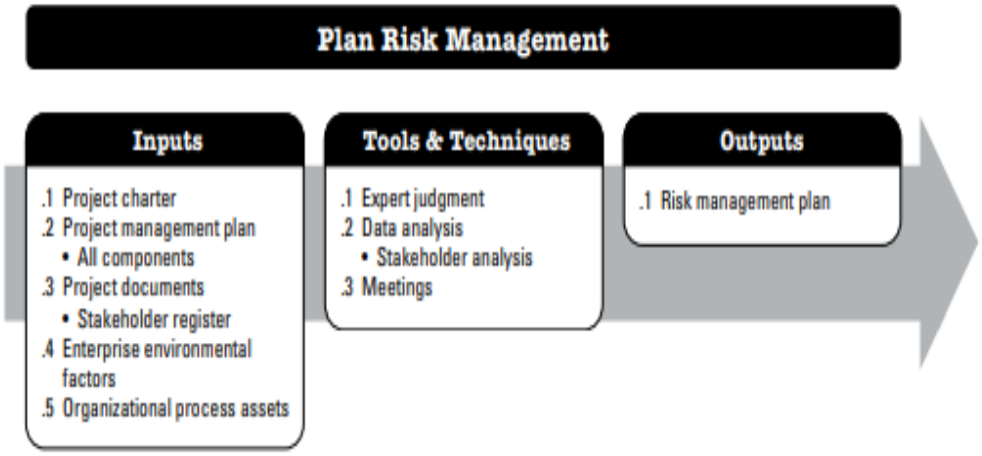


Figure 1.9.5. Plan Risk Management: Inputs, Tools & Techniques, and Outputs. Source: PMBOK (2017)

(h) Project Procurement Management

Since most projects require some form of outside procurement of goods and services, a project manager must know how to obtain, control, and manage these purchases. In order effectively do this, he/she must develop a procurement management plan.

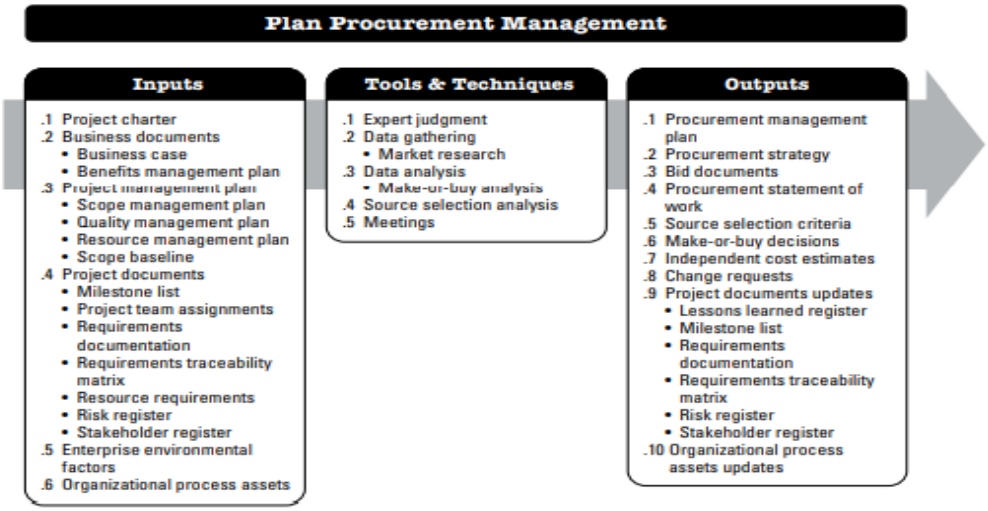


Figure 1.9.6: Plan Procurement Management: Inputs, Tools & Techniques, and Outputs. Source: PMBOK (2017)

According to PMBOK, (2017, p.459), "Project Procurement Management includes the processes necessary to purchase or acquire products, services, or results needed from outside the project team. Project Procurement Management includes the management and control processes required to develop and administer agreements such as contracts, purchase orders, memoranda of agreements (MOAs), or internal service level agreements (SLAs). The personnel authorized to procure the goods and/or services required for the project may be members of the project team, management, or part of the organization's purchasing department if applicable".

Project Procurement Management processes include the following:

- Plan Procurement Management—The process of documenting project procurement decisions, specifying the approach, and identifying potential sellers.
- Conduct Procurements—The process of obtaining seller responses, selecting a seller, and awarding a contract.
- Control Procurements – The process of managing procurement relationships, monitoring contract performance, making changes and corrections as appropriate, and closing out contracts.

(i) Project Stakeholder Management

All projects have stakeholders. If they didn't, the project wouldn't exist. Identifying and managing the stakeholders is as critical as others. At the end of the day, the project is developed for a certain stakeholder. In the Madang Christian Academy Perimeter Fence Project, the major stakeholder is the sponsor – the school. The project will be delivered to the satisfaction of this key stakeholder. The project manager must know who the stakeholders are and actively manage their expectations. In order to do this effectively, he/she must develop stakeholder management plan.

According to PMBOK (2017, p.503), "Project Stakeholder Management includes the processes required to identify the people, groups, or organizations that could impact or be impacted by the project, to analyze stakeholder expectations and their impact on the project, and to develop appropriate management strategies for effectively engaging stakeholders in project decisions and execution. The processes support the work of the project team to analyze stakeholder expectations, assess the degree to which they impact or are impacted by the project, and develop strategies to effectively engage stakeholders in support of project decisions and the planning and execution of the work of the project".

The Project Stakeholder Management processes are:

- *Identify Stakeholders*—The process of identifying project stakeholders regularly and analysing and documenting relevant information regarding their interests, involvement, interdependencies, influence, and potential impact on project success.
- *Plan Stakeholder Engagement*—The process of developing approaches to involve project stakeholders based on their needs, expectation, interests, and potential impact on the project.
- *Manage Stakeholder Engagement*—The process of communicating and working with stakeholders to meet their needs and expectations, address issues, and foster appropriate stakeholder engagement involvement.
- *Monitor Stakeholder Engagement*—The process of monitoring project stakeholder relationships and tailoring strategies for engaging stakeholders through the modification of engagement strategies and plans.

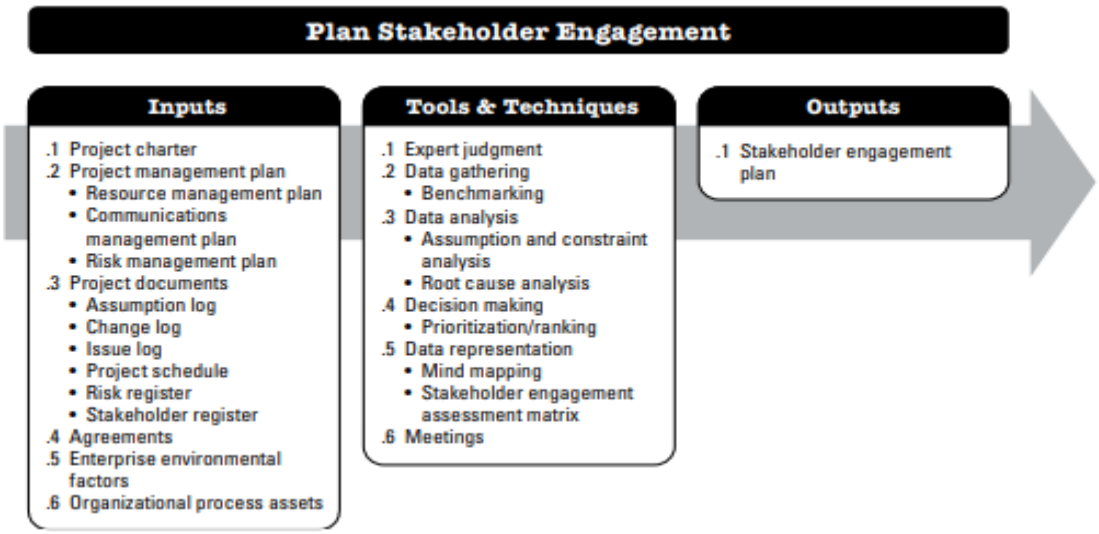


Figure 1.9.7: Plan Stakeholder Engagement: Inputs, Tools & Techniques, and Outputs. Source: PMBOK (2017)

3.0 METHODOLOGICAL FRAMEWORK

3.1 Information sources

According to Triton College Library (n. d), information can come from virtually anywhere — social media, blogs, personal experiences, books, journal and magazine articles, expert opinions, newspapers, and websites — and the type of information one need normally changes depending on the question someone is trying to answer. Different assignments require information from a variety of sources; therefore, one needs to know where to go to find certain types of information. Those who seek information must differentiate the types of information sources, select the type of source needed for a specification information based on appropriateness, and finally use it for the right purpose.

Information is everywhere and comes from different sources as mentioned above. Before the internet, a library was the most popular source where books, journals, magazine articles and newspapers were stored. In the internet age, things like blogs, social media and websites are being used more often. Information is found with government departments and agencies, international organizations, NGOs, churches, research organizations, companies and from one's personal account. Just about anything that someone can see, hear and read is information. Information is also transmitted using different forms: print media, electronic (voice, data and visual) to suit a certain group or audience. The recipients basically chose the type and channel to receive as well as transit information for all kinds of reasons. For example, people use the social media networks (Facebook, Twitter, LinkedIn) and media sharing sites (Instagram, YouTube and Snapchat) and others to appease their own needs. Scholarly people, turn to research articles, books, journals etc. to know about a subject area and to contribute new knowledge through research.

According to Lis BD Network, (2016), there are two types of sources: documentary and non-documentary. Scholarly people in academia, research institutions and others rely more on documentary sources, which have three

types: primary, secondary and tertiary. The Final Graduation Project (FGP) will be using all these three sources.

3.1.1 Primary sources

According to Lis BD Network, (2016), primary sources are original documents representing unfiltered original ideas. The primary sources of information are the first published records of original research and development or description of new application done by people either individually or as a group. It serves as an original source of information about the topic.

The primary information sources that will be used for the development of the Final Graduation Project are interviews with PNG Steel Products, Madang Christian Academy administration and teaching staff, students and parents. Also hold meetings with the same group of people. Table 3.1 refers to the specific primary information sources that will be used.

3.1.2 Secondary sources

According to Lis BD Network, (2016), secondary sources are less easily defined than primary sources. Generally, they are accounts written after the fact with the benefit of hindsight. They are interpretations and evaluations of primary sources. Secondary sources are not evidence, but rather commentary on and discussion of evidence.

The secondary information sources that will be used for the development of the Final Graduation Project are the PMBOK (2017) book, website, journals. Table 3.1 refers to the specific primary information sources that will be used.

3.1.3 Tertiary sources

According to Lis BD Network, (2016), tertiary sources of information contain information distilled and collected from primary and secondary sources aimed at aiding the searcher of information in the use of primary and secondary sources of information. This kind of source won’t be used in this project.

Table 3.1: Information sources

Objectives	Information sources	
	Primary	**Secondary**
To develop a project charter that outlines the purpose of the project, the way the project will be structured and how it will be successfully implemented.	Minutes of meetings with the school administration and other stakeholders, interview with School Director and project manager.	PMBOK Guide (2017) 6th ed. Contemporary Project Management (2019) 4th ed. PMI database, and relevant websites/internet
To develop a scope management plan, that provides the detailed description of the work to be done to deliver the output of the project on time, within the allotted budget and of quality.	Minutes of meetings with the school administration and other stakeholders, interview with School Director, project technical officer and project manager.	PMBOK Guide (2017) 6th ed. Contemporary Project Management (2019) 4th ed. PMI database, and relevant websites/internet
To develop time management plan for defining and sequencing activities, estimating activity resources and durations, and developing and control schedule.	One-to-one interview with project manager and project technical officer, minutes of meetings with project team.	PMBOK Guide (2017) 6th ed. Contemporary Project Management (2019) 4th ed. PMI database, and relevant websites/internet
To develop a cost management plan for allocation and control of costs to activities	One-to-one interview with project manager and technical officer,	PMBOK Guide (2017) 6th ed. Contemporary Project Management (2019) 4th ed. PMI

identified in work packages.	minutes of meetings with project team	database, and relevant websites/internet
To develop a quality management plan for outlining the conformance criterion of the final deliverable to the customer's requirements.	One-to-one interview with project manager, project technical officer, minutes of meetings with project team	PMBOK Guide (2017) 6th ed. Contemporary Project Management (2019) 4th ed. PMI database, and relevant websites/internet
To create a human resource management plan for identifying the types and numbers of resources required to complete the project.	One-to-one interview with project manager and minutes of meetings	PMBOK Guide (2017) 6th ed. Contemporary Project Management (2019) 4th ed. PMI database
To develop a communications management plan for defining the type of information to be delivered, the format for communicating it, who, when and how to delivery it.	One-to-one interview with project manager, project technical officer, minutes of meetings with project team	PMBOK Guide (2017) 6th ed. Contemporary Project Management (2019) 4th ed. PMI database, and relevant websites/internet
To develop a risk management plan that outlines the foreseeable project risks and provides a set of actions to be taken to both prevent the risk from	One-to-one interview with project manager, project technical officer, minutes of meetings with project team	PMBOK Guide (2017) 6th ed. Contemporary Project Management (2019) 4th ed. PMI database, and relevant websites/internet

occurring and reduce the impact of the risk should it eventuate.		
To develop a procurement management plan for identifying and acquiring products and services from external suppliers to the project.	One-to-one interview with project manager, project technical officer, minutes of meetings with project team	PMBOK Guide (2017) 6th ed. Contemporary Project Management (2019) 4th ed. PMI database, and relevant websites/internet
To develop a stakeholder's management plan that identifies key stakeholders, their level of interest and involvement in project decisions and execution throughout the life cycle of the project.	One-to-one interview with project manager, project technical officer, minutes of meetings with project team	PMBOK Guide (2017) 6th ed. Contemporary Project Management (2019) 4th ed. PMI database, and relevant websites/internet

3.2 Research Methods

According to Thornhill. D, et al; (2012), research is something that people undertake in order to find out things in a systematic way, thereby increasing their knowledge. And, the same authors define methods as the techniques and procedures used to obtain and analyze data, and methodology as the theory of how research should be undertaken.

The Final Graduation Project will be carried out using a limited form of analytical research method, particularly analyzing case studies to improve project management practice. This will be done through document analysis, meetings

and interviews with key stakeholders for the school perimeter fence project and similar projects undertaken in the past.

Analytical methods

The analytical method will be used in this project as it will enlighten the project manager and team to assess existing project documents, especially case studies or documents relating similar projects. According to Valcarcel, (2017), analytical research methods trigger critical thinking which lead to critical assessment of information. It is anticipated that through critical assessment of case studies and past project documents of similar type, the project manager and the team will be able to generate new ideas and help improve in the planning and implementation of the school perimeter fencing project.

The research method for each specific objective is indicated in the table below.

Table 3.2: Analytical Research Methods

Objectives	Analytical Research Methods
To develop a project charter that outlines the purpose of the project, the way the project will be structured and how it will be successfully implemented.	Facts and information identified from sources in Table 3.1 objective 1 will be used to create the project charter.
To develop a scope management plan, that provides the detailed description of the work to be done to deliver the output of the project on time, within the allotted budget and of quality.	Facts and information identified from sources in Table 3.1 objective 2 will be used to create the scope management plan
To develop time management plan for defining and sequencing activities, estimating activity resources and durations, and developing and control schedule.	Facts and information identified from sources in Table 3.1 objective 3 will be used to create the time management plan.

To develop a cost management plan for allocation and control of costs to activities identified in work packages.	Facts and information identified from sources in Table 3.1 objective 4 will be used to create the cost management plan.
To develop a quality management plan for outlining the conformance criterion of the final deliverable to the customer's requirements.	Facts and information identified from sources in Table 3.1 objective 5 will be used to create the quality management plan.
To create a human resource management plan for identifying the types and numbers of resources required to complete the project.	Facts and information identified from sources in Table 3.1 objective 6 will be used to create the resource management plan.
To develop a communications management plan for defining the type of information to be delivered, the format for communicating it, who, when and how to delivery it.	Facts and information identified from sources in Table 3.1 objective 7 will be used to create the communications management plan.
To develop a risk management plan that outlines the foreseeable project risks and provides a set of actions to be taken to both prevent the risk from occurring and reduce the impact of the risk should it eventuate.	Facts and information identified from sources in Table 3.1 objective 8 will be used to create the risk management plan.
To develop a procurement management plan for identifying and acquiring products and services from external suppliers to the project.	Facts and information identified from sources in Table 3.1 objective 9 will be used to create the procurement management plan.
To develop a stakeholder's management plan that identifies key stakeholders, their level of interest and involvement in project decisions and execution throughout the life cycle of the project.	Facts and information identified from sources in Table 3.1 objective 10 will be used to create the stakeholder management plan.

3.3 Research Tools

According to PMBOK (2017, p. 725), a tool is “something tangible, such as a template or software program, used in performing an activity to produce a product or result. Miloševic, D. & lewwongcharoen, B. cite a Chinese proverb, “to do good work, one must first have good tools.” This proverbial phrase is true for project managers, who if they want to deliver good project results, must first have good project management tools.

The tools to be used in in the Final Graduation Project are summarized in the table below.

Table 3.3: Research Tools

Objectives	Tools
To develop a project charter that outlines the purpose of the project, the way the project will be structured and how it will be successfully implemented.	Project Charter template and Project Management Plan template
To develop a scope management plan, that provides the detailed description of the work to be done to deliver the output of the project on time, within the allotted budget and of quality.	Requirements traceability matrix template, Requirements Documentation template Requirements Management Plan template, MS Project 2016 and Scope Management Plan template.
To develop time management plan for defining and sequencing activities, estimating activity resources and durations, and developing and control schedule.	Schedule Management Plan template, Microsoft Project 2016, and Activity List template
To develop a cost management plan for allocation and control of costs to activities identified in work packages.	Cost Management Plan template, Microsoft Excel 2016, Project Budgeting template, and Cost Baseline template
To develop a quality management plan for outlining the conformance criterion of the	Quality Management Plan template and Quality Management tools (Check-sheets and cause and effect diagram)

final deliverable to the customer's requirements.	
To create a human resource management plan for identifying the types and numbers of resources required to complete the project.	Human Resource Management template, Organizational Chart and Responsibility Assignment Matrix
To develop a communications management plan for defining the type of information to be delivered, the format for communicating it, who, when and how to delivery it.	Communications Management Plan template and Communications Matrix
To develop a risk management plan that outlines the foreseeable project risks and provides a set of actions to be taken to both prevent the risk from occurring and reduce the impact of the risk should it eventuate.	Risk Management Plan template, and Risk Register template
To develop a procurement management plan for identifying and acquiring products and services from external suppliers to the project.	Procurement Management Plan template
To develop a stakeholder's management plan that identifies key stakeholders, their level of interest and involvement in project decisions and execution throughout the life cycle of the project.	Stakeholder Management Plan template, Stakeholder Analysis Chart, Stakeholder Register template, Stakeholder Engagement Assessment Matrix, Stakeholder Power/Interest Grid template

3.4 Assumptions and Constraints

An assumption is what one believes to be true. According to PMBOK (2017, p. 699), an assumption is "a factor in the planning process that is considered to be true, real or certain, without proof or demonstration". One makes assumptions based on his/her experience or the information available on hand. In project management practice, assumptions are anticipated events or circumstances that are expected to occur during the project life cycle.

Constraint according to PMBOK (2019, p.701) is “a limiting factor that affects the execution of a project, program, portfolio, or process”. The PMBOK Guide recognizes six project constraints: scope, quality, schedule, budget, resources, and risk. Out of these six, scope, schedule, and budget are known as the triple constraints.

The Final Graduation Project has identified the assumptions and constraints for each specific objective, which are detailed in the table below.

Table 3.4: Assumptions and Constraints

Objectives	Assumptions	Constraints
To develop a project charter that outlines the purpose of the project, the way the project will be structured and how it will be successfully implemented.	The charter will be developed prior to all other subsidiary plans and related documents.	The project manager won’t be able to consult all stakeholders to gain more information in order to develop the charter
To develop a scope management plan, that provides the detailed description of the work to be done to deliver the output of the project on time, within the allotted budget and of quality.	All stakeholders concerned will freely provide the information required to develop the scope. All the steps to creating a scope plan will be followed.	The scope creep may affect the overall scope of the project
To develop time management plan for defining and sequencing activities, estimating activity resources and	A proper time management plan is developed by following the six components or steps.	Unpredictable factors/events may affect the project schedules

durations, and developing and control schedule.		
To develop a cost management plan for allocation and control of costs to activities identified in work packages.	A detailed financial plan that include labor, equipment, materials and administration will be developed.	Cost estimation methods used and information available may not be credible enough to develop a cost management plan
To develop a quality management plan for outlining the conformance criterion of the final deliverable to the customer's requirements.	The quality plan fully include deliverables that meet the needs of the customer or stakeholder.	PNG Steel Products may not deliver the required fencing material as per the Australian and PNG standards
To create a human resource management plan for identifying the types and numbers of resources required to complete the project.	All roles will be identified and qualified and technically skilled personnel will be recruited.	Nepotism in appointments may prove tantamount.
To develop a communications management plan for defining the type of information to be delivered, the format for communicating it, who, when and how to delivery it.	A good communication plan is developed that will include the communication goals, stakeholders, strategies, activities and timeframes	Frequent power failure from the single source (PNG Power Ltd) and internet connectivity may disrupt the flow of certain communication to stakeholders
To develop a risk management plan that outlines the foreseeable project risks and provides a set of actions to be taken to both prevent the risk from	Risks are all identified, recorded, monitored and planned.	Secondary risks may not be captured well and may severely affect the project

occurring and reduce the impact of the risk should it eventuate.		
To develop a procurement management plan for identifying and acquiring products and services from external suppliers to the project.	All goods and services will be delivered as per the specifications and on time.	PNG Steel Ltd may not have the required stock (fencing material) available to supply on time.
To develop a stakeholder's management plan that identifies key stakeholders, their level of interest and involvement in project decisions and execution throughout the life cycle of the project.	All project stakeholders will be identified and their level of interest.	Certain circumstances may trigger stakeholder's requirements and interest during the project life cycle.

3.5 Deliverables

Projects create deliverables, which are simply the results of the project or the processes in the project. According to PMBOK (2017, p.704), a deliverable is "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".

The deliverables for the Final Graduation Project are detailed in the table below.

Table 3.5: Deliverables

Objectives	Deliverables
To develop a project charter that outlines the purpose of the project, the way the project will be structured and how it will be successfully implemented.	Project Charter
To develop a scope management plan, that provides the detailed description of the work to be done to	Project Scope Management Plan

deliver the output of the project on time, within the allotted budget and of quality.	
To develop time management plan for defining and sequencing activities, estimating activity resources and durations, and developing and control schedule.	Project Time Management Plan
To develop a cost management plan for allocation and control of costs to activities identified in work packages.	Project Cost Management Plan
To develop a quality management plan for outlining the conformance criterion of the final deliverable to the customer's requirements.	Project Quality Management Plan
To create a human resource management plan for identifying the types and numbers of resources required to complete the project.	Project Resource Management Plan
To develop a communications management plan for defining the type of information to be delivered, the format for communicating it, who, when and how to delivery it.	Project Communications Management Plan
To develop a risk management plan that outlines the foreseeable project risks and provides a set of actions to be taken to both prevent the risk from occurring and reduce the impact of the risk should it eventuate.	Project Risk Management Plan
To develop a procurement management plan for identifying and acquiring products and services from external suppliers to the project.	Project Procurement Management Plan
To develop a stakeholder's management plan that identifies key stakeholders, their level of interest and involvement in project decisions and execution throughout the life cycle of the project.	Project Stakeholder Management Plan

4.0 RESULTS

4.1 Project Charter

4.1.1 Introduction

The 854-meter perimeter security fence with camera light around Madang Christian Academy will be built to protect children, teachers, administration staff and the school property.

The project is initiated by Madang Christian Academy and will be undertaken by Melanesian Caring Hands over a ten-week period with an estimated cost of $200,000.00. The fencing materials, which comprise black spear-top steel pickets and rails, manufactured of galvanized steel tube and other assorted materials will be sourced from Atlas Steel (PNG) Limited.

It is mainly a low risk project. However, a good number of risks have been identified and necessary mitigation strategies are in place to address them. And it is assumed that weather will be fine, road condition between Lae and Madang will be good, no attacks on the delivery trucks by criminal elements and the price doesn't increase during the construction period.

4.1.2 Project Definition

Vision

The vision of the project is to:

- Construct and deliver a perimeter fence of quality;
- Install camera security light system along the perimeter fence; and
- Successfully provide protection for children and the school.

Objectives

The key objectives of the project are:

- To construct a perimeter fence around the school premises to protect children and the school.

- To install security cameras and lights along the perimeter fence.
- To construct separate gates for people and vehicles to use.

Scope

This project involves building a 854-meter perimeter fence constructed around Madang Christian Academy with installation of camera security lights and construction of three gates to be used by people and vehicles. It will cost around $200,000.00 and will take about ten weeks to complete.

The 854-meter long perimeter security fencing will have a height of 2100mm and will be constructed from panels comprised of black spear-top steel pickets and rails, manufactured of galvanized steel tube by Atlas Steel (PNG) Limited. The specification is based on the Papua New Guinea Standards, which is adapted from the Australian Standards related to the construction and installation of relevant materials and products for security fencing and in accordance with School Security Guidelines of the country's National Department of Education.

Deliverables

The key project deliverables are in Table 4.1.1 below.

Item	Components	Description
New physical perimeter fence	New physical perimeter fence	A 854-mter perimeter security fencing constructed from panels composed of black spear-top steel pickets and rails with a 2100 mm height
New security light with cameras	Security lights with cameras	A new security light system with camera which illuminate the property with 2000 Lumens of brightness or up to 3000 Lumens using the outdoor magnetic charging cable
New Gates	• x2 new gates for people (children and adults) • x1 new gate for vehicles	• x2 small gates, one in the front and one at the back will be accessed by everyone entering and exciting the school premises. • 1x big gate is for use by vehicles

4.1.3 Project Organisation

Customers

The customers who will use the deliverables produced from the project are listed below:

- School children
- Parents and guardians of children
- Madang Christian Academy staff
- Business community
- Other clients

Stakeholders

The key stakeholders for this project are listed in Table 4.1.2 below.

Stakeholder	Interested in
Director of Madang Christian Academy	Alignment with the schools' vision and strategy
Project Manager	Alignment with project implementation
Project Team	Alignment with project implementation
Municipal/Madang Town Authority	Compliance with construction codes of practice
External Suppliers	Compliance with the delivery of products, goods and services

Roles

Roles identified and required to undertake the project are:

- Sponsor
- Review Group
- Manager
- Team Member

The resources that are likely to fill each role and his/her assignment details are in the table below.

Table 4.1.3: Resources Likely to Fill Each Role

Role	Organisation	Resource Name	Assignment Status (Unassigned/Assigned)	Assignment Date
Sponsor	Madang Christian Academy	Kapo Koma	Assigned	15/11/21 to 15/02/22
Review Group	Melanesian Caring Hands	Chris Gundu Peter Ake	Assigned	31/12/21 to 15/02/22
Manager	Melanesian Caring Hands	Chris Gundu	Assigned	15/11/21 to 15/02/22
Project Team	Melanesian Caring Hands	Project Team Members	Assigned	24/11/21 to 15/02/22

Responsibilities

Below is the description of the responsibilities for each role identified.

Project Sponsor

The Project Sponsor, Madang Christian Academy is the principal 'owner' of the project, and the key responsibilities include:

- Define the vision and high level objectives for the project
- Approve the requirements, timetable, resources and budget
- Authorize the provision of funds / resources (internal or external)
- Approve the project plan and all the subsidiary plans
- Ensure that major risks are identified and managed
- Approve any major changes in scope
- Receive Project Review Group minutes and taking action accordingly
- Resolve issues escalated by the Project Manager / Project Review Group
- Ensure business / operational support arrangements are put in place
- Ensure the participation of a business resource (if required)

- Provide final acceptance of the solution upon project completion.

Project Review Group

The Project Review Group will include the Sponsor, the Project Manager and the Project Lead, who are to ensure that the project is progressing according to plan.

Key responsibilities include:

- Assist the Project Sponsor with the definition of the project vision and objectives
- Undertake Quality Reviews prior to the completion of each project milestone
- Ensure that all risks are identified and managed accordingly
- Ensure conformance to the standards and processes identified in the Quality Plan
- Ensure that all appropriate client/vendor contractual documentation is in place prior to the initiation of the project.

Project Manager

The Project Manager will ensure that the daily activities undertaken on the project are in accordance with the approved project plans. The Project Manager will be responsible for ensuring that the project produces the required deliverables on time, within budgeted cost and at the level of quality outlined within the Quality Plan.

Key responsibilities include:

- Document the detailed Project Plan and Quality Plan
- Ensure that all required resources are assigned to the project and clearly tasked
- Manage assigned resources according to the defined scope of the project
- Implement the following project processes: time / cost / quality / change / risk / issue / procurement / communication / acceptance management
- Monitor and report on project performance (re: schedule, cost, quality and risk)

- Ensure compliance with the processes and standards outlined in the Quality Plan
- Report and escalate project risks and issues
- Manage project interdependencies
- Make adjustments to the detailed plan as necessary to provide a complete picture of the progress of the project at any time.

Project Team Member

The Project Team members will undertake all tasks necessary to design and construct the perimeter fence and install security lights with cameras.

Key responsibilities include:

- Undertake all tasks allocated by the Project Manager (as per the Project Plan)
- Report progress of the execution of tasks to the Project Manager on a frequent basis
- Maintain all documentation relating to the execution of allocated tasks
- Escalate risks and issues to be resolved by the Project Manager.

Structure

Below is the reporting lines structure between each of the key roles described above within the Project Organisation Chart.

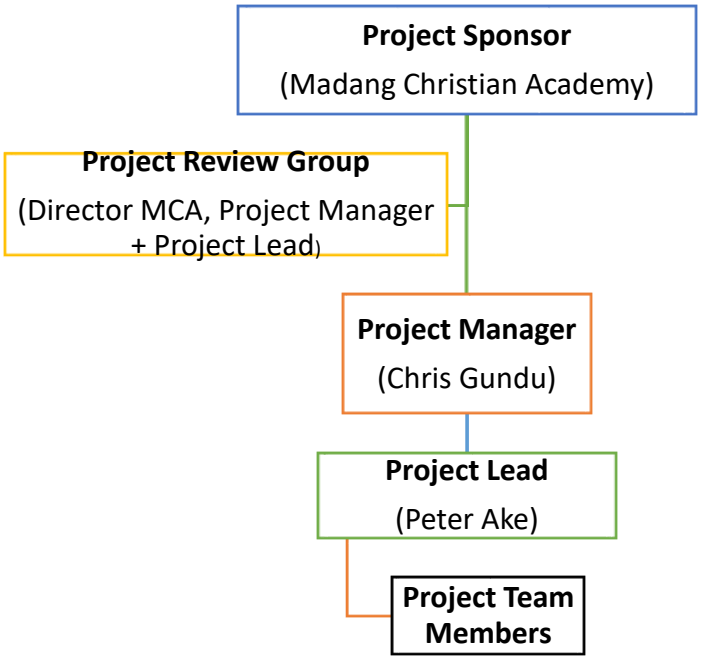


Figure 4.1: Project Organisation Chart

4.1.4 Project Plan

Approach

The approach to be taken to implement each of the phases within the project is described in Table 4.1.4 below.

Phase	Approach
Initiation	Hold stakeholder meetings, appoint the Project Manager and the project team and establish the Project Site Office
Planning	Overall planning process will be described to ensure that the phases, activities and tasks are undertaken in a coordinated fashion.
Execution	The phases required to implement the deliverables of the project are: Initiation, General conditions, Fit out, Clear site and Framework installation
Closure	All necessary steps will be taken to release the deliverables to the MCA, close the site project office, reallocate staff and perform a Post Implementation Review of the project.

Overall Plan

Below is a summarized plan outlining the sequence of each of the phases listed above.

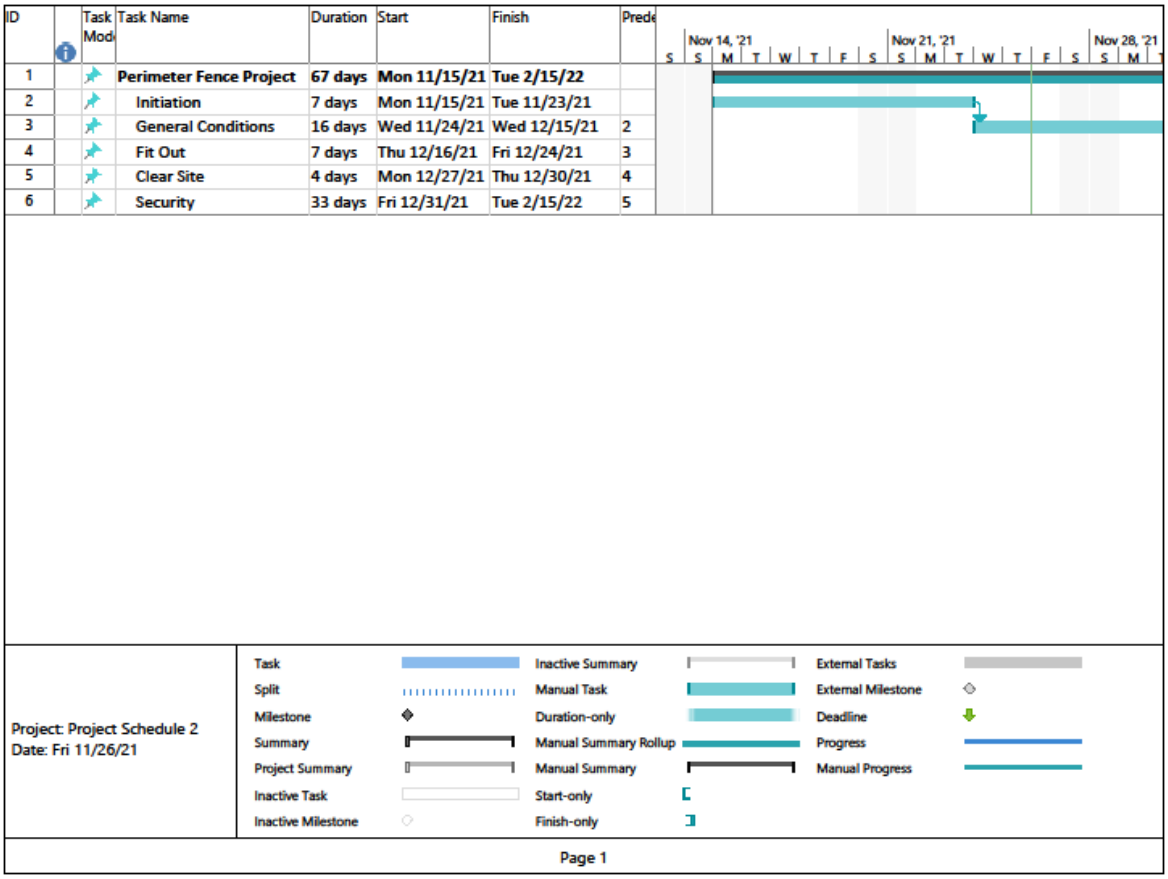


Figure 4.2: Overall Project Plan

Milestones

Table 4.1.5 below shows the major project milestones and the required delivery dates.

Milestone	Date	Description
Initiation	23/11/21	Next phase will commence after completion of this phase
General Conditions	15/12/21	This phase is critical before commencing the next phase

Fit Out	24/12/21	Completion of this enable project team to settle well to embark on the next phase
Clear Site	30/12/21	Site clearing is necessary before commencing the actual fence construction and installation of security lighting systems
Security	15/02/22	Project must be completed on this time as school will resume shortly.

Resource Plan

Table 4.1.6 below shows the summarized duration and effort required for each project team member.

Role	Start Date	End Date	% Effort
Project Sponsor	11/15/21	15/02/22	100%
Review Group	31/12/21	10/01/22	100%
Project Manager	15/11/21	15/02/22	100%
Project Team	24/11/21	15/02/22	100%

Financial Plan

Table 4.1.7 below shows the summarized project budget.

Category	Cost	Value
Labour	• Project Manager • Project Lead • Surveyor • Project Team (x15)	$61,000
Tools and Equipment	• Tools • Machinery (Hire) • Heavy Duty Truck (Hire)	$22,900
Materials	• Stationary • Fencing Materials	$105,050
Administration	• Construction Permit Fee • Fuel • Administration staff	11,050

Quality Plan

Below is a brief description of the various processes to be undertaken to ensure the success of the project.

Table 4.1.8: Quality Plan Brief Description

Process	Description
Quality Management	The quality assurance plan and the quality control plan assures the customer of a quality fencing product.
Change Management	Changes will be managed as per the established change management process: to initiate, record, assess, approve and resolve project changes.
Risk Management	Risks will be managed as the risk management process: to identify project risks, prioritize project risks, identify risk mitigating action and closure of risks.
Issue Management	Issues will be managed by identifying and documenting issues and problems that occur during a project, evaluate them, assess their impact, and decide on a plan for resolution.
Procurement Management	Procurement will be managed through the procurement process: planning, selection, administering and closing procurements.
Financial Management	The cost management process described in the cost management plan will be used to manage the project funds. It will include properly documenting the expenses, gaining approval, expediting and documenting it.
Time Management	Time will be managed strictly by assisting in the scope change requests and evaluating and validating project schedule.
Project Communications	Communication will be managed by following the communication guidelines contained in the communications plan.

4.1.5 Project Considerations

Risks

Below is a summary of the most apparent risks associated with the project.

Table 4.1.9: Summary of Risks

Description	Likelihood	Impact	Mitigating Actions
Schedule does not cater for the delay due to poor road conditions	Medium	Medium	Ensure the schedule cater for delay in poor road conditions
Unexpected increase in material cost	High	High	Allocate 5% contingency in the budget
Lack of controlled communication causing project issues	Low	Low	Strictly enforce communication process and protocol
Project issues are not resolved within an appropriate timescale	Low	Medium	Allocate resources to properly address all issues at the first place
Supplies do not meet the defined expectations	Low	Low	RFP + Supplier Contract must include all the specifications/details of materials required
Customer does not accept the final deliverables of the project	Medium	Low	Clearly specify the customer requirements in the Quality Plan

Assumptions

Here is a list of major assumptions identified with the project.

- There won't be any road blocks by criminal elements along the Lae-Madang highway.
- Prices of fencing products will not increase during the course of the project.

- Project team members won’t leave abruptly during the project.
- Weather will be fine throughout the project.

Constraints

Here is a list of major constraints identified with the project.

- The financial budget allocated is fixed and does not allow for over-spending.
- There are limited technical resources available for the project.
- Three months to complete the project before school commences.

4.1.6 Project Final Deliverable

The final deliverable of this project is the 824-meter perimeter fence with security camera lights installed around the boundary of Madang Christian Academy.

4.2 Scope Management Plan

Introduction

Due to problems associated with theft of school property, harassment, kidnapping of children and other related problems, the Madang Christian Academy is engaging Melanesian Caring Hands to construct a 854 meter perimeter fence to ensure children, teachers and school buildings and property are protected. The perimeter fence will help guarantee the safety of children, teachers, employees and create a conducive environment for all to enjoy. All concerned stakeholders; parents and citizens, teachers, school board members, surrounding community members and provincial education authorities have been consulted to ensure their views are heard and accounted for before the commencement of the project.

The 854-meter perimeter fence around Madang Christian Academy will be constructed over a ten-week period by Melanesian Caring Hands at a cost of $200,000.00.

This scope plan describes the summary of work that is required to complete the perimeter fence, which includes the management of techniques that ensure the project comprises all the task necessary actions to achieve the objectives. Below is the description of the five step process; Collect Requirements, Define Scope, Create Work Breakdown Structure (WBS), Verify Scope, and Control Scope. It basically includes the definition, development, and verification of work, including the assignment of responsibilities for these tasks.

(a) Collect Requirements

The project charter and the stakeholder register were used to identify the stakeholders from whom the requirements were collected. Requirements were collected by conducting interviews and focused group discussions. The information collected during this process became the major input for defining the project scope.

(b) Defining the Scope

The main stakeholders were involved in the development of a detailed description of the product – the perimeter fence, which comprise deliverables, assumptions, constraints and the framework within which project work is to be performed.

(c) Create Work Breakdown Structure (WBS)

The WBS was developed to break project deliverables down into progressively smaller and more manageable components. This hierarchical structure will allow the project team in scheduling, costing, monitoring, and controlling the project.

(d) Verify Scope

In this process, the project deliverables will be reviewed with Madang Christian Academy, and if all is done according to scope then the deliverables will be accepted by the sponsor. If deficiencies are identified, then the sponsor will task the project team to address it before finally accepting it.

(e) Control Scope

The project team will monitor/control the project scope as well as manage any approved change in the scope baseline. The management team will ensure that only approved changes are effected and prevent issues of scope creep.

Scope Management Approach

Chris Gundu, the Project Manager will be entirely responsible for the project scope management. The project scope is defined by the Project Scope Statement, Work Breakdown Structure, and WBS Dictionary. The Sponsor, Project Manager, and stakeholders have formulated the documents for measuring project scope, including quality checklists, and measurements to

identify the work performance. The Project Manager, project stakeholders, or member of the project team will recommend for changes in the scope. Change requests generated will be forwarded to the Project Manager, who will analyze change in scope, and its impacts on cost, schedule, quality, and other aspects. After the analysis, the Project Manager will forward the change request to the Change Control Board for decision. The project documents will be updated by the Project Sponsor, and changes in scope will be communicated to the stakeholders after approval is granted by Change Control Board.

Roles and Responsibilities (Stakeholder Register)

Project Manager, Sponsor and project management team will have key roles for the management of project scope. Therefore, all these persons should be conscious of their responsibilities to ensure that all project work is in accordance with the scope defined. The table below describes the roles and responsibilities for project scope management. Other stakeholders who are not actively engaged in the project are also included in the table below.

Table 4.2.1: Roles and Responsibilities

Name	Role	Responsibilities
Madang Christian Academy	Sponsor	Review the change request regarding scope
		Endorse or accept the change request
		Acceptance of deliverables
Chris	Project Manager	Evaluate and validate project scope
		Assist in the management of scope change requests
		Analyze the impact of scope change requests
		Conduct meetings for evaluation of change requests
		Communicate decision of scope change requests
		Update the project documents
Thomas	Team Lead	Measure and verify project scope
		Validate scope change requests
		Evaluate impact of scope change requests

		Communicate results of scope change to team
		Facilitate the process of change review
Eric, Jack, Mathew, Johnson plus others	Team Members	Contribute in describing changes
		Assess the requirement for scope changes and convey to the project manager
Teachers + MCA Administration Staff	Beneficiary	Only waiting to see the completion of the project to benefit from it.
Students/Parents/Guardians	Beneficiary	Only waiting to see the completion of the project to benefit from it.

Scope Definition

The project scope was defined by means of a methodical process of collecting project and product requirements from the stakeholders through the consultation process, particularly with the sponsor. To begin with, an analysis was conducted regarding the current practice of providing security to the school and obtaining feedback from staff, students and the owner(s) of the school. These consultation processes led to the documentation of the project requirements, the requirements management plan and the requirements traceability matrix to trace the requirement of the original plan.

Further, based on the user requirements and contribution by the experts in fencing, the project description was completed and the deliverables identified. Also, expert judgment was used to provide valuable information, to design and erect a quality fencing product for the school.

Project Scope Statement

This project comprises initiation, fit out, clearing the site and construction of the security perimeter fence.

The project deliverable is an 854 perimeter security fence with camera security lights around the school campus. After successful completion of the fence, the

project owner will be taken on a tour to inspect the entire perimeter fence and approve the completion of the project. A ceremony will be held to hand over the project and the project closure report to the owner. This will signal the takeover and use of the new facility. During construction, only Melanesian Caring Hands staff and resources will be used for the project. It will take about ten weeks, and a total of $200,000.00 to complete the project. It is anticipated that the school will provide necessary support for the project.

Project Scope Description

The project will deliver an 854-meter long perimeter security fence with a height of 2100mm around the Madang Christian Academy premises.

Project Acceptance Criteria

The 854-meter long perimeter security fencing will have a height of 2100mm and will be constructed from panels comprised of black spear-top steel pickets and rails, manufactured of galvanized steel tube by Altas Steel (PNG) Limited. The specification is based on the Papua New Guinea Standards, which is adapted from the Australian Standards related to the construction and installation of relevant materials and products for security fencing and in accordance with School Security Guidelines of the country's National Department of Education. The acceptance criteria and forms to be used are annexed 8.14 and 8.15.

Project Deliverables

The list of specific deliverables of the project are:

(a) A 854-meter perimeter security fencing constructed from panels comprised of black spear-top steel pickets and rails with a 2100mm height.
(b) Three small gates for humans and a big gate for vehicles.
(c) Installation of 10 surveillance cameras on strategic locations along the perimeter fence
(d) Installation of security lights along the perimeter fence.

Project Exclusions

The project will not construct a guard house and other similar amenities, outside of the scope of works.

Project Constraints

- Bad weather may affect the gravel road condition, especially along the rugged Finistere range mountains, which will lead to the delay in the delivery of products from Lae which is five hours drive to Madang.
- Thugs may rob the cargo vehicle along the highway, which is unpaved, muddy and slippery during wet weather.
- Atlas Steel (PNG) Ltd may not have the fencing products readily available, which may affect the schedule.
- Money may not be adequate to mitigate risk factors and overcome unforeseen costs.

Project Assumptions

- The weather will be fine throughout the three-month period.
- Atlas Steel (PNG) Ltd will have enough fencing material available to supply.
- Thugs won't rob the rob the driver and empty the contents.
- Funds will be adequate to mitigate any risk and complete on schedule and within budget.

Work Breakdown Structure

Figure 4.3 below is the work breakdown structure (WBS) for this project. It details all the steps and activities to be carried out. The final deliverable rests on top of the diagram, and the levels below subdivide the project scope to indicate the phases, deliverables and tasks that are needed to complete the fencing project.

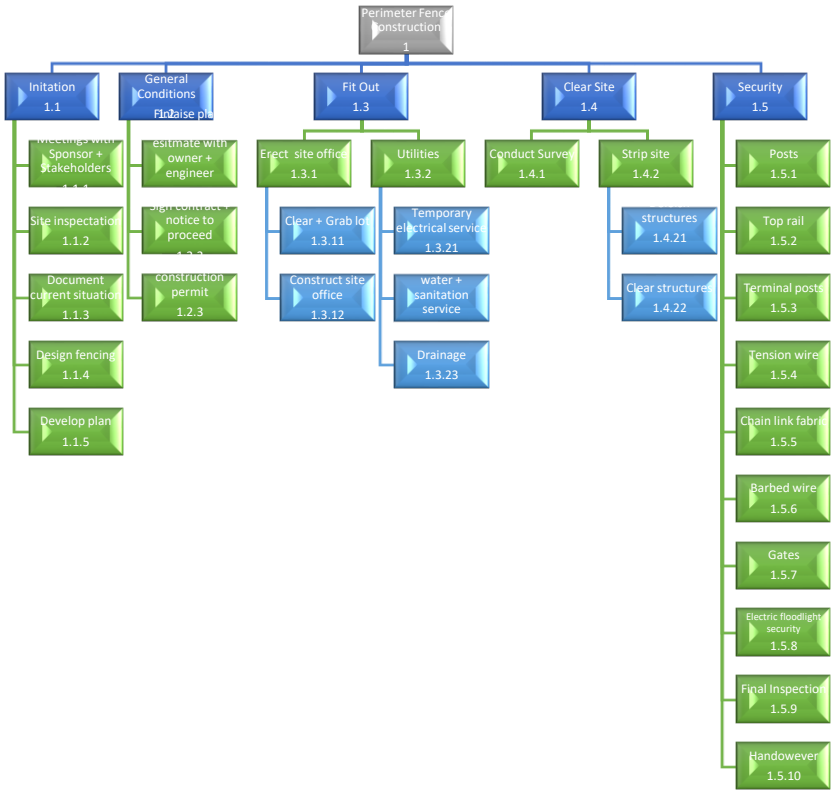


Figure 4.3: Work Breakdown Structure

Work Breakdown Structure Dictionary

The WBS dictionary below details the tasks, activities, and deliverables of the work breakdown structure. The content includes name of components, the work description, the deliverable, resources and cost.

Table 4.2.2: Work Breakdown Structure Dictionary

Project Name	Madang Christian Academy Perimeter Fencing	**Project Manager**	Chris Gundu
Project Sponsor	Madang Christian Academy	**Project Type**	Construction

Level	**WBS Code**	**Name of Component**	**Work Description**	**Deliverables**	**Resources**	**Budget (US $)**

A	1.0	Perimeter fence construction	Construction of perimeter fence	824 meter perimeter fence	Project team, equipment and materials	200,000.00
	1.1	Initiation	Stakeholder meetings, fence design and project planning	Finalized fence design and project plan	Project owner, project manager and Project Lead	10,000.00
B	1.2	General conditions	Finalize plans and develop estimate with owner + engineer	Finalized Project Plan	Project Owner, Project Manager	135.000.00
	1.3	Fit out	Construction of project site office + amenities	Project site office + amenities	Project team	10,000.00
	1.4	Clear site	Clearing the fence construction path	Demolished structures	Project team, equipment and materials	10,000.00
	1.5	Framework installation	Erection of fence, gates and security lights	A 824 meter perimeter fence with gates and security lighting system	Project team, equipment and materials	35,000.00
					Total Cost	200,000.00
C	1.1.1	Meeting with sponsor + Stakeholders	Conduct of meetings with sponsor + Stakeholders	Meetings held and completed	Project Manager + Stakeholders	1,000.00
	1.1.2	Site Inspection	Conduct site inspection	Completion of site inspection	Project Manager, Project Owner + Project Lead	1,000.00
	1.1.3	Document Current Situation	Documenting current situation on the ground	Documentation of current situation	Project Manager + Project Lead	1,000.00
	1.1.4	Design Fencing	Design fencing including specifications	Completed fence design	Project Manager + Project Lead	6,000.00
	1.1.5	Develop Plan	Develop the project plan and the subsidiary plans	Completed Project Plan + subsidiary plans	Project Manager + Project Lead	1,000.00
	1.2.1	Finalize Plans	Finalize plans and develop estimate with owner + engineer	Finalized Project Plan	Project Owner, Project Manager	0.00
	1.2.2	Sign Contract + Notice to Proceed	Signing of contract and notice to proceed with work	Signed contract + notice to commence work	Project owner, Project manager	0.00
	1.2.3	Apply for construction permit	Apply for construction permit with Madang Town Authority	Application of construction permit	Project manager	0.00
	1.2.4	Hire Crew	Recruit project team members	Recruitment of project team completed	Project Manager	5,000.00
	1.2.5	Procure materials	Procure construction materials	Procurement of construction materials completed	Project Manager + Project Lead	110,000.00

	1.2.6	Transportation of supplies	Transportation of materials to project site	All materials transported to project site	Project Manager + Project Lead	20,000.00
	1.3.1	Erect site office	Erection of site office	Completion of site office	Project team	7,000.00
	1.3.2	Utilities Installation	Installation of utilities	Completed temporary utilities	Project team	3,000.00
	1.4.1	Survey	Conduct survey of project site	Completed survey	Project team	4,000.00
	1.4.2	Strip site	Strip site of structures on construction path	Structures on construction path striped	Project team	6,000.00
	1.5.1	Fence posts	Install 3 meter interval fence posts	Fully installed posts	Project team	5,000.00
	1.5.2	Top rail	Install top rail all around	Fully installed top rail	Project team	5,000.00
	1.5.3	Terminal posts	Install terminal posts	Fully installed terminal posts	Project team	3,000.00
	1.5.4	Tension wire	Install tension wire	Fully installed tension wire	Project team	3,000.00
	1.5.5	Chain link fabric	Install chain link fabric	Fully installed chain link fabric	Project team	7,000.00
	1.5.6	Barbed wire	Install barbed wire	Fully installed barbed wire	Project team	7,000.00
	1.5.7	Gates	Install gates x3 gates	Fully installed gates	Project team	2,000.00
	1.5.8	Electric floodlight security	Install electric floodlight security	Fully installed electric floodlight security	Project team	6,000.00
	1.5.9	Final inspection	Inspection of completed project by Project Owner accompanied by Project Manager	Final inspection completed	Project Owner, Project Manager + Project Lead	0.00
	1.5.10	Handover	Handover over of completed project to Project Sponsor/Owner	Completed fencing project handed over to Project Owner	Project Owner, Project Manager, Project team + other stakeholders	0.00
D	1.3.11	Clear + grad lot	Clear and grab lot at construction office site	Cleared area ready for construction	Project team	2,000.00
	1.3.12	Construct site office	Construction of site office	Completed project site office	Project team	5,000.00
	1.3.21	Temporary electrical service	Installation of temporary electrical services at construction site office	Temporary electrical works completed	Project team	1,000.00
	1.3.22	Temporary water + sanitation service	Installation of temporary water and sanitation services at site office	Temporary water + sanitation facilities completed	Project team	1,500.00

	1.3.23	Drainage	Construct new drainage to drain on waste from site office	Completed drainage system	Project team	500.00
	1.4.21	Demolish structures	Demolish structures along the fencing pathway	Demolished structures on fencing path	Project team	3,000.00
	1.4.22	Clear and remove structures	Remove demolished structures to make way for construction	Fencing pathway cleared of obstruction	Project team	3,000.00

Scope Verification

The Project Manager will verify the deliverables as the project is executed, keeping in mind the scope baseline and the project scope statement defined during the project planning.

A review will be carried out by the project sponsor for formal acceptance of the project soon after the verification is completed by the Project Manager. If the Project Sponsor is satisfied with the perimeter fencing project, then the sponsor will accept it by signing the acceptance certificate. This document will ensure that the sponsor has accepted the project after verification of the project scope, which was agreed during the project planning, and documented in the project scope statement.

Scope Control

The Project Manager and the project team will be responsible for the scope control. They will use the WBS Dictionary for obtaining details of the work to be completed. One of the key things that will be monitored by the project team is to ensure that only works defined in the WBS are performed and no other work is executed since it will be out of scope. If any change is required in the project scope, then the Project Manager will analyze the changes on cost, schedule, quality and others, and forward the Change Request to the Change Control Board for decision. Any member of the project team will make recommendations for change by filling in the Change Request Form and submitting it through the management structure. The Change Request Form to be used is in annexed ‘8.4’.

4.3. Time Management Plan

Management Approach

The purpose of this schedule management plan is to establish the criteria and the activities for developing, monitoring and controlling the project schedule. It is anticipated that when this plan is approved, no schedule changes will be permitted unless a request for change is processed in accordance with the procedures set forth in the change management plan.

Responsibility for schedule management will be taken over by the project manager. People who will assume schedule management responsibilities are listed below.

Table 4.3.1: Roles and Responsibilities in Time Management

Names / Roles	Responsibilities
Project Manager	• Evaluate and validate project schedule • Assist in the management of scope change requests • Analyze the impact of schedule change requests • Conduct meetings for evaluation of change requests • Communicate decision of schedule change requests • Update the project documents
Project Sponsor	• Review the change request regarding schedule • Accept or endorse the change request • Acceptance of deliverables • Evaluate and validate project schedule
Project Team Lead	• Measure and verify project schedule • Validate change requests • Evaluate impact of schedule change requests • Communicate results of schedule change to team • Facilitate the process of change review
Project Team Members	• Contribute in describing the changes • Assess the requirement for schedule changes and convey to the project manager

Scheduling Method

The critical path method (CPM) was used for scheduling. The CPM method basically was to calculate the minimum project duration and determine the amount of scheduling flexibility on the logical network paths within the schedule model.

Scheduling Tool and Processes

MS Project was used to prepare the schedule. Deliverables found in the work breakdown structure (WBS) were used to define the project schedule. The WBS is found in the scope management plan.

The Project Manager and the Project Lead used the software to prepare the schedule, and they also have the authority to make necessary changes that have been approved through the change management process.

Define Activities

The specific actions to be performed to produce the project deliverables are included in the schedule. These deliverables are documented in the work breakdown structure, which is found in the scope management plan. The deliverables are higher and are broadly defined, followed by the work packages, which exist within each deliverable. The work activities are next, the smallest level of decomposition and is found within each work package.

Activity List

The list of project activities is included in the table below. The Project Manager and the Project Lead are responsible for reviewing the project deliverables, the work packages and then defining the related work activities.

Table 4.3.2: Activity List

WBS #	Activity Name	Activity Description	Responsibility	Comments
1.1.1	Meeting with sponsor and stakeholders	Hold 1 or more meetings with the sponsor and stakeholders	Project Manager will be responsible for performing the work for this activity.	
1.1.2	Site inspection	Project manager and Project Lead will conduct site inspection of the project area	Project Manager will be responsible for performing the work for this activity.	
1.1.3	Document current situation	Project manager will document current situation, based on the project inspection	Project Manager will be responsible for performing the work for this activity.	
1.1.4	Design fencing	Project Lead/Engineer will design the fencing based on requirements and specifications discussed with the Project Owner	Project Lead will be responsible for performing the work for this activity.	
1.1.5	Develop plan	Development of the project plan based consultation with project owner and other stakeholders	Project Manager and Project Lead will be responsible for performing the work for this activity.	
1.2.1	Finalise plans and develop estimate with owner	Finalisation of the project plan and develop cost estimates with the owner	Project Manager will be responsible for performing the work for this activity.	
1.2.2	Sign Contract + Notice to Proceed	Project Owner and the Project Manager will sign the contract. Notice to proceed will also be issued for construction to commence	Project Manager and Project Owner will be responsible for performing the work for this activity.	
1.2.3	Apply for construction permit	Application for construction permit will be submitted to Madang Town Authority	Project Manager will be responsible for performing the work for this activity.	There may be slight delay awaiting the permit
1.2.4	*Hire* crew	Hire of project crew. Conduct interviews and recruit team members	Project Manager and Project will be responsible for performing this activity	
1.2.5	Procure supplies	Procurement of fencing material and products from Atlas Steel (PNG) Limited and other hardware stores	Project Manager, Project Lead and Finance Officer will be responsible for performing this activity	
1.2.6	Transportation of supplies	Transport supplies to project site	Project Lead and project logistics team will be responsible for performing this activity	There may be delays due to the road condition & weather

1.3.11	Clear and grab lot	Clearing and grabbing the lot where the site office will be erected	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.3.12	Construct site office	Construction of the project site office	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.3.21	Temporary electrical service	Electrical connections and installations will be made at the project site office	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.3.22	Temporary water + sanitation service	Water connections and sanitation facilities will be installed at the project site office	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.3.23	Drainage	Proper drainage will be constructed to drain off water waste.	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.4.1	Conduct survey	A survey will be conducted prior to demolition of structures along the construction path	Project Team will be responsible for performing the work for this activity.	
1.4.21	Demolish structures	Demolition of structures along the construction path	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.4.22	Clear structures	Clearing of demolished structures and debris	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.1	Construct concrete base	Construction of the concrete base on which the metal posts will be erected and bolted.	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.2	Erect fence post	Construction of the fence using the specified fencing products from PNG Steel Ltd.	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.3	Erect fence	Construction steel fencing posts using the specified fencing products from PNG Steel Ltd.	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.4	Fit gates	Erection and fitting of gates (x3 small) and x1 big for humans and vehicles to pass through	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.5	Install cameras	Installation of cameras on strategic locations along the perimeter fence	Project Lead and Project Team will be responsible	

			for performing the work for this activity.	
1.5.6	Install lighting	Installation of lighting at 50 meter intervals along the perimeter fence	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.7	Undoing, packing and transportation of temporary site office with amenities	Undo, pack and transport the temporary office. Also, uninstall water connections, electrical connections and clear rubbish from site	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.8	Final inspection	Conduct final inspection by the project owner to verify and certify the project.	Project Manager and Project Lead will be responsible for performing the work for this activity.	Project is officially closed once the project closure certification is signed

Milestone List

This project has indicated five milestones, which are set forth in the milestone list below.

Milestone List

Project: **Madang Christian Academy Perimeter Fencing**
Project Sponsor: **Madang Christian Academy**
Project Manager: **Chris Gundu**
Start Date: **15 November 2021**
Expected Completion Date: **28 January 2022**

Milestone Number	1.1	Milestone Name	Initiation	Date	24/11/21
Mandatory/Optional		Completion Dates		Verifications	
Mandatory		23/11/21			
Comments:					

The following activities will be undertaken to achieve this milestone: Meeting with sponsor + stakeholder, site inspection, document current situation, design fencing and develop plan.

Milestone Number	1.2	Milestone Name	General Conditions	Date	24/11/21
Mandatory/Optional		Completion Dates		Verifications	
Mandatory		30/11/21			
Comments:					

The following activities will be undertaken to achieve this milestone: Finalize plans and develop estimate with owner + Engineer, sign contract + notice to proceed and apply for construction permit.

Milestone Number	1.3	Milestone Name	Fit Out	Date	01/12/21
Mandatory/Optional		Completion Dates		Verifications	
Mandatory		09/12/21			
Comments:					

The following activities will be undertaken to achieve this milestone: Erection of the site and installation of utilities (electricity, water + sanitation and drainage)

Milestone Number	1.4	Milestone Name	Clear site	Date	10/12/21
Mandatory/Optional		Completion Dates		Verifications	
Mandatory		15/12/21			
Comments:					

The following activities will be undertaken to achieve this milestone: Demolish structures and clear them.

Milestone Number	1.5	Milestone Name	Security	Date	16/12/21
Mandatory/Optional		Completion Dates		Verifications	
Mandatory		31/01/22			
Comments:					

The following activities will be undertaken to achieve this milestone: Concrete base, erection of fence posts, erection of fence, fit gates, install cameras, install lighting, demolish and clear temporary office, conduct final inspection and handover of completed project to owner.

CHANGE REQUESTS

Any change to the project schedule will go through the change management process via a change request. The change request form to be used for this project is annexed '8.4'.

Sequence Activities

The project manager and project lead are responsible for developing the network diagram. Sequencing of activities was done using MS Project and is annexed '8.7'.

Schedule Constraints

The project is anticipated to be completed within eleven weeks during the school holiday because school will commence on the 28 January 2022. The project must be completed before commencement of school year. This is a project that is strictly time-bound. It can't be delayed in any way.

Estimate Activity Resources

Expert judgment and analogous estimating were used to estimate the activity resources. The project manager and the project lead who have undertaken similar fencing projects before used their knowledge, expertise and experience in estimating the activity resources. Based on the information on previously similar projects, duration and cost estimations were done. The table below describes the previous projects undertaken by Melanesian Caring Hands.

Table 4.3.3: Projects Undertaken by Melanesian Caring Hands

Project	Description	Details	Cost	Duration	Similarity
A	Lae Market Security Fencing	Fencing, lighting and fitting gates	$180,000	10 weeks	High
B	Markham High School Perimeter Fencing	Fencing, lighting, security cameras and fitting gates	$190,000	11 weeks	High
C	Busu High School Fencing	Fencing, lighting, security cameras and fitting gates	$200,000	12 weeks	High
D	Tambul Health Centre Fencing	Fencing, lighting, security cameras and fitting gates	$210,000	14 weeks	Medium

Estimate Activity Durations

Project manager and Project Lead are responsible for estimating the activity durations based on previous knowledge and skills and on their current assessment. They basically used analogous estimating and expert judgment to estimate the activity durations as shown in the table below.

Table 4.3.4: Activity Duration Estimate

WBS	Activity	Duration	Start	Finish	Resource
1.1.1	Meeting with sponsor and stakeholders	1	15/11/21	15/11/21	Project Manager, Lead, Sponsor + Stakeholders
1.1.2	Site inspection	1	16/11/21	16/11/21	Project Manager + Project Lead
1.1.3	Document current situation	1	17/11/21	17/11/21	Project Manager + Project Lead
1.1.4	Design fencing	2	18/11/21	19/11/21	Project Lead
1.1.5	Develop plan	2	22/11/21	23/22/21	Project Manager + Project Lead
1.2.1	Finalise plans and develop estimate with owner	2	24/11/21	25/11/21	Project Manager + Project Lead + Owner
1.2.2	Sign Contract + Notice to Proceed	1	26/11/21	26/11/21	Project Manager + Sponsor
1.2.3	Apply for construction permit	2	29/11/21	30/11/21	Project Manager
1.2.4	Hire crew	3	30/11/12	02/12/21	Project Manager
1.2.5	Procure materials	4	03/12/21	08/12/21	Project Manager + Project Lead + Accounts Officer
1.2.6	Transportation of materials	5	09/12/21	15/12/21	Project Logistics Team
1.3.11	Clear and grab lot	1	16/12/21	16/12/21	Project Lead + Project Team
1.3.12	Construct site office	2	17/12/21	20/12/21	Project Lead + Project Team
1.3.21	Temporary electrical service	1	21/12/21	21/12/21	Project Lead + Project Team
1.3.22	Temporary water + sanitation service	2	21/12/21	22/12/21	Project Lead + Project Team
1.3.23	Drainage	1	23/12/21	23/12/21	Project Lead + Project Team
1.4.1	Conduct survey	1	27/12/21	27/12/21	Project Lead
1.4.21	Demolish structures	2	28/12/21	29/12/21	Project Lead + Project Team

1.4.22	Clear structures	1	30/12/21	30/12/21	Project Lead + Project Team
1.5.1	Construct concrete base	5	31/12/21	06/01/22	Project Lead + Project Team
1.5.2	Erect fence post	5	07/01/21	13/01/22	Project Lead + Project Team
1.5.3	Erect fence	10	14/01/22	27/01/22	Project Lead + Project Team
1.5.4	Fit gates	5	28/01/22	03/02/22	Project Lead + Project Team
1.5.5	Install cameras	3	04/02/22	08/02/22	Project Lead + Project Team
1.5.6	Install lighting	2	09/02/22	10/02/22	Project Lead + Project Team
1.5.7	Undoing, packing and transportation of temporary site office with amenities	1	11/02/22	11/02/22	Project Lead + Project Team
1.5.8	Final inspection	1	14/02/22	14/02/22	Project Sponsor + Project Manager
1.5.9	Handover	1	15/02/22	15/02/22	Project Owner + Project Manager Project Team + Stakeholders

Develop Schedule

The Project Manager and the Project Lead developed the project schedule in consultation with the project team, which involved analysis of the activity sequences, durations, resource requirements and schedule constraints to create the project schedule.

After initial schedule development, the schedule will be reviewed and validated by the project team. Also, the project sponsor was involved in preliminary schedule reviews.

This is to ensure that all key stakeholders of the project are consulted in developing and validating the schedule.

The schedule is done using MS Project and is presented on a Gantt Chart, which includes the milestone. This is included as annexed ‘8.7’.

Control Schedule

The project manager will be responsible for holding weekly schedule updates/reviews; determine impacts of schedule variances; submit schedule change requests; and report schedule status in accordance with the project's communications plan. During this meetings, the schedule will be reviewed and updated based on the actual start, actual finish and the completion percentage provided by the task owners.

The outcome of these meetings will communicated to the project owner. If changes are required, then the project manager will submit the change requests through the change management process for approval. The approved schedule changes will be communicated to all for action and compliance.

Schedule Baseline

The schedule baseline is annexed '8.7'. The project team will use this schedule after approval is granted but changes will be made throughout the project life, through the established change control procedures and processes. The schedule baseline will be used throughout the project as a basis for comparison to actual results.

Schedule and Changes Threshold

Any member of the project team who feels that a change to the schedule is necessary will bring it up in during the weekly meetings for the project manager and team to review and evaluate the change. The project team will determine which tasks will be impacted, the variance as a result of the potential change, and any alternatives or variance resolution activities they may employ to see how they would affect the scope, schedule, and resources. Smaller schedule changes that won't affect the scope and resources will be approved by the Project Manager but those that exceed the established boundary conditions will require approval from the project owner.

These condition are:

- If the proposed change is estimated to reduce the duration of an individual work package by 10% or more, or increase the duration of an individual work package by 10% or more.
- If the change is estimated to reduce the duration of the overall baseline schedule by 10% or more, or increase the duration of the overall baseline schedule by 10% or more.

After approval is granted by the project owner, the project manager will adjust the schedule and communicate all changes and impacts to the project team, project sponsor, and stakeholders. The project manager will take the responsibility of archiving all the project records for future use.

Report Schedule

The project manager will review and update the project schedule every Friday. Come Monday morning, everyone will be informed of the revised schedule during the usual briefings. Scope and resources may be affected so changes to these will also be communicated to the project team, the owner and other key stakeholders. Any variances and corrective actions will be announced. The project team will be responsible for carrying all the approved changes.

Assumptions

Here are the main assumptions regarding the project schedule, which are transferred to the Risk Management Plan for further management.

Table 4.3.5: Assumption

Assumption	Date Transferred to Risk Management Plan
The weather will be fine throughout the three-month period and won't affect the schedule	
There won't be any scope creep affecting the schedule	
Delivery of goods by supplier on time	
Schedule is accurate and won't be changed abruptly	

Issues

Here are the main issues regarding the project schedule, which are transferred to the Risk Management Plan for further management.

Table 4.3.6: Issues

Issues	Date Transferred to Risk Management Plan
Criminal activities along the Lae-Madang highway	
November to February is wet season in the country	
Bad road condition between Usino Junction (30 km) and Tapo Creek	

Risks

Here are the main risk regarding the project schedule, which are transferred to the Risk Management Plan for further management.

Table 4.3.7: Risks

Risks	Date Transferred to Risk Management Plan
Delay due to very poor road conditions	
Theft of cargo by criminal elements along the highway	
Wet conditions	
Unexpected increases in material cost	
Delay in granting of construction approval	
Dissatisfied casual workers	

Scope Change

Any changes in the project scope, approved by the project sponsor, will require the project team to evaluate the effect of the scope change on the current schedule. If the scope change is big then the project manager may request the project owner through the change request process to re-baseline the schedule to cater for the new project scope, which will also affect the resources.

4.4. Cost Management

Introduction

The Project Manager will be responsible for managing and reporting on the project's cost throughout the duration of the project. This will be done during the weekly project status meetings. The Project Manager will meet with the Project Lead and the Accounts Officer to present and review the project's cost performance for the preceding week. Performance will be measured using earned value. The Project Manager will be responsible for accounting for cost deviations and presenting the Project Sponsor with options for getting the project back on budget. The Project Sponsor will authorize changes to the project to bring it back within budget.

Cost Management Approach

Costs for this project will be managed at the third level of the Work Breakdown Structure (WBS), and Earned Value calculations will measure and manage the financial performance of the project. Cost variances of +/- 0.1 in the cost and schedule performance indexes will change the status of the cost to cautionary; as such, those values will be changed to yellow in the project status reports. Cost variances of +/- 0.2 in the cost and schedule performance indexes will change the status of the cost to an alert stage; as such, those values will be changed to red in the project status reports. This will require corrective action from the Project Manager in order to bring the cost and/or schedule performance indexes below the alert level. Corrective actions will require a project change request and be must approved by the Project Sponsor before it can become within the scope of the project.

Financial Process

Purpose

The cost management process will help the project manager to monitor and report all expenses within the project. Costs (or "expenses") will be recorded by team

members, using the Expense Forms annexed ‘8.8’. These forms will be reviewed and approved by the Project Manager, prior to the expense items being purchased. The *project cost management* process steps are in place to ensure that all of the costs within the project are accurately recorded and tracked.

Procedures

Below is a diagrammatic representation of the procedures to be undertaken to request and gain the approval of financial expenditure within the project.

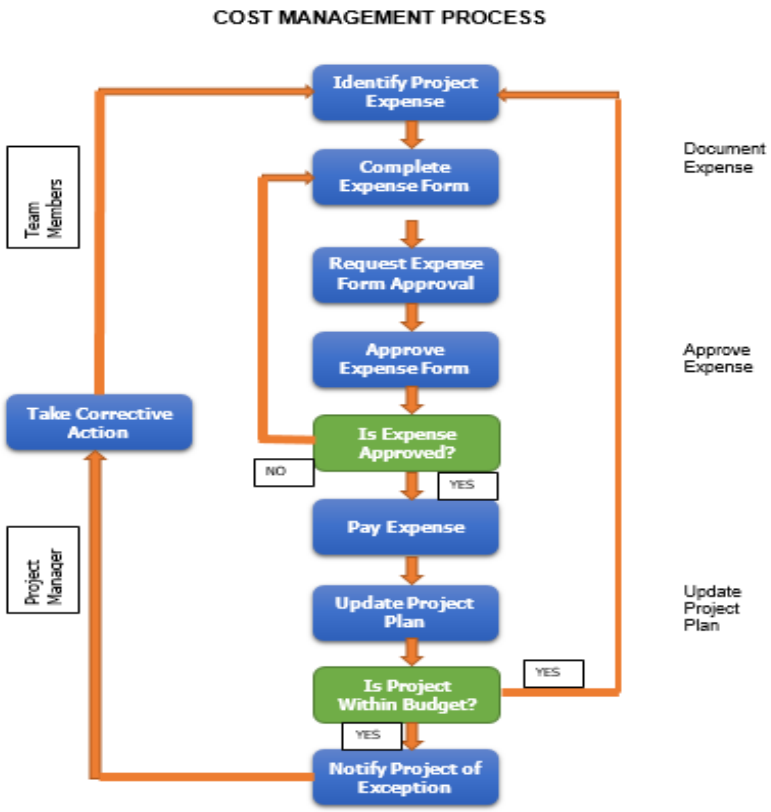


Figure 4.4: Cost Management Process

The project cost management process will be help the project manager to:

- Identify each of the costs within the project.
- Ensure that expenses are approved before purchasing.
- Keep a central record of all costs incurred.
- Control the overall cost of the project.

- Determine whether the expenses were adequately budgeted.
- Monitor and control instances of over-spending.
- Gain special approvals for extra-ordinary expenses.
- Schedule expense payments and invoice approvals.
- Keep the project and financial plans up-to-date.

Responsibilities

The table below shows the roles and responsibilities of the resources involved with the review and approval of financial expenditure within the project.

Table 4.4.1: Responsibilities

Resource	Responsibility
Team members	Identify project expense, complete expense form and request for approval
Project Lead	Verifies the expense form
Accounts Officer	Pays the expenses
Project Manager	Approve or reject the requests
Project Owner	Gets project updates. Bigger requests not within project managers responsibility are escalated to him/her for approval

Forecast Costs

The tangible and quantifiable costs which are likely to be encountered within the scope of the project are outlined below.

1. Labor

Types of roles within the project and their unit costs are presented in the table below.

Table 4.4.2: Labour Costs

Role	Unit Cost	Total Days	Cost ($)
Project Manager	30/hr	55	13,200
Project Lead	17/hr	55	7,480
Surveyor	60/hr	2	960
Project Team (x15)	8/hr	41	39,360
Total Labor Cost			**61,000**

Work commences at 8.00 and terminates at 5.00pm daily. Employees have an hours break for lunch. Each person is expected to clock a minimum of 8 hours daily.

2. Equipment/Tools

Equipment required by the project and their unit costs is presented in table below.

Table 4.4.3: Equipment/Tools Cost

Item	Unit Cost	Cost ($)
Tools	10/item	100
Machinery (Hire)	450/hr x 3days	10,800
Heavy Duty Truck (Hire)	300/hr x 5 days	12,000
Total		**22,900**

3. Materials

Materials required by the project and their unit costs in the following table.

Table 4.4.4: Materials Cost

Item	Cost
Stationery	50
Fencing Materials	105,000
Total	**105,050**

4. Administration

Administrative costs to be incurred and their unit costs are in the table below.

Table 4.4.5: Administrative Cost

Item	Cost ($)
Construction Permit Fee	1000
Fuel	5,050
Administration staff	5,000
Total	**11,050**

5. Contingency

The contingency costs are built within the above costs.

Financial Plan

Schedule

Now that each type of financial expenditure has been listed, the expenditure for each expense will occur within the 11-week project duration. The following table itemizes the costs expended per week.

Table 4.4.6: Finance Schedule

	Week											
Expense Type	**Week 1**	**Week 2**	**Week 3**	**Week 4**	**Week 5**	**Week 6**	**Week 7**	**Week 8**	**Week 9**	**Week 10**	**Week 11**	**Total**
Labor Project Manager + Project Lead + Project Team	5,000	5,000	5,000	5,000	3,000	7,000	7,000	7,000	7,000	4,000	6,000	61,000
Equipment/Tools Welding machine + Tools	0.00	0.00	4,000	4,000	3,000	3,000	3,000	2,000	2,000	1,000	900	22,900
Materials Fencing Post + Top rails, Tension Wire + Barbed wire, Chain link fabric Security lights + cameras	0.00	50.00	60,000	45,000								105,050
Administration Stationary + Support staff + Fuel	0.0	1,000	1,450	1,200	1,200	1,200	1,200	1,200	1,200	1,200	1,200	11,050
Contingency	0	0	0	0	0	0	0	0	0	0	0	0
Total	5,000	6,050	70,450	55,200	7,200	11,200	11,200	10,200	10,200	6,200	8,100	200,000

Once the project costs have been identified above, it is then possible to verify the: (i) Total cost of the project per week, (ii) Total cost of the project per cost type.

Usage

It is also important to identify the cost of undertaking each activity on the Project Plan. Note: Although a detailed Financial Plan would usually quantify the specific project costs per day, the following table itemizes costs per week for simplicity.

Table 4.4.7: Usage Schedule

	Week											
Activity	**Wk 1**	**Wk 2**	**Wk 3**	**Wk 4**	**Wk 5**	**Wk 6**	**Wk 7**	**Wk 8**	**Wk 9**	**Wk 10**	**Wk 11**	**Total**
Initiation *Stakeholder meetings, fence design and project planning*	10,000											10,000
General Conditions *Finalize plans and develop estimate with owner + engineer*		$135,000										135,000
Fit Out *Construction of project site office + amenities*				10,000								10,000
Clear Site *Clearing the fence construction path*					10,000							10,000
Framework Installation *Erection of fence, gates and security lights*						7,000	7,000	7,000	4,000	4,000	6,000	35,000
Total	10,000	135,000		10,000		7,000	7,000	7,000	4,000	4,000	6,000	200,000

Once the project costs have been identified above, it is then possible to verify the total cost of the project per activity. This detail costing is attached as Appendix '8.10'.

Assumptions

It is assumed that:

- The project delivery dates will not change during this project.
- The unit cost per cost type will not change during this project.
- The prices of goods and services will not change during this project period.
- The funds identified will be available as required.

Risks

Risk identified are:

- That the contingency identified is lower than that required during the project.
- That the project scope is extended and further financial expenditure is required.
- That the fencing materials required is unavailable and additional costs will be incurred to secure fencing materials from Port Moresby, which is a further 500kms away from Lae.

Register

The 'Expense Register' attached as Appendix 8.9 will record the activities to be undertaken within the project.

Expense Form

Attached as Appendix 8.8 is the Expense Form required to gain approval of a project expense.

Cost Change Control Process

The cost change control process will follow the established project change request process. Approvals for project budget/cost changes will be approved by the project sponsor.

4.5 Quality Management Plan

Introduction

The Quality Management Plan for the Madang Christian Academy Perimeter Fencing Project establishes the activities, processes, and procedures for ensuring a quality product upon the conclusion of the project. The purpose of this plan is to:

- Ensure quality is planned
- Define how quality will be managed
- Define quality assurance activities
- Define quality control activities
- Define acceptable quality standards

Deliverable Quality

Delivering a successful project is the prime aim of the contractor, and this success is measured in terms of the achievement of ‘time, cost and quality’ targets. Time and cost are addressed in the Time and Financial Plans respectively. Below is the outline of the ‘quality’ targets and the methods used to assure the customer that the quality targets will be achieved for this project.

Definition

“Quality is the level of conformance of each deliverable to the customer's requirements.”

Quality Targets

The ‘quality’ targets (i.e. criteria and standards) to be met for each deliverable that meet the requirements of Madang Christian Academy are provided in the following table.

Table 4.5.1: Quality Targets

Quality Targets			
Project Requirement	Project Deliverable	Quality Criteria	**Quality Standards**
A new perimeter security fence is erected around Madang Christian Academy	Installation of posts, top rail, terminal posts and tension wire	<u>Framework installation</u> • ***Posts:*** Posts shall be set plumb in concrete footings in accordance with ASTM F567. Minimum footing depth, 24 in. (609.6 mm) plus an additional 3 in. (76.2 mm) for each 1 ft. • ***Top rail***: Install 21 ft. (6.4 m) lengths of rail continuous through the line post or barb arm loop top. Splice rail using top rail sleeves minimum 6 in. (152mm) long. • ***Terminal posts***: End, corner, pull and gate posts shall be braced and trussed for fence 6 ft. (1.8 m). The horizontal brace rail and diagonal truss rod shall be installed in accordance with ASTM F567. • ***Tension wire:*** Shall be installed 4 in. (101.6 mm) up from the bottom of the fabric. Fences without top rail shall have a tension wire installed 4 in. (101.6 mm) down from the top of the fabric.	Complete framework installation • Posts installed without problems • Top rails installed without problems • Terminal posts installed without problems/errors • Tension wire installed without problems • Posts, top rail, terminal posts and tension wire, all firm and strong
	Installation of chain link fabric	<u>Chain Link Fabric Installation</u> ***Chain Link Fabric:*** Fabric to be installed outside of the framework. Fabric to be attached to the terminal post by threading the tension bar through the fabric; securing the tension bar to the terminal post with tension bands and 5/16 in. (7.94 mm) carriage bolts spaced no greater than 12 inches (304.8mm) on center. Chain link fabric be stretched taut free of sag. Fabric be secured to the line post with tie wires spaced no greater than 12 inches (304.8 mm) on center and to	Complete chain link installation • Chain link fabric installed without problems/errors

		rail spaced no greater than 18 inches (457.2 mm) on center. Secure fabric to the tension wire with hog rings spaced no greater than 18 inches (457.2 mm) apart	
	Installation of barbed wire	Barbed wire installation ***Barbed Wire***: Stretched taut between terminal posts and secured in the slots provided on the line post barb arms. Each strand of barbed wire attached to the terminal post using a brace band.	Complete barbed wire installation • Barbed wire installed without problems/errors
	Installation of x3 swing gates (x2 single and x1 double for vehicles)	Gate installation ***Swing Gates:*** Installation of swing gates and gateposts in compliance with ASTM F567. Direction of swing shall be inward. Gates shall be plumb in the closed position having a bottom clearance of 3 in. (76 mm) grade permitting. Hinge and latch offset opening space from the gate frame to the post shall be no greater than 3 in. (76 mm) in the closed position. Double gate drop bar receivers shall be set in a concrete footing minimum 6 in. (152 mm) diameter 24 in. (609.6 mm) deep. Gate leaf holdbacks shall be installed for the double gates (vehicle entry)	Complete gate installation • Gates installed without problems/errors
	Installation of barbed wire	Barbed tape installation ***Barbed Tape***: Barbed tape shall installed in accordance with ASTM F1911, installation of barbed tape.	Complete barbed tape installation • Barbed tape installation without problems/errors
	Installation of electric floodlight security camera	**Electric Floodlight Security Camera.** Installation of Feit Electric Smart Floodlight Security Camera every 50 meters. Description: 1080P HD Video, 270 Degree Field of View, Movement Detection up to 32 Feet, Two-way Audio and Ultra Bright 3000 Lumens	Complete floodlight security camera Floodlight security camera installation without problems/errors

Quality Assurance Plan

The following 'Quality Assurance Plan' provides the customer with the assurance that the quality targets will be met. The 'Quality Assurance' (QA) Plan was developed by consulting historical data from similar projects undertaken by Melanesian Caring Hands, defining the requirements and contributions from skilled staff within the project team.

The 'Project Lead' will act as the 'Quality Manager' of the project and will carry out quality checks but will engage an independent reviewer to assess, the overall quality of each deliverable. This will be done to give confidence to the customer that the project is on track.

Changes to scope often have an effect on the level of quality delivered, only changes which are absolutely necessary will be adopted by the project for implementation.

Table 4.5.2: Quality Plan

QA Plan		
Technique	Description	Frequency
Recruit Skilled Staff	Skilled staff will be recruited to assure deliverable quality by: • Ensuring that staff allocated to the project have at least 3 years of experience in similar projects. • Appoint the 'Project Lead' who as one supervised similar in the past as the 'Quality Officer' within the organization. • Appoint a technically skilled person in fence construction and electrical flood light security camera to ensure that materials and technology used for this project meet the quality targets	Throughout project
Undertake Quality Reviews	Review the quality of deliverables by: • Appointing a resource to perform weekly 'Quality Reviews' • Appointing the Project Lead to be responsible for the quality of the deliverables produced by the project • Use the 'Quality Matrix' and 'Checklist' to gather data, analyze it and report	Weekly
Defect Tracking	Track the number of defects which have been reported (and are open/closed).	Weekly

and Reporting	• Project Lead will monitor and report to project team and management • Change requests will be generated to address any quality issues	
Address Quality Issues	Corrective actions will be taken to address all quality issues identified.	

Quality Control Plan

To further improve deliverable quality, the following 'Quality Control' (QC) techniques will be implemented. QC is basically the curative steps taken to eliminate any variances in the quality of the deliverable produced from the quality targets set. The techniques to be used to 'control' the quality of the deliverables in this project include: peer reviews, deliverable reviews and stage-gate reviews.

Below is the description of the QC techniques to be implemented to control the quality of each deliverable on the project.

Table 4.5.3: Quality Control Plan

QA Plan		
Technique	Description	Frequency
Recruit Skilled Staff	Skilled staff will be recruited to assure deliverable quality by: • Ensuring that staff allocated to the project have at least 3 years of experience in similar projects. • Appoint the 'Project Lead' who as one supervised similar in the past as the 'Quality Officer' within the organization. • Appoint a technically skilled person in fence construction and electrical flood light security camera to ensure that materials and technology used for this project meet the quality targets	Throughout project
Undertake Quality Reviews	Review the quality of deliverables by: • Appointing a resource to perform weekly 'Quality Reviews' • Appointing the Project Lead to be responsible for the quality of the deliverables produced by the project • Use the 'Quality Matrix' and 'Checklist' to gather data, analyze it and report	Weekly
Defect Tracking	Track the number of defects which have been reported (and are open/closed).	Weekly

and Reporting	• Project Lead will monitor and report to project team and management • Change requests will be generated to address any quality issues	
Address Quality Issues	Corrective actions will be taken to address all quality issues identified.	

Process Quality

In addition to the assurance and control of deliverable quality, a number of project management processes must be undertaken to ensure that quality of the deliverable is achieved. Below is a summary of the project management processes that will used to ensure that the quality targets outlined above are achieved during this project.

Time Management Process

The Time Management Process will be undertaken to accurately record the actual time spent by staff to complete the project tasks delegated by the Project Manager.

Time Management comprises three generic processes:

1. Document Timesheet
2. Approve Timesheet
3. Register

Timesheets will be undertaken by all project members, including:

- Project staff
- Project contractors
- Project suppliers
- The Project Management team

The core principles involved within the completion of timesheets. For example:

- Time will be recorded on timesheets in at least one hour blocks to ensure that the full nature of the activity being undertaken is understood.
- Timesheets will be completed weekly and submitted to the Project Manager for approval by the following Monday (for the prior week's entries).
- Timesheets will include information on all activities and tasks undertaken during the time entry period.
- Each time entry will be recorded against an Activity ID and Task ID as specified in the Project Plan.
- Timesheets will be approved only if all time undertaken on the project is accurately recorded within the timesheet.

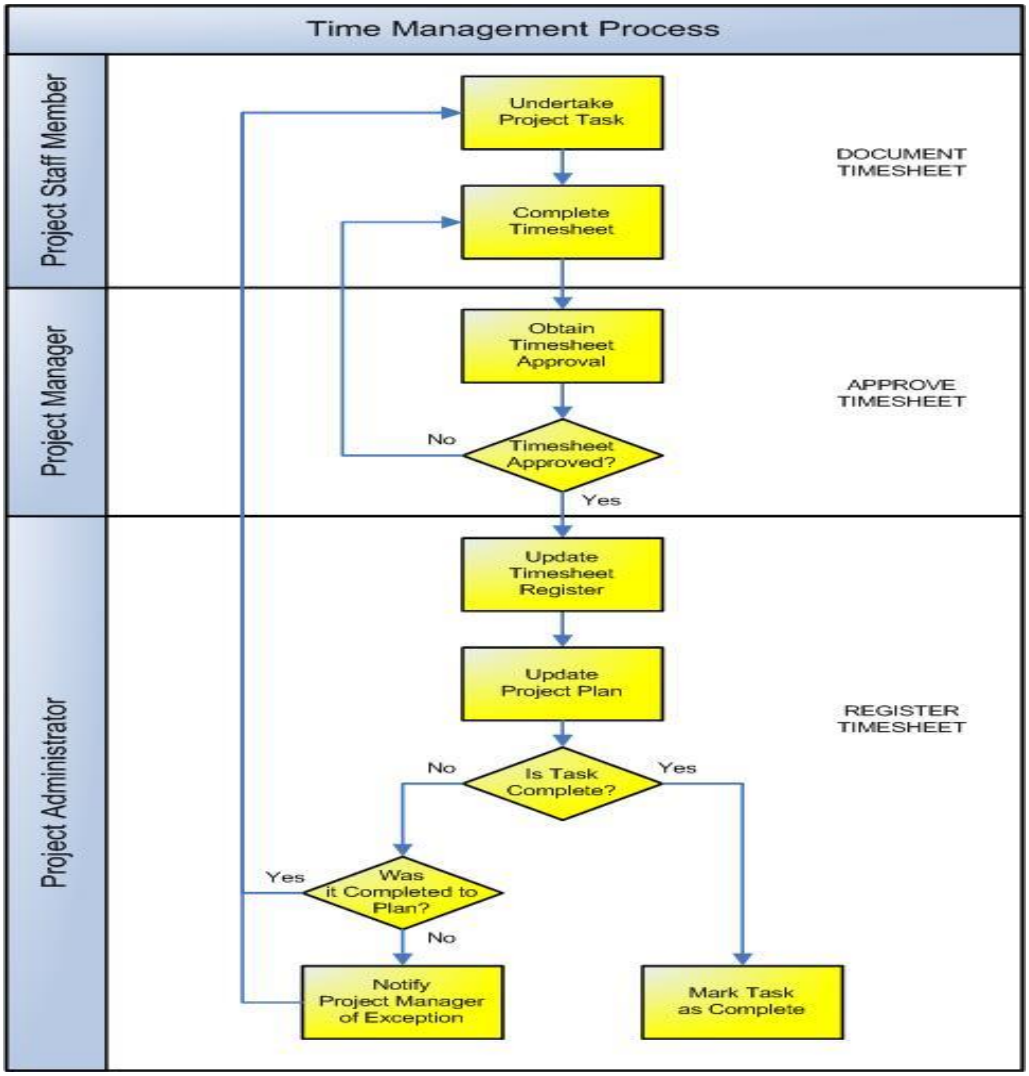


Figure 4.5: Time Management Process, Source: Method 123

The diagram above depicts the processes and procedures to be undertaken to document, approve and register timesheets within the project. Where applicable, *Time Management Roles* have also been identified.

Cost Management Process

The purpose of the Cost Management Process is to accurately record the actual costs (or expenses) which accrue during the project's lifecycle. Cost Management comprises three generic processes:

1. Document Expense Form.
2. Approve Expense Form.
3. Register Expense Form.

Project costs will be formally documented through the completion of Expense Forms. The core principles involved in the completion and approval of Expense Forms are:

- The Project Manager will approve payment of a project expense, only if a valid expense form has been completed. Expense forms will be completed for ALL project expenses, including contractor, supplier, equipment, materials and administration costs. Staff wages costs are exempt as wages costs can be calculated from the timesheet information provided for the Project Manager on a regular basis.
- Expense Forms will be completed weekly and submitted to the Project Manager for approval by the following Monday (for the prior week's entries).

The following diagram depicts the processes and procedures to be undertaken to identify, approve and pay project expenses. Where applicable, *Cost Management Roles* have also been identified:

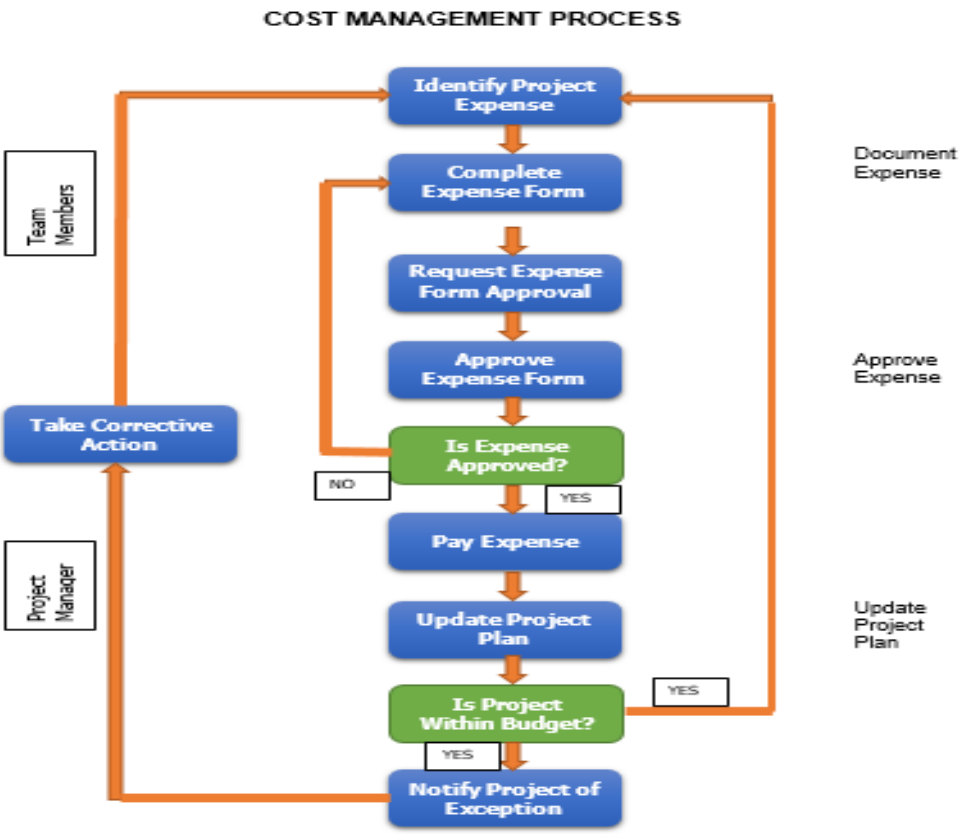


Figure 4.4: Cost Management Process

Quality Management Process

The Quality Management Process will be undertaken to ensure that the Quality Targets identified within the Quality Plan are achieved by undertaking clearly defined Quality Assurance and Quality Control techniques. Quality Management will be introduced to this project through the implementation of three key processes; Define Quality Targets, Measure Quality Achieved and Enhance Quality Achieved.

The following diagram describes the processes and procedures to be undertaken to assure and control the quality of deliverables and processes within the project.

The Project Manager and Project Lead will identify the 'Quality Targets' as well as how to measure them. They will also measure whether the 'Quality Targets'

set were achieved or not. To complement this, the external reviewer will do the overall quality checks. Based on the assessment from both the internal and external reviews, necessary quality enhancement actions will be taken if the quality targets are not met. If the 'Quality Targets' are met, then the deliverables are complete and be ready for acceptance.

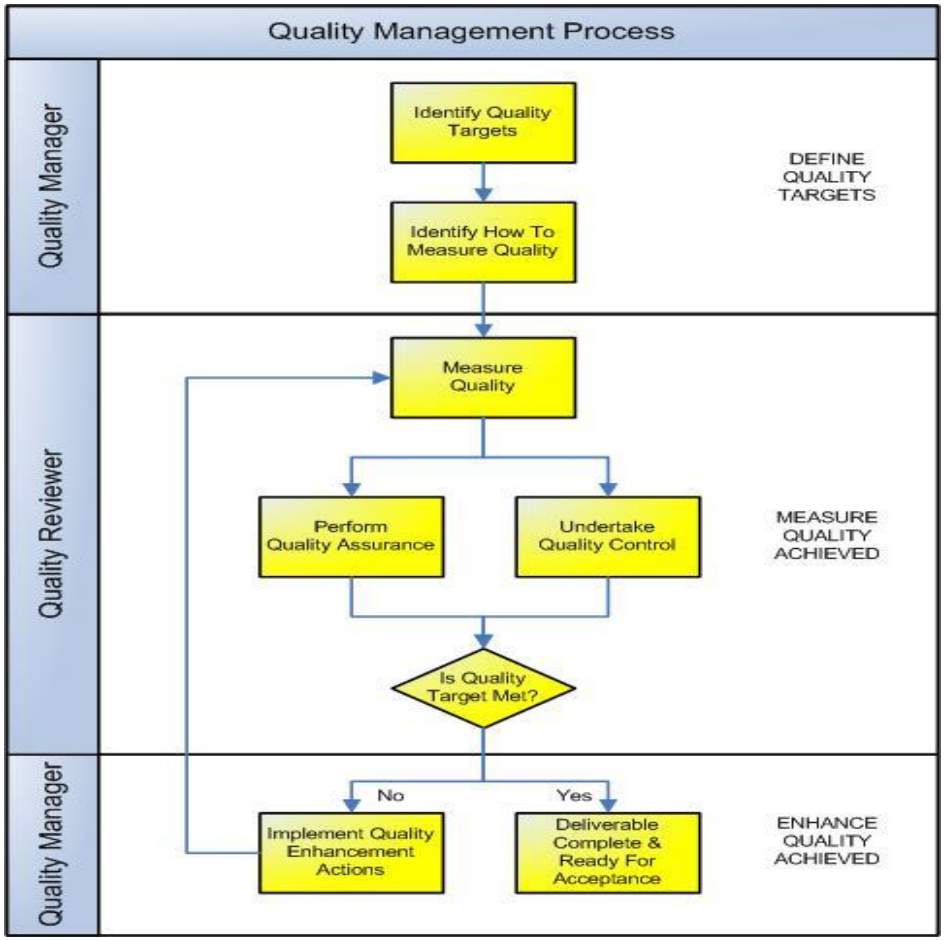


Figure 4.6: Quality Management Process, Source: Method 123

Change Management Process

The Change Management Process will be undertaken to ensure that each change introduced to the project environment is appropriately defined, evaluated and approved prior to implementation.

Change Management will be introduced to this project through the implementation of five key processes:

- The submission and receipt of change requests.

- The review and logging of change requests.
- The determination of the feasibility of change requests.
- The approval of change requests.
- The implementation and closure of change requests.

The following diagram describes the processes and procedures to be undertaken to initiate, implement and review the effects of changes within the project.

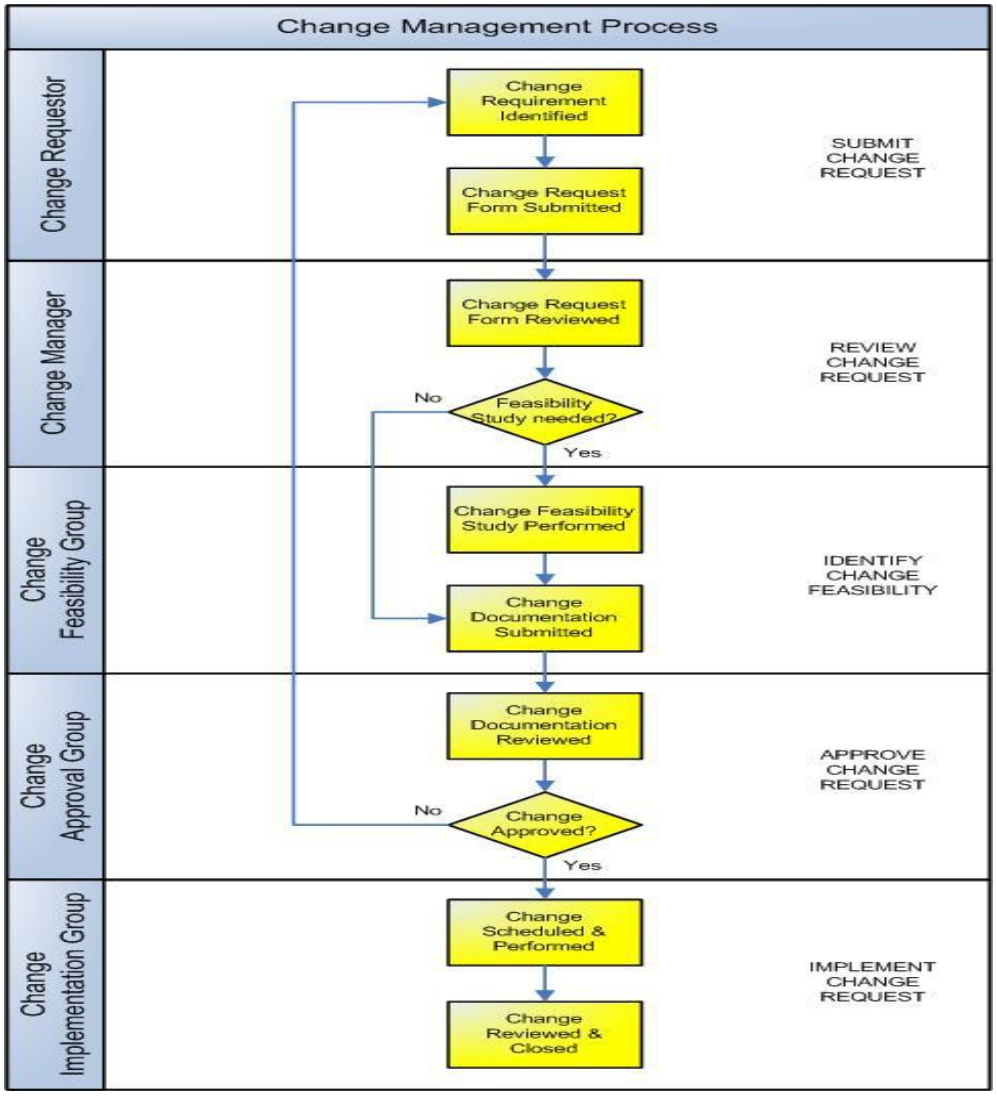


Figure 4.7: Change Management Process, Source: Method 123

Risk Management Process

The Risk Management Process is undertaken to ensure that each risk identified within the project environment is documented, escalated and mitigated as appropriate. Risks are defined as 'any event which is likely to adversely affect the ability of the project to achieve the defined objectives'.

The following diagram provides an overview of the risk processes and procedures to be undertaken to effectively manage project-related risks.

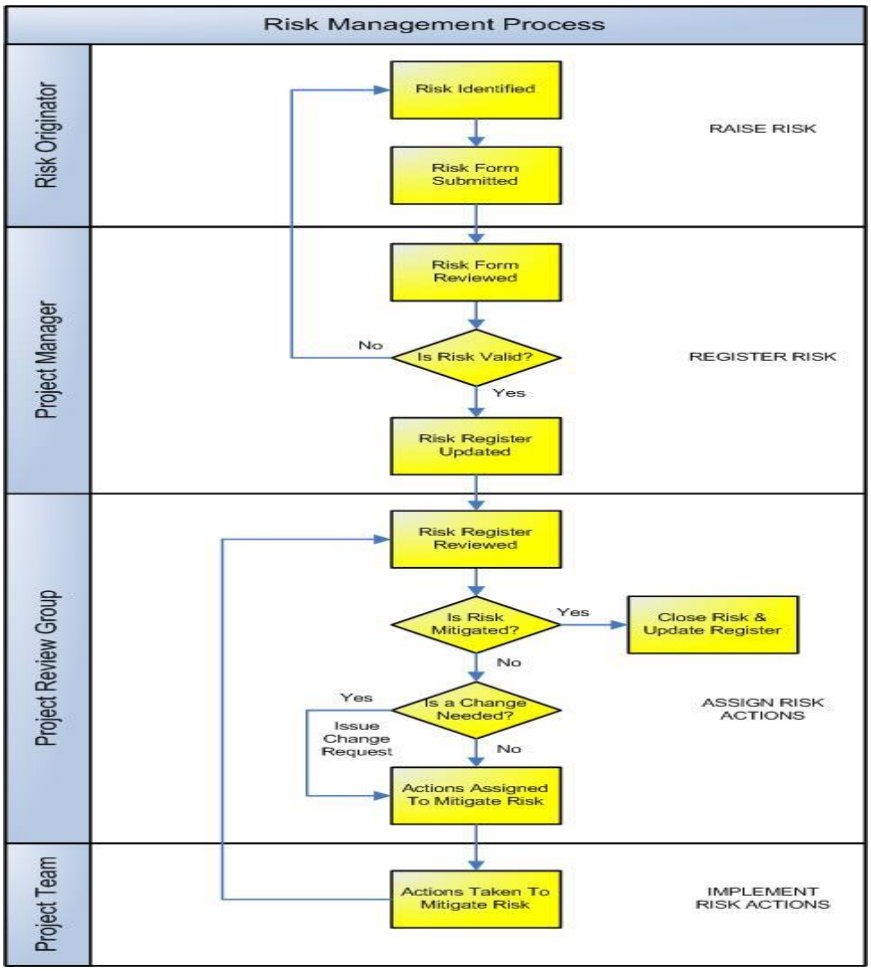


Figure 4.8: Risk Management Process, Source: Method 123

Risk Management will be undertaken on this project through the implementation of five key processes:

- The identification of project risks.
- The logging and prioritizing of project risks.

- The identification of risk mitigating actions.
- The assignment and monitoring of risk mitigating actions.
- The closure of project risks.

Issue Management Process

The Issue Management Process will be undertaken to ensure that each issue identified within the project environment is documented, prioritized and resolved within an appropriate timescale. For the purpose of this project, an issue is defined as any event which currently adversely affects the ability of the project to produce the required deliverables. Issue Management will be introduced to this project through the implementation of five key processes:

- The identification of project issues
- The logging and prioritization of project issues
- The determination of issue resolution actions
- The monitoring and control of assigned issue resolution actions
- The closure of project issues.

The following diagram describes the processes and procedures to be undertaken to identify, document, priorities and resolve issues within the project.

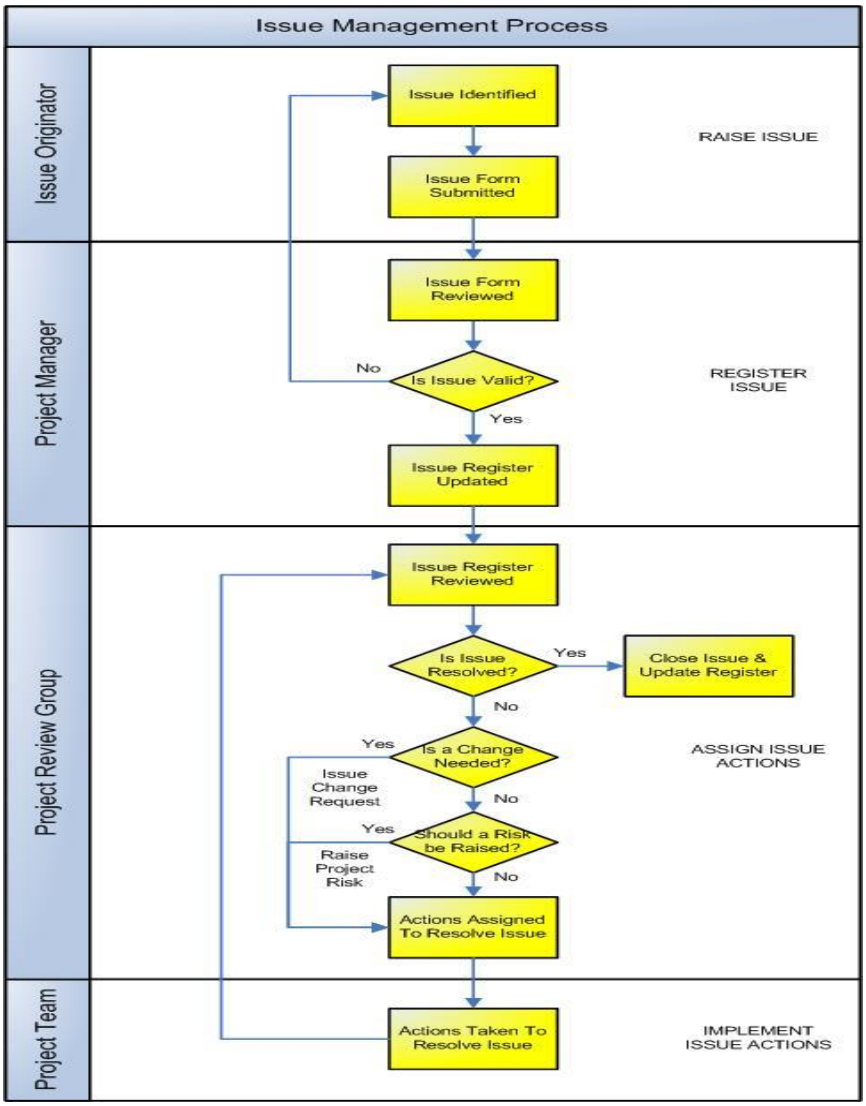


Figure 4.9.: Issue Management Process, Source: Method 123

Procurement Management Process

The Procurement Management Process will be undertaken to ensure that all products (i.e. goods and services) are ordered, delivered and received in accordance with the Procurement Plan and that the performance of the supplier providing the products is adequately managed.

The Procurement Plan lists the products, suppliers and timeframes for acquisition by the project. The Procurement Process ensures that the products outlined within the Procurement Plan are acquired on time, are within cost and at the level

of quality required. To ensure that procurement is handled correctly, a ‘Purchase Order’ document is completed for each single / bulk purchase. The Purchase Order sets out the specific product(s) required, the delivery urgency, the location for delivery and the cost center to be charged for the delivery.

Purchase Orders will be approved by the Project Manager and the delivery information is recorded within the Procurement Register.

In summary, Procurement Management will be introduced to this project through the implementation of three key processes:

- The issuing of Purchase Orders.
- The completion of Purchase Orders.
- The management of supplier contracts.

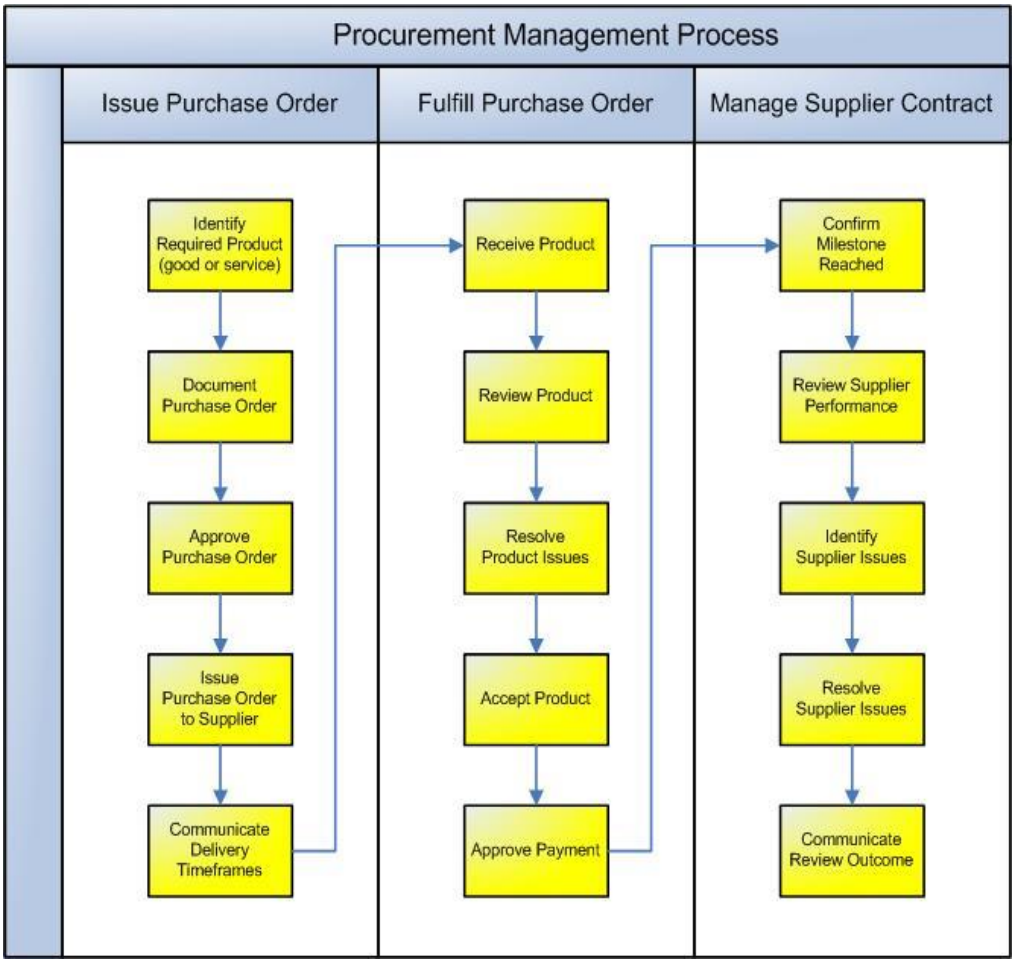


Figure 4.10: Procurement Management Process, Source: Method 123

The diagram above describes the processes and procedures required to manage effectively the procurement of products from suppliers for the project. Where applicable, *Procurement Roles* have also been identified.

Acceptance Management Process

The Acceptance Management Process will be undertaken to measure project deliverables against clearly defined completion criteria and gain the customer's acceptance of each deliverable within the project.

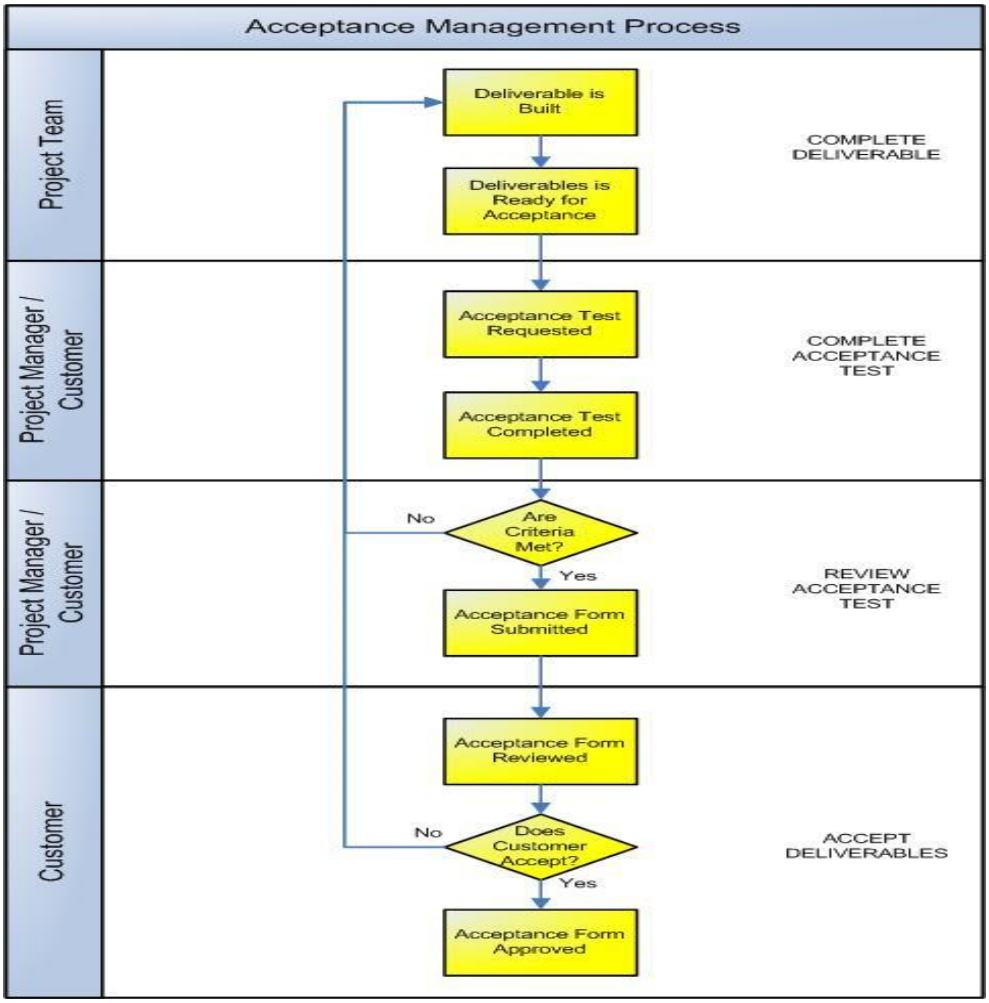


Figure 4.11: Acceptance Management Process. Source: Method 123

Acceptance Management will be introduced to this project through the implementation of four key processes:

- The completion of project deliverables.
- The undertaking of Acceptance Testing.
- The review of Acceptance Test results.
- The acceptance of the final deliverable by the customer.

The diagram above describes the processes and procedures required to gain the acceptance of project deliverables by the customer. Where applicable, *Acceptance Roles* have also been identified:

Communication Management Process

The Communications Management Process is undertaken to ensure that project stakeholders are informed of the progress of the project in a timely and accurate fashion. Communications Management will comprise the following processes:

- Identify Message (content, audience, timing and format).
- Create Message (creation of the actual message to be distributed).
- Review Message (review and approval of the message for distribution).
- Communicate Message (communication / distribution of the message).

These four processes will be applied to any type of formal communication on the project, including the distribution of:

- Regular Project Status Reports.
- The results of project Stage-Gate Review meetings.
- The outcome of all Quality Reviews undertaken.
- The minutes of all project team meetings.
- Other general communication items.

Figure 4.10 below illustrates the processes and procedures to be undertaken to identify, create, review and communicate key message content within the project. Where applicable, *Communications Roles* have also been identified:

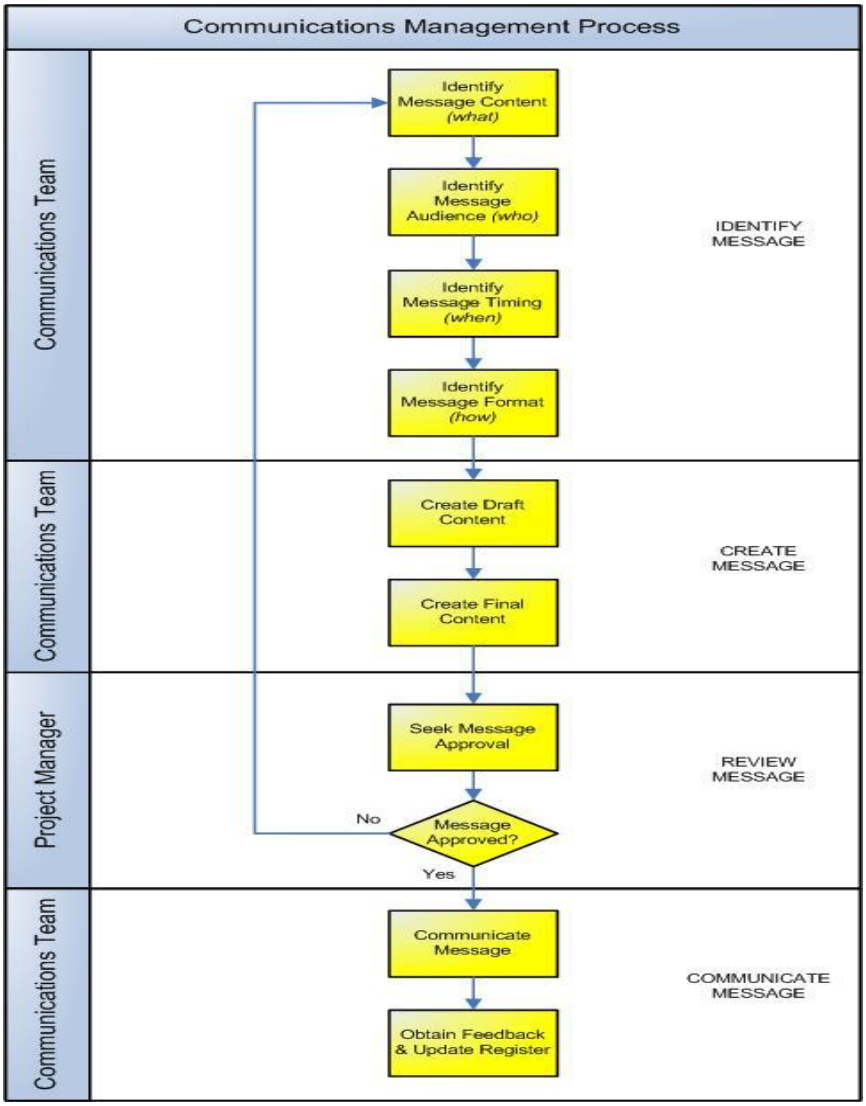


Figure 4.12: Communications management process

4.6 Human Resource Management Plan

Introduction

This human resources management plan will be used as a tool to aid in the management of this project's human resource activities throughout the project until closure. The human resources management plan includes:

- Labor, describing the roles and responsibilities of team members throughout the project.
- Equipment and materials to be used.
- Schedule of when these resources (labor, materials and equipment) will be used.
- The activities the resources will be allocated against during the project.
- List of the activities which each resource will undertake on a 'weekly' basis
- Performance reviews, recognition and rewards.

The purpose of the human resources management plan is to achieve project success by acquiring appropriate equipment and materials, and ensuring the appropriate human resource are acquired with the necessary skills set.

1 Resource Listing

The types and numbers of resources required to complete the project are listed below in the following table. The resources that will be required to complete this project are: the labor, equipment and materials.

1.1 Labor

All the roles, responsibilities and skill-sets required for this project is listed below.

Table 4.6.1: Labor

Role	No.	Responsibilities	Skill-Set	Start Date	End Date
Project Manager	1	Deliver the perimeter fence which meets the requirements of the customer within budget	Time Management Cost Management Quality Management Resource Management People Management	15/11/21	22/01/22
Project Lead	1	Supervise the delivery of all key deliverables and the final product with budget, scope and time	Time Management Quality Management People Management Communication skills	15/11/21	22/01/22
Electrician	1	Carry out all electrical works for security lighting	Electrical skills	15/11/21	22/01/22
Security camera specialist	1	Install security cameras along the perimeter fence	Security camera installation skills	25/01/22	26/02/22
Fencing Specialists	2	Install the 825 meter long perimeter fence	Fencing skills	03/12/21	22/01/22
General labor	10	Carry out all labor work	No specified skill sets	03/12/21	22/01/22

Note:

- All roles within the project are listed here.
- The electrician and the security camera specialist will assist in other general areas as well.
- The Start-Date and End-Date outline the timeframes for which the role is required.

1.1 Equipment

Below is a list all of the items of equipment required to undertake the project, including computers, machinery, tools and vehicles. Each item of equipment is defined by outlining its purpose, specification and period required.

Table 4.6.2: Equipment

Item	No.	Purpose	Specification	Start Date	End Date
Laptop	1	To enable the project team to plan, monitor and control the project	Dell Laptop	15/11/01	28/01/22
Light open-back vehicle	2	To transport workers and lights goods/materials to worksite	Toyota Land cruiser pickup	15/11/21	28/01/22
Heavy duty truck	2	To transport machinery, fencing material, equipment to project site	5 ton Isuzu Truck	09/12/21	28/01/22
Cement mixer	1	To mix cement for concrete base to install iron posts	25 diesel concrete mixer with lifting bucket	15/12/21	21/12/22
Fencing equipment + tools	10	To erect posts, pull and tie posts	All types and sizes	15/12/21	21/12/22
Spades	10	To dig earth for plating of iron posts	Carbon steel spade	10/12/21	28/01/22

Note:

- All major equipment Items within the project are listed above.
- The No. represents the number of equipment items required to undertake the project.
- The Start-Date and End-Date provides the timeframe for which the equipment is required by the project.

1.1 Materials

Below is a list all of the generic materials required to undertake the project, including construction materials and others. Each material item is defined by outlining its purpose and period of required use.

Table 4.6.3: Materials

Item	Purpose	Start Date	End Date
Gravel	x2 trucks load of gravel to mix make concrete mix	14/12/21	15/12/21
Galvanized wire mesh chain link security fence	To cover the entire school perimeter	07/01/22	13/01/22
Steel Posts	To be planted 4 meters apart to cover the perimeter grounds	15/12/21	30/12/21
Rails	To place at bottom and top end of the fence	22/12/21	28/12/21
Tension wire	To prevent the bottom of the wire from being pushed out, or pulled up by an intruder, pet, or other critter.	31/12/21	06/01/22
Barbed wire	To prevent intruders or pets from jumping over the fence	14/01/22	20/01/22
Swing gates	x2 gates for humans to and x1 (double) is for vehicles	21/01/22	24/01/22
Electric floodlight security cameras	To provide effective lighting and camera coverage of the entire property	25/01/22	26/01/22

Note:

- All Items of materials required by the project are listed above.
- The Amount is the approximate quantity of each item listed to undertake the project.
- The Start-Date and End-Date provides the timeframe for which the materials will be required by the project.

1 Resource Plan

1.1 Schedule

The following table shows when each of the resources identified above is required for the project. For simplicity, the following example lists the resources required on a weekly basis.

Table 4.6.4: Resource Schedule

	Week											
Resource	**Wk 1**	**Wk 2**	**Wk 3**	**Wk 4**	**Wk 5**	**Wk 6**	**Wk 7**	**Wk 8**	**Wk 9**	**Wk 10**	**Wk 11**	**Comments**
Labor • Project Manager • Project Lead • Electrician • Camera security specialist • Fencing specialist • General labour	√ √	√ √	√ √ √ √ √	√ √	√ √	√ √	√ √	√ √	√ √ √ √ √	√ √ √ √ √	√ √ √ √ √	Project Manager + Project Lead are present start from week 1 to week 11
Equipment • Laptop • Light vehicle												Fencing materials,

• Heavy duty truck • Cement mixer • Fencing equipment/tools • Spades	√ √	√ √ √	√ √ √ √ √ √	√ √ √ √ √ √	√ √ √ √ √ √	√ √ √ √ √ √	√ √ √ √ √ √	√ √ √ √ √ √	√ √ √ √ √ √	√ √ √ √ √	√ √ √ √	cement, some tools and other items will be bought and transported using heavy duty from Lae to Madang
Materials • Gravel • Galvanized wire mesh chain link security fence • Steel posts • Rails • Tension wire • Barbed wire		√ √ √ √ √ √	√ √ √ √ √ √	√	√ √ √ √ √ √	√ √ √ √ √ √	√ √ √ √ √ √	√ √ √ √ √ √	√ √ √ √ √ √	√ √ √ √ √ √		Material will be bought in week 2 and 3
General Comments	Melanesian Caring Hands will use its own vehicles' and equipment for the project. It will only buy those that are not in stock.											

Now that the number of resources allocated to the project (each week) have been listed above, it is then possible to verify the total number of each type of resource allocated to the project for its entire duration as well as per week.

1.1 Usage

The table below shows the activities the resources will be allocated against during the project. The following table provides a listing of the activities which each resource will undertake, on a 'weekly' basis.

Table 4.6.5: Usage Schedule

	Week											
Activity	**Wk 1**	**Wk 2**	**Wk 3**	**Wk 4**	**Wk 5**	**Wk 6**	**Wk 7**	**Wk 8**	**Wk 9**	**Wk 10**	**Wk 11**	**Notes**
Initiation Project Charter Meeting with sponsor + stakeholders Site inspection Document current situation + Administration Design fencing Develop plan	*Project Owner, Project Manager, Project Lead*	*Project Owner, Project Manager, Project Lead*										*Project Lead will design the design + develop plan*
General Conditions		*Project Manag*	*Project Manag*	*Project Manag*								*Contract*

Finalize plans and develop estimate with owner + engineer Sign contract + notice to proceed Apply for construction permit Hire Crew Procure materials Transport materials to site		*er, Project Lead, Project Team*	*er, Project Lead, Project Team*	*er, Project Lead, Project Team*								*signed, crew hired + procurement of materials*
Fit Out **Erect site office** Clear + grab lot Construct site office **Utilities** Temporary electricity Temporary water + sanitation Drainage				*Project Manager, Project Lead, Project Team*								*Project Lead + Project will carry out the Fit Out*
Clear Site Conduct survey **Strip site** Demolish structures Clear structures					*Project Manager, Project Lead,*							*Survey and clearing of*

					Project Team							*fencing path*
Framework Installation Install posts Install top rail Install terminal posts Install tension wire Install chain link fabric Install barbed wire Install gates Install electric floodlight security Final inspection Handover						*Project Manager, Project Lead, Project Team*	*Project Manager, Project Lead, Project Team*	*Project Manager, Project Lead, Project Team*	*Project Manager, Project Lead, Project Team*	*Project Manager, Project Lead, Project Team*	*Project Manager, Project Lead, Project Team*	*This is the main project deliver ables the project team will concent rate on.*

2.3 Assignment Matrix

The following RACI chart shows the relationship between project tasks and team members. Any proposed changes to project responsibilities will be reviewed and approved by the project manager. Changes will be proposed in accordance with the project's change control process. As changes are made all project documents will be updated and redistributed accordingly.

Table 4.6.6: Assignment Matrix

RACI Chart	Person					
Activity	Project Owner	Project Manager	Project Lead	Artisans	Security Light Specialist	General Labor
Project Charter	R	A	C	I	I	I
Meeting with sponsor, Project Manager and Stakeholders	A	R	C	I	I	I
Site inspection and document current situation	C	R	A	I	I	I
Design fencing	C	A	R	I	I	I
Develop project plan	C	R	A	I	I	I
Project contract + notice to proceed	R	A	I	I	I	I
Apply for construction permit	A	R	C	I	I	I
Hire crew	I	R	C	I	I	I
Procure construction materials and transport to project site	C	R	A	C	C	I
Erect site office	I	A	R	R	I	R
Clear site	C	A	R	R	I	R
Install posts, top rails and terminal posts	I	A	R	R	I	R
Install chain link fabric and tension wire	I	A	R	R	I	R
Install barbed wires	I	A	R	R	I	R
Install gates	I	A	R	R	I	R
Install electric floodlight security	I	A	C	I	R	I
Final inspection	R	A	R	I	I	I
Handover						
	R= Responsible A= Accountable C=Consult Inform					

2.4 Staffing Acquisition

Staff will consist entirely of internal resources for this project. There will be no outsourcing/contracting performed within the scope of this project. The Project Manager will negotiate with the Project Lead in order to identify and assign resources in accordance with the project organizational structure. All resources will be approved by the Project Lead before the resource may begin any project work.

2.5 Training

There is currently no training scheduled with regards to the Fencing Project since Melanesian Caring Hands has adequate staff with required skill sets. The staff have undertaken similar projects before and all have the required skill set to complete the project successfully.

2.6 Performance Reviews, Recognition and Rewards

The project manager will review each team member's assigned work activities at the onset of the project and communicate all expectations of work to be performed. Whilst the daily supervision will be carried out by the Project Lead, the Project Manager will evaluate each team member including the Project Lead throughout the project to evaluate their performance and how effectively they are completing their assigned work.

Upon successful completion of the project, the following will be done:

- A party will be held to celebrate the success of each team member with the team members' families present.
- Team member who satisfactorily completed all assigned work packages on time will receive a certificate of thanks from the Project Manager.
- A group photo will be taken for the team members for keep it give it to news outlets.

2.7 Assumptions

It is assumed that the:

- Project delivery dates will not change during this project.
- Resource requirements will not change during this project.
- Resources identified will be available as required.
- Team members will not leave abruptly due to illnesses or other reasons.

2.8 Risks

Risk identified are as follows:

- That key staff resign during the project due to sickness or for other reasons.
- That thugs attack the heavy vehicle driver and steal the cargo on the highway.
- That materials are stolen by thugs or workmen.
- That budget constraints can lead to inferior resources being allocated.

4.7 Communications Management Plan

Introduction

This Communications Management Plan is based on Melanesian Caring Hands communication strategies and policies. The Plan sets the communications framework for this project. It will serve as a guide for communications throughout the life of the project and will be updated as communication needs change, and this will be done though the usual change management process. This plan identifies and defines the roles of persons involved in this project. It also includes a communications matrix which maps the communication requirements of this project. An in-depth guide for conducting meetings details both the communications rules and how the meetings will be conducted, ensuring successful meetings. A project team directory is included to provide contact information for all stakeholders directly involved in the project.

This plan ensures that information needs of the project and its stakeholders are met and implementation of activities to achieve effective information exchange. This in the end will enable successful implementation and completion of the project.

Situation Analysis

The 'Situation Analysis' is done to describe the *strengths*, *weaknesses*, *opportunities* and *threats* that exist in the organization's communications environment.

- **Strengths:** The project team is good at identifying the type of information that people need to receive and the timeframe in which it should be delivered. Also, the team normally follow the scheduled briefing and meeting dates.
- **Weaknesses:** The Project Manager and the Project Lead need to improve on the clarity that the information is distributed, and make the information more selective to the target audience. Messages delivered one way, without much feedback.

- **Opportunities:** Needs improvement in clarity of information and content. Also, need to properly document and promote the organizations profile in different media outlets to boost the profile of the organization.
- **Threats:** Messages not being interpreted as expected, resulting in not reacting positively to the communications sent out.

Lessons Learned

Top down communication is critical for keeping employees aligned and on-track to reach strategic goals. However, disseminating information one-way without getting any feedback is counter-productive. It has been noted that people in authority must take heed of the feedback and act on it appropriately. Poor communication and misunderstanding can lead to employee dissatisfaction and poor performance.

Lessons learnt is that the Project Manager and the Project Lead must be cautious of the type of message, the way it is delivered, whom it is delivered and be open for feedback. Communications is a two-way process and that needs to be acknowledged.

Objectives

Communication Objectives

The four prime objectives that will be achieved after the implementation of the communications plan are to:

√ Ensure all stakeholders are fully aware of the project and how it will impact them.
√ Improve team efficiency and productivity.
√ Improve team culture and behaviour.
√ Promote the organisations image and profile.

Communication Guidelines

The following *guidelines* will be used to the disseminate the communication messages within the project team:

- √ All messages will be clear and concise.
- √ Messages delivered will be audience-specific.
- √ All key messages will be communicated formally.
- √ Messages will be distributed through the established channel.
- √ All critical communications will be approved by management prior to distribution.
- √ Project-wide meetings will be held on a weekly basis and progress updates will be provided.
- √ Team members can respond to messages through the established channel.
- √ The project team will listen and act on feedback.

Stakeholders

Target Stakeholders

Following is the audiences that the project team will communicate formally with:

- √ Project Sponsor (owner, school director and school board members).
- √ Project management team (project manager, project lead).
- √ Project team members.
- √ Related project teams.
- √ Municipal Authority.
- √ External suppliers.

Stakeholder Requirements

The table below show the information the target stakeholders will receive.

Table 4.7.1: Stakeholder Requirements

Name	Role	Information	Frequency
Madang Christian Academy	Project Sponsor	√ Summary project status √ Critical risks and issues √ Budget & timeline performance √ Construction permit & certification	√ Fortnightly √ Fortnightly √ Fortnightly √ Once
Chris Gundi	Project Manager	√ Detailed project status √ All risks and issues √ Feedback from MCA √ Construction permit & certification	Weekly Weekly Fortnightly Once
Sam Dean	Project Lead	√ Feedback from Project Manager √ Detailed daily project updates √ All risks and issues √ Timesheets and materials register	Daily Daily Weekly Daily
Project Team	Project Team	√ Feedback from Project Manager and Project Lead √ Work assignments √ Task assignments	Daily Daily Daily
PNG Atlas Steel	External Suppliers	√ Order and payment information	During procurement
Peter Ake	Town Mayor	√ Request for construction permit √ Construction certification	Once or twice

Key Messages

Following are key messages that will be communicated to the majority of stakeholders on a regular basis.

√ *Project status:* Whether the project is currently operating within the agreed schedule, budget and quality targets.

- √ *Project issues*: The impact of the issues currently affecting the project and the actions taken to resolve them.
- √ *Project risks*: The high level risks which may affect the project and the actions taken to mitigate, avoid or reduce them.
- √ *Project deliverables*: The deliverables completed to date and the items which are scheduled for completion within the next reporting period.
- √ *Project resources:* The overall level of resourcing in relation to the Resource Plan and any resource constraints currently affecting the project.

Project Team Directory

The table below shows the contact details for the project team and other stakeholders.

Table 4.7.2: Project Team Directory

Name	Role	Email	Mobile	Office Number
Madang Christian Academy	Project Sponsor	mca@gmail.com	73552188	4222949
Chris Gundu	Project Manager	cg_mch@gmail.com	72317543	4225398
Joe Karap	Project Lead	jk_mch@gmail.com	70113496	4225397
Project Team	Project Team	pt_mch@gmail.com	73538940	4225397
PNG Atlas Steel	External Suppliers	Atlas_Steal@gmail.com	73556321	5621784
Peter Ake	Town Mayor	pake@gmail.com	70235690	4223571

Channels

Delivery Channels

Following are the channels through which messages will be delivered to the stakeholders:

Direct mail	Weekly meetings
Email	Team briefs
Website	Launches

Information Collection

The table below specifies the information source for each channel listed above.

Table 4.7.3: Information Collection

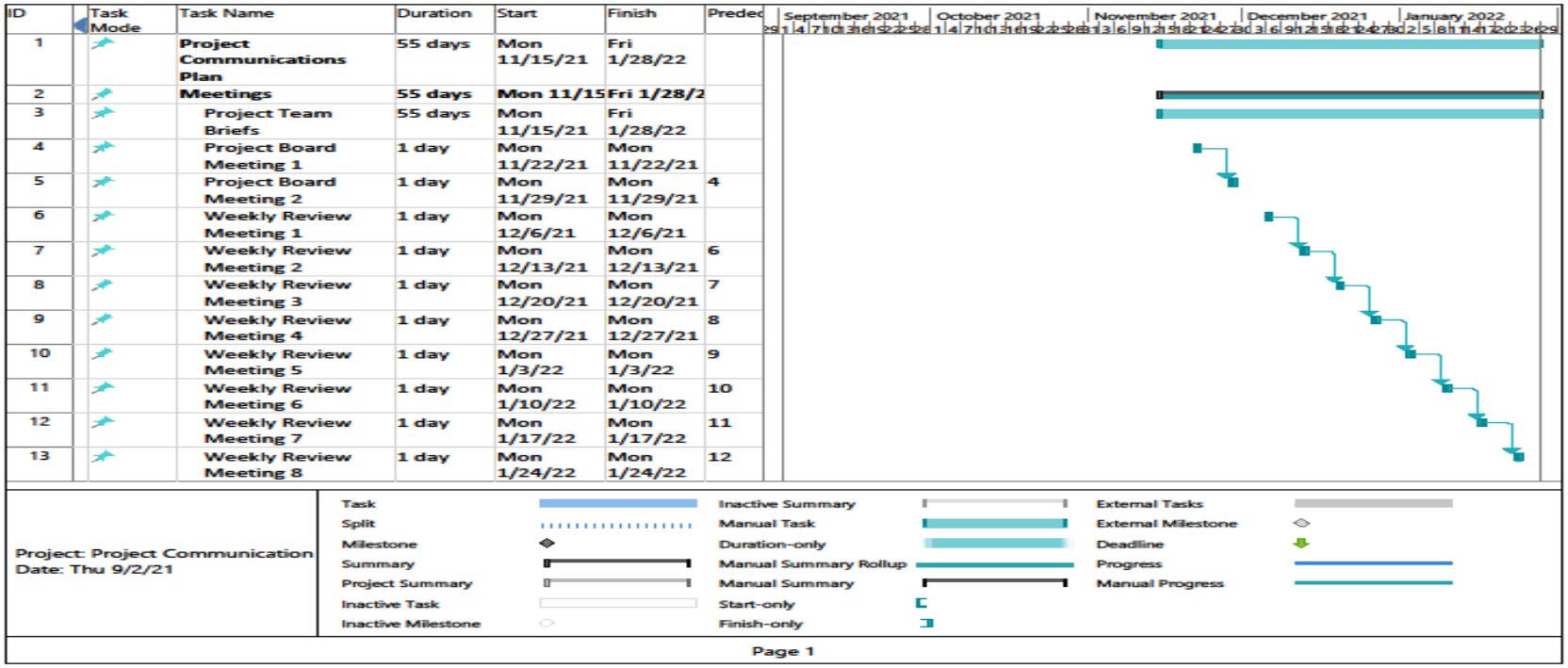
Delivery Channel	Information Requirement	Information Provider	Frequency
Weekly Meetings	Project Overview Project progress Upcoming task Cost Overview	Project Manager + Project Lead	Every Monday 8:00 – 8:30 am
Stand-Up Meetings	Activity progress	Project Team	Daily mornings (8:00-15am)
Emails	Change Requests, Burn-down, Cost Overview	Project Manager	Weekly
Direct Mail	Building Permit Request	Project Manager	One during project initiation and planning
Website	Project Report	Project Manager	Once after project completion
Launches	Project Completion Report	Project Manager	Once after project completion

Communications Plan

Communications Schedule

The table below shows a schedule of all communication events to be held during the project. Complete schedule is attached separately, since it cannot be pasted altogether here.

Figure 4.13: Communication Schedule



ID	Task Mode	Task Name	Duration	Start	Finish	Predec
1		**Project Communications Plan**	55 days	Mon 11/15/21	Fri 1/28/22	
2		**Meetings**	55 days	Mon 11/15	Fri 1/28/2	
3		Project Team Briefs	55 days	Mon 11/15/21	Fri 1/28/22	
4		Project Board Meeting 1	1 day	Mon 11/22/21	Mon 11/22/21	
5		Project Board Meeting 2	1 day	Mon 11/29/21	Mon 11/29/21	4
6		Weekly Review Meeting 1	1 day	Mon 12/6/21	Mon 12/6/21	
7		Weekly Review Meeting 2	1 day	Mon 12/13/21	Mon 12/13/21	6
8		Weekly Review Meeting 3	1 day	Mon 12/20/21	Mon 12/20/21	7
9		Weekly Review Meeting 4	1 day	Mon 12/27/21	Mon 12/27/21	8
10		Weekly Review Meeting 5	1 day	Mon 1/3/22	Mon 1/3/22	9
11		Weekly Review Meeting 6	1 day	Mon 1/10/22	Mon 1/10/22	10
12		Weekly Review Meeting 7	1 day	Mon 1/17/22	Mon 1/17/22	11
13		Weekly Review Meeting 8	1 day	Mon 1/24/22	Mon 1/24/22	12

Communications Events

The table below lists the communications events. *Table 4.7.4: Communications Event*

ID	Event	Description	Purpose	Frequency	Date
6-15	Project Team Meeting	Meeting involving all team members, to discuss the work in-progress / recently completed / coming up	To keep the team informed of the project status and ensure that issues, risks or changes are raised early on.	Weekly	Weekly
		Also the end of each phase, to determine whether the quality of the deliverables produced is satisfactory.	To control the progress of the project through each phase in the lifecycle and boost its chance of success.	End of each major phase	As necessary
3	Stand-Up Meetings	Meeting involving all team members, to discuss the work done so far, problems encountered if any and work to be done today.	To keep the team informed of the work done yesterday, what needs to be done today and discuss anything blocking the progress	Daily	15/11/21 To 28/01/22
4-5	Project Board Meeting	Formal meetings held with the Project Board to assess the overall status of the project.	To determine whether the project has been completed and met the final requirements of the customer.	End of project	26/01/22
21	Email	Formal communications to key stakeholders for project update, procurement, HR matters, etc.	To keep stakeholders informed of the project status, procurement, HR and other aspects of the project	Occasionally	Anytime
23	Direct Mail	Letter to Town Authority to obtain Construction Permit	To obtain construction permit	Beginning of project	29/11/21
22	Website	Post project news on the organization's website.	To get good publicity of the organization		27/01/22
19	Launch	Invite stakeholders to officially witness the completion and handover of the project	To officially handover the completed project to the project owner	End of the project	28/01/22

Communications Responsibilities

The table below describes each person's responsibilities in communicating events.

Table 4.7.5: Communications Responsibility

ID	Project Sponsor	Project Manager	Project Lead	Project Team Member
6-15	M	R	A	R
3		M	A	R
4-5	R	A	M	
21	R	A	R	
23	M	A		
22		A	R	M
19	R	A	R	R

Key:

A – This person is accountable for communicating the event (as marked in green)

R – This person receives communication and takes part (as marked in blue)

M – This person monitors the communications process (as marked in red)

Communications Matrix

This section should include a communications matrix outlining the communication plan for the project. It may be presented in the following format:

Table 4.7.6: Communications Matrix

Communication Type	Objective	Owner	Audience	Deliverable	Frequency
Stand-Up Meetings	To keep the team informed of the work done yesterday, what needs to be done today and discuss anything blocking the progress	Project Lead	• Project Team	• Agenda • Meeting Minutes	Daily
Project Team Meetings	To keep the team informed of the project status and ensure that issues, risks or changes are raised early on. Also, to control the progress of the project through each phase in the lifecycle and boost its chance of success.	Project Manager	• Project Team	• Agenda • Meeting Minutes • Project schedule	Weekly
Project Board Meetings	To determine whether the project has been completed and met the final requirements of the customer.	Project Manager	• Project Board Members	• Agenda • Meeting Minutes	Once –end of project
Emails	To keep stakeholders informed of the project status, procurement, HR and other aspects of the project	Project Manager	• Project Owner • Project Lead • Other Stakeholders	• Memos • Reports • Letters	As Needed
Direct Mail	To obtain construction permit	Project Manager	• Town Authority	• Letter	Once early in project
Website	To get good publicity of the organization	Project Manager	• Public	• Project News	Monthly
Launch	To officially handover the completed project to the project owner	Project Manager	Owner Project Team School Other Stakeholders	• Launching event	End of project

Feedback

Feedback Measures

The suite of feedback measures listed below is to gain feedback on the level of success of the event to determine whether the right information was distributed to the right people at the right time.

- Questionnaires
- Feedback forms
- Complaints forms

Success Criteria

Below is the criteria to determine whether the communications event (or activity) was successful. This will ensure that once the communications activity is completed and the team receive feedback about it, they can easily compare the feedback to the criteria listed here and determine whether the activity was completed satisfactorily.

Here is the list of criteria:

- ✓ The message reached its intended audience.
- ✓ The message was distributed through the planned channel.
- ✓ The output reached the intended audience on schedule.
- ✓ The distribution was effective.
- ✓ The message achieved the desired effect.
- ✓ The message addressed the information requirements of the audience.
- ✓ The message was received as honest and trustworthy.
- ✓ There were no complaints received.

Assumptions

Here is the list of planning assumptions made during the creation of this Communications Plan.

- There are adequate resources available to complete the assigned tasks.
- The timeframes listed in the Communications Schedule are satisfactory.

- The required budget is available to complete the tasks needed.

Risks

Here is the list of risks identified during the creation of this Communications Plan:

- Key communications resources leave during the project.
- The requirements for communication change during the project.
- The list of project stakeholder changes throughout the project.

4.8: RISK MANAGEMENT PLAN

Introduction

This Risk Management Plan outlines the foreseeable project risks and provides a set of actions that will both prevent the risk from occurring and reduce the impact of the risk should it occur. More specifically, the plan includes:

- A full list of all of the foreseeable risks during the project.
- A rating of the likelihood of each risk's occurrence.
- A rating of the impact each risk's occurrence could have on the project.
- A priority rating of the overall importance of each risk.
- A set of preventive actions to reduce the likelihood that the risk will occur.
- A set of contingent actions to reduce the impact should the risk occur
- A process for managing risks through the project.

Risk Identification

Below is the documentation of potential risks involved with undertaking this project by identifying each of the risk categories and listing the potential risks within each category.

Definition

"A *risk* is any event that is likely to adversely affect the ability of the project to achieve the defined objectives."

Categories

Categories of risk that are relevant to this project are:

- Schedule
- Budget
- Deliverables

- Issues
- Supplier(s)
- Acceptance
- Communication
- Resources

Risks

The likely risks for each category are detailed in the following table.

Table 4.8.1: Likely Risks

Category	Description	ID
Schedule	• Schedule does not cater for delay due to poor road conditions • Schedule doesn't cater for delay in granting of construction approval/permit	1.1 1.2
Cost	• Unexpected increase in materials cost • Additional costs due to unavailability of materials in Lae	2.1 2.2
Communication	• Lack of controlled communication causing project issues • Key project stakeholders left in the dark about progress	3.1 3.2
Resources	• Dissatisfied staff may work off their jobs • Shortage of necessary materials during the time period that they are needed	3.1 3.2
Issues	• Project issues are not resolved within an appropriate timescale • Similar issues reappear continually throughout the project • Unresolved issues become new risks to the project	4.1 4.2 4.3
Suppliers	• Suppliers do not meet the defined expectations • Supplier issues negatively impact the project	5.1 5.2
Acceptance	• Customers do not accept the final deliverables of the project	6.1

Risk Quantification

Likelihood

Below is the scoring system to measure the likelihood of risk occurrence.

Table 4.8.2: Risk Occurrence Scoring System

Title	Score	Description
Very Low	20	Highly unlikely to occur; however, still needs to be monitored because certain circumstances could result in an increased likelihood of this risk occurring during the project
Low	40	Unlikely to occur based on current information; the circumstances likely to trigger the risk are also unlikely to occur
Medium	60	Likely to occur; it is clear that the risk will probably occur
High	80	Very likely to occur based on the circumstances of the project
Very High	100	Highly likely to occur; the circumstances that would cause this risk to occur are also very likely to occur

Impact

Below is the scoring system for measuring the impact of the risk.

Table 4.8.3: Risk Impact Scoring System

Title	Score	Description
Very Low	20	Insignificant impact on the project. It is not possible to measure the impact on the project because it is minimal.
Low	40	Minor impact on the project, e.g., < 5% deviation in scope, scheduled end date, or project budget.
Medium	60	Measurable impact on the project, e.g., 5-10% deviation in scope, scheduled end date, or project budget.

High	80	Significant impact on the project, e.g., 10-25% deviation in scope, scheduled end date, or project budget.
Very High	100	Major impact on the project, e.g., >25%% deviation in scope, scheduled end date, or project budget.

Priority

The following table will be used to assign the Likelihood and Impact scores for each risk. The Priority Score will be calculated as the average of the Likelihood and Impact scores. Each risk's priority is established by identifying the likelihood that the risk will occur and its estimated impact on the project. Having the likelihood and impact scores will assist in the calculation of the priority score, and this will be done as follows:

- *Priority* equals the average of the *Likelihood* and *Impact* scores
- Priority = (*Likelihood* + *Impact*) / 2

Table: 4.8.4: Likelihood and Impact Score

ID	Likelihood	Impact	Priority Score	Rating
1.1	60	60	60	Medium
1.2	20	50	35	Low
2.1	40	90	65	High
2.2	10	90	45	Medium
3.1	30	40	35	Low
3.2	20	50	35	Low
4.1	30	60	45	Medium
4.2	20	60	40	Medium

4.3	10	60	35	Low
5.1	10	50	30	Low
5.2	50	80	65	High
6.1	10	90	50	Medium

The rating is based on the calculated Priority Score. The following system will be used to determine the rating:

Priority Score	*Priority Rating*
0 – 20	*Very Low*
21 – 40	*Low*
41 – 60	*Medium*
61 – 80	*High*
81 – 100	*Very High*

Color-coding the above final ratings will be done to highlight the risks that require the most attention. The colors used in this document and their corresponding priority ratings are as follows:

Priority Rating	*Color*
Very Low	*Blue*
Low	*Green*
Medium	*Yellow*
High	*Orange*
Very High	*Red*

Risk Plan

Schedule

The following table will be used to identify the preventive and contingent actions required to reduce the level of overall risk to the project.

For each identified risk action, a resource will be assigned who will be responsible for undertaking the action and a due date for its completion.

Every identified risk appears is in Table 4.8.5. Where possible, higher priority risks have been assigned the most comprehensive actions.

Assumptions

Following are some of the assumptions:

- Key project members will be readily available.
- Project team will deliver to expectations.
- All project team members will have necessary skills.
- Atlas Steel PNG will deliver the materials on time.
- Project will be delivered on schedule and within budget.
- No disruptions along the highway from Lae to Madang.
- The process of goods and services will not change during this project period.
- Funds will be readily available as required.

Table 4.8.5: Risk Schedule

Risk Rating	Risk ID	Preventive Actions	Action Resource	Action Date	Contingent Actions	Action Resource	Action Date
High	2.1	Allocate 5% contingency in the budget	Project Manager		Use funds under contingency to cater for price increase	Project Manager	
High	5.2	Supplier contract must include penalties for delay caused by supplier	Project Manager		Ensure supplier compensates for any delay caused by their action/inaction	Project Manager	
Medium	1.1	Ensure the Schedule cater for delay due to poor road conditions	Project Manager		Re-schedule if there is a delay	Project Manager	
Medium	2.2	Liaise early with Atlas Steel (PNG) to ensure fencing materials are in stock	Project Manager		Establish contact with supplier in Port Moresby	Project Manager	
Medium	4.1	Issues log and issue register are in place and closely monitored	Project Owner/Project Manager/Project Lead		Close monitoring of the issues log + update all during weekly meetings	Project Owner/Project Manager/Project Lead	
Medium	4.2	Allocate resources to properly address all issues at the first place	Project Owner/Project Manager/Project Lead		Reconsider actions taken to tackle the issues	Project Owner/Project Manager/Project Lead	
	6.1	Clearly specify the customer requirements in the Quality Plan	Project Manager		Reconsider the requirements after the deliverable has been produced, measure	Project Manager	

Medium					any deviation, and enhance the deliverable to meet the requirements		
Low	1.2	Ensure the schedule caters for delay in obtaining construction permit	Project Manager		Re-schedule if there is a delay	Project Manager	
Low	3.1	Strictly enforce communication process + protocol	Project Manager		Develop and use communication tools as per established process	Project Manager + Project Lead	
Low	3.2	Hold routine key stakeholder meetings	Project Manager		Ensure project review reports are done on time and reported to key stakeholders routinely	Project Manager	
Low	4.3	Allocate resources to properly address all issues at the first place	Project Owner/Project Manager/Project Lead		Reconsider actions taken to tackle the issues	Project Owner/Project Manager/Project Lead	
Low	5.1	RFP + Supplier Contract must include all the specifications/details of materials required	Project Manager + Project Lead		Make allowance for revision of contract	Project Manager + Project Lead	

Constraints

Some of the constraints identified are:

- The Construction Permit must be approved on time.
- Have to work with the available resources.
- Bad road condition between Lae and Madang.
- Must complete the project on schedule in readiness for commencement of school.

Risk Process

The Risk Management Process will be undertaken to ensure that each risk identified within the project environment is documented, escalated and mitigated as appropriate.

Risk Management will be undertaken on this project through the implementation of five key processes:

- The identification of project risks.
- The logging and prioritizing of project risks.
- The identification of risk mitigating actions.
- The assignment and monitoring of risk mitigating actions.
- The closure of project risks.

Purpose

The purpose of risk management for this project is to identify potential problems before they occur so that necessary actions can be planned and taken across the life of the project to mitigate adverse impacts on achieving the project objective.

The risk management process will be continuous and forward-looking that is critical towards achieving the project goals.

A continuous risk management approach will be applied to effectively anticipate and mitigate the risks that have critical impact on the project, and ensure that the project is completed successfully, within budget and on time.

Procedures

The following diagram provides an overview of the risk processes and procedures to be undertaken to effectively manage risks identified in this project. *Risk Roles* have also been identified.

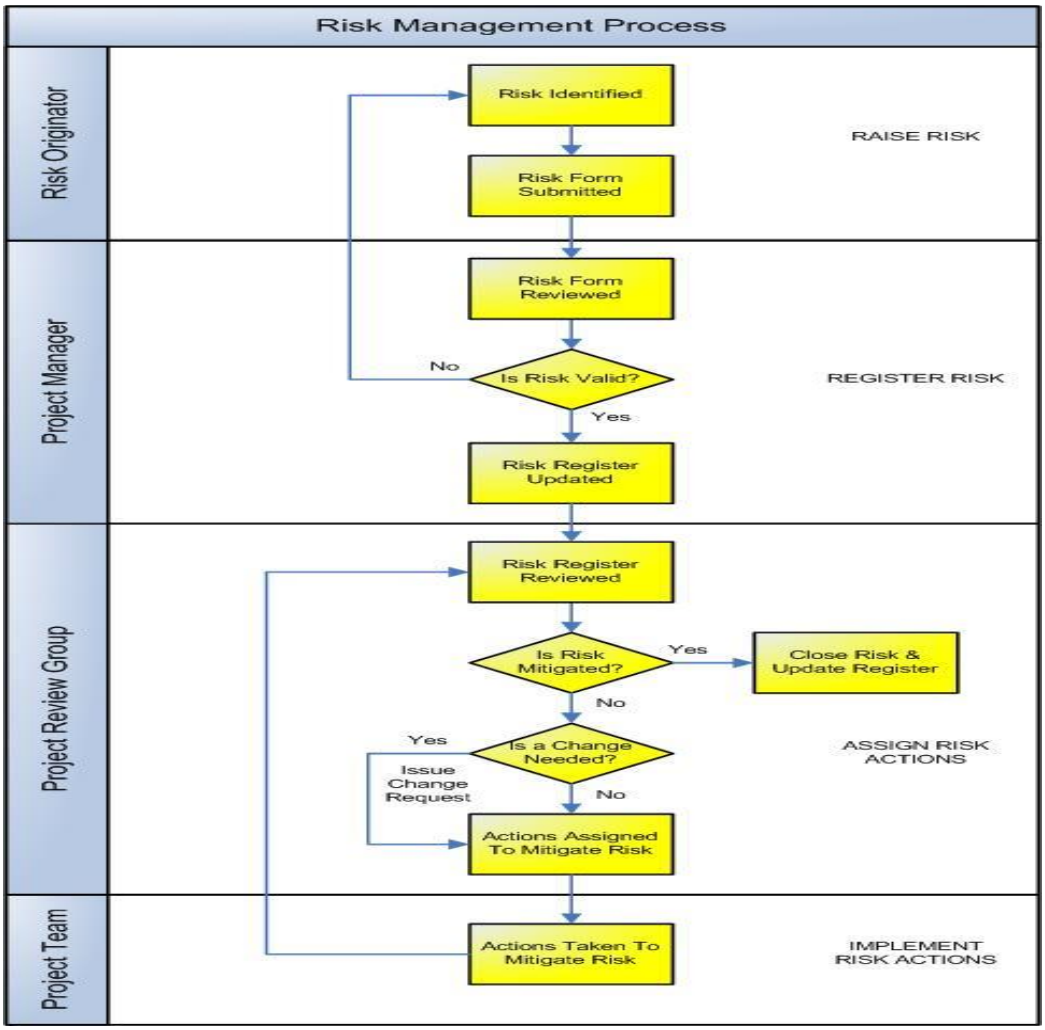


Figure 4.8: Risk Management Process

Responsibilities

The roles and responsibilities for all human resources (both internal and external to the project) involved with the identification, review and mitigation of risks within this project are:

Risk Originator

The Risk Originator will identify the risk and formally communicate the risk to the Project Manager. The Risk Originator will be responsible for:

- Identifying the risk within the project.
- Documenting the risk (by completing a Risk Form).
- Submitting the Risk Form to the Project Manager for review.

Project Manager

The Project Manager will receive each Risk Form and record and monitor the progress of all risks within the project. The Project Manager will be responsible for:

- Receiving all Risk Forms and identifying whether the risk is appropriate to the project.
- Recording all risks in the Risk Register.
- Presenting all risks to the Project Review Group.
- Communicating all decisions made by the Project Review Group.
- Monitoring the progress of all risk mitigating actions assigned.

Project Review Group

The Project Review Group will confirm the Risk ‘likelihood’ and ‘impact’ and assign risk mitigating actions where appropriate. The Project Review Group will be responsible for:

- The regular review of all risks recorded in the Risk Register.
- Identifying change requests required to mitigate risks raised.
- Allocating risk mitigating actions.
- Closing risks which are no longer likely to impact on the project.

Project Team

The Project Team will undertake all risk mitigating actions delegated by the Project Review Group.

Register

The Risk Register template that will be used to record and track the progress of all risks through to completion is annexed 8.18.

Risk Form

The Risk Form template that will be used to formally declare risks within the project is annexed 8.19.

4.9 Procurement Management Plan

Procurement Requirements

The identification of the products to be sourced from outside the organization, the purpose of each product and the justification for procuring it as opposed to sourcing it internally is critical in project management practice. The requirements, purpose and justification of the materials to be procured for this project are outlined below.

Requirements

The table below describes the specific products and quantities to be sourced from the external market place as well as the budgeted expenditure for each product.

Table 4.9.1: Procurement Requirements

ID	Product	Description	Quantity	Budget
RM1	Raw Materials	Fencing construction materials, including: • Fence posts, top rails, terminal posts, tension wire, chain wire, chain link fabric, barbed wire, metal gates, cement • Electrical cabling and switches, electrical floodlight security	*Amount*	*$135,000*
CS1	Consultancy Services	General consultancy services to assist with the management of the project, including: • Quality assurance and auditing • Surveying	*Amount*	*$10,000*
TF1	Transport and Fuel	Transport and fuel for vehicles plus machinery		*$10,000*

Purpose

The purpose of each product is described within the table below.

Table 4.9.2: Procurement Purpose

ID	Product	Purpose
RM1	Raw Materials	To physically construct the deliverables to be produced by the project
CS1	Consultancy Services	To provide confidence that the project will achieve the time, cost and quality targets through regular reviews and reporting
TF1	Transport and Fuel	To provide transport and fuel for vehicle and machinery used in the project.

Justification

The table below shows the justification as to why the above materials must be acquired from external suppliers as opposed to from within the business.

Table 4.9.3: Procurement Justification

ID	Product	Justification
RM1	Raw Materials	The raw materials for the project are very specific and only supplied by Atlas Steel (PNG) and other notable steel manufacturing and electrical companies.
CS1	Consultancy Services	There are no human resources within the business suitably qualified to undertake the activities required
TF1	Transport and Fuel	There are no big transport to transport cargo from Lae to Madang and company does not have its own fuel storage facility

Market Research

Market research will be conducted to ensure that the right product is readily available in the market place at the right price to complete the project successfully.

Market Conditions

Basically, two market conditions were identified as being related to the supply of the products listed in the section above. These are:

- Effect of COVID 19. Will the COVID 19 pandemic present any new opportunities or threats?
- Market segment. How many suppliers are in this particular market segment in the country?

Available Products

Table 4.8.4 below shows the list of the suppliers and the products that are available in the market place which are likely to meet the requirements within the budget stated.

Table 4.9.4: Available Products

ID	Supplier Name	Supplier Product	Price
RM1	Atlas Steel (PNG)	Fence posts, top rails, terminal posts, tension wire, chain wire, chain link fabric, barbed wire, metal gates, cement	$115,000
RM1	Monior (PNG)	Fence + terminal posts, top rails, tension wire, chain wire, chain link fabric, barbed wire, metal gates, cement	$130,000
RM1	New Guinea Steel Products	Fence posts, top rails, terminal posts, tension wire, chain wire, chain link fabric, barbed wire, metal gates, cement	$140,000

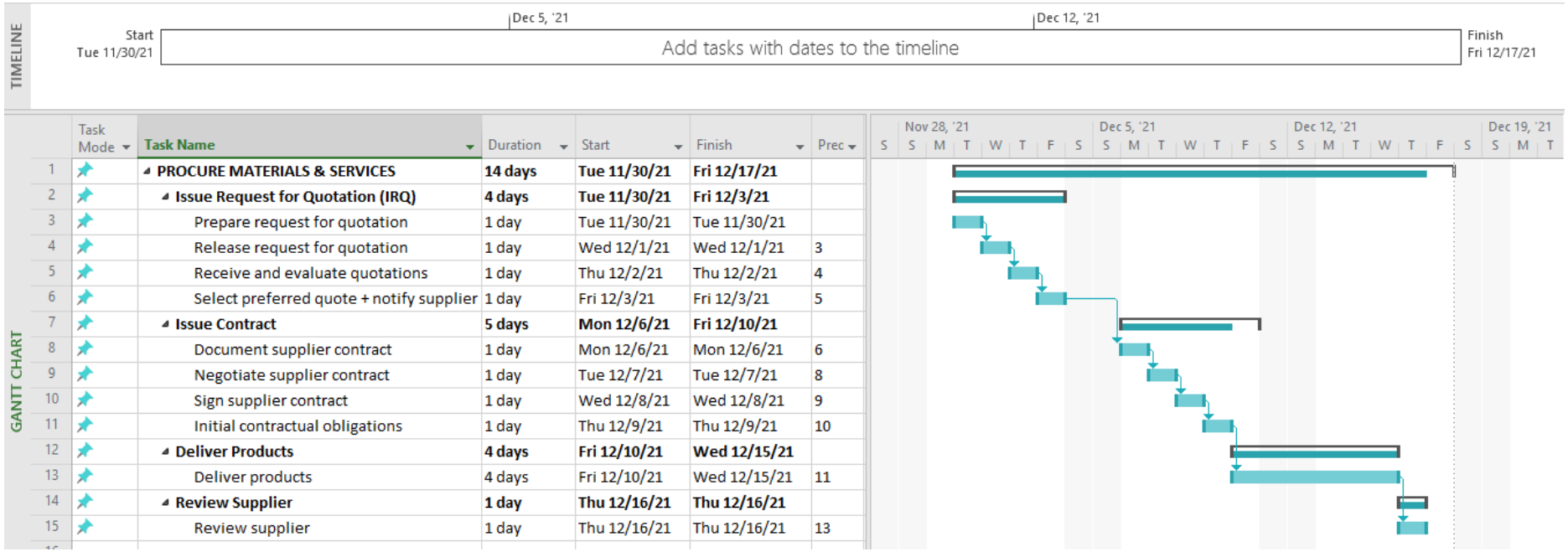
RM2	New Guinea Electrical	Electrical cabling and switches, electrical floodlight security	$20,000
RM2	Hardware Haus	Electrical cabling and switches, electrical floodlight security	$25,000
RM2	Pacific Industries	Electrical cabling and switches, electrical floodlight security	$27,000
CS1	Clear Sky Consultancy	Project quality assurance and surveying	$10,000
CS1	Peter Norum Consultants	Project quality assurance and surveying	$25,000
CS1	Sunshine Consultancy	Project quality assurance and surveying	$30,000

Procurement Plan

Schedule

The Gantt Chart below shows the schedule of activities required to complete the tender, deliver the required products and review the suppliers' performance.

Figure 4.14: Procurement Schedule



	Task Mode	Task Name	Duration	Start	Finish	Prec
1		**PROCURE MATERIALS & SERVICES**	**14 days**	**Tue 11/30/21**	**Fri 12/17/21**	
2		**Issue Request for Quotation (IRQ)**	**4 days**	**Tue 11/30/21**	**Fri 12/3/21**	
3		Prepare request for quotation	1 day	Tue 11/30/21	Tue 11/30/21	
4		Release request for quotation	1 day	Wed 12/1/21	Wed 12/1/21	3
5		Receive and evaluate quotations	1 day	Thu 12/2/21	Thu 12/2/21	4
6		Select preferred quote + notify supplier	1 day	Fri 12/3/21	Fri 12/3/21	5
7		**Issue Contract**	**5 days**	**Mon 12/6/21**	**Fri 12/10/21**	
8		Document supplier contract	1 day	Mon 12/6/21	Mon 12/6/21	6
9		Negotiate supplier contract	1 day	Tue 12/7/21	Tue 12/7/21	8
10		Sign supplier contract	1 day	Wed 12/8/21	Wed 12/8/21	9
11		Initial contractual obligations	1 day	Thu 12/9/21	Thu 12/9/21	10
12		**Deliver Products**	**4 days**	**Fri 12/10/21**	**Wed 12/15/21**	
13		Deliver products	4 days	Fri 12/10/21	Wed 12/15/21	11
14		**Review Supplier**	**1 day**	**Thu 12/16/21**	**Thu 12/16/21**	
15		Review supplier	1 day	Thu 12/16/21	Thu 12/16/21	13

Assumptions

It is assumed that:

- The procurement requirements will not change.
- There will be no changes to market pricing.
- The pool of current suppliers will be available as required.
- The vendor(s) will deliver the products as scheduled.
- Project members will be available to engage well in procurement.

Risks

Risks identified are:

- The procurement requirements may not be defined in sufficient detail to provide potential suppliers with an in-depth understanding of the project requirement.
- Unexpected increases in material cost.
- Damage or theft of materials.
- Bad weather and poor road conditions.

Procurement Process

The Procurement Management Process to be followed is provided below.

Overview

The Procurement Process to be used will ensure that the products outlined within the Procurement Plan are acquired on time, within cost and at the level of quality required.

In order to achieve this, firstly, a ‘Purchase Order’ document will be completed for each single/bulk purchase. The Purchase Order will set out the specific goods/ product(s) required, the delivery urgency, the location for delivery and the cost center to be charged for the delivery.

The Purchase Orders will then be approved by the Project Manager and the delivery information will be recorded within a Procurement Register.

In summary, the following three key processes will be implemented:

- The issuing of Purchase Orders.
- The completion of Purchase Orders.
- The management of Supplier Contracts.

Procedures

The following diagram describes the processes and procedures that will be required to manage effectively the procurement of products from suppliers for the project.

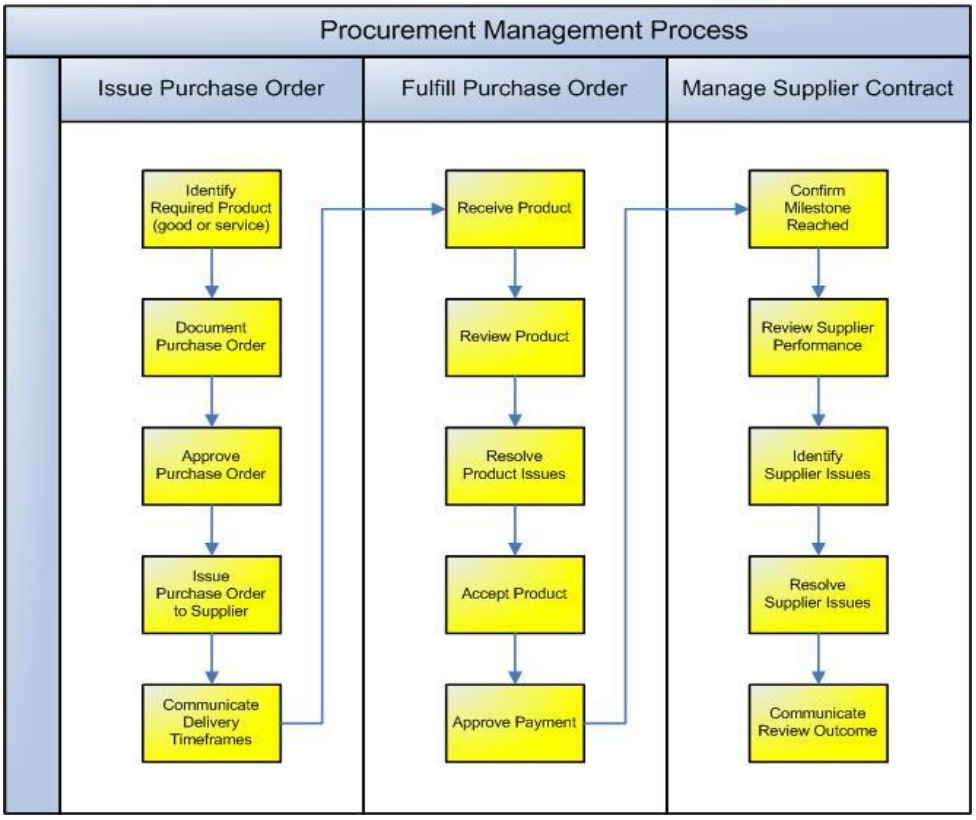


Figure 4.10: Procurement Management Process

This process caters for the procurement of all types of products, including goods (e.g. fencing hardware, tools equipment) and services (e.g. raw labor).

Roles

The roles and responsibilities of all resources involved with the selection of preferred external suppliers are:

Procurement Officer/Project Lead

The Project Lead will be responsible for ensuring that the entire Procurement Management process is executed appropriately, including:

- Identifying the product to be procured from the Procurement Plan.
- Documenting each Purchase Order and forwarding it to the Project Manager for approval.
- Issuing the Purchase Order and communicating the delivery timeframes.
- Receiving and reviewing the product upon arrival at the designated project location.
- Identifying and resolving any product delivery issues.
- Accepting the product and requesting supplier payment from the Project Manager.
- Reviewing the supplier performance and identifying any contractual issues for action.

Project Manager

The Project Manager will ensure that the Procurement Management Process is being undertaken properly by:

- Approving each Purchase Order as presented by the Procurement Manager.
- Approving each payment as requested by the Procurement Manager.
- Resolving supplier contractual issues and agreeing a formal outcome.

Documents

Only the ‘Procurement Register’ and the Purchase Order will be used, due to the size of the project.

Procurement Register

The ‘Procurement Register’ is the log/database where all Purchase Orders will be registered and tracked through to approval. Annex ‘8.20’ is the Procurement Register template that will be used.

Purchase Order Form

The ‘Purchase Order Form’ will be used to request the delivery of product by an external supplier to the project. Annex ‘8.22’ is the Purchase Order template that will be used.

4.10 Stakeholder Management Plan

Introduction

The Stakeholder Management Strategy for Madang Christian Academy Perimeter Fence Project will be used to identify and classify project stakeholders; determine stakeholder power, interest, and influence; and analyze the management approach and communication methodology for project stakeholders. This will allow us to identify key influential stakeholders to solicit input for project planning and gain support as the project progresses. This will benefit the project by minimizing the likelihood of encountering competing objectives and maximizing the resources required to complete the project.

Early identification and communication with stakeholders is imperative to ensure the success of the Madang Christian Academy Perimeter Fence Project by gaining support and input for the project. Some stakeholders may have interests which may be positively or negatively affected by the Perimeter Fence Project. By initiating early and frequent communication and stakeholder management, we can more effectively manage and balance these interests while accomplishing all project tasks.

Identify Stakeholders

The Madang Christian Academy Perimeter Fence Project Team will conduct a brainstorming session in order to identify stakeholders for the project. The brainstorming session will include the primary project team and project sponsor. The session will be broken down into two parts. The first part will focus on internal stakeholders within Melanesian Caring Hands. These stakeholders may include project lead, operations personnel, finance personnel, procurement officer, and any other Melanesian Caring Hands employee who will be affected by the Perimeter Fence project. The second part of the session will focus on external stakeholders.

These may include suppliers, town authorities, sponsor, nearby communities surrounding the school.

The following criteria will be used to determine if an individual will be included as a stakeholder:

1) Will the person or their organization be directly or indirectly affected by this project?
2) Does the person or their organization hold a position from which they can influence the project?
3) Does the person have an impact on the project's resources (material, personnel, funding)?
4) Does the person or their organization have any special skills or capabilities the project will require?
5) Does the person potentially benefit from the project or are they in a position to resist this change?

Any individual who meets one or more of the above criteria will be identified as a stakeholder. Stakeholders from the same organization will be grouped in order to simplify communication and stakeholder management.

Key Stakeholders

Projects are undertaken because someone needs the project's output. A project must satisfy its users and their needs to be successful. Therefore, it imperative for the project manager of this project to first understand the stakeholders, build relationships with them, and then develop a communication management plan for managing them. In order to do this, the project team will identify stakeholders of the perimeter fencing project, who have the most influence on the project or who may be impacted the most by it. This will be done by asking the questions; who will use,

will be affected by or could impact the project? The stakeholders in this project will include people who:

- Work on the project.
- Provide people or resources for the project.
- Have their routines disrupted by the project;
- Monitor construction regulations or laws at the provincial level.

The Project Manager and the Project Lead in consultation with the project sponsor will use the matrix below to identify the key stakeholders.

Table 4.10.1: Key Stakeholders of the Project

PERIMETER FENCING PROJECT STAKEHOLDERS		
	INTERNAL	EXTERNAL
Affected by Project Process	Owner/Sponsor - *Madang Christian Academy* Project Manager - *Chris Gundu* Project Lead Project Team Subject Matter Experts (Surveyor)	Suppliers – *Atlas Steel PNG + others* Government Agency – *Madang Town Authority* Neighbors Competitors
Affected by Project Result	Sponsor – *Madang Christian Academy* Users – *Students/Parents/Guardians*	Public Neighbors

Once identified, the Project Manager will develop a plan to obtain their feedback on the level of participation they desire, frequency and type of communication, and any concerns or conflicting interest they have.

Based on the feedback gathered by the project manager, the determination may be made to involve key stakeholders on steering committees, focus groups, gate reviews, or other project meetings or milestones. Thorough communication with key stakeholders is necessary to ensure all concerns are identified and addressed and that resources for the project remain available.

Stakeholder Analysis

The purpose of the analysis is to determine the stakeholders' level of power or influence, plan the management approach for each stakeholder, and to determine the appropriate levels of communication and participation each stakeholder will have on the project.

The project team will categorize stakeholders based on its organization. Once all stakeholders have been categorized, the project team will utilize a power/interest matrix to illustrate the potential impact each stakeholder may have on the project. Based on this analysis the project team will also complete a stakeholder analysis matrix which illustrates the concerns, level of involvement, and management strategy for each stakeholder.

Below is an example of the chart that will be used to establish stakeholders and their levels of power and interest for use on the power/interest chart as part of the stakeholder analysis.

Table 4.10.2: Stakeholder Identification and Prioritization Matrix

STAKEHOLDER IDENTIFICATION AND PRIPORITIZATION MATRIX							
What is important to the stakeholder (1-5)	Sponsor (A)	Manager (B)	Project Team (C)	Customers (D)	Supplier (E)	Town Council (F)	Neighbors (G)
Power	5	4	3	1	2	4	1
Interest	5	5	4	5	5	1	1

Influence	5	5	2	1	3	1	1
Impact	5	4	4	1	3	1	1
Total	20	18	13	8	13	7	4
Priority (Key or Other)	Key	Key	Key	Secondary	Key	Secondary	Other

Below is the power/interest grid for the Perimeter Fence Project stakeholders. Each letter represents a stakeholder in accordance with the key in the chart above.

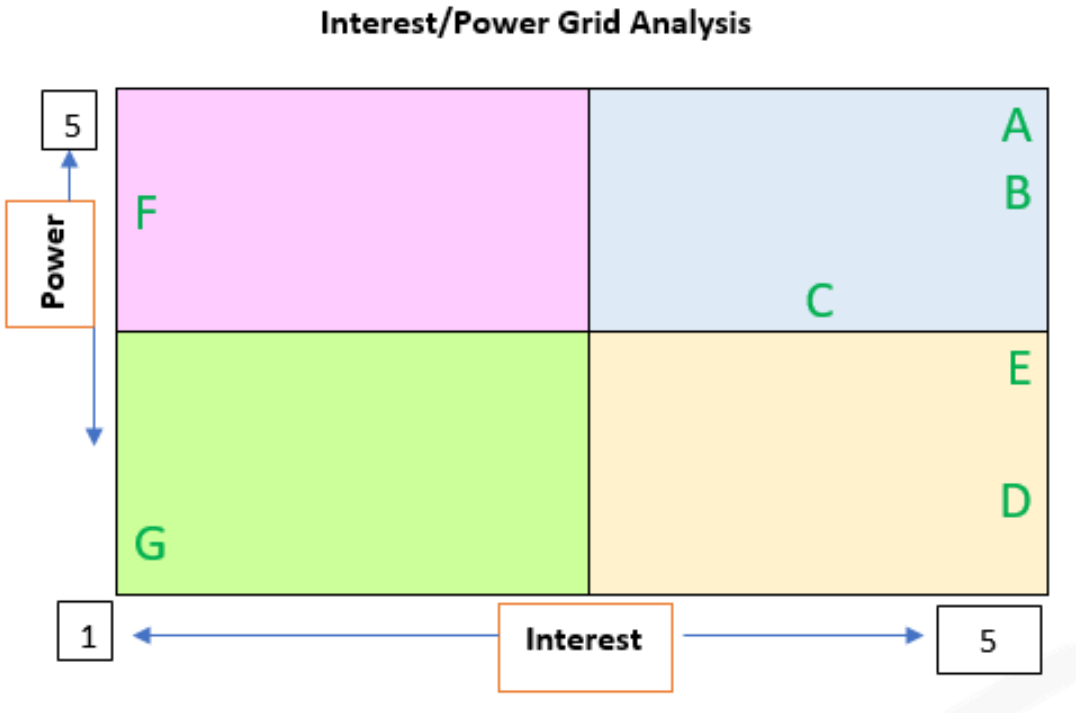


Figure 4.15: Interest/Power Grid Analysis

Based on the power and interest analysis and chart above, stakeholders G, will require minimal management effort as they reside in the lower left quadrant of the matrix. Stakeholder F, in the upper left quadrant, must be kept satisfied by ensuring concerns and questions are addressed adequately. Stakeholder E and D, in the lower right quadrant, must be kept informed through frequent communication on project status and progress. Stakeholders A, B and C, in the upper right quadrant,

are key players and must be involved in all levels of project planning and change management. Additionally, stakeholders A and B should be participatory members in all project status meetings, gate reviews, and ad hoc meetings as required.

The stakeholder analysis matrix shown below will be used to capture stakeholder concerns, level of involvement, and management strategy based on the stakeholder analysis and power/interest matrix above. The stakeholder analysis matrix will be reviewed and updated throughout the project's duration in order to capture any new concerns or stakeholder management strategy efforts.

Table 4.10.3: Project Stakeholder Matrix (Sample)

PROJECT STAKEHOLDER MATRIX			
STAKEHOLDER	INTEREST IN PROJECT	PRIORITY	SUPPORT/MITIGATION STRATEGIES
Sponsor	Make security improvement and ensure safety and protection of children, parents, guardians and employees is guaranteed	Key	Consult on target improvement areas – use his power to complete the project
Manager	Ensures successful completion of the project	Key	Work with Project Team to identify and seek solutions to barriers to change
Project Team	Implement the project as planned under direction and supervision from Project Lead + Manager	Key	Identify and support requirements/needs to deliver the project
Supplier	To supply all necessary materials on time and nil or minimal disruption	Key	Improve communication to ensure correct message is delivered on time for action
Town Council	No much, except to grant approval/permit for the project	Secondary	Establish partnership/network with the authority
Customer	Be kept informed of the impacts upon them.	Secondary	Communicate messages through the Project Owner
Neighbors	Be kept informed of impacts if any.	Other	Communicate early of the project for them to be aware

The project team will plan a stakeholder engagement matrix by both creating a stakeholder engagement assessment matrix as detailed below and by planning to build relationships with the stakeholders.

Table 4.10.4: Stakeholder Engagement Assessment Matrix

STAKEHOLDER ENGAGEMENT ASSESSMENT MATRIX			
STAKEHOLDER	POSITION	BARRIERS TO CHANGE	STRATEGY
Sponsor	*Leading*		
Manager	*Leading*	*Competing day-to-day priorities*	*Ensure engagement is 'efficient' and effective.*
Project Team	*Supportive*		
Supplier	*Supportive*		
Town Council	*Neutral*		
Customer	*Neutral*		
Neighbors	*Neutral*		

The project team will create the stakeholder engagement plan to define how they will effectively engage stakeholders to plan and perform the project based on the stakeholder's analysis needs, wants, and impacts. The primary tool that will be used in this plan is the stakeholder engagement assessment matrix shown above.

Sponsor Acceptance

Approved by the Project Sponsor:

_____ Date:_____

Project Sponsor

5.0 CONCLUSION

Many people think that a project management plan is the same as a Project Schedule. This is far from the truth. A Project Schedule is only part of a comprehensive package that outline all the components of a project – from integration and scope all the way to risk management and stakeholder engagement management plans.

The Madang Christian Academy Project Plan is very comprehensive, integrating the ten knowledge areas of project management. This extensive and comprehensive plan will give the management team all the information they need to deliver a successful project. This Project Plan is essentially a blue print of the project that aims to describe what the project is, the impacts it will have on the organization, and the hurdles it may encounter during the implementation period.

The project plan has been developed in line with the objectives outlined earlier. This was done to ensure that the project is successfully implemented without any major hiccups. The following were developed as part of this plan:

- Project charter was developed to outline the purpose of the project, the way the project will be structured and how it will be implemented.
- Scope management plan was developed to provide detailed description of the work to be done to deliver the output of the project on time, within the allotted budget and of quality.
- Time management plan was developed to define and sequence the activities, estimate activity resources and durations, and develop and control the schedule.
- Cost management plan was developed to allocate and control costs to activities identified in the work packages.

- Quality management plan was developed to outline the conformance criterion of the final deliverable to the customer's requirements.
- Human resource management plan was developed to identify the types and numbers of resources required to complete the project.
- Communications management plan was developed to define the type of information to be delivered, the format for communicating it, who, when and how to delivery it.
- Risk management plan was developed to outline the foreseeable project risks and provide a set of actions to be taken to both prevent the risk from occurring and reduce the impact of the risk should it eventuate.
- Procurement management plan was developed to identify and acquire products and services from external suppliers to the project.
- Stakeholder's management plan was developed to identify key stakeholders, their level of interest and involvement in project decisions and execution throughout the life cycle of the project.

There is only one way to achieving project success, project planning. And, planning a project requires a good team with a great deal of knowledge and skills. When right people with relevant technical knowledge and skills, both soft and hard come together as a team, they are destined to plan together and deliver a successful project.

The Madang Christian Academy Perimeter Fence Project is a small project but has gone through a meticulous planning process to ensure the project owner gets the product it deserves, a fence that is strong, durable and protect the school children, teachers, administration staff and the entire school property. The plan was done to meet the expectations of Madang Christian Academy, who are the project owners and who sponsored it.

6.0 RECOMMENDATIONS

The success of a project anchors mainly on developing a good, working project plan. Thus, this project management plan will basically help the project team from Melanesian Caring Hands to deliver a successful Perimeter Fencing Project for Madang Christian Academy. This project plan will help the project team to: coordinate cross-functional work, implement the various stages of the project effectively, share status updates with all stakeholders, improve team collaboration, and ensure successful completion of the project.

Among others, below are some recommendations that are intended to guide the project team to deliver a successful project:

1. Since the Charter acts as a contract between the project sponsor, key stakeholders and the project team, the project sponsor (Madang Christian Academy) must be clear on the project's key goals, the main stakeholders, and the authority of Melanesian Caring Hands as the developer.
2. The project team must develop a good scope plan as it is the formal document that identifies the deliverables included and excluded from a project. Also, this is a key document that the project team will use to negotiate objectives, deliverables and to clarify assumptions.
3. Managing time is critical to successful project completion. The project manager must consult all concerned stakeholders to define and sequence the activities, estimate activity resources and durations, and develop and control the schedule.
4. Managing project costs is the heartbeat of the project. The project manager must be knowledgeable on cost management and keep a close tap of the project funds, and ensure that funds are used as per the plan.
5. Not understanding what the stakeholders want, along with their organizational power and influence, can run the risk of communicating incorrectly. Thus, the

project manager must take the lead in identifying and analysing the stakeholders and deal with them appropriately.

6. Because this project is small, the project manager may be tempted to jump right into scheduling, and this may work. But it is important for the project manager to draw up a WBS in consultation with the team members to organize and identify the key work streams that need to be tracked and reported in the project status.
7. Its tedious to track a project's actions, issues, and risks, but the Project Manager with assistance from the Project Lead must use the templates provided to keep track of actions, issues, risks and the key decisions made in project meetings.
8. The Project Manager must always task someone to take meeting minutes, as the minutes will drive accountability and identify follow-up actions.
9. The Project Manager must update the project schedule and review the critical path as the project progresses. Changes are inevitable and will affect the project schedule. At times, Project Managers forget to update the schedule, but using a tool like MS Project can go a long way in providing accurate project update to the project team and other stakeholders.
10. Risks are never easy to manage, but developing a good risk management plan with the project team can go a long way in designing strategies to minimize occurrence and subsequently affect the project. The project manager needs to keep an eagles eye on this, as it can severely affect the project.

Taking heed of the above recommendations is critical to the success of the project. The Perimeter Fencing Project may look simple, prompting the project manager to take short cuts, but this will only lead to delay, early termination and other problems. Regardless of the nature of the project, the above recommendations must be followed in order to reach project success.

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8.0 APPENDICES

8.1 FGP Charter

PROJECT CHARTER Formalizes the project start and confers the project manager with the authority to assign company resources to the project activities. Benefits: it provides a clear start and well defined project boundaries.	
Date	**Project Name:**
24//05/2021	Madang Christian Academy Perimeter Fence Construction
Knowledge Areas / Processes	**Applicacion Area (Sector / Activity)**
Knowledge areas: Project Initiation, Project Scope Management, Project Integration Management, Project Cost Management, Project Time Management, Project Communication Management, Project Quality Management, Project Stakeholder Management, Project Procurement Management **Process Areas:** Initiation, Planning, Monitoring and Controlling	Planning/Construction/Public
Start date	**Finish date**
11 May 2021	2 December 2021
Project Objectives (general and specific)	
To develop a Project Management Plan for the construction of a perimeter fence for a primary school. Specific objectives: 1. To develop a project charter that outlines the purpose of the project, the way the project will be structured and how it will be successfully implemented. 2. To develop a scope management plan, that defines and maps the project, allocate resources so that the project is completed on time, within schedule and budget, and with the quality expected by the school authority, parents and other stakeholders. 3. To develop cost management plan that will outline the project's estimation and control of the costs for the required resources to complete all the project activities. 4. To develop a quality plan that conforms to the requirements of the school administration and other stakeholders. 5. To develop a time management plan to schedule, monitor and control all project activities. 6. To develop a procurement plan for identifying suppliers, assigning contracts to procure goods and services and to help monitor the whole procuring process.	

7. To develop a human resource management plan for identifying and assigning skilled resources to work packages.
8. To develop a risk management plan that will help identify, evaluate, and plan for potential issues that could come up during the project.
9. To develop a stakeholder management plan that will identify all key stakeholders, their level of interest and their ability to influence the project.
10. To develop a communications management plan for defining and identifying the communication strategies to be used throughout the project.

Project purpose or justification (merit and expected results)

This project is to develop the Project Management Plan for the construction of the perimeter fence for a primary school, which will be used by the project team to carry out the school perimeter fence project from initiation through to closure.

The perimeter fence is constructed to increase security at the school. A recent risk assessment has triggered the implementation of this project to ensure safety of children, teachers and the entire school property. The construction of the perimeter fence is absolutely necessary to deter to securit related issues. Children, teachers, school administrations and the parents will not be bothered about security any more and concentrate fully on the core business of teaching and learning in a friendly, caring and safe environment.

In the past, the school experienced a lot of thefts, children running away from class, some children even got stolen, low academic achievements and others. The perimeter fence will decrease the security related instances in the school.

With the **project management plan**, the project team will know what will do, how to do it, when to do, how much to procure and use, and so forth. It will guide them to achieve the project. The perimeter fence will be on schedule, within budget and of quality.

Description of Product or Service to be generated by the Project – Project final deliverables

The final deliverable of this project is the Project Management Plan for the construction of the school perimeter fence.

Assumptions

- There will be school strategy or policy changes during this project
- Prices of raw materials will not increase during the course of the project
- Additional human resources (casual) will be available to support the project.
- Weather will be fine throughout the project
- There won't be any land compensation claim or court litigation
- There won't be any road blocks along the highlands highway
- The local level government and law enforcement agencies will provide security for the construction team

Constraints

- The financial budget allocated is fixed and does not allow for over-spending
- There are limited technical resource available for the project
- Three months to complete the project

Preliminary risks

- Gangs operating on the highway can rob the highway truck carrying fencing material
- Unhappy casuals can disrupt the work flow
- Inability to recruit skilled resource
- Villagers supplying river gravel and sand can charge more, affecting the budget
- Work can be delayed if the milestones are not achieved as scheduled

Budget

The budget will include the following the people, equipment, materials and operational cost

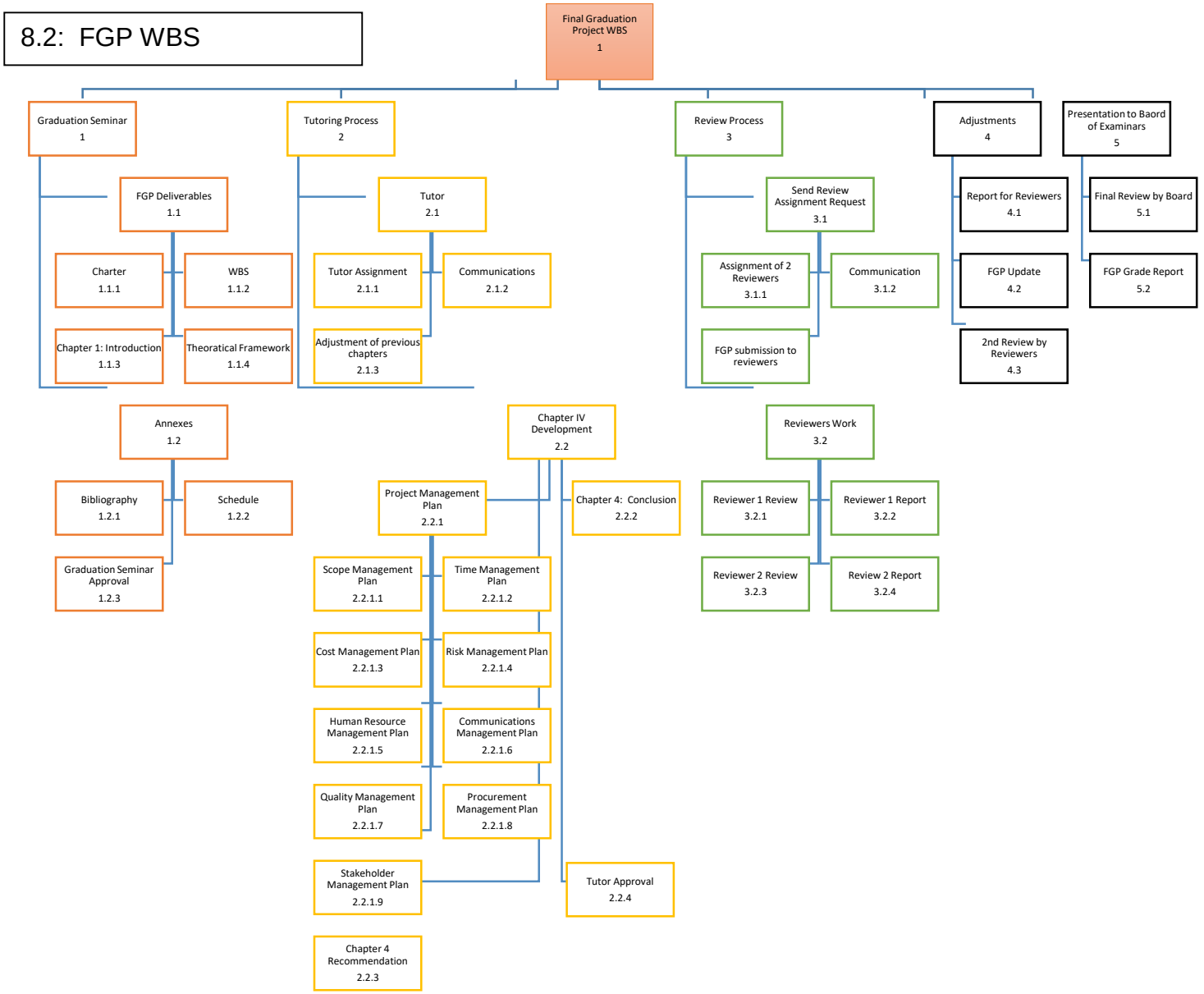
Milestones and dates

Milestone	Start date	End date
1. Graduation Seminar	***11/05/2021***	***21/06/2021***
1.1 FGP Deliverables 1.1.1 Charter 1.2.2 WBS 1.2.3 Chapter 1 : Introduction 1.2.4 Theoratical Framework	*11/05/2021*	*31/05/2021*
1.2 Annexes *1.2.1 Bibliography* *1.2.3 Schedule* *1.2.3 Graduation Seminar Approval*	*01/06/2021*	*21/06/21*
2. Tutoring Process	*22/06/2021*	*20/09/2021*
2.1 Tutor *2.1.1 Tutor Assignment* *2.1.2 Communication* *2.1.3 Adjustment of previous chapters*	 *27/07/21* *28/07/21* *30/07/21*	 *27/07/21* *29/07/21* *02/08/21*
2.2 Chapter IV Development		
2.2.1.1 Scope management Plan	03/08/21	09/08/21
2.2.1.2 Time Management Plan	10/08/21	16/08/21
2.2.1.3 Cost Management Plan	17/08/21	23/08/21
2.2.1.4 Risk Management Plan	24/08/21	30/08/21
2.2.1.5 Human Resource Management Plan	31/08/21	06/09/21
2.2.1.6 Communication Management Plan	07/09/21	13/09/21
2.2.1.7 Quality Management Plan	14/0921	20/09/21
2.2.1.8 Procurement Management Plan	21/09/21	27/09/21
2.2.1.9 Stakeholder Management Plan	28/09/21	04/10/21
2.2.2 Conclusion	05/10/21	11/10/21
2.2.3 Recommendations	12/10/21	18/10/21
2.2.4 Tutor Approval	19/10/21	25/10/21
3. Reading Reviewers	*26/10/21*	*15/11/21*
3.1 Review Assignment Request 3.1.1 Assignment of 2 Reviewers 3.1.2 Communication 3.1.3 FGP submission to reviewers	*26/10/21* *26/10/21* *27/10/21* *28/10/21*	*28/10/21* *26/10/21* *27/10/21* *28/10/21*
3.2 Reviewer's Work 3.2.1 Reviewer 1 Review 3.2.2 Reviewer 1 Report 3.2.3 Review 2 Review 3.2.4 Reviewer 2 Report	29/10/21 29/10/21 05/11/21 08/11/21 15/11/21	15/11/21 04/11/21 05/11/21 12/11/21 15/11/21

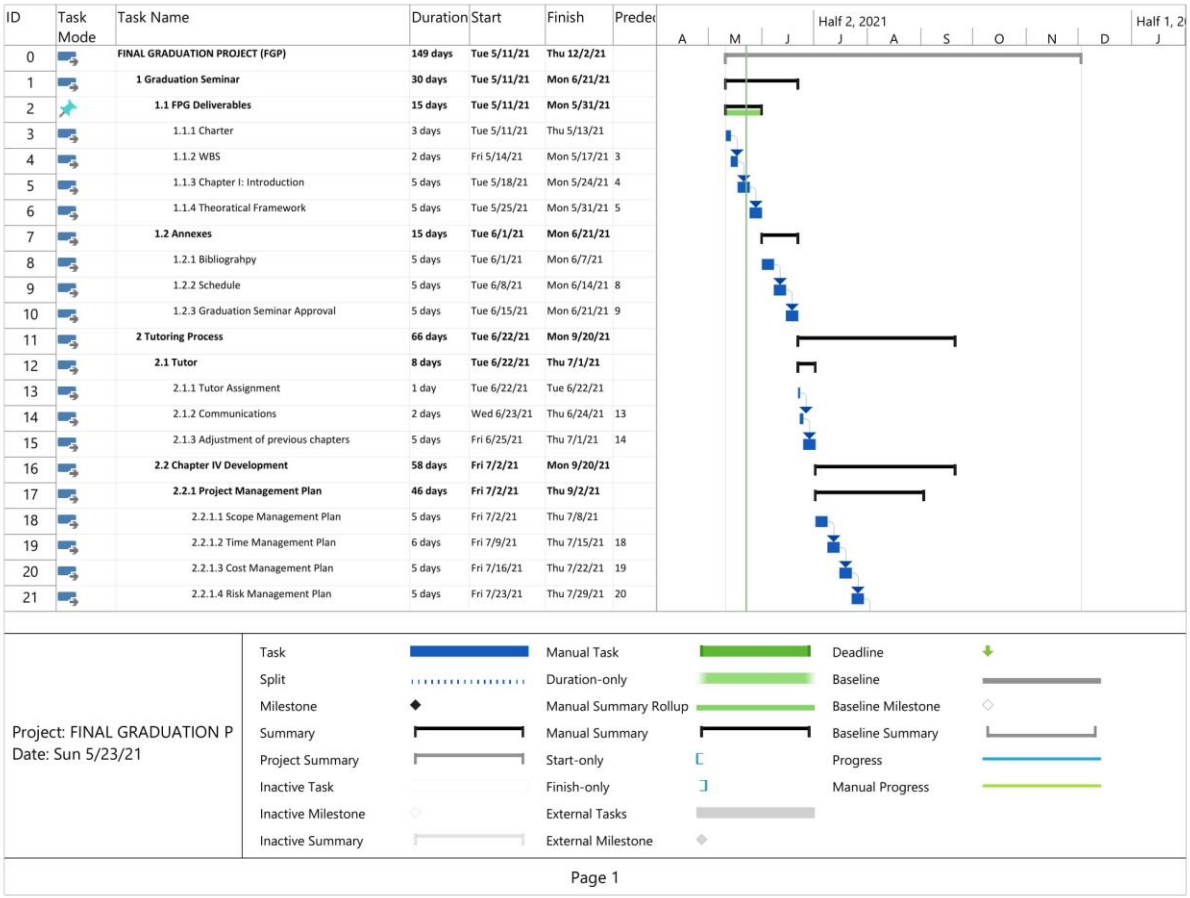
4. Adjustments	16/11/21	24/11/21
4.1 Report for Reviewers 4.2 FGP Updates 4.3 Second review by reviewers	16/11/21 19/11/21 22/11/21	18/11/21 19/11/21 24/11/21
5. Presentation to Board	*25/11/21*	*26/11/21*
5.1 Final Review of Board 5.2 FGP Grade Report	25/11/21 26/11/21	25/11/21 26/11/21

Relevant historical information	
Nil at the moment	
Stakeholders	
Direct Stakeholders : FGP Lecturer – Professor Carlos Brenes Tutor – Professor Everlyn Hernandez Project Manager – Chris Gundu *Indirect stakeholders :* Academic Reviewers Academic Assistants	
Project Manager: Chris Gundu	**Signature:**
Authorized by:	**Signature:**

8.2: FGP WBS


Final Graduation Project WBS
1
Graduation Seminar
1
Tutoring Process
2
Review Process
3
Adjustments
4
Presentation to Baord of Examinars
5
FGP Deliverables
1.1
Tutor
2.1
Send Review Assignment Request
3.1
Report for Reviewers
4.1
Final Review by Board
5.1
Charter
1.1.1
WBS
1.1.2
Tutor Assignment
2.1.1
Communications
2.1.2
Assignment of 2 Reviewers
3.1.1
Communication
3.1.2
FGP Update
4.2
FGP Grade Report
5.2
Chapter 1: Introduction
1.1.3
Theoratical Framework
1.1.4
Adjustment of previous chapters
2.1.3
FGP submission to reviewers
2nd Review by Reviewers
4.3
Annexes
1.2
Chapter IV Development
2.2
Reviewers Work
3.2
Bibliography
1.2.1
Schedule
1.2.2
Project Management Plan
2.2.1
Chapter 4: Conclusion
2.2.2
Reviewer 1 Review
3.2.1
Reviewer 1 Report
3.2.2
Graduation Seminar Approval
1.2.3
Scope Management Plan
2.2.1.1
Time Management Plan
2.2.1.2
Reviewer 2 Review
3.2.3
Review 2 Report
3.2.4
Cost Management Plan
2.2.1.3
Risk Management Plan
2.2.1.4
Human Resource Management Plan
2.2.1.5
Communications Management Plan
2.2.1.6
Quality Management Plan
2.2.1.7
Procurement Management Plan
2.2.1.8
Stakeholder Management Plan
2.2.1.9
Tutor Approval
2.2.4
Chapter 4 Recommendation
2.2.3

8.3 FGP Schedule



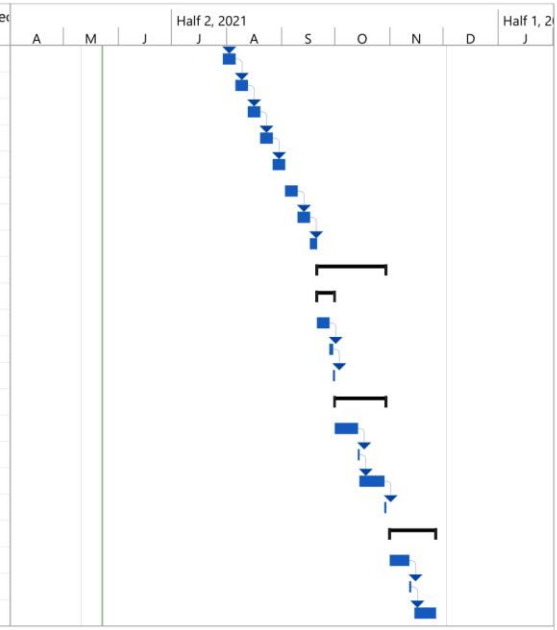
ID	Task Mode	Task Name	Duration	Start	Finish	Predec
0		**FINAL GRADUATION PROJECT (FGP)**	**149 days**	**Tue 5/11/21**	**Thu 12/2/21**	
1		**1 Graduation Seminar**	**30 days**	**Tue 5/11/21**	**Mon 6/21/21**	
2		**1.1 FPG Deliverables**	**15 days**	**Tue 5/11/21**	**Mon 5/31/21**	
3		1.1.1 Charter	3 days	Tue 5/11/21	Thu 5/13/21	
4		1.1.2 WBS	2 days	Fri 5/14/21	Mon 5/17/21	3
5		1.1.3 Chapter I: Introduction	5 days	Tue 5/18/21	Mon 5/24/21	4
6		1.1.4 Theoratical Framework	5 days	Tue 5/25/21	Mon 5/31/21	5
7		**1.2 Annexes**	**15 days**	**Tue 6/1/21**	**Mon 6/21/21**	
8		1.2.1 Bibliograhpy	5 days	Tue 6/1/21	Mon 6/7/21	
9		1.2.2 Schedule	5 days	Tue 6/8/21	Mon 6/14/21	8
10		1.2.3 Graduation Seminar Approval	5 days	Tue 6/15/21	Mon 6/21/21	9
11		**2 Tutoring Process**	**66 days**	**Tue 6/22/21**	**Mon 9/20/21**	
12		**2.1 Tutor**	**8 days**	**Tue 6/22/21**	**Thu 7/1/21**	
13		2.1.1 Tutor Assignment	1 day	Tue 6/22/21	Tue 6/22/21	
14		2.1.2 Communications	2 days	Wed 6/23/21	Thu 6/24/21	13
15		2.1.3 Adjustment of previous chapters	5 days	Fri 6/25/21	Thu 7/1/21	14
16		**2.2 Chapter IV Development**	**58 days**	**Fri 7/2/21**	**Mon 9/20/21**	
17		**2.2.1 Project Management Plan**	**46 days**	**Fri 7/2/21**	**Thu 9/2/21**	
18		2.2.1.1 Scope Management Plan	5 days	Fri 7/2/21	Thu 7/8/21	
19		2.2.1.2 Time Management Plan	6 days	Fri 7/9/21	Thu 7/15/21	18
20		2.2.1.3 Cost Management Plan	5 days	Fri 7/16/21	Thu 7/22/21	19
21		2.2.1.4 Risk Management Plan	5 days	Fri 7/23/21	Thu 7/29/21	20

Project: FINAL GRADUATION P
Date: Sun 5/23/21

Task		Manual Task		Deadline	
Split		Duration-only		Baseline	
Milestone		Manual Summary Rollup		Baseline Milestone	
Summary		Manual Summary		Baseline Summary	
Project Summary		Start-only		Progress	
Inactive Task		Finish-only		Manual Progress	
Inactive Milestone		External Tasks			
Inactive Summary		External Milestone			

Page 1

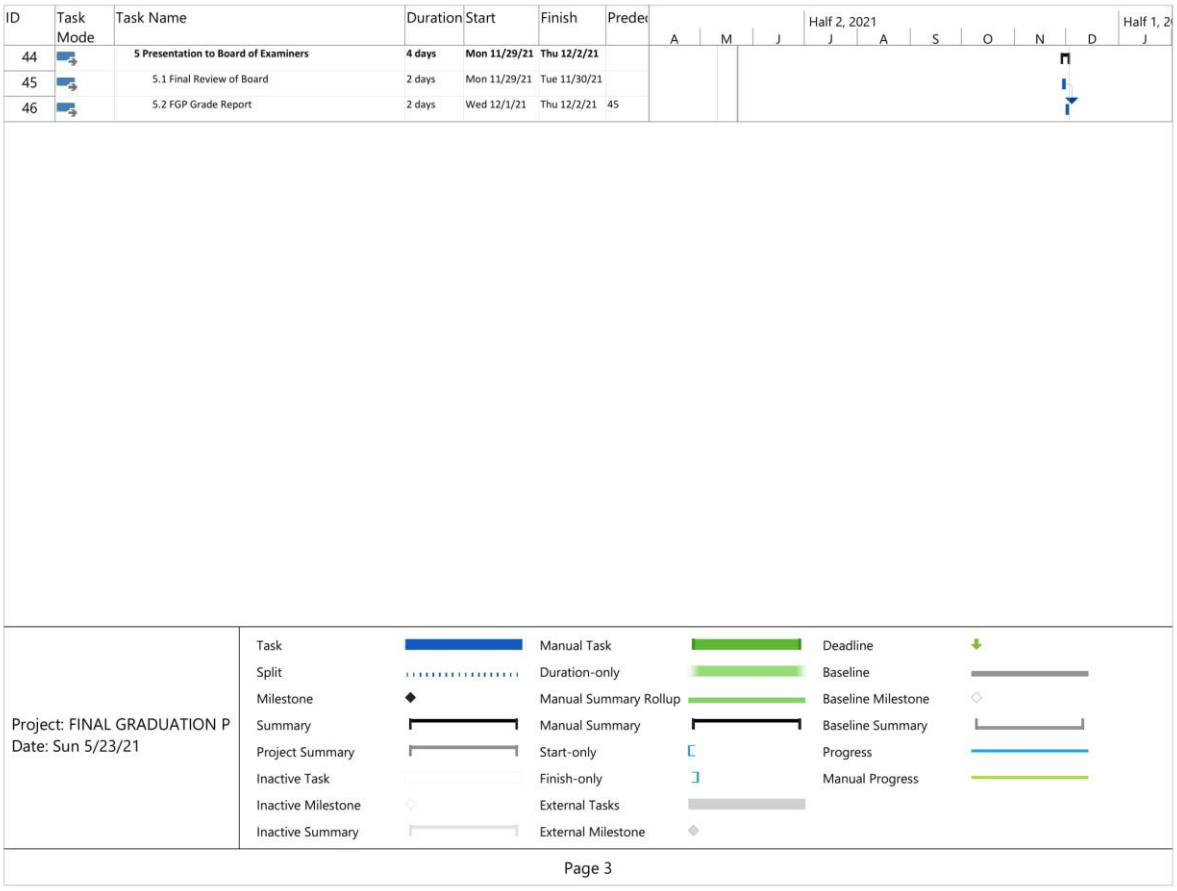
ID	Task Mode	Task Name	Duration	Start	Finish	Predec
22		2.2.1.5 Human Resource Management Plan	5 days	Fri 7/30/21	Thu 8/5/21	21
23		2.2.1.6 Communications Management Plan	5 days	Fri 8/6/21	Thu 8/12/21	22
24		2.2.1.7 Quality Management Plan	5 days	Fri 8/13/21	Thu 8/19/21	23
25		2.2.1.8 Procurement Management Plan	5 days	Fri 8/20/21	Thu 8/26/21	24
26		2.2.1.9 Stakeholder Management Plan	5 days	Fri 8/27/21	Thu 9/2/21	25
27		2.2.2 Chapter 4: Conclusion	5 days	Fri 9/3/21	Thu 9/9/21	
28		2.2.3 Chapter 4 Recommendation	5 days	Fri 9/10/21	Thu 9/16/21	27
29		2.2.4 Tutor Approval	2 days	Fri 9/17/21	Mon 9/20/21	28
30		**3 Reading by Reviewers**	**29 days**	**Tue 9/21/21**	**Fri 10/29/21**	
31		**3.1 Review Assignment Request**	**8 days**	**Tue 9/21/21**	**Thu 9/30/21**	
32		3.1.1 Assignment of 2 Reviewers	5 days	Tue 9/21/21	Mon 9/27/21	
33		3.1.2 Communication	2 days	Tue 9/28/21	Wed 9/29/21	32
34		3.1.3 FGP submission to reviewers	1 day	Thu 9/30/21	Thu 9/30/21	33
35		**3.2 Reviewer's Work**	**21 days**	**Fri 10/1/21**	**Fri 10/29/21**	
36		3.2.1 Reviewer 1 Review	9 days	Fri 10/1/21	Wed 10/13/21	
37		3.2.2 Reviewer 1 Report	1 day	Thu 10/14/21	Thu 10/14/21	36
38		3.2.3 Reviewer 2 Review	10 days	Fri 10/15/21	Thu 10/28/21	37
39		3.2.4 Reviewer 2 Report	1 day	Fri 10/29/21	Fri 10/29/21	38
40		**4 Adjustments**	**20 days**	**Mon 11/1/21**	**Fri 11/26/21**	
41		4.1 Report for Reviewers	9 days	Mon 11/1/21	Thu 11/11/21	
42		4.2 FGP Updates	1 day	Fri 11/12/21	Fri 11/12/21	41
43		4.3 Second Review by Reviewers	10 days	Mon 11/15/21	Fri 11/26/21	42



Project: FINAL GRADUATION P
Date: Sun 5/23/21

Task		Manual Task		Deadline	
Split		Duration-only		Baseline	
Milestone		Manual Summary Rollup		Baseline Milestone	
Summary		Manual Summary		Baseline Summary	
Project Summary		Start-only		Progress	
Inactive Task		Finish-only		Manual Progress	
Inactive Milestone		External Tasks			
Inactive Summary		External Milestone			

Page 2


ID
Task Mode
Task Name
Duration
Start
Finish
Predec
Half 2, 2021
Half 1, 2
A M J J A S O N D J
44 5 Presentation to Board of Examiners 4 days Mon 11/29/21 Thu 12/2/21
45 5.1 Final Review of Board 2 days Mon 11/29/21 Tue 11/30/21
46 5.2 FGP Grade Report 2 days Wed 12/1/21 Thu 12/2/21 45
Project: FINAL GRADUATION P
Date: Sun 5/23/21
Task
Split
Milestone
Summary
Project Summary
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Baseline
Baseline Milestone
Baseline Summary
Progress
Manual Progress

8.4: Change Request Form

Change Request Form

Project: **Madang Christian Academy Perimeter Fencing**
Project Sponsor: **Madang Christian Academy**
Project Manager: **Chris Gundu**
Start Date: **15 November 2021**
Expected Completion Date: **28 January 2021**

Project		**Date**		**Author**		**Change Number**	
Describe the Change				**Change Justification**			

Change Category	**This Change Affects…**	**Technical Change Requirements**	**Risks and Issues**	**Estimated Budget Required**
Recommendation				

Action		**Approved By**		**Signed**		**Date**	

8.5. Stakeholder Register

Stakeholder Register

Project Tile: Madang Christian Academy

Date Prepared: 10 August 2021

Name	Role	Requirements/Expectations	Interest	Power
Peter Kerenga	Project Sponsor/Owner	Provide financing for the project, warrant the plans and specifications, acting on clarifications and changes, cooperating with the contractor and certify project completion.	High	High
Chris Gundu	Project Manager	Deliver the project on schedule, within budget and ensure that the perimeter fence is of quality. They meet the schedule and organizing the resources needed to do so, monitoring the project budget and billing the client for work completed, monitor the scope of work and any changes or additions to it and carry out a range of other responsibilities	High	High
John Bossip	Project Lead	Supervise project implementation by the project team and ensure that the all phases are implemented on schedule, within budget and of quality by developing a schedule, oversee performance/execution, attend meetings and manage the flow of information – both to the field from the office, as well as from the office to the field, similar to the Project Manager	Medium	Medium
Project Team Members	Project Team	Ensure the implementation of all activities assigned to them by the Project Lead and their supervisors within schedule and of quality.	Medium	Low
Teachers/Students/Parents/ Guardians	No designated role	They don't have much to do and say. They are beneficiaries of the project	High	Low

8.6. Activity List

Activity List

Project Details

Project: **Madang Christian Academy Perimeter Security Fencing**
Project Sponsor: **Madang Christian Academy**
Project Manager: **Chris Gundu**
Start Date: **15 November 2021**
Expected Completion Date: **28 January 2022**

Date	07/08/21	Author	Chris Gundu

WBS #	Activity Name	Activity Description	Responsibility	Comments
1.1.1	Meeting with sponsor and stakeholders	Hold 1 or more meetings with the sponsor and stakeholders	Project Manager will be responsible for performing the work for this activity.	
1.1.2	Site inspection	Project manager and Project Lead will conduct site inspection of the project area	Project Manager will be responsible for performing the work for this activity.	
1.1.3	Document current situation	Project manager will document current situation, based on the project inspection	Project Manager will be responsible for performing the work for this activity.	
1.1.4	Design fencing	Project Lead/Engineer will design the fencing based on requirements and specifications discussed with the Project Owner	Project Lead will be responsible for performing the work for this activity.	
1.1.5	Develop plan	Development of the project plan based consultation with project owner and other stakeholders	Project Manager and Project Lead will be responsible for performing the work for this activity.	
1.2.1	Finalise plans and develop estimate with owner	Finalisation of the project plan and develop cost estimates with the owner	Project Manager will be responsible for performing the work for this activity.	
1.2.2	Sign Contract + Notice to Proceed	Project Owner and the Project Manager will sign the contract. Notice to proceed will also be issued for construction to commence	Project Manager and Project Owner will be responsible for performing the work for this activity.	

1.2.3	Apply for construction permit	Application for construction permit will be submitted to Madang Town Authority	Project Manager will be responsible for performing the work for this activity.	There may be slight delay awaiting the permit
1.2.4	*Hire* crew	Hire of project crew. Conduct interviews and recruit team members	Project Manager and Project will be responsible for performing this activity	
1.2.5	Procure supplies	Procurement of fencing material and products from Atlas Steel (PNG) Limited and other hardware stores	Project Manager, Project Lead and Finance Officer will be responsible for performing this activity	
1.2.6	Transportation of supplies	Transport supplies to project site	Project Lead and project logistics team will be responsible for performing this activity	There may be delays due to the road condition & weather
1.3.11	Clear and grab lot	Clearing and grabbing the lot where the site office will be erected	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.3.12	Construct site office	Construction of the project site office	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.3.21	Temporary electrical service	Electrical connections and installations will be made at the project site office	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.3.22	Temporary water + sanitation service	Water connections and sanitation facilities will be installed at the project site office	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.3.23	Drainage	Proper drainage will be constructed to drain off water waste.	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.4.1	Conduct survey	A survey will be conducted prior to demolition of structures along the construction path	Project Team will be responsible for performing the work for this activity.	
1.4.21	Demolish structures	Demolition of structures along the construction path	Project Lead and Project Team will be responsible for performing the work for this activity.	

1.4.22	Clear structures	Clearing of demolished structures and debris	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.1	Construct concrete base	Construction of the concrete base on which the metal posts will be erected and bolted.	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.2	Erect fence post	Construction of the fence using the specified fencing products from PNG Steel Ltd.	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.3	Erect fence	Construction steel fencing posts using the specified fencing products from PNG Steel Ltd.	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.4	Fit gates	Erection and fitting of gates (x3 small) and x1 big for humans and vehicles to pass through	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.5	Install cameras	Installation of cameras on strategic locations along the perimeter fence	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.6	Install lighting	Installation of lighting at 50 meter intervals along the perimeter fence	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.7	Undoing, packing and transportation of temporary site office with amenities	Undo, pack and transport the temporary office. Also, uninstall water connections, electrical connections and clear rubbish from site	Project Lead and Project Team will be responsible for performing the work for this activity.	
1.5.8	Final inspection	Conduct final inspection by the project owner to verify and certify the project.	Project Manager and Project Lead will be responsible for performing the work for this activity.	Project is officially closed once the project closure certification is signed

8.7. Project Schedule

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	Resource Names	Baseline Cost	Actual Cost
1		**Perimeter Fence Project**	**55 days**	**Mon 11/15/21**	**Fri 1/28/22**			**$200,000.00**	**$0.00**
2		**Initiation**	**7 days**	**Mon 11/15/21**	**Tue 11/23/21**			**$10,000.00**	**$0.00**
3		Meeting with sponsor + stakeholders	1 day	Mon 11/15/21	Mon 11/15/21		Project Lead,Project Manager,Project Owner,Stakeholders	$1,000.00	$0.00
4		Site inspection	1 day	Tue 11/16/21	Tue 11/16/21	3	Project Lead,Project Manager,Project Owner	$1,000.00	$0.00
5		Document current situation + Administration	1 day	Wed 11/17/21	Wed 11/17/21	4	Project Lead,Project Manager	$6,000.00	$0.00
6		Design fencing	2 days	Thu 11/18/21	Fri 11/19/21	3,4	Project Lead,Project Man	$1,000.00	$0.00
7		Develop plan	2 days	Mon 11/22/21	Tue 11/23/21	6	Project Lead,Project Man	$1,000.00	$0.00
8		Complete initiation						$0.00	$0.00
9		**General conditions**	**16 days**	**Wed 11/24/21**	**Wed 12/15/21**			**$135,000.00**	**$0.00**
10		Finalize plans and develop estimate with owner + engineer	2 days	Wed 11/24/21	Thu 11/25/21	7	Project Lead,Project Manager,Project Owner	$1,000.00	$0.00
11		Sign contract + notice to proceed	1 day	Fri 11/26/21	Fri 11/26/21	10	Project Manager,Project Owner	$500.00	$0.00
12		Apply for construction permit	1 day	Mon 11/29/21	Mon 11/29/21	11	Project Manager	$1,000.00	$0.00

Project: Project Schedule
Date: Sun 11/28/21

Task	Duration-only	Critical Split			
Split	Manual Summary Rollup	Late			
Milestone	Manual Summary	Baseline			
Summary	Start-only	Baseline Milestone			
Project Summary	Finish-only	Baseline Summary			
Inactive Task	External Tasks	Progress			
Inactive Milestone	External Milestone	Manual Progress			
Inactive Summary	Deadline	Slack			
Manual Task	Critical				

Page 1

Note:
I cannot be able to attached the entire Project Schedule as pdf and paste it here. Therefore, I am also sending it as a separate attachment.

8.8. Expense Form

Expense Form

PROJECT DETAILS
Project Name: Project Manager: Staff Member:

EXPENSE DETAILS							
Activity ID	Task ID	Expense Date	Expense Type	Expense Description	Expense Amount	Payee Name	Invoice No.
				Total			

APPROVAL DETAILS			
Submitted by		**Approved by**	
Name:		Name:	
Signature:	Date:	Signature:	Date:
_____	___/___/____	_____	___/___/____

Any invoices relating to this Expense Form should be attached to this document

PLEASE FORWARD THIS FORM TO THE PROJECT MANAGER

8.9: Expense Register

Expense Register

Project Name: _____

Project Manager: _____

Activity				Expense			Approval			Payment			
Activity ID	Activity Description	Task ID	Task Description	Expense ID	Expense Type	Expense Description	Approval Status	Approval Date	Approver	Payment Status	Payment Date	Payee	Method

8.10. Detail Cost of the Project

Detail Cost

Task Name	Duration	Start	Finish	Predecessors	Resource Names	Baseline Cost	Actual Cost
Perimeter Fence Project	**55 days**	**Mon 11/15/21**	**Fri 1/28/22**			**$200,000.00**	**$0.00**
Initiation	**7 days**	**Mon 11/15/21**	**Tue 11/23/21**			**$10,000.00**	**$0.00**
Meeting with sponsor + stakeholders	1 day	Mon 11/15/21	Mon 11/15/21		Project Lead, Project Manager, Project Owner, Stakeholders	$1,000.00	$0.00
Site inspection	1 day	Tue 11/16/21	Tue 11/16/21	3	Project Lead, Project Manager, Project Owner	$1,000.00	$0.00
Document current situation + Administration	1 day	Wed 11/17/21	Wed 11/17/21	4	Project Lead, Project Manager	$6,000.00	$0.00
Design fencing	2 days	Thu 11/18/21	Fri 11/19/21	3,4	Project Lead, Project Manager	$1,000.00	$0.00
Develop plan	2 days	Mon 11/22/21	Tue 11/23/21	6	Project Lead, Project Manager	$1,000.00	$0.00
Complete initiation						$0.00	$0.00
General conditions	**16 days**	**Wed 11/24/21**	**Wed 12/15/21**			**$135,000.00**	**$0.00**
Finalize plans and develop estimate with owner + engineer	2 days	Wed 11/24/21	Thu 11/25/21	7	Project Lead, Project Manager, Project Owner	$1,000.00	$0.00
Sign contract + notice to proceed	1 day	Fri 11/26/21	Fri 11/26/21	10	Project Manager, Project Owner	$500.00	$0.00
Apply for construction permit	1 day	Mon 11/29/21	Mon 11/29/21	11	Project Manager	$1,000.00	$0.00
Hire Crew	3 days	Tue 11/30/21	Thu 12/2/21	12	Project Manager	$2,000.00	$0.00

Procure materials	4 days	Fri 12/3/21	Wed 12/8/21	13	Project Lead, Logistics Team	$110,000.00	$0.00
Transport materials to site	5 days	Thu 12/9/21	Wed 12/15/21	14,13	Project Team, Logistics Team	$20,500.00	$0.00
Complete general conditions						$0.00	$0.00
Fit out	**7 days**	**Tue 11/30/21**	**Wed 12/8/21**			**$10,000.00**	**$0.00**
Erect site office	**3 days**	**Tue 11/30/21**	**Thu 12/2/21**			**$7,000.00**	**$0.00**
Clear + grab lot	1 day	Tue 11/30/21	Tue 11/30/21	12	Project Lead, Project Team	$2,000.00	$0.00
Construct site office	2 days	Wed 12/1/21	Thu 12/2/21	19	Project Lead, Project Team	$5,000.00	$0.00
Utilities	**4 days**	**Fri 12/3/21**	**Wed 12/8/21**			**$3,000.00**	**$0.00**
Temporary electricity	1 day	Fri 12/3/21	Fri 12/3/21	20	Project Lead, Project Team	$1,000.00	$0.00
Temporary water + sanitation	2 days	Mon 12/6/21	Tue 12/7/21	20	Project Lead, Project Team	$1,500.00	$0.00
Drainage	1 day	Wed 12/8/21	Wed 12/8/21	23	Project Lead, Project Team	$500.00	$0.00
Complete fit out						$0.00	$0.00
Clear site	**4 days**	**Thu 12/9/21**	**Tue 12/14/21**			**$7,000.00**	**$0.00**
Conduct survey	1 day	Thu 12/9/21	Thu 12/9/21	17,21	Project Lead	$1,000.00	$0.00
Strip site	**3 days**	**Fri 12/10/21**	**Tue 12/14/21**			**$6,000.00**	**$0.00**
Demolish structures	2 days	Fri 12/10/21	Mon 12/13/21	27	Project Lead, Project Team	$3,000.00	$0.00
Clear structures	1 day	Tue 12/14/21	Tue 12/14/21	29	Project Lead, Project Team	$3,000.00	$0.00
Complete clear site						$0.00	$0.00
Framework Installation	**33 days**	**Wed 12/15/21**	**Fri 1/28/22**			**$38,000.00**	**$0.00**

Install posts	5 days	Wed 12/15/21	Tue 12/21/21	30	Project Lead, Project Team	$5,000.00	$0.00
Install top rail	5 days	Wed 12/22/21	Tue 12/28/21	33	Project Lead, Project Team	$5,000.00	$0.00
Install terminal posts	2 days	Wed 12/29/21	Thu 12/30/21	34	Project Lead, Project Team	$3,000.00	$0.00
Install tension wire	5 days	Fri 12/31/21	Thu 1/6/22	35	Project Lead, Project Team	$3,000.00	$0.00
Install chain link fabric	5 days	Fri 1/7/22	Thu 1/13/22	36	Project Lead, Project Team	$7,000.00	$0.00
Install barbed wire	5 days	Fri 1/14/22	Thu 1/20/22	37	Project Lead, Project Team	$7,000.00	$0.00
Install gates	2 days	Fri 1/21/22	Mon 1/24/22	38	Project Lead, Project Team	$2,000.00	$0.00
Install electric floodlight security	2 days	Tue 1/25/22	Wed 1/26/22	39	Project Manager, Project Owner, Project Lead	$6,000.00	$0.00
Final inspection	1 day	Thu 1/27/22	Thu 1/27/22	40	Project Lead, Project Manager, Project Owner	$0.00	$0.00
Handover	1 day	Fri 1/28/22	Fri 1/28/22	41	Project Lead, Project Manager, Project Owner, Project Team, Stakeholders	$0.00	$0.00
Complete installation and project						$0.00	$0.00

8.11. Deliverable Review Form

Deliverable Review Form

Reviewer:

Review Date:

Quality Target				Quality Achieved				
Project Requirement	Project Deliverable	Quality Criteria	Quality Standards	Quality Level L	M	H	Quality Deviation	Improvement Recommendation
A new 845 meter long perimeter fence is erected around Madang Christian Academy	Installation of posts, top rail, terminal posts and tension wire	Framework installation • ***Posts:*** Posts shall be set plumb in concrete footings in accordance with ASTM F567. Minimum footing depth, 24 in. (609.6 mm) plus an additional 3 in. (76.2 mm) for each 1 ft. • ***Top rail***: Install 21 ft. (6.4 m) lengths of rail continuous through the line post or barb arm loop top. Splice rail using top rail sleeves minimum 6 in. (152mm) long. • ***Terminal posts***: End, corner, pull and gate posts shall be braced and trussed for fence 6 ft. (1.8 m). The horizontal brace	Complete framework installation • Posts installed without problems • Top rails installed without problems • Terminal posts installed without problems/errors • Tension wire installed without problems • Posts, top rail, terminal posts and tension wire, all firm and strong					

		rail and diagonal truss rod shall be installed in accordance with ASTM F567. • ***Tension wire:*** Shall be installed 4 in. (101.6 mm) up from the bottom of the fabric. Fences without top rail shall have a tension wire installed 4 in. (101.6 mm) down from the top of the fabric.						
	Installation of chain link fabric	<u>Chain Link Fabric Installation</u> ***Chain Link Fabric:*** Fabric to be installed outside of the framework. Fabric to be attached to the terminal post by threading the tension bar through the fabric; securing the tension bar to the terminal post with tension bands and 5/16 in. (7.94 mm) carriage bolts spaced no greater than 12 inches (304.8mm) on center. Chain link fabric be stretched taut free of sag. Fabric be secured to the line post with tie wires spaced no greater than 12 inches (304.8 mm) on center and to rail spaced no greater than 18 inches (457.2 mm) on center. Secure fabric to the tension wire with hog rings spaced no greater than 18 inches (457.2 mm) apart	Complete chain link installation • Chain link fabric installed without problems/errors					

	Installation of barbed wire	Barbed wire installation ***Barbed Wire***: Stretched taut between terminal posts and secured in the slots provided on the line post barb arms. Each strand of barbed wire attached to the terminal post using a brace band.	Complete barbed wire installation • Barbed wire installed without problems/errors					
	Installation of x3 swing gates (x2 single and x1 double for vehicles)	Gate installation ***Swing Gates:*** Installation of swing gates and gateposts in compliance with ASTM F567. Direction of swing shall be inward. Gates shall be plumb in the closed position having a bottom clearance of 3 in. (76 mm) grade permitting. Hinge and latch offset opening space from the gate frame to the post shall be no greater than 3 in. (76 mm) in the closed position. Double gate drop bar receivers shall be set in a concrete footing minimum 6 in. (152 mm) diameter 24 in. (609.6 mm) deep. Gate leaf holdbacks shall be installed for the double gates (vehicle entry)	Complete gate installation • Gates installed without problems/errors					
	Installation of barbed wire	Barbed tape installation ***Barbed Tape***: Barbed tape shall installed in accordance with ASTM F1911, installation of barbed tape.	Complete barbed tape installation • Barbed tape installation without problems/errors					

	Installation of electric floodlight security camera	**Electric Floodlight Security Camera.** Installation of Feit Electric Smart Floodlight Security Camera every 50 meters. Description: 1080P HD Video, 270 Degree Field of View, Movement Detection up to 32 Feet, Two-way Audio and Ultra Bright 3000 Lumens	Complete floodlight security camera Floodlight security camera installation without problems/errors					

8.12. Process Review Form

Process Review Form

Reviewer:

Review Date:

Quality Target				Quality Achieved				
Project Process	Project Procedure	Quality Criteria	Quality Standards	Quality Level L	M	H	Quality Deviation	Improvement Recommendation
Time Management	Time Procedures: • Document Timesheet • Approve Timesheet • Register	• % of time sheets completed • % of approved time sheets • % of time sheets registered	100% of time sheets completed 100% of time sheets approved 100% of time sheets registered					
Cost Management	Cost Procedures: • Document Expense • Approve Expense • Register Expense	% of expense forms completed % of Expense approved % of Expenses registered	100% of expense forms completed 100% of expenses approved 100% of expenses registered					
Quality Management	Quality Procedures:							

	• Define Quality Targets • Measure Quality Achieved • Enhance Quality Achieved	# of quality targets defined % of quality measures achieved % of quality standards achieved	100% of quality targets defined 100% of quality measures achieved 100% of quality standards achieved					
Change Management	Change Procedures: • Submit Change Requests • Review Change requests • Approve Change Requests • Implementation and Closure of Change Requests.	# of change requests submitted % of change requests reviewed % of change requests approved % of change requests implemented and closed	100% of change requests submitted 100% of change requests reviewed 90% of change requests approved 90% of change requests implemented and closed					
Risk Management	Risk Procedures: • Identify risk • Submit risk form • Review risk	• % of 'medium' & 'high' level risks identified • % of risk forms completed for risks identified • % of risks formally tracked via risk register	• 100% of 'medium' & 'high' level risks identified • 100 % of risk forms completed for risks identified • 100 % of risks formally tracked via risk register					

	• Confirm risk is applicable to project	• % of risks adequately mitigated	• 90 % of risks adequately mitigated					
Issue Management	Issue Procedures: • Identify project issues • Prioritizing project issues • Determine issue resolution actions • Monitor and control assigned issue resolution actions • Close project issues.	# of issues identified # of issues prioritized # of issue resolution actions determined # of issue resolution actions monitored and controlled # of issues closed	100% of issues identified 80% of issues prioritized 100% of issue resolutions determined 100% of issue resolutions determined 100% of issues closed					
Procurement Management	Procurement Procedures: • Issue Purchase Orders • Complete Purchase Orders	# of purchase orders issued % of purchase orders completed % of supplier contracts managed	100% of purchase orders recorded 100% of purchase orders completed 100% of supplier contracts managed					

	• Manage supplier contracts							
Acceptance Management	Acceptance Procedures: • Complete project deliverables • Undertake Acceptance Testing • Review Acceptance Test Results • Accept final deliver of the deliverable by the customer.	% of project deliverables completed % of acceptance tests undertaken % of acceptance tests results reviewed % of final deliverables accepted by the customer	100% of project deliverables completed 100% of acceptance tests undertaken 100% of acceptance test results reviewed 100% of final deliverables accepted by the customer					
Communication Management	Communication Procedures: • Identify Message • Create Message • Review Message • Communicat e Message	# of messages identified % of messages created % of messages reviewed % of messages communicated	100% of messages identified 100% of messages created 100% of messages reviewed 100% of messages communicated					

8.13. Acceptance Form

Acceptance Form

PROJECT DETAILS

Project Name:

Project Manager:

ACCEPTANCE DETAILS

Acceptance ID:
Requested By:

Date Requested:

Description:

ACCEPTANCE CRITERIA

Criteria:	Standards:

ACCEPTANCE RESULTS

Acceptance	Method	Reviewer	Date	Result
Criteria • •				
Standard • •				

CUSTOMER APPROVAL

Supporting Documentation:

Signature: **Date:** ___/___/____

PLEASE FORWARD THIS FORM TO THE CUSTOMER FOR APPROVAL

8.14. Key Acceptance Register

Key Deliverables/Acceptance Register

Project Name: Madang Christian Academy Perimeter Fencing Project
Project Manager: Chris Gundu
Quality Manager: Jack Korma

Summary				Quality Targets		Quality Assurance			Quality Control		
ID	*Deliverable Name*	*Deliverable Description*	*Status*	*Criteria*	*Standards*	*Reviewer*	*Review Date*	*Review Outcome*	*Reviewer*	*Review Date*	*Review Outcome*
01	Installation of posts, top rail, terminal posts and tension wire	<u>Framework installation</u> • ***Posts:*** Posts shall be set plumb in concrete footings in accordance with ASTM F567. Minimum footing depth, 24 in. (609.6 mm) plus an additional 3 in. (76.2 mm) for each 1 ft. • ***Top rail***: Install 21 ft. (6.4 m) lengths of rail continuous through the line post or barb arm loop top. Splice rail using top rail sleeves		• ***Posts:*** Posts shall be set plumb in concrete footings in accordance with ASTM F567. Minimum footing depth, 24 in. (609.6 mm) plus an additional 3 in. (76.2 mm) for each 1 ft. • ***Top rail***: Install 21 ft. (6.4 m) lengths of rail continuous through the line post or barb arm loop top.	Complete framework installation • Posts installed without problems • Top rails installed without problems • Terminal posts installed without problems/errors • Tension wire installed without problems • Posts, top rail, terminal posts and tension wire, all firm and strong						

		minimum 6 in. (152mm) long. • ***Terminal posts***: End, corner, pull and gate posts shall be braced and trussed for fence 6 ft. (1.8 m). The horizontal brace rail and diagonal truss rod shall be installed in accordance with ASTM F567. • ***Tension wire:*** Shall be installed 4 in. (101.6 mm) up from the bottom of the fabric. Fences without top rail shall have a tension wire installed 4 in. (101.6 mm) down from the top of the fabric.		Splice rail using top rail sleeves minimum 6 in. (152mm) long. • ***Terminal posts***: End, corner, pull and gate posts shall be braced and trussed for fence 6 ft. (1.8 m). The horizontal brace rail and diagonal truss rod shall be installed in accordance with ASTM F567. • ***Tension wire:*** Shall be installed 4 in. (101.6 mm) up from the bottom of the fabric. Fences without top rail shall have a tension wire installed 4 in. (101.6 mm) down from the top of the fabric.							
02		<u>Chain Link Fabric Installation</u>		***Chain Link Fabric:*** Fabric to be							

	Installation of chain link fabric	***Chain Link Fabric:*** Fabric to be installed outside of the framework. Fabric to be attached to the terminal post by threading the tension bar through the fabric; securing the tension bar to the terminal post with tension bands and 5/16 in. (7.94 mm) carriage bolts spaced no greater than 12 inches (304.8mm) on center. Chain link fabric be stretched taut free of sag. Fabric be secured to the line post with tie wires spaced no greater than 12 inches (304.8 mm) on center and to rail spaced no greater than 18 inches (457.2 mm) on center. Secure fabric to the tension wire with hog rings spaced no greater than 18 inches (457.2 mm) apart		installed outside of the framework. Fabric to be attached to the terminal post by threading the tension bar through the fabric; securing the tension bar to the terminal post with tension bands and 5/16 in. (7.94 mm) carriage bolts spaced no greater than 12 inches (304.8mm) on center. Chain link fabric be stretched taut free of sag. Fabric be secured to the line post with tie wires spaced no greater than 12 inches (304.8 mm) on center and to rail spaced no greater than 18 inches (457.2 mm) on center. Secure fabric to the tension wire with hog rings spaced no	Complete chain link installation • Chain link fabric installed without problems/errors						

				greater than 18 inches (457.2 mm) apart							
03	Installation of barbed wire	Barbed wire installation ***Barbed Wire***: Stretched taut between terminal posts and secured in the slots provided on the line post barb arms. Each strand of barbed wire attached to the terminal post using a brace band.		***Barbed Wire***: Stretched taut between terminal posts and secured in the slots provided on the line post barb arms. Each strand of barbed wire attached to the terminal post using a brace band.	Complete barbed wire installation • Barbed wire installed without problems/errors						
04	Installation of x3 swing gates (x2 single and x1 double for vehicles)	Gate installation ***Swing Gates:*** Installation of swing gates and gateposts in compliance with ASTM F567. Direction of swing shall be inward. Gates shall be plumb in the closed position having a bottom clearance of 3 in. (76 mm) grade permitting. Hinge and latch offset opening space from the gate frame to the post shall be no greater than 3 in. (76 mm) in the closed position. Double gate drop bar receivers shall be		***Swing Gates:*** Installation of swing gates and gateposts in compliance with ASTM F567. Direction of swing shall be inward. Gates shall be plumb in the closed position having a bottom clearance of 3 in. (76 mm) grade permitting. Hinge and latch offset opening space from the gate frame to the post shall be no greater than 3 in. (76 mm) in the closed position. Double	Complete gate installation • Gates installed without problems/errors						

		set in a concrete footing minimum 6 in. (152 mm) diameter 24 in. (609.6 mm) deep. Gate leaf holdbacks shall be installed for the double gates (vehicle entry)		gate drop bar receivers shall be set in a concrete footing minimum 6 in. (152 mm) diameter 24 in. (609.6 mm) deep. Gate leaf holdbacks shall be installed for the double gates (vehicle entry)							
05	Installation of barbed wire	Barbed tape installation ***Barbed Tape***: Barbed tape shall installed in accordance with ASTM F1911, installation of barbed tape.		***Barbed Tape***: Barbed tape shall installed in accordance with ASTM F1911, installation of barbed tape.	Complete barbed tape installation • Barbed tape installation without problems/errors						
06	Installation of electric floodlight security camera	**Electric Floodlight Security Camera.** Installation of Feit Electric Smart Floodlight Security Camera every 50 meters. Description: 1080P HD Video, 270 Degree Field of View, Movement Detection up to 32 Feet, Two-way Audio and Ultra Bright 3000 Lumens		Installation of Feit Electric Smart Floodlight Security Camera every 50 meters. Description: 1080P HD Video, 270 Degree Field of View, Movement Detection up to 32 Feet, Two-way Audio and Ultra Bright 3000 Lumens	Complete floodlight security camera Floodlight security camera installation without problems/errors						

8.15. Project Communications Plan

ID	Task Mode	Task Name	Duration	Start	Finish	Predec
1		**Project Communications Plan**	55 days	Mon 11/15/21	Fri 1/28/22	
2		**Meetings**	55 days	Mon 11/15	Fri 1/28/2	
3		Project Team Briefs	55 days	Mon 11/15/21	Fri 1/28/22	
4		Project Board Meeting 1	1 day	Mon 11/22/21	Mon 11/22/21	
5		Project Board Meeting 2	1 day	Mon 11/29/21	Mon 11/29/21	4
6		Weekly Review Meeting 1	1 day	Mon 12/6/21	Mon 12/6/21	
7		Weekly Review Meeting 2	1 day	Mon 12/13/21	Mon 12/13/21	6
8		Weekly Review Meeting 3	1 day	Mon 12/20/21	Mon 12/20/21	7
9		Weekly Review Meeting 4	1 day	Mon 12/27/21	Mon 12/27/21	8
10		Weekly Review Meeting 5	1 day	Mon 1/3/22	Mon 1/3/22	9
11		Weekly Review Meeting 6	1 day	Mon 1/10/22	Mon 1/10/22	10
12		Weekly Review Meeting 7	1 day	Mon 1/17/22	Mon 1/17/22	11
13		Weekly Review Meeting 8	1 day	Mon 1/24/22	Mon 1/24/22	12

Project: Project Communication
Date: Thu 9/2/21

Task
Split
Milestone
Summary
Project Summary
Inactive Task
Inactive Milestone
Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Progress
Manual Progress

Page 1

8.16. Communications Register

Communications Register

Project Name: *Madang Christian Academy Perimeter Fence*

Project Manager: *Chris Gundu*

Summary							Description			
ID	Status	Date Approved	Approved By	Date Sent	Send By	Send To	Type	Message	File Location	Feedback

8.17. Status Flash Report

Status Flash Report

Project Status for the Week No _____

Project Details

Project:
Project Sponsor:
Project Manager:
Start Date:
Completion Date:

Project Description

Accomplishments

Schedule Status

Upcoming Tasks

Issues

Contact Name:		**Number:**		**Email:**	

8.18. Risk Register

Risk Register

Project:
Project Sponsor:
Project Manager:
Start Date:
Expected Completion Date:

Date risk register created:		**Last Update:**		**Version:**	

Risk Identification Number		Risk Author		Risk Actionee	
Date Registered		Risk Owner		Risk Status	
Risk Description			Risk Category		
Risk Response Category			Risk Response		

Probability		Impact		Expected Value	
Pre Response	Post Response	Pre Response	Post Response	Pre Response	Post Response

8.19. Risk Form

Risk Form

PROJECT DETAILS	
Project Name: Project Manager:	
RISK DETAILS	
Risk ID: Raised By: Date Raised:	
Risk Description:	
Risk Likelihood:	Risk Impact:
RISK MITIGATION	
Recommended Preventative Actions: Recommended Contingent Actions:	
APPROVAL DETAILS	
Supporting Documentation:	
Signature: **Date:**_____ ___/___/____ PLEASE FORWARD THIS FORM TO THE PROJECT MANAGER	

8.20. Procurement Register

PROCUREMENT REGISTER

Project Name: _____
Project Manager: _____
Procurement Manager: _____

Product							Supplier			Order				Payment		
PO #	*Item Title*	*Item Description*	*Quantity*	*Unit Price*	*Total Price*	*Required by Date*	*Company*	*Contact Name*	*Contact No.*	*PO Status*	*PO Date*	*Delivery Status*	*Delivery Date*	*Payment Method*	*Payment Status*	*Payment Date*

8.21. Timesheet Form

TIMESHEET FORM

Project Name: Madang Christian Academy Perimeter Fencing Project

Project Manager: Chris Gundu

Staff Member:

Date	Day	Activity	Task	Start Time	End Time	Duration	Start % Complete	End % Complete	Outcome
	Mon								
	Tue								
	Wed								
	Thu								
	Fri								
	Sat								
	Sun								

APPROVAL DETAILS			
Submitted by		**Approved by**	
Name:		**Name:**	
Signature:	**Date:**	**Signature:**	**Date:**
_____	___/___/____	_____	___/___/____
PLEASE FORWARD THIS FORM TO THE PROJECT MANAGER FOR APPROVAL			

8.22. Purchase Order Form

Purchase Order Form

PURCHASE DETAILS

Purchase Order #:

Purchase Order Date:

Required By Date:

DELIVERY DETAILS

From:	To:
Deliver To:	Bill To:

ORDER DETAILS

Item	Description©	Quantity	Unit Price	Total Price
			Subtotal:	
			Other:	
			Total:	

PAYMENT DETAILS

Payment Method:

Credit Card Details:

Card Type: Card Number:

Expiry Date: Name on card:

TERMS AND CONDITIONS