UNIVERSIDAD PARA LA COOPERACION INTERNACIONAL
(UCI)

PROJECT MANAGEMENT PLAN FOR THE CONSTRUCTION OF A DIAGNOSTIC & HEALTHCARE FACILITY IN ELEUTHERA, BAHAMAS

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FINAL GRADUATION PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
MASTER IN PROJECT MANAGEMENT (MPM) DEGREE

Nassau, Bahamas

November 2019

UNIVERSIDAD PARA LA COOPERACION INTERNACIONAL
(UCI)

This Final Graduation Project was approved by the University as partial fulfillment of the requirements to opt for the Master in Project Management (MPM) Degree

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DEDICATION

I dedicate this project to my family, as they always inspire me to be better.

I dedicate this project to those that have believed in me and gave me hope, regardless of all circumstances and regardless of all the unforeseen obstacles.

I dedicate this project to those that gave me the encouragement to keep on going, when I felt like giving up and the road seemed ‘oh so long’.

I dedicate this project to all those that helped me along the way because I know I could not have done this alone.

I dedicate this project to those that made this journey one that I will never forget, as it will never be forgotten.

I dedicate this project to those who would not allow me to falter and remind me of one of my favorite quotes that “the race is not to the swift or strong, but to those who endure to the end.”

ACKNOWLEDGMENTS

To everyone that has in some way helped me, no matter how small, I appreciate you and I am forever thankful. I appreciate my family for their patience and their undeniable love and gratitude.

Special thanks to those that sacrificed many hours to provide the information needed to complete this thesis. Special thanks to those that invested in me, so that I may advance in the Project Management field. I want to say thanks to my professors and tutors, specifically Carlos Vega, the academic assistants, the reviewers James Perez and Luis Diego, the linguist Davia Cooper-Smith, and my classmates; as without you, I would not be where I am today.

To my husband, that has assisted me in so many ways; I am so appreciative.

To my savior and God; he is the one that gives me the strength and it is through him, I am able to accomplish all of my goals and dreams.

Thank you!

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ABBREVIATIONS AND ACRONYMS

EDHF - Eleuthera Diagnostic & Healthcare Facility
EML - Estimated Maximum Loss
FFP - Firm Fixed Price Contracts
FGP - Final Graduation Project
GC - General Contractor
GDCC - Geometric Design Construction Company
HR - Human Resources
NIB - National Insurance Board
OSHA - Occupational Safety and Health Administration
PBS - Product Breakdown Structure
PM - Project Manager
PMH - Princess Margaret Hospital
PMBOK - Project Management Body of Knowledge Guide
RACI - Responsible, accountable, consulted and informed
RFP - Request for Proposal Form
SMS - Seashore Management Services
SOW - Statement of Work
UCI - Universidad para la Cooperacion Internacional
VAT - Valued Added Tax
WBS - Work Breakdown Structure

EXECUTIVE SUMMARY (ABSTRACT)

The island of Eleuthera has for many years requested a hospital. The Bahamas government heeded to the cries of the Bahamian people. They decided to provide the island with a state of the art mini hospital. The mini hospital will be called the Eleuthera Diagnostic & Healthcare Facility (EDHF). The hospital will assist with the much needed healthcare on the island. The project will last approximately elven months. It will be a 50,000 square feet building and financed by the National Insurance Board (NIB) of the Bahamas.

The Bahamas Government has sought out a consultant and management company, which is Seashore Management Services (SMS). SMS is a company that has been around for over thirteen years and they have managed similar projects successfully. SMS has hired a construction company, which is Geometric Design and Construction Company (GDCC). GDCC has been an avid competitor in the construction field of commercial, residential and government housing projects and developments. It is a small based company whose main office is situated in Nassau, Bahamas.

In the past projects of a similar magnitude has encountered issues, such as ample or adequate management. Previous projects would have run into major time delays and would have had issues with meeting all the projects requirements; and as a result, they would have suffered from cost overruns. There were also issues with tracking similar projects, as there were not adequate information or methodologies that could have assisted with the proposed project.

The Final Graduation Project's general objective is to create a project management plan for the construction of the Eleuthera Diagnostic & Healthcare Facility (EDHC) project. The specific objectives were: to create the project charter for the project and assist with providing a viable project management plan; to develop a project scope management plan that assists with allocating all work required to successfully complete the project; to create a time management plan that will ensure that the project schedule is completed and the management of time objectives; to create a project cost management plan that will manage the budget and ensure that the project stays within budget; to create a project human resource management plan that identifies how resources will be acquired and managed; to develop a project risk management plan to foresee, identify risks and reduce the impact of negative risk impact but also identify and exploit any positive risks on the project; to create a project procurement management plan that will assist in attaining products and services that will be used by the project; to create a project communications management plan that will assist with providing actual communication with vital information during the project; and develop a project

stakeholder management plan that will develop key strategies that will engage stakeholders during the lifecycle of the project.

The research methodologies that were used for this study were primary and secondary information. The primary sources used were interviews, internet communications via emails, journals, articles and websites. The secondary sources used for this study were textbooks, blogs, journals, articles and websites. The methodology used for this research were based on assessments using the analytical and interview research methods. These methods were selected and used and analyzed to develop the Project Management Plan for the Healthcare Facility.

It is concluded that all of the areas will work together to support the Project Management Plan. The areas that were discussed were the Project Integration Management, Project Scope Management, Project Time Management, Project Cost Management, Project Quality Management, Project Human Resources Management, Project Communication Management, Project Risk Management, Project Procurement Management, and Project Stakeholder Management. The information concluded for each area was vital in providing the strongest Project Management Plan possible.

There were recommendations derived to provide a more viable Project Management Plan. One of the recommendations was that Seashore Management Services (SMS) should use the Project Management Plan as a tool. Other recommendations were that SMS should assess each category in the plan, ensure that the stakeholders matrix is used effectively and a risk management tool should be looked into as a potential investment. Also, it was suggested that persons are hired with the correct skillsets to have a successful outcome and a successful project. Lastly, it was suggested that SMS use the Project Management Plan created as a potential and practical framework for any future projects.

1. INTRODUCTION

Background

The island of Eleuthera is a small archipelagic state in the Commonwealth of the Bahamas. It was founded in 1648 and the meaning of Eleuthera is “free” or “freedom”. The population of Eleuthera is estimated to be around 11,000. There are many tourists that visit the island of Eleuthera on a daily basis. The island does not have a hospital; therefore, any severe emergencies can result in the islanders or visitors taking a plane into the capital, which is called Nassau. Nassau houses the nearest hospital to Eleuthera namely the Princess Margret Hospital or Doctors hospital.

Seashore Management Services (SMS) is the company that was hired as the project management team. They are to create a project management team for the construction of 50,000 square feet building, which will house a mini Diagnostic & HealthCare Facility in Eleuthera. The building will be called the Eleuthera Diagnostic & HealthCare Facility (EDHF) and the duration of the project is scheduled for eleven months. EDHF will be a “state of the art” modernized building with all the amenities of a hospital. The hospital will be fully solarized and the budget is estimated at twelve (12) million dollars. The project was requested by the Government but the project will be governed and paid through the National Insurance Board. SMS has hired a construction company called Geometric Design Construction Company. GDCC has had experience with commercial and residential projects.

SMS will take on the responsibility of ensuring that all aspects of the project is completed from the start to the completion. The project management plan will be developed as a blueprint to assist with the proper planning of the specified project.

Statement of the problem

The government of the Bahamas has taken on a number of projects over the years. The problem is that government projects of a similar magnitude has not been managed properly. Some of the previous projects were not meeting deadlines and completing within the specified budget. Missing deadlines has cost the government millions of dollars. Due to the project being government owned, many persons have expected kickbacks and favors. Subcontractors would be used but there has not been any clear expectation. Subcontractors were never held accountable or would sign agreements being held liable for the work produced. Auditors had no way of properly tracking the funds on previous projects. There have been some projects where contractors would have left the work incomplete and the government would have to hire someone else at their expense.

The previous projects were never tracked nor is there adequate information or any such methodologies to assist with the current project. The other Healthcare facilities have no such valid studies. Subsequently, SMS will use this study to provide the necessary tools required to substantiate the project management plan that will be used. It is the hope that the government would move use such plans moving forward with all of their future projects.

Purpose

The purpose of this Project Management Plan will be used by the Government as a set of good practices to plan, guide, monitor and control future projects and increase the project's probability of successfulness of the project. It is the aim that all the steps of the project will be monitored, documented and controlled. The main aim is that all future projects that the government initiates will be successful, it will meet all its criteria including scope, budget and time frames. This plan will seek to justify the reason why a project management plan is so pertinent and significant, especially as this project is so critical to the government and the citizens of Eleuthera. The importance of the project is

the hospital, which is meant to better the life of the people and seek to encourage visitors to visit the island knowing there is a proper healthcare facility.

The Project Management Plan is developed to plan, organize and control the project activities to ensure that the project is completed despite any risks. This plan defines the approach that Seashore Management Services will take to successfully implement project management procedures of monitoring and controlling the project deliverables for the construction of the Eleuthera Diagnostic & Healthcare Facility, which was required by the Government of the Bahamas.

General objective

To create a Project Management Plan for the construction of the Eleuthera Diagnostic & Healthcare Facility (EDHC) project.

Specific objectives

To create a Project Management Plan for a mini Eleuthera Diagnostic & Healthcare Facility Project. It will be a 50,000 square foot building that will be fianced by the Government of the Bahamas.

1. To create the project charter for the project and assist with providing a viable project mangement plan.
2. To develop a project scope management plan that assists with allocating all work required to successfully complete the project.
3. To create a time management plan that will ensure that the project schedule is completed and the management of time objectives.
4. To create a project cost management plan that will manage the budget and ensure that the project stays within budget.
5. To develop a project quality management plan that determines how quality will be achieved throughout the project.

6. To create a project human resource management plan that identifies how resources will be acquired and managed.
7. To develop a project risk management plan to foresee, identify risks and reduce any impact on the project and exploit positive risks.
8. To create a project procurement management plan that will assist in attaining products and services that will be used by the project.
9. To create a project communications management plan that will assist with providing actual communication with vital information during the project.
10. To develop a project stakeholder management plan that will develop key strategies that will engage stakeholders during the lifecycle of the project.

2. THEORETICAL FRAMEWORK

2.1 Company/Enterprise framework

2.1.1 Company/Enterprise background

Seashore Management Services (SMS) is a Bahamian company that would have been operational for over thirteen (13) years. Over the years, it has developed its expertise, which offers a variety of project management services, which includes commercial and residential construction services.

The team has decades of industry experience, which holds a remarkable cadre of experienced industry professionals. The team is diverse, which has allowed them to take on many projects from project management services. The talent that the team encompasses has allowed them to effectively overcome obstacles and deliver projects within budget and within the time constraints.

The company has made a name for itself due to the last successful project managed; therefore, the government requested that the team manage the construction of the Eleuthera Diagnostic & Healthcare Facility. The government needed a team that has the expertise required to ensure that a project as critical is successful.

2.1.2 Mission and vision statements

Vision Statement

Seashore Management Services is to be the leading project management organization that assists clients and communities by delivering extraordinary results and empowering people to deliver results.

Mission Statement

SMS mission is to deliver high-quality projects that will deliver sound management, while satisfying the customers and building a world that is transformed.

2.1.3 Organizational structure

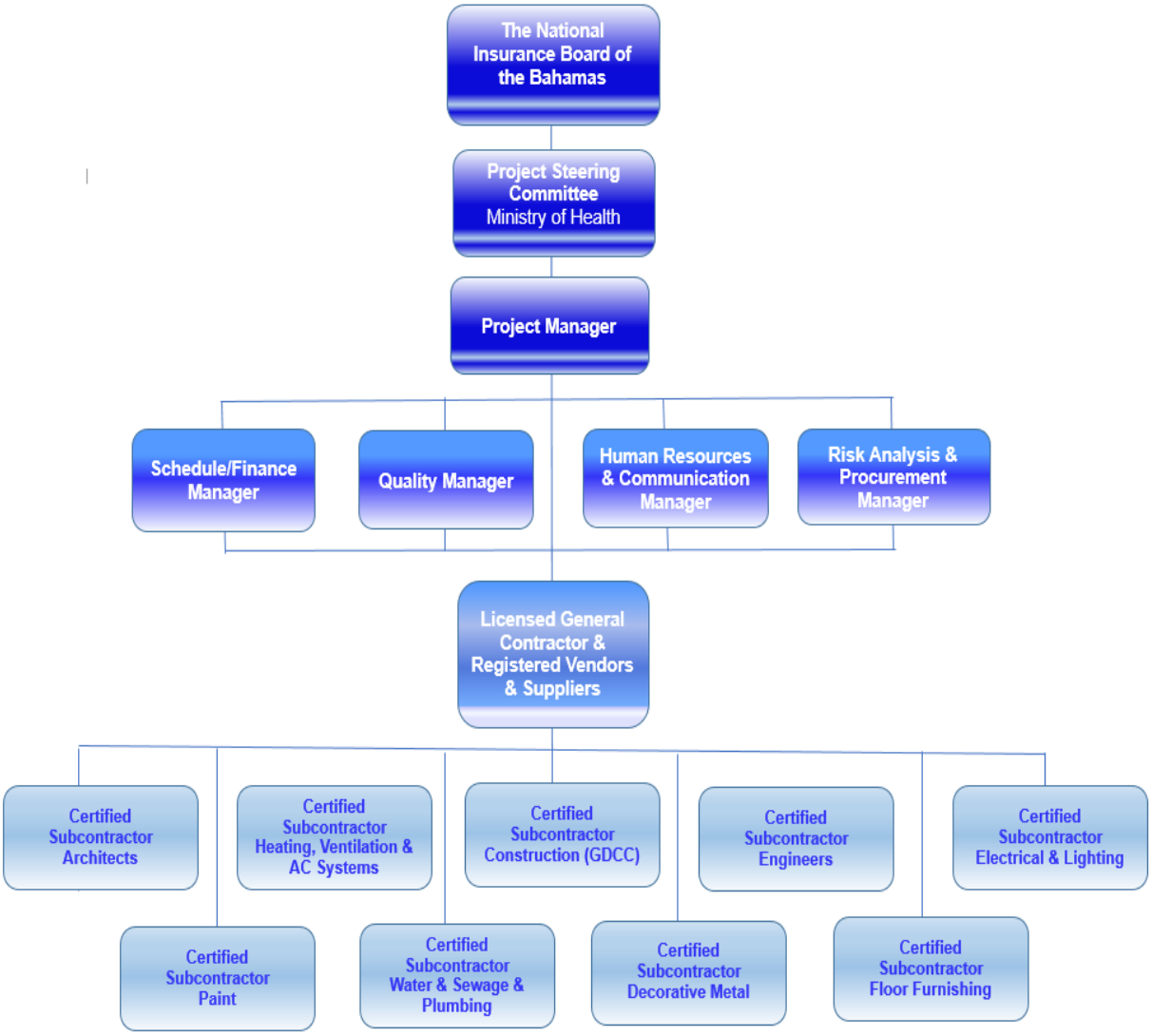


Figure 1: Organizational Structure of Seashore Management Services (Source D.J. Mackey, Project Manager, May 2019, compiled by author)

Above in *Figure* 1 is the organizational structure of Seashore Management Services. The project is led by the National Insurance Board of the Bahamas, as it is the main entity financing the project. A steering committee and the project manager are figures on the organizational structure that play pivotal roles. There are four main managers, which are schedule/finance, the quality, human resources and communication, and risk analysis and procurement manager. Also, there is a licensed general contractor (GC) and registered vendors and suppliers position that reports to the project manager. All of the other positions are mainly contracted; however, these are persons that would have been used during other projects and made readily available, upon request.

2.1.4 Products offered

Seashore Management Services (SMS) offers a few services. Some of the services offered are residential construction, commercial construction, design and consulting. Also, SMS offers other services such as project consultation, project implementation and project support services.

2.2 Project Management concepts

2.2.1 Project

A project according to the PMBOK guide, sixth edition is “a temporary endeavor undertaken to create a unique product, service or result” (*PMBOK Guide 6th edition*, 2017, p. 4). The article *Project Definition: Establishing Scope, Vision and Work Effort* states that “a project is defined as actionable terms designed to make execution possible and to facilitate informed actions and decision making.” The article *Project Definition: Establishing Scope, Vision and Work Effort* also indicates that projects should incorporate the following elements: project vision, project scope, project deliverables, negotiated success criteria and tasks and activities.

For this study, a project is the Project Management Plan for the construction of the Eleuthera Diagnostic & Healthcare Facility.

2.2.2 Project management

As per the PMBOK Guide Sixth Edition, it defines project management as “the application of knowledge, skills, tools and techniques to project activities to meet the project requirements” (PMBOK Guide Sixth Edition, 2017, p. 10). The article IST Project Management Office states that “Project management (PM) is the application of processes, tools, templates, and techniques included in a PM methodology that progresses the project through a PM life cycle to successfully deliver a change. The change is in the form of an end deliverable, which could be a product or service”. It is important that all activities are properly and meticulously managed. According to the article *Project Management Life Cycle – Everything You Need to Know*, “Project Management is an extensive network of tasks and activities that need continuous monitoring and management.”

During the Project Management Life phases, which is Initiation, Planning, Execution, Monitoring and Closing stages (as seen below in *Figure 2*), the Project Management Plan will be properly developed and discussed for the purpose of the study; whose aim is to overcome all objectives such as budget, scope, time and quality limitations.

2.2.3 Project life cycle

According to PMBOK, Sixth Edition, the project life cycle is a series of phases that a project passes through from its start to its completion, which provides the basic framework for managing the project (PMBOK Guide Sixth Edition, 2017, p. 19). There are five phases of the project life cycle, which are: Initiation, Planning, Execution, Monitoring and Closing (as seen in *Figure 2*). Each phase is critical and vital as they all play a vital part to the entire project.

The initiation phase of the project is where the objectives are defined and the role and responsibilities begin (as seen in *Figure 3*). This is the phase where we will brainstorm, identify any problems or any objectives and determine any deliverables that will need to

be delivered for the project. The planning phase is after the project has been approved, which then moves into the design and development stage (as seen in *Figure 2* and *Figure 3*). This is where you create goals and determine if they are achievable within the time set in order to get a successful project.

According to PMBOK, “the planning phase, the deliverable or service is tested to meet the stakeholders’ expectations to meet the goals of the product’s performance or reliability” (PMBOK, 2013, p. 285). This phase is important as during this study, it is where the team is bought together, so that they can get to work for the next phase. The execution phase will commence once the project plan is approved from the Project Sponsor. Once you receive approval, you would have developed your plan and met with your team and you are now ready to put in your actual work. This phase is where the work is deployed (as seen in *Figure 3*) and performance is continuously measured and monitored. The project management life cycle is to organize resources, manage timelines and ensure that the work is completed, as per the plan.

Watt, 2014 states that, “during the project implementation (execution) phase, people are carrying out the tasks and progress information is being reported through team meetings and the project manager uses this information to maintain control over the direction of the project; determining if any correction action is needed”. The closing phase is the phase when the work has been completed. This is when the final deliverables and the success of the project is determined. The final step and during the study is when the project’s and the team performance is analyzed (as seen in *Figure 2*). According to Watt 2014, “the closing phase is to conduct lessons learned studies to examine what went well and what did not go so well to transfer this analysis back to the project organization to help any future project teams”.

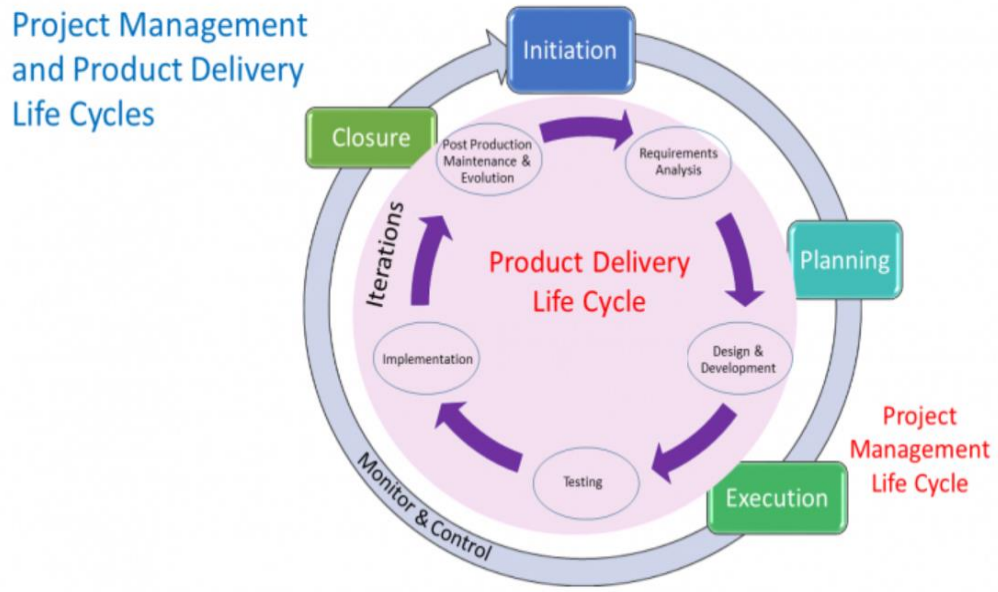


Figure 1: Source retrieved from University of Waterloo website

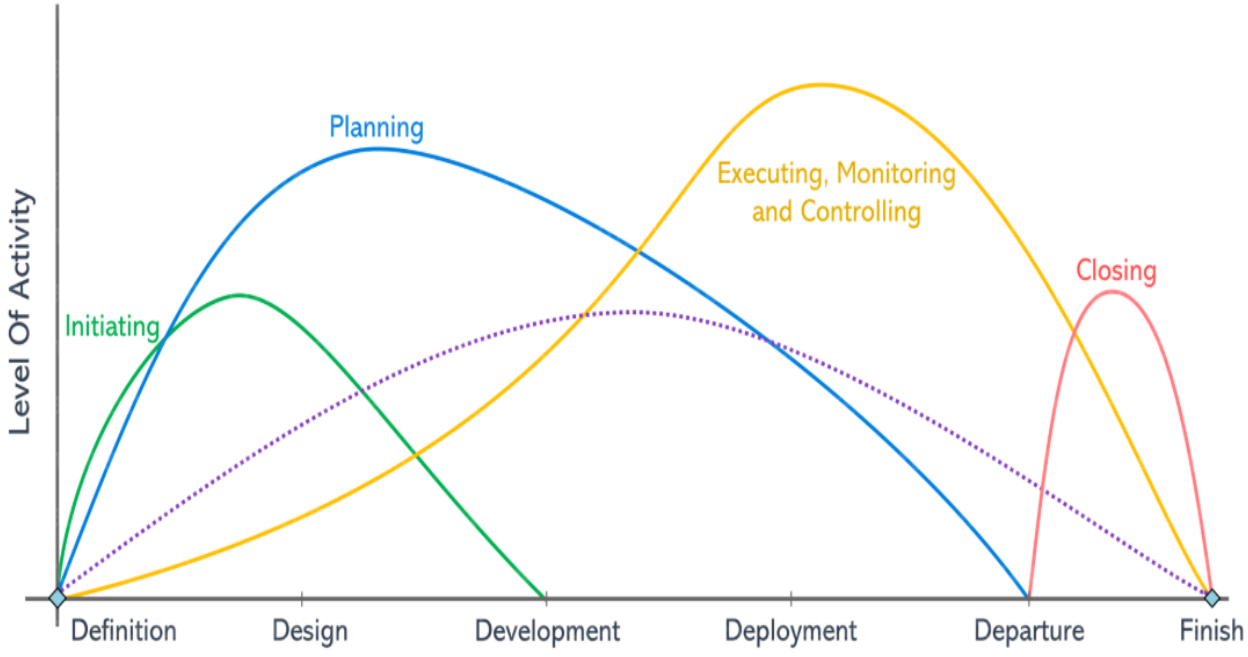


Figure 3: Source retrieved from Edureka website – Project Management Life Cycle – Everything You Need to Know

2.2.4 Project management processes

According to PMBOK Guide Sixth Edition, the project management processes have five (5) process groups and ten (10) knowledge areas. Seashore Management Services (SMS) will use the initiation and planning stages for the construction of the Eleuthera Diagnostic & Healthcare Facility (EDHF).

2.2.5 Project management knowledge areas

PMBOK Sixth Edition mentions ten (10) areas, which can be seen below in Figure 4 and 5. The ten (10) areas are:

- Project Integration Management
- Project Scope Management
- Project Time Management
- Project Cost Management
- Project Quality Management
- Project Human Resources Management
- Project Communication Management
- Project Risk Management
- Project Procurement Management
- Project Stakeholder Management

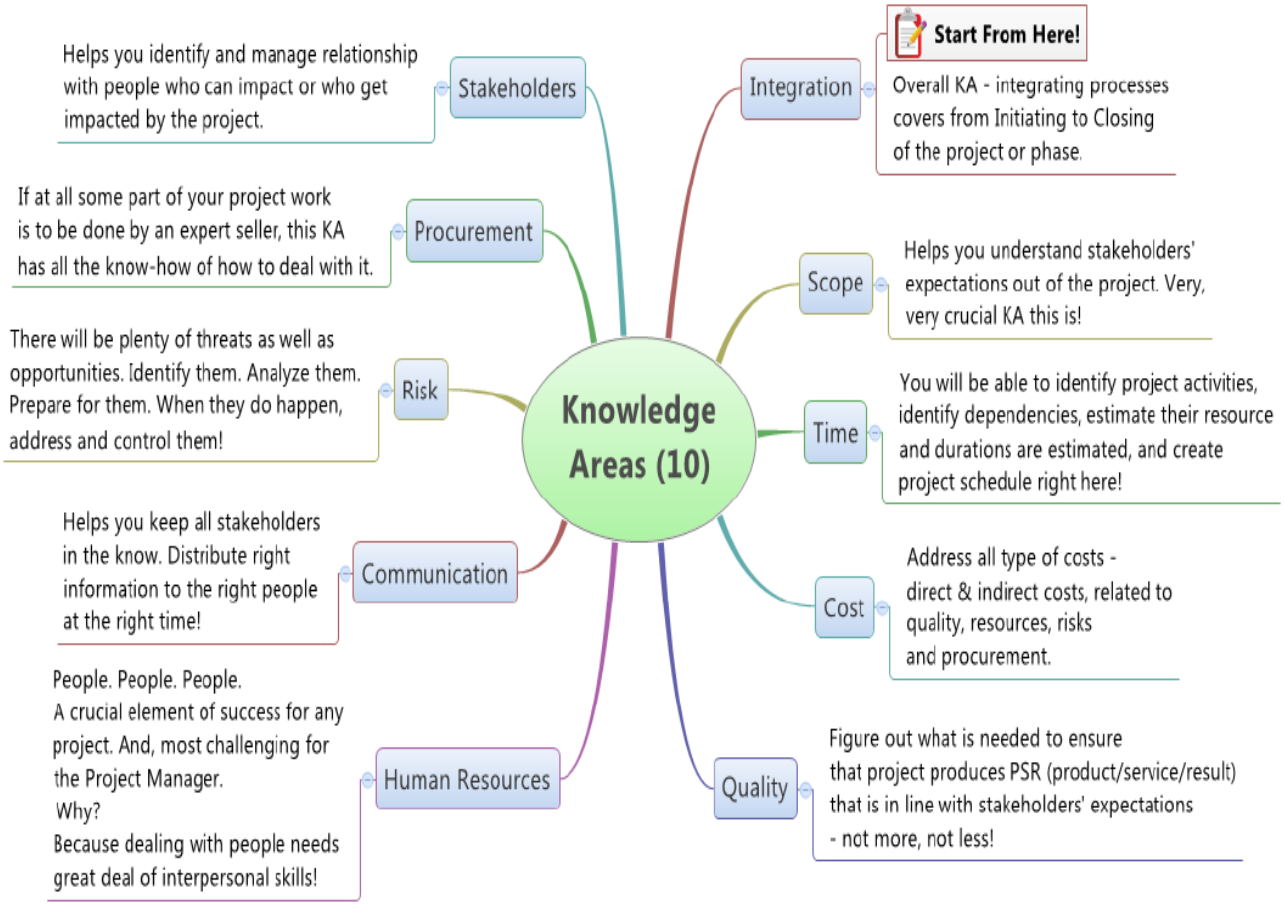


Figure 4: 10 Knowledge Areas (Source PMBOK Guide Fifth Edition, 2013)

Figure 5: 10 Knowledge Areas (Source PMBOK Guide Fifth Edition, 2013)

The FGP will concentrate on the following knowledge areas:

2.2.6 Project Scope Management

According to PMBOK Guide Sixth Edition, the Scope Management Plan describes how the scope of the work will be defined, developed, monitored, controlled and validated throughout the project (PMBOK Guide Sixth Edition, 2017, p. 722). This area encompasses all the work required to make the FGP successful.

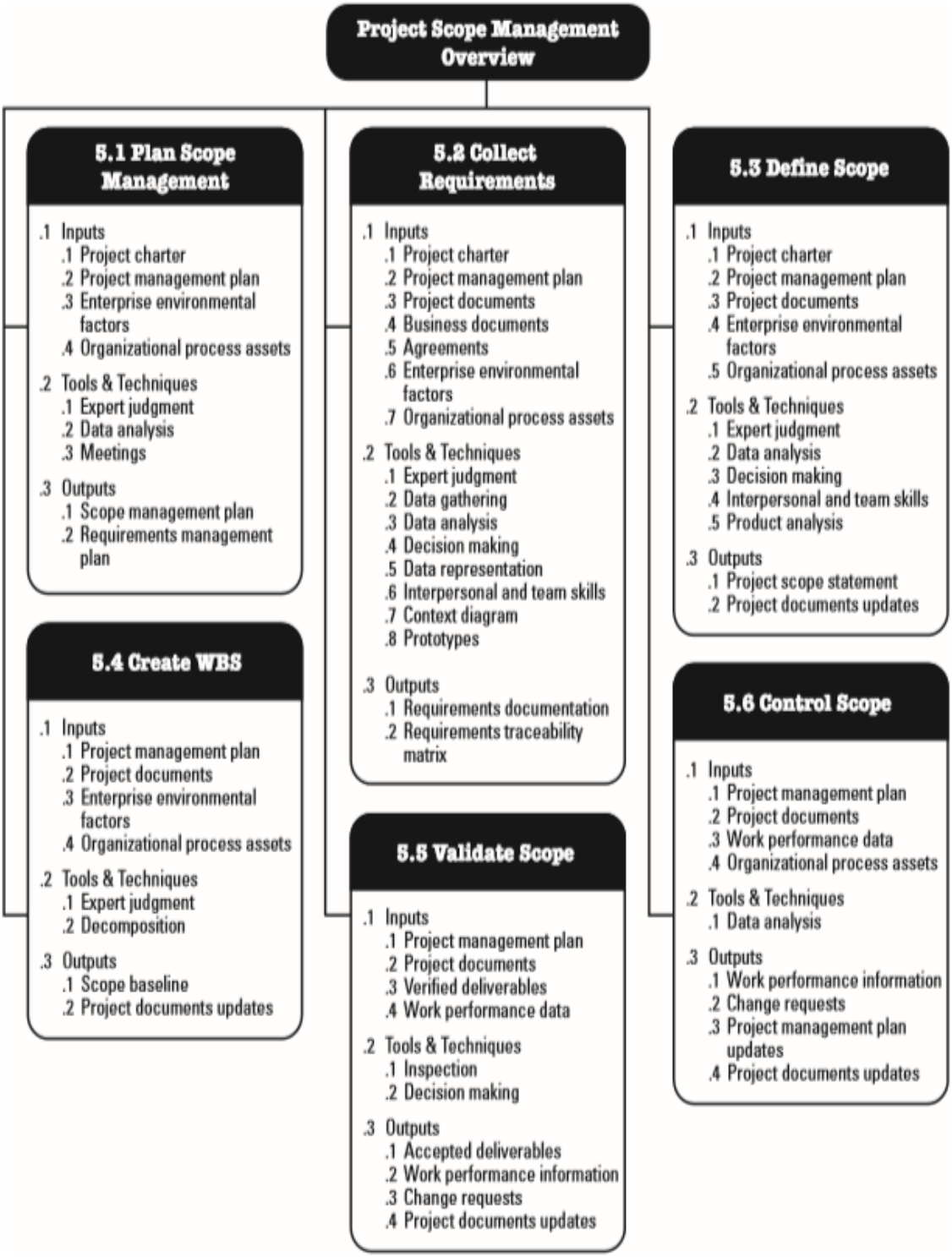


Figure 6: Project Scope Management (Source PMBOK Guide Sixth Edition (page 130), Project Management Institute, 2017)

2.2.7 Time Management Plan

This is the ability to complete the project within the time constraints. SMS will update the project schedule to reflect the construction progress and determine all durations of the project.

2.2.8 Cost Management Plan

This is having the ability to manage costs, which can make or break a project. It is important that project managers focus on the three main items: estimate costs, determine budget and control costs, which can assist with effectively managing Project Cost Management. SMS will assist with the allocation and budgeting of the Eleuthera Diagnostic & Healthcare, which is set to $12 million dollars.

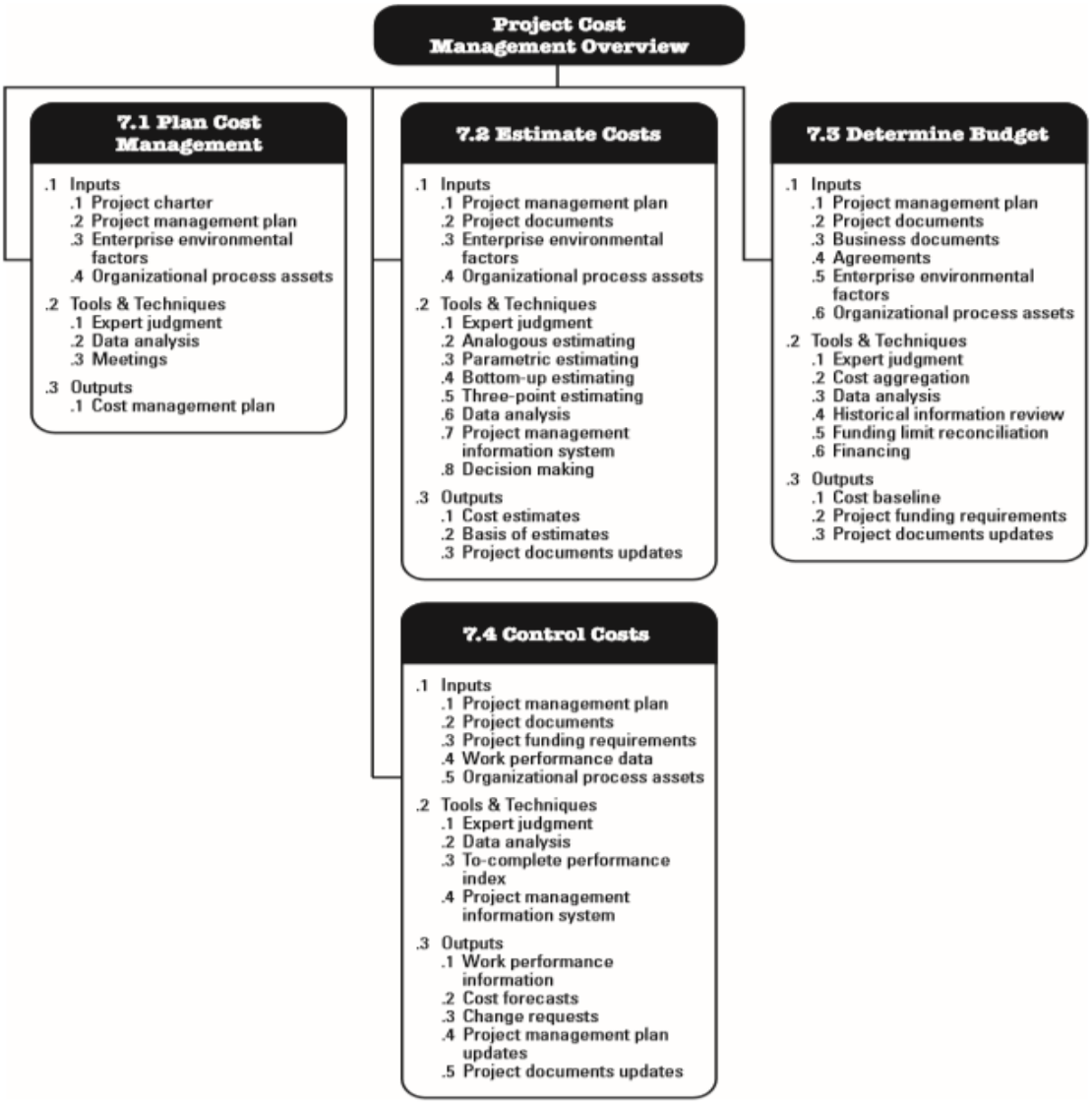


Figure 7: Project Cost Management Overview (Source PMBOK Guide Sixth Edition (page 232), Project Management Institute, 2017)

2.2.9 Quality Management Plan

The Quality Management Plan establishes how an organization's quality policies, methodologies, and standards will be implemented in the project (PMBOK Guide Sixth Edition, 2017, p. 718). SMS will ensure that subcontractors is compliant with the

Bahamas Building code during the project. Also, a quality management tool will be used to assist with delivering a high-quality project.

2.2.10 Project Human Resource Management Plan

Project Human Resources Management Plan is a set of processes and activities involved with the organization and the management of people, which includes the project teams. During this plan, SMS will include successfully assigned tasks and effectively identifying appropriate skilled persons, which focuses on individual strengths and weaknesses.

2.2.11 Project Risk Management Plan

According to PMBOK, “Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, response implementation and monitoring risk on a project (PMBOK Guide Sixth Edition, 2017, p. 87).”

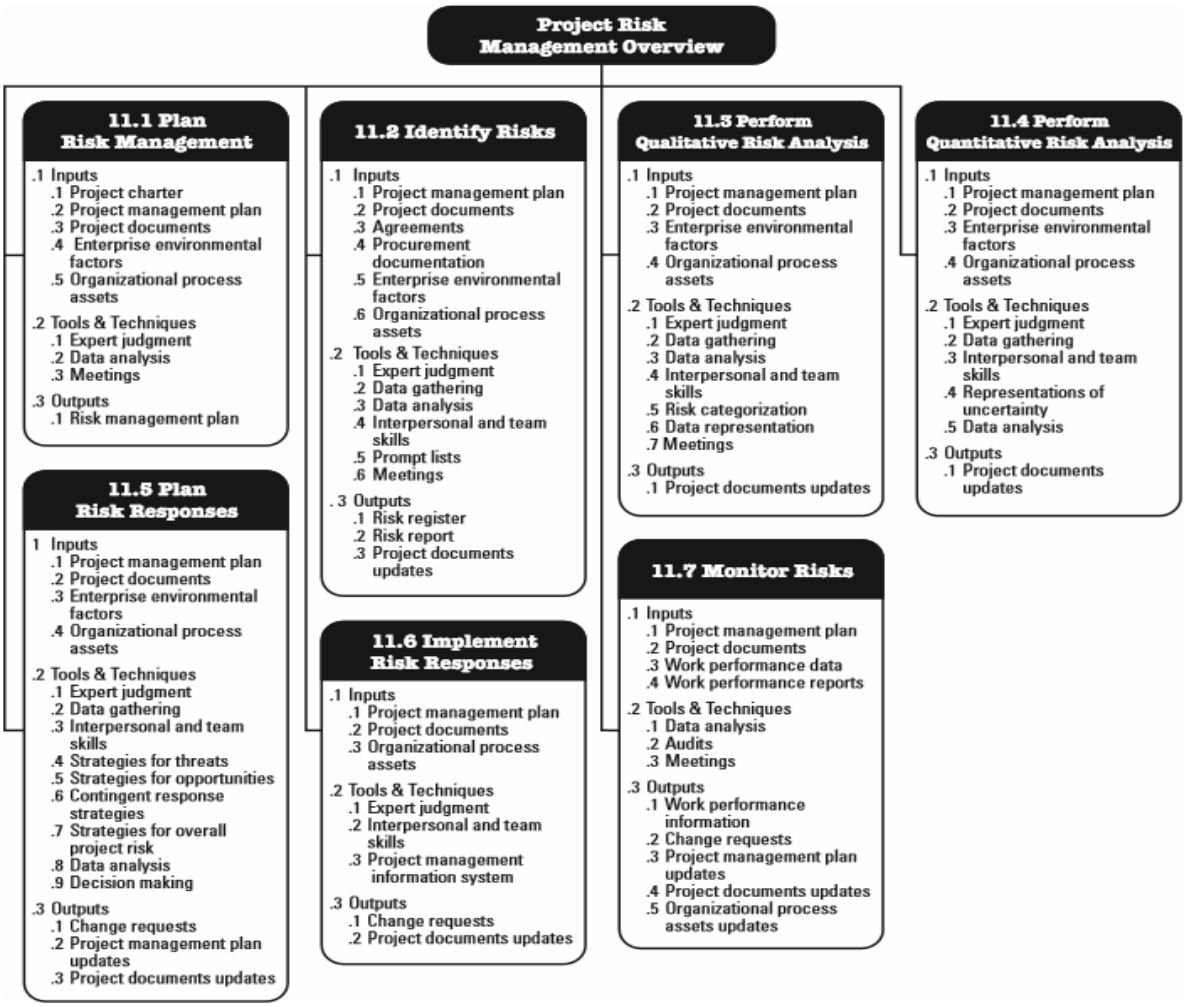


Figure 8: Project Risk Management Overview (Source PMBOK Guide Sixth Edition (page 396), Project Management Institute, 2017)

2.2.12 Project Procurement Management Plan

The Project Procurement Management knowledge area relates to purchase and the acquiring of products and services. Seashore Management Services will ensure that vendors and all processes and strategies surrounding acquiring goods will be properly managed.

3. METHODOLOGICAL FRAMEWORK

3.1 Information sources

An information source is the place where information is attained. According to LIS Library & Information Science Academic blog (2018), “an information source is a source of information for somebody, in other words, anything that informs a person or provide knowledge to someone”.

Sources can be gained from various sources. Some of the sources can be books, surveys, dictionaries, encyclopedias, newspaper, magazines, academic journals or interviews. The article *Three Types of Resources* indicates that “there are three types of sources, which are primary, secondary and tertiary sources”.

For this project, a variety of sources will be used such as the PMBOK guide, websites, books, articles, journals and interviews.

3.1.1 Primary sources

One of the categories of information is a primary source. Primary source of information are materials that provide information from a person, object or event. Primary sources are more difficult to find information compared to secondary sources.

The primary source that will be used during this study will be interviews, internet communications via emails, journals, articles and websites.

3.1.2 Secondary sources

Another category of information is secondary sources. The article Sources of Information indicates that “secondary sources of information are those which are

compiled from information whose information is arranged or organized on the basis of a definite plan."

The secondary sources that will be used to develop the Final Graduation Project will be textbooks, blogs, journals, articles and websites, which will be seen in *chart 1*.

Chart 1 Information sources (Source: compiled by author)

Objectives	**Information sources**	
	Primary	**Secondary**
1. To create the project charter for the project and assist with providing a viable project mangement plan.	Interview with project manager, interview with other stakeholders and websites.	Books, articles, the internet and journals.
2. To develop a project scope management plan that assists with allocating all work required to successfully complete the project.	Interview with project manager, interview with other stakeholders, internet communications via email and websites.	Books, articles, the internet and journals.
3. To create a time management plan that will ensure that the project schedule is completed and the management of time objectives.	Interview with project manager and communications via email.	Books, articles, the internet and journals.
4. To create a project cost management plan that will manage the budget and ensure that the project stays	Interview with project manager and internet communications via email.	Books, articles, the internet and journals.

within budget.		
5. To develop a project quality management plan that determines how quality will be achieved throughout the project.	Interview with project manager, interview with other stakeholders, internet communications via email and websites.	Books, articles, the internet and journals.
6. To create a project human resource management plan that identifies how resources will be acquired and managed.	Interview with project manager, interview with other stakeholders, internet communications via email and websites.	Books, articles, the internet and journals.
7. To develop a project risk management plan to foresee, identify risks and reduce any impact on the project.	Interview with project manager, interview with other stakeholders, internet communications via email and websites.	Books, articles, the internet and journals.
8. To create a project procurement management plan that will assist in attaining products and services that will be used by the project.	Interview with project manager, interview with other stakeholders, internet communications via email and websites.	Books, articles, the internet and journals.
9. To create a project communications management plan that will assist with providing actual communication with vital information during the project.	Interview with project manager, interview with other stakeholders, internet communications via email and websites.	Books, articles, the internet and journals.

10. To develop a project stakeholder management plan that will develop key strategies that will engage stakeholders during the lifecycle of the project.	Interview with project manager, interview with other stakeholders, internet communications via email and websites.	Books, articles, the internet and journals.

3.2 Research methods

Research is an activity that involves an academic interpretation of finding out things you did not know. The article Research Methods: What are research methods: states that research methods are techniques used to do research, which provide you with ways to collect, sort and analyze information. This allows one to make conclusions based on the information provided.

The methods used during this FGP project are the analytical research method and the interview research method.

3.2.1 Analytical method

According to the article *What is Analytical Research*, “analytical research is a type of research involving critical thinking skills and the evaluation of facts and information in regards to the research. Normally, analytical research is used to find the most pertinent information. The most critical details found from the research will be used for the information gathered”.

3.2.2 Interview method

According to the article Interviewing, it indicates that an interview is used for gathering information. A research interview involves an interviewer that coordinates the process of the conversation and asks questions and the interviewee responds to those questions. Interviews are an applicable method when there is a need to collect inclusive information on experiences, opinions, feelings and thoughts.

The research methods used for the study of the FGP are the analytical research method and the interview research method, which will be seen below in *chart 2*.

Chart 2 Research methods (Source: compiled by author)

Objectives	**Research methods**	
	Analytical Research	Interview Research
1. To create the project charter for the project and assist with providing a viable project mangement plan.	The analytical research method was used to analyze all of the information from the stakeholders to compile a feasible project charter.	The interview research method will be used to interrogate the stakeholders and used to gather information for the project charter.
2. To develop a scope management plan that assists with allocating all work required to successfully complete the project.	The analytical research method was used to evaluate all the information to provide a project scope management plan.	The interview research method was used to collect information from the stakeholders to complete the project scope management plan.
3. To create a time management plan that will ensure that the project schedule is completed and the management of time	The analytical research method will be used to assess the information from the stakeholders to	The interview research method was used to gather all the information from sources to produce

objectives.	produce a practical schedule for the project and complete the time management plan.	the schedule and complete a time management plan.
4. To create a cost management plan that will manage the budget and ensure that the project stays within budget.	The analytical research method was used to explore information provided by stakeholders to create a cost management plan for the project.	The interview research method was used to collect information from stakeholders to complete the cost management plan.
5. To develop a quality management plan that determines how quality will be achieved throughout the project.	The analytical research method was used to decide the information that can be sourced for the project quality management plan.	The interview research method was used to collect information from stakeholders to provide a relevant quality management plan.
6. To create a human resource management plan that identifies how resources will be acquired and managed.	The analytical research method was used to study the data required to complete the human resource management plan.	The interview research method was used to identify information assembled from stakeholders for the human resource management plan.
7. To develop a risk management plan to foresee, identify risks and reduce any impact on the project.	The analytical research method was used to explore the material collected surrounding risks for the risk management	The interview research method was used to collect information to provide a risk management plan for the

	plan.	project.
8. To create a procurement management plan that will assist in attaining products and services that will be used by the project.	The analytical research method was used to analyze information required for the procurement management plan	The interview research method was used to gather information to complete the procurement management plan.
9. To create a project communications management plan that will assist with providing actual communication with vital information during the project.	The analytical research method was used to evaluate methods of communications required for the communications management plan.	The interview research method was used to collect information from the stakeholders to complete the communications management plan.
10. To develop a project stakeholder management plan that will develop key strategies that will engage stakeholders during the lifecycle of the project.	The analytical research method was used to analyze all of the information to produce a feasible project stakeholder management plan.	The interview research method was used to gather all the information from sources to produce the stakeholders management plan.

3.3 Tools

Tools are any resource or information that can be used to enrich or develop a task. Tools can be customizable and used to fit the needs of teams which may be different sizes but with different goals in mind (Project Management Guide, 2019).

Some project management tools are:

- Dashboards

- Reports
- Gantt-charts
- Timesheets
- Work Breakdown Structure (WBS)
- Pert Chart

The tools used during this project will be listed below in *Chart 3*.

Chart 3 Tools (Source: PMBOK Guide Sixth Edition, 2017)

Objectives	Tools
1. To create the project charter for the project and assist with providing a viable project mangement plan.	Expert judgement, meetings and interviews.
2. To develop a project scope management plan that assists with allocating all work required to successfully complete the project.	Work breakdown structure, Expert judgement, meetings and interviews.
3. To create a time management plan that will ensure that the project schedule is completed and the management of time objectives.	Interviews, expert judgement, interviews and Gantt Chart (Microsoft Visio).
4. To create a project cost management plan that will manage the budget and ensure that the project stays within budget.	Expert judgement, meetings, interviews and Microsoft excel.
5. To develop a project quality management plan that determines how quality will be achieved throughout the project.	Expert judgement, meetings, interviews, and checklists.
6. To create a project human resource management plan that identifies how resources will be acquired and managed.	Expert judgement, meetings, interviews, organizational charts.
7. To develop a project risk management plan to foresee, identify risks and reduce any impact on the project.	Expert judgement, meetings, interviews and risk register.
8. To create a project procurement management plan that will assist in attaining products and services that will be used by the project.	Meetings, Interviews, procurements plan templates and Microsoft excel.
9. To create a project communications management plan that will assist with providing actual communication with vital	Meetings, Interviews, Communication management plans, Communication

information during the project.	requirement analysis and communication templates.
10. To develop a project stakeholder management plan that will develop key strategies that will engage stakeholders during the lifecycle of the project.	Meetings, interviews, stakeholder analysis register, stakeholder analysis template, stakeholder power/influence grid and Microsoft Excel.

3.4 Assumptions and constraints

According to PMBOK Sixth Edition (2017), “an assumption is a factor in the planning process that is considered to be true, real, or certain, without proof or demonstration" (PMBOK Guide, sixth edition, 2017, p. 699). PMBOK also defines constraints as, “as limiting factor that affects the execution of a project, program, portfolio or process (PMBOK Guide, sixth edition, 2017, p. 701).

The assumptions and constraints for the Final Graduation Project will be listed below in *Chart 4*.

Chart 2 Assumptions and constraints (Source: compiled by author)

Objectives	Assumptions	Constraints
1. To create the project charter for the project and assist with providing a viable project mangement plan.	All the information will be available to complete the project charter.	The project charter will be completed within the time constraints.
2. To develop a scope management plan that assists with allocating all work required to successfully complete the project.	-All the information will be available to complete the scope management plan. -All stakeholders will be willing to assist with the necessary information to complete the scope management plan.	-The ability to acquire all the applicable resources to get all the necessary information for the project.
3. To create a time management plan that will ensure that the project schedule is completed and the management of time objectives.	-All information will be available to complete the time management plan. -The time frame allotted for the PMP and the Healthcare building is adequate.	-Completing the FGP within the time allotted. - The project cannot exceed eleven (11) months.
4. To create a cost management plan that will manage the budget and ensure that the project stays within budget.	-All information will be available to complete the project cost management plan.	-Not having the required resources to complete the detailed budget. -The budget assigned for the Healthcare project cannot exceed $10 million dollars.

5. To develop a quality management plan that determines how quality will be achieved throughout the project.	-All information will be available to complete the project quality management plan. - All information will meet the quality standards required for the project.	- The quality plan for the building is up to code, withstanding hurricane conditions.
6. To create a human resource management plan that identifies how resources will be acquired and managed.	-All information will be available to complete the project human resource management plan.	-The amount of resources required for the project will not be enough to complete the project.
7. To develop a risk management plan to foresee, identify risks and reduce any impact on the project.	-All information will be available to complete the project risk management plan. - Most of the risks that will have an impact on the project will be identified.	- Risks may occur that was not planned for from the inception of the project.
8. To create a procurement management plan that will assist in attaining products and services that will be used by the project.	-All information and adequate suppliers will be available to complete the project procurement management plan. - All goods and services will be available on the island of Eleuthera.	-Local suppliers will not have goods and services required to complete the project. -Goods and services will have to be outsourced from another island. -Outsourcing goods and

		services may delay project.
9. To create a communications management plan that will assist with providing actual communication with vital information during the project.	-All information will be available to complete the communication management plan. -The ability to adequately communicate with the stakeholders.	- Technology and means of communication can be temporarily unavailable at times.
10. To develop a project stakeholder management plan that will develop key strategies that will engage stakeholders during the lifecycle of the project.	-All information will be available to complete the stakeholder management plan. -Stakeholders will be adequately identified for the project.	Stakeholders may lose buy-in for the project and not give their full support for project.

3.5 Deliverables

According to Roseke (2016), a project deliverable is “a product or service that a project produces for its customer, client or project sponsor. It is the product or service that the project delivers to its stakeholders. A deliverable can be tangible or intangible”.

The deliverables for the project will be seen below in *chart 5*.

Chart 5 Deliverables (Source: compiled by author)

Objectives	Deliverables
1. To create the project charter for the project and assist with providing a viable project mangement plan.	Project Charter
2. To develop a scope management plan that assists with allocating all work required to successfully complete the project.	Scope Management Plan
3. To create a time management plan that will ensure that the project schedule is completed and the management of time objectives.	Time Management Plan
4. To create a cost management plan that will manage the budget and ensure that the project stays within budget.	Cost Management Plan
5. To develop a quality management plan that determines how quality will be achieved throughout the project.	Quality Management Plan
6. To create a human resource management plan that identifies how resources will be acquired and managed.	Human Resource Management Plan

7. To develop a risk management plan to foresee, identify risks and reduce any impact on the project.	Risk Management Plan
8. To create a procurement management plan that will assist in attaining products and services that will be used by the project.	Procurement Management Plan
9. To create a communications management plan that will assist with providing actual communication with vital information during the project.	Communications Management Plan
10. To develop a stakeholder management plan that will develop key strategies that will engage stakeholders during the lifecycle of the project.	Stakeholder Management Plan

4. RESULTS

4.1 Project Integration Plan

This Project Management Plan is for the construction of a Diagnostic & Healthcare Facility in Eleuthera, Bahamas. Its purpose is to offer medical assistance for the persons living or visiting the island of Eleuthera. It will offer specific services that will offer a minimal amount of outpatient care. This center will be a much needed opportunity for the islanders to get the medical help needed.

To complete the first specific objective, a Project Charter, will be part of the project deliverables. This was the first process for the Project Integration Management knowledge area and includes the Project Charter, which will be seen in *Appendix 10*. The information for the Project Charter was retrieved mainly using meetings and interviews. The reference used would have been the PMBOK Guide, which would have been the main source of information.

The Project Charter (*as seen in Appendix 10*) is comprised of objectives, risks, the stakeholders, the project's purpose, overall budget, assumptions and constraints and milestones. The project charter can be developed by the sponsor or the project manager in collaboration and allows the project manager to have a better understanding of the project's purpose, objectives, and expected benefits (PMBOK, 2017, p. 77).

The picture below in *Figure 9*, depicts the Project Charter inputs, tools and techniques and outputs, which was required for this study and used to compile the Project Charter.

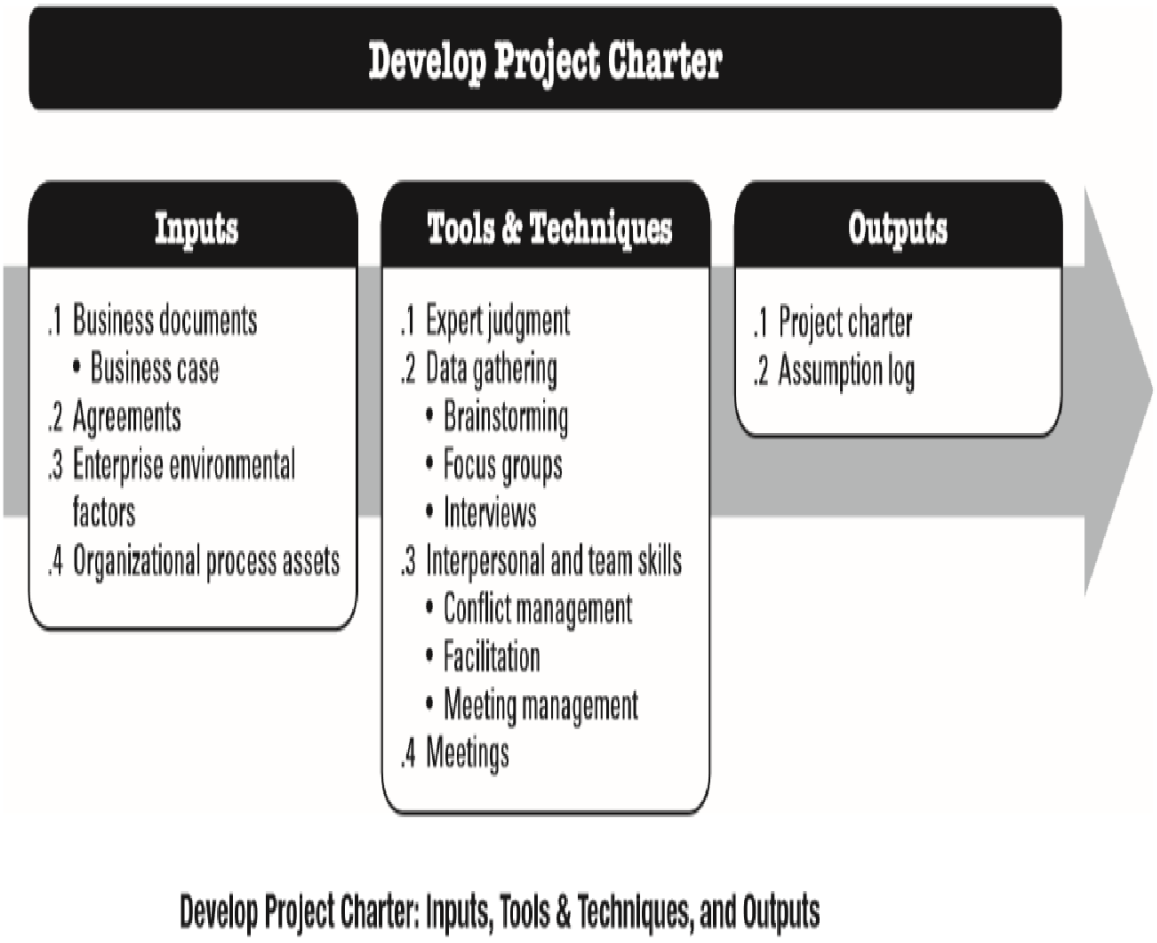


Figure 9: Develop Project Charter: Inputs, Tools & Techniques, and Outputs. (Source: PMBOK Guide Sixth Edition, Project Management Institute, 2017)

4.2 Project Scope Management

According to the article Scope Management (2019), “the Project scope is the work required to output a project’s deliverable and it includes the process to manage scope changes and make sure that the project will still come in on time and within budget. It is defined as the work breakdown structure, and changes should take place only through formal change control procedures.”

During this plan, the Project Scope Management will follow a number of processes using different set of tools and techniques to collect requirements, which are collect requirements (project charter and stakeholder register), define scope (deliverables, assumptions and constraints and the framework of the project work performance), create WBS (decomposes deliverable into work packages, verify the Scope (project team receives a formal acceptance of all deliverables from the project sponsor), and control scope (monitoring/controlling the project scope, as well as managing any changes in the scope baseline).

4.2.1 Scope Management Approach

During this project, any changes made to the scope and any change requests must be approved by the Project Manager and the sponsors; therefore, the authority and responsibility of the scope falls also on the Project Manager and the Sponsors. Any proposed scope changes can be initiated by the Project Manager, the Stakeholders or any of the project management team. Any changes or modifications needed to the project scope by the WBS in the project charter will be requested through a Change Order Proposal. Once the Project Manager receives a change request, it will be submitted for approval to the Change Control Board and Project Sponsor. The Project Sponsor will be responsible for the final project deliverables and project scope.

4.2.2 Scope Definition

The Eleuthera Diagnostic & HealthCare Facility project scope was defined through a comprehensive Charter document. The charter is a blue print that provides the framework needed for project planning and processed. These processes ensure that deliverables are within the scope and within the budget as agreed from all stakeholders. The requirements will certify that this project a success at completion.

4.2.3 Project Scope Description

The scope is to develop a project management plan for the construction of a Healthcare Facility that will house a few in-patients. The scope will also include the parking lot and any landscaping required. It will include a building that is eco-friendly and sustainable. Also, it will include hiring well-qualified and certified general contractor (GC), sub-contractors, suppliers and vendors, and engineers.

4.2.4 Product Scope Statement

The Project Management Plan for the EDHF will be a 50,000 square feet medical building that will provide healthcare and diagnostic services. The building will be composted of structural steel, concrete works, pre-cast concrete panels, mason blocks, thermal and moisture protection and metal roofing. The facility will house over 150 rooms, which includes in-patient rooms, exam rooms, a small theatre, asthma unit, out-patient bathrooms, administrative offices, staff cafeteria, pharmacy, dispensary, waiting room and lobby. Other rooms will also be included.

The building will contain a parking garage that will house ambulances and staff/patient parking that can accommodate about 100 vehicles.

4.2.5 Product Acceptance Criteria

The project will be accepted as successful, once the following requirements are met:

- ✓ Completed on or before June 30th, 2021 (within 11 months)
- ✓ Completed on or within budget of $12 million dollars
- ✓ Provide a top quality, state of the art building using quality standards and policies The project is eco-friendly and the building is built to be sustainable
- ✓ Passes all Ministry of Public Works building inspections
- ✓ Granted a final occupancy from the Ministry of Public Works
- ✓ All stakeholders' expectations are met and stakeholders are satisfied

4.2.6 Project Deliverables

The project deliverables for the project are viewed below in *chart 6*.

Chart 6: Project Deliverables (Source: G. Mackey, the author, August 2019)

PROJECT DELIVERABLES		
No.	Milestones	Deliverable
1.	Award Contract	• Secure qualified sub-contractors • Have all of a portion of project funds
2.	Project Planning	• Schedule work in phases • Estimate costs & risks • Schedule payment plan (pay-outs) • Procurement of production material/supplies. Determine needed led/lag times for shipment
3.	Land Acquisition	• Government sign charter & deem land as fit for commercial use
4.	Site Works	• Site Clearance • Bulk earthworks & grading
5.	Foundation	• Install all foundation according to architect and engineering drawings & specs
6.	Structure *(concrete elements)*	• Install all concrete elements of structure, such as concrete columns/belt beams, concrete slabs, excavation, dewatering, drilling, grading
7.	Exterior Finishes (Metal Work) (Windows & Security)	• Install metal roofing • Install structural and decorative metals including stairs and railings • Exterior painting • Install all windows and accessories necessary for the operation & security of windows and doors
8.	*Interior Rough-In and Finishes* *(Wood Work* *(Thermal Moisture Protection)* *(Finishing –Floors, Walls, Ceilings)* *(Doors & Accessories)* *Communication Equipment* *Furnishing Counter Tops* *Plumbing & Medical Gas Install)*	• HVAC Main Duck Work & AUHS • Install waterproofing, vapor barriers • Floor Finishes • Install doors, accessories for restroom areas (soap dispensers, handicap grabs bars) • Mount communication Equipment • Finish all counter tops for laboratory • Plumbing rough in walls & ceilings,

	(Heating/Ventilation, AC System – HVAC) *(Electrical Power Distribution & Lighting System)* *(Surveillance Systems/Security*	pumps, storage tanks, waste disposal • Install medical gas • Electrical rough-in walls & ceilings • Install cables for electrical distribution • Conduit for all surveillance equipment and fire alarm systems
9.	External Works (Exterior Improvements))	• Disposal Wells • Storm Drainage chambers • Paving & Curbing • Asphalt paving • Landscaping • Install generators
10.	Testing & Inspection *(Throughout each execution & implementation phase of project)*	• Test and inspect each phase of the project, once moved along. A final test/inspection at project
11.	Handover	• Hand over completed facility to sponsors. Close off the project and finalize last payments and bonuses.

4.2.7 Project Exclusions

The project exclusions refer to the anything that will not be included in this project. The items that will be excluded are:

- ❖ Training or recruiting of staff that will work in the facility; such as doctors, nurses, etc.
- ❖ The management of the Health Care Facility once the project has been completed
- ❖ The purchase of medical equipment such machine, wheelchairs, etc.
- ❖ The purchase of furniture such as office desks, chairs, etc.

4.2.8 Project Constraints

The project constraints are any restrictions that the project will face. The constraints can be depicted in *Chart 7* below.

Chart 7: Project Constraints (Source: G. Mackey, the author, September 2019)

PROJECT CONSTRAINTS	
Constraint 1	
Constraint 1	Hurricane/bad weather during construction i.e. heavy rains/heavy winds
Implication 1	Damaged material/facilities and work delayed
Action 1	Hurricanes give warnings; therefore, a hurricane preparedness plan is to be followed. All building materials are to be secured at an offsite storage facility if available and insurance should cover any damages incurred
Constraint 2	
Constraint 2	Political/economical –currency fluctuation, prices of material can go up
Implication 2	Cost of material goes up and cost of bid prices goes up
Action 2	Include in bid documents to lock suppliers in at bid price
Constraint 3	
Constraint 3	Shortened project schedule
Implication 3	Budget will increase to meet new deadline
Action 3	Change scope of works

4.2.9 Project Assumptions

The project assumptions for the project can be seen below in *Chart 8.*

Chart 8: Project Assumptions (Source: G. Mackey, the author, September 2019)

ASSUMPTIONS	
Assumption 1	
Assumption 1	All drawings/plan are approved by the local MOPW

Implication 1	Delayed Pours, Rejected Permits
Action 1	Acquire an approved set from the MOPW and keep onsite for ease of reference and to ensure compliance
Assumption 2	
Assumption 2	All infrastructure is in place, i.e. main electrical, sewer, water lines, roads, etc.
Implication 2	Will delay start of construction; water electricity and roads all required for works to commence
Action 2	Ensure that temporary water facilities are available, i.e. water truck, temporary generator, road are filled for access to property
Assumption 3	
Assumption 3	All labor contractors will be available, as scheduled
Implication 3	Work production start and finish date will delayed
Action 3	Have back-up contractors ready to take on the job.
Assumption 4	
Assumption 4	All building will be available when needed
Implication 4	Work delayed and increased costs due to the daily operations of the project
Action 4	Procurement plan to include supplier/vendors with readily available materials
Assumption 5	
Assumption 5	Project is duty free and all custom delays will be avoided
Implication 5	Project delay or failure can result
Action 5	Arrange onsite customs inspections and clearance
Assumption 6	
Assumption 6	Expert Top Quality & Licensed Labor Contractors are able to complete the work on time for each phase of the project, as per their respective time set and there will be no start delays
Implication 6	Quality of work compromised & Deadlines not met and costs are increased.
Action 6	Ensure contractors are experienced a similar job and are certified and licensed. The foreman will be responsible that the work is executed at the standard indicated and needed.

4.2.10 WBS & WBS Dictionary

The Work Breakdown Structure will be used to assist with the project scope. It will allow the project management team to manage tasks in order to complete the project within the time allotted. The project is broken down in segments and can be seen in the WBS, which is *Figure 10*.

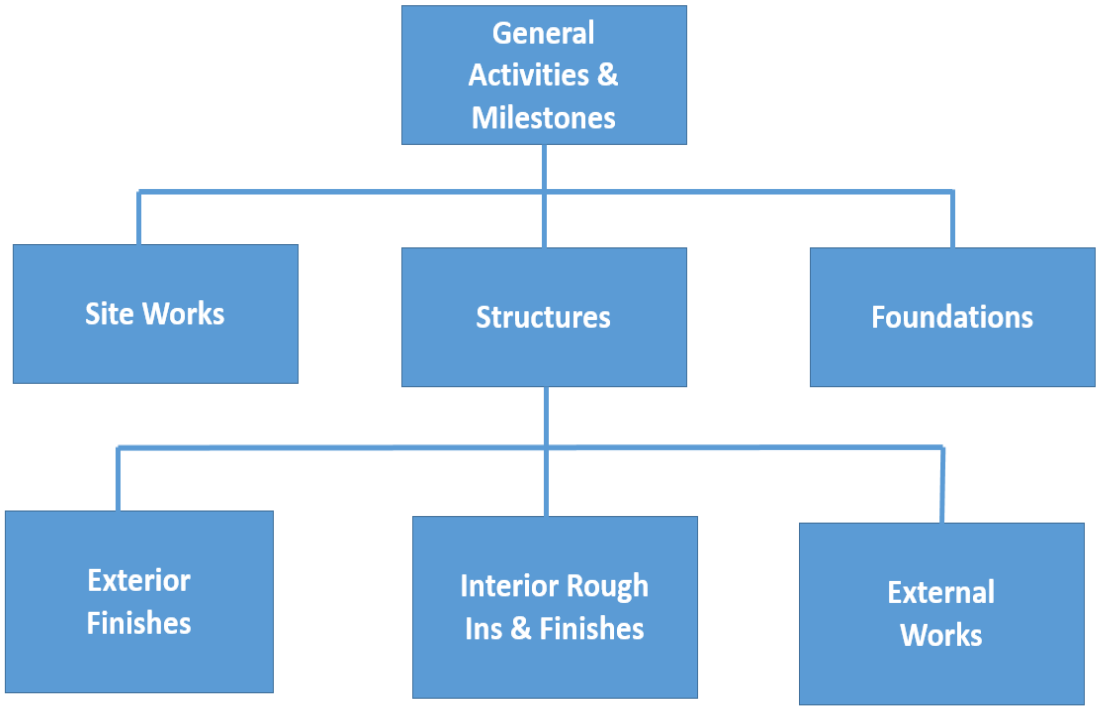


Figure 10: WBS for the Eleuthera Diagnostic & Healthcare Facility. Compiled by Author. Dated September 2019.

The WBS will provide a specific description for each component of the WBS, which will be relevant to adequately organizing and planning the project. The article Creating and Maintaining a WBS Dictionary states that "the benefits of a WBS Dictionary is to ensure that we do the work right the first time by providing the team with the information they need to produce quality deliverables that meet project requirements and organization standards. When using the WBS, the stakeholders will get a much better understanding of the scope of work."

The WBS dictionary will be used below, which contains the WBS level, the WBS Code, the WBS Name and the WBS Description in *Chart 9*.

Chart 9: WBS Dictionary (Source: G. Mackey, the author, September 2019)

WBS Level	WBS Code	WBS Name	WBS Description
0	**0**	**Diagnostic & Healthcare Facility, Eleuthera, Bahamas**	
1		**PRELIMINARY**	
1	1.1	Award Contract	Award Initial Contract to the Project Management Team
1	1.2	Mobilization	The payment required to begin the contract
1	1.3	Compliance codes/building permits	Get required building compliance codes
1	1.4	Meet with architect	Meet with architect to make decisions on drawings
1	1.5	Preliminary budget	Complete preliminary budget meetings
1	1.6	Cost analysis budget prepared	Prepare cost analysis
1	1.7	Approvals for drawings	Get the necessary approvals for final drawings
1	1.8	Approvals for budget	Get the necessary approvals for cost of the project
1	1.9	Prepare project schedule	Get project schedule prepared

1	1.10	Approval project schedule	Get project schedule approved
1	1.11	Temporary Office/Site	Installation of temporary Site and Office, so that the project can begin
2		**PROCUREMENT/CONTRACTS**	
2	2.1	Meet for Procurement and Contracts	Procurement and contract meetings
2	2.2	Tender for sub-contractors	Submission made by sub-contractors to tender bids
2	2.3	Complete bids for sub-contractors	Sub-contractors selected based on their bids submitted
2	2.4	Order long lead building items	Order building supplies needed for the project
2	2.5	Order long lead electrical Items	Order electrical items needed to work on the project
2	2.6	Order long lead plumbing Items	Order plumbing supplies needed to work on the project
2	2.7	Order long lead roofing Items	Order roofing supplies needed to work on the project
3		**GENERAL ACTIVITIES & MILESTONES**	
3	3.1	Power On	Provide electricity for the building
3	3.2	A/C On	Provide air condition for the building
3	3.3	Water Tie-In	Provide water to the building from the city
3	3.4	Sewer Tie-In	Provide sewage service for the building

4		**SITEWORKS**	
4	4.1	Clear Site	Land has been cleared and excavated and ready for construction
4	4.2	Bulk Earthworks & Grading	Excavation of ground and leveling for foundation layout
5		**FOUNDATION**	
5	5.1	Layout	Actual marking and staking of building for foundation positioning
5	5.2	Excavate Foundations	Cutting of footings for foundation
5	5.3	CMU Stem Walls (Inc. Conc Infill)	Erection of concrete block walls erected and cells filled
5	5.4	Backfill to U/S Slab	Leveling off of fill to under slab
5	5.5	U/S MEP Services	Installing of MEP services under slab roughing
5	5.6	F/R/P Slab on Grade	Floor slab poured
5	5.7	Quality Inspection Slab Pour	Inspection of slab pour by quality control inspector
6		**STRUCTURE**	
6	6.1	CMU Walls	Block walls set and installed
6	6.2	Concrete Columns	Concrete beams formed and poured
6	6.3	Structural Steel Work	Rebar installed in columns
6	6.4	Concrete Belt Beam	Belt beam framed and poured

6	6.5	High Level Concrete Slabs	Second floor slab poured
6	6.6	Timber Roof Trusses (Inc. internal bracing)	Installation of roof trusses and bracing of roof trusses
6	6.7	Plywood, I & W Shield	Roof covered with ply and ice and water shield
6	6.8	Quality Inspection Roof	Quality control inspection of roof
6	6.9	Quality Inspection Columns, Belt, Slabs & Steel	Inspection of columns, belt beam, slabs and rebar reinforcement
7		**EXTERIOR FINISHES**	
7	7.1	Metal Roofing (Standing Seam)	Metal Roof installed and sealed
7	7.2	Roof Gutters & Downspouts	Roof gutters and downspouts installed
7	7.3	Exterior Plaster to Walls	All exterior walls plastered
7	7.4	Exterior Kawneer Front Doors	Front entry doors and emergency exit doors installed
7	7.5	Exterior Kawneer Windows	Windows installed
7	7.6	Exterior Solid & Louvered Doors	Installation of all other exterior doors installed
7	7.7	Quality Inspection Windows & Doors	The inspection of doors and windows by quality control officer
7	7.8	Ext Soffits & Covered Walkways (Inc. Porte Cohere)	Exterior porches and soffits install
7	7.9	Decorative Moldings & Trims	Install moldings and trims

7	7.10	Exterior Painting	Exterior paintings of walls and roof trimmings
7	7.11	Faux Stone Features	Special stone designed and finishes
7	7.12	Aluminum Shutters (Colonial & Bahama)	Storm shutters installed
7	7.13	Hand Railing	Hand railing installed
8		**INTERIOR ROUGH-INS & FINISHES**	
8	8.1	Fire Rated Gyp Bd. Ceiling (to U/S of Roof Truss)	Sheetrock installed to underside of roof truss to create finish look
8	8.2	Interior Partition Walls	Interior partition walls laid out and set in position
8	8.3	Render to Interior Face of External Walls	Interior masonry walls plastered with cement
8	8.4	HVAC Main Truck Duct Work & AUHs	A/C ducts and vents installed
8	8.5	Mechanical Rough-In Walls & Ceilings	Mechanical wiring, HVAC drain piping installed in wall
8	8.6	HVAC Main Truck Duct Work & AUHs	A/C ducts and vents installed
8	8.7	LV Rough-In Walls & Ceilings	Low voltage piping and wiring installed in walls and ceiling
8	8.8	Plumbing Rough-In Walls & Ceilings	Plumbing rough in pipes installed in walls and ceiling
8	8.9	Medical Gases Rough-In Walls & Ceilings	Lines for all medical gases installed
8	8.10	Test & Inspection of MEP Services	All mechanical, electrical and plumbing services tested for functionality

8	8.11	Gypsum Board to Walls	Gypsum board install to standing walls
8	8.12	Gypsum Finishes to Walls (Skim & Sand)	Gypsum walls taped and plastered with joint compound
8	8.13	Acoustic Ceiling Framing	Framing in ceiling for ceiling tiles
8	8.14	Install MEP Fixtures Equipment, Fixtures & Trims	Installation of faucets, light switch, face basins, sinks electrical panels
8	8.15	Final Inspection of MEP Services	All Mechanical, Electrical and Plumbing services have received final inspection to ensure proper function
8	8.16	Prime & 1st Coat Paint	Portions of the project to receive prier and first coat of paint
8	8.17	Floor & Wall Tiling	Floor and wall tiles Installed
8	8.18	Install MEP Equipment, Fixtures & Trims	Light switch covers, wall plates faucet handles to be installed
8	8.19	Install Millwork (Inc. Internal Doors/Cabinets)	Installation of chair rails, baseboards door jambs and door stops, Installation of cabinets and accessories
8	8.20	Install Corridor Hand Railing	Hand railing in corridor to be installed
8	8.21	Install Acoustic Ceiling Tile	Ceiling tiles installed
8	8.22	Final Fix MEP Devices & Trims	Complete Wiring and trims
8	8.23	Test & Commission MEP Systems	Mechanical, Electrical and Plumbing system are tested

			and to be functioning
9		**EXTERNAL WORKS**	
9	9.1	Disposal Wells	Disposal wells set and installed
9	9.2	Storm Drainage Chambers	Drilling and pipes installed to catch excessive water from rain overflow
9	9.3	Underground Site Services	Installation of all underground services installed plumbing, electrical mechanical
9	9.4	Septic Tank	Septic tank installed
9	9.5	Grease Interceptor	Grease catch pit installed
9	9.6	Dilution Tank	Dilution tank set and installed
9	9.7	Earthworks/Grading for Roadways & Car Park	Leveling of ground to layout roadways and general car parking lot
9	9.8	Paving & Curbing	Walkway Pavers and side curbs installed
9	9.9	Line Markings	Placing line marks which will provide information to complete various tasks in the project
9	9.10	Footpaths	Foot paths laid out and installed
9	9.11	Light Poles	Light Poles installed and positioned
9	9.12	Site Signage	Illuminated signs installed
9	9.13	Landscaping	Shrubs grass flowers and plants

9	9.14	Generator & Fuel Tank Slab	Generator pad and fuel tank slab poured and installed
9	9.15	Install Generator (Inc. Testing & Commissioning)	Main Generator is in stall and ensured to be functioning properly
9		**FINISHES**	
9	9.1	Floor Finishes	All tiles and grout finishes
9	9.2	Final Paint	Final coat of paint and touch up spots
9	9.3	Final Clean	All debris removed from building and yard and build is professionally clean by cleaning company
9	9.4	Punch List	All items that client finds unsatisfactory is addressed as indicated in previous inspections
9	9.5	Final Inspection	Last inspection to ensure all tasks are completed

4.2.11 Project Scope Control

Project Scope Control will be a collaboration between the Project Manager and the Project Management Team. At times, there may be recommended scope changes introduced by the Project Manager, or by stakeholder or other members of the Project Management Team. The changes will be made based on the Scope Management Plan and any changes that needs to be amended will need to be requested through a Change Control. The requests will need to be requested to the Project Manager; hence, the Project Manager will submit the scope change proposal to the Change Control Board

and the Project Sponsor for approval. These stakeholders will accept the change by signing a project change control form.

The project time management was developed and includes the project deliverables and includes the project's schedule. The time management plan will define work activities, coordinate activities, estimate activity resources and durations and produce the project schedule. The schedule is integral to the project, as it is intended to keep the project on track to ensure a successful project.

4.3 Time Management Plan

The next item in this study is the Time Management Plan. According to PMBOK, "Project Schedule Management includes the processes required to manage the timely completion of the project" (PMBOK Guide Sixth Edition, 2017, p. 553). For this project, in order to meet the deadlines, it would have been critical to map out the amount of days allotted for various tasks. This was incumbent, as one job may affect the other or could jeopardize the start of other jobs. In some cases, some portions of the job required a rest period of an amount of days to allow the work to rest before other jobs can begin. Due to the limit of days needed to complete the job, a work day chart was created to determine the duration of days to ensure that the team will meet the work criteria, intended. The information from the chart would have been retrieved from the WBS and can be seen in *Chart 10*, which is seen below.

Chart 10: Sequence Activities with start and finish dates (Source: G. Mackey, the author, October 2019)

WBS Level	WBS Code	Task Name	Days	Start Date	Finish Date
0	**0**	**Diagnostic & Healthcare Facility,**	**316 days**	**Wed 7/1/20**	**Wed 6/28/21**

		Eleuthera, Bahamas			
1		**PRELIMINARY**	**23 days**	**Wed 7/1/20**	**7/31/20**
1	1.1	Award contract	0 day	Wed 7/1/20	Wed 7/1/20
1	1.2	Mobilization	23 days	Thurs 7/2/20	Fri 7/31/20
1	1.3	Compliance codes/building permits	7 days	Thurs 7/2/20	Fri 7/10/20
1	1.4	Meet with architect to request drawings	10 day	Thurs 7/3/20	Thurs 7/16/20
1	1.5	Preliminary budget	1 day	Fri 7/3/20	Thurs 7/3/20
1	1.6	Cost analysis budget prepared	5 day	Mon 7/6/20	Fri 7/10//20
1	1.7	Approvals for drawings	1 day	Thurs 7/16/20	Thurs 7/16/20
1	1.8	Approvals for budget	1 day	Mon 7/13/20	Mon 7/13/20
1	1.9	Prepare project schedule	7 days	Thurs 7/16/20	Fri 7/24/20
1	1.10	Approval project schedule	1 day	Mon 7/27/20	Mon 7/27/20
1	1.11	Temporary Office/Site	10 days	Mon 8/3/20	Fri 8/14/20
2		**PROCUREMENT/CONTRACTS**	**9 days**	**Wed 7/22/20**	**Mon 8/3/20**
2	2.1	Meet for Procurement and Sub Contracts	1 day	Wed 7/22/20	Mon 7/22/20
2	2.2	Tender for sub-contractors	7 days	Thurs 7/23/20	Fri 7/31/20
2	2.3	Complete bids for sub-contractors	1 day	Mon 8/3/20	Mon 8/3/20
2	2.4	Order long lead building items	1 day	Mon 8/3/20	Mon 8/3/20

2	2.5	Order long lead electrical Items	1 day	Mon 8/3/20	Mon 8/3/20
2	2.6	Order long lead plumbing Items	1 day	Mon 8/3/20	Mon 8/3/20
2	2.7	Order long lead roofing Items	1 day	Mon 8/3/20	Mon 8/3/20
3		**GENERAL ACTIVITIES & MILESTONES**	**83 days**	**Mon 3/8/21**	**Wed 6/30/21**
3	3.1	Power On	1 day	Mon 3/8/21	Mon 3/8/21
3	3.2	A/C On	1 day	Wed 3/10/21	Wed 3/10/21
3	3.3	Water Tie-In	1 day	Tues 3/9/21	Tues 3/9/21
3	3.4	Sewer Tie-In	1 day	Mon 4/1/21	Mon 4/1/21
3	3.5	Final Completion	1 day	Wed 6/30/21	Wed 6/30/21
4		**SITEWORKS**	**24 days**	**Wed 8/19/20**	**Mon 8/21/20**
4	4.1	Clear Site	6 days	Wed 8/19/20	Wed 8/26/20
4	4.2	Bulk Earthworks & Grading	10 days	Thurs 8/27/20	Wed 9/9/20
5		**FOUNDATION**	**41 days**	**Thurs 9/10/20**	**Mon 11/9/20**
5	5.1	Layout	5 days	Thurs 9/10/20	Wed 9/16/20
5	5.2	Excavate Foundations	20 days	Thurs 9/17/20	Wed 10/14/20
5	5.3	CMU Stem Walls (Inc. Conc. Infill)	20 days	Mon 9/21/20	Fri 10/16/20
5	5.4	Backfill to U/S Slab	25 days	Mon 9/28/20	Fri 10/30/20
5	5.5	U/S MEP services	30 days	Mon 10/5/20	Fri 11/6/20
5	5.6	F/R/P Slab on Grade	31 days	Thurs 9/24/20	Fri 11/6/20

5	5.7	Quality Inspection Slab Pour	1 day	Mon 11/9/20	Mon 11/9/20
6		**STRUCTURE**	**66 days**	**Wed 8/26/20**	**Wed 11/25/20**
6	6.1	CMU Walls	33 days	Wed 8/26/20	Fri 10/9/20
6	6.2	Concrete Columns	30 days	Mon 9/14/20	Fri 10/23/20
6	6.3	Structural Steel Work	10 days	Wed 9/23/20	Tues 10/6/20
6	6.4	Concrete Belt Beam	25 days	Mon 9/21/20	Fri 10/23/20
6	6.5	High Level Concrete Slabs	11 days	Tues 10/6/20	Tues 10/20/20
6	6.6	Timber Roof Trusses (Inc. internal bracing)	30 days	Mon 10/5/20	Fri 11/13/20
6	6.7	Plywood, I & W Shield	32 days	Mon 10/5/20	Tues 11/17/20
6	6.8	Quality Inspection Roof	20 days	Thurs 10/1/20	Wed 10/28/20
6	6.9	Quality Inspection Columns, Belt, Slabs & Steel	23 days	Mon 10/26/20	Wed 11/25/20
7		**EXTERIOR FINISHES**	**125 days**	**Mon 12/21/20**	**Fri 6/11/21**
7	7.1	Metal Roofing (Standing Seam)	30 days	Mon 12/21/20	Fri 1/29/21
7	7.2	Roof Gutters & Downspouts	12 days	Thurs 3/18/21	Fri 4/2/21
7	7.3	Exterior Plaster to Walls	30 days	Mon 4/5/21	Fri 5/14/21
7	7.4	Exterior Kawneer Front Doors	12 days	Mon 4/12/21	Tues 4/27/21
7	7.5	Exterior Kawneer Windows	24 days	Mon 4/26/21	Tues 4/27/21

7	7.6	Exterior Solid & Louvered Doors	18 days	Thurs 5/6/21	Mon 5/31/21
7	7.7	Quality Inspection Windows & Doors	1 day	Tues 6/1/21	Tues 6/1/21
7	7.8	Ext Soffits & Covered Walkways (Inc. Porte Cochere)	24 days	Tues 3/16/21	Fri 4/16/21
7	7.9	Decorative Moldings & Trims	18 days	Fri 3/19/21	Tues 4/13/21
7	7.10	Exterior Painting	24 days	Thurs 4/15/21	Tues 5/18/21
7	7.11	Faux Stone Features	12 days	Mon 5/24/21	Mon 6/1/21
7	7.12	Aluminum Shutters (Colonial & Bahama)	24 days	Mon 5/31/21	Wed 6/1/21
7	7.13	Hand Railing	6 days	Mon 5/31/21	Mon 6/7/21
8		**INTERIOR ROUGH IN & FINISHES**	**143 days**	**Mon 12/7/20**	**Mon 6/23/21**
8	8.1	Fire Rated Gyp. Bd. Ceiling (to U/S of Roof Truss)	36 days	Mon 12/7/20	Mon 1/25/21
8	8.2	Interior Partition Walls	48 days	Fri 1/8/21	Tues 3/16/21
8	8.3	Render to Interior Face of External Walls	18 days	Fri 1/8/21	Tues 2/2/21
8	8.4	HVAC Main Truck Duct Work & AUHs	78 days	Fri 1/8/21	Tues 4/27/21
8	8.5	Mechanical Rough-In Walls & Ceilings	78 days	Fri 1/8/21	Tues 4/27/21
8	8.6	HVAC Main Truck Duct Work & AUHs	78 days	Fri 1/8/21	Tues 4/27/21
8	8.7	LV Rough-In Walls & Ceilings	78 days	Fri 1/8/21	Tues 4/27/21

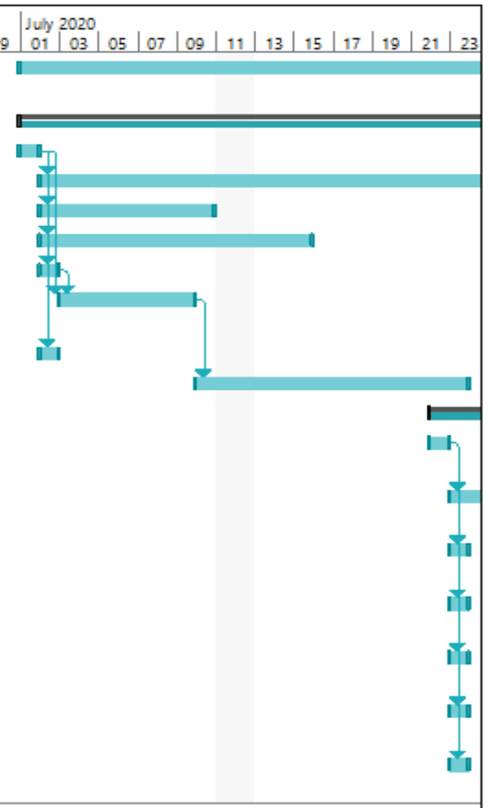
8	8.8	Plumbing Rough-In Walls & Ceilings	78 days	Fri 1/8/21	Tues 4/27/21
8	8.9	Medical Gases Rough-In Walls & Ceilings	78 days	Fri 1/8/21	Tues 4/27/21
8	8.10	Test & Inspection of MEP Services	57 days	Mon 2/8/21	Mon 5/6/13
8	8.11	Gypsum Board to Walls	48 days	Mon 3/1/21	Wed 5/5/21
8	8.12	Gypsum Finishes to Walls (Skim & Sand)	48 days	Tues 4/6/21	Thurs 6/10/21
8	8.13	Acoustic Ceiling Framing	30 days	Tues 4/27/21	Mon 6/14/21
8	8.14	Install MEP Fixtures Equipment, Fixtures & Trims	42 days	Tues 4/6/21	Wed 6/2/21
8	8.15	Final Inspection of MEP Services	12 days	Fri 5/21/21	Mon 6/7/21
8	8.16	Prime & 1st Coat Paint	30 days	Tues 4/20/21	Mon 5/27/21
8	8.17	Floor & Wall Tiling	24 days	Mon 4/26/21	Thurs 5/27/21
8	8.18	Install MEP Equipment, Fixtures & Trims	30 days	Tues 4/20/21	Mon 5/27/21
8	8.19	Install Millwork (Inc. Internal Doors/Cabinets)	36 days	Mon 4/12/21	Mon 5/31/21
8	8.20	Install Corridor Hand Railing	12 days	Mon 4/19/21	Tues 5/4/21
8	8.21	Install Acoustic Ceiling Tile	24 days	Mon 4/12/21	Thurs 5/13/21

8	8.22	Final Fix MEP Devices & Trims	24 days	Mon 517/21	Thurs 6/17/21
8	8.23	Test & Commission MEP Systems	24 days	Mon 4/26/21	Thurs 5/27/21
9		**EXTERNAL WORKS**	**121 days**	**Mon 8/10/20**	**Wed 6/14/21**
9	9.1	Disposal Wells	18 days	Mon 8/10/20	Wed 9/2/20
9	9.2	Storm Drainage Chambers	18 days	Mon 9/14/20	Wed 10/10/12
9	9.3	Underground Site Services	100 days	Fri 9/7/20	Mon 1/22/21
9	9.4	Septic Tank	12 days	Wed 1/13/21	Thurs 2/10/21
9	9.5	Grease Interceptor	12 days	Tues 1/26/21	Wed 1/30/13
9	9.6	Dilution Tank	12 days	Mon 1/25/21	Tues 2/9/21
9	9.7	Earthworks/Grading for Roadways & Car Park	30 days	Wed 3/31/21	Tues 5/12/21
9	9.8	Paving & curbing	24 days	Mon 4/19/21	Thurs 5/20/21
9	9.9	Line Markings	6 days	Wed 5/19/21	Wed 6/14/21
9	9.10	Footpaths	24 days	Wed 5/19/21	Wed 6/14/21
9	9.11	Light Poles	12 days	Wed 5/26/21	Thurs 6/10/21
9	9.12	Site Signage	12 days	Wed 5/26/21	Thurs 6/10/21
9	9.13	Landscaping	30 days	Fri 5/14/21	Fri 6/25/21
9	9.14	Generator & Fuel Tank Slab	12 days	Wed 3/10/21	Thurs 3/25/21
9	9.15	Install Generator (Inc. Testing & Commissioning)	12 days	Wed 3/17/21	Thurs 4/1/21

10		**FINISHES**	**32 days**	**Fri 5/14/21**	**Mon 6/28/21**
10	10.1	Floor Finishes	30 days	Fri 5/14/21	Fri 6/25/21
10	10.2	Final Paint	20 days	Fri 5/21/21	Fri 6/18/21
10	10.3	Final Clean	10 days	Mon 6/7/21	Fri 6/18/21
10	10.4	Punch List	20 days	Wed 5/26/21	Tues 6/22/21
10	10.5	Final Inspection	1 day	Mon 6/28/21	Mon 6/28/21

Below, in *Figure 11*, is the Gantt Chart, which was a vital tool used for the EDHF project. The chart made it easier to manage the project, as each task were scheduled and visible for the Project Management Team. According to PMBOK, “the project schedule is used as a tool for communication, managing stakeholder expectations, and a basis for performance reporting” (PMBOK Guide Sixth Edition, 2017, p. 674).

ID	ID	WBS	Task Name	Duration	Start	Finish
1	1	0	Diagnostic & Healthcare Facility, Eleuthera,	259 days	Wed 01/07/20	Mon 28/06/21
2	**2**	**1**	**PRELIMINARY**	**33 days**	**Wed 01/07/20**	**Fri 14/08/20**
3	3	1.1	Award Contract	1 day	Wed 01/07/20	Wed 01/07/20
4	4	1.2	Mobilizaton	23 days	Thu 02/07/20	Mon 03/08/20
5	5	1.3	Compliance Codes	7 days	Thu 02/07/20	Fri 10/07/20
6	6	1.4	Meet with architect	10 days	Thu 02/07/20	Wed 15/07/20
7	7	1.5	Preliminary Budget	1 day	Thu 02/07/20	Thu 02/07/20
8	8	1.6	Cost Analysis Budget Prepared	5 days	Fri 03/07/20	Thu 09/07/20
9	9	1.7	Approvals for drawings	1 day	Thu 02/07/20	Thu 02/07/20
10	10	1.8	Temporary Office/Site	10 days	Fri 10/07/20	Thu 23/07/20
11	**11**	**2**	**PROCUREMENT/CONTRA(**	**9 days**	**Wed 22/07/20**	**Mon 03/08/20**
12	12	2.1	Meet for Procurement & Sub Contracts	1 day	Wed 22/07/20	Wed 22/07/20
13	13	2.2	Tender for sub-contractors	7 days	Thu 23/07/20	Fri 31/07/20
14	14	2.3	Complete bids for sub-contractors	1 day	Thu 23/07/20	Thu 23/07/20
15	15	2.4	Order long lead building items	1 day	Thu 23/07/20	Thu 23/07/20
16	16	2.5	Order long lead electrical items	1 day	Thu 23/07/20	Thu 23/07/20
17	17	2.6	Order long lead plumbing items	1 day	Thu 23/07/20	Thu 23/07/20
18	18	2.7	Order long lead roofing items	1 day	Thu 23/07/20	Thu 23/07/20



Project: EDHF Schedule with pr
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Task
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Milestone
Summary
Project Summary
Inactive Task
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Inactive Summary
Manual Task
Duration-only
Manual Summary Rollup
Manual Summary
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Progress
Manual Progress

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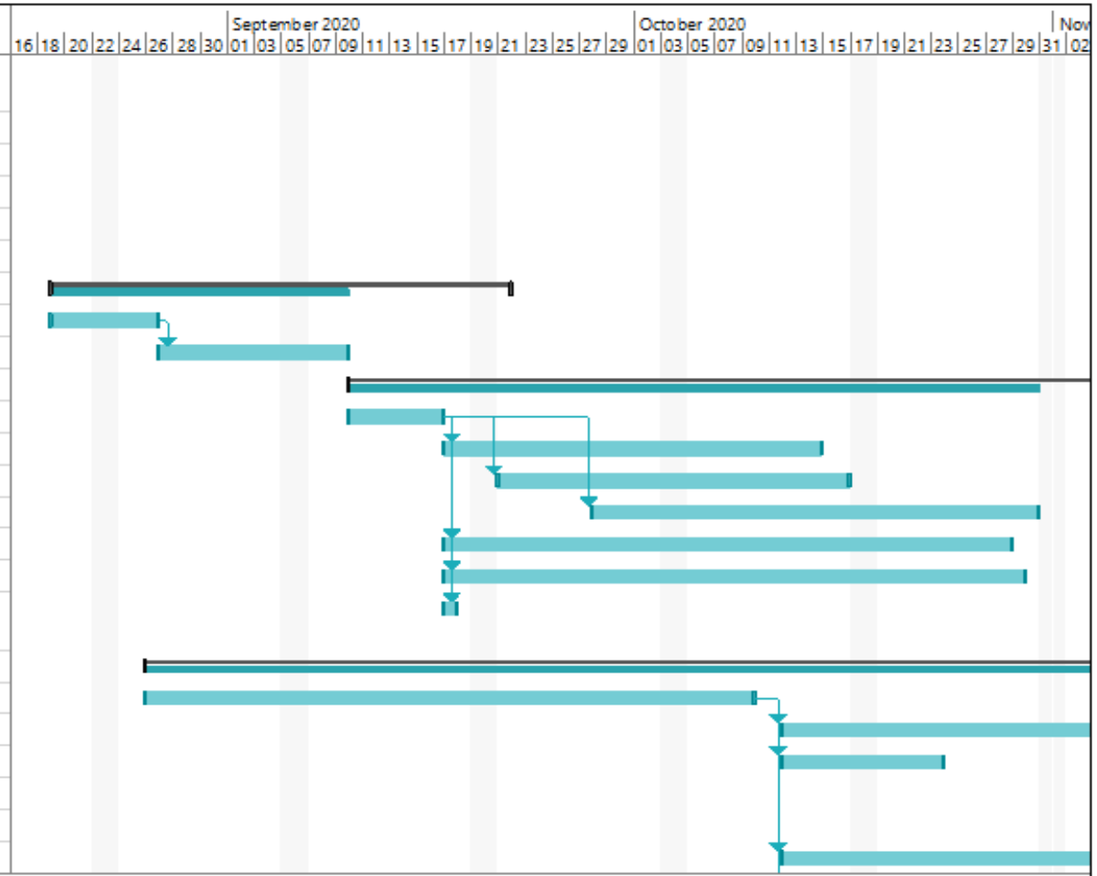
ID	ID	WBS	Task Name	Duration	Start	Finish
19	**19**	**3**	**GENERAL ACTIVITIES & MILESTONES**	**83 days**	**Mon 08/03/21**	**Wed 30/06/21**
20	20	3.1	Power On	1 day	Mon 08/03/21	Mon 08/03/21
21	21	3.2	A/C On	1 day	Wed 10/03/21	Wed 10/03/21
22	22	3.3	Water Tie-In	1 day	Tue 09/03/21	Tue 09/03/21
23	23	3.4	Sewer Tie-In	1 day	Thu 01/04/21	Thu 01/04/21
24	24	3.5	Final Completion	1 day	Fri 02/04/21	Fri 02/04/21
25	**25**	**4**	**SITEWORKS**	**24 days**	**Wed 19/08/20**	**Mon 21/09/20**
26	26	4.1	Clear Site	6 days	Wed 19/08/20	Wed 26/08/20
27	27	4.2	Bulk Earthworks & Grad	10 days	Thu 27/08/20	Wed 09/09/20
28	**28**	**5**	**FOUNDATION**	**47 days**	**Thu 10/09/20**	**Fri 13/11/20**
29	29	5.1	Layout	5 days	Thu 10/09/20	Wed 16/09/20
30	30	5.2	Escavate Foundations	20 days	Thu 17/09/20	Wed 14/10/20
31	31	5.3	CMU Stem Walls	20 days	Mon 21/09/20	Fri 16/10/20
32	32	5.4	Backfill to U/S Slab	25 days	Mon 28/09/20	Fri 30/10/20
33	33	5.5	U/S MEP Services	30 days	Thu 17/09/20	Wed 28/10/20
34	34	5.6	F/R/P Slab on Grade	31 days	Thu 17/09/20	Thu 29/10/20
35	35	5.7	Quality Inspection Slab Pour	1 day	Thu 17/09/20	Thu 17/09/20
36	**36**	**6**	**STRUCTURE**	**102 days**	**Wed 26/08/20**	**Thu 14/01/21**
37	37	6.1	CMU Walls	33 days	Wed 26/08/20	Fri 09/10/20
38	38	6.2	Concrete Columns	33 days	Mon 12/10/20	Wed 25/11/20
39	39	6.3	Structural Steel Work	10 days	Mon 12/10/20	Fri 23/10/20
40	40	6.4	Concrete Belt Beam	25 days	Thu 26/11/20	Wed 30/12/20
41	41	6.5	High Level Concrete Slal	11 days	Thu 31/12/20	Thu 14/01/21
42	42	6.6	Timber Roof Trusses	30 days	Mon 12/10/20	Fri 20/11/20



Project: EDHF Schedule with pr
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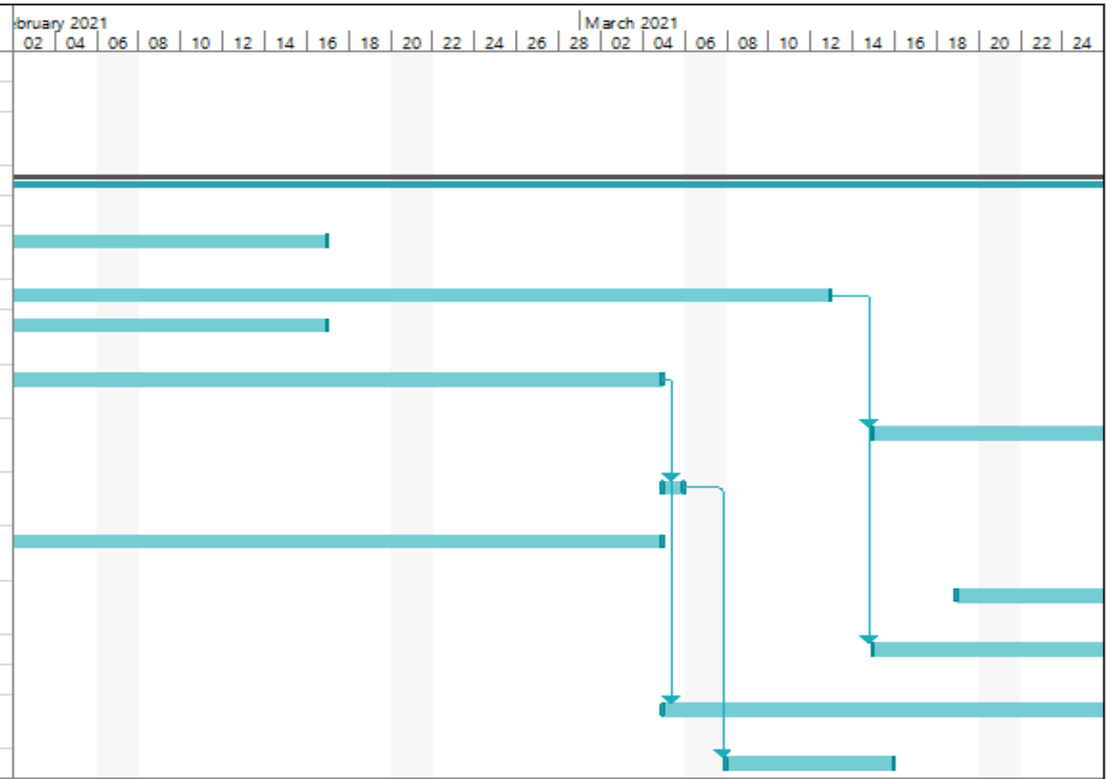
Task	Inactive Task	Manual Summary Rollup	External Milestone
Split	Inactive Milestone	Manual Summary	Deadline
Milestone	Inactive Summary	Start-only	Progress
Summary	Manual Task	Finish-only	Manual Progress
Project Summary	Duration-only	External Tasks	

ID	ID	WBS	Task Name	Duration	Start	Finish
43	43	6.7	Plywood, I & W Shield	32 days	Mon 12/10/20	Tue 24/11/20
44	44	6.8	Quality Inspection Roof	20 days	Thu 01/10/20	Wed 28/10/20
45	45	6.9	Quality Inspection Columns	23 days	Mon 26/10/20	Wed 25/11/20
46	**46**	**7**	**EXTERIOR FINISHES**	**135 days**	**Mon 21/12/20**	**Fri 25/06/21**
47	47	7.1	Metal Roofing	30 days	Mon 21/12/20	Fri 29/01/21
48	48	7.2	Roof Gutters & Downspouts	12 days	Mon 01/02/21	Tue 16/02/21
49	49	7.3	Exterior Plaster to Walls	30 days	Mon 01/02/21	Fri 12/03/21
50	50	7.4	Exterior Kawneer Front Doors	12 days	Mon 01/02/21	Tue 16/02/21
51	51	7.5	Exterior Kawneer Windows	24 days	Mon 01/02/21	Thu 04/03/21
52	52	7.6	Exterior Solid & Louvered Doors	18 days	Mon 15/03/21	Wed 07/04/21
53	53	7.7	Quality Inspection Windows & Doors	1 day	Fri 05/03/21	Fri 05/03/21
54	54	7.8	Ext Soffits & Covered Walkways	24 days	Mon 01/02/21	Thu 04/03/21
55	55	7.9	Decorative Moldings & Trims	18 days	Fri 19/03/21	Tue 13/04/21
56	56	7.10	Exterior Painting	24 days	Mon 15/03/21	Thu 15/04/21
57	57	7.11	Faux Stone Features	12 days	Fri 16/04/21	Mon 03/05/21
58	58	7.12	Aluminum Shutters (Colonial & Bahama)	20 days	Fri 05/03/21	Thu 01/04/21
59	59	7.13	Hand Railing	6 days	Mon 08/03/21	Mon 15/03/21



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Manual Summary Rollup
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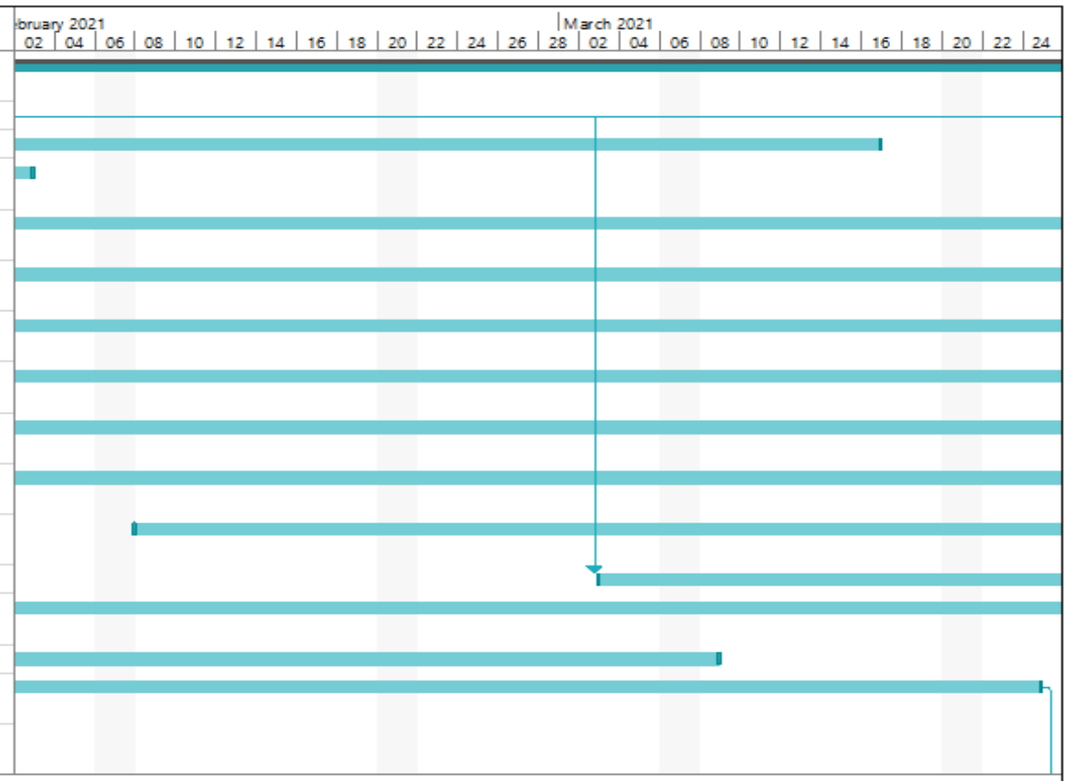
Start-only
Finish-only
External Tasks
External Milestone
Deadline
Progress
Manual Progress

ID	ID	WBS	Task Name	Duration	Start	Finish
60	**60**	**8**	**INTERIOR ROUGH-INS & FINISHES**	**143 days**	**Mon 07/12/20**	**Wed 23/06/21**
61	61	8.1	Fire Rated Fyp Bd Ceilin	36 days	Mon 07/12/20	Mon 25/01/21
62	62	8.2	Interior Partition Walls	36 days	Tue 26/01/21	Tue 16/03/21
63	63	8.3	Render to Interior Face of External Walls	6 days	Tue 26/01/21	Tue 02/02/21
64	64	8.4	HVAC Main Truck Duct Work & AUHs	78 days	Fri 08/01/21	Tue 27/04/21
65	65	8.5	Mechanical Rough-In Walls & Ceilings	78 days	Fri 08/01/21	Tue 27/04/21
66	66	8.6	HVAC Main Truck Duct Work & AUHs	78 days	Fri 08/01/21	Tue 27/04/21
67	67	8.7	LV Rough-In Walls & Ceilings	78 days	Fri 08/01/21	Tue 27/04/21
68	68	8.8	Plumbing Rough-In Walls & Ceilings	78 days	Fri 08/01/21	Tue 27/04/21
69	69	8.9	Medical Gases Rough-In Walls &	78 days	Fri 08/01/21	Tue 27/04/21
70	70	8.10	Test & Inspection of MEP Services	79 days	Mon 08/02/21	Thu 27/05/21
71	71	8.11	Gypsum Board to Walls	46 days	Wed 03/03/21	Wed 05/05/21
72	72	8.12	Gypsum Finishes to Walls (Skim & Sand)	48 days	Tue 26/01/21	Thu 01/04/21
73	73	8.13	Acoustic Ceiling Framing	30 days	Tue 26/01/21	Mon 08/03/21
74	74	8.14	Install MEP Fixtures Equipment, Fixtures &	42 days	Tue 26/01/21	Wed 24/03/21
75	75	8.15	Final Inspection of MEP Services	12 days	Wed 28/04/21	Thu 13/05/21



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Manual Summary
Start-only
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External Tasks
External Milestone
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Manual Progress

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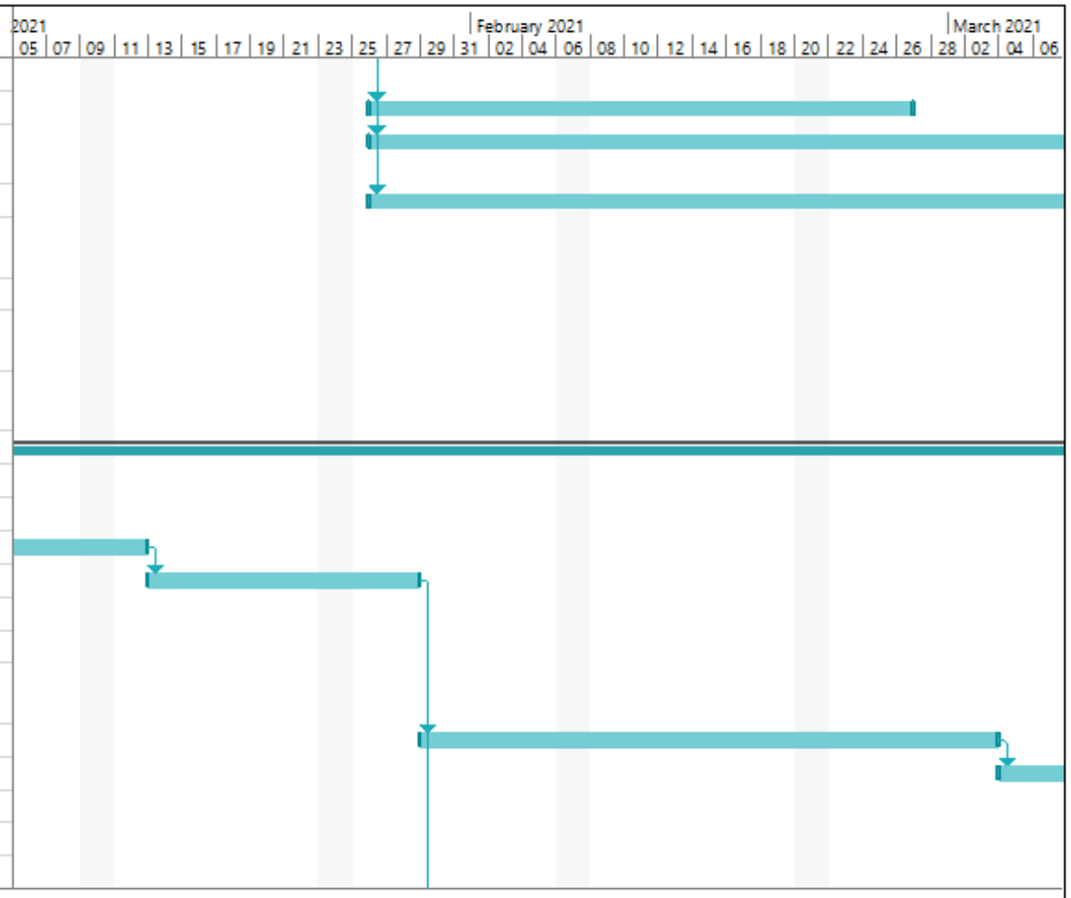
ID	ID	WBS	Task Name	Duration	Start	Finish
76	76	8.16	Prime & 1st Coat Patin	30 days	Wed 28/04/21	Tue 08/06/21
77	77	8.17	Floor & Wall Tiling	24 days	Tue 26/01/21	Fri 26/02/21
78	78	8.18	Install MEP Fixtures Equipment, Fixtures &	30 days	Tue 26/01/21	Mon 08/03/21
79	79	8.19	Install Milwork	36 days	Tue 26/01/21	Tue 16/03/21
80	80	8.20	Install Corridor Hand Railing	12 days	Thu 25/03/21	Fri 09/04/21
81	81	8.21	Install Acoustic Ceiling	23 days	Thu 25/03/21	Sat 24/04/21
82	82	8.22	Final Fix MEP Devices & Trims	23 days	Thu 25/03/21	Sat 24/04/21
83	83	8.23	Test & Inspection of MEP Services	24 days	Mon 26/04/21	Thu 27/05/21
84	**84**	**9**	**EXTERNAL WORKS**	**229 days**	**Mon 10/08/20**	**Thu 24/06/21**
85	85	9.1	Disposal Wells	18 days	Mon 10/08/20	Wed 02/09/20
86	86	9.2	Storm Drainage Chambe	18 days	Thu 03/09/20	Mon 28/09/20
87	87	9.3	Underground Site Servic	94 days	Thu 03/09/20	Tue 12/01/21
88	88	9.4	Septic Tank	12 days	Wed 13/01/21	Thu 28/01/21
89	89	9.5	Grease Interceptor	12 days	Thu 03/09/20	Fri 18/09/20
90	90	9.6	Dilution Tank	12 days	Thu 03/09/20	Fri 18/09/20
91	91	9.7	Earthworks/Grading for Roadways	30 days	Thu 03/09/20	Wed 14/10/20
92	92	9.8	Paving & Curbing	24 days	Fri 29/01/21	Wed 03/03/21
93	93	9.9	Line Markings	6 days	Thu 04/03/21	Thu 11/03/21
94	94	9.10	Footpaths	24 days	Thu 03/09/20	Tue 06/10/20
95	95	9.11	Light Poles	12 days	Thu 03/09/20	Fri 18/09/20
96	96	9.12	Site Signage	12 days	Thu 15/10/20	Fri 30/10/20



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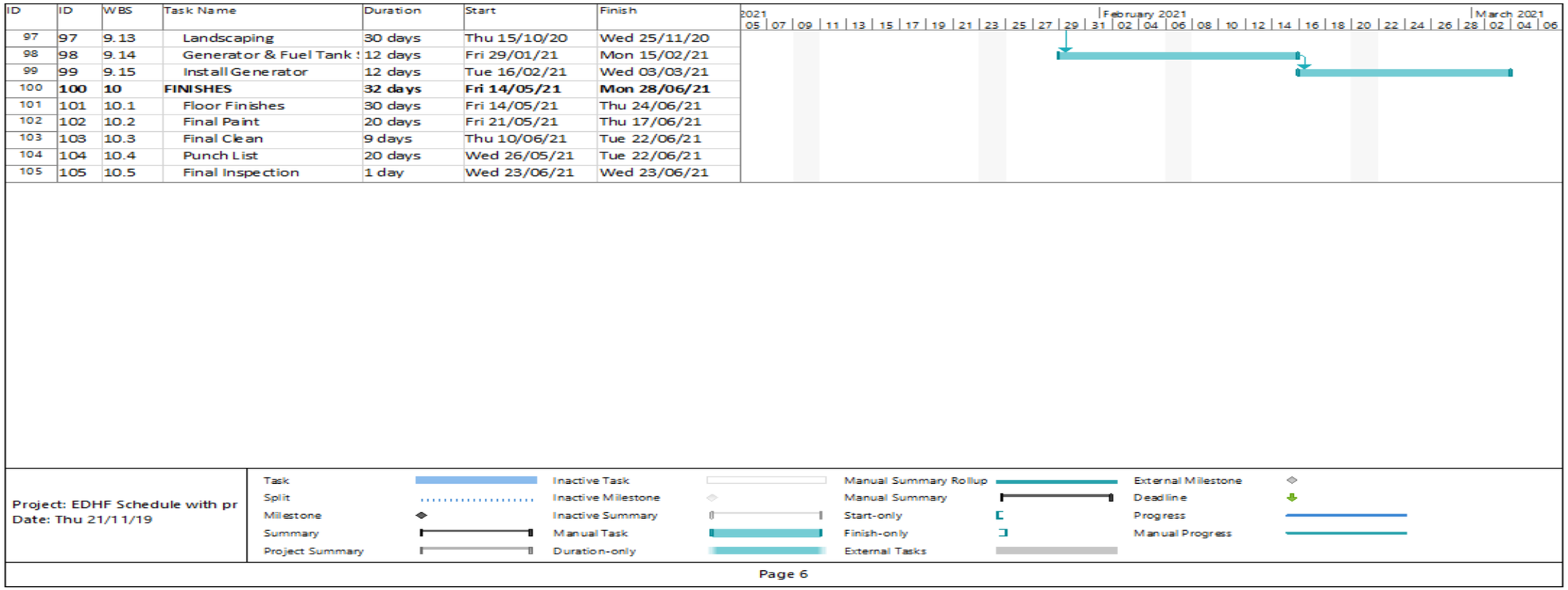
Milestone	Inactive Summary	Start-only	Progress
Summary	Manual Task	Finish-only	Manual Progress
Project Summary	Duration-only	External Tasks	



ID	ID	WBS	Task Name	Duration	Start	Finish
97	97	9.13	Landscaping	30 days	Thu 15/10/20	Wed 25/11/20
98	98	9.14	Generator & Fuel Tank S	12 days	Fri 29/01/21	Mon 15/02/21
99	99	9.15	Install Generator	12 days	Tue 16/02/21	Wed 03/03/21
100	**100**	**10**	**FINISHES**	**32 days**	**Fri 14/05/21**	**Mon 28/06/21**
101	101	10.1	Floor Finishes	30 days	Fri 14/05/21	Thu 24/06/21
102	102	10.2	Final Paint	20 days	Fri 21/05/21	Thu 17/06/21
103	103	10.3	Final Clean	9 days	Thu 10/06/21	Tue 22/06/21
104	104	10.4	Punch List	20 days	Wed 26/05/21	Tue 22/06/21
105	105	10.5	Final Inspection	1 day	Wed 23/06/21	Wed 23/06/21

Figure 11: EDHF Gantt Chart Compiled by Author. (Created in Microsoft Project 2016, Dated October 2019)

4.4 Project Cost Management

The next knowledge area for this plan is the Project Cost Management Plan. It will provide a detailed estimate on how the budget will be distributed and controlled. The activity cost estimates will provide probable cost to complete the work within the scope baseline.

The PMBOK Guide was used as a resource to assist with the Project Cost Management Plan. The tools and techniques that will be used to complete the Cost Management Plan were meetings and expert judgement. The article *Project Cost Management* (2019) states “you need to include tools and activities to assist completing your project within the approved budget”.

The budget for this project would have been created and detailed. The budget breakdown is a tool that will assist with decision making and strategically monitoring the overall project.

Chart 11: General Cost Breakdown (Source: G. Mackey, the author, October 2019)

GENERAL COST BREAKDOWN	
Item	**Project Costs**
Construction/General Contractor	$5,450,000
Administration	$1,314,600
Plumbing	$712,678
Electrical	$1,245,579
HVAC	$575,529
Value Added Tax (VAT) 12.5 %	$1,500,000
Permits	$23,000
Contingency (7%)	$840,000
Subtotal	$11,661,386

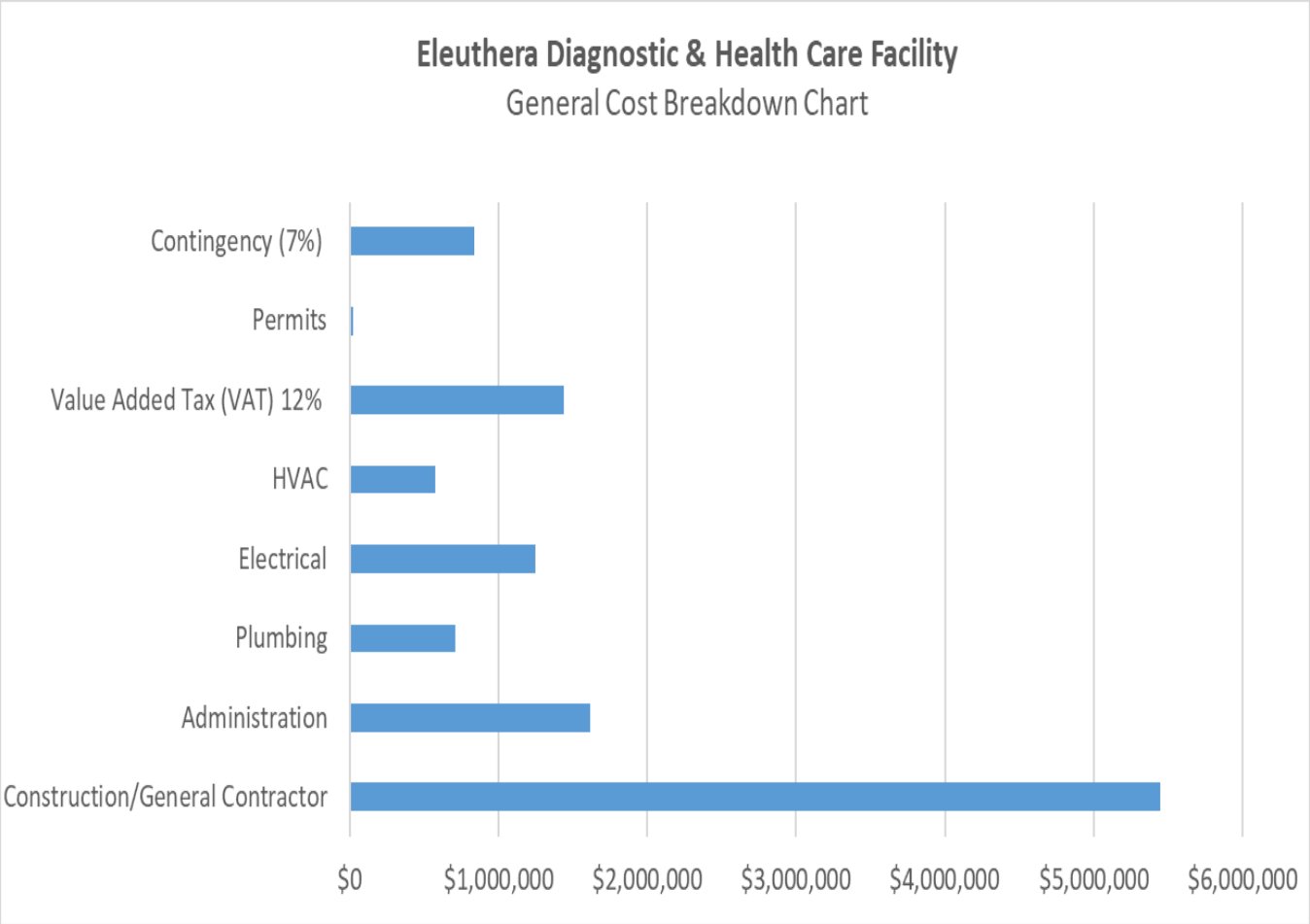


Figure 12: General Cost Breakdown (Source: Compiled by author)

Chart 12: General Administration and Labor Cost Breakdown (Source: G. Mackey, the author, October 2019)

Item Description	Estimated Cost
Trucking, temporary utilities	$155,616.00
Insurance	$214,357.00
Bond	$49,696.00
Site Works	

Site Clearance	$14,760.00
Site Fill	$38,293.00
Excavations	$41,037.00
Concrete	
Concrete formwork and reinforcing to:	
Substructure	$274,604.00
Superstructure	$212,213.00
Masonry	
Masonry Block Work	$106,325.00
Masonry Accessories	$10,890.00
Metals	
Structural steel columns beams and accessories	$59,300.00
Wood and Plastic	
Rough Faming including trusses	$90,810.00
Plywood decking	$51,676.00
Wood trims	$48,808.00
Thermal And Moisture	
Ice and water shield membrane	$38,709.00
6” batt insulation	$29,586.00
EPDM Roof Membrane	$33,702.00
Metal roofing	$150,236.00
Doors and Windows	
Storefront doors and windows	$21,449.00
Steel doors and frames	$115,680.00
Wood doors	$133,557.00
Windows	$102,830.00
Finish hardware	$60,000.00
Finishes	
Sheetrock (Finished) to wall	$212,567.00

Sheetrock (Finished) to ceiling	$112,307.00
Plaster	$422,472.00
Porcelain Tiles	$103,466.00
Vinyl Base	$101,089.00
Suspended ceilings	$112,104.00
Painting Internal	$103,654.00
Painting External	$103,654.00
Sheetrock (Finished) to wall	$68,931.00
External Works	
Asphalt Paving	$56,139.00
Block Paving	$11,880.00
Plumbing	
Plumbing & Drainage Supply & Installation	$712,678.00
Electrical	
Electrical Supply & Installation	$1,245,579.00
HVAC	
HVAC Supply & Installation	$575,529.00
Contractor	
Contractor Wages	$5,450,000.00
Administration	
Administration Wages, Equipment & Supplies	$1,614,600.00

Chart 13: Plumbing, Electrical and HVAC Breakdown (Source: G. Mackey, the author, October 2019)

ITEM	ESTIMATED COST
Scope of Work for Plumbing	**Material and Labor Cost**
Fixture: Supply and Install	$149,200.00

Connection to City Main Supply, 2" Meter	$15,074.00
Septic Tanks and Collection	$87,665.00
Condensate Drains and Installation	$28,325.00
Sanitary Drainage Piping and Fitting	$147,346.00
Hot Water Supply Piping and Fitting	$187,001.00
Storm Water Piping	$98,067.00
Subtotal	**$712,678.00**
Scope of Work for Electrical	**Material and Labor Cost**
Service Entrance Equipment	$128,470.00
Electrical Riser Distribution (Panels and Feeders)	$152,075.00
General Area Lighting	$212,850.00
Generator Connections (Electrical and Mechanical)	$26,730.00
General Power Distributions (Outlets and Disconnections)	$355,805.00
Pump Room Electrics	$7,315.00
Fire Alarm	$55,213.00
Lightning Protection and Grounding	$54,450.00
Site Electrics	$80,850.00
Generator	$170,475.00
As Built Documents and Manuals	$1,346.00
Subtotal	**$1,245,579.00**
Scope of Works for HVAC	**Material And Labor**
Sleeves	$11,440.00
Turning Vanes (etc.)	$3,300.00
Testing and Balancing (allowance)	$22,000.00
Hangers and Duct Straps	$4,400.00
Restroom Exhaust Ductwork	$37,375.00
Air handlers (Evaporators)	$106,994.00
Condensing Units	$212,669.00
Controls (Thermostat etc.)	$3,349.00
Trucking	$3,300.00

Limited Trenching and Backfilling	$1,650.00
Grilles Supply and Install	$2,420.00
Any Other Such Materials as Necessary to complete	$8,800.00
Emergency Drain Pans	$31,460.00
Grilles Supply and Install	$107,250.00
Ductwork and Accessories	$11,000.00
As Built Documents and Manuals	$8,122.00
Subtotal	**$575,529.00**

ELEUTHERA DIAGNOSTIC & HEALTHCARE FACILITY

Labor Cost Resource Breakdown

Based on 8 Hour Work Days

Based on 5 Day Work Week

Role	#	Work Days	Rate Per Hour	Work Per Week	Weekly Salary	Total Hours Life of Project	Cost Per Role Life Of Project
Project Manager	1	351	$ 110.00	40	$ 4,400.00	2808	$ 308,880.00
Quality Manager	1	351	$ 85.00	40	$ 3,400.00	2808	$ 238,680.00
Human Resources/Communication Manager	1	351	$ 85.00	40	$ 3,400.00	2808	$ 238,680.00
Risk Analysis/Procurement Manager	1	351	$ 85.00	40	$ 3,400.00	2808	$ 238,680.00
Scheduling/Cost Manager	1	351	$ 85.00	40	$ 3,400.00	2808	$ 238,680.00
Secretary	1	351	$ 8.50	40	$ 340.00	2808	$ 23,868.00
Site Superintendent	1	351	$ 25.00	40	$ 1,000.00	2808	$ 70,200.00
Mason Foreman	1	351	$ 17.00	40	$ 680.00	2808	$ 47,736.00
Skill Mason	4	351	$ 12.00	40	$ 1,920.00	2808	$ 134,784.00
Mason Helpers	5	351	$ 8.00	40	$ 1,600.00	2808	$ 112,320.00
Carpenter Foremen	2	351	$ 17.00	40	$ 1,360.00	2808	$ 95,472.00
Skilled Carpenters	4	351	$ 12.00	40	$ 1,920.00	2808	$ 134,784.00
Semi Skilled Carpenters	5	351	$ 9.00	40	$ 1,800.00	2808	$ 126,360.00
Carpenter Helpers	5	351	$ 7.00	40	$ 1,400.00	2808	$ 98,280.00
Time Keeper	1	351	$ 8.00	40	$ 320.00	2808	$ 22,464.00
Stores Keeper	1	351	$ 8.00	40	$ 320.00	2808	$ 22,464.00
Janitor	1	351	$ 7.00	40	$ 280.00	2808	$ 19,656.00
Truck Driver	1	351	$ 10.00	40	$ 400.00	2808	$ 28,080.00
Heavy Equipment Operator	4	351	$ 14.00	40	$ 2,240.00	2808	$ 157,248.00
Onsite Mechanic	1	351	$ 18.00	40	$ 720.00	2808	$ 50,544.00
Engineer	1	351	$ 70.00	40	$ 2,800.00	2808	$ 196,560.00
Jr. Engineer	1	351	$ 18.00	40	$ 720.00	2808	$ 50,544.00
Subtotal							**$ 2,654,964.00**

Figure 13: General Labor Cost Resource Breakdown. (Compiled by Author, created in Microsoft Office Excel 2016, Dated October 2019)

4.5 Quality Management Plan

The PMBOK Guide indicates that “Project Quality Management is the management of projects and their deliverables, which relates to all projects and their deliverables. (PMBOK Guide, Page 273)

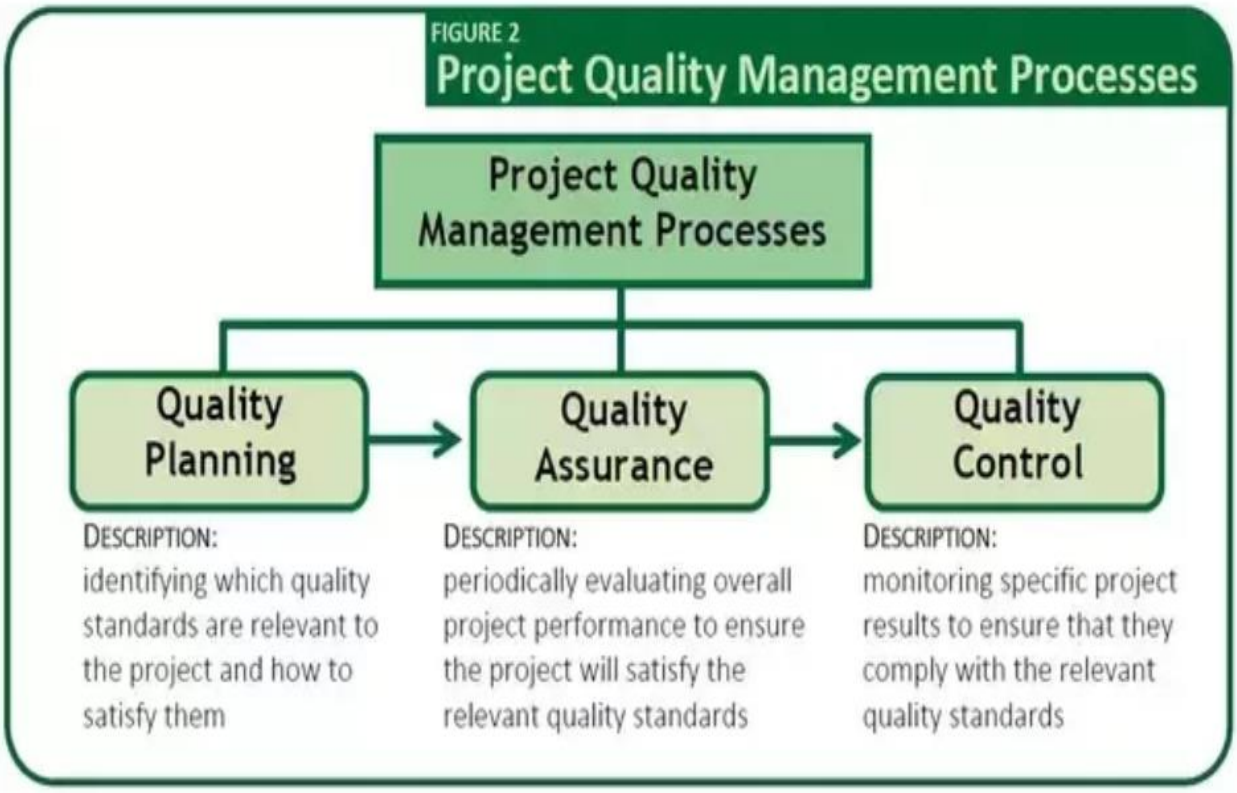


Figure 14: Project Quality Management Processes, Thompson, 2017. Retrieved from: https://www.quora.com/What-is-quality-management on October 2019

Chandana (2017) states that “Quality Management is managing quality in services and ensuring that quality is the goal and maintaining consistency in quality across projects; which is to be decided by stakeholders, owners and clients of the project”. Ray (2018) indicates that “A Quality Management Plan will be implemented to ensure that superior

quality levels are maintained throughout the project. Subcontractors will be provided with project specifications regarding what will be included in a list of materials. The materials that will be used will need to be in compliance of the Bahamas Building code.

The Ministry of Public Works will be notified of all structural works, specifically pours and steel installations at the required stages. The MOPW approved documentation will be acquired at completion of each stage.

4.5.1 Quality Management Approach

According to PMBOK, “quality management approaches seek to minimize variation and deliver results that meet stakeholder requirements” (PMBOK Guide Sixth Edition, 2017, p. 275). The quality management approach will be important and utilized during the construction of the Eleuthera Diagnostic and HealthCare Facility.

The project will continue to use all standards that have been identified from the inception of the project. Also, it will be based on the standard defined by the construction industry and the Government of the Bahamas. Also, it is important that the approach meets the criteria expected of the client or stakeholder. It is incumbent of the Project Manager and the Project Management Team that the responsibilities of Quality Management standards are carried out. It is important that all standards carry out the regulatory criteria, ensuring that all the building codes and conditions within the country’s guidelines are carried out.

One of the main focuses during the building of the EDHF is to ensure that all aspects of the Center is Sustainable. Sustainability was a major preference of the client and it was mandated that it should be incorporated during all parts such as the construction and the materials used for the project.

Quality documentation would have been created and established for the building of the Eleuthera Diagnostic and Health Facility. The Project Manager will be held responsible to ensure that the necessary documentation is accurate, current and ensure that it provides reliable data.

4.5.2 Quality Control

Quality Control is a phase within Project Quality Management. "Control Quality is the process of monitoring and recording results of executing the quality management events to assess performance and ensure the project outputs are complete, correct and meet customer expectations" (PMBOK Guide Sixth Edition, 2017, p. 298). Ray (2018) has an interesting quote that states "Quality Control needs a policeman to make sure that the rules are being followed and expected quality is being met, which means quality of deliverables is achieved". "Quality Control is operational techniques used to ensure quality standards should any time a problem arise relating to quality standards" (Chandana, 2017)

The building of the Eleuthera Diagnostic and HealthCare Facility will encompass quality control during the construction of the building. All of the quality control processes will include quality standards and policies that are a part of the countries laws and standards.

The project manager will be responsible for scheduling regular quality check meetings, which include reviewing quality documentations. Also, the project will have a full time Quality Control Manager which will play a pivotal role in the success of the project. There will be phases which the Quality Control Manager will be responsible to provide checks to ensure that the work has met quality criteria. It is mandated that quality checks are completed at specific junctures of the project and meet all standards before any further work will progress. According to Chandana (2017), "quality control involves

monitoring project results and delivery to check that they will meet desired results and if not, alternative actions will be implemented”.

Chart 14: Quality Check Form (Compiled: G. Mackey, the author, October 2019)

ELEUTHERA DIAGNOSITIC AND HEALTHCARE FACILITY Eleuthera, Bahamas				
QUALITY CHECK FORM				
Project Number:		**Date:**		
Item:		**Meet Quality Check**		**Additional Comments**
		Yes	**No**	
1				
2				
3				
4				
5				
6				
Name: **(Sign/Date)**		**Accepted by:** **(Sign/Date)**		

4.6 Human Resource Management Plan

The next knowledge area is the Human Resource Management Plan. "Human Resource Management is the processes to identify, acquire and manage the resources needed for the successful completion of the project" (PMBOK Guide Sixth Edition, 2017, p. 24). The Human Resource Management Plan provides management on resources and how it should be managed and controlled. This encompasses the planning, executing, monitoring and controlling of the project management process during the lifecycle of the project.

The Human Resource Management Plan is vital for this project as it will ensure that all the resources are properly managed based on the necessary and suitable skills needed to complete each tasks.

4.6.1 Roles and Responsibilities

The roles and responsibilities is very important for the construction of the Eleuthera Diagnostic and HealthCare Facility.

To assist with an effective plan, the following roles and responsibilities have been determined below. The number on the side will

Project Manager (PM) Roles (1):

1. Ensure that roles and responsibilities are allotted correctly
2. Responsible for time management
3. Responsible for developing budget and financial plan
4. Assist with scheduling
5. Evaluate performance of staff

6. Responsible for effective communication plan among staff and sponsors
7. Ensure that knowledge and information is communicated efficiently

Competencies:

- Leadership Skills
- Strategic Skills
- Decision-making skills
- Operational Skills
- Tactical Skills
- Negotiation Skills
- Budgeting Skills
- Scheduling Skills
- Critical Thinking Skills
- Communication Skills
- Risk Management Skills
- Cost Management Skills
- Quality Management Skills
- Empowerment Skills

Authority:

The ability to act on behalf of the project sponsor, which they have the ability to make decisions for the project such as change requests.

Cost/Financial Manager Roles (1):

1. Provide budget for the project
2. Ensure budget is adhered to
3. Overseas all items related to budget expenditure

Skills:

- Time Management Skills

- Analytical Skills
- Financial Forecasting Skills
- Team-Working skills
- Problem-Solving Skills
- Organizational skills
- Methodical Skills

Quality Control Manager Roles (1):

1. Inspect work after each milestone
2. Responsible of ensuring that all tasks meet quality standards
3. Ensure that production is done correctly
4. Provide recommendations for quality of material
5. Analyze and advise on building specifications in order to prioritize all tasks

Skills:

- Delegation Skills
- Planning Skills
- Organizational Skills
- Communication Skills
- Leadership Skills
- Planning Skills
- Communication Skills
- Writing Skills
- Detail-Orientated Skills

Human Resource & Communication Manager Roles (1):

1. Recruit the best skilled worked for the project by working along with General Contractor (GC)
2. Ensures and enforces the safety of standards for labor

3. Communicates with the General subcontractor for employees hired for the project
4. Effectively creates a channel of communication among stakeholders

Skills:

- Communication Skills
- Planning Skills
- Time Management Skills
- Listening Skills
- Organization Skills

Risk Analyst & Procurement Manager Roles (1):

1. Creating risk management procedure for the project
2. Provides a mitigation plan
3. Creating risk continuity plans
4. Create risk assessments
5. Provide risk reports
6. Determines and advices on the material and supplies to be procured

Skills:

- Analytical Skills
- Decision-Making Skills
- Problem-Solving Skills
- Negotiation Skills
- Research Skills
- Organization Skills
- Strategic Skills
- Communication Skills
- Planning Skills

- Time-Management Skills

Project Staff Roles:

The project team will comprise of a number of persons whose roles will be pivotal for the project and completing the majority of the work for the project. Sub-contractors will also be employed and they will be skilled and certified to complete the project, successfully. As per the Bahamas' standard, they will need to be trained in Occupational Safety and Health Administration (OSHA), which is regulated and

Support Team Roles:

The Support team roles consist of the General Contractor (GC) and the team that work on site for the project. Again, they should have knowledge of the Occupational Safety and Health Administration(OSHA) standards.

Sub-Contractors:

The sub-contractors' roles are to possess the necessary required skill needed to successfully complete the proposed task. They are required to be certified and complete the contracted scope of work successfully and within the timeframe set.

General Contractor (1):

The Contractor's function is to meet and comply with all requirements provided by the Project Manager. Also, the GC is to lead a team of skilled people to get the intended tasks completed within budget meeting all the required deadlines.

Architect (1):

The architect is responsible for creating a designs and that is aesthetically pleasing to the client. This include a design that is functional, sustainable and safe. The architect is also responsible for any alterations needed to the design or the plans.

Site Superintendent (1):

The Site Superintendent's is responsible for coordinating all the activities on the job site. Also, the Site Superintendent will be responsible for site records and keep accurate as-built drawings. It will be important that they will have a strong grasp of construction methods and ensure that site safety is always enforced and most important. The site superintendent has to be versatile and look at other options when one possibility does not work. Also, a Site Superintendent will need to have a number of skills, especially planning and organizational skills.

Site Foreman (1):

The Site Foreman is the key person that is responsible for the organization of all the construction work and responsible for organizing the work for the project. He/she affects the overall success of the project, as they typically are accountable for all the work and the construction workers. As the Site Foreman is responsible for all the construction workers, this also comes with being responsible for the health and safety of all the workers.

Mason Foreman (1):

The Mason Foreman will need to be skilled and have a strong knowledge in the mason field. This person will need to know how to read blueprint drawings to assist with providing measurements for material. Also, they will be responsible for overseeing all the mason work along with the skilled masons and mason helpers.

Skilled Masons (4):

Skilled masons are masons that are assist with working with stone work and assist with laying bricks or blocks and is proficient in working with bricks, blocks or stone. They will need to have skills of reading blueprint and estimating the quantity of mortar needed to complete a job. They should be able to mix mortar, drive forklifts, trucks, lay out the corner of buildings and clean up the worksite.

Mason Helpers (5):

Assist the skilled masons.

Carpenter Foremen (2):

The carpenters are responsible for the installation of dry wall, build materials from wood which includes furniture or cabinetry and the building of wood framing. The carpenter foremen are also the supervisors for the carpenters, which include the skilled and semi-skilled carpenters.

Skilled Carpenters (4):

Assist the carpenters' foremen, which includes the installation of dry wall, build materials from wood, such as the furniture, cabinetry and the building of wood framing.

Semi-Skilled Carpenters (5):

The semi-skilled carpenters assist the carpenters. They have had some training and can assist partially with the trade.

Carpenter Helpers (5):

Assist the Carpenters' foremen, the skilled carpenters and the semi-skilled carpenters.

Time Keeper (1):

The time keeper is responsible for the wages and attendance for the project. They keep track of all of the hours that the workers work and accurate keep record of absentees, such as sick days, personal days, etc. The team's salaries are prepared and employees are paid based on the submitted records. He/she must have excellent time management skills, multitasking skills, organizational skills, communication skills, people skills, conflict resolution skills and people skills.

Store Keeper (1):

The store keeper is responsible for compiling records and the release of all supplies on the project. The store keeper overseas all the equipment and supplies for the project.

Also, the store keeper keeps all the records for supplies and equipment. He/she completes constant checks to get accurate count of supplies and equipment and records any possible damage to any equipment.

Engineer (1):

The engineer uses his engineering expertise and technical skills and oversees the project. He/she provides advice, they assist with checking plans, drawings and quantities. The engineer also liaises with the project manager, the architect, and the quality control manager to ensure that all decisions made are done correctly. He/she communicates design ideas and the selection of materials. The engineer analyzes topographical studies and site plans to determine the most efficient and safest way to build a structure and in this case, the hospital facility. The engineer must be strong in problem-solving, critical thinking, communication skills, skills in numeracy, and reporting skills.

Janitor (1):

The janitor is responsible for the daily cleaning of the job site

Truck Driver (1):

The truck driver is responsible for running errands, picking up materials, supplies, and equipment and the pick-up and drop off of staff on a daily basis.

Heavy Equipment Operators (4):

The Heavy Equipment Operators are responsible for driving, operating and controlling the construction heavy equipment on the job site. The heavy equipment consists of dump trucks, forklifts, backhoes, bulldozers, cargo trucks and hydraulic truck cranes.

4.6.2 RACI Chart

A RACI chart was created for this project which will identify the roles and relationship between the tasks and the team members. The activities were derived from the WBS. Any changes that is needed will be done by the change control board process. If approved, all the necessary documents will be updated and disseminated according to the communication plan.

Key:
R – Responsible for performing the work that is required
A – Accountable for ensuring that the tasks are completed
C – Consulted before any decisions are made
I - Informed that any action or decision will be made before doing so

PM (Project Manager)

Chart 15: RACI Chart (Compiled: G. Mackey, the author, October 2019

Activity	Project Manager	Project Management Team	Architect	Site Superintendent	Site Foreman	Subcontractors	Engineer	Quality Control Manager	Cost/Financial Manager	Human Resource & Communication Manager	Risk Analyst & Procurement Manager	Laborers	Sponsors
PRELIMINARY													
Award Contract	R/A												
Mobilization	R								A				
Project Planning	R/A	R											
Land Acquisition	C												RA
Drawings	C		R/A										
Site Works (Clearance, Fill, Excavations)		C/I		R/A									
Concrete Works (formwork, reinforcing to substructure, superstructure)		C/I		R/A								I	
Mason Block work & Accessories		C/I		R/A								I	

Metal Works (Structural Steel columns beams & Accessories)		C/I		R/A								I	
Wood & Plastic (Rough Framing including trusses, plywood decking, wood trims)		C/I		R/A								I	
Thermal & Moisture		C/I		R/A		I							
Doors & Windows		C/I		R/A		I						I	
External Work (Asphalt Paving & Block Paving)		C/I		R/A		I							
Procurements	C	I									R/A		
Project Communications	C	I								R/A			
Site Laborers	C			R/A								I	
Quality Assurance	C	I					C	R/A					
Risk Management	C						C	C			R/A		
Site Finishes	R/A		R				C					I	
Final Inspection	C	I					C	R/A					

4.6.3 Staff Acquisition

The staff will be recruited and some of the staff will be outsourced for the construction of the Eleuthera Diagnostic & Healthcare Facility. The GC will be selected through a bidding process and Request for Proposal Form (RFP) will be used to select sub-contractors. The GC will work along with HR but the GC will be responsible for the recruitment of workers for the construction site.

The GC has the responsibility of hiring all the sub-contractors. Some of the contractors are plumbing, electrical, heating/ventilation, A/C, architect and metal contractors. The sub-contractors will have to be certified and qualified in order to be eligible for the job. Also, one of the qualifications for the sub-contractors is that they have to be familiar and knowledgeable in sustainable construction building, as this is mandated from the client. Bids will be submitted through the Request for Proposal Form (RFP), as seen in *Figure 15* below. Normally, the sub-contractor that meets the criteria and with the lowest bid (based on the RFP) is selected. Along with the RFP, the bidders also provide a document that includes drawings, blueprints and contact information.

REQUEST OF PROPOSAL (RFP)

For

Eleuthera Diagnostic and Healthcare Facility

Project Management Team: Seashore Management Services

Contractors Name: _____

Contractor's Signature: _____

Main Contact Person

Name: _____

Title: _____

Meeting/Event: _____

Meeting Date: _____

Total Expected Attendance: _____

Type of Contract: _____

Bid Price: _____

Review Date: _____

Approved by: _____

Approved Signature: _____

Proposal Due Date: _____

Decision Date: _____

Figure 15: RFP Form. (Compiled by Author)

The level of qualification and experience will represent the level of quality of work provided. The level of work is determined based on experience and their qualification. It is important to look at the level of qualification in each candidate first. Next, the GC and the HR manager will look at time. Time is interdependent of quality, as the most qualified and experienced individuals will know and most effectively manage their time with each and every tasks. Also, the time it takes to hire all of the staff will be considered. The last item that is taken into consideration is the wages that needs to be paid to each staff. The wages of all of the staff is important to taken into perspective, as the EDHF has an overall budget that needs to be met. The quality, time and cost will need to be considered.

All the resources for this project has to be approved by the sponsor before any work can begin. In this case, NIB is the project sponsor and the National Hospital Authority would act as the sponsor's representatives. The project team will not be located in multiple locations or there will not be any virtual teams. The EDHF project needed on the ground employees and due to the scope of work and time restrictions, team members working from a different location or virtually would not be applicable. All of the support team doing the construction will be in the same workspace, which is Eleuthera, Bahamas.

4.6.4 Staff Release Plan/ Resource Calendar

All the resources are based on an eight (8) hour work day, a five (5) day work week, which totals a forty (40) hour work week. All resources are not required to work before the project begins. In actuality, this means that specific persons will not be hired until everyone is needed at the time they are needed for the project. The resource histogram is seen below in *Figure 16*.

The project is set to begin July 1st, 2020 until June 30th, 2021. Some of the staff will be begin at different intervals of the project. Other staff will be released early, as they will no longer be needed in the project. The Project Management Team will be required to work more hours during the month of July, as per the planning before construction can officially commence.

Dates/Duration	Amout of Staff
July-1-20 - Aug-3-20	5
Aug-3-20 - Sep-11-20	27
Sept-11-20 - May-27-21	45
May-27-21 - June-30-21	29

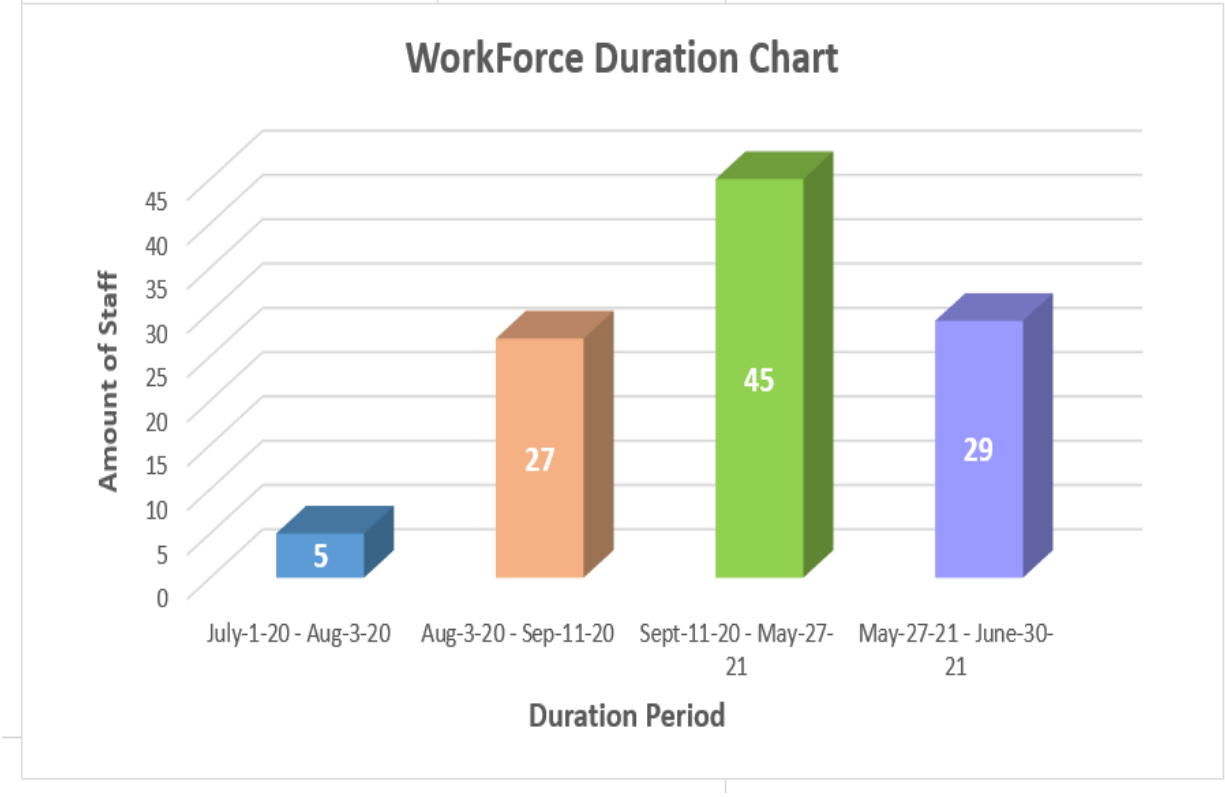


Figure 16: Resource Histogram Graph. (Compiled by Author, October 2019)

4.6.5 Training

The certified and qualified candidates will be hired; therefore, there will no need to train individuals. Should the need arise during the project, the following training programs will be accessible for funding:

- ✓ Time Management
- ✓ Anger Management
- ✓ Communication
- ✓ Effective Leadership
- ✓ Team Work
- ✓ Conflict Management Skills

The training will be done and the individuals will be returned directly to the job afterwards, applying all that they have learned from the training.

4.6.6 Performance Review

A team performance assessment will be conducted by the Project Manager every three (3) months. This will be done to evaluate the management project team's effectiveness. The 360-dgree review Performance Appraisal will be conducted, which takes feedback from everyone that the team members interact with. Should a labor resource be released and prior to being released, the project manager will meet with the General Contractor and the on-site lead to provide feedback on their performance.

The General Contractor will also be responsible for a formal performance review on each labor resource/Project Support team member. This will advise each laborer how they performed and what that they need to work on.

4.6.7 Organizational Health and Safety Standards

The organizational health and safety standards to be followed will be the 'Occupational Safety and Health Administration (OSHA) regulations. This is safety international course/certification that is an agency of the United States Department of Labor. The training is held frequently in the Bahamas and persons are eligible to register and participate. This course ensures that safe and healthy working conditions for men and women working on the job site. This course can be taken by one person on the job site that enforces the safety rules and regulations on the site. The person(s) is responsible for the safety on the site, analysis of the on-site sources of risk management and risk control measures.

4.6.8 Human Resource Assignment

One of the items that will be used to keep the project on track will be the resource assignment. The tools and techniques used to generate were using expert judgement from the project manager, D. Mackey, which assisted in assigning resources. The resources assignments are seen below in *Chart 16*.

Chart 16: Resource Assignment (Source: G. Mackey, the author, September 2019)

WBS Level	Activity Name	Duration	Responsibility
1	Award contract	0 days	Client
1	Mobilization	23 days	Client, Project Manager
1	Compliance codes/building permits	7 days	Project Manager
1	Meet with architect	10 days	Project Management Team, Architect, Architect Team, SP Architects
1	Preliminary budget	1 day	Project Manager, Accountant

1	Cost analysis budget prepared	5 days	Project Manager, Accountant
1	Approvals for drawings	1 day	Architect, Project Manager
1	Approvals for budget	1 day	Project Manager, Accountant, Quantity Surveyor
1	Prepare project schedule	7 days	Project Manager
1	Approval project schedule	1 day	Project Management Team
1	Temporary Office/Site	10 days	GDCC – Main Contractor, Project Management Team
2	Meet for Procurement and Contracts	1 day	Project Management Team, Procurement Manager
2	Tender for sub-contractors	7 days	Project Manager, Sub-contractors
2	Complete bids for sub-contractors	1 day	Client, Project Manager
2	Order long lead building items	1 day	Procurement Manager, Project Manager
2	Order long lead electrical Items	1 day	Procurement Manager, Project Manager
2	Order long lead plumbing Items	1 day	Procurement Manager, Project Manager
2	Order long lead roofing Items	1 day	Procurement Manager, Project Manager
3	Power On	1 day	Site Foreman, WD Electrical Ltd.

3	A/C On	1 day	Site Foreman, JD Systems
3	Water Tie-In	1 day	Site Foreman, C.C Plumbing
3	Sewer Tie-In	1 day	Site Foreman, C.C Plumbing
4	Clear Site	6 days	Site Foreman, D.H. Heavy Equipment
4	Bulk Earthworks & Grading	10 days	Site Foreman
5	Layout	5 days	Engineer, Site Surveyor
5	Excavate Foundations	20 days	Main Contractor, Site Foreman, D. H. Heavy Equipment
5	CMU Stem Walls (Inc. Conc. Infill)	20 days	Main Contractor, Site Foreman, Superintendent, Laborers
5	Backfill to U/S Slab	25 days	Main Contractor, Site Foreman, Superintendent, Laborers
5	U/S MEP services	30 days	Main Contractor, Site Foreman, Superintendent, Laborers
5	F/R/P Slab on Grade	31 days	Main Contractor, Site Foreman, Superintendent, Laborers
5	Quality Inspection Slab Pour	1 day	Main Contractor, Site Foreman, Quality Control Manager, Superintendent
6	CMU Walls	33 days	Main Contractor, Site Foreman, Superintendent, Laborers
6	Concrete Columns	30 days	Main Contractor, Site Foreman, Superintendent, Laborers
6	Structural Steel Work	10 days	Main Contractor, Site Foreman, Superintendent, Laborers
6	Concrete Belt Beam	25 days	Main Contractor, Site Foreman, Superintendent, Laborers

6	High Level Concrete Slabs	11 days	Main Contractor, Site Foreman, Superintendent, Laborers
6	Timber Roof Trusses (Inc. internal bracing)	30 days	Main Contractor, Site Foreman, laborers
6	Plywood, I & W Shield	32 days	Main Contractor, Site Foreman, laborers
6	Quality Inspection Roof	20 days	Quality Control Manager, Site Foreman, Superintendent,
6	Quality Inspection Columns, Belt, Slabs & Steel	23 days	Quality Control Manager, Site Foreman, Superintendent,
7	Metal Roofing (Standing Seam)	30 days	Superintendent, Metal Roof Contractors, EleuMer
7	Roof Gutters & Downspouts	12 days	Superintendent, laborers
7	Exterior Plaster to Walls	30 days	Superintendent, laborers
7	Exterior Kawneer Front Doors	12 days	Superintendent, laborers
7	Exterior Kawneer Windows	24 days	Superintendent, laborers
7	Exterior Solid & Louvered Doors	18 days	Superintendent, laborers
7	Quality Inspection Windows & Doors	1 day	Quality Control Manager, Site Foreman, Superintendent,
7	Ext Soffits & Covered Walkways (Inc.	24 days	Superintendent, laborers

	Porte Cochere)		
7	Decorative Moldings & Trims	18 days	Superintendent, laborers
7	Exterior Painting	24 days	Superintendent, laborers
7	Faux Stone Features	12 days	Superintendent, laborers
7	Aluminum Shutters (Colonial & Bahama)	24 days	Superintendent, laborers
7	Hand Railing	6 days	Superintendent, laborers
8	Fire Rated Gyp Bd. Ceiling (to U/S of Roof Truss)	36 days	Superintendent, laborers
8	Interior Partition Walls	48 days	Superintendent, laborers
8	Render to Interior Face of External Walls	18 days	Superintendent, laborers
8	HVAC Main Truck Duct Work & AUHs	78 days	Superintendent, sub-contractor, JD Systems
8	Mechanical Rough-In Walls & Ceilings	78 days	Superintendent, sub-contractor, WD Electrical Ltd.
8	HVAC Main Truck Duct Work & AUHs	78 days	Superintendent, sub-contractor, JD Systems
8	LV Rough-In Walls & Ceilings	78 days	Superintendent, sub-contractor, WD Electrical Ltd.

8	Plumbing Rough-In Walls & Ceilings	78 days	Superintendent, sub-contractor, C.C Plumbing
8	Medical Gases Rough-In Walls & Ceilings	78 days	Superintendent, laborers
8	Test & Inspection of MEP Services	57 days	Superintendent, sub-contractor, WD Electrical Ltd.
8	Gypsum Board to Walls	48 days	Superintendent, laborers
8	Gypsum Finishes to Walls (Skim & Sand)	48 days	Superintendent, laborers
8	Acoustic Ceiling Framing	30 days	Superintendent, laborers
8	Install MEP Fixtures Equipment, Fixtures & Trims	42 days	Superintendent, laborers
8	Final Inspection of MEP Services	12 days	Quality Control Foreman, Site Foreman, Superintendent
8	Prime & 1st Coat Paint	30 days	Superintendent, laborers
8	Floor & Wall Tiling	24 days	Superintendent, laborers
8	Install MEP Equipment, Fixtures & Trims	30 days	Superintendent, laborers
8	Install Millwork (Inc. Internal Doors/Cabinets)	36 days	Superintendent, laborers
8	Install Corridor	12 days	Superintendent, laborers

	Hand Railing		
8	Install Acoustic Ceiling Tile	24 days	Superintendent, laborers
8	Final Fix MEP Devices & Trims	24 days	Superintendent, laborers
8	Test & Commission MEP Systems	24 days	Quality Control Manager, Site Foreman, Superintendent, laborers
9	Disposal Wells	18 days	Superintendent, laborers
9	Storm Drainage Chambers	18 days	Superintendent, laborers
9	Underground Site Services	100 days	Site Foreman, Superintendent,
9	Septic Tank	12 days	Superintendent, sub-contractor, C.C. Plumbing
9	Grease Interceptor	12 days	Superintendent, laborers
9	Dilution Tank	12 days	Superintendent, laborers
9	Earthworks/Grading for Roadways & Car Park	30 days	Superintendent, sub-contractor, D.H. Heavy Equipment
9	Paving & curbing	24 days	Superintendent, laborers
9	Line Markings	6 days	Superintendent, laborers
9	Footpaths	24 days	Superintendent, laborers
9	Light Poles	12 days	Superintendent, laborers
9	Site Signage	12 days	Superintendent, laborers
9	Landscaping	30 days	Superintendent, laborers

9	Generator & Fuel Tank Slab	12 days	Superintendent, laborers
9	Install Generator (Inc. Testing & Commissioning)	12 days	Quality Control Manager, Site Foreman, Superintendent, laborers
10	Floor Finishes	30 days	Superintendent, laborers
10	Final Paint	20 days	Superintendent, laborers
10	Final Clean	10 days	Superintendent, laborers, sub-contractor, S.B. Cleaning Company
10	Punch List	20 days	Main Contractor, Project Manager, Superintendent
10	Final Inspection	1 day	Project Manager, Superintendent, Quality Control Manager, Client

4.7 Risk Management Plan

The Risk Management Plan is the next knowledge area. The Risk Management Plan will identify, strategize and mitigate the losses that may arise from any hazards. The hazards may be imposed by environmental, deliberate, negligence and acts of God that may impede the success of the construction of the Eleuthera Diagnostic and Healthcare Facility. According to Kaplan (2012), “the first step in creating an effective risk management plan is to understand the qualitative distinctions among the types of risks that the organizations face, as risk events can be fatal to a company’s strategy and to its survival”. “The risk management plan provides the approach for identifying, analyzing and monitoring risks that provides processes and controls that will impact cost estimation and management” (PMBOK Guide, 2017, p. 236). The risk management

plan will provide a set of protocols, actions and procedures needed to prevent and reduce the impact should an event occur.

The plan is intended to be a guide and expose or identify any risks (known or unknown), to analyze it, monitor and control the risks. The management of risks is crucial to the success of the project and this guide will include roles and responsibilities, the methodology, budgeting, timing and impact matrix, reporting formats and tracking.

Due to the project taking place in the Bahamas, a risk that can most likely affect the project from completing on time is Hurricanes/Tornadoes. This can affect the deliverables being completed with the scheduled timeline.

Below, in *Chart 17* is a risk matrix that lists general risk areas, the likelihood of the risk occurring, the risk owner and the project impact or mitigation plan.

Chart 17: General Risk Matrix (Compiled: G. Mackey, the author, October 2019

#	Risk Area	Likelihood	Risk Owner	Project Impact-Mitigation Plan
1	Natural Disasters i.e. Hurricanes	Medium	Sponsors, Project Manager, SMS Team	-Comprehensive Insurance -Site Evacuation Plan - Ability to store materials to avoid damages at nearby warehouse
2	Power Outage	Medium	Project Manager, SMS Team	-Temporary generators and back- up generators
3	Government Change	Low	Sponsors	-Include a government clause in charter ensuring project continuity

				should the government change
4	Schedule Delays- Inclement Weather	Medium	Schedule Manager	Flexible work hours (7 days a week)
5	Procurement of Supplies & Material	Medium	Procurement Manager, Project Manager	-Sub-contractors to provide procurement schedules for materials and equipment -Local vendors identified as substitute suppliers, manufacturers
6	Injuries on the job	Medium	Project Manager, Quality Manager	-Prove proper insurance coverage, NIB -Tool Box Talks -Enforce safety equipment as mandatory to wear while on site -Have a First Aid Kit on site
7	Fire	low	Project Manager, SMS Team	-Have medical supplies available -Site Evacuation Plan - Liability Insurance

4.7.1 Roles and Responsibilities

Project Manager Role and Responsibilities include:

- ✓ Conduct inclusive project risk assessments to provide accurate project risk status
- ✓ Develop, distribute and update risk management plan
- ✓ Determine a formal risk management plan and methodology to assess risk
- ✓ Present project risks as required to senior management and stakeholders

- ✓ Ensure that risk mitigation deadlines are calculated in scheduled performance goals and objectives
- ✓ Ensure that compliance with relative governmental safety and security standards, such as OSHA regulation 29 CFR 1910
- ✓ Ensure that site loss prevention controls are executed as provided by the risk manager
- ✓ Develop and report development for risk management tasks
- ✓ Establish risk transfer methods, policies and compliance with relative insurance company and establish records in reference to claims and related documentation
- ✓ Ensure that risk mitigation plans are established and relative actions are suitable to contain or eliminate potential events
- ✓ Coordinate with risk owners to monitor risks

4.7.2 Risk Analysis Manager

- ✓ Maintain updates to the risk management plan and register
- ✓ Incorporate the resources and time required to execute the Risk Management Plan
- ✓ Ensure that perform risk tasks assigned
- ✓ Update the risk lists and risk and lessons learned database

4.7.3 Project Team Responsibilities

The Risk Owner exposes and identifies the potential risks that makes their assessment by isolating the probability, impact and priority of the risks throughout the lifecycle of the project.

To track risks, mitigation measures that is proposed and affected by each category or that the risk becomes relevant. Risk issues should be identified relative to the risk category that provides data that is relative to the impact on the projected milestone and quantifies measures taken. Risk control measures should be documented, as they are applied and if necessary, secondary measures should be applied.

Any risks that are identified should parallel within timelines and measures within the impact throughout the project lifecycle. Risks that continuously occur throughout the project should be tracked and communicated. They should be visible to stakeholders, contractors and management teams will be continuously communicated to all stakeholders and project management teams. Any risks that are intermittent, they will be immediately notified to all parties throughout each phase of the project. The risk register will be updated as the Risk Owner will give the status of the contingency plan and the project team should:

1. Take action on the risk
2. Eliminate the risk
3. Retire the risk

4.7.4 Risk Analysis Methods

According to PMBOK, “Qualitative Risk Analysis is the process of prioritizing individual project risks for further analysis or action by assessing their probability or occurrence and impact as well as other characteristics” (PMBOK Guide Sixth Edition, 2017, p. 395). It is a measurement that can be ranked into categories such as low, medium, high on a scale from 1 to 10.

PMBOK indicates that “Quantitative Risk Analysis is the only reliable method to assess overall project risk through evaluating the aggregated effect on project outcomes of all individual project risks and other sources of uncertainty (PMBOK Guide Sixth Edition, 2017, p. 429). It is a method used to apply data from historical methods or research information to quantify the risk in a very measurable way; estimating financial costs, time phases, contingencies needed for cost, etc. The data is used to assess the asset value, probability and value of the loss. In some occurrences, the EML (estimated maximum loss) of the risks once they have been identified.

The project will not use quantitative cost risk analysis, quantitative schedule risk analysis, the decision tree analysis or the quantitative methods. The project references historical data for any environmental risks, such as hurricanes.

4.7.5 Project Risk Assumptions:

1. All building material will available when needed
2. The laborers and sub-contractors will be available to work, as needed
3. The soil will be of the correct quality, which is not too soft
4. Bahamas customs will clear exported material and equipment in a timely manner
5. Sub-contractors are licensed and are top quality and can complete the work required on time; preventing any start delays

4.7.6 Risk Management Reviews/Meetings

The meeting for Risk Management will be conducted every month. During each phase, an updated document with decisions made will be made available. This meeting will be used for any needed discussions and decisions, as needed. Also, any such owners of the risks will be bought up to date and given the perspective risk that will need to mitigated. The risk register will be provided and updated during each meeting; whereas, the potential risk will be added to the register, assessed and addressed. A project initiation document will be provided by the Project Management Team preceding to each meeting.

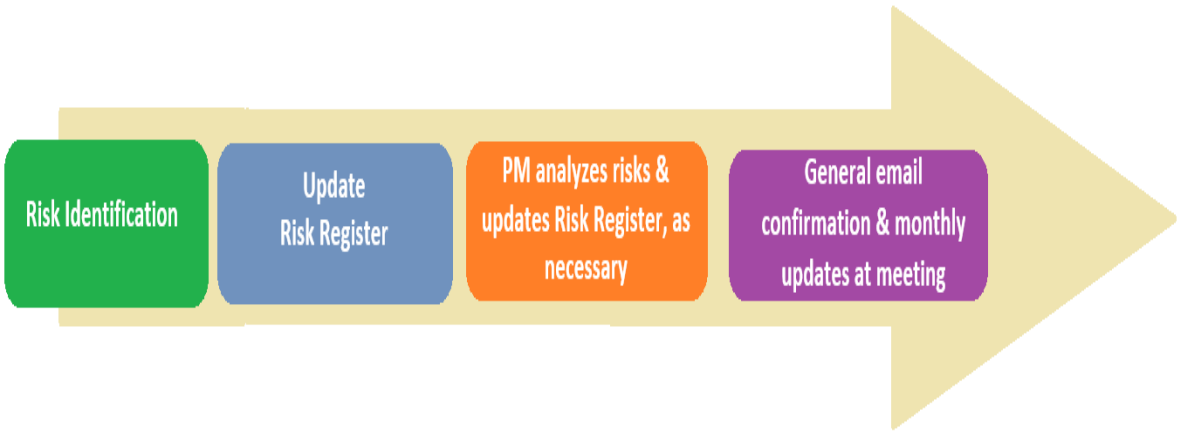


Figure 17: Risk Notification Workflow. (Compiled by Author, October 2019).

New risks as they are identified will be tracked and modifications and mitigations and contingency plans will be developed on a regular basis, as they arise. The risk control actions outlined by the mitigation and contingency plans should be executed in conjunction with the details of those plans. The Risk Owner will be responsible for implementing such actions. The risk register will be available and shared by the communication manager.

4.7.7 Risk Register

PMBOK indicates, “the Risk Register has key inputs that include identified individual project risks, risk owners, agreed-upon risk responses and specific implementation actions” (PMBOK Guide Sixth Edition, 2017, p. 429). It is a database that tracks the development of all the risks.

The risk register includes:

- A description of each risk and how it will affect the project
- An assessment of the likelihood that occurs and the impacts that occurs (low, medium, high)
- A unique identifier for each risk

- The person that is responsible for managing the risk
- Any proposed mitigation actions (preventative and contingency)
- Costing for each mitigation strategy
- Relationships to other aspects of the project

The risk register will be seen below in *Figure 18*.

Project Risk Register

Eleuthera Diagnostic & Healthcare Facility

Eleuthera, Bahamas

REF ID	RISK	RISK DESCRIPTION/IMPACT	DATE IDENTIFIED	RISK CATEGORY	STATUS	OWNER	RISK RATING	DATE CLOSED

Figure 18: Risk Register. (Compiled by Author, October 2019).

4.7.8 Risk Identification

The likely risks would have been determined for each category. They would have been identified and they are reflected in *Figure 19* below.

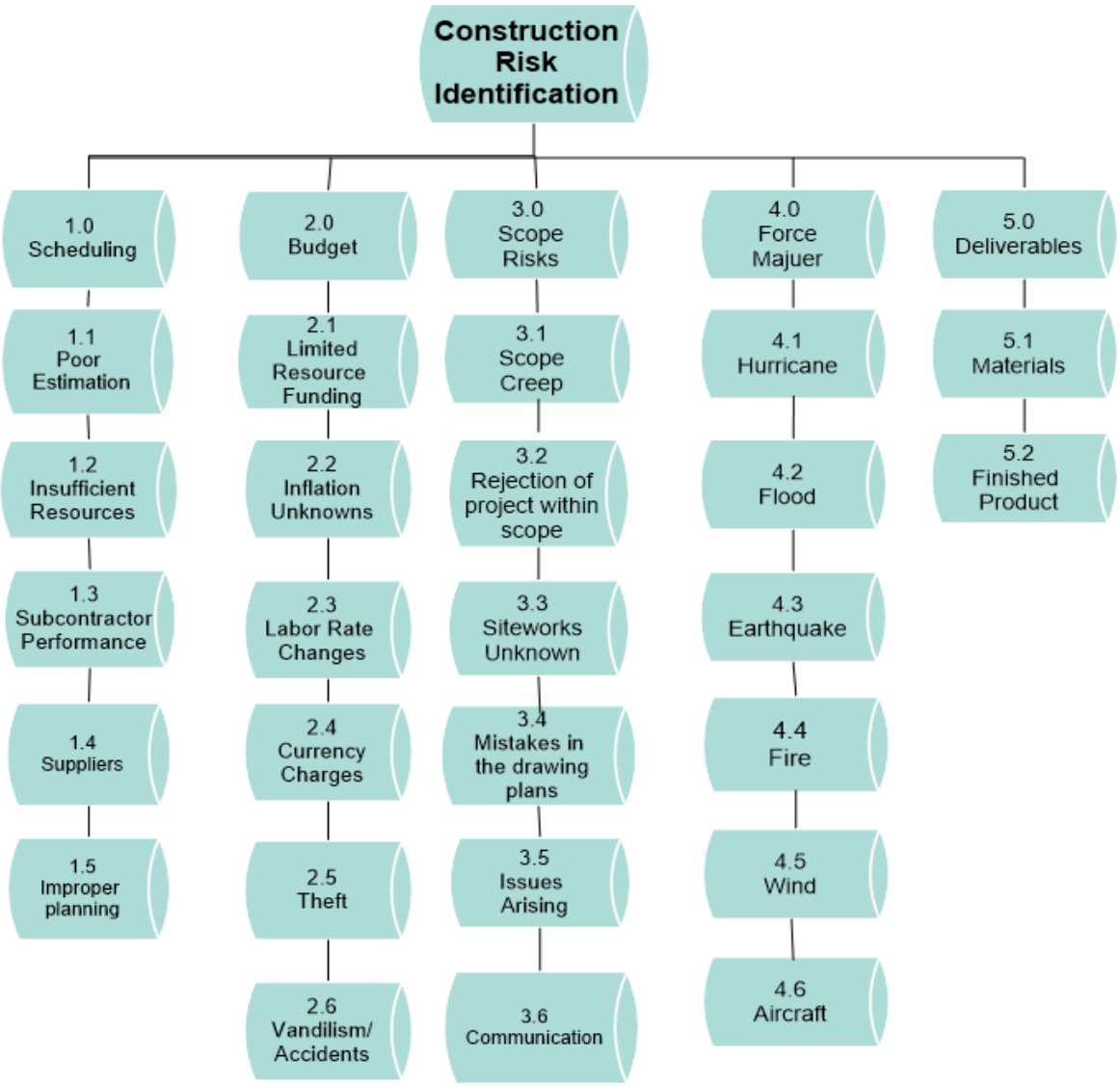


Figure 19: Construction Risk Identification by category. Compiled by Author, October 2019. Created in NCH Software.
Template from: https://www.nchsoftware.com/chart/index.html?kw=free%2520organizational%2520chart%2520maker&gclid=Cj0KCQiA-4nuBRCnARIsAHwyuPow_LSBouX46AFV5Wcz8lNbmHSlFCmYPVoWbi0VG3kWFxSVIkMTlOEaAmpuEALw_wcB

The list below is a detailed Risk ID list, which contains the category, the ID and the description. It is seen below in *Chart 18*.

Chart 18: Risk ID List (Compiled: G. Mackey, the author, October 2019

Category	ID	Description
Schedule	1.00	Shortage of materials available when required
	1.0.1	Poor productivity from contractors
	1.0.2	Inaccurate delivery of supplies from suppliers
	1.0.3	Poor time estimating without much consideration for long rainy seasons, holidays and hurricane season
	1.0.4	Not enough lag time to account for late shipments by suppliers
	1.0.5	Wrong lead times for materials
	1.0.6	Deficient work
	1.0.7	Poor oversight in updating the schedule
Poor Estimation	1.1.0	Lack of communication with contractors on cost deliverables
	1.1.1	Poor estimation of the critical path throughout the project
	1.1.2	Unrealistic deadlines for service contractors
	1.1.3	Poor estimation of time needed to accomplish a task/deliverable
Insufficient Resources	1.2.0	Government delays payment

	1.2.1	Insufficient skilled personnel on the island to complete task
Subcontractor Performance	1.3.0	Unacceptable standard of work on deliverables
	1.3.1	Subcontractor incapable of completing task on time
Suppliers	1.4.0	Inability to meet supply on demand
	1.4.1	Poor quality of delivered materials or damaged shipments
Improper Planning or Pairing with Project Dependencies	1.5.0	Tasks to be completed have not been scheduled chronologically to successfully complete the building.
	1.5.1	Poor sequential planning in purchasing materials for the different phases of the project
	1.5.2	Tasks are not paired correctly with completion dates, causing delays
Budget	2.0.0	Overspending
	2.0.1	Poor tracking of expense
	2.0.2	Poor cost estimating of project materials
	2.0.3	Poor practice in cost saving techniques
	2.0.4	Poor management of monies for the project
Limited Resource Funding	2.1.0	Payments delayed
	2.1.1	The project funds become limited by the government
Inflation Unknowns	2.2.0	If the project goes over the agreed time period
Labor Rate Changes	2.3.0	Contractors request additional monies due to change orders
	2.3.1	Contractors request more funds for deliverables due to

		their poor estimating on a bid
Currency Changes	2.4.0	Devaluation of dollar affecting buying power
	2.4.1	Devaluation of dollar affecting net profit
Theft	2.5.0	Staff stealing materials
	2.5.1	Contractors on-site stealing on the premises, materials, time, etc.
	2.5.2	Outside intruders stealing materials
Vandalism/Accidents	2.6.0	Disgruntled internal staff sabotages the project
	2.6.1	The community rejects the project and sabotages project
	2.6.2	If property ownership not secured by government, sabotage to the project and scheduling can occur
	2.6.3	A contractor or intruder sabotages the success of a deliverable being completed on-time
	2.6.4	Staff Injuries
	2.6.5	Negligence of vehicles while driving on the property
Scope Risks	3.0.0	The drawings and plans signed do not match the initial signed agreements by client and project management
	3.0.1	Changes and alterations remain ongoing throughout the life of the project affecting deliverables
	3.0.2	Requirements for government to accept a closed project within the agreed scope
	3.0.3	Amendments can be made as a result of shortage of funds
Scope Creep	3.1.0	The requirements have not been clearly specified
	3.1.1	Changes and amendments to the design and purpose of the building are requested or made increasing through the life of the project

	3.1.2	Stakeholder list is inaccurate and increases the impact of the project and who is affected causing the scope to increase
Rejection of project within scope	3.2.0	Deliverables are outside of their extended scope and are rejected by the government
	3.2.1	Alterations to drawings become excessive and extend the budget, time and procurement of materials to meet contracted scope, however government rejects project because they feel it is necessary for the success of deliverable
Site works Unknown	3.3.0	Flood waters may flow through the property
	3.3.1	Elevation of site may not be high enough to avoid flooding
	3.3.2	Due to the formation of Bahamian soil, most foundations have limestone soil with limited soil layout. Therefore, ground may be littered with sinkholes affecting the foundation phase of the project
Mistakes in drawing plans	3.4.0	Incorrect material may have been suggested for a specific area
	3.4.1	Plans may not be in coordination with MEP requirements set forth by Ministry of Works
	3.4.2	Plumbing fixtures and fittings in wrong location on drawings
Issues Arising	3.5.0	Opposing Stakeholders
	3.5.0	Similar issues continuously appear throughout the life of the project
	3.5.1	Unresolved issues become new risk to the project
	3.5.2	Issues on the project are not resolved within an appropriate timescale
Communication	3.6.0	Key project stakeholders are not updated on the project's progress

	3.6.1	Information is not distributed amongst the team in a timely manner
	3.6.2	Project issues arise due to lack of communication control
Force Majeure	4.0.0	Environmental acts of God that can affect the project's success
Hurricane	4.1.0	Hurricane waters and winds may create damage and destruction to the site and building
	4.1.1	Hurricanes may spin off as a result of hurricane system
Flood	4.2.0	Overflowing of marshes and ponds due to heavy rains can cause flash flooding
Earthquake	4.3.0	Possibilities of earthquakes due to natures unnatural changes
Fire	4.4.0	Fires from nearby forest can cause smoke and fire damages
	4.4.1	Accidental fires from hot works on site
	4.4.2	Fires resulting from staff smoking on site
	4.4.3	Fire spreads from nearby buildings
Aircraft	4.6.0	Aircraft impact from nearby airport
Deliverables	5.0.0	Production of deliverables does not meet the quality of criteria defined
Materials	5.1.0	Materials delivered are of poor quality
Finished Product	5.2.0	Building not built within time, budget and scope

4.7.9 Risk Quantification

All of the risks mentioned are quantified with a probably number that will most likely occur and should they occur, the impact on the project.

The table below outlines the rankings used for measuring the ‘likelihood’ of the risk occurring.

Chart 19: Impact Chart (Compiled: G. Mackey, the author, October 2019

Title	Score	Description
Very Low	2	Highly unlikely to occur; however, still mentioned, recorded, but not monitored
Low	4	Unlikely to occur, but they will be monitored throughout the life of the project
Medium	6	Likely to occur; still will be tracked and monitored throughout the life of the project
High	8	Very likely to occur, based on circumstances of the project
Very High	10	Highly likely to occur, as circumstances will cause this risk to eventuate and very likely to be created

The table below shows the scoring method used to project the impact of the risk on the project should it occur.

Chart 20: Impact Chart (Compiled: G. Mackey, the author, October 2019

Title	Score	Description
Very Low	2	The risk will have an insignificant impact or negligible effect on the project
Low	4	Minor impact on the project, e.g. <5% deviation in scope, scheduled end-date or project budget
Medium	6	The risk will have a measurable impact on the project, e.g. 5-10% deviation in scope, schedule end-date or project budget
High	8	The risk will have a significant impact on the project, e.g. 10-25% deviation in scope, schedule end-date or project budget
Very High	10	The risk will have a major impact on the project, e.g. >25% deviation in scope, scheduled end-date or project budget

4.7.10 Priority

The possibility that a risk will occur and its impact on the project will be scored using a metric system that will be outlined above in *Chart 19* and *Chart 20.* The metrics system used the following likelihood and impact scores allocated to provide a rating of that risk that occurs within the life of the project. The priority score was calculated as shown below:

Priority equals the average *Likelihood and Impact* score

Priority is calculated as Priority = (*Likelihood* + *Impact*) / 2

Color Code Key:

Priority Score	**Priority Rating**	**Color**
0 – 2	Very Low	Blue
2.1 – 4	Low	Purple
4.1 – 6	Medium	Green
6.1 – 8	High	Yellow

8.1 – 10 Very High Red

Chart 21: Priority Risk Chart (Compiled: G. Mackey, the author, October 2019)

ID	Likelihood	Impact	Priority Score	Rating
1.0	2	10	6	Medium
1.1	2	8	5	High
1.2	2	6	4	Low
1.3	6	8	7	High
1.4	4	6	5	Medium
1.5	6	6	6	Medium
2.0	6	6	6	Medium
2.1	4	10	7	High
2.2	4	4	4	Low
2.3	4	4	4	Low
2.4	4	4	4	Low
2.5	4	4	4	Low
2.6	4	4	4	Low
3.0	4	6	5	Medium
3.1	6	6	6	Medium
3.2	4	6	5	Low
3.3	4	2	3	Low

3.4	8	6	7	High
3.5	6	8	7	High
3.6	6	4	5	Medium
4.0	6	8	7	High
4.1	8	8	8	High
4.2	4	4	4	Low
4.3	2	2	2	Very Low
4.4	4	4	4	Low
4.5	4	4	4	Low
4.6	2	2	2	Very Low
5.0	6	6	6	Medium
5.1	4	2	3	Low
5.2	2	2	2	Very Low

4.7.11 Risk Plan

A risk plan will be created, which will include a set of actions to be taken to avoid, transfer or mitigate each risk, based on the priority of the risk assigned.

4.7.12 Risk Schedule

The risks identified and the preventative or contingent actions associated are listed below in *Chart 22*.

- Preventative actions are taken to reduce the likelihood of the risk's occurring
- Contingent actions are taken to reduce the impact should the risk occur

For each risk action identified, an assigned resource responsible for undertaking the action and a date within the action must be completed. An example of the risk action preventative and contingent chart is seen below in *Chart 22*.

Chart 22: Risk Action Preventative and Contingent Chart (Compiled: G. Mackey, the author, October 2019)

Rating	ID	Preventative Action	Action Resource	Action Date	Contingent Actions	Action Resource	Action Date
Medium	1.0	**Scheduling:** Increase project end date with lag times that account for holidays, sick days, etc. Use the longest critical path to find the project end date and account for additional lag days.	Project Manager	*7/31/2020*	Place contractors on warranty type contracts. Use the contractor's dates and timelines to verify if they are in timeline scope. Measure the contractor dates against the critical path without lag days and plan for an early start and early finish.	Project Manager	*As required*
High	1.1	**Poor Estimation:** SMS (Project Consultant Team)	Project Manager	*7/31/2020*	Account for project delays by	Project Manager	*As required*

		provided estimated completed dates for milestones and phases to compare with all contracted timelines. The actual timeline can be compared and ensured that it will be on schedule.			extending the critical path timeline with a safety factor.		
Low	1.2	**Insufficient Resources:** Publicize potential bids for subcontractors. Provide the opportunity for local bidding. The on-site project team will also be sourced locally.	HR Manager Quality Manager	*7/1/2020*	Pool of local resources are proficient enough to complete the project and further selections can be made, if necessary.	HR Manager Quality Manager	*As required*
High	1.3	**Subcontractor Performance:** Ensure that contracts are awarded to contractors based on experience, skills and quality work. Provide periodic checks as contractors complete their work.	HR Manager Quality Manager	*7/24/20*	Hold contractors liable to warranties given in contracts for deliverables. Pursue alternate contractors if unable to meet requirements.	HR Manager Quality Manager	*As required*

					Exercise Resource Leveling.		
Medium	1.4	**Suppliers:** Documented policy for contractors to provide a list of vendors to obtain supplies within RFP timeline.	Quality Manager Procurement Manager	*7/1/20*	Maintain a 30-day policy deadline to obtain resources. Use local supplier, if needed. Check local supplies with contractors within 20 days of complications and outsource supplies after 15 days, if unable to meet supplies needs. Verify dependencies prior to spending additional funds if able to wait on contractors.	Quality Manager Procurement Manager	*As required*
Medium	1.5	**Improper Planning and Pairing with Project Dependencies:** Update project schedule periodically to	Project Manager Schedule Engineer	*7/24/2020*	Enforce contractor's deadlines as submitted by the RFP.	Project Manager Schedule Engineer	*As required*

		balance deliverables and dependencies.					
Medium	2.0	**Budget:** Conduct audits of materials purchased by contractors once submitted for payments	Project Manager Quality Manager	*7/24/2020*	Enforce contracted RFP's as outlined by the contractors and ensure it within budget. If requests have an increase of 5% or more, complete risk contingency plan, which analyzes and audits expenses.	Quality Manager	*As required*
High	2.1	**Limited Resource Funding:** Hold government to contract obligations for funding.	Project Sponsor	*7/24/2020*	Seek legal action for additional funding for expenses.	Project Manager	*As required*
Low	2.2	**Inflation Unknowns:** Tax fluctuations And customs inflations are excepted due to it being a government project.	Procurement Manager Project Sponsor	*Anytime*	No factor because	Procurement Manager Project Sponsor	*N/A*
Low	2.3	**Labor Rate**	Procurement	*Launch of*	Procurement	Procuremen	*As*

		Changes: Contracts are to be issued to alleviate inflation.	Manager	*negotiations*	objectives specifies work to be contracted and enforce contractual obligations through contracts, which will remove any labor fluctuations.	t Manager	*required*
Low	2.4	**Currency Changes:** Provide some buffer for profit loss and price in the project.	Finance Manager	*7/31/2020*	Enforce buffer for project by approximately 10-20% due to frequent fluctuations of the Bahamian Dollar and contractors purchasing products outside of the Bahamas.	Finance Manager	*As required*
Low	2.5	**Theft:** Follow site security plan for storage of materials.	Project Manager	*8/28/2020*	Ensure that contractor is accountable for materials and storage of materials, if missing from site.	Project Manager	*As required*
Low	2.6	**Vandalism/Accidents:** Follow risk control	Risk Analysis Manager	*7/31/2020*	Enforce risk control mitigation	Risk Analysis Manager	*As required*

		mitigation plan ensuring contractors have insurance and are responsible for staff on-site.			plan ensuring contractors have insurance and will take responsibility for staff on-site.		
Medium	3.0	**Scope Risks:** Follow change process established plan.	Project Manager	*7/31/2020*	Enforce established process for changes orders, change order documents as established by the project manager.	Project Manager	*As required*
Medium	3.1	Scope Creep: Follow change process established plan.	Project Manager	*7/31/2020*	Enforce established process for changes orders, change order documents as established by the project manager.	Project Manager	*As required*
Low	3.2	**Rejection of Project Within scope:** Approval of documents that will be signed by	Quality Manager	*Each Milestone*	Review signed contracts as previous milestones were	Quality Manager	*As required*

		project sponsors after each phase of the project.			completed with Project Sponsor. Review scope with project sponsor and verify deliverables are within scope.		
Low	3.3	**Site Works Unknowns:** Follow site works plan.	Site Superintendent	*8/3/2020*	Conduct assessment of measures needed and enforce site works plan.	Project Manager	*As required*
High	3.4	**Mistakes with drawings:** Follow change control plans and procedures put in place. Verify the mistakes are not outside of the scope and costs are very minimal.	Project Manager	*7/31/2020*	If changes are outside the scope, follow change processes in place and verify with project sponsors for acceptance, approval and release as necessary with remedies as necessary for contractors.	Project Manager	*As required*
High	3.5	**Issues Arising:** Identify conflicts through a complaint policy.	HR manager	*7/31/2020*	Review complaints through panel and pursue legal	Project Manager	*As required*

					action, if required.		
Medium	3.6	**Communication:** Use the communication policy to have scheduled meetings and rely on e-mails and communication templates.	Communication Manager	*7/31/2020*	Exercise and request information from respective parties and distribute through e-mail with response confirmation.	Communication Manager	*As required*
High	4.0	Force Majeure: Create preparedness plans within reason for unknown environmental effects.	Risk Manager	*7/31/2020*	Execute environmental preparedness plans. Assess damage and establish an emergency recovery plan.	Risk Manager	*As required*
High	4.1	**Hurricane:** Create hurricane preparedness plan escalated through August, September and October, which is hurricane months in the Bahamas.	Risk Analysis Manager	*7/1/2020 – 11/31/2020* *6/1/2021 – 6/30/2021*	Follow through hurricane preparedness plan. Reserve 3% of sums and insure in the event of a hurricane. Ensure that funds are injected back into the project and that the applicable funds are recovered	Risk Analysis Manager	*As required*

					from the Insurance Company.		
Low	4.2	**Flood:** Follow site works plan to alleviate potential flooding on-site. The building is elevated, drains are installed, etc.	Site Superintendent	*7/31/2020*	Follow through expert judgement and supplement with building plan as given.	Site Foreman	*As required*
Very Low	4.3	**Earthquake:** Assumed as not a factor	Project Sponsor	*7/31/2020*	Assumed as not a factor	Project Manager	*As required*
Low	4.4	**Fire:** Create a fire safety, prevention and response plan. No smoking policy is to be enforced. Install piping and plumbing immediately for fire hydrants.	Risk Manager	*7/31/2020*	Install additional fire extinguishers and enforce proper fire safety tips. Use fire response plan, if needed.	Risk Manager	*As required*
Low	4.5	**Wind:** Install a windsock on-site to measure the wind speed for site works to operate, effectively. The OSHA safety standards will be followed.	Site Superintendent	*8/31/2020*	Ensure compliance within policy using safety regulations for site safety based on OSHA regulations and delay until safety is established.	Site Foreman	*As required*
Very	4.6	**Aircraft:** Provide funds	Project Manager	*7/31/2020*	Assess damage and	The Project Manageme	*As required*

Low		from the buffer in the budget and continue project to meet immediate project requirements.			inject funds, then recover funds from the Aircraft owners or aircraft owner.	nt Team	
Medium	5.0	**Deliverables**: Verify that the contractors completed their tasks within the scope and the time for the given project is relative to the Project Management Team's requirements.	Project Manager	*9/1/2020*	Reconsider the requirements after the deliverable has been produced, measure any deviation and enhance the deliverable to meet the requirements.	Project Manager	*As required*
Low	5.1	**Materials:** All contractors are required to purchase materials according to the	Quality Manager Procurement Manager	*9/1/2020*	Materials are ordered and checked from manifest. The manifest is from the contractors and they are examined to authenticate adequacy.	Quality Manager Procuremen t Manager	*As required*
Very Low	5.2	**Finished Product:** Verify through approval process and ensure that the project is delivered within the scope.	Quality Manager	*5/1/2021*	Enforce phase and milestone approvals of the project with project closure documents for release	Project Manager	*As required*

4.7.13 Risk Assessment

The most identified environmental risk in the Bahamas that can affect the overall project is a hurricane. Darville (2019) states that "the Bahamas has come face to face with many catastrophic hurricanes in the past, which have changed the Bahamian landscape". The hurricane season in the Bahamas is from May 1st to November 30th. Its peak period is during the most critical months in which the majority of the hurricanes occur are August and September. Based on the project schedule, as seen in Figure 11, eight months out of the eleven months of the project's schedule is during the hurricane month. This is a probability of 72.73%. Due to the high probability, a risk assessment of hurricanes along with a hurricane preparedness plan was created.

Using the Analogous method, hurricanes are formed with the greatest intensity around the same peak months. Having this in mind, the likelihood and impact of a hurricane priority is reflected on the risk tables, which is seen below in *Figure 20.*

	May	June	July	August	September	October	November	Eleuthera's Threats
2011	0	1	1	4	8	5	0	1
2012	0	0	0	4	1	1	0	0
2013	1	0	3	4	4	3	1	1
2014	2	0	1	3	7	1	0	1
2015	0	1	2	3	4	0	0	0
2016	0	2	5	5	5	7	3	4
2017	0	0	1	7	4	2	1	3
2018	0	0	2	2	5	2	2	0

Sum of May	3
Sum of June	4
Sum of July	15
Sum of August	32
Sum of September	38
Sum of October	21
Sum of November	7

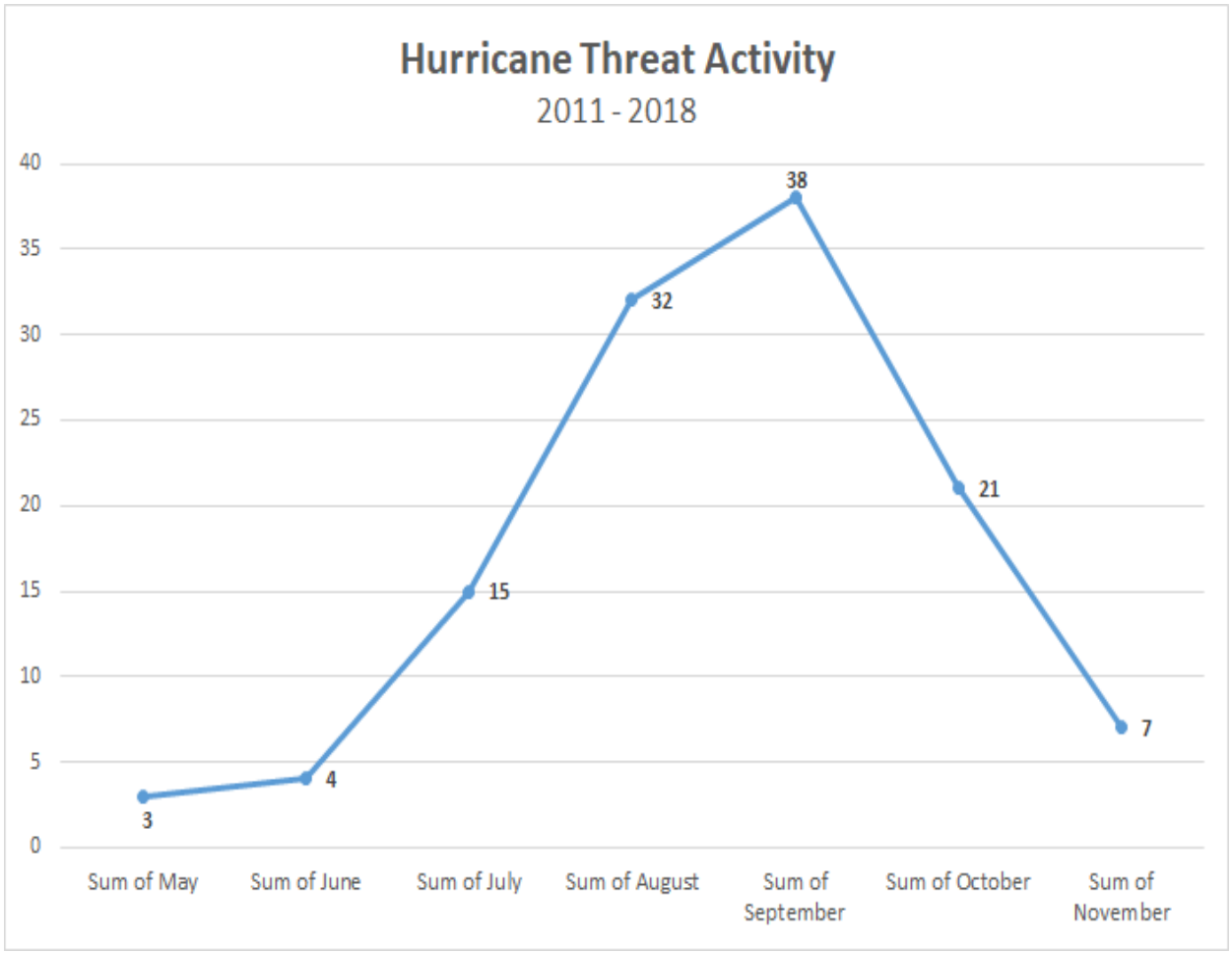


Figure 20: Hurricanes Threats 2010 – 2018 Data, Retrieved from various Bahamian Insurance Companies. (Compiled by Author, October 2019).

The historical risks did indicate that even though there was a high frequency, the severity of the hurricane hitting land was still a medium to high probability. Due to the standings, it was in the best interest to request the help of an Insurance Company in the Bahamas to analyze data based on preceding hurricanes impact and the extent of the damages occurred. The following assumptions were that a building will be built to the modern Bahamian building code; in that, construction is out of concrete blocks and reinforced with steel. The damages estimated can be attributed to about 7 – 15% of the total insured sums of a Category 3 hurricane and 3 – 6% for a category 2 hurricane. A Bahamian Insurance company does not cover hurricane insurance for a category 4 or a category 5 hurricane. In previous history, most of the damages are related to roof, docks and water damages, which includes contents.

A 3% retainer fee will be held with the assumption that a category 3 hurricane will hit and in the event of a hurricane. The funds will be injected as direct funds into the project and continuing as planned and the remaining will be covered from the insurance company.

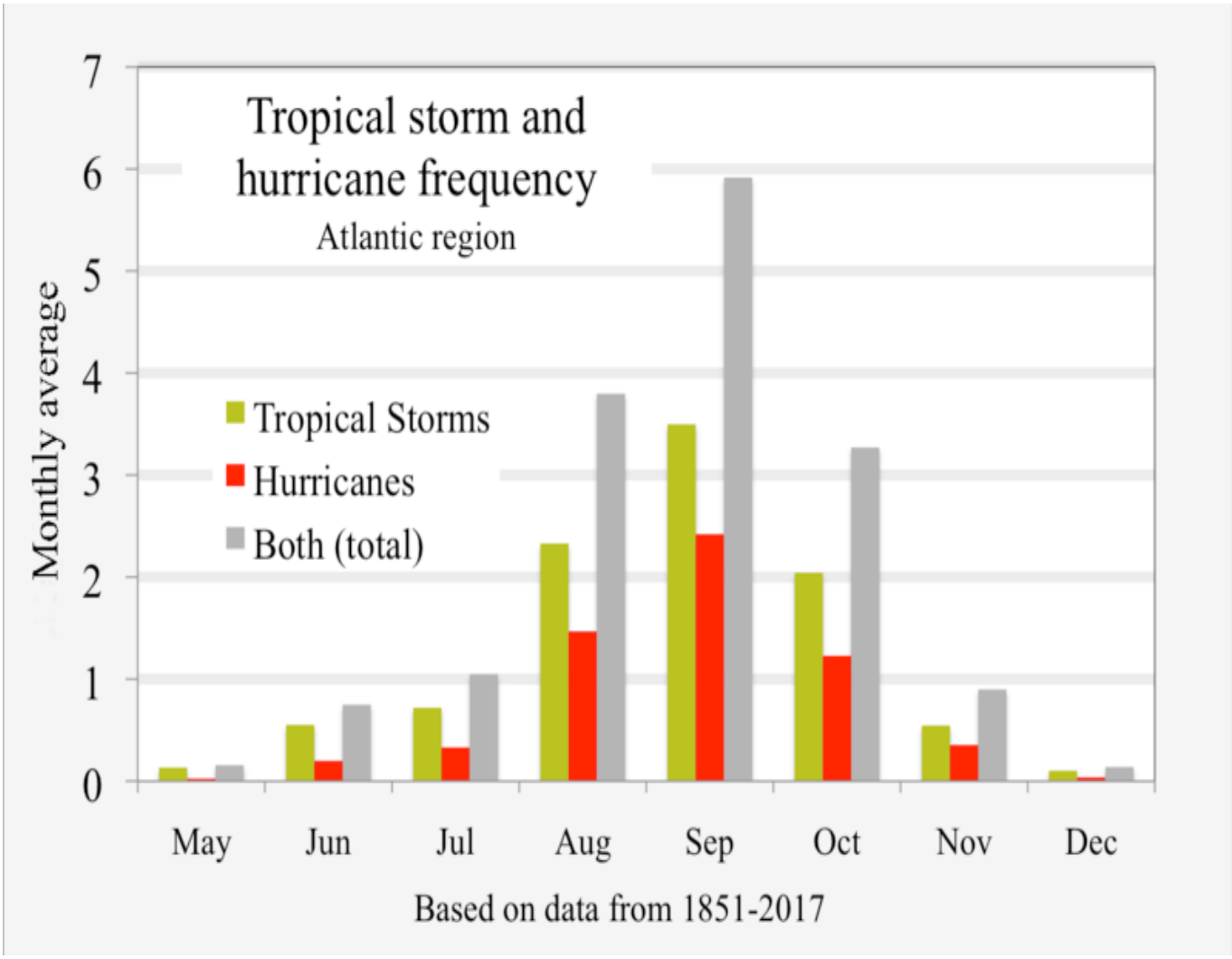


Figure 21: Tropical Storm and Hurricane Frequency, 2017. Retrieved from: https://en.wikipedia.org/wiki/File:1851-2017_Atlantic_hurricanes_and_tropical_storms_by_month.png

SMS - Hurricane Preparedness Plan

Seashore Management Services has researched and has a hurricane preparedness plan. The plan is one that would have been incorporated from previous plans and the one that would be most beneficial and applicable for the Bahamas. The hurricane preparedness plan is seen below in *Figure 22*.

Seashore Management Services Hurricane Preparedness Plan

HURRICANE PREPAREDNESS PLAN

A hurricane is a large storm with circular winds that exceed seventy-five (75) miles an hour. Winds around the eye wall of the hurricane can exceed two hundred (200) miles an hour. In addition to the dangerously high wind conditions, the threat of a storm surge also exists. A storm surge is a flood of seawater up to twenty (20) feet high that arrives with the hurricane. The flooding is responsible for most hurricane deaths. Areas of low elevation are subject to extreme flooding and therefore demand considerable attention. Local authorities release information concerning the status of a hurricane based on the following Levels of Alert

1) Hurricane Season – June 1 through November 30 annually. Be aware that this is the time of year when hurricanes are most likely to occur.

2) Hurricane Alert – Hurricane has been detected in the Atlantic or Caribbean. Necessary preparations should be evaluated.

3) Hurricane Watch - Hurricane conditions are possible within thirty-six (36) hours. Prepare to take immediate action to safely prepare property.

4) Hurricane Warning – Hurricane conditions are expected within twenty-four (24) hours. Complete all hurricane preparations and, if necessary, evacuate. To safely protect lives and property in the event of a severe hurricane is our objective; therefore, it is necessary to plan in advance what preparations are required and how they will be carried out. The following is a hurricane preparation plan for this project. This plan shall be implemented and will serve as a required guideline for supervisory and jobsite personnel to follow in order to safely and effectively prepare and manage the building site before and after a hurricane. During hurricane season the project manager will be responsible for communicating and implementing the plan of action for hurricane preparation, and site inspection post hurricane. To begin with, the project manager will be monitoring the area weather reports and tracking potentially hazardous storm systems, paying special attention to the advisories that local authorities prepare. Construction business personnel are inherently concerned about the weather conditions and will simply add this step of tracking potentially dangerous storms to their routine. If the area officials determine that an approaching hurricane system poses a threat, then the project manager, assisted by the superintendent and site personnel will initiate all feasible efforts to best protect that site and the surrounding community from hazardous conditions related to the storm. Using all available forecasting information is especially important with this project given the geographical location. Also, a

hurricane scheduled to impact at night, on a weekend and/or holiday will require that considerations be made to accommodate these non-working hours. This plan will include activities to be carried out according to number of hours remaining before a hurricane impacts. Included will also be a list of essential emergency and personnel phone numbers. The following is a detailed description of what will be accomplished should a hurricane situation arise. **Hurricane Alert:** Advisories indicate that a storm system has formed and may be a threat to the region, therefore preliminary preparations should begin. Create awareness on site that a potentially threatening hurricane exists and may impact this region, which will require site preparations by personnel. Evaluate job progress: which stages of construction will be completed before hurricane impact, as well as evaluate what stages may need to be postponed until after the hurricane passes. Defer deliveries of unessential materials until threat of hurricane passes. Put all subcontractors on notice with pre-planned guidelines for site preparations should the hurricane continue to pose a threat. Conduct a preliminary clearing of all trash and debris from site to avoid unnecessary accumulation of trash at impact time. Determine the special needs of personnel. In the event that the authorities issue a hurricane watch, some personnel may not be available due to personal considerations. It will be necessary to know what personnel and sub-contractors will be available to assist with the final preparations before an evacuation. Procure necessary materials for site preparations, i.e., bracing material, plywood and banding equipment. Hurricane Watch: Authorities may issue a hurricane watch, indicating that hurricane conditions are possible in the specified area within 36 1/2 hours. Begin securing and/or removing unnecessary equipment from the site as per manufacturers recommendations, i.e., trailers, storage containers, signs, dumpster, etc. Make arrangements for remaining equipment to be removed should advisories release a hurricane warning. Protect or remove materials, and tools susceptible to water damage. Remaining phase of construction currently in progress need to be braced for wind/water resistance. The risk manager will verify that the hurricane preparedness plan has been executed along with the quality manager to verify everything has been secured correctly.

Figure 22: Hurricane Preparedness Plan, 2019. Incorporated and revised from: http://www.builderbug.com/modules.php?name=Content&pa=showpage&pid=6

Pictures of Other Potential Risks in the Caribbean

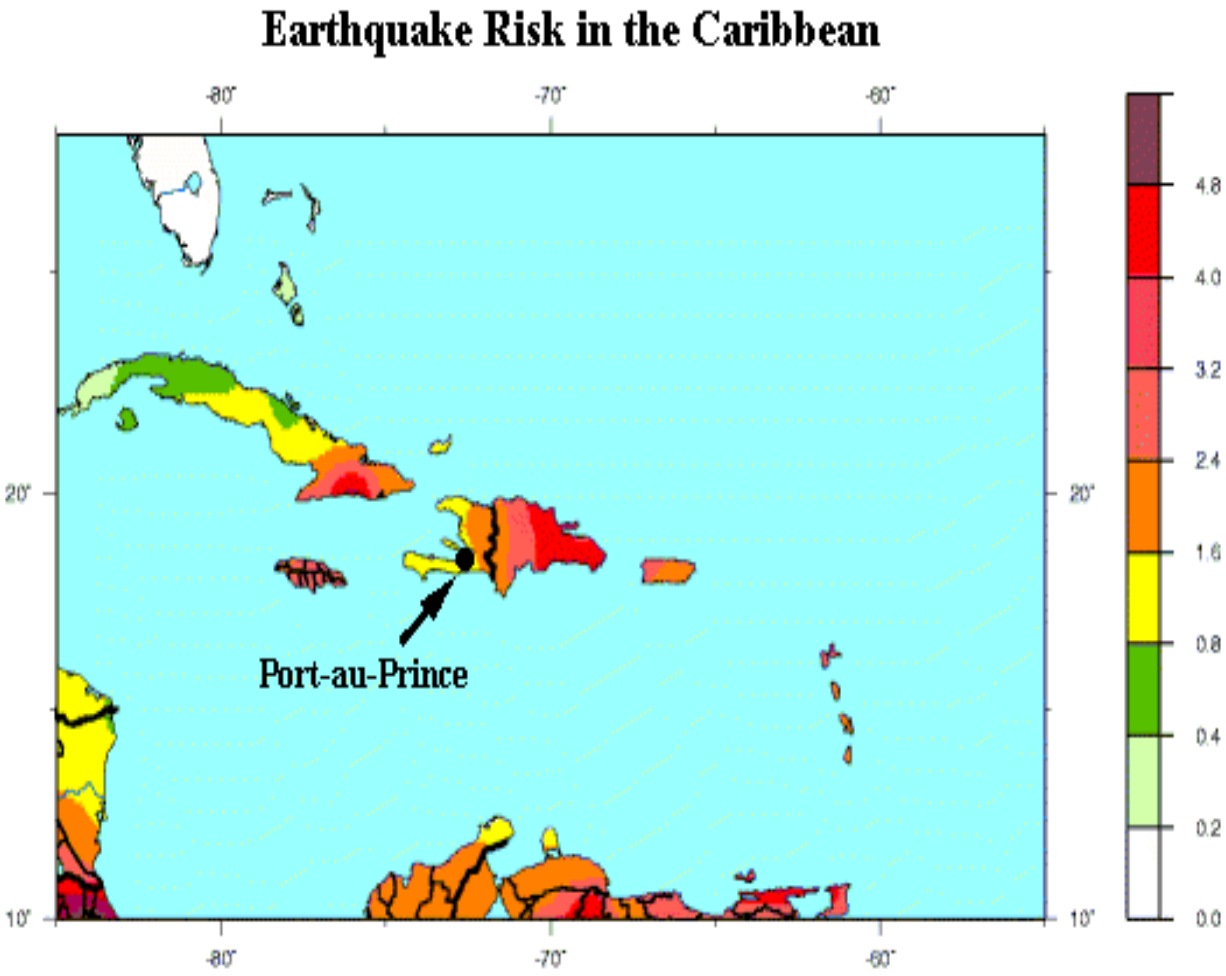


Figure 23: Earthquake Risks in the Caribbean, Retrieved from: http://www.city-data.com/forum/americas/1452699-earthquake-risk-carribbean-higher-than-i.html

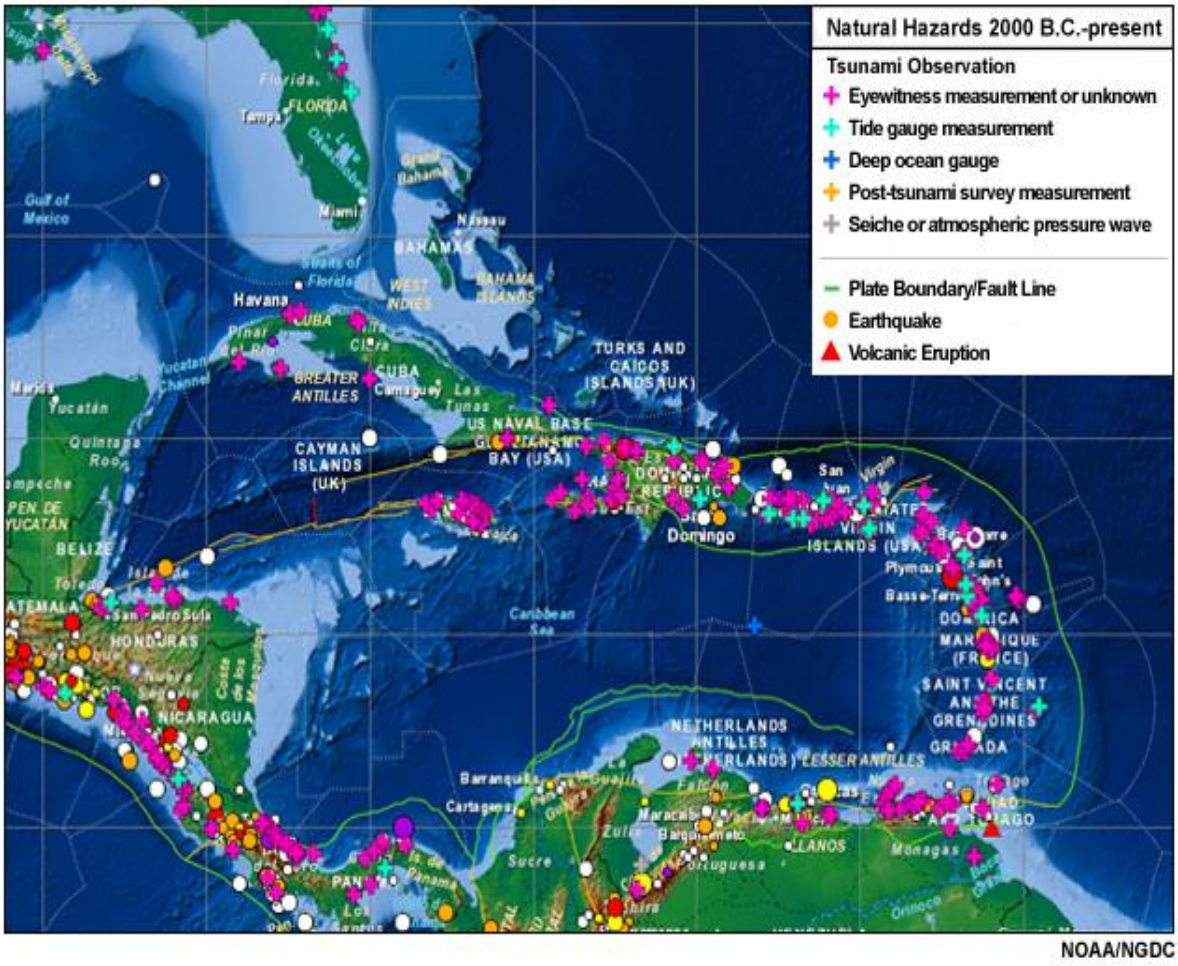


Figure 24 Natural Hazards in the Caribbean. Retrieved from: http://www.city-data.com/forum/americas/1452699-earthquake-risk-carribbean-higher-than-i.html

4.8 Procurement Management Plan

The next area in this study was the Procurement Management Plan. According the PMBOK, "Project Procurement Management includes the process necessary to purchase or acquire products, services, or results needed from outside the project team. It 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)" (PMBOK Guide Sixth Edition, 2017, p. 459).

The tools and techniques that were used for this area were expert judgement, meetings and interviews that were conducted with the Project Manager (PMBOK Guide Sixth Edition, 2017, p. 466). The plan will provide information regarding the purchase of goods and services, the vendors that will be chosen, the type of contract(s) that will be used, the vendors that will be managed, processes, procedures, roles and responsibilities, personnel and who will be involved and strategies associated with the construction of the Eleuthera Diagnostic & Healthcare Facility. The procurement document will be approved by the sponsors and the project management team before the procurement process beings.

4.8.1 Status and Scheduled

The updates of this document is not planned unless the scope of the project is changed. The project manager will advise the project team through communication methods in the communication document all information surrounding procurement. The procurement schedule will begin six weeks prior to each phase.

4.8.2 Responsibilities of contactors

The responsibilities of the contractor include but are not limited to the following:

- The contractor is to develop a plan in accordance with the deliverable(s) in the budget and within scope that pertains to the procurement of goods
- The contractor is responsible for attaining any and all materials for the project
- The project management team will provide updates regards objectives, status issues with procurement that can affect the project deadlines
- The parties that are contracted will provide all products and services provided in the RFP received by the contractor
- The contractor is responsible for the delays in the project, as a result of any negligence and they will be penalized, if needed

- The contractor is responsible for their staff
- The contractor is responsible for procurement details and a list of materials in accordance with the project schedule
- The contract will provide a 30-day lead time when ordering materials prior to the beginning of each phase of the project

4.8.3 Responsibilities of the Project Management Team and contractors

The responsibilities of the Project Management Team and contractors include but are not limited to the following:

- The Project Management Team will integrate the contractors plan into the estimated timeline to ensure effectiveness and efficiency, as it relates to dependencies and target dates
- Periodic checks of contractor's performance are monitored and tracked
- Auditing and reviews of payment requests for materials purchased and used throughout each phase
- Periodic checks and updates are scheduled with contractors; which the contractors can request any change request, which can affect the material supplies lies. The changes will be determined by the Project Management Team and communicated via email, if needed.
- The Project Management Team is responsible for verifying any insurance documentations regarding contractors; which ensures that the current coverage on numerous liabilities help to mitigate risks
- The team is also responsible for communication updates and evaluations if any small scope changes occur, as per the request of the government
- The team will log and track any claims made by contractors to seek any resolution needed
- Performance reporting will be handled by the Quality Control Manager and will reported to the Project Manager, if needed

- The team will manage and oversee the procurement schedules, purchase requirements of building specifications and ensure that it adheres to the Bahamas' building codes

4.8.4 Fixed Price Contracts

The Fixed Price Contracts will be the preferred method of contracts and will be used as the preferred method of contracts. According to the business dictionary (2019), "the fixed price contract (FFP) is a contract that provide a price that normally is not subject to any adjustment unless provisions are made and included in the agreement, such as a contract change, economic pricing or defective pricing, etc.". The contractual agreement is based on the price of goods and services that is set on the outset and is not subject to change, basically unless the scope of work changes. Some changes will be at the contractor's responsibility, which is cost increases dues to poor performance, price fluctuations dues to the seller's unspecified expenses and adverse performance. The buyer is held responsible for any products or services that will need to be procured.

4.8.5 Subcontractor selection process and criteria

Procurement of the project materials will be acquired by the contracted party. The Quality Control Manager will verify the quality of the materials that is selected prior to each phase of installation. The procurement manager will ensure that the materials of the highest standard and it is mandated that the materials are also sustainable, which is a criteria of the client. There will be a 30-day lead on materials ordered by the contractor and the materials will also be in compliance with the Bahamas building code.

The Project Management Team will ensure that the criteria have been laid out by governmental policies and agreements. In addition, the HR manager's guidelines will be

taken into perspective. The subcontractors will be evaluated and each contractor's bid will be carefully evaluated. Marzouk (2019) states that "there are many factors taken into consideration when selecting sub-contractors and improper selections may lead to problems during work progress, which includes bad quality of work and delays project duration." Some of the main priorities that will be considered when selecting sub-contractors are quality, the timeframe the subcontractor can provide the service and costs. Bidders will be selected first based on the quality of work, as this is most important. The sponsor has provided clear instructions that the work provided must be of a superior quality. If a subcontractor is considered that the General Contractor has not used, it is highly suggested that references is provided and their work is checked with viable sources to ensure the subcontractor's credibility. The other criteria that are important for subcontractors' selection are time and costs. Time is the ability to provide a service within the specified deliverable date. The cost is the amount submitted that a job will be completed for. The subcontractor whose bid is too low may not be chosen; whereas, it may serve as a red flag, knowing that the subcontractor may not be able to complete the job. Hence, this can affect the overall project. It will be mandatory that the subcontractor has the prerequisite skills and is certified or well-trained in the specific area, needed. All of these criteria will be factored in. Once a sub-contractor is selected, a contract will be signed to agree on terms for the deliverable.

4.8.6 Procurement: Roles and Responsibilities

Chart 23: Procurement: Roles and Responsibilities (Compiled: G. Mackey, the author, October 2019)

Name	Role	Email	Responsibilities

Desmond Mackey	Project Manager	dmackey@sms.com	• Overseas procurement management plan • Issue tenders to bid • Evaluate, control and manage change orders and processed • Award contracts to contractors
Patrick Sweeting	Quality Manager	Psweeting@sms.com	• Review material purchase order lists and ensure that they are in accordance with building specifications and the Bahamas building code
Tanya Hepburn	Human Resources/Communication Manager	thepburn@sms.com	• Responsible for vetting contracted parties based on qualifications and skills necessary for required deliverables • Communicating procurement requirements to all contractors • Issue change order request
Tom Mackey	Schedule/Cost Engineer	tmackey@sms.com	• Evaluate change and change order processes • Evaluate procurement submittals and ensure that the requests for reimbursement is in line with estimated costs of the project
Kim Sands	Risk Analyst/Procurement Manager	ksands@sms.com	• Ensure that materials are top quality and sustainable • Provide contracts for contractors • Ensure that procurement of

			materials is achieved within target dates

4.8.7 Contract Tracking

For this project, the Eleuthera Diagnostic and Healthcare Facility, a management system will be used to manage procurement documentation and contractors' contracts. The system will be used to conduct inspections and audits for the management team to ensure that the project stays within budget. The documentation will be categorized, itemized and given a specific ID number associated with the contract given or the contractor. This system will be done for easy access, referencing and checking.

4.8.8 Contracts Close-Out

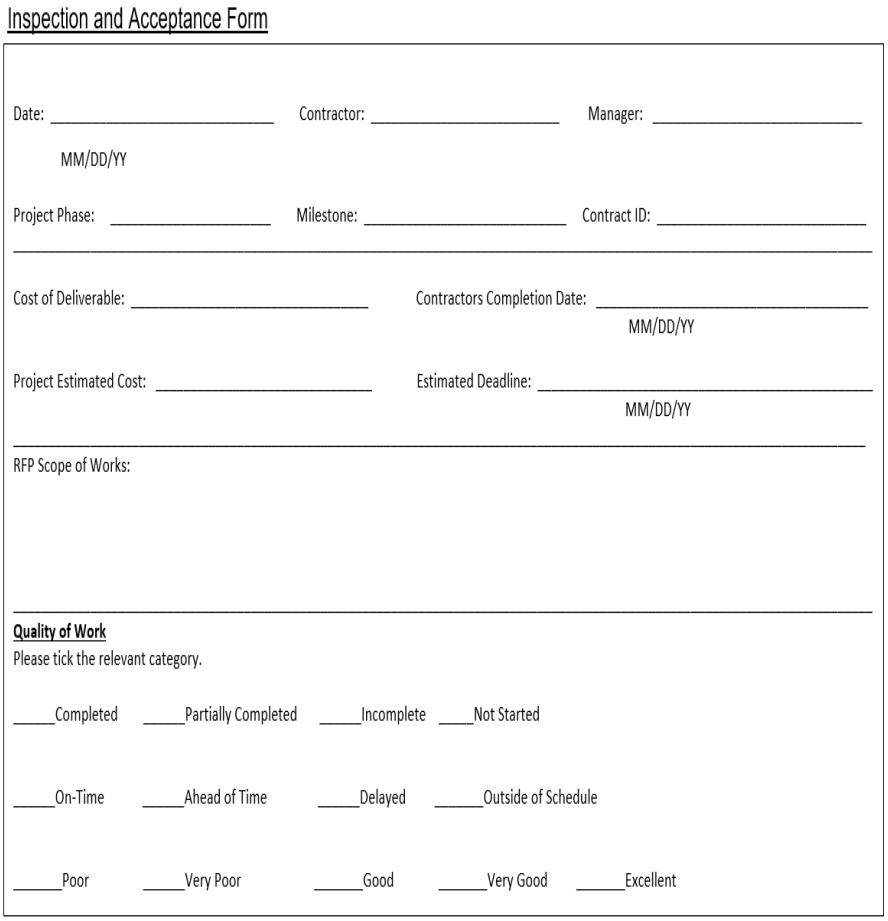
The Chart below, *Chart 24,* will be used to track the performance of the contractors. This will be based on the ability to meet the quality, deadlines, documentation quality and efficiency. The documentation information will be managed and archived along with the metrics data for historical purposes and for any future projects, if needed.

The metrics for the contractor's performance for the procurement activities are based on a metric system. The metric scale is based on 1 – 3, 1 is unsatisfactory, 2 is acceptable and 3 is exceptional.

Chart 24: Contractor Rating Form (Compiled: G. Mackey, the author, October 2019)

	Name	Product Quality	On Time Delivery	Documentation Quality	Development Costs	Development Time	Cost Per Unit	Transactional Efficiency
Contractor 1								
Contractor 2								
Contractor 3								
Contractor 4								
Contractor 5								

1 – Unsatisfactory 2-Acceptable 3-Exceptional



Inspection and Acceptance Form

Date: _____ Contractor: _____ Manager: _____

MM/DD/YY

Project Phase: _____ Milestone: _____ Contract ID: _____

Cost of Deliverable: _____ Contractors Completion Date: _____

MM/DD/YY

Project Estimated Cost: _____ Estimated Deadline: _____

MM/DD/YY

RFP Scope of Works:

Quality of Work

Please tick the relevant category.

_____Completed _____Partially Completed _____Incomplete ____Not Started

_____On-Time _____Ahead of Time _____Delayed _____Outside of Schedule

_____Poor _____Very Poor _____Good _____Very Good _____Excellent

Figure 25: Inspection and Acceptance, (Compiled by Author, October 2019).

4.9 Communication Management Plan

The next knowledge area of this study is the Communication Management Plan. The PMBOK Guide states that, “the Communication Management Plan is updated with new information to make communication more effective” (PMBOK Sixth Edition, 2017, p. 393). Roseke (2019) states that, “the communication management plan tells all the stakeholders how they will communicate, the frequency, the medium, the content, the

timing and any other factors that is necessary for the stakeholders and to achieve project success".

Seashore Management Services (SMS) will use the Communication Management Plan as a way to keep the sponsors and the stakeholders updated and informed. The stakeholders will be informed on the project's progress and objectives. The Communication Management Plan will state the flow of information such as who is giving the information and who is receiving it. It provides the communication requirements and what will be communication, how and when and the medium that will be used to communicate.

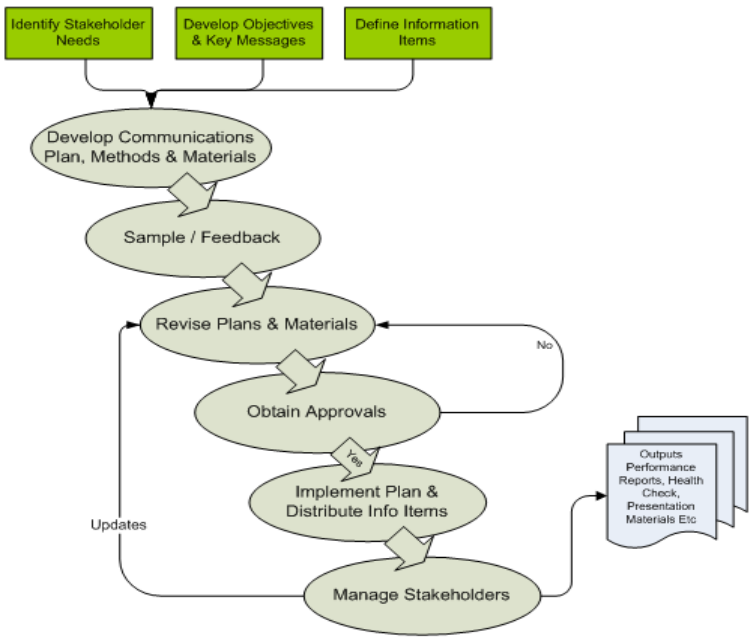


Figure 26: Communication Management Diagram, October 2019. Retrieved from: https://www.tpsgc-pwgsc.gc.ca/biens-property/sngp-npms/ti-it/conn-know/comm-eng.html

4.9.1 Communication Objectives

The top 3 objectives to be achieved to execute this communication plan includes are:

1. To avoid miscommunication that leads to wasted time and costs over-runs
2. To improve stakeholders' awareness and team behavior
3. To define the communication requirements, so that information can reach the correct stakeholder with the right information, at the right time

4.9.2 Communication Management Approach

Communication will be managed by the Communication Manager, the Project Manager and the SMS secretary. The Communication Manager's responsibility is to take on a proactive role in ensuring that formal communication is managed effectively and that it is maintained for the duration of the project.

The SMS secretary will be responsible for sending out meeting invites and important information via emails. The meeting agenda will be something that will be vital and imperative that it is sent out before the date of the meeting. The secretary is responsible for ensuring that the team attends and confirms attendance three days prior to the tentative date. The secretary will record minutes of the meeting and it will be circulated to the Communication Manager. The Communication Manager will review and once approved, the secretary will distribute the minutes of meeting no later than two days after the meeting date.

The push communication format will be used minimally and only when attempting to reach a large sum of people with large volumes of information. All project related requirements for communication will be documented under the Communication Matrix. Hussein (2015) indicates that, "a communication matrix is an assessment tool designed to pinpoint exactly how an individual is communicating and it provides a framework for determining logical communication goals, while allowing you to think through communicating efficiently and effectively".

The communication matrix will be seen below in *Chart 25*. It shows the framework for their communication methods, the communication objectives and the frequency of communication. It indicates who the message is for, who own the portion of the communication plan and what deliverables are expected from the meetings held. The information will be constantly documented and updated, which will maintain information and keep it accurate.

Chart 25: Communication Matrix (Compiled: G. Mackey, the author, October 2019)

SMS: Seashore Management Services – The Management Team of SMS
Project Team Staff: The general contractor and any onsite leads
Project Support Team: The labor team doing the physical construction work

Communication Type	Objectives of Communication	Medium/ Channel	Frequency	Audience	Owner	Deliverable
Kick-off Meeting	Introduction to project goals & objectives, approach and Deadlines	*In Person *Conference Video call	Once	-All r in the Executive Team i.e. Sponsors, Project Team Staff, SMS	Project Manager	*Project Deadlines * Agenda *Meeting Minutes
Team Performance Assessments	Assessment of the project team's effectiveness	*In Person *Conference Video call	Every 3 months	-SMS -Project Team Staff	SMS	*Performance Assessments Report
Project Manager & Sponsors Meeting	Confirm project statutes performances report on resources used. Receive approval on each Section of the Project Plan,	*In Person *Conference Video call	As Needed	-Sponsors -Project Manager	Project Manager	*Sponsor Approval *Change Control *Agenda *Meeting Minutes

	i.e. Quality, Cost, HR Plan Approve or reject any change request					
SMS Progress Meeting	Review Statuses/ Progress of project, Answer any questions, Present deliverables completed	*In person *Conference call *Emails	Weekly	SMS	Project Manager Communication Manager	*Agenda *Meeting Minutes
Weekly Project Team meeting	Answer any questions, Report Statuses	*In person *Conference call	Weekly	SMS Project Staff Team	Project Manager	*Agenda *Meeting Minutes
Monthly Project Statuses Meeting	Discuss report statuses of project	*In person *Conference Video call *Email	Monthly	-Sponsors -SMS -Project Team staff	Sponsors SMS	*Progress Statuses Report *Agenda *Meeting Minutes
Advisory Meeting	Recap project process & statuses, Seek recommendation and advice on project progress	*In person *Email *Conference call	Every 3 weeks	SMS	Project Manager	*Agenda *Meeting Minutes
Town Meeting	Inform the town with details of the projects. Answer their questions	*In person *Media *Television	Every 6 months	-SMS -The town of Governors Harbor/Island of Eleuthera -Sponsors -Architect	SMS	*Agenda *Meeting Minutes

				-General contractor		

Each meeting will be initiated by a meeting invite sent via Microsoft Outlook and it will be distributed by the Communication Manager five days before the tentative meeting date. Meeting minutes will be sent out no later than 2 days after the meeting date.

4.9.3 Communication Requirements

The following requirements will guide the Communication Matrix, which are:

- ✓ All messages are targeted to a specific audience
- ✓ Teams must communicate what the stakeholder or Project Team needs to know before they need to know it
- ✓ Information has to be approved by the Project Manager before it is distributed
- ✓ Project meeting must be held at important milestones
- ✓ SMS, sponsors and key stakeholders will listen and act on feedback

4.9.4 Feedback Measures and Report Performance

It is important that right information is distributed to the stakeholders that it should be distributed to and feedback will be important after each milestone meeting. Bean, S., Jug, R., & Xiaoyin, J. (2019) states that “feedback is a skill and an assessment tool that provides timely, descriptive information, which can follow the completion of an activity by providing an opportunity for future improvement”. Feedback will provide a gauge with the level of success in communication efforts and informs stakeholders of activities such as planned corporate events and functions. In this way, both positive and negative feedback will be received and it can be determined if communication channels and methods will need to be changed. With this being said, questionnaires, feedback forms

and complaint forms will be used. Feedback forms will use open ended and closed ended questions and will be promoted and encouraged.

4.9.5 Roles in Communication

Project Sponsors

The role of a Project Sponsor will include approving reports such as status reports, Change Requests Forms (as seen in Appendix) and budgets. In regards to communication, the Project Sponsors will communication with top level executives and require that their information is disseminated to the team.

Change Control Board

The change control board is the formal constituted group of stakeholders responsible for reviewing, approving, evaluating delaying or rejecting changes to the project. Any decisions and recommendations are recorded, the type of communication for this group required detailed documents on impact analysis of a change and its implication to the project, as well as the implementation strategies.

Project Management Team

The Project Management Team are responsible for completing the work for the project. The team members are listed in the team directory listed below in *Chart 26,* which will be disseminated to the team and used as a reference, should any of the team need to communicate amongst each other. The role of the Project Management Team is to develop a clear scope analysis, project objective and ensure that deadlines are met.

The Project Management Team is also responsible for the work packages and reports, which the project manager and sponsors will review (such as Status Reports, Performance Reports, Change Requests Forms and Budget). The team play a pivotal role in create the Project Plan. The team requires detailed on the project plan and as a result, communication is critical. It is important that continuous communication is

achieved through continuous interaction with the Project Manager and the other members of the project team. The team directory in Chart 26 will be provided to everyone and it will allow an open door communication between all the project team members and all stakeholders involved in the project.

Chart 26: Project Management Team Directory Chart (Compiled: G. Mackey, the author, October 2019)

Name	Role	Email	Phone
The Government of the Bahamas: 1. the National Insurance Board (NIB) 2. Ministry of Health	Sponsors	nib@bahamas.gov.bs healthgeneral@bahamas.gov.bs	242-502-5000/1 242-703-3000/1
Desmond Mackey	Project Manager	dmackey@sms.com	242-332-1235
Patrick Sweeting	Quality Manager	psweeting@sms.com	242-499-8547
Tanya Hepburn	Human Resources/Communication Manager	thepburn@sms.com	242-551-5656

Tom Mackey	Schedule/Cost Engineer	tmackey@sms.com	242-302-7193
Kim Sands	Risk Analyst/Procurement Manager	ksands@sms.com	242-455-1067

Project Manager

The Project Manager is responsible for developing the project's scope. The role includes developing the Charter for the Sponsors to review and sign. The Project Managers approve Change Requests and the project schedule. The Project Manager has the authority to apply resources to the project. Based on their role, they require continuous communication with all the stakeholders to be able to guide, monitor and control the project and team, effectively. The Project Manager must communicate information regarding deliverables, project reports, statues and performance reports.

4.10 Stakeholder Management Plan

The last process in this study is the Stakeholder Management Plan. Forman (2012) states that, "Stakeholder management is critical to the success of a project. It is a strategic discipline that successful project managers use to sustain support for their projects and the project's organization". For the Project Stakeholder Management Plan, the stakeholders were identified to complete the construction of the Eleuthera Diagnostic and Healthcare Facility. A Stakeholder Register was a tool that would have been completed along with a list of stakeholders that would have been determined from the Project Management Team, along with gathering information from the Project Manager,

which is using expert judgement and information of stakeholders were retrieved from interviews.

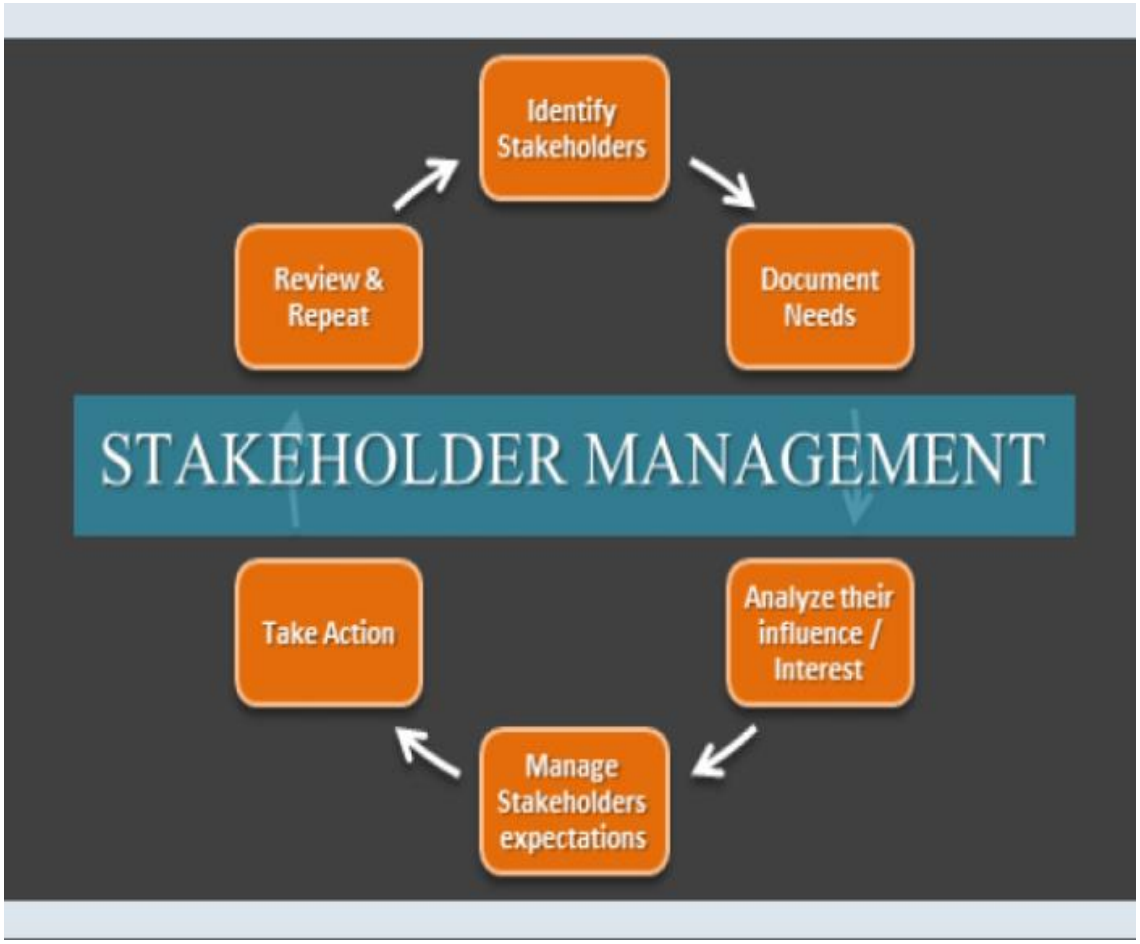


Figure 27: Stakeholders Management Diagram, October 2019. Retrieved from: https://www.simplilearn.com/how-to-control-stakeholder-management-effectively-article

4.10.1 Identify Stakeholders

Usmani (2018) indicates that “the stakeholder identification process is one of the most important processes in project management because projects are undertaken to fulfill the requirements of stakeholders”. It is a process of identifying stakeholders throughout the project life cycle. Usmani (2018) further indicates that “the stakeholder identification process documents information regarding stakeholder’s interest, independencies, influence and the potential impact on the project success.”

The process of identifying stakeholders is important and should take place when the project charter is formed. To find out who are your stakeholders, this can be collectively done with the Project Management Team. Usami (2018) states “a good way to find out who are your stakeholders is to brainstorm and to ask the following questions:

1. Who is directly involved in the project?
2. Who is indirectly involved in the project?
3. Who may be affected by the project?
4. Who may affect the project’s outcome?
5. Who gains from the project?
6. Who loses form the project?
7. Who wants the project successfully complete?
8. Who does not want the project to be successfully completed?
9. Who are the suppliers?
10. Who are the vendors?
11. Who are the competitors?
12. Who are the shareholders?
13. Who in the community will be impacted form the project?
14. Who has the authority to influence the project?
15. Who has the authority to make the project successful?
16. Who has the ability to make the project fail?”

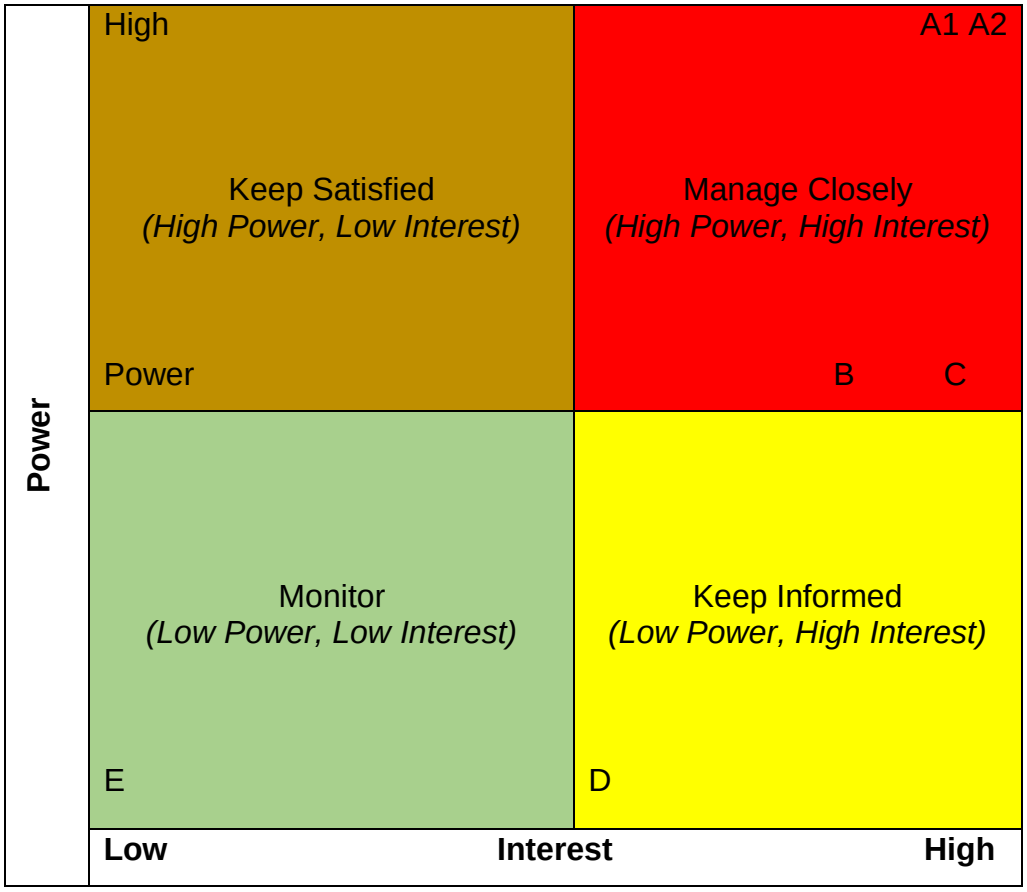
Once the above questions are answered, it can provide a substantial number of stakeholders that will need to be identified as they will be crucial to the project. Once the names of the stakeholders are identified, they will be placed into a register, which will be seen in *Chart 29*.

It is important that stakeholders are identified so that they can be kept abreast of all important information surrounding the project and the lines of communication will always be open with them.

4.10.2 Stakeholder Analysis

The stakeholder analysis determines whose interest should be taken into account throughout the project's lifecycle. It will be used to inform the Project Manager and sponsor where barriers may be and the actions that need to be taken prior to detailed project planning. Any discussions on what the project requires, the project needs from each stakeholder, perceived attitude/risks and actions to be taken highlights these barriers. Anyone that is vested with interest and/or influence/power over this project will be listed on the stakeholder analysis and their influence will be weighed against each other. This is reflected in *Chart 27*.

Chart 27: Power Interest Grid (Compiled: G. Mackey, the author, October 2019)



Legend

Sponsors:

The Government of the Bahamas

The National Insurance Board (NIB) = A1

The Ministry of Health = A2

Project Management Team (SMS) = B

Project Team: General/subcontractors = C

Vendors = D

The Eleuthera Community - E

Each stakeholder listed above would have been placed on *Chart 27* and it would have been determined their power and interest level. If a stakeholder is placed in the 'Keep Satisfied' category, the stakeholders have high power and low interest. Should stakeholders be placed in the 'Manage Closely' category, the stakeholders have high power and high interest. Should stakeholders be placed in the 'Monitor' category, the stakeholders have low power and low interest. Last, if any stakeholders were placed in the 'Keep Informed' section, they have low power, high interest. This determines the stakeholder's involvement or interest in EDHF.

4.10.4 Stakeholder Engagement

According to PMBOK, "Stakeholder Engagement is the process of developing approaches to involve project stakeholders based on their needs, expectations, interests and potential impact on the project." (PMBOK Guide Sixth Edition, p. 503). Stakeholder engagement is the involvement of all tended stakeholders that affect the decisions of the Eleuthera Diagnostic and Healthcare Facility project.

According to Roseke (2019) "stakeholder engagement is a major undertaking as many stakeholders have different needs and wants and their power and interest in the project are unique, which requires specialize consultation requirements". The Project Management Team is responsible for any stakeholder engagement plans from early in the project. The Project Management Team is responsible for updating and keeping the stakeholders engaged even though each stakeholder has specific needs. It is important that the team has a plan that is tailored specific to the project and an engagement plan for each stakeholder, as all of their needs differ. The communication plan is pivotal to engaging the stakeholders, as it is important to know the best method to contact each stakeholder. This can be determined by the Communication Matrix listed above in *Chart 25*.

4.10.5 Stakeholder Communications Plan

To engage, manage and control the Stakeholders Management Plan, a Stakeholders Communications Plan is imperative. It is important and the success of the project is based on keeping the stakeholders informed. Communicating with the stakeholders will also keep them engaged and success is greater once you get the buy-in from stakeholders. It is important to ensure that the correct form of communication is used based on each stakeholder.

Some of the various forms of communications are as follows:

- ✓ Group Meetings – large meetings used to provide information, brainstorm and address any risks or challenges
- ✓ One-on-one meetings – formal or informal meetings that includes two or three people
- ✓ Informal written correspondences – written forms of correspondences such as notes, e-mails, memos and text messages
- ✓ Written Approvals – written agreements that has information relating to the project

4.10.6 Manage Stakeholder

Roseke (2019) states that “stakeholders must be managed in order to achieve their buy-in”. Mehling (2010) indicates that “the task of managing project stakeholders can be a project in itself”. Some of the ways in which Mehling suggested to manage stakeholders are as follows”

1. Identify all the stakeholders
2. Ensure that all stakeholders agree on deliverables
3. Determine how to handle any changes
4. Ensure that there is set and frequent communication
5. Ensure that the stakeholders are aware of the project’s vision
6. Keep stakeholders engaged throughout the lifecycle of the project

7. Ensure stakeholders agree on what needs to be completed
8. Try and empathize with stakeholders

All the above items listed, once understood can assist with managing stakeholders.

4.10.7 Stakeholder Register

According to PMBOK, “the stakeholder register identifies potential owners for risk responses” (PMBOK Guide Sixth Edition, 2017, p. 440). The register is a tool that can assist with documenting the persons that have any impact on the project, their influence and their impact on the project. It is difficult to remember each stakeholder and their individual information; therefore, the stakeholder register stores all the stakeholder’s information in one place. The register will contain each stakeholder’s impact and influence on EDHF.

The stakeholder register will be created after the project charter is completed and approved. The stakeholder register is important, as it has all the information on each stakeholder and stakeholder’s satisfaction is key to the success of a project. It is crucial to know all of your stakeholders needs and requirements. Having so many stakeholders, it may prove difficult to remember all of the characteristics associated the stakeholders. The stakeholder register can assist with gathering and accessing all of the information on each stakeholder.

The stakeholder register is seen below in *Chart 29*. It will contain the ID number, the name of the stakeholder, the role of the stakeholder, the email address of the stakeholder, the organization that the stakeholder is affiliated with, the responsibilities of the stakeholders, the contact numbers of the stakeholders, the communication methods that the stakeholders use or prefer, the influence or power over the project and the impact on the project.

Hall (2019) states that “a stakeholder may exert their influence and cause disruption to your project and taking time out to create a stakeholder register by identifying, evaluating and capturing stakeholders’ interest and concerns can pay big dividends”. He further indicates that “a register is particular helpful when managing large projects that move at a fast pace and having all the stakeholders’ information in one place can determine how to best use our limited time and how to use our skills to engage and influence stakeholders”.

4.10.8 Stakeholder Roles and Responsibilities

Chart 28 below will display and describe the stakeholders, as they will have a key role in managing the scope of the project. It is vital that aware one is aware of the stakeholders, their roles and responsibilities, as they will play key roles in scope changes.

Chart 28: Stakeholder Roles and Responsibilities (Source: G. Mackey, the author, August 2019)

Name	Role	Responsibilities
The Government of the Bahamas: 1. the National Insurance Board (NIB)	Sponsors	*Can propose scope changes *Approve or deny scope change requests, as appropriate *Verifies need for the scope change requests *Accepts final project deliverables and project scope *Updates project documents upon approval of all scope changes *Communicates the scope change to all project team members

Desmond Mackey	Project Manager	*Can propose scope changes *Receives submitted change request forms for revision *Evaluates the requested scope change and measures its impact and verifies its' validity *If approved, submits the scope change request to the Change Control Board *Organizes and facilitate scheduled change control meetings *Communicate outcomes of scope change requests *Updates project documents upon approval of all scope changes
Project Management Team		
Patrick Sweeting	Quality Manager	Can propose scope changes
Tanya Hepburn	Human Resources/Communication Manager	Evaluates the need for scope changes and communicate them to the project manager
Tom Mackey	Schedule/Cost Engineer	Participates in evaluating the requested scope change and measures and assesses its' impact
Kim Sands	Risk Analyst/Procurement Manager	*Participates in defining change resolutions *Communicates change review processes and outcomes of scope change with team members

Chart 29: Stakeholders Register (Compiled: G. Mackey, the author, October 2019)

Project Name: Construction of Eleuthera Diagnostic & Healthcare Facility Location: Eleuthera, Bahamas Project Management Team: Seashore Management Services Date Created: October 28th, 2019									
ID	Name	Role	Email	Organization	Responsibilities	Contact Numbers	Communication Methods	Power (High, Medium, Low)	Impact (High, Medium, Low)
1	Desmond Mackey	Project Manager	dmackey@sms.com	Seashore Management Services	• Overseas procurement management plan • Issue tenders to bid • Evaluate, control and manage change orders and processed • Award contracts to contractors	242-332-1235	• Email • Telephone • Face to Face Meetings • Presentations • Personal Communication	High	High
2	Patrick Sweeting	Quality Manager	Psweeting@sms.com	Seashore Management Services	• Review material purchase order lists and ensure that they are in accordance with building specifications	242-477-8486	• Email • Telephone • Face to Face Meetings	High	High

					and the Bahamas building code		• Presentations Personal Communication		
3	Tanya Hepburn	Human Resources/ Communication Manager	thepburn@sms.com	Seashore Management Services	• Responsible for vetting contracted parties based on qualifications and skills necessary for required deliverables • Communicating procurement requirements to all contractors • Issue change order request	242-422-2228	• Email • Telephone • Face to Face Meetings • Presentations Personal Communication	High	High
4	Tom Mackey	Schedule/ Cost Engineer	tmackey@sms.com	Seashore Management Services	• Evaluate change and change order processes • Evaluate procurement submittals and ensure that the requests for reimbursement is in line with estimated costs of the project	242-477-8831	• Email • Telephone • Face to Face Meetings • Presentations Personal Communication	High	Medium
5	Kim Sands	Risk Analyst/Procurement Manager	ksands@sms.com	Seashore Management Services	• Ensure that materials are top quality and sustainable • Provide contracts for contractors • Ensure that procurement of materials is achieved within target dates	242-422-7977	• Email • Telephone • Face to Face Meetings • Presentations Personal Communicati	Medium	Medium

							on		
6	Devin McIntosh	Representative	nib@bahamas.gov.bs	National Insurance Board (NIB)	• Can propose scope changes • Approve or deny scope change requests, as appropriate • Verifies need for the scope change requests • Accepts final project deliverables and project scope • Updates project documents upon approval of all scope changes • Communicates the scope change to all project team members	242-502-5000 ext. 2093	• Email • Telephone • Face to Face Meetings • Personal Communication	High	High
7	Elon Moxey	Representative	healthgeneral@bahamas.gov.bs	Ministry of Health	• Can propose scope changes Receives submitted change request forms for revision • Evaluates the requested scope change and measures its impact and verifies its' validity • If approved, submits the scope change request to the Change Control Board • Organizes and facilitate scheduled change	242-703-3000 ext. 4703	• Email • Telephone • Face to Face Meetings • Personal Communication	High	High

					control meetings Communicate outcomes of scope change requests Updates project documents upon approval of all scope changes				
8	Chaplain Moss	President	cmoss@gdcc.com	Geometric Design Construction Co.	• Leader of company • Can make decisions and affect overall decisions within company	242-359-7410	• Email • Telephone • Personal Communication • Face to Face Meetings	High	High
9	Mark Thompson	Site Superintendent	mthompson@gdcc.com	Geometric Design Construction Co.	• In control of all trades on site	242-474-6189	• Email • Telephone • Personal Communication • Face to Face Meetings •	High	High
10	David Moss	Site Foreman	dmoss@gdcc.com	Geometric Design Construction Co.	• Assist the Site Superintendent in carrying out the daily task on site	242-432-9431	• Email • Telephone • Personal Communication • Face to Face Meetings	Medium	Medium

11	Justin Boroe	Mason Foreman	Contact Contractor	Geometric Design Construction Co.	• Controls all masons and mason helpers giving instructions to carry out daily tasks	242-477-4900	• Telephone • Personal Communication • Face to Face Meetings	Medium	Medium
12	Philip Sweeting	Skilled Mason	Contact Contractor	Geometric Design Construction Co.	• Instructed by Mason foreman to execute daily task and activities	242-422-9433	• Telephone • Personal Communication • Face to Face Meetings •	Low	Low
13	Michael White	Carpenter Foreman	Contact Contractor	Geometric Design Construction Co.	• Receives instructions from site foreman for daily task related to trade and instruct all carpenters on the site	242-335-3501	• Telephone • Personal Communication • Face to Face Meetings	Medium	Medium
14	Freddy Johnson	Skilled Carpenters	Contact Contractor	Geometric Design Construction Co.	• Instructed by Carpenter foreman to carry out daily activities related to trade	Contract Contractor	• Personal Communication • Face to Face	Low	Low

							• Meetings		
15	John Cartwright	Semi-Skilled Carpenters	Contact Contractor	Geometric Design Construction Co.	• Construction/Carpentry	Contract Contractor	• Personal Communication • Face to Face Meetings	Low	Low
16	Many	Carpenter Helpers	Contact Contractor	Geometric Design Construction Co.	• Construction/Carpentry	Contract Contractor	• Personal Communication • Face to Face Meetings	Low	Low
17	Gloria Cooper	Store Keeper	Contact Contractor	Geometric Design Construction Co.	• Construction/Stores	Contract Contractor	• Personal Communication • Face to Face Meetings	Low	Low
18	Wendy Clarke	Engineer	wclarke@msn.com	Target Engineering Company	• Ensuring	242-477-1342	• Email • Telephone • Personal Communication • Face to Face Meetings	High	High

19	Ronnie Butler	Janitor	rbutler@spcc.com	Sparkle Cleaning	• Ensuring that the office are clean and the building is free of debris	242-329-2713	• Email • Telephone • Personal Communication • Face to Face Meetings	Low	Low
20	Geometric Design Construction Company	Truck Driver	Contact Contractor	Geometric Design Construction Company	• Driver	Contract Contractor	• Personal Communication • Face to Face Meetings	Low	Low
21	Jason Johnson	Architect	jj@ett.com	Subcontractor	• Architect	242-809-1183	• Email • Telephone • Personal Communication • Face to Face Meetings	Low	Medium
22	Martin Todd	Land Surveyor	Martint1964@hotmail.com	Subcontractor	• Surveyor	242-502-3478	• Email • Telephone • Personal Communication • Face to Face Meetings	Low	Medium

23	Electrical	WD Electrical Company	bryanbain@wdec.com	Subcontractor	• Electrician	242-477-2017	• Email • Telephone • Personal Communication • Face to Face Meetings	Medium	High
24	Plumbing	C.C Plumbing	Perrystubbs@gmail.com	Subcontractor	• Plumbing	242-302-5823	• Email • Telephone • Personal Communication • Face to Face Meetings	Medium	High
25	Air Condition & HVAC	JD Systems	jd@jds.com	Subcontractor	• HVAC/Air Conditioning	242-375-4285	• Email • Telephone • Personal Communication • Face to Face Meetings	Medium	High
26	Heavy Equipment Operators	D.H Heavy Equipment	Contract Contractor	Subcontractor	• Heavy Equipment operators	242-508-1100/1/2	• Email • Telephone • Personal Communication • Face to Face Meetings	Low	Low

27	Metal Roofers	EleuMer Roof Contractor	csands@emrc.com	Subcontractor	• Metal Roofing	242-702-2567	• Email • Telephone • Personal Communication • Face to Face Meetings	Medium	Medium
28	Laborers	Laborers	Many	laborers	• Completion of all tasks and duties given to complete the project	Contract Contractor	• Telephone • Personal Communication Face to Face Meetings	High	Low
29	Jerome Johnson	Ministry of Works	jjohnsonmow@bahamas.gov.bs	Regulator	• Representative	242-502-7004 Ext #5832	• Meetings • Personal • Email • Personal Communication • Telephone	High	High
30	FAA	Government Regulator	faa@bahamas.gov.bs	Regulator	• Representative	242-601-4812/3 Ext #8810	• Meetings • Personal • Email • Personal Communication • Telephone	High	High

31	Community	Community of Eleuthera	None	None	N/A	N/A	• Meetings	Low	Medium

5. CONCLUSIONS

1. The Project Charter defined and provided a general understanding of the project within the Project Management Plan. Some of the items that are outlined in the Project Charter are the project description, project objectives, milestones, scope statement, budget and initial project risks. The Project Charter is a guide or map to successful planning.

2. The Scope Management Plan focused on the scope of the project and included the Scope Management Approach, Scope Definition, Project Scope Definition, Product Scope Statement, Product Acceptance Criteria, Product Deliverables, Project Exclusions, Project Assumptions and Constraints, the WBS and WBS Dictionary, and Project Scope Control. This portion of the plan ensures that the scope of the project is planned, correctly.

3. The Time Management Plan assists with ensuring that the project deliverables are scheduled, planned, managed, and controlled. Some of the items created for this plan was a resource assignment, sequence activities with start and finish dates and the complete project's schedule using a Project Gantt Chart.

4. The Cost Management Plan was used to determine specific costs and set budgets for the Project. Microsoft excel was used to provide a breakdown of cost and capture costs related with deliverables. Also, a labor cost breakdown was provided, which determined the rate and weekly salary per each role in the project. The purpose of this plan was to ensure that project is accomplished within the calculated budget.

5. The Quality Management Plan was created to ensure that the project delivers a quality project, while meeting the expectations of the stakeholders. This plan included the Quality Management Approach, Quality Controls including Quality Check Forms.

6. The Human Resource Management Plan's objectives were to assist with managing human resources throughout the project. This plan included the roles and responsibilities of the Project Management Team, their skill levels, staff acquisitions, staff release plans, training plans, performance review plans, and organizational health and safety plans. Some of the tools used for this plan were the creation of a RACI Chart and a resource histogram graph and chart.

7. The Risk Management Plan assesses risks, determines their impacts and provides a clear plan on managing risks. The plan included risk analysis methods, risk assumptions, and risk reviews. Some of the tools that were utilized were a general risk matrix, a risk ID list, a risk impact chart, a risk action preventative and contingent chart, priority risk charts, and a risk register.

8. The Procurement Management Plan determines how items will be procured and acquired, and which approaches will be used. The Procurement Management Plan includes responsibilities of sub-contractors, fixed price contracts, subcontractor selection process and criteria, contract tracking, and contract close-out. Microsoft Excel was used as a tool to create procurement roles and responsibilities, which can assist with the procurement plans.

9. The Communication Plan adequately determines how information will be disseminated effectively internally and externally, within the project. The communication requirements, approach, roles in communication were discussed. Some of the tools that were used were a Communication Matrix and the Team Directory.

10. The Stakeholder Management Plan was developed to identify, analysis and engage stakeholders. A power interest grid was created, which identifies

stakeholders power and interest in the project. A stakeholder register was created, which is an effective tool that will be used for this plan.

6. RECOMMENDATIONS

1. Seashore Management Services (SMS) should use the Project Management Plan as a tool to manage, provide processes and methods that can help deliver the project on time and on budget.

2. SMS should carefully assess each category provided in the plan to use them appropriately.

3. SMS should ensure that the stakeholders matrix is used to engage stakeholders, effectively.

4. SMS needs to ensure that there is more than one person that is OSHA certified and that safety standards are taken seriously and adhered to on the project.

5. The Project Manager should conduct weekly meetings to ensure that all deliverables are met.

6. The Project Manager should continuously review the project's schedule to ensure that the project is consistently meeting all of the deliverables.

7. SMS needs to ensure that the Quality Control Manager follows quality standards and adequately assesses and audits, which includes quality control inspections and activities.

8. SMS should look into investing in a risk management tool, which can assist with the managing and controlling of any unforeseen risks.

9. SMS should regularly and continuously monitor risks to mitigate any possible risks that can affect the project. Also, there should be periodically risks reviews, as this can lead to continuous improvement.

10. SMS should ensure that the communication matrix is updated, as communication mediums amongst stakeholders can constantly change and it is important that communication stays consistent and it is effective, as this can also mitigate additional risks.

11. The Project Manager should utilize the Change Control procedure, as it can be beneficial throughout the life of the project.

12. SMS should ensure that persons are hired with the correct skillsets to ensure that the project deliverables are met and the tasks can be successfully completed.

13. SMS can use the Project Management Plan as a viable framework for any future project, which encompasses all the tools and templates created within the plan.

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8. APPENDICES

Appendix 1: FGP Charter

PROJECT CHARTER	
Date	**Project Name:**
May 13th, 2019	The Project Management Plan for the construction of a Mini Diagnostic & Healthcare Facility in Eleuthera, Bahamas called Eleuthera Diagnostics & Healthcare Facility (EDHF) project.
Knowledge Areas / Processes	**Applicacion Area (Sector / Activity)**
Should indicate the knowledge areas and process groups which are related to the project **Knowledge areas:** Project Scope Management Project Cost Management Project Time Management Project Quality Management Project Human Resource Management Project Risk Management Project Procurement Management Project Communications Management Project Stakeholder Management **Process groups:** • Intiating • Planning • Monitoring • Controlling	Construction
Start date	**Finish date**
May 13th, 2019	November 15th, 2019
Project Objectives (general and specific)	
General objective: To create a Project Management Plan for a mini Eleuthera Diagnostic & Healthcare Facility Project. It will be a 50,000 square foot building that will be fianced by the Government of the Bahamas. Specific objectives: To create the project charter for the project and assist with providing a viable project management plan To develop a project scope management plan that assists with allocating all work required to successfully complete the project. To create a time management plan that will ensure that the project schedule is completed and the management of time objectives. To create a project cost management plan that will manage the budget and ensure that the project stays within budget. To develop a project quality management plan that determines how quality will be achieved throughout the project. To create a project human resource management plan that identifies how resources will be acquired and managed.	

To develop a project risk management plan to foresee, identify risks and reduce any impact on the project.
To create a project procurement management plan that will assist in attaining products and services that will be used by the project.
To create a project communications management plan that will assist with providing actual communication with vital information during the project.
To develop a project stakeholder management plan that will develop key strategies that will engage stakeholders during the lifecycle of the project.

Project purpose or justification (merit and expected results)

The project management plan is developed to assist with the ensuring that the project will be completed on time. The study will assist with developing a Project Management Plan that will assist with completing the project based on specific quality metrics and within the required budget allotted.

The construction of the Eleuthera Diagnostic & Healthcare Facility (EDHF) will be a facility that is apart of a government strategic program and plan. Its aim is to provide medical assistance to family islanders that require a medical facility and any diagnostic, specific procedures, which will require overnight stay for suitable treatment and require continuous monitoring. The aim is to reduce the traffic flow into Princess Margaret Hospital in Nassau, New Providence, which houses the main hospital and have to be accessed by taking a plane or boat. In most cases, family islanders do not have the financial ability to travel overseas or the issue needs immediate attention, which can result in the loss of lives.

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

A viable Project Management Plan for the building of the Eleuthera Diagnostic & Healthcare Facility (EDHC).

Assumptions

Any feedback provided will assist with any necessary improvements will be completed in time.
It is assumed that all of the knowledge received within the MPM course will be sufficient to complete the project, successfully.
It is assumed that enough information will be retrieved from the support organization for the specified project.

Constraints

Time: the ability to balance the demand of everything, surrounding work and family to complete the Final Graduation Project (FGP) within the specified time.

Preliminary Risks

If the project is not completed within the specified criteria, it will not be accepted
If weekly submissions are not submitted on time, they will not be considered.
If the student does not understand a particular area for the project, they will get it marked wrong; hence, failing the class.

Budget

The project's budget is 12 million dollars. The cost of the FGP is calculated at zero.

Milestones and dates

Milestone	Start date	End Date
PHASE I: GRADUATION SEMINAR	May 13th, 2019	June 14th, 2019
FGP Charter	May 13th, 2019	May 17th, 2019
FGP WBS	May 13th, 2019	May 17th, 2019
Introduction Chapter	May 20th, 2019	May 24th, 2019
Theoretical Framework Chapter	May 27th, 2019	May 31st, 2019
Methodological Framework Chapter	June 3rd, 2019	June 7th, 2019
Executive Summary	June 10th, 2019	June 14th, 2019
Bibliography	June 10th, 2019	June 14th, 2019
Signed Charter	June 10th, 2019	June 14th, 2019
PHASE II: TUTORING	June 25th, 2019	September 20th, 2019

Adjustment of previous chapters	June 25th, 2019	July 2nd, 2019
Chapter IV Development	July 3rd, 2019	September 5th, 2019
Chapter V Conclusions	September 9th, 2019	September 13th, 2019
Chapter VI Recommendations	Sepember 16th, 2019	September 20th, 2019
PHASE III: READING BY REVIEWERS	September 23rd, 2019	October 11th , 2019
Reviewer	September 23rd, 2019	September 27th, 2019
FGP Reader	September 30th, 2019	October 10th, 2019
Reader 1 report	October 11th, 2019	October 11th , 2019
Reviewer	September 30th, 2019	October 11th, 2019
FGP reading	September 30th, 2019	October 10th , 2019
Reader 2 report	October 11th, 2019	October 11th, 2019
PHASE IV: ADJUSTMENTS & MODIFICATIONS	October 14th, 2019	November 8th, 2019
Report for reviewers	October 14th, 2019	October 24th, 2019
FGP update	October 25th, 2019	October 25th, 2019
Second review by reviewers	October 28th, 2019	November 8th, 2019
PHASE V: PRESENTATION TO BOARD OF EXAMINERS	November 11th, 2019	November 15th, 2019
Final review by board	November 11th, 2019	November 12th, 2019
FGP grade report	November 13th, 2019	November 15th, 2019

Relevant historical information

The construction team that will execute the project will be Geometric Design Construction Company (GDCC). It is a small based company that would have worked in Nassau, Bahamas for over 5 years. GDCC's previous work would have comprised of a number of government contractual jobs, which would have included a few jobs that were located on the family islands. Also, the owner is a descendent from the island of Eleuthera, making them an ideal candidate; as they would know the island intracacies.

The island of Eleuthera is an archipelagic state within the Commonwealth of the Bahamas, which was founded in 1648 and the meaning of Eleuthera is "free" or "freedom". Its current population is estimated at approximately 11,000. Eleutherans currently utilize a number of small clinics, which are stationed on the various settlements. If any of the islanders have emergencies that require diagnostic or any hospital care, they are flown into Nassau, Bahamas. Nassau is the capital of the Bahamas and it houses two major hospitals, which are Princess Margaret Hospital (PMH), a public hospital that also contains some private rooms and a fully private hospital called Doctor's Hospital.

Stakeholders

Direct stakeholders:

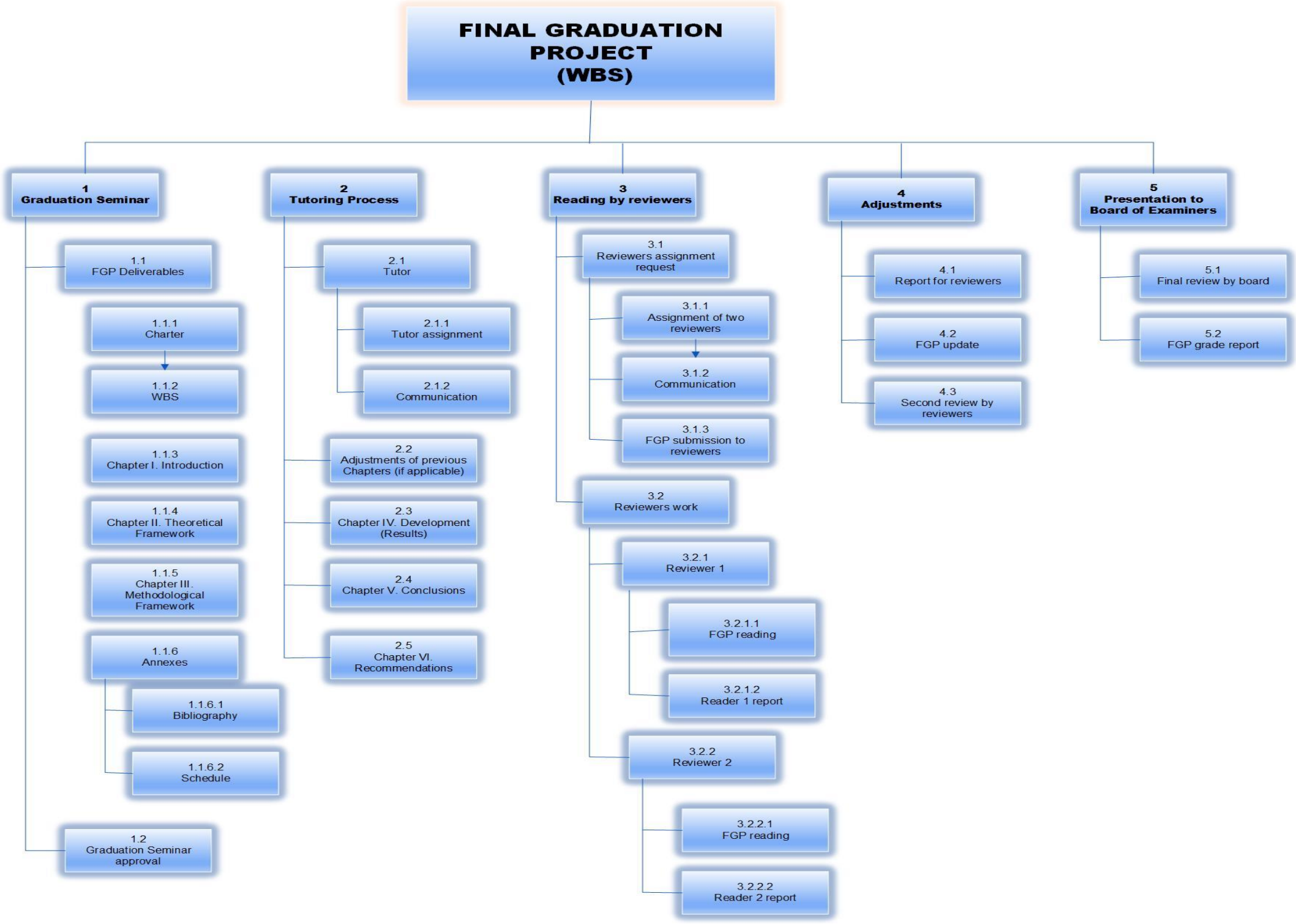
FGP & Course Facilitators
UCI Tutor
Project Board Reviewers
Project Manager - Gazna Mackey

Indirect stakeholders:

Academic Assistant
Government of Bahamas

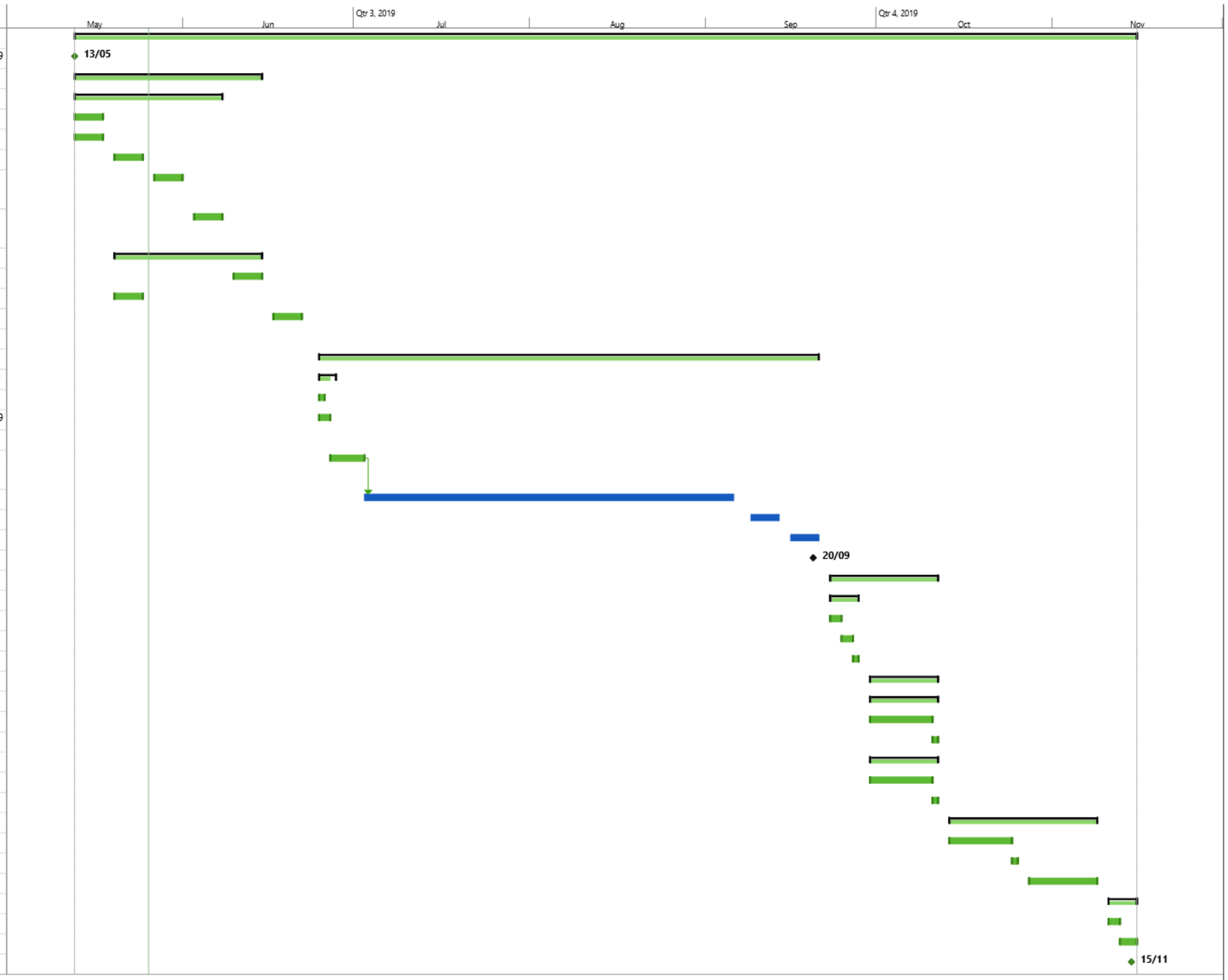
Project Manager: Gazna Mackey	**Signature:** 
Authorized by:	**Signature:**

Appendix 2: FGP WBS



Appendix 3: FGP Schedule

ID	Task Name	Duration	Start	Finish
1	**FINAL GRADUATION PROJECT**	**136 days**	**Mon 13/05/19**	**Fri 15/11/19**
2	FGP Start	0 days	Mon 13/05/19	Mon 13/05/19
3	**1, PHASE 1: GRADUATION SEMINAR**	**25 days**	**Mon 13/05/19**	**Fri 14/06/19**
4	**1.1, FGP Deliverables**	**20 days**	**Mon 13/05/19**	**Fri 07/06/19**
5	1.1, FGP Charter	5 days	Mon 13/05/19	Fri 17/05/19
6	1.1.2, FGP WBS	5 days	Mon 13/05/19	Fri 17/05/19
7	1.1.3, Chapter I. Inroduction	5 days	Mon 20/05/19	Fri 24/05/19
8	1.1.4, Chapter II. Theoretical Framework Chapter	5 days	Mon 27/05/19	Fri 31/05/19
9	1.1. 5 Chapter III. Methodological Framework	5 days	Mon 03/06/19	Fri 07/06/19
10	**1.1.6, Annexes**	**20 days**	**Mon 20/05/19**	**Fri 14/06/19**
11	1.1.6.1, Bibliography	5 days	Mon 10/06/19	Fri 14/06/19
12	1.1.6.2, Schedule	5 days	Mon 20/05/19	Fri 24/05/19
13	1.2, Graduation Seminar Approval	5 days	Mon 17/06/19	Fri 21/06/19
14	2, PHASE II, TUTORING			
15	**2, PHASE II: TUTORING**	**65 days**	**Tue 25/06/19**	**Fri 20/09/19**
16	**2.1, Tutor**	**3 days**	**Tue 25/06/19**	**Thu 27/06/19**
17	2.1.1, Tutor assignment	1 day	Tue 25/06/19	Tue 25/06/19
18	2.1.1.2, Communication	2 days	Tue 25/06/19	Wed 26/06/19
19	<New Task>			
20	2.2, Adjustments of previous chapters (if needed)	5 days	Thu 27/06/19	Tue 02/07/19
21	2.3, Chapter IV. Development	47 days	Wed 03/07/19	Thu 05/09/19
22	2.4, Chapter V. Conclusions	5 days	Mon 09/09/19	Fri 13/09/19
23	2.5, Chapter VI. Recommendations	5 days	Mon 16/09/19	Fri 20/09/19
24	Tutor approval	0 days	Fri 20/09/19	Fri 20/09/19
25	**3. Reading by reviewers**	**15 days**	**Mon 23/09/19**	**Fri 11/10/19**
26	**3.1, Reviewers assignment request**	**5 days**	**Mon 23/09/19**	**Fri 27/09/19**
27	3.1.1, Assignment of two reviewers	2 days	Mon 23/09/19	Tue 24/09/19
28	3.1.2, Communication	2 days	Wed 25/09/19	Thu 26/09/19
29	3.1.3, FGP submission to reviewers	1 day	Fri 27/09/19	Fri 27/09/19
30	**3.2, Reviewers work**	**10 days**	**Mon 30/09/19**	**Fri 11/10/19**
31	**3.2.1, Reviewer**	**10 days**	**Mon 30/09/19**	**Fri 11/10/19**
32	3.2.1.1, FGP reading	9 days	Mon 30/09/19	Thu 10/10/19
33	3.2.1.2, Reader 1 report	1 day	Fri 11/10/19	Fri 11/10/19
34	**3.2.2 Reviewer**	**10 days**	**Mon 30/09/19**	**Fri 11/10/19**
35	FGP reading	9 days	Mon 30/09/19	Thu 10/10/19
36	3.2.2.2, Reader 2 report	1 day	Fri 11/10/19	Fri 11/10/19
37	**4, Adjustments**	**20 days**	**Mon 14/10/19**	**Fri 08/11/19**
38	4.1, Report for reviewers	9 days	Mon 14/10/19	Thu 24/10/19
39	4.2, FGP update	1 day	Fri 25/10/19	Fri 25/10/19
40	4.3, Second review by reviewers	10 days	Mon 28/10/19	Fri 08/11/19
41	**5, Presentation to Board of Examiners**	**5 days**	**Mon 11/11/19**	**Fri 15/11/19**
42	5.1, Final review by board	2 days	Mon 11/11/19	Tue 12/11/19
43	5.2, FGP grade report	3 days	Wed 13/11/19	Fri 15/11/19
44	FGP End	0 days	Fri 15/11/19	Fri 15/11/19



Project: Gazna_Microsoft Projec
Date: Sun 26/05/19

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

Appendix 4: Change Management Form

ELEUTHERA DIAGNOSTIC & HEALTHCARE FACILITY
CHANGE MANAGEMENT FORM 1 OF 2

Change Proposal Title: _____ Date Created: _____

Originator: _____ Organization: _____

Proposed Change Description and References:
_____
_____
_____
Justification
_____
_____
_____
Impact of Not Implementing Proposed Change:
_____
_____
_____
Alternatives:
_____
_____
_____
Impact on Schedule: _____

Impact on Resources: _____
Final Review Results
Review Date: _____

Classification: _____HIGH _____MEDIUM _____LOW
Reviewing Body:
Name:
_____ Position: _____Signature_____
Name:
_____Position_____Signature_____

ELEUTHERA DIAGNOSTIC & HEALTHCARE FACILITY
CHANGE MANAGEMENT FORM 2 OF 2

Change / Issue Proposal Title: _____
Change Proposal Date: _____ Issue Date: _____
Change Proposal No: _____ Issue No.
_____
Originator: _____
Organization: _____
Detailed Impact Analysis Requested by: _____
Specific Requirements Definition:
_____
_____
_____
Additional Resource Requirements Work Days
Cost
_____ _____
_____ _____
_____ _____
Impact of Not Implementing the Change:
_____
_____
_____
Alternatives to the Proposed Change:
_____
_____
_____
_____
Impact Analysis Completion Date: _____

Signature of Responsible Person: _____
Final Recommendation:
_____
_____
_____

Appendix 5: Log Issue Form

LOG ISSUE FORM ELEUTHERA DIAGNOSTIC AND HEALTHCARE FACILITY PROJECT TEAM – SEASHORE MANAGEMENT SERVICES					
Issue #	Today's Date	Your Name	Issue	Name Responsible For Resolving Issue	Date of Resolution

Appendix 7: Picture of Governor's Harbour, Eleuthera

Figure 28. Picture of Governor's Harbor, Eleuthera. Retrieved from: https://www.tripadvisor.com/LocationPhotos-g2698766-Governor_s_Harbour_Eleuthera_Out_Islands_Bahamas.html

Appendix 8: Picture of Eleuthera

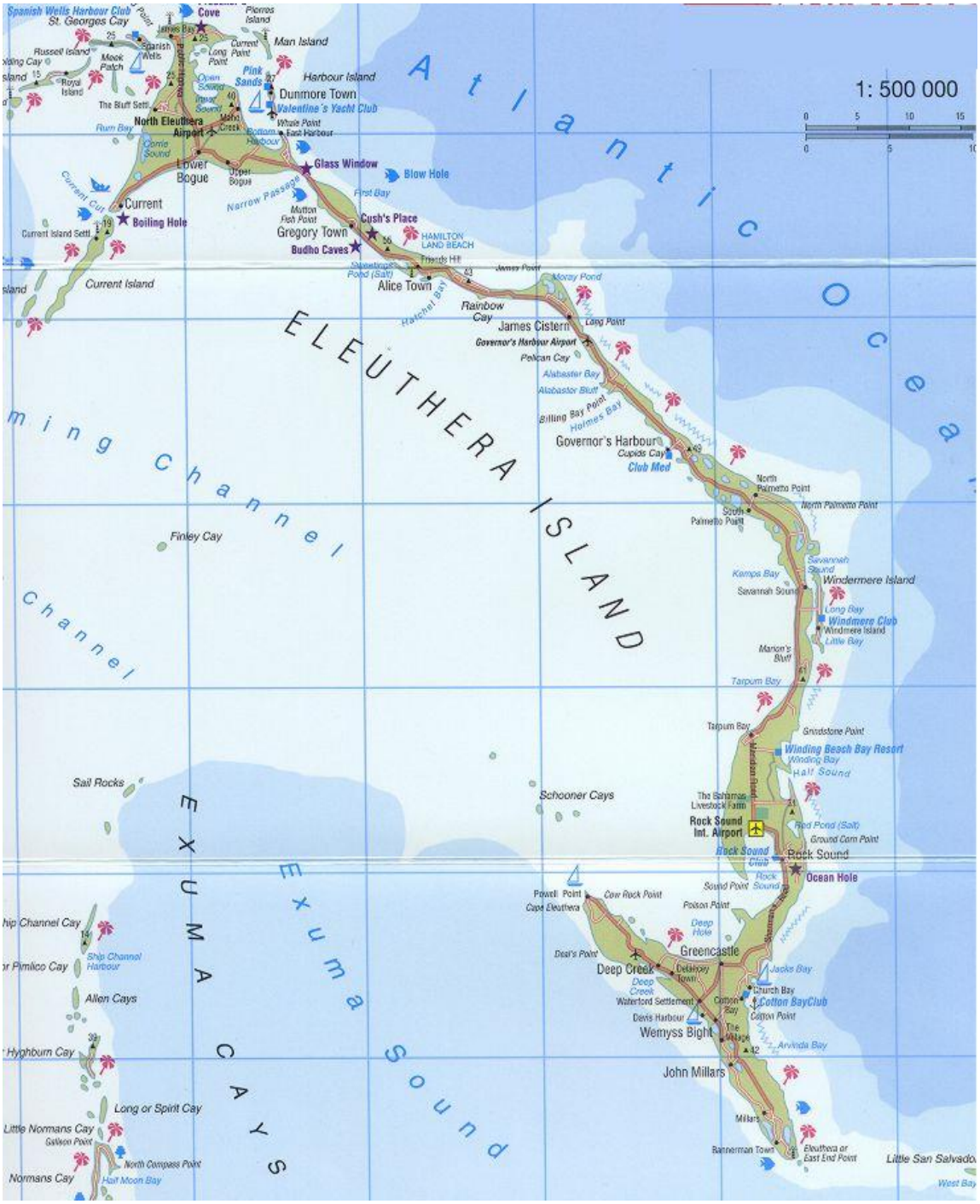
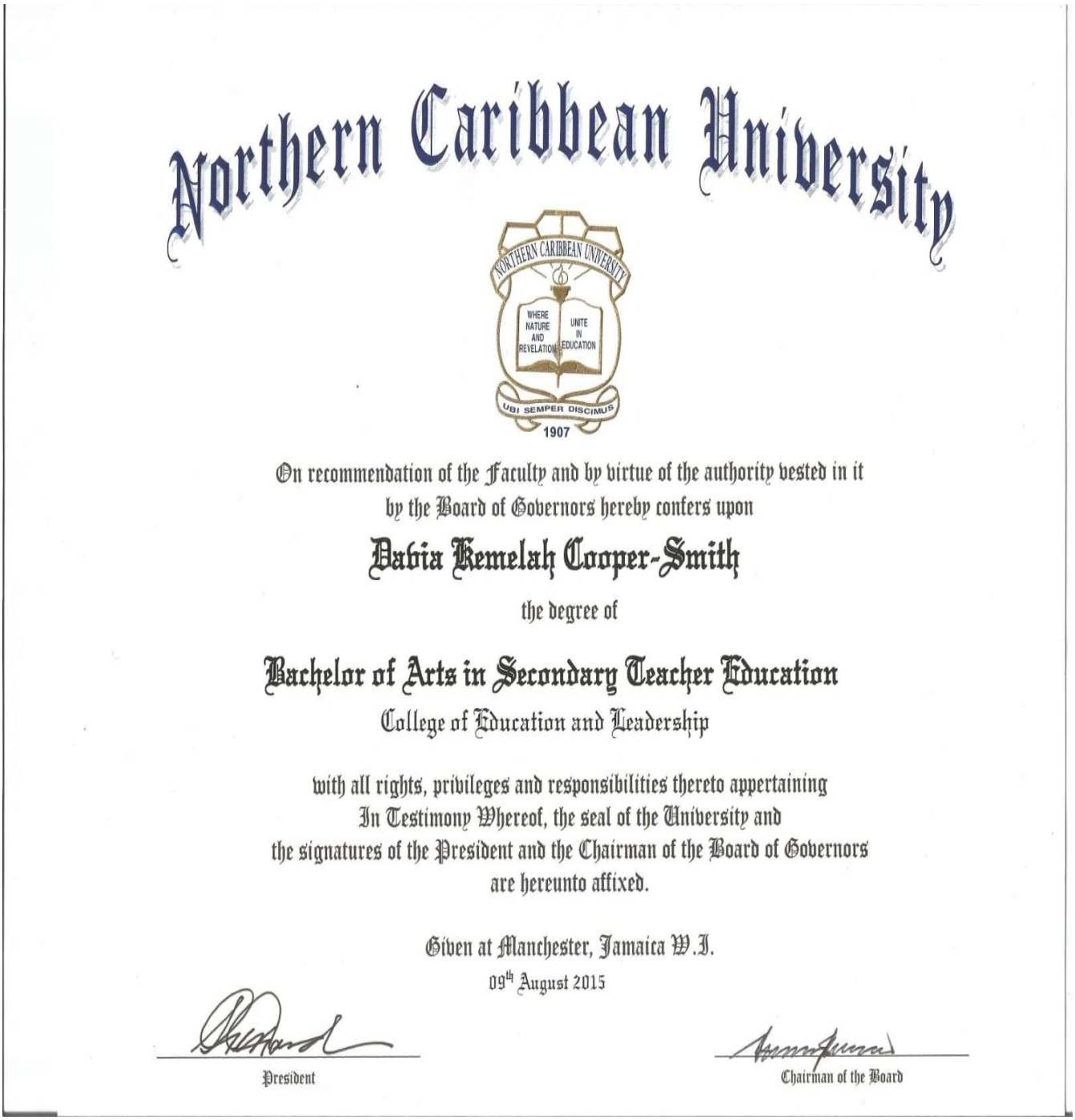


Figure 29. Picture of Eleuthera. Retrieved from: http://www.the-bahama-islands.com/islandmaps/eleumap.html

Appendix 9: Credentials of Linguist – Professional Revision Dictum



Northern Caribbean University

NORTHERN CARIBBEAN UNIVERSITY
WHERE NATURE AND REVELATION UNITE IN EDUCATION
UBI SEMPER DISCIMUS
1907

On recommendation of the Faculty and by virtue of the authority vested in it
by the Board of Governors hereby confers upon

Dabia Kemelah Cooper-Smith

the degree of

Bachelor of Arts in Secondary Teacher Education

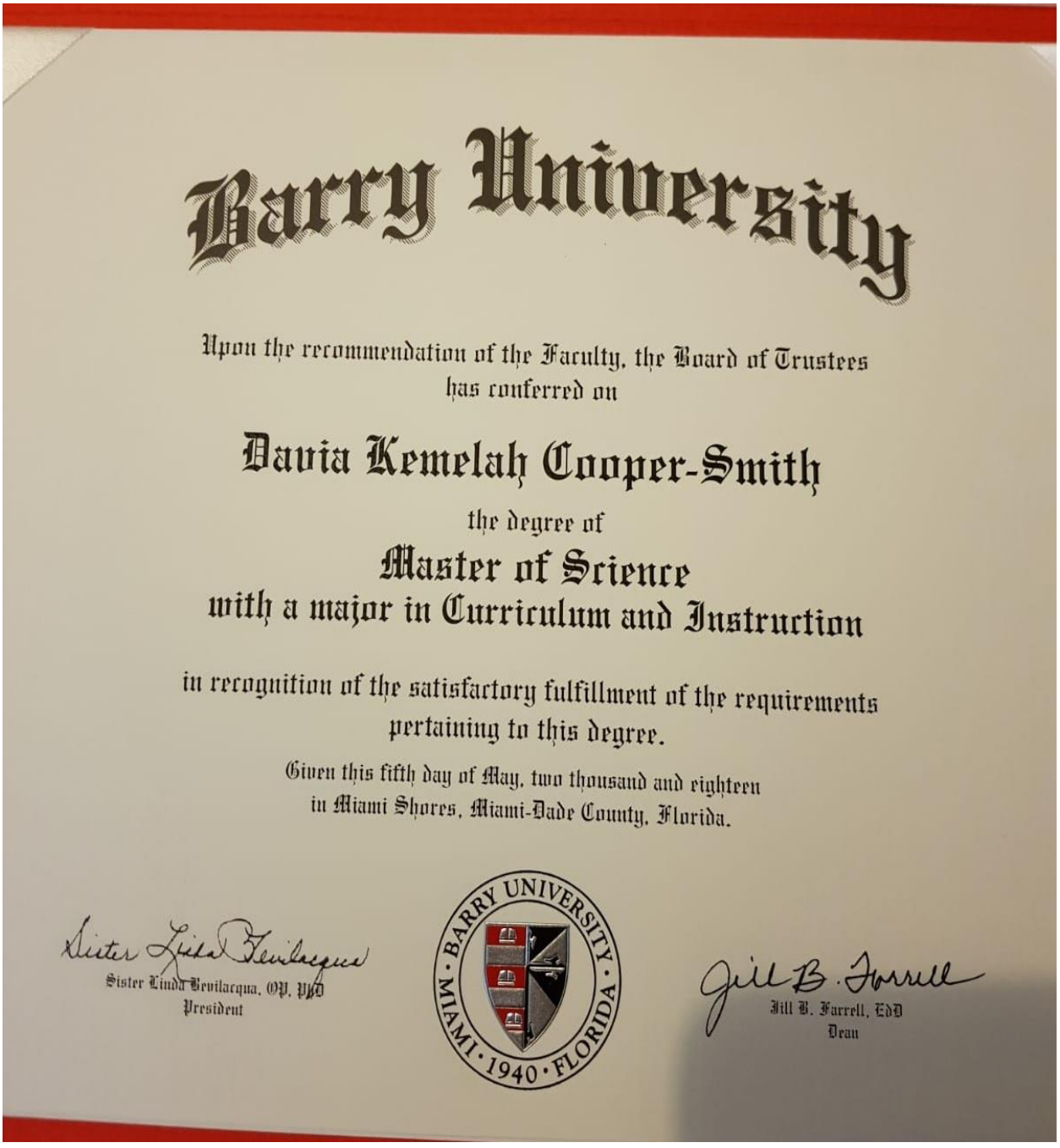
College of Education and Leadership

with all rights, privileges and responsibilities thereto appertaining
In Testimony Whereof, the seal of the University and
the signatures of the President and the Chairman of the Board of Governors
are hereunto affixed.

Given at Manchester, Jamaica W.I.
09th August 2015

President

Chairman of the Board



Barry University

Upon the recommendation of the Faculty, the Board of Trustees
has conferred on

Davia Kemelah Cooper-Smith

the degree of

Master of Science
with a major in Curriculum and Instruction

in recognition of the satisfactory fulfillment of the requirements
pertaining to this degree.

Given this fifth day of May, two thousand and eighteen
in Miami Shores, Miami-Dade County, Florida.

Sister Linda Bevilacqua

Sister Linda Bevilacqua, OP, PhD
President

BARRY UNIVERSITY · MIAMI · 1940 · FLORIDA

Jill B. Farrell

Jill B. Farrell, EdD
Dean

Davia Cooper-Smith
North Palmetto Point,
Eleuthera, Bahamas
Email: daviacooper@hotmail.com

October 17th, 2019

Academic Advisors/Professors
Universidad Para La Cooperacion Internacional (UCI)
Costa Rica

REF: PHILOGICAL REVIEW OF FINAL GRADUATION PROJECT - GAZNA MACKEY

Dear Sir/Madam:

Currently, I hold a position as a Senior Trained Teacher at Central Eleuthera High School in Palmetto Point, Eleuthera, which I teach English Language and History. I currently hold a Bachelors of Arts degree in Secondary Teacher Education with a major is History and Social Studies and a minor in English Language and Literature. Additionally, I hold a Master's of Science degree in Curriculum and instruction with an emphasis in early and middle school education.

I have reviewed Gazna Mackey's thesis and would have made the suggested required adjustments, where necessary. The adjustments would have included grammatical errors, spelling errors, and sentence structure errors, etc.

Please note that the document submitted by Gazna Mackey meets the intended philological requirements by the University. Also, after reviewing the FGP, it meets the standards of a Master's Degree in Project Management.

Any questions in this regards, feel free and contact me.

Yours Sincerely,

DkCooper

Davia Cooper-Smith

Appendix 10: Project Charter for Implementation of Project

PROJECT CHARTER

for

Construction of HealthCare Facility

Seashore Management Services
Nassau, Bahamas

May 2020

Project Name	Construction of Diagnostic & HealthCare Facility
Project Sponsor	The National Insurance Board
Project Manager	Desmond Mackey
Date of Project Approval	January 2020
Project Start Date	July 1st, 2020
Project Completion Date	June 30th, 2021
Project Description	To provide a diagnostic and health care facility that will provide medical care for the island of Eleuthera.

PROJECT ACCEPTANCE/SUCCESSFUL CRITERIA

The project will be accepted as successful once the following requirements are met:

- ✓ Completed on or before June 30th, 2021 (within 11 months)
- ✓ Completed on or within budget of $12 million dollars
- ✓ Is a top quality, state of the art using quality standards and policies
- ✓ The project is eco-friendly and the building is built to be sustainable
- ✓ Passes all Ministry of Public Works building inspections
- ✓ Granted a final occupancy from the Ministry of Public Works
- ✓ All stakeholders expectations are met and stakeholders are satisfied

BUSINESS OBJECTIVES

Goals	Objectives
Construct a Diagnostic & Healthcare Facility in Eleuthera	• Building a state of the art building in Governor's Harbor, Eleuthera will provide medical services such as, emergencies, routine check-ups and hospital stay in house patient care for minimal patients • Alleviate traffic flow into the capital city, Nassau Bahamas into the hospital Princess Margaret Hospital (PMH)

National Development of the Family Islands of the Bahamas	• Will help to significantly subsidize the Social & Economic development of the island of Eleuthera • Assists the Government with health initiatives & programs to increase better health care for Bahamians.
Complete Construction within (11 months)	• Control and monitor project scope and schedule, to avoid scope creep and delayed production. The tentative completion date is June 30th, 2021
Complete construction within budget of $11,000,000	• Avoid re-due work and budget overrun by constantly checking the health of the project using Assessment Tools such as Object Metrics, such as: -Schedule Performance Index (SPI) -Cost Performance Index (CPI) -Cost variance -Schedule variance • To determine the true color of a project. - Green: btw 1.0 – 0.95 (Good standing) -Yellow: btw 0.94 – 0.85 (Proceed project with auction) -Red: btw 0.84 -0 (Stop the project) Construction is to be completed at or under $11 million dollars.
To have top quality work & use the top quality material during the construction of the facility	• Specific Quality policies and quality control measuring standards will be followed and inspections conducted, as per the execution and implementation phase. More information found in Quality Control Plan

DEPARTMENT STATEMENT OF WORK (SOW)

Departmental SOW	Owner/Prime	Due Date/Sequence
1. Award Contract	Between Seashore Management Services (SMS) and the Government of the Bahamas	July 1st, 2020
2. Mobilization	The Government of the Bahamas: the National Insurance Board of the Bahamas (NIB) & Ministry of Health	July 20th, 2020
3. Project Planners & Team	SMS & subcontractors	May 4th, 2020 through to November 29th, 2020
4. Land Surveying	The Government of the Bahamas and General Contractor (GDCC)	This will be completed once the crown land/area is chosen and GDCC surveys

		the land once mobilization was issued.
Subcontractors		
5. Electric Power Distribution Lighting Systems	WD Electrical Limited	August 25th, 2020
6. Plumbing	C.C Plumbing	August 25th, 2020
7. Heating, Ventilation & A/C Systems	JD Systems	August 25th, 2020
8. Paint Work	Supreme Painters	April 25th, 2021
9. Furnishing Flooring	A & G Tiling	May 1st, 2021
10. Decorative Metal	Eleumet	May 3rd, 2021
11. Architects	SP Architects	Secured by NIB at Design Stage
12. Construction	Geometric Design Construction Company	July 1st, 2020
13. Water & Sewage	C.C Plumbing	August 28th, 2020
14. Insurance Consultant	IAA Insurance	Insurance is attained once a letter of intent received
15. Work Permit Approvals	Department of Immigration, Bahamas	Sub-contractors would be responsible for all licensing & must be licensed to operate. Proof of such is requested at the Bidding Stage.

PROJECT DELIVERABLES

No.	Milestones	Deliverable
1.	Award Contract	• Secure qualified sub-contractors • Have all of a portion of project funds
2.	Project Planning	• Schedule work in phases • Estimate costs & risks • Schedule payment plan (pay-outs) • Procurement of production material/supplies. Determine needed led/lag times for shipment
3.	Land Acquisition	• Government sign charter & deem land as fit for commercial use
4.	Site Works	• Site Clearance • Bulk earthworks & grading
5.	Foundation	• Install all foundation according to architect and engineering drawings & specs
6.	Structure *(concrete elements)*	• Install all concrete elements of structure, such as concrete columns/belt beams, concrete slabs, excavation, dewatering, drilling, grading

7.	Exterior Finishes (Metal Work) (Windows & Security)	• Install metal roofing • Install structural and decorative metals including stairs and railings • Exterior painting • Install all windows and accessories necessary for the operation & security of windows and doors
8.	*Interior Rough-In and Finishes* *(Wood Work* *(Thermal Moisture Protection)* *(Finishing –Floors, Walls, Ceilings)* *(Doors & Accessories)* *Communication Equipment* *Furnishing Counter Tops* *Plumbing & Medical Gas Install)* *(Heating/Ventilation, AC System – HVAC)* *(Electrical Power Distribution & Lighting System)* *(Surveillance Systems/Security*	• HVAC Main Duck Work & AUHS • Install waterproofing, vapor barriers • Floor Finishes • Install doors, accessories for restroom areas (soap dispensers, handicap grabs bars) • Mount communication Equipment • Finish all counter tops for laboratory • Plumbing rough in walls & ceilings, pumps, storage tanks, waste disposal • Install medical gas • Electrical rough-in walls & ceilings • Install cables for electrical distribution • Conduit for all surveillance equipment and fire alarm systems
9.	External Works (Exterior Improvements))	• Disposal Wells • Storm Drainage chambers • Paving & Curbing • Asphalt paving • Landscaping • Install generators
10.	Testing & Inspection *(Throughout each execution & implementation phase of project)*	• Test and inspect each phase of the project, once moved along. A final test/inspection at project
11.	Handover	• Hand over completed facility to sponsors. Close off the project and finalize last payments and bonuses.

PROJECT ESTIMATED COSTS & DURATION OF PROJECT

Project Milestone	Date Estimate	Deliverable(s) Included	Cost	Confidence Level
Award Contract	July 1st, 2020	Receive 10% mobilization within 2 weeks after contract is awarded	$1,000,000	High
Project Planning	July 1st, 2020 – August 1st, 2020	-Schedule work I phases -Secure General	$75,000	High

		contractor and sub-contractors -Estimate costs & risks -Schedule payment plan (pay-outs) -Procurement of production material/supplies. Determine needed led/lag times for shipment		
Land Acquisition	July 1st, 2020	-Government sign charter & deem land fit for commercial use	$0	High
Site Works	August 1st – 20th, 2020	Land will be cleared properly, excavated and filled, as needed.	$94,000	High
Foundation & Structure (*concrete elements)*	August 10th – December 20th	Will be listed in WBS	$600,000	High/Medium
Exterior Finishes *(Metal work, Windows & Security)*	November 17th, 2020 – May 2, 2021	Will be listed in WBS	$250,954	High/Medium
Interior Rough In and Finishes	December 21st, 2020 – August 30th, 2021	Will be listed in WBS	$4,300,000	Medium
External Works	April 4th, 2021-May 29th, 2021	Will be listed in WBS	$68,019	High
Testing & Inspection	Duration of the project and as required by the Government agencies	Sub-contractors will be required to perform quality tests (water pressure, HVAC test & balance, Concrete Testing, etc.) through-out the duration of the project. Bahamas building codes will also be followed through-out with inspections from the MOPW(Ministry of Public Works), Fire Department and other Government agencies	Included in cost for interior & exterior rough-in work and finishes	Medium

		will be scheduled through to completion.		
Handover	June 1st, 2021	Hand over the completed facility to sponsors. Close the project and submit close-out documents at completion. Final payments and bonuses.		High

ASSUMPTIONS	
Assumption 1	All drawings/plan are approved by the local MOPW
Implication 1	Delayed Pours, Rejected Permits
Action 1	Acquire an approved set from the MOPW and keep onsite for ease of reference and to ensure compliance
Assumption 2	All infrastructure is in place, i.e. main electrical, sewer, water lines, roads, etc.
Implication 2	Will delay start of construction; water electricity and roads all required for works to commence
Action 2	Ensure that temporary water facilities are available, i.e. water truck, temporary generator, road are filled for access to property
Assumption 3	All labor contractors will be available, as scheduled
Implication 3	Work production start and finish date will delayed
Action 3	Have back-up contractors ready to take on the job.
Assumption 4	All building will be available when needed
Implication 4	Work delayed and increased costs due to the daily operations of the project
Action 4	Procurement plan to include supplier/vendors with readily available materials
Assumption 5	Project is duty free and all custom delays will be avoided
Implication 5	Project delay or failure can result
Action 5	Arrange onsite customs inspections and clearance
Assumption 6	Expert Top Quality & Licensed Labor Contractors are able to complete the work on time for each phase of the project, as per

	their respective time set and there will be no start delays
Implication 6	Quality of work compromised & Deadlines not met and costs are increased.
Action 6	Ensure contractors are experienced a similar job and are certified and licensed. The foreman will be responsible that the work is executed at the standard indicated and needed.

PROJECT COMPLETION CRITERIA

Priority Criteria:

1-High priority/critical-path issue; requires immediate follow-up & resolution

2 –Medium priority issue; requires follow-up before completion of next project milestone

3. Low priority issue; to be resolved prior to project completion

4. Closed issue

#	Priority	Owner	Description	Status & Resolution	Date
1	High	Schedule Manager, Project Manager	Completion on or before deadline	Status: In Progress and Proposed Resolution: Tightly controlled and monitor the project scope & schedule	Throughout Project
2	High	Schedule/ Cost Manager, Project Manager	Completed on or within budget	Status: In progress and Proposed Resolution Constantly checking the health of the project using Assessment Tools as Object Metrics	Throughout Project
3	High	Quality Manager, Project Manager	Pass all MOPW and other Government Agencies/Sponsor building Inspections	Status: In progress and Proposed Resolution: Construct to specifications and follow all project guidelines. Quality	Throughout Project

				policies and Quality control measuring standards will be followed	
4	High	Project Manager, SMS Project Management Team	All stakeholders expectations are met & satisfied	Involving stakeholders during the entire planning process and construction phases	Monthly Reports and Site Meetings
5	High	Government of the Bahamas and NIB	Reduce or eliminate local Eleuthera residents commute to Nassau for medical check-ups & treatments	The completion of building by SMS & Team and the execution plans for facilities daily operation to be planned by the government	Final Completion: August 1st, 2020

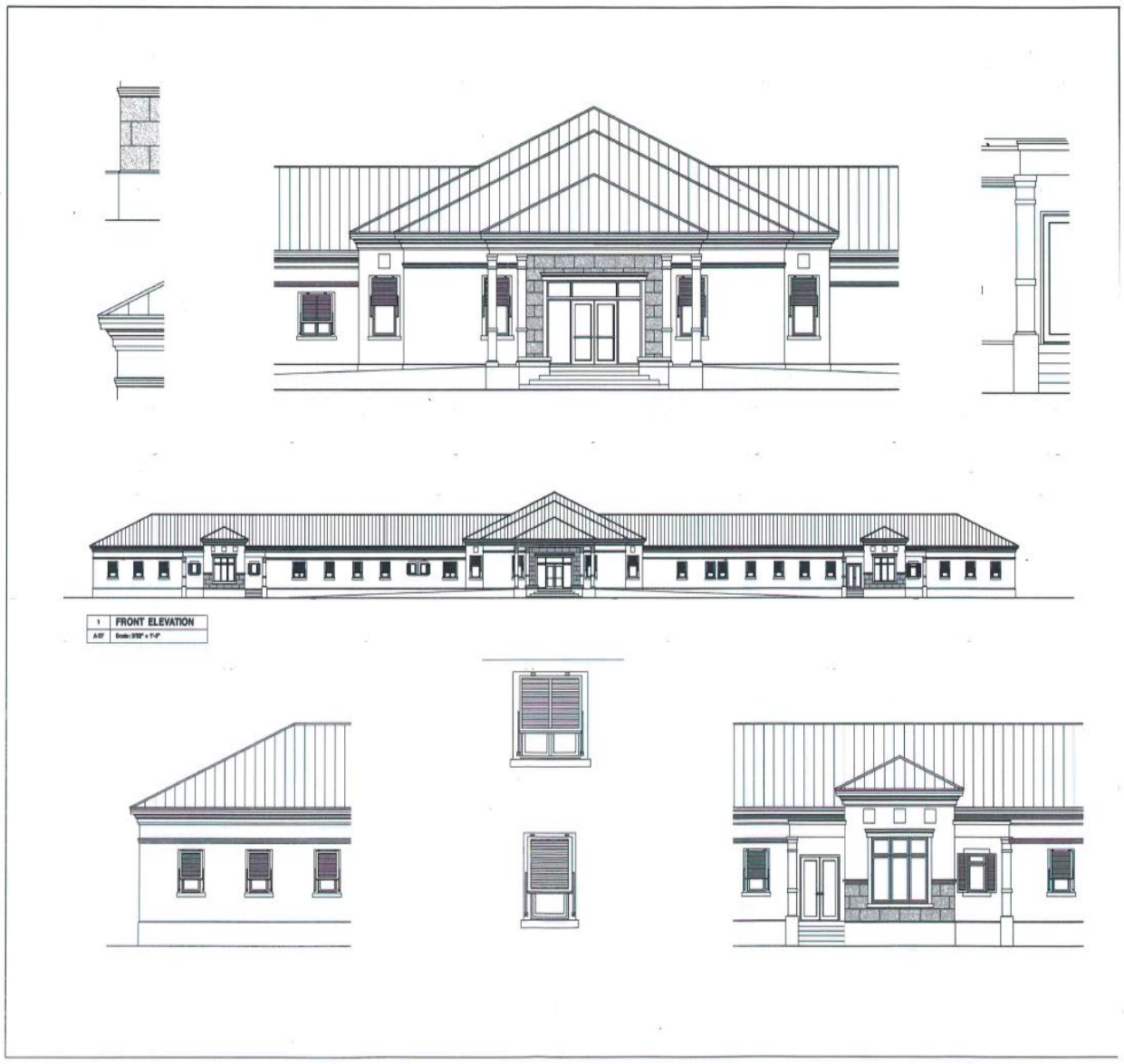
PROJECT RISKS

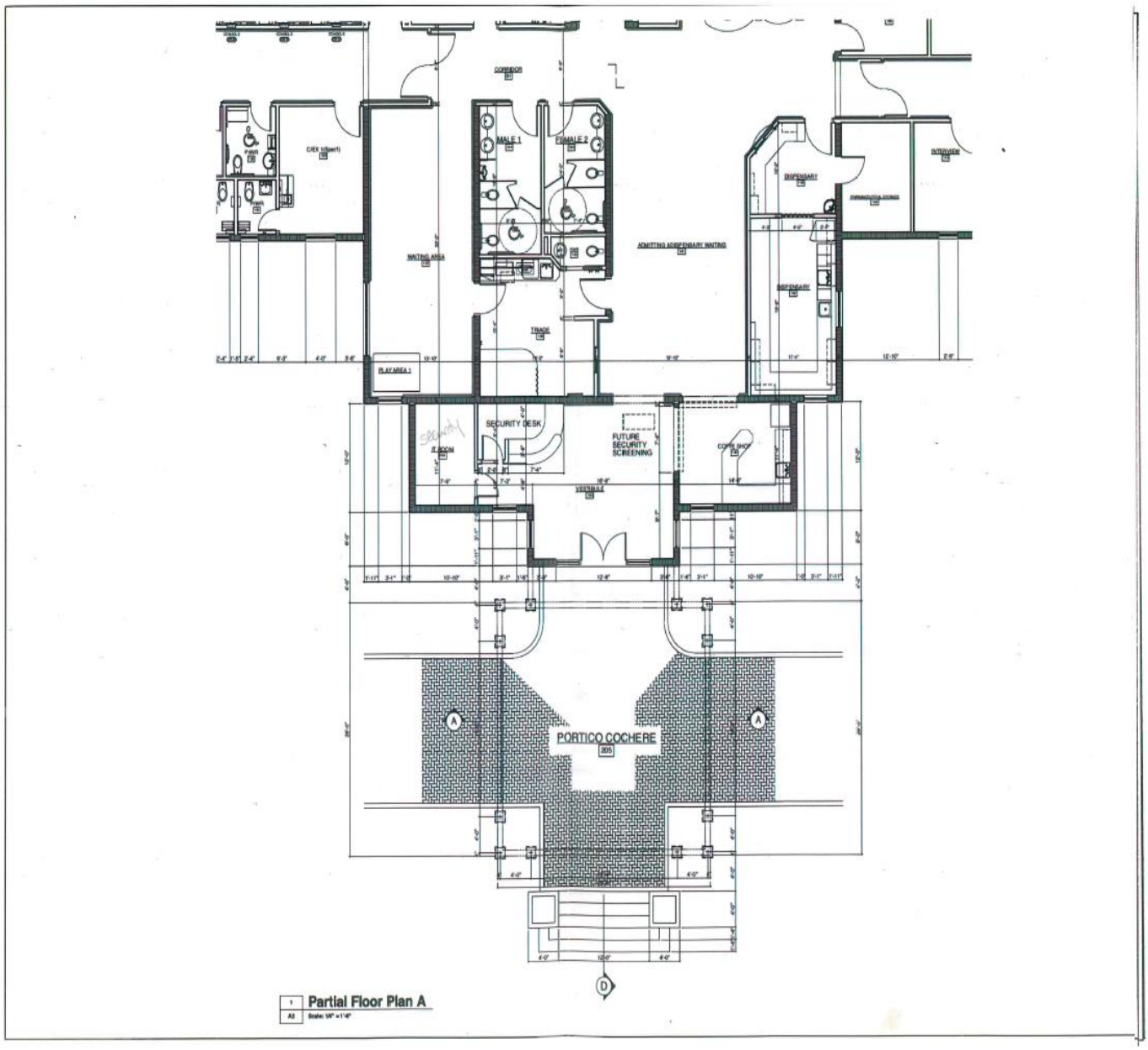
#	Risk Area	Likelihood	Risk Owner	Project Impact-Mitigation Plan
1	Natural Disasters i.e. Hurricanes	Medium	Sponsors, Project Manager, SMS Team	-Comprehensive Insurance -Site Evacuation Plan Ability to store materials for damages at nearby warehouse
2	Power Outages	Medium	Project Manager, SMS Team	-Temporary generators and back-up generators
3	Government Change	Low	Sponsors	-Include a government clause in charter ensuring project continuity should the government change
4	Schedule Delays – Inclement weather	Medium	Schedule Manager	Flexible work hours (7 days a week)
5	Procurement of Supplies & Material	Medium	Procurement Manager, Project Manager	-Sub contractors to provide procurement schedules for materials and equipment -Local vendors identified as substitute suppliers, manufacturers
6	Injuries on the job	Medium	Project Manager, Quality Manager	-Prove proper in coverage, NIB -Tool Box Talks

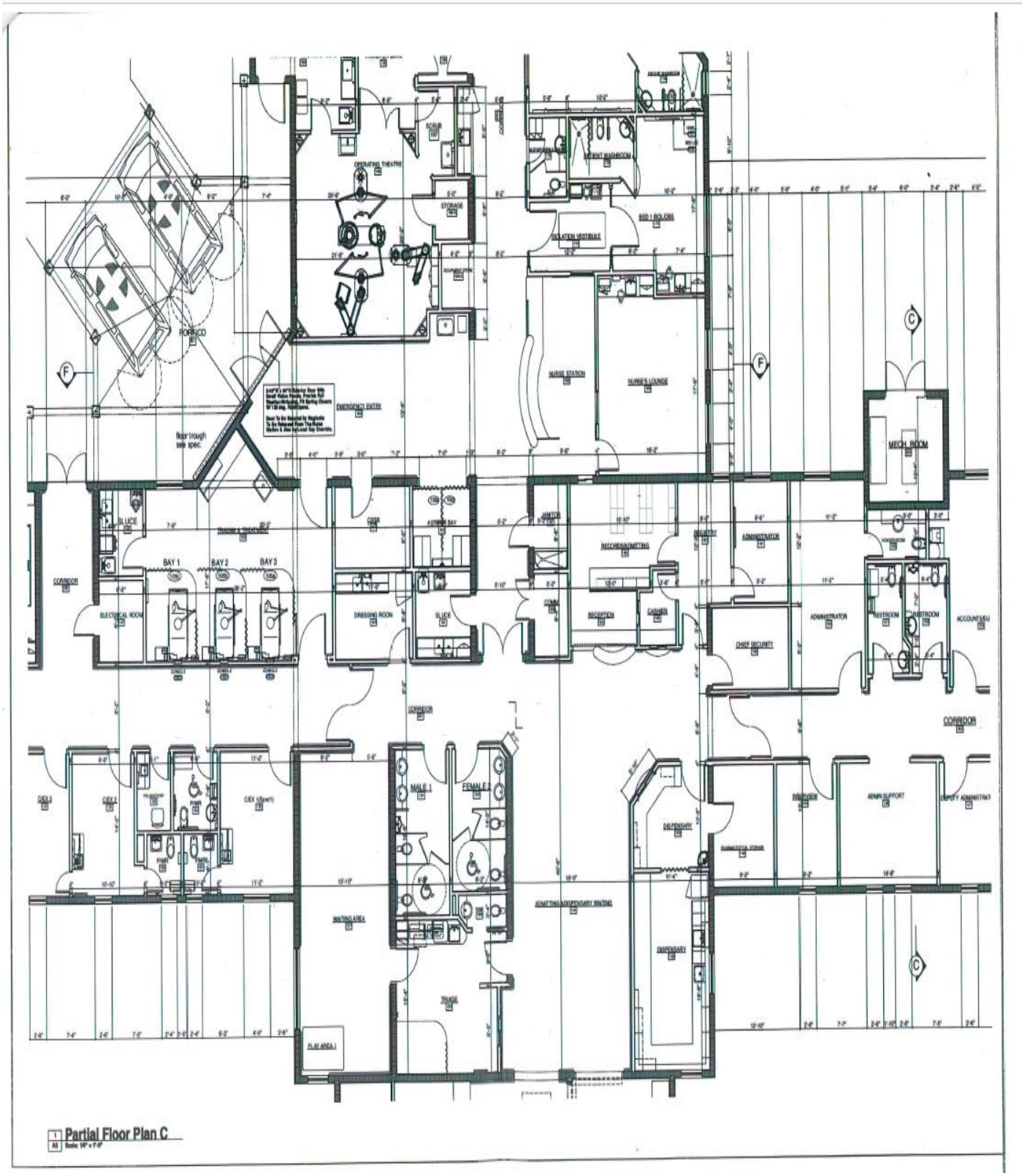
				Enforce safety equipment as mandatory to wear while on site -Have a First Aid Kit on site
7	Fire	Low	Project Manager, SMS Team	-Have medical supplies available Site Evacuation Plan -Liability Insurance

PROJECT CONSTRAINTS	
Constraint 1	Hurricane/bad weather during construction i.e. heavy rains/heavy winds
Implication 1	Damaged material/facilities and work delayed
Action 1	Hurricanes give warnings; therefore, a hurricane preparedness plan is to be followed. All building materials are to be secured at an offsite storage facility if available and insurance should cover any damages incurred
Constraint 2	Political/economical –currency fluctuation, prices of material can go up
Implication 2	Cost of material goes up and cost of bid prices goes up
Action 2	Include in bid documents to lock suppliers in at bid price
Constraint 3	Shortened project schedule
Implication 3	Budget will increase to meet new deadline
Action 3	Change scope of works

Appendix 11: Building plans




CORRIDOR
MALE 1
FEMALE 2
CRSY 1(Short)
WAITING AREA
ADMITTING &DISPENSARY WAITING
DISPENSARY
INTERVIEW
TRIAGE
PLAY AREA 1
SECURITY DESK
FUTURE SECURITY SCREENING
IT ROOM
VESTIBULE
PORTICO COCHERE
205
A
A
D
1
Partial Floor Plan A
A3


OPERATING THEATRE
SCRUB
STORAGE
ISOLATION VESTIBULE
NURSE STATION
NURSE'S LOUNGE
EMERGENCY ENTRY
floor trough see spec.
MECH. ROOM
SLUICE
BAY 1
BAY 2
BAY 3
CORRIDOR
ELECTRICAL ROOM
DRESSING ROOM
RECEPTION
CASHIER
ADMINISTRATOR
CHIEF SECURITY
RESTROOM
CORRIDOR
MALE 1
FEMALE 2
WAITING AREA
TRIAGE
DISPENSARY
ADMIN SUPPORT
PLAY AREA
1 Partial Floor Plan C