

4. He is a change agent. **Schumpeter** described them as “a special type, and their behaviors a special problem”. They are separated by ordinary people by their ability to “overstep the boundaries of routine, both in vision and action”.

5. He is a leader bold, courageous, risk taker, adventurous in the face of uncertainty. He is willing not only to find a new path but to show it to others as well and have them follow in his path. Great motivators and talented.

6. **Drucker** sees them as people who “create something new, something different, they change or transmute values” whose primary activity is “the creation of additional human opportunities”. **Gerald Gunderson** sees them as “people of enormous, innate optimism, who leave others behind, believe that honest, intelligent effort will be greeted by appropriate reward, visionary, and always operate at the edge of their competence”. They are loving, caring and sensitive, and have one goal: to do something extremely well. They are not driven by guilt (talents unused), they have a gift of making complex things simple and a unique talent for formulating problems, are extraordinarily self reliant, and cannot conceive of failure. Competent, no room for failure, completely absorbed in their quest (work), no divided minds / loyalty, happy in their work whatever its nature and the toll it takes them.

7. They are/can be hugely ambitious, creative, sometimes vain tough and even ruthless, certainly not saints, selfish, wasteful of resources? Empire builders but not extortionists.

8. They create value, unlike capitalist large multi-nationals who create nothing and care nothing for the firms they exploit, but transferring value from society to shareholders. Capitalists take advantage of the wide open system reaping profits from them at all costs.

- An Entrepreneur is “distinctively an individual as any other created and creative person and no less idiosyncratic. Each has his own vision, own style and own obsession”.
- There is no one formula or set of rules that can transform anyone to be an entrepreneur or applied to identify one.

QUALITIES

Great entrepreneurs share some qualities that threw light into their lives and work.

- Persistence and determination, a fierce drive to succeed and to let no obstacle bar their path and an unquenchable drive to succeed/achieve. Calvin Coolidge “Nothing in the world can take the place of persistence. Talent will not: Nothing is more common than unsuccessful men with talent Genius will not: Unrewarded genius is almost a proverb. Education alone will not the world is full’ of educated derelicts; Persistence and Determination Alone are omnipotent.
- Supreme Talent (a gift). They are creative like artists.
- Possess joyous zest for their work, - a sheer delight in the doing of it (work) and a strong work ethic.
- They put in every ounce of their energy and have an overpowering desire to succeed. Possess strong wills and are fiercely competitive (best at what they do).
- Strive to make their mark in their own terms. Regard their undertakings as a personal creation, an expression of themselves individual style and creative impulse.

- f. They are flexible and innovative have the ability to escape from the “clutch of habit” or: “code of fixed rules”. Buffet warned that “chains of habit are too light to be felt until they are too heavy to be broken”.
- g. Knowledgeable, teachable and willing to learn. This leads to self confidence in their own judgment. Have great capacity for growth, to a certain level. Can’t be kept doing one thing only. They cannot stand monotony/routine work.
- h. Great risk takers though have fears of failure, yet courts failure with an impressive confidence of success.
- i. Perfectionists in their work. Never satisfied with anything less than the best maximum efforts and results, never resting on their laurels. Never satisfied with what is at hand. Not afraid to make mistakes.
- j. Great problem solvers, making more complex things simple. Possessed clarity of understanding from clarity of vision. Focused.
- k. Leaders with talents and ability to lead without being second fiddle to anyone. Possess strong talents that motivate others to follow.
- l. Knows his product and how to promote it excellently.
- m. Open to evaluation. Mistakes and triumphs are glaringly open.
- n. Investment prone. Always ploughs profits back into the business before investing in themselves.
- o. Always business like. Take mistakes hard, never surrender. Success spurs them on to improvement not complacency. Work is life and death is viewed as an “interruption of what they love best”.
- p. Great personalities but realistic and unique. Regards work with joy. Bill Gates said “today I will work because it is fun. Life’s a lot more

fun if you treat its challenges in creative ways". Have great faith in what they do; pursue the solution to a problem doggedly, maintaining focus on proper goals. Know their limits and respects them.

- q. Prepare for success as well as for failure. Make mistakes, but honest mistakes mainly errors of judgment not dishonest manipulations.
- r. Create wealth more for others than for themselves. They're not .obsessed about wealth (money) but accomplishment/achievement.

5.0 ENTREPRENEURIAL TIT BITS

The builder can be and has all that it takes to be an entrepreneur. There are however some

Tit-bits that increase the chances of the builder to excel.

1. ABILITY TO IDENTIFY GOOD BUSINESS IDEAS

Exercise your abilities of identifying a good business idea, new or from an existing situation.

A good business idea, even if it is already being exploited, is an asset

2. WILLINGNESS TO TAKE CALCULATED RISKS BASED ON GOOD BUSINESS PLAN

Being an entrepreneur is demanding. Every venture is a daunting risk to surmount especially to a starter with no supporter. Learn to take calculated risks. Do not throw caution to the winds, prepare a good personal Business Plan within reasons and manageable. This is a MUST do activity.

3. DETERMINATION AND CONFIDENCE

Believe in yourself, your idea and be determined and confident to succeed.

4. SINGLE-MINDEDNESS AND DECISIVENESS

Be focused. Shut out distractions. Act as one wearing blinders. Be decisive.

5. WORK SACRIFICIALLY. WORK FOR YOURSELF

You only have yourself to depend on. Put forth whatever effort is required to achieve success. Work for your success. No one will do it better for you.

- Most quality management systems in use are derivatives of relevant ISO construction companies can use a variety of methods for quality assurance. One of the ways in which they show that they are producing quality is by having a clear scope defined and detailed specification to use. There should be standard documents showing ways of achieving quality outcomes in construction.
- Adequate training and certification of employees is also important in the construction industry. Using experienced, skilled and certified personnel such as plumbers, electrician's e. t. c. ensures quality of work.

QUALITY CONTROL IN CONSTRUCTION

- Quality control is that part of the QMS that test to make sure that's a product or service meets the required standards.
- Quality control requires decisions to be made about the type of checking required for different aspects of the project whether this is inspecting, testing, measuring or analysis.
- The primary objectives of quality control assignments are to:
 - Avoid duplication of effort
 - Assure that every quality aspect is covered
 - Provide a clear delineation of responsibilities
 - Provide effective guidance on the project to achieve quality work
 - Provide documentation of materials, installations and tests.
- The quality control process is an on-going one and extends to all parts of the construction projects:
- At the design stage, the process involves a system of checking drawings for errors

- At tender stage, the process requires the cross-checking of drawings and specifications and other contract documents for consistency
- A quality control process at the construction stage will require that materials be checked, tested and inspected, and that the project as a whole should meet the needs of the client. At this stage also, construction materials are usually checked to see that they are in accordance with the standard specified in the contract documents.

Organization of the quality control effort before the project starts is essential for comprehensive quality control throughout the project.

- The QC process should also include a system for dealing with problems as they are. For instance, if an error is found on a drawing, decisions will need to be made about what to do with the drawing, who needs to be notified when it • needs to be reproduced and who needs to do the rechecking
- During the construction phase, materials found not to meet the standard required should be removed from the site so that they do not contaminate material that does meet the standard.
- Common mistakes made by suppliers include sending the wrong batch or damaging material in transit. If the problem stems from poor workmanship; the work will often have to be redone.
- Identification of problems and dealing with these problems is part of the quality control process.
- The cost of rework can be very high. Builders should therefore try to minimize mistakes so that they do not have to bear the cost. Reworking drawings, replacing materials, and disposing of waste all cost time and money and such errors need to be minimized as much as possible.

CONSTRUCTION QUALITY POLICIES AND PLANS

- Construction companies may have a series of documents that deal with different aspects of quality of the work. However, the ISO 9001:2000 provides the basis for a generic quality document that outlines:
 - a responsibility for quality
 - a quality policy
 - quality planning
 - a quality organizational structure
 - guidelines on quality and the review processes
- Individual quality plans for specific construction projects will be derived from this generic one; additions will be made depending on the circumstances.
- Since each construction project is an entirely new experience, quality plans are developed for each one and are used throughout the project to assure quality.
- The purpose of such plans is to put in place a quality control system for the project which, as mentioned earlier set out inspection, testing, control and verification requirements for all aspects of the project.

The quality plan also sets out mechanism for showing how quality will be achieved. It also contains information about the key personnel. The QP is likely to be revised and updated as the project progresses and as certain changes to the scope of works arise.

TYPICALLY, THE QUALITY PLAN SHOULD INCLUDE THE FOLLOWING:

- A quality policy statement: (vision and mission)

This outlines the intentions and aims of the company with respect to Achieving quality work. Usually, this statement will refer to meeting or exceeding requirements of the client and will be a broad statement of intent.

Example: "CONSOLVENT strives to be a leader in providing the highest level of construction services to our clients. Our mission in providing these services is to satisfy our customers' needs and demands at all levels of our organisation."

- **PROJECT QUALITY STRUCTURE & QUALITY MANAGEMENT SYSTEM**

This sets out how quality achievement is incorporated into the project and who is responsible for achieving quality at project level. The system for dealing with quality documentation should be set up at the planning stage and should be clearly delineated in the plan so that each person on the project knows where the information is and how to access it.

- **QUALITY OBJECTIVES FOR THE PROJECT**

These objectives will be read alongside the contract documents and scope of work information. The plan will refer to the drawings and specifications and will outline the specific objectives that need to be met in respect of different quality aspects of the project

- **QUALITY CONTROL (AS DISCUSSED)**

- **RECTIFICATION OF PROBLEMS AND PREVENTION OF FUTURE PROBLEMS.**

This part of the plan will set out the ways in which any problems will be rectified, including a system for dealing with wastage should it arise, and collective action to be taken in order to deal with any problems. A section containing an

updateable list for prevention of future problems should be used as part of the continuous quality management process.

2.0. QUALITY POLICY STATEMENT

It is the policy of ABC LIMITED to clearly identify and meet the quality requirements of our clients.

Our Quality goals are:

To implement quality systems and procedures of national standards.

To achieve compliance with all contractual requirements at first attempt.

To continually evaluate our quality system and procedures through periodic

Internal Quality Audit and seeking further improvements

2.1. INTRODUCTION

This Project Quality Management plan is prepared as the formal procedures and activities of ABC LIMITED in relation to the Quality Management of the project titled.

In case of any change or amendment, the Design Team would be informed at least

THE FUNCTIONS OF THIS PROJECT QUALITY MANAGEMENT PLAN ARE:

- a) To provide the means to establish, document and maintain a cost effective quality management system on the project.
- b) To ensure and demonstrate that the works carried out by ABC LIMITED will conform to the production information issued on the project.

- c) To provide means by which the client may derive confidence that the project is being carry out in accordance with specified quality standards.

In general, the Project Quality Management Plan defines the various quality related activities and procedures which are to be implemented on the project. In addition, it sets down requirements, gives guidelines, provides information and indicates to all site team the procedure to be followed with respect to the Project Quality Management Plan.

By proper application of this plan **ABC LIMITED:**

- i. Will derive direct benefits generally accruable by an effective Quality Management System.
- ii. Create among our staff, subcontractors and suppliers, the environment to comply with the standards laid down and thus safeguard and maintain our Company's high standard and reputation.
- iii. Will provide the client with the confidence that he will receive an end product that conforms to the specified quality standards

The plan has been developed specifically for the -----
at ----- project; recognizing the contractual obligations of ABC
LIMITED on the project.

SUMMARY OF THE NATIONAL BUILDING CODE.

The national building code consists of four parts containing a total of 15 sections detailed as

Follows:

PART 1 Administration — this consists of three sections

Section 1 - Citations and Commencement

Section 2 - Interpretations, Definitions, and Abbreviations.

Section 3 - The Establishment of a Building Code Advisory Committee.

PART II Technical (Professional) - This Part consists of 9 sections.

Section 4 - Building Design Classifications

Section 5 - Building Construction Classification.

PRE-DESIGN

STAGE:

Section 6 - Environmental and General Building Requirements.

DESIGN STAGE;

Section 7 - Architectural Drawing Requirements.

Section 8 - Civil/Structural Technical Design Requirements.

Section 9 - Services Engineering Design Requirements.

CONSTRUCTION STAGE:

Section 10 - Building Materials and Components Requirements.

Section 11 - Building Construction Requirements.

POST CONSTRUCTION STAGE:

Section 12 - Post Construction Requirements.

PART III Enforcement.

Section 13 - Control of Building Works.

PART IV Schedules and References.

Section 14 - Referenced Standards.

Section 15 - Compliance Forms.

THE BUILDERS DOCUMENT.

Below are the builders' documents as contained in the Code.

- Construction Programme.
- Project Quality Management Plan.
- Project Health and Safety Plan
- Information Requirement Schedule.
- Early Warning System Chart.
- Construction Methodology

THE COMPLIANCE FORMS.

Section 15 of the 2006 National Building Code lists the compliance forms which are for joint supervision of the construction. The Builder is the first person to sign each of the forms. The compliance of these forms to the Builder is that he has immense responsibility to ensure that the quality of the building project is as designed.

The compliance form	Professionals to attest to each form
Setting out	<ul style="list-style-type: none">• Registered Builder• Registered Architect
Foundation/Basement	<ul style="list-style-type: none">• Registered Builder

	<ul style="list-style-type: none"> • Registered Structural Engineer • Registered Architect
Roofing	<ul style="list-style-type: none"> • Registered Builder • Registered Structural Engineer • Registered Architect
Super structure	<ul style="list-style-type: none"> • Registered Builder • Registered Structural Engineer • Registered Architect
Mechanical installation	<ul style="list-style-type: none"> • Registered Builder • Registered Mechanical Engineer • Registered Architect
Electrical Installation	<ul style="list-style-type: none"> • Registered Builder • Registered Electrical Engineer • Registered Architect
Finishes	<ul style="list-style-type: none"> • Registered Builder • Registered Structural Engineer • Registered Architect

CONSTRUCTION PROGRAMME

The programme of work is one of the many duties of a registered builder as a design member. The builder is expected to have prepared the programme of work prior to commencement of work on building site. This is required in order that the project participants may have a thorough appreciation of the work involved, to allow the site production management team to sort out its main constituent and decide how, in what order and in what time to do them.

THE PURPOSES OF CONSTRUCTION PROGRAMME TO A BUILDER ARE AS

FOLLOW;

- i. To record agreed intention with the client and or his representatives
- ii. To show the sequence of operations and the total output rates required to labour and plant
- iii. To provide a good yardstick for monitoring progress and project control
- iv. To discourage changes in the design by indicating, the natural consequences whilst at the same time facilitating amendment to design, working drawings and minimizing their harmful effects should contingencies arise.

The builder at the center of preparing the construction programme is the planning and resources manager, who of course should be the same person that prepared the construction methodology.

There are a number of important details that a builder who is about to embark on the preparation of construction programme for a building project should be aware of. Such details include;

- i. An attempt should be made to balance the gangs correctly so that the fluctuation of labour is not excessive.
- ii. Plant and equipment should be given continuity of work throughout their
- iii. None-key operation ought to be excluded from the operation column, but and duration are to be included with the associated major operations.

ATTRIBUTES OF A GOOD CONSTRUCTION PROGRAMME.

- i. Simple to understand by all project participants including and more importantly the client

- ii. Its preparation is not guess work but based on facts and figures from the working drawings and construction methodology for the project
- iii. Simple to update with changing circumstances
- iv. Provides, as far as possible, for all resources to be used continuously whilst
- v. Easy adapted for progress monitoring.
- vi. Have simple symbols and/or notes as a warning to site management team on site.

PREPARATION OF CONSTRUCTION METHODOLOGY

- The builder prepares project details which has information in the first page on :
 1. Project title
 2. Site location
 3. Purpose
 4. Client
 5. Address
 6. Project co-coordinator/manager
 7. Geo-technical engineer
 8. Architect
 9. Structural engineer
 10. Building services engineers
 11. Consultant quantity surveyors - .
 12. Consultant builder
 13. Contractor
 14. Builder in charge of site execution

- The builder gives brief descriptions of the project which may be in the forms below:
 1. Existing building: The site of the proposed building is currently being occupied by an existing five storey reinforced concrete framed building. Five storey building is to be demolished as part of this project.
 2. Structure of the proposed building: The proposed project is for the construction of twenty-four storey building in two wings with two levels of underground car park.
 3. Mechanical and Electrical (M & E)
 4. Finishes
 5. Summary of BOQ

6. Clients programme requirement

SAMPLE OF CONSTRUCTION METHODOLGY.

S/N	TRADE	SCOPE OF WORK	PROCUREMENT LEAD PERIOD	ESTIMATED START	DURATION
1.	Borehole	Supply the borehole rig and all the materials for the borehole. Carry out the drilling, piping, casing, screening and testing of water	6 weeks	April, 2004	6 weeks
2.	Piling	To carry out test piling, the contiguous piling as well as the 192 independent piles, including the supply of all plant and equipment required for the piling operations	6 weeks	April, 2004	25 weeks
3.	Structural Steel work	- prepare shop drawings -Purchase and fabricate the steel - Deliver steel - Erection of structural Steelwork	16 weeks	Jan., 2005	77 weeks
4.	Precast concrete slabs and stairs	- Prepare shop drawings - Precast the slabs and stairs - Deliver items to site - Erection of precast slabs and Stairs	32 weeks	Feb., 2005	30 weeks
5.	M & E Installation	- Prepare installation drawings - Procure plants, materials & Components (except sanitary) - Deliver items to site - Installation and Testing - Issue Test Certificates	12 weeks	April, 2006	108 weeks
6.	Curtain Walling	- Prepare shop drawings - Procure materials - Deliver materials to site - Installation - Cleaning	10 weeks	Sept., 2006	54 weeks
7.	Lift Installation	- prepare shop drawings - Procurement of items - Shipment - Clearing at the port - Deliver components to site - Installation & Testing of Lifts - Issue Test Certificate	40 weeks	March, 2007	64 weeks

8	Suspended ceiling	- Installation	12 weeks	Sept., 2007	30 weeks
9.	Wall and Floor tiling	- Carry out and cleaning on completion of each area of tiling.	12weeks	Sept. 2007	30 weeks
10.	Stonework	- Prepare shop drawings. - procure materials. - Fabricate the Stones - Deliver material to site - Erection - Cleaning	20 weeks	Nov., 2007	34 weeks
11.	Demountable	- Prepare shop drawings - Procure materials - Deliver materials to site - Installation - Cleaning	16 weeks	Dec., 2007	21 week
12.	Sewage Treatment	- Design of the Plant - Prepare shop drawings - Procure materials - Deliver material to site - Installation and Testing - 12 months post installation maintenance	24 weeks	Jan., 2008	21 weeks
13.	Mosaic wall Tiling	- Supply all mosaic tiles - Carry out the tiling and cleaning on completion	16 weeks	Feb., 2008	16 weeks
14.	Granite wall Tiling	- Supply all granite panels - Carry out fixing of the granite and cleaning on completion	16 weeks	March, 2008	21 weeks

Key Programme Dates

It is our policy to complete projects ahead of schedule. To this effect, efforts would be made to achieve the following key programme dates:

- i) Completion of site set up: February, 2004
- ii) Completion of Demolition work: March, 2004
- iii) Completion of piling work: September, 2004
- iv) Completion of Basement Construction: April, 2005
- v) Completion of Superstructure wing A: July, 2007
- vi) Completion of Superstructure wing B: July, 2007
- vii) Building watertight - wing A: August, 2007
- viii) Building watertight - wing B: October, 2006
- ix) Power into the building: January, 2008
- x) Completion of lift installations: June, 2008
- xi) Completion of partitioning : May, 2008

Source: Barnisile (2004).

ROOT CAUSE ANALYSIS

Unsafe acts	Unsafe conditions	Management Deficiencies
Improper work technique	Poor work area design or layout	Lack of written procedures or policies
Safety rule violation	Congested work area	Safety rule not enforced
Improper PPE or PPE not used	Hazardous Substance	Hazardous not identified
Operating without authority	Fire or explosion	PPE unavailable
Failure to warn or secure	Inadequate ventilation	Insufficient worker training
Operating at improper speed	Improper material storage	Insufficient supervisor training
By-passing safety devices	Improper tool or equipment	Improper maintenance
Guards not used	Insufficient knowledge of job	Inadequate supervision
Improper loading or placement	Slippery conditions	Inadequate job planning
Improper lifting	Poor housekeeping	Inadequate hiring practices
Servicing machinery in motion	Excessive noise	Inadequate workplace inspection
Horse play	Inadequate guarding of hazards	Inadequate equipment
Drug or alcoholic use	Defective tools/equipments	Unsafe design or construction
Unnecessary haste	Insufficient lighting	Unrealistic scheduling
Unsafe act of others	Inadequate fall protection	Poor process design
Order:	Order:	Order:

BUILDABILITY AND MAINTAINABILITY ANALYSIS REPORT

PROJECT TITLE.....

REPORT NO:.....

CLIENT/DEVELOPER:.....

DATE:.....

LOCATION:.....

OBSERVATIONS	SUGGESTED OPTIMAL SOLUTION
1. DIMENSIONAL COORDINATION	
2. TOLERANCE	
3. DISCREPANCIES	
4. OMISSIONS	
5. ERRORS	
6. VARIETY	
7. CONVERSION	
8. HANDLING	
9. PERSONNEL SKILL	
10. DETAILS	

BUILDABILITY AND MAINTAINABILITY ANALYSIS REPORT OF A MARKET BUILDING

Project Title: Proposed Development of a Residential Building in Lagos.
Client/Developer: Chalet and Associates (Consultant Builders)
Client: Mushin Local Government
Location: Ojuwoye Market, Ojuwoye Street, Mushin, Lagos State
Report No: LG/MRK/2013/04
Date: 8th. October, 2013

	OBSERVATIONS	SUGGESTED OPTIONAL SOLUTION	Buildability Scores				
			0.1	0.2	0.3	0.4	0.5
1	Dimensional Coordination						
	Some internal dimensions are not indicated, thereby making it difficult to know the exact dimension.	All the internal dimensions should be indicated to ease construction.		*			
	The dimension of the staircase width is not enough.	The dimension of the staircase should be increased and allowance be made for stair well.	*				
	The dimensional inconsistency prevents assembly operation to be carried out.	The dimension should be consistent so as to facilitate easy assembly and dismantling.		*			
2	Tolerance						
	Windows included in the service core	The windows indicated on the staircase should cover the entire dimension of staircase, to ease ventilation.		*			
	The location of the staircase of the building.	The staircase should be centrally located, not by the sides.			*		
	Discrepancies						
3	No discrepancy within the professionals activities	No suggested solution.	*				
4							

	Omissions							
	No drawing Specifications and Schedules	They should have been indicated for detailed information.				*		
5	Errors							
	Position of rooms not according with arrangement of spaces in hierarchy for sound insulation.	Position of rooms should be such that there is hierarchy of sound insulation from highest to lowest.				*		
6	Variety							
	From the architectural drawing, the design does not contain much varieties.	It has no negative impact on the cost of project.	*					
7	Conversion							
	The conversion of materials is reduced since only the basic elements were mostly used columns, paints beams, walls, wood e.t.c	The conversion is reduced to a minimum so project duration and cost is reduced.	*					
8	Handling							
	The project is a storey building and components with sub-assemblies are manually handled on site. The cost of equipment for lifting is not considered and operator cost.	To save cost, mechanical equipment may not be required for handling components.	*					
9	Personnel skill							
	The site workers needed for this project are available due to its locations. They include Site manager - N80,0000 per month Store keeper – N40,0000 per month	All workers on site should be motivated by paying them as at when due and recognition of dedicated worker through an incentive scheme.	*					

APPENDIX 1

Project Quality Management Plan Template Document

Table of Content

1	Quality Management Plan Purpose.....	1
2	Quality Management Approach.....	1
3	Quality Management Plan.....	5
3.1	Quality Standards - Operational Definitions	5
3.2	Quality Checklists.....	6
4	Quality Control.....	7
4.1	QC Reviews	7
4.2	Quality Control Change Requests and Tracking	8
5	Quality Assurance	8
5.1	QA Status and Improvement Report	8
6	Quality Procedures.....	10
7	Appendix	11
7.1	Quality Standards Definition and Checklist - Template	11
7.2	QA Status Improvement Report - template	11
7.3	Quality Procedures.....	11

1 QUALITY MANAGEMENT PLAN PURPOSE

The purpose of this Quality Management Plan is to ensure that the project will satisfy the needs for which it was undertaken.

This Quality Management Plan includes "all activities of the overall management function that determine the quality policy, quality standards, and responsibilities and implements them by means such as quality planning, quality control, quality assurance and quality improvement."

This document includes quality standards for the process and product, and has established plans to achieve these standards. The project has adjusted the overall project plan and schedule to satisfy these quality standards.

The goals of the project's Quality Management are:

1. The <PROJECT NAME> Project quality management activities are planned.
2. The <PROJECT NAME> Project defines measurable quality standards and their priorities for the project.
3. The <PROJECT NAME> Project progress in achieving the quality standards is quantified and managed.

2 Quality Management Approach

This section is included to give the readers of the quality plan (project team, sponsor, or others associated with the project) an overview of what Quality Management Activities are being planned for the project.

Quality Management is defined as, "a subset of project management that includes the processes required to ensure that the project will satisfy the needs for which it was undertaken." It consists of quality planning, quality assurance, and quality control.

The approach for ensuring the appropriate Quality Management activities are conducted will be from the Project Management Institute's (PMI) Standard as described in the Project Management Book of Knowledge (PMBOK). Additional detail was obtained from the Software Engineering Institute and the Control Objectives (CoBit).

This includes all activities of Quality Management that determine the quality policy, objectives, and responsibilities and implements them by means such as quality planning, quality control, quality assurance, and quality improvements.

For the purpose of this document the term "quality standards" shall refer to both "process" and "product" quality standards. "Process" quality standards will cover political influences, management support, decision drivers, project management, schedule, resourcing, experience, and others. "Product" quality standards will cover product content, development, deployment, environment, technology, maintainability and others.

The <enter project name> project's Quality Management approach adheres to and includes work activities in support of the following quality management processes:

Quality Planning

Identifying and/or verifying quality standards that are relevant to the project and determining how to satisfy them.

Checklist,
Quality Procedures,
Supporting
Documentation

Quality Management
Plan

Quality Control

Monitoring specific project results and deliverables to determine if the project is meeting the quality standards and identifying ways to mitigate risk or eliminate causes of unsatisfactory results

Review
Analysis,
Measurements,
Interview Notes,
Change Management
Documents

Completed Checklist

Quality Assurance

Periodic executive review and evaluation of the overall performance to provide confidence that the project will satisfy the relevant quality standards

Presentations, Overall
Result Analysis
Consulting, Lessons
Learned, Meetings

QA Status and
Improvement Reports

Quality Planning – Identifying and/or verifying quality standards that are relevant to the project and determining how to satisfy them.

Quality Planning will involve review of organizational policy, the complexity and uniqueness of the project, and quality templates (available through the DHS OIS PMO) to identify quality standards and measurements that are relevant to the project, and if not incorporated will result in low quality results creating significant risk to the project. In addition to identifying these quality standards, quality planning involves determining how to satisfy each quality standard via the project schedule, resourcing and internal procedures. The Quality Management plan must address how these quality standards will be implemented, inspected, controlled and reported.

Quality Control – Monitoring specific project results and deliverables to determine if they comply with relevant quality standards and identifying ways to eliminate causes of unsatisfactory performance.

Quality Control involves monitoring both the process and products, to determine if the project is meeting the quality standards and identifying ways to mitigate risk or eliminate causes of unsatisfactory results. Examples of Quality Control techniques include:

- **Assessment** – review of key project documentation (i.e., business requirements, technical documentation, management plans, budgets and project reports) and interviews with key business and technical staff.
- **Peer Review** – a methodical examination of work products by the producer's peers to identify defects and other needed changes. Examples of Peer Review methods include inspections, structured walkthroughs, and active reviews.
- **Software Testing** - verification that the products of each software life-cycle phase satisfy the standards, practices, and requirements for correctness, completeness, consistency, and accuracy.

Quality Assurance – Periodic executive review and evaluation of the overall project performance to provide confidence that the project will satisfy the relevant quality standards.

Quality assurance includes evaluating, identifying, and recommending adjustments to the activities or tasks (and associated resources) that must be performed in the project to provide confidence that the project will satisfy the relevant quality standards.

In support of this approach the <project name> project will *Choose or tailor your projects options:*

Option 1

Contract for a third party contractor, with DAS oversight to work with the project to further develop the Quality Management Plan and determine the appropriate quality assurance activities and activity estimates, and conduct the quality assurance. The standard DHS-OIS Quality Management Statement of Work and other associated materials will be used to define the specific contract expectations.

A third party contract to do QA is required on project where the total cost of the project is expected to exceed \$500,000. Any exceptions to this requirement must be approved by OIS Executive Staff and DAS IRMD.

Option 2

Implement Quality Management, based on the complexity and need of the project as part of the overall work of the project as described in this document. This will include a combination of responsibilities by the project team and others within DHS to ensure quality in the process and products.

3 QUALITY MANAGEMENT PLAN

The <contractor, or project manager, or PMO, or other assigned staff> worked with the project team during its early stages to establish agreements on the Quality Management (QM) Plan, Quality Standards, and Processes. To satisfy these agreements, constraints of the project, and organizational policies the group verified, modified or added project work tasks, resourcing and supplemental procedures.

The project manager verified that the Quality Management Plan and the updated project plan, standards, processes and work tasks fit the project's needs, add value, reduce risk and will be usable for performing quality reviews, inspections, and uncovering quality problems throughout the life cycle of the project.

3.1 Quality Standards. - Operational Definitions

The plan includes the selection of applicable process and product quality standards for the <enter project name> project. The Generic Software Quality Standards Template, see appendix a, was used and modified as follows to identify the specific quality standards for this project:

1. Identified only those process and product quality standards, risk cues or measurements appropriate for the <enter project name> project based on the project's current business and technical complexity assessment.
2. Added additional quality standards based on this type of project, current phase of the project, or expert opinion where the absence of these quality standard would present high risk to the project.
3. Eliminated unnecessary quality standards based on the project's business and technical complexity assessment or current phase of the project. However, the following process and quality standards were not eliminated:

Process Quality Standards

- Definition of the project, development schedule, delivery commitment, cost controls, budget and resource size, project management approach (standards #10,11,12, 23, 25, 26, 27)

- to verify and record that a set of required inspections have been performed,
- to indicate that the minimum quality standard has or has not been met,
- record the measurements,
- identify the expected risk cue or measurement,
- indicate the expected acceptability or tolerance,
- indicate the rank of only the quality standards where risk was found unacceptable,
- indicate change in risk rank since previous review, and
- indicate a reference to which will describe what was reviewed, who was interviewed, and the information or reasoning that this quality standard causes risk.

4 QUALITY CONTROL

The assigned QC reviewer(s) will review project activities, interview, and inspect specified work product deliverables throughout the life of the project to verify compliance and provide the project manager, project team and other management with visibility as to whether the project is adhering to its established plans, process and product quality standards and associated quality work tasks.

They will identify, document, and track deviations to closure and verify that corrections have been made. They will address issues within the project first for resolution. Issues not resolvable within the project will be escalated to a designated level of management within <organization name> for resolution. Continued escalation of high risk issues will be presented to designated OIS Executive Staff using the QA Status and Improvements Report from the Quality Assurance Task.

4.1 QC Reviews

The QC reviewer(s) will conduct scheduled periodic Quality Control Reviews by following the Quality Management Plan and using the adjusted and approved Software Quality Standard checklists. The deliverable will be a checklist indicating that the reviews for the process and products in the current period have been completed.

7 APPENDIX

The following are available templates. They are included in the plan template to aid in understanding of the creator and read plan.

7.1 Quality Standards Definition and Checklist - Templates the actual template is available in the PMQ website templates page under "Controlling"

7.2 QA Status Improvement Report – template under

The actual template is available on the PMO website templates page under "Controlling"

7.3 Quality Procedures element

Record any specific quality procedures the project will develop, implement and use. For example will you follow a formal peer review process, and what will be the process.