

Quality Policy Manual

POL 01 Revision A as at 17 November 2016



ENGINEERS AND PROJECT MANAGERS

Conforms to ISO 9001:2015

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0.0 Revision History and Approval

Rev.	Nature of changes	Approval	Date
A	Original release.	Mr. S. Khumalo	10/10/2016

Welcome to TLS ENGINEERS AND PROJECT MANAGERS

TLS Infrastructure Projects cc T/A TLS Civils and Project Managers is a wholly black-owned South African company offering multi-disciplinary consulting engineering services. TLS Civils and Project Managers promises better services through superior technical expertise and capability.

TLS Engineers and Project Managers was founded with the primary intention of filling an existing gap in the market by fulfilling the following objectives:

- rendering professional, sustainable services to a wide range of clients
- offer specialist services in the fields of water treatment, wastewater treatment and transportation utilizing expertise from Historically Disadvantaged Individuals
- Creation of sustainable job opportunities by transfer of skills and knowledge to previously marginalized men; women; youth and physically challenged South Africans.

In doing the above, the enterprise upholds government development policies and will make a positive contribution to government's efforts to push the frontiers of poverty. In light of the above, this enterprise observes and appreciates government development initiatives to create business opportunities to the previously marginalized individuals and BBBEE policies; this fact is demonstrated in the ownership and management of the enterprise.

Clause 1: SCOPE

Refer to ISO 9001:2015 QMS clause 1 requirements

1.1 Determining Our Strategic Direction

TLS ENGINEERS AND PROJECT MANAGERS has reviewed and analyzed key aspects of itself and its stakeholders to determine the strategic direction of the company. This involves:

- Understanding our core services, and scope of management system (see 1.2 below)
- Identifying “interested parties” (stakeholders) who receive our Water and Sanitation Engineering, Transportation Engineering, Structural Engineering, Solid Waste Disposal and Project Construction Management; or who may be impacted by them, or those parties who may otherwise have a significant interest in our company. These parties are identified in this document *[see clause 4]*.
- Understanding internal and external issues that are of concern to TLS ENGINEERS AND PROJECT MANAGERS and its interested parties; also identified in this document. Many such issues are identified through an analysis of risks facing either TLS ENGINEERS AND PROJECT MANAGERS or the interested parties. Such issues are monitored and updated as appropriate, and discussed as part of management reviews.

This information is then used by senior management to determine the company’s strategic direction. This is defined in records of management review, and periodically updated as conditions and situations change.

1.2 Scope of the Management System

1.2.1 Scope Statement

Based on an analysis of the above issues of concern, interests of stakeholders, and in consideration of its products and services, TLS ENGINEERS AND PROJECT MANAGERS has determined the scope of the management system as follows:

The provision of Civil Engineering Consulting and Design services including Construction Project Management services to the Built Environment.

The quality system applies to all processes, activities and employees within the company. The facility is located at:

14 Surrey Road, Scottsville, Pietermaritzburg, Kwa-Zulu Natal, South Africa, 3201

1.2.3 Permissible Exclusions

The following clauses of ISO 9001 were determined to be not applicable to TLS ENGINEERS AND PROJECT MANAGERS

None applied for.

1.2.4 Scope of the Quality Manual : POL 01*

This manual is prepared for the purpose of defining the company’s interpretations of the ISO 9001:2015 international standard, as well as to demonstrate how the company complies with that standard.

This manual follows the numbering structure of the clauses of the ISO 9001:2015 QMS.

This manual presents “Notes” which are used to define how TLS ENGINEERS AND PROJECT MANAGERS has tailored its management system to suit its purposes. These are intended to clarify implementation approaches and interpretations for concepts which are not otherwise clearly defined in ISO 9001:2015. *Notes appear in italics, with gray background.*

Where subordinate or supporting documentation is reference in this manual, these are indicated by ***bold italics.***

Clause 2: NORMATIVE REFERENCE

Refer to ISO 9001:2015 QMS clause 2 requirements

2.1 Referenced Documents:

- 2.1.1 ISO 9000 : 2014: Quality Management System - Vocabulary
- 2.1.2 ISO 9001 : 2015: Quality Management Systems – Requirements

2.2 Member Organizations

- 2.2.1 Engineering Council of S.A. (E.C.S.A.)
- 2.2.2 Council of Engineers of S.A. (C.E.S.A.)
- 2.2.3 South African Council of Project and Construction Management Professionals (SACPCMP)
- 2.2.4 National Homebuilders Regulations Council (NHBRC)
- 2.2.5 The South Africa of Civil Engineering (SAICE)
- 2.2.6 South African Black Technical and Allied Careers Organization (SABTACO)
- 2.2.7 Institute of Professional Engineering Technologists (I.P.E.T.)

2.3 Applicable Legislation:

- 2.3.1 Ohs Act; BCE Act 85 of 1993
- 2.3.2 Employment Equity Act
- 2.3.3 Basic Conditions of Employment Act
- 2.3.4 Labour Relations Act 66 of 1995;
- 2.3.5 Skills Development Act 97 of 1998
- 2.3.6 Workman's Compensation Act
- 2.3.7 Council for the Built Environment Act, 2000 (Act No 43 of 2000);
- 2.3.8 Project and Construction Management Professions Act, 2000 (Act No 48 of 2000)
- 2.3.9 Quantity Surveying Professions Act, 2000 (Act No 49 of 2000).
- 2.3.10 National Environmental Management Act (N.E.M.A.)

Clause 3: TERMS AND DEFINITIONS

Refer to ISO 9001:2015 QMS clause 3 requirements

3.1 Abbreviations:

3.1.1	QMS:	Quality Management System.
3.1.2	ISO:	International Organisation for Standardisation.
3.1.3	O&T:	Objectives and Targets.
3.1.4	FD:	Procedure Flow- diagram
3.1.5	DBN:	Durban.
3.1.6	Rev:	Revision.
3.1.7	SLA:	Supplier Level Agreement.
3.1.8	SHERQ:	Safety, Health, Environment, Risk and Quality.
3.1.9	SPEC:	Specification.
3.1.10	GL:	Guideline
3.1.11	WI:	Work Instruction.
3.1.12	IMTE:	Inspection, Measuring & Test Equipment
3.1.13	POL	Policy
3.1.14	I&AP	Interested & Affected Party
3.1.15	FMEA	Failure Mode and Effects Analysis
3.1.16	CAR	Corrective Action Request
3.1.17	PAR	Preventive Action Request

3.2 Word and Concept definitions:

Some useful terms and definitions:

- 3.2.1 PRODUCT is defined as “result of a process”
- 3.2.2 PROCESS is defined as “ set of interrelated or interacting activities which transforms inputs into outputs.”
- 3.2.3 QUALITY Degree to which a set of inherent characteristics fulfills

requirements.

- 3.2.4 MANAGEMENT SYSTEM To establish policy and objectives and to achieve those objectives.
- 3.2.5 TOP MANAGEMENT Person or group who directs and controls an organization at the highest level.
- 3.2.6 ORGANISATION Group of people and facilities with an arrangement of responsibilities, authorities and relationships.
- 3.2.7 SUPPLIER Organization or person that provides a product/ service.
- 3.2.8 CUSTOMER/ CLIENT Organization or person that receives a product.
- 3.2.9 MANUAL A document that transmits information or, in general terms, sets out the requirements to be met and principles to be applied to achieve a desired goal. It may consist of a single document or a set of documents that relate to a specific series of related subjects.
- 3.2.10 PROCEDURE A document that, in sequence of execution, prescribes the action required to perform a defined task and accords specific responsibilities to specific persons.
- 3.2.11 WORK INSTRUCTION A document that sets out in detail a particular operation, normally performed in one location; basically a set of do's and don'ts to assist the individual.
- 3.2.12 NON- CONFORMANCE Any service that does not comply with stated quality requirements or standards as documented in the Quality Management System Manual.
- 3.2.13 RESPONSIBILITY/ AUTHORITY Where the term 'responsibility' is used, this also implies that such 'responsibility' is inclusive of the necessary Authority to carry out the required task.

Other terms are as stated in the ISO 9000:2014 fundamentals and vocabulary.

Clause 4: CONTEXT OF THE ORGANIZATION

Refer to ISO 9001:2015 QMS clause 4 requirements

4.1 UNDERSTANDING THE ORGANIZATION AND ITS CONTEXT

- 4.1.1 The company has determined internal and external issues related to its products, services, activities, operations and stakeholder requirements. These are listed in the following paragraphs.
- 4.1.2 The strategic direction of the company is documented in paragraph 4.2.4 below.
- 4.1.3 Regular review of the performance of the QMS is performed by Management namely the Managing Director, Office Managers, Process Managers and Supervisors especially during Management Review stage as well as the regular meetings at all levels where objectives and targets are reported.

4.2 UNDERSTANDING THE NEEDS OF INTERESTED PARTIES

“Interested parties” are those stakeholders who receive our Civil Engineering Consulting and Design services who may be impacted by them, or those parties who may otherwise have a significant interest in our company. These are as follows:

Interested Party	Internal or External	Reason for Interest
Customers	External	Direct recipient of our civil engineering consulting and design services
Employees	Internal	Responsible for realization of our civil engineering consulting and design services
End users	External	Other professional consultants/ engineers in the Built Environment that may use our civil engineering consulting and design services
Suppliers (vendors)	External	Provide supporting services or administrative materials
Regulators	External	Dictate controlling regulations that impact on the management system and our civil engineering consulting and design services eg. SARS, DoL, SANS, ECSA, CESA, etc.
Public	External	While a low risk, failure of our civil engineering consulting and design services could impact on public safety.
Certification Bodies	External	Assess conformity of TLS ENGINEERS AND PROJECT MANAGERS to ISO 9001 and so must be kept notified of changes to the QMS.
Competitors	External	Provide challenges to our ability to provide civil engineering consulting and design services
Consultants	External	Provide the company with specialized professional services

Interested Party	Internal or External	Reason for Interest
Calibration Authorities	External	Provide the company with specialized professional Inspection and testing services
Legal	External	Provide the company with specialized professional legal services
Financial	External	Provide the company with specialized professional financial accounting and auditing services

4.2.1 INTERNAL ISSUES OF CONCERN

The following are issues of concern which have been, or may be, raised by internal interested parties.

Type	Issue	Bias
Technological	TLS ENGINEERS AND PROJECT MANAGERS currently has adequate technological resources to consistently produce its services. Secure back- up and storage of files are evident.	Positive
Employee base	Availability of skilled workforce in the area remains high	Positive
Employee base	Employee turnover is low	Positive
Supply Chain	Quality issues pertaining to raw materials or critical services may not be addressed properly when using sole source or limited-source suppliers. For this reason, the company has multiple supply sources.	Positive
Transportation	The company subsidizes the employees purchases of vehicles as well as the use of private vehicles to perform company travel.	Neutral
Maintenance	Internal maintenance occurs and external specialists are suppliers, when required	Positive
Laboratory	A external registered laboratory is used to perform this function which may include the testing of soil and concrete samples per project	Positive
Office space	The current space available is adequate but the anticipated inflow of work will necessitate larger offices being obtained	Neutral

4.2.2 EXTERNAL ISSUES OF CONCERN

The following are issues of concern which have been, or may be, raised by external interested parties.

Type	Issue	Bias
Competition	TLS ENGINEERS AND PROJECT MANAGERS does have significant competition in this market at this time. The use of ECSA tariff guidelines is followed and discounts applied where required.	Neutral
Society & Culture	Civil engineering consulting and design services do present particular controversies that would result in negative reactions from society or the public namely the collapse of a structure, etc. However, TLS ENGINEERS AND PROJECT MANAGERS inspects all design and signs in approval prior to the commencement of site work, on site the sign-off of Inspection Sheets per phase of the project is performed and a certificate of Stability is issued on final completion of the structure	Negative
Labour	Good relations exist between the employee and labour organizations eg. Unions and bargaining councils	Positive
Statutory/Regulatory	Good relations and compliance to all legislation exists between the company and SARS, Dept. of Labour, etc.	Positive
Economic	Good cash-flow is monitored and maintained by Management including: <ul style="list-style-type: none"> - <i>supply agreements with key software suppliers</i> - <i>cost reduction and monitoring</i> 	Positive

4.2.3 ORGANIZATIONAL RISKS

Based on an analysis of the above interested parties and issues of concern, TLS ENGINEERS AND PROJECT MANAGERS has identified the following overall risks to the company:

Risk	Likelihood	Severity	Mitigation
Business interruption due to natural disaster	Low	High	The company can function from the MD's home and continue to service customers
Business interruption due to labor dispute	Low	High	Employee development including an 'Open Door' policy to ensure staff are content in the company

Risk	Likelihood	Severity	Mitigation
Electricity disruption	Low	High	<ul style="list-style-type: none"> • A UPS is installed to provide electricity. • LED Emergency lights are used to light the office. • Printing can be performed at a copy centre in the area. • The use of the cell phones as a 'Hot Spot' to access the internet.
Critical equipment failure	Low	Low	<ul style="list-style-type: none"> • The server is a critical item and has an off- site backup facility by the external service provider should it crash. • All other equipment used are laptops (backup is performed) and printing/ plotting devices which an external copy centre can be used to perform this service.
Product recall	Low	High	To follow the standard practice within the established QMS especially the Terms of Reference within the Inception report
Loss of critical supplier(s)	Low	Low	No suppliers related to the core work performed by the company are used as all work is performed internally
Loss of critical personnel	Low	Medium	Look at the marketplace and seek to advertise for new staff, interview and employ
Action by Client or End User related to incorrect consulting services	Low	High	<p>Review by a Senior PR ENG/ PR Tech Eng of the drawing/ design or report prior to issue to the client.</p> <p>Professional Indemnity (P.I.) cover exists to pay for any corrective measures required.</p>

4.2.4 STRATEGIC DIRECTION

An organization's **strategic direction** is a combination of its vision, mission, **strategies** (where it wants to get to in its “business” or niche and what path it will take) and its core values (the behavioral and social norms that drive the culture). Therefore, the strategic direction of TLS ENGINEERS AND PROJECT MANAGERS is as follows:

OUR VISION

- “To become the premier provider of engineering consulting services by ensuring a high degree of commitment, efficiency and expertise”

OUR GOALS

- Improve the confidence of the services we provide and build sustainability of such services within our Client’s companies by pursuing excellence in our skills, knowledge and approach

OUR SUCCESS

Customers have an increased understanding of the importance of civil engineering consulting and design services and its lifelong benefit for all stakeholders

- TLS ENGINEERS (AND PROJECT MANAGERS) is confident in the effectiveness and efficiency of our operational performance so that our innovations and energies can turn towards organizational growth

OUR PRIORITIES

- To consistently meet and exceed the reasonable expectations of our clients, stakeholders (shareholders, employees, suppliers, and communities we serve).
- To stimulate and associate with business activities that are aimed at alleviating of the standard of living of our communities.
- To implement an effective quality assurance programme which oversees our services in order that they conform to our set benchmarks
- To uphold the principles of Integrity, Honesty and Professionalism in all our business undertakings
- Recognise our responsibilities towards the underprivileged and social structures in the areas we operate and fulfil our duties as responsible corporate citizens.
- To continually update our Technical skills and competency levels required to provide cutting edge service to our Clients.
- To uphold honesty, integrity, transparency and professionalism.
- To uphold integrity acquisition and transfer of skills and knowledge.
- Pursuit of innovation and rendering superior service.
- We insist on mutual respect

4.3 SCOPE OF PRODUCTS AND SERVICES

1.1. TLS ENGINEERS AND PROJECT MANAGERS provides the following services:

- Water and Sanitation Engineering,
- Transportation Engineering,
- Structural Engineering,
- Solid Waste Disposal and
- Project Construction Management

1.2 Processes followed by TLS ENGINEERS AND PROJECT MANAGERS include:

- Tender application
- Tender award and acceptance of the appointment
- Inception report developed and submitted to Client
- Design
- Documentation including the Construction BOQ and Construction Tender document
- Tender processes to obtain Contractor/ s
- Construction Contract Award
- Construction
- Construction phase close- out report
- Project Administration

4.4 QUALITY MANAGEMENT SYSTEM AND ITS PROCESSES

4.4.1 Process Identification

TLS ENGINEERS AND PROJECT MANAGERS has adopted a process approach for its management system. By identifying the top-level processes within the company, and then managing each of these discretely, this reduces the potential for nonconforming Products or Services discovered during final processes or after delivery. Instead, nonconformities and risks are identified in real time, by actions taken within each of the top-level processes.

Note: not all activities are considered “processes” – the term “process” in this context indicates the activity has been elevated to a higher level of control and management oversight. The controls indicated herein are applicable only to the top-level processes identified.

The various core processes that have been identified for TLS ENGINEERS AND PROJECT MANAGERS is defined in this manual.

Each process may be supported by other activities, such as tasks or sub-processes. Monitoring and control of top level processes ensures effective implementation and control of all subordinate tasks or

sub-processes.

The sequence of interaction of these processes is illustrated in Appendix A, in a Process Flow-diagram format.

Note: Appendix A represents the typical sequence of processes, and may be altered depending on customer or regulatory requirements at the job or contract level, as needed.

4.4.2 Process Controls & Objectives

Each process has at least one objective established for it; this is a statement of the intent of the process. Each objective is then supported by at least one “metric” or key performance indicator (KPI) which is then measured to determine the process’ ability to meet the quality objective.

Note: some processes have multiple objectives and multiple metrics. This is determined by the nature of the process, it’s impact on [Products or Services and associated risks.

Note: Whereas ISO 9001 discusses process measurements and “quality objectives” as separate concepts, TLS ENGINEERS AND PROJECT MANAGERS combines them; i.e., quality objectives are used to control the processes. Additional objectives for Products or Services may be assigned, but these will also be used to measure process effectiveness.

Throughout the year, data is measured and gathered by process owners, in order to present the data to the Immediate Supervisor. The data is then analyzed by the Immediate Supervisor in order that he may set goals and make adjustments for the purposes of long-term continual improvement.

The specific quality objectives for each process are defined in the **Objectives and Targets Matrix (FORM 24*)**

Measurable data, along with current standings and goals for each objective, are recorded in records of management review.

When a process does not meet a goal, or an unexpected problem is encountered with a process, the corrective and preventive action process is implemented to research and resolve the issue. In addition, opportunities for improvement are sought and implemented, for the identified processes.

4.4.3 Outsourced Processes

Any process performed by a third party is considered an “outsourced process” and must be controlled, as well. The company’s outsourced processes, and the control methods implemented for each, are defined in paragraph 8.4 below.

The type and extent of control to be applied to the outsourced process take into consideration:

- a) the potential impact of the outsourced process on the company’s capability to provide product that conforms to requirements,
- b) the degree to which the control for the process is shared,
- c) the capability of achieving the necessary control through the purchasing contract requirements.

4.4.4 Change Management

4.4.4.1 When TLS ENGINEERS AND PROJECT MANAGERS determines the need for changes to the management system or its processes, these changes planned, implemented, and then verified for effectiveness

4.4.4.2 “Process Output” – the result of any process; these are typically defined in the procedure document for each top-level process.

4.4.4.3 Changes to Processes

- 4.4.4.3.1 Management system processes will undergo changes, typically when:
- 4.4.4.3.2 Improvement opportunities have been identified, typically to improve process effectiveness
- 4.4.4.3.3 Nonconformities within a process are identified and require corrective action
- 4.4.4.3.4 Conditions in the industry or company change, requiring a process to be updated
- 4.4.4.3.5 New processes are added which impact on existing processes, requiring changes
- 4.4.4.3.6 Customer requirements result in a need to change processes
- 4.4.4.3.7 Any other reason determined by management
- 4.4.4.3.8 In such cases, the process must be changed in a controlled manner to ensure proper authorization and implementation of the changes.
- 4.4.4.3.9 At a minimum, process changes shall include the steps herein:
 - *The request for a process change shall be documented, typically in a CAR (Form 02*) per the procedure [para. 10.2]. The justification for the change shall be recorded.*
 - *The change shall be reviewed by Process Manager or Supervisor, responsible for the process. Changes must be approved prior to implementation. However, it is the Office Manager's responsibility to also review and approve this change.*
 - *The appropriate procedure or document will be updated to reflect the change. This document will undergo review and approval. The revision indicator of the document changed will be incremented, and the nature of the change recorded.*
 - *The follow-up verification step of the CAR process shall seek to ensure the change has had the intended effect, and/or has improved the process. If not, the change may be rolled back or a new change made to correct any new issues that arise as a result of the change.*

4.4.4.4 Changes to Process Outputs

- 4.4.4.4.1 The methods for changing process outputs are typically defined in paragraph 7.5. Where a process output is a document, the rules for changing documents above shall apply.
- 4.4.4.4.2 Formal changes to process outputs will be used when the change is significant. Minor changes may be made without formal control, however the decision on what constitutes a significant vs minor change must be agreed upon by those involved in the change. If a customer indicates a change is significant, this will trump any internal decision.

4.4.4.5 Changes to Documentation

- 4.4.4.5.1 Management system documents undergo changes when there is a need to revise them.
- 4.4.4.5.2 Changes to documentation are done in accordance with the procedure described in paragraph 7.5

4.4.5 Risks and Opportunities

Note: TLS ENGINEERS AND PROJECT MANAGERS deviates slightly from the approach towards risk and opportunity presented in ISO 9001. Instead, TLS ENGINEERS AND PROJECT MANAGERS views “uncertainty” as neutral, but defines “risk” as a negative effect of uncertainty, and “opportunity” as a positive effect of uncertainty. TLS ENGINEERS AND PROJECT MANAGERS has elected to manage risks and opportunities separately, except where they may overlap. Formal risk management may not be utilized in all instances; instead, the level of risk assessment, analysis, treatment and recordkeeping will be performed to the level deemed appropriate for each circumstance or application.

4.4.5.1 TLS ENGINEERS AND PROJECT MANAGERS considers risks and opportunities when taking actions within the management system, as well as when implementing or improving the management system; likewise, these are considered relative to products and services.

4.4.5.2 The company has established, implemented and maintained this procedure for managing risks and opportunities throughout the TLS ENGINEERS AND PROJECT MANAGERS

4.4.5.3 Responsibility and authority for this procedure are spread across various functions, and defined within this procedure.

4.4.5.4 Note: this procedure has adopted definitions for key terms developed specifically by TLS ENGINEERS AND PROJECT MANAGERS and determined appropriate for its use within the unique requirements of its management system. It does not adopt current ISO definitions, which TLS ENGINEERS AND PROJECT MANAGERS has determined are not sufficient for its use.

4.4.5.5 Definitions :

- **Risk:** A negative effect of uncertainty.
- **Opportunity:** A positive effective of uncertainty.
- **Risk Assessment:** a systematic investigation and analysis of potential risks, combined with the assignment of severities of probabilities and consequences. These are used to rate risks in order to prioritize the mitigation of high risks.
- **Risk Mitigation:** a plan developed with the intent of addressing all known or possible risks and preventing their occurrence.

4.4.5.6 Risk Management Procedure

4.4.5.6.1 TLS ENGINEERS AND PROJECT MANAGERS considers and manages risks and opportunities differently.

4.4.5.6.2 Risks are managed with a focus on decreasing their likelihood, and minimizing their impact if they should occur.

4.4.5.6.3 Opportunities are managed to increase their likelihood, and to maximize their benefits if they should occur.

4.4.5.6.4 Where risks and opportunities overlap, the best appropriate method for managing them shall be ascertained, given the situation at hand.

4.4.5.6.5 Risks are considered during the execution of various processes.

4.4.5.6.6 Each core process is defined in detail through a Procedure. This document includes the identification and mitigation plans for key risks associated with the defined process. TLS ENGINEERS AND PROJECT MANAGERS management reviews these risks and takes action to minimize them.

4.4.5.6.7 The methods for risk assessments vary, but should always include a means of identifying the risk under examination, and a description of the result of the risk assessment.

4.4.5.6.8 Detailed methods may include but not limited to FMEA (failure mode effects analysis), SWOT (strength, weakness, opportunity and threat) or other tools. No single method is used for all risk assessments; the tool selected should be the best tool applicable to that particular risk analysis.

4.4.5.6.9 ISO 31010 provides guidance on the selection of risk tools.

4.4.5.7 Management of Opportunities

4.4.5.7.1 As part of the Sales process, TLS ENGINEERS AND PROJECT MANAGERS shall seek out opportunities which could enhance its financial viability and market position. For example:

- obtaining new contracts
- obtaining access to new markets
- identification of new industries which may be served by TLS ENGINEERS AND PROJECT MANAGERS
- development of new offerings/ products that are within the scope of capabilities of TLS ENGINEERS AND PROJECT MANAGERS
- streamlining existing processes to improve efficiency and reduce costs

4.4.5.7.2 In addition, throughout all TLS ENGINEERS AND PROJECT MANAGERS processes, the corrective action system and internal auditing process should be used to identify possible opportunities for improvement.

4.4.5.7.3 Discussing and analyzing opportunities shall be done by top management. If made part of the management review activities, these shall be recorded in the management review records.

4.4.5.7.4 If an opportunity requires a risk assessment, this shall be done as defined above.

4.4.5.7.5 Analysis of any opportunity will generally result in one of the following possible determinations:

- Pursue the opportunity
- Explore the opportunity in greater detail before proceeding
- Accept the opportunity, but under limited and controlled conditions
- Decline the opportunity, typically based on a high expected risks.

Clause 5: Management & Leadership

Refer to ISO 9001:2015 QMS clause 5 requirements

5.1.1 Management Leadership and Commitment

The Managing Director of TLS ENGINEERS AND PROJECT MANAGERS provides evidence of his leadership and commitment to the development and implementation of the management system and continually improving its effectiveness by:

- a) taking accountability of the effectiveness of the management system;
- b) ensuring that the **Quality Policy** and quality objectives are established for the management system and are compatible with the strategic direction and the context of the organization;
- c) ensuring that the quality policy is communicated, understood and applied within the organization;
- d) ensuring the integration of the management system requirements into the organization's other business processes, as deemed appropriate (see note);
- e) promoting awareness of the process approach;
- f) ensuring that the resources needed for the management system are available;
- g) communicating the importance of effective quality management and of conforming to the management system requirements;
- h) ensuring that the management system achieves its intended results;
- i) engaging, directing and supporting persons to contribute to the effectiveness of the management system;
- j) promoting continual improvement;
- k) supporting other relevant management roles to demonstrate their leadership as it applies to their areas of responsibility.

5.1.2 Customer Focus

The entire staff of TLS ENGINEERS AND PROJECT MANAGERS adopts a customer-first approach which ensures that customer's needs and expectations are determined, converted into requirements and are met with the aim of enhancing customer satisfaction.

This is accomplished by assuring:

- a) customer and applicable statutory and regulatory requirements are determined, understood and consistently met;
- b) the risks and opportunities that can affect conformity of products and services and the ability to enhance customer satisfaction are determined and addressed;
- c) the focus on enhancing customer satisfaction is maintained.

5.2.1 Quality Policy

The Managing Director has developed the **Quality Policy**, defined in section 3.0 above, that governs day-to-day operations to ensure quality.

The Quality Policy of TLS ENGINEERS AND PROJECT MANAGERS is as follows:

I, the Managing Director of TLS ENGINEERS AND PROJECT MANAGERS recognize that the priority of every stakeholder in our company is to ensure that we continue to service our Customers with a superior quality Tender application, Tender award and acceptance of the appointment, Inception report developed and submitted to Client, Design, Documentation including the Construction BOQ and Construction Tender document, Tender processes to obtain Contractor/ s, Construction Contract Award, Construction, Construction phase close- out report and Project Administration.

To this end, we commit ourselves to:-

- *The establishment of an approach and/ or a suitable solution to satisfy the needs and expectations of our Customers.*
- *The establishment of the Customer's and stake holder's needs and expectations.*
- *Establishing, quantifying and specifying the deliverables that will meet these needs.*
- *Selecting or contracting in the most suitably qualified and experienced service providers to successfully realize the deliverables.*
- *Selecting and using the most appropriate equipment, systems and methods for the realization of the successful deliverables per order.*
- *Progressively work with the Customer and Stakeholders to ensure the realization of the milestones established per order, up to and including the conclusion of the order.*
- *Progressively measure the success factors of each order and take corrective action where necessary*
- *Communicate to all staff via the regular meetings, inductions and Management Reviews the objectives and targets of the Q.M.S.*

We further commit ourselves to the implementation and maintenance of a Quality Management System complying to ISO 9001:2015 QMS, and to the improvement of our business by the regular review of our Quality Management System and keeping abreast with the latest technology in our field.

Managing Director

Date

5.2.2 Communicating the Quality Policy

5.2.2.1 The Quality Policy is released as a standalone document as well, and is communicated and implemented throughout the organization.

5.2.2.2 Communicating the Quality Policy is by Management displaying the policy statement in strategic and noticeable areas around the premises. Further, an overview of the Quality Policy must take place within the framework of staff meetings. Relevant records of such meetings must be maintained.

5.2.2.3 Where access to the server is possible, staff have the opportunity of viewing the Quality Policy and the relevant QMS documentation on this medium.

5.3 Organizational Roles Responsibilities & Authorities

The Managing Director has assigned responsibilities and authorities for all relevant roles in the company. These are communicated through the combination of the company structure and job titles occupied by staff.

The Office Managers and Process Managers accept responsibility and authority for:

- a) ensuring that the management system conforms to applicable standards;
- b) ensuring that the processes are delivering their intended outputs;
- c) reporting on the performance of the management system;
- d) providing opportunities for improvement for the management system;
- e) ensuring the promotion of customer focus throughout the organization;
- f) ensuring that the integrity of the management system is maintained when changes are planned and implemented.

Clause 6: Planning

Refer to ISO 9001:2015 QMS clause 6 requirements

6.1 Actions to address risks and opportunities

- 6.1.1 The company considers and manages risks and opportunities differently.
- 6.1.2 Risks are managed with a focus on decreasing their likelihood, and minimizing their impact if they should occur.
- 6.1.3 Opportunities are managed to increase their likelihood, and to maximize their benefits if they should occur.
- 6.1.4 Where risks and opportunities overlap, the best appropriate method for managing them shall be ascertained, given the situation at hand.
- 6.1.5 The process followed during the Risk Management stage and opportunity identification and action is described in paragraph 4.4.5 above.
- 6.1.6 Such actions will lead to the prevention or reduction of undesired effects, improve process performance and give the stakeholders the assurance that the QMS is effective in achieving its intended result/s.

6.2 Quality objectives and planning to achieve them

- 6.2.1 Using inputs from risks and opportunities identified, industry information and occurrences, changes to the economy and other internal and external factors that can affect the company, the following objectives and related targets per process have been established and must be implemented with regular reporting on their achievement thereof. **See FORM 24***

6.3 Planning for changes

- 6.3.1 When TLS ENGINEERS AND PROJECT MANAGERS determines the need for changes to the management system or its processes, these changes planned, implemented, and then verified for effectiveness by the Office Managers and the Managing Director
- 6.3.2 "Process Output" – the result of any process; these are typically defined in the Procedure for each top-level process.

6.3.3 Changes to Processes

Management system processes will undergo changes, typically when:

- Improvement opportunities have been identified, typically to improve process effectiveness
- Nonconformities within a process are identified and require corrective action
- Conditions in the industry or company change, requiring a process to be updated
- New processes are added which impact on existing processes, requiring changes

- Customer requirements result in a need to change processes
- Any other reason determined by management

In such cases, the process must be changed in a controlled manner to ensure proper authorization and implementation of the changes.

At a minimum, process changes shall include the steps herein:

- *The request for a process change shall be documented, typically in a CAR Form per the procedure **[Corrective / Preventive Action ; para. 10.2]**. The justification for the change shall be recorded.*
- *The change shall be reviewed by appropriate management, including the senior most manager responsible for the process. Changes must be approved prior to implementation.*
- *The appropriate procedure or document will be updated to reflect the change. This document will undergo review and approval per the procedure described in paragraph 7.5. The revision indicator of the changed document will be incremented, and the nature of the change recorded.*
- *The follow-up verification step of the CAR process shall seek to ensure the change has had the intended effect, and/or has improved the process. If not, the change may be rolled back or a new change made to correct any new issues that arise as a result of the change.*

6.3.3.2 Changes to Process Outputs

6.3.3.2.1 The methods for changing process outputs are typically defined in paragraph 7.4. Where a process output is a document, the rules for changing documents above shall apply.

6.3.3.2.1 Formal changes to process outputs will be used when the change is significant. Minor changes may be made without formal control, however the decision on what constitutes a significant vs minor change must be agreed upon by those involved in the change. If a customer indicates a change is significant, this will trump any internal decision. If they do not agree, then an alternate solution to the requested change must be determined.

6.3.3.3 Changes to Documentation

6.3.3.3.1 Management system documents undergo changes when there is a need to revise them.

6.3.3.3.2 Changes to documentation are done in accordance with the procedure described in paragraph 7.5

Clause 7: Support

Refer to ISO 9001:2015 QMS clause 7 requirements

7.1 Resources

7.1.1 General

The company has determined the necessary resources required in order to achieve product conformity, effectiveness of the QMS, reduction on the constraints of internal resources and the requirements from external suppliers.

The company determines and provides the resources needed:

- a) to implement and maintain the management system and continually improve its effectiveness
- b) to enhance customer satisfaction by meeting customer requirements

Resource allocation is done with consideration of the capability and constraints on existing internal resources, as well as needs related to supplier expectations.

Resources and resource allocation are assessed during management reviews.

7.1.2 People

7.1.2.1 The company's employees are selected, trained and evaluated to ensure that those personnel performing work affecting product quality are competent on the basis of four primary criteria:

- education
- training
- skills
- experience

Senior management ensures that it provides sufficient staffing for the effective operation of the management system, as well its identified processes.

Staff members eg. Technicians, Administrators, Office Managers and Directors, performing work affecting product quality are competent on the basis of appropriate education, training, skills and experience.

Training and subsequent communication ensure that all employees are aware of:

- a) the quality policy;
- b) relevant quality objectives;
- c) their contribution to the effectiveness of the management system, including the benefits of improved performance;
- d) the implications of not conforming with the management system requirements.

Note: the management system does not include other aspects of Human Resource management, such as payroll, benefits, insurance, labour relations or disciplinary actions.

7.1.2.2 Job requirements have been developed for each position in the company affecting quality and documented in an applicable Job Description. These define the desired minimum requirements for each position, including the four criteria listed above.

7.1.2.3 Job Descriptions may include applicable statutory or regulatory requirements for the position defined (*if any*).

7.1.2.4 CANDIDATE SCREENING

- All company personnel are hired on the basis of their ability to perform acceptable work. This is done by comparing the candidate's resume, experience, application, etc. against the job description requirements.
- It is not mandatory that candidates meet all requirements, if the company can provide subsequent training or other actions to bring the candidate up to the requirements eventually.

7.1.2.5 NEW EMPLOYEES

- New employees of the company undergo employee orientation/ induction, which includes an overview of ISO 9001 training, and training on the **Quality Policy (POL 01*)**. Orientation training shall be completed within 10 days of the employee's start date.
- Orientation shall include discussing with the employee the relevance and importance of that person meeting customer and company QMS requirements, and how their work will affect quality objectives.
- A record of the completion of the orientation/ induction shall be maintained in the employee's training file.

7.1.3 Infrastructure

7.1.3.1 The cornerstone of good preventive maintenance is by regular servicing, regular checking and inspection of all equipment. All equipment requiring maintenance is listed on the Planned/ Preventive Maintenance Schedule (FORM 09*) which is available from the Management Rep. All office equipment maintenance and repairs are conducted by external suppliers (FORM 01*). All repairs to equipment must also be documented.

7.1.3.2 Preventive maintenance only applies to "key process equipment"; these are defined as those devices or tooling that are critical for maintaining continuing process capability (i.e., uninterrupted work flow), and those machines and systems that the breakdown of which could adversely impact product and service quality.

7.1.3.3 Emphasis shall be put on preventive maintenance (P/M), designed to ensure equipment operates without unexpected down time or error. **NOTE: Correcting a fault in a machine after it breaks is considered repair, and not maintenance.** The purpose of a robust P/M programme is to eliminate the need for unscheduled repairs and down time.

7.1.3.4 PROCEDURE: PREVENTIVE MAINTENANCE

- 7.1.3.4.1 The Office Managers and the Managing Director are responsible for identifying key process equipment, machines, and systems to be included in the preventive maintenance program.
- 7.1.3.4.2 The Office Managers must maintain preventive maintenance records for each unique piece of key process equipment. This record will contain, at a minimum, the following information:
- Type of device
 - Manufacturer
 - Model number
 - Serial number / company asset number
 - Location
 - P/M tasks required
 - Frequency of each P/M task (monthly, weekly, annually, before use, etc.)
- 7.1.3.4.3 P/M tasks shall be based on manufacturer's guidelines, but may be overridden or altered to suit the company's specific needs, based on equipment usage, criticality to quality, etc.
- 7.1.3.4.4 The resulting records may take the form of logs, procedure(s), databases, spreadsheets or other methods as deemed appropriate by the area manager.
- 7.1.3.4.5 Records of completed P/M tasks must be maintained. P/M records must show:
- the completion of the required P/M step
 - the Technician or Engineer responsible for completing the step
 - the date of completion
 - any notes or problems encountered
- 7.1.3.4.6 For P/M tasks that are done daily, hourly, "before use" or at a more frequent basis, the need for a record is not required. Records must be maintained for any task performed at a frequency of weekly or greater.
- 7.1.3.4.7 Maintenance work may be performed by employees or approved third party maintenance service providers, as needed. If third party providers are used, the provider's maintenance records may be maintained in lieu of any company internal records.
- 7.1.3.4.8 In order to identify equipment problems at an early stage and to prevent breakdowns, process equipment operators are instructed to monitor tool wear, process performance, vibrations, etc., and report any abnormal functioning to their Office Manager.

7.1.3.2 A regular Inspection (*informal*) is performed on the organization's site building and vehicle/ s. This ensures that the organization's premises is maintained in a condition conducive to increased productivity and safety. All internal repairs and maintenance is the responsibility of the Administrator to arrange for such activities to be undertaken.

7.1.3.3 Weekly back- up of the computer system files is performed on the memory stick and kept in a controlled environment on and off-site. Access is strictly controlled. All further I.T. maintenance and repairs have been outsourced to an I.T. specialist.

7.1.3.4 The company therefore determines, provides and maintains the infrastructure needed to achieve conformity to product requirements. Infrastructure includes, as applicable:

- a) buildings, workspace and associated facilities;
- b) process equipment, hardware and software;
- c) supporting services such as transport;
- d) information and communication technology.

Where equipment is used for critical measurement activities, such as inspection and testing, these shall be subject to control and either calibration or verification.

Note: Calibration and measurement traceability is not employed for all measurement devices. Instead, TLS ENGINEERS AND PROJECT MANAGERS determines which devices will be subject to calibration based on its processes, products and services, or in order to comply with specifications or requirements. These decisions are also based on the importance of a measurement, and considerations of risk.

7.1.4. Environment for the operation of processes

7.1.4.1 The company promotes a non- discriminatory and non- confrontational work ethic and environment.

7.1.4.2 Communication is normally dealt with as the emergency arises as no two emergencies are the same. Points to consider are the severity of the support or emergency required the effects of time, whilst awaiting external support, etc. High risk emergencies such as injury, fire, pollution, etc. is controlled by the Office Manager. A first –aid kit is available and so are fire equipment which are serviced periodically by external suppliers.

7.1.4.3 The safety and security of the employees is of utmost importance. All access to the offices is by access through security gates. All employees have to undergo a safety induction training programme including medicals. Security personnel via armed response enforce the highest levels of security whilst on site.

7.1.4.4 The physical premises is in a residential area and on the public transport route therefore transportation is readily available. The building has adequate light to ensure that employees can see what they are doing as well as ample ventilation.

7.1.4.5 The company itself performs risk assessments on its processes to identify potential risks associated with the company and the various processes. These risks are actioned to prevent any occurrence in the future but recorded as preventive actions. However, potential risks are also documented on the preventive action log.

7.1.4.6 The company provides a clean, safe and well lit working environment. The Office Manager of TLS ENGINEERS AND PROJECT MANAGERS manages the work environment needed to achieve conformity to product requirements. Specific environmental requirements for products are determined during quality planning and are documented in subordinate procedures, work instructions, or job documentation. Where special work environments have been implemented, these shall also be maintained per described above.

Human factors are considered to the extent that they directly impact on the quality of the Water and Sanitation Engineering, Transportation Engineering, Structural Engineering, Solid Waste Disposal and Project Construction Management services.

Note: Social, psychological and safety aspects of the work environment are managed through activities outside of the scope of the management system. Only work environment aspects which can directly affect process efficiency or product and service quality are managed through the management system.

7.1.5 Monitoring and Measuring Resources

- 7.1.5.1 Devices subject to calibration shall be calibrated by an approved outside service provider, or by trained company employees.
- 7.1.5.2 Third party calibration laboratories have recognized calibration authorities as this provides the best control of calibration activities, and traceability to national and/ or international standards.
- 7.1.5.3 When employees perform in-house calibration (*where applicable and required*), this is performed in accordance under accepted verification practices.
- 7.1.5.4 Traceability to the national standards will be maintained for all devices where such traceability is possible by the current state of the art.
- 7.1.5.5 Approved calibration service providers must maintain suitable environmental conditions for calibration, and report temperature and relative humidity on any calibration test certificates or other calibration documentation. For in-house calibration, the Office Manager will ensure suitable environmental conditions for calibration/ verification.
- 7.1.5.6 The **Calibration Schedule** [FORM 20*] will be maintained by the Administrator. This document will list all devices, their serial number, date of last calibration, and next scheduled calibration date. The frequency of calibration for each device shall be adjusted based on the history of the device and its impact on product quality. **NOTE: third party calibration providers may not establish calibration frequencies; this must be determined by the company.**
- 7.1.5.7 For tools / devices and measuring equipment calibrated by third party laboratories, these shall be returned with a certificate of calibration showing the status of the calibration, as well as the condition the equipment was found in (e.g., “defective,” “out of tolerance”, “in tolerance”, etc.) Such certificates must have the identification of any standards used by the calibration house, and their serial numbers, allowing for the necessary traceability.

- 7.1.5.8 For tools calibrated in-house by the company staff, the results and standards used shall be recorded on the **Calibration Schedule** (FORM 20*) and shall include any standards and/or procedures uses.
- 7.1.5.9 Calibrated devices will be identified with a calibration sticker that includes the current calibration status, calibration due date, and device identification number. Where the device cannot accommodate a calibration sticker due to size or frequency of use, the device shall be numbered and the Immediate Supervisor shall keep a log of those devices and their status. Employees may only use devices for acceptance testing that are current on calibration.
- 7.1.5.10 Employees must submit expired tools to the Immediate Supervisor for recalibration and recall such expired tools for recalibration.
- 7.1.5.11 Devices in use for noncritical measurements are to be marked REFERENCE ONLY.
- 7.5.1.12 Any device failing to meet calibration standards will immediately be taken out of service. The device may then be destroyed or sent out for repair. Repaired devices must be calibrated before being returned to service.
- 7.1.5.12 When a measuring device is found to be out of tolerance, and/or reported on the calibration certificate of having been found as “defective” or “out of tolerance” by the third party provider, The Office Manager shall be notified immediately. The Office Manager or Administrator must oversee a study to determine the impact of the out-of-tolerance device on product shipped; if deemed necessary, a recall may be initiated. The customer possessing the material in question is immediately notified of the problem. This study the results shall be recorded and placed in the calibration file.
- 7.1.5.13 Measuring & monitoring devices must be stored and handled in a manner that does not invalidate their calibration or ability to function without error.
- 7.1.5.14 VERIFICATION**
- 7.1.5.14.1 Where a device cannot be calibrated against traceable standards, it must be verified against some known-good object or method. This may be done by comparing the part against another part or tool which has been evaluated and validated and proven as acceptable.
- 7.1.5.14.2 Known-good objects must be protected so their status is not altered, either by physical damage or deterioration.
- 7.1.5.14.3 Known-good methods must be documented in procedures, with a rationale for their acceptability being documented.

7.1.6 Organizational knowledge

The company also determines the knowledge necessary for the operation of its processes and to achieve conformity of products and services. This may include knowledge and information obtained from:

- a) internal sources, such as lessons learned, feedback from subject matter experts, and/or intellectual property;
- b) external sources such as standards, academia, conferences, and/or information gathered from customers or suppliers.

This knowledge shall be maintained, and made available to the extent necessary.

When addressing changing needs and trends, TLS ENGINEERS AND PROJECT MANAGERS shall consider its current knowledge and determine how to acquire or access the necessary additional knowledge.

7.2 Competence

7.2.1 Subsequent training, including on-the-job training (“OJT”) is performed to ensure each employee is knowledgeable in their job function and their role within the company.

7.2.2 The **Employee Training Needs (FORM 07*)** lists applicable task-specific requirements for some positions; for employees hired in these positions, the Immediate Supervisor will update this matrix as training is conducted for these tasks.

7.2.3 On the **Employee Training Needs (FORM 07*)**, an employee is considered qualified if the task is marked off as completed; the employee may train others if this is indicated.

7.2.4 Other training is recorded on individual employee training records. Such records should indicate the following:

- Type of training
- Method of training
- Duration of training
- Date of completion
- Location of training
- The name of the instructor or individual who conducted the training

7.2.5 Personnel undergoing third party training and receiving a certificate of training by the training provider may retain this certificate as a training record in lieu of an employee training record.

7.2.6 All training records are to be maintained in the employee training file. Copies may be given to the employee for their personal retention or posting in their work areas.

7.2.7 TRAINING EVALUATION

- 7.2.7.1 Management periodically reviews and re-certifies employees for operations where recertification is required or beneficial. Annual personnel evaluations are performed to assess effectiveness of training. Employee evaluations shall include goals for continual improvement of the employee's competency and abilities, as well as their growth within the company, as applicable.
- 7.2.7.2 Where appropriate, some training programs will include a test or other means of verifying the effectiveness of training. In such cases, work instructions will define the minimum passing grade, and actions to be taken when an employee does not pass.
- 7.2.7.3 If problems, weaknesses or concerns are discovered during an evaluation or otherwise reported for any other reason (including customer complaints), a **[CAR Form 02*]** form shall be completed to identify the weaknesses and develop a plan of improvement for that employee.
- 7.2.7.4 For some tasks, tests may be developed and given to assess training effectiveness. In such cases, procedures shall define the method for giving the test and the passing grades / criteria required. The procedures shall also define the actions to take when an employee fails such a test.
- 7.2.7.5** The Internal Auditing process (see **[Internal Auditing paragraph 9.2*]**) shall evaluate the effectiveness of training and its effects on product and service quality; in addition, the review of training effectiveness shall be a permanent feature of Management Review (**see Management Review paragraph 9.3**)

7.3 Awareness

- 7.3.1 The company ensures that all employees are aware of the Quality Policy statement, relevant targets and objectives particular to their area/ process, the consequences of poor work performance as well as their contribution to maintaining an effective QMS.
- 7.3.2 This is further built on in the regular staff meetings and displayed documentation around the facility.

7.4 Communication

The Management Team of TLS ENGINEERS AND PROJECT MANAGERS ensures that internal communication takes place regarding the effectiveness of the management system. Internal communication methods include :

- a) use of corrective and preventive action/ risk management processes to report nonconformities or suggestions for improvement
- b) use of the results of analysis of data
- c) meetings (periodic, scheduled and/or unscheduled) to discuss aspects of the QMS
- d) use of the results of the internal audit process
- e) regular company meetings with all employees

- f) internal emails
- g) The Office Manager's "open door" policy which allows any employee access to him for discussions on improving the quality system

7.5 Documented Information

7.5.1 Creation of Documents

- Documents are created by an appropriate subject matter expert.
- All internal documents are created as soft files (MS Word®, MS Excel®, etc.); it is recommended that files of a similar type follow the format of other documents in that type.
- Draft versions must then be sent to the appropriate approver(s) for review and approval.
- Original releases of documents are given a revision indicator of "A".

7.5.1.1 All Project Operational documentation follows the following structure and order:

Each document must have a serial number per the following format:

TLS16-01TP-A-INC-REP-001-01

The following is a breakdown of the serial number:

TLS16 - **01TP** - **A** - **INC** - **REP** - **001** - **01**

- **TLS** = Company / brand
- **16** = Calendar year of project award
- **01** = project number in the particular calendar year. This resets back to 01 every beginning of a new year. It is based on the unlikelihood of being awarded more than 99 projects per calendar year.
- **TP** = Responsible company department / project type based on major component of scope of work; hence:
 - **PM** = Project/Programme management
 - **TP** = Transportation
 - **WS** = Water and sanitation
 - **ST** = Structural
 - **MD** = Multi-disciplinary projects
- **A** = Work Package. Should a project be implemented in phase; next phase will be B, C, D etc.
- **INC** = Project stage and in line with filing system; hence:

- INC = **INC**eption
- PRD = **PR**eliminary **D**esign stage
- DED = **DE**tailed **D**esign stage
- DOC = **DOC**umentation
- TEP = **TE**ndering **P**rocess
- COS = **CO**nstruction **S**upervision
- CLO = **CL**ose **O**ut

- **REP** = file type; hence:
 - COR = correspondence
 - DWG = drawing
 - REP = report
 - RFQ
 - IPC

- **001** = Document type number. It starts at 001 for each document type; at each project stage; for each new project.
- **01** = Revision number based on external submissions e.g. to Client

7.5.2 Review and Approval

- The **Quality Policy Manual [POL 01*]** and all QMS documentation may only be approved by the Managing Director.
- Draft files may be sent to the approver(s) via hardcopy or e-mail.
- The reviewer will resolve any issues with the original author to achieve a satisfactory document.
- The reviewer will indicate approval of the document by location ie. inclusion into the QMS by the Office Manager who is the person responsible for the maintenance of the QMS and Document Approver. Approval of such documents must be by physical / handwritten signature.
- The Office Manager maintains a file of most current hardcopy versions of documents. Any previous hardcopies in this binder are to be discarded or filed in an obsolete document file.
- The Administrator will maintain a computer folder, on the company server, for the latest soft copy versions of document. This file set must be on a server subject to data backup. The Administrator will place new or revised documents into that folder, setting each file's permission to READ ONLY, or converting the released versions to a non-editable file format.
- Any previous soft versions are then moved to a separate folder identified for obsolete documents which are kept for historical purposes.
- The document transmittal of official released documents shall act as a "master list" of documents, indicating the current versions of all documents. No other master list is required.

7.5.3 Distribution of Documents

- Electronic Controlled documents will be available via the intranet for all employees. Employees receive training on the file and folder locations for most current documents.
- For hardcopy document distribution in use, the Administrator will maintain a list of where controlled hardcopy documents are to be distributed. The Immediate Supervisor will be responsible for distributing updated copies of such controlled hardcopies to proper locations. Controlled hardcopies shall be stamped **CONTROLLED** in red ink on the first page, to distinguish them from uncontrolled documents or photocopies.
- Controlled hardcopies may not be altered or modified by users, and must remain legible and readily identifiable. This includes hand mark-ups by unauthorized personnel. The only exception to this rule is for Forms (see below.)
- Controlled hardcopies may not be photocopied, unless for the purposes of sending to a recipient who is authorized to receive uncontrolled versions of the company documents (i.e. a vendor or customer). The only exception to this rule is for Forms (see below.)

7.5.4 Re-Evaluation

- Documents ie. Forms within the QMS and POL 01* must be reviewed by the original author or the Office Manager every three years.
- The Office Manager will ensure re-evaluation is conducted and that documents are updated if required. The Office Manager will maintain a record of document re-evaluations, to identify when documents are due for re-evaluation.
- If a document is determined to require updating, the changes shall be made and a new version issued per the rules below.
- If a document is determined not to require updating, no action on the document is necessary.

7.5.5 Revising Documents

- Changes to documents go through the same steps as original issue, except that their revision level is advanced upon approval.
- Only authorized personnel may change documents, although any employee can request a change via the Office Manager, or by filing a [**CAR Form 002***]. Wherever possible, the document shall include a change history table within its text. Forms do not require a revision history table.
- Any changes to documents that require customer or regulatory authority review and approval shall be submitted accordingly, and not implemented until such approval is obtained.
- If document changes require customer or regulatory approval prior to implementation, this will be obtained in writing. When processes are changed, the appropriate documentation shall be updated, with a change history updated to reflect the reason for the change.

- Re-evaluation, inspection (where applicable) and internal auditing will confirm the effectiveness of changes.

7.5.6 Controlling Documents of External Origin

- For external documents such as standards or third party specifications which are referenced in a customer purchase order or contract, these documents may be maintained without control, provided that the revision of the document on file matches the revision indicated by the customer. Where the customer provides no revision number, the latest (most recent) revision shall be assumed.
- For external documents such as standards or third party specifications which are not referenced in a customer purchase order or contract, these must be controlled. Such control requires that the Administrator or Technician obtain the latest version of the document, and maintain it on the company computer (for electronic versions) or in a binder of controlled external documents (for hardcopies). Like other controlled documents, these may not be edited or copied.
- Third party specifications and sketches, including those of the customer, are controlled per the management requirements set forth in the TLS ENGINEERS AND PROJECT MANAGERS ***[Quality Manual POL 01*]***. These are saved into customer specific folders on the computer.
- External documents for non-critical use, such as user manuals, reference books, marketing materials, and supplier documents are not controlled.

7.5.7 Forms

- Forms are a special kind of document that may be photocopied as needed. Furthermore, forms do not require an approval signature; process managers are responsible for creating and using forms in their areas.
- A softcopy of each approved form must be sent to the Office Manager for inclusion in the document control area on the intranet, and for inclusion in the QMS Hardcopy manual.

7.5.8 Control of Records

7.5.8.1 Identification of Records

- The company maintains records that are needed to provide evidence of conformity to requirements and of the effective operation of the quality management system. The records are identified in the table below, along with the controls for each record type.

7.5.8.2 Storage of Records

- Storage methods are indicated in the table below, for each record type.
- Softcopy records and data are stored on the company server or user computers; in all cases, computers are subject to backup.
- Hardcopy records are stored in suitable cabinets that prevent damage or deterioration.

7.5.8.3 Retention, Retrieval & Disposition of Records

- Records shall be maintained a minimum of 5 years unless otherwise indicated below or as defined by customer, statutory or regulatory requirements.
- Training records and other records pertaining to employees must be retained at least one year beyond that employee's end of employment.
- Records that are discarded after retention shall be permanently destroyed.
- When archived records are stored offsite or in another location, these shall be stored in a controlled environment that also protects them from damage or deterioration.
- As required by customer contract or regulatory requirements, quality records shall be made readily available for review by the requesting authority. Such review is limited to those records applicable to the customer or regulatory authority, and shall not allow for the accidental or intentional release of confidential information to an unauthorized party.

7.5.8.4 Protection of Records

- The listed "controller" shown in the table below must ensure their assigned records remain legible, readily identifiable and retrievable.
- In order to ensure protection of records, electronic records are subject to periodic backups, with the backup stored on a separate server. Back- up is performed weekly.
- The Office Manager is responsible for backup of data.
- Quality records data stored on individuals' computers must either be backed up through the server (as above), or backed up manually. The individual users of such data are responsible when data is not backed up.
- Entries made by hand on hardcopy forms shall be made in ink.

QUALITY RECORDS MATRIX

Required Record or Document Type	Record	Responsible Controller	Type of Record	Storage Location	Discard Method
Management Review Records	Management Review Meeting Minutes	Administrator	Softcopy	Computer	Secure delete
	Customer Feedback/Satisfaction records	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
Training Records	Training Needs	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
	Employee Training Records	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
Records of realization process meeting requirements	Preventive Maintenance Records	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
	Letters of Appointment	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
	Purchase Orders	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
Contract Review Records	Customer RFQs	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
	Quotes	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
	Customer POs	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
	Customer specifications	Office Manager	Hardcopy	Admin./ Management Office	Shred and discard
	Approved Suppliers list	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
	Supplier evaluation records	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
Calibration Records	Calibration Schedule	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
	Calibration Records	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
	Certificates of Calibration	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
	Nonconforming Product Dispositions	Office Manager	Hardcopy	Admin./ Management Office	Shred and discard
Corrective & Preventive Actions	CARs	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
	CAR Log	Administrator	Hardcopy	Admin./ Management Office	Shred and discard
Internal Audit records	Internal audit Reports	Office Manager	Hardcopy	Admin./ Management Office	Shred and discard
	Internal Audit Schedule	Office Manager	Hardcopy	Admin./ Management Office	Shred and discard

Clause 8: Operation

Refer to ISO 9001:2015 QMS clause 8 requirements

8.1 Operational Planning and Control

TLS ENGINEERS AND PROJECT MANAGERS plans and develops the processes needed for product realization. Planning of product realization is consistent with the requirements of the other processes of the management system. Such planning considers the information related to the context of the organization (see section 2.0 above), current resources and capabilities, as well as product and service requirements.

8.2 Requirements for Products and Services including Project Inception report stage

8.2.1 Customer Communication

TLS ENGINEERS AND PROJECT MANAGERS has implemented effective communication with customers in relation to:

- a) providing information relating to products and services;
- b) handling enquiries, contracts or orders, including changes;
- c) obtaining customer feedback relating to products and services, including customer complaints;
- d) handling or controlling customer property;
- e) establishing specific requirements for contingency actions, when relevant.

8.2.2 Determining the requirements for Products and Services

Once requirements are captured, TLS ENGINEERS AND PROJECT MANAGERS reviews the requirements prior to its commitment to supply the Water and Sanitation Engineering, Transportation Engineering, Structural Engineering, Solid Waste Disposal and Project Construction Management.

This review ensures that:

- a) product requirements are defined,
- b) contract or order requirements differing from those previously expressed are resolved,
- c) the organization has the ability to meet the defined requirements, and/or the claims for the products and services it offers, and
- d) risks have been identified and considered.

These activities are managed by the Administrator who captures customer orders via Purchase Orders (P.O.), email requests and accounts. Such orders are captured on the computer system and records of such is maintained by the outsourced Accountant.

8.2.3 Review of the requirements for Products and Services

During the intake of new business, TLS ENGINEERS AND PROJECT MANAGERS captures:

- a) requirements specified by the customer, including the requirements for delivery and post-delivery activities;

- b) requirements not stated by the customer but necessary for specified or intended use, where known
- c) statutory and regulatory requirements related to the product;
- d) any additional requirements determined by TLS ENGINEERS AND PROJECT MANAGERS, is captured on the scope of work/ proposal approved by the Client.

8.2.4 Changes to requirements for Products and Services

- 8.2.4.1 Where customer requirements cause a change to the scope of work, this is planned for by the Office Manager and the Process Manager's by redeveloping the design/ drawing or re-establishing the data for input into the report or drawing.
- 8.2.4.2 Where changes are required to the performance of the service, a documented instruction is required from the Customer. This will affect the technical parameters and fee proposal accordingly.

8.3 Design and Development

8.3.1 Design and Development

Refer to Clause 8.3 of the ISO 9001:2015 QMS Standard

- 8.3.1 TLS ENGINEERS AND PROJECT MANAGERS is a service provider involved in consulting on civil engineering and hydrological engineering services. This includes the Preliminary Design Stage to the Project Close- out report stage.
- 8.3.2 The receipt of drawings from the client or representative is received via various media.
- 8.3.3 The **Design and Development Planning** of any given project is performed by the Contract Engineer with a Technician who develops the preliminary plans.
- 8.3.4 TLS CIVILS AND PROJECT MANAGERS is a service provider involved in consulting on civil engineering, construction project management, Construction Management, Water and Sanitation Engineering, Feasibility Studies and Solid Waste Management, Master Plans, Municipal Infrastructure and structural engineering consultants to the government, parastatal, N.G.O. and Industry.
- 8.3.5 The **Design and Development Planning** of the strategic products are performed by the Process Manager who develops the preliminary plans. Once approved, the Technician submits the plan to the other tiers of staff for refinement, research and detailing. The above forms the **Design and Development Input**.
- 8.3.6 Design and Development Outputs are the detailed drawings and / or reports, dependent on the nature of the discipline, which is then reviewed by the Office Manager and the Process Manager and should any amendments be required, these will be referred back to the non-managerial professionals for further refinement / amendments.
- 8.3.7 The above process is repeated until approved by the Pr ENG / Pr TECH ENG.

- 8.3.8** The approved drawing / report is handed over to the client.
- 8.3.9** In order for the integrity of the plan to be upheld once at site, the client appointed Project Manager (*if one is available*) will oversee the implementation of the drawing/ application of the report from TLS CIVILS AND PROJECT MANAGERS. Specifically in the case of the Structural/ Civil Engineering service/ s, once the structure has been verified against the drawing, the Certificate of Stability is issued. The **Design and Development Verification Process** is now complete.
- 8.3.10** Any **Design and Development Changes** is completed prior to the issue of the drawing / report to the client ie. within the office of TLS CIVILS AND PROJECT MANAGERS. Any subsequent changes to the specification will result in the drawing / report being refined according to further agreed specifications.
- 8.3.11** The above process is repeated until approved by the Process Manager. Recommendations are made by the Process Manager including a control measure/ s.
- 8.3.12** The approved drawing / report is handed over to the client.
- 8.3.13** In order for the integrity of the plan to be upheld once at site, the client appointed Project Manager (*if one is available*) will oversee the implementation of the drawing/ application of the report from TLS ENGINEERS AND PROJECT MANAGERS along with the staff of TLS ENGINEERS AND PROJECT MANAGERS, if required. The **Design and Development Verification Process** is now complete.
- 8.3.14** Any **Design and Development Changes** is completed prior to the issue of the drawing / report to the client ie. within the office of TLS ENGINEERS AND PROJECT MANAGERS. Any subsequent changes to the specification will result in the drawing / report being refined according to further agreed specifications. Where changes are required by the client, previous reports are made obsolete with the revision changing on the new reports/ drawings.
- 8.3.15** All drawings that are accepted by the Process Manager, has the Office Manager and/ or the Process Manager's signature as the validating authority. All drawings 'PRELIMINARY' ; 'AS BUILT' and 'FOR CONSTRUCTION' are labelled as such.
- 8.3.16** The Drawing Approval is placed on the Approved Drawing prior to issue to the client. This is signed and dated by the Office Manager and/ or Process Manager who are Professional Engineers.

8.4 Control of externally provided Processes, Products and Services / Purchasing

8.4.1 General

TLS ENGINEERS AND PROJECT MANAGERS ensures that purchased Product or Services conform to specified purchase requirements. The type and extent of control applied to the supplier and the purchased product is dependent on the effect on subsequent product realization or the final product.

TLS ENGINEERS AND PROJECT MANAGERS evaluates and selects suppliers based on their ability to supply product and service in accordance with the organization's requirements. Criteria for selection, evaluation and re-evaluation are established.

Purchases are made via the release of formal purchase orders and/or contracts which clearly describe what is being purchased. Received Products or Services are then verified against requirements to ensure satisfaction of requirements. Suppliers who do not providing conformation of Products or Services may be requested to conduct formal corrective action.

“Critical materials or services” are those materials or services which are incorporated into final product, or which have a direct impact on the company’s product or quality system, or which are otherwise deemed as critical by management.

Office supplies, administrative consumables, furniture, etc. are not critical materials, and therefore not subject to this procedure.

TLS ENGINEERS AND PROJECT MANAGERS understands it is responsible for the conformity of all products purchased from suppliers, including product from sources defined by the customer.

These activities is further defined below:

8.4.2 Type and Extent of Control including supplier evaluation and selection

8.4.2.1 The Administrator evaluates new suppliers. As such, he has both the responsibility and authority to approve and disapprove suppliers.

8.4.2.2 New suppliers are evaluated in accordance with the following criteria:

- Pricing
- Availability
- Reputation / references
- Location
- Shipping terms and capabilities
- Quality system certification status (ISO 9001 certification preferred)
- Quality of samples received (incl. testing results)
- On-site audit results
- Telephone interview results
- Customer mandate
- Sole source / OEM status

8.4.2.3 Where a customer mandates a special process source, both TLS ENGINEERS AND PROJECT MANAGERS and any suppliers **must** use the required supplier; this usage may override TLS ENGINEERS AND PROJECT MANAGERS’s approval status rules.

8.4.2.4 In some cases a formal risk assessment may be conducted as part of the evaluation and selection of a potential supplier, or in order to determine if a problematic supplier should be retained; see **[Risk Management paragraph 4.4.5]**.

8.4.2.5 The Administrator will maintain an Approved Supplier List which lists all evaluated and approved suppliers, their approval status.

- 8.4.2.6 Suppliers who meet any of the evaluation criteria, in the judgment of the person conducting the evaluation, may then be entered into the purchasing system and items may be purchased. However, the supplier is entered into the **Approved Supplier List (FORM 01*)** on a CONDITIONAL basis, pending inspection or review of products or services rendered.
- 8.4.2.7 Upon successful receipt or review of products or services, the Office Manager may then advance the supplier's status to APPROVED.
- 8.4.2.8 If the results of review of product or service received are insufficient or otherwise lacking, the buyer may then elect to change the supplier's status to DISAPPROVED, or to leave it at CONDITIONAL until further orders are received and reviewed.
- 8.4.2.9 A supplier may also be listed as RESTRICTED, where certain purchasing restrictions are placed on the supplier. This may be useful to limit what products may be purchased from a supplier, or to place other conditions.
- 8.4.2.10 The **Approved Supplier List** indicates the supplier, location, approval status (Approved, Conditional, Disapproved, Restricted), and the scope of approval (typically commodity type or product family). Re-approval of suppliers is continual and ongoing based on the suppliers ability to meet the criteria of paragraph 3.2.2. For Restricted status, a note of the restriction must also be included.
- 8.4.2.11 Suppliers used for at least six months prior to the 1 September 2016, have been grandfathered into the system as Approved, provided they have no outstanding quality issues on record, and only upon the decision by the Office Manager to do so.
- 8.4.2.12 Verification of purchased product is carried out at the point of receipt of the product or service.
- 8.4.2.13 Supplier performance is monitored on the basis of the quality of items received. For active suppliers, this activity acts as a continuous re-evaluation of the supplier, with the receipt of every purchased item or service.
- 8.4.2.14 During periodic Management Review meetings, supplier performance is reported to top management. This periodic activity also consists of secondary re-evaluation of suppliers.

8.4.3 Information for External Providers

- 8.4.3.1 In order to purchase critical materials or items, an employee will submit a verbal requisition to the Administrator. This request must be approved by the Office Manager and/ or Managing Director.
- 8.4.3.2 If the requestor has indicated a preferred supplier, Purchasing will ensure the supplier has been approved in accordance with the section above; if the proposed supplier is not approved, Purchasing will either use an approved supplier, or contact the requestor and resolve the issue.
- 8.4.3.3 For some purchases, Purchasing may elect to submit competitive requests for quotes from potential suppliers before making a purchase.
- 8.4.3.4 Purchases may only be made using APPROVED suppliers.
- 8.4.3.5 If a new supplier is to be used, a CONDITIONAL supplier may be used.

- 8.4.3.6 The Administrator maintains a system of **Supplier Corrective Action Requests (FORM 18*)**, or SCARs. This allows for the flow down of corrective action requirements to a supplier when a supplier is found to be responsible for a particular nonconformity.
- 8.4.3.7 The Administrator may submit a **SCAR Form** to a supplier that has shown quality problems or the potential for nonconformity.
- 8.4.3.8 **SCARs** are routed to the supplier's representative for root cause analysis and action planning.
- 8.4.3.9 Failure of a supplier to respond to a **SCAR**, or to respond with an insufficient action plan, may mean adjustment in that supplier's evaluation standing.

8.5 Provision of Products or Services

8.5.1 Control of Production and Service Provision

To control its provision of the supply of Water and Sanitation Engineering, Transportation Engineering, Structural Engineering, Solid Waste Disposal and Project Construction Management, TLS ENGINEERS AND PROJECT MANAGERS considers, as applicable, the following:

Key operational processes exist within TLS CIVILS AND PROJECT MANAGERS. These are:-

- *Structural Engineering consulting*
- *Construction Project Management*
- *Construction Management*
- *Water and Sanitation Engineering*
- *Feasibility Studies and Solid Waste Management*
- *Master Plans*
- *Municipal Infrastructure and*
- *Civil Engineering consulting*

As consulting engineers, the task of TLS CIVILS AND PROJECT MANAGERS is to provide the client with professional advice in order to satisfy a project brief. All processes in the execution of the drawing design or professional engineer's report is controlled by experienced personnel and further verified by a Immediate Supervisor .

TLS ENGINEERS AND PROJECT MANAGERS utilizes some "special processes" ie. Laboratory tests/ scope where the result of the process cannot be verified by subsequent monitoring or measurement. The special processes in use and the methods of validation of each are defined in various procedures/ test methods.

8.5.2 Identification and Traceability

Where appropriate, TLS ENGINEERS AND PROJECT MANAGERS identifies its processes and products by suitable means. Such identification includes the status of the inspection of the product with respect to monitoring and measurement requirements with a unique batch number. Unless otherwise indicated as nonconforming, pending inspection or disposition, or some other similar identifier, all Products shall be considered conforming and suitable for use.

If unique traceability is required by contract, regulatory, or other established requirement, TLS

ENGINEERS AND PROJECT MANAGERS controls and records the unique identification of the product.

All project specific documentation follows the filing system as described in FORM 27*

The process below defines these methods in detail:

8.5.2.1 PRODUCT

8.5.2.1.1 There are many ways to identify product; this procedure presents the most typical, acceptable methods.

8.5.2.1.2 Identification typically includes the company letterhead and title bar on the drawing

8.5.2.1.4 Where unique serialization is required for traceability, the drawings or reports shall be identified with a serial number in accordance with customer requirements, or in a manner developed to ensure that no two drawings are given the same number.

8.5.3 Property Belonging to Customers or External Providers/ Third Parties

8.5.3.1 Currently, TLS ENGINEERS AND PROJECT MANAGERS does receive documents that are customer owned or supplied.

8.5.3.2 TLS ENGINEERS AND PROJECT MANAGERS will therefore exercise care with customer or supplier property while it is under the organization's control or being used by the organization. Upon receipt, such property is identified, verified, protected and safeguarded. If any such property is lost, damaged or otherwise found to be unsuitable for use, this is reported to the customer or supplier and records maintained.

8.5.3.3 For customer intellectual property, including customer furnished data used for design and inspection, this is identified by customer and maintained and preserved to prevent accidental loss, damage or inappropriate use.

8.5.3.4 For "hard" property (physical items) these are identified with the customer name and any applicable identifiers. Where deemed appropriate, such property may be physically secured in locked, limited-access areas.

8.5.3.5 If the property requires calibration and/or preventive maintenance, the responsibilities and methods for such will be negotiated with the customer and documented.

8.5.3.6 For "soft" property (intellectual property, documentation, software, etc.) these are maintained to ensure ongoing legibility and good condition.

8.5.3.7 Such intellectual property is stored on the server and identified by the customer name and protected from accidental deletion or alteration, as well as protected from unauthorized access.

8.5.3.8 Electronic versions of customer-provided intellectual property are maintained on secure, backed-up company servers.

8.5.3.9 In all cases, damage or loss of customer property will be promptly reported to the customer for disposition or instructions.

8.5.4 Preservation

TLS ENGINEERS AND PROJECT MANAGERS preserves conformity of product or other process outputs during internal processing and delivery. This preservation includes identification, handling, packaging, storage, and protection. Preservation also applies to the constituent parts of a product.

8.5.5 Post-Delivery Activities

As applicable, TLS ENGINEERS AND PROJECT MANAGERS conducts the following activities which are considered “post-delivery activities”:

- Maintenance of the developed documentation following record controls as described in this QMS manual
- As-built drawing, Close-out Report, Customer feedback, Final financial statements, professional indemnities, etc.

Post-delivery activities are conducted in compliance with the management system defined herein.

8.5.6 Control of Changes

TLS ENGINEERS AND PROJECT MANAGERS reviews and controls both planned and unplanned changes to processes to the extent necessary to ensure continuing conformity with all requirements.

Process change management is defined below:

8.5.6.1 CHANGES TO PROCESSES

8.5.6.1.1 The methods for changing process outputs are discussed in paragraph 8.3

8.5.6.2 CHANGES TO PROCESS OUTPUTS

8.5.6.2.1 The methods for changing process outputs are discussed in paragraph 8.3 and inclusive of quantifying and payment for the change.

8.5.6.3 CHANGES TO DOCUMENTATION

8.5.6.3.1 Management system documents undergo changes when there is a need to revise them.

8.5.6.3.2 Changes to documentation is described in paragraph 7.5 above.

8.6 Release of Products and Services

8.6.1 Acceptance criteria for transmittals and for mandatory specific customer approvals release are defined in this manual. Reviews, and inspections are conducted at appropriate stages to verify that the product and service requirements have been met. This is done before products are released or services are delivered.

8.6.2 Each process utilizes different methods for measuring and releasing products. These methods are defined in clause 8.3.

8.7 Control of Nonconforming Outputs

TLS ENGINEERS AND PROJECT MANAGERS ensures that products packaged (drawings and reports) or other process outputs that do not conform to their requirements are identified and controlled to prevent their unintended use or delivery.

The following definitions are important for a clear understanding of this procedure:

- **“Nonconforming product”** is any product, at any point along its life cycle, which is found to not conform to requirements. These requirements may be customer requirements, design requirements, statutory/regulatory requirements, or any other requirement deemed by TLS ENGINEERS AND PROJECT MANAGERS. “Nonconforming Product” is referred to herein as “NCP”.
- **“Rework”**. Pertains to the repeat of the processes offered by TLS ENGINEERS AND PROJECT MANAGERS
- **“Repair”**. Any work done on NCP which affects the original design is considered “repair” and is subject to the special controls defined in section 9.3 below.

While nonconforming product is typically found during an inspection or test, it can be discovered at any time, by any person or organization, including the customer, regulatory authorities, etc.

The controls for such non-conformances are defined below:

8.7.1 Discovery and Reporting of Non- Conforming Product (N.C.P.)

8.7.1.1 When NCP is discovered, the member of staff must report this immediately to the Office Manager.

8.7.1.2 The Office Manager will review the problem to confirm the nonconformity. If the nonconformity is confirmed, the product will be identified clearly to distinguish it from acceptable product, or structure awaiting inspection or test.

8.7.1.3 The Office Manager will determine if any of the following dispositions may be required:

- Accept as is, with customer waiver
- Accept as is, with regulatory approval
- Repair
- Scrap

8.7.2 Disposition Authority

8.7.2.1 Disposition authority is granted to the following personnel:

- Managing Director
- Office Manager
- Process Manager

8.7.2.2 The selection of these staff members has been made by top management, and is based on their role in the company, previous experience, and knowledge of TLS ENGINEERS AND PROJECT MANAGERS's processes and products.

8.7.3 NONCONFORMANCE DATA ANALYSIS & TRENDING

8.7.3.1 The Office Manager will present product quality data regularly to top management as part of periodic Management Review Meetings.

Clause 9: Performance Evaluation

Refer to ISO 9001:2015 QMS clause 9 requirements

9.1 Monitoring, measurement and evaluation

9.1.1 General

In order for the company to monitor, measure, analyze and improve processes, measurement, analysis and improvement processes occurs during reviews such as management reviews, non conformance/ corrective actions/ incidents and preventive action reviews, supplier defaults, internal and external audits, customer complaints, meetings with customers and customer surveys where data is analyzed and assessments made to introduce systems to demonstrate conformity of the service and to continually improve the effectiveness of the QMS.

9.1.2 Customer satisfaction

9.1.2.1 An annual Customer Satisfaction/ Feedback survey (FORM 04*) is conducted as well as customer meetings where the Managing Director, Office Manager and the Process Manager meet with customers, in order to gain feedback from customers/ clients as to how the company can improve its business/ operating processes. The analysis of such is reported in the Management Review as well as in the regular sales/ staff meetings.

9.1.2.2 As one of the measurements of the performance of the management system, TLS ENGINEERS AND PROJECT MANAGERS monitors information relating to customer perception as to whether the organization has met customer requirements. The methods for obtaining and using this information include:

- recording customer complaints
- product rejections
- repeat orders
- obtain customer feedback informally from certain customers
- submittal of customer satisfaction surveys

9.1.2.3 The corrective and preventive action system shall be used to develop and implement plans for customer satisfaction improvement that address deficiencies identified by these evaluations, and assess the effectiveness of the results.

9.1.3 Analysis and evaluation

9.1.3.1 Monitoring and Measurement of Processes

9.1.3.1.1 All processes as listed in paragraph 4.3 above are monitored for adequacy and conformance in order to achieve customer requirements. These objectives / targets can be changed should these objectives / targets be deemed unrealistic or unsuitable or achieved.

9.1.3.1.2 This will be reported during regular staff meetings and Management Review meetings. Should it be deemed that planned results to achieve product conformity cannot be achieved, A CAR form must be raised and investigated.

9.1.3.1.3 Safety of the site in terms of accidents and incidents are also viewed as a measure of process performance as employee safety is of paramount importance.

9.1.3.1.4 Further analysis of effective planning, addressed risks and opportunities, performance of external providers and any need for improvements to the QMS

9.1.3.2 Monitoring and Measurement of Product

9.1.3.2.1 Customer Complaints, customer survey results and service rejections can be considered as a criteria to measure product/ service conformity. However, service rejections result in a CAR form being raised and rework occurring.

9.1.3.2.2 Should any customer complaints be received, these must be handled as described below.

9.1.3.2.3 All in- process activities are monitored by the Office Manager thereby ensuring that the job requirements are fulfilled and safety of staff and equipment is upheld. All inspection activities are recorded on various documentation for internal quality control results.

9.2 Internal Audit

- **Audit** – systematic and formal comparison of documentation and practice against requirements, performed for the purpose of finding areas of nonconformity or opportunities for improvement.
- **Evidence** – data or examples which can be proven true and verified for the purposes of proving an audit finding.
- **Finding** – any summary of audit evidence; findings may be positive (reports of compliance) or negative (reports of nonconformity)
- **Major Nonconformity** – a nonconformity that shows an ISO 9001 clause or other requirement has not been implemented at all, or has been implemented in such a way that the requirements are not met at all.
- **Minor Nonconformity** – a single instance, or small set of single instances, that show a requirement has not been met. At the Lead Auditor's discretion, a large number of related Minor Nonconformities may instead be filed as a single Major Nonconformity.
- **Nonconformity / noncompliance** – any instance where practice or evidence does not comply with requirements.

9.2.1 CONDUCTING INTERNAL QMS AUDITS

- 9.2.1.1 Internal quality audits are conducted to ensure ongoing compliance with requirements of the QMS standards, company's policies and procedures. This is accomplished by auditing against all important processes and areas, and by applying all applicable sections of the standard. Audit requirements include those of ISO 9001, the company's quality system documentation, as well as requirements of customers or regulatory authorities, as applicable.
- 9.2.1.2 Audits are conducted by process, and each process must be audited at least once annually.
- 9.2.1.3 The applicable ISO 9001 standard clauses pertaining to each process are defined in APPENDIX A below. These are the minimum clauses which must be audited for each process; an auditor may audit any clause of the applicable standard, and writing findings against them, depending on how the audit unfolds.
- 9.2.1.4 Additional processes of other activities or facilities, outside of the process model, may also be scheduled. For example, this may include safety audits, configuration management audits, etc. In such cases, unique audit forms may be developed for such non-process related audits.
- 9.2.1.5 The Office Manager plans audits according to need, management decision, or customer requirements, and assigns a Lead Auditor for each, as well as any supporting auditor team members. Scheduling is recorded in the Internal Audit Schedule portion of the **Internal Audit Log**.
- 9.2.1.6 Auditors are independent of the area being audited; TLS ENGINEERS AND PROJECT MANAGERS may therefore use approved third-party contract auditors for its internal audit program; the requirements for third party auditors are defined in this policy. Employees selected as internal auditors will have attended at a minimum a 4 hour internal auditor training program and at least 8 hours of shadow auditing with a previously qualified internal auditor, or third party auditor.
- 9.2.1.7 Using the **Internal Audit Report** as a basic checklist, the Lead Auditor will plan the scheduled audit with the appropriate departments and with any other audit team members. The audit team will determine additional checklist items or requirements to verify, and add these to the checklist portion of the **Internal Audit Report**.
- 9.2.1.8 Auditors will then conduct the audit by following the steps defined on the **Internal Audit Report**. These are:
- **Step One: Audit Planning** – definition of the scope of the audit, dates of audit, auditors, applicable clauses of affected standards, and documents to review.
 - **Step Two: Document Review** – a comparison of the quality system documentation against the requirements of the applicable standard.
 - **Step Three: Auditing** – comparison of actual practice vs. the requirements of both the company QMS documentation and the applicable standards.
 - **Step Four: Verifying Effectiveness of the Process** – general questions aimed at verifying that the process being audited is effective and not prone to generating nonconformities.

- **Step Five: Summarize Findings** – a detailed list of the negative findings to be entered into the CAR system.
 - **Step Six: Review of Report** – a review by the Lead Auditor of all findings and evidence to ensure the audit report is complete, clear, objective, and provides traceable objective evidence.
- 9.2.1.9 Auditing shall be performed by obtaining objective evidence to support each requirement, or indicate where non-conformances are found. All findings are recorded on the **Internal Audit Report**. The internal auditor submits CAR Form as necessary to address the non-conformances recorded on the report.
- 9.2.1.10 When recording nonconformities, each negative finding must include three elements:
- **Indication of the Requirement** – the document or clause of the applicable standard which is thought to have been violated.
 - **Objective Evidence** – traceable indication of the evidence found which supports the claim of a nonconformity (e.g.: documents, products examined, interview results). In all cases, objective evidence must be recorded in sufficient detail to ensure a third party can find the exact evidence at a later date.
 - **Details of the Disconnect** – a brief statement on why the objective evidence shows a nonconformity against the requirement.
- 9.2.1.11 The nonconformities shall be rated as either “Major” or “Minor” per the requirements of customers and some regulatory bodies. See definitions of Major and Minor Nonconformities in section 3 above.
- 9.2.1.12 Findings shall be rated by Type, whether Corrective, Preventive or Opportunity for Improvement (OFI) for when CAR Forms are filed.
- 9.2.1.13 Once the CAR Form is filed, the responsible managers or parties shall ensure timely corrective action is taken to remedy any non-conformances found. During the CAR review for effectiveness review, the results of actions taken to address audit findings are evaluated.
- 9.2.1.14 The Office Manager shall update the audit schedule within the **Internal Audit Log** to reflect to closure of the audit, and enter a summary of audit findings. Based on the results of the audits, and previous audits, the Office Manager will then schedule the next audit of the particular process. Processes for which internal audits discover a high number of findings, or critical findings of any number, should be audited more frequently until the process is proven effective again.
- 9.2.1.15 The completed **Internal Audit Report** is then published on the company’s server, in order to report the findings and results. In this way, and in conjunction with the submission of CAR Forms, all necessary process managers are notified of the audit results and may make informed decisions for their departments based on those results.
- 9.2.1.16 The results of internal audits are also gathered and summarized on the Audit Trend Analysis Chart, generated by the **Internal Audit Log**, for review by top management during management review.
- 9.2.1.17 In all cases, auditees are expected to cooperate fully with the audit team.

9.3 Management Review

The Management Team reviews the management system, at planned intervals, to ensure its continuing suitability, adequacy and effectiveness. The review includes assessing opportunities for improvement, and the need for changes to the management system, including the **Quality Policy** and quality objectives.

Management review frequency, agenda (inputs), outputs, required members, actions taken and other review requirements are defined below:

9.3.1 CONDUCTING MANAGEMENT REVIEWS

9.3.1.1 Top Management reviews the suitability, adequacy and effectiveness of the Quality Management System through two primary methods: a formal “Management Review Meeting” held periodically, and ongoing management activities conducted throughout the rest of the year.

9.3.1.2 The formal “Management Review Meeting” is held at a minimum of once per year.

9.3.1.3 The minimum attendance for Management Review Meeting shall be the top management]; other employees shall attend as needed to meet the requirements of the agenda indicated below.

9.3.1.4 If any attendee is absent, draft minutes will be sent to him/her, for review and so that the person may amend the minutes with any additional data, notes, opinions or opportunities for improvement they may wish to add.

9.3.1.5 This review shall include assessing opportunities for improvement and the need for changes to the quality management system, including the quality policy and quality objectives.

9.3.1.6 Minutes of the meetings are taken and maintained. The form **Management Review Meeting Minutes** may be used as a template for the records, or may be completed and filed as the finished record.

9.3.1.7 The Management Review Meeting shall include analysis of the following inputs:

- review and updating of external and internal issues of concern
- review and updating of process objectives, data and targets
- review of customer feedback
- review of the CAR system and related trends
- review of internal and external audit results
- review of the performance of external providers;
- review of the adequacy of resources;
- review of the effectiveness of actions taken to address risks and opportunities;
- review of opportunities for improvement.
- review of the Quality Policy for adequacy and to ensure it remains consistent with the needs of customers and the industry;
- recommendations for improvement of the quality management system
- follow-up activities from previous Management Reviews

9.3.1.8 The Management Review Meeting shall generate Corrective and/or Preventive Action Requests, or take other recorded action, as a result of review topics in an effort to improve the management system, products, processes and services, and to address resource needs.

9.3.1.9 This includes any decisions and actions related to the improvement of the effectiveness of the quality management system and its processes, improvement of product related to customer requirements, and resource needs.

9.3.1.10 Additional informal management review activities are also conducted, and include:

- Updating of some objectives data and trending in real time, and making such data available on the company server for constant review. This includes product nonconformity data, CAR data, internal audit data, and customer complaints.
- Regular, formal and informal meetings between the management team to ensure ongoing compliance with established quality objectives, as well as to manage daily processing of orders and manufacturing efficiency.

9.3.1.11 Records from management reviews are maintained.

Clause 10: Improvement

Refer to ISO 9001:2015 QMS clause 10 requirements

10.1 General

TLS ENGINEERS AND PROJECT MANAGERS uses the management system to improve its processes, products and services. Such improvements aim to address the needs and expectations of customers as well as other interested parties, to the extent possible.

Improvement shall be driven by an analysis of data related to:

- a) conformity of products and services;
- b) the degree of customer satisfaction;
- c) the performance and effectiveness of the management system;
- d) the effectiveness of planning;
- e) the effectiveness of actions taken to address risks and opportunities;
- f) the performance of external providers;
- g) other improvements to the management system.

10.2 Non-conformity and Corrective Action

TLS ENGINEERS AND PROJECT MANAGERS takes corrective action to eliminate the cause of nonconformity in order to prevent *recurrence*. Likewise, the company takes preventive action to eliminate the causes of potential nonconformities in order to prevent their *occurrence*.

These activities are done through the use of the formal Corrective Action (CAR Form 02*) system, and is defined below:

10.2.1 Initiation of Corrective Action

10.2.1.1 Any person can register a formal corrective or preventive action for an actual or potential non-conformance. Blank forms are available on the Server. Generally, incidents requiring a formal procedure are registered, while minor incidents, judged as so by Management, are corrected informally.

10.2.1.2 The Corrective Action Request form is submitted to the Administrator, who registers the receipt of the form by giving the request a unique number and recording the same number, date, department affected and issued to on the C.A.R. Register (FORM 03*).

10.2.1.3 Customer Complaints are carried out using a Corrective Action Request form that requires certain customer information. Customer Complaints are registered with the Administrator who gives each complaint a unique number. The Administrator registers the customer complaint, date, name of customer and issued to, reason, cost, date in and out on the using Customer Complaints/ Preventive- Corrective Action Request Register. The original copy of the Customer Complaint is and a copy is issued to the person responsible for initiating the complaint thereby giving the initiator proof of filed the rectification of the complaint The rest of the Customer Complaints are handled in the same manner.

10.2.2 Investigation of Corrective Action

10.2.2.1 The person responsible for taking action, takes the necessary corrective and preventive action and submits the completed C.A.R. form to the Administrator.

10.2.2.2 Corrective actions in the form of product failures are recorded using Customer Complaints/ Preventive- Corrective Action Request Forms.

10.2.2.3 CAR's (but not limited to) are analyzed by the Office Manager and presented at the regular management meeting, which is attended by the Management Team. Included in this report are:-

- Percentage rejects/ returns;
- Corrective action ie. Retraining and disciplinary action
- Cost of Non- conformances, etc.

10.2.2.4 All products that are returned, for quality reasons, are the subjects of the regular Quality meeting.

10.2.3 Verification and Close-out

10.2.3.1 The Office Manager verifies the action taken and its effectiveness by observing future outcomes of a similar nature and when satisfied, he/ she closes out the document by dating and signing the relevant sections.

10.2.4 Analysis for Management Review

10.2.4.1 The Office Manager analyses the :

- Corrective Actions /
- Customer Complaints,
- Continuous Improvement plans,
- supplier deficiencies,
- Internal audit findings,
- customer feedback reports
- Process preference
- product conformance, customer returns and potential non- conformances received

and submits these at the Management Review Meeting which is chaired by the Managing Director.

10.3 Continual Improvement

10.3.1 Review of the Quality Policy for suitability and effectiveness, objectives and targets determined, results of audits (*internal and external*), data from Customer Complaints, customer feedback and corrective and preventive actions all aid in improving the effectiveness of the QMS within the organization. This is formally done at Management Review.

Appendix A: Overall Process Sequence & Interaction



