



**NOS.QS.01**  
**FIRST EDITION**

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**NATIONAL OCCUPATIONAL STANDARD FOR QUANTITY SURVEYOR**

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**ZAMBIA QUALIFICATIONS AUTHORITY**

## APPROVING AUTHORITY

This National Occupational Standard has been prepared and published under the authority of the Zambia Qualifications Authority Board on 20<sup>th</sup> December 2023.

## ZAMBIA QUALIFICATIONS AUTHORITY

The Zambia Qualifications Authority Act No. 13 of 2011 was enacted by the Government of the Republic of Zambia to ***“provide for the development and implementation of a national qualifications framework; establish the Zambia Qualifications Authority; provide for the registration and accreditation of qualifications; provide measures to ensure that standards and registered qualifications are internationally comparable; and provide for matters connected with, or incidental to the foregoing”***. Among other functions, ZAQA is responsible for ***determining national standards for any occupation***, through various sector specific National Occupational Standards Development Teams (NOSDTs).

## REVISION OF NATIONAL OCCUPATIONAL STANDARDS

National Occupational Standards shall be revised every after **5 years**, or whenever necessary, by the issue of either amendments or of revised editions. It is important that users of National Occupational Standards (NOS) ascertain that they are in possession of the latest amendments or editions.

## NOS DEVELOPMENT TEAM RESPONSIBLE

This National Occupational Standard was prepared by the Construction National Occupational Standards Development Team, upon which the following organisations were represented:

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2. Engineering Institution of Zambia
3. Ministry of Local Government and Rural Development
4. Road Development Agency
5. Surveyors Institute of Zambia
6. University of Zambia
7. Zambia Institute of Quantity Surveyors
8. Association of Building and Civil Engineering Contractors
9. Water Resources Management Authority
10. Bari Zambia Limited
11. Zulu Barrow Construction
12. Ng'andu Consulting
13. Zambia Qualifications Authority – Secretariat

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## FOREWORD

The Zambia Qualifications Authority (ZAQA) is a statutory body under the Ministry of Higher Education established by ZAQA Act No. 13 of 2011 to “**develop and implement a national qualifications framework; register and accredit qualifications; and ensure that standards and registered qualifications are internationally comparable**”.

Among other functions, ZAQA is responsible for “*determining national standards for any occupation*”, through various sector specific National Occupational Standards Development Teams (NOSDTs) of experts composed of representation from appropriate authorities, government departments, industry, academia, regulators, consumer associations and non-governmental organizations, etc.

This National Occupational Standard (NOS) has been developed by the Construction National Occupational Standards Development Team in accordance with the procedures and guidelines of ZAQA. All users should ensure that they have the latest edition of this publication as National Occupational Standards are revised from time to time.

This NOS shall be used by, among others, industry, employers, quality assurance bodies, awarding and professional bodies and education and training institutions, as a benchmark to identify training needs, develop job profiles/descriptions, develop curricula and learning programmes, in various sectors where the occupation exists. In the Construction sector, demonstration of competence against this NOS may be required in order to run a business or practice a craft or profession.

## JUSTIFICATION

Quantity Surveyor is one of the critical professions in the construction industry which is common to all types of construction and infrastructure projects. A Quantity Surveyor converts measured items from drawings into Bills of Quantities for Budgeting, Pricing and Tendering, Monitoring and Evaluation, Procurement and Administration of Contracts and Management of Claims.

The Quantity Surveyor is essential in the tendering process, ensuring the adherence to forecasted costs, monitoring of costs, procurement support and provide value engineering on the project.

This National Occupational Standard highlight core knowledge, skills, competences and personal attributes that Quantity Surveyors must possess to be successful in their profession.

## **ACRONYMS AND ABBREVIATIONS**

QS	Quantity Surveyor
CS	Core Skill
NOS	National Occupational Standard
NOSDT	National Occupational Standards Development Team
OK	Organisational Knowledge
PC	Performance Criteria
PS	Professional Skill
QSRB	Quantity Surveyors Registration Board
RPL	Recognition of Prior Learning
SIZ	Surveyors Institute of Zambia
TK	Technical Knowledge
ZIQS	Zambia Institute of Quantity Surveyors
ZAQA	Zambia Qualifications Authority
ZQF	Zambia Qualifications Framework
OSHE	Occupational Safety, Health, and Environment

## GLOSSARY OF TERMS

For the purposes of this NOS, the following terms and definitions shall apply:

**Core Skills/Generic Skills:** are a group of skills that are key to learning and working in today's world. These skills are typically needed in any work environment. In the context of the NOS, these include communication related skills that are applicable to most job roles.

**Disability:** Physical or mental impairment that substantially limits one or more major life activities.

**Function:** is an activity necessary for achieving the key purpose of the sector, occupation, or area of work, which can be carried out by a person or a group of persons. Functions are identified through functional analysis and form the basis of NOS.

**Job Title:** defines a unique set of functions that together form a unique employment opportunity in an organisation.

**Knowledge and Understanding:** are statements which together specify the technical, generic, professional and organisational specific knowledge that an individual needs in order to perform to the required standard.

**National Occupational Standards (NOS):** are statements of the standards of performance individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding. They are precise descriptions of what an individual is expected to be able to do in his/her work role.

**National Occupational Standards (NOS) Code:** is a unique reference code that identifies a NOS.

**National Occupational Standards Development Team (NOSDT):** means an established group of national stakeholders/experts responsible for the development of National Occupational Standards within a specific economic sector or occupation.

**Occupation:** is a set of job roles, which perform similar/related set of functions in an industry.

**Organisational Context:** includes the way the organisation is structured and how it operates, including the extent of operative knowledge that managers have in their relevant areas of responsibility.

**Performance Criteria:** are statements that together specify the standard of performance required when carrying out a task.

**Scope:** is the set of statements specifying the range of variables that an individual may have to deal with in carrying out the function which have a critical impact on the quality of performance required.

**Sector:** is a conglomeration of different business operations having similar businesses and interests. It may also be defined as a distinct subset of the economy whose components share similar characteristics and interests.

**Sub Sector:** is derived from a further breakdown based on the characteristics and interests of its components.

**Technical Knowledge:** is the specific knowledge needed to accomplish specific designated responsibilities.

**Unit Title:** gives a clear overall statement about what the incumbent should be able to do.



## 1. OVERVIEW

This is an introductory section providing a brief summary and specific information or commentary about the content of the NOS and the targeted sector and occupation to help the user judge whether it is relevant to them.

<b>NOS Code</b>	NOS.QS.01
<b>Occupation</b>	Quantity Surveyor
<b>Job Title</b>	Quantity Surveyor
<b>Job Description</b>	The Quantity Surveyor is a graduate who has knowledge in the measurement of Civil Engineering structures such as Buildings (residential, commercial, and specialized), Roads, Railways, Mechanical (Heating, Ventilation and Air Condition), Electrical and Plumbing from drawings.
<b>Job Purpose</b>	A Quantity Surveyor converts measured items from drawings into Bills of Quantities for Budgeting, Pricing and Tendering, Monitoring and Evaluation, Procurement and Administration of Contracts and Management of Claims.
<b>ZQF Level</b>	7
<b>Sector</b>	Construction
<b>Sub sector</b>	Real Estate and Infrastructure Construction
<b>Other Economic Sector(s) in which the Occupation is Practiced</b>	Mining, Manufacturing, Telecommunication, Energy, Education/training, etc.
<b>Other Similar Jobs that can be Performed in the Occupation</b>	Construction Manager, Project Manager, Facilities Manager, Construction Estimator, Claims Specialist, Construction Arbitrator.
<b>Minimum Educational Job Entry Qualification(s)</b>	Bachelor of Science in Quantity Surveying
<b>Practicing License Requirements (if any)</b>	Registration with the Quantity Surveyors Registration Board
<b>Training/RPL (Suggested)</b>	<ol style="list-style-type: none"> <li>1. Experience with the standard method of measurements.</li> <li>2. Adequate use of software based estimating packages.</li> </ol>
<b>Minimum Job Entry Age</b>	23 years
<b>Prior Experience (Recommended)</b>	Minimum 6 months internship
<b>Performance Criteria</b>	As described in the Units under Section 4

## **2. SCOPE**

These National Occupational Standard highlights core knowledge, skills, competences and personal attributes that Quantity Surveyors must possess to be successful in their jobs.

## **3. PERSONAL ATTRIBUTES (VALUES, ETHICS AND ATTITUDES)**

This job requires an individual to possess the following attributes:

- Perform a basic plan and assign priority to key activities
- Ability to work in a team
- Physique to sustain strenuous on-site conditions
- High technological exposure to handle software
- Understand measuring tools and equipment,
- Be safety conscious with a sensitivity towards safety for one self, others and equipment,
- Willingness to work across locations throughout the country and the region and beyond whilst working at the site,
- Well versed with different types of contracts,
- Have an in-depth understanding of methods of measurements, tasks, functions, standards, specifications, codes of practice and safety norms applicable to construction works, be honest and results oriented, etc.
- Analytical skills
- Adequate mathematical skills
- Attention to detail
- Confidentiality and integrity
- Commercial awareness
- Problem Solving ability

## **4. UNITS AND ELEMENTS**

This National Occupational Standard is divided into 6 Units representing the tasks that a jobholder should undertake in his/her day-to-day work. Each unit is further broken down into elements depicting the number of activities to be carried out for the successful execution of a particular task.

**UNIT 1** [This unit covers the skills and knowledge required by a Quantity Surveyor to perform tasks related to Construction Management and Technology].

<b>Unit No.</b>	<b>01</b>
<b>Unit Title</b>	<b>Construction Management and Technology</b>
<b>Description</b>	This Unit describes the skills and knowledge required to understand the principles that underpin the technology used in the construction process
<b>Scope</b>	This Unit covers the following: <ul style="list-style-type: none"> <li>• Different elements of a construction project</li> <li>• Tools, Equipment and Software</li> <li>• Different Methods of Construction</li> <li>• Understanding of Occupation Health and Safety as relates to cost and site work.</li> </ul>
<b>Performance Criteria (PC) with respect to the Scope</b>	
<b>Element</b>	<b>Performance Criteria (PC)</b>
<b>Different elements of a construction project</b>	To be competent, the individual must be able to: PC1. Analyse and interpret architectural, mechanical, electrical and structural drawings and how they relate to physical elements of a project. PC2. Categorize different elements of the project in relation to execution and cost implications. PC3. Examine the different elements of a construction project, how they interact with each other and their impact on cost.
<b>Tools, Equipment and Software</b>	To be competent, the individual must be able to: PC4. Categorize the tools to be employed on a project and their cost. PC5. Categorize equipment and their application. PC6. Illustrate knowledge in the use of costing methods and efficiencies applicable to the construction process PC7. Have adequate knowledge of CAD and its use in measuring elements of a building. PC8. Apply basic software in the measurement and estimation Process.
<b>Different Methods of Construction</b>	To be competent, the individual must be able to: PC9. Demonstrate knowledge of the different methods of undertaking a construction project. PC10. Differentiate between selected methods of construction and their cost impact to a project. PC11. Demonstrate knowledge of the current construction methods and their cost/ benefit and time. PC12. Research on modern methods of construction and their applicable uses in managing costs on a project.
<b>Understanding of Occupation Health and Safety as relates to cost and site work.</b>	To be competent, the individual must be able to: PC13. Identify the different applicable laws guiding Occupational Safety and Health Environment (OSHE) guidelines. PC14. Identify different Personal Protective Equipment (PPE) and their correct usage.

	<p>PC15. Be able to read, interpret and understand the different signage used on project sites.</p> <p>PC16. Formulate a basic OSHE plan and safety protocols.</p>
<b>Knowledge and Understanding (K)</b>	
<b>A. Organisational Context (Knowledge of the company/ organisation and its processes)</b>	<p>The individual on the job must demonstrate knowledge and understanding of:</p> <ul style="list-style-type: none"> <li>OK1. Standard company operating procedures</li> <li>OK2. Standard company policies and business practices</li> <li>OK3. Standard Format of Construction employed by a company or consultant.</li> <li>OK4. Standard company Occupation Safety and Health Environmental (OSHE) guidelines</li> </ul>
<b>B. Technical Knowledge</b>	<p>The individual on the job must demonstrate knowledge and understanding of:</p> <ul style="list-style-type: none"> <li>TK1: Local construction codes and mandatory standards.</li> <li>TK2. General specification of building and workmanship.</li> <li>TK3. Building regulations and standards.</li> <li>TK4. Typical Plant and Equipment and their output and cost.</li> </ul>
<b>C. Regulatory context (Knowledge of Rules and Regulations)</b>	<p>The individual on the job must demonstrate knowledge and understanding of:</p> <ul style="list-style-type: none"> <li>RK1. Government regulatory agency requirements for operation in the construction sector.</li> <li>RK2. Built Environment Codes of Practice and conduct.</li> <li>RK3. Government regulatory agency requirements for operation in the quantity surveying field.</li> <li>RK4. Government regulatory agency requirements for Occupation Safety and Health Environmental (OSHE).</li> </ul>
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Writing Skills</b>
	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> <li>CS1. Write in English and be able to or have the means to give simple instructions in the local language used at the site.</li> <li>CS2. Prepare and provide clear and simple instructions, details and sketches to co-workers.</li> </ul>
	<b>Reading Skills</b>
	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> <li>CS3. Read English and be able to understand technical information from drawings and specifications.</li> <li>CS4. Read and interpret Notes accompanying sketches, drawings or instructions provided for the required work.</li> <li>CS5. Read and interpret various safety and general signage, safety rules and tags, etc., provided at the workplace, including directions for exit routes during emergencies on site.</li> </ul>

	<p><b>Oral Communication (Listening and Speaking skills)</b></p> <p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> <li>CS6. Speak in English and be able to or have the means to give simple instructions in the local language used at the site.</li> <li>CS7. Listen attentively and interpret communication/instructions from the supervisor and other co-workers.</li> <li>CS8. Convey information clearly and concisely to co-workers.</li> <li>CS9. Obtain information from co-workers relating to plant, equipment and materials.</li> </ul>
<p><b>B. Professional Skills</b></p>	<p><b>Decision Making</b></p> <p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> <li>PS1. Have strong technical and financial acumen.</li> <li>PS2. Make sound decisions based on cost benefit analysis.</li> <li>PS3. Align with the projects' financial objectives and constraints.</li> <li>PS4. Identify problems, explore potential solutions.</li> <li>PS5. Identify potential risks, the impact and strategies to mitigate or manage these risks.</li> </ul>
	<p><b>Plan and Organise</b></p> <p>The individual on the job should be able to:</p> <ul style="list-style-type: none"> <li>PS6. Plan and organise information in an understandable and interpretable format.</li> <li>PS7. Plan and organise construction costs of various materials, plant and equipment.</li> </ul>
	<p><b>Customer Centricity</b></p> <p>The individual on the job should be able to:</p> <ul style="list-style-type: none"> <li>PS8. Complete work as per agreed time schedule and quality and technical specifications in Bills of Quantities and drawings.</li> </ul>
	<p><b>Problem Solving</b></p> <p>The individual on the job should be able to:</p> <ul style="list-style-type: none"> <li>PS9. Recognise and resolve problems within the team.</li> <li>PS10. Recognise relevant authorities to approach when required to defuse any potential problems relating to materials, plant and equipment.</li> <li>PS11. Recognise best use of materials, plant and equipment with particular reference to costs.</li> </ul>
	<p><b>Analytical Thinking</b></p> <p>The individual on the job should be able to:</p> <ul style="list-style-type: none"> <li>PS12. Analyse and interpret drawings.</li> <li>PS13. Analyse and interpret Bills of Quantities.</li> <li>PS14. Adhere to Specifications and Bill Prices.</li> <li>PS15. Analyse cash flow projections.</li> </ul>
	<p><b>Critical Thinking</b></p> <p>The individual on the job should be able to:</p> <ul style="list-style-type: none"> <li>PS16. Critically evaluate most cost economic methods of Construction.</li> <li>PS17. Critically analyse means of achieving milestones given available resources of materials, plant and equipment.</li> </ul>

**UNIT 2** [This unit covers the skills and knowledge required by a Quantity Surveyor to perform the tasks relating to Design Economics and Cost Planning].

<b>Unit No.</b>	<b>02</b>
<b>Unit Title</b>	<b>Construction Economics and Cost Planning</b>
<b>Description</b>	This Unit describes the skills and knowledge required to understand the design fundamentals, how they affect the economic viability of a project and the budgeting of a project.
<b>Scope</b>	This Unit covers the following: <ul style="list-style-type: none"> <li>• Construction economics</li> <li>• Cost Planning</li> <li>• Design standards and procedures</li> <li>• Cost Estimation</li> <li>• Cost-Benefit Analysis</li> <li>• Life Cycle Costing</li> <li>• Value Engineering</li> </ul>
<b>Performance Criteria (PC) with respect to the Scope</b>	
<b>Element</b>	<b>Performance Criteria (PC)</b>
<b>Construction economics</b>	To be competent, the individual must be able to: PC1. Recognise, analyse and interpret market conditions. PC2. Compile available costs on labour, plant and materials. PC3. Demonstrate the cost in relation to a given project brief.
<b>Cost Planning</b>	To be competent, the individual must be able to: PC4. Compile and analyse elements of a project and their elemental costs. PC5. Prepare an elemental cost break down. PC6. Illustrate cost data in form of comprehensible cost plan. PC7. Prepare budgets for feasibility and construction phase.
<b>Design standards and procedures</b>	To be competent, the individual must be able to: PC8. Identify the elements relevant to the design and how they affect costs. PC9. Identify the design objectives, the methodology used and the expected performance.

<p><b>Cost Estimation</b></p>	<p>To be competent, the individual must be able to:</p> <p>PC10. Measure the project either on approximate quantities or Budget Cost Estimate based on Gross Internal Floor Area (GIFA).</p> <p>PC11. Generate workable quantities.</p> <p>PC12. Compare historical rates of similar projects.</p> <p>PC13. Create a logical project estimate with clear identifiable elemental breakdown.</p>
<p><b>Cost-Benefit Analysis</b></p>	<p>To be competent, the individual must be able to:</p> <p>PC14. Provide strategic advice on the costs and benefits of various courses of action on a construction process.</p> <p>PC15. Conduct economic and financial analysis for a life of a construction project.</p> <p>PC16. Provide input into the development of a project brief.</p> <p>PC17. Conduct compliance and management studies.</p> <p>PC18. Prepare cost benefit analysis</p> <p>PC19. Justify costs relating to the project against clients brief.</p> <p>PC20. Compare costs component related to the project and within client's budget.</p> <p>PC21. Understand the clients project objectives in terms of quality, time, cost, period of return (pay-back period) and cash flow and in relation to perceived impact of project.</p>
<p><b>Life Cycle Costing</b></p>	<p>To be competent, the individual must be able to:</p> <p>PC21. Demonstrate the costs over the lifespan of the project.</p> <p>PC22. Perform project elemental maintenance costing that covers full lifespan of the Project/ Building.</p> <p>PC23. Identify replacement costs at the end of the lifespan of the Project/ Building.</p>
<p><b>Value Engineering</b></p>	<p>To be competent, the individual must be able to:</p> <p>PC24. Manage costs to meet clients budget expectations.</p> <p>PC25. Identify elements of the cost plan which are above market rates and can be revised to meet budget.</p> <p>PC26. Perform comparative cost analysis of different elements of a project relating to labour, plant, materials and overheads.</p> <p>PC27. Compare similar specified materials and viable alternatives on the market.</p>

<b>Knowledge and Understanding (K)</b>	
<b>A. Organisation -al Context (Knowledge of the company/ organisation and its processes)</b>	The individual on the job must demonstrate knowledge and understanding of: OK1. Company's historical data on tenders received/sent. OK2. Company's budget tolerances. OK3. Company's approved format for issuing cost data.
<b>B. Technical Knowledge</b>	The individual on the job must demonstrate knowledge and understanding of: TK1. The sources of market data and pricing. TK2. Appropriate software for converting cost data into cost elements for a project cost plan. TK3. Methods of adjusting cost data or elements of the project cost plan.
<b>C. Regulatory Context (Knowledge of Rules and Regulations)</b>	The individual on the job must demonstrate knowledge and understanding of: RK1. Where to source and use of the ZPPA quarterly price indices. RK 2. Where to source and use of the Published government Statutory Instruments on Labour Prices. RK.3. Statutory payments and obligations that may affect the cost of a construction project.
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Writing Skills</b>
	The individual on the job must be able to: CS1. Write in in clear and concise English. CS2. Present data in an acceptable practice format. CS3. Present Data in a logical and understandable industry acceptable format.
	<b>Reading Skills</b>
	The individual on the job must be able to: CS4. Read and interpret internal/external documents relating to cost data. CS5. Read and interpret internal/external documents related to standard cost data for labour, plant and materials.



	<b>Oral Communication (Listening and Speaking skills)</b>
	The individual on the job must be able to: CS6. Speak English. CS7. Effectively communicate the data of elements of the cost plan to internal/external stakeholders and fellow project team members.
<b>B. Professional Skills</b>	<b>Decision Making and Problem Solving</b>
	The individual on the job must be able to: PS1. Understand tolerances and time limits of the cost data.
	<b>Plan and Organise</b>
	The individual on the job should be able to: PS2. Prepare and assemble relevant cost data for inclusion in the budget cost plan.
	<b>Problem Solving</b>
	The individual on the job should be able to: PS3. Recognise arising challenges and provide alternative solutions. PS4. Seek relevant approval for identified challenges.
	<b>Analytical Thinking</b>
	The individual on the job should be able to: PS5. Distinguish between fixed, time and value related costs.
	<b>Critical Thinking</b>
The individual on the job should be able to: PS6. Analyse Market conditions and seasonal changes.	

**UNIT 3** [This unit covers the skills and knowledge required by a Quantity Surveyor to perform the tasks relating to Quantification and Costing of Construction Works].

<b>Unit No.</b>	<b>03</b>
<b>Unit Title</b>	<b>Quantification and Costing of Construction Works</b>
<b>Description</b>	This Unit describes the skills and knowledge required to measure and interpret data into a format that is utilised to obtain the project price.
<b>Scope</b>	This Unit covers the following: <ul style="list-style-type: none"> <li>• Standard method of measurements</li> <li>• Preparation of Bill of Quantities</li> <li>• Rate Build up</li> <li>• Evaluation of Works</li> </ul>
<b>Performance Criteria (PC) with respect to the Scope</b>	
<b>Element</b>	<b>Performance Criteria (PC)</b>
<b>Standard method of measurements</b>	To be competent, the individual must be able to: PC1. Understand and apply the standard method of measurement relevant to the project. PC2. Understand phraseology of project trades and elements. PC3. Quantify, enumerate, and measure project elements.
<b>Preparation of Bill of Quantities</b>	To be competent, the individual must be able to: PC4. Take off quantities either manually or using available measurement software from drawings. PC5. Input data in accepted bill format.
<b>Rate Build Up</b>	To be competent, the individual must be able to: PC6. Collect and critically analyse prices for labour, plant and materials. PC7. Estimate overhead costs related to the project and the Organization. PC8. Compare and contrast historical rate data and current rate data.
<b>Evaluation of Works</b>	To be competent, the individual must be able to: PC9. Measure executed works in comparison to allowed works in the Bills of Quantities. PC10. Prepare interim valuations. PC11. Prepare Monthly financial statements. PC12. Measure and understand Claims and Variation orders PC13. Prepare final project accounts.
<b>Knowledge and Understanding (K)</b>	
<b>A. Organisational Context (Knowledge of the company/ organisation and its processes)</b>	The individual on the job must demonstrate knowledge and understanding of: OK1. Standard organization operating procedures. OK2. Company software and practices used. OK3. Company format of Bills of Quantities. OK4. Company pricing schedules and estimate tolerances.

<b>B. Technical Knowledge</b>	<p>The individual on the job must demonstrate knowledge and understanding:</p> <ul style="list-style-type: none"> <li>TK1. Rules of measurements.</li> <li>TK2. Read and interpret drawings and sketches.</li> <li>TK3. Standard specifications.</li> <li>TK4. Rate build up and pricing.</li> <li>TK5. Knowledge of CAD.</li> </ul>
<b>C. Regulatory context (Knowledge of Rules and Regulations)</b>	<p>The individual on the job must demonstrate knowledge and understanding of:</p> <ul style="list-style-type: none"> <li>RK1. Standard method of measurements.</li> <li>RK2. General Specification of Materials and Workmanship</li> </ul>
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Writing Skills</b>
	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> <li>CS1. Compose bill of quantities in a chronological framework.</li> <li>CS2. Write technical reports, budgets, estimates and other relevant cost information.</li> </ul>
	<b>Reading Skills</b>
	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> <li>CS3. Read Specifications and relate with bill items.</li> <li>CS4. Read and interpret drawings.</li> <li>CS5. Read and interpret project documents.</li> </ul>
	<b>Oral Communication (Listening and Speaking skills)</b>
<p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> <li>CS6. Effectively communicate information contained in reports, budgets, estimates and other relevant cost information.</li> <li>CS7. Justify rates used and clearly explain the rate build-up.</li> <li>CS8. Express statements or information clearly so that others can understand.</li> <li>CS9. Raise queries during meetings.</li> <li>CS10. Respond to queries during meetings.</li> </ul>	
<b>B. Professional Skills</b>	<b>Decision Making</b>
	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> <li>PS1. Determine practical and credible sources of cost information for project execution and devise adjustments.</li> <li>PS2. Follow organisation rule-based decision-making process and take decision with systematic course of actions and/or responses.</li> </ul>
<b>Plan and Organise</b>	
<p>The individual on the job should be able to:</p> <ul style="list-style-type: none"> <li>PS3. Plan work and organise required resources in costing Information.</li> <li>PS4. Work constructively and collaboratively with other project team members.</li> </ul>	

	<b>Customer Centricity</b>
	The individual on the job should be able to: PS5. Follow professional code of conduct as stipulated by relevant professional body. PS6. Manage client relations with intent on satisfying requirements for service delivery.
	<b>Problem Solving</b>
	The individual on the job should be able to: PS7. Recognise arising challenges. PS8. Seek relevant approval for identified challenges. PS9. Resolve arising challenges promptly.
	<b>Analytical Thinking</b>
The individual on the job should be able to: PS10. Apply mathematical, statistical and business skills. PS11. Apply accounting and economic principles.	
<b>Critical Thinking</b>	
The individual on the job should be able to: PS12. Critically evaluate information from various project team members to perform day to day activities. PS13. Critically analyse cost data and prices. PS14. Quantify, enumerating and measuring different elements of a project.	

**UNIT 4** [This unit covers the skills and knowledge required by a Quantity Surveyor to perform the tasks relating to Procurement and Tendering].

<b>Unit No.</b>	<b>4</b>
<b>Unit Title</b>	<b>Procurement and Tendering</b>
<b>Description</b>	This Unit describes the skills and knowledge required to understand that underpin the project tender process.
<b>Scope</b>	This Unit covers the following: <ul style="list-style-type: none"> <li>• Procurement Methods</li> <li>• Tender Procedure</li> <li>• Tender Documents</li> </ul>
<b>Performance Criteria (PC) with respect to the Scope</b>	
<b>Element</b>	<b>Performance Criteria (PC)</b>
<b>Procurement Methods</b>	To be competent, the individual must be able to: PC1. Select in collaboration with Client or Project Team leader on the appropriate method of procurement to be used on the project. PC2. Distinguish appropriate thresholds which determine the methods to be used. PC3. Collect and compile information required to specify procurement requirements. PC4. Evaluate project delivery systems. PC5. Provide input into development of the project brief. PC6. Undertake constructability analysis. PC7. Provide input into development of the project brief.
<b>Tender Procedure</b>	To be competent, the individual must be able to: PC8. Assemble the required information required. PC9. Assemble the required documentation required. PC10. Manage tendering process. PC11. Initiate tender selection process. PC12. Advise on the selection of tenderers. PC13. Evaluate and negotiate tenders
<b>Tender Documents</b>	To be competent, the individual must be able to: PC14. Identify the relevant documents that constitute a tender dossier and their importance. PC15. Compile documentation relevant to the tender. PC16. Adequately understand the documents in the tender, their uses and performance requirements for the tender.
<b>Knowledge and Understanding (K)</b>	
<b>A. Organisational Context (Knowledge of the company/ organisation and its processes)</b>	The individual on the job must demonstrate knowledge and understanding of: OK1. Relevant standard organization documentation. OK2. Relevant statutory documentation and requirements. OK3. Relevant forms of Tendering.

<p><b>B. Technical Knowledge</b></p>	<p>The individual on the job must demonstrate knowledge and understanding of:</p> <ul style="list-style-type: none"> <li>TK1. ZPPA Act.</li> <li>TK2. Standard forms of Bidding Documents.</li> <li>TK3. Drawings and specifications.</li> <li>TK4. Standard Forms of Building Contracts.</li> <li>TK5. Thresholds of Bidding Categories.</li> <li>TK6. Categories of Bidders, Suppliers and Contractors as stipulated by NCC, ZPPA, CEEC, and Registration bodies.</li> </ul>
<p><b>C. Regulatory context (Knowledge of Rules and Regulations)</b></p>	<p>The individual on the job must demonstrate knowledge and understanding of:</p> <ul style="list-style-type: none"> <li>RK1. National Council for Construction Act No. 10 of 2020, of the Laws of Zambia.</li> <li>RK2. Workers Compensation Act 27 of 1994, Chapter 271, of the Laws of Zambia.</li> <li>RK3. Zambia Public Procurement Authority Act 8 of 2020, of the Laws of Zambia.</li> <li>RK4. National Pension Scheme Authority Act 40 of 1996, of the Laws of Zambia.</li> </ul>
<p><b>Skills (S)</b></p>	
<p><b>A. Core Skills/ Generic Skills</b></p>	<p><b>Writing Skills</b></p>
	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> <li>CS1. Write in clear and concise English.</li> <li>CS2. Prepare and present in and unambiguous clear project data sheet.</li> </ul>
	<p><b>Reading Skills</b></p>
	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> <li>CS3. Read and interpret sketches, drawings or instructions provided for the required work.</li> <li>CS4. Read and interpret relevant clauses for inclusion in tender/ bidding data sheets.</li> </ul>
<p><b>B. Professional Skills</b></p>	<p><b>Oral Communication (Listening and Speaking skills)</b></p>
	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> <li>CS5. Convey information clearly and concisely to co-workers and fellow project team members.</li> </ul>
	<p><b>Decision Making</b></p>
	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> <li>PS1. Review and analyse documentation.</li> </ul>
	<p><b>Plan and Organise</b></p>
	<p>The individual on the job should be able to:</p> <ul style="list-style-type: none"> <li>PS2. Organise documents in logical order.</li> </ul>
<p><b>Customer Centricity</b></p>	
<p>The individual on the job should be able to:</p> <ul style="list-style-type: none"> <li>PS3. Assure the client value for money.</li> <li>PS4. Protect the client from exploitation and abuse.</li> </ul>	
<p><b>Problem Solving</b></p>	
<p>The individual on the job should be able to:</p> <ul style="list-style-type: none"> <li>PS5. Resolve any document error in liaison with client and procurement specialist.</li> </ul>	

	<b>Analytical Thinking</b>
	The individual on the job should be able to: PS6. Critically analyse the documentation and requirements.
	<b>Critical Thinking</b>
	The individual on the job should be able to: PS7. Construct document delivery schedule to achieve timelines.

**UNIT 5** [This unit covers the skills and knowledge required by a Quantity Surveyor to perform the tasks relating to Construction Law, Contracts and Administration].

<b>Unit No.</b>	<b>05</b>
<b>Unit Title</b>	<b>Construction Law, Contracts and Administration</b>
<b>Description</b>	This Unit describes the skills and knowledge required to understand the different forms of contract and when to use.
<b>Scope</b>	This Unit covers the following: <ul style="list-style-type: none"> <li>• Construction Law and Regulations</li> <li>• Contracts Forms</li> <li>• Contract Management and Administration</li> <li>• Construction Health and Safety</li> </ul>
<b>Performance Criteria (PC) with respect to the Scope</b>	
<b>Element</b>	<b>Performance Criteria (PC)</b>
<b>Construction Law and Regulations</b>	To be competent, the individual must be able to: PC1. Comprehend laws and regulations relevant to Infrastructure and Construction industry. PC2. Interpret and apply applicable laws and regulations to the project and costs associated.
<b>Contracts Forms</b>	To be competent, the individual must be able to: PC3. Appreciate the different forms of contracts applicable to the construction project. PC4. Analyse and interpret contract documentation. PC5. Identify relevant parties to a contract, what part they play and their roles and responsibilities. PC6. Identify the applicable risk management tools allowed in contract documents and their clauses, costs, and implications.
<b>Contract Management and Administration</b>	To be competent, the individual must be able to: PC7. Evaluate the best form of contract to be utilized on the project. PC8. Implement risk management tools during the project phase. PC9. Implement relevant specification clauses necessary to monitor costs. PC10. Identify potential challenges and relate them to contract clauses that may address the challenges.
<b>Construction Health and Safety</b>	To be competent, the individual must be able to: PC11. Have an in-depth understanding of health and safety and clauses allowed for in the contract. PC12. Apply costs associated with Health and Safety to applicable areas as stipulated in the contract. PC13. Evaluate costs associated with Health and Safety Plan.



<b>Knowledge and Understanding (K)</b>	
<b>A. Organisational Context (Knowledge of the company/ organisation and its processes)</b>	The individual on the job must demonstrate knowledge and understanding of: OK1. Standard company policies and business practices. OK2. Standard company contract documentation.
<b>B. Technical Knowledge</b>	The individual on the job must demonstrate knowledge and understanding of: TK1. Nature of Contracts. TK2. Essential elements of Contracts. TK3. Standard Forms of Contracts and what works they apply to in Zambia. TK4. Standard Forms of Contracts used in the Zambia, Commonwealth, SADC and AU.
<b>C. Regulatory context (Knowledge of Rules and Regulations)</b>	The individual on the job must demonstrate knowledge and understanding of: RK1. Quantity Surveyors Registration Board Act 438 of 1995, of the Laws of Zambia. RK2. National Council for Construction Act No. 10 of 2020, of the Laws of Zambia. RK3. Workers Compensation Act 27 of 1994, Chapter 271, of the Laws of Zambia. RK4. Occupational Health and Safety Act 36 of 2010, of the Laws of Zambia. RK5. Zambia Public Procurement Authority Act 8 of 2020, of the Laws of Zambia. RK6. Zambia Institute of Architects for of Contract RK7. National Pension Scheme Authority Act 40 of 1996, of the Laws of Zambia.
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Writing Skills</b>
	The individual on the job must be able to: CS1. Write in English and be able to or have the means to give simple instructions in the local language used at the site. CS2. Prepare and provide clear and simple clauses, for use in project documentation in line with Standard Contract Forms. CS3. Prepare sub-contractor and supplier agreements where applicable.
	<b>Reading Skills</b>
	The individual on the job must be able to: CS4. Read and interpret contract, clauses and applicable laws. CS5. Read and interpret various clauses and their importance for inclusion/exclusion from standard contract documents.

	<p><b>Oral Communication (Listening and Speaking skills)</b></p> <p>The individual on the job must be able to:</p> <p>CS6. Understand necessary legal specific contractual clauses in the local Language.</p> <p>CS7. Convey contract information clearly and concisely to co-workers and fellow project team members.</p>
<p><b>B. Professional Skills</b></p>	<p><b>Decision Making</b></p>
	<p>The individual on the job must be able to:</p> <p>PS1. Implement specific contract clauses promptly.</p> <p>PS2. Apply costs associated to specific contract items promptly.</p>
	<p><b>Plan and Organise</b></p>
	<p>The individual on the job should be able to:</p> <p>PS3. Manage contract specification and clauses during project Implementation.</p>
	<p><b>Customer Centricity</b></p>
	<p>The individual on the job should be able to:</p> <p>PS4. Assure the client value for money.</p> <p>PS5. Protect the client from exploitation and abuse.</p>
	<p><b>Problem Solving</b></p>
	<p>The individual on the job should be able to:</p> <p>PS6. Recognise and resolve contractual issues within the confines of the contract and applicable laws.</p> <p>PS7. Implement dispute resolution methods based on specific clauses in the contract.</p>
	<p><b>Analytical Thinking</b></p>
<p>The individual on the job should be able to:</p> <p>PS8. Analyse and understand contracts laws and specifications.</p>	
<p><b>Critical Thinking</b></p>	
<p>The individual on the job should be able to:</p> <p>PS9. Think critically on the clauses to apply to a specific remedy to a specific project issues.</p>	

**UNIT 6** [This unit covers the skills and knowledge required by a Quantity Surveyor to perform the tasks relating to Project and Risk Management].

<b>Unit No.</b>	<b>06</b>
<b>Unit Title</b>	<b>Project and Risk Management</b>
<b>Description</b>	This Unit describes the skills and knowledge to effectively be a part of the construction project management team
<b>Scope</b>	This Unit covers the following: <ul style="list-style-type: none"> <li>• Time Management</li> <li>• Cost Management</li> <li>• Quality Management</li> <li>• Risk Management</li> </ul>
<b>Performance Criteria (PC) with respect to the Scope</b>	
<b>Element</b>	<b>Performance Criteria (PC)</b>
<b>Time Management</b>	To be competent, the individual must be able to: PC1. Create a logical schedule of works PC2. Manage and update schedules of works PC3. Identify critical works and their impact on project costs.
<b>Cost Management</b>	To be competent, the individual must be able to: PC4. Formulate cash flow projections PC5. Assess projected costs against actual costs PC6. Manage costs arising from the project PC7. Adjudicate on third party suppliers based on competitive quotations, quality of materials and justify choices made
<b>Quality Management</b>	To be competent, the individual must be able to: PC8. Prepare data to ensure quality standards in the specifications are adhered to. PC9. Ensure materials procured are in conformity to the data given in the Contract Bills of Quantities and Project Specification and attains the required approval.
<b>Risk Management</b>	To be competent, the individual must be able to: PC10. Identify potential risks. PC11. Implement risk management tools. PC 12. Provide early warning for cost impact of identified risks and propose viable alternatives

<b>Knowledge and Understanding (K)</b>	
<b>A. Organisational Context (Knowledge of the company/ organisation and its processes)</b>	The individual on the job must demonstrate knowledge and understanding of: OK1. Standard organization operating procedures. OK2. Risk management framework and reporting structure.
<b>B. Technical Knowledge</b>	The individual on the job must demonstrate knowledge and understanding of: TK1. Local construction codes and mandatory standards. TK2. General specifications for labour, plant, materials and workmanship. TK3. Labour laws.
<b>Skills (S)</b>	
<b>A. Core Skills/ Generic Skills</b>	<b>Writing Skills</b>
	The individual on the job must be able to: CS1. Compose reports in a logical framework. CS2. Write technical reports, budgets, estimates and other relevant cost information. CS3. Draft Financial statements and Final Account projections.
	<b>Reading Skills</b>
	The individual on the job must be able to: CS4. Read and interpret drawings. CS5. Read and interpret project documents. CS6. Read and interpret Project Work Schedules. CS7. Understand Milestones on Project schedules.
	<b>Oral Communication (Listening and Speaking skills)</b>
	The individual on the job must be able to: CS8. Effectively communicate information contained in reports, budgets, estimates and other relevant project information. CS9. Express statements or information clearly so that others can understand. CS10. Raise queries during and after meetings. CS11. Respond to queries during and after meetings.
	<b>Decision Making</b>

<b>B. Professional Skills</b>	<p>The individual on the job must be able to:</p> <ul style="list-style-type: none"> <li>PS1. Determine cost effectiveness of project execution procedures and devise adjustments.</li> <li>PS2. Follow organisation rule-based decision-making process and make decisions with systematic course of actions and/or responses.</li> </ul>
	<b>Plan and Organise</b>
	<p>The individual on the job should be able to:</p> <ul style="list-style-type: none"> <li>PS3. Plan work and organise required resources in coordination with schedule of works.</li> <li>PS4. Work constructively and collaboratively with other project team members.</li> <li>PS5. Ensure timely issuance of Payments to ensure project remains on agreed timelines.</li> </ul>
	<b>Customer Centricity</b>
	<p>The individual on the job should be able to:</p> <ul style="list-style-type: none"> <li>PS6. Follow professional code of conduct as stipulated by relevant professional body.</li> <li>PS7. Manage client relations with intent on satisfying requirements for service delivery.</li> <li>PS8. Provide timely Project Cost Information.</li> </ul>
	<b>Problem Solving</b>
	<p>The individual on the job should be able to:</p> <ul style="list-style-type: none"> <li>PS9. Recognise arising challenges.</li> <li>PS10. Seek relevant approval for identified challenges.</li> <li>PS11. Resolve arising challenges promptly.</li> </ul>
	<b>Analytical Thinking</b>
	<p>The individual on the job should be able to:</p> <ul style="list-style-type: none"> <li>PS12. Apply risk-based approach to analyse situations for action.</li> <li>PS13. Apply risk management tools to address arising situations.</li> </ul>
	<b>Critical Thinking</b>
<p>The individual on the job should be able to:</p> <ul style="list-style-type: none"> <li>PS14. Critically evaluate information from various project team members to perform day to day activities.</li> <li>PS15. Seek clarification and understanding to complex tasks.</li> <li>PS16. Seek assistance and support whenever required.</li> </ul>	

## 5. EQUIPMENT, TOOLS AND CONSUMABLE MATERIALS

Equipment, tools and consumable materials used by the job holder include, but are not limited to:

- Measuring tools: tools relevant to taking of physical measurements like measuring tapes, digital distance measurer, scale rulers, take-off and dimension paper, Standard method of Measurement, General Specification of Materials and Workmanship, Conversion Tables and Quantities Conversion Guide.
- Survey tools: dumpy levels, automatic level etc
- Software: CAD applicable software, Take-off software, Microsoft Office Suite, E-mail, Project Scheduling Software
- Construction Journals and Magazines, Professional Pricing Books, etc

## 6. DILEMMAS/CHALLENGES AND COMPLEXITIES FOR A JOB HOLDER

Dilemmas associated with the job of Quantity Surveyor include: exposure to , working in dangerous areas with likelihood of sharp or falling materials and objects, working in confined spaces and at heights with likelihood of falls, working in extreme weather such as hot and cold conditions, working in noisy, wet and dusty environments, exposure to welding fumes and odours, long working hours, pressure from supervisors and colleagues, pressure from government regulators, tight deadlines, managing budgets, managing claims and variations, prolonged negotiations, performing complex mathematical calculations, etc. **(Ability to work in teams)**

### 6.1 Alternative Choices (Solutions) to Dilemmas and Complexities

Solutions to dilemmas include wearing protective clothing and ensuring their availability and use by other employees, exercising regularly to maintain physical fitness, exercising proper work ergonomics, participating in workplace safety sensitisation and awareness meetings/training sessions, adhering to company's safety and standard operating procedures at all times, consulting extensively within and outside one's department/team on construction safety issues, planning and prioritising work, membership of a relevant professional body that offers Continuous Professional Development (CPD) and other relevant Training, Further Training such as Membership of an International Professional Body and Training at Level 8, Master Degree Level in a relevant field etc

## 7. WORKING CONDITIONS/ENVIRONMENT

Working conditions include indoor and outdoor construction sites as well as workshops and factories, may also work in commercial buildings or private homes, confined spaces, working at heights, working in conditions that may be dirty and noisy, exposure to seasonal heat and cold or adverse weather conditions, emergency call-outs, standing or walking for long hours. In most cases, the job involves working normal hours, but in some instances, shift work

and regular overtime may be required. The job also requires wearing suitable protective clothing such as works suits, high visibility vests, Safety shoes, and hardhats, safety harnesses, laser measuring equipment, frequent travel to remote sites, sitting at Computer Workstation for prolonged hours and exposure to glare from computer screens for prolonged hours. etc.

## **8. PARTIES INVOLVED/INTERACTING WITH THE JOB HOLDER OR TRAINEE**

### **8.1 Internal/Within the Organization**

Parties involved/interacting with the job holder who are internal to the organization include Principal Quantity Surveyors, Senior Quantity Surveyors, trainers, occupational health and safety team, human resource team, accounts unit, buyers, engineers.

### **8.2 External/Outside the Organisation**

Parties involved/interacting with the job holder who are external to the organization include Clients, Procurement Managers, lawyers, contractors and sub-contractors, specialist contractors, Insurance Agents, Banks and Bond Holders, Designers and Interior decorators, Fabricators and Welders, suppliers of equipment/ tools/ Plant and Building Materials, Architects, Civil Engineers, Structural Engineers, Mechanical Engineers, Electrical Engineers, Water and Drainage Engineers, Geomatic (Land) Surveyors, Valuation Surveyors, Centre Managers, Facilities Managers, Estate Agents and Construction Managers, Clerk of works Quantity Surveyors from Construction companies, occupational health and safety and environment officers, etc.

## **9. PHYSICAL DEMANDS ON THE BODY**

- Ability to sustain strenuous conditions such as climbing heights;
- Walk and stand for long periods of time;
- Working in Hazardous and dilapidated buildings
- Working at heights and in confined spaces,
- Traveling long distances to and from Construction Sites and Projects
- Sitting at Workstations for Prolonged periods
- Repetitive strain from typing
- Eye strain from prolonged screen time
- Hazards from dust and other loose materials on sites leading to respiratory disorders
- Falling objects and stored materials at heights on multi-storey Project sites
- Hazards from Plant and Moving vehicles and equipment on Project and confined sites
- Prolonged Calculations Negotiations, and meetings  
Etc.

## **ANNEX A**

### **Criteria for Assessments based on this NOS**

#### **A.1 Guidelines for Assessment**

**A.1.1** Criteria for assessment for curricula and learning programmes based on this NOS will be created by curricula and programmes developers. Each Performance Criteria (PC) will be assigned marks proportional to its importance in the NOS. Curricula and programmes developers will also lay down proportion of marks for theory and practical skills for each performance criteria, giving more weight to practical skills.

There shall be allocated the 'Total Mark', which will be the sum of all marks in each Unit, distributed across the number of PCs in that particular Unit. The 'out of' mark will be the mark allocated to each PC, which will be shared between theory and skills practical assessments.

**A.1.2** Individual awarding/assessment bodies or institutions and other users of the NOS will create unique question papers for the theory part and evaluations for skill practical part for their respective candidates.



## ANNEX B NOS Version Control

This Annex gives details necessary for the tracking of the NOS versions based on the number of revisions.

<b>NOS Code</b>	NOS.QS.01		
<b>ZQF Level</b>	ZQF 7	<b>Version Number</b>	01
<b>Sector</b>	Construction	<b>Date of Approval</b>	December 2023
<b>Sub Sector</b>	Real Estate and Infrastructure Construction	<b>Date of Last Review</b>	N/A
<b>Occupation</b>	Quantity Surveyor	<b>Date of Next Review</b>	December 2028