

**SOUTH AFRICAN QUALIFICATIONS AUTHORITY (SAQA)**

In accordance with regulation 24(c) of the National Standards Bodies Regulations of 28 March 1998, the Standards Generating Body (SGB) for

Civil Engineering and Construction

Registered by NSB 12, Physical Planning and Construction, publishes the following qualifications and unit standards for public comment.

This notice contains the titles, fields, sub-fields, NQF levels, credits, and purpose of the qualification and unit standards upon which qualifications are based. The full qualification and unit standards can be accessed via the SAQA web-site at www.saga.org.za. Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, Hatfield Forum West, 1065 Arcadia Street, Hatfield.

Comment on the unit standards should reach SAQA at the address ***below and no later than 12 April 2004***. All correspondence should be marked **Standards Setting – SGB Civil Engineering and Construction** and addressed to

The Director: Standards Setting and Development
SAQA

Attention: Mr. D Mphuthing

Postnet Suite 248

Private Bag X06

Waterkloof

0145

or faxed to 012 – 431-5144

e-mail: dmphuthing@saga.co.za

JOE SAMUELS

DIRECTOR: STANDARDS SETTING AND DEVELOPMENT

SOUTH AFRICAN QUALIFICATIONS AUTHORITY**National Certificate in Construction Materials Testing -
NQF Level 2**

Field: Physical Planning and Construction - NSB 12:

Sub-Field: Civil Engineering Construction

Level: 2

Credits: 120

Issue Date:

Review Date:

Rationale for the qualification

The rationale for the introduction of a unit standard based - "National Certificate in Construction Materials Testing – NQF Level 2 " qualification- is to provide an introductory qualification for persons executing (under supervision) laboratory testing on construction materials.

Quality control during the construction process and the manufacturing of products used for construction, are totally dependent on the accurate execution of laboratory test by competent materials testers.

Learners will mostly be employed in the construction industry or the manufacturing of construction material products - where specialisation in the use of concrete, bituminous or soil materials occurs.

There is currently a critical shortage of competent Materials Testers in the Construction Industry.

The combination of learning outcomes in this qualification will provide learners with applied competence in the execution of laboratory sampling and laboratory testing procedures specifically for concrete, bituminous or soil construction materials depending on the learning area taken.

The qualification will serve as a basis for learning towards other higher Qualifications in Construction Materials Testing.

Its contribution to socio-economic transformation is that learners would be able to receive recognition for previous learning and experience.

Employability and career prospects are enhanced. Progress to Level 4 - will enable learners to start their own businesses supplying a construction materials testing service – a process that will accelerate economic transformation and give economic empowerment.

The benefits to the economy is that quality products will be constructed / manufactured with lower maintenance cost, longer life spans and meeting the minimum requirements with respect to safety.

Purpose of the Qualification:

Learners found competent against this qualification will be able to (under supervision) safely execute sampling and laboratory testing. These test are for mix designs, quality control during construction and acceptance testing of completed products and stabilised materials.

For those with extensive experience in the workplace, this qualification can be used in the recognition of prior learning process to assess and recognise workplace skills acquired without the benefit of formal education and training.

For the new entrant, this qualification describes the learning outcomes required to effectively participate in a structured workplace.

For education and training providers, this qualification provides guidance for the development of appropriate learning programs and assessment documentation.

For employers, this qualification enables skills gaps to be identified and addressed ensuring that productivity levels are increased and business objectives achieved.

This qualification has been developed to provide flexibility and mobility / portability across the construction materials testing industry. This will allow for future career advancement across the various fields of learning for Construction Materials Testers.

Access to the qualification

As this is a Unit Standard based Qualification, any learner who meets the requirements for the learning assumed to be in place for each Unit Standard, will have access to the Qualification

This Qualification recognizes skills, knowledge and values required by the employer.

It is suitable for learners who:

- Have attended courses and then apply the knowledge gained to activities in the workplace
- Are already employed and have acquired the skills and knowledge without attending formal courses
- Participate in skills programmes or learnerships and have the appropriate work experience
- Acquired the learning through any combination of the above

Learning assumed to be in place:

Learners should have acquired the language competencies of NQF level 1 and mathematical literacy competencies of NQF Level 1, prior to embarking on learning towards this Qualification.

Exit level outcomes and assessment criteria.

On completion of this qualification learners are able to demonstrate and also apply the following generic competence:

- knowledge of physics and chemistry and apply this knowledge in the sampling and testing process of construction materials. The ability to apply knowledge of chemistry and physics will be evaluated against standardised test procedures contained in various codes of practise.
- knowledge of occupational health and safety specifically applicable to construction materials testing. Occupational health and safety issues and other related Legislative and regulative matters are applied according to industry norm.
- knowledge of aggregate sampling and testing. Aggregate materials are sampled and tested in accordance with industry norms and specifications.

Electives and assessment criteria for the different proposed fields of learning are as follows:

Bituminous Materials Field of Learning

Demonstrate a basic competence to sample and test (under supervision) asphalt materials and bituminous binders– in a safe and efficient manner.

These outcomes are assessed when the learner demonstrates the identification of materials to be sampled and tested, identifies the correct apparatus and prepares both the apparatus and materials to be tested. It further involves the execution of the test under supervision and in compliance to specified test procedures, taking and recording of test readings and test results.

Concrete Materials Field of Learning

Demonstrate a basic competence to sample and test (under supervision) concrete materials– in a safe and efficient manner.

These outcomes are assessed when the learner demonstrates the identification of materials to be sampled and tested, identifies the correct apparatus and preparing both the apparatus and materials to be tested. It further involves the execution of the test under supervision and in compliance to specified test procedures, taking and recording of test readings and test results.

Soil and Gravel Materials Field of Learning

Demonstrate a basic competence to sample and test (under supervision) soil and gravel materials – in a safe and efficient manner.

These outcomes are assessed when the learner demonstrates the identification of materials to be sampled and tested, identifies the correct apparatus and preparing both the apparatus and materials to be tested. It further involves the execution of the test under supervision and in compliance to specified test procedures, taking and recording of test readings and test results.

International Comparability:

This Qualification model based on learning fields is unique to South Africa. In terms of this model, a learner can specialise in one of the three fields of learning indicated in the articulation part of the qualification. On completion of any of the field of learning – the same qualification is awarded.

The model is however comparable to the - "strand" - concept in Qualifications registered on the New Zealand Qualifications Framework. The "strand " enables learners to specialise.

No information could be found on the New Zealand National Qualifications Framework for Qualifications in Construction Materials Testing.

One training provider in Australia does offer a post certificate / diploma / degree course in Construction Materials Testing (soils and concrete). The course has a duration of 108 hours.

By comparison, the National Certificates in Construction Materials Testing in South Africa have a minimum of 142 credits – that is 1420 hours of learning and training. The learning field – Concrete Materials – is a much more comprehensive training program in the material range as the number test procedures and the training hours are concerned.

The Scottish Qualifications Authority has a Unit Standard at level 4 "Building Materials: Performance Studies " – which contains an outcome – ' describe and carry out tests on building materials and prepare laboratory reports' – range statement – cement, aggregates, fresh concrete, hardened concrete, masonry products, timber and steel.

Integrated Assessment:

Formative assessments conducted during the learning process will consist of written tests, demonstrations and a number of self-assessments. The purpose of formative assessment is to diagnose learner strengths and weaknesses and to determine readiness for summative assessment.

Summative assessment would consist of written tests coupled with assignments, case studies and practical demonstrations. Summative assessments would only be conducted once the learner has indicated that he/she is ready to undergo summative assessment.

Before qualifying, the learners will be expected to demonstrate competence in a practical situation that integrates the assessment of all specific outcomes, for all unit standards.

Integrated assessment provides learners with an opportunity to display an ability to integrate practical performance, actions, concepts and theory across Unit Standards in order to achieve competence in relation to the purpose of this Qualification.

In particular, assessors should check that the learner is able to demonstrate the ability to consider a range of options and make decisions about:

- The quality of the observed practical performance as well as the theory and underpinning knowledge behind it.
- The different methods that can be used by the learner to display thinking and decision making in the demonstration of practical performance.
- Reflexive competencies.

Recognition of Prior Learning:

The qualification may be obtained through the process of Recognition of Prior Learning (RPL). Learners who have met the requirements of any unit standard in this qualification may apply for recognition of prior learning to the relevant body, and will be assessed against the assessment criteria and specific outcomes for the relevant Unit Standard/s.

Articulation Possibilities

This Qualification has been developed for mobility across various fields of learning in Construction Materials Testing.

Horizontal articulation is possible because the fundamental learning and the core units are the same for all the various fields of learning.

Refer to annexure C elective Unit Standards – rules of combination – where different combinations of electives together with Fundamental and Core learning – formatted in fields of learning- on completion will result in the same generic National Certificate in Construction Materials Testing – NQF Level 2.

Articulation with the National Certificate in the Supervision of Construction processes at NQF Level 4 is possible since this qualification contains a unit standard dealing with the interpretation of test/ laboratory results.

Articulation with the National Diploma in the Management of Construction processes at NQF Level 5 is also possible since this qualification contains a unit standard dealing with the initiation of and interpreting of test / laboratory results.

Vertical articulation is also possible.

Learners can progress from level 2 to level 6 in the various fields of learning.

The following qualifications provide a learning pathway for the Construction Materials Tester / Technician / Technologist

NQF level 2: (this qualification)

National Certificate in Construction Materials Testing – various fields of learning

NQF level 4: (generic qualification in process of registration)

National Certificate in Construction Materials Testing – various fields of learning.

NQF level 5: (still to be developed)

National Diploma in Construction Materials Technology – various fields of learning

NQF level 6: (still to be developed)

National Degree in Construction Materials Technology

Equally, holders of other qualifications may be evaluated against this qualification for the purpose of RPL.

Criteria for the registration of assessors:

For an applicant to register as an assessor, the applicant needs:

- The assessor should have acquired the Unit Standard/s being assessed and have at least one year subject matter expertise or work experience
- A broad understanding of the context of the qualification in order to enable integrated assessment
- A recognized assessor course
- Comply with the other relevant ETQA's requirements for assessor registration

Moderation Options:

Assessment of learner achievements takes place at providers accredited by the relevant ETQA for the provision of programs that result in the outcomes specified for the National Certificates in Construction Materials Testing. The relevant ETQA, or other appropriate ETQA's who have a Memorandum of Understanding in place with the relevant ETQA, is responsible for the moderation of learner achievements of learners who meet the requirements of this qualification.

Anyone assessing a learner or moderating the assessment of a learner against this qualification must be registered as an assessor with the relevant ETQA. Any institution offering learning that will enable the achievement of this qualification must be accredited as a provider with the relevant ETQA.

Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQA's policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQA's and in terms of the moderation guideline detailed immediately below.

Moderation must include both internal and external moderation of assessments at exit points of the qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual unit standards as well as the integrated competence described in the qualification.

Anyone wishing to be assessed against this qualification may apply to be assessed by any assessment agency, assessor or provider institution, which is accredited by the relevant ETQA.

UNIT STANDARDS MATRIX:

NATIONAL CERTIFICATE IN CONSTRUCTION MATERIALS TESTING –

NQF LEVEL 2

Annexure A

U.S. No	Unit Standard Title	Level	Credits
	All 60 credits must be taken		60
12462	Engage in a range of speaking and listening interactions for a variety of purposes	1	6
12469	Read and respond to a range of text types	1	6
12470	Write for a variety of different purposes	1	6
8962	Maintain and adopt oral communication	2	5
8964	Write for a defined context	2	5
8963	Access and use information from text	2	5
8967	Use language and communication in occupational learning programs	2	5
8982	Demonstrate understanding of rational and irrational numbers and number systems, within the context of relevant calculations.	2	3
7469	Use mathematics to investigate and monitor the financial aspects of personal and community life	2	2
9007	Work with a range of patterns and functions and solve problems	2	5
9008	Measure, estimate and calculate physical quantities and explore, describe and represent geometrical relationships in 2-dimensions in different life or workplace contexts.	2	3
9009	Apply basic knowledge of statistics in order to investigate life and work related problems	2	3
	Demonstrate an understanding and apply physical science and chemistry in construction materials testing	2	6

Annexure B

U.S. No	Unit Standard Title	Level	Credits
	All 28 credits must be taken		28
	Execute laboratory testing pertaining to aggregates	2	12
	Execute sampling of aggregate material for testing	2	4
	Implement occupational health and safety measures in a construction materials testing laboratory	2	6
7547	Operate a personal computer system	2	6

Annexure C

In order to qualify **a minimum of 32 credits must be taken** from the list of elective unit standards available.

U.S. No	Unit Standard Title	Level	Credits
7572	Demonstrate knowledge of and produce computer spreadsheets using basic functions	2	3
7568	Demonstrate knowledge of and produce word processing documents using basic functions	2	3
7570	Produce word processing documents for business	3	5
7567	Produce and use spreadsheets for business	3	5
	Execute sampling of asphalt materials for testing	2	10
	Execute laboratory testing pertaining to asphalt materials	2	20
	Execute sampling of bituminous binder material for testing	2	4
	Execute laboratory testing pertaining to bituminous binders	2	10
	Execute sampling of concrete material for testing.	2	7
	Execute laboratory testing pertaining to concrete	2	25
	Execute sampling of soil & gravel material	2	12
	Execute laboratory testing pertaining to soils and gravels	2	20

Rules of Combination:

The qualification is composed of Fundamental, Core and Elective learning components: Fundamental – 60 credits. Core – 28 credits.

In order to be awarded the Qualification, the learner has to prove competence on all the Fundamental and Core unit standards, as well as **a minimum of 32 credits from the elective list** contained in Annexure C.

In order to cluster the elective learning in meaningful combinations that will assist learners to attain marketable skills in a specific direction and facilitate career development / career paths, the following are proposed learnerships.

Bituminous Materials Testing Field of Learning:

Fundamental: 60 credits Core: 28 credits Elective: 44 Total : 132 credits

- Execute sampling of asphalt materials for testing – NQF Level 2
- Execute laboratory testing pertaining to asphalt materials –NQF Level 2
- Execute sampling of bituminous binder materials for testing – NQF Level 2
- Execute laboratory testing pertaining to bituminous binders – NQF Level 2

Concrete Materials Testing Field of Learning:

Fundamental: 60 credits Core: 28 credits Elective: 40 Total : 128 credits

- Execute sampling of concrete material for testing – NQF Level 2
- Execute laboratory testing pertaining to concrete –NQF Level 2
- Demonstrate knowledge of and produce computer spreadsheets using basic functions –NQF Level 2
- Produce word processing documents for business – NQF Level 3

Soils and Gravel Testing Field of Learning:

Fundamental: 60 credits Core: 28 credits Elective: 35 Total : 123 credits

- Execute sampling of soil & gravel material – NQF Level 2
- Execute laboratory testing pertaining to soils and gravels – NQF Level 2
- Demonstrate knowledge of and produce word processing documents using basic functions – NQF Level 2

Annexure D

New unit standards submitted with these qualifications that have not previously been submitted and does not appear with other new qualifications.

Unit Standard Title	Level	Credit
Demonstrate an understanding and apply physical science and chemistry in construction materials testing	2	6
Execute laboratory testing pertaining to aggregates	2	12
Execute laboratory testing pertaining to asphalt materials	2	20
Execute laboratory testing pertaining to bituminous binders	2	10
Execute laboratory testing pertaining to concrete	2	25
Execute laboratory testing pertaining to soils and gravels	2	20
Execute sampling of aggregate material for testing	2	4
Execute sampling of asphalt materials for testing	2	10
Execute sampling Level 2	2	4
Execute sampling of concrete material for testing.	2	7
Execute sampling of soil & gravel material	2	12
Implement occupational health and safety measures in a construction materials testing laboratory	2	6

Annexure E**UNIT STANDARD TITLES AND ASSOCIATE SPECIFIC OUTCOMES:**

Title 1: *Demonstrate an understanding and apply physical science and chemistry in construction materials testing*

Associated Specific Outcomes:

1. Demonstrate an understanding of physical science concepts in construction materials testing.
2. Apply physical science concepts during construction materials testing.
3. Demonstrate an understanding of chemistry in construction materials testing.
4. Apply chemistry during construction materials testing.

Title 2: *Execute laboratory testing to pertaining aggregates*

Associated Specific Outcomes:

1. Plan the execution of the testing under supervision.
2. Prepare sampled material for testing under supervision.
3. Execute the laboratory tests under supervision.
4. Record and store test readings under supervision.

Title 3: *Execute laboratory testing pertaining to asphalt materials*

Associated Specific Outcomes:

1. Plan the execution of the testing under supervision.
2. Prepare sampled material for testing under supervision.
3. Execute the laboratory tests under supervision.
4. Record and store test readings under supervision.

Title 4: *Execute laboratory testing pertaining to bituminous binders***Associated Specific Outcomes:**

1. Plan the execution of the testing under supervision.
2. Prepare sampled material for testing under supervision.
3. Execute the laboratory tests under supervision.
4. Record and store test readings under supervision.

Title 5: *Execute laboratory testing pertaining to concrete***Associated Specific Outcomes:**

1. Plan the execution of the testing under supervision.
2. Prepare sampled material for testing under supervision.
3. Execute the laboratory tests under supervision.
4. Record and store test readings under supervision.

Title 6: *Execute laboratory testing pertaining to soils and gravels***Associated Specific Outcomes:**

1. Plan the execution of the testing under supervision.
2. Prepare sampled material for testing under supervision.
3. Execute the laboratory tests under supervision.
4. Record and store test readings under supervision.

Title 7: *Execute sampling of aggregates for testing***Associated Specific Outcomes:**

1. Determine the number, size and type of samples under supervision.
2. Prepare for sampling under supervision.
3. Execute sampling under supervision.

4. Label containers and transport samples to laboratory under supervision

Title 7: *Execute sampling of asphalt materials for testing*

Associated Specific Outcomes:

1. Determine the number, size and type of samples under supervision.
2. Prepare for sampling under supervision.
3. Execute sampling under supervision.
4. Label containers and transport samples to laboratory under supervision.

Title 8: *Execute sampling of bituminous binder material for testing*

Associated Specific Outcomes:

1. Determine the number, size and type of samples, under supervision.
2. Prepare for sampling under supervision.
3. Execute sampling under supervision.
4. Label containers and transport samples to laboratory under supervision.

Title 9: *Execute sampling of concrete material for testing*

Associated Specific Outcomes:

1. Determine the number, size and type of samples.
2. Prepare for sampling.
3. Execute sampling.
4. Label containers and transport samples to laboratory.

Title 10: *Execute sampling of soils and gravels for testing***Associated Specific Outcomes:**

1. Determine the number, size and type of samples under supervision.
2. Prepare for sampling under supervision.
3. Execute sampling under supervision.
4. Label containers and transport samples to laboratory under supervision.

Title 11: *Implement Occupational Health and Safety measures in a construction materials testing laboratory***Associated Specific Outcomes:**

1. Identify occupational health and safety hazards in a construction materials testing laboratory and report to supervisors.
2. Identify protective clothing and equipment and demonstrate use.
3. Train unskilled support staff on Occupational Health and Safety issues under supervision.
4. Demonstrate the use of first aid kit specific to occupational health and safety hazards encountered during a construction materials testing / sampling processes.

SOUTH AFRICAN QUALIFICATIONS AUTHORITY

**National Certificate in the Supervision of Construction Processes - NQF Level 4**

Field: Physical Planning and Construction - NSB 12:

Sub-Field: Building Construction
Civil Engineering Construction

Level: 4

Credits: 176

Issue Date:

Review Date:

Rationale for the qualification

The rationale for the introduction of a Unit Standard based Qualification - "National Certificate in the Supervision of Construction Processes - NQF Level 4", is to provide a qualification for persons supervising the use of construction resources and construction work processes. Typical job roles would include foreman, general foreman, and superintendent.

The Qualification reflects the skills, knowledge, and understanding required to be an effective supervisor in the Construction Industry, whether in micro, small, medium, or large operations.

The Qualification consists of generic supervisory competencies, generic technical competencies, as well as "supervisory technical expertise" required in a specific context. The latter reflects the technical working knowledge and skills required to supervise a specific area of activity. The various areas of supervision are reflected in the Elective component of the qualification.

The meaningful grouping of electives as proposed in annexure C – rules of combination – implemented via proposed fields of learning – will give the learner contextualised expertise in a specific area of specialisation as indicated in the fields of learning.

The Qualification will serve as a basis for learning towards the National Diploma in the Management of Construction Processes – NQF Level 5.

Its contribution to socio-economic transformation is that learners would be able to undergo RPL-assessment and thereby receive recognition for

previous learning and experience. The employability and career prospects of learners can therefore be enhanced by this Qualification.

Previously disadvantaged individuals with this Qualification can take a supervisory role in Industry – a process that will accelerate economic transformation and give economic empowerment.

The benefits to the economy is that quality supervision in the Construction Industry will result in improved productivity, quality, safety and cost efficiency - thus improving service delivery of infrastructure.

Purpose of the Qualification:

Learners found competent against this Qualification will be able to execute the supervision of construction processes, with specialisation in a specific context.

For those with extensive experience in the workplace, this Qualification can be used in the recognition of prior learning process to assess and recognise workplace skills acquired without the benefit of formal education and training.

For the new entrant, this Qualification describes the learning outcomes required to effectively participate in a structured workplace.

For education and training providers, this Qualification provides guidance for the development of appropriate learning programmes and assessment documentation.

For employers, this Qualification enables skills gaps to be identified and addressed ensuring that productivity levels are increased and business objectives achieved.

This Qualification has been developed to provide flexibility and mobility / portability across the construction industry. This will allow for future career advancement across the various learnerships in the supervision of construction processes.

Access to the Qualification

As this is a Unit Standard based Qualification, any learner who meets the requirements for the learning assumed to be in place for each Unit StandardUnit Standard, will have access to the Qualification

This Qualification recognizes skills, knowledge and values relevant to a workplace.

It is suitable for learners who:

- Have attended courses and then apply the knowledge gained to activities in the workplace
- Are already employed and have acquired the skills and knowledge without attending formal courses
- Participate in skills programmes or learnerships and have the appropriate work experience

- Acquired the learning through any combination of the above

Learning assumed to be in place:

Learners should have acquired the language competencies of NQF level 3 and mathematical literacy competencies of NQF Level 3, prior to embarking on learning towards this Qualification.

Exit level outcomes and assessment criteria.

On completion of this Qualification learners are able to demonstrate and apply the following generic competences:

- Demonstrate knowledge and application of occupational health and safety specifically applicable to construction supervision.
 - Occupational health and safety issues are discussed and evaluated according to industry norms and specifications.
- Knowledge of construction material procurement.
 - Industry and organisational procurement policies and norms are used to evaluate and prepare a procurement document.
- Show knowledge of environmental protection.
 - Environmental legislation and norms to be used to evaluate environmental impact are identified.
- Demonstrate knowledge of quality control and improvements in a construction environment.
 - Quality control and improvements in the construction environment is conducted according to industry norms and specifications.
- Calculate quantities to develop a work plan.
 - A work plan is evaluated to comply with organisational and industry norms.
- Display knowledge of productivity control and improvements.
 - Productivity control and improvements is shown in accordance with industry norms and specifications.
- Display team leadership.
 - Organisational norms, Human Resource legislation are observed.
- Read and interpret drawings according to project specifications and Industry norms.
 - Drawings are read, interpreted and evaluated using specifications and Industry norms.

Elective exit level outcomes and assessment criteria for the different proposed fields of learning are as follows:

General Supervision - Civil Engineering

Demonstrate the competence to supervise general Civil Engineering Construction Works

This outcome is assessed when the learner demonstrates: Initiating quality control via laboratory testing, identifying appropriate civil construction materials, and controlling the setting out of work.

General Structures Learning Field:

Demonstrate the competence to supervise general structural construction processes.

This outcome is assessed when the learner demonstrates: the identification of raw materials for concrete production, adjusting mix designs when required, knowledge of concrete construction and concrete materials technology.

Concreting Specialised Learning Field:

Demonstrate the competence to supervise specialised concreting.

This outcome is assessed when the learner demonstrates: Under water concrete technology, specialised sealing, and repairs to concrete.

Concreting Pre-cast Learning Field:

Demonstrate the competence to supervise Pre-cast concreting.

This outcome is assessed when the learner demonstrates: knowledge of the various pre-cast concreting technologies.

Concrete reinforcing Learning Field:

Demonstrate the competence to supervise general concrete reinforcing.

This outcome is assessed when the learner demonstrates: knowledge of site and workshop reinforcing technologies.

Access Scaffolding Learning Field:

Demonstrate the competence to supervise access scaffolding:

This outcome is assessed when the learner demonstrates: knowledge of access scaffolding technology.

Load Bearing Scaffolding Learning Field:

Demonstrate the competence to supervise Load Bearing scaffolding:

This outcome is assessed when the learner demonstrates: knowledge of Load Bearing scaffolding technology.

Suspended Scaffolding Learning Field:

Demonstrate the competence to supervise suspended scaffolding:

This outcome is assessed when the learner demonstrates: knowledge of suspended scaffolding technology.

Formwork Learning Field:

Demonstrate the competence to supervise the fabrication and erection of formwork.

This outcome is assessed when the learner demonstrates: knowledge of: erection of scaffolding required for formwork, identifying and use of materials, tools and equipment for the fabrication and erection process, safety issues and stripping the formwork on completion.

Jacking Learning Field:

Demonstrate the competence to supervise jacking operations.

This outcome is assessed by demonstrating: knowledge of jacking procedures.

Structural steel erecting Learning Field:

Demonstrate the competence to supervise structural steel erecting.

This outcome is assessed by demonstrating knowledge of : lifting and positioning of loads, erection technology, and finishing structural steel work.

Structural Steel Maintenance Learning Field:

Demonstrate the competence to supervise structural steel maintenance.

This outcome is assessed by demonstrating knowledge of: access and suspended scaffolding work, structural steel maintenance technology.

Piling Learning Field:

Demonstrate the competence to supervise piling operations.

This outcome is assessed by demonstrating knowledge of piling technology.

Road and Rail Formation Learning Field:

Demonstrate the competence to supervise the construction of rail formation.

This outcome is assessed by demonstrating knowledge of: bulk earthworks construction technology, surface drainage construction, and layer-work construction technologies.

Bulk Earthworks Learning Field:

Demonstrate the competence to supervise the construction of bulk Earthworks.

This outcome is assessed by demonstrating knowledge of material properties, plant usage and earthworks construction techniques.

Surface Drainage Learning Field:

Demonstrate the competence to supervise the construction of surface drainage structures.

This outcome is assessed by demonstrating knowledge of setting out of structures, concrete technology, laying of pipes and structures, safety.

Layer-works Learning Field:

Demonstrate the competence to supervise the construction of layer-works.

This outcome is assessed by demonstrating knowledge of: identification of plant and equipment required, materials properties, laboratory control processes.

Labour Intensive Roads and Storm water Construction Learning Field:

Demonstrate the competence to supervise the construction of roads and storm water with labour intensive techniques.

This outcome is assessed by demonstrating knowledge of: general labour intensive techniques, specific labour intensive techniques for roads and storm water.

Labour Intensive Water and Sanitation construction Learning Field:

Demonstrate the competence to supervise the construction of water and sanitation services with labour intensive construction techniques.

This outcome is assessed by demonstrating knowledge of: general labour intensive techniques, specific labour intensive techniques for water and sanitation services.

Labour Intensive Structural construction, repair, and maintenance Learning Field:

Demonstrate the competence to supervise the construction of structures, repair work, and maintenance with labour intensive techniques.

This outcome is assessed by demonstrating knowledge of: general labour intensive techniques, specific labour intensive techniques for structural construction, repair, and maintenance.

Roadworks- Bituminous Construction: Learning Field:

Demonstrate the competence to supervise the construction of road works with a bituminous surface.

This outcome is assessed by demonstrating knowledge of: asphalt technology, surfacing processes, setting out of works, installation of surface drainage and cross-drainage structures, finishing of road works.

Roadworks – Cementitious Construction Learning Field:

Demonstrate the competence to supervise the construction of road works with a cementitious surface.

This outcome is assessed by demonstrating knowledge of: concrete technology, concrete payment technology, setting out of works, installation of surface drainage and cross-drainage structures, finishing of road works.

Roadworks – Maintenance Learning Field:

Demonstrate the competence to supervise the maintenance of roads.

This outcome is assessed by demonstrating knowledge of: road surfacing, road rehabilitation, road finishing, setting out of works, installation of drainage and cross-drainage structures.

Water and Waste Water Learning Field:

Demonstrate the competence to supervise the construction of water and waste water services including maintenance.

This outcome is assessed by demonstrating knowledge of: pipe-laying techniques, bedding of pipes, safety, maintenance procedures, and materials usage.

Building Construction Learning Field:

Demonstrate the competence to supervise the construction of buildings.

This outcome is assessed by demonstrating knowledge of: tiling and plastering techniques, masonry techniques, timber roofing techniques, timber finishing techniques, plumbing techniques, glazing techniques.

Plant Operator Learning Field:

Demonstrate the competence to supervise the use of plant in Civil Engineering construction processes.

This outcome is assessed by demonstrating knowledge of: Identification of plant, maintenance, productivity control, safety, properties of material processed by the plant.

International Comparability:

The Fields of Learning model for the Qualification " National Certificate in the Supervision of Construction Processes - NQF 4 is unique to South Africa.

In New Zealand Qualifications were developed specifically for Building Construction, Civil Engineering Construction, Civil Plant Operation and Management, Civil Works and Services, Engineering, Highway Construction and Maintenance, Pavement Surfacing. All these Qualifications contain Unit Standards relevant to the South African Construction Industry.

The formatting of these Qualifications differs from the South African Qualifications Criteria for Qualification compilation. Small Qualifications with a total of 50 credits are allowed. Fundamental Unit Standards are not specified, as is the case in South Africa.

The closest New Zealand Qualifications can be compared to the Learnership model, is that they refer to "strand" - which is similar in concept to our "learnerships". In one Qualification they specified the following "strand" options: Demolition strand, drainage strand and Earthworks strand. In this particular Qualification, the core component was 182 credits - ranging from level 1 to 5 with the bulk at level 4. Depending on the "strand" selected - the total Qualification credits came to a maximum of 223 credits for this level 4 Qualification.

This implies that a Qualification with a high number of credits at some of the lower NQF levels is not uncommon.

The large number of credits for Fundamentals 62 combined with the fact that management/supervisory competencies are combined with technical competencies - 102 credits in core, resulted in a large Qualification. Even so the number of credits compare favourably with similar Qualifications in New Zealand.

Integrated Assessment:

Formative assessments conducted during the learning process will consist of written tests, demonstrations and a number of self-assessments. The purpose of formative assessment is to diagnose learner strengths and weaknesses and to determine readiness for summative assessment.

Summative assessment would consist of written tests coupled with assignments, case studies and practical demonstrations. Summative assessments would only be conducted once the learner has indicated that he/she is ready to undergo summative assessment.

Before qualifying, the learners will be expected to demonstrate competence in a practical situation that integrates the assessment of all specific outcomes, for all Unit Standards.

Integrated assessment provides learners with an opportunity to display an ability to integrate practical performance, actions, concepts and theory across Unit Standards in order to achieve competence in relation to the purpose of this Qualification.

In particular, assessors should check that the learner is able to demonstrate the ability to consider a range of options and make decisions about:

- The quality of the observed practical performance as well as the theory and underpinning knowledge behind it.
- The different methods that can be used by the learner to display thinking and decision making in the demonstration of practical performance.
- Reflexive competencies

Recognition of Prior Learning:

The Qualification may be obtained through the process of Recognition of Prior Learning (RPL). Learners who have met the requirements of any Unit Standard in this Qualification may apply for recognition of prior learning to the relevant Education and Training Quality Assurance Body (ETQA), and will be assessed against the assessment criteria and specific outcomes for the relevant Unit Standard/s. ETQA bodies are responsible to facilitate the implementation of the RPL. The ETQA body registers trained assessors against specific Unit Standards. Learners are prepared for assessment and assessed against the Unit Standard by these registered assessors. Moderation and also an appeals process are in place. Learners declared competent against a specific Unit Standard, receives an ETQA certificate indicating this achievement. This information is also recorded on the National Record Learner Database (NLRD).

Articulation Possibilities

This Qualification has been developed for mobility across various fields of learning in Construction Supervision.

Horizontal articulation is possible because the fundamental learning and the core units are the same for all the various fields of learning.

Refer to annexure C elective Unit Standards – rules of combination – where different combinations of electives together with Fundamental and Core learning – formatted in learnerships- on completion will result in the same generic National Certificate in the Supervision of Construction Processes – NQF Level 4.

Articulation with the National Certificates in Construction Materials Testing – NQF Levels 2 and 4 is also possible since the interpretation of and execution of laboratory test / sampling is part of the quality control and construction process contained in this Supervisory Qualification.

Vertical articulation is also possible.

Learners can progress from level 1 to level 7 in the various fields of learning.

The following Qualifications provide a learning pathway for the Construction worker.

NQF Level 1

National Certificate in Construction

NQF Level 2:

National Certificate in Construction

NQF Level 3

National Certificate in Construction

NQF level 4:

National Certificate in the Supervision of Construction Processes

NQF level 5:

National Diploma in the Management of Construction Processes

NQF level 6

National Degree in Construction Management

NQF Level 7

National Professional Degree in Construction Management

Criteria for the registration of assessors:

For an applicant to register as an assessor, the applicant needs:

- The assessor should have acquired the Unit Standard/s being assessed or have one a level higher, and should have at least one year subject matter expertise or work experience;
- A broad understanding of the context of the Qualification in order to promote integrated assessment;
- A recognized assessor course; and
- To comply with the relevant ETQA's requirements for assessor registration.

Moderation Options:

Assessment of learner achievements takes place at providers accredited by the relevant ETQA (RSA, 1998b) for the provision of programs that result in the outcomes specified for the National Certificates in Construction Materials Testing. The relevant ETQA, or other appropriate ETQA's who have a Memorandum of Understanding in place with the relevant CETA - ETQA, is responsible for the moderation of learner achievements of learners who meet the requirements of this Qualification.

Anyone assessing a learner or moderating the assessment of a learner against this Qualification must be registered as an assessor with the relevant ETQA. Any institution offering learning that will enable the achievement of this Qualification must be accredited as a provider with the relevant ETQA.

Assessment and moderation of assessment will be overseen by the relevant ETQA according to the ETQA's policies and guidelines for assessment and moderation; in terms of agreements reached around assessment and moderation between ETQA's and in terms of the moderation guideline detailed immediately below.

Moderation must include both internal and external moderation of assessments at exit points of the Qualification, unless ETQA policies specify otherwise. Moderation should also encompass achievement of the competence described both in individual Unit Standards as well as the integrated competence described in the Qualification.

Anyone wishing to be assessed against this Qualification may apply to be assessed by any assessment agency, assessor or provider institution, which is accredited by the relevant ETQA.

UNIT STANDARDS MATRIX:

NATIONAL CERTIFICATE IN THE SUPERVISION OF CONSTRUCTION
PROCESSES–NQF LEVEL 4

Annexure A

U.S. No	Unit Standard Title	Level	Credits
	All 62 credits must be taken		62
8968	Accommodate audience and context needs in oral communication	3	5
8969	Interpret and use information from texts	3	5
8970	Write texts for a range of communicative contexts	3	5
8973	Use language and communication in occupational learning programmes	3	5
8974	Engage in sustained oral communication and evaluate spoken texts	4	5
8975	Read, analyse and respond to a variety of texts	4	5
8976	Write for a wide range of contexts	4	5
8979	Use language and communication in occupational learning programmes	4	5
9014	Use mathematics to investigate and monitor the financial aspects of personal, business and national issues	4	6
9015	Apply knowledge of statistics and probability to critically interrogate and effectively communicate findings on life-related problems	4	6
9016	Measure, estimate and calculate physical quantities and explore, critique and prove geometrical relationships in two and three-dimensional space in the life and workplace of the adult with increasing responsibilities	4	4
7568	Demonstrate knowledge of and produce word processing documents using base functions	2	3
7572	Demonstrate knowledge of and produce computer spreadsheets using base functions	2	3

Annexure B

U.S. No	Unit Standard Title	Level	Credits
	All 102 credits must be taken		102
14430	Supervise the procurement, use and storage of construction materials	4	10
14425	Perform site administration functions	4	10
14418	Monitor and control cost and production of construction work activities and implement productivity improvements	4	12
14417	Lead and supervise construction teams	4	8
14416	Implement a quality management system, project quality plan and a quality improvement process on a construction project	4	10
15137	Apply contract documentation	5	10
14429	Supervise health and safety on a construction project	4	6
9982	Comply with legal requirements for a construction contract	2	8
14426	Read, interpret and use construction drawings and specifications	4	10
14414	Calculate construction quantities and develop a work plan	4	8
14415	Describe and interpret the composition, role-players, processes and role of the construction industry	4	4
114218	Demonstrate an understanding and implement environmental initiatives on a construction project	4	6

Annexure C

In order to qualify **a minimum of 12 credits must be taken** from the list of elective Unit Standards available.

U.S. No	Unit Standard Title	Level	Credits
	Assess appearance, durability, and strength of pre-cast elements.	4	5
	Carry out routine test on raw materials for concrete production	4	10
	Conduct specialist sealing and repairs to concrete	4	10
	Control concrete materials quality	4	5
	Demonstrate an understanding of and adjust concrete mix design	4	5
15183	Demonstrate knowledge of concrete construction Technology	4	10
	Demonstrate knowledge and apply concrete materials technology	4	10
	Finish off and hand over structural works	3	12
13972	Identify, describe and use Civil Engineering Construction materials	2	4
15161	Initiate testing and interpret test/lab results in Civil Construction	5	4
15168	Implement labour intensive Construction systems and techniques	4	12
	Interpret and apply reinforcing drawing	4	5
	Interpret test/laboratory results in Civil Construction	4	4
	Lift and position loads	3	12
	Organise and control tiling and plastering activities	4	5
	Organise and control plumbing activities	4	6
	Organise and control masonry activities	4	6
	Organise and control paving activities	4	6
	Organise and control roof carpentry activities	4	6
	Organise and control finishing carpentry activities	4	6
15167	Organise and control concreting activities	4	20
	Organise and control the construction of concrete pave wearing courses	4	5
15189	Organize and control road rehabilitation by Milling	4	4
	Oversee concrete production	4	5

	Oversee instantly de-moulded pre cast concrete element production	4	5
	Oversee pre cast concrete production - wet mix	4	5
	Oversee spun pre cast concrete element production	4	5
15179	Organise and control the installation of concrete segmented paving blocks	4	5
15181	Organise and control a binder manufacturing process	5	10
15185	Organise and control the spraying of bitumen on road surfaces	4	5
15178	Organise and control a hot mix asphalt manufacturing process	5	10
15171	Organise and control general road finishing activities	4	6
	Organize and control the installation of jacked pipes	4	8
15187	Organise and control general road maintenance activities	4	20
15169	Organise and control the construction of bulk earthworks	4	12
15170	Organise and control the utilisation of plant and equipment in civil engineering construction	4	12
	Perform tandem lifting	4	12
	Plan and prepare for the erection of structural steelwork	4	16
	Plan organize and control the maintenance of gravity drainage structures	4	5
	Plan organize and control the maintenance of pressure pipelines	4	8
	Plan organize and control the installation of pressure and gravity drainage pipes	4	8
	Plan, organise and control a bituminous surfacing seal construction	5	15
	Plan, organise and control an asphalt paving construction	5	15
	Plan, organise and control piling operations	4	20
	Plan, organise and control pre-cast concrete manufacturing processes	4	10
	Plan, organize and control the installation of Armco pipes	4	8
	Plan, organise and control reinforcing site activities	4	25
	Plan, organise and control reinforcing workshop activities	4	20
15175	Plan, organise and control the construction of stabilized and un-stabilised pavement layers	4	12
	Plan, organise, and control the fabrication and erection of formwork.	4	20

	Plan, organise and control the erection, alteration/repositioning and dismantling of Access Scaffolding	4	12
	Plan, organise and control the erection, alteration/repositioning and dismantling of Load Bearing Scaffolding	4	12
	Plan, organise and control the erection, alteration/repositioning and dismantling of Suspended Scaffolding	4	18
	Plan, organise and control the jacking of concrete structures	4	20
15195	Plan organize and control the installation of drainage structures for storm-water flow	4	10
	Plan, organise and control the maintenance of steel structures	4	8
14428	Set out construction work areas	4	10
	Supervise the installation of pre-cast concrete elements	4	8
	Supervise under water concreting	4	4
	Tension bonded tendons	4	10
	Tension unbonded tendons	4	10
15165	Use labour intensive construction methods to Construct and maintain roads and storm water drainage	4	8
15159	Use labour intensive construction methods to Construct and maintain water and sanitation services	4	8
15166	Use labour intensive construction methods to construct, repair and maintain structures	4	8

Rules of Combination:

The Qualification is composed of Fundamental, Core and Elective learning components: Fundamental – 62 credits. Core – 102 credits.

In order to be awarded the Qualification, the learner has to prove competence on all the Fundamental and Core Unit Standards, as well as **a minimum of 12 credits from the elective list** contained in Annexure C.

In order to cluster the elective learning in meaningful combinations that will assist learners to attain marketable skills in a specific direction and facilitate career development / career paths, the following are proposed learnerships.

General Civil Engineering Construction Supervision Field of Learning:

Fundamental: 62 credits Core: 102 credits Elective: 18 Total: 182 credits

- Set out construction work areas– NQF Level 4
- Identify, describe and use Civil Engineering Construction Materials –NQF Level 2
- Initiate testing and interpret test / lab results in Civil Engineering Construction – NQF Level 5

General Structures Field of Learning

Fundamental: 62 credits Core: 102 credits Elective: 80 Total: 256 credits

- Set out construction work areas– NQF Level 4
- Carry out routine test on raw material for concrete work –NQF Level 4
- Demonstrate an understanding of and adjust concrete mix design – NQF Level 4
- Demonstrate knowledge of concrete construction technology – NQF Level 4.
- Demonstrate knowledge and apply concrete materials technology – NQF Level 4
- Interpret and apply reinforcing drawing –NQF Level 4
- Organise and control concreting activities – NQF Level 4
- Plan, organize and control the erection, alteration / repositioning and dismantling of Access scaffolding. – NQF Level 4
- Plan, organize and control the erection, alteration / repositioning and dismantling of Load bearing scaffolding. – NQF Level 4
- Supervise the installation of pre-cast concrete elements.

General Concreting Field of Learning:

Fundamental: 62 credits Core: 102 credits Elective: 40 Total: 204 credits

- Carry out routine test on raw material for concrete work –NQF Level 4
- Demonstrate an understanding of and adjust concrete mix design – NQF Level 4
- Demonstrate knowledge of concrete construction technology – NQF Level 4.
- Demonstrate knowledge and apply concrete materials technology – NQF Level 4

- Oversee concrete production – NQF Level 4

Specialised Concreting Field of Learning:

Fundamental: 62 credits Core: 102 credits Elective: 54 Total: 218 credits

- Carry out routine test on raw material for concrete work –NQF Level 4
- Conduct specialized sealing and repairs to concrete – NQF Level 4.
- Demonstrate an understanding of and adjust concrete mix design – NQF Level 4
- Demonstrate knowledge of concrete construction technology – NQF Level 4.
- Demonstrate knowledge and apply concrete materials technology – NQF Level 4
- Oversee concrete production – NQF Level 4
- Supervise underwater concreting – NQF Level 4

Pre-cast Concreting Field of Learning:

Fundamental: 62 credits Core: 102 credits Elective: 103 Total: 267 credits

- Assess appearance, durability, and strength of pre-cast concrete elements.
- Carry out routine test on raw material for concrete work –NQF Level 4
- Demonstrate an understanding of and adjust concrete mix design – NQF Level 4
- Demonstrate knowledge of concrete construction technology – NQF Level 4.
- Demonstrate knowledge and apply concrete materials technology – NQF Level 4
- Interpret and apply reinforcing drawings –NQF Level 4
- Organize and control concreting activities – NQF Level 4
- Oversee concrete production – NQF Level 4
- Oversee instantly de-moulded pre-cast concrete element production – NQF Level 4
- Oversee pre-cast concrete production – wet mix –NQF Level 4
- Oversee spun pre-cast concrete element production –NQF Level 4
- Supervise the installation of pre-cast concrete elements – NQF Level 4

Concrete reinforcing Field of Learning:

Fundamental: 62 credits Core: 102 credits Elective: 55 Total: 219 credits

- Interpret and apply reinforcing drawings –NQF Level 4
- Plan, organize and control reinforcing workshop activities – NQF Level 4
- Plan, organize and control reinforcing site activities – NQF Level 4

Specialized Concrete reinforcing Field of Learning:

Fundamental: 62 credits Core: 102 credits Elective: 70 Total: 234 credits

- Interpret and apply reinforcing drawings –NQF Level 4
- Plan, organize and control reinforcing workshop activities – NQF Level 4
- Plan, organize and control reinforcing site activities – NQF Level 4

- Tension bonded tendons –NQF Level 4
- Tension un-bonded tendons –NQF Level 4

Access scaffolding Field of Learning

Fundamental: 62 credits Core: 102 credits Elective: 12 Total: 176 credits

- Plan, organize and control the erection, alteration / repositioning and dismantling of Access scaffolding. – NQF Level 4

Load bearing scaffolding Field of Learning

Fundamental: 62 credits Core: 102 credits Elective: 12 Total: 176 credits

- Plan, organize and control the erection, alteration / repositioning and dismantling of Load bearing scaffolding. – NQF Level 4

Suspended scaffolding Field of Learning

Fundamental: 62 credits Core: 102 credits Elective: 18 Total: 182 credits

- Plan, organize and control the erection, alteration / repositioning and dismantling of Suspended scaffolding. – NQF Level 4

Formwork Field of Learning

Fundamental: 62 credits Core: 102 credits Elective: 44 Total: 208 credits

- Plan, organize and control the erection, alteration / repositioning and dismantling of Load bearing scaffolding. – NQF Level 4
- Plan, organize and control the erection, alteration / repositioning and dismantling of Access scaffolding. – NQF Level 4
- Plan, organise, and control the fabrication and erection of formwork.

Jacking Field of Learning:

Fundamental: 62 credits Core: 102 credits Elective: 38 Total: 202 credits

- Plan, organize and control the jacking of concrete structures – NQF Level 4
- Set out construction work areas – NQF Level 4
- Organise and control the installation of jacked pipes – NQF Level 4

Structural Steel Erection Field of Learning:

Fundamental: 62 credits Core: 102 credits Elective: 62 Total: 226 credits

- Finish and hand over structural steel works – NQF Level 4
- Lift and position loads – NQF Level 4
- Perform tandem lifting –NQF Level 4
- Plan, organize and control the erection of structural steel work –NQF Level 4
- Set out construction work areas – NQF Level 4

Structural Steel Maintenance Field of Learning:

Fundamental: 62 credits Core: 102 credits Elective: 38 Total: 202 credits

- Plan, organize and control the erection, alteration / repositioning and dismantling of Suspended scaffolding. – NQF Level 4
- Plan, organize and control the erection, alteration / repositioning and dismantling of Access scaffolding. – NQF Level 4
- Plan, organize and control the maintenance of structural steel structures – NQF Level 4

Piling Field of Learning

Fundamental: 62 credits Core: 102 credits Elective: 50 Total: 214 credits

- Organize and control concreting activities – NQF Level 4
- Plan, organize and control piling operations – NQF Level 4
- Set out construction work areas – NQF Level 4

Road and Rail Formation Field of Learning

Fundamental: 62 credits Core: 102 credits Elective: 84 Total: 248 credits

- Identify, describe and use Civil Engineering Construction Materials – NQF Level 2
- Interpret test / laboratory results in Civil Engineering Construction – NQF Level 4
- Organize and control concreting activities – NQF Level 4
- Organize and control the construction of bulk earthworks – NQF Level 4
- Organize and control the utilization of plant and equipment in civil engineering construction – NQF Level 4
- Plan, organize and control the construction of stabilized and un-stabilized pavement layers – NQF Level 4
- Set out construction work areas – NQF Level 4
- Plan, organize and control the installation of drainage structures for storm-water flow- NQF Level 4

Bulk Earthworks Field of Learning

Fundamental: 62 credits Core: 102 credits Elective: 38 Total: 202 credits

- Interpret test / laboratory results in Civil Engineering Construction – NQF Level 4
- Organize and control the construction of bulk earthworks – NQF Level 4
- Organize and control the utilization of plant and equipment in civil engineering construction – NQF Level 4
- Set out construction work areas – NQF Level 4

Surface Drainage Field of Learning:

Fundamental: 62 credits Core: 102 credits Elective: 64 Total: 228 credits

- Interpret test / laboratory results in Civil Engineering Construction –NQF Level 4
- Set out construction work areas –NQF Level 4
- Plan, organize and control the installation of drainage structures for storm-water flow- NQF Level 4
- Organize and control concreting activities –NQF Level 4
- Plan, organize and control the installation of Armco pipes – NQF Level 4

Layer-works Field of Learning:

Fundamental: 62 credits Core: 102 credits Elective: 42 Total: 206 credits

- Interpret test / laboratory results in Civil Engineering Construction –NQF Level 4
- Set out construction work areas –NQF Level 4
- Identify, describe and use Civil Engineering Construction Materials – NQF Level 2
- Plan, organize and control the construction of stabilized and un-stabilized pavement layers – NQF Level 4
- Organize and control the utilization of plant and equipment in civil engineering construction –NQF Level 4

Labour Intensive Roads and Storm-water Construction Field of Learning

Fundamental: 62 credits Core: 102 credits Elective: 30 Total: 194 credits

- Implement labour intensive construction systems and techniques – NQF Level 4
- Set out construction work areas –NQF Level 4
- Use labour intensive construction methods to construct and maintain roads and storm-water drainage – NQF Level 4

Labour Intensive Water and Sanitation Construction Field of Learning

Fundamental: 62 credits Core: 102 credits Elective: 30 Total: 194 credits

- Implement labour intensive construction systems and techniques – NQF Level 4
- Set out construction work areas –NQF Level 4
- Use labour intensive construction methods to construct and maintain water and sanitation services – NQF Level 4.

Labour Intensive Structures Construction Field of Learning

Fundamental: 62 credits Core: 102 credits Elective: 30 Total: 194 credits

- Implement labour intensive construction systems and techniques – NQF Level 4
- Set out construction work areas –NQF Level 4
- Use labour intensive construction methods to construct, repair and maintain structures – NQF Level 4

Road-works –Bituminous Construction Field of Learning:

Fundamental: 62 credits Core: 102 credits Elective: 89 Total: 253 credits

- Organize and control a binder manufacturing process – NQF Level 4
- Organize and control the spraying of bitumen on road surfaces – NQF Level 4
- Organize and control a hot mix asphalt manufacturing process – NQF Level 4
- Organize and control general road finishing activities – NQF Level 4
- Plan, organize and control bituminous seal surfacing construction –NQF Level 4
- Plan, organize and control an asphalt paving construction –NQF Level 4
- Plan, organize and control the installation of drainage structures for storm-water flow- NQF Level 4
- Set out construction work areas –NQF Level 4
- Identify, describe and use Civil Engineering Construction Materials – NQF Level 2
- Interpret test / laboratory results in Civil Engineering Construction –NQF Level 4

Road-works –Cementitious Construction Field of Learning:

Fundamental: 62 credits Core: 102 credits Elective: 109 Total: 273 credits

- Carry out routine test on raw materials for concrete production – NQF Level 4
- Demonstrate an understanding of and adjust concrete mix design – NQF Level 4
- Demonstrate knowledge of concrete construction technology – NQF Level 4.
- Demonstrate knowledge and apply concrete materials technology – NQF Level 4
- Interpret and apply reinforcing drawings –NQF Level 4
- Organize and control concreting activities – NQF Level 4
- Organize and control general road finishing activities – NQF Level 4
- Organize and control the construction of concrete pave wearing courses – NQF Level 4
- Organize and control the installation of concrete segmented paving blocks – NQF Level 5
- Plan, organize and control the installation of drainage structures for storm-water flow- NQF Level 4
- Set out construction work areas –NQF Level 4
- Identify, describe and use Civil Engineering Construction Materials – NQF Level 2
- Interpret test / laboratory results in Civil Engineering Construction –NQF Level 4

Road-works –Maintenance Field of Learning:

Fundamental: 62 credits Core: 102 credits Elective: 108 Total: 272 credits

- Organize and control the spraying of bitumen on road surfaces – NQF Level 4
- Organize and control general road finishing activities – NQF Level 4
- Plan, organize and control bituminous seal surfacing construction –NQF Level 4
- Plan, organize and control an asphalt paving construction –NQF Level 4
- Plan, organize and control the installation of drainage structures for storm-water flow- NQF Level 4

- Set out construction work areas –NQF Level 4
- Demonstrate knowledge of concrete construction technology – NQF Level 4
- Organize and control concreting activities – NQF Level 4
- Identify, describe and use Civil Engineering Construction Materials – NQF Level 2
- Interpret test / laboratory results in Civil Engineering Construction –NQF Level 4
- Organize and control road rehabilitation by Milling – NQF Level 4
- Organize and control the installation of concrete segmented paving blocks – NQF Level 4
- Organize and control general road maintenance activities –NQF Level 4

Water and Waste Water construction Field of Learning.

Fundamental: 62 credits Core: 102 credits Elective: 31 Total: 195 credits

- Set out construction work areas –NQF Level 4
- Plan, organize and control the maintenance of gravity drainage structures – NQF Level 4
- Plan, organize and control the maintenance of pressure pipelines – NQF Level 4
- Plan, organise, and control the installation of pressure and gravity drainage pipes. – NQF Level 4

Building Construction Field of Learning

Fundamental: 62 credits Core: 102 credits Elective: 35 Total: 199 credits

- Organize and control tiling and plastering – NQF Level 4
- Organize and control plumbing activities – NQF Level 4
- Organize and control masonry activities – NQF Level 4
- Organize and control paving activities – NQF Level 4
- Organize and control roof carpentry activities – NQF Level 4
- Organize and control finishing carpentry activities –NQF Level 4

Plant Operator Field of Learning

Fundamental: 62 credits Core: 102 credits Elective: 16 Total: 180 credits

- Identify, describe and use Civil Engineering Construction Materials – NQF Level 2
- Organize and control the utilization of plant and equipment in civil engineering construction –NQF Level 4

Annexure D

New Unit Standards submitted with this Qualifications that has not previously being submitted and does not appear with other new Qualifications.

Unit Standard Title	Level	Credit
Assess appearance, durability, and strength of pre-cast elements.	4	5
Carry out routine test on raw materials for concrete production	4	10
Conduct specialist sealing and repairs to concrete	4	10
Control concrete materials quality	4	5
Demonstrate an understanding of and adjust concrete mix design	4	5
Demonstrate knowledge and apply concrete materials technology	4	10
Finish off and hand over structural works	3	12
Interpret and apply reinforcing drawing	4	5
Lift and position loads	3	12
Oversee concrete production	4	5
Oversee Instantly de-moulded pre cast concrete element production	4	5
Oversee pre cast concrete production - wet mix	4	5
Oversee spun pre cast concrete element production	4	5
Perform tandem lifting	4	12
Plan and prepare for the erection of structural steelwork	4	16
Plan, organise and control piling operations	4	20
Plan, organise and control pre-cast concrete manufacturing processes	4	10
Plan, organise and control reinforcing site activities	4	25
Plan, organise and control reinforcing workshop activities	4	20
Plan, organise, and control the fabrication and erection of formwork.	4	20
Plan, organise and control the erection, alteration/repositioning and dismantling of Access Scaffolding	4	12
Plan, organise and control the erection, alteration/repositioning and dismantling of Load Bearing Scaffolding	4	12
Plan, organise and control the erection, alteration/repositioning and dismantling of Suspended Scaffolding	4	18
Plan, organise and control the jacking of concrete structures	4	20
Plan, organise and control the maintenance of steel structures	4	8
Supervise the installation of pre-cast concrete elements	4	8
Supervise under water concreting	4	4
Tension bonded tendons	4	10
Tension unbonded tendons	4	10

Annexure E

UNIT STANDARD TITLES AND ASSOCIATE SPECIFIC OUTCOMES:

Unit Standard Title		Assess appearance, durability and strength of pre-cast elements
Specific Outcome	1	Conduct visual tests to pre-cast concrete elements
Specific Outcome	2	Plan and prepare to load test pre-cast elements
Specific Outcome	3	Load test pre-cast concrete elements
Specific Outcome	4	Demonstrate the ability to interpret test results
Specific Outcome	5	Record information and communicate test results
Unit Standard Title		Carry out routine tests on raw materials for concrete production
Specific Outcome	1	Prepare equipment for test
Specific Outcome	2	Collect Material Samples for Tests
Specific Outcome	3	Test materials
Specific Outcome	4	Report Test Results
Unit Standard Title		Conduct specialist sealing and repairs to concrete
Specific Outcome	1	Demonstrate knowledge of specialist sealing and repairs to concrete
Specific Outcome	2	Prepare to repair defects in concrete
Specific Outcome	3	Repair cracks in concrete
Specific Outcome	4	Repair structural damage to concrete
Unit standard title		Control concrete material quality
Specific Outcome	1	Test concrete material quality
Specific Outcome	2	Identify and correct non compliance of concrete material quality
Specific Outcome	3	Protect concrete material quality from contamination
Specific Outcome	4	Record concrete material quality test results
Unit standard title		Demonstrate an understanding of and adjust concrete mix design
Specific Outcome	1	Demonstrate an understanding of the factors affecting the concrete specification
Specific Outcome	2	Select the most appropriate available materials
Specific Outcome	3	supervise production of concrete and concreting operations
Specific Outcome	4	Conduct fresh concrete test (slump)
Specific Outcome	5	Prepare and test a concrete cube

Unit Standard title Demonstrate knowledge of and apply concrete materials technology

- | | | |
|-------------------------|----------|--|
| Specific Outcome | 1 | Demonstrate knowledge of and apply concrete materials |
| Specific Outcome | 2 | Demonstrate knowledge of and apply concrete mix design |
| Specific Outcome | 3 | Demonstrate knowledge of and apply quality control of concrete |
| Specific Outcome | 4 | Identify and implement occupational health & safety and environmental considerations |

Unit Standard title Finish off and hand over structural works

- | | | |
|-------------------------|----------|------------------------------------|
| Specific Outcome | 1 | Finish off structural work |
| Specific Outcome | 2 | Carry out amendments to structures |
| Specific Outcome | 3 | Dismantle structures |
| Specific Outcome | 4 | Hand over structures |

Unit Standard title Interpret and apply reinforcing drawings

- | | | |
|-------------------------|----------|--|
| Specific Outcome | 1 | Identify and describe types and features of reinforcing drawings |
| Specific Outcome | 2 | use plans to locate features and structures on site |
| Specific Outcome | 3 | determine project requirements |
| Specific Outcome | 4 | plan work sequences |

Unit Standard title Lift and position loads

- | | | |
|-------------------------|----------|---|
| Specific Outcome | 1 | demonstrate understanding of procedures and practices for lifting and positioning loads |
| Specific Outcome | 2 | assess and secure sites in preparation for lifting loads |
| Specific Outcome | 3 | lift loads |
| Specific Outcome | 4 | position and secure loads |

Unit Standard title Oversee concrete production

- | | | |
|-------------------------|----------|---|
| Specific Outcome | 1 | demonstrate knowledge of concrete properties and production |
| Specific Outcome | 2 | demonstrate the identification and effective utilisation of resources |
| Specific Outcome | 3 | plan and prepare to produce concrete |
| Specific Outcome | 4 | supervise production of concrete |
| Specific Outcome | 5 | supervise concreting operations |

Unit Standard title **Oversee instantly de-moulded pre cast concrete element production**

- | | | |
|-------------------------|-----------|--|
| Specific Outcome | 1 | plan and prepare to produce instantly demoulded pre-cast concrete elements |
| Specific Outcome | 2 | supervise production of instantly demoulded pre-cast concrete elements |
| Specific Outcome | 3- | monitor quality of instantly demoulded pre-cast concrete elements |
| Specific Outcome | 4 | write up reports |

Unit Standard title **Oversee Pre cast Concrete Production – Wet Mix**

- | | | |
|-------------------------|-----------|--|
| Specific Outcome | 1 | plan and prepare to produce pre-cast concrete elements |
| Specific Outcome | 2 | supervise production of pre-cast concrete elements |
| Specific Outcome | 3- | monitor quality of pre-cast concrete elements |
| Specific Outcome | 4 | write up reports |

Unit Standard title **Oversee Spun Pre Cast Concrete Element Production**

- | | | |
|-------------------------|-----------|---|
| Specific Outcome | 1 | plan and prepare to produce pre-cast concrete elements |
| Specific Outcome | 2 | supervise production of spun pre-cast concrete elements |
| Specific Outcome | 3- | monitor quality of pre-cast concrete elements |
| Specific Outcome | 4 | write up reports |

Unit Standard title **Perform tandem lifting**

- | | | |
|-------------------------|----------|---|
| Specific Outcome | 1 | demonstrate an understanding of tandem lifting procedures |
| Specific Outcome | 2 | plan tandem lifting tasks |
| Specific Outcome | 3 | prepare to undertake lifts in tandem |
| Specific Outcome | 4 | prepare and undertake a crane set-up |

Unit Standard title **Supervise installation of pre-cast concrete elements**

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|-------------------------|----------|--|
| Specific Outcome | 1 | plan to install pre-cast concrete elements |
| Specific Outcome | 2 | prepare site to install pre-cast concrete elements |
| Specific Outcome | 3 | install pre-cast concrete elements |
| Specific Outcome | 4 | conduct post installation activities |

Unit Standard title **Supervise under water concreting**

Specific Outcome	1	demonstrate knowledge of under water concreting practice
Specific Outcome	2	prepare to place concrete under water
Specific Outcome	3-	place concrete under water
Specific Outcome	4	finish concreting activity
Unit Standard title	Tension bonded tendons	
Specific Outcome	1	implement occupational health and safety measures.
Specific Outcome	2	prepare to tension tendons
Specific Outcome	3	tension tendons
Specific Outcome	4-	conduct post tensioning operations
Unit Standard title	Tension unbonded tendons	
Specific Outcome	1	implement occupational health and safety measures.
Specific Outcome	2	prepare to tension tendons
Specific Outcome	3	tension tendons
Specific Outcome	4-	conduct post tensioning operations
Unit Standard Title	Plan, organise and control the maintenance of steel structures	
Specific Outcome	1	Plan maintenance activities
Specific Outcome	2	Plan and implement safety of maintenance activities
Specific Outcome	3	Execute maintenance activities
Specific Outcome	4	Finalise maintenance activities
Unit Standard Title	Plan, organise and control pre-cast concrete manufacturing processes	
Specific Outcome	1	Identify and describe the materials used in pre-cast concrete production
Specific Outcome	2	Demonstrate knowledge of pre-cast concrete mixes
Specific Outcome	3	Understand and explain the components and processes of pre-cast concrete production plants
Specific Outcome	4	Programme, organise and control production
Unit Standard Title	Conduct specialist sealing and repairs to concrete	
Specific Outcome	1	Demonstrate knowledge of specialist sealing and repairs to concrete
Specific Outcome	2	Prepare to repair defects in concrete
Specific Outcome	3	Repair cracks in concrete
Specific Outcome	4	Repair structural damage to concrete
Unit Standard Title	Plan, organise and control reinforcing site activities	
Specific Outcome	1	Interpret and apply reinforcing drawings
Specific Outcome	2	Read and interpret reinforcing materials documentation
Specific Outcome	3	Organise and control the assembly and tying of cages
Specific Outcome	4	Organise and control the tensioning of bonded tendons

Specific Outcome	5	Organise and control the tensioning of unbonded tendons
Unit Standard Title	Plan, organise and control reinforcing workshop activities	
Specific Outcome	1	Interpret and apply reinforcing drawings
Specific Outcome	2	Read and interpret reinforcing materials documentation
Specific Outcome	3	Organise and control the operation and maintenance of steel cutting machines
Specific Outcome	4	Organise and control the operation and maintenance of steel bending machines
Unit Standard Title	Plan, organise and control the erection, alteration/repositioning and dismantling of Access Scaffolding	
Specific Outcome	1	Demonstrate knowledge and understanding of different types of access scaffolding, applications, limitations, design and compliance
Specific Outcome	2	Read and interpret drawings, requirements and specifications
Specific Outcome	3	Plan resources for erecting, altering/repositioning access scaffolding
Specific Outcome	4	Assess site risks and accessibility
Specific Outcome	5	Organise and control access scaffolding operations
Specific Outcome	6	Inspect and handover access scaffolding
Specific Outcome	7	organise and control dismantling and site clearance procedures
Unit Standard Title	Plan, organise and control the erection, alteration/repositioning and dismantling of Load Bearing Scaffolding	
Specific Outcome	1	Demonstrate knowledge and understanding of different types of load bearing scaffolding, applications, limitations, design and compliance
Specific Outcome	2	Read and interpret drawings, requirements and specifications
Specific Outcome	3	Plan resources for erecting, altering/repositioning load bearing scaffolding
Specific Outcome	4	Assess site risks and accessibility
Specific Outcome	5	Organise and control load bearing scaffolding operations
Specific Outcome	6	Inspect and handover load bearing scaffolding
Specific Outcome	7	Organise and control dismantling and site clearance procedures
Unit Standard Title	Plan, organise and control the erection, alteration/repositioning and dismantling of Suspended Scaffolding	
Specific Outcome	1	Demonstrate knowledge and understanding of different types of suspended scaffolding, applications, limitations, design and compliance
Specific Outcome	2	Read and interpret drawings, requirements and specifications

Specific Outcome	3	Plan resources for erecting, altering/repositioning suspended scaffolding
Specific Outcome	4	Assess site risks and accessibility
Specific Outcome	5	Organise and control suspended scaffolding operations
Specific Outcome	6	Inspect and handover suspended scaffolding
Specific Outcome	7	Organise and control dismantling and site clearance procedures

Unit Standard Title Plan, organise and control piling operations

Specific Outcome	1	Read and interpret piling drawings
Specific Outcome	2	Plan resources for execution of piling works
Specific Outcome	3	Assess site accessibility and plan set out
Specific Outcome	4	Procure equipment, tools and resources for executing piling operations
Specific Outcome	5	Execute works in accordance with program requirements
Specific Outcome	6	Complete works and hand over site

Unit Standard Title Plan, organise and control the jacking of concrete structures

Specific Outcome	1	Read and interpret jacking drawings
Specific Outcome	2	Plan resources for execution of jacked structure works
Specific Outcome	3	Assess site accessibility and plan set out
Specific Outcome	4	Procure equipment, tools and resources for executing jacking operations
Specific Outcome	5	Execute works in accordance with program requirements
Specific Outcome	6	Complete works and hand over site

Unit Standard Title Plan, organise, and control the fabrication and erection of formwork.

Specific Outcome	1	Identify and use formwork tools, materials and protective equipment.
Specific Outcome	2	Demonstrate knowledge of formwork fabrication and erection.
Specific Outcome	3	Prepare for the fabrication and erection of formwork
Specific Outcome	4	Fabricate and erect formwork.
Specific Outcome	5	Strip formwork.

NOTES:**1. Current and previously registered Qualifications:**

1.1 The following Qualifications have been or are in the process of being registered on the NQF:

- National Certificate in the Supervision of Civil Engineering Construction Process – Roadworks – NQF Level 4
- National Certificate in the Supervision of Civil Engineering Construction Process – Water and Waste Water – NQF Level 4
- National Certificate in the Supervision of Civil Engineering Construction Process – Labour Intensive – NQF Level 4
- National Certificate in the Supervision of Building Construction Process – NQF Level 4

1.2 Various learnerships were registered with the Department of Labour for these various Qualifications.

2. Learning Field Qualification Model:

2.1 The learning fields Qualification development model was used to develop this new generic Qualification: National Certificate in the Supervision of Construction Processes – NQF Level 4.

2.2 The rationale is that the fundamental and core Unit Standards are generic to all the various learning fields, that on completion by the learner, will result in the same generic Qualification being awarded to the learner.

2.3 The implication of this new development is that all the currently registered Qualifications will be withdrawn and replaced with this new generic Qualification. This will have an impact on the learnerships as well. In essence, new learnerships have to be developed.

2.4 It is important to note that the various registered Unit Standards already on the NQF and reflected in the previous Qualifications will remain in effect until the normal review period is over.