



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

Forestry

Registered by NSB 01, Agriculture and Nature Conservation, 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.saqqa.org.za. Copies may also be obtained from the Directorate of Standards Setting and Development at the SAQA offices, Hatfield Forum, 1067 Arcadia Street, Hatfield, Pretoria.

Comment on the unit standards should reach SAQA at the address *below and no later than 26 April 2004*. All correspondence should be marked **Standards Setting – SGB for Forestry** and addressed to

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National Certificate in Forestry: Timber Harvesting - NQF Level 3

Registration Number:

Field: Agriculture and Nature Conservation

Sub-field: Forestry

NQF Level: 3

Credits: 121

Issue date:

Review date:

Rationale of the qualification

Candidates for this qualification are likely to be working in the forestry sub-field. The qualification will give them the opportunity to balance their practical skills with the essential knowledge required to earn a formal qualification in timber harvesting.

There is also a critical need in the industry to identify people who are able to conduct the essential operations associated with efficient and safe operation in at least one of the mechanised timber harvesting operations.

Purpose:

This qualification is aimed at people who work or intend to work within a timber harvesting context, and who seek recognition for essential skills in forestry operations.

Recipients of this qualification are able to enhance safety and productivity in timber harvesting, and this qualification provides evidence of a proven ability to:

- Use complex and sophisticated felling and extraction systems and machinery necessitating various specialised skills and operations

- prepare an operational timber harvest plan;
- manage oneself;
- supervise other persons directly involved in the timber harvesting operation;
- perform a range of work associated with timber harvesting;
- solve problems that will be encountered in normal operating conditions

This qualification is designed to be flexible and accessible so that people are able to demonstrate the competencies required to work safely in timber harvesting in general and effectively and safely in at least one of the following mechanised timber harvesting specialist areas:

- Cable Yarding
- Feller Buncher
- Harvester
- Tractor
- Skidder
- Forwarder

Access to the Qualification

Open access.

This qualification series recognises skills, knowledge and values relevant to a workplace. It is designed for learners who:

- Have attended courses and then apply the knowledge gained to activities in the workplace
- Are already workers and have acquired the skills and knowledge without attending formal courses
- Is part of a Learnership programme which integrates structured learning and work experience.

Learning assumed to be in place

It is assumed that candidates embarking on learning programmes towards this qualification may or may not have previous experience in the forestry industry and is therefore open to all learners.

Entry assumptions as stipulated in the individual unit standards will be applicable.

This qualification has the following exit level outcomes:

Exit level outcome 1

Demonstrate the ability and understanding to communicate in a variety of ways and use mathematics in real life situations which are suitable to and in the context of this qualification

Associated Assessment Criteria:

- Communication is regular and ongoing.
- Information is clear and accurate and conveyed in a timely manner.
- Relationships with peers and supervisory/management levels are established and functioning.

Exit level outcome 2

Demonstrate the ability to maintain safe work operations in a forestry environment

Associated Assessment Criteria

- Safety procedures during wildfire suppression are identified and explained
- An understanding of how to contribute to suppression of wild fires is demonstrated
- Knowledge of basic safety in forestry operations is demonstrated

Exit level outcome 3

Demonstrate the ability to plan a timber harvest operation

Associated Assessment Criteria

- The ability to conduct basic forestry map reading is demonstrated
- The ability to prepare an operational timber harvest plan is demonstrated

Exit level outcome 4

Demonstrate the ability to use a chainsaw safely in a production environment

Associated Assessment Criteria

- The ability to use and maintain a chainsaw is demonstrated
- Trees are felled using standard techniques and felling levers
- Felled trees are de-branched and cross-cut in a production situation
- Learner is able to evaluate the benefits and difficulties of team work within his/her own work context
- Safe working practices are explained and demonstrated
- Appropriate Legislation is referred to when explanations are given.

Exit level outcome 5

Demonstrate knowledge of timber harvesting operations in relation to the forestry environment

Associated Assessment Criteria

- Knowledge of key elements of commercial forestry is demonstrated
- Knowledge of mechanical timber handling equipment is demonstrated
- Knowledge of cable extraction is demonstrated
- Knowledge of choking and de-choking timber is demonstrated
- Knowledge of ground-based machine extraction is demonstrated
- Learner is able to evaluate the benefits and difficulties of team work within his/her own work context
- Safe working practices are explained and demonstrated
- Appropriate Legislation is referred to when explanations are given.

Specialist Areas**Exit level outcome 6**

Demonstrate the ability to extract timber using cable yarding systems in a production situation

Associated Assessment Criteria

- Knowledge of rigging equipment and accessories is demonstrated
- The ability to prepare rigging equipment and accessories is demonstrated
- The ability to use a cable yarder in a production situation is demonstrated
- The ability to use a loader in a production situation is demonstrated
- Learner is able to evaluate the benefits and difficulties of team work within his/her own work context
- Safe working practices are explained and demonstrated
- Appropriate Legislation is referred to when explanations are given.

Exit level outcome 7

Demonstrate the ability to fell timber with a feller buncher in a production situation

Associated Assessment Criteria

- The ability to prepare, operate and maintain a mechanised timber harvesting machine is demonstrated
- The ability to use a feller buncher in a non-production and production situation is demonstrated
- The ability to choke and dechoke timber with a skidding machine is demonstrated
- Learner is able to evaluate the benefits and difficulties of team work within his/her own work context
- Safe working practices are explained and demonstrated
- Appropriate Legislation is referred to when explanations are given.

Exit level outcome 8

Demonstrate the ability to fell and prepare timber with a harvester in a production situation

Associated Assessment Criteria

- The ability to prepare, operate and maintain a mechanised timber harvesting machine is demonstrated
- The ability to fell, debranch and debark trees in a production and non-production situation is demonstrated
- The ability to fell and process trees in a production and non-production situation is demonstrated
- Learner is able to evaluate the benefits and difficulties of team work within his/her own work context
- Safe working practices are explained and demonstrated
- Appropriate Legislation is referred to when explanations are given.

Exit level outcome 9

Demonstrate the ability to extract timber with a tractor in a production situation

Associated Assessment Criteria

- The ability to prepare, operate and maintain a tractor in a non- production situation is demonstrated
- The ability to extract timber with an attachment is demonstrated
- The ability to choke and dechoke timber with an attachment is demonstrated
- The ability to extract and short-haul timber with an attachment is demonstrated
- The ability to extract and short-haul timber with an attachment fitted with a self loading crane is demonstrated
- Learner is able to evaluate the benefits and difficulties of team work within his/her own work context
- Safe working practices are explained and demonstrated
- Appropriate Legislation is referred to when explanations are given.

Exit level outcome 10

Demonstrate the ability to extract timber with a skidder in a production situation

Associated Assessment Criteria

- The ability to extract timber to a landing is demonstrated
- The ability to choke and dechoke timber fitted with a winch is demonstrated
- The ability to operate a skidding machine in machine assisted tree felling is demonstrated
- Learner is able to evaluate the benefits and difficulties of team work within his/her own work context
- Safe working practices are explained and demonstrated
- Appropriate Legislation is referred to when explanations are given.

Exit level outcome 11

Demonstrate the ability to extract timber with a forwarder in a production situation

Associated Assessment Criteria

- The ability to extract logs in a production situation is demonstrated
- The ability to load, off-load and stack timber in a production situation is demonstrated
- Learner is able to evaluate the benefits and difficulties of team work within his/her own work context
- Safe working practices are explained and demonstrated
- Appropriate Legislation is referred to when explanations are given.

Exit level outcome 12

Demonstrate an understanding of options for further learning in this or a related field of learning and preparation requirements for such learning.

Associated Assessment Criteria

- The various options for further learning and the purpose thereof are explained.
- The preparation requirements are explained and the learning areas identified and selected.
- An individual learning plan is developed in the context of the qualification and the workplace.

Rules of combination for this qualification

- All Fundamental unit standards are compulsory (37 Credits)
- All Core unit standards are compulsory (30 Credits)
- A selection of one of the specialist areas:
 - Cable Yarding (51 Credits)
 - Feller Buncher (53 Credits)
 - Harvester (97 Credits)
 - Tractor (55 Credits)
 - Skidder (50 Credits)
 - Forwarder (55 Credits)
- A selection of a minimum of 10 credits from the Individual Elective unit standards
- The total minimum combination of credits for this qualification is 121.

International comparability

This qualification and the component unit standards have been compared with similar qualifications from New Zealand. The New Zealand Qualifications Framework has two qualifications that relate to this one: National Certificate in Forestry (Timber harvesting) at level 4, consisting of 230 credits and the National Certificate in Forestry (Mechanised timber harvesting) also at level 4, consisting of 230 credits.

It was felt that 2 different qualifications would not serve the purpose for South African conditions, therefore a direct comparison between the New Zealand and the South African qualification cannot be made, although there are similarities in some of the unit standards that are included.

Integrated Assessment

Integrated assessment at the level of the qualification provides an opportunity for learners to show they are able to integrate concepts, actions and ideas achieved across a range of unit standards and contexts.

Integrated assessment must evaluate the quality of observable performance as well as the thinking behind the performance.

Some assessment aspects will demand practical demonstration while others may not. In some case inference will be necessary to determine competence depending on the nature and context within which performance takes place.

Since this is a foundational qualification, it is necessary to ensure that the fundamental part of the qualification is also targeted to ensure that while the competence may have been achieved in a particular context, learners are able to apply it in a range of other contexts and for further learning. The assessment should also ensure that all the critical cross-field outcomes have been achieved.

Recognition of prior learning

This qualification may be obtained through a process of RPL. The learner should be thoroughly briefed prior to the assessment and support provided to assist in the process of developing a portfolio. While this is primarily a workplace-based qualification, evidence from other areas of endeavour may be introduced if pertinent to any of the exit-level outcomes.

Articulation possibilities

The qualification has been designed and structured so that qualifying learners can move from one context to another. Employers or institutions should be able to evaluate the outcomes of this qualification against the needs of their context and structure top-up learning appropriately.

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

Moderation Options

- Anyone assessing a learner against this qualification must be registered as an assessor with the relevant ETQA
- Any institution or learning provider offering learning towards the achievement of this qualification should be accredited as a provider with the relevant ETQA
- Moderation of assessment should be overseen by the relevant ETQA according to the moderation guidelines provided for in this qualification as well as the agreed ETQA procedures

Criteria for registration of assessors

The following criteria should be applied by the relevant ETQA:

- Appropriate qualification and a minimum of 3 years experience in the field of Forestry: Timber Harvesting or a similar environment. The subject matter experience of the assessor can be established by recognition of prior learning.
- Appropriate experience and understanding of assessment theory, processes and practices
- Good interpersonal skills and the ability to balance the conflicting requirements of:
 - Maintaining national standards
 - The interests of the learner
 - The need for transformation and redressing the legacies of the past
 - The cultural background and language of the learner
- Registration as an assessor with the relevant ETQA

QUALIFICATION MATRIX**National Certificate in Forestry: Timber Harvesting NQF Level 3**

Fundamental			
NLRD	Communication	Level	Credits
8968	Accommodate 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
12461*	Communicate with clients	3	3
9529	Compile feasibility and commissioning reports	3	3
	Mathematics		
9010	Demonstrate an understanding of the use of different number bases and measurement units and an awareness of error in the context of relevant calculations	3	2
7456	Use mathematics to investigate and monitor the financial aspects of personal and business issues	3	5
9012	Investigate life-related problems using data and probabilities	3	5
14108	Measure, estimate and calculate physical quantities and explore, describe and represent, interpret and justify geometrical relationships in two and three dimensional space relevant to the life or workplace of the community	3	4
	Total Fundamental		37
NLRD	CORE	Level	Credits
New	N4 - Fell trees using a chainsaw in a production situation	3	5
New	G1 - Demonstrate knowledge of basic safety in forestry operations	2	1
New	U5- Conduct basic forestry map reading	3	2
New	P1 - Prepare an operational harvest plan	4	4
New	N1 - Maintain a chainsaw and cut felled timber using a chainsaw	2	4
New	N5 - Debranch felled trees using a chainsaw in a production situation	2	3
New	N6 - Crosscut felled trees using a chainsaw in a production situation	2	2
New	L1 - Demonstrate knowledge of mechanical timber handling equipment	2	1
New	Y3 - Demonstrate knowledge of cable extraction	2	2
New	E1 - Demonstrate knowledge of ground-based machine extraction	2	1
	Total Core		25

ELECTIVE			
NLRD	1. Specialist: Cable Yarding	Level	Credits
New	Y1 - Demonstrate knowledge of wire ropes, rigging accessories, anchor systems and rigging in cable yarding operations.	3	3
New	Y2 - Prepare anchors, rig intermediate supports, tailtrees and a tower and set up working cables for a cable yarding operation.	3	15
New	Y4 - Extract timber to a landing using a cable yarder in a production situation	3	10
New	L5 - Load, off-load and stack timber using a loader in a production situation	3	20
New	C3 - Choke and dechoke timber during extraction with a cable yarder in a production situation	2	3
Total			51
NLRD	2. Specialist: Feller Buncher	Level	Credits
New	M1 - Prepare, operate and maintain a mechanised harvesting machine	3	5
New	M2 - Fell and bunch trees using a slew boom feller buncher in a non-production situation	3	15
New	M4 - Fell and bunch trees using a feller buncher in a production situation	4	15
New	C2 - Choke and dechoke timber during extraction with a skidding machine fitted with a winch	2	3
New	M3 - Fell and bunch trees using a drive-to-tree feller buncher in a non-production situation	3	15
Total			53
NLRD	3. Specialist: Harvester	Level	Credits
	M1 - Prepare, operate and maintain a mechanised harvesting machine	3	5
New	M5 - Fell, debranch and debark trees using a harvester in a non-production situation	3	20
New	M6 - Fell, debranch and debark trees using a harvester in a production situation	4	20
New	M7 - Fell and process trees into products using a harvester in a non-production situation	3	26
New	M8 - Fell and process trees into products using a harvester in a production situation	4	26
Total			97

NLRD	4. Specialist: Tractor	Level	Credits
New	T1 - Prepare, operate and maintain a tractor in a non-production situation	2	3
New	T2 - Extract timber to a landing using a tractor fitted with a skidding attachment in a production situation	3	12
New	C2 - Choke and dechoke timber during extraction with a skidding machine fitted with a winch	2	3
New	T3 - Extract and short-haul timber using a tractor and trailer in a production situation	3	12
New	T4 - Extract and short-haul timber using a tractor and trailer fitted with a self-loading crane in a production situation	4	25
Total			55
NLRD	5. Specialist: Skidder	Level	Credits
New	S1 - Extract timber to a landing using a cable skidder in a production situation	3	20
New	C2 - Choke and dechoke timber during extraction with a skidding machine fitted with a winch	2	3
New	S2 - Extract timber to a landing using a grapple skidder in a production situation	3	25
New	S3 - Operate a skidding machine fitted with a winch in machine assisted tree felling	3	2
Total			50
NLRD	6. Specialist: Forwarder	Level	Credits
New	F1 - Extract logs to a landing using a forwarder in a production situation	4	35
New	L5 - Load, off-load and stack timber using a loader in a production situation	3	20
Total			55
INDIVIDUAL ELECTIVES			
NLRD	Title	Level	Credits
New	N2 - Fell trees with a chainsaw using the standard technique and felling Levers	2	2
New	M9 - Delimb tree lengths using a static delimber in a production situation	3	15
New	N7 - Fell trees using a chainsaw and machine assistance.	3	2

New	L2 - Prepare, operate and maintain a 3-wheeled loader in a non-production situation	3	5
New	L3 - Prepare, operate and maintain a self-propelled knuckle boom loader in a non-production situation	3	5
New	L4 - Prepare, operate and maintain a vehicle mounted knuckle boom loader in a non-production situation	3	5
New	N3 - Fell trees with a chainsaw using specialised techniques	3	2
New	N9 - Scale tree lengths into poles in a production situation	3	3
New	N10 - Scale tree lengths into saw and veneer logs in a production situation	3	10
	Total minimum individual electives		10
	Total minimum for qualification		121

**NATIONAL CERTIFICATE IN FORESTRY: TIMBER HARVESTING - NQF LEVEL 3
NEW UNIT STANDARDS AND SPECIFIC OUTCOMES**

1. Unit standard title: Demonstrate knowledge of wire rope, rigging accessories, anchor systems and rigging in cable yarding operations.

- Specific outcome 1: Demonstrate knowledge of wire ropes used in cable yarding operations.
Specific outcome 2: Demonstrate knowledge of rigging accessories.
Specific outcome 3: Demonstrate knowledge of anchor systems.
Specific outcome 4: Demonstrate knowledge of the rigging of intermediate supports, tailtrees and a tower for a cable yarding operation.

2. Unit standard title: Prepare, operate and maintain a 3-wheeled loader in a non-production situation.

- Specific outcome 1: Demonstrate knowledge of the 3-wheeled loader.
Specific outcome 2: Prepare and start-up a 3-wheeled loader.
Specific outcome 3: Operate a 3-wheeled loader.
Specific outcome 4: Park, shut-down and maintain a 3-wheeled loader after use.

3. Unit standard title: Prepare, operate and maintain a self-propelled knuckle boom loader in a non-production situation.

- Specific outcome 1: Demonstrate knowledge of the self-propelled knuckle boom loader.
Specific outcome 2: Prepare and start-up a self-propelled knuckle boom loader.
Specific outcome 3: Operate a self-propelled knuckle boom loader.
Specific outcome 4: Park, shut-down and maintain a self-propelled knuckle boom loader after use.

4. Unit standard title: Prepare, operate and maintain a vehicle mounted knuckle boom loader in a non-production situation.

- Specific outcome 1: Demonstrate knowledge of the vehicle mounted knuckle boom loader.
Specific outcome 2: Prepare and start-up a vehicle mounted knuckle boom loader.
Specific outcome 3: Operate a vehicle mounted knuckle boom loader.
Specific outcome 4: Shut-down and maintain a vehicle mounted knuckle boom loader after use.

5. Unit standard title: Load, off-load and stack timber using a loader in a production situation.

- Specific outcome 1: Prepare for loading, off-loading and stacking of timber.
Specific outcome 2: Load a forestry transport vehicle in a production situation.
Specific outcome 3: Off-load a forestry transport vehicle in a production situation.
Specific outcome 4: Stack timber in a production situation.

6. Unit standard title: Prepare, operate and maintain a mechanised harvesting machine in a non-production situation

- Specific outcome 1: Demonstrate knowledge of the mechanised harvesting machine.
Specific outcome 2: Prepare and start-up the mechanised harvesting machine.
Specific outcome 3: Operate the mechanised harvesting machine.
Specific outcome 4: Park, shut-down and maintain the mechanised harvesting machine after use.

7. Unit standard title: Fell and bunch trees using a slew boom feller-buncher in a non-production situation

- Specific outcome 1: Demonstrate knowledge of factors influencing efficiencies and safety in felling and bunching of trees with a slew boom feller-buncher.
Specific outcome 2: Prepare the felling head for felling.
Specific outcome 3: Demonstrate knowledge of the slew boom feller-buncher.
Specific outcome 4: Fell and bunch trees with a slew boom feller-buncher in a non-production situation.
Specific outcome 5: Maintain the felling head after use.

8. Unit standard title: Fell and bunch trees using a drive-to-tree feller-buncher in a non-production situation

- Specific outcome 1: Demonstrate knowledge of factors influencing efficiencies and safety in felling and bunching of trees with a drive-to-tree feller-buncher.
Specific outcome 2: Prepare the felling head for felling.
Specific outcome 3: Demonstrate knowledge of the drive-to-tree feller-buncher.
Specific outcome 4: Fell and bunch trees with a drive-to-tree feller-buncher in a non-production situation.
Specific outcome 5: Maintain the felling head after use.

9. Unit standard title: Fell and bunch trees using a feller buncher in a production situation

- Specific outcome 1: Describe the operational plan.
Specific outcome 2: Fell and bunch trees in a production situation complying with operational requirements.

10. Unit standard title: Fell, debranch and debark trees using a harvester in a non-production situation

- Specific outcome 1: Demonstrate knowledge of factors influencing efficiencies and safety in felling, debranching and debarking of trees with a harvester.
- Specific outcome 2: Prepare the harvester head for felling.
- Specific outcome 3: Demonstrate knowledge of the harvester.
- Specific outcome 4: Fell, debranch and debark trees with a harvester in a non-production situation.
- Specific outcome 5: Maintain the harvester head after use.

11. Unit standard title: Fell, debranch and debark trees using a harvester in a production situation

- Specific outcome 1: Describe the operational plan.
- Specific outcome 2: Fell, debranch and debark trees in a production situation complying with operational requirements.

12. Unit standard title: Fell and process trees into products using a harvester in a non-production situation

- Specific outcome 1: Demonstrate knowledge of factors influencing efficiencies and safety in felling and conversion of trees with a harvester.
- Specific outcome 2: Prepare the harvester head for felling.
- Specific outcome 3: Demonstrate knowledge of the harvester.
- Specific outcome 4: Fell and process trees with a harvester in a non-production situation.
- Specific outcome 5: Maintain the harvester head after use.

13. Unit standard title: Fell and process trees into products using a harvester in a production situation

- Specific outcome 1: Describe the operational plan.
- Specific outcome 2: Fell and process trees into products in a production situation complying with operational requirements.

14. Unit standard title: Delimb tree lengths using a static delimber in a production situation

- Specific outcome 1: Demonstrate knowledge of factors influencing efficiencies and safety in delimiting tree lengths with a static delimber.
- Specific outcome 2: Demonstrate knowledge of the static delimber.
- Specific outcome 3: Prepare and start-up the static delimber.
- Specific outcome 4: Prepare for static delimiting.
- Specific outcome 5: Delimit tree lengths with a static delimber in a production situation complying with operational requirements.

Specific outcome 6: Shut-down and maintain the static delimeter after use.

15. Unit standard title: Cross-cut tree lengths using a slasher in a production situation

Specific outcome 1: Demonstrate knowledge of factors influencing efficiencies and safety in cross-cutting tree lengths with a slasher.

Specific outcome 2: Demonstrate knowledge of the slasher.

Specific outcome 3: Prepare and start-up the slasher.

Specific outcome 4: Prepare for cross-cutting.

Specific outcome 5: Cross-cut tree lengths with a slasher in a production situation complying with operational requirements.

Specific outcome 6: Shut-down and maintain the slasher after use.

16. Unit standard title: Maintain a chainsaw and cut felled timber using a chainsaw.

Specific outcome 1: Demonstrate knowledge of chainsaw parts and basic mechanics.

Specific outcome 2: Demonstrate knowledge of safety during chainsaw use.

Specific outcome 3: Prepare and start a chainsaw.

Specific outcome 4: Cut felled timber with a chainsaw.

Specific outcome 5: Do periodic maintenance on a chainsaw.

17. Unit standard title: Fell trees with a chainsaw using the standard technique and felling levers.

Specific outcome 1: Demonstrate knowledge of factors influencing efficiencies in tree felling.

Specific outcome 2: Demonstrate knowledge of safety during felling.

Specific outcome 3: Fell trees with a chainsaw using the standard technique and felling levers.

18. Unit standard title: Fell trees with a chainsaw using specialised techniques.

Specific outcome 1: Fell trees using specialised techniques if wedges are not required.

Specific outcome 2: Fell trees using specialised techniques if wedges are required.

19. Unit standard title: Fell trees using a chainsaw in a production situation.

Specific outcome 1: Describe the operational plan.

Specific outcome 2: Prepare for felling.

Specific outcome 3: Fell trees in a production situation complying with operational requirements.

20. Unit standard title: Debranch felled trees using a chainsaw in a production situation.

Specific outcome 1: Demonstrate knowledge of factors influencing efficiencies in debranching.

Specific outcome 2: Prepare for debranching.

Specific outcome 3: Debranch felled trees in a production situation complying with operational requirements.

21. Unit standard title: Cross-cut felled trees using a chainsaw in a production situation.

Specific outcome 1: Demonstrate knowledge of factors influencing efficiencies in cross-cutting.

Specific outcome 2: Prepare for cross-cutting.

Specific outcome 3: Cross-cut felled trees in a production situation complying with operational requirements.

22. Unit standard title: Fell trees using a chainsaw and machine assistance.

Specific outcome 1: Demonstrate knowledge of machine assisted tree felling.

Specific outcome 2: Prepare for felling.

Specific outcome 3: Fell trees using a chainsaw and machine assistance.

23. Unit standard title: Scale tree lengths into standard log lengths in a production situation

Specific outcome 1: Demonstrate knowledge of factors influencing efficiencies in scaling tree lengths into standard log lengths.

Specific outcome 2: Prepare for scaling.

Specific outcome 3: Scale tree lengths into standard log lengths to meet specifications.

24. Unit standard title: Scale tree lengths into poles in a production situation

Specific outcome 1: Demonstrate knowledge of factors influencing efficiencies in scaling tree lengths into poles.

Specific outcome 2: Prepare for scaling.

Specific outcome 3: Scale tree lengths into poles to meet specifications.

25. Unit standard title: Scale tree lengths into saw and veneer logs in a production situation

Specific outcome 1: Demonstrate knowledge of factors influencing efficiencies in scaling tree lengths into saw and veneer logs.

Specific outcome 2: Prepare for scaling.

Specific outcome 3: Scale tree lengths into saw and veneer logs to meet specifications.

26. Unit standard title: Demonstrate knowledge of choking and dechoking timber.

Specific outcome 1: Demonstrate knowledge of choking equipment, wire ropes and choking techniques.

Specific outcome 2: Demonstrate knowledge of choking and dechoking productivity.

27. Unit standard title: Choke and dechoke timber during extraction with a skidding machine fitted with a winch in a production situation.

- Specific outcome 1: Prepare for choking and dechoking.
Specific outcome 2: Choke timber for extraction with a skidding machine.
Specific outcome 3: Dechoke timber on the landing.

28. Unit standard title: Demonstrate knowledge of ground-based machine extraction

- Specific outcome 1: Demonstrate knowledge of ground-based machine extraction methods.
Specific outcome 2: Demonstrate knowledge of factors influencing efficiencies in ground-based machine extraction.

29. Unit standard title: Extract timber to a landing using a forwarder in a production situation

- Specific outcome 1: Demonstrate knowledge of the forwarder.
Specific outcome 2: Prepare and start-up the forwarder for extraction.
Specific outcome 3: Prepare for extraction.
Specific outcome 4: Extract timber using a forwarder in a production situation.
Specific outcome 5: Park, shut-down and maintain the forwarder after use.

30. Unit standard title: Demonstrate knowledge of basic safety in forestry operations.

- Specific outcome 1: Explain the duties of employers & employees and identify the safety representative & first aid person for the specific work place.
Specific outcome 2: Demonstrate knowledge of hazards, safety and emergency procedures in forestry operations.

31. Unit standard title: Demonstrate knowledge of mechanical timber handling equipment.

- Specific outcome 1: Demonstrate knowledge of mechanical timber handling equipment.
Specific outcome 2: Demonstrate knowledge of factors influencing efficiencies in mechanical timber handling.

32. Unit standard title: Demonstrate knowledge of mechanical timber handling equipment.

- Specific outcome 1: Demonstrate knowledge of mechanical timber handling equipment.
Specific outcome 2: Demonstrate knowledge of factors influencing efficiencies in mechanical timber handling.

33. Unit standard title: Prepare an operational harvest plan.

- Specific outcome 1: Explain the impacts, interrelationships and protection requirements associated with harvesting operations.

- Specific outcome 2: Collect data for the preparation of an operational harvest plan.
- Specific outcome 3: Balance the harvesting and transport system with regard to equipment and personnel allocations required for the specific site conditions.
- Specific outcome 4: Determine the operational requirements for the stand to be harvested.

34. Unit standard title: Extract timber to a landing using a cable skidder in a production situation

- Specific outcome 1: Demonstrate knowledge of the cable skidder.
- Specific outcome 2: Prepare and start-up the skidder for extraction.
- Specific outcome 3: Prepare for extraction.
- Specific outcome 4: Extract timber to a landing using a cable skidder in a production situation.
- Specific outcome 5: Park, shut-down and maintain the skidder after use.

35. Unit standard title: Extract timber to a landing using a grapple skidder in a production situation

- Specific outcome 1: Demonstrate knowledge of the grapple skidder.
- Specific outcome 2: Prepare and start-up the skidder for extraction.
- Specific outcome 3: Prepare for extraction.
- Specific outcome 4: Accumulate timber for extraction with the winch fitted on the grapple skidder.
- Specific outcome 5: Extract timber to a landing using a grapple skidder in a production situation.
- Specific outcome 6: Park, shut-down and maintain the skidder after use.

36. Unit standard title: Operate a skidding machine fitted with a winch in machine assisted tree felling

- Specific outcome 1: Demonstrate knowledge of machine assisted tree felling.
- Specific outcome 2: Prepare for machine assisted tree felling.
- Specific outcome 3: Operate a skidding machine in machine assisted tree felling.

37. Unit standard title: Prepare, operate and maintain a tractor in a non-production situation

- Specific outcome 1: Demonstrate knowledge of the tractor.
- Specific outcome 2: Prepare and start-up the tractor.
- Specific outcome 3: Operate the tractor.
- Specific outcome 4: Park, shut-down and maintain the tractor after use.

38. Unit standard title: Extract timber to a landing using a tractor fitted with a skidding attachment in a production situation

- Specific outcome 1: Demonstrate knowledge of the skidding attachment.
- Specific outcome 2: Prepare the skidding attachment for extraction.

- Specific outcome 3: Prepare for extraction.
- Specific outcome 4: Extract timber to a landing using a tractor and skidding attachment in a production situation.
- Specific outcome 5: Park and shut-down the tractor, and maintain the skidding attachment after use.

39. Unit standard title: Extract and short-haul timber using a tractor and trailer fitted with a self-loading crane in a production situation

- Specific outcome 1: Demonstrate knowledge of the trailer and crane.
- Specific outcome 2: Prepare the trailer and crane for extraction and short-haul.
- Specific outcome 3: Prepare for extraction and short-haul.
- Specific outcome 4: Extract and short-haul timber using a tractor and trailer fitted with a crane in a production situation.
- Specific outcome 5: Park the tractor and trailer, shut-down the tractor and crane, and maintain the trailer and crane after use.

40. Unit standard title: Prepare anchors, rig intermediate supports, tailtrees & a tower and set up working cables for a cable yarding operation.

- Specific outcome 1: Prepare and install anchors for a cable yarding operation.
- Specific outcome 2: Rig intermediate supports and tailtrees.
- Specific outcome 3: Rig a tower.
- Specific outcome 4: Set up the working cables for a highlead configuration.
- Specific outcome 5: Set up a cable yarder in standing skyline configuration where an intermediate support is used.

41. Unit standard title: Demonstrate knowledge of cable yarder extraction.

- Specific outcome 1: Demonstrate knowledge of cable yarder extraction systems.
- Specific outcome 2: Demonstrate knowledge of factors influencing efficiencies in cable yarder extraction.

42. Unit standard title: Extract timber to a landing using a cable yarder in a production situation.

- Specific outcome 1: Demonstrate knowledge of the cable yarder.
- Specific outcome 2: Prepare and start-up the cable yarder for extraction.
- Specific outcome 3: Prepare for extraction.
- Specific outcome 4: Operate a cable yarder to extract timber to a landing in a production situation.
- Specific outcome 5: Shut-down and maintain a cable yarder after use.

43. Unit standard title: Choke and dechoke timber during extraction with a cable yarder in a production situation.

- Specific outcome 1: Prepare for choking and dechoking.
Specific outcome 2: Choke timber for extraction with a cable yarder.
Specific outcome 3: Dechoke timber on the landing.

44. Unit standard title: Extract and short-haul timber using a tractor and trailer in a production situation

- Specific outcome 1: Demonstrate knowledge of the trailer.
Specific outcome 2: Prepare the trailer for extraction and short-haul.
Specific outcome 3: Prepare for extraction and short-haul.
Specific outcome 4: Extract and short-haul timber using a tractor and trailer in a production situation.
Specific outcome 5: Park the tractor and trailer, shut-down the tractor and maintain the trailer after use.

45. Unit standard title: Contribute to the suppression of wildfires at basic fire-fighting level.

- Specific outcome 1: Identify and explain basic features of fire behaviour to enable safe and effective fire suppression.
Specific outcome 2: Perform manual methods and procedures for extinguishing wildfires.
Specific outcome 3: Communicate using verbal and hand signaled instructions in accordance with Industry standards.
Specific outcome 4: Identify and demonstrate the use of water hose equipment.
Specific outcome 5: Conduct mop-up procedures.

46. Unit standard title: Conduct basic forestry map reading

- Specific outcome 1: Read and interpret appropriate forestry maps.
Specific outcome 2: Apply map reading skills.

47. Unit standard title: Identify, explain and demonstrate standard safety procedures during active wildfire suppression.

- Specific outcome 1: Identify unsafe acts and conditions and explain standard safety rules and measures applied to overcome dangerous fire situations.
Specific outcome 2: Demonstrate safety procedures in wildfire suppression situations