

	<b>Unit ID: 1120</b>
<b>Domain</b>	<b>HEAVY EQUIPMENT OPERATIONS</b>
<b>Title:</b>	<b>Operate a grader to carry out surface mining and quarrying operations</b>
<b>Level: 3</b>	<b>Credits: 35</b>

### Purpose

This unit standard is intended for those who work in road construction and maintenance operations. People holding credit for this unit standard are able to: Plan and prepare for work; demonstrate knowledge of the functions of a grader; start and shut down grader; operate grader; use ripper or scarifier; use grader for earthworks; prepare grader for transport to and from site; complete work related documents; and clean up work area.

Being credited with this unit standard does not enable a person to drive the vehicle on an open, public road. In order to do so, a person must be in possession of a valid and current driving licence relevant to this vehicle type.

The main focus of this unit standard is the attainment of the required outcomes of learning, not the how, when or where the learning occurred. People who have attained credits for unit standard ID 830 and/or ID 1022, registered under the subfield and domain of Road Construction and Maintenance, should be given the opportunity to apply for recognition of prior learning.

### Special Notes

1. Entry information:
  - Prerequisite
    - Unit 1113 – *Comply with health, safety and environmental rules and regulations pertaining to heavy equipment operations*
2. 'Batter' refers to an earthworks cut or wall with a sloping face.
3. Expected worksite production target are to be met.
4. Assessment evidence may be collected from a real workplace or a simulated workplace in which surface mining and quarrying operations are carried out.
5. The credit allocated for this unit standard assumes that the candidate has the required driving licence.
6. Equipment, tools and material may include but are not limited to machine attachments, personal protective equipment, safety signs, fuel, specified oil and lubricants, and accessory tools.
7. Maintenance may include but is not limited to cleaning, authorised servicing and the monitoring, recording and reporting of faults. It may also include the conduct of authorised minor replacements and the provision of assistance to maintenance and repair activities.

8. Safe work practices include but are not limited to day-to-day observations of safety policies and procedures, and compliance with emergency procedures.
9. Performance of all elements in this unit standard must comply with all relevant legal and workplace requirements, contractual agreement and/or manufacturers' specifications.
10. Regulations and legislation, including subsequent amendments, relevant to this unit standard may include but are not limited to the following:
  - Labour Act, No. 11 of 2007
  - Regulations relating to the health and safety of employees at work, 1997
  - Road Traffic and Transport Regulations No. 52, 1999
  - Government Notice No 53 Road Traffic and Transport Regulations and industry specific regulations, legislations, code of practice, or code of conduct.

### **Quality Assurance Requirements**

This unit standard and others within this subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority on [www.nta.com.na](http://www.nta.com.na)

## **Elements and Performance Criteria**

### **Element 1: Plan and prepare for work**

#### **Performance Criteria**

- 1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, explained, clarified and applied to the allocated task.
- 1.2 Safety requirements including personal protective clothing and equipment are obtained from the site safety plan, workplace policies and procedures, and applied to the allocated task.
- 1.3 On- and off-site traffic control requirements are obtained and implemented according to workplace requirements.
- 1.4 Plant. Tools, fuel, lubricants, equipment, attachments and accessories selected to carry out tasks are checked for consistency with the requirements of the job, their usability and any faults rectified or reported prior to commencement of work.
- 1.5 Work area is inspected and prepared according to site operational requirements.
- 1.6 Environmental protection requirements are identified from the project environmental management plan and applied to the allocated task.

## **Element 2: Demonstrate knowledge of the functions of a grader**

### **Performance Criteria**

- 2.1 The main functions and applications of a grader are explained in terms of surface mining and quarrying processes.
- 2.2 The operation of all major components is explained in terms of their functions.
- 2.3 Safety features and warning devices on the grader are identified, and their purposes explained in accordance with manufacturer's specifications.
- 2.4 The maximum operating capacities are described in terms of the designed grader capabilities in accordance with manufacturer's specifications.
- 2.5 Warning from grader indicators and gauges are interpreted according to manufacturer's specifications.
- 2.6 Corrective actions are described or demonstrated in terms of responses to warnings received.

## **Element 3: Start and shut down grader**

### **Performance Criteria**

- 3.1 Pre-operational checks are carried out according to appropriate checklist and workplace procedures.
- 3.2 Daily and weekly operator maintenance is performed according to appropriate checklist and workplace procedures.
- 3.2 Start-up and shutdown procedures are followed according to manufacturer's specifications.
- 3.3 Grader hours are recorded, if required, in accordance with workplace requirements.
- 3.4 Grader maintenance and faults are reported in accordance with workplace requirements.

## **Element 4: Operate grader**

### **Performance Criteria**

- 4.1 The purpose of the various controls is described in accordance with their designed use.
- 4.2 Functions of the various controls are demonstrated in accordance with manufacturer's specifications.
- 4.3 Temporary safety signs are explained in relation to their use and placement.
- 4.4 Grader performance is monitored and corrective action is taken when necessary, in accordance with manufacturer's specifications.

## **Element 5: Use ripper or scarifier**

### **Performance Criteria**

- 5.1 Relevant work instructions are obtained and confirmed in line with workplace procedures.
- 5.2 Ripper or scarifier is used to break up hard surface in accordance with manufacturer's instructions.
- 5.3 Ripper or scarifier is used to aerate cohesive soils in line with job requirements.
- 5.4 Ripper or scarifier is used to mix materials in line with job requirements.

## **Element 6: Use grader for earthworks**

### **Range**

Shaping of formation levels include cross-fall; grade; batter slope; and super elevation.

For assessment purpose, evidence is required to cut any two (2) drainage channels: Cut-out drain; interceptor drain; vee drain; and swale drain.

### **Performance Criteria**

- 6.1 Relevant work instructions are obtained and confirmed in line with workplace procedures.
- 6.2 Sequence and work methods in terms of production requirements and site traffic are chosen to ensure safety of people and plant.
- 6.3 Topsoil is stripped according to job requirements.
- 6.4 Formation levels are shaped according to job requirements.
- 6.5 Foundation material is prepared according to job requirements.
- 6.6 Drainage channels are cut according to job requirements.
- 6.7 Materials are spread and levelled according to job requirements.
- 6.8 Earthworks are trimmed to line and level according to job requirements.
- 6.9 Topsoil is spread and levelled according job requirements.

## **Element 7: Prepare grader for transport to and from site**

### **Performance criteria**

- 7.1 Methods of loading a grader for transport are demonstrated according to safety requirements, manufacturer's specifications and transport configuration.
- 7.2 Methods for securing a grader for transport are demonstrated in relation to lashing points and safety requirements.

## **Element 8: Complete work related documents**

### **Performance Criteria**

- 8.1 Work related documents are completed in accordance with contract and workplace requirements.
- 8.2 Maintenance and service related documents are completed in accordance with manufacturer and workplace requirements.
- 8.3 Documents related to accidents or other incidents are completed in accordance with workplace requirements.

## **Element 9: Clean up work area**

### **Performance Criteria**

- 9.1 Work area is cleared and materials disposed of or recycled in accordance with project environment management plan.
- 9.2 Grader, tools and equipments are cleaned, checked, maintained, serviced and stored in accordance with manufacturers' recommendations and standard work practices.
- 9.3 Unused materials are safely stored and stacked for future use.

## **Registration Data**

<b>Subfield:</b>	Surface Mining and Quarrying
<b>Date first registered:</b>	27 March 2013
<b>Date this version registered:</b>	27 March 2013
<b>Anticipated review:</b>	2016
<b>Body responsible for review:</b>	Namibia Training Authority