



Australian Government

SISOCLM006 Establish belays for single pitch climbing on natural surfaces

Release: 1

SISOCLM006 Establish belays for single pitch climbing on natural surfaces

Modification History

Not applicable.

Application

This unit describes the performance outcomes, skills and knowledge required to select and set up belay systems suitable for single pitch climbs on natural surfaces, and according to current conditions. It requires the ability to select the climb route and to select and utilise fixed artificial, naturally occurring or artificial removable anchors.

It applies to rigging staff and activity leaders who work independently or with limited guidance from others.

This unit applies to any type of organisation that delivers outdoor recreation activities including commercial, not-for-profit and government organisations.

No occupational licensing, certification or specific legislative requirements apply to this unit at the time of publication.

Pre-requisite Unit

Nil

Competency Field

Climbing

Unit Sector

Outdoor Recreation

Elements and Performance Criteria

ELEMENTS

Elements describe the essential outcomes

1. Select route and equipment suitable for the climb.

PERFORMANCE CRITERIA

Performance criteria describe the performance needed to demonstrate achievement of the element.

- 1.1. Identify safe access to and egress from the pitch.
- 1.2. Interpret route descriptions, inspect the position and quality of natural features and select climb route.
- 1.3. Select a top or bottom belay system suitable for the climb, environmental conditions, and participant.

- 1.4. Choose a belay device suitable for the natural surface conditions and belayer.
- 1.5. Select other equipment to suit climbing requirements and participants.
- 1.6. Complete safety and serviceability checks on equipment and tag faulty equipment according to organisational procedures.
2. Set up belay system for natural surface climbs.
 - 2.1. Select anchors and assess condition, including performance under likely load and stability of surroundings.
 - 2.2. Rig or establish multiple anchors, ensuring equalisation and minimise potential for shock loading.
 - 2.3. Select and tie appropriate knots, and rig ropes suitable for load and function within the belay system.
 - 2.4. Establish a belay from which belayer is independent of the system.
 - 2.5. Establish a belay that maintains safety of belayer and climber.
 - 2.6. Position belay away from hazards, or remove as able.
 - 2.7. Determine need for, and establish, back up belay systems.
 - 2.8. Verify manufacturers' recommendations, equipment limitations and safety margins, and rig equipment accordingly.
 - 2.9. Rig to minimise impact on the natural environment.
 - 2.10. Complete safety checks according to organisational procedures.

Foundation Skills

Foundation skills essential to performance in this unit, but not explicit in the performance criteria are listed here, along with a brief context statement.

SKILLS	DESCRIPTION
Reading skills to:	interpret detailed familiar organisational procedures which can include those for safety checks and minimal impact to the environment.
Writing skills to:	use fundamental sentence structure to complete safety and serviceability forms and fault tags that require factual information.
Numeracy skills to:	calculate loads for anchors and ropes under normal

- Planning and organising skills to:
- conditions and in the event of a fall
 - visually estimate distances to calculate lengths for ropes.
 - follow a logical equipment selection, rigging and checking process.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume Implementation Guides -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1ca50016-24d2-4161-a044-d3faa200268b>

Assessment Requirements for SISOCLM006 Establish belays for single pitch climbing on natural surfaces

Modification History

Not applicable.

Performance Evidence

Evidence of the ability to complete tasks outlined in elements and performance criteria of this unit in the context of the job role, and:

- select and set up belay systems suitable for single pitch climbs on natural surfaces for three different pitches
- collectively set up the following types of systems:
 - top rope top belay
 - top rope bottom belay
 - self belay
- collectively select and use these different types of anchors:
 - fixed artificial
 - naturally occurring
 - artificial removable
- collectively select and tie at least four different types of knots suitable for the system type established, and appropriate for the intended load and function
- identify and tag three different types of faulty equipment.

Knowledge Evidence

Demonstrated knowledge required to complete the tasks outlined in elements and performance criteria of this unit:

- organisational procedures for safety and serviceability checks
- how the following factors affect selection of climbing routes for natural surfaces:
 - season of operation, weather and environmental conditions
 - participant characteristics including age, size, weight, fitness and climbing skill level
 - group objectives and size
- environmental hazards specific to climbing on natural surfaces and how these affect:
 - safe access to and egress from the pitch
 - choice of ascent routes for safety of climber
 - positioning of top or bottom belay systems for safety of belayer
- features, functions, advantages and disadvantages of different types of anchors used for climbing on natural surfaces:
 - fixed artificial:

- threads
- bolts
- chains
- concrete bollards
- naturally occurring:
 - trees
 - boulders
 - knobs of rock
- artificial removable:
 - spring loaded camming devices
 - nuts, wires and hexes
 - pitons
- issues that are assessed when selecting anchors and likely impacts of poor condition on performance under load:
 - wear and abrasion due to age and use
 - corrosion
 - decay
 - dislodgment
 - underlying stability of structural features and presence of:
 - cracks
 - deformities
 - fissures
- meaning of the following terms, and principles which apply when rigging anchors and ropes:
 - equalisation of load
 - single point of failure
 - anchor redundancy
 - angle of separation
 - shock loading
 - cross loading and cyclical loading of carabiners
 - mis-alignment of carabiners
 - closing the system, including advantages, disadvantages and methods used
- types of forces (upwards, downwards) generated during climbing and belaying, and how to calculate load on anchors and ropes for these circumstances:
 - top rope top belay
 - top rope bottom belay
 - climber ascending and lowering under control
 - climber fall
 - belayer arresting falls

- features, functions, advantages and disadvantages of the following climbing and belay equipment used on natural surfaces:
 - belay systems:
 - top rope top belay
 - top rope bottom belay
 - self belay
 - belay devices:
 - assisted locking
 - inline
 - plate
 - figure 8
 - tubular
 - improvised
 - carabiners
 - harnesses of different types
 - static and dynamic rope and when each might be used
 - rope protectors
 - tape
 - sewn sling
 - Prusik cord
- how the following factors affect the selection and rigging of above equipment:
 - site characteristics including position of rub points
 - weather and environmental conditions
 - participant size, weight, and climbing ability
 - belayer to climber weight ratio
 - cumulative load for group size and number of climbs
 - climbing techniques to be used
- manufacturers' specifications for equipment use
- techniques used to establish belay systems for safety of belayer:
 - rigging belays performance of rescues
 - attaching to anchor or self belay safety system
- situations requiring back up belay systems
- when different knots are used, advantages and disadvantages, and how to tie them:
 - fixed eye
 - mid line tied in the bight
 - end to end joining
 - termination
 - load control hitches
 - slide and grip hitches
- types of safety checks completed for rigging of equipment

- how to care for climbing equipment when rigging to avoid damage, and promote long lifespan
- potential environmental impacts of rigging for climbs on natural surfaces and techniques used to minimise damage.

Assessment Conditions

Skills must be demonstrated in an outdoor environment where rigging is completed for single pitch climbs on natural surfaces.

The following resources must be available to replicate industry conditions of operation:

- first aid equipment
- communication equipment for emergency response
- rescue equipment.

Assessment must ensure use of:

- personal protective equipment to include:
 - abseiling or climbing helmets
 - harnesses
- anchors to include:
 - fixed artificial
 - naturally occurring
 - artificial removable
- climbing equipment to include:
 - carabiners
 - rope which can include static and or dynamic rope
 - rope protectors
 - tape or sewn sling
 - Prusik cords
 - belay devices
- template safety checklists
- organisational procedures for safety and serviceability checks.

Assessors must satisfy the Standards for Registered Training Organisations requirements for assessors, and:

- have a collective period of at least three years' experience as a climbing activity leader or rigger, where they have applied the skills and knowledge covered in this unit of competency; the three years' experience can be part time or full time experience.

Links

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