



## ROCK STABILISATION INCIDENT – PERSON HIT BY FALLING ROCK

A rope access technician was in descent mode carrying out de-vegetation operations on a cliff, when a rock of about 6 kg was dislodged from above by his own ropes. This rock struck his helmet, causing him to be unconscious for approximately 30 seconds. He was brought quickly to the ground as in the rescue plan. The casualty was taken to hospital with suspected head and neck injuries. His helmet was unbroken apart from a large scuff and the internal cradle was intact. It appears that the cut to the head was caused by the inside of the helmet shell. The chin strap was securely fastened which probably avoided more serious injury. The neck injury was probably due to the impact of the rock on the helmet. Only relevant details are noted below.

Hazard	Control measures
Injury to operative working on a slope caused by collapse or slope failure	Cliff faces and slopes will be inspected by a suitably qualified and experienced engineer. A plan for the safe removal of vegetation and loose rock made on a day to day basis such that the work can be done safely. Operatives to be experienced in working on potentially unstable slopes. The site foreman will monitor the situation during the course of the works and will stop the works at any time he feels the slope is unsafe. Work only resumed after inspection by a suitably experienced engineer has confirmed it safe to do so. If necessary, temporary support such as rock bolts and cable strapping may be necessary before working on an unstable item
Injury caused by falling objects resulting from overhead working	Rock removal to be co-ordinated with other site operations to ensure there is no conflict. e.g one work team does not interfere with another and that they work sufficiently spaced apart. No operative to work below another. The access below a work zone will be isolated with high visibility barriers and warning signs. To pass below a work zone, persons must make the work party above aware that they wish to pass and can, only when the work party team leader has confirmed it is safe to do so. Operatives reaching the ground will exit by a safe route, which does not pass below another operative. Third parties and other ground-based operations will be coordinated with the roped access works to ensure there is no interference and that they are aware of works overhead. All tools will be kept on a lanyard or suspended on a separate rope system.
Injury to operatives doing rock removal works	The top edge of the slope may be covered with wide protective material to minimise the possibility of damage to ropes, or rope movement dislodging anything. Loose material will be removed working from the top down, to ensure that the face above them is safe and the possibility of dislodged rocks falling onto an operative is minimized before descending further. Rocks are removed using a hand held prise bar when waist height or below. See also relevant control measures above.

Injury to operatives doing de-vegetation works	Operatives to be experienced in the use of de-vegging tools and tool box talks given as necessary. Operatives to rig ropes to avoid damage from tools and inspect ropes each time before use for cuts. Chainsaws only to be used by trained and experienced personnel using full protective equipment. Appropriate PPE used includes gloves, ear defenders and eye protection.
Damage to ropes	Ropes protected from damage from abrasion, falling rock or cutting tools by rope protectors, retaining spare rope in bags attached to them, or positioning ropes to one side. See also relevant control measures above.

### **Conclusions / Remedial action / lessons to be learned**

- Amend Method Statement and Risk Assessment to further emphasise operatives must keep checking above them and be aware of the possibility that any movement of their ropes could dislodge loose material.
- Toolbox talk to emphasise risks and procedures for dealing with loose rocks, this to be monitored for effectiveness
- Monitor condition of slopes above workforce at all stages of the contract to ensure loose material is not dislodged by either operative's ropes or lifting and lowering operations.
- The site team recommended that de-veg and rock removal should take place in one operation, rather than de-veg before rock removal
- The site team noted the importance of the casualty wearing a connected chest harness as this definitely assisted in handling the casualty.

### **Observation**

- In some cases on loose slopes sacrificial netting/ mesh is fixed first, so that rock removal takes place through the netting to give greater protection to the workforce. Depending on the situation, rock netting may be laid on top of this.

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