

# SKY-HIGH

## *in Glen Righ*

... with minimum disruption

The Glasgow to Inverness trunk road, the A82, is one of the most important links running through to the Scottish Highlands. Just north of the Corran Ferry, the highway is sandwiched between the waters of Loch Linnhe and the steep slopes of Druim na Birlinn. The almost sheer banks were planted with conifers by the Forestry Commission early in the twentieth century and the big timber that towers above the passing traffic now needs felling.

Storm damage and the removal of a large, unstable rock crag (Big Rock) led to a planned four-day closure of the road between Corran Ferry and Fort William in December 2011, but for subsequent operations traffic management plans have been put in place to keep disruption to a minimum. However, it is envisaged that harvesting work to protect the road at vulnerable sections between Glencoe and Inverness will be ongoing for at least a decade.

Alex Macleod is FCS's A82 project officer at Torlundy (Lochaber Forest District). With measures now in place for traffic protection, he has agreed with BEAR Scotland (Transport Scotland's contractor in the North West) a system of traffic management to ensure the safety of both road users and harvesting teams. Manned traffic lights divert traffic onto the lochside lane and operatives can close the road to all traffic at the request of the harvesting team on the slopes above.

Closures are normally restricted to a ten-minute duration and the traffic light operators also have the right to maintain the road open if they feel traffic flows require it. In this case, no work on the hill, apart from secondary extraction on the forest road, can be undertaken until they assure the crew up in the

wood that the lights are 'red/red' down below.

Peter MacDonald is FCS's harvesting supervisor and he explained that communication is the key to successful and safe operation on such a difficult and challenging site. Peter started with FCS on the direct production cutting team for what was, at the time, Lorne Forest District. For the last few years he has been intimately involved with the works at Glen Righ, starting by surveying the site and now overseeing the timber coming off the precipitous slopes.

Calum Duffy (Duffy Skylining) has been awarded the contract and in mid October was on site with David Macfarlane, Michael MacDermott, James Strachan, Donald Halbert and Tony O'Heffernan. With a strake having been worked almost down to the level of the road, the latter three had accessed the site for chokering and chainsaw duties from the closed carriageway of the A82.

When the all-clear was given by the roadmen, David Macfarlane in the Volvo excavator could send down the Koller USKA-2.5 carriage to the crew down below. The profile of the slope often requires intermediate supports, so the ground crew might be well out of sight. Again, precise and clear communication is paramount, with chokermen in safe positions before the

carriage can start its journey up.

Getting down the slope is a real scramble and, safely beyond the stays of the spar tree that carried the intermediate support, the reasons for the stringent safety measures become apparent. Big Rock may have been blown out in 2011 (and Son of Big Rock broken up on the slope and its remnants removed) but there remains plenty of loose stone on the steep bank that can be dislodged by the timber as it is hauled up. In his survey work, Peter MacDonald measured some sections of the slope at 90%, so when things start moving down, there is no guarantee they will stop. Hence, all workers down below must be well clear of the skyline and no traffic can move on the lochside road.

While the German manufactured Ludwig System chokers are a vast improvement on the heavy, earlier, radio-controlled choker systems, the risk of slippage or unplanned release has led to the requirement for each

load to be secured by two chokers. A long stem shooting down a slope, crossing a road and trying to escape into water is not unknown – in fact, one attempted to make its way down the River Wye in Wales a few years ago. In that instance, fortunately, nobody was hurt

*The carriage passes the intermediate skyline support with a top section. The official load rating for the USKA-2.5 is 2.5 tonnes and loads can be considerably heavier than this. The need to complete the cycle within the ten-minute closure often precludes the movement of multiple stems.*

and it is for this reason that 'red to red' is required on the traffic management.

The Ludwig System solution does avoid the use of a chokeman on the top landing, but it remains costly. Weight has been reduced in recent years and reliability increased, but either daily painting of choker bell heads or the use of remote radio-tracking (sometimes standard, sometimes optional) is advisable for searching out lost chokers. Yes, they are that pricey!

FCS has provided raised platforms above the forest road to create a safer and more accessible work area for processing and secondary extraction. Performing the work at the moment for Duffy Skylining is a Volvo 360 excavator base fitted out for skyline work by A&B Services, Killin, Perthshire. The tracked format is ideal for providing easy access to the platforms and providing a robust mast without the necessity for guying.

The radio-controlled chokers really come into their own when the produce is left on the road below for immediate pick up by the processor and the carriage can set off straight back down the hill. The Doosan 340 with Waratah H290 harvesting head processes the stems onto the roadside ready for uplift by the John Deere 1710D forwarder. The major part of sawlog produce is cut to 4.9m and 3.7m lengths. BSW's Killmallee Sawmill at Corpach will be its destination. There will be some chipwood produced that will make its way north to the end of the A82 at Inverness and travel on to the Norbord mill at Dalcross.

The Waratah H290 combines capacity with moderate weight, mainly due to its two feed



Aboard the Volvo, David Macfarlane receives the signal and starts the next haul up from the bottom. On sites this steep, for uphill work, only the skyline (top) and mainline are required. The carriage will haul itself back down when the line clamp is released.

roller format. Equivalent heads in the 600 series three feed roller range would hang twice as heavy on the boom. The 760mm maximum cut will normally be ample for the material coming off a 'side' like the one above the A82.

While the 'big iron' up on the top road may be impressive, the felling cuts down on the bank are all put in with the chainsaw. Calum himself usually takes direct charge of this part of the operation. He admits that it is one of the most technically challenging aspects of the job.

direction on this clearfell site has its limitations. There is also the risk that timber falling across the slope (however good the faller's judgement and execution may be) will strike an outcrop and the butt end will take a swing down the hill.

Felling is undertaken in a methodical manner for ease of extraction, but presentation of the felled trees for the skyline carriage under these conditions remains a challenge. Out of sight of the machine operators high above, the crew down the hill have to make their own judgements about where to cross-cut to avoid striking spar trees and minimise the force required for breakout. Working inside a big 'cut' and cutting to length is rarely an option; the first priority of the chainsaw operator is to cut from a safe position and minimise the risk to himself. In this situation, skyline loading will not always be optimal and there is bound to be a little wastage as produce is cut to length by the processor above.

As Calum noted, in parts the slope is so steep that it is hard to find any footing, let alone handle a big saw, hammer and wedges. While felling aids such as tree jacks and hydraulic wedges may sound ideal for putting over the big timber, lugging that sort of

Peter MacDonald has measured some of the trees lower down the bank at 37m in height, and the cutter will often be assisted by retaining a buffer zone from the prevailing wind to reduce the risk of windblow on the exposed site. With a generous quota of spar trees remaining standing and the rockfall netting directly above the road, choice of felling



As the chokers swing free the processor immediately gets to grips with the butt-end section delivered from below. Behind the machine can be seen the last skylining platform that has been built on this section of road.



Harvesting residues from the processing operation are also led to the landing when there is a risk of them becoming unstable on the bank. The Mus-Max Wood Terminator 7 chipper is powered by a Valtra tractor and fed by a Botex crane.

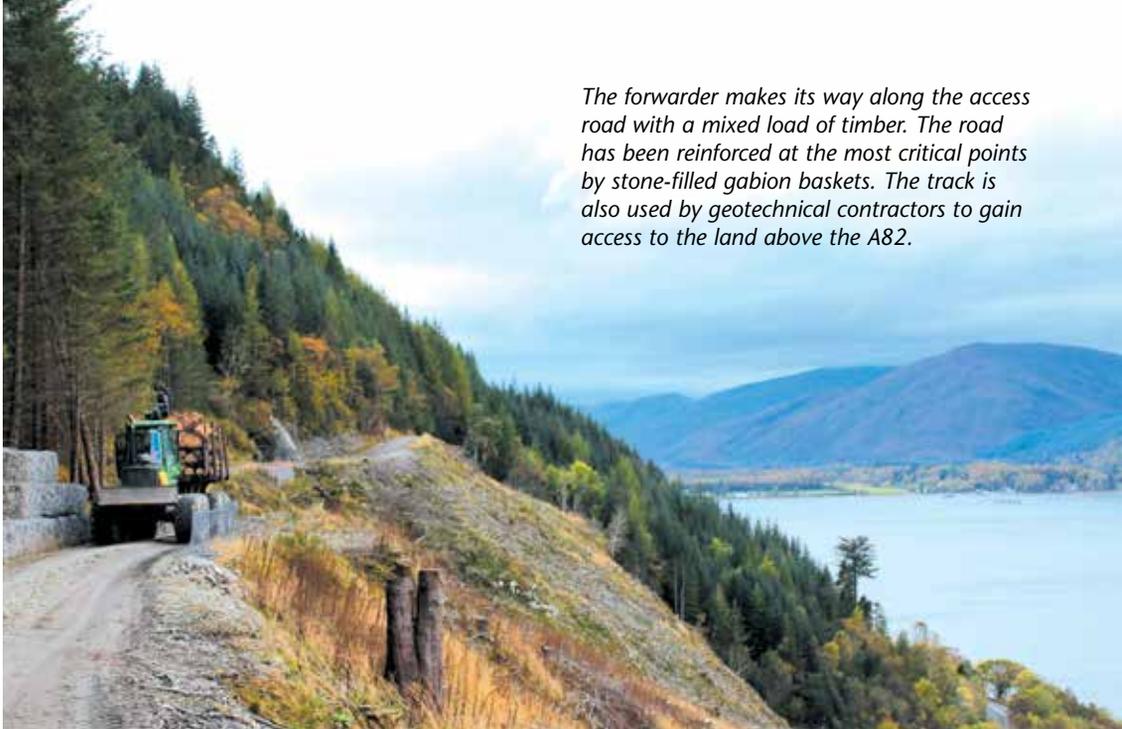
heavy gear up and down the slopes below Druim na Birlinn has distinct limitations. Felling large trees, especially under such difficult conditions, takes time and the process requires good planning if it is to be completed within the ten minute red/red traffic light window.

It has been agreed that preparation cuts and removing the sink can be carried out while the carriageway is open, but the back cut is only started when the traffic below stops. The team's climbing skills are also put to good use – even before the spars need to be rigged for the skyline. Some trees on the lower boundary need to be cut above the height of the rock fall protection netting already installed, and the spars need to be topped.

It has been decided to work the site from NE to SW to minimise the risk of wind damage to the standing faces. The spar trees left for rigging are susceptible to the same danger; topping them greatly reduces their propensity to succumb and will also increase their stability when they come to take the weight of the extraction system. When this second phase of the operation for 2014 is concluded, the standing edge of timber left exposed will consist of smaller trees. Hopefully, the lee they are afforded will protect them from the worst of the winter storms that may blow up Loch Linnhe.

When enough timber has been processed on the top road, the forwarder can run it north to the landing accessible to wagons near 'the compound'. The latter was established for road building and formed the centre of operations for the slope stabilisation work carried out by Geo-Rope, the contractors brought in when it was decided that the problems of the stability of the hill above the A82 needed to be tackled.

In the operations to break up the 60-ton Son of Big Rock (a smaller crag left after the main one was removed), the geotechnical and access solutions contractor had a couple of dozen rope-access operatives working throughout the winter night to reopen the A82 on schedule. With space down below at a premium, much of the subsequent road



*The forwarder makes its way along the access road with a mixed load of timber. The road has been reinforced at the most critical points by stone-filled gabion baskets. The track is also used by geotechnical contractors to gain access to the land above the A82.*

protection work was carried out from above and accessed from the compound. A small cableway system was used to work materials down from the upgraded existing forest road to the A82.

The road has no adequate turning point or areas for stacking and is too narrow for articulated timber lorries. However, secondary forwarding along the 1.5km length of the road has very little influence on the rate of production of timber from the site. Working constraints down below are the limiting factors. By the same token, moving mixed loads from the processor and sorting them at the timber landing was not seen as a problem.

Where watercourses cross, subsidence or landslips were judged to be a real possibility, so protection by stone-filled gabion baskets was installed. Much of the timber due to traverse this section has now left the site, so the priority is to prevent further degradation of the section; it will continue to serve as access for geotechnical contractors in the future. In light of the site's unstable conditions, native species will be allowed to regenerate here to stabilise the slopes. It should be pointed out, however, that, where suitable on the wider A82 Project, areas will be restocked with timber-producing species.

Roadside processing leaves the slope free

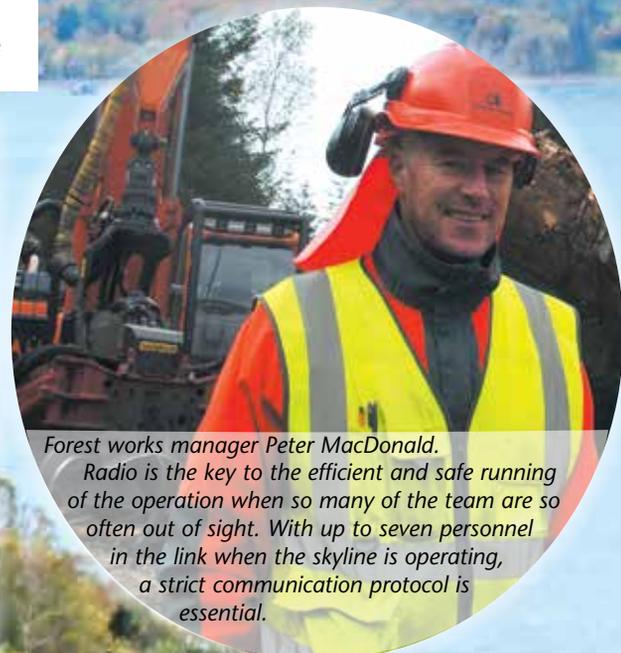
of most branchwood, but accumulations of brash left by the Waratah head can build up considerably. It is not inconceivable in such an exposed position that high winds might dislodge debris and see it making its way to the bottom on the steepest sections. The JD 1710D removes the residues where necessary and forwards them to the Mus-Max Wood-Terminator 7 chipper located near the timber landing. Power is supplied by a Valtra tractor and feeding is by Botex timber crane.

The A82 Project has presented a great challenge, and in few parts will the harvesting operation be more difficult for man or machine than it has been on the stretch just north of the Corran Ferry. Profit and production are not the main drivers behind the clearing of the stands established by the fledgling Forestry Commission at Glen Righ all those years ago. There was a job that had to be done. Nevertheless, the experience gained by 'thinking outside the box' and finding workable solutions to what may at first sight appear to be insurmountable problems could prove invaluable in the future for UK forestry.

*Hilary Burke*



*Left to right: Calum Duffy, Michael MacDermott and David Macfarlane on the top road. The last platform to work on this road lies a hundred metres or so to the right of the picture. Operations will then commence from a lower forest road entering from the A82.*



*Forest works manager Peter MacDonald. Radio is the key to the efficient and safe running of the operation when so many of the team are so often out of sight. With up to seven personnel in the link when the skyline is operating, a strict communication protocol is essential.*