

The M1 and White Lady Snow Fences.

Table of Contents

Introduction.....	2
The Changing M1 – So far so good?.....	3
The M1 – Continuing the Changes.....	4
The White Lady – Making the fencing work for us.....	5
Conclusion.....	7

Introduction

CML's end of season survey for the 2006 season asks "Did the new fences at the bottom of the M1 improve the skiing on this run?".

In some ways snow fencing has in the past seemed to be not so much a science but something of a mysterious black art. There are undoubtedly some well located and exceptionally successful fence lines, but there are also some apparently haphazard fences which serve only to frustrate by dissecting natural snow beds.

The increasing popularity of digital cameras during the early years of this decade has enabled the building up of a digital archive of snow cover images for the Scottish Snowsport areas from the 2000/01 season onwards, both on Winterhighland and more recently also on Highland-Instinct.

Through my role in collating these photos, I gradually begun to have suspicions that certain snow fences were working against us, rather than for us. It is now possible to go back and fore through several seasons worth of images and thus make observations which in some cases have backed up initial suspicions.

It seems others were also starting to draw similar conclusions, hence some of the debates both on-line and amongst regulars with regards to snow fencing.

CML's willingness to try different things in terms of snow fencing over the past few seasons is to be welcomed. This short document is my somewhat extended answer with respect to the question posed above along with some further thoughts regarding the M1 and White Lady.

The Changing M1 – So far so good?

My observations of the Lady and M1 in photos over recent seasons and comparisons to older photos of CairnGorm lead me to the opinion that the snow fencing set up on the M1 was proving counter productive. Catching wind blown snow over a wide area that would not naturally hold snow, thus resulting in a more spread out and thinner cover. This would be to the detriment of the natural snow holding area that is the White Lady by reducing snow reaching the Lady on winds with a Westerly Component.

Thus the initial alterations carried out to rationalise the fencing on the upper M1 were welcome. A general consensus from people I've spoken too is that this has been a success. This fits with my own observations from photos and the Daylodge Webcam that reduction of fencing on the upper M1 has benefited both the White Lady and the remaining single M1 Race Track.

There has been a notable difference between the Upper Single M1 Race Track and the lower remaining section of double race track. While altitude may play a part, it does seem that the Race Track has been filling and lasting better as a single piste.

The new fence at the foot of the M1 has only had one season, but so far it does seem to be at least something of an improvement over the previous alignment. However it does not appear to have solved the problem of $\frac{3}{4}$ of the M1 often being excellent, but leaving a broken or at least tricky return to the Poma. The new line seems slower to break, but still gets very narrow/rocky quickly. The lower section of the M1 including the new fence may be getting disadvantaged by the remaining inner third fence line by the timing hut.

Overall the changes to snow fencing so far appear to have been a success, far from discouraging further alterations this should encourage additional changes to enable the most to be made of the benefits already noted from the existing alterations.

The M1 – Continuing the Changes

The M1 is not a natural snow holding area, thus the lower altitude parts of the M1 are more vulnerable to rapid break up in mild spells than the natural snow holding routes at similar altitude, such as the Cas Gunbarrel or man-made topographic snow-holding features such as the Zig Zags.

Given the problem area is the lowest altitude part of the M1, we will probably have to accept that no fence arrangement will significantly improve the snow retention and durability of the bottom ¼ of the M1. Thus the scenario where ¾ of the Run is in great shape but it is a run to no-where will persist.

Therefore I suggest that the way to make the best use of the now improved snow holding of the Upper M1 is the provision of an alternative and higher exit from the M1 Race Track to a more snow sure route to the Middle. Given the Funicular blocks the route to the Lady, while fence lines going to skiers left seem more effective in this area (The Traverse shows this well), this exit should be to Coire Cas and be high enough up to allow all possible routes to the Middle to be accessed (the 105, Gunbarrel and the Zig Zags as well as the M1 itself) thus giving the widest range of possible options for a complete run, as indicated by the black arrows in illustration1:

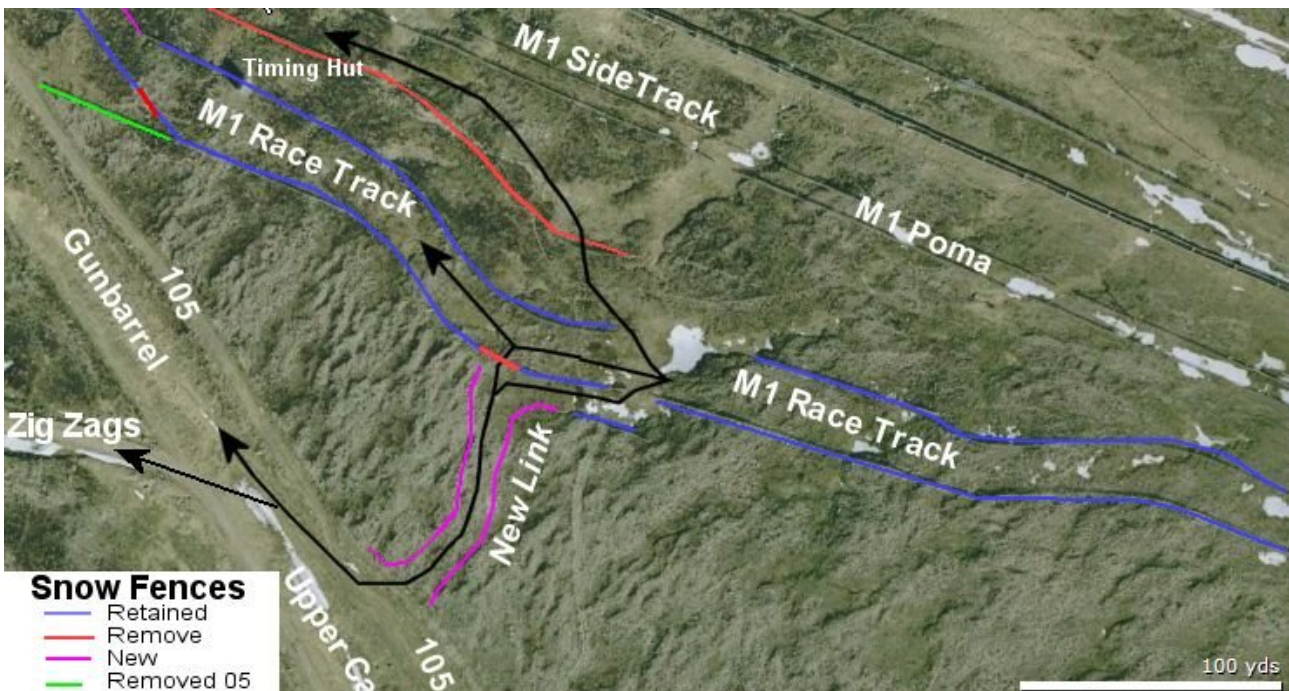


Illustration 1: Diagram showing suggested further snow fence alterations on the M1 including new higher level exit from the Race Track. The black arrows show possible descent routes with the new fence arrangements.

To improve durability of this new link, the double fenced run should be fairly narrow. As we know fenced up-tracks tend to last longer than nearby wider fenced runs, and a short link doesn't need to be a wide piste.

The White Lady – Making the fencing work for us

The decline of the White Lady from the early 90s might be seen as symbolic of a changing climate. However I believe there was more to this than climate, esp as the West Wall Poma which starts lower has not declined as badly as the Lady Tow. The finger of suspicion points at the M1 and I believe the decline of the Lady was at least in part a consequence of the near 3 fold increase in snow fencing on the M1 area when the Poma was extended to the Top Station.

My opinion that the M1 was a factor is strengthened by the fact that years such as 2001 where the Lady filled exceptionally well a lot of snow came from the East, thus not crossing the M1. Meanwhile drifting snow did have to cross the M1 to reach Coire Cas. While the Cas was a decent enough run in 2001, the main body of the Cas Run did not fill to the width and depth one might have expected for such a bumper season. The M1 fencing was robbing the Cas of snow in East winds that would have otherwise drifted round the flank of the hill to the natural gully of the Cas Run, the reverse of the more common situation where in prevailing Westerly winds it is the White Lady that lay in the 'shadow' of the M1 fences.

From observing photos over the past two seasons, and the operation of the Lady Tow, it appears the reduction of fencing on the Upper M1 is allowing the White Lady to bounce back. However, in an attempt to arrest the decline of the White Lady snow fencing was extended down the run during the mid 90s, but this appears to have been done with little regard to the topography of the run and it's natural snow fields (which are clearly visible on spring/summer photos by the difference in vegetation).

The Funicular has magnified the problem, by increasing snow accumulation in a natural snow bed that would provide a much more durable route to the M1 Poma were it not dissected by an inappropriately placed snow fence:



Illustration 2: White Lady - A run to nowhere or is it? The red line is the fencing, but the blue line shows a route to the M1 Poma via a natural snow hollow but is blocked by the fence.

The complete route down the Lady to the M1 Poma indicated by the blue arrow in the Web Cam image above follows an area of natural snow holding. This is shown up by the vegetation contrast in the aerial photograph (Illustration 3) of that section of the

White Lady. This situation can be observed occurring time and time again over the seasons covered by Winterhighland's digital photo archive.



Illustration 3: The contrast in vegetation in this satellite photo shows up the natural snow bed (light colours) and how the existing fence blocks the natural run.

With the existing fence configuration the fenced route crosses a raised ridge that is not a natural snow lie area, thus the fence configuration results in the Lady Run via the M1 Poma 'breaking' prematurely while there is still a good complete snow route via areas of natural snow holding (indicated by the blue arrow on both Illustration 2 and 3).

The Web Cam image in Illustration 2 shows a long break on the fenced link to the M1 Poma, yet the snow cover offers the potential of a good well covered run using the M1 Poma. Looking through the photo archive, it is not outrageous to suggest that the period of time where the White Lady is similarly 'unnecessarily broken' is likely to be measured not in days but weeks in some seasons.

A further point in favour of modifying this section of fencing is that it would allow Kassbohrers to get closer to the funicular in an area of known heavy drifting to lower and spread out problem drifts and move the snow from where it is a problem to somewhere it's useful. The fence parallel to the track need not be a snow fence, but serves to separate skiers from the track until it reaches a suitable height for passing under.

Conclusion

Digital technology and the Internet have allowed snow coverage and terrain to be observed in a way that wasn't possible until recently, providing scope for analyzing snow fences, their location and effectiveness in a more sophisticated way.

That there appears to have been successes on CairnGorm Mountain by both increasing (e.g. Over Yonder) and reducing (The M1) snow fencing underlines the complexity of the issues. Therefore there will be some real successes with experimenting with fence configurations, but there is also likely to be the occasional set-back. However that should not discourage further alterations, as we need to make the most of what snow does fall.

Admittedly observations from photos remains to some extent a subjective rather than truly objective method of analysing snow fencing, however it is an undeniably better option than a completely subjective analysis based largely on memory. The ability to go back through a digital archive and compare various photos allows initial suspicions from casual observations to be either confirmed, denied or proven worthy of further investigation.

The suggestions in this document are based on ideas and thoughts which have been gradually formulated over a number of seasons. These concepts have been refined and re-affirmed by being able to go back through the digital photo archive and compare images from a number of recent seasons under varying snow conditions and also by comparing the snow cover with terrain, vegetation and fence lines both from terrestrial photos and the newly available online satellite/mapping services; such as Google Earth and Microsoft's local.live.com .

It is my belief these proposed changes will add to the benefits of the alterations already made by further improving the durability of the M1 and White Lady pistes, thus enhancing both the enjoyment and availability of snowsports on CairnGorm Mountain.