



HILL CLIMB SAFETY GUIDELINES



Disclaimer

©2021 Fédération Internationale de l'Automobile (FIA)

– All rights reserved

The reproduction or distribution of these Hill Climb Safety Guidelines, in whole or in part, without the written permission of the FIA, is prohibited except for FIA affiliated members, and the rally event organisers approved by them, who are entitled to use this document for non-commercial purposes.

These Guidelines are for informational purposes only and are not intended to offer advice on which reliance should be placed.

To the extent permissible under applicable law, the FIA therefore disclaims all liability and responsibility arising from any reliance placed on the Guidelines, or by anyone who may be informed of any of its contents.

HILL CLIMB SAFETY GUIDELINES



Table of contents

01	INTRODUCTION
02	STANDARD SAFETY PLAN
03	RESPONSIBILITIES
04	PREPARATION OF THE COMPETITION
05	SPECIAL PRECAUTIONS DURING THE RACE
06	PROCEDURE FOR THE COMPETITORS AND THE TRACK MARSHALS IN CASE OF AN ACCIDENT
07	PROCEDURE IN CASE OF A SERIOUS ACCIDENT
08	SAFETY INSPECTION BY THE ASN
09	PRE-START AND REGULAR SAFETY REVIEWS
10	MEDIA
	APPENDICES
	1 - Guidelines for the use of straw bales in motorsport
	2 - Examples of straw bales and tyres stacks use
	3 - Chicanes drawing
	4 - Generic Spectator Signs
	5 - No-go Areas
	6 - Information Board
	7 - Spectators Access
	8 - Limanova Safety Plan
	9 - Saint-Ursanne Safety Plan

INTRO- DUCTION



Introduction

The aim of these Guidelines is to identify the measures that need to be taken to address the greatest challenges for the discipline of hill climbs, that is, to find ways to maximise the safety of Spectators, Officials, members of the Press and Competitors.

Unfortunately, many spectators may not be aware of the potential dangers associated with watching a Hillclimb and are unable to gauge the speed of the cars. Consequently, they may place themselves in dangerous positions simply through a lack of understanding.

It is the organiser's responsibility that spectators remain in safe areas and are fully aware of the dangers that may arise should a Driver lose control of a car.

The possibility that spectators, volunteers, officials or representatives of the media might be injured is simply unacceptable.

In addition, when addressing the Safety of competitors competing on a Public Highway, adapted for use as a Hill Climb Course, ASN/Organisers have a further responsibility, to identify Dangerous points on the Course and take effective steps minimise the effect those points may have, were a competing car to come into contact with them.

The most effective way to address the above responsibilities is for ASN's/ Organiser's to ensure that an effective safety plan is produced and implemented. In the case of an FIA event it is compulsory.

02 | STANDARD SAFETY PLAN

From the outset, our discipline has implemented tried and trusted Safety Plans, of which there are, today, many excellent examples. See **Appendix 8 and 9**.

In addition to topics required by Local Municipal Authorities, or the ASN, an effective Safety Plan should include:

- A detailed map of the course, indicating the position of safety officials, rescue facilities, Medical services, and prohibited areas etc. It may be useful to have a number of Course plans identifying different topics and disciplines in more detail
- The location of Race Control;
- The names (+ contact details, incl. mobile phone & email address) of the various people in charge, including:
 - clerk of the course,
 - assistant clerks of the course,
 - chief medical officer,
 - chief safety officer,
 - ASN safety delegate (if there is one).
- The address and contact details of the various safety services:
 - gendarmerie,
 - hospitals,
 - medical emergency service,
 - fire service,
 - breakdown and recovery service,
 - Red Cross (or equivalent).

The safety plan specifically addresses problems that might arise in any of the following areas:

- safety of the public,
- safety of the Competitors,
- safety of the Competition officials,
- recommended positioning of the media representatives.

and includes a map showing:

- Marshalls post, the number of Marshalls at the post and the equipment in their possession.
- the details of where the rescue services are stationed;
- the parc fermé and assembly areas,
- the instructions for intervention,
- the landing pad(s) for evacuation helicopter,
- the evacuation routes,
- the hospitals that have been planned and contacted to receive any casualties,
- the prohibited and/or authorised areas,
- the spectator areas.
- Detail of where track Safety measures, such as Guard Rails, Straw Bales, Tyre stacks are placed.

In all cases, contact should be made with the local authorities or, failing this, with a private organisation, in order to draw up a rescue plan to be implemented in the event of a major incident or incidents that do not fall within the scope of the medical service on site.

The hospitals selected should be contacted in writing before the Competition, requesting that the emergency services be placed on standby.



03 | RESPONSIBILITIES

03.1 ASN SAFETY DELEGATE (FIA COMPETITIONS)

a) Before the Competition:

- In conjunction with the chief safety officer, he participates in drawing up the safety plan.
- In the case of an FIA completion. At the latest 7 days before the Competition, the organiser must send the ASN safety delegate a report on the planned improvements and the follow-up of the critical points identified by the FIA observer in the previous edition (cf. the FIA observer's Safety and Observer reports).

An English (or French) version of this report must be sent to the FIA and to the FIA observer via the ASN. A similar process could be adopted for non FIA events.

b) During the Competition:

- The ASN safety delegate will check the safety of the public, officials and media.
- He is entitled to ask the clerk of the course to delay/ to stop the start of practice heats or the race heats if he considers that any safety conditions are unsatisfactory.

03.2 CLERK OF THE COURSE

- He has overall responsibility for ensuring that the Competition runs safely and smoothly and take all necessary decisions and implementing all necessary measures to do so. He may deploy competent staff to assist him in drawing up and applying the safety plan.

Should the case arise, he will be ultimately responsible for ensuring that the safety plan is implemented.

- He is responsible for informing the stewards and the track marshalls about all urgent matters and, in cooperation with the chief safety officer, for ensuring that all relevant information regarding emergency matters is passed exclusively through the press office (in conjunction with the FIA press office in an FIA event.)
- He must compile a list of the requirements for the Competition and must then ask the organiser for the staff and the material required to help him during the Competition.
- With the chief safety officer of the Competition, he appoints the safety personnel with whom he will be working, to ensure the provisions of the safety plan have been applied.
- He supervises the preparation and the proper installation of the safety barriers and any other Safety items placed to protect dangerous points and of all the other equipment required as detailed in the Safety Plan.
- He ensures that the warning signs are positioned properly and that the dissemination of information to the spectators and the local residents is carried out during the Competition.

It is his duty to apply the safety plan, making sure that all the safety teams are positioned in accordance with the published plan.

03.3 CHIEF SAFETY OFFICER

In conjunction with the ASN safety delegate, he participates in drawing up the safety plan, indicating the assembly points and the positions of the ambulances, fire-fighting and rescue teams, and those of the track marshalls and safety personnel.

- Before the start of the Competition, he ensures that the personnel have been properly trained/briefed and that all the responsibilities with which they have been entrusted are clear.
- On the day of the Competition, he checks that all the safety vehicles and personnel are positioned properly.
- He is fully conversant with the safety plan and has carried out an inventory of all the equipment that will be at his disposal during the Competition.
- He stays in permanent contact with the clerk of the course and with the safety personnel.
- He checks the emergency routes, so that if there is an accident the Emergency vehicles will not be blocked by the spectators' or officials cars.

03.4 CHIEF MEDICAL OFFICER

- He is responsible to validate the recruitment of all the doctors and paramedic teams who will support the Competition.
- He assigns them their specific duties, informs them about the safety plan and introduces them to the chief safety officer.
- On the day of the Competition, he ensures that all medical personnel have been positioned at their pre-arranged locations and that all Medical response vehicles are properly equipped with valid equipment and supplies.
- He is in constant communication with the chief safety officer of the Competition, as well as with the clerk of the course.
- He will inform the clerk of the course of the seriousness of any reported incident or injury.

03.5 TRACK MARSHALS (THE CLERK OF THE COURSE MAY APPOINT A CHIEF TRACK MARSHALL TO ASSIST HIM IN SUPERVISING THE TRACK MARSHALLS)

- They are responsible for their sector and should have line of site with adjacent Marshalls post below and above them.
- They are at their Marshalls posts at the time appointed in the Timetable and check they are in possession of all the equipment specified in the Safety Plan.

Before the competition starts they can advise spectators of the designated Spectator areas to prevent them from straying into prohibited areas. In some instances, the Organiser may employ the Use of Spectator Marshalls.

The Track Marshalls control the communications with the chief safety officer and/or the clerk of the course.

- As politely as possible, they inform the spectators that the race will take place only if they follow instructions and remain within the recommended areas.

- They inform the clerk of the course if more support personnel are needed for large spectator gatherings.
- When all the safety precautions are being observed and everyone is in position, they then report to Race Control. The final decision to commence racing will rest with the C of C after a final course inspection.
- They work closely with the Marshalls in the adjacent Posts, during the approach of competing cars, observing the use of Marshalls flags and acting accordingly.
- They may deploy the appropriate flags as per their training. The Red flag may only be used upon a request to the clerk of the course. If the Clerk of the Course wishes he may authorise experienced Marshalls to deploy the Red Flag if the Race must be stopped without any delay, ie. serious competitor injury, spectator injury, large fire.
- Marshalls make sure that during the event no cars arrive and block adjacent emergency exits or park close to the course.
- On instruction of the clerk of the course, some posts will also record the passage of each car.

03.6 SAFETY PERSONNEL (IF TRACK MARSHALS ARE NOT RESPONSIBLE FOR SPECTATORS' SAFETY)

- They are positioned all along the course.
- They report to the chief safety officer, or via a Manager if a private contractor is used.
- They are trained/briefed as required and know exactly which tasks they have to perform and have the confidence and authority to ask spectators to move to a safe place.
- They are equipped with whistles to keep the spectators out of the prohibited areas.
- They liaise closely with nearby track Marshalls particularly if Spectators are in a dangerous position such that racing should stop.



04 | PREPARATION OF THE COMPETITION

Public Highways in Mountainous regions have safety measures specifically placed to protect descending road vehicles. Constructing a Hillclimb course, where vehicles ascend, using a Public Highway, therefore requires specific additional Protection of dangerous points.

04.1 PROTECTION OF DANGEROUS POINTS

During the preparations, it is important to identify the places that are particularly dangerous for approaching vehicles, such as tightening high speed corners, a tree in a fast bend, a ditch, damaged Armco barriers, poles (telegraphic) electric, narrow bridges, road junctions, S bends, adverse camber, buildings. Etc.

A detailed "walk of the course" as well as driving, with the assistance of an experienced driver. will help identify dangerous areas. etc.

In order to protect these places, it is advisable to use:

- Armco barriers, (Guard Rails),
- Straw bales** (round bales more than 1m in diameter are recommended),
- Concrete barriers inked to form a continuous length (concrete Jersey),
- Walls of connected tyres, maybe of double thickness or blocks,
- Filled water tanks connected together.

** NOTE: The definition of straw bales and the guidelines for their use are specified in **Appendix 1** Examples of various forms of protection, good and bad are in **Appendix 2**.

04.2 CHICANES

The chicanes can be used for reducing speed before certain danger spots in a Competition.

All chicanes must be noted in the detailed plan of the course. Chicanes should be made using:

- straw bales,
- walls of connected tyres,
- low density barriers.

When chicanes are used (as rarely as possible), they should be composed of three or four rows of tyres (or of straw bales) and should be signalled using signposts. Badly positioned or constructed Chicanes can cause more accidents than they are intended to Eliminate.

Chicane drawing: see **Appendix 3**.

Should light material be used to delimit the chicane, it is recommended that at least one judge of fact (a Track Marshall) be appointed and report any infringement of the course to Race Control. The scale of the penalties will be specified in the Supplementary Regulations.

The surface of the course must be clearly marked with the position of the chicane, so that they can be repositioned correctly following an incident. Spare chicane components should stored close by.

04.3 "SPECTATOR AREAS" AND "NO-GO AREAS"

All the "spectator areas" must be identified in advance as per the Safety Plan, clearly marked and must remain firmly under the control of the safety personnel.

In addition, "no-go areas", where spectators must not go, must be identified. Generic Safety spectators signs are illustrated in **Appendix 4**.

Why do cars leave the road?

- Driver's error, such as taking a bend too fast,
- Mechanical failure of the car,
- Driver's health problems.
- Oil, rain.

One or all of these incidents can occur at any point on the course.

Close attention should be paid to the whole of the course, with emphasis on the following places:

- immediately over a brow,
- on sharp corners, exit of slow corners,
- road intersections,
- "S" bends (double change of direction),
- medium fast bend after very fast section, tightening bends, adverse camber or surface change,
- or any area identified by the officials.

Again, the advice of a very experienced Driver is extremely useful for identifying the danger spots and "no-go areas".

As soon as these spots are identified, the particular requirements that must be taken into consideration in the safety plan will have to be identified

This will include:

- providing run-off areas where appropriate and ensuring spectators stand well back. See **Appendix 4 and 5** on safe distances
- identifying the high ground where spectators can stand safely,
- identifying the areas in which it is dangerous for the spectators to stand (for example, leaning/sitting over safety barriers), areas below the level of the course
- Accredited media may be allotted specific areas, but they are just as vulnerable as spectators, so must not be allowed in Dangerous areas.

04.4 PRE-START AND START AREAS

The pre-start/start area will be reached, under the control of the track marshals, from the service area.

No spectators will be tolerated inside the start area.

The only assistance permitted inside these areas is that involving cleaning the tyres and starting the cars. Restarting cars, may be allowed at the discretion of the Clerk of the Course.

No mechanical heating of the tyres and/or the brakes should be permitted within these areas.

Information board

The organiser must provide an information board (minimum dimensions: 1m x 1.50m) showing the map of the course, giving realtime indications of any modifications made to said course and signalling zones to be approached with particular caution. The board shall be shown to each Driver in then pre start area, immediately before entering start area. See **Appendix 6**.

04.5 FINISH ZONE

The area after the Finish Line must be controlled/monitored, like the course of the race, by track marshals. It is part of the course.

The spectators do not have access to this area or any area facing oncoming cars.

It must be sufficiently long, particularly at a high speed finish, to allow Competitors to be slowed and brake, by the use of appropriate means (chicanes, narrowing of the course etc.).

04.6 ADVERTISING AND STRUCTURES ALONG THE COURSE

It is strongly advised that any adverting signs or banners not be placed such that they can become easily entangled in passing cars, such as when loosely attached to Barriers



05 | SPECIAL PRECAUTIONS DURING THE RACE

- a) The access of spectators should be authorised only in the spectator areas.
- b) Emergency roads must be guarded by the police and/or security agents.
- c) All access roads should be indicated with special signs and additional information.
- d) All pre-planned access roads should be announced in the official programme, in special informative leaflets and on the website. Simple panels should be included to guide all spectators from the main roads towards the proper parking areas and the designated spectator areas. See **Appendix 7**.

06 | PROCEDURE FOR THE COMPETITORS AND THE TRACK MARSHALS IN CASE OF AN ACCIDENT

As soon as a track marshal notices that an accident has occurred, he informs Race Control and displays the yellow flag. Provided it is safe to do so, he may go to the assistance of the Driver or clear debris from the course.



07 | PROCEDURE IN CASE OF A SERIOUS ACCIDENT

As soon as a track marshal notices an accident has occurred, he informs Race Control.

Should a serious accident be reported to Race Control, the clerk of the course will interrupt the starting procedure and have the red flags deployed.

The following procedure should be followed:

- a) The clerk of the course interrupts the Competition. He sends a radio notification that the Competition has been interrupted and orders the track marshals, up to the point of the accident, to display the red flags. With the red flags displayed, the Competitors must stop, park their car in such a way as to ensure that they do not obstruct the passage of the intervention vehicles and follow the instructions of the track marshals.
- b) If the adjacent track marshal will proceed to this spot as soon as he can safely do so under the protection of the red flag. He can then give a more accurate report and/or provide first-aid/first responder fire fighting, depending on the circumstances.
- c) The Clerk of the Course instructs the rescue vehicles to head for the scene of the accident. If the clerk of the course is informed that, in addition to medical aid, any further assistance is required, he will instruct the fast intervention vehicle or the rescue vehicle and/or the other safety vehicles to proceed to the scene of the accident.
- d) The track marshals who are not involved in the intervention (rescuing accident victims or involved in displaying the flag) and the safety personnel in the vicinity must contain the public within the "spectator areas", in order to maintain control and to ensure that the intervention can be carried out smoothly. Should it be decided to evacuate the casualties by ambulance, the evacuation will take place through the most appropriate route, this point having been agreed in advance and mentioned in the safety plan.

08 | SAFETY INSPECTION BY THE ASN

According to Article 7 of Appendix H to the International Sporting Code, the course and organisation must be approved by the ASN. This rule could be applied in non FIA events.

An inspection report in no way guarantees or implies that the course can be regarded as being devoid of danger.



09 | PRE-START AND REGULAR SAFETY REVIEWS

09.1 INSPECTIONS BEFORE THE COURSE IS OPEN FOR RACING

One of the biggest problems in setting up a race is ensuring that everything, regarding spectator safety, is ready before the spectators arrive. There is no point in doing so after the spectators have arrived, as it will be difficult to get them to move into the correct positions. During the preparations, time must be set aside for the clerk of the course and the chief safety officer or, if present, the ASN safety delegate, to drive the length of the course to check that everything is in order. It must be ensured that all sections are set up in accordance with the safety plan. These inspections may be carried out at any moment during the Competition or during an interruption.

In extreme circumstances, the ASN safety delegate is entitled to ask the clerk of the course to stop the race if he believes there is a serious risk to spectators' safety.

09.2 PRELIMINARY SAFETY MEETING

The day before the practice heats, of an FIA Competition, the organiser is required to hold a safety meeting.

This meeting must be held in presence of the following officials:

- the FIA observer,
- the clerk of the course,
- the chief medical officer,
- the chief safety officer of the organising club,
- the safety delegate of the ASN.

For all the above-mentioned officials, it will be a matter of discussing the measures which apply, and identifying and managing potential difficulties. The objective of the meeting is the analysis and the implementation of the safety plan. It would make sense to conduct such a meeting in non FIA events.



10 | MEDIA

10.1 GENERAL PROVISIONS

The journalists/photographers are issued with official tabards and passes, which authorise them to move outside the areas that have been set aside. This is, of course, to enable them to obtain clear action photographs from the best angles; however, at no time can the photographers place themselves in a position that constitutes a danger to them or to the Competitors.

No special viewing position is necessary for journalists.

It must be ensured that the photographers are clearly identifiable to the public, so that they realise why and on whose authority they are standing in an area where the public are not allowed to go.

It must also be ensured that all officials, and particularly the senior track marshal at each location, are fully briefed as to why the photographers are standing in an area in which they themselves are not allowed to go.

The issuing of an identification sheet showing the various credentials is helpful to ensure that the officials assist the media where required.

In certain cases it may be necessary to publish a special plan showing detailed arrangements for the media.

10.2 MEDIA SAFETY AND IDENTIFICATION

a) It is acknowledged that the media play an important role, and that each member of the working media must be permitted to carry out his or her work in the best possible conditions.

b) However, the media are not exempt from having to respect general safety rules. In general, this should not interfere with their ability to perform their duties. However, if a choice has to be made between carrying out their work and being exposed to an unacceptable level of risk, safety must always take precedence.

c) As far as safety-related matters are concerned, the media will be divided into two groups:

- TV crew and photographers,
- journalists, radio reporters and other media.

Each group will be identified as follows:

- numbered tabards,
- media passes, with a number and the name of the publication,
- holders of the FIA permanent "media" passes must still request accreditation from the Competition organiser.

d) Only media representatives wearing a tabard will be permitted to be in the areas of the course to which spectators are not normally admitted. All other members of the media must conform to normal spectator standards, except for interview areas, media centres, etc.

Anyone wearing a tabard must ensure that it is clearly visible at all times and is not covered by any other garment.

e) If, in the opinion of the track marshals, anyone wearing a tabard is in a dangerous area, this person will be asked to move to a safe location. The track marshals must be firm, remain calm and avoid confrontation.

If the person does not comply with this instruction, the track marshals must inform the clerk of the course.

APPENDICES

Appendix 1

Guidelines for the use of straw bales in motorsport

1. The use of straw bales may be considered as a means of creating a barrier to absorb impact energy and/or to distribute the impact over a larger area. They are typically used to reduce the potential for injury to participants during impacts with trees and other obstacles on rally and hill-climb courses but are not recommended for closed circuit racing.
2. Bales are readily available in many countries, in a number of shapes either cylindrical or rectangular.
3. Cylindrical bales are to be stood with the axis vertical and precautions should be taken to guard against the possibility of an impacting car pushing the bales out of position so as to expose an obstacle.
4. Rectangular bales should have at least one dimension exceeding 2000mm.
5. Bales typically weigh 300 – 600kg. In anticipated head on impact situations the incorporation of a suitable air gap between the obstacle and the bale barrier should be considered in order to incorporate a degree of energy absorption by means of momentum transfer.
6. It is of advantage if the straw is perpendicular to the expected direction of impact: this can absorb up to four times the energy compared to other orientations.
7. Dry straw absorbs more energy than wet straw.
8. Marshalls or other safety personnel must not stand behind straw bales as a means of protection, they can be knocked a considerable distance if struck by a competing vehicle.

Appendix 2

Examples of straw bales and tyres stacks use

GOOD EXAMPLES



Well constructed Tyre stack



Tyre stack well constructed



Good triple Straw bales to protect dangerous point



Good use of Straw bales to protect dangerous point



Good use of bales and connected tyres to protect competitors.

BAD EXAMPLES



Guardrail nose not protected



Poorly constructed tyre stack



Concrete drain not protected

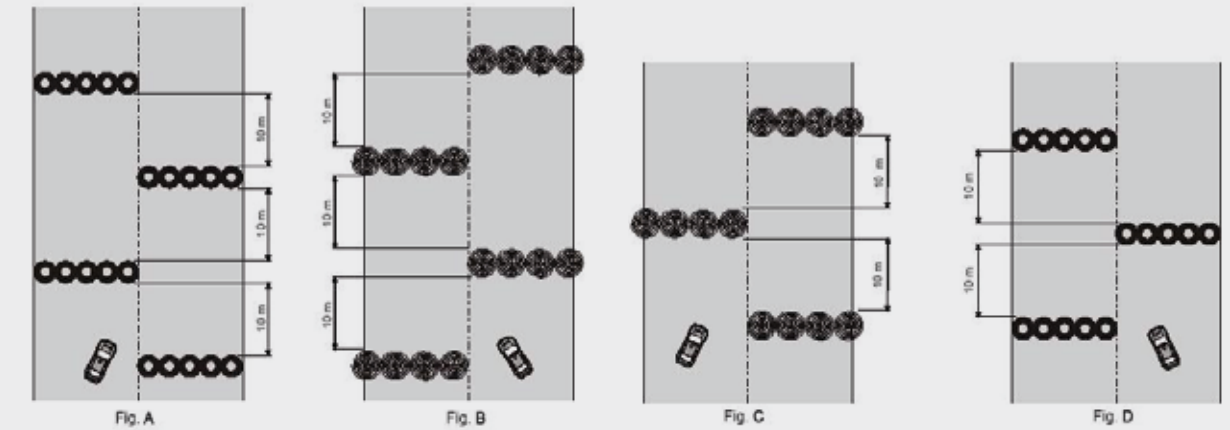


Poorly positioned and constructed tyre stack

Appendix 3

Chicanes drawing

CHICANES PROFILE'S - RECOMMENDATION



Chicane Marshall and Judge of Fact, stood in a safe position



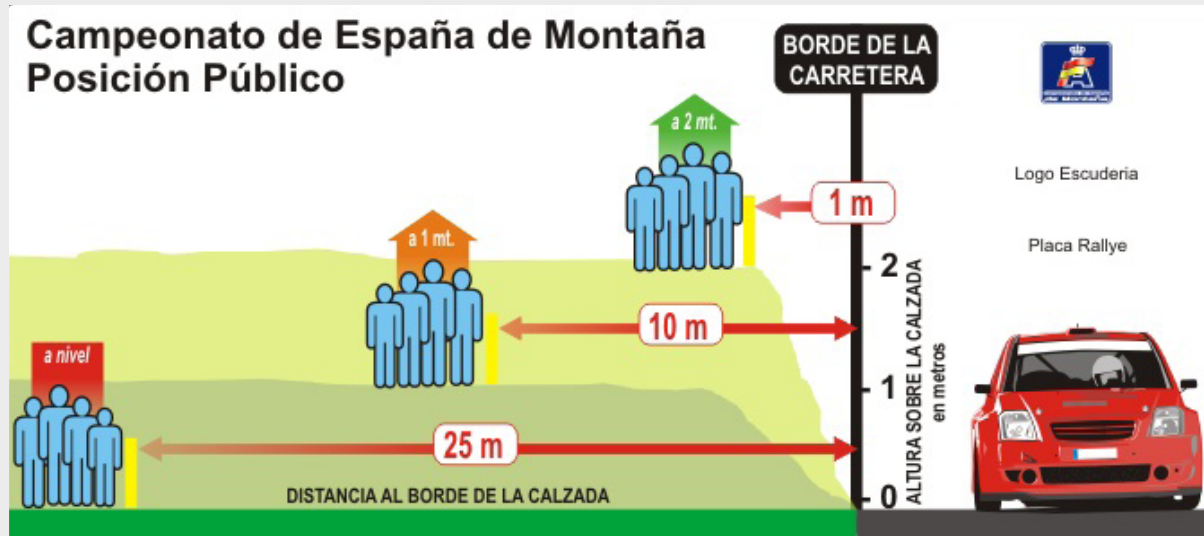
Drivers view of Chicane

Appendix 4

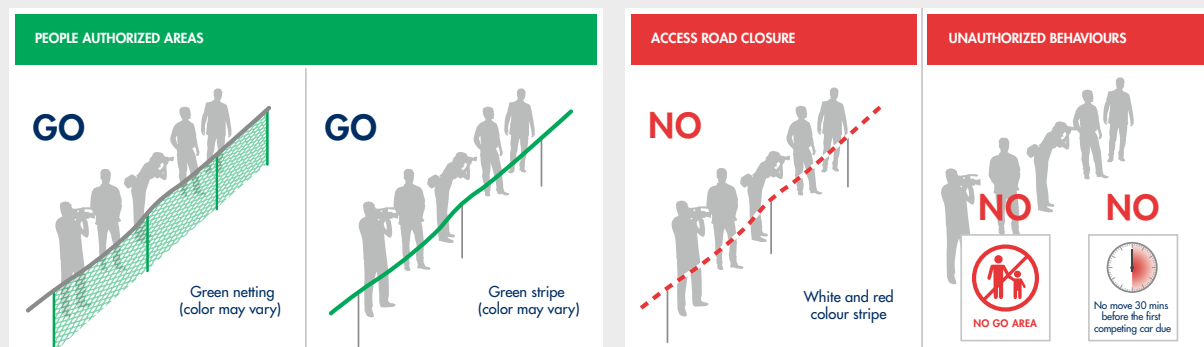
Generic Spectator Signs



Spectator no-go sign



Distance vs height



Spectators Safety logos

Appendix 5

No-go Areas



Safety plan illustration of safety features



Spectator no-go sign

GOOD EXAMPLES



Spectators kept at a safe distance and height



Good escape road at 90 degree left turn, plus barriers.



Good tape and temporary fencing to keep spectators at a safer distance



Spectators positioning moved back from guardrail

BAD EXAMPLES



Spectators and Marshall in a dangerous position



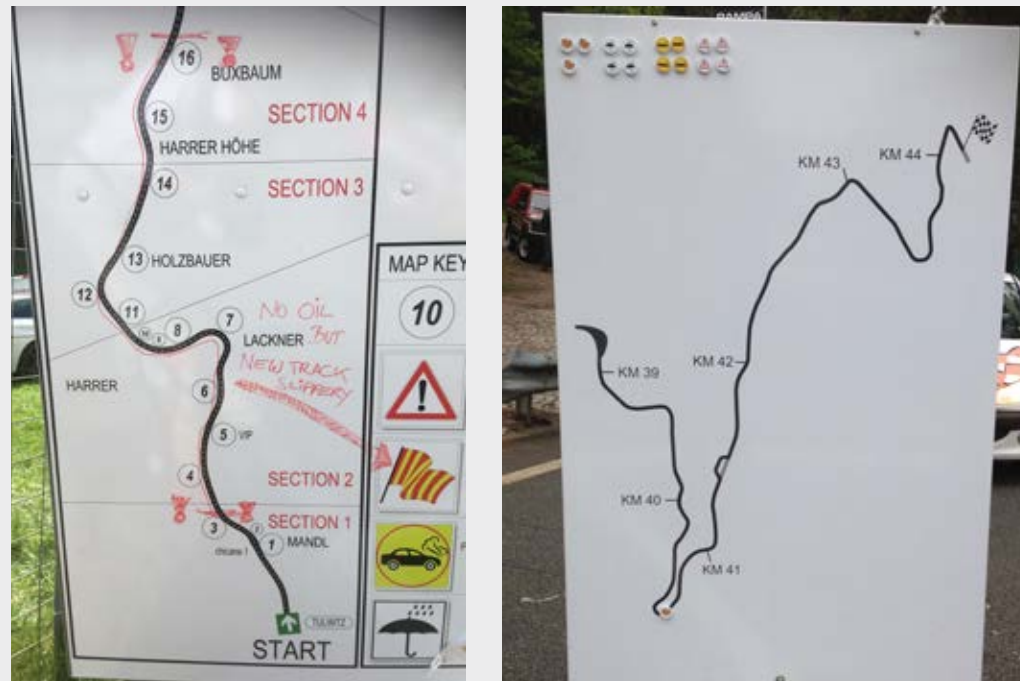
Spectators and Marshalls in dangerous position at Marshall



Spectators positioning too close to guardrail

Appendix 6

Information Board



Example of Course Map, at the start, area showing hazards to Competitors



Appendix 7

Spectators Access






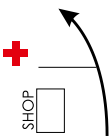

Appendix 8

Limanova Safety Plan



SECURITY PLAN
Limanowa Auto Moto Club



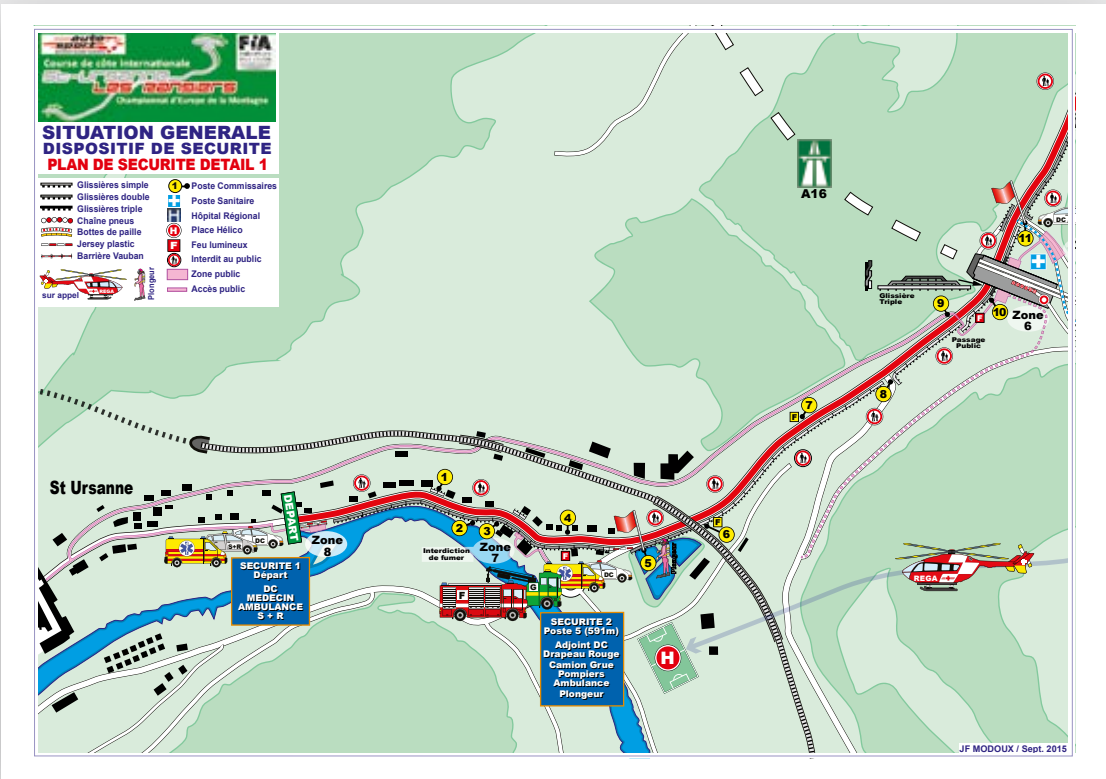
THE SECURITY PLAN OF THE COURSE OF LIMANOWA HILL CLIMB RACE – OSTRA MOUNTAIN PASS				
Distance of the phase	To Start	Direction	Information	COMMENTS
0,00	-4,30		diversion board	PHOTO 1 /PAGE 37/
2,90	-1,20		Police Officer	Entry only for vehicles having the organizer's pass PHOTO 2 /PAGE 37/
4,10	-0,20		MEDICAL POST + Medical officer + Medical rescuer + Medical rescuer + Ambulance "P"	Firefighting car-stationed in OSP fire station in Stara Wieś PHOTO 3 /PAGE 38/
4,30	0,00		START TO THE RACE + Police Officer + PZM marshals + 3 Safeguards	PHOTO 4 /PAGE 38/ equipment: - preparation for neutralization of spillages - broom ZSRS1 1. PZM Technical Rescue Car 2. Ambulance "S" 3. OSP Firefighting Car
4,64	0,34	PO 1 observation post	+ 2x – PZM marshal + OSP firefighter	PO equipment: - the signaling flag set - 2 x 6 kg of fire extinguishers - first aid kit - fire blanket - broom VIEW POINT NO.1 + safeguard Breakdown service "CARRIAGE" PHOTO 5 /PAGE 39/

PAGE 26

 <https://fiabox.fia.com/views/public/lienPublic.xhtml/?id=4269&hash=7ebb2efdf22c3497860d1000c3bfae3161aca2fd>
or
<https://bit.ly/3d6aMBT>

Appendix 9

Saint-Ursanne Safety Plan



 <https://fiabox.fia.com/views/public/lienPublic.xhtml/?id=4268&hash=bb47cc59550951d52f8531e7588a4cf688e70264>
or
<https://bit.ly/3b35owM>

NOTES



[FIA.COM/HILL-CLIMB-SAFETY](https://www.fia.com/hill-climb-safety)



[FIA.COM/HILL-CLIMB-SAFETY](https://www.fia.com/hill-climb-safety)

