

# Crowborough Beacon Golf Club Health & Safety Report

## Review of the Risk Assessment of Golf Course Play in Poor Visibility Conditions Due to Mist and Fog

Original prepared and written by Trevor Newman 2<sup>nd</sup> September 2010

Reviewed by Trevor Newman 16<sup>th</sup> December 2011

Approved by the Board of Directors 20<sup>th</sup> December 2011

**1.0 Objective:** To determine safe golf playing conditions when fairways and rough are obscured by fog in order to reduce the chance of injury from golf balls in flight to players of golf and the general public.

### 2.0 Terms of Reference

- Define Mist and Fog
- Determine what constitutes hazardous conditions.
- Consideration for commencement of play at 1<sup>st</sup> and 10<sup>th</sup> tees.
- Action to warn players on other parts of course when visibility deteriorates after commencement of play.
- To alert CBGC Staff working on the Course that play has ceased or recommenced.
- Determination of safe distance of vision for commencement and continuance of play.
- Decision Maker.

### 3.0 Conclusions

1. Reference 9.0  
CBGC can experience all types of Fog, but mainly Ground, Upslope or Hill Fog and Valley Fog.
2. Reference 10.0  
The overall driving distance should be considered as 230yds. The ball is not in flight for this complete distance for most club golfers although some low handicap players could exceed this distance.
3. Reference 11.0
  - a) The distance from the 1<sup>st</sup> Yellow Tee Stone to the Red/White marker should be used as the Standard to judge if visibility is adequate for play.
  - b) If White, Red or Blue tees are being used, the judgement of fit play should be from the Yellow Tee Stone.
  - c) The Distance from the Yellow Tee Stone to the Red/White Marker should be the same as from the Pro Shop Steps.
4. Reference 12.0, 13.0 & 14.0
  - a) A Red/White visibility marker post must be a permanent feature at the 1<sup>st</sup>, 2<sup>nd</sup> and 10<sup>th</sup> holes.
  - b) The Red/White Marker posts should be 230yds from the Yellow Tee Stone on each hole with a clear view.
5.
  - a) The Red/White marker post must be clearly visible in order that play can commence or resume.
  - b) The Klaxon at the Professional's Shop should be used to advise on the state of play for those teeing off at the 10<sup>th</sup> tee using the same audible codes as for lightning.
  - c) There may be little or no fog at the 10<sup>th</sup> tee but weather conditions at the 1<sup>st</sup> may determine whether play commences/continues throughout the whole course.
  - d) Limited visibility at the 2<sup>nd</sup> or 10<sup>th</sup> tees due to fog should, when possible, be communicated back to the Professionals Shop by mobile phone. In such cases the Klaxon will be used to control play.
  - e) The decision of the Professional, Office or Committee Member (hereinafter referred to as Club Official) is final regarding the suitability of weather conditions for playing golf.
  - f) No golf can be played until the Club Official considers that visibility is adequate.

### 4.0 Recommendations

- a) A single Red/White Marker post is to be maintained 230yds from the 1<sup>st</sup> Yellow Tee Stone and 230yds from the Professional Shop door.
- b) A single Red/White marker post is to be maintained with a clear view 230 yds from the 10<sup>th</sup> Yellow Tee Stone.
- c) A Red/White marker should be established on a suitable tree in the left hand tree line 230yds from the 2<sup>nd</sup> Yellow Tee Stone.
- d) The colours and outline of the Red/White marker posts at the 1<sup>st</sup>, 2<sup>nd</sup> or 10<sup>th</sup> tees must be visible at each location from the respective Yellow Tee Stone for the cessation or continuance of play.
- e) The Klaxon warning alarms for Lightning must apply to course visibility warnings.
- f) The Klaxon direction at the Professional Shop should be checked that it points towards the 10<sup>th</sup> tee and that the alarm can be clearly heard at the 10<sup>th</sup> tee.
- g) In adverse visibility conditions where the 10<sup>th</sup> tee is being used for start of play the Club Official should arrange mobile phone communications with players of one or more tee times at the 10<sup>th</sup> tee.

- h) If visibility from the 1<sup>st</sup> tee is obscured by mist or fog a decision for commencement of play can be made from the 2<sup>nd</sup> tee on condition that the Red/White marker in the tree line off the 2<sup>nd</sup> fairway is visible.
- i) The decision of the Club Official is final and without dispute regarding the suitability of weather conditions for playing golf in poor visibility weather conditions.
- j) The Professional, Members and visitors must be advised of the rules concerning play in poor visibility weather conditions.
- k) The Notice to alert members of conditions of play in foggy weather should be posted at the Professionals shop, 1<sup>st</sup> tee notice board and changing rooms. See example of Notice at the end of this report.
- l) All golfers must not commence or continue play when the decision to cease play has been made by the Club Official
- m) The commencement or resumption of play is at the decision of the Club Official.
- n) If visibility becomes limited on any part of the course where Red/White markers are not established it is the responsibility of all golfers to cease play and report the condition as soon as practical to the Club Official

## 5.0 Crowborough Beacon Golf Club Location

Crowborough Beacon Golf Club at the club house is almost 800 feet above sea level. The golf course itself falls away from this point into a part heath land and wooded area featuring deep ravines and high viewing points towards the South Downs some 20 miles distant. The prevailing wind is south westerly bringing moist air from the coast.

In autumn and winter months the Golf Course is often shrouded in mist, fog or what even can be classed as low cloud. However, such weather conditions can also occur throughout all seasons.

## 6.0 Introduction

- a) Extract from article by Michael Shaw, Secretary to the National Golf Clubs' Advisory Association – July 2003

*"Golf is a game which is extremely difficult to play in fog. If a golfer hits a shot "blind" into fog and hits a player or member of the public they could well be found negligent and held personally liable for the injuries afflicted. The complainant would be contributory negligent on the same basis. In addition the club could theoretically be sued, but only if it had knowingly allowed play in hazardous conditions, but once again the same rules regarding contributory negligence would be present.*

*An equally serious problem exists if an employee of the club is injured in such circumstances. He could not be said to be guilty of contributory negligence and could claim against the club for negligently allowing play.*

*Therefore, when visibility is limited in fog to the point at least **where players cannot see where their driven golf ball is likely to end, they should not be permitted on the course.**"*

- b) The CGBC Insurance Broker's comments on behalf of the Club's Insurer:

**" Suspension of play during poor visibility should be made compulsory, and players not given the option to continue. "**

## 7.0 Determine what constitutes hazardous conditions for the playing of golf.

Hazardous conditions on a golf course in the context of this report is when golfers and the public are in danger of being hit by a golf ball in flight in poor visibility weather conditions.

The trajectory of a golf ball can be considered hazardous if it be towards the fairway, rough or undergrowth where golfers, the public and animals could be present.

## 8.0 Definition of Mist & Fog

The only difference between mist and fog is visibility. This phenomenon is called fog if the visibility is one kilometre (1,100 yards) or less (in the UK for driving purposes the definition of fog is visibility less than 200 metres. Otherwise it is known as mist. Seen from a distance, mist is bluish, while haze is more brownish.

Fog is distinguished from mist only by its density, as expressed in the resulting decrease in visibility: Fog reduces visibility to less than 1 km, whereas mist reduces visibility to no less than 1 km but less than 2 km.

Mist is a phenomenon of small droplets suspended in air. It can occur as part of natural weather or volcanic activity, and is common in cold air above warmer water.

Fog is a collection of water droplets or ice crystals suspended in the air at or near the Earth's surface. While fog is a type of a cloud, the term "fog" is typically distinguished from the more generic term "cloud" in that fog is low-lying, and the moisture in the fog is often generated locally (such as from a nearby body of water, like a lake or the ocean, or from nearby moist ground or marshes).

Fog forms when the difference between temperature and dew point is generally less than 2.5 °C or 4 °F. Fog begins to form when water vapour condenses into tiny liquid water droplets in the air. Conversely, water vapour is formed by the evaporation of liquid water or by the sublimation of ice. Since water vapour is colourless, it is actually

the small liquid water droplets that are condensed from it that make water suspended in the atmosphere visible in the form of fog or any other type of cloud.

Fog formation requires all of the elements that normal cloud formation requires, the most important being condensation nuclei, in the form of dust, aerosols, pollutants, etc., for the water to condense upon. When there are exceptional amounts of condensation nuclei present, especially hygroscopic particles such as salt, then the water vapour may condense below 100% relative humidity.

Fog can form suddenly, and can dissipate just as rapidly, depending what side of the dew point the temperature is on. This phenomenon is known as flash fog.

Fog occasionally produces precipitation in the form of drizzle or very light snow. Drizzle occurs when the humidity of fog attains 100% and the minute cloud droplets begin to coalesce into larger droplets. This can occur when the fog layer is lifted and cooled sufficiently, or when it is forcibly compressed from above. Drizzle becomes freezing drizzle when the temperature at the surface drops below the freezing point.

The thickness of fog is largely determined by the altitude of the inversion boundary, which in coastal or oceanic locales is also the top of the marine layer, above which the air mass is warmer and drier. The inversion boundary varies its altitude primarily in response to the weight of the air above it which is measured in terms of atmospheric pressure. The marine layer and any fogbank it may contain will be "squashed" when the pressure is high, and conversely, may expand upwards when the pressure above it is lowering.

Fog as a visibility hazard



Dense Tule fog. Visibility in this photo is less than 500 feet (150 metres). Typical 1<sup>st</sup> tee view at Crowborough Beacon Golf Club on a foggy day



Light fog reducing visibility on a suburban street. The cyclist is very hazy at about 200m (219 yards). The limit of visibility is about 400m (437 yards), which is before the end of the street. This would be a similar effect if the cyclist was a golfer on a fairway 219 yards from the tee box.

## 9.0 Types of Fog

Fog can form in a number of ways, depending on how the cooling that caused the condensation occurred:

Radiation fog is formed by the cooling of land after sunset by thermal radiation in calm conditions with clear sky. The cool ground produces condensation in the nearby air by heat conduction. In perfect calm the fog layer can be less than a meter deep but turbulence can promote a thicker layer. Radiation fogs occur at night, and usually do not last long after sunrise. Radiation fog is common in autumn and early winter.

Ground fog is fog that obscures less than 60% of the sky and does not extend to the base of any overhead clouds. However, the term is sometimes used to refer to radiation fog.

Upslope fog or hill fog forms when winds blow air up a slope (called orographic lift), adiabatically cooling it as it rises, and causing the moisture in it to condense. This often causes freezing fog on mountaintops, where the cloud ceiling would not otherwise be low enough.

Valley fog forms in mountain valleys, often during winter. It is the result of a temperature inversion caused by heavier cold air settling into a valley, with warmer air passing over the mountains above. It is essentially radiation fog confined by local topography.

Freezing fog occurs when liquid fog droplets freeze to surfaces, forming white soft or hard rime. This is very common on mountain tops which are exposed to low clouds. It is equivalent to freezing rain, and essentially the same as the ice that forms inside a freezer which is not of the "frostless" or "frost-free" type. The term "freezing fog" may also refer to fog where water vapour is super-cooled filling the air with small ice crystals similar to very light snow.

## 10.0 Typical Golf Club Driving Distances

The distance that a golf ball can be hit by each club in the bag depends on ability, physical build and age. These are the main factors although there are others which include style, golf mechanics and training.

Research on the internet gives general indications of distances which can only be considered as guides.

Typically a Driver is considered as we are looking at the commencement of play from the tee.

### Source 1

[www.csgnetwork.com/golfclubdistancecalce.html](http://www.csgnetwork.com/golfclubdistancecalce.html)

	Normal shot	Week shot	Strong shot
Male 16-29 years – average club player	235 yds	229 yds	238 yds
Male 30-49 years – average club player	231 yds	226 yds	234 yds
Female 16 – 29	227 yds	222 yds	229 yds
Female 30 – 49	226 yds	222 yds	228 yds

### Source 2

[www.vaughns-1-pagers.com/.../golf-club-data.htm](http://www.vaughns-1-pagers.com/.../golf-club-data.htm) - United States

4W	4 Wood	14-16°	200 yds.	220 yds.	52°	41" 42"	-
3W	3 Wood	13-15°	210 yds.	230 yds.	50°	42" 43"	"spoon"
2W	2 Wood	11-13°	220 yds.	240 yds.	48°	43" 44"	"brassie"
1W	Driver	8-11°	230 yds.	250 yds.	46°	44" 45"	-

## 11.0 Control of Play

There is currently no rigid instruction or means of controlling play in poor visibility conditions.

In 2005 a Red/White striped marker post was positioned in the rough 10yds off the 1<sup>st</sup> fairway and about 225yds from the Yellow Tee stone.

In September 2010 a Red/White striped marker post was positioned in the rough 5 yds off the 10<sup>th</sup> fairway and 230yds from the 10<sup>th</sup> Yellow Tee stone.

With effect from 1<sup>st</sup> May 2011 the official rule was that if the Red/White marker post was not visible then play should be suspended. The Red & White marker post was positioned in the rough on the right of the 1<sup>st</sup> Fairway in order to establish safe visibility driving distance from the Yellow Tee Stone in foggy weather conditions.

The Club Official determines if play should cease or proceed.

### 12.0 1<sup>st</sup> HOLE Existing Red/White Marker Post Distances

The distances from the 1st Tee Stones are as follows:

White Tee Stone	-	261 yds
Yellow Tee Stone	-	233 yds
Red Tee Stone	-	204 yds

Distance from Professional Shop Steps - 230 yds.

### 13.0 10<sup>TH</sup> HOLE Existing Red/White Marker Post Distance

Yellow Tee Stone - 233 yds

### 14.0 2<sup>nd</sup> Hole Proposed Red/White Marker Post Distance

It is often the situation that although the 1<sup>st</sup> Tee and fairway is covered in fog the visibility from the 2<sup>nd</sup> tee is clear.

A Red/White marker in the tree line on the left hand side of the fairway rough would enable judgement as to whether play could start from the 2<sup>nd</sup> Tee.

The Red/white marker could be attached to or painted on a suitable tree which is clearly visible and 230yds from the Yellow tee box.

## 15.0 Klaxon Warning

The Club operates a Klaxon at the Professional Shop when lightning is present. This is now extended in accordance with the Rules of Golf Appendix I-4 "Suspension of Play due to a Dangerous Situation" which recommends the following signals be adopted:-

Discontinue play immediately:	One prolonged note of the klaxon
Discontinue play:	Three consecutive notes of klaxon, repeated
Resume play:	Two short notes of klaxon, repeated

## 16.0 Decision Maker

The Club Official must have information regarding the level of visibility at the 1<sup>st</sup> tee and, where possible, the level of visibility at the 10<sup>th</sup> tee and the proposed 2<sup>nd</sup> Tee marker. The information regarding the 10<sup>th</sup> and 2<sup>nd</sup> may not always be immediately available and an assessment of the level of visibility should be obtained by himself or a reliable club member representative.

The Club Official's decision will be determined by the visual clarity the Red/White marker post from either the Professionals Shop steps or the Yellow Tee Stone on the 1<sup>st</sup>, 2<sup>nd</sup> or 10<sup>th</sup> tees.

The Club Official must decide on whether visibility is suitable for the commencement or cessation of play.

If no information is available from the 10<sup>th</sup> tee his decision will be determined by the visibility conditions at the 1<sup>st</sup> tee.

If visibility from the 1<sup>st</sup> tee is obscured by mist or fog, a decision for commencement of play can be made from the 2<sup>nd</sup> tee relative the Red/White marker in the tree line off the 2<sup>nd</sup> fairway.

Trevor Newman 16<sup>th</sup> December 2011.

## **NOTICE TO GOLFERS**

### **Playing Golf in Poor Visibility Weather**

- Please check with the Professional that the course is fit for playing golf. The Professional's decision is final regarding the state of play.
- Clear visibility of the Red/White marker posts situated 230yds from the Yellow Stones on the 1<sup>st</sup> (alternatively 2<sup>nd</sup>) and 10<sup>th</sup> Tees must be established before play can commence. Starting from any other point such as the 7<sup>th</sup> or 16<sup>th</sup> is not permitted in poor visibility.
- If visibility is not adequate, then **THE 1<sup>st</sup> TEE IS CLOSED FOR PLAY** until visibility is acceptable.
- The Club operates a Klaxon at the Professional Shop when lightning is present. This is now extended in accordance with the Rules of Golf Appendix I-4 "Suspension of Play due to a Dangerous Situation" which recommends the following signals be adopted;-  

Discontinue play immediately:	One prolonged note of klaxon
Discontinue play:	Three consecutive notes of klaxon, repeated
Resume play:	Two short notes of klaxon, repeated
- Players have a duty of care not to behave in such a way that all golfers, CBGC Staff and members of the public may be injured by their actions.
- No golfer should commence or continue play when the decision to cease play has been made by a Club Official.

**By Order of the Board of Directors 20<sup>th</sup> December 2011**

Proposed new notice to be displayed outside Pro Shop, changing rooms and at the 1<sup>st</sup> tee, as required, whenever there is a fog delay in operation.

## **1<sup>st</sup> TEE CLOSED – FOG DELAY**

*The 2<sup>nd</sup> tee may be used as an alternative starting point, providing the marker at 230 yards in the left-hand tree-line is visible from the yellow tee. If not, then the*

**COURSE IS CLOSED**