



## Why install drains?

In order to play, maintain and present the golf course for as long as possible throughout the year, good drainage is considered an essential pre-requisite. Inadequate drainage results in soil saturation, unhealthy soil and soft underfoot conditions, or in extreme cases course closure. As golfers require more year-round golf, this situation is no longer acceptable.

Many of our inland courses are built on heavy soils, with high proportions of silt and clay, which means natural percolation is slow. When many of our courses were built, some over 100 years ago, a primitive form of land drainage may have been installed which may have been perfectly adequate to cope with weather conditions and levels of play. However, the effectiveness of these drains may have depreciated due to...

- inadequate installation intensity
- backfilling with soil, clay or ash
- silting up (see image opposite)
- shallow falls
- settlement
- disruption by irrigation installation
- tree root blockage.



Pipe drains being installed using a tractor mounted drainage trencher (left). Using a dedicated drainage trencher produces clean trenches (right) and minimum disruption to the playing surfaces

## Drainage installation

When installing new drains the following recommendations should be adhered to:–

- Utilise latest techniques and equipment
- Use quality materials
- Backfill properly
- Lead to a positive outlet
- Ensure there is a sufficient fall
- Install to a sufficient depth
- Install when ground is fit
- Map out installations on a course plan



## Sustainable water use

With the predictions of drier summers and wetter winters, the removal of water from the surfaces in the winter and the re-use of the same water for summer irrigation will provide the most sustainable and cost-effective systems. When designing new drainage systems, such an approach should be considered wherever possible by excavating water storage ponds in appropriate out of play areas.

## Secondary drainage

In areas of concentrated play, the rate of water movement through the soil and to the piped drain can be accelerated by the installation of secondary drainage, involving sand slits and gravel bands. Green approaches and landing zones are primary areas for this work. Sand slits are usually introduced at 60-100 cm spacings and should connect into the aggregate of the underlying pipe drain at 90° to the direction of the pipe run.

## The importance of maintenance

The first step to drainage improvement should always be to improve the rate of surface water removal and movement through the soil. This means implementing sufficient thatch management operations, in addition to alleviating soil compaction. Once this is done, a more accurate assessment of the need for water evacuation from the soil can be made.

Even after drains have been installed, it is essential their performance is optimised by implementing appropriate maintenance operations.