

# Drainage and Water Supply with Davis Trenchers

There are two aspects to Davis machines' role in land drainage and water supply, the one as a trencher capable of excavating narrow trenches quickly and neatly, the other as a vibratory plough direct burying up to 2 in. p.v.c. pipes or cable. It is quite possible for a Davis to be set up to undertake either or both of these tasks, the fitting of one attachment in no way interfering with the performance of the other.

The Davis is a compact, manoeuvrable machine, either on 10 in. cleat tracks or high flotation tyres, ideal for work on golf courses where the treatment of grass surfaces is often critical. Its ability to work hard and fast, and yet not gouge or compact the playing surface, makes it popular for such work as direct burying a pop-up sprinkler system to the green.

Apart from digging clean trenches from 4 in. up, in 2 in. increments, to 12 in. or 18 in., depending on the model, for installing a conventional drainage system, an attachment is now available for the TF500 to dig a 2 in. slit for sand slitting. This was announced at this year's Motspur Park show where it won the bronze medal award.

Every machine in the Davis range of trenchers, whether tracked or wheeled, is equipped with an over centre slip clutch which prevents wear on the drive belt, or shock loads to the engine. A shock absorber is incorporated in the digging boom to prevent damage to the digging chain or teeth when underground obstacles are hit. The drive on all machines is hydrostatic which, by means of a by-pass valve, gives infinitely variable speed control



*Davis Trencher supplied by L. D. Bourgein (Oxford) Ltd.*

allowing the operator to select the trenching speed best suited to conditions. Soil disposition is either by auger or conveyor, dependent on model, and it comes up in a fine friable condition making for easy backfilling with a Davis hydraulic angle dozer. Once again the fitting of this attachment does not interfere with the trenching ability of the machine.

### **Polythene Drainage Tubing**

Muntz Plastics make 'Landcoil' Polythene Land Drainage Tubing. This tubing was primarily developed for draining agricultural land but in recent years it has been used quite extensively on sports grounds, tennis courts, etc. It therefore has an application on golf courses. The piping is supplied in black only.

'Landcoil' is a 2 in. diameter tube manufactured from polythene in coils 660 ft. long. The polythene from which it is made has been selected to give a tough tube which has a high crush resistance. At the same time it is sufficiently flexible to allow it to be manufactured in easily handled coils.

In order to provide maximum water absorption, there are 16 rows of small slots running along the length of the tube. These slots are scientifically designed to prevent larger soil particles from entering the tube. Where it is necessary to make a joint between two lengths of 'Landcoil', or it is required to discharge through an outfall into a dyke, a slightly larger diameter tube is available to sleeve over the perforated tube.

'Landcoil' may be used with or without permeable fill except that permeable fill must be used in all situations where it would be used with conventional materials.

## **Pitch Fibre for Drainage**

SURPRISINGLY, pitch fibre pipe is sometimes considered to be a new material, yet it has a development history of at least 150 years. It is known with some certainty that a type of pitch fibre pipe was used to carry water in Germany about 1860. A recorded installation was its use for mains water in Hamburg in 1850 and, when these were uncovered in 1914, they were found to be sound. Such durability is only to be expected of a material, the greatest proportion of which is pitch, a natural preservative. The early method of manufacture was to roll up sheets of pitch impregnated paper onto a mandrel until the desired wall thickness had been obtained. This form of manufacture is crude compared with present day techniques which produce a homogeneous wall of cellulose and asbestos pitch fibre completely impregnated with hard coal tar pitch.

Pitch fibre pipe is now well established for drainage purposes and in 1944 the United States Department of Commerce accepted a standard for the pipe. Although quantities of pitch fibre conduit have been imported into this country since 1903, no drain pipe was manufactured here until 1952. Perforated pipe for underground drainage work is manufactured to the British Standards Specification for drainage pipe and then perforated.

### **Characteristics of the Material**

The pipe is 70% pitch by weight and consequently has excellent chemical resistance. Laboratory work and field experience has shown that it will satisfactorily cope with aqueous solutions in the p.h. range of 0.3 to 12.5. Aggressive soil conditions, even those with an artificially high sulphate content, created by the use of clinker, ash or slag fills, are not detrimental to the pipe. The smooth bore and self centring joints give it good hydraulic flow properties and the system of dry jointing means ease and speed of installation. The pitch also inhibits the growth of fungi and plant life generally on its