

Whams Farm & Greenings Farm, Martin Mere, Scarisbrick

Groundwater Lowering and Drainage Improvements

Design: Duncan Ross Ltd

Project Brief:

On this project our brief comprised the design and construction of a subsoil dewatering solution combined with the design and implementation of general land drainage improvements in order to reduce the water table generally and improve crop yields.

Project Overview:

A consequence of the land being very flat and about mean sea level, adequate drainage was not possible and the existing land drainage, constructed on the basis of traditional gravity drainage methods was proving ineffective. The excessive rainfall of the previous winters has had a massive effect on crop yields. The combined workable area of arable land across the two farms is in excess of some 160 acres.

In order to reduce water levels the introduction of pumps was inevitable. However, in order to contain both initial implementation costs and future operating and maintenance costs within acceptable limits a number of options were considered. Following careful assessment of various configurations of vertical and horizontal drainage technologies, the chosen solution involved:

- Construction of 1.8m diameter concrete pumping chambers with 600mm diameter inlet pipes and two 150mm diameter 6.5kW submersible pumps per chamber, each having a duty of 75 litres per second and 5.0m static head.
- Construction of a sheet piled dam and headwalls.
- Renovation, over-excavating and enlargement of the existing network of open drainage ditches to both farms.
- Replacement of all existing land drainage infrastructure at both farms. All new drainage was installed at a new optimum depth; in total over 40,000m of lateral and carrier drains were replaced.

Duncan Ross said “ We are not just about contracting and installing pipes. We have a vast resource of technical knowledge and experience and we know how to use it. Sometimes the solution to a problem can seem daunting, but as with Neil, we can help you find the right way forward. Neil is delighted with the results. “ The best part of the project is that the pump is reversible, in the event that we have a drought next year, any water held in the dam will be used for irrigation. It is a win-win situation.