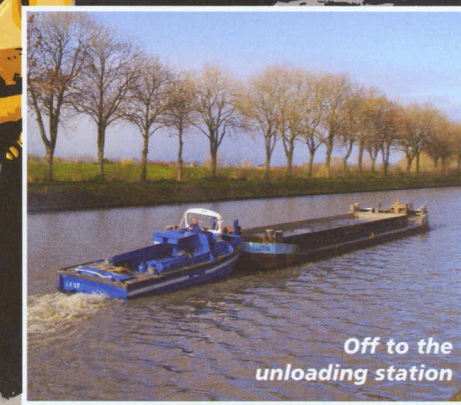




Silt sieving – the munitions remain



Grenades, mortars and more are found daily



Off to the unloading station



New suction head includes water jets

Echoes From The Past

Allied World War One soldiers called it 'Wipers', the west Belgian town of Ypres/ Yper that saw some of the conflict's fiercest battles and inspired a 1917 poem by Percy Graham. Even today its legacy is a grim reminder of those days...

The Yper-Yzer Canal started life as a small river, but it's been dredged and maintained as a canal since the 17th century – though recent lack of maintenance left it seriously silted. The Belgian government's decided to clear and clean a 15km stretch of the canal – 55,000m³ is being dredged

– giving it navigable depth throughout and a 10m-wide channel to enable passage by pleasure boats. But both ends of the canal contain silt contaminated with oil and poisonous PCBs over a length of 2km – and it's littered with vast quantities of still-deadly World War One munitions from

the four battles that were fought there. The clean-up contract's been won by independent contractor Ghent Dredging (GD), which has more than 30 years' experience. That experience has proved vital in finding innovative methods of coping with both the contaminants and the potentially explosive munitions.

WITH CARE!

GD's clearing the canal using a grab dredger, which places the material on to a grid in a barge. The munitions and other large items of debris remain on the grid while the remaining silt both drains and is sieved into the vessel – which then sails gently to a nearby unloading station.

The munitions are immediately neutralised and then removed by government experts – a daily job given the large number that are being found. After that, a GD hydraulic excavator fitted with a Damen DOP1815 submersible dredge pump forces the silt into TenCate Geosynthetics' Geotubes on a nearby 'spoil field'.

The DOP1815 runs off the excavator's hydraulics and has been fitted with a

newly designed barge-unloading suction head that also incorporates monitored water jets to assist the barge cleaning process. The water used is taken from the spoil field – an essential because polymers are injected to help the clumping process when the silt's pumped into the Geotubes. A Damen-supplied control unit that measures density, velocity and pressure automatically adapts the polymer flow to the amount of material pumped.

Although the spoil field is relatively small – there's a marked lack of space locally – using Geotubes means a large amount of dredged material can be stacked. They also dewater naturally, and when the material's sufficiently dry, the Geotubes are cut open and the silt's loaded on to trucks by an excavator:

- ◆ Non-contaminated material is reused beneficially – eg in the core of dykes
- ◆ Contaminated material, which is pumped into specially marked Geotubes, is taken to a treatment plant.

FINALLY...

Lack of space on land for the dredged material, contaminated sediment and ever-present munitions has turned dredging of a small Belgian canal into a campaign calling for innovative answers.

And Ghent Dredging has also managed to keep costs low by using existing equipment plus the DOP pump. The result is a cleaner environment – and a boost to the city's tourism. **More info at www.ghentdredging.com + www.damendredging.com + www.TenCate.com**