East Wichel Canal – Spring 2022 Update

Towards the end of 2021 initial repairs were made to the canal in East Wichel. These works along with the remainder of the canal have been monitored over the winter to test the repairs effectiveness. This note provides an overview of the findings and summarises the next steps.

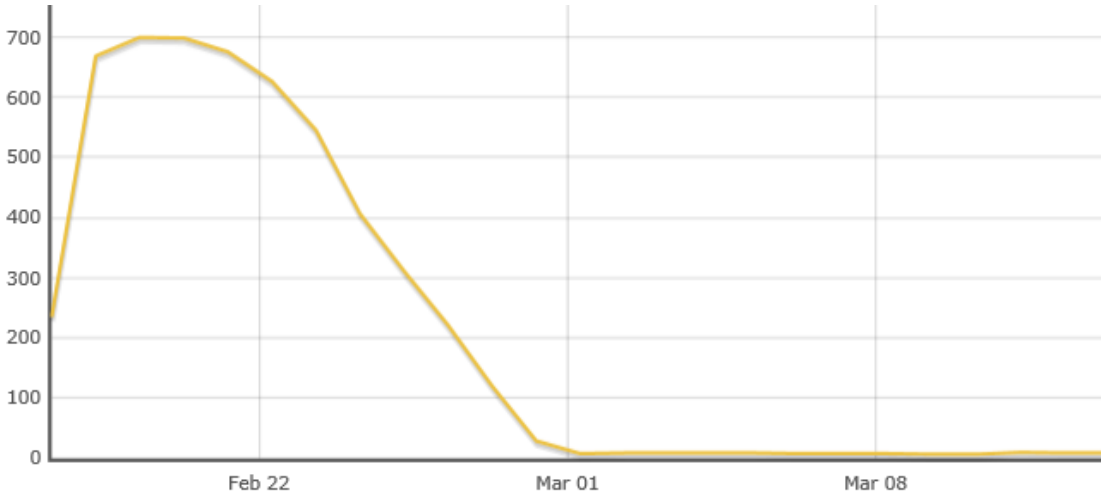
The canal has been split into a number of sections with each bund allocated a letter. Over the winter additional monitoring stations were added and daily canal level readings collected from each section.

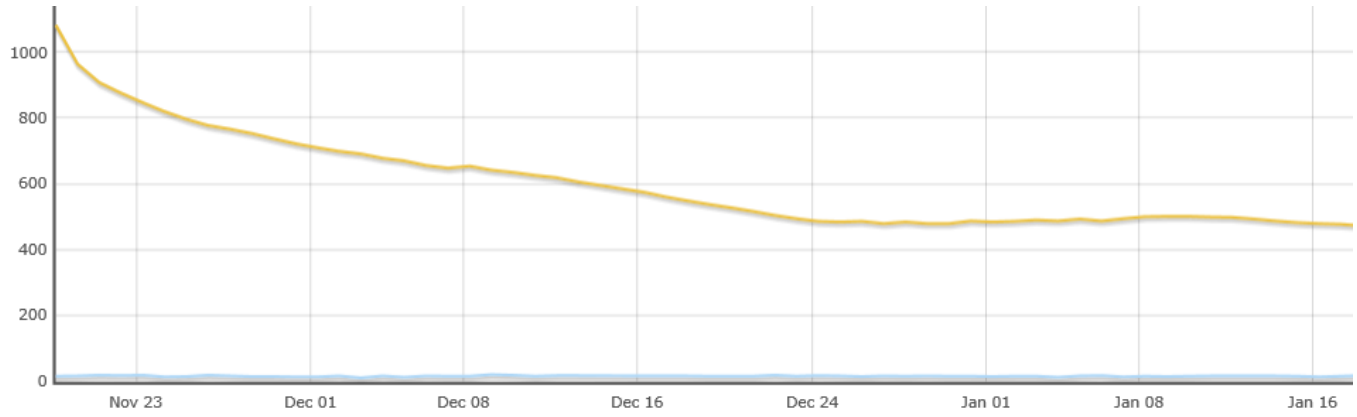
1) Section E to G

The section between bunds E to G has been the key focus, as the previous monitoring showed levels falling fastest in this area. In November this section was emptied and an area adjacent to the culvert where water was leaking from the base of the canal identified. The banks either side of the bridge also looked to be lacking in clay and these were therefore reconstructed to improve both bank stability and water tightness.

The two graphs below show how the canal levels changed before and after the repair.

The first graph from Feb/March 2021 shows the canal completely emptying (from a depth of 700mm) in 9 days. The second graph shows a fairly rapid drop over the first few days and then a levelling out. Both periods had relatively low rainfall.

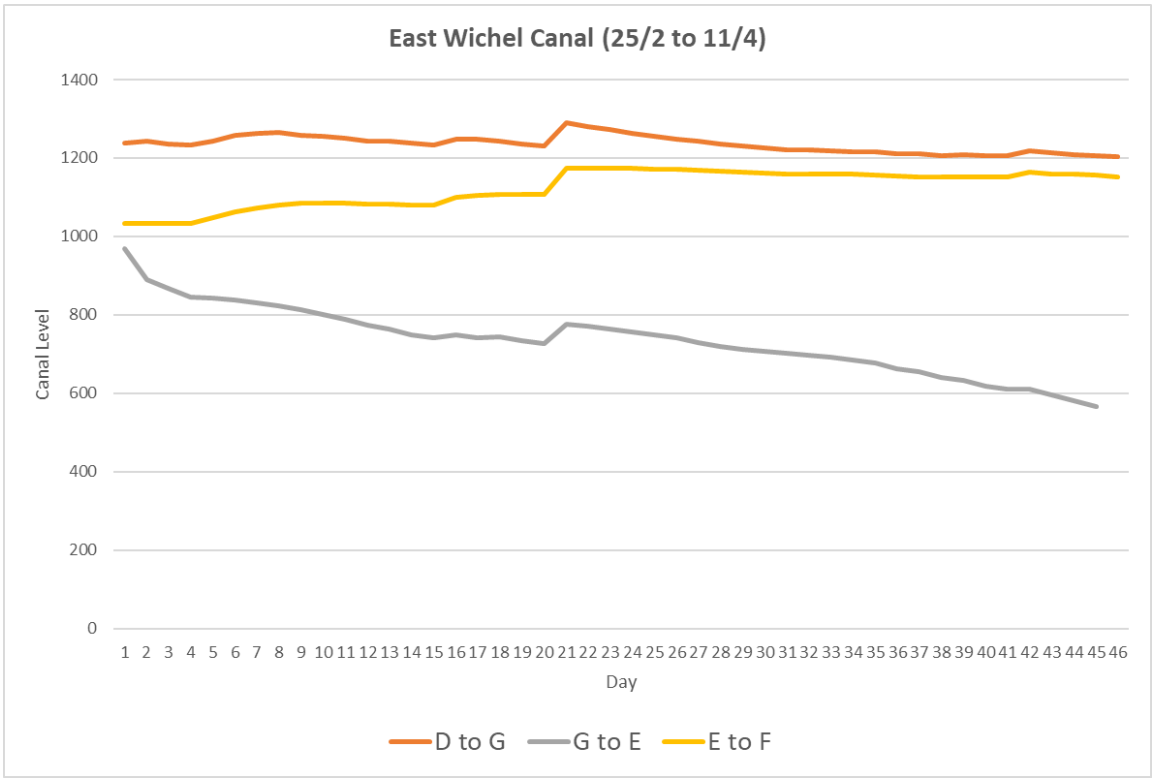




These readings provide positive evidence that the main leak in the base of the canal has been fixed. The water is however still dropping at a faster rate than either of the adjoining sections.

It appears that the rate of fall levels off as the canal reaches the halfway full point. After the first time the canal was re-filled a drop was anticipated as the new liner and banks became newly saturated, and the exercise was therefore repeated in February.

This second test showed another initial drop but a period of heavy rainfall meant the date was not directly comparable to previous tests. The levels have however continued to drop faster than adjacent sections.



Further visual inspections of the banks have been carried out in addition to trial holes on the southern bank but these have not yet identified the problem. It has however been noted that an area of the bank does have a higher moisture content which has informed the next stage of investigation.

1.1) Next Steps

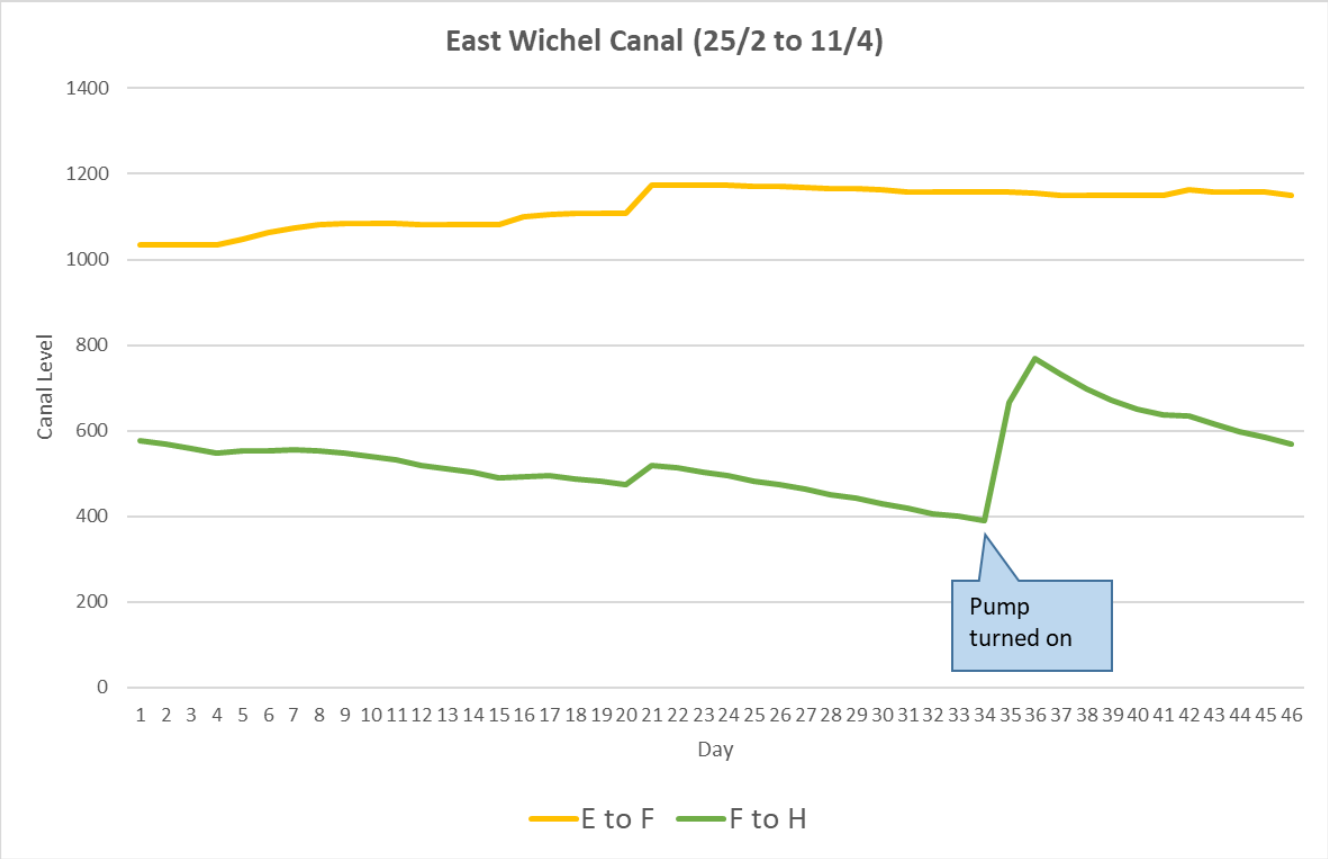
Focussing on Section E to G we will be excavating a number of trenches on both the north and south of the canal and assessing for water inflow after a defined period (expected to be one or two days). This will help to narrow down and identify areas where water is leaking through the banks.

2) Western Sections

The monitoring stations have also allowed us to look at how the sections further west, closer to the lock, are performing. The lock includes a pump which pushes water up from the lower level when water levels drop below a certain point. We have therefore tested these sections with the pump turned off.

The graph below shows the two sections closest to the lock and shows water being lost at quite a high rate.

It appears that water is being lost through the lock so we are not yet confident that the readings from the most western section are accurate. It does however appear there may be an issue in section F to H as when compared to its eastern neighbour (section E to F) there is greater water loss.



2.1) Next Steps

As part of the next section of works we are planning to install two further bunds either side of the aquaduct to narrow down and test these sections. As the tie in with the structure was an issue in the section E to G this is our first area for further investigation.

Subject to checking the area is clear of water voles the new bunds will be located at Points I and J.

3) Timescales

The next stage of works are due to commence in on Monday 9th May and there will then be another short period of monitoring to determine if the source of the leak has been found and if further works are needed.