Thinking of you

Electrolux

19th July 2012

Supplier: Northumbrian Water

An initial visit to site was made on Monday 25th June 2012. We visited site with the intention of excavating to expose two suspected leakage areas, thus enabling us to assess the nature of the repairs and fittings required.

The first leak was previously identified using correlation, mechanical sounding and the use of tracer gas which was injected into the supply pipe. Excavation through the block paved area, adjacent to an electric service pit, exposed two significant electric cables at a depth of 6cm. An attempt was made to ascertain the status of these cables on site but no useful information was forth coming. The cables were therefore treated as live and work continued with care by hand.

Picture 1 – Leaking Flange Joint

Further excavation around the restricted area finally exposed cast iron pipework with significant leakage on a flanged joint, see Picture 1. Further investigation revealed that the joint was part of a branch connection on the network with the branch serving a lone fire hydrant approximately 50 meters from the excavation site.

No further work could be undertaken on this leak until the planned water isolation on Friday 29th June 2012 as the supply was needed.

A return visit was made on Friday 29th June as planned, despite major flood warning for the area. The water was isolated to allow repairs to commence.

Water and silt was removed from the excavation and the scraping of debris from around the pipe revealed a double flanged bend. The flange bolts were removed from both flanges, before tapping the bend to release it from the gaskets. This allowed removal of the flange bend.

Picture 2 – T Joint Removed

All appeared well and a simple flange cleaning was undertaken and replacement of new gaskets and bolts was all that was required to stop the leak. However, the flange size was 65mm and not 80mm as suspected. 65mm gaskets had to be sourced before continuing with the repair. The bend was refitted and all leakage on the flange bend appeared to have stopped.

Picture 3 – Where T Joint removed with live cable

However, there was a small spray that appeared to be coming from one joint. An attempt was made to tighten the joint and repair the leak; however, the leak remained and upon closer inspection revealed a small pin hole in the casting below the flange.

The effect of this is that the whole T-Joint required removal to rectify the leakage. The most economic method we felt, was to remove the offending T piece and join the main pipe supply run with a straight piece of pipe. This option was agreed with Alan Pratt and arrangements were made to return to the site on Friday 6th July 2012 to isolate the water and carry out these works.

We were informed by Alan on the morning of 6th July not to travel as the weather was bad and planned this in for the following Friday 13th July.

The second leak was identified on a supply branch serving a contractors compound. However, this compound is now empty therefore making this branch redundant. A simple close of the branch stopped any further waste of water.

An enquiry was made as to the necessity to carry out any repair given the site status. We were requested to continue repair works in anticipation of a new lease for the site.

Excavation in the reinforced concrete area commenced the afternoon of Monday 25th June 2012 which revealed plastic membranes under the concrete surface. This would have had an impact on our leak detection efforts as tracer gas would not have been able to reach the surface and would have been diverted off, hence the gas trace within the drain.

Further excavation revealed clean imported stone fill indicating previous excavation or ground make up before hitting another layer of reinforced concrete. Alan Pratt explained this area of the site had been made up in the past as part of new building works.

Further pipe tracing within the excavation still indicated the presence of a pipe although not in the assumed line of direction. Perseverance paid off as excavation carried out over the traced area revealed a 4” pipe. Closer inspection revealed asbestos cement material which, as explained to Alan Pratt, was a non-preferred material and therefore a repair was uneconomical and the line should be abandoned.

Prolonged discussions between Alan Pratt and Electrolux came to the conclusion that the pipe should be abandoned.

A request was then made to leave the excavation open for further investigation. The pipe capping was still outstanding and was arranged to be done at the earliest opportunity.

Picture 4 – Asbestos Pipe

A visit was then made to site on Friday 13th July 2012, with the primary intention of carrying out a permanent repair to the supply network feeding the Remploy building.

Picture 5 – Section of New Pipe

On arrival, we excavated the build-up of silt around the pipe work which had accrued during the recent floods in the area. Once the leaking T piece was exposed, it was cut out to facilitate a permanent repair using two new 80mm couplers and a section of new pipe.

The water supply was then restored to check the integrity of the repair before back filling the trench with sand fill around the main and electric cables for protection and infilling the excavation with stone fill to sub base level. Further sand was then used to make up the level to adjacent surface areas as requested by the client.

Picture 6 – Backfilled before Re-instatement

Works were then undertaken to back fill the excavation at the second leakage site which exposed the 4" asbestos cement pipe. Sand fill was placed around the pipe before back filling the excavation to sub base level in readiness for the final concreting.

Better weather conditions are now required to facilitate the final concreting of the second excavation and carry out excavation and pipe capping at the isolation valve which is currently closed to prevent any unnecessary waste of water.

Savings of £33,500 per annum have been achieved by completing these repairs.

Recommendations

- Re-Instatement of second excavation including concreting to take place week commencing 23rd July and excavation of pipe capping. This had to be done with better weather conditions.
- Regular readings to be taken to monitor consumption and to check further leakage is not taking place.
- Approach NWL in the hope of securing a further leakage refund
- Installation of AMR, this will prevent further leakage and would prove a valuable tool to claim back any further leakage allowance from NWL.