



Leakage Investigation Survey

Client: Large Leisure Site, Northants.

Mains water meter information

Size (mm)	15-28		32-50		75-100		125-200	✓	Above 200mm	
Serial number	17M123565									
Readings (1)	019660.728				Time:	14.03 12 th March 2020				
Readings (2)					Time:					
Location	Meter located adj to mains water storage tanks									

Leakage Activities

Acoustic sounding	✓	Correlation		Ground microphone	✓	Environmental Inspection	
Other							
Pipe traced		CAT & Genny			Distance		
Pipe correlated	Accelerometer			Hydrophones	Distance		

Background Information

Water audit completed after analysis of water flow data produced by a remote water meter reading device – water flow data logger recording a continual base load of 5m³ (cubic metres per hour)

Activity Summary

Pipework & Metering



Pic 1



Pic 2



Pic 3



Pic 4



Pic 5



Pic 6



Pic 7



Pic 8



Pic 9



Pic 10

Leakage Survey Activities

A survey had been carried out at the site where leakage issues were suspected.

Upon meeting at site with the client, the areas of concern were pointed out.

I began with looking at the small leak adjacent to the office buildings (pic 2), this was just a small section of wet boggy ground with two small bore MDPE pipes protruding out of the ground.

Efforts were made to obtain surface noise and noise on the pipe-work but nothing was evident, a water sample was taken and this showed chlorine almost instantly and confirming the water was mains water.

It is recommended that the area be excavated to uncover what is leaking and carry out necessary repair works.

The second area of concern was the far left of the main stand in and around the old disused toilet blocks, subsidence is occurring in this area and is affecting the foundations to part of the stand.

There is a substantial amount of water showing from underneath one of the old toilet blocks (pic 3), on investigation with listening stick and ground microphone, it is presumed the leak is on the main or supply pipe very close to the toilet block in the tarmac carriageway area (pic 4). Water is also getting into the main drains in several places (pic 5) and the losses are estimated at 5m³ per hour.

Further investigations were carried out around the site and additional leakage was located in two old toilet blocks near the drift circuit that are still in use, one is causing flooding on the floor and is a leaking 15mm copper pipe behind wall panels (pic 6&7) there is also a urinal cistern that was constantly filling and flushing (pic 8) this was located and turned down to just a drip to reduce waste.

The area of the main tanks was also surveyed to confirm if a meter could be installed on the feed in to the main storage tank (Pic 9&10) pipe tracing was also carried out in the area using the copper rods method as the mains are all plastic once it leaves the tank area, the tracing appeared to be successful as all locations picked up all coincided with what the site plans indicated.

Summary & Recommendations

Summary:

1. Below ground leakage confirmed running at an estimated rate of 5m³ per hour.
2. Install a urinal control to the cistern in picture 8. This will prevent flushing out of occupancy.

Recommendations:

Excavate areas of concern and carry out repairs where necessary

Repair leaking pipe-work in toilet block

Savings: 43,800m³ (cubic metres a year) at a cost of £130,000 upon completion of water leak repairs

Survey carried out by

Water Leakage Engineer	H2O Building Services	Date	12/03/2020
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