Water Leakage Investigation Survey

13 May 2015

Winchester, Hampshire SO23

Client

Mains water meter information

Size (mm)	15-28	✓	32-50		75-100		125-200		Above 200mm	
Serial number	08291234									
Readings (1)	1446.722				Time:	08:23 13 May 2015				
Readings (2)	1450.400				Time:	11:05 13 May 2015				
Location	Meter located in grass verge on Easton Lane under small circular plastic lid.									

Leakage Activities

Acoustic sounding	✓	Correlation	✓	Ground microphone	✓	Environmental Inspection	✓
Other	Isolation of rising main						
Pipe traced	✓	CAT & Genny			Distance	14.0m	
Pipe correlated	Accelerometer	✓	Hydrophones		Distance	24.0m	

Background Information

Recent meter readings show a significant increase in water consumption through the meter, which does not correspond to any increase in legitimate water usage within the premises.

The meter supplying the client also feeds a Ceramic Tile Distributors who share the building. Water is used on the site for domestic use only in kitchen areas and staff & customer toilets.

Activity Summary

Pipework & Metering

The water meter is located in the verge outside the premises.

The rising main is 3/4" galvanised iron pipe, which rises in the kitchen area of Ceramic Tile Distributors at the side of the premises. The pipework was traced out from this point and found to run close to or just under a low rise retaining wall. From this point, 15mm copper pipe is surface clipped around the building to supply all points of water use.


Meter location in verge


Meter


Rising main in kitchen area of the Ceramic Tile Distributors


External line of pipework up to building

Leakage Survey Activities

All points of water use were identified and checked for correct operation - all were found to be operating ok. The main incoming pipe (rising main) was located and the isolation valve closed (valve on rising main is broken so ¼ turn lever valve was used in adjoining office) whilst the meter was checked to perform a leakage test. With the valve closed, the meter was confirmed to be recording water consumption at a rate of 22 litres per minute (31.6m³/day). From the previous meter reading taken in January by Southern Water, the average daily consumption has risen steadily (in table below).

Date	Reading (m³)	Taken By	Consumption (m³)	Days	Daily (m³)
19/01/2015	352	Southern Water			
08/05/2015	1292	Client	940	109	8.6
13/05/2015	1450	H20	158	5	**31.6**

Water leak cost £ 40,000 per year (£110 per day)

The anticipated route of the main was then acoustically sounded for leak noise. A small amount of leak noise could be heard along the edge of the retaining wall towards the rising main. Leak noise correlation was also carried out but the results were inconclusive. This was due to either a mixture of metallic and non-metallic pipe material or the proximity of the large volume of leak noise close to the rising main. Due to the volume of the audible leak noise within the building and lack of high area of leak noise externally, it is anticipated that the leak is either under the floor of the building, within the building wall structure (in the foundations) or just outside.

Location for trial hole to locate pipe and prove leak is under the building

Summary & Recommendations

Summary:

1. Below ground leakage confirmed running at a rate of 22 litres/minute or 31.6m³/day;
2. The location of the leak is anticipated to be at or close to the point of entry into the building.

Recommendations:

1. It is recommended that the leak is repaired as soon as practicable, starting with a trial hole just outside the building. If the leak is proved to be within the building, a new point of entry is recommended (using an Insuduct or similar). With the pipework brought through the exterior wall, a new stop tap can be fitted under the kitchen worktop and connection made into the existing 15mm pipework.

2. It is also strongly recommended that regular meter readings are taken to monitor consumption going forward – ideally weekly if possible. This will prevent any future leaks being able to create high water bills.

Survey carried out by

Engineer	H²0 Building Services	Date	13th May 2015