Leakage Investigation Survey

3 March 2017

Client

Holiday Park, Yorkshire

Mains water meter information

Size (mm)	15-28		32-50	✓	75-100		125-200		Above 200mm	
Meter Serial Number	98S000123									
Readings (1)	271475.000				Time:	11:29 01 March 2017				
Readings (2)	271535.780				Time:	08:43 02 March 2017				
Location	Meter located in large chamber in verge by second entrance to park. Accessed with two large lifting keys.									

Leakage Activities

Acoustic sounding	✓	Correlation	✓	Ground microphone	✓	Environmental Inspection	✓
Other	Inspection of all pipework connections, internal pipework in pool area and kitchens, bar area and toilets.						
Pipe traced	✓	CAT & Genny			Distance	50m	
Pipe correlated	Accelerometer	✓	Hydrophones		Distance	100m	

Background Information

The minimum combined night flow through all meters supplying Holiday Park has been consistently high (a combination of logged and manually read meters), suggesting leakage or other unidentified water consumption on the network around the park.

The park contains approximately 1000 accommodation units, together with leisure amenities including swimming pool, bar/restaurant and owners area. There are also a number of chalets on the park.

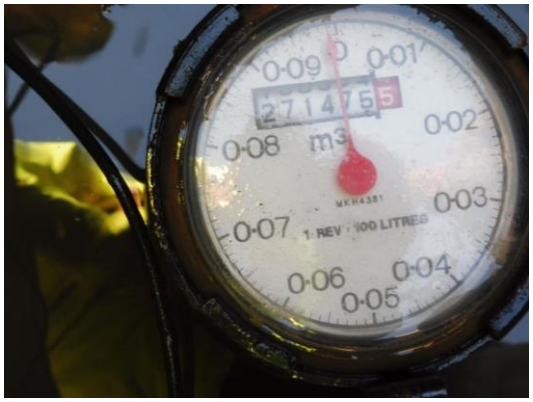
The constant water flow equated to approx. 3m³-3.5m³ per hour which is an unaccounted cost to the Holiday Park of £8.15 per hour, £195.72 per day and over the course of one year, an unaccounted cost of £71,437.80

Summary of Survey

Pipework & Metering

There are several meters supplying the park with water - all are directly off the mains. A list of all meters found and read has been provided separately.

Some sections of larger diameter pipework into the park were found to be Cast Iron. Visible pipework around the areas of the park is typically MDPE (Medium Density PolyEthylene or more commonly known as blue poly) or black poly of varying sizes was laid in the older areas. Some areas of the park have completely redesigned layouts with new sections of pipework. Main isolation valves are located around the park on the larger sections of pipework. Hose reels on the park for fire fighting purposes are also mains fed.



Main meter


Main meter location

Leakage Survey Activities

All water connections on the park were acoustically sounded for leak noise (approximately 1000 accommodation plots) together with all stoptaps and isolation valves. All connections were also inspected for any visible leaks on stoptaps and fittings. Some areas of the park where leaks were suspected were also checked.

A number of potential areas of leakage were found whilst carrying out the acoustic sounding on the park. Other areas of acoustic noise could be attributed to water use or boilers running – these plots were revisited to check the noise being created by other means had subsided.

Detailed acoustic sounding was then carried out to pinpoint the exact area of leakage in all locations where required.

A number of the more urgent leaks were repaired by park staff during the survey. These are listed in the table below.

All internal water using fittings (WC's, Hand Wash Basins, Urinal controls, etc) within the entertainment and leisure complexes were also checked for correct operation.

Summary of all water issues identified on the park:

Priority	Park Area	Plot	Fault	Comments
1	Spruce Bridge	65	Leak on stoptap	Repaired at time of survey
1		50	Leak on stoptap	Repaired at time of survey
1		11	Leak on stoptap	Repaired at time of survey
1	Birchtree Side	L4	Leak on stoptap	Repaired at time of survey
1	O/S Burger King		Leak on 4" pipework	Site has requested quotation to repair. H2O to provide quote.
2	Holly Bank	A26	Leak on stoptap	Under plot
2	Hilltop	25	Leak on fitting	Under plot
2	Hawthorn Drive	1	Leak on stoptap	In slabs
3	Hilltop	57	Leak on stoptap	
3		45	Leak on fitting	
3		38	Leak on stoptap	
3		28	Leak on fitting	
3		1	Leak on stoptap	
3	Holly Brook	A8	Leak on stoptap	
3		15A	Leak on stoptap	
3	Dolphin Way	9	Internal issue (chalet)	
3	Oak Green	19	Pinhole in pipe	Under plot
3	Maple Rise	18	Small leak on fitting	
3	Birchtree Side	M10	Leak on fitting	Under plot
3	Swimming pool		Disabled shower	Fitting leaking - 0.7 Litres/min

Leak location by isolation valve outside Burger King


Leak location marked up


Leaking stoptap – 50 Spruce Bridge


Leaking stoptap gland – 11 Spruce Bridge

Leak at Birchtree Side L4


Disabled shower - Leaking shower head

Summary & Recommendations

Summary:

1. All pipework connections and underground fittings (stoptaps and isolation valves) were acoustically sounded for leak noise and checked for visible leaks;

2. Several significant leaks identified on the below ground network - some of these were repaired during the survey;

3. Several minor visible leaks identified (refer to table above).

Recommendations:

1. Excavate, locate and repair all below ground leaks identified;

2. Replace 2 no. large diameter isolation valves (1x4" & 1x6" – unable to confirm exact sizes though). One valve is located outside Burger King (adjacent to leak), the other is in block paving near owners area (site aware of this location); **H2O to provide quotation for replacement of x2 valves and repair of leak under block paving outside Burger King.**

3. Repair all minor above ground leaks;

4. Check minimum night flow and confirm new leakage volume. Assess viability and costs of further work of required.

Potential Annual Saving: Approx. £71,437.80

Survey carried out by

Engineer	H2O Building Services	Date	27 February - 3 March 2017