

# Lyons Holiday Parks - Robin Hood Water Leak Detection Site Survey Report

23<sup>rd</sup> July 2015

We attended the Lyons Robin Hood Holiday Park in Ryhl on 15<sup>th</sup> & 16<sup>th</sup> July to carry out water leak detection.

Upon speaking to site, we were advised that the Welsh Water data logger on the Robin Hood Holiday Park water meter was recording an overnight flow rate of approx. **2.4m<sup>3</sup> per hour** when checked between 00:00am – 06:00am. Site informed us that they had narrowed the section of water loss down to an area of approx. 118 vans but they required our assistance in pinpointing the leakage area/s.

An overnight flow rate of **2.4m<sup>3</sup> per hour** equates to an **unaccounted cost of £170.50 per day** and **£62,231.04 per annum** (based on Welsh Waters standard combined water & sewerage rate of £2.96).

We established the water meter serving the site to be meter serial number 1450WST02035 and is located in a meter chamber in a fenced yard area on Sherwood Avenue. There is currently no lid on the water meter chamber.

We found Lyons Robin Hood Holiday Park consists of over 1100 mobile homes, plus a number of chalets. The section of the park suffering from leakage is around half the total site area. Previous testing by park staff suggests the total leakage volume is split across a number of areas.



Picture 1 – Water meter 1450WST02035

Picture 2 - Water meter chamber

Above and below ground pipework consists of a number of different materials. Above ground connections to the mobile homes are either black polythene or blue MDPE (Medium Density Polyethylene, or blue poly). Below ground pipework (where exposed by trial holes or leak repairs) was found to consist of black poly, blue poly, solvent welded ABS and copper.

Connections to the holiday homes are ½” black poly or 25mm blue poly with a controlling stop tap located close to where the pipe rises from the ground.

Previous isolation testing by the park indicated leakage in a number of areas:

Accommodation Area	Leakage Rate	No. Connections
The Poplars/Silver Birch Way/Hawthorn Crescent	1.2m <sup>3</sup> /hour	263
Holly Grove	0.5m <sup>3</sup> /hour	123
Rowan Avenue	0.5m <sup>3</sup> /hour	69
Sycamore Walk/Fir Tree Close	negligible	118

Focusing on the larger areas of leakage first, the water connections to each plot were acoustically sounded for leak noise. Whilst being acoustically sounded for leak noise, the connections were inspected for any above ground leaks on connections and fittings underneath and at the side of each plot.

A number of drainage and water valve lids were also lifted and inspected to check for water infiltration and leak noise but nothing significant was found.

Two areas of potential leakage were found whilst carrying out the acoustic sounding on the park. Of these, two were confirmed to be definite leaks (excavated at the time of the survey). Other areas of acoustic noise could be attributed to water use or boilers running.

All leakage/water consumption issues:

Area	Plot	Issue	Resolved During Survey
<b>TP</b>	7	Drip on stoptap	No
	16	Hose left running	<b>YES</b> - measured to be 1.4 litres/min (0.08m <sup>3</sup> /hour)
	60	Leak on stoptap	No
	65	Leak on stoptap	No
	72	Leak on stoptap	No
	87	Leak on stoptap	No
	89	Leak on stoptap	No
	92	Split on HEP20 pipe	No
	95	Drip on stoptap	No
	109	Drip on stoptap	No
	113	Drip on stoptap	No
<b>SBW</b>	26	Leak on stoptap	No
	45	Leak on stoptap	No
	57	Leak on stoptap	No
	82	Drip on stoptap	No
	83	WC/Tap running	<b>YES</b> - isolated at external stoptap
<b>HC</b>	2	Leak on stoptap	No
	4,5,7,8,11	Below ground leak	<b>YES</b> - repaired by Ady (Plumber)
	21	Drip on stoptap	No
	24	Drip on stoptap	No
	31	Leak on stoptap	No
	42	Drip on stoptap	No
<b>RA</b>	2,3,4	Below ground leak	<b>YES</b> - repaired by Ady (Plumber)
	27	Leak on stoptap	No
	28	Drip on stoptap	No
	54	Leak on stoptap	No
<b>HG</b>	68	Drip on stoptap	No
	74	Drip on stoptap	No
	81	Drip on stoptap	No
	82	Drip on stoptap	No

Detailed acoustic sounding and leak noise correlation was then carried out to confirm the exact point of leakage in the two identified locations.



Picture 3 – Leak 1 location on stop tap at rear of plot HC8 (Valve under chamber lid)



Picture 4 – Leak 1 uncovered found to be blown olive/compression nut on stop tap



Picture 5 – Leak 2 location at rear of plot RA3 (Chamber lid was completely covered over with turf)



Picture 6 - Leak 2 excavated



Picture 7 – Leak 2 repaired and stop tap replaced



Picture 7 – Cause of Leak 2 was due to split in Valve



Picture 8 – Tap supply hosepipe left running on plot TP16

Both leak locations were excavated during the survey so that the exact point of leakage could be confirmed, and also to enable a quick repair and an immediate water saving.

A few trial holes had already been excavated on Rowan Avenue which helped to minimise time establishing routes of pipework in this area whilst pinpointing the leak in this location (Leak 2).

Other easily resolvable issues were also addressed during the survey, including a WC sink tap left running at plot SBW83 and a tap left running at plot TP16 supplying a hosepipe.

### **Summary**

In conclusion, we confirmed the leakage rate to be approximately **2.4m<sup>3</sup> per hour**, equating to approx. **57.6m<sup>3</sup> per day excess consumption** and a **daily unaccounted cost of £170.50** and **£62,232.50 per annum**. We identified and uncovered two significant leaks, one on a stop tap at the rear of plot HC8 and another on a split valve at the rear of plot RA3. Both of these leaks were repaired at the time of the survey.

We checked approximately 450 connections for leak noise and visual leaks and as well as the significant leaks detailed, a number of minor water leakage issues were identified too which are detailed in the table above.

I received confirmation from site yesterday that the overnight flow rate has **dropped from 2.4m<sup>3</sup> to 1.2m<sup>3</sup> per hour** as a result of carrying out the recommended repair work.

This reduction in leakage so far for Lyons Holiday Parks equates to a **saving per day of approx. £85.25, approx. £2,387 over 4 weeks** and an **annual saving so far of £31,116.25**.

### **Recommendations**

We recommend that **all other minor leakage issues identified are repaired** as soon as possible and the data logger is rechecked to review the overnight flow rate.

We also recommend that all surface covers (valve lids etc.) are clearly marked to prevent these being buried in the future. An example of good practise is shown below where valve covers have chamber lid surrounds installed:



Upon completion of all repairs detailed in report, site should review the flow rate to allow us to calculate the annual saving achieved.