

## **PRESSURE TESTING OF STORM WATER RETENTION TANK FOR TUBOSIDER**

### **1.1 Introduction**

WRc were requested by Tubosider U.K. Limited to witness the pressure testing of a Storm Water Retention Tank at their production site in Warrington. The pressure tests were undertaken in accordance with Sewers For Adoption (4<sup>th</sup> Edition). The pressure tests were undertaken on 12<sup>th</sup> July 2001.

### **1.2 Product description**

The Storm Water Retention Tank was produced from two helically wound steel pipes. The tank had an internal diameter of 1500mm and consisted of two 1575mm long pipes (total length 3150mm). The two pipes had been abutted and connected by a corrugated coupling band. The coupling consisted of two pieces, which were 500mm wide. The coupling had been placed around the junction of the two adjacent pipes and connected by three U bolts at both springings. A "full face" rubber gasket had been installed in between the pipe and coupling. This is the standard Tubosider joint detail.

Steel end plates had been welded at each end of the tank. External tie bars and straps were fitted to connect the end plates. One of the endplates incorporated a valve arrangement for water supply. Pipework, which included a bleed valve and a pressure gauge, had been welded to the tank at the crown.

The test sample had been set up prior to WRc's arrival on site.

### **1.3 Air Pressure Test**

The air pressure test was undertaken in accordance to Sewers for Adoption Section 4.7.5: Air test for gravity sewers. Tubosider supplied a Bailey Brothers Manometer to monitor the pressure change over the test period. The results can be found in section 1.5.

### **1.4 Water Pressure Test**

The water pressure test was undertaken in accordance to Sewers for Adoption Section 4.7.5: Water test for gravity sewers. The results can be found in section 1.5.

### 1.5 Results

**Air test:** The table below shows that the tank held the air pressure for duration of the test (5 minutes) and passed the test criteria of Sewers for Adoption air test.

Time (min)	Pressure (mm)
0	100
5	100

**Water test:** The table below presents the recorded pressure drops and the volumes of water required to maintain 1,2m head of water within the tank.

Time (mins.)	Pressure (m)	Drop in pressure (m)	Volume of water added (ml)	Observations
0	1.2	0		A small leak was observed between the springing and the invert at the joint, however no drop in pressure was measured.
5	1.2	0		Small leak at the joint, but no measurable effect on pressure.
10	1.2	0	-	-
15	1.18	0.02	105	Slight drop in pressure water added to restore pressure.
20	1.18	0.02	140	Slight drop in pressure water added to restore pressure.
25	1.2	0	-	-
30	1.16	0.04	245	The leakage from the joint had visibly increased.

The acceptable level of leakage for this pipe in accordance with Sewers for Adoption would be  $0.5(\text{Litres}) \times 3.150 (\text{length}) \times 1.5 (\text{internal diameter}) = 2.352 (\text{litres})$  per 30 minutes.

The total quantity of water added, over the 30 minute period was **0.491**.

The level the leakage measured was within the allowable quantity for the size of the tank and met the water test criteria given in Sewers for Adoption