

Wastewater Inflow and Infiltration

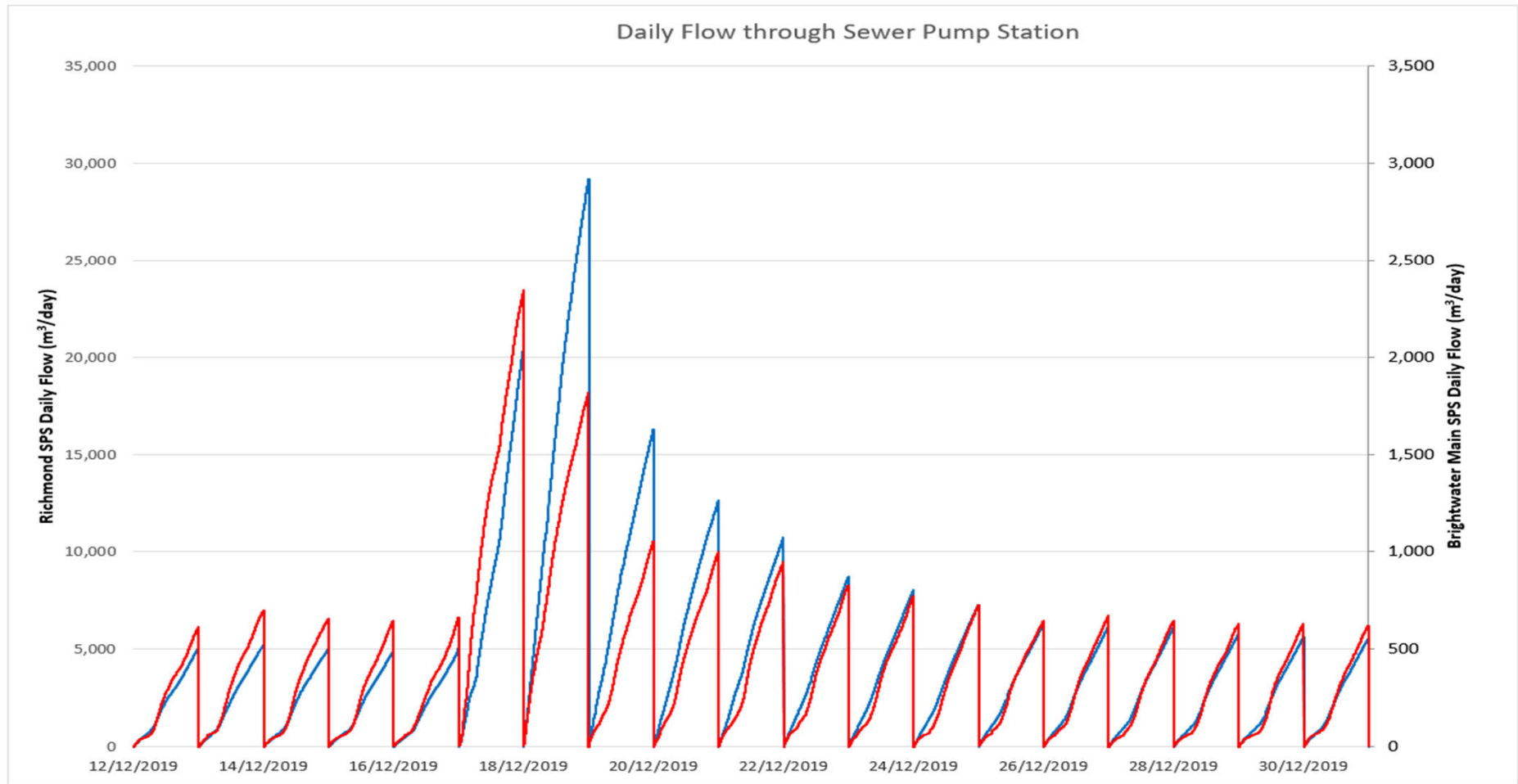
Tools in the toolbox

Distributed Temperature Sensing and Manhole Level Sensors

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Tasman District Council

December 16-17th Storm Event



Infiltration Issues

Why are we trying to reduce infiltration ?

- Reduce Wastewater overflows to the Environment
- Reduce WWTP capacity
- Accommodate Growth
- Reduce Capital and Operational Expenditure

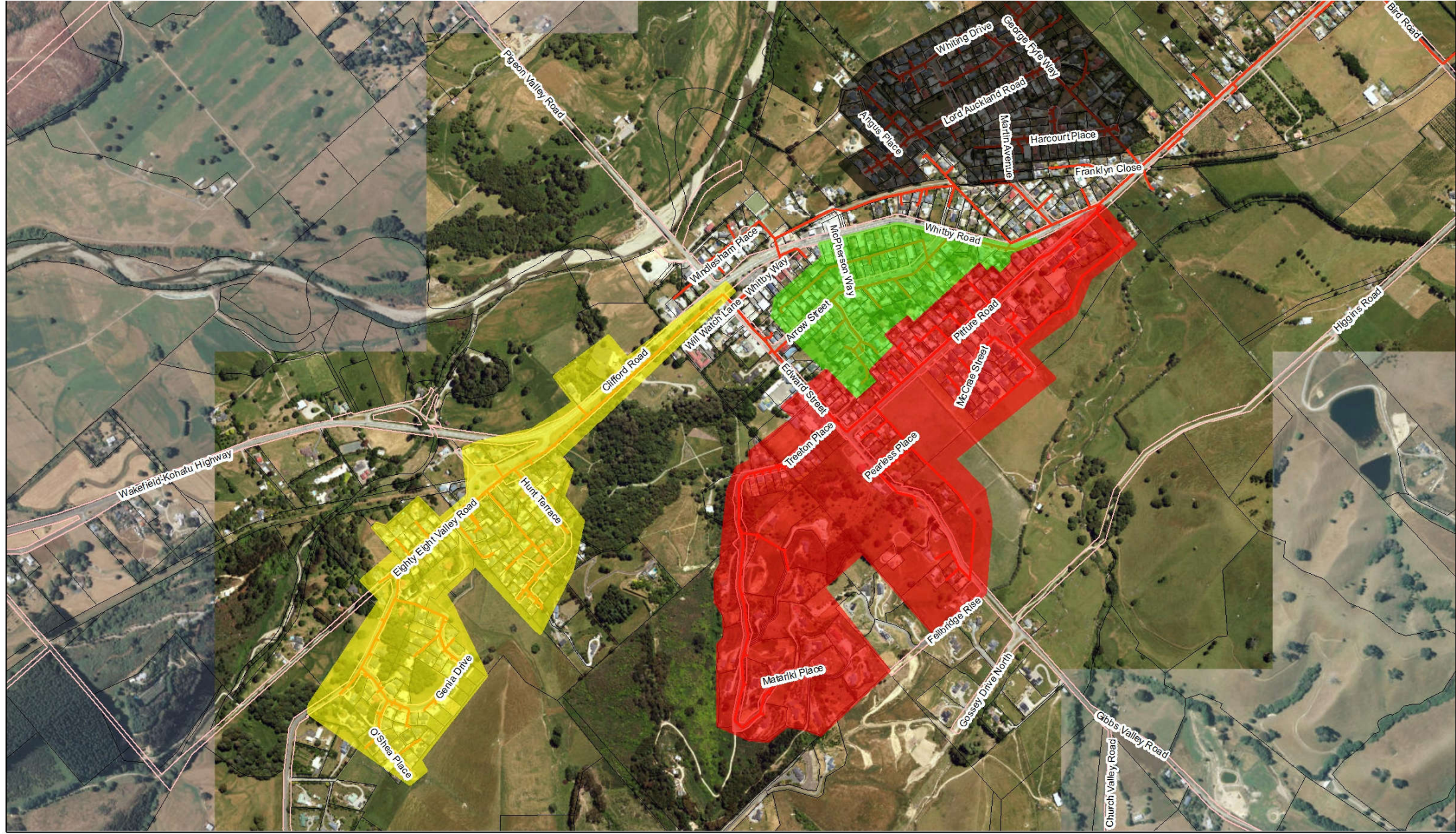
How are we attempting to do this ?

- Flow monitoring
- Manhole Level Sensing
- Distributed Temperature Sensing (DTS)
- Flow inspections at property boundary
- Compliance letters. Compliant to LGA (1974) - section 459

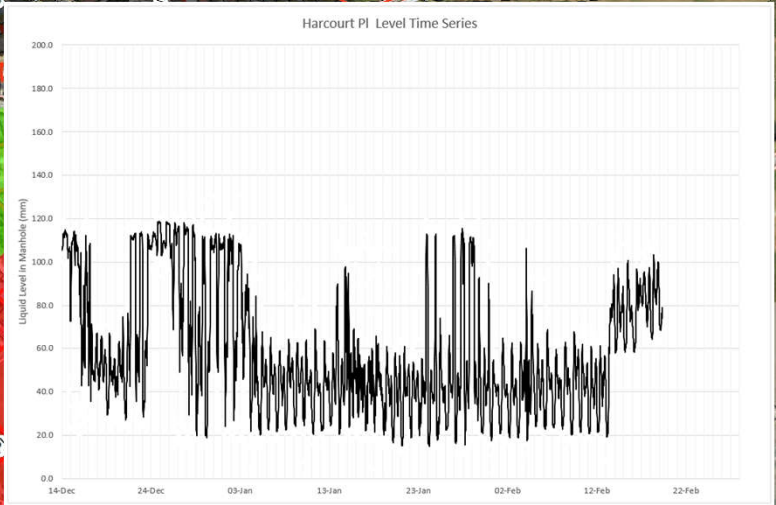
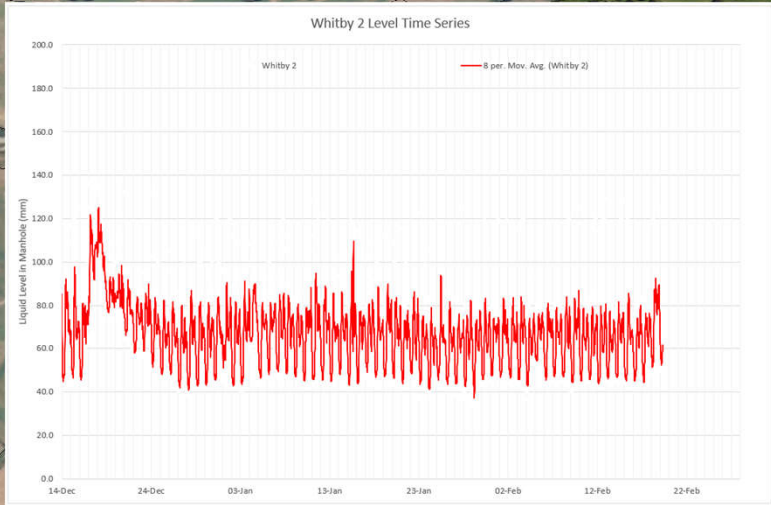
Manhole Level Sensing



- [Metasphere Palette Login](#)



Wakefield Zone Results



How do we intend to use the sensors

- Highlighting trends. Initially looking for large anomalies
- Allowing cost effective monitoring of sub-networks
- Selection of sub networks where DTS deployment would be beneficial
- Provide on-going monitoring to ensure that gains made are not lost over time.

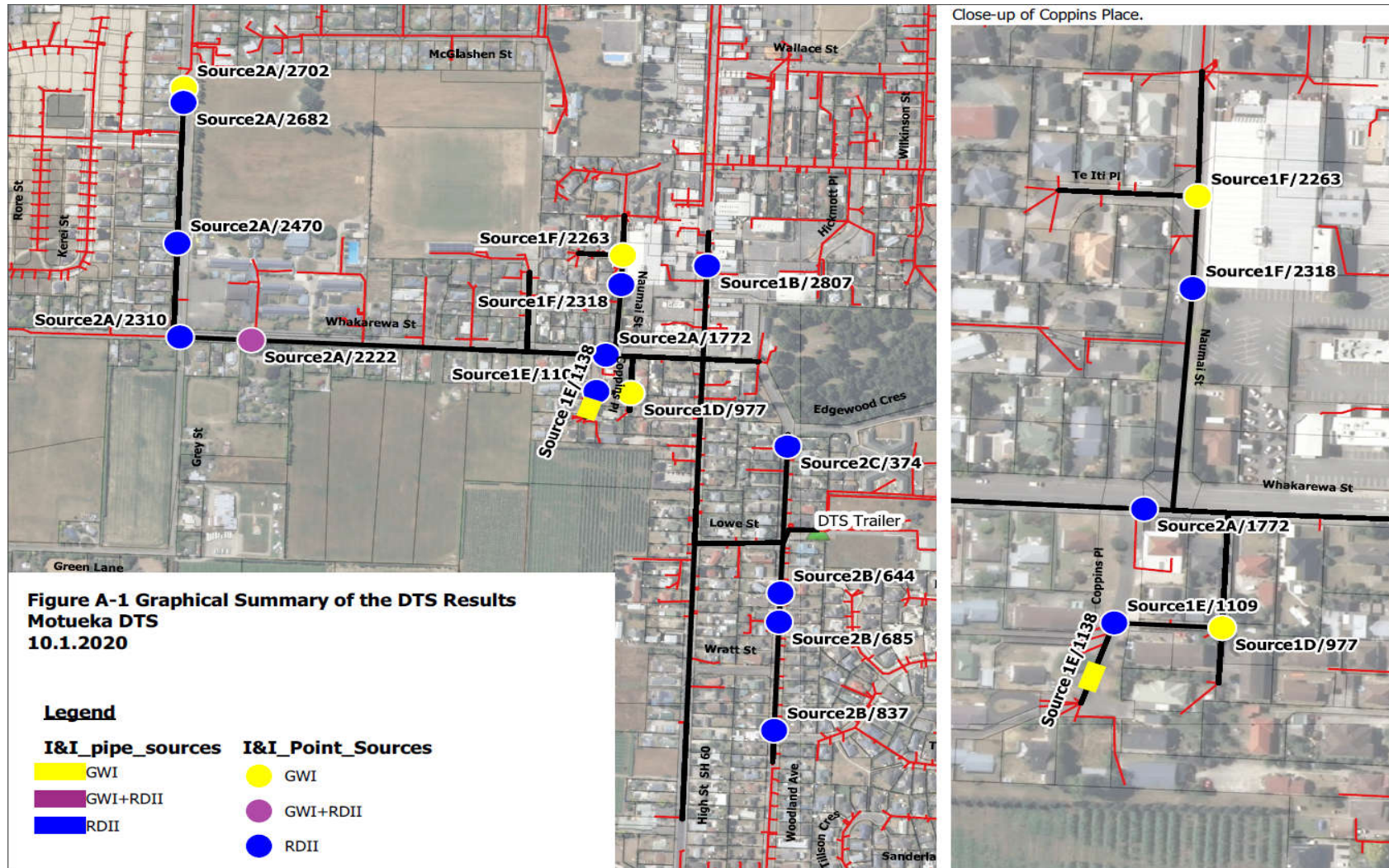
Learnings

- Correct manhole selection is important.
- Timely monitoring of data

Distributed Temperature Sensing



Woodlands Wastewater Catchment

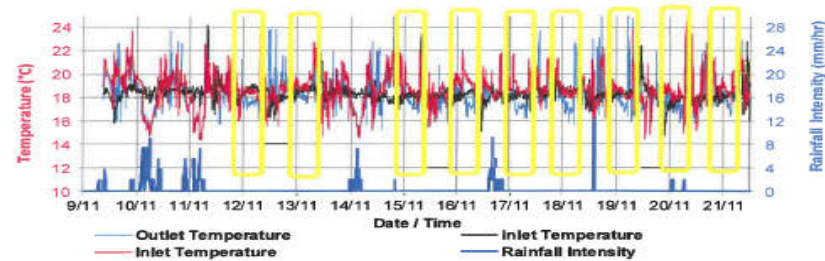


B.4.1 Source 1D/977

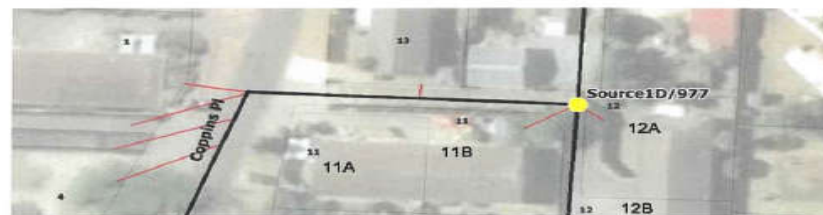
Source Analysis Summary

Source	1D/977
Location on DTS	977 m
Asset	Manhole WWT-14659
Address	11B Coppins Place
Analysis	Temperature differential below 0°C during low wastewater flows in the early hours of the morning. This is most likely caused by continuous infiltration of cool ground water that is observable during times of low wastewater flow but masked during times of medium to high wastewater flow.
Recommendation	Inspection of MH checking for signs of deterioration and infiltration. Lateral only inspection of nearby connected properties (11B and 12A Coppins Place) looking for deterioration and infiltration.
Note	The private laterals for 11B and 12A Coppins Place are asbestos cement installed in 1980.

Source Analysis Graph – Temperature vs Time



Source Location Map



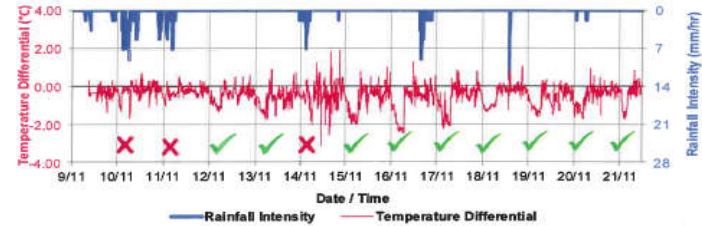
B.5.1 Source 1E/1138

Source Analysis Summary

Source	1E/1138
Location on DTS	1138 m
Asset	Pipe WWT-36291 DN150, 38.12m, asbestos cement, 1980.
Address	4 Coppins Place
Analysis	Temperature differential below 0°C during low wastewater flows in the early hours of the morning. This is most likely caused by continuous infiltration of cool ground water, that is observed during times of low wastewater flow, but masked during times of medium to high wastewater flow.
Recommendation	CCTV inspection of pipe checking for signs of deterioration and infiltration.

Source Analysis Graph – Temperature vs Time

Green ticks in the graph indicate temperature drops in the early hours of the morning which was only observed on dry days. Red crosses indicate mornings where there were not significant temperature differentials in the morning.



Source Location Map



- Can we do it better ???
- Of course we can!!
- What are you doing??
- Why are we not all comparing notes!