



## Wastewater Inflow Abatement Technologies & Services



# MIDNIGHT RUN INFILTRATION INVESTIGATION & MONITORING

### Description:

The goal of the midnight run is to identify where infiltration is entering the pipe through infiltration and to save money by focusing on lengths of pipe that are leaking, as opposed to televising all pipes.

### Process:

1. Obtain GIS Map of areas served noting manholes, pipe and manhole numbers. The GIS map should have the pipes and manholes as separated shape files.
2. Identify where force mains enter the gravity system.
3. Review the manholes on the lift station area map and determine starting location. Note the area needs to be under a low flow condition (typically after midnight and before 5:00 am), and has had no rainfall in the prior 48 hours.
4. Determine a starting manhole that is upstream of the lift station, but downstream of other manholes. The goal is to pick a point where finding no flow eliminates opening many manholes.
5. Open manholes and inspect for flow.
  - a. Note manhole number.
  - b. Estimate flow width.
6. If there is a 2 inch wide bead of water that is not wastewater and not intermittent, proceed upstream opening consecutive manholes and repeat step 5 until the bead disappears.
- c. Note any change in flow by manholes (bead width, liner leak, manhole leak, water or manhole stains, minerals, speed of flow).
- d. Note special problems and conditions, such as surcharges and bypasses.
- e. Type and amount of debris in the manhole.
- f. Note any manhole defects (this is not the intent of the process but useful).
- g. Note any ring/cover defects.

Florida  
Administrative  
Code: Rule 62-600.705  
says you must have a  
5-year planning horizon  
to reduce I & I into a  
wastewater collection  
system.

**MINIMUM**  
5% a year  
- or -  
25% over 5 years  
- and -  
Reporting to DEP  
annually

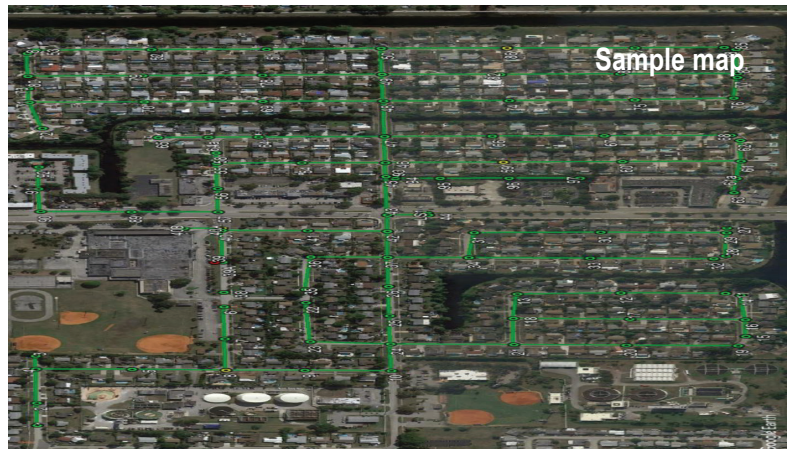
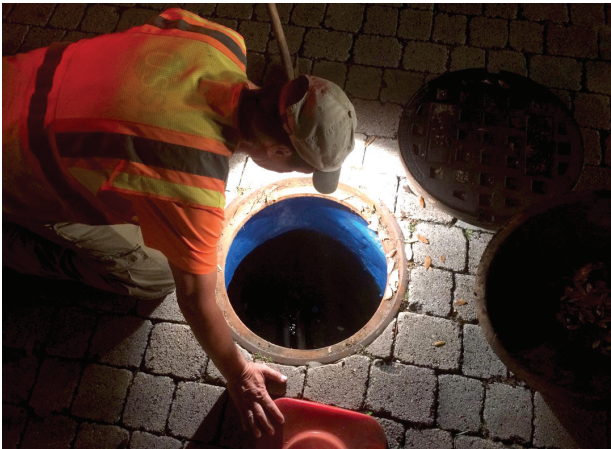
Evaluations and assessments may be made using one or more investigative techniques such as camera inspections, **smoke testing**, data analytics, flow isolation, focused electrode leak location, **direct observation**, and sonar imaging, water chemistry, and solids analysis, or flow monitoring.



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7. Create a listing of manhole inspected and upstream manhole, flow bead width, notes, and leave column for estimated flow. Note flows from manhole to manhole may be additive.
8. Estimate the flow by manhole (subtracting incoming flow to prior manhole).
9. Identify which pipes should be televised based on those with flow entering between manhole inspected and upstream manhole
10. Identify manhole issues noted at night.
11. Identify system issues (paper, grease, surcharging, etc).
12. On GIS, identify pipes that should be televised and lined.
13. Estimate amount of pipe (LF) that should be cleaned and televised.
14. Create a GIS based map for pipes to line and televise. This is indicated by Red (needing to televise), Green (No need for further action), Purple (surcharged).
15. Create a GIS based KML overview map of manhole issues noted as a separate layer.
16. Estimate total infiltration flow volume into area inspected in GPM and MGD.
17. Write report to summarize findings, include tables of all issues, include tables of inspection findings, and mapping results.



**It is expected that a crew can open between 400-500 manholes per night in 5 hours.**

USSI was established in 1999 with the express purpose of eliminating rainwater inflow into the wastewater collection systems. We have developed the AIIM program which provides unique products, procedures and systems.

When rainwater is prevented from entering the front end of the collection system, the AIIM program reduces overflows and spillages by increasing sewer capacity. The AIIM program is not only effective in preventing "Inflow" but it is also cost effective.