

NODIG ROADSHOW SHEFFIELD

USE OF TRENCHLESS BY UK UTILITIES & THEIR FUTURE NEEDS FROM INDUSTRY

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Sheffield*

How is STW utilising trenchless (inspection/new lay/repair/renovation, etc.) and an indication of how you see trenchless being used going forward to help address needs.



STW INTRODUCTION

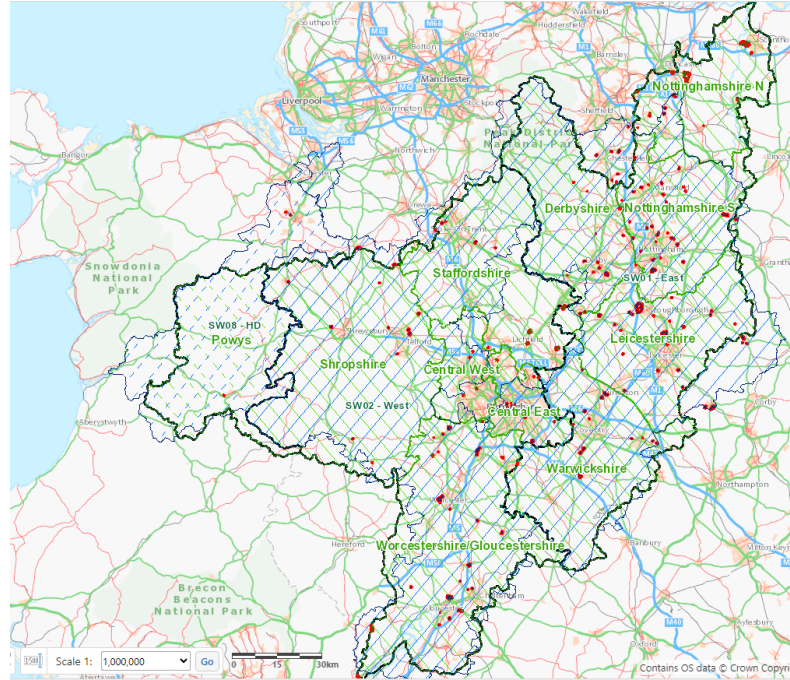
STW Aging Asset Base

Gravity Sewers

- Gravity Sewer ~42,000km of sewer
- That is ~1.1million pipes
 - Surface – 36%
 - Combined – 21%
 - Foul – 43%
- Lining Wise – From our CCTV database we have lined ~31,500 pipes ~(640km)

Rising Mains

- STW has ~3,500 SPS sites with 2,300km of rising mains, plus ~1,000 PDaS.
- Average of ~149 bursts per year, with 19% going to Cat 3 pollution.
- What STW are wanting to do is identify sites with poor rising main performance (material/pressure) so that we can target interventions.
- Using WRc Sahara for inspections (& CCTV when open for repair)



RM CLEANING (PIGGING)

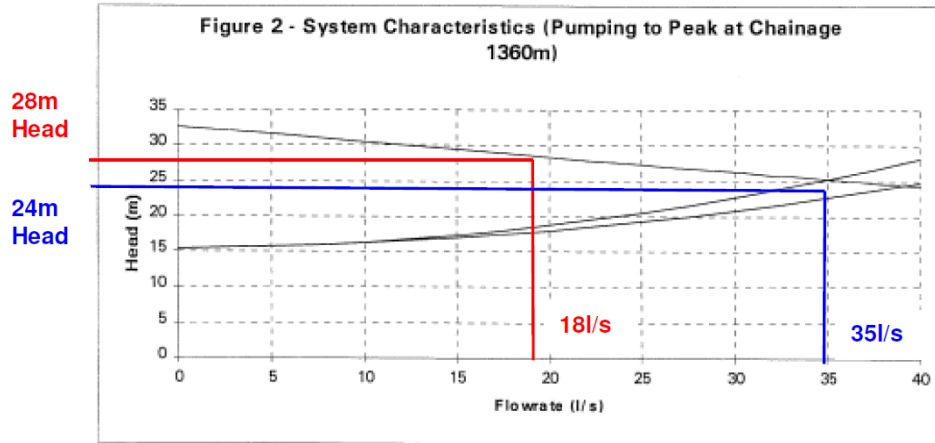
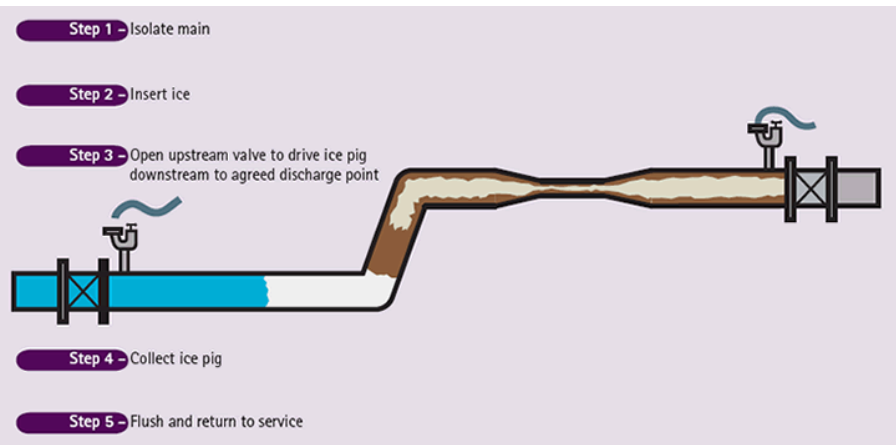
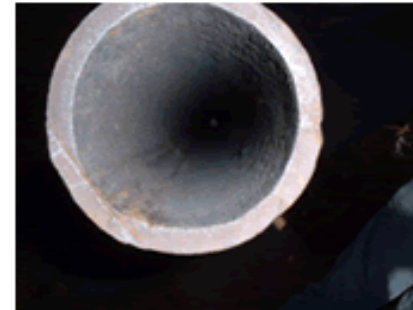


Figure 2 above shows just how sensitive the pump capacity is to relatively small increases in head-loss.

RM Cleaning will scour the rising main thereby reducing the friction losses which in turn will allow the pump settings to be reduced and help reduce the pressure on the rising main, helping to extend the asset life and reduce the likelihood of bursts & pollutions which links to our ODI's.



Water main prior to refurbishment showing extensive tuberculation



Water main after refurbishment



Quick Pig – Installed in Leicestershire



Air Scouring

REPAIR / RENOVATION / NEW LAY

- **Localised Repairs (pipe)**

- Identification of need via CCTV
- Patch Lining for small areas
- Lining for longer lengths

- **Laterals (Top hats)**

- **Infiltration**

- Participation in CP655 (CP308) - Infiltration resistance testing of CIPP Liners
- Tools to identify infiltration hot spots – SPS/Pipe
- Targeted surveys – Lift & Look, CCTV, Not really using Electroscan yet
- Would like to trial Turbogel in future

- **Standards**

- Awaiting issue of long-awaited WRC SRM 6
- Integrating Water UK IGN for CIPP into commercial frameworks
- Upskilling of managers and others via training on lining



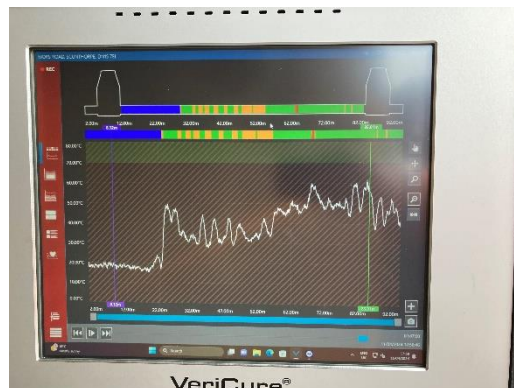
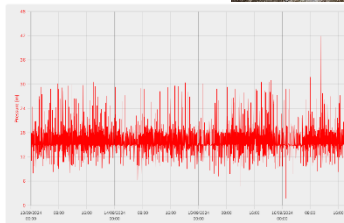
RISING MAINS

- In AMP7 we undertook 10+ rising main rehabilitations via lining (non via swagelining)
- Identification of failure mechanism – i.e. metallic invert corrosion
- Lining design – installation of pressure monitor & CCTV locate bends
- Installation
- Post CCTV
- Matlock –
 - We had ~15 BRM's in centre of Matlock (sometimes 3 in a week)
 - Pipe was shown as corroded. 250mm CI #1=230,#2=306,#3=250m
 - Due to the urgency & tankering costs (~25no tankers) a non-structural liner was proposed
 - Sanitube was selected and arrived a few days later – installed in 3 sections (availability & bends)



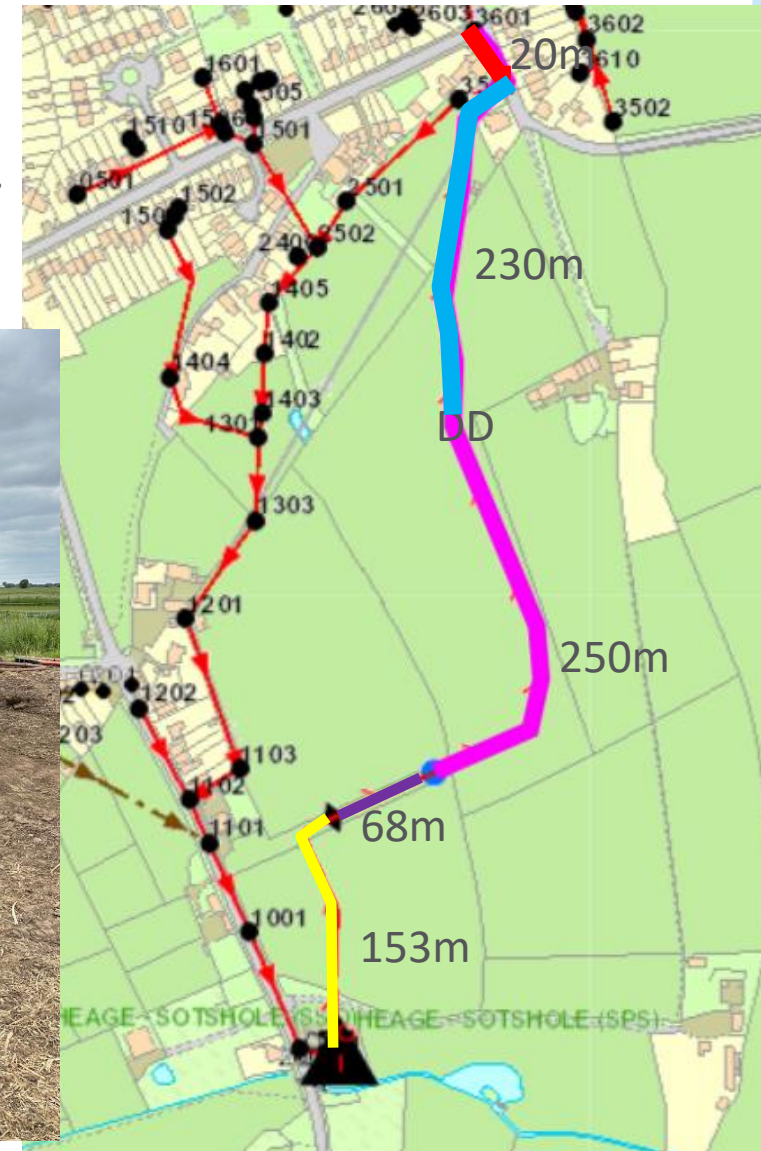
SCUNTHORPE

- Scunthorpe BRM ~400mm ~ 120m section to line very close to building in running sand. Overland pipe installed
- CIPP Liner – RSM Ferro Force. Steam cure due to size of crane in poor ground conditions
- Vericure assurance of curing



HEAGE – DIRECTIONAL DRILL

- We had a project in Heage, north of Derby, where the metallic 725m long rising main was in poor condition and we opted for a directional drill replacement.
- 125mm SDR 11 PE100 was used and pulled through in mainly clay but some soft rock – 4 shots.
- Had to lay track matting to reduce damage, which added to cost, but was faster.



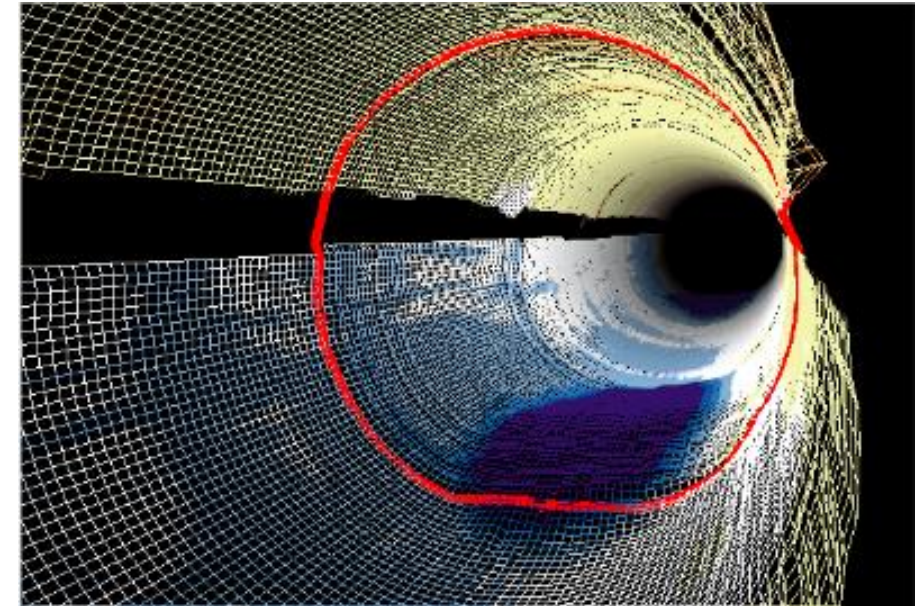
FUTURE

- Survey

- Gravity Sewers – Developing fast. Reducing person entry (H&S), lidar point clouds, below water surveying, AI (automated) coding
- Siphons – Surveying surcharged pipes to look for siltation
- Pressurised – Sahara with additional features such as diameter changes, bends (that is where we struggle), leaks. What we are wanting is something like Smartball (Aquaint) that gives us metallic wall thickness (internal/external), but at a reasonable cost / ease of install.

- Lining

- Standards updated/aligned – SRM, Water UK, Selection tools
 - More liners on the market i.e. Infiltration, pressure
 - Self-healing liners – new materials (although prevention i.e. jetting)
 - Client / Quality Assurance – Vericure – telling when curing complete
- Flood grouting i.e. Tubogel
 - Not having to find every single leak as liquid will find it (& voids!)
 - Other keyhole repairs done from within manhole/air valves reducing the need for digging



<https://sewervue.com/multi-sensor-pipe-inspection-system.html>

**DO YOU HAVE
ANY QUESTIONS?**