

WASTEWATER-TALK

International exchange

Episode 02 Dec. 2021

Drainage Systems Inspection

Klaus Jilg & Siqi Tong

Wastewater-talk

monthly new theme

International exchange

Wastewater is an issue
that absolutely needs
to be clarified



Klaus Jilg

Expert on odor and
other wastewater issues

- Monthly a new topic for discussion
- Exchange of knowledge in wastewater
- Passion sharing
- Get to know you!



Abwassertalk:

<https://www.podcast.de/podcast/795779/abwassertalk>

Episode	Topic	Content	Time (CET)
01	Rat Control in Drainage Systems	Environmental risks & application of waterproof baiting station in drainage systems	05 Nov. 21 10:00
02	Drainage System Inspection (Drone & Boat)	Innovative inspection of drainage systems using drone and camera-equipped boat	02 Dec. 21 10:00
03	Extraneous Water Entrance Prevention	Impacts of extraneous water & countermeasures?	13 Jan. 22 10:00
04	Indirect Discharger Cadaster Investigation	How to easily obtain full supervision over indirect discharger in your region?	03 Feb. 22 10:00
05	Live Flow Monitoring in Drainage Systems	Why is it so important to know the live-flow in our drainage system?	03 Mar. 22 10:00
06	Exhaust Air Treatment in Wastewater Sector	Odour treatment through external equipments	07 Apr. 22 10:00
07	Sulfide Balance in Drainage Systems	Automatic calculation of sulfide balance & introduction to SULFIDUS	05 May 22 10:00
08	Special Episode: IFAT Munich 2022	What is new at the IFAT this year?	02 Jun. 22 10:00

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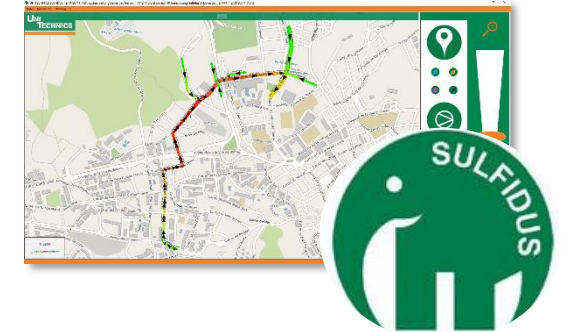
Engineering Consulting



Indirect Discharger Investigation



Sewage System Inspection



Sulfide Balance SULFIDUS



Odour & Corrosion



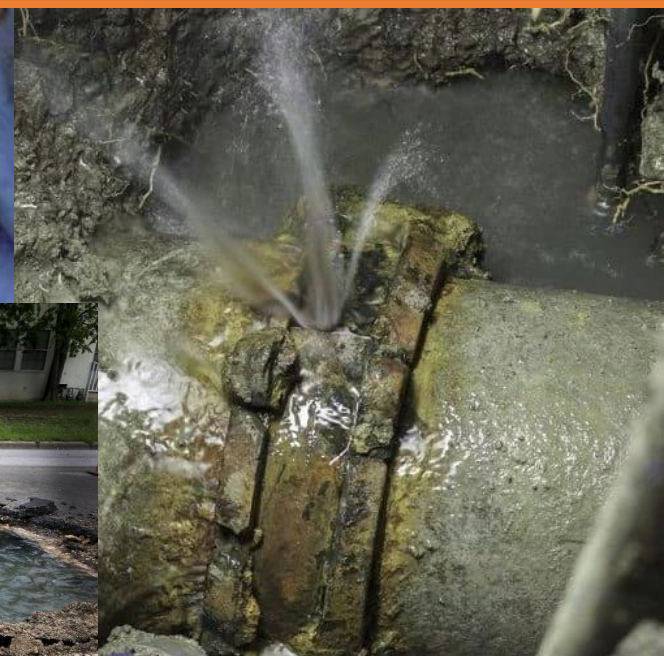
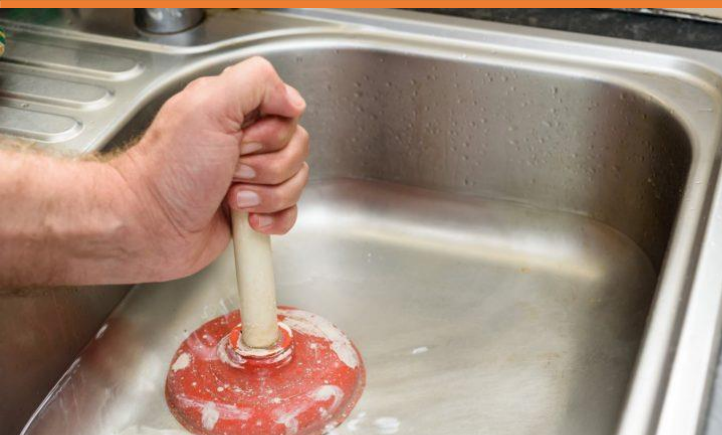
Extraneous Water Seal



Dosing & Exhaust Air Treatment



Rat Control



- To identify existing problems and respond to the emergency
 - Find the root of the problem
 - Locate the damage area
 - Fix the problem immediately
- To identify potential problems and address them as routine maintenance
 - The older, the higher likelihood to fall apart
 - Proactively ensure healthy, well performing sewer networks
 - Plan ahead technically and financially

1. Clogs

- Industrial wastes: toxic chemicals and materials ...
- Sanitary wastes: tissues, hair strands, hygiene products ...
- Liquid wastes: fats, oil, sludges ...
- Food wastes





Do you know that ...



Mirror

COVID-19 NEWS POLITICS FOOTBALL CELEBS TV MONEY

Enormous 'fatberg' the size of an AEROPLANE found blocking sewers in London

The sewer blockage, made up of waste fat, wet wipes, old food, tennis balls and even planks of wood, was eventually cleared a few days ago by high-powered jets

By Tony Bassett
16:14, 1 Sep 2014 | UPDATED 09:27, 2 Sep 2014

[f](#) [t](#) [w](#) [l](#)

- 80 m fatberg longer than a Boeing 747 (76.3 m)
- 4-day cleaning
- Source of sewer flooding in the neighbouring area

2. Corrosion

- Happens with any material other than durable PVC pipe
- pH, temperature, oxygen concentration, chemicals, water velocity
- Leads to breakage & leakage



3. Leaks

- Typically occur at pipe joints
- Contamination of ground and surface water



4. Root intrusion

- Water and organic waste as nutrients
- Restricts smooth water flow
- Damage pipe, leads to leakage or infiltration



5. Cracks & Breaks

- First steps before corrosion and collapse
- Age, poor installation, temperature fluctuation, roots, blockage



Standard case: sewer pipe < DN 800 mm

Traditional inspection methods



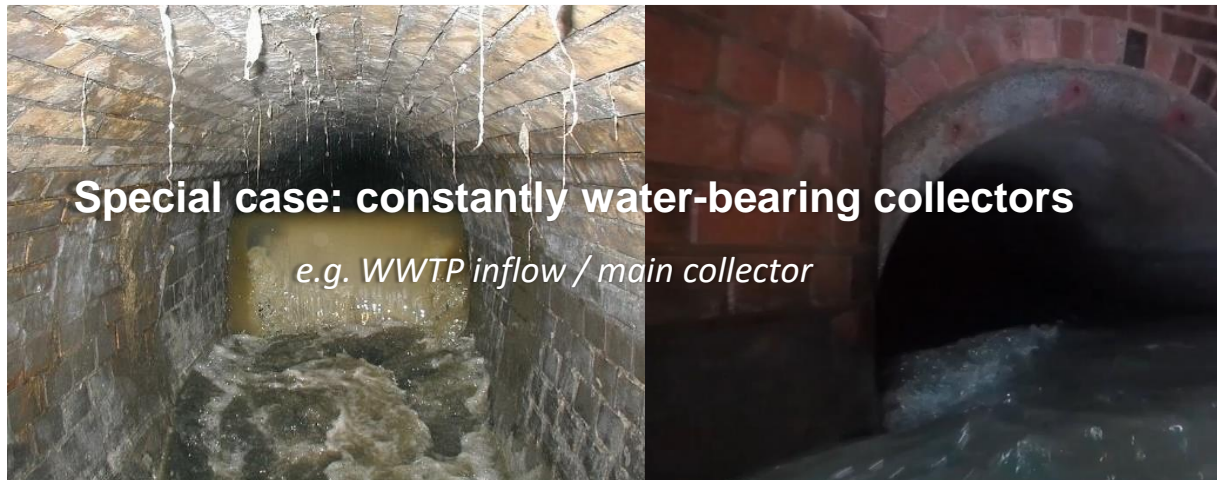
Special case: sewer pipe ≥ DN 800

From DN 800 sewers are considered to be accessible. Operational safety is still an issue!



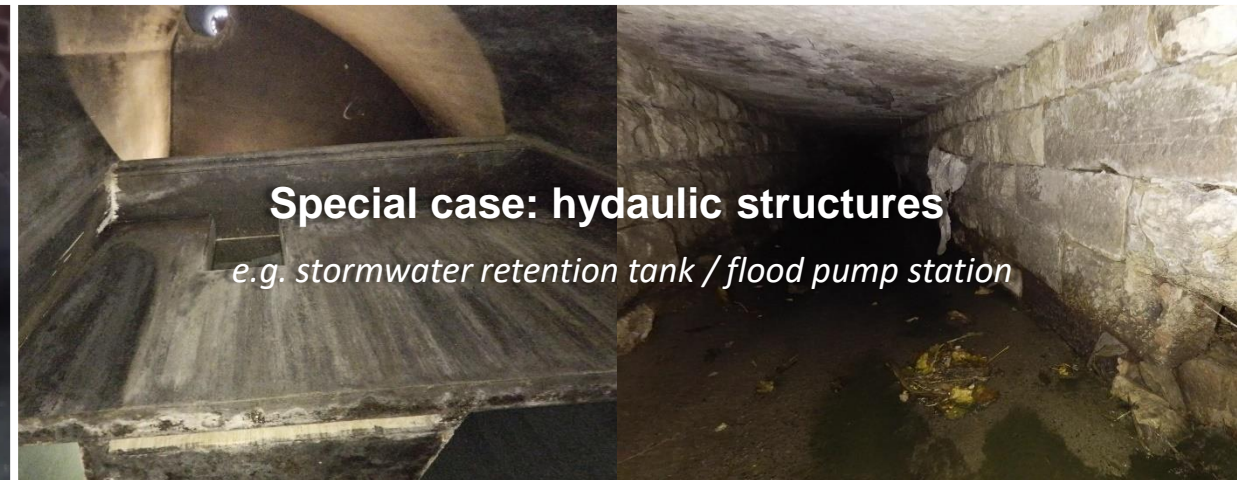
Special case: constantly water-bearing collectors

e.g. WWTP inflow / main collector



Special case: hydraulic structures

e.g. stormwater retention tank / flood pump station



UNI-INSPECTOR

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TECHNICS



<https://www.youtube.com/watch?v=iRcAaFbCTBk>



<https://www.youtube.com/watch?v=vesq3iV06fo&feature=youtu.be>

[IMAGE FILM](#)

**Manufacturer**

Flyability

Min. width of entrance

400 mm

Min. inspection width

DN 1,200

Camera system4K action cameras +
thermal camera**Live view**

Yes

Lighting10K lumens
Adjustable & dustproof**Air temperature range**

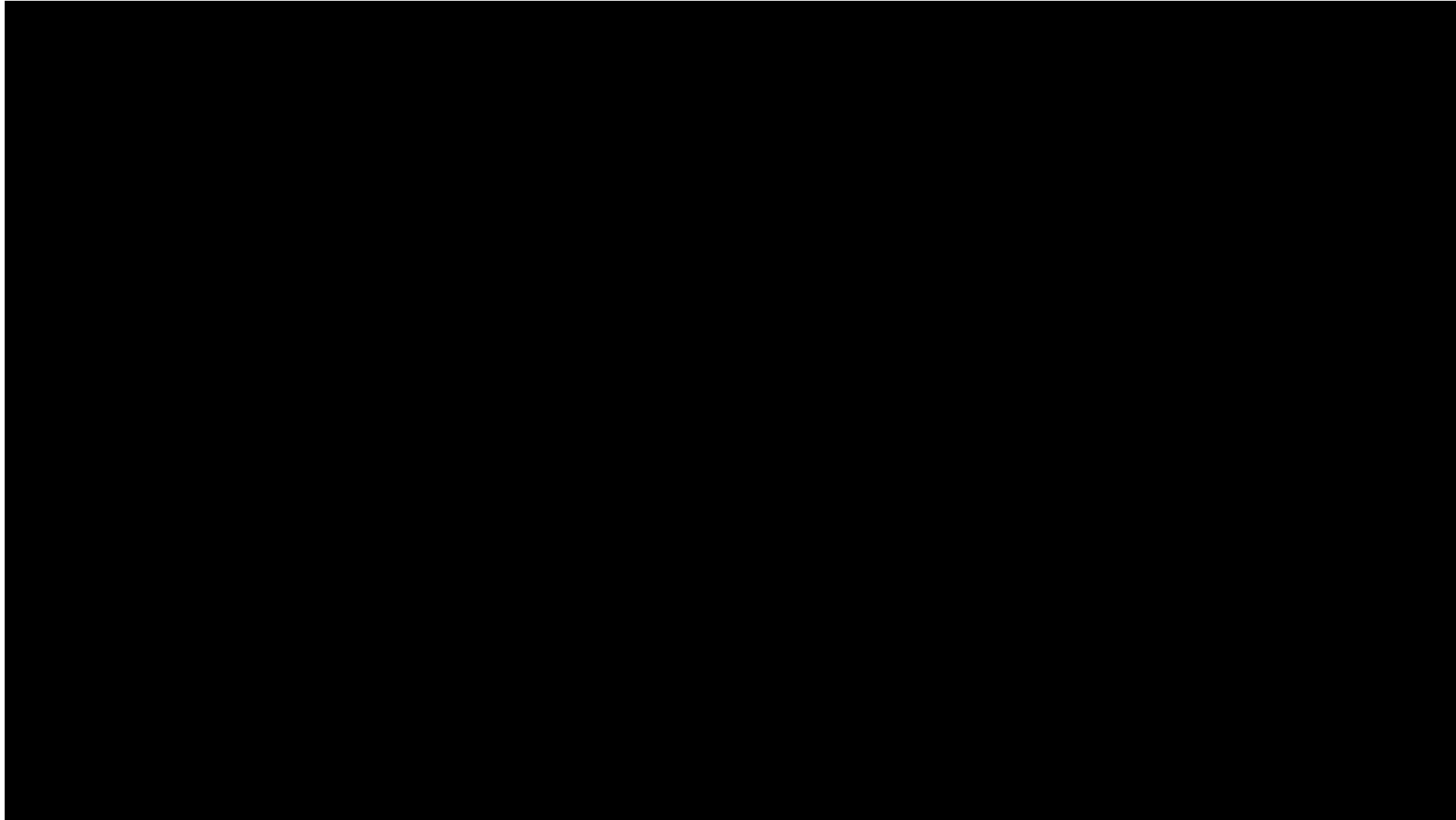
-10°C - 50°C

Wind speed

< 3 m/s



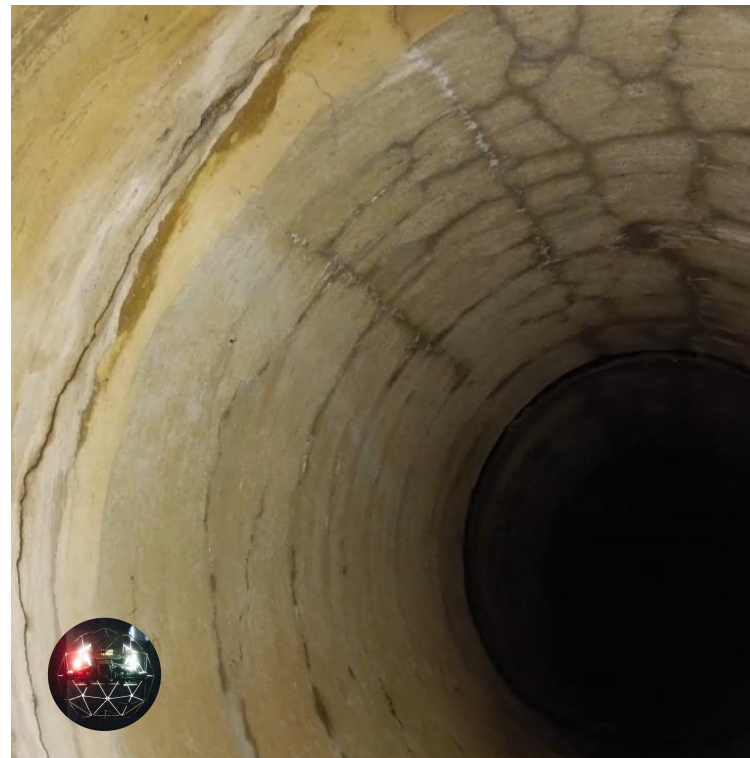
Manufacturer	UNITECHNICS KG
Min. width of entrance	600 mm
Min. inspection width	DN 600
Camera system	4K action cameras
Live view	No
Lighting	LED
Required min. flow rate	0.5 m/s







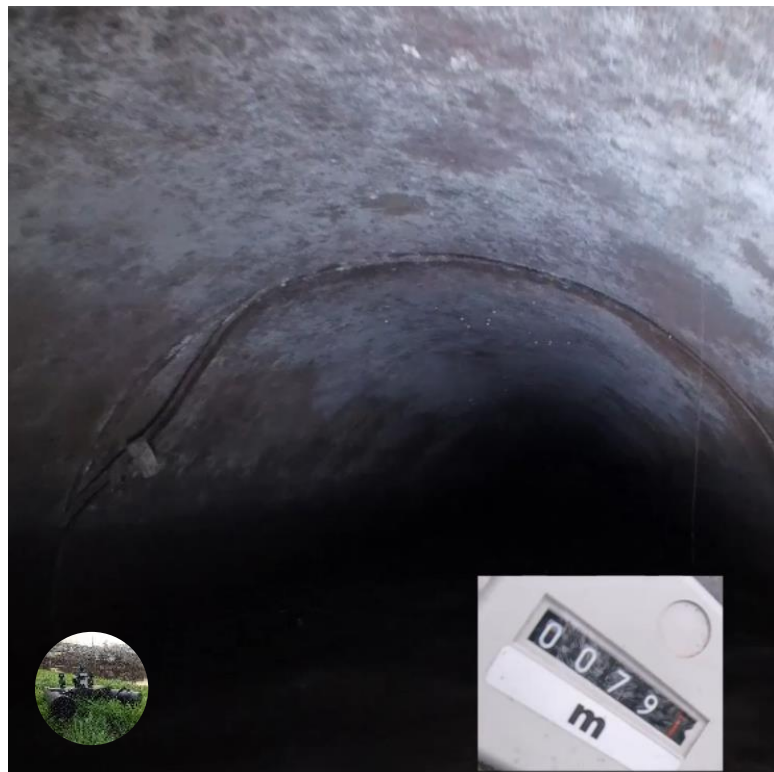
Weil am Rhein: free-surface pipeline



Ulm: stormwater retention tank



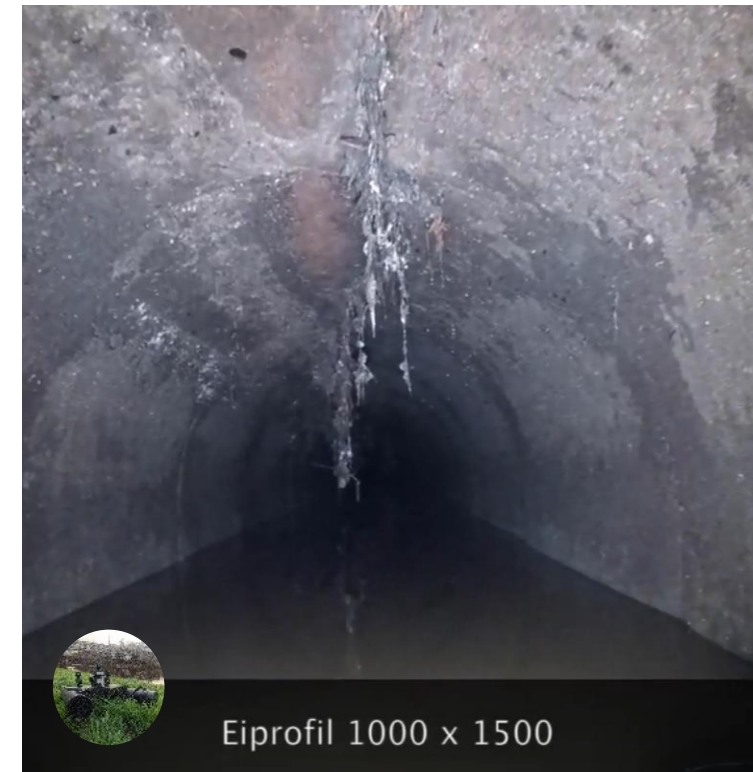
Weil am Rhein: fall structure



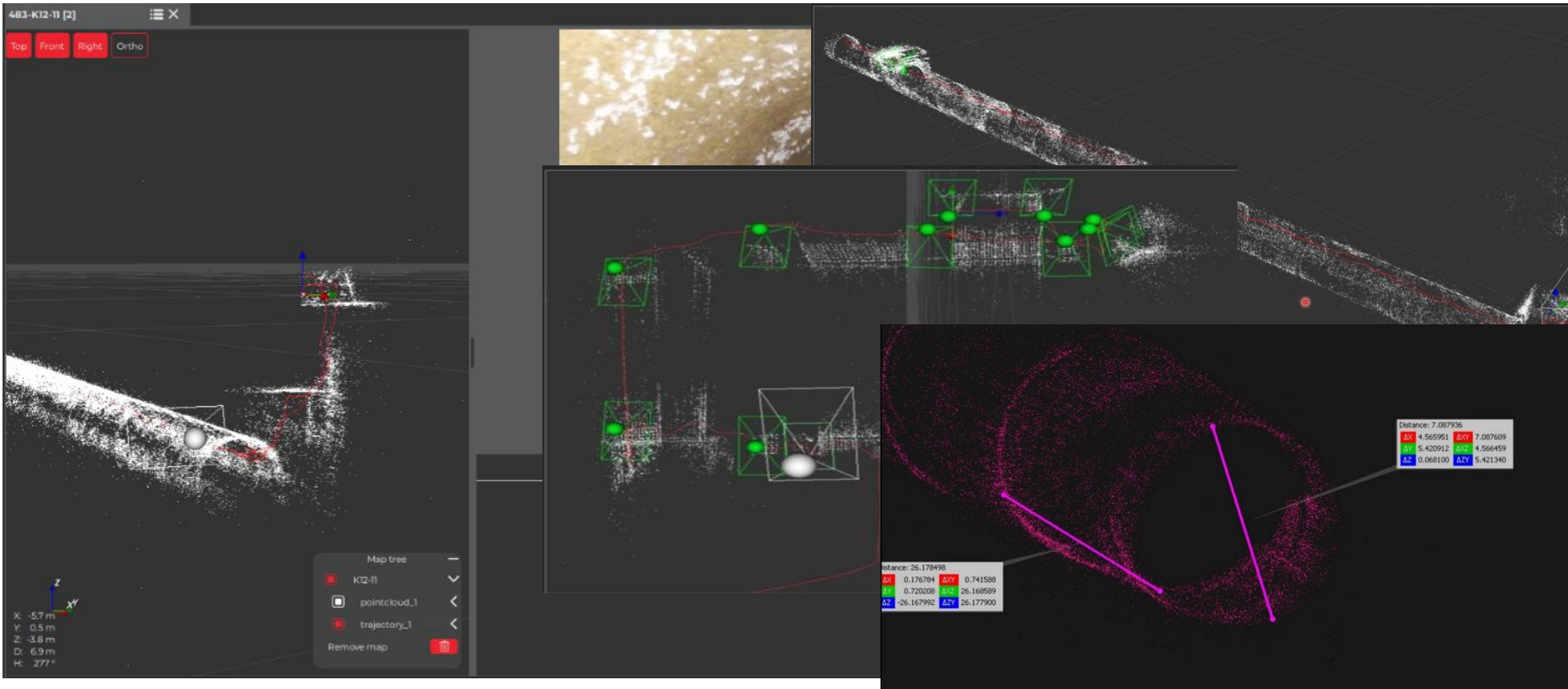
Leverkusen: Wuppersammler



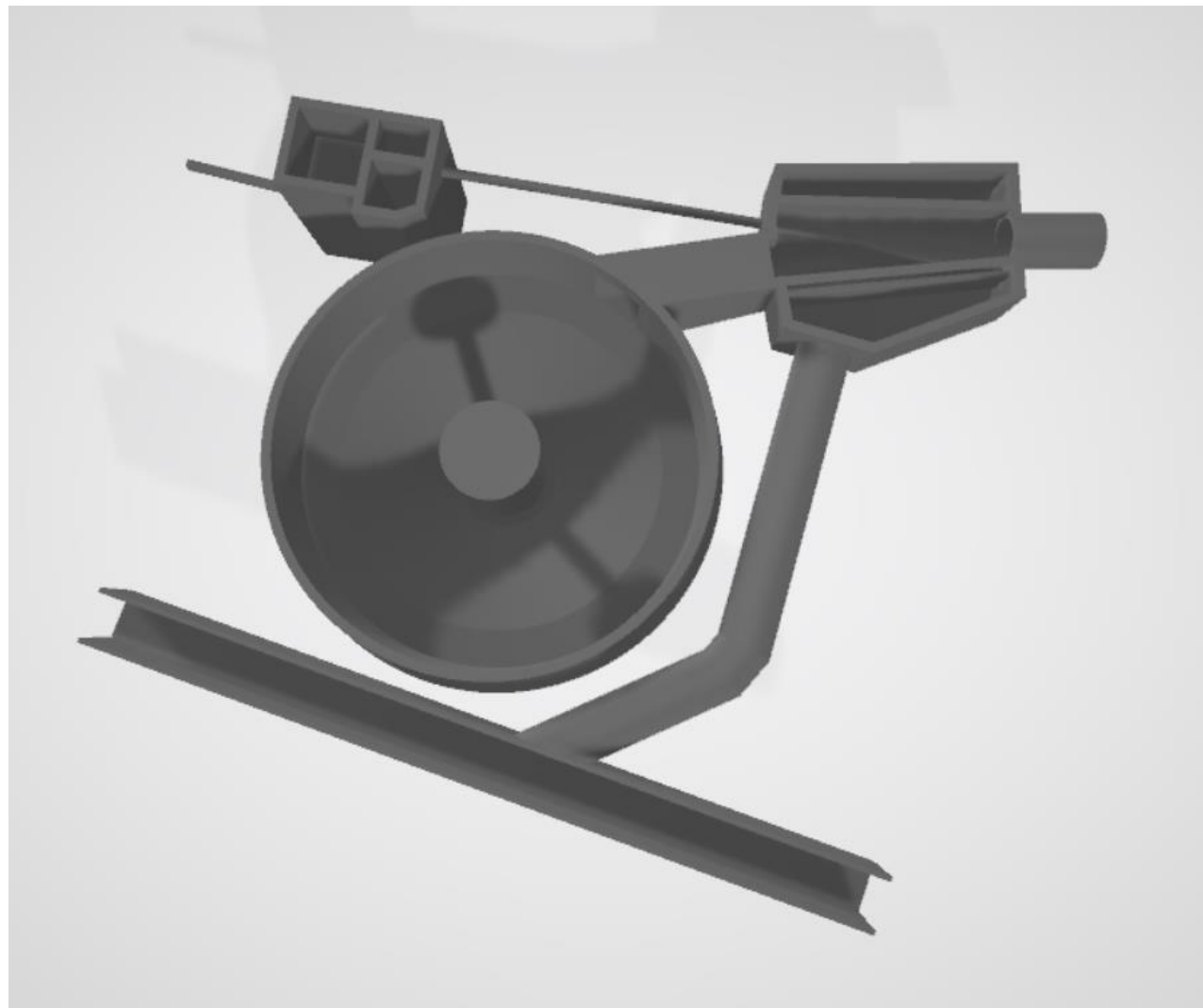
Jena: free-surface pipeline



Jena: free-surface pipeline









**Drainage inspection methods &
processes in your city/country?**

Thank you!

See you next month
on 13th January

 Merry Christmas 

 Happy New Year 



UNI TECHNICS

INNOVATIONS FOR YOUR SEWAGE SYSTEM

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