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## Recommendations for combined water screening at structures with overflow



*Sediments in a combined sewer after a longer dry weather period*

During dry weather, organic and inorganic sediments increasingly settle on the sewer base in combined sewer systems due to slow flow velocities. Under stormwater conditions, these sediments float up and arrive along with the sewer flow at the sewage treatment plant or stormwater overflow structure.

If the combined sewer volume exceeds the capacity of the overflow structure or sewage treatment plant, the combined water is frequently discharged to a receiving water course, impairing water quality with the result of increased costs for maintenance and cleaning. As a preventive measure, coarse material retention systems are installed to retain unsightly coarse matter. DWA, the German Water, Wastewater and Waste Association, recommends in its Guideline A 166 the use of screening plants to retain coarse material. Scum boards are considered as unsuitable for this purpose. This position corresponds with the experience made in practice. Even though scum boards are able to retain the majority of the floating solids, the suspended matter can pass unhindered.

In view of increasingly often occurring extreme weather conditions, even more consideration will have to be given to the use of screening plants in the future. Longer dry periods with storm events lead to load surges on coarse material retention systems with sudden huge amounts of screenings.

In practice, it is quite possible that systems reach their capacity limits if faced with such high screenings loads. When planning a new plant, it is recommended to use especially systems that provide a defined take-up and removal of screenings directly at the sill and return of screenings to the continuation sewer through utilisation of the flow properties. Pushing the screenings back and forth only can very soon bring screening systems to their limits, with the result that part of the combined wastewater is discharged unscreened together with the screenings. In such cases, especially combined water screening systems for installation in front to the sill are well suited that transport the screenings in flow direction away from the machine. The screenings are transported along with the flow to the sewage treatment plant and do not get into contact with the combined water screening systems anymore. Moreover, no return of screenings is necessary, contrary to screening systems installed behind or on the sill.



*Increased screenings volumes on stormwater overflow discharge structures*

With its Storm Screen ROTAMAT® RoK2, HUBER SE has offered a solution for such applications for more than 25 years already. In the RoK2 screens, the wastewater flows through the screen basket from bottom upwards. Screenings bigger than the screen surface perforations are retained on the screen basket and removed by a screw conveyor transporting the screenings to the discharge and dropping them at the end of the machine. While conveying the screenings, the screw cleans also the screen basket perforations so that the screen surface opening produced is continuously low and maximum throughput rates are achieved all the time. The screen is equipped with a level control system and starts to operate automatically when the level control system measures a defined water level and stops again when the water level falls below the defined level again. This system keeps the run times of the screw as short as



*HUBER Storm Screen ROTAMAT® RoK2 in a stormwater overflow structure*

possible.

In summary, it remains to be said that problems with screenings in combined water overflow structures will occur more and more in the next years. It is therefore important to develop a solution that is able to work reliably even with large screenings volumes.

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