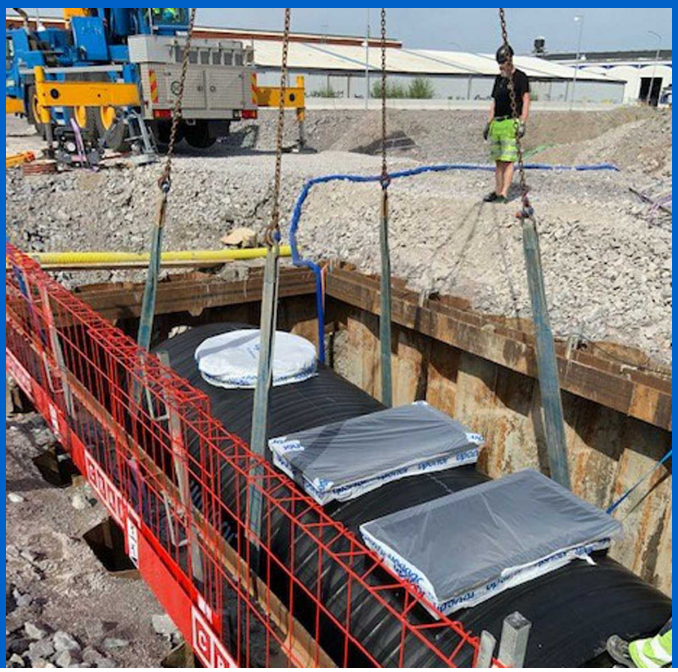
References

Uponor Vault cleans the storm water



Uponor involvement

- Uponor Vault no. 1 = 3500 x 8000 mm
  Uponor Vault no. 2 = 3000 x 6000 mm

Keeping the Baltic Sea clean

As an industrial city and a port on an inlet of the Baltic Sea, Norrköping in southeastern Sweden strives to prevent pollutants from ending up in waterways. In an ongoing pilot project, pollutants carried by stormwater run-offs will be captured a massive, tailor-made Uponor Vault, a stormwater treatment chamber to ensure that the stormwater is purified before it reaches the Ljura Stream and finally the sea.

Norrköping is located by the mouth of the Motala River in Bråviken Bay, an inlet of the Baltic Sea. “As a municipality so close to the sea, we generally face higher demands to reduce the number of pollutants released into our waters. In this case, we’re talking about the Baltic Sea, one of the most sensitive and polluted seas in the world, which is particularly affected by eutrophication. The requirements become stricter the closer to the coast you get. Further inland, the pollutants in streams and rivers have time to be naturally filtered through, for example, ditches, gravel and sand,” says Tommy Sandberg, Maintenance Engineer at the local water utility company Nodra AB.

Project Facts:

Location	Completion
Norrköping, Sweden	2021
Building Type	Product systems
Municipal	Tailor made constructions

Tailormade solutions on site

This is why Nodra has now installed a tailor-made Uponor Vault as a part of a climate project ongoing in the Smedby area in Norrköping. This project is called Smedby Klimatanpassning – Smedby Climate Adaptation. Among other things, it aims to take care of polluted stormwater before it reaches the Baltic Sea. With dimensions of 3,500 x 8,000mm, a maximum flow of 1,600 l/s, and an optimised purification flow of 160 l/s, this is the largest Uponor Vault installed in Sweden to date. The vault's intake and outfall pipes measure 1,000mm. In addition to this, Nodra has also installed three Uponor Vaults in dimensions of 3,000 x 6,000mm in a new residential area in Norrköping, the Inner Harbour, to purify stormwater before it flows into the Motala River.

A three-step process

The Uponor Vault effectively collects sediment and particlebound contaminants carried by stormwater run-offs. The first purification step consists of a coarse grid where coarser particles such as leaves and branches are captured. After the coarse grid, there is a sediment pocket that collects sediment from the stormwater. The final step consists of 12 tailor-made pipe filters – the number of filters is set based on the maximum flow the vault should have – with Filtrate P (Filtralite). The water is forced through the filters before it flows out of the vault and into the recipient. The goal is that before ending up in the Ljura Stream, the water is so clean that it does not exceed the EIA environmental quality standard. "The most harmful kind of stormwater is the so-called 'first flush' from the top layer of the asphalt that comes with heavy rain. Among other things, it contains heavy metals and salts

that flow directly into our stormwater chambers and then into rivers and streams. We want this first flush to get stuck in the filters," explains Helena Aspdahl, Project Manager at Nodra AB. "This is a pilot project to investigate the purification effect of the vault by taking samples of stormwater before and after the treatment. When we know more, we can decide if maybe a different type of filter or an adjustment of some kind is needed. Also, we have to consider how to most effectively maintain the vault," says Helena Aspdahl.

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