References

Marine outfall pipeline for Stormwater in Lake Vättern



Uponor involvement

I Vättern

- Uponor Weholite - dimension 1400 mm - 400 m
- 1 coupling chamber on shore - dimension 3000 mm
- 1 outlet chamber

På land

- Uponor Weholite - dimension 1200 mm - 225 m
- Uponor Weholite - dimension 800 mm - 146 m
- 12 tailormade chambers

- Design och Calculations
- Project management
- Uponor Stormwise och VA experts

- Welding
- Profile filling
- Launching in Vättern
- Tow to construction site
- Dredging
- Weighting
- Backfilling

Weholite for dense transport of stormwater in Lake Vättern

Obsolite and underdimensioned stormwater pipes were replaced by Weholite
Strandparken is a park and swimming area at Vättern´s shore on Liljeholmen in Jönköping. Here, Jönköping municipality needed to replace old and underdimensioned stormwater pipes and a concrete outfall pipe, with new pipes and chambers.

The solution both on land and a 400 meter long outfall pipe in was Weholite dimension 1400 mm

Project Facts:

Location	Completion
Jönköping, Sweden	2024
Vrsta objekta	Product systems
Municipal	Storm water
Project Type	
Renovation	

Partners

Strands Entreprenad AB
Svensk Sjöentreprenad

Expertise, flexibility and careful planning

Laying an outfall pipe at the bottom of Europe's sixth largest lake, which can very quickly go from calm to sea-high waves, requires very careful planning, skilled personnel and the flexibility to be able to control the work based on weather and wind. The weholiter tubes for the outlet line were manufactured in 20-meter lengths in Uponor Infra's factory in Fristad. Due to a lack of space, the pipes could not be welded in Jönköping. Instead, they were transported to Habo 17 km north of Jönköping on the western shore of Lake Vättern. Here they were welded together into four 100-meter pipes. The pipes were then towed to Strandparken. Not an easy maneuver.

- Weholite is a structural wall pipe with double walls, so when the pipes were ready they were filled with profile and plugged at the ends. That way we gave them the right weight to be towed. But the towing could not be done if it was too windy, so the tug had to go even at night when it was windy. A trip that took about five hours, says Petri Tähtinen, Sales Representative, Project Services at Uponor Infra.

On site in Jönköping, Uponor Infra Project Services staff collaborated with divers and excavators in the work to get the four pipes securely anchored to the bottom of Lake Vättern. Before sinking and anchoring, excavators had worked from a floating work platform to dredge, level and grade the bottom. A tough job with wind, waves and a sandy bottom in constant motion. Then it was time to install the pipes.

- To be able to lower them, we put air bags on the pipes and filled them with water. By regulating the air in the bags, we were able to lower the pipes calmly and carefully. Divers made sure to steer the pipes into place. Then the divers bolted together the flange connections between the four 100-meter pipes with bolt straps. The deepest installation is at a depth of six meters, 400 meters right out into Lake Vättern, far from swimming and other activities, says Petri Tähtinen.

An outlet pipe of this size in the Vättern also requires concrete weights to be held in place as well as a powerful anchoring on land. The anchoring was done with an extra reinforced Weholite coupling well in the dimension 3000 mm. To the well, they connect two large stormwater pipes with associated wells that were also supplied by Uponor Infra. The pipes are also

equipped with each treatment plant that separates the storm water from sediment, oil and metals.

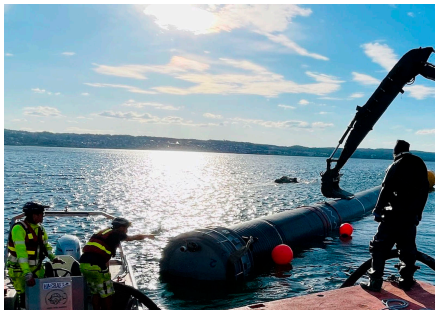
Overall, the comprehensive solution on land and in the lake has significantly increased safety against operational disruptions and reduced the risk of floods and unclean stormwater entering Lake Vättern.

- The problem of worn and undersized stormwater solutions with outlet pipes in concrete or wood, perhaps only 50 meters into the water, is found in a number of municipalities around Sweden. With greatly increased precipitation due to climate change, densification of buildings and thus more hard-made surfaces, the risks are great for contaminated stormwater overflowing into lakes and land. At Uponor Infra, we have the unique knowledge, material and products to solve both the land and sea part, says Peter Larsson, Sales Engineer VA at Uponor Infra, who is responsible for the solution on land in Jönköping.

Image gallery





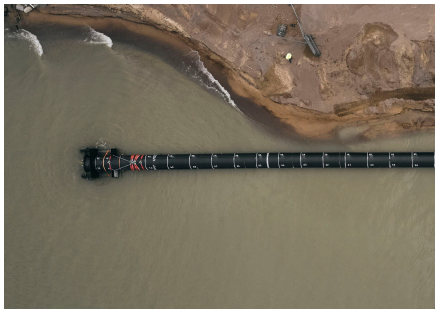


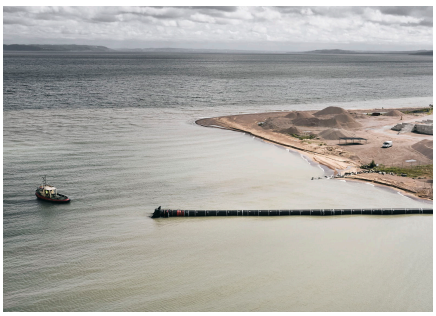
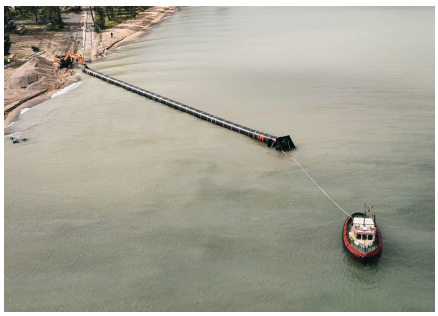









- The main advantages of the Weholite solution are that it is a pipe that has already been tested in Jönköping municipality's work with VA renewal. Another advantage is that the construction of the pipe enables it to be laid in the ground and in the sea by complementing the weighting of the sea line through concrete filling. The extrusion welding that joins the pipes into a "seamless" construction provides a security that is appreciated, because a long service life with maintained quality and function is necessary for such extensive investments as are carried out in municipal VA facilities says Fredrik Abrahamsson, project manager from Tekniska kontoret VA-nät in Jönköping Municipality.

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