



Meet **SWIZY** the microtunnelling machine

SWIZY digs 7-foot diameter holes underground. Starting in February 2016, SWIZY will dig out two 500-foot tunnels under the Ship Canal to house new sewer siphons. The new siphons will replace a century-old siphon under the Ship Canal further east. As the machine digs out soils, large hydraulic jacks will push steel casings into place behind it to keep the tunnel secure. Installing the new siphons is expected to take about eight months.



Facts about **SWIZY**

- SWIZY is named after one of the contractor's family members. It is common for tunneling machines like SWIZY to have a name.
- Microtunnel machines like SWIZY are used all the time to install new pipes. King County has used similar machines to complete other projects requiring small tunnels.
- The Fremont Siphon Replacement Project will be SWIZY's first project.
- SWIZY is 7 feet in diameter, smaller than the one used to successfully dig the Ballard Siphon - and one-eighth the size of Bertha.
- SWIZY will dig out about 650 cubic yards of dirt on each drive. This is enough soil to fill 65 dump trucks!
- The machine will start work on the Fremont side of the Ship Canal, about 90 feet below ground and 20 feet below the bottom of the Ship Canal. It will finish up on the Queen Anne side, about 80 feet below ground.
- SWIZY will dig around one to four inches per minute.
- A big crane will lift SWIZY in and out of the tunnel shafts.
- SWIZY will be remotely operated. An operator in a specially designed control cabin at the surface will use instrumentation and video cameras on SWIZY to guide the machine.
- Keeping workers out of the tunnel is a safer way to build the siphons.
- SWIZY cost approximately \$1.6 million. It was purchased by the County's contractor.
- Dirt removed by SWIZY is cleaned and then transported to recycling centers. If the soil cannot be recycled it is sent to safe disposal sites.
- King County reviewed records and took samples of the Ship Canal bed to determine the best kind of tunneling machine to use. A team of engineers determined SWIZY was the best tool for the project after evaluating soil conditions and the success machines like SWIZY have had on other sewer projects.



FREMONT SIPHON

replacement project



King County
 Department of
 Natural Resources and Parks
 Wastewater Treatment Division

About the project

King County and its contractor are replacing the Fremont Siphon, a major sewer pipe running under the Ship Canal between Fremont and Queen Anne. The new siphons replace the existing siphon which has provided reliable sewer service to north Seattle for more than a century. Construction began in spring 2015, and will finish in 2017.



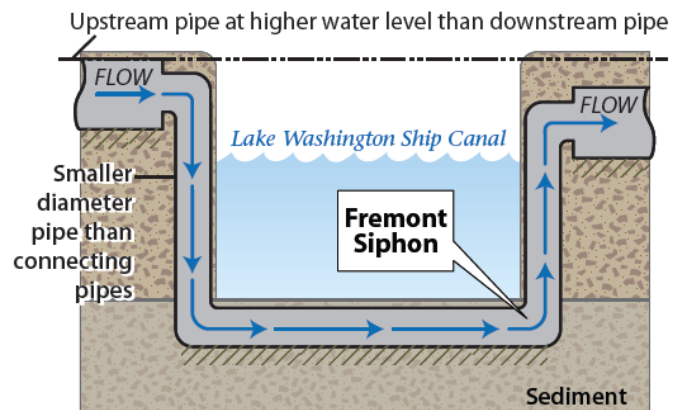
Ensuring reliable sewer service for north Seattle and northern King County

Sewage and stormwater from more than 100 square miles of north King County pass through the Fremont Siphon every year to be cleaned and safely discharged at the County's treatment plant in Magnolia. During storms, the pipe carries up to 220 million gallons per day, making it one of the most heavily used pipes in the regional sewer system.

At over 100 years old, the existing siphon has reached the end of its service life. The new pipes being built now will ensure north Seattle and northern King County continue to enjoy safe, reliable sewer service for decades.

What is a siphon and how does it work?

The Fremont Siphon is an inverted siphon. Inverted siphons use gravity to push liquids downhill. Sewage and stormwater from north Seattle and elsewhere is pushed through the Fremont Siphon by having sewage and stormwater enter the pipe in Fremont at a higher elevation than where it exits the pipe in Queen Anne.



For more information:

Call the 24-hour project information line: 206-205-5428
 Visit: www.kingcounty.gov/fremontsiphon
 Email: doug.marsano@kingcounty.gov

ALTERNATIVE FORMATS AVAILABLE
206-477-5371 / 711 (TTY RELAY)