

FACT SHEET | JULY 2019

\$495M REGIONAL ENVIRONMENTAL SEWER CONVEYANCE UPGRADE (RESCU) PROGRAM



TUNNEL BORING MACHINE (TBM) SUMMARY

Built by Herrenknecht Tunneling Systems, the \$18.2 million TBM has arrived from Germany and is nearly assembled. The machine, selected as an alternative to more disruptive construction options, will be reassembled underground before beginning two years of work constructing the wastewater conveyance pipeline. The TBM is one element of the RESCU Program to support the safety and reliability of the community's wastewater system and protect the San Francisco Bay through rehabilitating and constructing new facilities that enhance the future of the Peninsula's wastewater system, while managing increasing wastewater flows of up to 108 million gallons per day (MGD) during wet weather.

EPA WATER INFRASTRUCTURE FINANCE AND INNOVATION ACT (WIFIA) LOAN

SVCW and the U.S. Environmental Protection Agency (EPA) will announce the closing of a Water Infrastructure Finance and Innovation Act (WIFIA) loan that will help finance this project to protect public health and the San Francisco Bay while creating local jobs and reducing project costs. The Regional Environmental Sewer Conveyance Upgrade (RESCU) Program will cost \$495M in capital dollars. The EPA's WIFIA loan is funding eligible project costs, plus capitalized interest, which combined is valued at \$517 million. This loan will save ratepayers \$49M.

SILICON VALLEY CLEAN WATER SUPPORTING THE PENINSULA

SVCW serves more than 220,000 people and businesses in our service area, supporting the cities of Belmont, San Carlos, Redwood City and the West Bay Sanitary District. By effectively treating wastewater at our advanced treatment facility, SVCW helps keep San Francisco Bay environmentally clean. SVCW values environmental stewardship and innovation, and our approach includes gas recovery for facility power. The treated water from our facility is released to the environment or is reused in Redwood City as recycled water.



BY THE NUMBERS

TUNNEL BORING MACHINE (TBM) • TOTAL TBM SIZE WITH GANTRIES -650 FT. LONG-AREA DETAILED SIDE VIEW CROSS SECTION OF FRONT OF TBM ПП 1 🗆 17 6 FT. GANTRIES IAMETER 60 FT. 52 FT. DIAMETER DEEP LAUNCH LAUNCH SHAFT SHAFT

• **TBM will first construct** a one-mile segment of tunnel to connect the new gravity pipeline with a new force main installed on Inner Bair Island.

• Then the TBM will be brought back to the launch shaft and bore 2.4 miles primarily under the Redwood Shores Parkway right-of-way in Redwood City.



• Built by Herrenknecht Tunneling Systems and designed specifically for the soils to be encountered along the alignment.

• The Earth Pressure Balance TBM allows the TBM to move through soft clay ground below groundwater level with no noticeable settlement by always maintaining a balance between the pressure of the groundwater outside outside and the excavated material entering the TBM.



THE \$18.2 MILLION TBM

is an alternative to more disruptive construction options such as open cut trenching for another forcemain.

• The first 650 ft of tunneling will be slow (averaging 20 feet a day) until the entire TBM with gantries (650 feet) is in the tunnel, then production rates will increase to average about 70 feet per day.

To find out more how the TBM operates, go to **https://youtu.be/fVidVJ30ob4**.

• **The Gravity Pipeline project** consists of 17,600 feet of gravity Fiber Reinforced Plastic (FRP) pipe (fiberglass) inside a concrete-segment tunnel built by the TBM. The FRP pipe will convey wastewater to the SVCW treatment plant.

TOP OF TUNNEL IS 25 TO 45 FT BELOW THE SURFACE.

• **Project managed using** Progressive Design Build to control costs and allow the old forcemain pipeline to be replaced sooner.

300-400 FT OF TUNNEL EXCAVATION MUCK STORAGE on the construction site; seeking a partner to reuse the tunnel muck.

• **Starter tunnel** took 6 weeks to finish, working 24 hours a day, six days a week. The two starter tunnels are 42 feet long each.

• **Progressive Design Build Contractor** is Barnard/ Bessac Joint Venture. SVCW Owners advisors and quality assurance consultants include Tanner Pacific, JCK, MPF Consulting, Inc, Kennedy Jenks, and Mott McDonald.

• **Barnard Construction recently completed** the San Francisco Central Subway tunnels under BART and high rise buildings.