1954 - Blasting Through the Breccia
For more than 60 years, a two-mile tunnel beneath the bluff in South Laguna Beach has carried up to one million gallons of wastewater per day to a local treatment facility. When built in 1954, the tunnel was an engineering marvel. Even today, the system is innovative, relying solely on gravity flow, eliminating costly and unsightly infrastructure, such as unnecessary lift stations and several thousand feet of sewer lines.

In 1954, South Laguna Beach was still a rural and undeveloped area. At the time, there were only a few dozen or so resort homes owned by celebrities like Ozzie and Harriett Nelson and the small community of Three Arch Bay. The District needed to build a sewer pipe that would take sewage from Killer Dana down to Aliso Beach and up to the Coastal Treatment Plant.

Workers blasted a tunnel about six feet in diameter and dug out by hand breccia, sandstone, and siltstone along the beach cliffs of the San Onofre Formation. The crews shored up tunnel portions with treated lumber. Finally, they installed a 21-inch vitrified clay pipe (VCP) with mortar joints. The pipeline runs two miles along the coast.

1974 - Crushing the Clay Pipe
By 1974, Monarch Bay, Monarch Beach, and Niguel Shores were built. The mortar joints that held together the clay pipe deteriorated. Hydrogen sulfide gas cracked both the pipes and joints. The District crushed the clay sewer line in place and replaced it with a 24-inch Techite reinforced mortar pipe.

2006 - Line Assessment
Engineers carried out an overall condition assessment of the tunnel in 2006. The inspection team conducted an end-to-end assessment by walking the entire tunnel for signs of deterioration.

Inspectors thoroughly mapped everything inside the tunnel. There were a few areas where the ceiling had fallen in around the sewer pipe.

Of immediate concern was a 400-foot section of tunnel that required emergency repair. The rotting timber and loose rock needed to be repaired by contractors. The District worked to complete the emergency repair as soon as possible.

2007 - The Great Beach Landing
The emergency repair was difficult. Access to the beach was limited to a very steep set of public stairs, so all construction materials arrived on the beach via large workboat barges. Contractors excavated 400 feet of tunnel, lined the interior with shotcrete, and installed a new concrete floor that encased and protected the 24-inch pipe. Then, planning to repair or replace the rest of the two-mile tunnel began.

Alternatives Considered by the District
- No action
- Build a new tunnel above, below, or inland from the existing tunnel
- Construct a sewer pipeline within Coast Highway and build lift stations
- Fill the entire tunnel with concrete
- Slip line the pipeline within the existing tunnel
- Stabilize and enlarge the existing tunnel

The District determined the best alternative is to enlarge the existing tunnel and install a new sewer pipe.

Just the Facts
- Provides wastewater service for the northern third of Dana Point and homes along the lower bluffs of Three Arch Bay and South Laguna
- 70% of the sewage comes from Dana Point and 30% originates in South Laguna Beach
- Runs 2 miles along the coast
- Buried 50 feet beneath the bluff from Three Arch Bay to Aliso Beach
- Carries 1.1 million gallons each day
- Located 30-40 feet from the edge of the cliffs
- A pipeline break could take 36 hours or longer to control
- 800,000 gallons of sewage could flow into a federally protected marine life habitat

For more information about the project, please visit us at scwd.org/tunnel.
You can also sign up to receive regular updates there. The Tunnel Project is also on Facebook @SouthLagunaTunnelProject. Contact: (949) 499-4555; smorgan@scwd.org
**Minimizing Impact for Our Neighbors**

The District will construct sound walls up to 12 feet and 10 feet high along the boundary of the staging area. The 4th Avenue entry gate, constructed of sound wall material, will be 10 feet high. Portions of the sound wall along Virginia Way will be 10 feet, based on community input and acoustical studies. The side facing South Coast Highway will have a six-foot fence and privacy screen cover. All walls and fence screen will be landscaped and neutral in color.

**Managing Traffic**

The District updated our traffic management plan to ensure all heavy construction equipment will utilize only 4th Avenue and Coast Highway, not Virginia Way. Crews will park off-site at District property and shuttle in to minimize parking and traffic issues.

For more information about project, please visit us at scwd.org/tunnel. You can also sign up to receive regular updates there.

The Tunnel Project is also on Facebook: @SouthLagunaTunnelProject.

Contact: (949) 499-4555; smorgan@scwd.org

---

**Rehabilitating the Tunnel**

The Tunnel Stabilization & Sewer Pipeline Replacement Project is a comprehensive solution that will ensure safe and reliable sewer service for the next 100 years. The project has two key components:

**Tunnel Stabilization:** The District will enlarge the size of the tunnel to ensure safer working conditions and greater access for future pipeline maintenance and repair. Permanent shotcrete lining and steel supports will be installed, replacing rotten timber supports and removing loose rock.

**Pipeline Replacement:** The District will install a new 24-inch pipeline throughout the tunnel. The current 24-inch pipeline will be encased in concrete and retained for redundancy and emergency use. The process is slow and tedious. Workers will move through the tunnel slowly (approximately 7-8 feet per day), securing the current tunnel and enlarging it.