

GM-600- 0101  
LANORS—PROJECT PROFILE

# GEOFOAM™

## World Wide Project Reports

Los Angeles  
North Outfall  
Replacement  
Sewer  
(LANORS)  
Sets  
World Grouting  
Record



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# GEOFOAM™ PROJECT REPORT

## THE LOS ANGELES NORTH OUTFALL REPLACEMENT SEWER (LANORS)

For the LANORS project, Los Angeles, California, a record volume of 84,000 cubic yards (64,200 cu meters) of cellular Geof foam was used as the tunnel backfill, or annular grout, between the 150 in (381cm) diameter prestressed concrete cylinder pipe (PCCP) and the segmented initial lining. Geof foam Liquid Concentrate, supplied by Cellular Concrete LLC (formerly The Mearl Corporation) Roselle Park, New Jersey, was used to produce Geof foam low density cellular concrete. Geof foam grout is manufactured at the job site by mixing a portland cement slurry (with or without fine aggregate) and preformed foam produced from Geof foam Liquid Concentrate. The high quality of the pre-generated foam enables Geof foam low density cellular concrete grout to withstand vigorous mixing and pumping and permits precise control of density and compressive strength.

The function of the Geof foam cellular grout is to transfer radial soil load to the PCCP which is the basic load resisting structure. The PCCP is about 30 times stiffer than Geof foam cellular grout. Therefore, the cellular grout will be unaffected by any PCCP deflection. In addition, the cellular grout will not be subjected to ring compression.

For this project, a special mix design was developed to provide a minimum compressive strength of 130 psi (9.14 kg/sq cm). The low density cellular concrete contains 80% air by volume and is only one quarter the weight of conventional concrete. Custom high output continuous mixing and pumping equipment was designed to operate within the PCCP.

**Pacific International Grout** installed the Geof foam grout at record rates up to 105 cubic yards (80 cu meters) per hour at distances up to 10,000 linear feet (3048 meters). The 72 in (183 cm) diameter PCCP laterals were grouted in the fall of 1990 and compressive strengths were well over the 130 psi (9.14 kg/sq cm) minimum



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