DRILLING SERVICES

PROPOSED MISSISSIPPI RIVER BRIDGE

ST. LOUIS, MISSOURI

Location:	*Illinois/Missouri*
Owner:	*IDOT/MoDOT*
Client:	*Modjeski & Masters, Inc.*
Contact:	*Mr. Nick Marianos, Jr.* *(314) 588-8115*
Project Manager:	*Jim Howe*
Date:	*2001*

Project Description:

Geotechnology, Inc., completed the preliminary and final phases of field exploration for the geotechnical design of the new Mississippi River Bridge in St. Louis, Missouri. The proposed bridge will be located south of the existing McKinley Bridge and north of the Martin Luther King Bridge. When completed, the new bridge will be the largest cable stayed bridge in North America.

The project included approximately 30 borings on the Illinois side of the Mississippi River and approximately 40 borings located on the Missouri side of the River. The Missouri borings encountered limestone bedrock overlain by 15 to 70 feet of fine-grained soils. The Illinois borings presented unique challenges to Geotechnology's drill crews. Limestone bedrock is normally present at depths 100 to 120 feet bgs in the East St. Louis, Illinois, area with alluvial deposits ranging from fine sand to coarse gravel present above bedrock. However, most of the Illinois borings encountered cobbles and boulders in igneous and metamorphic origin immediately above the bedrock. The materials included granites and schists deposits during glacial events. Geotechnology's crews used drilled and driven casings combined with wireline coring techniques to penetrate the boulder zone and successfully core over 25 deep structure borings for the Bridge Pylon and approaches.

The footprint of the Missouri Pylon straddles the existing west bank of the Mississippi River. To install the Pylon borings at the design locations within the river, Geotechnology, Inc., utilized a self-propelled jack up barge and a trailer mounted drill rig. The jack up barge allowed sufficient maneuverability between the bank and the existing industrial mooring structure. In addition, the use of this self-propelled barge reduced the actual costs for the floating platform by 65%. These savings allowed the design engineers to install additional deep structures holes without impacting the overall project cost.

Although the final phase of the project entailed more than 5,500 lf of soil drilling and 950 lf of rock coring, Geotechnology completed the final phase in three months by utilizing three to four drill rigs and exceeding production estimates.