

**Drilled Shafts for
California Parking Structure**

**ADSC/OSHA
Alliance Going Strong**

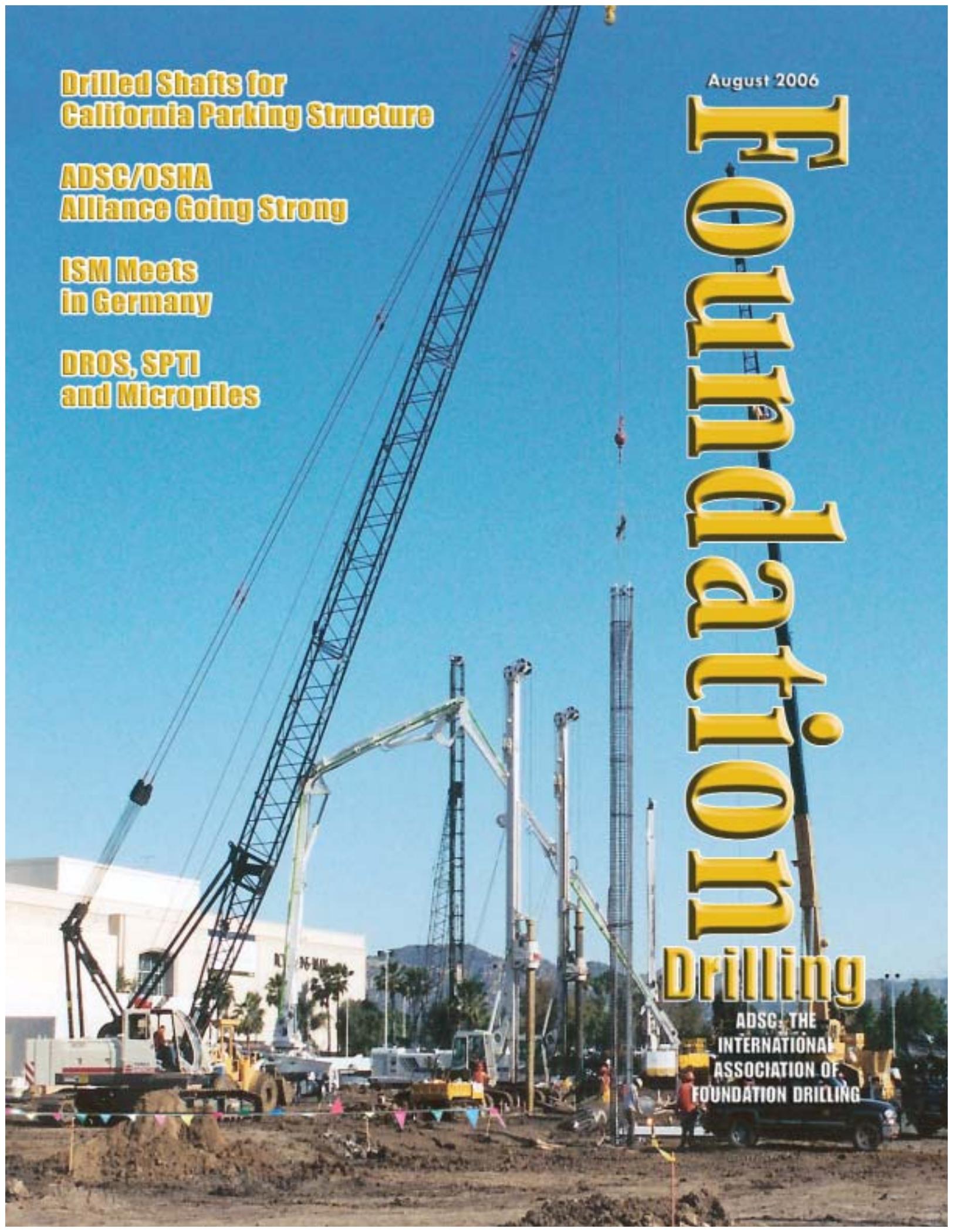
**ISM Meets
in Germany**

**DROS, SPTI
and Micropiles**

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Foundation Drilling

**ADSC, THE
INTERNATIONAL
ASSOCIATION OF
FOUNDATION DRILLING**





The Plaza Level consisted of 95 drilled shafts, 36" diameter x 78 foot deep located in a narrow dead end notch 35' feet wide by 150' foot long.

Topanga Mall Expansion Canoga Park, California

by Dan Gay
Chief Estimator, Project Mgr.
Magco Drilling, Inc.

Early last year, ADSC Contractor Member, Magco Drilling Inc. was invited to bid on the foundation piling package for the Topanga Mall Expansion Parking Structure located in Canoga Park, California. Initially, the bid package consisted of 1,200 cast-in-place concrete piles. The majority of the piles were 36" in diameter ranging from 67' to 78' deep. To separate the men from the boys, the Westfield Corporation asked a select group of foundation drilling contrac-

tors to bid on the entire project. Once the results were analyzed, the serious players were determined.

The parking structure foundation was divided into three separate areas. The drilling subcontractors were asked to bid on each individual area always keeping in mind that a production rate of 15 piles per day /per area must be maintained. Normally, this production rate would seem aggressive but manageable, with the exception of one minor detail; the shaft excavations would be installed below the water table that was 15 feet below ground surface. Yes! Polymer slurry, storage tanks, PVC inspection tubes, Cross-Hole Sonic Logging and all the fun

stuff to make a driller's hair turn gray.

At the end of the bidding process, Magco Drilling was awarded one of the three areas. Like most projects, the amount of time between job award and job start-up was minimal.

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Once our initial contract was awarded for 585 drilled shafts, Magco mobilized to the project site. We spent a little time experimenting with a vibratory

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hammer, but due to high blow counts and unforgiving clay seams, we decided to proceed with the slurry displacement method of installation.

The first day of construction we worked late and completed twelve, 36" diameter piles, 78' deep. The second day, 16 piles were completed and

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we continued with an average of 15 piles per day, and we were able to install up to 21 piles in a single shift.

Due to our aggressive performance, Westfield awarded Magco the second foundation area immediately adjacent to where we were currently working. At that time, Magco was contracted to install a total of 1,236 drilled piles. To date, this was the largest drilled pile project undertaken by Magco Drilling Inc. The project amount at time of award totaled \$6.9 million dollars.



Into this confined area, Magco stuffed our Mait 130 drill rig, Cat 930 loader 75' long tremie and 60 ton Grove Rough Terrain crane.

This is what we live for! The mixture of the excitement of landing our largest project, the nervous feeling to

adhere to the strict schedule imposed by the contractor, and the exhilaration of meeting and exceeding our goals is the stuff we thrive on.

As indicated above, this is the largest single drilled shaft project that Magco Drilling has performed. Our original contract began at 6.9 million dollars. After the addition of the Plaza Level and other extra work performed on the project, the final job total has reached \$9,043,601.00!!!

The pre-planning coordination with our suppliers and company cohesion produced a successful project start-up. Like most of our large or tough projects, our leader, Mike Maggio, likes to set the pace at the beginning of the jobs. His input and expertise was instrumental in kicking



Installing 1,331 Drilled shaft foundations at Westfield Shopping Town Parking Structure Canoga Park, Ca. Magco Drilling's largest drilled shaft project to date.

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The daily coordination of maintaining production and scheduling material deliveries was challenging.

off this project. Our onsite supervisors and employees made it all happen in the field on a daily basis. Our All Star crews were led by Gary San Angelo, Brandon Maggio and Sal Medina. To keep the job running smoothly our General Superintendent, Rob Walls force fed the project with equipment and personnel.

Taking into consideration, the daily coordination of concrete and rebar cage deliveries, holes to drill, fluids to transfer, handling and loading out wet drill spoils, cages to place, and concrete to pour, our field team performed with excellence each day of the project. Magco's team of employees on this project and all other proj-



Magco Drilling's owner Mike Maggio designed and built the drill rig utilized at this location.

ects are the ones to receive most of the praise and thanks for a job well done.

The entire project was drilled from an elevation of 6'-8' feet above the bottom of footing prior to excavating the pile caps. As we are all aware, in a wet environment, it is necessary to maintain a clean pile throughout the tremie pour. This required Magco to over-pump the pile concrete 2'-3' above the bottom of footing until clean concrete was observed.

At bid time, one of Magco Drilling's selling points and commitments was to guarantee the pile top elevation to within plus or minus one inch. Ultimately, this promise was included in the subcontract language. Magco purchased and retrofitted two high capacity vacuum pumps to remove the over pour concrete down to top of pile elevation. The vacuum pumps were trailer-mounted and pulled around the project with one of our rubber-track mounted mini dump trucks. Immediately after the pile was

We are proud to state that out of 1,331 wet piles, only one replacement pile was required and two minor repairs in the upper 5 feet needed to be performed.

poured, we vacuumed-off the over poured concrete and hauled the excess into a special haul-off container located across the site. Our mini dump trucks worked great for this application on the muddy and slippery site. This process was very successful and minimized our pile chipping to only isolated fresh heading of the piles.

Choosing and utilizing our equipment and manpower wisely on this project and all projects is the key to our productivity. Every minute saved

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or shaved-off results in hours and dollars saved at the end of the day. Magco is proud of the way our supervisors and employees have developed and grown. Our company owner, Mike Maggio, has personally trained our key field personnel and they have in turn done the same with all of our employees.

A less attractive portion of the final scope of work was added prior to award. All of the pile cages were to be fitted with 2" schedule 40 PVC inspection tubes. The project requirement of installing cross-hole sonic test tubes and being responsible for any anomalies always causes heartache. We are proud to state that out of 1,331 wet piles, only one replacement pile was required and two minor repairs in the upper 5 feet needed to be performed.

Magco Drilling's suppliers were instrumental in providing a continuous flow of materials to the project site. Our rebar supplier, Fontana Steel supplied plans, shop drawings, technical support and 1,620 tons of steel to the project. National Concrete supplied in excess of 31,000 cubic yards of concrete to the project to maintain the very demanding schedule. Sinclair Well Products* furnished 12,474 pounds of dry polymer product to the site, 160,000 feet of 2" schedule 40 PVC pipe for inspection tubes plus provided their technical services when required. Throughout the duration of the project, Fleming Concrete Pumping provided their 53 meter boom pump. Under the supervision of Vincent Jue, Champion Equipment* provided Magco Drilling with excellent drilling buckets and augers.

Magco Drilling's equipment consisted of the following: a SoilMec* 312, a SoilMec* 930, a Mait* 180, and two Mait* 130 drill rigs. Also used were a 80-ton American crawler crane, a 70-ton Mantis crawler crane, a 60-ton Grove rough terrain crane and a 13-ton Mantis crawler crane. A couple of Morooka rubber-track dump trucks were used to tow our tools and vacuums through the



A typical day for Magco drilling at the Westfield Parking Structure.

muddy project site.

Magco committed additional drill rigs to fulfill our promise to Westfield Corporation. That promise being in the event of any breakdowns, we would have an additional back-up rig onsite at all times. Even when equipment is near brand new, like ours, we

On this project, and as with most of our jobs, we did not and have not suffered any serious down time resulting from equipment breakdowns.

all know rigs go down. Fortunately, on this project, and as with most of our jobs, we did not and have not suffered any serious down time resulting from equipment breakdowns.

Due to construction staging, Magco was required to work in a couple of tight areas. The first one consisted of

a long narrow alley way about 15 feet wide and 250 feet long that ended in a dead end "T" cul-de-sac. Once inside, we only had a narrow rectangle approximately 35' wide x 60' long to work in. With exception to the 15' wide entryway, the worksite was surrounded by the existing mall on one side and new parking structures on the other three.

Into this confined area, Magco stuffed our Mait 130 drill rig, Cat 930 loader, 75' long tremie and 60 ton Grove rough terrain crane. The long rebar cages were lowered onto special dollies and towed into the dead-end with our loader. Hoisting the cages was slow and tricky. The concrete was pumped with a high capacity pump 250 feet through the alley way and placed into the shaft with our crane assisted tremie pipe. Our drilling fluids were also pumped back and forth 250 feet through this muddy corridor. Like the majority of the drilled shafts, these were also 36" diameter 78' deep, a total of 21 piles were installed in this area. It was amazing to see how smoothly Magco performed at this location.

Westfield awarded an additional portion of work deemed the "Plaza

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level,” to Magco. The Plaza level is located in a narrow dead end notch 35’ wide by 150’ long between the existing Sears building and the new parking structure. The west side of the notch is bordered by a 16’ high shoring wall and the east side, the new multi-level parking structure. The Plaza level foundation consisted of an extremely thick concrete footing resting on 95 each, 36” diameter x 76’ long drilled piles. Performing the work in this confined area proved to be a challenge. Taking into consideration, the wet environment, the one way in and out, the restricted width and length of cages, Magco completed the work ahead of schedule.

Magco Drilling was required to install an additional 6 piles for a perpendicular retaining wall that tied in with the Plaza level footing. To prevent surcharging, the adjacent shoring wall and Sears basement below, there was only one location where the drill rig could be situated. Magco’s crane lifted one of our limited access drill rigs into position. We drilled through 20 feet of overburden

soils and installed six 70’ deep, 36” diameter drilled shafts making the total drill depth 90 feet.

Magco Drilling’s owner, Mike Maggio, designed and built the drill rig utilized at this location. He has engineered and built over 16 different limited access and long reach drill rigs. Magco Drilling Inc. has in excess of 36 differently configured drill rigs ranging from our Mait 240 and SoilMec 930, all the way down to our smaller limited access foundation drilling equipment. Fortunately, we were able to utilize one of them on this area of the project. Over the years, this versatility has helped Magco’s bottom line.

For example, on this project, the limited access drill rig chosen for the above mentioned work was required to be equipped with a deeper set of kelly bars. In short order, Magco’s fabrication shop provided a new set of kelly bars for this application. We have a full complement of six full time welders and four heavy equipment mechanics. Magco will design, retrofit fix or build from scratch any

drill rig or related apparatus to complete the job on time. On several occasions, we have encountered projects with specific constraints and have custom built a rig to perform the work.

We would like to take this time and opportunity to thank the individuals at the Westfield Corporation for believing in us and allowing Magco Drilling the opportunity to take the next step in our growth within the industry. We cannot begin to say how much we appreciate their professionalism and support on this very important project.

As a result of this project Magco Drilling has grown from within. Our employees worked together in a tough and demanding environment. We provided a structurally sound pile foundation for the Topanga Mall Expansion while maintaining record breaking production, without any accidents or injuries. We give thanks to all involved and are extremely proud of our employees.■

Project Team

General Contractor:	Westfield Corporation Eric Wilson, Director of Construction Raul Gonzales, Project Executive Jeff Bernards, Senior Project Manager Steve Coleman, Senior Superintendent Angel Sanchez, Assistant Superintendent Annie Ho, Project Engineer Scott Hayes, Assistant Project Manager Scott Allen, Architect Connie Gallardo, Project Accountant Louie Resurreccion, Cost Accountant	Contractor:	Magco Drilling* Mike Maggio, Owner Holly Maggio, President Rob Walls, General Superintendent Dan Gay, Chief Estimator/ Project Manager Ken Good, Estimator/ Project Manager Gary San Angelo, Project Superintendent Brandon Maggio, Project Superintendent Sal Medina, Project Foreman/ Layout Danny Marquez, Operator Michele McNeal, Payroll/ Human Resources Teresa Rodriguez, Administrative/ Field Coordination Ida Lengson, Controller Annabelle Stewart, Assistant Controller Tisha Scott, Administrative Assistant Steve Herald, Estimating/ Project Management Assistant Jeanne Lozano, Human Resources
Engineering:	Westfield Design and Construction BFL Owen Consulting Structural Engineers		
Soil Engineer:	Kleinfielder* EarthSpectives*		
Testing:	Smith- Emery		
Suppliers:	Champion Equipment* Fleming Concrete Pumping Fontana Steel Mait*	National Concrete Sinclair Well Products* SoilMec*	<i>*Indicates ADSC Members</i>