

BERMINGHAM

FOUNDATION SOLUTIONS

SINCE 1897

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PEOPLE AND EQUIPMENT

LENDING EXPERTISE IN MEXICO



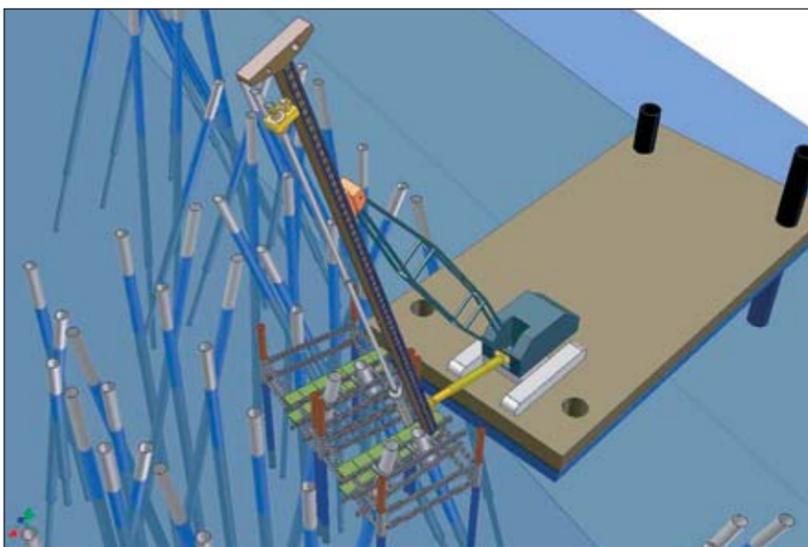
Patrick Bermingham (r) spent time with contractors on the project in Mexico.

When in doubt, search out the best. That's what ICA FLUOR, a Project Management Design company, did in soliciting Bermingham's engineering expertise, construction experience and technologically advanced equipment for a mega-project in the Gulf of Mexico. A large unloading dock for a liquid natural gas facility in Altimira, near Tampico, Mexico, required large diameter piles to be driven in soil and rock socketed.

Bermingham's engineering services included designing and optimizing the layouts of the templates to minimize the number of barge moves. They also pre-tested all procedures informing Itasca, the General Contractor, as to the best process and where any interference may occur. Bermingham also provided construction advice on the equipment they supplied, which included a 60/60 drill complete with Kelly bar and bits, a large set of leads and a large power pack. The drilling speed and superior reach of this equipment out-performed a conventional European drill rig by five-to-one. Several battered piles, both fore and aft, could be drilled without moving the barge, with the Bermingham setup. It was possible to reach piles up to 13.7m (45ft) in front of the barge and 7m (20ft) above the deck.



The Berminghammer 60/60 drilled rock sockets to a depth of 46m (151ft).



3D Project Planning helped minimize the number of barge moves required.



PRESIDENT'S MESSAGE

THE IMPORTANCE OF VISUALIZATION

A model permits the observer not merely to look around the corner, but to walk around it, to look down on and up at the object, and to receive tactile clues that help him make sense of the object.

— Eugene S. Ferguson

In construction we build solid structures from two dimensional drawings and specifications, or words. The materials, dimensions and locations are the result of information on paper. Every individual involved with a project mentally visualizes a different model as to the scale, perspective, and degree of detail in the structure. However, it's not until the building or bridge is complete that we all see and experience the same thing. Quite often a person's "mental image" will not agree with another's. A model is a valuable tool when more than one drawing is required as it can take all of the

participants one step closer to reality by presenting the three-dimensional realities and consequences of the finished structure.

"Three-D modeling has always been the last, but most important step in constructing any complex structure. After 600 years, the device still favoured to provide a final review of the new thing's design is a three dimensional model that supplies designers and builders with nonverbal, sensual, qualitative information -- visual, tactile, muscular, and aural."

— Eugene S. Ferguson

While architecture has retained its use of models, construction has for the most part abandoned the medium that Brunelleschi used to win the competition to construct a dome on Florence's cathedral in the 1400s. (It was the largest dome in the world until the Houston Astrodome surpassed it.) I believe that the construction of models – whether they are of cardboard, wood or computer 3D – has always been the most important step towards realizing a successful project.

Patrick Bermingham, President

TORONTO HARBOUR FRONT

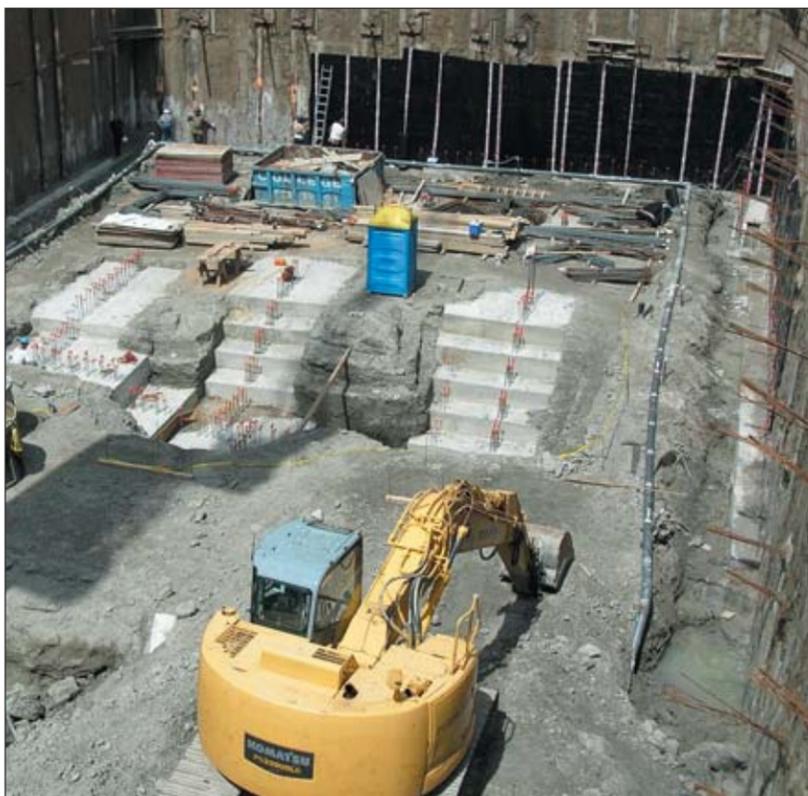
Rock socketing large diameter piles for new piers

In winter 2005, Bermingham partnered with General Contractor, Somerville Construction, in building three finger piers, to anchor tall ships, and a wooden walkway for tourists visiting Toronto's harbourfront. Bermingham rock socketed large diameter piles in front of an existing retaining wall. It was a challenging project because most of the job was done through ice and there were site restrictions to contend with. The Bermingham crew overcame all the obstacles and met all scheduling requirements.



"It was a challenging project that required a team effort and Bermingham was an instrumental part of the team. Their performance was great under some tough conditions."

— Ian Somerville



H&R CONDOS TIGHT SITE DEMANDS ACCURACY

Bermingham used a new drill rig technology to ensure strict accuracy in the shoring of adjacent walls for a condominium project by H&R. The extremely small, tight and deep site presented a number of challenges in using conventional equipment. The walls were literally touching the foundations of existing buildings, including that of the Wellsley Street Subway Station.



BAY OF FUNDY TIDES MAKE NEW FERRY DOCKING TERMINAL AN ENGINEERING CHALLENGE

"I've worked at Bermingham since 1966 and this was one of the most challenging jobs I've worked on. The tides and winter conditions, with lots of ice and wind, combined with working from a barge were difficult. We had two crews working ten hours each day. Beaver Marine was very good to work with – we received great cooperation."

— Doug Ratcliffe, Superintendent

Imagine the challenge of working from a barge in the Bay of Fundy when 7.6m (25-ft) tides, some of the highest in the world, rise and fall every six hours. Bermingham was the sub-contractor under Beaver Marine on the project to build a new ferry docking terminal at Wallace Cove in New Brunswick. Bermingham's innovative solution was to develop a floating template that would rise and fall with the tide. The project, which started in the fall 2005, involved installing eighty-one 90cm (36in) diameter battered pipe piles in up to sixty feet of water which then had to be rock socketed into conglomerate rock at the bottom of the bay.



CONCORD ADEX GEOTECHNICAL EXPLORATION

Flexibility was key to the successful completion of this unique shoring project on reclaimed railway land on the shores of Lake Ontario in early 2005. Developer Concord ADEX was building condominiums near the SkyDome and CN Tower in downtown Toronto. After extensive geotechnical exploration of what was once a seaport, Bermingham crews used a variety of equipment, including special drills, to remove all the obstructions – from old wood cribbing and docks to 100-year-old steel railway track – encountered during conventional shoring and drilling of caisson walls.

FUNDEX

B-6505 DIESEL HAMMER ON THE JOB IN BELGIUM

Bermingham was associated with the greatly respected Dutch Contractor FUNDEX on a high profile project in Bruges, Belgium when it rented them, for the first time, the B-6505 diesel pile driving hammer. Complimenting the hammer's clean operation, reduced fuel consumption,

controllable energy and direct drive system, C. Verplanke, Director FUNDEX says: "We were very impressed with the B-6505 Berminghammer. It is clean and fuel consumption is half. The fuel adjusting device works great and it does not stall as easily as other hammers in soft layers."

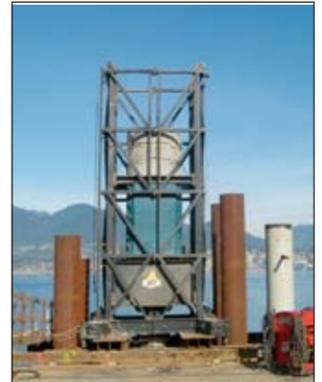


The B-6505 diesel hammer cuts fuel consumption in half.

Stefano Gabaldo, European Sales, and Peter Hubregsen

VANCOUVER 2 PROJECTS USE B-6505HD

This past year Bermingham was involved with two projects in Vancouver. Vancouver Pile Driving rented three B-6505HD hammers for construction of the Convention Centre, located next to Canada Place in downtown Vancouver, in preparation for the Winter Olympics. This was the first use of the B-6505HD hammer, which has a 10-metric ton (22,000lb) ram. Pile driving began in summer 2005 and 1,200 large diameter pipe piles, some up to 55m (180 ft) in length, were used. PCL was the Project Manager on the project. Down the coast, Fraser River Pile and Dredge also used the B-6505HD hammer to drive large diameter pipe piles for port expansion of the P&O Centerm. Applied Foundation Testing performed Statnamic load testing to accurately determine the load bearing capacity of the piles on both projects.



B-6505HD and 16MN Statnamic used for Convention Centre and Port Expansion projects.

LEADS C18/L23/L36 CONTRACTORS' REQUESTS RESULT IN NEW VERTICAL TRAVEL LEAD SYSTEMS

Bermingham has designed and developed several vertical travel lead systems based on contractors' requests for help. "We did some 'outside the box' thinking to come up with an economical system that will meet the project requirements, improve production efficiency and be more profitable for the customer." The C18 has been used throughout North America. The new L23 is used on projects throughout the world – Mexico, Vietnam, Africa and Kuwait, to name a few places. The L36 is currently being used on a project for an oil company in Saint John, New Brunswick and another in Florida.



The L23 lead system, drilling six piles a day on a project in Vietnam. One of the obstacles to overcome was the distance from the crane that drilling had to take place. Bermingham designed and fabricated a 7.6m (25ft) three-stage spotter so the client could work at more than a 15m (50ft) radius from the center of the crane.

PARTNERING WITH DEVON CANADA EXPLORATION IN THE ARCTIC



Birmingham, sub-contractor, provided on-site support, expertise and equipment to drive a conductor to a record depth, from the SDC Vessel in the Beaufort Sea.

For the first time in over twenty years, Devon Canada of Calgary was involved in gas exploration in the Arctic and Birmingham was involved in this exciting project. Devon purchased Birmingham's B6505 hammer, leads and other accessories to drive a 183 m (600ft) long, 56cm (22in) diameter conductor pile.

"Birmingham developed a special pile-splicing jig to ensure verticality and straightness of the piles, which were installed in 12.2m (40ft) lengths. We also did some extensive driveability analysis to select the optimum pile size, and provided on-site support. All of the work was done from the SDC vessel packed-in by the ice in the Beaufort Sea and access to the ship was via helicopter."

— Louis Fritz, Sales Engineer



PEOPLE ARE OUR DRIVING FORCE

People – over 150 skilled and talented professionals – are the power behind Birmingham's foundation solutions world-wide.



TODD BARLOW – PROJECT ENGINEER

Todd joined Birmingham in 1999 with a geological engineering degree from Waterloo University and experience working for an engineering firm. His responsibilities include managing the execution of construction works – everything from pile driving to cofferdams, caissons, shoring, caisson walls to the management of the movement of equipment and manpower – on various size projects. He also deals with general contractors and sub-trades, engineers and project owners. "My job is to do whatever it takes to get the job done," he jokes, noting that the most rewarding part of working for Birmingham is the challenge. "Every day there are consistent challenges that need to be met. Some are more innovative than others and a few

are pretty straight-forward, but they all need to be dealt with. I enjoy the freedom that Birmingham gives employees to investigate alternate ways of doing work and executing a plan. This place probably has the most tools for an engineer to practice the construction craft innovatively. It's an intense environment and very demanding, but at the same time it's rewarding because we get to use lateral thinking to accomplish a goal." Todd and his wife Laura, a registered nurse, have two children – daughter Emily, 5, and son Cameron, 2.



JIM YOUNG – ASSEMBLY SHOP SUPERVISOR

Jim's experience as chief mechanic for a motorcycle racing team has served him well since recently

joining Birmingham. He is responsible for the crew who work on the assembly and repair of pile driving equipment. One of the aspects of his job he's most proud of is "helping engineering in bringing some of the qualifications I have from the motorcycle industry and adapting it to our equipment. I've seen a lot of different systems throughout my career and it's interesting to brainstorm ideas to come up with new developments." Servicing clients out of country is one of the most challenging aspects of Jim's job. He's involved with shipping parts to clients – be it local, within North America or over seas to such places as Holland, Vietnam and Africa – and often personally visits customers' plants to troubleshoot and repair equipment. "Construction doesn't wait for anybody, it has to go forward. Satisfying the customers and having them say good things about our service is one of the most rewarding things about working for Birmingham." Off-shift Jim enjoys spending time with his wife Mary-Ann and step-daughter Jenna. His hobbies include fixing motorcycles and collecting and refurbishing antique cars.



LOUIS FRITZ – SALES ENGINEER

Louis joined Birmingham in 2004 with extensive construction industry experience. He spent a few years as a bridge builder and twenty years in engineering product sales. As Sales Engineer at Birmingham he is responsible for meeting with customers to find new market opportunities and service customers' needs on projects from Southern Florida to Alaska to the Beaufort Sea. The project in the Arctic is one he's most proud to have been involved with. "Making sure our hammer ran efficiently in minus 55 degrees was quite an accomplishment," emphasizes Louis. Louis' engineering and construction background has enabled him to be a very quick study in the foundation industry. Away from the job, Louis enjoys all types of boating and "anything that goes fast". He also likes to spend time travelling.

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