

# BERMINGHAM

## FOUNDATION SOLUTIONS

### SINCE 1897

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October 2010

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## B-32 AND B-6505HD EXCEL IN CHILE

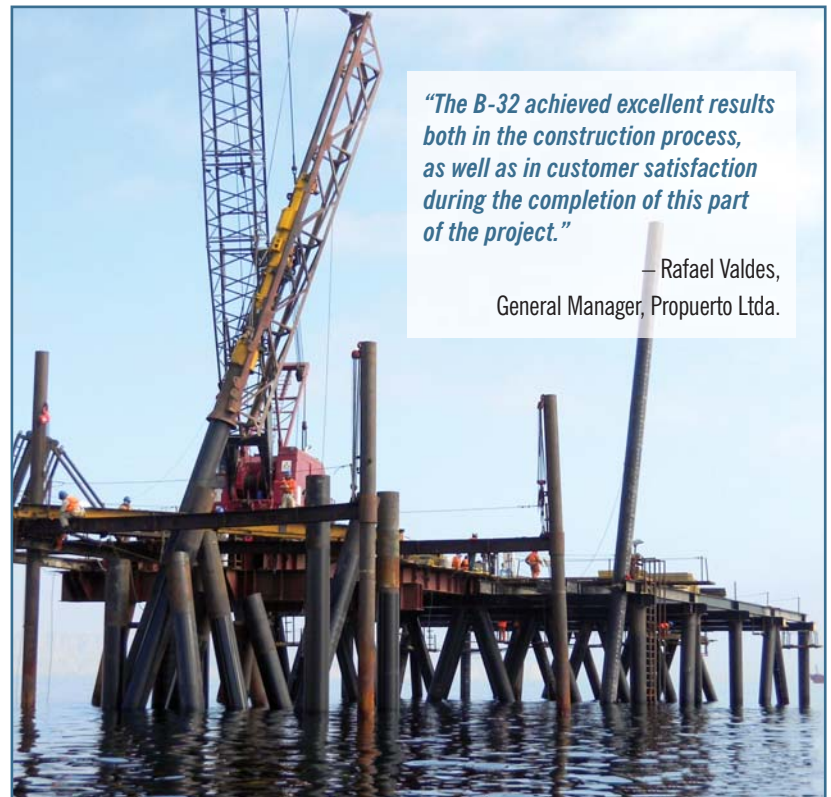
— Omar Francisco Segura, President, Frontier Endeavors, Inc.

Berminghammer impact hammers accomplish outstanding results on two projects in Chile to be completed in late 2010. The hammers were sold by Frontier Endeavors Inc., Berminghammer's Distributor for South America.

### PIER TERMINAL TERQUIM, MEJILLONES, REGION II

The B-32 was used by Propuerto Ltda. to drive 70 piles, both vertical and batter, for a 620 meter-long access bridge that is supported by piles and metal galleries on which a fire fighting platform and loading dock is installed. The access bridge connects the beach area with the

mooring dock, which is constructed with a 38x28 meter, reinforced concrete loading platform. The bridge is part of the project to construct an 800 meter-long terminal for grains liquids of Terquim S.A., Mejillones.



*"The B-32 achieved excellent results both in the construction process, as well as in customer satisfaction during the completion of this part of the project."*

— Rafael Valdes, General Manager, Propuerto Ltda.

### EXPANSION MULTI-PURPOSE PIER NO. 2, LIRQUEN, REGION VIII

Propuerto Ltda. constructed a 68 meter-long, 45-meter-wide extension to the north of Port No. 2 for Port Lirquen S.A. Reinforced concrete spans and longitudinal beams, as well as reinforced concrete tile are supported by vertical and batter steel piles, 44" diameter, 16 mm thick, driven and anchored to the bottom rock that constitutes the ocean floor. A B-6505 HD was used to drive 81 piles. This is the impact hammer with the largest capacity available in the off-shore industry nation-wide. By utilizing the great capacity and efficient delivery of energy of this hammer, it was possible to drive piles into the rock beyond 9 meters deep. Consequently, it was no longer necessary to anchor the piles and, as a result, both the completion time and cost of the project was reduced.



*"The impact hammer performed perfectly well, making it possible to drive all the piles without down time or delay of any nature, and to meet the established scheduling and completion of the project."*

— Rafael Valdes, General Manager, Propuerto Ltda.



## CEO'S MESSAGE

We value long term relationships. I am pleased to announce that we have recently repurchased the shares of our company held by the private equity firm C.A. Bancorp Inc. The company is now 100% employee-owned. This \$11.5 million transaction was made possible by the Bank of Montreal, which has supported Bermingham for 113 years. Needless to say, we both value this

long-term relationship for the memories, the present and the future.

Likewise, we value our long term clients such as Propuerto, with whom we have worked "since before my children were born". We have both watched each other's company grow, shared our dreams and watched each other's children advance through life. Closer to home, clients like Dufferin and Bot were

working with Bermingham in my father's generation.

I would like to thank all of our customers, new and old, for your continued confidence and look forward to further strengthening our relationships in the years ahead.

  
Patrick Bermingham, CEO

# OUTSTANDING PILE PRODUCTION ON TWO LOUISIANA PROJECTS

Birmingham supplied equipment and expertise which contributed to production efficiencies on two projects in Louisiana for the U.S. Army Corps of Engineers.

## CHALMETTE

Pile production with Berminghammer equipment exceeded everyone's expectations on the new floodwall being constructed at the east side of New Orleans, St. Bernards Parish, Chalmette. The contractor is Chalmette Levee Constructors (a joint venture of Kiewit Corp, Traylor Brothers Inc., and Massman Construction).

The floodwall, with an average height of 30-ft. over 6.4 miles (34,000 linear ft) of levee required approximately 13,600 HP14X89 foundation piles – almost 1.5 million feet of piles – ranging from 105-ft. to 115-ft in length. Piles were on a 2:1 batter in each direction every 5-ft of wall.

Birmingham supplied four custom built pile driving packages on a very aggressive delivery request. The first equipment was shipped March 27, 2010 – only three weeks after it was ordered – and the final package followed April 3 with construction commencing a week later. Included in the packages were four pile driving sets, each consisting of a Berminghammer B32 hammer with direct drive, hydraulic starting, and special "Hammer Cat", 160-ft. of Berminghammer 32" box leads with

winch, custom hydraulic pile guides and special rigging for driving 2:1 batter piles.

By all standards, pile production on this job has exceeded everyone's expectations.

**A remarkable production achievement of 37 piles installed by one crew on one shift is the best to-date, but each crew is steadily realizing 22 to 25 piles per shift.**

All foundation piling is expected to be complete by the end of October, 2010. In addition to the success of the Birmingham custom leads, this project has proven that Berminghammer diesel hammers outdrive any other hammer in the soft Louisiana soils.

*"The B32 hammers and leads from Berminghammer are the perfect equipment for this challenging job. I've worked with conventional lead systems for this kind of work on earlier jobs, but there is simply no comparison to the productive Berminghammer system."*

– Alan Baughman, Project Piling Superintendent



## BELLE CHASSE

Two sets of the longest vertical travel leads (VTL) built by Berminghammer to-date contributed to increased production in the construction of one of the largest pumping stations in the world being built in Belle Chasse, Louisiana. The pumping station is part of The Gulf Intracoastal Waterway West Closure Complex, which is an important part of a program to reduce the risk of hurricane and storm damage in the West Bank area near New Orleans.

USACE contracted Gulf Intracoastal Constructors – a joint venture between Kiewit Corporation and Traylor Brothers Inc. – for the project. In addition to the pumping station, the complex includes two navigable gates that can be closed to prevent tidal surges from raising the water levels on two inland waterways that service marine traffic in New Orleans.

Due to critical path work, the challenge was to deliver a high production pile driving system capable of driving 30" x 5/8" wall x 159-ft. long pipe piles, some vertical and others on 3:1 batters.

Berminghammer offered the solution by delivering two sets of 194-ft. long VTLs and B32 hammers to fit the customer's Manitowoc 2250 cranes. The driving of foundation piles for the pumping station began in October 2009 with a two-shift operation. Warren Waite, Senior Sales Rep for Birmingham, reports, "Even though each pile had to be driven an additional ten feet below surface with a follower, the piling work was finished well ahead of schedule. "The Berminghammer system is now being used to drive various concrete piles and 14" H-piles with 2:1 batters on other parts of the project."

*"The Berminghammer system contributed to production rates twice of what was estimated. As well, labour costs per pile were roughly one half of what was budgeted."*

– Ronnie Resmondo, Site Superintendent

# PORT EXPANSION IN PORTUGAL

Clients the world over rely on Birmingham's custom equipment, technical expertise and on-site assistance. That was the case with joint venture contractors CPTP and Etermar for a port expansion project in Porto, Portugal.

Explaining Birmingham's involvement, Stefano Gabaldo, Director, European Sales, says,

*"Atlas Copco suggested the Symmetrix system to install approximately 210 pipe piles, 1,016 mm in diameter, for the harbour project. Determined to be the best choice, Birmingham's customized crane attachment and drilling equipment were suggested and implemented in the methodology to perform the work."*

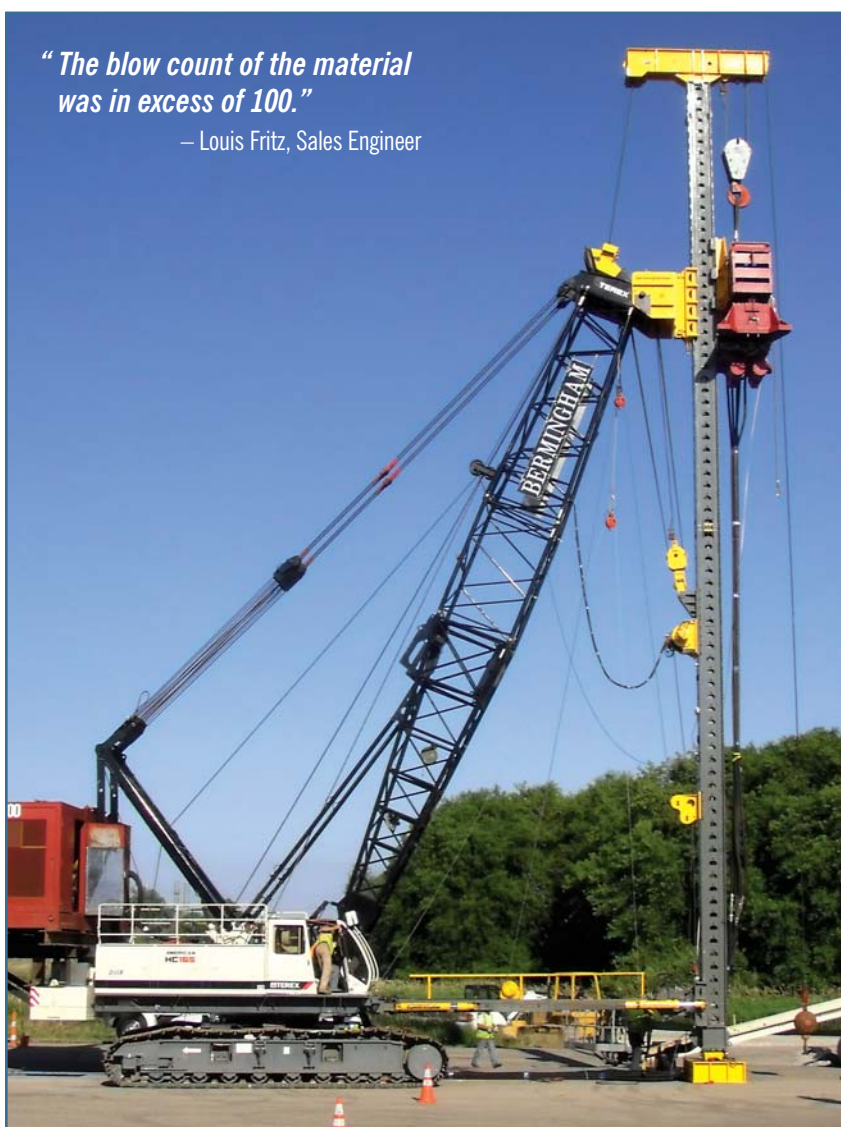
**The following equipment was delivered at the end of January 2010:**

- 45 m of L27 VTL complete vertical travel lead system
- HHK - 14 Hydraulic kicker (spotter)
- BHD40 Hydraulic drill
- 33 m of 450 mm drill string
- 3 sets of quick disconnect
- Cross over subassembly and shock absorbers were fitted with Atlas Copco supplied Down the Hole Hammer Model QL200 and a 1000 mm symmetrix bit – a first for this large size

BCL's Superintendent Brent Porteous did the initial set-up of the equipment at the beginning of March and the project commenced in May.

The project shifted very quickly into high gear after BCL's Niels Christensen guided the client thru the initial learning curve. His technical expertise, assistance and know-how with the use of DHH and the Symmetrix systems proved invaluable to the client in achieving and surpassing the expected production.

"It highlights the importance of our after sales involvement and ability to troubleshoot and find solutions" emphasizes Gabaldo, adding that CPTP and Atlas Copco provided a great working environment.



*"The blow count of the material was in excess of 100."*

– Louis Fritz, Sales Engineer

## ENVIROCON SLURRY BEAM VIBRO PROJECT WISCONSIN

In 2009 Birmingham customer Ferraro Pile & Shoring of New York completed a potentially difficult slurry-beam project for Envirocon, a large US remediation company. The project consisted of a quarter-mile slurry-wall in Marinette, Wisconsin with a depth of 45-ft to 50-ft. The wall was used as part of a containment strategy for the site owner.

Birmingham equipped a Terex HC 165 crane with 78-ft of model L-23 leads and designed a custom slide for mounting a very powerful HPSI 1600 Vibratory hammer. The vibro was used to insert a 30" "slurry-beam" into the dense soil which, when extracted, facilitated the injection of an impermeable slurry. The amplitude of the 1600's vibration was carefully controlled when the beam was inserted near buildings and buried utilities. The vibro amplitude was set throughout the job. The slurry-

beam was instrumented to ensure the vertical insertion of the beam.

The system performed well throughout the summer months in temperatures in excess of 95 degrees F thanks to an additional cooling circuit for the vibro's hydraulics which operated below 165 degrees F. The combination of the Birmingham leads and the HPSI 1600 Vibro resulted in 4-5 beam insertions per hour, which more than doubled the production-rates that had been expected.

# STRABAG NIAGARA FALLS

If there's a tight schedule and location specification, contractors such as Strabag SE, European tunneling experts, know they can count on Birmingham people to get the job done right. That's why they enlisted Birmingham's assistance for the inlet structure for the Sir Adam Beck Tunneling project in Niagara Falls.

Strabag needed a 2.8 m diameter shaft drilled through 83 m of rock to precisely intersect their tunnel. BCL hit the target within 200mm with its 600-mm pilot hole, drilled using down-the-hole-hammer and reverse circulation techniques.

Birmingham then engineered, manufactured and utilized a custom drill and drill mast to advance a 2.74 m diameter hole through the bedrock using a roller cone rotary bit. The "top down" drilling approach was successful because the large diameter bit followed the guide/pilot hole directly to the adit roof for breakthrough and cuttings that were deposited into the adit room were mucked out by Strabag during the tunneling operations.

BCL was the site General Contractor. "The hole was for air supply to support the tunneling and

hence the timing and scheduling was critical. Our approach to this job was to self-perform all the work," says Barlow. "BCL and our client were not willing to have any scheduling risks by employing sub-contractors that would utilize conventional raise boring techniques that are generally used on this type of project."

Once the hole was complete, an 8-ft diameter liner was lowered and spliced to the base and secured in place by grouting between the liner and the rock interface. Strabag also intends to use the access for water supply and a concrete delivery point for the tunnel lining work which follows the TBM.

*A custom drill and drill mast engineered and manufactured by Birmingham was used on the project.*



# SARNIA SECANT WALL

Birmingham's experience and expertise were instrumental in the installation of a secant wall, consisting of eighty 1.0 m diameter caissons 27.0 m deep, at the Devine Street Pumping Station in Sarnia. The project, which was completed in November 2009, was initially conceived as a sheet pile cofferdam. A post tender review of the soil conditions determined that the initial parameters were incomplete. After a subsequent geotechnical investigation, the project shifted to a secant wall from sheet pile in an attempt to counteract the geotechnical condition known as basal heave.

Isherwood Associates was contracted by Birmingham to design a circular cofferdam (17.0 m in diameter with caissons installed 27.0 m deep) with the majority of its strength in a "ring compression" – when a load from one side of the secant wall is distributed evenly along the entire opposite wall.

"The challenge," according to Birmingham Project Manager, Andrew Weltz, "was the fact that the caissons would have to be installed vertically as close to the intended location as possible. The on-site General Contractor McLean Taylor achieved this by creating a concrete guide wall." Weltz emphasized that

Birmingham's project team: Jaime MacArthur, Superintendent, Steven Delaney, Front-end man, and Mark Petch, Drill Operator were very

attentive at ensuring the strict verticality of the caisson wall and were instrumental in the project's overall success.



## BERMINGHAM FOUNDATION SOLUTIONS SINCE 1897

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