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DREDGING

AND DREDGED MATERIAL DISPOSAL

PLUS

DRILLED SHAFTS

Concrete Placement and Design

HONG KONG HOUSING PROJECT

3 Liebherr Cranes Used for Foundation Work

COMPACTION GROUTING

CGS Stabilizes Sinkhole-Prone Site

FEATURED PHOTO

Mactech Offshore taking the term Water Jet Cutting to a whole new meaning with their Internal Diameter Cutting Machine. Submitted by Mactech Offshore.

Send us your photo for consideration in a future Pile Buck issue.



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By Luke Wittenbraker

CUTTING IN THE CURRENT

Cook Inlet, AK

In an effort to minimize hydro-acoustic noise impact and reduce dive times for a more efficient and safe pile cutting procedure, a leading company hired Mactech Offshore to procure an internal cutting solution. After consideration of Mactech's many available solutions and expertise, Mactech's ID Sever Machine was chosen to complete the cutting procedure. Mactech provided a 33-60 Inch ID Milling Machine to cut each pile at the mudline.

VALUE ADDED TO THE PROJECT

The Cook Inlet, stretching from the Gulf of Alaska to Anchorage, is notorious for large tidal swings and rapid currents. As a result of these conditions, dive times have to be limited to 20 to 30 minutes per tidal cycle. To work within these limits, the client needed a cutting solution that could fit these time frames or eliminate the need for divers entirely. Options being considered at the time were Mactech's ID Milling Machine or an abrasive waterjet tool.

ALTERNATIVE METHODS

The client considered abrasive waterjet cutting as the only other alternative to Mactech that was

capable of meeting the cutting requirements given the conditions. However, this method also required a larger spread, larger crew, a more controlled working location, and long lead times of several weeks to mobilize gear or extremely high costs to ship via "hotshot" trucks to remedy long lead times. Mactech was able to work with the client on standby rates making it more economical to follow through with Mactech's solution.

STEPS TAKEN TO COMPLETE THE JOB

The job consisted of three main operations.

1. Pile Installation
2. Restrike Pile
3. Cut Pile

In preparation and to prove the ID Sever Machine's effectiveness to the client, Mactech had a third party produce a pile replica sample, based on the client's pile specifications, for testing

purposes. Mactech then made and documented several test cuts at their Minnesota facility to prove the ID Sever Machine's capability over the alternative methods.

CHALLENGES AND ADVANTAGES

This project provided a few challenges that are unique to the region. The project was located on the Knik Arm in the upper Cook Inlet of Alaska. Around this

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The Internal Diameter Cutting Machine was designed to be lowered into a pile and sever it from the inside. Mactech Offshore provided a 33-60 Inch ID Cutting Machine (pictured) to cut each pile at the mudline.

JOB STORY

Practice makes perfect. Mactech made and documented several test cuts using the ID Cutting Machine.



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JOB STORY

area, tidal swings range from 25 to 35 feet with currents ranging from 2 to 4 knots. Additionally, this area is home to the Cook Inlet beluga whale which is protected under the Endangered Species Act. By National Marine Fisheries Service (NMFS) regulation, if any beluga whales are sighted within 30 minutes before or anytime after work has begun, pile installation and restrikes must be delayed. A final challenge came from working near and in Alaska's busiest and most important transportation hub for goods and fuel. This would occasionally lead to scheduling conflicts and required intense logistical coordination.

RESULTS

The ID Sever machine allowed the client to lower the machine inside the piles and make cuts without the need for divers to deal with the tidal swings or rapid currents. Despite the challenges encountered, the client was able to complete the cutting procedure on time and within budget. ■



Installing the ID Cutting Machine by lowering it down to the inside of the pile to the cut line located at the mudline.



The ID Cutting Machine uses a rotating mill head to produce a clean sever on every project.