



**DEEP FOUNDATIONS INSTITUTE  
SUBSURFACE CHARACTERIZATION  
COMMITTEE PRESENTS**

# REUSE OF RAYMOND CONCRETE PILES



**The Davis Companies  
South Boston, Massachusetts**

## SCOPE OF FOUNDATION WORK

### Technology used, reason for the reuse:

The Black Falcon Terminal Pier in South Boston, Massachusetts, is built on multiple deep foundation types. Based on documentation of the pier history dating back to 1919, the foundations consisted of 18 to 24 inch cased and uncased concrete piles and timber piles. These piles were determined to be Raymond piles. Investigations were implemented to determine the reusability of the Raymond piles. Through the use of test pits, low-strain integrity testing (sonic echo testing) and static load testing, the composition, integrity and load bearing capabilities of the piles was investigated and verified.

### Methodology to determine existing capacity:

The tops of piles TP1 and TP2 were measured to be 23 inches and 18 inches, respectively. Based on the tapered nature of Raymond piles, it was determined that the piles were around 37 feet and 25 feet in length, respectively. Sonic echo testing indicated a tip reflection around 23 feet in TP2 but no tip reflection was observed in TP1. The piles were tested to 80 tons.

### Retrofit construction activities conducted:

With the success of testing program, additional piles were not required for the proposed work at the Black Falcon Terminal Pier. The existing Raymond piles could adequately resist the additional loads from the renovations and additions.



**Conclusions on  
other side...**



# CONCLUSIONS

## REUSE OF RAYMOND CONCRETE PILES

### Cost Savings:

Reusing the Raymond piles saved the project team several months of installing new deep foundations. In addition to saving time, reusing the existing piles resulted in an estimated cost savings of around \$2 million. The cost of the testing program was approximately \$50,000.

### Cost Saving Statistics:

1. \$2 million in cost savings
2. Several months of additional deep foundation installation
3. The testing program cost approximately \$50,000



## FOR MORE INFORMATION

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