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1961

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Fred Burggraf          Elmer M. Ward          Herbert P. Orland
2101 Constitution Avenue

The opinions and conclusions expressed in this publication are those of the authors and not necessarily those of the Highway Research Board.
It was also noted that, except for the pipe piles, all piles experienced a decrease in capacity with increasing time after driving. This result also is unusual in clayey soils.

The steel piles were increased in length and redriven. The developed shear strengths as a function of the length of the piles are shown in Figure 1, in which it is seen that increasing the length of the piles did not significantly increase the developed unit shearing strength.

Timber test pile No. 3, driven in abutment 5, was tested 15 and 28 days after driving. A further load test was made after 45 days. Unfortunately, the load test was not carried to failure but the pile showed no signs of failure at its maximum load of 60 tons. Some set-up appears to have taken place during the period, inasmuch as the deformations under the 60-ton loading were smaller than those at the same load in preceding tests.

On the basis of Figure 1, it would appear that the developed strength for the steel piles was about 35 percent of that calculated from the unconfined compressive strength of the soil, as suggested in HRB Special Report 36, whereas that for the timber piles was about 70 percent. The reasons for these large discrepancies are not fully known. It seems likely that one factor having significance is the material of which the pile is made. Most of the data used for Special Report 36 related to tests on timber piles. The relatively few tests on steel piles gave rather indecisive results, and it is probable that the number of tests was too small to point out a difference in behavior. How-

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<th>No.</th>
<th>Test</th>
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<th>Embedded Area (sq in.)</th>
<th>Elapsed Time (days)</th>
<th>Capacity (tons)</th>
<th>Develop. Shear (t/sq ft)</th>
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Records of Load Tests on Friction Piles

RALPH B. PECK, Professor of Foundation Engineering, University of Illinois, Urbana, Illinois

IN 1958, the Highway Research Board published Special Report 36, "A Study of the Comparative Behavior of Friction Piles." This study, conducted for the Subcommittee on Pile Bearing Capacity of the Committee on Bridge Design, involved the collection and examination of more than 1,000 records of load tests on driven piles, exclusive of end bearing piles. The published report contained a digest of these records together with the detailed load-settlement and subsoil information for 117 of the piles. Many of the remaining records lacked essential data, but at least 400 contained sufficient information to be informative.

PURPOSE OF REPORT

The Subcommittee was of the opinion that publication of those records containing at least fairly complete data would be useful to the practicing engineer as a guide to the performance of various kinds of friction piles in different types of soils. Accordingly, the results of 412 load tests are presented in this volume in a condensed form. The records are classified and indexed in accordance with type of pile, general type of soil, and locality. By means of these indexes, the reader can locate records that may be of interest in his attempt to judge the probable behavior of piling under somewhat similar conditions. The data may also serve as the basis for further correlations and studies of the general behavior of friction piles.

RECENT INFORMATION ON PILES IN SOFT TO MEDIUM CLAY

A few records have been obtained since publication of Special Report 36. Of these, two sets of data pertaining to piles in soft to medium clay are of special interest. One set, from a bridge site at Drayton, N. D., involved testing of six piles driven into a deep deposit of lacustrine clay having a nearly constant unconfined compressive strength of 1.1 tons per square foot. The pile tests consisted of two essentially identical series, one carried out at abutment 1 and the other at abutment 5. At each abutment tests were performed on a timber pile 80 ft in length; on a 12BP3 steel pile 60 ft long and subsequently extended to greater lengths; and on a steel pipe pile of 12½-in. outside diameter, 75 ft long and subsequently driven to greater lengths. After each pile was driven it was allowed to stand for a period of time before the test load was applied. In most instances a second waiting period was permitted to elapse and the pile was re-tested.

The load-settlement curves corresponding to the individual tests are shown in Pile Test Data Sheets 401-412 inclusive. Each sheet gives the pertinent details concerning the corresponding tests.

The results of the various load tests have been compared on the basis of the shear strengths actually developed between the pile and the soil during the tests. The shear strengths have been calculated, as indicated in Special Report 36, pp. 2-6, by dividing the failure load in each test by the embedded area of the pile. In the case of the H-piles the embedded areas have been calculated on the assumption that failure occurs on the sides of the rectangular prism enclosing the pile section. The results of the calculations are given in Table 1 and shown in Figure 1.

The procedures recommended in Special Report 36 were based on the statistical finding that the shearing strength developed between soil and pile would be equal to the average shearing strength of the soil as determined by unconfined compression tests. This shearing strength at the Drayton site was on the order of 0.55 ton per sq ft. It is
Foreword

The selection of the best or most economical type of piling for foundations has been a perplexing problem to engineers for many years. Very few data which would present a basis for such selection have been made available.

To close this gap in the knowledge of the field, the Bridge Design Committee of the Highway Research Board authorized a special subcommittee to make a study of the relative bearing values or capacities of the different types of piling now on the market. The members of the subcommittee comprise engineers who have long records of experience dealing with bearing piling.

The study divides itself into two phases: First, assembling the pertinent data now available for consideration; and, second, conducting field tests which would supply the information desired.

This report supplements HRB Special Report 36, entitled "A Study of the Comparative Behavior of Friction Piles," as part of the first phase of the study. It is intended to provide the practicing engineer with a guide to the performance of various kinds of friction piles in different types of soils, by giving not only the pertinent load test data but also an index by type of pile, type of soil, and general locality.

The report was prepared through the services of Ralph B. Peck of the University of Illinois, who collected and prepared the data. The funds necessary for this work were furnished by the following firms:

- Armco Drainage and Metal Products, Inc.
- Bethlehem Steel Company
- Raymond Concrete Pile Company
- Union Metal Manufacturing Company
- U.S. Steel Corporation

The second phase of the study is being held in abeyance pending further investigation.

Raymond Archibald,
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Department of Design
T.E. Shelburne, Chairman
Director of Research, Virginia Department of Highways
University of Virginia, Charlottesville

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C.P. Siess, Department of Civil Engineering, University of Illinois, Urbana
Charles B. Trueblood, Armco Drainage and Metal Products, Inc., Middletown, Ohio

SUBCOMMITTEE ON PILE BEARING CAPACITY
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Monroeville, Pennsylvania
William H. Rabe, Columbus, Ohio
J.A. Williams, Bridge Engineer, Missouri State Highway Department, Jefferson City,
Records of Load Tests on Friction Piles

National Academy of Sciences—National Research Council
Washington, D.C.
1961
From soil tests (2-in. Shelby tubes)

From soil tests (remolded)

Shear Strength - tons/sq ft

Timber

Steel Pipe

Symbol • o Δ X + ▽

Pile 1 2 3 4 5 6

Length - ft

50 100 150 200 250

Figure 1. Shear strength from test piles near Drayton, North Dakota. (Numerals indicate days between driving and testing.)

However, it is interesting that the metal-sheathed pile tested by Fellenius at the Gothenburg Railway Station held a load only about 80 percent of that held by timber piles of the same dimensions at the same site. Moreover, most of the steel piles considered in Special Report 36 in connection with soft and medium clays were cylindrical, whereas the timber piles were tapered. Hence, a second factor of significance may be the taper. The data do not permit differentiating between the possible effects of these two factors.

The results at Drayton have their counterpart in a test of a 14-in. steel pipe pile at Charlestown, Mass. The details are shown on Pile Test Data Sheet 275. The upper 52 ft of the pile were surrounded by a cased hole to keep the pile from contact with the adjacent granular soils. Thus, the test load was carried exclusively by the surrounding clay, which had an average unconfined compressive strength of 0.61 ton per sq ft or a shear strength of 610 lb per sq ft. The pile failed at an average developed shear strength of 265 lb per sq ft, or 43 percent of that which would have been anticipated on the basis of the statistical data summarized in Special Report 36.
Hence, although the conclusions drawn in Special Report 36 were supported by some 119 records, the subsequent tests at Drayton and Charlestown demonstrate that there appear to be exceptions for which no adequate explanation is as yet apparent, and that the previous conclusions would lead to predictions on the unsafe side, especially for pipe piles and H-piles. Therefore, it would appear that load tests are fully justified in deposits where experience is not available.

SYMBOLS AND NOTATION

In general, the symbols conform to those used in HRB Special Report 36. Those that appear on the drawings are as follows:

- $LL$ = liquid limit, in percent dry weight;
- $PL$ = plastic limit, in percent dry weight;
- $PI$ = plasticity index, in percent dry weight;
- $NP$ = non-plastic;
- $N$ = standard penetration resistance, in blows per foot of hammer weighing 140 lb, falling 30 in. on 2-in. O.D. sampling spoon;
- $N_u$ = penetration resistance from test similar but not identical to standard penetration test (details are given on the appropriate pile test data sheets); and
- $q_u$ = unconfined compressive strength, in tons per square foot.

In some of the records the blows per foot of penetration of the test pile are given, together with details of the hammer. In others, the driving record has been converted to tons of capacity as calculated by a pile-driving formula. Where the information was furnished in accordance with the latter procedure, the formula used for the conversion is given on the data sheets. In these formulas,

- $Q_a$ = calculated bearing value, in tons;
- $W$ = weight of ram hammer, in tons;
- $W_p$ = weight of pile, in tons;
- $H$ = height of fall of ram, in feet; and
- $s$ = penetration under last blow of hammer, in inches.

ACKNOWLEDGMENT

Grateful acknowledgment is made to Kaare Flaate, Professor J.S. Dobrovolny, and T.S. Lau for their assistance in preparing and checking the drawings.
# Index of Pile Charts

**(by Number)**

## ACCORDING TO TYPE OF PILE

### Untreated Timber


### Treated Timber

114, 141, 182-184, 318-321, 326, 405, 412

### Cylindrical Pipe


### Steel H Section

26-31, 34-36, 57, 59, 60, 64-76, 93, 94, 144-146, 152-156, 161, 174, 201-204, 353-357, 373-376, 382, 386, 387, 401, 402, 406-408

### Precast Concrete


### Monotube


### Step Taper

14, 21, 99, 100, 105, 107, 109, 135, 162, 264, 328, 346, 371, 393-395

### Other

124, 219-224, 236-238, 243, 244, 342, 343, 345

## ACCORDING TO TYPE OF SOIL

### Sand, Gravel, Silty Sand


### Clay


### Silt

33, 41, 66-69, 141, 373

### Mixed or Stratified Sand, Silt or Clay

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**PILE TEST DATA**

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<td><strong>CONTRACTOR</strong></td>
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<td><strong>TESTED BY</strong></td>
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| **HAMMER TYPE** | STEAM, Valve no. 2 | **PILE TYPE** | TIMBER, untreated |
| **WEIGHT** | 13.6 | **PILE DIMENSIONS** | dmin = 16", dmax = 64" |
| **STROKE** | 39 in | **WEIGHT** | 7260 lbs |
| **ENERGY** | 43 ft-lb | **DRIVEN LENGTH** | 68 ft |
| **BLOWS PR MIN** | | **EMBEDDED LENGTH** | 68 ft |

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**REMARKS.**
- PONTCHARTRAIN EXPRESSWAY
- CHENALTON AIRLINE INTER-
- CHANGE, STAGE 1
- TEST PILE NO 61

**SOURCE OF INFORMATION.**
- LOUISIANA DEPARTMENT OF HIGHWAYS

**FILE No.**
- J 340
# Pile Test Data

**Location:** New Orleans, Louisiana  
**Date Driven:** Feb 9, 1954  
**Date Tested:** Feb 23 - Mar 4, 1954

**Hammer Type:** Steam, Vulcan No. 2  
**Pile Type:** Timber, untreated

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</tbody>
</table>

**Remark:** Pontchartrain Expressway Carrollton-Airline Interchange, Stage I  
**Test Pile No. 23**  
**Sta 83+00, 60' Left of Baseline**

**Source of Information:** Louisiana Department of Highways  
**File No.:** J 340
**PILE TEST DATA**

**LOCATION** NEW ORLEANS, LOUISIANA  
**DATE DRIVEN** FEB. 9, 1954  
**DATE TESTED** FEB. 29 - MAR. 4, 1954  
**OWNER**  
**CONTRACTOR**  
**TESTED BY**  

**HAMMER TYPE** STEAM, Vulcan No. 2  
**WEIGHT**  
**STROKE**  
**ENERGY** 7260 ft.lbs  
**BLOWS PR MIN**  
**FINAL PENETRATION**  

**PILE TYPE** TIMBER, Untreated  
**PILE DIMENSIONS** d<sub>max</sub> = 16", d<sub>min</sub> = 7/4"  
**WEIGHT**  
**DRIVEN LENGTH** 68 ft  
**EMBEDDED LENGTH** 68 ft  

---

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Shell clay</td>
<td>0</td>
<td>Top of pile</td>
</tr>
<tr>
<td>50</td>
<td>Silt clay</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Silty clay</td>
<td>30</td>
<td></td>
</tr>
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**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Shell clay</td>
<td>0</td>
<td>Top of pile</td>
</tr>
<tr>
<td>50</td>
<td>Silt clay</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Silty clay</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

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**REMARKS.** PONTCHEBATRAIN EXPRESSWAY  
CARECOLTON - AIRLINE INTER-  
CHANGE, STAGE 1  
TEST PILE NO. C-4  

**SOURCE OF INFORMATION**  
FILE No.  
LOUISIANA DEPARTMENT OF HIGHWAYS  
J. 340
PILE TEST DATA

LOCATION: NEW ORLEANS, LOUISIANA
DATE DRIVEN: 8 FEBRUARY 1955
DATE TESTED: 4-8 MARCH 1955

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM VULCAN NO. 2
WEIGHT: 18 T
STROKE: 29 in.
ENERGY: 435 in.-tons
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE: UNTREATED TIMBER
PILE DIMENSIONS: Tapered Tip diam. 8" Butt diam. 18" WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 64 ft

TEST LOAD (TONS)

SOIL DESCRIPTION
DEPTH FT
PENETRATION RATE

TEST LOAD IN TONS

SOIL DESCRIPTION
DEPTH FT
PENETRATION RATE

REMARKS
Test Pile No C-9, Carillon -
Airport Interchange -
Pontchartrain Expressway
Stage I, Sta. 95+00 - 95+95 left of E

SOURCE OF INFORMATION
FILE NO.
STATE OF LOUISIANA
DEPT OF HIGHWAYS
LOUISIANA
J540
PILE TEST DATA

LOCATION: NEW ORLEANS, LOUISIANA

DATE DRIVEN: 5 FEBRUARY 1956
DATE TESTED: 4-8 MARCH 1956

HAMMER TYPE: STEAM VULCAN No. 2
WEIGHT: 1.5 t
STROKE: 2.9 in
ENERGY: 43.5 in-lbs

PILE TYPE: TREATED TIMBER
PILE DIMENSIONS: Tapered Tip Dia. 6.5" Butt Dia. 14"

TESTED BY:

OWNER:
CONTRACTOR:

ENERGY:
BLOWS PR. MIN:
FINAL PENETRATION:

SOIL DESCRIPTION

TEST LOAD (TONS)

TESTS
O 4 MARCH TEST
O 7 MARCH TEST

DEPTH (FT)

PENETRATION RATE

INCHES

SETTLEMENT

Q = 2 W / H

6.0

C = 0.1

REMINDERS:
Test Pile No. C-10-Carrollton-Airline Interchange-
Pontchartrain Expressway

SIO 97'45" 60'45" left of E

SOURCE OF INFORMATION:
FILE No:
STATE OF LOUISIANA: LOUISIANA
DEPT OF HIGHWAYS: 1640
**PILE TEST DATA**

- **LOCATION**: NEW ORLEANS LOUISIANA
- **DATE DRIVEN**: 11 FEBRUARY 1954
- **DATE TESTED**: 8-12 MARCH 1954

**HAMMER TYPE**: STEAM VULCAN No2
- **WEIGHT**: 1.5t
- **STROKE**: 29 in
- **ENERGY**: 635 in-tons
- **BLOWS PR MIN**: 
- **FINAL PENETRATION**: 

**PILE TYPE**: Untreated Timber
- **PILE DIMENSIONS**: Tapered Tip diam 7” Butt diam 18”
- **WEIGHT**: 
- **DRIVEN LENGTH**: 
- **EMBEDDED LENGTH**: 

<table>
<thead>
<tr>
<th>PILE TYPE</th>
<th>PILE DIMENSIONS</th>
<th>HAMMER TYPE</th>
<th>WEIGHT</th>
<th>STROKE</th>
<th>ENERGY</th>
<th>BLOWS PR MIN</th>
<th>FINAL PENETRATION</th>
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</thead>
<tbody>
<tr>
<td>Untreated Timber</td>
<td>Tapered Tip diam 7” Butt diam 18”</td>
<td>STEAM VULCAN No2</td>
<td>1.5t</td>
<td>29 in</td>
<td>635 in-tons</td>
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**TEST LOAD (TONS)**

<table>
<thead>
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<th>TEST LOAD</th>
<th>25</th>
<th>50</th>
<th>75</th>
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<tbody>
<tr>
<td>0 8 MARCH TEST</td>
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</tr>
<tr>
<td>0 11 MARCH TEST</td>
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**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10, 20, 30 Tons</td>
<td>Optimum of Penetration</td>
</tr>
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</table>

**FURTHER INFORMATION**

**REMARKS.**

Test Pile No C.11 Carrolton Airline Interchange Pontchartrain Expressway
Stage I Sta 100+43-65 ft rt. of E

**SOURCE OF INFORMATION**

FILE No.
STATE OF LOUISIANA LOUISIANA
DEPT OF HIGHWAYS JS40
# PILE TEST DATA

**LOCATION**: New Orleans, Louisiana  
**DATE DRIVEN**: 12 February 1954  
**DATE TESTED**: 8-12 March 1954  
**OWNER**  
**CONTRACTOR**  
**TESTED BY**

**Hammer Type**: Steam, Vulcan No. 2  
**Weight**: 15 ft, 3000 lbs  
**Stroke**: 2½ in, 242 ft.  
**Energy**: 63.5 in-tons, 7260 ft-lbs  
**BLOWS PR MIN**  
**Final Penetration**

<table>
<thead>
<tr>
<th>Hammer Type</th>
<th>Screwed Tip, 7&quot;</th>
<th>Pile Dimensions</th>
<th>Tapered Tip, 7&quot;</th>
<th>Butt diam 14&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>15 ft, 3000 lbs</td>
<td>Stroke</td>
<td>2½ in, 242 ft.</td>
<td>Energy</td>
</tr>
<tr>
<td>Final Penetration</td>
<td>7260 ft-lbs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Pile Type**: Untreated Timber  
**Pile Dimensions**: Tapered Tip, 7"; Butt diam, 14"  
**Weight**: 3000 lbs  
**Driven Length**: 7260 ft-lbs  
**Embedded Length**

<table>
<thead>
<tr>
<th><strong>TEST LOAD (TONS)</strong></th>
<th><strong>SOIL DESCRIPTION</strong></th>
<th><strong>DEPTH FT</strong></th>
<th><strong>PENETRATION RATE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Shell, silty clay</td>
<td>20</td>
<td>Bottom of footing</td>
</tr>
<tr>
<td>50</td>
<td>Sandy, clay</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Sandy, clay</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sandy, clay loam</td>
<td>60</td>
<td>Tip of pile</td>
</tr>
<tr>
<td></td>
<td>Sandy, silty clay</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sandy, loam</td>
<td>100</td>
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</tr>
</tbody>
</table>

**Source of Information**: File No.  
**State of Louisiana**: Louisiana  
**Dept. of Highways**: JS60

**Remarks**:  
- Test pile No. 6-14, Carrollton  
- Airline Interstate  
- Pantchartrain Expressway  
- Stage 1, Sta 106+00-300 ft, left of q.

**C = 0.1**

**G = 2 x 10^6 lb**
**PILE TEST DATA**

- **LOCATION**: NEW ORLEANS, LOUISIANA
- **DATE DRIVEN**: 12 FEBRUARY 1954
- **DATE TESTED**: 9-13 MARCH 1954
- **OWNER**: [Name]
- **CONTRACTOR**: [Name]
- **TESTED BY**: [Name]

**HAMMER TYPE**: STEAM VULCAN NO. 2
- **WEIGHT**: 1.5 T
- **STROKE**: 29 in
- **ENERGY**: 43.5 in·tons
- **BLOWS PR MIN**: [Value]
- **FINAL PENETRATION**: [Value]

**PILE TYPE**: Untreated Timber
- **PILE DIMENSIONS**: Tapered Tip diam 6¼ in, Butt diam 15¼ in
- **WEIGHT**: [Value]
- **DRIVEN LENGTH**: [Value]
- **EMBEDDED LENGTH**: [Value]

### TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOIL DESCRIPTION</strong></td>
<td>LL Pile clay</td>
<td>LL Pile clay</td>
<td>LL Pile clay</td>
</tr>
<tr>
<td><strong>DEPT FT</strong></td>
<td>Bottom of Footing</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td><strong>PENETRATION RATE</strong></td>
<td>10</td>
<td>15 Tons</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**: LL Pile clay, LL sandy clay

**DEPTH**: 20-40 ft

**SOURCE OF INFORMATION FILE No.**: STAGE 1 STA 107+90-25 ft rt of d

**STATE OF LOUISIANA**: LOUISIANA
**DEPT OF HIGHWAYS**: J.S.40
### PILE TEST DATA

**LOCATION** NEW ORLEANS, LOUISIANA

**DATE DRIVEN** 12 FEBRUARY 1954

**DATE TESTED** 8-12 MARCH 1954

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** STEAM VULCAN No. 2

**PILE TYPE** UNTREATED TIMBER

**WEIGHT** 1st  3000 lbs

**STROKE** 2.9 in

**ENERGY** 43.5 m·tons 7260 ft·lbf

**BLOWS PR MIN**

**FINAL PENETRATION**

**PILE TYPE**

**PILE DIMENSIONS** Tapered Tip 2.5" Butt diam. 16"

**WEIGHT**

**DRIVEN LENGTH**

**EMBEDDED LENGTH**

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>LL PIW</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>small &amp; clay</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Sandy loam</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>GP PIW</td>
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<tr>
<td></td>
<td>sandy loam</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>silty clay</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>20</td>
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</tr>
<tr>
<td>75</td>
<td>GP PIW</td>
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<tr>
<td></td>
<td>sandy loam</td>
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<td></td>
<td>silty clay</td>
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</tr>
<tr>
<td></td>
<td>20</td>
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</tr>
</tbody>
</table>

**SOURCE OF INFORMATION** STATE OF LOUISIANA

**FILE NO.** J 540

**REMARKS.** Test Pile No. C-16 Corroration Airline Interchange Poyehcharyiun Expressway

Stage 1 Spec 110 R00: 50ft left of y
PILE TEST DATA

LOCATION: NEW ORLEANS, LOUISIANA
DATE DRIVEN: 3 FEBRUARY 1956
DATE TESTED: 23-27 FEBRUARY 1956

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE: STEAM Vulcan No 2
WEIGHT: 15 ft
STROKE: 29 in
ENERGY: 495 in-tons
BLOWS: PR MIN

PILE TYPE: Untreated Timber
PILE DIMENSIONS: Tapered Tip diam 7" Butt diam 16"
WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH:

---

TEST LOAD (TONS)
25 50 75

SOIL DESCRIPTION

DEPT FT

PENETRATION RATE

5 10 15 tons

0.25

0.50

REMARKS. Test Pile No C-19 Carrollton Airline Interchange Pontchartrain Expressway

SPEED 1 STG. 87 x 27

SOURCE OF INFORMATION FILE NO
STATE OF LOUISIANA DEPT. OF HIGHWAYS
LOUISIANA
JS80
LOCATION: NEW ORLEANS, LOUISIANA
DATE DRIVEN: 15 MARCH 1954
DATE TESTED: 26-30 APRIL 1954
OWNER:
CONTRACTOR:
TESTED BY:

HAMMER TYPE: STEAM VULCAN No. 2
WEIGHT: 1.5 tons
STROKE: 29 in.
ENERGY: 43.5 in.-tons
BLOWS PR MIN:
FINAL PENETRATION:

PILE TYPE: TIMBER
PILE DIMENSIONS: Tapered Tip Diam. 6 1/2", Butt Diam 17 1/2"
WEIGHT: 3,015 lbs
DRIVEN LENGTH: 85 ft
EMBEDDED LENGTH: 83.4 ft

TEST LOAD (TONS)
25 50 75
30 Day Test
60 Day Test

SOIL DESCRIPTION
DEPTH FT PENETRATION RATE
10 20 30 tons

REMARKS:
Test Pile No. 1. Bridge over inner harbor navigation canal at North Claiborne Ave.

SOURCE OF INFORMATION
FILE NO.
STATE OF LOUISIANA: LOUISIANA
DEPT. OF HIGHWAYS: JS40
### PILE TEST DATA

**LOCATION**

NEW ORLEANS, LOUISIANA

**DATE DRIVEN**

16 MARCH 1954

**DATE TESTED**

13-17 APRIL 1954

**OWNER**


**CONTRACTOR**


**TESTED BY**


**HAMMER TYPE**

STEAM Vulcan No 2

**WEIGHT**

1.5 t

**STROKE**

29 in

**ENERGY**

43.5 in tons

**BLOWS PR MIN.**


**FINAL PENETRATION**


**PILE TYPE**

Timber

**PILE DIMENSIONS**

Tapered Tip diam = 6", Butt diam .20"

**WEIGHT**


**DRIVEN LENGTH**

85 ft

**EMBEDDED LENGTH**

73 ft

---

### TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEST LOAD</td>
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### SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
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</tr>
<tr>
<td>40</td>
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</tr>
<tr>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

### REMARKS

Test Pile No 2 – Bridge over inner harbor navigation canal at North Calabane Ave

STA 15+10 - 60 ft (F of Q)

### SOURCE OF INFORMATION

FILE No.
STATE OF LOUISIANA  LOUISIANA
DEPT OF HIGHWAYS  J 540
**PILE TEST DATA**

**LOCATION** New Orleans, Louisiana
**DATE DRIVEN** 17 March 1954
**DATE TESTED** 26-30 April 1954
**OWNER**
**CONTRACTOR**
**TESTED BY**

**HAMMER TYPE** Steam Vulcan No 1
**WEIGHT** 2500 lbs
**STROKE** 36 in
**ENERGY** 90 in tons
**BLOWS PR MIN**
**FINAL PENETRATION**

**PILE TYPE** Steel Monotube
**PILE DIMENSIONS** Tapered 8 x 14
**WEIGHT**
**DRIVEN LENGTH** 85 ft
**EMBEDDED LENGTH** 73 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>30</th>
<th>75</th>
<th>100</th>
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</thead>
<tbody>
<tr>
<td>26 APRIL</td>
<td>26 APRIL</td>
<td>30 APRIL</td>
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**SOIL DESCRIPTION**

<table>
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<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
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<tbody>
<tr>
<td>0.35</td>
<td>10</td>
</tr>
<tr>
<td>0.5</td>
<td>20</td>
</tr>
<tr>
<td>20</td>
<td>30</td>
</tr>
</tbody>
</table>

**SOIL**
- Clay with sand & silts
- Fine sand
- Clayey silt
- Silty clay
- Sandy silt
- Fine sandy silt

**REMARKS**
Test pile No 2 M - Bridge over inter harbor navigation canal at North Claiborne Ave.
Std 15+22 - 60 ft of E

**SOURCE OF INFORMATION**
STATE OF LOUISIANA
DEPT OF HIGHWAYS
FILE N.
1540
**PILE TEST DATA**

**LOCATION** New Orleans, Louisiana

**DATE DRIVEN** 18 March 1954

**DATE TESTED** 17-18 May 1954

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** Steam Vulcan No. 1

**WEIGHT** 2500 lbs

**STROKE** 36 in

**ENERGY** 90 ft lbs

**BLOWS PR MIN**

**FINAL PENETRATION** 1900 lbs

**PILE TYPE** Raymon

**PILE DIMENSIONS** Tapered 8 1/8" 1/4"

**WEIGHT**

**DRIVEN LENGTH** 64 ft

**EMBEDDED LENGTH** 22 ft

---

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH</th>
<th>PENETRATION RATE</th>
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<tbody>
<tr>
<td>25</td>
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<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TEST LOAD**

\[ G_0 = \frac{2WkH}{sp} \]

where:

- \( G_0 \) is the settlement in inches
- \( W \) is the test load in tons
- \( k \) is the modulus of subgrade reaction
- \( s \) is the distance from the pile to the center of the load
- \( p \) is the pressure

**REMARKS**

Test Pile No. 2R - Bridge over inner harbor navigation canal at North Claiborne Ave.

Sta 16+98 - 60 ft N, 50 ft E - Pile Failed

**SOURCE OF INFORMATION**

State of Louisiana, Louisiana

DEPT. OF HIGHWAYS

FILE N.

JS 40
- PILE TEST DATA -

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>NEW ORLEANS, LOUISIANA</th>
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<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>17 MARCH 1954</td>
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<tr>
<td>DATE TESTED</td>
<td>17-21 MAY 1954</td>
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<tr>
<td>HAMMER TYPE</td>
<td>STEAM VULCAN NO 1</td>
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<tr>
<td>WEIGHT</td>
<td>25 ft</td>
</tr>
<tr>
<td>STROKE</td>
<td>36 in</td>
</tr>
<tr>
<td>ENERGY</td>
<td>50,000 ft-lbs</td>
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<td>BLOWS PR MIN</td>
<td></td>
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<tr>
<td>FINAL PENETRATION</td>
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<td>DATE TESTED</td>
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<td>OWNER</td>
<td></td>
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<td>CONTRACTOR</td>
<td></td>
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<tr>
<td>Tested by</td>
<td></td>
</tr>
<tr>
<td>PILE TYPE</td>
<td>STEEL PIPE</td>
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<td>PILE DIMENSIONS</td>
<td>Diam 14&quot;</td>
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<tr>
<td>DRIVEN LENGTH</td>
<td>85 ft</td>
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<td>EMBEDDED LENGTH</td>
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<th>TEST LOAD (TONS)</th>
<th>10</th>
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<th>30 TONS</th>
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<td>75</td>
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<tr>
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<th>10</th>
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<tr>
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<table>
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<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
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<tbody>
<tr>
<td>Clay</td>
<td>20</td>
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<td>Sand</td>
<td>40</td>
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<td>Silt</td>
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<td>Sand</td>
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</tbody>
</table>

| REMARKS | Test Pile No 2P - Bridge over inner harbor navigation channel at North Claiborne Ave. Site 15x10.48 ft x 6 ft. Pile failed |

<table>
<thead>
<tr>
<th>SOURCE OF INFORMATION</th>
<th>STATE OF LOUISIANA</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILE NO.</td>
<td>Louisiana</td>
</tr>
<tr>
<td>DEPT. OF HIGHWAYS</td>
<td>USCG</td>
</tr>
</tbody>
</table>
PILE TEST DATA

LOCATION  NEW ORLEANS, LOUISIANA
DATE DRIVEN  25 MARCH 1954
DATE TESTED  13-17 APRIL 1954

HAMMER TYPE  STEAM VULCAN NO 2
WEIGHT  1.5 t
STROKE  2.9/10
ENERGY  43.5 in tons
BLOWS PR MIN

OWNER
CONTRACTOR
TESTED BY

PILE TYPE  TIMBER
PILE DIMENSIONS  Tapered Tip diam.
6 1/4", Butt diam. 14 1/2"
WEIGHT
DRIVEN LENGTH  91 ft
EMBEDDED LENGTH  57 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH (FT)

PENETRATION RATE

TESTED BY

REMARKS. Test Pile No 7. Bridge over inner harbor navigation canal at North Claiborne Ave. Sta 21+20 - 66 ft left of E.

SOURCE OF INFORMATION  FILE NO.
STATE OF LOUISIANA  LOUISIANA
DEPT OF HIGHWAYS  J.540
**PILE TEST DATA**

**LOCATION** New Orleans, Louisiana

**DATE DRIVEN** 18 April 1954

**DATE TESTED** 3-7 May 1954

**OWNER** 

**CONTRACTOR** 

**TESTED BY** 

**HAMMER TYPE** Steam Vulcan No 2

**WEIGHT** 1.5 ft 3000 lbs

**STROKE** 29 in 242 ft

**ENERGY** 43.5 in-tons 7260 ft-lbs

**BLOWS PR MIN** 

**FINAL PENETRATION** 

---

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
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</tbody>
</table>

**TEST LOAD (TONS)**

- 25
- 50
- 75

**SOIL DESCRIPTION**

- water
- clay of organic matter
- clay of silty layers
- clay with silt lenses
- sandy soil with sand lenses
- silt lenses
- sand lenses
- will lenses

**DEPTH FT**

- 10
- 20
- 30 tons

**PENETRATION RATE**

- 0
- 10
- 20
- 30
- 40
- 50
- 60
- 70
- 80
- 90
- 100

**REMARKS.** Test pile No 9. Bridge over inner harbor navigation canal at North Claiborne Ave. Stag 25+50-50 ft left of g.

**SOURCE OF INFORMATION**

- State of Louisiana
- Louisiana
- Dept of Highways
- J340
**PILE TEST DATA**

**LOCATION** NEW ORLEANS, LOUISIANA

**DATE DRIVEN** 30 MARCH 1954

**DATE TESTED** 3-7 MAY 1954

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** STEAM VULCAN NO 2

**WEIGHT** 1.5t 3000 lbs

**STROKE** 29 in 242 ft

**ENERGY** 43.5 in-tons 7260 ft-lbs

**BLOWS PR MIN**

**FINAL PENETRATION**

**PILE TYPE** TIMBER

**PILE DIMENSIONS** Tapered Tipt diam 7 1/2", Butt diam 15 1/2"

**WEIGHT**

**DRIVEN LENGTH** 75 ft

**EMBEDDED LENGTH** 63.5 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
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<tbody>
<tr>
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</tbody>
</table>

**SOIL DESCRIPTION**

- Clay
- Sand
- Silt
- Silt with sand
- Clay with sand
- Silt lenses
- Fine sand
- Clay
- Silt
- Fine sand
- Clay

**REMARKS.** Test pile No 10 - Bridge over inner harbor navigation canal at North Claiborne Ave. Std. 25-00: 60th left of E flg failed

**SOURCE OF INFORMATION**

**FILE NO.** 1540

**STATE OF LOUISIANA**

**DEPT OF HIGHWAYS**
**PILE TEST DATA**

**LOCATION**: New Orleans, Louisiana

**DATE DRIVEN**: 29 March 1954

**DATE TESTED**: 3-7 May 1954

**HAMMER TYPE**: Steam Vulcan No. 2

**WEIGHT**: 3000 lbs

**STROKE**: 29 in

**ENERGY**: 49.5 in tons

**DATE TESTED**: 3-7 May 1954

**PILE TYPE**: Timber

**PILE DIMENSIONS**: Tapered Tip diam

**WEIGHT**: 75 ft

**DRIVEN LENGTH**: 75 ft

**EMBEDDED LENGTH**: 61 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH (FT)</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
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</table>

**REMARKS**: Test Pile No. 11. Bridge over inner harbor navigation canal at North Claiborne Ave. Std. 30±0.39 ft left of E

**SOURCE OF INFORMATION**: File No. 15-40

**STATE OF LOUISIANA**: Louisiana

**DEPT OF HIGHWAYS**: 15-40
-PILE TEST DATA-

LOCATION: New Orleans, Louisiana

DATE DRIVEN: 30 March 1954
DATE TESTED: 10 May 1954

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: Steam Vulcan No. 1
WEIGHT: 2.5 tons
STROKE: 36 in
ENERGY: 5000 lbs ft
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE: Steel Monotube
PILE DIMENSIONS: Tapered, 8 x 8
WEIGHT: 85 tons
DRIVEN LENGTH: 85 ft
EMBEDDED LENGTH: 60 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
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<tbody>
<tr>
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</table>

SOIL DESCRIPTION
- Clay
- Clay and Gravel
- Silt clay
- Clay with sand
- Silt
- Fine sand with shells
- Clay with sand and gravel
- Silt
- Clay with gravel
- Clay with sand
- Clay
- Fine sand
- Clay

DEPTH: 10, 20, 30 tons

Penetration Rate: 0 to 30 ft

REMARKS: Test pile No. 111M - Bridge over inner harbor navigation canal at North Claiborne Ave. Site 20 ft 38 ft left of pier. File Failed.

SOURCE OF INFORMATION: STATE OF LOUISIANA
FILE N. 7540

DEPT OF HIGHWAYS
**PILE TEST DATA**

**LOCATION** New Orleans, Louisiana

**DATE DRIVEN** 31 March 1954

**DATE TESTED** 10 May 1954

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** Steam Vulcan No. 1

**PILE TYPE** Raymond

**WEIGHT** 2.5 T 5000 lbs

**STROKE** 3.6 in 30 ft

**ENERGY** 30 in 100 15,000 ft-lbs

**BLOWS PR MIN**

**FINAL PENETRATION**

**PILE DIMENSIONS**

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<thead>
<tr>
<th>Diameter</th>
<th>Elevation</th>
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</table>

**TEST LOAD (TONS)**

<table>
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<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth FT</th>
<th>Penetration Rate</th>
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</table>

**SOIL DESCRIPTION**

- LL PW 90 yrs.
- LL PW 13 yrs.
- LL PW 23 yrs.
- Clay & Humus
- Clay & sand
- Clay & silt
- Clay & gravel
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PILE TEST DATA

LOCATION: NEW ORLEANS, LOUISIANA
DATE DRIVEN: 30 MARCH 1954
DATE TESTED: 17-21 MAY 1954

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM, VULCAN NO. 1
WEIGHT: 2.5 T
STROKE: 36 IN
ENERGY: 90 IN. TENS, 15000 FT.-LBS.
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE: STEEL PIPE
PILE DIMENSIONS: DIA 4.4"
WEIGHT
DRIVEN LENGTH: 80 FT
EMBEDDED LENGTH

WEIGHT
STROKE
ENERGY

SOIL DESCRIPTION
TEST LOAD (TONS)

DEPTH FT
PENETRATION RATE

TEST LOAD IN TONS

SETTLEMENT IN INCHES

REMARKS: Test Pile No. 11P-Bridge over inner harbor navigation canal at North Claiborne Ave Sta 30+00. Silt left of E.

SOURCE OF INFORMATION
FILE No.
STATE OF LOUISIANA
DEPT OF HIGHWAYS

J540
# Pile Test Data

<table>
<thead>
<tr>
<th>Location</th>
<th>New Orleans, Louisiana</th>
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</thead>
<tbody>
<tr>
<td>Date Driven</td>
<td>18 May 1954</td>
</tr>
<tr>
<td>Date Tested</td>
<td>31 May - 4 June 1954</td>
</tr>
<tr>
<td>Hammer Type</td>
<td>Steam Vulcan No 1</td>
</tr>
<tr>
<td>Weight</td>
<td>2,500 lbs</td>
</tr>
<tr>
<td>Stroke</td>
<td>36 in</td>
</tr>
<tr>
<td>Energy</td>
<td>90 in² in 105</td>
</tr>
<tr>
<td>B.M.</td>
<td>16,000 lb-in</td>
</tr>
<tr>
<td>Blows per min</td>
<td></td>
</tr>
<tr>
<td>Final Penetration</td>
<td></td>
</tr>
</tbody>
</table>

| Pile Type         | Steel Monotube        |
| Pile Dimensions   | Tapered: 8 x 16       |
| Weight            |                       |
| Driven Length     | 95 ft                 |
| Embedded Length   | 89 ft                 |

## Test Load (Tons)

<table>
<thead>
<tr>
<th>Load Tons</th>
<th>25</th>
<th>50</th>
<th>75</th>
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</thead>
<tbody>
<tr>
<td>Test Load</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
</tr>
<tr>
<td>Test Date</td>
<td>31 May Test</td>
<td>1 June Test</td>
<td>3 June Test</td>
</tr>
</tbody>
</table>

## Soil Description

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>100</td>
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<tr>
<td>60</td>
<td>120</td>
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</tbody>
</table>

## Remarks

Test Pile No 10 M - Bridge over inner harbor navigation canal at North Claiborne.

Ave Sta 27-92.56' left of E.

-PILE TEST DATA-

LOCATION: NEW ORLEANS, LOUISIANA

DATE DRIVEN: 14 MAY 1954
DATE TESTED: 31 MAY - 4 JUNE 1954

OWNER:

CONTRACTOR:

TESTED BY:

HAMMER TYPE: STEAM VULCAN NO 1
WEIGHT: 25 ft 5000 lbs
STROKE: 36 in
ENERGY: 90 in·tons 15,000 ft·lbs
BLOWS PR MIN:
FINAL PENETRATION:

PILE TYPE: STEEL MONOTUBE
PILE DIMENSIONS: Tapered 8x14
WEIGHT:
DRIVEN LENGTH: 95 ft
EMBEDDED LENGTH: 86 ft

TEST LOAD (TONS):

25 50 75

SOIL DESCRIPTION:

DEPTH FT

PENETRATION RATE

SOURCE OF INFORMATION

FILE N.

STATE OF LOUISIANA

LOUISIANA

DEPT OF HIGHWAYS

J 540

REMARKS: Test Pile No 112M - Bridge over inner harbor navigation canal at North Claiborne Ave Sta. 29+84 .34 ft left of I.
### Pile Test Data

**Location:** New Orleans, Louisiana  
**Owner:**  
**Date Driven:** 17 May 1954  
**Date Tested:** 31 May – 4 June 1954  
**Contractor:**  
**Tested By:**

#### Hammer Type
- **Steam Vulcan No. 1**
  
#### Pile Type
- **Steel Monotube**

#### Pile Dimensions
- **Tapered 8x14**

#### Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (FT)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
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<td>LL FL W</td>
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<td>50</td>
<td>71.57</td>
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<td>75</td>
<td>60/20/32</td>
<td>60/40/62</td>
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<td></td>
<td>44.17/48</td>
<td>69/45/33</td>
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<td>64.67/66</td>
<td>96.6/85/66</td>
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<td>96.6/85/66</td>
<td>128/11/3</td>
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<td>144/105/29</td>
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<td>176/150/6</td>
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<td>224/215/20</td>
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<td>256/245/30</td>
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<td>272/260/35</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>288/275/40</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>304/290/45</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>320/305/50</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>336/320/55</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>352/335/60</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>368/350/65</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>384/365/70</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>400/380/75</td>
<td></td>
</tr>
</tbody>
</table>

#### Remarks:
- Test Pile No. 13 M. Bridge over inner harbor navigation canal at North Claiborne Ave. 39.5. 18 ft left of E.

#### Source of Information
- **State of Louisiana**  
- **Louisiana Dept. of Highways**

---

**Settlement in Inches**

\[ Q_o = \frac{2W_h H^2}{c^2} \]

**Initial Settled:**

- 0.25 in.

**Final Settled:**

- 0.05 in.
PILE TEST DATA

LOCATION: BARKSDALE FIELD, LOUISIANA
DATE DRIVEN: 16 FEBRUARY 1955
DATE TESTED: 28 FEB - 5 MARCH 1955

OWNER:

CONTRACTOR:

TESTED BY:

HAMMER TYPE: STEAM VULCAN NO 1
WEIGHT: 2.5 t
STROKE: 36 in.
ENERGY: 90 in tons
BLOWS PR MIN:

PILE TYPE: STEEL - WIDE FLANGE - H
PILE DIMENSIONS: 12" - 53 Ibs
WEIGHT:

DRIVEN LENGTH:
EMBEDDED LENGTH:

TEST LOAD (TONS)

25
50
75

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

0.25

0.50

TESTED BY:

DATE TESTED: 28 FEB - 5 MARCH 1955

REMARKS:

Test Pile No 1 - Red River Bridge Substructure

Design load 22.3 T

SOURCE OF INFORMATION

FILE No.
STATE OF LOUISIANA
LOUISIANA
DEPT OF HIGHWAYS

J.860
-PILE TEST DATA-

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>Barksdale Field, Louisiana</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>16 February 1955</td>
</tr>
<tr>
<td>DATE TESTED</td>
<td>7-12 March 1955</td>
</tr>
<tr>
<td>OWNER</td>
<td></td>
</tr>
<tr>
<td>CONTRACTOR</td>
<td></td>
</tr>
<tr>
<td>TESTED BY</td>
<td></td>
</tr>
</tbody>
</table>

| HAMMER TYPE    | Steam Vulcan No 1                        |
| WEIGHT         | 5000 lbs                                 |
| STROKE         | 36 in                                    |
| ENERGY         | 30 in tons                               |
| BLOWS PR MIN   |                                         |
| FINAL PENETRATION |                                         |
| PILE TYPE      | Steel - Wide Flange - H-Pile            |
| PILE DIMENSIONS| 12" - 53 lbs                             |
| WEIGHT         | 95 ft                                    |
| DRIVEN LENGTH  |                                         |
| EMBEDDED LENGTH| 71.5 ft                                  |

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**

Test Pile No 2 - Rod River Bridge Substructure 3727 12 0.725 2.1 ft of 0.7 Design load 22.3 ft

**SOURCE OF INFORMATION**

Source of Information: State of Louisiana Louisiana

**FILE No.**

File No.: J-540

**DEPT OF HIGHWAYS**

Dept of Highways: J-540
LOCATION: Barksdale Field, Louisiana

DATE DRIVEN: 20 October 1954

DATE TESTED: 1-6 November 1954

OWNER:

CONTRACTOR:

TESTED BY:

HAMMER TYPE: Steam Vulcan No. 1

WEIGHT: 2.5ton

STROKE: 36 in.

ENERGY: 30 in.-tons

PILE TYPE: Steel Wide Flange Pile

PILE DIMENSIONS: 12 x 33 in.

WEIGHT:

DRIVEN LENGTH: 85 ft

EMBEDDED LENGTH:

TEST LOAD (TONS):

<table>
<thead>
<tr>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>O 1 NOVEMBER TEST</td>
<td>A 5 NOVEMBER TEST</td>
<td></td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION:

16

Silty sand and lenses of soft clay

20

Fine sand

26

Fine to coarse sand & gravel

37

Fine to medium sand

40

Med to coarse sand & gravel

52

Silty clay & silt

80

Silty loam

REMARKS:

Test Pile No. 3 Red River Bridge Substructure 570 110 + 48 & 42 ft of E Design load

223 ft

SOURCE OF INFORMATION:

STATE OF LOUISIANA

FILE NO.:

Lousiana

DEPT OF HIGHWAYS: 1540
**-PILE TEST DATA-**

**LOCATION**
Barksdale Field Louisiana

**DATE DRIVEN**
28 October 1954

**DATE TESTED**
9-23 November 1954

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE**
Steam Vulcan No. 1

**WEIGHT**
2.5 T

**STROKE**
36 in

**ENERGY**
90 in-tons

**BLOWS PR MIN**

**FINAL PENETRATION**

**PILE TYPE**
Steel-Wide Flange H-Pile

**PILE DIMENSIONS**
12" - 53 lbs

**WEIGHT**

**DRIVEN LENGTH**
75 ft

**EMBEDDED LENGTH**
62 ft

**PILE**
Type

**WEIGHT**

**DRIVEN LENGTH**

**EMBEDDED LENGTH**

### TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>Test Load</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.35</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.40</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.45</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>Description</th>
<th>Depth FT</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silty clay &amp; loam</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Fine to medium sand</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>Med to coarse sand &amp; gravel</td>
<td>40</td>
<td>30</td>
</tr>
<tr>
<td>Fine to medium sand</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>Silty clay &amp; loam</td>
<td>60</td>
<td>70</td>
</tr>
<tr>
<td>Fine to medium sand &amp; gravel</td>
<td>70</td>
<td>80</td>
</tr>
<tr>
<td>Silty clay &amp; loam</td>
<td>80</td>
<td>90</td>
</tr>
<tr>
<td>Fine to medium sand &amp; gravel</td>
<td>90</td>
<td>100</td>
</tr>
</tbody>
</table>

**REMARKS.**

Test Pile No. 4 Red River Bridge Substructure Sta 112+28 at ft of Design rod 22.31

**SOURCE OF INFORMATION**

STATE OF LOUISIANA

LOUISIANA DEPT OF HIGHWAYS

FILE N:

J56D
PILE TEST DATA

LOCATION: Barksdale Field, Louisiana

DATE DRIVEN: 9 November 1954
DATE TESTED: 16-21 November 1954

OWNER: ____________________________
CONTRACTOR: ____________________________
TESTED BY: ____________________________

HAMMER TYPE: STEAM VULCAN NO. 1
WEIGHT: 2.5T
STROKE: 35 in
ENERGY: 90 in tons
BLOWS PR MIN: ____________________________
FINAL PENETRATION: ____________________________

PILE TYPE: STEEL - WIDE FLANGE - H PILE
PILE DIMENSIONS: 12" x 53/16

WEIGHT: 75 ft
DRIVEN LENGTH: 46 ft
EMBEDDED LENGTH: 46 ft

TEST LOAD (TONS):

<table>
<thead>
<tr>
<th>LOAD (TONS)</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>20 ft</td>
</tr>
<tr>
<td>50</td>
<td>30 ft</td>
</tr>
<tr>
<td>75</td>
<td>40 ft</td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION:

- Silty sand
- Silty loam
- Clay
- Fine sand
- Fine sand
- Red clay

DEPTH (FT)

PENETRATION RATE

- Tip of Pile
- 10 ft
- 20 ft
- 30 ft

REMARKS:

Test Pile No. 5 Red River Bridge
Substructure Sta 114+08
4 ft off of 6. Design Load 22.8 ft

SOURCE OF INFORMATION
FILE No.: 10
STATE OF LOUISIANA
LOUISIANA
DEPT OF HIGHWAYS: J.540
PILE TEST DATA

LOCATION Barksdale Field, Louisiana
DATE DRIVEN 10 December 1954
DATE TESTED 27 Dec 1954 - 1 Jan 1955

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM, VULCAN NO. 1
WEIGHT 2.5 T 5000 lbs
STROKE 36 in. 30 ft
ENERGY 90 in. tons 15,000 ft-lb
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE STEEL - WIDE FLANGE - H PILE
PILE DIMENSIONS 12" X 53 lbs
WEIGHT
DRIVEN LENGTH 65 ft
EMBEDDED LENGTH 55.4 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>LOAD</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
</tr>
<tr>
<td>50</td>
</tr>
<tr>
<td>75</td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS. Test Pile No 6 - Red River Bridge Substructure Sta 115 + 88 47 ft. of E. Design load 22.3 T

SOURCE OF INFORMATION FILE No.
STATE OF LOUISIANA LOUISIANA
DEPT. OF HIGHWAYS JS40
# Pile Test Data

**Location:** Louisiana  
**Date Driven:** Aug 4, 1953  
**Date Tested:** Aug 18-22, 1953

**Hammer Type:** Steam, Vulcan No 1  
**Weight:**  
**Stroke:**  
**Energy:** 75,000 ft-lb  
**Blows Per Min:**  
**Final Penetration:**

**Contractor:**  
**Tester:**

**Pile Type:** Concrete, precast  
**Pile Dimensions:** 16" square  
**Weight:** 65 ft  
**Driven Length:**  
**Embedded Length:** 81 ft

## Test Load (Tons)

<table>
<thead>
<tr>
<th>Load (Tons)</th>
<th>Settlemet in Inches</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>0</td>
<td>LL PI w. 45-11D</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>0</td>
<td>Silty clay loam</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>0</td>
<td>Silty clay loam</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>0.25</td>
<td>Silty clay loam</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>0.25</td>
<td>Silty clay loam</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>0.25</td>
<td>Silty clay loam</td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**  
**Test Pile No:** 2  
**Intercoastal Canal Bridge:**  
**At North Bend, State Route 60:**

**Source of Information:** Louisiana Department of Highways  
**File No:** 340

---

\[ P_d = \frac{2 \cdot W_d \cdot H}{S_c} \]  
\[ C = 0.1 \]
PILE TEST DATA

LOCATION: LOUISIANA
DATE DRIVEN: Nov 9, 1953
DATE TESTED: Nov 23-27, 1953

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM, Vulcan no. 1
PIECE TYPE: CONCRETE, precast

WEIGHT
STROKE
ENERGY: 15000 lbs
BLOWS PR MIN
FINIAL PENETRATION

PILE TYPE
PILE DIMENSIONS: 16" square

TEST LOAD (TONS)

SOIL DESCRIPTION
DEPTH FT
PENETRATION RATE

Silty loam
Silty loam
Silty clay loam
Silty clay loam

Q = \frac{2 \pi D}{3} \sqrt{c}

REMARKS: STA 36+155, 30' Lt of E
TEST PILE No. 4
INTRACOASTAL CANAL BRIDGE
AT NORTH DENO STATE CONE 60

SOURCE OF INFORMATION
FILE No.
LOUISIANA DEPARTMENT OF HIGHWAYS
LOUISIANA
J 540
-PILE TEST DATA-

LOCATION: GRAND ECORE LOUISIANA

DATE DRIVEN: 1-2 MAY 1956
DATE TESTED: 8-13 MAY 1956

OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: STEAM VULCAN NO. 1
WEIGHT: 25 lbs. 5000 lbs.
STROKE: 36 in.
ENERGY: 90 in. tons 15,000 ft. lbs.
BLOWS PR. MIN: 
FINAL PENETRATION: 

PILE TYPE: STEEL - WIDE FLANGE - H-PILE
PILE DIMENSIONS: 12" x 3" x 5" x 48 ft.
WEIGHT: 
DRIVEN LENGTH: 
EMBEDDED LENGTH: 47 ft.

---

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
</table>

SOIL DESCRIPTION

<table>
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<tr>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
</tr>
</tbody>
</table>

TEST PILE No. 6, Red River Bridge
SUBSTRUCTURE: JS 206-00
88 FEET 16½ FT OF C.

SOURCE OF INFORMATION: DEPT. OF HIGHWAYS
FILE NO.: J540

STATE OF LOUISIANA: LOUISIANA

REMARKS: 

Q = 234 ft. H
C = 0.1
LOCATION  GRAND ECOPE, LOUISIANA  
DATE DRIVEN  2 MAY 1956  
DATE TESTED  14-18 MAY 1956  

OWNER  
CONTRACTOR  
TESTED BY  

HAMMER TYPE  STEAM VULCAN NO 1  
PILE TYPE  STEEL - WIDE FLANGE - H-PILE  

WEIGHT  2,500 LBS  
STROKE  36 IN  
ENERGY  90,000 BPS  
BLOWS PR MIN  
FINAL PENETRATION  

PILE DIMENSIONS  

PILE TYPe  
PILE WEIGHT  
DRIVEN LENGTH  
EMBEDDED LENGTH  46.4 FT  

TEST LOAD (TONS)  

<table>
<thead>
<tr>
<th>LOAD</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>50</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>75</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
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</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
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<tr>
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</tr>
<tr>
<td>40</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS:  
Test Pile No 5 Red River Bridge  
Substructure Sta 204 + 00  
25 ft left of E.  

SOURCE OF INFORMATION  
FILE No.  
STATE OF LOUISIANA  LOUISIANA  
DEPT OF HIGHWAYS  1540  

\[ G_0 = \frac{2W_a H}{A_c} \]  
\[ c = 0.1 \]
**PILE TEST DATA**

**LOCATION**  Grand Ecore, Louisiana

**DATE DRIVEN**  2 May 1956

**DATE TESTED**  14-19 May 1956

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE**  STEAM  VULCAN No. 1

**WEIGHT**  2.5 t  5000 lbs

**STROKE**  36 in  30 ft

**ENERGY**  90 in tons  15,000 ft lbs

**BLOWS PR MIN**

**FINAL PENETRATION**

**PILE TYPE**  STEEL - WIDE FLANGE, U-PILE

**PILE DIMENSIONS**  14"  53 lbs

**WEIGHT**

**DRIVEN LENGTH**

**EMBEDDED LENGTH**  43.8 ft

---

### Soil Description

<table>
<thead>
<tr>
<th>PENETRATION RATE</th>
<th>DEPTH</th>
<th>SOIL DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>10</td>
<td>sandy silt clay &amp; loam</td>
</tr>
<tr>
<td>40</td>
<td>10</td>
<td>sand</td>
</tr>
<tr>
<td>60</td>
<td>10</td>
<td>clay &amp; loam</td>
</tr>
</tbody>
</table>

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS.**

Test Pile No. 4, Red River Bridge Substructure 3716 202-CD 25 ft left of E

**SOURCE OF INFORMATION**  State of Louisiana, Louisiana

**FILE NO.**  Dept. of Highways 75&0
PILE TEST DATA

LOCATION PAINCOURTVILLE, LOUISIANA
OWNER
DATE DRIVEN 23 AUGUST 1958
DATE TESTED 6-7 SEPTEMBER 1958
TESTED BY

HAMMER TYPE STEAM VULCAN No 1
WEIGHT 2 5 ft 5000 lbs
STROKE 36 in 30 ft
ENERGY 90 in tons 15,000 ft-lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE CONCRETE - PRECAST
PILE DIMENSIONS 16" Square
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH

TEST LOAD (TONS) TESTED BY
25 50 75

SOIL DESCRIPTION

DEPTH FT PENETRATION RATE

TEST LOAD

SOIL

DEPT OF HIGHWAYS J 540
STATE OF LOUISIANA LOUISIANA
SOURCE OF INFORMATION FILE N.

REMARKS. Test Pile No 1 Grand Bayou Bridge - Pierre Pass Highway
Sta 286+60 on 6 continuing
Settlement under 47.9 ft
<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>LOAD</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOIL DESCRIPTION</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPTH FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PENETRATION RATE</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

- \( S_0 = 2 \sqrt{H} \sqrt{c} \)
- \( c = 0.1 \)

**REMARKS:**

Test Pile No 2 Grand Bayou Bridge, Pierre Pass Highway
Std 257-65 - 577 1st E
Continuing settlement under 574 T load

**SOURCE OF INFORMATION**

STATE OF LOUISIANA
LOUISIANA
DEPT. OF HIGHWAYS J1540
PILE TEST DATA

LOCATION: NEW IBERIA, LOUISIANA
DATE DRIVEN: FEB 2-14, 1956
DATE TESTED: MAR 13-18, 1956

HAMMER TYPE: STEAM, Vulcan std 0
WEIGHT: 37.5 t
STROKE: 39 in
ENERGY: 146.25 in tons
BLOWS PR MIN: 144
FINAL PENETRATION: 23 ft

PILE TYPE: CONCRETE, precast
PILE DIMENSIONS: 10 sq
WEIGHT: 35 lb
DRIVEN LENGTH: 25 ft
EMBEDDED LENGTH: 30 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

REM G = 2 W H
s c

c = 0.1

REMARKS:

TEST PILE NO. 2
BAYOU TECH TRUE BRIDGE AT
LEWIS STREET, NEW IBERIA

SOURCE OF INFORMATION: LOUISIANA DEPARTMENT OF HIGHWAYS
FILE NO.: J 540
PILE TEST DATA

LOCATION: NEW IBERIA, LOUISIANA
DATE DRIVEN: FEB 16, 1956
DATE TESTED: MAR 14-18, 1956

HAMMER TYPE: STEAM, Vulcan Std O
WEIGHT: 3.75 t
STROKE: 39 in
ENERGY: 166.25 tons
BLOWS PR MIN:

PILE TYPE: CONCRETE, prest
PILE DIMENSIONS: 18^ square
WEIGHT:

DRIVEN LENGTH:
EMBEDDED LENGTH: 59 ft

TEST LOAD (TONS)

0
0.25
0.5
1.0
25 50 75

SETTLEMENT IN INCHES

Qo = 2.04 x 1.5
C = 0.1

REMARKS: Test Pile No 1 Bayou Peche
Bridge at Lewis Street
Stay 8 x 60.69 - 24 ft left of E.

SOURCE OF INFORMATION: STATE OF LOUISIANA
FILE NO: DEPT OF HIGHWAYS

40
PILE TEST DATA

LOCATION: NEW IBERIA, LOUISIANA
DATE DRIVEN: FEB 17, 1956
DATE TESTED: 

OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: STEAM, VULCAN NO. 1
WEIGHT: 
STROKE: 
ENERGY: 15,000 ft-lbs
BLOWS PR MIN: 
FINAL PENETRATION: 

PILE TYPE: CONCRETE, precast
PILE DIMENSIONS: 16" square
WEIGHT: 
DRIVEN LENGTH: 55 ft
EMBEDDED LENGTH: 43 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>20</td>
<td>30</td>
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<td>70</td>
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<tr>
<td>80</td>
<td>90</td>
</tr>
<tr>
<td>90</td>
<td>100</td>
</tr>
</tbody>
</table>

REMARKS:

TEST PILE NO 3
BAYOU TECHE BRIDGE AT
LEVIS STREET, NEW IBERIA

SOURCE OF INFORMATION: LOUISIANA DEPARTMENT OF HIGHWAYS
FILE No: L 540
**PILE TEST DATA**

**LOCATION**  LOUISIANA  
**DATE DRIVEN**  FEB. 15 1954  
**DATE TESTED**  MAR 13-17 1954  
**HAMMER TYPE**  STEAM, Vulcan no. 2  
**WEIGHT**  
**STROKE**  
**ENERGY**  T2960 ft-lbs  
**BLOWS PR MIN**  
**FINAL PENETRATION**  

**OWNER**  
**CONTRACTOR**  
**TESTED BY**  

**PILE TYPE**  TIMBER, untreated  
**PILE DIMENSIONS**  

<table>
<thead>
<tr>
<th>ENERGY</th>
<th>PILE TYPE</th>
<th>PILE DIMENSIONS</th>
<th>WEIGHT</th>
<th>DRIVEN LENGTH</th>
<th>EMBEDDED LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2960</td>
<td>TIMBER, untreated</td>
<td>49 ft</td>
<td>49 ft</td>
<td>49 ft</td>
<td></td>
</tr>
</tbody>
</table>

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**SOIL DESCRIPTION**  

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>30</td>
<td>20</td>
</tr>
</tbody>
</table>

**TEST LOAD (TONS)**  

<table>
<thead>
<tr>
<th>0</th>
<th>0.25</th>
<th>50</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
<td>0.25</td>
<td>0</td>
</tr>
</tbody>
</table>

**SETTLEMENT IN INCHES**  

\[ C_0 = \frac{2 \times W \times H}{5F} \]

\[ C = 0.1 \]

**REMARKS.**  

STA 157+05, 66' LI &  
TEST PILE NO B-1  
OVERPASS SOUTH OF BROAD STR  

**SOURCE OF INFORMATION**  

LOUISIANA DEPARTMENT OF HIGHWAYS  
FILE NO.  
LOUISIANA  
FILE NO.  
J 540
LOCATION: LOUISIANA  
DATE DRIVEN: FEB 16 1964  
DATE TESTED: MAR 13 -17 1964  

OWNER:  
CONTRACTOR:  
TESTED BY:  

HAMMER TYPE: STEAM, Vulcan no 2  
PILE TYPE: TIMBER, untreated  
PILE DIMENSIONS: diam = 12½" diam = 6½"  

WEIGHT: 7260 ft lbs  
ENERGY:  
STROKE:  
BLOWS PR MIN:  
FINAL PENETRATION:  
DRIVEN LENGTH: 49 ft  
EMBEDDED LENGTH: 49 ft  

TEST LOAD (TONS):

SOIL DESCRIPTION  
SHELL  
SANDY CLAY  
SILTY CLAY  
SANDY loam  
SAND  

DEPTH FT  
10  
20  
30  
40  
50  
60  

PENETRATION RATE  
10  
20  
30  
40  
50  

SETTLEMENT IN INCHES  

REMARKS: STA 171+05, 66' Lt &  
TEST PILE NO 2-8  
OVERPASS SOUTH OF BROAD ST  

SOURCE OF INFORMATION:  
FILE #:  
LOUISIANA DEPARTMENT OF HIGHWAYS  
LOUISIANA  

\[ Q = \frac{2 \pi H}{(1 + c)} \]

\[ c = 0.1 \]
-PILE TEST DATA-

LOCATION CHAMBERS COUNTY, TEXAS
DATE DRIVEN 29 JANUARY 1954
DATE TESTED 8-14 FEBRUARY 1954

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM VULCAN NO 1
WEIGHT 2.5 T 5000 IBS
STROKE 36 in 30 ft
ENERGY 30 in - tons 15,000 ft lbs
BLOWS PR MIN
FINAL PENETRATION 39 Blows/ft

PILE TYPE STEEL - PRE
PILE DIMENSIONS 18" dia ARMED

WEIGHT
DRIVEN LENGTH 600 ft
EMBEDDED LENGTH 500 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>Blows per foot PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

REMARKS. Test Pile 8, Bent 67, Sta 1403+00, 19.5 ft lot of & Old Lost River Bridge State Hwy. 73, Control SDB-25, IAP 1052(12)

SOURCE OF INFORMATION
TEXAS HIGHWAY DEPT
FILE N.
JS40
-PILE TEST DATA-

LOCATION CHAMBERS COUNTY, TEXAS
DATE DRIVEN 29 APRIL 1954
DATE TESTED 29 APRIL - 2 MAY 1954

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE STEAM VULCAN No 1
WEIGHT 2.5 Tons 5000 lbs
STROKE 36 in. 30 ft
ENERGY 90 in tons 15,000 ft-lbs

PILE TYPE STEEL - MONOTUBE TYNIE
PILE DIMENSIONS Tapered - 18° Fluted

WEIGHT

DRIVEN LENGTH 51.2 ft

FINAL PENETRATION 51 Blows/1/16 (600') EMBEDDED LENGTH (60') 502 ft

TEST LOAD (TONS)

25 50 75

0.25

0.50

SETTLEMENT IN INCHES

0 - 29 April Test (90 ft)
△ - 27 May Test (600 ft)

REMARKS Test Pile No D, Bent S, Sta 1372+92, 375 ft If of Old & Lost River Bridge
State Hwy 73, Control 508-2, F.A.P
1052(12) Pile was later spliced and driven down to 60' 0"

SOIL DESCRIPTION

DEPTH FT

Blows per foot

PENETRATION RATE

20 40 60

Source of Information FILE No.

Texas Highway Dept. Texas

J540
PILE TEST DATA

LOCATION: CHAMBERS COUNTY, TEXAS
DATE DRIVEN: 11 MARCH 1954
DATE TESTED:

HAMMER TYPE: STEAM VULCAN No. 1
WEIGHT: 2.5 T 5000 LBS
STROKE: 36 IN 30 FT
ENERGY: 50 IN TONS 15,000 FT LBS
BLOWS PER MIN:
FINAL PENETRATION:

PILE TYPE: STEEL-MONOTONE TYN 1B
PILE DIMENSIONS: Tapered Butt diam 18", Tip diam 8" - 25' taper
WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH:

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

BLOWS PER 100F

REMARKS:
Test Pile D, Bent 67 St. 1403 + 90, 6.5 ft if of E State Hwy 73 - Old Last River Bridge Control S08-25 - FAP 1052 (18)

SOURCE OF INFORMATION
TEXAS HIGHWAY DEPT.
FILE NO.
J540
LOCATION: CHAMBERS COUNTY, TEXAS

DATE DRIVEN: 31 MARCH 1954
DATE TESTED: 19-27 APRIL 1954

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM VULCAN NO. 1
WEIGHT: 2.5 ft. 5000 lbs.
STROKE: 36 in. 30 ft.
ENERGY: 90 in.-tons 15,000 ft-lbs.
BLOWS PR MIN: 165 Blows/12'
FINAL PENETRATION: 165 Blows/12'

PILE TYPE: STEEL PIPE
PILE DIMENSIONS: 18 in. 43.75 in.
WEIGHT: 870 ft.
DRIVEN LENGTH: 870 ft.
EMBEDDED LENGTH: 870 ft.

TEST LOAD (TONS)
50 100 150

SOIL DESCRIPTION
DEPTH FT
Blows per Foot
PENETRATION RATE
40 80 120

REMARKS: Test Pile D, Beet No 20 Sta.
1380-80 375 ft of E.
Old East River Bridge Sta
Hwy 73, Control 608-2.5, FAP 1032 (12)

SOURCE OF INFORMATION
TEXAS HIGHWAY DEPT.
FILE NO.

FILE N.
504-0
- PILE TEST DATA -

LOCATION: CHAMBERS COUNTY, TEXAS

DATE DRIVEN: 30 MARCH 1954
DATE TESTED: 19-23 APRIL 1954

HAMMER TYPE: STEAM
WEIGHT: 2.5 T
STROKE: 36 in
ENERGY: 90 in-lb
BLOWS PR. MIN: 133 Blows/ min

PILE TYPE: STEEL MONOTUBE TYN18
PILE DIMENSIONS: Tapered, 18"

TEST LOAD (TONS)

50 100 150

SOIL DESCRIPTION

DEPTH (FT)

Blows per Foot
PENDURATION RATE

40 80 120

SOURCES OF INFORMATION: TEXAS HIGHWAY DEPT, TEXAS
FILE NO.: J-3520

REMARKS: Test Pile A, Bent No. 20, Sta 1380+40, 18.38 ft of 6
Old & Lost River Bridge
Sta Hwy 73, Control 50B-2.5, FAP 1052 (12)
LOCATION: CHAMBERS COUNTY, TEXAS
DATE DRIVEN: 2 APRIL 1954
DATE TESTED: 19 APRIL - 3 MAY 1954

HAMMER TYPE: STEAM VULCAN No 1
WEIGHT: 2.5 ton
STROKE: 36 in
ENERGY: 50,000 ft-lbs
BLOWS PR MIN: 24
FINAL PENETRATION: 37 ft

PILE TYPE: STEEL PIPE
PILE DIMENSIONS: 18" diam Armaco
WEIGHT: 512 ft
DRIVEN LENGTH: 512 ft
EMBEDDED LENGTH: (590) 50 ft

TEST LOAD (TONS)

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

Blows per foot

PENETRATION RATE

40 80 120

REMARKS:

Test Pile G, Bore 5, Sta 1372+90 (ft 18.584 ft) Old & Lost River Bridge, State Hwy 73 Control 508-2-5, FAP 1058(12) Pile was later spliced and driven down to 59 ft

SOURCE OF INFORMATION: TEXAS HIGHWAY DEPT.
FILE No: US-40
**LOCATION** Jefferson County, Texas

**DATE DRIVEN** 10 February 1953

**DATE TESTED** 7-15 March 1953

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** Steam Vulcan No. 1

**WEIGHT** 2.5 tons

**STROKE** 36 in.

**ENERGY** 90 in. * tons 15,000 ft. * lbs

**BLOWS PR MIN**

**FINAL PENETRATION** 14 blows per 6".

**PILE TYPE** Steel - Pipe

**PILE DIMENSIONS** Round 14" diam

**WEIGHT**

**DRIVEN LENGTH** 64.0 ft

**EMBEDDED LENGTH** 63.5 ft

---

### TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (FT)</th>
<th>Blows per Foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Muck</td>
<td>0.25</td>
<td>10</td>
</tr>
<tr>
<td>50</td>
<td>Soft sand</td>
<td>0.50</td>
<td>20</td>
</tr>
<tr>
<td>75</td>
<td>Clay</td>
<td>1.00</td>
<td>30</td>
</tr>
</tbody>
</table>

---

### REMARKS

Test Pile No. B Sta 638 + 60
Taylor's Bayou Bridge State Hwy 73, Control 508 - 1 - 2
FAP 1052(C) Design load: 36 tons

---

### SOURCE OF INFORMATION

Texas Highway Dept. File No. J540

---
PILE TEST DATA

LOCATION JEFFERSON COUNTY, TEXAS

DATE DRIVEN: 14 SEPTEMBER 1953
DATE TESTED: 12-17, 20-24 JANUARY 1954

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM VULCAN NO 1
WEIGHT: 2.5 T
STROKES: 36
ENERGY: 90 ft-lbs
BLOWS PR MIN:

PILE TYPE: CONCRETE - PRECAST
PILE DIMENSIONS: 16" SQUARE, 9" SQUARE
WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH:

TESTED BY

<table>
<thead>
<tr>
<th>HAMMER TYPE</th>
<th>WEIGHT</th>
<th>STROKE</th>
<th>ENERGY</th>
<th>BLOWS PR MIN</th>
<th>FINAL PENETRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEAM VULCAN NO 1</td>
<td>2.5 T</td>
<td>36</td>
<td>90 ft-lbs</td>
<td></td>
<td>9 Blows / 3</td>
</tr>
</tbody>
</table>

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>LOAD</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

0 - 1st Test
A - 2nd Test

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: Test Pile No. 1, Sta 966 + 475
1 1/2 ft of d Mayhew Bayou
Bridge State Hwy 73, Control
50B-4-1, FAP 1052 (11) Pile was failed
at 155 tons during first test while running
48-24 load was removed while pile was
still setting. Maximum load proven by
second test by 48-24 = 108 = 58 tons.
Waiting period between tests was 62% hrs

SOURCE OF INFORMATION
TEXAS HIGHWAY DEPT, TEXAS

FILE #: 1540

Wt of hammer = 170 lb
Drop of hammer = 20 ft
PILE TEST DATA

LOCATION: Oldham County, Texas

DATE DRIVEN: 1 August 1953

DATE TESTED: 11-20 August 1953

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE: Steam Vulcan No. 1

PILE TYPE: Steel Pipe

WEIGHT: 2,500 lbs

ENERGY: 200,000 lbs

STROKE: 3' 0"

BLOWS PR MIN

FINAL PENETRATION: 180 B/100/16'

PILE DIMENSIONS: Round, 16" diam.

BLOWS PR MIN

DRIVEN LENGTH: 80' 0"

EMBEDDED LENGTH: 44' 6"

TEST LOAD (TONS)

50 100 150

SOIL DESCRIPTION

DEPTH

FT

200 400 600

DEPTH PENETRATION RATE

Blows per foot

TEST

LOAD

(TONS)

0.50

1.00

0

1st Cycle

A

2nd Cycle

REMARKS. Test Pile No. 1 SD 12-14-875

Canadian River Bridge, Pier 15

State Hwy 51, Control 226-2-2

FAP 511/10

SOURCE OF INFORMATION

FILE N.

Texas Highway Dept. Texas

J540
PILE TEST DATA

LOCATION: ORANGE COUNTY, TEXAS
DATE DRIVEN: 13 FEBRUARY 1953
DATE TESTED: APRIL 1953

OWNER:
CONTRACTOR:
TESTED BY:

HAMMER TYPE: STEAM VULCAN NO. 1
WEIGHT: 25 ft
5000 lbs
STROKE: 36 in
30 ft
ENERGY: 50 in-tons
15,000 ft-lbs
BLOWS PR MIN:
FINAL PENETRATION: 35 Blows/m

PILE TYPE: CONCRETE - PRECAST
PILE DIMENSIONS: 16' SQUARE, 9' SQUARE

WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH:

TEST LOAD (TONS):

SOIL DESCRIPTION:

DEPTH FT
Blows per Foot PENETRATION RATE

REMARKS:
Test Pile No 38 (Oct 7)

No 77, U.S 90, Control 29-9-22
Ft 305(4) 146 hrs for test on
1st loading

SOURCE OF INFORMATION: TEXAS HIGHWAY DEPT
FILE No: TS 40

* Wt of hammer = 170 lbs
Drop of hammer = 20 ft
-PILE TEST DATA-

LOCATION: BRAZORIA COUNTY, TEXAS

DATE DRiven: 31 JANUARY 1953
DATE TESTED: 17-24 FEBRUARY 1953

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM MCKEAN-TERRY 55
WEIGHT: 25 ft 5,000 lbs
STROKE: 29 in 3.25 ft
ENERGY: 975 in lbs 16,250 ft lbs
BLOWS PR MIN: 60
FINAL PENETRATION: 15 Blows/3 ft

PILE TYPE: STEEL - PIPE
PILE DIMENSIONS: Round - 16" diam

WEIGHT: 40 ft
DRIVEN LENGTH: 39.3 ft
EMBEDDED LENGTH: 39.3 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>25</th>
<th>30</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td>0.30</td>
<td></td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>

REMARKS: Test Pile No. 3, SWY 175-8242
11 ft. ft. of S. Intra-Coastal Canal Bridge, Benton No. 16
Central SE-1-6, F.M. Hwy 1460

SOURCE OF INFORMATION: TEXAS HIGHWAY DEPT.
FILE No.: J540.
PILE TEST DATA

LOCATION: BRAZORIA CO, TEXAS
DATE DRIVEN: FEBRUARY 1957
DATE TESTED: 4-11 FEBRUARY 1957
OWNER
CONTRACTOR
TESTED BY
HAMMER TYPE: STEAM VULCAN NO. 1
WEIGHT: 25 T
STROKE: 36 in
ENERGY: 30 ft-lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE: STEEL MONOTUBE
PILE DIMENSIONS: Tapered Tapered Tapered 16"
WEIGHT
DRIVEN LENGTH: 58 ft
EMBEDDED LENGTH: 58 ft

ENERGY: 3,000 lbs
WEIGHT
BLOWS PR MIN
FINAL PENETRATION

TEST LOAD (TONS)

25 50 75

TEST LOAD (TONS)

0.25
0.50

SOIL DESCRIPTION

DEPHT FT
PENETRATION RATE

10 20 30 40 50

Q₀ = 2W₂H
C = 0.2

REMARKS: San Bernard River Bridge
State 35 Control 179-2-32
Std. SB-26 62 Design
Load 34.5 T - Test Pile C, Bent 13

SOURCE OF INFORMATION: FILE NO.
TEXAS HIGHWAY DEPT. TEXAS
J540
-PILE TEST DATA-

LOCATION: GALVESTON COUNTY, TEXAS
DATE DRIVEN: __________________________
DATE TESTED: 13-20 JANUARY 1984

HAMMER TYPE: STEAM VULCAN No 50C
WEIGHT: __________________________
STROKE: __________________________
ENERGY: __________________________
BLOWS PR MIN: __________________________
FINAL PENETRATION: __________________________

PILE TYPE: STEEL - WIDE FLANGE - H-PILE
PILE DIMENSIONS: 12" x 53 lbs

TEST LOAD (TONS)

50 100 150

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

REMARKS: Test Pile No D, Bent No 3 Sta
166+72-61st Street Overpass
U.S. Hwy 75- Control 31 4-22
F1 466 (27) Piling failed completely at
145 tons - Theoretical load causing 0.25"
net settlement = 158 tons

SOURCE OF INFORMATION
TEXAS HIGHWAY DEPT.
FILE No: J540
LOCATION: NUECES COUNTY, TEXAS
DATE DRIVEN: 23 AUGUST 1956
DATE TESTED: 7 SEPTEMBER 1956
OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER: Stream Mechanical Hammer 60-3
WEIGHT: 25 ft
STROKE: 19 1/2
ENERGY: 
BLOWS PR MIN: 28
FINAL PENETRATION: 28 Blows / 4'

PILE TYPE: Concrete Precast Prestressed
PILE DIMENSIONS: 12" Square
WEIGHT: 
DRIVEN LENGTH: 67 ft
EMBEDDED LENGTH: 24 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH</th>
<th>BLOWS</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
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<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
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</tr>
</tbody>
</table>

REMARKS: Corpus Christi Ship Channel Bridge
U.S. 181 Control 101-6-21
Test Pile No. 7, Bent 19
Sta 80+97 (Rf 24) Design Load 56 tons
Bearing value by hammer form in = 56 tons

SOURCE OF INFORMATION: TEXAS HIGHWAY DEPT.
FILE No.: T420
# Pile Test Data

**Location**: Port Huron, Michigan  
**Date Driven**: The week of Sept 25, 1949  
**Date Tested**:  
**Owner**:  
**Contractor**:  
**Tested By**:  

**Hammer Type**: Gravity Hammer  
**Weight**: 3855 lbs  
**Stroke**:  
**Energy**:  
**Blows PR Min**:  
**Final Penetration**:  

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

- **First cycle of loading**
- **Second cycle**
- **Third cycle**

**Remarks**: Test pile ADJUNCT 'A'  
**Proj UI 21 of 77-20-11, C1**

**Source of Information**: Michigan State Highway Department  
**File No.**: 7340
PILE TEST DATA

LOCATION: DETROIT, MICHIGAN
DATE DRIVEN: 
DATE TESTED: 22-23 OCT 1949

HAMMER TYPE: 
WEIGHT: 25 t, 5000 lbs
STROKE: 36 in
ENERGY: 90 ft-lb, 13000 ft-lbs
BLOWS PR MIN: 
FINAL PENETRATION: 

PILE TYPE: STEEL, H-pile
PILE DIMENSIONS: 12 x 12

TEST LOAD (TONS)

TEST LOAD

SOIL DESCRIPTION

DEPTH (FT)

TRANVERSE SHEARING RESISTANCE

REMARKS:
CENTERLINE, N ABUT (ABUT A)
PROJECT U.I.BAT, 82-2240 CL
EDSEL FORD EXPRESSWAY
AT LIVONIA

SOURCE OF INFORMATION:
MICHIGAN STATE HIGHWAY DEPARTMENT
FILE No.
340
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>ST JOSEPH, MICHIGAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>3 FEB 1949</td>
</tr>
<tr>
<td>DATE TESTED</td>
<td>16 FEB 1949</td>
</tr>
<tr>
<td>OWNER</td>
<td></td>
</tr>
<tr>
<td>CONTRACTOR</td>
<td></td>
</tr>
<tr>
<td>TESTED BY</td>
<td></td>
</tr>
<tr>
<td>HAMMER TYPE</td>
<td></td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>STROKE</td>
<td></td>
</tr>
<tr>
<td>ENERGY</td>
<td></td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td></td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td></td>
</tr>
</tbody>
</table>

| PILE TYPE | TIMBER |
| PILE DIMENSIONS |       |
| WEIGHT   |        |
| DRIVEN LENGTH | 60 ft |
| EMBEDDED LENGTH |      |

**TEST LOAD** (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
</tr>
<tr>
<td>50</td>
</tr>
<tr>
<td>75</td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

- Loose sand
- Hard gray sand
- Soft aquatic peat
- Comp sand
- Compressed sand

**PROJECT** UI XI of 11-8-7 E-2

**REMARKS**

PILE NO. A PIER NO. 20

**SOURCE OF INFORMATION**

FILE NO. 540

MICHIGAN STATE HIGHWAY DEPARTMENT
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>ST JOSEPH, MICHIGAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td></td>
</tr>
<tr>
<td>DATE TESTED</td>
<td>13 OCT 1948</td>
</tr>
<tr>
<td>OWNER</td>
<td></td>
</tr>
<tr>
<td>CONTRACTOR</td>
<td></td>
</tr>
<tr>
<td>TESTED BY</td>
<td></td>
</tr>
<tr>
<td>HAMMER TYPE</td>
<td></td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>STROKE</td>
<td></td>
</tr>
<tr>
<td>ENERGY</td>
<td></td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td></td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td></td>
</tr>
<tr>
<td>PILE TYPE</td>
<td>TIMBER</td>
</tr>
<tr>
<td>PILE DIMENSIONS</td>
<td></td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>DRIVEN LENGTH</td>
<td></td>
</tr>
<tr>
<td>EMBEDDED LENGTH</td>
<td>53 ft</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>loose med. coarse gray sand</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Soft Aquatic peat</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>loose med. sand</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Comp med. and coarse sand</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Tip of Pile</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REMARKS</th>
<th>PILE NO 39, PIER NO 9</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROJECT 01 X1 of 11-18-72-1</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOURCE OF INFORMATION</th>
<th>MICHIGAN STATE HIGHWAY DEPARTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>FILE No</td>
<td>J 340</td>
</tr>
</tbody>
</table>
**PILE TEST DATA**

- **LOCATION:** Kearny, New Jersey
- **DATE DRIVEN:**
- **DATE TESTED:** 1937
- **OWNER:**
- **CONTRACTOR:**
- **TESTED BY:**
- **HAMMER TYPE:** Steam, McKean-Terry 11-B-2
- **PILE TYPE:** Concrete, precast
- **PILE DIMENSIONS:** 18" octagonal
- **WEIGHT:**
- **ENERGY:**
- **STROKE:**
- **BLOWS PR MIN:**
- **FINAL PENETRATION:** ~ 1 Blow/" 
- **DRIVEN LENGTH:** 47 ft
- **EMBEDDED LENGTH:** 47 ft

### Test Load vs. Settlement

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Cinder hill</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Sand with trace of clay</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Blue clay</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Red clay</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

- **Remarks:** Crossing Belleville Turnpike with edge load, Kearney, New Jersey

### Source of Information
- **FILE No.:** J540
- **NEW JERSEY STATE HIGHWAY DEPARTMENT:** JERSEY
- PILE TEST DATA -

LOCATION: ELKO COUNTY, NEVADA
DATE DRIVEN: 
DATE TESTED: 16-18 OCT 1937
OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: GRAVITY
WEIGHT: 180 l
STROKE: 120 in
ENERGY: 180 ft l
BLOWS PR MIN: 4 Blows /in
FINAL PENETRATION: 4 Blows /in

PILE TYPE: STEEL, H - 10" - 42
PILE DIMENSIONS: 10" - H - 42
A - 124°
WEIGHT: 0.945 t (incl driving cap)
DRIVEN LENGTH: 45 ft
EMBEDDED LENGTH: 33 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>Tip of pile</td>
</tr>
<tr>
<td>40</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: 
ROUTE 1, SEC D1, BRIDGE NO 9-343, W. P. & R. WEST NO 5
ABUTMENT

SOIL CONDITIONS EXAMINED IN AN OPEN
PIT REPRESENTING THE UPPER 7/10 TO
1/2 OF PILE LENGTH. HARD GRAVELLY
CLAY.

SOURCE OF INFORMATION: NEVADA DEPARTMENT OF HIGHWAYS
FILE NO: NEVADA 1540
# Pile Test Data

**Location:** Elko County, Nevada  
**Date Driven:**  
**Date Tested:** 30 Oct 1937  
**Hammer Type:** Gravity  
**Weight:** 180 lbs  
**Stroke:** 5 tons  
**Energy:** 126 ft-lb  
**Blows Per Minute:** 5  
**Final Penetration:**  

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Load in: 10 ft.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Load in: increase to 30 ft. after recovery</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Hard gravel/ clay</td>
<td>20</td>
<td>Tip of pile</td>
</tr>
</tbody>
</table>

**Remarks:** Route 1, Sec. 01, Bridge No. B 303, W.P.R., East No. S. Abutment  
**Soil in Upper 1/3 of Pile Examined:**  
**Source of Information:** Nevada Department of Highways  
**File No.:**  
**Owner:**  
**Contractor:**  
**Tested By:**  
**Pile Type:** Steel  
**Pile Dimensions:** 10" H - 42  
**A = 12.4°**  
**Weight:** 0.84 t  
**Driven Length:** 40 ft  
**Embedded Length:** 22 ft  
**Settlement in Inches:**
**PILE TEST DATA**

**LOCATION**: CLARK COUNTY, NEVADA

**DATE DRIVEN**: 

**DATE TESTED**:  

**OWNER**: 

**CONTRACTOR**: 

**TESTED BY**: 

**HAMMER TYPE**: STEAM, double acting

**WEIGHT**: 950 lbs

**STROKE**: 16 in

**ENERGY**: 405 ft-lb

**BLOWS PR MIN**: 

**FINAL PENETRATION**: 5 Blows

**PILE TYPE**: STEEL

**PILE DIMENSIONS**: 10" H-42

**A**: 124°

**WEIGHT**: 126 l

**DRIVEN LENGTH**: 60 ft

**EMBEDDED LENGTH**: 59 ft

---

**TEST LOAD (TONS)** | **SOIL DESCRIPTION** | **DEPTH FT** | **PENETRATION RATE**
---|---|---|---
25 | Silt and fine sand | 10 | 
50 | | 20 | 
75 | | 30 | 

**REMARKS**: ROUTE 7, SEC A, BRIDGE NO 8-281, MUDDY RIVER, BENT NO 1, PILE NO 2

**SOIL IN UPPER 1/3 OF PILE EXAMINED**

**SOURCE OF INFORMATION**: NEVADA DEPARTMENT OF HIGHWAYS

**FILE NO**: 3540
LOCATION: CLARK COUNTY, NEVADA

DATE DRIVEN: ____________________________

DATE TESTED: ____________________________

OWNER: ________________________________

CONTRACTOR: ____________________________

TESTED BY: ______________________________

HAMMER TYPE: STEAM, double acting

WEIGHT: 950 lbs

STROKE: 16 in

ENERGY: 40.5 ft-lb

BLOWS PR MIN: 32

FINAL PENETRATION: 32 Blows / min

PILE TYPE: STEEL

PILE DIMENSIONS: 10' - H - 42

A = 12.4 in

WEIGHT: 2,395 lb

DRIVEN LENGTH: 114 ft

EMBEDDED LENGTH: 95 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

0

0.25

0.5

0.75

20

40

60

80

100

Silt

and

tine

sand

Top of pile

Pile

hit

hard

shale

Soil in upper 1/3 of pile examined

SOURCE OF INFORMATION: NEVADA DEPARTMENT OF HIGHWAYS

FILE No: JS40
### PILE TEST DATA

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>CLARK COUNTY, NEVADA</th>
</tr>
</thead>
<tbody>
<tr>
<td>OWNER</td>
<td></td>
</tr>
<tr>
<td>CONTRACTOR</td>
<td></td>
</tr>
<tr>
<td>TESTED BY</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HAMMER TYPE</th>
<th>STEAM, double acting</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT</td>
<td>950 lbs</td>
</tr>
<tr>
<td>STROKE</td>
<td></td>
</tr>
<tr>
<td>ENERGY</td>
<td>6750 ft-lb</td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td>160 Blows/ln</td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PILE TYPE</th>
<th>STEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PILE DIMENSIONS</td>
<td>A-12.5 x 5.5</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>106 ft</td>
</tr>
<tr>
<td>DRIVEN LENGTH</td>
<td>40 ft</td>
</tr>
<tr>
<td>EMBEDDED LENGTH</td>
<td>25 ft</td>
</tr>
</tbody>
</table>

### TEST LOAD (TONS)

<table>
<thead>
<tr>
<th></th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

### REMARKS

ROUTE 7, SEC B, BRIDGE NO 3, MUDDY RIVER, BENT NO 3, PILE NO 3

SOIL IN UPPER 1/3 OF PILE EXAMINED

SOURCE OF INFORMATION
NEVADA DEPARTMENT OF NEVADA
HIGHWAYS
FILE No. 7540
- PILE TEST DATA -

LOCATION: CLARK COUNTY, NEVADA
DATE DRIVEN: ______________
DATE TESTED: 3 JAN 1938

OWNER: ____________________
CONTRACTOR: ____________________
TESTED BY: ____________________

HAMMER TYPE: STEAM, double acting
WEIGHT: 950 lbs
STROKE: ____________________
ENERGY: 6750 ft-lbs
BLOWS PR MIN: 160
FINAL PENETRATION: 26 ft

PILE TYPE: STEEL
PILE DIMENSIONS: 12" - 4 - 53
A = 156.6°
WEIGHT: 0.79 t
DRIVEN LENGTH: 30 ft
EMBEDDED LENGTH: 26 ft

TEST LOAD (TONS) | SOIL DESCRIPTION | DEPTH FT | PENETRATION RATE
------------------|------------------|-----------|------------------
0                 | Soil and fine sand | 10        |                 |
0.25              |                  | 20        | Tip of pile     |
0.5               |                  | 30        |                 |

REMARKS: ROUTE 7, SEC A, BRIDGE NO 281, MUDDY RIVER, BENT NO 5, PILE NO 3
SOIL IN UPPER 1/3 OF PILE EXAMINED

SOURCE OF INFORMATION: NEVADA DEPARTMENT OF HIGHWAYS
FILE No: J540
-PILE TEST DATA-

LOCATION: EUREKA COUNTY, NEVADA

DATE DRIVEN: 25 MARCH 1938

DATE TESTED:  

OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: GRIEVITY
WEIGHT: 132 t
STROKE: 60 in
ENERGY: 792 ft-lb

PILE TYPE: STEEL
PILE DIMENSIONS: 10½ X 42

WEIGHT: 0.42 t

BLOWS PR MIN: 
FINAL PENETRATION: 3 Bows / 5

TEST LOAD (TONS):

SOIL DESCRIPTION: Sand and gravel

DEPTH FT:

PENETRATION RATE: 

REMARKS: ROUTE 1, SEC 42, BRIDGE NO 334, 3 P.R.R. CENTER EAST, DENT NO. 2

SOIL IN UPPER 1/3 OF PILE EXAMINED

SOURCE OF INFORMATION: NEVADA DEPARTMENT OF HIGHWAYS
FILE NO.: 1540
PILE TEST DATA

LOCATION: Eureka County, Nevada
DATE DRIVEN: 30-31 March 1958
DATE TESTED:

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: Gravity
WEIGHT: 1378 lb
STROKE: 60 in
ENERGY: 95 ft-lb
BLOWS PR MIN:
FINAL PENETRATION: 2 Blows/ft

PILE TYPE: Steel
PILE DIMENSIONS: 10", H-4.2
A = 12.4"
WEIGHT: 0.42 t
DRIVEN LENGTH: 30 ft
EMBEDDED LENGTH: 19 ft

TEST LOAD (TONS)

SOIL DESCRIPTION
DEPTH FT
PENETRATION RATE

REMARKS. ROUTE 1, SEC A2, BRIDGE
NO 324, 34 1/4 W
DENT NO 4

SOURCE OF INFORMATION: Nevada Department of Highways
FILE No.: J540

SOIL IN UPPER 1/3 OF PILE EXAMINED
PILE TEST DATA

LOCATION: EUREKA COUNTY, NEVADA
OWNER:

DATE DRIVEN: 
DATE TESTED: 27-28 MAY 1938
TESTED BY:

HAMMER TYPE: Gravity
WEIGHT: 1575 lb
STROKE: 60 in
ENERGY: 95 ft
BLOWS PR MIN: 
FINAL PENETRATION:

PILE TYPE: Steel
PILE DIMENSIONS: 10" x 14"
A = 12.4 sq ft
WEIGHT: 126 t
DRIVEN LENGTH: 60 ft
EMBEDDED LENGTH: 97 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

REMARKS:
ROUTE 1, SEC A2, BRIDGE NO 324, SPRE, NORTH EQUIPMENT

SOIL IN UPPER 1/3 OF PILE EXAMINED

SOURCE OF INFORMATION
FILE N:
NEVADA DEPARTMENT OF HIGHWAYS
1540
-PILE TEST DATA-

LOCATION  EURECA COUNTY, NEVADA
DATE DRIVEN  2-3 JUNE 1938
DATE TESTED  OWNER
HAMMER TYPE  CONTRACTOR
WEIGHT  TESTED BY
STROKE  
ENERGY  
BLOWS PR MIN  
FINAL PENETRATION  

PILE TYPE  STEEL
PILE DIMENSIONS  10" x 42'
A = 13 4°
WEIGHT 126 lbs
DRIVEN LENGTH  60 ft
EMBEDDED LENGTH  35 ft

--- TEST LOAD (TONS) ---

--- SOIL DESCRIPTION ---

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Tip of pile</td>
</tr>
</tbody>
</table>

--- REMARKS ---
ROUTE 1, SEC 42, BRIDGE NO. 334, SPRL, SOUTH ABUT- MENT.
SOIL IN UPPER 1/3 OF PILE EXAMINED

SOURCE OF INFORMATION  FILE NO.
NEVADA DEPARTMENT OF NEVADA  3540
HIGHWAYS
# Pile Test Data

**Location:** Churchill County, Nevada  
**Owner:**  
**Date Driven:** March 1989  
**Contractor:**  
**Tested by:**  

<table>
<thead>
<tr>
<th>Hammer Type</th>
<th>Gravity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>3000 lbs</td>
</tr>
<tr>
<td>Stroke</td>
<td>60 in</td>
</tr>
<tr>
<td>Energy</td>
<td>90 ft-lb</td>
</tr>
<tr>
<td>Blows/PR Min</td>
<td></td>
</tr>
<tr>
<td>Final Penetration</td>
<td>9 blows/ft</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pile Type</th>
<th>Steel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pile Dimensions</td>
<td>10&quot; x 42&quot;</td>
</tr>
<tr>
<td>A = 12.4 ft²</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>0.63 t</td>
</tr>
<tr>
<td>Driven Length</td>
<td>30 ft</td>
</tr>
<tr>
<td>Embedded Length</td>
<td>23 ft</td>
</tr>
</tbody>
</table>

## Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
</tr>
<tr>
<td>50</td>
</tr>
<tr>
<td>75</td>
</tr>
</tbody>
</table>

## Soil Description

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth FT</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine sand</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Remarks

- Route 2, Sec 32, Bridge No 9 87, Carson River, Bent 2 6
- Soil in upper 1/3 of pile examined

## Source of Information

- Nevada Department of Highways
  - File No: J540
LOCATION  CHURCHILL COUNTY, NEVADA
DATE DRIVEN     DATE TESTED  11-12 MARCH 1989
OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE  GRAVITY
WEIGHT  15 ft  3000 lbs
STROKE  60 in  5 1/2
ENERGY  90 2 in  15000 lb-ft
BLOWS PR MIN
FINAL PENETRATION  5 Blows/12

PILE TYPE  STEEL
PILE DIMENSIONS  10" - N-42
N-12 4 1/2
WEIGHT  0.63 t
DRIVEN LENGTH  30 ft
EMBEDDED LENGTH  25 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTI FT

PENETRATION RATE

REMARKS.  ROUTE 2, SEC B.2, BRIDGE NO.
397, CARSON RIVER, BENT NO.

SOIL IN UPPER 1/3 OF PILE EXAMINED

SOURCE OF INFORMATION  FILE N.
NEVADA DEPARTMENT OF
HIGHWAYS  J540
PILE TEST DATA

LOCATION CHURCHILL COUNTY, NEVADA

DATE DRIVEN 06-27 MARCH 1989

OWNER CONTRACTOR

DATE TESTED 06-27 MARCH 1989

TESTED BY

HAMMER TYPE GEAVITY

WEIGHT 1500 IBS

PILE TYPE STEEL

STROKE 60 IN

PILE DIMENSIONS 10" x 42" H

ENERGY 15000 IBS

WEIGHT 0.84 IBS

BLOWS PR MIN 2 BLOWS/IN

DRIVEN LENGTH 40 FT

FINAL PENETRATION 32 BLOWS/IN

EMBEDDED LENGTH 34 FT

TEST LOAD (TONS)

0

0.25

0.5

0.75

TEST LOAD

25 50 75

SETTLEMENT IN INCHES

REMARKS

ROUTE 2, SEC A1, BRIDGE NO 39, CANAL, WEST ABUTMENT

SOIL IN UPPER 1/3 OF PILE EXAMINED

SOURCE OF INFORMATION NEVADA DEPARTMENT OF HIGHWAYS

FILE NO. JS40

SOIL DESCRIPTION

DEPTH FT PENETRATION RATE

Fine sand

10

20

30

40

Tip of pile

FINALE penetraTION RATE
-PILE TEST DATA-

LOCATION NEVADA
DATE DRIVEN
DATE TESTED 19 SEPT 1946
OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE GRAVITY
WEIGHT 1575 lb 3150 lbs
STROKE 60 in 5 ft
ENERGY 95 ft-lb 15800 ft-lb
BLOWS PR MIN
FINAL PENETRATION 5 blows/in

PILE TYPE TIMBER
PILE DIMENSIONS $d_{max} = 12''$, Butt $d_{min} = 8''$ Tip
WEIGHT
DRIVEN LENGTH 24'
EMBEDDED LENGTH 13'

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Sand</td>
<td>10</td>
<td>Tip of pile</td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS. CONT NO 679, EAST PIER, B-477.

SOIL IN UPPER 1/3 OF PILE EXAMINED

SOURCE OF INFORMATION NEVADA DEPARTMENT OF HIGHWAYS
FILE No. J540
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>NEVADA</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td></td>
</tr>
<tr>
<td>DATE TESTED</td>
<td>26-27 NOV 1954</td>
</tr>
<tr>
<td>OWNER</td>
<td></td>
</tr>
<tr>
<td>CONTRACTOR</td>
<td></td>
</tr>
<tr>
<td>TESTED BY</td>
<td></td>
</tr>
<tr>
<td>HAMMER TYPE</td>
<td>GRAVITY</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>1584 lbs</td>
</tr>
<tr>
<td>STROKE</td>
<td>60 in</td>
</tr>
<tr>
<td>ENERGY</td>
<td>95 psi</td>
</tr>
<tr>
<td>PILE TYPE</td>
<td>STEEL PIPE</td>
</tr>
<tr>
<td>PILE DIMENSIONS</td>
<td>12 1/4&quot; diam x 3/4&quot;</td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>DRIVEN LENGTH</td>
<td></td>
</tr>
<tr>
<td>EMBEDDED LENGTH</td>
<td>235 ft</td>
</tr>
</tbody>
</table>

| BLOWS PR. MIN     | 4 Blows/min |
| FINAL PENETRATION |            |

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Silt and sand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.25</td>
<td>Tight Clay</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>0.5</td>
<td>Sand and gravel</td>
<td>20</td>
<td>Top of pile</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**
CONT 907, B 28, DENT NO. 2, PILE NO. 2

**SOURCE OF INFORMATION**
NEVADA DEPARTMENT OF HIGHWAYS
FILE No. J540
- PILE TEST DATA -

LOCATION: NEVADA

DATE DRIVEN: 27-28 Nov 1954

DATE TESTED: 27-28 Nov 1954

OWNER:

CONTRACTOR:

TESTED BY:

HAMMER TYPE: GRAVITY
WEIGHT: 198 l
STROKE: 60 in
ENERGY: 26 t
BLOWS PR MIN: 7 Blops / 2'
FINAL PENETRATION: 7 Blops / 2'

PILE TYPE: STEEL PIPE
PILE DIMENSIONS: 12 3/4" diam x 3/4" 3/4" bottom plate
WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH: 257 ft

TEST LOAD (TONS) 0 25 50 75

SOIL DESCRIPTION

DEPTH FT PENETRATION RATE

SOURCES OF INFORMATION FILE N.

NEVADA DEPARTMENT OF NEVADA HIGHWAYS J 540

REMARKS: CONT 907, D 28, BENT NO 6, PILE NO 2

...
LOCATION: YERINGTON, NEVADA
DATE DRIVEN: 21-22 DEC 1953
DATE TESTED: 

HAMMER TYPE: GRAVITY
WEIGHT: 130 t
STROKE: 60 in
ENERGY: 95 k in
BLOWS PR. MIN: 
FINAL PENETRATION: 5 Blows/in

PILE TYPE: STEEL PIPE
PILE DIMENSIONS: 12 3/4" diam x 3/4" 3/4" bottom plate
WEIGHT: 
DRIVEN LENGTH: 
EMBEDDED LENGTH: 39 ft

TEST LOAD (TONS)
25
50
75

SOIL DESCRIPTION
DEPTH FT
PENETRATION RATE
Sandy silt

LEAVE SAND AND GRAVEL

10
20
30
40
Tip of pile

REMARKS: GOLDFIELD AVE, CONT 940, B 600, PIER NO 1, PILE NO 3 FROM NORTH

SOURCE OF INFORMATION: NEVADA DEPARTMENT OF HIGHWAYS
FILE N: 1540
PILE TEST DATA

LOCATION: YERRINGTON, NEVADA
DATE DRIVEN: 
DATE TESTED: 03-24 FEB 1956

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: GRAVITY
WEIGHT: 175 lbs
STROKE: 40 in
ENERGY: 25 ft-lb
BLOWS PR MIN
FINAL PENETRATION: 10 Blows/3'

PILE TYPE: STEEL PIPE
PILE DIMENSIONS: 12 3/4" diam x 1/4"
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH: 39 ft

TEST LOAD (TONS)

0
0.25
0.5

SOIL DESCRIPTION
Penetration Rate

DEPTH FT

10
20
30

REMARKS: GOLDFIELD AVE, CONT 940
2 600, PIER NO 3, PILE NO 3 FROM SOUTH

SOURCE OF INFORMATION: NEVADA DEPARTMENT OF HIGHWAYS
FILE NO: J540
PILE TEST DATA

LOCATION: NEVADA
DATE DRIVEN: 17-18 AUG. 1956
DATE TESTED: 7-8 Aug. 1956

HAMMER TYPE: STEAM, Vulcan no. 2
WEIGHT: 15 t
STROKE: 29 1/2
ENERGY: 435 ft-lb
BLOWS PR MIN: -
FINAL PENETRATION: 2 3/4 in./2'

PILE TYPE: STEEL PIPE
PILE DIMENSIONS: 12 3/4" diam x 1 1/4" 3/16" bottom plate
WEIGHT: -
DRIVEN LENGTH: 18 ft
EMBEDDED LENGTH: 15 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT PENETRATION RATE
Fine sand
Coarse sand
Silt, silt
Silt, clay
Silt, gravel
Gravel, sand
Chalk
Cobble
Clay

REMARKS: CONT 937, B-629, EVERIDGE ON MCLEAN LANE

SOURCE OF INFORMATION: NEVADA DEPARTMENT OF HIGHWAYS
FILE #: NEVADA 1540
**PILE TEST DATA**

**LOCATION**
NEVADA

**DATE DRIVEN**

**DATE TESTED**
1-2 AUG 1966

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE**
GRAVITY

**WEIGHT**
154 t

**STROKE**
60 in

**ENERGY**
92 t·in

**PILE TYPE**
STEEL PIPE

**PILE DIMENSIONS**
12 3/8" diam x 3/4" 3/4" bottom plate

**BLOWS PR MIN**

**FINAL PENETRATION**
40 Blows/in

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>Load</th>
<th>Settlement in Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>0.75</td>
</tr>
<tr>
<td>50</td>
<td>0.5</td>
</tr>
<tr>
<td>75</td>
<td>0.25</td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

- Silt/sand
- Coarse sand
- Clay
- Fine sand
- Tip of pile

**DEPTH (FT)**

<table>
<thead>
<tr>
<th>Depth</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS.**
CONT 957, BRIDGE B 630.

**SOURCE OF INFORMATION**
NEVADA DEPARTMENT OF HIGHWAYS

**FILE No.**
J590
-PILE TEST DATA- 84

LOCATION  RICHLAND CO. OHIO  OWNER  
DATE DRIVEN  19 APRIL & 9 MAY 1956  CONTRACTOR  
DATE TESTED  3 & 12 MAY 1956  TESTED BY  
HAMMER TYPE  VULCAN 50-C  PILE TYPE  PIPE - CAST-IN-PLACE  
WEIGHT  
STROKE  
ENERGY  
BLOWS PR MIN  
FINAL PENETRATION  3 MAY - 19 blows/3"  
12 MAY 40 blows/3"  

<table>
<thead>
<tr>
<th>PILE Dimensions</th>
<th>12&quot; O - 7 Gauge</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH</th>
<th>BLOWS PER FOOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine Silty Sand</td>
<td>42</td>
<td>40 80 120</td>
</tr>
<tr>
<td>Silty Clay</td>
<td>54</td>
<td></td>
</tr>
<tr>
<td>Very Fine Silty Sand</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Silty Sand, Clay</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Trace Small Gravel</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>Limestone Frag</td>
<td>21</td>
<td></td>
</tr>
<tr>
<td>Limestone</td>
<td>24</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PENETRATION RATE</th>
<th>40 80 120</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>26</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>56  80 100</td>
<td>3 May Test</td>
<td>12 May Test</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS  Route 30 By Pass Mansfield, Ohio

SOURCE OF INFORMATION  STATE OF OHIO  
FILE No.  OHIO  
DEPARTMENT  J 948  
OF HIGHWAYS  

LOCATION: RICHLAND CO., OHIO
DATE DRIVEN: 14 MARCH 1957
DATE TESTED: 27 MARCH 1957

OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: VULCAN 50 C
WEIGHT: 
STROKE: 
ENERGY: 
BLOWS PR MIN: 110
FINAL PENETRATION: 33 blows/ft

PILE TYPE: Monotube - Cast-in-Place
PILE DIMENSIONS: 18" x 8 gauge
WEIGHT: 
DRIVEN LENGTH: 
EMBEDDED LENGTH: 137

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.5</td>
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<tr>
<td>1.0</td>
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<td>1.5</td>
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<td></td>
</tr>
<tr>
<td>3.0</td>
<td></td>
<td></td>
<td></td>
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</table>

SOIL DESCRIPTION:

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>BLOWS/FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>80</td>
<td>120</td>
</tr>
<tr>
<td>50</td>
<td>100</td>
<td>120</td>
</tr>
<tr>
<td>60</td>
<td>120</td>
<td>120</td>
</tr>
</tbody>
</table>

REMARKS: Bridge No 1145, 820 Penn, 2
Rocky Fork - 375, 310, 2447

SOURCE OF INFORMATION: FILE N. 140-
STATE OF OHIO: 
DEPARTMENT OF HIGHWAYS: J.540
PILE TEST DATA

LOCATION: HAMILTON CO., OHIO
DATE DRIVEN: 4 NOVEMBER 1955
DATE TESTED: 8 NOVEMBER 1955
OWNER:
CONTRACTOR:
TESTED BY:

HAMMER TYPE: McKERNAN-TERRY, 3-6-3
WEIGHT:
STROKE:
ENERGY:
BLOWS PR MIN:
FINAL PENETRATION:

PILE TYPE: Monotube - Cast-in-Place
PILE DIMENSIONS: 12 Gage - 8" butt
diam = 12"; Tip diam = 8"
WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH:

TEST LOAD (TONS):

SOIL DESCRIPTION

DEPTH (FT)

BLOW PER FT PENETRATION RATE

REMARKS:
Bridge No. NA-0-58 Over Clifton Ave.

SOURCE OF INFORMATION:
STATE OF OHIO
DEPARTMENT OF HIGHWAYS
FILE NO:
OHIO-1540
- PILE TEST DATA -

LOCATION: CUYAHOGA COUNTY, OHIO

DATE DRIVEN: 19 JUNE, 1957
DATE TESTED: 27 JUNE, 1957

HAMMER TYPE: VULCAN 50-C
PILE TYPE: Armco Shell-Type FN

WEIGHT:  
STROKE:  
ENERGY:  
BLOWS PR MIN:  
FINAL PENETRATION:  

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th></th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>Depth</th>
</tr>
</thead>
<tbody>
<tr>
<td>42 ft</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
</tr>
<tr>
<td>B/FT</td>
</tr>
</tbody>
</table>

DEPTH FT

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
</tr>
<tr>
<td>B/FT</td>
</tr>
</tbody>
</table>

REMARKS:

Pile No "A" Bridge No - CUY-42-2001 - 570 63+59 - 7 & S Offset Left-West Approach

SOURCE OF INFORMATION: DEPARTMENT OF HIGHWAYS

FILE NO: J540

STATE OF OHIO
LOCATION CUYAHOGA CO OHIO
DATE DRIVEN 28 AUGUST 1957
DATE TESTED 30 AUG-2 SEPT 1957
6-10 SEPTEMBER 1957

HAMMER TYPE SUPER Vulcan-50C
WEIGHT
STROKE
ENERGY
BLOWS PR MIN 155
FINAL PENETRATION

PILE TYPE Armco Steel Shell Spiral Weld
PILE DIMENSIONS 14"-0.219 Gauge

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPT FT 40 80 120

PENETRATION RATE

REMARKS.
Pile No 82 - Bridge No. CUY 42R - 2001 - Sta 62+55 - 69' Offset
Right - East Abutment.

SOURCE OF INFORMATION FILE No
STATE OF OHIO OHIO
DEPARTMENT JS 40
OF HIGHWAYS
PILE TEST DATA

LOCATION: BONNER CO, IDAHO (SANDPOINT)
DATE DRIVEN: 12-36 OCTOBER 1952
DATE TESTED: 14 OCTOBER 1952

OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: STEAM VULCAN NO 2
WEIGHT: 1 3/4 T
STROKE: 29.0 in
ENERGY: 43.5 in·tons
BLOWS PR MIN: 

PILE TYPE: TIMBER
PILE DIMENSIONS: Round tapered pile
Butt diam. 19 3/8", Tip diam. 6"

WEIGHT: 2280 lbs
DRIVEN LENGTH: 87.7 ft
EMBEDDED LENGTH: 59.28 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>DEPTH (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>75</td>
<td>30</td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION

- Sand
- Clay

PENETRATION RATE

<table>
<thead>
<tr>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLOWS per ft</td>
</tr>
<tr>
<td>10</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>30</td>
</tr>
</tbody>
</table>

SOURCES OF INFORMATION: IDAHO DEPARTMENT OF HIGHWAYS
FILE NO: J 540

REMARKS: Sandpoint Bridge across Pend Oreille River - Test pile #4
Sta 230+00-

Note: Used 30 ins/cuts for weight
LOCATION: BONNER Co IDAHO (SANDPOINT)

DATE DRIVEN: 7-15-618 OCTOBER 1952
DATE TESTED: 30-31 OIT. 2 NOV 1952

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM VULCAN NO 2
WEIGHT: 1.8 T
STROKE: 29.0 in
ENERGY: 43.5 in-tons
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE: TIMBER
PILE DIMENSIONS: ROUND TAPERED PILE
BUCK DIAM.: Tip diam. ~ 6"
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 72 FT

TEST LOAD (TONS)
25 50 75

SOIL DESCRIPTION
DEPT FT
Penetration RATE
BLOWS per foot
20 40 60

REMARKS:
Sandpoint Bridge across Pend
Orielle River Test Pile #6
576 250 00

SOURCE OF INFORMATION
FILE NO.
IDAHQ DEPARTMENT OF HIGHWAYS
IDAHQ
J 540
LOCATION: Bonner Co., Idaho (Sandpoint)  
OWNER: ____________________________
DATE DRIVEN: 9/15/19 October 1952  
DATE TESTED: 10/20/20 October 1952  
TESTED BY: ____________________________

HAMMER TYPE: Steam Vulcan No. 2  
PILE TYPE: Steel Monotube FN 16

| WEIGHT | 15T | 3000 lbs |
| STROKE | 290 in | 242 ft |
| ENERGY | 1435 in-ton | 7,560 ft-lbs |
| BLOWS PR MIN | ____________________________ |
| FINAL PENETRATION | ____________________________ |

PILE DIMENSIONS:

| PILE TYPE | ________________ |
| PILE DIMENSIONS | ________________ |

TEST LOAD (TONS): 25, 50, 75

SOIL DESCRIPTION:

| DEPTH | PENETRATION RATE |
| FT | 20, 40, 60 |

REMARKS: Sandpoint Bridge across Pend Oreille River - Test Pile No. 45  
Sta. 236 + 40

SOURCE OF INFORMATION: Idaho Department of Highways  
FILE No.: J 540
LOCATION: LANGLEY COUNTY, WISCONSIN
DATE DRIVEN: 
DATE TESTED: SEPTEMBER 17, 1956
OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: STEAM, McLeam-Tony 903
WEIGHT: 
STROKE: 
ENERGY: 
BLOWS PR MIN: 
FINAL PENETRATION: 

PILE TYPE: STEEL, pipe pile
PILE DIMENSIONS: 14" diam, 0.188 thick
Flat plate on lower end

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION:

DEPTH FT

PENETRATION RATE

SETTLEMENT IN INCHES

0.25

0.50

0.75

The load for each increment was held for 1 hour after settlement had ceased. The last increment was held for 64 hours.

REMARKS

PROJECT NO 01-2(26)
STRUCTURE B-34-4
SUMMIT LACE SUBWAY, CTS 45
PILE NO 34 - PIER NO 2

SOURCE OF INFORMATION
Wisconsin Highway Commission
FILE N:
J 940
PILE TEST DATA

LOCATION: MANITOWOC COUNTY, WISCONSIN
OWNER: [Blank]
DATE DRIVEN: FEB 22, 1956
DATE TESTED: FEB 28, 1956
TESTED BY: [Blank]

HAMMER TYPE: STEAM, McKiernan-Terry 983
PILE TYPE: [Blank]
PILE DIMENSIONS: 12 BP 53

TEST LOAD (TONS):

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>SETTLEMENT IN INCHES</td>
<td>0.25</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>SOIL DESCRIPTION</td>
<td>Water</td>
<td>Soft clay</td>
<td>Loose sandy sand</td>
</tr>
<tr>
<td>DEPTH FT</td>
<td>10</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>PENETRATION RATE</td>
<td>50</td>
<td>100</td>
<td>150</td>
</tr>
<tr>
<td>BLOWS PER FT</td>
<td>[Blank]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOURCE OF INFORMATION: [Blank]
FILE No.: [Blank]

PROJECT US 6503 (1)
STRUCTURE D-36-7
HADISON-MONROE STREET BRIDGE
PILE NO. 14 EAST, PILE NO. 2
SHELBY TUBES TAKEN

REMARKS: [Blank]

1. Unconfined compression strength
   2. 1 3 12

COMMISSION: J. A. C.
PILE TEST DATA

LOCATION: MANITOWOC COUNTY, WISCONSIN
DATE DRIVEN: FEBRUARY 25, 1956
DATE TESTED: FEBRUARY 28, 1956
OWNER:
CONTRACTOR:
TESTED BY:
HAMMER TYPE: STEAM, McKean-Terry 983
PILE TYPE: STEEL, H-pile
PILE DIMENSIONS: 12" BP 53
WEIGHT:
STROKE:
ENERGY:
BLOWS PR MIN:
FINAL PENETRATION:

TEST LOAD (TONS)
25 50 75

SOIL DESCRIPTION

DEPTH FT

Boues per ft PENETRATION RATE
50 100 150 160

REMARKS
PROJECT U.S. 6503 (1)
STRUCTURE B-36/7
HADLEY-MONROE SR BRIDGE
PILE NO IS EAST, PIER 1

SOURCE OF INFORMATION: WISCONSIN HIGHWAY COMMISSION
FILE N: 540
LOCATION  BUFFALO COUNTY, WISCONSIN
OWNER___________________________________________
DATE DRIVEN____________________________CONTRACTOR______________________________
DATE TESTED  November 7 1966  TESTED BY___________________________________________
HAMMER TYPE  STEAM, Vulcan no 1  PILE TYPE  CONCRETE, precast
WEIGHT_________________________________________PILE DIMENSIONS  14" square
STROKE_________________________________________
ENERGY_________________________________________WEIGHT____________________________________
BLOWS PR MIN____________________________________DRIVEN LENGTH__________________________
FINAL PENETRATION________________________________EMBEDDED LENGTH  32 ft

TEST LOAD (TONS)

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

BLOWS per foot PENETRATION RATE

10 20 30

REMAMKS.  PROJECT T 0864 (2)
STRUCTURE B-6-34
STH 26 PILE NO 5 OF
PIER BENT NO 1

SOURCE OF INFORMATION  WISCONSIN HIGHWAY COMMISSION
FILE No.  T 540
**PILE TEST DATA**

LOCATION: BUFFALO COUNTY, WISCONSIN  
DATE DRIVEN:  
DATE TESTED: OCTOBER 11, 1935  
OWNER:  
CONTRACTOR:  
TESTED BY:  

<table>
<thead>
<tr>
<th>Hammer Type</th>
<th>Gravity</th>
<th>Weight</th>
<th>Stroke</th>
<th>Energy</th>
<th>Blows PR Min</th>
<th>Final Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>15 ft</td>
<td>3000 lbs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pile Type</th>
<th>Pile Dimensions</th>
<th>Weight</th>
<th>Driven Length</th>
<th>Embedded Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>SteelPipe</td>
<td>Diam 16&quot;, d = 0.188&quot;</td>
<td></td>
<td>63.5 ft</td>
<td>56 ft</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth FT</th>
<th>Blows per Foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

The load for each increment was held for 1 hour after settlement had ceased. The last increment was held for six hours.

REMARKS:  
STRUCTURE NO B-6-20  
STATE TRUNK HIGHWAY 25  
PILE NO 4 OF PIER BENT NO 5  

SOURCE OF INFORMATION: WISCONSIN HIGHWAY COMMISSION  
FILE No: J540  

Penetration Rate:
- For Penetrometer
PILE TEST DATA

LOCATION: Trempealeau County, Wisconsin

DATE DRIVEN:  
DATE TESTED: JUNE 26, 1956

OWNER:  
CONTRACTOR:  
TESTED BY:  

HAMMER TYPE: STEAM, Vulcan no 1
WEIGHT: 25 ft 9000 lbs
STROKE: 36 in 9 ft
ENERGY: 90 ft 15000 Ibs
BLOWS PR MIN:  
FINAL PENETRATION:  

PILE TYPE: STEEL, Union Metal Shell
PILE DIMENSIONS: 14" diam Tga

DRIVEN LENGTH: 43 ft
EMBEDDED LENGTH:  

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION |

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>BLOWS per Foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>50</td>
<td>40</td>
</tr>
</tbody>
</table>

REMARKS: PROJECT T 028-1(26), 3TH 35
STRUCTURE 8-61-29
HARSHLAND RELOCATION
PILE NO 5, PIER BENT NO 3

SOURCE OF INFORMATION: WISCONSIN HIGHWAY COMMISSION
FILE NO: 540
**PILE TEST DATA**

**LOCATION**: COUNCIL BLUFFS, IOWA  
**OWNER**:  
**DATE DRIVEN**:  
**DATE TESTED**:  
**CONTRACTOR**:  
**TESTED BY**:  

**HAMMER TYPE**: STEAM  
**WEIGHT**: 25 ft 5,000 lbs  
**STROKE**: 3 ft  
**ENERGY**: 80 ft 15,000 ft-lb  
**BLOWS PR MIN**:  
**FINAL PENETRATION**: 10/14"  

**PILE TYPE**: STEEL, 16" UNION METAL PIPE  
**PILE DIMENSIONS**: Tapered pile 16"-8"  
**WEIGHT**: 1480 + 1180 = 2660 lbs 133 ft  
**DRIVEN LENGTH**: 720 in 60 ft  
**EMBEDDED LENGTH**: 432 in 36 ft  

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Clay</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>Sand</td>
<td>16</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>150</td>
<td>Sand</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>36</td>
<td></td>
</tr>
</tbody>
</table>

**LOADING 1 HOUR INTERVAL**

**REMARKS**: BROADWAY VIADUCT, COUNCIL BLUFF; GROUP I

**SOURCE OF INFORMATION**:  
**FILE N**: IOWA STATE HIGHWAY IOWA  
**COMMISSION**: 7580
# Pile Test Data

**Location:** Council Bluffs, Iowa  
**Owner:**  
**Date Driven:**  
**Date Tested:**  
**Hammer Type:** Steam  
**Weight:** 25 t  
**Stroke:** 36 in  
**Energy:** 93 4 in  
**Btu/s:**  
**Final Penetration:**  

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Clay</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>0.5</td>
<td>Sand</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Sand</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td>Sand</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Sand</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:** Broadway Viaduct, Council Bluff, Group I.

**Source of Information:** Iowa State Highway Commission  
**File No.:** JS40
PILE TEST DATA

LOCATION  COUNCIL BLUFFS, IOWA

DATE DRIVEN

DATE TESTED

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE  STEAM

WEIGHT  25 k  5000 lbs

STROKE  36 in.

ENERGY  90 ft-lb

BLOWS PR MIN

FINAL PENETRATION  19/16

PILE TYPE  STEEL-CONCRETE, 12" RAYMOND

PILE DIMENSIONS  3 step-tapered pile

4 12" sections 8"-9"-10"-11" diam

WEIGHT

DRIVEN LENGTH  48 ft

EMBEDDED LENGTH  38 1/2

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

BROWN CLAY

10

BROWN CLAY SAND

20

FIRY SAND

40

50

REMARKS.  BROADWAY PROJECT, COUNCIL BLUFFS GROUP B

SOURCE OF INFORMATION  IOWA STATE HIGHWAY COMMISSION

FILE N.  I540
-PILE TEST DATA-

LOCATION COUNCIL BLUFFS IOWA
DATE DRIVEN
DATE TESTED
OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE GRAVITY
WEIGHT 135 t 27960 Ibs
STROKE 180 in 15 ft
ENERGY 393 ft lb 40350 Ibs ft
BLOWS PR MIN
FINAL PENETRATION 7/4"

PILE TYPE TIMBER
PILE DIMENSIONS Butt diam. 11"
WEIGHT 3216 + 575 = 3890 Ibs 1445 t
DRIVEN LENGTH 60 ft
EMBEDDED LENGTH 248 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION DEPTH FT PENETRATION RATE

<table>
<thead>
<tr>
<th>SOIL</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown clay</td>
<td>10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brown silt</td>
<td></td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Fine sand</td>
<td></td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>40</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS. BROADWAY VIADUCT, COUNCIL BLUFFS GROUP II

SOURCE OF INFORMATION FILE No.
IOWA STATE HIGHWAY IOWA COMMISSION J540
PILE TEST DATA

LOCATION

COUNCIL BLUFFS, IOWA

DATE DRIVEN

DATE TESTED

HAMMER TYPE

STEAM

WEIGHT

2.5 t, 5000 lb

STROKE

36 in, 0 ft

ENERGY

90 ft lb, 15000 lb ft

BLOWS PR MIN

FINAL PENETRATION

341/2 in

PILE TYPE

STEEL, 12 IN. UNION METAL PIPE

PILE DIMENSIONS

WEIGHT (1371 + 1180 = 2551 lb) 1375 lb

DRIVEN LENGTH

60 ft

EMBEDDED LENGTH

37 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

A LOADING 1 HOUR INTERVAL

Brown clay

B LOADING 15 MIN INTERVAL

Brown clayey sand

Fine sand

Remarks.

BROADWAY WIDOW, COUNCIL BLUFFS GROUP II

SOURCE OF INFORMATION

IOWA STATE HIGHWAY COMMISSION

FILE No.

1640
**- PILE TEST DATA -**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>COUNCIL BLUFFS, IOWA</th>
<th>OWNER</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td></td>
<td>CONTRACTOR</td>
</tr>
<tr>
<td>DATE TESTED</td>
<td></td>
<td>TESTED BY</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HAMMER TYPE</th>
<th>STEAM</th>
<th>PILE TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT</td>
<td>325 lb</td>
<td>STEEL, 16&quot; UNION METAL PIPE</td>
</tr>
<tr>
<td>STROKE</td>
<td>36 in</td>
<td>PILE DIMENSIONS</td>
</tr>
<tr>
<td>ENERGY</td>
<td>90 ft/lb</td>
<td>See below</td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td>10/14&quot;</td>
<td>WEIGHT: 2285 + 180 = 3465 lb</td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td>10/14&quot;</td>
<td>1.73 t</td>
</tr>
<tr>
<td></td>
<td></td>
<td>DRIVEN LENGTH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EMBEDDED LENGTH: 375 ft</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SETTLEMENT IN INCHES</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
</tr>
<tr>
<td>0.05</td>
<td></td>
</tr>
<tr>
<td>0.1</td>
<td></td>
</tr>
<tr>
<td>0.25</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:** BROADWAY HADJET, COUNCIL BLUFFS, GROUP III.

**SOURCE OF INFORMATION:** IOWA STATE HIGHWAY COMMISSION

**FILE N°:** J540
**PILE TEST DATA**

- **LOCATION**: Council Bluffs, Iowa
- **OWNER**: 
- **CONTRACTOR**: 
- **TESTED BY**: 

**HAMMER TYPE**: Gravity
- **WEIGHT**: 135 lbs
- **STROKE**: 180 in
- **ENERGY**: 249 ft-lb
- **BLOWS PR MIN**: 
- **FINAL PENETRATION**: 5/8" 

**PILE TYPE**: Timber
- **PILE DIMENSIONS**: Bolt diam 12" 
- **WEIGHT**: 22/16 + 675 = 2890 lbs = 1,445 lbs
- **DRIVEN LENGTH**: 60 ft
- **EMBEDDED LENGTH**: 18.7 ft

**TEST LOAD** (TONS)

<table>
<thead>
<tr>
<th>Test Load</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Loading</td>
<td><img src="image" alt="Graph A" /></td>
<td><img src="image" alt="Graph B" /></td>
<td></td>
</tr>
<tr>
<td>B Loading</td>
<td><img src="image" alt="Graph A" /></td>
<td><img src="image" alt="Graph B" /></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

- **Drawn clay**: 10 ft
- **Drawn clayey sand**: 20 ft
- **Fine sand**: 30 ft
- **Gravel**: 40 ft

**DEPTH FT**

- 0 ft
- 5 ft
- 10 ft
- 15 ft
- 20 ft
- 25 ft
- 30 ft
- 40 ft
- 50 ft
- 60 ft

**PENETRATION RATE**

- 0.25 in
- 0.5 in
- 1 in

**REMARKS**: Broadway Viaduct, Council Bluffs Group III

**SOURCE OF INFORMATION**: Iowa State Highway Commission
- **FILE NO.**: J-540
LOCATION: COUNCIL BLUFFS, IOWA  OWNER: ____________________________
DATE DRIVEN: ____________________________  CONTRACTOR: ____________________________
DATE TESTED: ____________________________  TESTED BY: ____________________________

HAMMER TYPE: STEAM  PILE TYPE: STEEL-CONCRETE 16" RAYMOND
WEIGHT: 26 & 5000 lbs  PILE DIMENSIONS: Step-tapered pile
STROKE: 36 in  5' 8" sections  11"-12"-13"-14"-15" diam
ENERGY: 90 ft  1500 ft-lbs
BLOWS PR MIN: ____________________________  WEIGHT: ____________________________
FINAL PENETRATION: 10' 3/4"  DRIVEN LENGTH: 40 ft
EMBEDDED LENGTH: 38 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>40</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: BROADWAY VIADUCT, COUNCIL BLUFFS GROUP III

SOURCE OF INFORMATION: IOWA STATE HIGHWAY COMMISSION  FILE N°: J340
-PILE TEST DATA-

LOCATION COUNCIL BLUFFS, IOWA
DATE DRIVEN
DATE TESTED

HAMMER TYPE STEAM
WEIGHT 25 t 3000 lbs
STROKE 36 in 3 ft
ENERGY 90 ft-lbs 5000 lbf-ft
BLOWS PR MIN
FINAL PENETRATION 10'/3"

PILE TYPE TIMBER
PILE DIMENSIONS Butt diam 12"
WEIGHT 2216 + 20.5 = 3121 lbs 1.56 t
DRIVEN LENGTH 60 ft
EMBEDDED LENGTH 33 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>0</th>
<th>0.25</th>
<th>0.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gray clay</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Sandy clay</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Fine sand</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: BROADWAY WADUPT, COUNCIL BLUFFS GROUP III

SOURCE OF INFORMATION FILE N.
IOWA STATE HIGHWAY COMMISSION J540

FILE N.
IOWA STATE HIGHWAY IOWA
COMMISSION J540
**LOCATION** COUNCIL BLUFFS, IOWA

**DATE DRIVEN**

**DATE TESTED**

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** STEAM

**WEIGHT** 25 t

**STROKE** 36 in

**ENERGY** 90 ft

**BLOWS PR MIN**

**FINAL PENETRATION** 24/4

**PILE TYPE** STEEL-CONCRETE, 12" RAYMOND

**PILE DIMENSIONS** Step-tapered pile

**DRIVEN LENGTH** 48 ft

**EMBEDDED LENGTH** 42.5 ft

---

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Gray clay</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Sandy clay</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Fine sand</td>
<td>0.75</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td>2.25</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS** BROADWAY WADUHT, COUNCIL BLUFFS GROUP III

**SOURCE OF INFORMATION** IOWA STATE HIGHWAY COMMISSION

**FILE N.** J540
### PILE TEST DATA

**Location:** Council Bluffs, Iowa  
**Owner:**  
**Contractor:**  
**Tested By:**  

<table>
<thead>
<tr>
<th>Hamme Type</th>
<th>5 t</th>
<th>3610</th>
<th>3 ft</th>
<th>90 t</th>
<th>15000 ft/lb</th>
<th>378</th>
<th>407 ft</th>
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<tbody>
<tr>
<td>Weight</td>
<td>5000 lbs</td>
<td>5000 lbs</td>
<td>3550 lbs</td>
<td>1275 lbs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td>3 ft</td>
<td>3 ft</td>
<td>3 ft</td>
<td>3 ft</td>
<td>3 ft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy</td>
<td>15000 ft/lb</td>
<td>15000 ft/lb</td>
<td>15000 ft/lb</td>
<td>15000 ft/lb</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blows PR Min</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final Penetration</td>
<td>578</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Test Load (Tons):**

- 25
- 50
- 75

**Soil Description:**

- Gray clay
- Sandy clay
- Fine sand
- Composed soil

**Remarks:** Broadway Viaduct, Council Bluffs Group II

**Source of Information:** Iowa State Highway Commission  
**File No.:** J540
- PILE TEST DATA -

LOCATION POTTAWATTAMIE CO, IOWA  OWNER IOWA STATE HIGHWAY
DATE DRIVEN 20-22 APRIL 1954  CONTRACTOR LARSON BROS
DATE TESTED  TESTED BY ELBERT, MASON, BARNARD

HAMMER TYPE STEAM—Single Acting  PILE TYPE STEEL-CONCRETE, RAYMOND
WEIGHT 3.25 t  6500 lb  WEIGHT Driving cap. 0.4751
STROKE 36 in  3 ft  DRIVEN LENGTH 40 ft
ENERGY 117 ft-lb  19300 ft-lb  EMBEDDED LENGTH 38.6 ft
BLOWS PR MIN  FINAL PENETRATION 10-7/8

TEST LOAD (TONS)  SOIL DESCRIPTION  DEPTH FT  PENETRATION RATE
25  10  
50  
75  

LOADING 15 MIN INTERVAL

REMARKS. COUNCIL BLUFFS WEST
BROADWAY VIADUCT, CENTER
PILE OF THE NORTH FOOTING
OF BENT 17

SOURCE OF INFORMATION  FILE N.
IOWA STATE HIGHWAY  IOWA
COMMISSION  J540
**PILE TEST DATA**

- **LOCATION**: CLAY COUNTY, IOWA
- **DATE DRIVEN**: 14-15, SEPT 1953
- **DATE TESTED**: 14-16, SEPT 1953
- **OWNER**: IOWA STATE HIGHWAY
- **CONTRACTOR**: SPENCER CONST CO
- **TESTED BY**: ELBERT, ZELEADT, JENNINGS

<table>
<thead>
<tr>
<th>Hammer Type</th>
<th>Weight</th>
<th>Stroke</th>
<th>Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gravity</td>
<td>4.25 t</td>
<td>120 in</td>
<td>720 ft-lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pile Type</th>
<th>Pile Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concrete, precast</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Load (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settlement (IN)</td>
<td>0</td>
<td>0.25</td>
<td>0.5</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth FT</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr 6e c/l</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shif gray glacial clay</td>
<td>10</td>
<td>Tip of pile</td>
</tr>
<tr>
<td>Soft gray sandy clay</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Sa c/l</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Shif gray glacial clay</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks**: CLAY CO, HERDAND TWP, SEC 13-24; 37A 807+70, WEST PINE, 45° 55' 35", THIRD PILE FROM NORTHWEST CORNER

**Source of Information**: IOWA STATE HIGHWAY
**File No**: J526
PILE TEST DATA

LOCATION: FREMONT COUNTY, IOWA
OWNER: IOWA STATE HIGHWAY
DATE DRIVEN: 10-12 FEB 1973
CONTRACTOR: GOVANS BROTHERS
DATE TESTED: 10-12 FEB 1973
TESTED BY: TALBERT, KUSSCASTAD, KAYLAND, MAHON

HAMMER TYPE: STEAM, Vulcan N1
PILE TYPE: CONCRETE, precast
WEIGHT: 2.5 t
PILE DIMENSIONS: 15000 lb
STROKE: 3/4 in
WEIGHT: 60 t
ENERGY: 70 ft-lb
DRIVEN LENGTH: 45 ft
BLOWS PR MIN
EMBEDDED LENGTH: 32 ft
FINAL PENETRATION

TEST LOAD (TONS)

0.25
0.5
0.75

SETTLEMENT IN INCHES
LOADING 1 HOUR INTERVAL

SOIL DESCRIPTION
DEPTH FT
PENETRATION RATE

TEST LOAD

LOADING 1 HOUR INTERVAL

REMARKS:
STA NO 134 +50, FREMONT CO
PRAIRIE CO TWP SEC 28
NO 4 PILING FROM SOUTH,
DENT NO 6

SOURCE OF INFORMATION: IOWA STATE HIGHWAY
FILE NO.: J540
PILE TEST DATA

LOCATION: IOWA COUNTY, IOWA
DATE DRIVEN: 
DATE TESTED: 28 FEBR 1966
OWNER: IOWA STATE HIGHWAY
CONTRACTOR: SCHMIDT CONST CO
TESTED BY: ELBERT, BARNARD, LANDS

HAMMER TYPE: STEAM, Vulcan no 1
WEIGHT: 38 ft
STROKE: 36 in
ENERGY: 90 ft
BLOWS PR MIN: 
FINAL PENETRATION: 

PILE TYPE: CONCRETE, precast
PILE DIMENSIONS: 14"
WEIGHT: 386 ft
DRIVEN LENGTH: 40 ft
EMBEDDED LENGTH: 39 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

REMARKS: IOWA CO, MACINGO-WASHINGTON
TWP, SEC 19, STA NO 83+50
SOUTH BEND, FOURTH PILING
FROM WEST END

SOURCE OF INFORMATION: IOWA STATE HIGHWAY
FILE N:
COMMISSION: IEAO
-PILE TEST DATA-

LOCATION  CEDAR, IOWA
DATE DRIVEN  14-16 MAY 1952
DATE TESTED  
OWNER  
CONTRACTOR  A. OLSON
TESTED BY  

HAMMER TYPE  STEAM - Single Acting
WEIGHT  25 t  5000 lbs
STROKE  36 in  3 ft
ENERGY  90 ft-lb  15000 ft-lb
BLOWS PR MIN 
FINAL PENETRATION  10 Blows/20s

PILE TYPE  CONCRETE, precast
PILE DIMENSIONS 
WEIGHT  27 t  Driving cap 0.25 t
DRIVEN LENGTH  40 ft
EMBEDDED LENGTH  3.5 ft

---

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
</tr>
</tbody>
</table>

---

SOIL DESCRIPTION  
5 ft  sand  loose  
10 ft  sand  fine  
30 ft  sand  yellow  
40 ft  sand  
50 ft  sand  

---

REMARKS.  BLACK HAWK CO, NORTH PIER PILING, 3TH 401+36 CEDAR TWP SEC 33 SECOND DEARING PILE FROM WEST END

REMARKS.  

---

SOURCE OF INFORMATION  IOWA STATE HIGHWAY
FILE N.  J540
COMMISSION  

---
**PILE TEST DATA**

**LOCATION** Clear Creek, Iowa  
**DATE DRIVEN** 23 Jan 1957  
**DATE TESTED** 28 Jan 1957

**HAMMER TYPE** Gravity  
**WEIGHT** 153 t  
**STROKE** 180 in  
**ENERGY** 275 in  
**BLOWS PR MIN**  
**FINAL PENETRATION**

**PILE TYPE** Timber, Creo Wood  
**PILE DIMENSIONS**  
**WEIGHT** 0.06 t  
**DRIVEN LENGTH** 40 ft  
**EMBEDDED LENGTH** 25 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Sand</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Clayey sand, gravel</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Clayey sandy clay</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very firm sandy clay, silts and clays</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thin layer of hard clay</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**  
- Sand  
- Clayey sand, gravel  
- Clayey sandy clay  
- Clayey sandy clay, silts and clays  
- Very firm sandy clay, silts and clays  
- Thin layer of hard clay

**SOURCE OF INFORMATION**  
**FILE N.**  
Iowa State Highway 101-110 + 83  
**LOCATION** Jasper Co., Clear Creek W.P., Sec 13, T-24 S.  
**NO.** 101 + 49.25, East abutment  
**END BEARING PILE** FROM SOUTH

**REMARKS.**  
Location Jasper Co., Clear Creek W.P., Sec 13-24 STA  
No 101 + 49.25, East abutment  
End bearing pile from south

**OWNER** Iowa State Highway  
**CONTRACTOR** Ben Cole  
**TESTED BY** Elbert Hackstadt, McMinn, Jackson

**TEST LOAD**

**SETTLEMENT IN INCHES**

**SOURCE OF INFORMATION**  
**FILE N.**  
Iowa State Highway 101-110 + 83  
**COMMISSION** J540
**PILE TEST DATA**

**LOCATION**  
HONOLULU, HAWAII

**DATE DRIVEN**  
MAY 31, 1951

**DATE TESTED**  
JUNE 5-12, 1951

**OWNER**  

**CONTRACTOR**  

**TESTED BY**  

**HAMMER TYPE**  
STEAM, VULCAN NO. 1

**WEIGHT**  
25 t

**STROKE**  
36 in

**ENERGY**  
90 ft-lb

**BLOWS PR MIN**  
1 Blow/1'

**PILE TYPE**  
TIMBER

**PILE DIMENSIONS**  

**ENERGY**  
WEIGHT

**DRIVEN LENGTH**  
70 ft

**EMBEDDED LENGTH**  
65 ft

---

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>Load (Tons)</th>
<th>Test Load</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Blows per foot</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>0</td>
<td>Composite sand, gravel, shell, clay, rotted wood</td>
<td>20</td>
<td></td>
<td>Pushed by weight of hammer</td>
</tr>
<tr>
<td>50</td>
<td>0.25</td>
<td>Composite sand, gravel, shell, clay, rotted wood</td>
<td>40</td>
<td></td>
<td>Tip of pile</td>
</tr>
<tr>
<td>75</td>
<td>0</td>
<td>Composite sand, gravel, shell, clay, rotted wood</td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**  
HONOLULU PEARL HARBOR ROAD, QUEEN STREET SECTION, PILE LOAD TEST NO. 1, PROJECT FU 44(5)

**SOURCE OF INFORMATION**  
HAWAII HIGHWAY DEPARTMENT

**FILE No.**  
J340
PILE TEST DATA

LOCATION: HONOLULU, HAWAI'I
DATE DRIVEN: FEBRUARY 1, 1952
DATE TESTED: FEB 28 - MARCH 5, 1952

HAMMER TYPE: STEAM, Vulcan no. 0
WEIGHT: 375 c. 7500 lbs
STROKE: 39 in. 3.25 ft
ENERGY: 346 ft. in. 24400 ft-lb
BLOWS PR MIN: 
FINAL PENETRATION: 1 Blow/ft

PILE TYPE: CONCRETE, precast
PILE DIMENSIONS: 18" x 18" square

WEIGHT: 
DRIVEN LENGTH: 90 ft
EMBEDDED LENGTH: 87 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>LOAD (TONS)</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION

- Fairly compact
- Hard soil
- Sand
- Same

DEPTH FT

- 0 to 20
- 20 to 40
- 40 to 60
- 60 to 80
- 80 to 100

BLOWS PER FOOT

- 10
- 20
- 30

SOURCE OF INFORMATION: HAWAI'I HIGHWAY DEPARTMENT
FILE NO.: J 540

- PILE TEST DATA -

LOCATION  CARTERET COUNTY, N CAROLINA  
DATE DRIVEN  
DATE TESTED  MARCH 17-19, 1952  
OWNER  
CONTRACTOR  
TESTED BY  
HAMMER TYPE  STEAM, Vulcan No  
WEIGHT  
STROKE  
ENERGY  
BLOWS PR MIN  
FINAL PENETRATION  

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td>FT</td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>75</td>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

Q = 2WH + c  
c = 0.1

REMARKS. PROJECT NO. 1937 - CARTERET Co  
N.C. - PILE IN BRIDGE OVER  
DOGUE SOUND BETWEEN MORE-  
HEAD CITY AND ATLANTIC BEACH  
PILE NO 3 IN BENT NO 1

SOURCE OF INFORMATION  
FILE No.  
N.C. STATE HIGHWAY AND NORTH  
PUBLIC WORKS COMMISSION N.C.  
J 540
**PILE TEST DATA**

**LOCATION** Bartlett Road N5-S  
**DATE DRIVEN** 25 July 1957  
**DATE TESTED** 31 July 1957  
**OWNER** Illinois Toll Hwy. Comm  
**CONTRACTOR** Raymond Pile Co  
**TESTED BY** Raymond Pile Co.

**HAMMER TYPE** Raymond No. 000  
**WEIGHT** 12,500 lbs  
**STROKE** 3.25 ft  
**ENERGY** 60,000 ft-lbs  
**BLOWS PR MIN** 50  
**FINAL PENETRATION** 23 blows/10

**PILE TYPE** Prestressed Con. Cyl. Pile  
**PILE DIMENSIONS** 36" O.D., 27" I.D.

**TEST LOAD** (TONS)  
<table>
<thead>
<tr>
<th>100</th>
<th>200</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>N. Silt.</td>
<td>1.7</td>
<td>30 ft</td>
</tr>
<tr>
<td>Clay</td>
<td>0.19</td>
<td>15 ft</td>
</tr>
<tr>
<td>Silt.</td>
<td>0.18</td>
<td>10 ft</td>
</tr>
<tr>
<td>Clay</td>
<td>0.18</td>
<td>5 ft</td>
</tr>
<tr>
<td>Clay</td>
<td>0.18</td>
<td>2 ft</td>
</tr>
<tr>
<td>Clay</td>
<td>0.18</td>
<td>1 ft</td>
</tr>
<tr>
<td>Clay</td>
<td>0.18</td>
<td>0 ft</td>
</tr>
</tbody>
</table>

**REMARKS.**  
- Furnished Length 80 ft  
- Length of cut-off 10 ft  
- Pile No. 3A  
- Installation Data May 24, 1957  
- 42" hole drilled 20' (with casing)  
- 34" hole drilled 20' (caved in before driving)  
- Pile driven 9.5' below bottom of excavated hole  
- Ring in pile was at ground surface

**FUNCTION OF INFORMATION**  
**FILE N.** Illinois Toll Highway Commission  
**FILE N.** J540
# Pile Test Data

**Location:** Bartlett Road NE-5  
**Date Driven:** 5 July 1957  
**Date Tested:** 7 August 1957  
**Owner:** Illinois Toll Hwy. Comm.  
**Contractor:** Raymond Pile Co.  
**Tested by:** Raymond Pile Co.

**Hammer Type:** Raymond No. 000  
**Weight:** 15,400 lbs.  
**Stroke:** 9.25 ft.  
**Energy:** 40,600 ft-lbs.  
**Bows per min:** 50  
**Final Penetration:** 40

**Pile Type:** Prestressed Conc. Cyl. Pile  
**Pile Dimensions:** 36" O.D., 27" I.D., 68 ft long  
**Weight:** approx. 300 lbs/ft.  
**Driven Length:** 68.0 ft  
**Embedded Length:** 62.5 ft

---

**Test Load (Tons):**

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Blows per Foot</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>200</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>300</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:** Pile No. 1-8 - Furnished Length 68'  
No cut-off

**Installation Data:**

- **42" hole drilled:** 31.3'
- **34" hole drilled:** 21.7'

Pile driven below bottom of excavated hole. Plug in pile is 34' from ground surface

**Source of Information:** Illinois Toll '57  
**Highway Commission:** J.540
**PILE TEST DATA**

**LOCATION:** Arlington Hts. Road N7-2  
**DATE DRIVEN:** April 26, 1957  
**DATE TESTED:** May 14, 1957  
**OWNER:** Illinois Toll Hwy Comm  
**CONTRACTOR:** Raymond Concrete Pile Co  
**TESTED BY:** Raymond Concrete Pile Co

**HAMMER TYPE:** Raymond No. 000  
**WEIGHT:** 18,500 lbs  
**STROKE:** 3.25 ft  
**ENERGY:** 40,600 ft lbs  
**BLOWS PR MIN:** 50  
**FINAL PENETRATION:** 20 blows per inch

**PILE TYPE:** Prestressed Concrete Cylinder  
**PILE DIMENSIONS:** 36" O.D., 5" Wall  
**WEIGHT:** Approx. 500 lbs per foot  
**DRIVEN LENGTH:** 80 ft  
**EMBEDDED LENGTH:** 67.5 ft

---

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>100</th>
<th>200</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>Depth FT</th>
<th>0</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
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</tbody>
</table>

**DEPTH**

<table>
<thead>
<tr>
<th>Depth FT</th>
<th>0</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BOWS PER FOOT PENETRATION RATE**

<table>
<thead>
<tr>
<th>Bows per foot</th>
<th>0</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</table>

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>Depth FT</th>
<th>10</th>
<th>20</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</table>

**SETTLEMENT IN INCHES**

<table>
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<tr>
<th>Settlement</th>
<th>0.5</th>
<th>1.0</th>
<th>1.5</th>
<th>2.0</th>
<th>2.5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS.**

- Pile No. 2A Furnished Length 80'  
- No Cut-off  
- Installation Data  
- 42" hole drilled 38’  
- 35" hole drilled 27’  
- Pile driven 25’ below bottom of excavated hole  
- Plug at the bottom of pile 13.9' long

**SOURCE OF INFORMATION**

Illinois Toll  
Highway Commission  
File No. J540
LOCATION BRAINARO ST E1-1B
DATE DRIVEN 5 AUGUST 1957
DATE TESTED 19 AUGUST 1957
OWNER Illinois Toll Hwy Comm
CONTRACTOR Raymond Concrete Pile Co
TESTED BY Raymond Concrete Pile Co
HAMMER TYPE RAYMOND No. 000
WEIGHT 18,500 Ibs
STROKE 3.25 ft
ENERGY 40,600 ft-lbs
BLOWS PR MIN 80
FINAL PENETRATION 83 blows per inch
PILE TYPE Prestressed Concrete Cylinder
PILE DIMENSIONS 36" O.D. 5" Wall
WEIGHT Approx 300 Ibs per foot
DRIVEN LENGTH 56 ft
EMBEDDED LENGTH 36.5 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

BLOWS per foot PENETRATION RATE

TEST TO LOAD (TONS)

Gross Settlement = 3.246
Net Settlement = 0.103

REMARKS. Furnished Length = 56 Ft
Length of Cut-off = 4.5 Ft
Installation Data
42" hole drilled 24 ft, Pile driven 12.4 ft
below bottom of excavated hole

SOURCE OF INFORMATION FILE No.
ILLINOIS TOLL
HIGHWAY COMMISSION J540
PILE TEST DATA

LOCATION: KELLY ROAD 7-13-9
DATE DRIVEN: 18 SEPTEMBER 1957
DATE TESTED: 24 SEPTEMBER 1957

OWNER: Illinois Toll Hwy Comm
CONTRACTOR: Raymond Concrete Pile Co
TESTED BY: Raymond Concrete Pile Co

HAMMER TYPE: RAYMONO No 000
WEIGHT: 16,500 lbs
STROKE: 3.25 ft
ENERGY: 40,600 ft-lbs
BLOWS PR MIN: 30
FINAL PENETRATION: 65 blows per inch

PILE TYPE: Prestressed Concrete Cylinder
PILE DIMENSIONS: 26" O.D., 3" wall
Area = 3.37 sq ft
WEIGHT: Approx 500 lb per ft
DRIVEN LENGTH: 80' 0"
EMBEDDED LENGTH: 51'-3"

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>LOAD</th>
<th>100</th>
<th>200</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blows</td>
<td>7.20</td>
<td>12</td>
<td>16</td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRM</td>
</tr>
<tr>
<td>GREY</td>
</tr>
<tr>
<td>CLAY</td>
</tr>
</tbody>
</table>

PENETRATION RATE

<table>
<thead>
<tr>
<th>PENETRATION PER FOOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
</tr>
<tr>
<td>0.08</td>
</tr>
</tbody>
</table>

REMARKS:
- Furnished length 80'
- 3' damaged section cut-off
- Installation Data
- 42 inch hole drilled 9 feet, pile driven 51.25 feet below bottom of excavated

SOURCE OF INFORMATION: ILLINOIS TOLL
FILE N.: ILLINOIS TOLL
HIGHWAY COMMISSION: J540
### Pile Test Data

**Location**: Saunders Road T-10-6  
**Owner**: Illinois Toll Hwy Comm.  
**Date Driven**: 21 August 1957  
**Date Tested**: 10 September 1957  
**Contractor**: Raymond Concrete Pile Co  
**Tested by**: Raymond Concrete Pile Co

**Hammer Type**: Raymond No 000  
**Pile Type**: Prestressed Concrete Cylinder  
**Weight**: 12,500 lbs.  
**Area**: 36" OD 5" Wall  
**Energy**: 40,000 ft lbs  
**Blows PR Min**: 50  
**Final Penetration**: 44 blows for 96 inch

**Date Test**:  
**Heritage**:  
**Tested**:  
**Hammer**:  
**Soil Dimensions**:  
**Weight**: Approx 500 lb per ft.  
**Driven Length**: 52'0"  
**Embedded Length**: 16'0"

#### Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>100</th>
<th>200</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Soil Description

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth FT</th>
<th>100</th>
<th>200</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top soil</td>
<td>9</td>
<td>45</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Grey soil</td>
<td>16</td>
<td>35</td>
<td>26</td>
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</tr>
<tr>
<td>Silty clay</td>
<td>37</td>
<td>45</td>
<td>24</td>
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</tr>
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<td>Total</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Grey soil</td>
<td>17</td>
<td>16</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>Brown clay</td>
<td>49</td>
<td>39</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Clayey silt</td>
<td>15</td>
<td>15</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey soil</td>
<td>38</td>
<td>30</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Grey clay</td>
<td>45</td>
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<tr>
<td>Brown clay</td>
<td>134</td>
<td>14</td>
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<tr>
<td>Clayey silt</td>
<td>208</td>
<td>14</td>
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</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

#### Remarks
- Furnished length 52 feet, not test off installation data.
- 42-inch hole drilled 21 feet, 32-inch hole drilled 10 feet, Pile driven 61 feet below bottom of excavated hole.
- Pile No 3D

#### Source of Information
- Illinois Toll  
- Highway Commission  
- File No. J540
**PILE TEST DATA**

**LOCATION**  CLEVELAND, OHIO

**DATE DRIVEN**  23 MARCH 1959

**DATE TESTED**  31 MARCH 1959

**HAMMER TYPE**  Raymond 6SC

**WEIGHT**  6500 lbs

**STROKE**

**ENERGY**

**BLOWS PR MIN**

**FINAL PENETRATION**  10 blows/1'

**PILE TYPE**  Pipe - step taper

**PILE DIMENSIONS**  102.5"

Tip Diam 10", Butt Diam 17.5"

**WEIGHT**

**DRIVEN LENGTH**

**EMBEDDED LENGTH**

---

### Test Load vs Settlement

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>Btu's per foot</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **REMARKS**  Airport Terminal Building

---

**SOURCE OF INFORMATION**  RAYMOND CONCRETE PRIVATE PILE COMPANY

**FILE N.**  JS40

**CONSULTANTS**  JS40
**PILE TEST DATA**

**LOCATION**: St. Joseph, Missouri

**DATE DRIVEN**: 26 April 1951

**DATE TESTED**: 3-4 May 1951

**OWNER**: 

**CONTRACTOR**: 

**TESTED BY**: 

**HAMMER TYPE**: Steam, Vulcan No. 1

**WEIGHT**: 2.5 t, 5000 lbs

**STROKE**: 33.6 in, 2 ft

**ENERGY**: 84-f. in, 14,000 ft-lbs

**BLOWS PR MIN**: 

**FINAL PENETRATION**: 

**PILE TYPE**: Concrete, Precast

**PILE DIMENSIONS**: Square, Tapered pile

**WEIGHT**: 7167 lbs

**DRIVEN LENGTH**: 40 ft

**EMBEDDED LENGTH**: 36 ft

---

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>Load</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth</td>
<td>0.25</td>
<td>0.50</td>
<td>0.75</td>
</tr>
</tbody>
</table>

\[ R_0 = \frac{2WH}{S + 0.1WP} \]

**SOIL DESCRIPTION**

- Blue silt clay
- Light blue clay
- Black silt clay
- Fine silty sand
- Blue organ clay
- Course sand

**DEPTH**

- 10
- 20
- 30
- 40
- 50

**PENETRATION RATE**

**REMARKS**: Bridge over inter., str. & freight yrs. on 81st 36 & 59 ady. to bridge over Missouri River. Bridge over 4th str. near beam 182.

**SOURCE OF INFORMATION**

**FILE N.**: Missouri State Highway Commission

**FILE NO.**: J 540
**PILE TEST DATA**

**LOCATION** St. Joseph, Missouri

**DATE DRIVEN** 26 April 1951

**DATE TESTED** 9-16 May 1951

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** Steam, Vulcan No 1

**PILE TYPE** Concrete, Precast

**WEIGHT** 2,575 lbs

**STROKE** 33.6 in.

**ENERGY** 14 in. tons

**BLOWS PR MIN**

**FINAL PENETRATION**

**PILE DIMENSIONS** Square tapered pile

**WEIGHT**

**DRIVEN LENGTH**

**EMBEDDED LENGTH**

---

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH (FT)</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS** Bridge over 4th St. Pile 59

corner foundation pile - rt outside footing - bent - 2

**SOURCE OF INFORMATION**

**FILE No.**

Missouri State Highway Commission J 540
LOCATION: St. Joseph, Missouri
DATE DRIVEN: 2 May 1951
DATE TESTED: 10-13 May 1951
OWNER: ____________________________
CONTRACTOR: ________________________
TESTED BY: _________________________

HAMMER TYPE: Steam-Vulcan No. 1
PILE TYPE: Concrete, Precast

WEIGHT: 2,575 lbs
STROKE: 33.6 in
ENERGY: 84 in-tons

PILE DIMENSIONS: Square tapered pile

BLOWs PR MIN: _______________________
FINAL PENETRATION: __________________

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Settlement in Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>0.5</td>
</tr>
<tr>
<td>100</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION

- Blue Silty clay
- Light Blue clay
- Gray clay
- Silty fine sand
- Coarse sand

DEPTH FT

PENETRATION RATE

REMARKS: Bridge over 4th St. Rts. 5, 9,
Foundation pile in soft intermediate footing; bent #4.
PILE TEST DATA

LOCATION  ST. JOSEPH, MISSOURI
DATE DRIVEN  1 MAY 1951
DATE TESTED  14-21 MAY 1951

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE  STEAM, VULCAN NO 1
WEIGHT  2,570 lbs
STROKE  33.6 in.
ENERGY  84 in.-tons

PILE TYPE  CONCRETE, precast
PILE DIMENSIONS  Square tapered pile
                  Butt: 16" x 16". Tip: 10" x 10"

WEIGHT  8958 lbs
DRIVEN LENGTH  50 ft.
EMBEDDED LENGTH  40.5 ft.

TEST LOAD (TONS)

50  100  150

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

10  20  30 tons

Q_p = \frac{2WVH}{5+0.1WP}

REMARKS:  Bridge over 4th Str. - Pit 59
           foundation pile in ft. outside
           footing bent # 4

SOURCE OF INFORMATION  FILE No.
                       MISSOURI STATE HIGHWAY MISSOURI
                       COMMISSION  J 540
PILE TEST DATA

LOCATION: St. Joseph, Missouri
DATE DRIVEN: 14 May 1951
DATE TESTED: 18-22 May 1951
OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: Steam, Vulcan No. 1
WEIGHT: 2.5 tons
STROKE: 33.6 in
ENERGY: 84 in-tons

PILE TYPE: Concrete, precast
PILE DIMENSIONS: Square toperd pile
PILE LENGTH: 15 ft (tip), 10 ft (tip) x 10 ft x 10 ft

PILE LOAD: 100 Tons
SOIL DESCRIPTION:
- Blue Silty Clay
- Brown Organ Clay
- Blue-Black Silty Loam
- Fine Silty Sand
- Grey-Green Clay
- Dirty Sand

DEPTH: 10, 20, 30 ft
PENETRATION RATE: 10, 20, 30 tons

TEST LOAD (TONS): 50, 100, 150

SOURCES OF INFORMATION:
- Missouri State Highway Commission
- File No.: J.340

REMARKS:
- Bridge over freight yard - 6th Str., on 10 ft. 5D. foundation
- Appr. Str. 35
- This test made by state engineers using 10 ton loads at one hour intervals

\[ Q_d = \frac{2WH}{5 + 0.1W} \]
LOCATION: St. Joseph, Missouri
DATE DRIVEN: 18 May 1951
DATE TESTED: 22-23 May 1951

OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: STEAM VULCAN NO. 1
WEIGHT: 8,877 lbs
STROKE: 33.6 in.
ENERGY: 8.4 in.·tons
BLOWS PR MIN: 
FINAL PENETRATION: 

PILE TYPE: CONCRETE, precast
PILE DIMENSIONS: Square tapered pile
Dia: 16"/16", Tip: 10"/10"
WEIGHT: 8358 lbs
DRIVEN LENGTH: 50 ft.
EMBEDDED LENGTH: 38.5 ft.

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE 10 20 30 tons

Q_e = 2WH
5 + 0.15
W

REMARKS: Bridge over 9th St. Helix pile center footing - Rf. 59

SOURCE OF INFORMATION: MISSOURI STATE HIGHWAY COMMISSION
FILE N.: J. S. 40
## Pile Test Data

### Location
Cape Girardeau Co, Missouri

### Owner

### Date Driven
27 October 1949

### Date Tested
3-6 November 1949

### Contractor

### Tested By

### Hammer Type
Steam Vulcan No. 1

### Pile Type
Concrete, prestressed

### Pile Dimensions
Octagonal tapered

### Energy
30 in. tons

### Stroke
36.0 in.

### Weight
3000 lbs

### Driven Length
45 ft.

### Embedded Length
28 ft.

### Test Load
<table>
<thead>
<tr>
<th>Tons</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>0.50</td>
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</tbody>
</table>

### Penetration Rate
<table>
<thead>
<tr>
<th>10</th>
<th>20</th>
<th>30</th>
</tr>
</thead>
</table>

### Soil Description

- Silty clay
- Brown silt
- Clay
- Fine grey sand
- Brown sand

### Remarks
Bridge over St. Louis - San Francisco RR on US #61

### Source of Information
MISSOURI STATE HIGHWAY COMMISSION

### File No.
J 540
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>CAPE GIRARDEAU CO MISSOURI</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>28 OCTOBER 1949</td>
</tr>
<tr>
<td>DATE TESTED</td>
<td>8-11 NOVEMBER 1949</td>
</tr>
<tr>
<td>OWNER</td>
<td></td>
</tr>
<tr>
<td>CONTRACTOR</td>
<td></td>
</tr>
<tr>
<td>TESTED BY</td>
<td></td>
</tr>
</tbody>
</table>

**HAMMER TYPE** | STEAM VULCAN No 1 |
| WEIGHT | 2.5t 5000 lbs |
| STROKE | 36 lb 30 ft |
| ENERGY | 90 in-tons 15,000 ft lbs |
| BLOWS PR MIN | |
| FINAL PENETRATION | |

**PILE TYPE** | CONCRETE, precast |
| PILE DIMENSIONS | Octagonal tapered pile Butt diam. 16" Top diam. 10" |
| WEIGHT | 8600 lbs |
| DRIVEN LENGTH | 45 ft |
| EMBEDDED LENGTH | 45 ft |

**PILE DATA**

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Silty clay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Silty clay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Silty clay</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Brown silty clay</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dark silty clay</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fine grey sand</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Top of flint</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sta 59+2545</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TEST LOAD**

\[ Q = \frac{2WH}{5 + 0.1W} \]

**REMARKS.** Bridge over State Route 74 & U.S. 61

**SOURCE OF INFORMATION** | FILE No. |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MISSOURI STATE HIGHWAY</td>
<td>J 540</td>
</tr>
<tr>
<td>MISSOURI</td>
<td></td>
</tr>
<tr>
<td>COMMISSION</td>
<td></td>
</tr>
</tbody>
</table>
- PILE TEST DATA -

**LOCATION** Cape Girardeau Co, Missouri
**DATE DRIVEN** 28 November 1949
**DATE TESTED** 1 December 1949

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** Steam Vulcan No. 1
**WEIGHT** 850 lbs
**STROKE** 30 in
**ENERGY** 90 in-tons

**PILE TYPE** Concrete, precast
**PILE DIMENSIONS** Octagonal tapered pile, butt diam, 16" Tip diam, 10"

**BLOWS PR. MIN**

**FINAL PENETRATION**

---

### TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q0 = 2WH</td>
<td>5 + 0.1 W</td>
<td>W</td>
</tr>
</tbody>
</table>

Loaded to 90 tons with no settlement

---

### SOIL DESCRIPTION

- Loam
- Blue clay
- Sand
- Grey sand
- Shelly silty clay
- Tip of Pile

### PENETRATION RATE

- Std. 1269-6

---

**REMARKS.** Bridge over Little Ramsey Creek - BY 61

---

**SOURCE OF INFORMATION** Missouri State Highway Commission
**FILE No.** J-540
LOCATION: CAPE GIRARDEAU CO, MISSOURI
DATE DRIVEN: 13 AUGUST 1949
DATE TESTED: 20-23 AUGUST 1949

HAMMER TYPE: STEAM VULCAN NO 2
WEIGHT: 1.5 T
STROKE: 290 in
ENERGY: 43.5 in-tons
BLOWS PR MIN:

PILE TYPE: TIMBER-OAK
PILE DIMENSIONS: Round tapered pile, Butt diam. 13.75", Tip diam. 7.25"

WEIGHT: 110 lbs
DRIVEN LENGTH: 40 ft
EMBEDDED LENGTH: 30 ft

TEST LOAD (TONS) 25 50

SOIL DESCRIPTION
Gumbo 10
Fine Sand 20
Fine gravel 30
Tip of pile 40

PENETRATION RATE

Qa = 2WH
5 0 1

REMARKS:
Bridge over drainage ditch no. 2
& headwater diversion channel
US RT. 61

SOURCE OF INFORMATION
MISSOURI STATE HIGHWAY COMMISSION
FILE NO.
MISSOURI J-540

SETTLEMENT IN INCHES
0.25
0.50

30 ft 1946 + 0662
- PILE TEST DATA -

LOCATION KANSAS CITY, MISSOURI
DATE DRIVEN 22 April, 1948
DATE TESTED 24-27 April, 1948

HAMMER TYPE STEAM, VULCAN NO. 15
WEIGHT 3.25 tons
STROKE 36 in
ENERGY 117 in-tons
BLOWS PR MIN

PILE TYPE RAYMOND CONCRETE PILE
PILE DIMENSIONS Step-tapered pile
Butt diam. 14", tip diam 10.5"
WEIGHT
DRIVEN LENGTH 32 ft
EMBEDDED LENGTH 32 ft

TEST LOAD (TONS) 25 50 75

SOIL DESCRIPTION

DEPTH FT 10 20 30 tons
PENETRATION RATE

Q = 2WH
5 + 0.1Wp
W

REMARKS: West abutment of Mulberry Street bridge - Jackson County 39° 21' 02" E

SOURCE OF INFORMATION MISSOURI STATE HIGHWAY COMMISSION
FILE N. J 540
**PILE TEST DATA**

**LOCATION**: Howard-Boone Counties, Missouri

**DATE DRIVEN**: 4 May 1942

**DATE TESTED**: 5-8 May 1942

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE**: Steam, Vulcan No 1

**WEIGHT**: 2.5 tons

**STROKE**: 5000 lbs

**ENERGY**

**BLOWS PR MIN**

**FINAL PENETRATION**

**PILE TYPE**: Concrete, precast

**PILE DIMENSIONS**: Octagonal tapered pile

**Bull. diam. 16", Tip diam 10"**

**WEIGHT**

**DRIVEN LENGTH**: 35 ft

**EMBEDDED LENGTH**: 30 ft

---

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SETTLEMENT IN INCHES</th>
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</thead>
<tbody>
<tr>
<td>0.25</td>
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<tr>
<td>0.50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandy Brown clay</td>
<td>10</td>
<td>10, 20, 50 tons</td>
</tr>
<tr>
<td>Clay</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Medium coarse sand</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**: Bridge over Moniteau Creek, Rt 40 - Sta 573 + 15

**SOURCE OF INFORMATION**: Missouri State Highway Commission

**FILE No**: JS 540
### Pile Test Data

**Location:** Stoddard County, Missouri  
**Owner:**  
**Date Driven:** 16 December 1946  
**Date Tested:** 31 January - 3 February 1947  
**Contractor:**  
**Tested By:**

<table>
<thead>
<tr>
<th>Hammer Type</th>
<th>Weight</th>
<th>Stroke</th>
<th>Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steam Vulcan No. 1</td>
<td>5000 lbs</td>
<td>5000 lbs</td>
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</table>

<table>
<thead>
<tr>
<th>Pile Type</th>
<th>Precast</th>
</tr>
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<table>
<thead>
<tr>
<th>Pile Dimensions</th>
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</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Blows per Min</th>
<th>Final Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>25</th>
<th>50</th>
<th>75</th>
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<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth (FT)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue clay</td>
<td>10, 20, 30</td>
<td></td>
</tr>
<tr>
<td>Fine sand</td>
<td>10, 20, 30</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>remarks</th>
</tr>
</thead>
</table>

Bridge over overflow of Main  
Ditch No. 17 std 314 + 61 - Bent #2  
39 ft penetration with bearing  
value of 319 tons load applied in 13 ton  
increments to 52 tons when a 0.005' set  
was noted. No further settlement was  
noted after full load had been placed  
for 36 hrs. - Pt 25  

Source of Information: Missouri State Highway Commission  
File No. J-540
# Pile Test Data

**Location:** Stoddard County, Missouri  
**Date Driven:** 17 February 1947  
**Date Tested:** 26 Feb - 1 Mar 1947

**Hammer Type:** Steam Vulcan No 1  
**Weight:** 25T  
**Energy:** 5000 lbs  
**Stroke:**  
**Blows Pr. Min:**  
**Final Penetration:**

<table>
<thead>
<tr>
<th>Pile Type</th>
<th>Concrete, Procost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pile Dimensions</td>
<td></td>
</tr>
<tr>
<td>Test Load (Tons)</td>
<td>25</td>
</tr>
<tr>
<td>Test Load</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth (FT)</th>
<th>Penetration Rate (10, 20, 30 tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue clay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fine sand</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\[ Q_a = 2WH \]
\[ W = \text{weight} \]

**Remarks:** Bridge over Swan Pond Sta 349+92.  
Pt 25 bent #1 - 33 ft  
Penetration with bearing value at 26.5 tons load applied in 13 ton increments to 52.2 tons when 0.005" settlement was noted.

**Source of Information:**  
Missouri State Highway Commission  
File No.: J-540
# Pile Test Data

**Location:** Stoddard County, Missouri  
**Date Driven:** 17 February 1947  
**Date Tested:** 12-13 March 1947  
**Hammer Type:** Steam Vulcan No. 1  
**Pile Type:** Concrete, Precast  
**Tested By:**  

<table>
<thead>
<tr>
<th>Hammer Type</th>
<th>Weight</th>
<th>Stroke</th>
<th>Energy</th>
<th>Pile Dimensions</th>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>5000 lbs</td>
<td></td>
<td></td>
<td></td>
<td>25</td>
<td>Blue clay</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>50</td>
<td>Fine sand</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>75</td>
<td></td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:** Bridge over Swan Pond Sta 3471 E. Ft 25 bent #4 24.5 Ft penetration with bearing value of 19.5 tons. Load was applied in 9.7 ton increments to a load of 39 tons when a 0.005' settlement was noted.

**Source of Information:** Missouri State Highway Commission  
**File No.:** J 540
**PILE TEST DATA**

**LOCATION**  STOOPD COUNTY, MISSOURI  
**OWNER**  
**DATE DRIVEN**  9 MAY 1947  
**DATE TESTED**  16-19 MAY 1947  
**CONTRACTOR**  
**TESTED BY**  
**HAMMER TYPE**  STEAM VULCAN NO 1  
**PILE TYPE**  CONCRETE, precut  
**WEIGHT**  2.5 ton  
**STROKE**  5000 psi  
**ENERGY**  165  
**BLOWS PR. MIN.**  
**FINAL PENETRATION**  

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOIL DESCRIPTION</strong></td>
<td>Sandy Loam/Olive clay</td>
<td>Tip of pile</td>
<td></td>
</tr>
<tr>
<td><strong>DEPTH FT</strong></td>
<td>10</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td><strong>PENETRATION RATE</strong></td>
<td>10</td>
<td>20</td>
<td>30</td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**  
Sandy Loam/Olive clay  
Tip of pile  

**REMARKS**  
Bridge over Branch of Wolf Creek.  
Sta 54+07.91 (75-85 ft) penetration with bearing value of 19.5 tons. Load was applied in 5.5 ton increments to a load of 78.2 tons. A total settlement of 0.010' was noted.

**SOURCE OF INFORMATION**  
MISSOURI STATE HIGHWAY COMMISSION

**FILE NO.**  J-540
# Pile Test Data

**Location:** Clark County, Missouri

**Owner:**

**Contractor:**

**Tested by:**

**Hammer Type:**

**Weight:**

**Stroke:**

**Energy:**

**Final Penetration:**

- **Pile Type:** Creosoted Pile
- **Pile Dimensions:**
- **Weight:**
- **Driven Length:** 35 ft
- **Embedded Length:** 29 ft

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Deep Clay</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>30</td>
<td>Brown Sandy Silt</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:** Bridge over Little Wyandotte River, Sta 148+13.5, AP-5, 29 ft penetration with a bearing value of 72 tons. A total load of 29 tons for 80 hrs caused $\frac{3}{4}$ settlement. After load released, $\frac{1}{8}$ permanent settlement.

**Source of Information:** Missouri State Highway Commission

**File No.:** J 540
- PILE TEST DATA -

LOCATION CLEVELAND, OHIO
DATE DRIVEN 15 SEP 1953
DATE TESTED 25 - 30 SEP 1953

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM, Vulcan no. 1
WEIGHT 25 t 5000 Ibs
STROKE 36 in 3 ft
ENERGY 90 ft. Ibs 15000 ft. Ibs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE STEEL, Union Metal
PILE DIMENSIONS 14", Type FN, T-4a
WEIGHT File 3180 lbs File cap. fl60 Ibs
DRIVEN LENGTH 120 ft
EMBEDDED LENGTH (105') 85 ft
UPPER 20' THROUGH 20' CASING

TEST LOAD (TONS)

0 100 150

SOIL DESCRIPTION

DEPTH (FT) BLOWS per 4' PENETRATION RATE

Clay
Sandy
Clay
Med.
Sand.
Coarse
Sand
Medium
Clay
Silt
Clay
Very
Silt
Clay
Hard
Clay
w.
Pebbles
Hard
Clay

REMARKS TEST PILE NO 2A, LOCATION NO 2
STA 02 + 45, OFFSET 73' L
INNERBELL FREEWAY
CENTRAL VIADUCT
FAP VI-1057 (1)

SOURCE OF INFORMATION
FILE No.

OHIO DEPARTMENT OF OHIO
HIGHWAYS
J 540
LOCATION: CLEVELAND, OHIO

DATE DRIVEN: 16 SEP'T 1953
DATE TESTED: 25 - 28 SEP'T 1953

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE: STEAM, Vulcan no 1
WEIGHT: 2.5 t, 5000 lbs
STROKE: 36 in, 3 ft
ENERGY: 90 I, 15000 ft, lbs
BLOWS PR MIN: 
FINAL PENETRATION: 103/8".

PILE TYPE: STEEL, Union Metal
PILE DIMENSIONS: 14", Type FN, 7 ft
WEIGHT: PILE, 3,180 lbs, Pile cap, 4,160 lbs
DRIVEN LENGTH:
EMBEDDED LENGTH: 53 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

BLOWNS PER FT

PENETRATION RATE

0

50

100

150

0.5

1.0

1.5

0

FILE N.

SOURCE OF INFORMATION: OHIO DEPARTMENT OF HIGHWAYS 7340

REMARKS:

TEST PILE NO 2-B, LOCATION 2
5TH 42 + 53, OFFSET 90° L" INNERBELT FREEWAY
CENTRAL WINDUC, FDP U1-1057(1)
LOCATION: CLEVELAND, OHIO
DATE DRIVEN: 16-17 SEPT 1953
DATE TESTED: 5-6 OCT 1953
OWNER: 
CONTRACTOR: 
TESTED BY: 
HAMMER TYPE: STEAM, Vulcan no. 1
WEIGHT: 2,500 lbs
STROKE: 36 in
ENERGY: 15,000 ft-lbs
BLOWS PER MIN: 
FINAL PENETRATION: 85/12"

PILE TYPE: STEEL, H-pile
PILE DIMENSIONS: 12" - 3P-33

PILE LOAD: 60 Tons
FT PENETRATION RATE: 25 ft 50 ft 75 ft

TEST LOAD (TONS)
0 50 100 150

SOIL DESCRIPTION
DEPTH FT
BLOWS PER FOOT PENETRATION RATE
clay loam
sandy silty clay
medium sand
coarse sand
medium clay
stiff clay
very stiff clay
hard clay
embankment
mulch

SOURCE OF INFORMATION: OHIO DEPARTMENT OF HIGHWAYS
FILE NO: FAP 61-1957 (1)
**PILE TEST DATA**

**LOCATION** CLEVELAND, OHIO

**DATE DRIVEN** 17 Sept. 1953  
**DATE TESTED** 5-8 Oct. 1953

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** STEAM-VULCAN NO. 1

**WEIGHT** 2.5 t  
5000 lbs

**STROKE** 36 in

**ENERGY** 90 ft-lb  
15,000 ft-lb

**BLOWS PR MIN**

**FINAL PENETRATION** R4/16

**PILE TYPE** STEEL, H-pile

**PILE DIMENSIONS** 12"-BP-53

**WEIGHT** Pile 5620 lbs  
Pile + cap 6290 lbs

**DRIVEN LENGTH** 106 ft

**EMBEDDED LENGTH** ~105 ft

---

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>Test Load</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
</table>

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>Depth FT</th>
<th>Clay loam</th>
<th>Sandy loam</th>
<th>Very stiff clay</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**BLOWS PER FOOT PENETRATION RATE**

**REMARKS**

**SOURCE OF INFORMATION**

**FILE No.**

<table>
<thead>
<tr>
<th>Source</th>
<th>File No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OHIO DEPARTMENT OF HIGHWAYS</td>
<td>J 540</td>
</tr>
</tbody>
</table>

---

**CENTER AVE., FBI 14-1057 (1)**

---

**CENTRAL AVE., FBI 14-1057 (1)**

---
LOCATION: CLEVELAND, OHIO

DATE DRIVEN: 14 Oct 1963
DATE TESTED: 22 Oct 1963

HAMMER TYPE: STEAM, Vulcan no. 1
WEIGHT: 3,500 lbs
STROKE: 36 in
ENERGY: 90 ft lb
BLOWS PR MIN: 3
FINAL PENETRATION: 3 1/2 in

PILE TYPE: STEEL, H-pile
PILE DIMENSIONS: 12" BP-53

WEIGHT: File 5,000 lbs, File cap 3,700 lbs
DRIVEN LENGTH: 100 ft
EMBEDDED LENGTH: 97 1/2 ft

TEST LOAD (TONS)

50 100

SOIL DESCRIPTION

DEPTH FT

BLOWS PER FOOT PENETRATION RATE

TEST PILE NO 25, LOCATION 2
5TH A 28+60, OFFSET TO L
INNERBELT FREEWAY

REMARKS: CENTRAL WIDJCT, FAD VI-1057(1)

SOURCE OF INFORMATION
FILE No.
OHIO DEPARTMENT OF OHIO HIGHWAYS

J. M. O.
PILE TEST DATA

LOCATION CLEVELAND, OHIO
DATE DRIVEN 14-15 Oct 1953
DATE TESTED 22-25 Oct 1953
OWNER

HAMMER TYPE STEAM, Vulcan No 1
WEIGHT 25 c 5000 lbs
STROKE 36 m 3 ft
ENERGY 90 ft lb 15000 ft lbs
BLOWS PR MIN
FINAL PENETRATION 11/16

PILE TYPE STEEL, Union Metal
PILE DIMENSIONS 1/4", Type FN, 7 ga

WEIGHT Pile =2040 lbs, Pile + cap 3020 lbs
DRIVEN LENGTH 80 ft
EMBEDDED LENGTH 75 1/2 ft

TEST LOAD (TONS)

TEST PILE NO 2-F LOCATION 02
STA 22+57, OFFSET 91'L
INNERBELT FREEWAY
CENTRAL WADUCY, FAP 01-1057(1)

SOIL DESCRIPTION

DEPTH FT
Blows per foot PENETRATION RATE

Clay loam
Sandy
silty
clay
Med
sand
Coarse
sand
Med clay
Shiff clay
Very
shiff
clay
Med
clay
Hard
clay

100
80
60
40
20
0

settlement in inches

0
10
0.5

source of information

FILE NO

OHIO DEPARTMENT OF HIGHWAYS

1540
LOCATION: CLEVELAND, OHIO
DATE DRIVEN: 5 Oct 1953
DATE TESTED: 9 Oct 1953

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM, Vulcan no. 1
WEIGHT: 25 t
STROKE: 36 in
ENERGY: 90 t in
BLOWS PR MIN: 64/8
FINAL PENETRATION: 89 1/2 ft

PILE TYPE: STEEL, Union Metal
PILE DIMENSIONS: 14", type FN, 392
WEIGHT: 3750 lbs, pile cap 3750 lbs
DRIVEN LENGTH: 80 ft
EMBEDDED LENGTH: (70 ft) 50 1/2 ft

UPPER 20' THROUGH 20' CRUSHED

TEST LOAD (TONS)

SOIL DESCRIPTION
Fill clay
Med. clay
Very soft clay
Sand & gravel
Very stiff clay with pebbles
Very stiff clay

DEPTH FT
30
60
90
120
150
180

BLOWS PER FOOT PENETRATION RATE
20
40
60
80
100

REMARKS:
TEST PILE NO 3-A-1, LOCATION 3
378 3/4 ft, OFFSET 6',
INNERBELT FREEWAY
CENTRAL VIADUCT, FAD 0-1-10570(J)

SOURCE OF INFORMATION: OHIO DEPARTMENT OF HIGHWAYS
FILE NO: J 340
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>Location</th>
<th>CLEVELAND, OHIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Driven</td>
<td>16th Oct 1953</td>
</tr>
<tr>
<td>Date Tested</td>
<td>28th-29th Oct 1953</td>
</tr>
<tr>
<td>Owner</td>
<td></td>
</tr>
<tr>
<td>Contractor</td>
<td></td>
</tr>
<tr>
<td>Tested By</td>
<td></td>
</tr>
<tr>
<td>Hammer Type</td>
<td>STEAM, Vulcan No. C</td>
</tr>
<tr>
<td>Weight</td>
<td>3750 lbs</td>
</tr>
<tr>
<td>Stroke</td>
<td>39 1/2 ft</td>
</tr>
<tr>
<td>Energy</td>
<td>146 ft·in²</td>
</tr>
<tr>
<td>Blows Pr Min</td>
<td></td>
</tr>
<tr>
<td>Final Penetration</td>
<td>52/12°</td>
</tr>
<tr>
<td>Pile Type</td>
<td>STEEL, Union Metal</td>
</tr>
<tr>
<td>Pile Dimensions</td>
<td>14&quot; type FN, 3 ga</td>
</tr>
<tr>
<td>Weight of Pile</td>
<td>2870 lbs</td>
</tr>
<tr>
<td>Stroke of Pile</td>
<td>3920 lbs</td>
</tr>
<tr>
<td>Driven Length</td>
<td>81.8 ft</td>
</tr>
<tr>
<td>Embedded Length</td>
<td>(820') (620')</td>
</tr>
<tr>
<td>Upper 20' through 20' Crosses</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth FT</th>
<th>Blows per foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Fill clay loam</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>0.5</td>
<td>Med clay</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>1</td>
<td>Very soft silty</td>
<td>60</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>clay</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sand &amp; gravel</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very stiff clay</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>with pebbles</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Very stiff clay</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**
Test Pile 3-A-2, Location 3
STA 51+11, Offset 6' L
INNERBELT FREEWAY
CENTRAL HIWAYCT, FAP 01-1057 (1)

**Source of Information:**
Ohio Department of OHIO HIGHWAYS
File No. 7340
**-PILE TEST DATA-**

**LOCATION**
Cleveland, Ohio

**DATE DRIVEN**
5 Oct 1953

**DATE TESTED**
9-11 Oct 1953

**HAMMER TYPE**
Steam, Vulcan 201

**WEIGHT**
25 t

**STROKE**
36 in

**ENERGY**
90 ft lb

**BLOWS PR MIN**

**FINAL PENETRATION**
10 1/2"

**PILE TYPE**
Steel, Union Metal

**PILE DIMENSIONS**
1/4", type FN, 7.92

**WEIGHT**
Pile: 2040 lbs, Pile cap: 3050 lbs

**DRIVEN LENGTH**
80 ft

**EMBEDDED LENGTH**
67 1/2

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>Depth</th>
<th>Ft</th>
<th>Blows per foot penetration rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>60</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>80</td>
<td></td>
<td>80</td>
</tr>
<tr>
<td>100</td>
<td></td>
<td>100</td>
</tr>
</tbody>
</table>

**TEST LOAD**

<table>
<thead>
<tr>
<th>(TONS)</th>
<th>30</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS.**
Test pile 3-B-1, location 3
3rd 30-95, offset 1' L
Innebelt Freeway
Central Viaduct, FAD UI-1057(1)

**SOURCE OF INFORMATION**
Ohio Department of Highways

**FILE NO.**
7540
PILE TEST DATA

LOCATION: CUYAHOGA CO. OHIO
OWNER:
DATE DRIVEN: 26 APRIL 2/MAY 1957
DATE TESTED: 30 APRIL 24 MAY 1957
CONTRACTOR:
TESTED BY:

HAMMER TYPE: SUPER VULCAN-50C
PILE TYPE: Union Metal - Shell

<table>
<thead>
<tr>
<th>WEIGHT</th>
<th>STROKE</th>
<th>ENERGY</th>
<th>BLOWS PR MIN</th>
<th>FINAL PENETRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PILE DIMENSIONS:
- TEN 14

<table>
<thead>
<tr>
<th>WEIGHT</th>
<th>DRIVEN LENGTH</th>
<th>EMBEDDED LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>80' 8 1/7'</td>
<td>76' R 115'</td>
</tr>
</tbody>
</table>

TEST LOAD (TONS):
- 50
- 100
- 150

SOIL DESCRIPTION:
- gravel
- silt
- clay

DEPTH:
- 40
- 80
- 120

PENETRATION RATE:
- 40
- 80
- 120

REMARKS:
- Pile No. 200 - Bridge No. CUY-42A-2001 - Site 83,445 - offset 705' R
- Test No. 1 - Yield Point Reached at 30 Tons
- Test No. 2 - Pile was filled with concrete to 70 above point. After Test No. 1 the pile was lengthened and redriven and retested
- Ground Elevation test Pile G044'

SOURCE OF INFORMATION:
- STATE OF OHIO
- DEPARTMENT OF HIGHWAYS
- FILE No. JS40
# Pile Test Data

**Location:** Cleveland, Ohio  
**Owner:**  
**Contractor:**  
**Tested By:**  
**Date Driven:** 5 & 13 Oct 1953  
**Date Tested:** 15 Oct 1953

**Hammer Type:** Steam, Vulcan no. 1  
**Weight:** 2.5 t  
**Stroke:** 36 in  
**Energy:** 90 ft-lb  
**Bumps per Min:**  
**Final Penetration:** 85'  

**Pile Type:** Steel, H-pile  
**Pile Dimensions:** 12" x DP 53  
**Owner:**  
**Contractor:**  
**Tested By:**  
**Date Driven:**  
**Date Tested:**

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Blows per Foot</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>50 tons load applied</td>
<td></td>
<td>20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Settlement 3&quot;</td>
<td></td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yield point reached</td>
<td></td>
<td>60</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>80</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:**  
Test Pile 36-1, Location 3  
Str 31+00, Offset 11' L  
INNEEBILT FREEWAY  
CENTRAL VIADUCT, FAD UI-203 (C)

**Source of Information:**  
Ohio Department of Highways  
FILE No. J 540
### Pile Test Data

#### Settlement in Inches

<table>
<thead>
<tr>
<th>Load (tons)</th>
<th>Test Size</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
<td>1.5</td>
</tr>
<tr>
<td>15</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>20</td>
<td>30</td>
<td>2.5</td>
</tr>
<tr>
<td>25</td>
<td>40</td>
<td>3</td>
</tr>
<tr>
<td>30</td>
<td>50</td>
<td>3.5</td>
</tr>
</tbody>
</table>

#### Soil Description

- Clayey silt
- Sand
- gravel

#### Remarks

- The same pile as (152)
- Ejected and loaded

#### Source of Information

- Test Site No. 2
- Location: Cleveland, Ohio
- Owner: [Name]
- Contractor: [Name]
- Tested by: [Name]

#### Technical Details

- Date Driven: 10-06-73
- Date Tested: 10-07-73
- Test Load: 20 tons
- Hammer Type: [Type]
- Stroke: [Stroke]
- Energy: [Energy]
- Blows per Min: [Blows]
- Final Penetration: [Penetration]

#### Soil Properties

- Soil Type: [Type]
- Depth: [Depth]
- Penetration Rate: [Rate]

#### Remarks

- [Remarks]

#### Source Information

- File No.: [File Number]
**PILE TEST DATA**

**LOCATION** CLEVELAND, OHIO  
**DATE DRIVEN** 29 Oct 1953  
**DATE TESTED** 26 - 28 Oct 1953  
**OWNER**  
**CONTRACTOR**  
**TESTED BY**  

**HAMMER TYPE** STEAM, Vulcan no. 0  
**WEIGHT** 3750 lbs  
**STROKE** 39 in  
**ENERGY** 144 ft-lbs  
**BLOWS PR MIN.**  
**FINAL PENETRATION** 85/12"  

**PILE TYPE** STEEL, H-pile  
**PILE DIMENSIONS** 12" BP-53  
**WEIGHT** Pile: 8760 lbs, Pile+cap: 8160 lbs  
**DRIVEN LENGTH** 127.5 ft  
**EMBEDDED LENGTH** (12") 100.7 ft  

**ENERGY**  
**BLOWS per foot PENETRATION RATE**  

**SOIL DESCRIPTION**  
**DEPTH** FT  
**Blows per foot PENETRATION RATE**  

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth Ft</th>
<th>Blows per foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fill clay</td>
<td>60</td>
<td>20</td>
</tr>
<tr>
<td>Hard clay</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Very soft clay</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Sand &amp; gravel</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Very soft clay with pebbles</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS.** TEST PILE 3-C-3 LOCATION 3  
STA 31+00, OFFSET N' L  
INNERBELT FREEWAY  
CENTRAL VADOUCI, FAP 01-1037(1)  

**SOURCE OF INFORMATION**  
OHIO DEPARTMENT OF HIGHWAYS  
FILE No. J 340
### Pile Test Data

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>CLEVELAND, OHIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>5-13 Oct 1953</td>
</tr>
<tr>
<td>DATE TESTED</td>
<td>15 Oct 1953</td>
</tr>
<tr>
<td>OWNER</td>
<td>CONTRACTOR</td>
</tr>
<tr>
<td>TESTED BY</td>
<td></td>
</tr>
<tr>
<td>HAMMER TYPE</td>
<td>STEAM, Vulcan 101</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>26 ft 5000 lbs</td>
</tr>
<tr>
<td>STROKE</td>
<td>36 in 3 ft</td>
</tr>
<tr>
<td>ENERGY</td>
<td>90 ft 15000 lbs</td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td></td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td>28/12</td>
</tr>
</tbody>
</table>

### Test Load (Tons)

- 46 tons were applied
- Settlement 2 in
- Yielded

### Soil Description

- Fill
- Clay loam
- Med clay
- Very soft
- Silty clay
- Sandy gravel
- Very stiff
- Clay with pebbles
- Very stiff
- Clay

### Remarks

- TEST PILE 3-D-1, LOCATION 3
- STA 31+05, OFFSET 4' R
- INNERBELT FREEWAY
- CENTRAL WINDOW, FRP VI-1037(1)

### Source of Information

- FILE N.
- OHIO DEPARTMENT OF HIGHWAYS
- J.340
LOCATION: CLEVELAND, OHIO
DATE DRIVEN: 16 Oct 1953
DATE TESTED: 19-20 Oct 1953

HAMMER TYPE: STEAM, Vulcan no 0
WEIGHT: 375 t, 7500 lbs
STROKE: 39 in, 3.25 ft
ENERGY: 146 ft-lb, 24400 ft-lbs
BLOWS PR MIN: —
FINAL PENETRATION: 44/2

PILE TYPE: STEEL, H-pile
PILE DIMENSIONS: 12" - BP-53
WEIGHT: Pile 6270 lbs, Pile top: 9670 lbs
DRIVEN LENGTH: 118.3 ft
EMBEDDED LENGTH: 112.2 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full clay loam</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Med. clay</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Very sandy silty clay</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Sand &amp; gravel</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Very stiff clay with pebbles</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Very stiff clay</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS:
TEST PILE 3-D-2, LOCATION 3
STA 31+05, OFFSET 41' R
INNERBELT FREEWAY
CENTRAL WADSWORTH, FAP W-1057(1)

SAME PILE AS 3-D-1
Redriven and Tested

SOURCE OF INFORMATION: OHIO DEPARTMENT OF HIGHWAYS
FILE NO: 1540
LOCATION: CLEVELAND, OHIO
DATE DRIVEN: 20 OCT 1965
DATE TESTED: 26 - 29 OCT 1965

OWNER: ____________________________
CONTRACTOR: ____________________________
TESTED BY: ____________________________

HAMMER TYPE: STEAM, Vulcan no. 0
WEIGHT: 375 t, 7500 lbs
STROKE: 39 in, 325 ft
ENERGY: 146 ft-lbs, 244001 lbs
BLOWS PR MIN: ______
FINAL PENETRATION: 39/8"  

PILE TYPE: STEEL, Union Metal
PILE DIMENSIONS: 14", Type FN, 7ga
WEIGHT: 2040 lbs, File reap 3090 lbs
DRIVEN LENGTH: 30 ft
EMBEDDED LENGTH: 76 ft

TEST LOAD (TONS)
<table>
<thead>
<tr>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
</table>

SOIL DESCRIPTION
- Blöck fill
- Soft clay
- Sand
- Vegetation
- Coarse sand
- Mud clay
- Very stiff pebbly clay
- Mud clay
- Very stiff clay
- Mud clay

DEPTH FT
- 20
- 40
- 60
- 80
- 100

PENETRATION RATE
- 20
- 40
- 60
- 100

REMARKS: TEST PILE 4-A, LOCATION 4
37A 37+51 OFFSET 83'L
INNERBELT FREEWAY
CENTRAL WADSWORTH, F 61-1037 (7)

SOURCE OF INFORMATION: OHIO DEPARTMENT OF HIGHWAYS
FILE N. 3540
LOCATION  CLEVELAND, OHIO
DATE DRIVEN  29 OCT 1953
DATE TESTED  2-6 NOV 1953
OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE  STEAM, Vulcan No. 0
WEIGHT  375 lb  7500 lbs
STROKE  36 in  325 ft
ENERGY  146 ft-lb  2440 lb-ft
BLOWS PR. MIN
FINAL PENETRATION

PILE TYPE  STEEL, Union Metal
PILE DIMENSIONS  14", Type FN, 30a
WEIGHT  Tile, 2360 lbs, Tile resp. 5410 lbs
DRIVEN LENGTH
EMBEDDED LENGTH

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>0</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS PER FOOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marl till</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Silt clay sand</td>
<td>60</td>
<td>Welding</td>
</tr>
<tr>
<td>Very stiff clay</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>stiff clay red clay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>stiff clay red clay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>stiff clay red clay</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS
TEST PILE 4-B, LOCATION 4 STA 37+48, OFFSET 85' L
INNERBELT FREEWAY
CENTRAL VIADUCT, FAP UN-1057(I)

SOURCE OF INFORMATION  OHIO DEPARTMENT OF HIGHWAYS
FILE No.  J 340
- PILE TEST DATA -

LOCATION: CLEVELAND, OHIO
DATE DRIVEN: 02 Nov 1953
DATE TESTED: 10 - 12 Nov 1953

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM, Vulcan no. 1
WEIGHT: 375 lbs
STROKE: 39 in
ENERGY: 146 ft lb
BLOWS PR MIN
FINAL PENETRATION: 38 1/2"

PILE TYPE: STEEL, Union Metal
PILE DIMENSIONS: 14", type FN, 7 ga

WEIGHT: Pile 1270 lbs, Pile cap: 2250 lbs
DRIVEN LENGTH
EMBEDDED LENGTH: 33 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>LOAD (TONS)</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>100</td>
<td>40</td>
</tr>
<tr>
<td>150</td>
<td>60</td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION

- Mac fill
- Sand
- Clay
- Very stiff clay, silt, layers
- Med plastic clay
- Very stiff clays

DEPTH (FT)

- 20
- 40
- 60

REMARKS.

TEST PILE 5-A, LOCATION 5
37A 43/76, Opposite 35' R
INNERBELT FREEWAY
CENTRAL Viaduct, FAP UI-1057(1)

SOURCE OF INFORMATION
FILE No.
OHIO DEPARTMENT OF
HIGHWAYS
J340
### Pile Test Data

**Location:** Cleveland, Ohio  
**Date Driven:** 10 Nov 1953  
**Date Tested:** 16-17 Nov 1953

**Hammer Type:** Steam, Vulcan No. 1  
**Weight:** 25 t  
**Stroke:** 36 in  
**Energy:** 90 in  
**Final Penetration:** 34 1/2"  

**Pile Type:** Steel, Union Metal  
**Pile Dimensions:** 14", type J, 70'  
**Weight:** 340 lbs, file cap: 150 lbs  
**Driven Length:** 35 ft  
**Embedded Length:** 29 1/2 ft

#### Test Load (Tons)

<table>
<thead>
<tr>
<th>Load (Tons)</th>
<th>Settlement (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>100</td>
<td>0.5</td>
</tr>
<tr>
<td>150</td>
<td>10</td>
</tr>
</tbody>
</table>

#### Soil Description

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Penetration Rate (blows per ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>50</td>
</tr>
<tr>
<td>40</td>
<td>100</td>
</tr>
<tr>
<td>60</td>
<td>150</td>
</tr>
</tbody>
</table>

**Comments:**

- **Test Pile I-A, Location I**
- 57A 15+94, Offset 83'R  
- Innerbelt Freeway  
- Central Viaduct, FAP UI-1037(1)

**Remarks:**

- Test Pile I-A, Location I  
- 57A 15+94, Offset 83'R  
- Innerbelt Freeway  
- Central Viaduct, FAP UI-1037(1)

**Source of Information:**  
Ohio Department of Highways  
**File No.:** 3340
LOCATION: CLEVELAND, OHIO
DATE DRIVEN: 10 Nov 1953
DATE TESTED: 12 - 15 Nov 1953
OWNER
CONTRACTOR
TESTED BY
HAMMER TYPE: STEAM, Vulcan No. 1
WEIGHT: 2.5 t
STROKE: 36 in
ENERGY: 90 in
BLOWS PR MIN: 
FINAL PENETRATION:

PILE TYPE: STEEL, H-pile
PILE DIMENSIONS: 12" - BP - 53
WEIGHT: Pile, 2650 lbs
DRIVEN LENGTH: 50 ft
EMBEDDED LENGTH: 32 ft

TEST LOAD (TONS)

0
0.5
10
SOIL DESCRIPTION

FILL
COARSE sand
gravel
MED. sand
FINE sand
MED. clay
VERY stiff clay
MED. clay
VERY stiff clay

DEPTH FT
20
40
60
Blows per foot

PENETRATION RATE

REMARKS: TEST PILE 1-B-1 LOCATION 1
STA 15+94, OFFSET 80' R
INNERBELT FREEWAY
CENTRAL WIDJET, PAP 01-1057(1)

SOURCE OF INFORMATION: FILE NO.
OHIO DEPARTMENT OF HIGHWAYS

J 540
LOCATION CLEVELAND, OHIO
DATE DRIVEN 13 AUGUST 1959
DATE TESTED 19 AUGUST 1959

OWNER Jones & Laughlin Steel Corp
CONTRACTOR
TESTED BY

HAMMER TYPE Raymond 65C Drop Block
WEIGHT 6500 lbs
STROKE
ENERGY
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE Raymond Step Taper
PILE DIMENSIONS 72 ft long
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH

TEST LOAD (TONS) 50 100 150

SOIL DESCRIPTION

DEPTH FT 20 40 60
Blogs per foot PENETRATION RATE

Silt, Sand, Contact Fill
Loose Silt, Brecciated
Very Silty
Loamy Silt
Organic Silt
Decayed Wood
Loose Mud
Coarse Gravel
Gravel
Little clay
Silt
Med gray clay
Silt
Pebbly sand
Sand and gravel
Little pebbles
Med gray clay
Silt
Trace of sand
Gravel
Goodyear grey clay
Decomposed
Dirt Slake
Refuse
Hard sand
Strata

REMARKS. Test Pile No 1
Oxygen Furnace Site

SOURCE OF INFORMATION PITTSBURGH TESTING
FILE N. PRIVATE
LABORATORY FOR CONSULTANTS
JONES & LAUGHLIN J540
PILE TEST DATA

LOCATION  TOLEDO, OHIO
DATE DRIVEN  30 NOV 1955
DATE TESTED  2-4 DEC 1955

OWNER  
CONTRACTOR  
TESTED BY  

HAMMER TYPE  STEAM, Vulcan no. 1
WEIGHT  25 c
STROKE  36 in
ENERGY  90 ft-lb
BLOWS PR MIN  100
FINAL PENETRATION  

PILE TYPE  STEEL, Monolube
PILE DIMENSIONS  40' tapered, 8'-14'
WEIGHT  60'-8'
DRIVEN LENGTH  47-0'
EMBEDDED LENGTH  

TEST LOAD (TONS)
50  100  150

SOIL DESCRIPTION
GRAY SILT
GRAY SILT AND ROCK PARTICLES
GRAY SILTY CLAY GRANU

DEPTH FT
50  100  150

PENETRATION RATE

REMERS. PILE NO 131, SOUTH ABUTMENT
5TH 166+10, OFFSET 28 R
BR NO LU-12O-22
STARR AVENUE, LUCAS CO

SOURCE OF INFORMATION  FILE No.
OHIO DEPARTMENT OF  OHIO帝
HIGHWAYS  5 340
PILE TEST DATA

LOCATION: TOLEDO, OHIO
DATE DRIVEN: 25 NOV 1955
DATE TESTED: 29 NOV 1955

HAMMER TYPE: STEAM, Vulcan No.1
WEIGHT: 25 t
STROKE: 36 in
ENERGY: 90 ft-lb
BLOWS PR MIN: 86
FINAL PENETRATION: 24.5

PILE TYPE: STEEL, Monotube
PILE DIMENSIONS: 40' tapered 8"-14"
14' straight ext 7 gauge
WEIGHT: 51.25 ft
DRIVEN LENGTH: 41.25 ft
EMBEDDED LENGTH: 23.5

REMARKS:
PILE NO 135, SOUTH ABUTMENT
57A 128-04, SEC 2-05
BE NO. L0-120-22
57TH AVENUE, LUCAS CO

SOURCE OF INFORMATION:
OHIO DEPARTMENT OF HIGHWAYS
FILE N.
7-540
PILE TEST DATA

LOCATION: TOLEDO, OHIO

DATE DRIVEN: 28 OCT 1955

DATE TESTED: 1-2 NOV 1955

HAMMER TYPE: SUPER-VULCAN DIFF ACTING
WEIGHT: 25 lb [NO 50C] 500 lb
STROKE: 15 in
ENERGY:
BLOWS PR MIN:
FINAL PENETRATION: 42 7/8 in

PILE TYPE: STEEL, Monotube
PILE DIMENSIONS: 40' tapered 8"-14"
14" strength ext. 7 gauge
WEIGHT:
DRIVEN LENGTH: 60'-7"
EMBEDDED LENGTH: 53'-11"

TEST LOAD (TONS)

25 50 75

SOIL DESCRIPTION

DEPT FT 20 40 60 80

Penetration Rate

Very comp. clay and sand
Gray silt with gravel
Gray silt
Gray silt and gravel

REMARKS: PILE NO 195 SOUTH ABUTMENT
37A 194 183 OFFSET 8' R
DE NO LU-120-27
SEAMAN ST LUCAS CO

SOURCE OF INFORMATION
FILE NO.
OHIO DEPARTMENT OF OHIO HIGHWAY
3 340
-PILE TEST DATA-

LOCATION TOLEDO, OHIO

DATE DRIVEN 18 FEBR 1965
DATE TESTED 23-24 FEBR 1965

OWNER

HAMMER TYPE STEAM, Vulcan No 1
WEIGHT 25 t 5000 lbs
STROKE 36 in 3 ft
ENERGY 80 ft-lb 1800 ft-lbs
BLOWS PR MIN
FINAL PENETRATION 61/4"

PILE TYPE STEEL, Union Monotube
PILE DIMENSIONS 14" diam, 7 gauge
DRIVEN LENGTH 84.56 ft
EMBEDDED LENGTH 83.5 ft

WEIGHT

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.05</td>
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</tr>
<tr>
<td>0.10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.15</td>
<td></td>
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</tr>
</tbody>
</table>

TEST LOAD (TONS) VS. SETTLEMENT IN INCHES

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>Blows per Foot PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>40</td>
</tr>
<tr>
<td>20</td>
<td>80</td>
</tr>
<tr>
<td>40</td>
<td>120</td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION

- Brey clay
- Soft gray clay
- Gray pebbly clay
- Gray clay
- Gray pebbly clay
- Hard pebbly gray clay
- Sand
- Hard gray clay
- Gravel
- Stone
- Lime
- Stone

REMARKS: FILE NO 106, WEST AUBURN
3 H 120, SEC. 379
BE NO LU-120-379
WEST BOUND SUMMIT STREET UNDERPASS

SOURCE OF INFORMATION
OHIO DEPARTMENT OF HIGHWAYS
FILE N° OHIO DEPARTMENT OF HIGHWAYS
HIGHWAYS 3 340
PILE TEST DATA

LOCATION: TOLEDO, OHIO
DATE DRIVEN: 16 DECEMBER 1954
DATE TESTED: 27 DECEMBER 1954

HAMMER TYPE: STEAM, VULCAN NO. 1
WEIGHT: 25 t
STROKE: 36 in
ENERGY: 90 ft-lb
BLOWS PR MIN: 115
FINAL PENETRATION: 131/2".

PILE TYPE: STEEL, Taylor Forge
PILE DIMENSIONS: 14" diam., 3/4" wall

WEIGHT: 5965 lb
DRIVEN LENGTH: 59 65/12
EMBEDDED LENGTH: 58 5 1/2

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH (FT)

PENETRATION RATE

SOURCE OF INFORMATION
OHIO DEPARTMENT OF HIGHWAYS
FILE No.
7340
LOCATION: TOLEDO, OHIO
DATE DRIVEN: 10 JANUARY 1955
DATE TESTED: 13-16 JAN 1955

HAMMER TYPE: STEAM, Vulcan no 1
WEIGHT: 25 t
STROKE: 32 in
ENERGY: 90 ft
BLOWS PR. MIN: 100
FINAL PENETRATION: 66/6'

PILE TYPE: STEEL, Union Metal Monoblock
PILE DIMENSIONS: 14" diam, 7 gauge
WEIGHT: 72.20 ft
DRIVEN LENGTH: 67 ft
EMBEDDED LENGTH: 67 ft

TEST LOAD (TONS)

0 100 150

SOIL DESCRIPTION | DEPTH (FT) | BLOWS per foot PENETRATION RATE

- Soft pebbly gray clay
- Medium gray clay
- Stiff pebbly gray clay
- Hard gray sandy clay and gravel stone
- Lime-stone

REMKS: PILE NO 19 EAST ABUTMENT
3 H 120 SEC 3 79
BE NO. LU-136-38D
HURON STREET UNDERPASS

SOURCE OF INFORMATION: OHIO DEPARTMENT OF HIGHWAY
FILE N. 0HO 54-540
**LOCATION**  
TOLEDO, OHIO

**DATE DRIVEN**  
31. JULY 1956

**DATE TESTED**  
6-13 AUGUST 1956

**HAMMER TYPE**  
DIESEL, Strumco “20-E”

**PILE TYPE**  
STEEL, Union Metal Monolite

**PILE DIMENSIONS**  
14” diam., 7 gauge

**WEIGHT**  

**STROKE**  

**ENERGY**  

**BLOWS PR MIN**  

**FINAL PENETRATION**  
3/6”

**PILE TYPF**  

**PILE PIUF**  

**WEIGHT**  

**DRIVEN LENGTH**  
7/34 H

**EMBEDDED LENGTH**  
5791 H

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>Blows per foot PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Soft grey pebbly clay</td>
<td>10</td>
<td>20, 40, 60, 80, 100</td>
</tr>
<tr>
<td>100</td>
<td>Mud stiff clay</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>Stiff grey pebbly clay</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sand grain</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hard grey clay pebbly</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS.**  
PILE NO 11, S W WING  
SEC 393, DT NO 120-41  
ONTARIO STREET, TOLEDO

**SOURCE OF INFORMATION**  
OHIO DEPARTMENT OF HIGHWAYS

**FILE No.**  
7 540
## PILE TEST DATA

### Location
TOLEDO, OHIO

### Date Driven
31 SEPTEMBER 1956

### Date Tested
3-26 SEPTEMBER 1956

### Hammer Type
DIESEL, Syntron "SD-50-K"

### Weights

<table>
<thead>
<tr>
<th>Stroke</th>
<th>Energy</th>
<th>Blows Pr Min</th>
<th>Final Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>27/8&quot;</td>
</tr>
</tbody>
</table>

### Pile Type
STEEL, Union Metal Monotube

### Pile Dimensions
14" diam 7 gauge

### Pile No.
PILE NO 14, PIER NO 1
37A 5+55 46, SEC 393
BR NO LU-120-42 A
MICHIGAN STREET, TOLEDO

### Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
</tr>
<tr>
<td>100</td>
</tr>
<tr>
<td>150</td>
</tr>
</tbody>
</table>

### SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth FT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft grey clay</td>
<td>20</td>
</tr>
<tr>
<td>Stiff pebbly grey clay</td>
<td>40</td>
</tr>
<tr>
<td>Hard grey clay</td>
<td>60</td>
</tr>
<tr>
<td>Sand gravel</td>
<td>80</td>
</tr>
<tr>
<td>Hard pebbly grey clay</td>
<td>80</td>
</tr>
<tr>
<td>Compressed sand &amp; stones</td>
<td>80</td>
</tr>
<tr>
<td>Lime-stone</td>
<td>80</td>
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</tbody>
</table>

### Remarks
PILE NO 14, PIER NO 1
37A 5+55 46, SEC 393
BR NO LU-120-42 A
MICHIGAN STREET, TOLEDO

### Source of Information
OHIO DEPARTMENT OF HIGHWAYS
FILE No. J 640
## PILE TEST DATA

**LOCATION**
LUCAS COUNTY, OHIO

**DATE DRIVEN**
5 JUNE 1956

**DATE TESTED**
7 JUNE 1956

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE**
STEAM, Vulcan No. 1

**WEIGHT**
25 lb, 5000 lbs

**STROKE**
36 in, 3 ft

**ENERGY**
90 ft lb, 15000 ft lbs

**PILE TYPE**
STEEL, MONOTUBE

**PILE DIMENSIONS**
14" diam, 7 ga

**WEIGHT**

**DRIVEN LENGTH**
39.25 ft

**EMBEDDED LENGTH**
36.5 ft

**FINAL PENETRATION**
39 1/4"

---

### TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>0</th>
<th>50</th>
<th>100</th>
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</thead>
</table>

### SOIL DESCRIPTION

- Assumed to be the same as at B5 No. W-120-X24A (No. 170)

### DEPTH (FT)

<table>
<thead>
<tr>
<th>10</th>
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</table>

### PENETRATION RATE (Blows per foot)

<table>
<thead>
<tr>
<th>40</th>
<th>60</th>
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</thead>
</table>

### SETTLEMENT IN INCHES

<table>
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<tr>
<th>0</th>
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</thead>
</table>

### REMARKS

PILE NO. 39 WEST ADJACENT.
B5 NO. W-120-X24
OVER N.Y. CHI. & STL
RR UNDERPASS

### SOURCE OF INFORMATION

FILE No.
OHIO DEPARTMENT OF
HIGHWAYS

FILE No.
7540
LOCATION: LUCAS COUNTY, OHIO

DATE DRIVEN: 8 JUNE 1956
DATE TESTED: 11 JUNE 1956

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM, Vulcan no. 1
WEIGHT: 25 t
STROKE: 36 in
ENERGY: 90 2 in
BLOWS PER MIN: 84.6
FINAL PENETRATION: 30 in

PILE TYPE: STEEL, Monotube
PILE DIMENSIONS: 14" diam, 7.9 ft

WEIGHT: 5470 lb
DRIVEN LENGTH: 49 5/16 ft
EMBEDDED LENGTH: 49 5/16 ft

TEST LOAD (TONS)

TEST LOAD (TONS)

SOIL DESCRIPTION
 penetation rate

DEPTH FT

PENETRATION RATE

REMARKS: PILE NO. 43 WEST ABUTMENT
BE NO. LLU-126-44
OVER NY-CHI & ST. L.
R & P UNDERPASS

SOURCE OF INFORMATION: OHIO DEPARTMENT OF HIGHWAYS
FILE NO: 3 340
PILE TEST DATA

LOCATION  AKRON, OHIO
DATE DRIVEN  8 JUNE 1956
DATE TESTED  15-17 JUNE 1956

HAMMER TYPE  DIESEL, D-12 Deilmag
WEIGHT
STROKE
ENERGY
BLOWS PR MIN
FINAL PENETRATION

OWNER
CONTRACTOR
TESTED BY

PILE TYPE  STEEL, Union Metal
PILE DIMENSIONS  14" diam, 7' ga
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH

TEST LOAD (TONS)

50  100  150

0

0.5

1.0

SETTLEMENT IN INCHES

SOIL DESCRIPTION

DEPTH FT

13 13 18 16

31 to 34 ft

BLOWS per foot PENETRATION RATE

50 40 60 40

COARSE sand and gravel

SOME clay

REMARKS.  PILE NO 70, EAST ADJACENT
STA 618+01.88 Centerline
DE NO 30-18-138
PART 7, ACCON EXPRESSWAY

SOURCE OF INFORMATION  FILE NO.
OHIO DEPARTMENT OF HIGHWAYS  7540
# Pile Test Data

**Location:** Akron, Ohio  
**Date Driven:** 15 June 1956  
**Date Tested:** 18-20, June 1956

<table>
<thead>
<tr>
<th>Hammer Type</th>
<th>Diesel, D-12-Delmag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td></td>
</tr>
<tr>
<td>Energy</td>
<td></td>
</tr>
<tr>
<td>Blows Pr Min</td>
<td></td>
</tr>
<tr>
<td>Final Penetration</td>
<td>70 1/2</td>
</tr>
</tbody>
</table>

**Pile Type:** Steel H-pile  
**Pile Dimensions:** 1 1/2" DP 53  
**Weight:** 46 H  
**Driven Length:** 45 H  
**Embedded Length:**

## Test Load vs Settlement

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Settlement in Inches</th>
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<tbody>
<tr>
<td>50</td>
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<tr>
<td>100</td>
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<tr>
<td>150</td>
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</tbody>
</table>

## Soil Description

<table>
<thead>
<tr>
<th>Depth FT</th>
<th>Blows per foot Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
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<tr>
<td>40</td>
<td></td>
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<tr>
<td>60</td>
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<td>80</td>
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</tbody>
</table>

## Remarks

Extra Test Load Pile  
East about 37A 6146 2  
Dr No 55-18-137 Port  
7 Akron Expressway

**Source of Information:** Ohio Department of Highways  
**File No.:** 7540
# Pile Test Data

**Location:** Columbiana County, Ohio  
**Date Driven:** 24 Jan 1956  
**Date Tested:** 3-9 Feb 1957  
**Hammer Type:** Steam, Vulcan No. 2  
**Pile Type:** Steel, Union Metal  
**Hammer Weight:** 70 lb  
**Hammer Stroke:** 4 ft  
**Hammer Energy:** 8 ft-lb  
**Blows per Min:** 300  
**Final Penetration:** 300 g

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>25</th>
<th>50</th>
<th>75</th>
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</thead>
<tbody>
<tr>
<td><strong>Settlement in Inches</strong></td>
<td>0.0</td>
<td>0.25</td>
<td>0.5</td>
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</tbody>
</table>

**Soil Description:**  
- Gray silt loam  
- Gray gravel  
- Gray sand  
- Fine grained clay  
- Silty sand  

**Remarks:** Pile No. 9, West Pier  
37A 68 x 144, Offset 6'-10" R  
Br. No. 69-149-87 Over Mill Creek

**Source of Information:**  
Ohio Department of Highways

**File No.:** 540
**PILE TEST DATA**

- **Location**: Ross County, Ohio
- **Owner**: 
- **Contractor**: 
- **Tested by**: 
- **Hammer Type**: Steam, Vulcan no 1
- **Weight**: 25 t, 5000 lbs
- **Stroke**: 36 in, 3 ft
- **Energy**: 90 t in, 15000 H  
- **Blows per Min**: 
- **Final Penetration**: 8 1/2 in
- **Pile Type**: Steel, Union Metal
- **Pile Dimensions**: 12 in, 9 ga
- **Tip diam**: 7 3/4
- **Weight**: 
- **Driven Length**: 50 ft
- **Embedded Length**: 42 9/9

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Blows per foot</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Silty fine sand and scattered gravel</td>
<td>10</td>
<td></td>
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<tr>
<td>100</td>
<td>Silty sand</td>
<td>20</td>
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<tr>
<td>150</td>
<td>Gravel</td>
<td>30</td>
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<tr>
<td></td>
<td>Silty sand</td>
<td>40</td>
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<tr>
<td></td>
<td>Gravel</td>
<td>50</td>
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</tbody>
</table>

**Remarks**: Pile No. 28, Pier No. 14  
5TH 528 + 04,150 OFFSET 25' 2"  
DR No. 50 - 53 - 99  
OVER POINT CREEK

**Source of Information**: 
Ohio Department of Highways

**File No.**: 3540
LOCATION: TOLEDO, OHIO
DATE DRIVEN: 14 SEP 1984
DATE TESTED: 16 SEP 1984

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM, McDermot-Terry 11-B-3

PILE TYPE: STEEL, Union Metal

PILE DIMENSIONS: 40' tapered 8"-14"
14" extension 7 gauge

WEIGHT:
STROKE:
ENERGY:
BLOWS PR MIN:
FINAL PENETRATION: 26 blows/60

DRIVEN LENGTH: 60.45'
EMBEDDED LENGTH: 450'

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT
BLOWS per foot PENETRATION RATE
20 40 to 60 14

SOIL DESCRIPTION

DEPTH FT
BLOWS per foot PENETRATION RATE
20 40 to 60 14

REMARKS:
PILE NO 17, EAST ABUTMENT
2 H 140, SEC 300
DR NO 11-A EB EBF CRAMPY
OVER C O ER CUT

SOURCE OF INFORMATION
OHIO DEPARTMENT OF OHIO HIGHWAYS
FILE N:
J 540
- PILE TEST DATA -

LOCATION TOLEDO, OHIO
DATE DRIVEN 20 SEPT 1954
DATE TESTED 22-24 SEPT 1954

OWNER __________________________
CONTRACTOR _____________________
TESTED BY _______________________ 

HAMMER TYPE STEAM, McKean-Terry 11-B-3
WEIGHT __________________________
STROKE __________________________
ENERGY __________________________
BLOWS PR MIN _____________________
FINAL PENETRATION 65 blows/ft

PILE TYPE STEEL, Monotube
PILE DIMENSIONS 10' - tapered 8" - 14"
WEIGHT 7.9 ga
DRIVEN LENGTH 60 75 ft
EMBEDDED LENGTH 50 ft

REMARKS. PILE NO 20 EAST ABUTMENT
3 H 120 SEC 300
BE NO II-A EBF & RAMP
7 OVER E C O ER CUT

TEST LOAD (TONS) 50 100 150

SOIL DESCRIPTION

DEPT FT Penetration Rate 20 40 60

10
20
30
40
50

SOURCE OF INFORMATION FILE N.
OHIO DEPARTMENT OF HIGHWAYS
T 5940
LOCATION: TOLEDO, OHIO
DATE DRIVEN: 2 FEB 1956
DATE TESTED: 6-9 FEB 1956

HAMMER TYPE: STEAM, Vulcan no 1
WEIGHT: 296
STROKE: 36 in
ENERGY: 90 ton
BLOWS PR MIN: 
FINAL PENETRATION: 38.5"

PILE TYPE: STEEL, Union Metal
PILE DIMENSIONS: 14' diam., 7 gauge
40' tapered, 6'-14', 11' est
WEIGHT: 60'-6" long
DRIVEN LENGTH: 
EMBEDDED LENGTH: 

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>0.5</td>
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</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH FT</th>
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<tbody>
<tr>
<td>10</td>
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<tr>
<td>20</td>
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<tr>
<td>30</td>
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<tr>
<td>40</td>
</tr>
<tr>
<td>50</td>
</tr>
</tbody>
</table>

BLOWS per FOOT PENETRATION RATE

<table>
<thead>
<tr>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
</table>

REMARKS:
PILE NO 261, SOUTH RETAINING STA 23+285.5, OFFSET 395' R
AVE NO TT RE, OVER OTHER AVENUE, TOLEDO

SOURCE OF INFORMATION:
OHIO DEPARTMENT OF OHIO HIGHWAYS
FILE NO: J 540

OWNER: 
CONTRACTOR: 
TESTED BY: 

SOURCE OF INFORMATION: 
FILE NO: 

RFUARKS: 
0.5
**PILE TEST DATA**

**LOCATION** CLEVELAND, OHIO  
**DATE DRIVEN** 7 JAN, 1957  
**DATE TESTED** 9-11 JAN, 1957

**HAMMER TYPE** STEAM, Vulcan No. 1  
**WEIGHT** 25 ft  
**STROKE** 36 in  
**ENERGY** 90 ft-lb  
**BLOWS PR MIN**  
**FINAL PENETRATION**

**PILE TYPE** STEEL, Union Metal  
**PILE DIMENSIONS** 14" diam, 72 ft

**WEIGHT** 25 ft  
**DRIVEN LENGTH**  
**EMBEDDED LENGTH** 23 ft  

**TEST LOAD** (TONS)  
<table>
<thead>
<tr>
<th>Load (Tons)</th>
<th>Settlement (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>100</td>
<td>0.5</td>
</tr>
<tr>
<td>150</td>
<td>1.0</td>
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</tbody>
</table>

**SOIL DESCRIPTION**  
**DEPTH FT**  
**BLOWS PER FOOT PENETRATION RATE**  

**REMARKS.** PILE NO 58, PIER NO 1-A  
STA 14+90.5, OFFSET 61.7 ft  
BE, NO 6242 R 1937  
WEST APPROACH ACCESS INLAND BELT FREEWAY, CLEVELAND

**SOURCE OF INFORMATION**  
OHIO DEPARTMENT OF HIGHWAYS  
FILE No. 1340
LOCATION: TOLEDO, OHIO
DATE DRIVEN: 29 NOV 1954
DATE TESTED: 1-3 DEC 1954

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM, Vulcan no 1
WEIGHT: 25 c. 3000 lbs
STROKE: 36 in 3 ft
ENERGY: 90.4 ft 15000 ft-lbs
BLOWS PR MIN
FINAL PENETRATION: 55 blows/k

PILE TYPE: STEEL, Union Monotube
PILE DIMENSIONS: 14" diam, 7 gauge
WEIGHT: 6572 lb
DRIVEN LENGTH: 64 ft
EMBEDDED LENGTH: 

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

BLOWS PER FOOT PENETRATION RATE

SHELL

40 80 120 1/ft

10

0.0

0.2

0.5

1.0

SETTLEMENT IN INCHES

REMARKS: PILE NO 23, EAST ABUTMENT
3H 120, SEC 379
BE NO 15 OVER RAMP B-B

SOURCE OF INFORMATION FILE NO
OHIO DEPARTMENT OF HIGHWAYS
J 340
LOCATION: PORTAGE COUNTY, OHIO
DATE DRIVEN: 6 JULY 1943
DATE TESTED: 7-9 JULY 1943

OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: STEAM, Vulcan no. 2
WEIGHT: 18 ft. 3000 lbs
STROKE: 28 in
ENERGY: 435 ft. Ibs
BLOWS PR MIN: 
FINAL PENETRATION: 34/18

PILE TYPE: TIMBER (Cresoted)
PILE DIMENSIONS: Pmax = 18" Pmin = 8"
WEIGHT: 
DRIVEN LENGTH: 41/2'
EMBEDDED LENGTH: 37 6/4

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>Blows per Foot PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Blue</td>
<td>10</td>
<td>20 40 60 Hz</td>
</tr>
<tr>
<td>30</td>
<td>silt clay</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>very uniform, slightly plastic</td>
<td>30 40</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: PILE NO 34, SOUTH PIER
BE NO FO-5-207 OVER
EAVENNA GEORIANE PLANT, EAST SIDE TRACK

SOURCE OF INFORMATION: OHIO DEPARTMENT OF HIGHWAYS
FILE No: 7340
<table>
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<td>DATE DRIVEN</td>
<td>DATE DRIVEN</td>
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<td>30-26 JUL 1992</td>
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<tr>
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</table>
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>PORTAGE COUNTY, OHIO</th>
<th>OWNER</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>7 JULY 1942</td>
<td>CONSTRUCTOR</td>
</tr>
<tr>
<td>DATE TESTED</td>
<td>8-9 JULY 1942</td>
<td>TESTED BY</td>
</tr>
<tr>
<td>HAMMER TYPE</td>
<td>3 STEAM, Vulcan No. 2</td>
<td></td>
</tr>
<tr>
<td>WEIGHT</td>
<td>15 t</td>
<td></td>
</tr>
<tr>
<td>STROKE</td>
<td>29 in</td>
<td>342 ft</td>
</tr>
<tr>
<td>ENERGY</td>
<td>43.5 ft</td>
<td>3250 ft lbs</td>
</tr>
<tr>
<td>BLOWS PR. MIN</td>
<td></td>
<td>40 ft</td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td></td>
<td>47 ft</td>
</tr>
</tbody>
</table>

| PILE TYPE        | TIMBER (Crossed)              |       |       |
| PILE DIMENSIONS  | Dmax = 14" Dmin = 8"          |       |       |

| TEST LOAD (TONS) | 25 50 |       |
| SOIL DESCRIPTION |       |
| DEPTH FT         | 10 20 30 | 40 60 120 |

| REMARKS.         | PILE NO 31, PIER NO 3  
|                  | STA 652 +47 OFFSET 26.5' R  
|                  | BE NO PO-5-206 OVER  
|                  | CAVENNA ORDNANCE PLANT GUE TRACKS |   |

<table>
<thead>
<tr>
<th>SOURCE OF INFORMATION</th>
<th>FILE No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OHIO DEPARTMENT OF</td>
<td>7340</td>
</tr>
<tr>
<td>HIGHWAYS</td>
<td></td>
</tr>
</tbody>
</table>
PILE TEST DATA

LOCATION: LOGAIN COUNTY, OHIO
DATE DRIVEN: 31 AUG 1943
DATE TESTED: 7-8 SEPT. 1943

HAMMER TYPE: STEAM, Vulcan no. 2
WEIGHT: 15 t  3000 lb
STROKE: 29 in  242 ft
ENERGY: 435 ft lb  7250 ft-lb
BLOWS PR MIN:  12/1
FINAL PENETRATION: 12/1

PILE TYPE: TIMBER (White oak)
PILE DIMENSIONS: Dia. = 14" Dia. = 10"

WEIGHT:  32 ft
DRIVEN LENGTH:  32 ft
EMBEDDED LENGTH:  18-9"

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>0</th>
<th>20</th>
<th>40</th>
<th>60</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>0.25</td>
<td>0.5</td>
<td>0.75</td>
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</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>BLOWS per FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>

REMARKS:
PILE NO. 29, WEST PIER
37" 165 + 86 28 OFFSET 9-2'E
DB NO. 10-18-31 OVER
WEST BRANCH OF BLACK RIVER

SOURCE OF INFORMATION
OHIO DEPARTMENT OF HIGHWAYS
FILE NO.: 3 540
PILE TEST DATA

LOCATION LOGAN COUNTY, OHIO
DATE DRIVEN 18 MAY 1943
DATE TESTED 24-25 MAY 1943

HAMMER TYPE STEAM Vulcan no. 2
WEIGHT 15 ft 3000 lb
STROKE 38 in 3.42 ft
ENERGY 43.5 ft lb 7250 ft lb
BLOWS PR MIN
FINAL PENETRATION 43 1/2"

PILE TYPE STEEL, Union Metal
PILE DIMENSIONS Tapered 8"-14" (116)
WEIGHT
DRIVEN LENGTH 250 ft
EMBEDDED LENGTH 200 ft

TEST LOAD (TONS)

SOIL DESCRIPTION
10
20
30
40
140

DEPTH FT

PENETRATION RATE

REMARKS.
PILE NO. 1, FORWARD (EAST) ABOUT 3 FT 166+9348 OFFSET 166' L
PILE NO. 57-18-31 OVER WEST BRANCH OF BLACK RIVER

SOURCE OF INFORMATION FILE N.
OHIO DEPARTMENT OF HIGHWAYS 7 540
- PILE TEST DATA -

LOCATION   LOORAIN COUNTY, OHIO
DATE DRIVEN   18 JUNE 1943
DATE TESTED   31-2 JUNE 1943

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE   STEAM, Vulcan no. 2
WEIGHT   15 ft 3000 lbs
STROKE   29 in 342 ft
ENERGY   43.5 ton 750 lb
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE   TIMBER, White Oak
PILE DIMENSIONS   d max = 12.89" d min = 7.32"
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>0</th>
<th>0.25</th>
<th>0.5</th>
<th>0.75</th>
<th>1.0</th>
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<tbody>
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<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
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</table>

SOIL DESCRIPTION
DEPTH FT
BLOWS PER FT PENETRATION RATE

GRAY SILT CLAY

REMARKS
PILE NO 15, PIER NO 3 (EAST)
ST A 61+37.88, OFFSET 10'-4"
BR NO 10-18-49 OVER
CHARLESTON CREEK

SOURCE OF INFORMATION
FILE N
OHIO DEPARTMENT OF HIGHWAYS
1540
### PILE TEST DATA

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>OWNER</th>
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<tbody>
<tr>
<td>LOGAN COUNTY, OHIO</td>
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<table>
<thead>
<tr>
<th>DATE DRIVEN</th>
<th>DATE TESTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>28 MAY 1943</td>
<td>1-2 JUNE 1943</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>HAMMER TYPE</th>
<th>WEIGHT</th>
<th>STROKE</th>
<th>ENERGY</th>
<th>BLOWS PR MIN</th>
<th>FINAL PENETRATION</th>
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</thead>
<tbody>
<tr>
<td>STEAM Vulcan no 2</td>
<td>3000 lbs</td>
<td>15 ft</td>
<td>4.1 ft</td>
<td></td>
<td>15 blows/34&quot;</td>
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</table>

<table>
<thead>
<tr>
<th>PILE TYPE</th>
<th>PILE DIMENSIONS</th>
<th>WEIGHT</th>
<th>DRIVEN LENGTH</th>
<th>EMBEDDED LENGTH</th>
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<tbody>
<tr>
<td>STEEL Union Metal</td>
<td>$d_{max} = 14&quot;$, $d_{min} = 8&quot;$</td>
<td>40 ft</td>
<td>40 ft</td>
<td>25-34&quot;</td>
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</table>

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>Blows per foot PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Fill</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Sandy clay</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Gray silty clay</td>
<td>30</td>
<td></td>
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</tbody>
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### REMARKS
PILE NO 1, REAR (W) ABOUT STA 60+47.17, OFFSET 15' R.
BE NO 40-18-49 OVER CHARLEMONTE CREEK.

### SOURCE OF INFORMATION
OHIO DEPARTMENT OF HIGHWAYS

FILE No. 7540
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>Location</th>
<th>Owner</th>
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<tbody>
<tr>
<td>Ashtabula County, Ohio</td>
<td><em>Contractor</em></td>
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<tr>
<td>Date Driven</td>
<td>Date Tested</td>
</tr>
<tr>
<td>10 Aug 1953</td>
<td>13-14 Aug, 1953</td>
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<tr>
<td>Hammer Type</td>
<td>Pile Type</td>
</tr>
<tr>
<td>Steam, Vulcan no. 2</td>
<td>Steel, Union Metal</td>
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<tr>
<td>Weight</td>
<td>Stroke</td>
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<tr>
<td>15 ft</td>
<td>29 in</td>
</tr>
<tr>
<td>3000 lbs</td>
<td>24 ft</td>
</tr>
<tr>
<td>Energy</td>
<td>Driven Length</td>
</tr>
<tr>
<td>455 ft</td>
<td>30 ft</td>
</tr>
<tr>
<td>7250 ft lbs</td>
<td>Embedded Length</td>
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<td></td>
<td>35 68 ft</td>
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<tr>
<td>Final Penetration</td>
<td>Source of Information</td>
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<td>170/2 in</td>
<td>Ohio Department of Ohio</td>
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<tr>
<td>Test Load</td>
<td>Soil Description</td>
</tr>
<tr>
<td>(Tons)</td>
<td>Depth</td>
</tr>
<tr>
<td>25</td>
<td>Brown silty sand</td>
</tr>
<tr>
<td>50</td>
<td>Gray silty coarse sand</td>
</tr>
<tr>
<td>Settlement in Inches</td>
<td>Penetration Rate</td>
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<tr>
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</tr>
<tr>
<td>0.5</td>
<td>100</td>
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<tr>
<td>Remarks</td>
<td>REMARKS.</td>
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<tr>
<td><strong>PILE NO 3 EAST ABUTMENT</strong></td>
<td><strong>PILE NO 3 EAST ABUTMENT</strong></td>
</tr>
<tr>
<td>STA 57+63.75, OFFSET 4' L</td>
<td>STA 57+63.75, OFFSET 4' L</td>
</tr>
<tr>
<td>BE No A5-322-136</td>
<td>BE No A5-322-136</td>
</tr>
<tr>
<td>Mosquito Creek</td>
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<td>Source of Information</td>
<td>File No.</td>
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<tr>
<td>Ohio Department of Ohio</td>
<td>OH-540</td>
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</tbody>
</table>
PILE TEST DATA

LOCATION SHENTROULA COUNTY, OHIO
DATE DRIVEN 21 AUG 1953
DATE TESTED 23-24 AUG 1953

OWNER CONTESTOR
TESTED BY

HAMMER TYPE STEAM, Vulcan No. 2
WEIGHT 15 t
STROKE 39 in
ENERGY 43.5 ft-lb

PILE TYPE STEEL, Union Metal
PILE DIMENSIONS 12" diam., 9 ga

WEIGHT
DRIVEN LENGTH 30 ft
EMBEDDED LENGTH 25 ft

BLOWS PR MIN
FINAL PENETRATION 185/8" "

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Wet brown sandy silt</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Grey silt and fine sand</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dense grey silt</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>40</td>
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<tr>
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<td>80</td>
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<td></td>
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<td>90</td>
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<td></td>
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<td>100</td>
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<tr>
<td></td>
<td></td>
<td>110</td>
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<tr>
<td></td>
<td></td>
<td>120</td>
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</tbody>
</table>

REMARKS PILE NO 3 WEST ADJUTMENT
STA 56+71/25, OFFSET 4'L
BE NO 45-328-136
MOSQUITO CREEK

SOURCE OF INFORMATION FILE N.
OHIO DEPARTMENT OF
HIGHWAYS 3540
**PILE TEST DATA**

**LOCATION** COSHOCTON COUNTY, OHIO

**DATE DRIVEN** 5-7 AUG 1952

**DATE TESTED**

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** STEAM Vulcan no. 2

**WEIGHT** 15 lb

**ENERGY** 3000 lbf

**STROKE** 29 in

**BLOWS PR MIN**

**WEIGHT** 242 lbf

**ENERGY** 1250 lbf

**PILE TYPE** STEEL, Union Metal

**PILE DIMENSIONS** 12" diam (7ga)

**DRIVEN LENGTH**

**EMBEDDED LENGTH** 79 ft

**FINAL PENETRATION** 198/12

---

### TEST LOAD (TONS)

<table>
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<tr>
<th>0</th>
<th>0.5</th>
<th>1.0</th>
<th>1.5</th>
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</tr>
<tr>
<td>100</td>
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### SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH</th>
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<tbody>
<tr>
<td>FT</td>
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<table>
<thead>
<tr>
<th>BLOWS per FT PENETRATION RATE</th>
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</thead>
<tbody>
<tr>
<td>50</td>
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</table>

**SOURCE OF INFORMATION**

**FILE N.**

**OHIO DEPARTMENT OF OHIO HIGHWAYS**

**REMARKS.**

PILE NO 23

DR NO CO 36-211

MUSEUM RIVER

---
PILE TEST DATA

LOCATION: COLUMBUS COUNTY, OHIO

DATE DRIVEN: 10 SEPTEMBER 1953
DATE TESTED: 14-17 SEPTEMBER 1953

OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: STEAM, Vulcan 901
WEIGHT: 35 ft, 5000 lbs
STROKE: 36 in
ENERGY: 90 ft-lb, 1500 ft-lbs
BLOWS PR MIN: 
FINAL PENETRATION: 38/12

PILE TYPE: STEEL, Union Metal
PILE DIMENSIONS: 30' ASPRED, 12' DIAM (7%)
WEIGHT: 
DRIVEN LENGTH: 110 ft
EMBEDDED LENGTH: 103 ft

TEST LOAD (TONS)

50 100 150

SOIL DESCRIPTION

DEPT FT

Fill
50

Brown sand
40

Grav soil
30

PENETRATION RATE

60

20 40 60

SEITLMENT IN INCHES

REMARKS:

PILE NO 19, NORTH ABUTMENT
STA 60+70.9, OFFSET 22 33'L
BEGIN NO CU-2-172 OVER
EAST MEMORIAL SHOESWAY

SOURCE OF INFORMATION: FILE NO.

OHIO DEPARTMENT OF HIGHWAYS

OHIO 340
PILE TEST DATA

LOCATION: CUYAHOGA COUNTY, OHIO
DATE DRIVEN: 15 SEPT 1953
DATE TESTED: 28-30 SEPT 1953

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM, Vulcan No. 1
WEIGHT: 250 lb
STROKE: 36 in
ENERGY: 90 ft-lb
BLOWS PR MIN
FINAL PENETRATION: 37/32

PILE TYPE: STEEL, Union Metal
PILE DIMENSIONS: 12" diam tapered 7 gauge
WEIGHT
DRIVEN LENGTH: 30 ft
EMBEDDED LENGTH: 29 ft

TEST LOAD (TONS)

SOIL DESCRIPTION
DEPTH FT
BLOWES PER FOOT PENETRATION RATE

FILL
BROWN CLAY
GRAY SILT

REMARKS:
PILE NO 93, SOUTH ADJUTMENT
STA 99+281 OFFSET 2233' L
BR NO CU-2-178 OVER
EAST MEMORIAL SHOREWAY

SOURCE OF INFORMATION
FILE NO.
OHIO DEPARTMENT OF OHIO HIGHWAYS

J 540
LOCATION: CUYAHOGA COUNTY, OHIO

DATE DRIVEN: 29 OCT 6 3 NOV 1952
DATE TESTED: 5-6 NOV 1952

HAMMER TYPE: STEAM, Vulcan no 1
WEIGHT: 35 ft / 5000 lbs
STROKE: 3 ft
ENERGY: 90 ft lb / 15000 lb-ft
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE: STEEL, Union Metal
PILE DIMENSIONS: 12" diam (7ga)
WEIGHT
DRIVEN LENGTH: 100 ft
EMBEDDED LENGTH: 132 ft

TEST LOAD (TONS)

SOIL DESCRIPTION
DEPTH FT
Blows per foot
PENETRATION RATE

REM.ARKS:

PILE NO 36, NORTH ABUTMENT
STA 26+20, OFFSET 30° R
BR NO. 20-2-189
SHOREWAY AT E 55 6T

SOURCE OF INFORMATION: OHIO DEPARTMENT OF HIGHWAYS
FILE NO: T340
-PILE TEST DATA-

LOCATION  CUYAHOGA COUNTY, OHIO
OWNER

DATE DRIVEN  17-18 NOV 1952
DATE TESTED  24-25 NOV 1952
CONTRACTOR
TESTED BY

HAMMER TYPE  STEAM, VULCAN NO 1
WEIGHT  25 ft  5000 lbs
STROKE  36 in  3 ft
ENERGY  90 cfs  15000 ft-lbs
BLOWS PR MIN
FINAL PENETRATION  39 3/4

PILE TYPE  STEEL, UNION METAL
PILE DIMENSIONS  12" diam (7ga)
WEIGHT
DRIVEN LENGTH  125 ft
EMBEDDED LENGTH  104 ft

### Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Penetration Rate (B.C.)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>

### Soil Description

- Fill
- Downdraft sand
- Light gray silt

### Remarks

PILE NO 32, NORTH ABUTMENT
STA 29 + 96, OFFSET 2' L
BE NO 2U-2-189
SHOREWAY AT E 35 57

### Source of Information

OHIO DEPARTMENT OF HIGHWAYS
FILE No.  J 340
LOCATION: CUYAHOGA COUNTY, OHIO

DATE DRIVEN: 18 JULY 1951
DATE TESTED: 23 JULY 1951

OWNER: ____________________________
CONTRACTOR: ____________________________
TESTED BY: ____________________________

HAMMER TYPE: STEAM, Vulcan No. 1
WEIGHT: 25 ft 5000 Ibs
STROKE: 36 in 3 ft
ENERGY: 90 t in 15000 ft lbs
BLOWS PR MIN: ____________________________
FINAL PENETRATION: 32/3"

PILE TYPE: STEEL, Union Metal
PILE DIMENSIONS: 12" diam 9 gauge
WEIGHT: ____________________________
DRIVEN LENGTH: ____________________________
EMBEDDED LENGTH: ____________________________

TEST LOAD (TONS)

0.5
0

SOIL DESCRIPTION

TEST LOAD (TONS)

100
50

DEPHT FT

Blows per feet PENETRATION RATE

20 40

50

40

30

20

10

0

Wet silty clay

REMARKS.

PILE NO. 119 N.C.E. ABUTMENT
379 238 + 32 72, OFFSET L
BE NO. 609-20-2
EAST BLVD

SOURCE OF INFORMATION: OHIO DEPARTMENT OF OHIO HIGHWAYS
FILE N.: J 340
PILE TEST DATA

LOCATION: CUYAHOGA COUNTY, OHIO
DATE DRIVEN: 6, JULY 1951
DATE TESTED: 12-13, JULY 1951
OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM, Vulcan no/
WEIGHT: 2.5 t. 5000 lbs
STROKE: 36 in 3 ft
ENERGY: 90 t in. 15000 ft lbs
BLOWS PR. MIN
FINAL PENETRATION

PILE TYPE: STEEL, Union Metal FN
PILE DIMENSIONS: 30' tapered tip 12'
35' dia. ext
WEIGHT
DRIVEN LENGTH 65 ft
EMBEDDED LENGTH 34 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS PER FT</th>
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</thead>
<tbody>
<tr>
<td>0</td>
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<td></td>
</tr>
<tr>
<td>50</td>
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<td>40</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>60</td>
<td></td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION

- Dry sand
- Gray silt
- Gray sandy soil with some clay
- Silty clay
- 1/2 in. step

REMARKS: FILE NO 209, SE WINGWALL
BE NO CU-2-30L OVER EAST BLVD.

SOURCE OF INFORMATION: OHIO DEPARTMENT OF HIGHWAYS
FILE No. J 540
# Pile Test Data

**Location:** Cuyahoga County, Ohio  
**Date Driven:** 22 June 1951  
**Date Tested:** 30 June - 3 July 1951

<table>
<thead>
<tr>
<th>Hammer Type</th>
<th>Steam, Vulcan 50 C</th>
<th>Pile Type</th>
<th>Concrete, Precast</th>
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</thead>
<tbody>
<tr>
<td>Weight</td>
<td></td>
<td>Pile Dimensions</td>
<td>14&quot; square</td>
</tr>
<tr>
<td>Stroke</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Energy</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Blows PR Min</td>
<td>105</td>
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<tr>
<td>Final Penetration</td>
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</table>

### Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Settlement inches</th>
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<tbody>
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<td>50</td>
<td>0</td>
</tr>
<tr>
<td>100</td>
<td>1</td>
</tr>
<tr>
<td>150</td>
<td>1.5</td>
</tr>
</tbody>
</table>

### Soil Description

<table>
<thead>
<tr>
<th>Depth (FT)</th>
<th>Blows per foot Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>Gray sand</td>
</tr>
<tr>
<td>20</td>
<td>Gray silt clay</td>
</tr>
<tr>
<td>30</td>
<td>Gray clay</td>
</tr>
<tr>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

### Remarks

Pile No. 3 in Retaining Wall  
STA 13 + 69.53  
OE No. CU-283-15

### Source of Information

Ohio Department of Highways  
File No. 7540
LOCATION: CUYAHOGA COUNTY, OHIO
DATE DRIVEN: 22 JUNE 1961
DATE TESTED: 6-7 JULY 1961

HAMMER TYPE: STEAM, Vulcan 50-L
WEIGHT
STROKE
ENERGY
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE: CONCRETE, Precast
PILE DIMENSIONS: 14" square
WEIGHT
DRIVEN LENGTH: 45 ft
EMBEDDED LENGTH: 43 1/2 ft

TEST LOAD (TONS)

0
0.5
1.0

SETTLEMENT IN INCHES

REMARKS.
PILE NO 24 EAST RETAIN. WALL
STA 15 + 64 3/4
BE NO CU-283-15

SOIL DESCRIPTION
DEPTH FT
Blows per Foot
PENETRATION RATE 20 40 60

grey sand
grey silty clay
dense grey clay

SOURCE OF INFORMATION: OHIO DEPARTMENT OF HIGHWAYS
FILE NO: J 540
**PILE TEST DATA**

- **LOCATION**: Greene County, Ohio
- **DATE DRIVEN**: 7 Aug 1954
- **DATE TESTED**: 11-14 Aug 1954
- **OWNER**: 
- **CONTRACTOR**: 
- **TESTED BY**: 

**Hammer Type**: Steam, Vulcan No 1  
**Energy**: 30 ft lb  
**Blows per Min**: 17 blows/3"  
**Final Penetration**: 51 ft  
**Embedded Length**: 51 ft

<table>
<thead>
<tr>
<th><strong>Test Load (Tons)</strong></th>
<th><strong>Soil Description</strong></th>
<th><strong>Depth (FT)</strong></th>
<th><strong>Blows per Foot</strong></th>
<th><strong>Penetration Rate</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Brown silt</td>
<td>0</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>100</td>
<td>Large gravel</td>
<td>10</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>150</td>
<td>Gray sandy silt</td>
<td>20</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>100</td>
<td>Clay &amp; sand</td>
<td>30</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
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<td>Gray sandy clay</td>
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</tr>
<tr>
<td>50</td>
<td>Gray silty clay</td>
<td>50</td>
<td>40</td>
<td>40</td>
</tr>
</tbody>
</table>

**Remarks**:  
- PILE NO 395, WEST ADJUIMENT  
- STA 412 + 375, OFFSET 1' L  
- BE NO. GR -35-20 OVER  
- BE 0 RAILROAD

**Source of Information**: Ohio Department of Highways

**File No**: 7540
PILE TEST DATA

LOCATION: LUCAS COUNTY, OHIO

DATE DRIVEN: 5 MAY 1954 - 2 JUNE

DATE TESTED: 17-18 MAY - 9-10 JUNE 1954

OWNER: ____________________________

CONTRACTOR: ____________________________

TESTED BY: ____________________________

HAMMER TYPE: STEAM, Vulcan 80 C

PILE TYPE: STEEL, H-pile

PILE DIMENSIONS: 14" x H-73 (Carnegie)

WEIGHT: ____________________________

STROKE: ____________________________

ENERGY: ____________________________

BLOWS PR MIN: ____________________________

FINAL PENETRATION: 6.5 - 54' / 6.2 - 54' / 7.2 - 54'

EMBEDDED LENGTH: 85.5 ft

TEST LOAD (TONS)

150

100

50

0

TESTED LOAD

2 Load Test

1. Increment

180 tons

LOAD TEST 180 tons

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

in. / 100 lb

FILL

9

20

SAND, CLAY, gravel

haduv sand layers

V/ loose gray 50 c mud

HARD sand

STIFF

SHALLOW CLAY

1. sand and gravel

VERY hard, clay

LIME-

stone

REMARKS: PILE NO 13, NORTH ABUTMENT

STA 60+15 STA OR 12'R

BE NO 4020-35 OVER MAUMEE RIVER

SOURCE OF INFORMATION: FILE NO.

OHIODEPARTMENT OF OHIO

HIGHWAYS

7 540
**PILE TEST DATA**

**LOCATION** LUCAS COUNTY, OHIO

**DATE DRIVEN** 18 NOV 1952

**DATE TESTED** 30-31 NOV 1952

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** STEAM, HAMMER-TERRY 5-8

**PILE TYPE** STEEL, H-pile

**PILE DIMENSIONS** 14" x 8-1/2"7

**WEIGHT**

**STROKE**

**ENERGY**

**BLOWS PR MIN** 44 blows/5'

**FINAL PENETRATION**

**DRIVEN LENGTH** 80 ft

**EMBEDDED LENGTH** 26 ft

### TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>Test Load</th>
<th>100</th>
<th>200</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

### SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>Depth FT</th>
<th>Snow, silt, peat, sand</th>
<th>Sand, silt, peat, sand</th>
<th>Sand, silt, peat, sand</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>20</td>
<td></td>
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<td>50</td>
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</table>

### PENETRATION RATE

<table>
<thead>
<tr>
<th>Depth FT</th>
<th>50</th>
<th>100</th>
<th>150</th>
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<tbody>
<tr>
<td>10</td>
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<tr>
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</table>

### REMARKS

FILE NO 127, PIER NO 5

BE NO LU-20-35 OVER HAMME RIVER TOLEDO EXPRESSWAY

**SOURCE OF INFORMATION**

OHIO DEPARTMENT OF OHIO HIGHWAYS

FILE NO. 7540
PILE TEST DATA

LOCATION LUCAS COUNTY, OHIO
DATE DRIVEN 30 JUNE 1952
DATE TESTED 23-24 JULY 1952

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STREAM McKinnon-Terry 5-8
PILE TYPE STEEL, H-pile

WEIGHT
STROKE
ENERGY
BLOWS PR MIN
FINAL PENETRATION 601

PILE DIMENSIONS 14" - 30" - 117

TEST LOAD (TONS) 100 200 300

SOIL DESCRIPTION DEPTH FT Blows per foot PENETRATION RATE 10 20 30

Cement sand Fine sand & river mud
10
Med. gray sand loose
20

Shf gray clay Gas pebbles
30

Hard gray clay shf
40

V & sh or sh
50

V & sh or sh

REMARKS. PILE NO 32, PIER NO 1

SOURCE OF INFORMATION FILE N.
OHIO DEPARTMENT OF HIGHWAYS

FILE N. 7340

HAUNEE RIVER, TOLEDO EXPRESSWAY
**PILE TEST DATA**

**LOCATION** Lucas County, Ohio

**DATE DRIVEN** 17 Nov 1984

**DATE TESTED** 19-20 Nov 1984

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** Steam, Vulcan no 80-c

**PILE TYPE** Steel, H-pile

**PILE DIMENSIONS** 12" - BP - 53

**WEIGHT**

**DRIVEN LENGTH** 62 to 64

**EMBEDDED LENGTH** 52 to 54

<table>
<thead>
<tr>
<th>HAMMER TYPE</th>
<th>PILE TYPE</th>
<th>PILE DIMENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steam, Vulcan no 80-c</td>
<td>Steel, H-pile</td>
<td>12&quot; - BP - 53</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>HAMMER</th>
<th>PILE TYPE</th>
<th>PILE DIMENSIONS</th>
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</thead>
<tbody>
<tr>
<td>Steam, Vulcan no 80-c</td>
<td>Steel, H-pile</td>
<td>12&quot; - BP - 53</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WEIGHT</th>
<th>DRIVEN LENGTH</th>
<th>EMBEDDED LENGTH</th>
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<tr>
<td></td>
<td>62 to 64</td>
<td>52 to 54</td>
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<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>Blows per foot PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
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<td>21</td>
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</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

- N
- 14
- 10
- 5
- 4
- 21
- 19
- 20

**TEST LOAD**

- 50 tons
- 100 tons
- 150 tons

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>Blows per foot PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
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<td>150</td>
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</tbody>
</table>

**REMARKS**

PILE NO 133 SOUTH ABUTMENT

Pile no LU-120-35 over Maumee River, Toledo Expressway

**SOURCE OF INFORMATION**

Ohio Department of Highways

**FILE No.** J 840
-PILE TEST DATA-

LOCATION  RICHLAND COUNTY, OHIO

DATE DRIVEN  9 APRIL 1956

DATE TESTED  30 APR - 1 MAY 1956

HAMMER TYPE  STEAM, Vulcan 400 C

WEIGHT

STROKE

ENERGY

BLOWS PR MIN

FINAL PENETRATION  13 blows 1/8

OWNER

CONTRACTOR

TESTED BY

PILE TYPE  STEEL, Union Metal 12"

PILE DIMENSIONS  30' F point, 12" diam 7 gauge

WEIGHT  driv cap 350 lbs

DRIVEN LENGTH  30 ft

EMBEDDED LENGTH  25 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

BLOWS PER FOOT PENETRATION RATE

PENETRATION RATE

BLOWER

10

20

30

REMARKS.

PILE NO.3, PIER NO.1 (WEST) STA 81+02 33, OFFSET 530' E BE NO.1 303R-81 OVER US-30 SR

SOURCE OF INFORMATION  OHIO DEPARTMENT OF HIGHWAYS

FILE N. J 540
-PILE TEST DATA-

LOCATION RICHLAND COUNTY, OHIO
DATE DRIVEN 19 APRIL 1966
DATE TESTED 3-4 MAY 1966

HAMMER TYPE STEAM, Vulcan No. 50 C
WEIGHT
STROKE
ENERGY
BLOWS PR MIN.
FINAL PENETRATION

PILE TYPE STEEL, ARCO PIPE
PILE DIMENSIONS 12" diam. uniform

WEIGHT
DRIVEN LENGTH 68 3/4
EMBEDDED LENGTH 44 5/8

TEST LOAD (TONS)

SOIL DESCRIPTION
14 Silty sand, small gravel
16 Silty clay
15 Very fine, silty sand
13 Very fine, silty clay, trace gravel, limey fragments
15 Silty sandy clay, trace gravel, limey fragments
17
21
24

DEPTH FT
20 30 50

BLOWS PER FOOT PENETRATION RATE
20 40 60

REMARKS PILE NO. 2, WEST ABUTMENT
STA 64 18, OFFSET 18' L
BE NO. RI-303R-64
OVER US 20 38

SOURCE OF INFORMATION OHIO DEPARTMENT OF HIGHWAYS
FILE No. J 340
**PILE TEST DATA**

**LOCATION** Richland County, Ohio

**DATE DRIVEN** 9 May 1956

**DATE TESTED** 12 May 1956

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** Steam, Vulcan No. 50-C

**WEIGHT**

**STROKE**

**ENERGY**

**BLOWS PR MIN**

**FINAL PENETRATION** 49.5" 

**PILE TYPE** Steel, Ameco pipe

**PILE DIMENSIONS** 42" diam uniform 7 ga

**WEIGHT**

**DRIVEN LENGTH** 76.5 ft

**EMBEDDED LENGTH** 48.75 ft

---

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth FT</th>
<th>Bows per 10&quot; Penetration Rate</th>
</tr>
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<tbody>
<tr>
<td>50</td>
<td>Silty sand, small gravel</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Silty clay</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Very fine silty sand</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Silty sandy clay, trace gravel, limited fines</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Loaded up to 88 ft under continuous settlement</td>
<td>21</td>
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</tr>
<tr>
<td>50</td>
<td></td>
<td>24</td>
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</table>

---

**REMARKS.** Pile No. 2 West Abutment

STA 6+18, Offset 18' L

BE No. RI-3036-64

Over US 30 SE

SOURCE OF INFORMATION

FILE No.

Ohio Department of Ohio Highways

J540
-PILE TEST DATA-

LOCATION   FICHLAND COUNTY, OHIO
DATE DRIVEN  16 MAY & 18 MAY 1956
DATE TESTED  21-24 MAY 1956

HAMMER TYPE  STEAM, Vulcan no 50-C
WEIGHT
STROKE
ENERGY
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE  STEEL, Aroco pipe
PILE DIMENSIONS  12" diam uniform 7.5 ft
WEIGHT  dri cap 550 lbs
DRIVEN LENGTH  68.5 ft
EMBEDDED LENGTH  65 ft

TEST LOAD (TONS)  

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<tr>
<th>50</th>
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<th>150</th>
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</thead>
<tbody>
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SETTLEMENT IN INCHES

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<th>1.5</th>
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SOIL DESCRIPTION

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<th>30</th>
<th>20</th>
<th>10</th>
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</table>

DEPTH

<table>
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<tr>
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<th>200</th>
<th>300</th>
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<td>0</td>
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PENETRATION RATE

<table>
<thead>
<tr>
<th>40</th>
<th>30</th>
<th>20</th>
<th>10</th>
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<tr>
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</table>

REMARKS.

PILE NO 9  WEST PIER
STA 6+18 2' OFFSET 1035 3/ R
20 NO 21-3035-64
OVER US-8032

SOURCE OF INFORMATION
OHIO DEPARTMENT OF HIGHWAYS
FILE No. 7-542
PILE TEST DATA

LOCATION
WAYNE COUNTY, OHIO

DATE DRIVEN
19 JULY 1955

DATE TESTED
25-28 JULY 1955

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE
STEAM, Vulcan no 1

WEIGHT
35 t

STROKE
36 in

ENERGY
90 3/s

BLOWS PR MIN

FINAL PENETRATION

PILE TYPE
STEEL, Monotube 14"

PILE DIMENSIONS
F 48' pipe, 31' ext 7 gauge

WEIGHT
250 lbs

DRIVEN LENGTH
71 ft

EMBEDDED LENGTH
63 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

Blows per foot PENETRATION RATE

TEST

LOAD

SOIL

DEEP

RATE

REMARKS.

PILE NO 5, REAR (W) ABUT
STA 547 + 88.73, OFFSET 66' E
BE NO WA-5-03 OVER

LITTLE CHIPPEWA CREEK

SOURCE OF INFORMATION

FILE N°

OHIO DEPARTMENT OF OHIO

HIGHWAYS

J 540
PILE TEST DATA

LOCATION WAYNE COUNTY, OHIO  
DATE DRIVEN 10 OCT 1955  
DATE TESTED 13-15 OCT 1955  
OWNER  
CONTRACTOR  
TESTED BY  

HAMMER TYPE STEAM, McKeehan-Terry 9-9-2  
WEIGHT  
STROKE  
ENERGY  
BLOWS PR MIN  
FINAL PENETRATION 109%  

PILE TYPE STEEL, Monotube 14"  
PILE DIMENSIONS Point 25', 7'6"  
WEIGHT Dry Cap 780.1 lbs  
DRIVEN LENGTH 55.5 ft  
EMBEDDED LENGTH 35 ft  

TEST LOAD (TONS)  
SOIL DESCRIPTION  
DEPTH FT  
BLOWS per foot  
PENETRATION RATE 60 100 150  

TEST LOAD  

SOIL DESCRIPTION  
Bark silty clay  
Sandy clay  
Gray clay silty  
Sandy clay silty & some gravel  

REMARKS.  
PILE NO 5, REAR (S) ABUT  
STA 892 + 235, OFFSET NONE  
BE NO WA - 5 - 187 OVER  
CHIPPEWA CREEK  

SOURCE OF INFORMATION  
FILE No.  
OHIO DEPARTMENT OF HIGHWAYS  
OHIO  
J 540
PILE TEST DATA

LOCATION: CUYAHOGA COUNTY, OHIO
DATE DRIVEN: 23 Aug 1956
DATE TESTED: 25-27 Aug 1956

OWNER: ___________________________
CONTRACTOR: _______________________
TESTED BY: _________________________

HAMMER TYPE: STEAM, Vulcan No. 0
WEIGHT: 375 lb, 7500 lbs
STROKE: 30 in, 3.25 ft
ENERGY: 146 ft-lb, 2440 ft-lbs
BLOWS PR MIN: 40 1/2
FINAL PENETRATION: ___________________________

PILE TYPE: STEEL, Union Metal
PILE DIMENSIONS: 14", 7 ga., type F,
ext: 14", 7 ga., type N.
WEIGHT: 80 lb
DRIVEN LENGTH: 80 ft
EMBEDDED LENGTH: 74 ft

TEST LOAD (TONS)  | SOIL DESCRIPTION | DEPTH FT  | BLOWS per foot PENETRATION RATE
-------------------|-----------------|----------|-----------------------
| 50               | Med. silty clay | 20       | 20                    |
| 100              | Med. clay       | 40       | 40                    |
| 150              | Silt clay       | 60       | 60                    |
|                  | Very stiff clay | 80       | 80                    |
|                  | Silt clay       | 100      | 100                   |
|                  | Hard, sandy clay| 120      | 120                   |

REMARKS: PILE NO.1, PIER NO.1 SOUTH
379 18+35.5, OFFSET 51.17 R.
BE NO. CU-426-175
OVER CUYAHOGA RIVER

SOURCE OF INFORMATION: FILE NO.
OHIO DEPARTMENT OF HIGHWAYS: 7540
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>Location</th>
<th>CUYAHOGA COUNTY, OHIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Driven</td>
<td>31 Aug 1956</td>
</tr>
<tr>
<td>Date Tested</td>
<td>14-15 Sept 1956</td>
</tr>
<tr>
<td>Hammer Type</td>
<td>STEAM, Vulcan No. 0</td>
</tr>
<tr>
<td>Weight</td>
<td>375 lbs. 1600 lbs.</td>
</tr>
<tr>
<td>Stroke</td>
<td>39 in. 93 in.</td>
</tr>
<tr>
<td>Energy</td>
<td>146 ft. 100 ft.</td>
</tr>
<tr>
<td>Bows PR Min</td>
<td>8.10-5.11</td>
</tr>
<tr>
<td>Final Penetration</td>
<td>0.35-2.74 ft.</td>
</tr>
</tbody>
</table>

** remarks.**

**PILE NO. 10, TIER NO. 1 NORTH
STA 18+43.5, OFFSET 352' L
BR NO. CO-428-178
OVER CUYAHOGA RIVER

<table>
<thead>
<tr>
<th>Test Load (tons)</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settlement in inches</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Blows per ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine granular silt</td>
<td>20-40</td>
<td></td>
</tr>
<tr>
<td>Wet clay</td>
<td>20-40</td>
<td></td>
</tr>
<tr>
<td>Very stiff clay</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Stiff clay</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Med clay</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Very stiff clay</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Stiff clay</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Med cl  Course &amp; gravel</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**Source of Information**

| File N. | OHIO DEPARTMENT OF OHIO HIGHWAYS | 3-40 |

**PILE TEST DATA**

- TEST LOAD (TONS): 50, 100, 150
- SETTLEMENT IN INCHES: 0, 0.5, 1, 1.5
- SOIL DESCRIPTION: Fine granular silt, Wet clay, Very stiff clay, Stiff clay, Med clay, Very stiff clay, Stiff clay, Med cl. Course & gravel
- DEPTH (FT): 20-40, 40, 80, 100
- Blows per ft: 20-40, 40, 80, 100

**REMARKS:**

- PILE NO. 10, TIER NO. 1 NORTH
- STA 18+43.5, OFFSET 352' L
- BR NO. CO-428-178
- OVER CUYAHOGA RIVER

**SOURCE OF INFORMATION:**

- FILE N.: OHIO DEPARTMENT OF OHIO HIGHWAYS: 3-40
# Pile Test Data

**Location**: Cuyahoga County, Ohio  
**Date Driven**: 11 April 1966  
**Date Tested**: 14-18 April 1966  

**Hammer Type**: Steam, Vulcan No. 1  
**Weight**: 25 k  
**Stroke**: 36 in  
**Energy**: 90 ft-lb  
**Blows Pr Min**: 6.2  
**Final Penetration**: 5  

**Owner**  
**Contractor**  
**Tested By**

**Pile Type**: Steel, Union Metal  
**Pile Dimensions**: 14" Tga, Type E, ext  
**Pile Dimensions**: 14" Tga, Type N  

**Driven Length**: 80 ft  
**Embedded Length**: 65 ft

## Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>0</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Soil Description

- Wet fine sand
- Fine stiff clay
- Very stiff clay
- Mud clay
- Very stiff clay

## Penetration Rate

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth FT</th>
<th>Blows per foot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
<td>40</td>
</tr>
</tbody>
</table>

## Remarks

- **FILE NO**: 17, West End N Pier  
- **STA**: 16+15, Offset 38.5' L  
- **DE NO**: CUY-428-175  
- Over Cuyahoga River

**Source of Information**: Ohio Department of Highways  
**File No**: 7340
PILE TEST DATA

LOCATION CUYAHOGA COUNTY, OHIO
DATE DRIVEN 5 Jan 1956
DATE TESTED 17 Jan 1956
OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM, Vulcan no. 0
WEIGHT 375 lb
STROKE 36 in
ENERGY 145 foot
BLOWS PR. MIN
FINAL PENETRATION 5 1/2" 

PILE TYPE STEEL, Union Metal
PILE DIMENSIONS 14" T ea., type F, ext
WEIGHT
DRIVEN LENGTH 69 2/4 ft
EMBEDDED LENGTH 65 ft

TEST LOAD (TONS)

0

0.5

1.0

1.5

SETTLEMENT IN INCHES

SOIL DESCRIPTION

DEPTH (FT)

BLOWS PER FOOT PENETRATION RATE

20

60

REMARKS.

FILE NO 8, PIER 5 NORTH
5TH 31 53.17, OFFSET 47.93
BIG NO CUY-462-178
OVER CUYAHOGA RIVER

SOURCE OF INFORMATION FILE N.
OHIO DEPARTMENT OF
HIGHWAYS J. 340
-PILE TEST DATA-

LOCATION CUYAHOGA COUNTY, OHIO
DATE DRIVEN 10 MAR 1955
DATE TESTED 15-18 MAR 1955

HAMMER TYPE STEAM, Vulcan no 0
WEIGHT 3,750 lbs
STROKE 39 in
ENERGY 146 ft lb
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE STEEL, Union Metal
PILE DIMENSIONS 14", type F, 7ga
PILE WEIGHT
DRIVEN LENGTH 97 ft
EMBEDDED LENGTH 95 ft

TEST LOAD (TONS)
80 100 150

TEST LOAD vs PENETRATION RATE

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE per 10

SOURCE OF INFORMATION
Ohio Department of Highways
FILE No. J 340

REMARKS.
PILE NO 1, PIER NO 6 N
S14+85 L, OFFSET 47' 93 L
BE NO 80+292-175
OVER CUYAHOGA RIVER

REMARKS.
PILE TEST DATA

LOCATION: CUYAHOGA COUNTY, OHIO
DATE DRIVEN: 28 APRIL 1955
DATE TESTED: 28-29 APRIL 1955

HAMMER TYPE: STEAM, Vulcan No. 0
WEIGHT: 3.75 t
STROKE: 30 in
ENERGY: 146 ft-lb
BLOWS PR MIN: __________
FINAL PENETRATION: 11/4"

PILE TYPE: STEEL, Union Metal
PILE DIMENSIONS: 14" 7ga, type F
PILE WEIGHT: __________
DRIVEN LENGTH: 90 ft
EMBEDDED LENGTH: 36 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
</tr>
<tr>
<td>100</td>
</tr>
<tr>
<td>150</td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS:
FILE NO. 26, PIER 4 NORTH
STA 28+83 OFFSET 4793 L
BR NO. CUY-WJR-175
OVER CUYAHOGA RIVER

SOURCE OF INFORMATION:
OHIO DEPARTMENT OF HIGHWAYS
FILE NO. J 540
- PILE TEST DATA -

LOCATION: CUYAHOGA COUNTY, OHIO

DATE DRIVEN

DATE TESTED

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE: STEAM, Vulcan no. 0

WEIGHT: 5750 lbs

STROKE: 39 in

ENERGY: 146 ft-lb

BLOWS PR MIN

FINAL PENETRATION

PILE TYPE: STEEL, Union Metal

PILE DIMENSIONS: 14" Tga, Type F

PILE WEIGHT

DRIVEN LENGTH

EMBEDDED LENGTH

TEST LOAD (TONS) 50 100 150

SHELL \nSHELL \nSHELL \\
SHELL

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

BLOWS PER FOOT

REMARKS:
PILE NO 1, EAST END TIER N
3TA 43'X327, OFFSET 50.5' L
3R NO 224-228-125
OVER CUYAHOGA RIVER

SOURCE OF INFORMATION

FILE NO.

OHIO DEPARTMENT OF
HIGHWAYS

J S 40
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>Location</th>
<th>Cuyahoga County, Ohio</th>
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</thead>
<tbody>
<tr>
<td>Date Driven</td>
<td>23 Aug 1955</td>
</tr>
<tr>
<td>Date Tested</td>
<td>28 - 29-30 Aug 1955</td>
</tr>
<tr>
<td>Hammer Type</td>
<td>Steam, Vulcan no 0</td>
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<tr>
<td>Weight</td>
<td>375 lb</td>
</tr>
<tr>
<td>Stroke</td>
<td>39 in</td>
</tr>
<tr>
<td>Energy</td>
<td>141.2 in lbs</td>
</tr>
<tr>
<td>Blows PR. MIN</td>
<td></td>
</tr>
<tr>
<td>Final Penetration</td>
<td>39&quot;</td>
</tr>
<tr>
<td>Owner</td>
<td></td>
</tr>
<tr>
<td>Contractor</td>
<td></td>
</tr>
<tr>
<td>Tested By</td>
<td></td>
</tr>
<tr>
<td>Pile Type</td>
<td>Steel, Union Metal</td>
</tr>
<tr>
<td>Pile Dimensions</td>
<td>Ext 7&quot;d, Type F</td>
</tr>
<tr>
<td>Weight</td>
<td>80 ft</td>
</tr>
<tr>
<td>Driven Length</td>
<td>80 ft</td>
</tr>
<tr>
<td>EMBEDDED LENGTH</td>
<td></td>
</tr>
</tbody>
</table>

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settlemnt in inches</td>
<td>0.5</td>
<td>1.0</td>
<td>1.5</td>
</tr>
<tr>
<td>Can not keep load at 1.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Test 29-30 Aug</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

- Silty clay
- Very stiff silty clay
- Clay
- Plastic clay
- Med plastic clay
- Med clay

**DEPTH FT**

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>20</th>
<th>40</th>
<th>60</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blows per foot penetration rate</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**

- Pile No 15, East End Pier
- STA 43 +32.7, Offset 52.5 E
- BC No CUY-WRE-175
- Driven to 83'
- 30 Aug 1955

**SOURCE OF INFORMATION**

- Ohio Department of Highways
- FILE No 1540
PILE TEST DATA

LOCATION CLEVELAND OHIO
DATE DRIVEN 23 MARCH 1942
DATE TESTED

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM VULCAN No. 1
WEIGHT 25 ft. 5000 lbs
STROKE 36 in. 30 ft
ENERGY 30 m.-tons 15,000 ft-lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE CONCRETE-CAST IN PLACE PILE
PILE DIMENSIONS WESTERN BOTTOM PILE
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 54.4 ft

TEST LOAD (TONS) 25 50 75

SOIL DESCRIPTION DEPTH FT Blows per foot PENETRATION RATE 20 40 60

REMARKS. Test pile No. 1. Blast Furnace "A" site failed at 30 tons

SOURCE OF INFORMATION FILE NO.
REPUBLIC STEEL CORP J 199
DEFENSE PLANT JPC 257 J 3340
M 497
LOCATION CLEVELAND OHIO
DATE DRIVEN 25 MARCH 1942
DATE TESTED __________________
OWNER __________________________
CONTRACTOR ______________________
TESTED BY ________________________

HAMMER TYPE STEAM VULCAN No. 1
WEIGHT 2.5 T 5000 Ibs.
STROKE 36 in 30 ft
ENERGY 90 in-lb 15,000 ft-lb
BLOWS PR MIN __________________
FINAL PENETRATION _____________

PILE TEST DATA

PILE TYPE CONCRETE CAST IN PLACE
PILE DIMENSIONS WESTERN BUTTON BOTTOM
PILE WEIGHT ______________________
DRIVEN LENGTH _________________
EMBEDDED LENGTH _____________

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>50</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>75</td>
<td>60</td>
<td>60</td>
</tr>
</tbody>
</table>

TEST DATA

SOIL DESCRIPTION

- Sand
- Shallow clay
- Very stiff clay
- Erratic clay deposit
- Unde

REMARKS

Test Pile No 2 Blast Furnace
*A Site - Failed at initial load of 35 tons.

Note: Pile Nos 219-263 incl are related to the discussion in
"From Theory to Practice in Soil Mechanics" in an article on settlement and bearing capacity by Karl Terzaghi on the "Performance of the One Yard of the RFC Planbor 2.5 T" Ref 299-337 incl. The soil data is in Fig 7 pg 314.

SOURCE OF INFORMATION

REPUBLIC STEEL CORP J 199
DEFENSE PLANT DPC 257 J 340
M-487

FILE N.
**PILE TEST DATA**

**LOCATION** CLEVELAND OHIO

**DATE DRIVEN** 24 MARCH 1942

**DATE TESTED**

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** VULCAN No. 1

**WEIGHT** 2.5 ft

**STROKE** 36 in

**ENERGY** 30 in.-tons

**PILE TYPE** CONCRETE - CAST IN PLACE

**PILE DIMENSIONS** WESTERN BUTTON BOTTOM PILE

**WEIGHT** 15,000 lb.-lbs

**DRIVEN LENGTH**

**EMBEDDED LENGTH** 48 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS.** Test Pile No. 3 Blast Furnace "A" Site. Failed at 35 tons

**SOURCE OF INFORMATION**

**FILE NO.**

**REPUBLIC STEEL CORP.** J 199

**DEFENSE PLANT DPC 257 J 540 M 497**
PILE TEST DATA

LOCATION CLEVELAND, OHIO

DATE DRIVEN 26 MARCH 1942

DATE TESTED

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE STEAM VULCAN NO. 1

WEIGHT 25 ft 5000 LBS

STROKE 36 in 30 FT.

ENERGY 30 m-tons 15,000 ft LBS

BLOWS PR MIN

FINAL PENETRATION

PILE TYPE CONCRETE - CAST IN PLACE

PILE DIMENSIONS WEDGE BUTTON BOTTOM

PILE WITH PEDESTAL

WEIGHT

DRIVEN LENGTH

EMBEDDED LENGTH 42 FT

TEST LOAD (TONS)

25 50 75

SOIL DESCRIPTION

DEPTH FT

BLOWS PER FOOT PENETRATION RATE

0.25

0.50

1.00

REMARKS

Test Pile No. 6 Blast Furnace

"a" Site - Failed at 65 tons

Test load 40 tons. Stopped

driving at 48' for hr to place 1 yd. 3" dry slag

& conc. in 12" casing. Then entered 10½"

dr. core on top conc. 2 pulled casing 7'

started driving at 36'

SOURCE OF INFORMATION FILE NO.

REPUBLIC STEEL CORP. J 189

DEFENSE PLANT DPC 287 J 540

M-497
PILE TEST DATA

LOCATION: CLEVELAND, OHIO
DATE DRIVEN: 2 APRIL 1942
DATE TESTED: 5 APRIL 1942

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM VULCAN NO. 1
WEIGHT: 2.5 tons
STROKE: 36 in.
ENERGY: 90 in.-tons
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE: CONCRETE - CAST IN PLACE
PILE DIMENSIONS: WESTERN BUTTON BOTTOM
WEIGHT: 15,000 lb
DRIVEN LENGTH
EMBEDDED LENGTH

TEST LOAD (TONS) 25 50 75

SOIL DESCRIPTION
DEPTH FT
PENETRATION RATE 20 40 60

SETTLEMENT IN INCHES

REMARKS:
Test Pile No. 4 Blast Furnace, "B" site. Failed at 35 tons. Stopped driving at 40' due to a 12" casing for 1/2 hr to place 1/2 yd. conc. in casing & pulled casing 11' & began driving 10 1/2" core with plate point at 36'

SOURCE OF INFORMATION
FILE No.
REPUBLIC STEEL CORP J-199
DEFENSE PLANT DPC 257 J-540
M-497
PILE TEST DATA

LOCATION: CLEVELAND, OHIO

DATE DRIVEN: 3 APRIL 1942

DATE TESTED: 

OWNER: 

CONTRACTOR: 

TESTED BY: 

HAMMER TYPE: STEAM VULCAN NO. 1
WEIGHT: 25 T 5000 LBS
STROKE: 36 IN 30 FT
ENERGY: 90 TON*Ft 1500 PSI LBS
BLOWS PR MIN: 
FINAL PENETRATION: 

PILE TYPE: CONCRETE CAST IN PLACE
PILE DIMENSIONS: WESTERN BUTTON BOTTOM WITH PEDESTAL
WEIGHT: 
DRIVEN LENGTH: 
EMBEDDED LENGTH: 36 FT

TEST LOAD (TONS) 25 50 75

SOIL DESCRIPTION

DEPTH FT
PENETRATION RATE 20 40 60

REMARKS:

Test Pile No. 1 Blast Furnace C'
site failed at 5 tons
Stopped driving 12" casing at
38' for 1/2 hr to place 10 cu ft of conc in
casing & pulled casing 8'2" began driving
10 1/2" core with flat point at 31 ft

SOURCE OF INFORMATION: REPUBLIC STEEL CORP J 199
FILE No.: DEFENSE PLANT DPC 257 J 540
M 497
# Pile Test Data

<table>
<thead>
<tr>
<th>Location</th>
<th>Cleveland, Ohio</th>
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<tbody>
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<td>1 April 1942</td>
</tr>
<tr>
<td>Date Tested</td>
<td></td>
</tr>
<tr>
<td>Owner</td>
<td></td>
</tr>
<tr>
<td>Contractor</td>
<td></td>
</tr>
<tr>
<td>Tested By</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hammer Type</th>
<th>Steam Vulcan No. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>1.5 ft. 3,000 lbs</td>
</tr>
<tr>
<td>Stroke</td>
<td>29 in. 24 ft.</td>
</tr>
<tr>
<td>Energy</td>
<td>63.5 m-tons 7,230 ft-lb</td>
</tr>
<tr>
<td>Blows per Min</td>
<td></td>
</tr>
<tr>
<td>Final Penetration</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pile Type</th>
<th>Steel Monotube Y N 10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pile Dimensions</td>
<td>Tapered - 11 gauge</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>Driven Length</td>
<td></td>
</tr>
<tr>
<td>Embedded Length</td>
<td>34 ft.</td>
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</tbody>
</table>

## Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

## Soil Description

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Blow per Foot Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

## Remarks

- Pile No. 2 Near Power House
- Failure began at 80 tons
- Est. safe value = 90 tons

## Source of Information

- Republic Steel Corp
- Defense Plant DPC 287
- J 540
- M 498

- Sheet Note on Pile 220
PILE TEST DATA

LOCATION CLEVELAND OHIO
DATE DRIVEN 1 APRIL 1942
DATE TESTED

OWNER

CONTRACTOR
TESTED BY

HAMMER TYPE STEAM VULCAN No.2
WEIGHT 1.5 tons 3000 lbs
STROKE 29 in 2.41 ft
ENERGY 33.5 in tons 7.23 f t lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE STEEL MONOTUBE JN 14
PILE DIMENSIONS Tapered
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 48 ft

TEST LOADING (TONS)

25 50 75

SOIL DESCRIPTION

DEPTH FT

BELLOWS per foot PENETRATION RATE

20 40 60

SETTLEMENT IN INCHES

0.25

0.50

0.75

1.00

1.50

REMARKS.
Test Pile No. 3 Near Power House. Failure began at 90 tons. Est. load value = 50 tons +

SOURCE OF INFORMATION
FILE No.
REPUBLIC STEEL CORP J 190
DEFENSE PLANT BPC257 J 540
M-498
# Pile Test Data

**Location**: Cleveland, Ohio  
**Date Driven**: 1 April 1942  
**Owner**:  
**Date Tested**:  
**Contractor**:  
**Tested By**:  

**Hammer Type**: Steam Vulcan No. 2  
**Pile Type**: Steel Monotube JN 14  
**Weight**: 157 lbs  
**Energy**: 435 in. tons  
**Final Penetration**:  

<table>
<thead>
<tr>
<th>Pile Type</th>
<th>Steel Monotube JN 14</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>Tapered - 7 gauge</td>
</tr>
</tbody>
</table>

**Blows per min**:  
**Driven Length**:  
**Embedded Length**: 50 ft

**Soil Description**  
**Depth (in ft)**  
**Blows per foot**  

**Remarks**: Test pile No. 4. Near power house. Failure began at 100 tons. Est. safe value: 50 tons.

**Source of Information**: Republic Steel Corp.  
**File No**: J 199  
**Defense Plant DPC 287**: J540  
**M 498**: 

![Graph of Test Load vs. Settlement](image)  
![Diagram of Soil Depth vs. Penetration Rate](image)
LOCATION  CLEVELAND  OHIO
DATE DRIVEN  1-APRIL 1942
DATE TESTED
OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE  STEAM  VULCAN NO. 2
WEIGHT  1.5 t
STROKE  29 in
ENERGY  435 in lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE  STEEL MONOTUBE YN IB
PILE DIMENSIONS  Topored  7.6000
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH

TEST LOAD (TONS)
25  50  75

SOIL DESCRIPTION
DEPTH FT
BLOWS PER FT PENETRATION RATE 20  40  60

REMARKS.  Test Pile No 5 Near Power House  Failure did not occur at 100 tons Est. value 50 tons

SOURCE OF INFORMATION  FILE NO.
REPUBLIC STEEL CORP  J 189
DEFENSE PLANT DPC 257  JS40
M-498
- PILE TEST DATA -

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>CLEVELAND OHIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>1 APRIL 1942</td>
</tr>
<tr>
<td>DATE TESTED</td>
<td></td>
</tr>
<tr>
<td>OWNER</td>
<td></td>
</tr>
<tr>
<td>CONTRACTOR</td>
<td></td>
</tr>
<tr>
<td>TESTED BY</td>
<td></td>
</tr>
</tbody>
</table>

| HAMMER TYPE | STEAM VULCAN NO.2 |
| WEIGHT | 15T 3000 LBS |
| STROKE | 29 in 241 ft |
| ENERGY | 435 in tons 7230 ft-lbs |
| BLOWS PR MIN | |
| FINAL PENETRATION | |

| PILE TYPE | STEEL MONOTUBE U.N.12 |
| PILE DIMENSIONS | Tapered 7" Od |
| WEIGHT | |
| DRIVEN LENGTH | |
| EMBEDDED LENGTH | 51 ft |

| TEST LOAD (TONS) | 25 | 50 | 75 |
| SOIL DESCRIPTION | DEPTH FT | Blows per foot PENETRATION RATE |
| Settlement in Inches | 0.25 | 0.50 | 0.75 | 1.00 |

| REMARKS | Test Pile No 7 Near Power House Failure began at 60 tons Est. safe value = 50 tons |

| SOURCE OF INFORMATION | REPUBLIC STEEL CORP 108 |
| FILE No. | DEFENSE PLANT DPC257 1540 |
| M-498 |
- PILE TEST DATA -

LOCATION CLEVELAND OHIO
DATE DRIVEN 1 APRIL 1942
DATE TESTED

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM VULCAN NO 2
WEIGHT 1.5 T 3000 lbs
STROKE 2.5 in 2.41 ft
ENERGY 435 in.-tons 7,230 ft.-Ibs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE STEEL MONOTUBE FN 12
PILE DIMENSIONS Tapered. 7 Gage
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 59 ft

TEST LOAD (TONS)

SOIL DESCRIPTION
DEPTH FT 20 40 60
BLOWS PER FT
PENETRATION RATE

REMARKS Test Pile No. 8 Near Power House. Failure began at 70 tons. Est. safe value = 40 tons

SOURCE OF INFORMATION FILE N.
REPUBLIC STEEL CORP 1.193
DEFENSE PLANT DPC 267 US 40
M-498
PILE TEST DATA

LOCATION: CLEVELAND, OHIO
DATE DRIVEN: 15 APRIL 1942
DATE TESTED: 16 APRIL 1942

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM VULCAN NO. 1
WEIGHT: 2.5 T, 5000 Ibs
STROKE: 36 in, 30 ft
ENERGY: 30 in-Tons, 15,000 ft-lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE: STEEL MONOTUBE JN 14
PILE DIMENSIONS: Tapered - 7 Gage
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH: 41.5 ft

TEST LOAD (TONS)
25
50
75

SOIL DESCRIPTION
DEPT FT
PENETRATION RATE
20 40

BLOWS PER FOOT
20
30
40
50

SOURCE OF INFORMATION
FILE NO.
REPUBLIC STEEL CORP
DEFENSE PLANT DPC 257
M-501

REMARKS:
Test Pile No 457 - Burke Brook
Sewer

SETTLEMENT IN INCHES
0.25
0.50
0.75
1.00

0.25
0.50
0.75
1.00
LOCATION: CLEVELAND, OHIO  
DATE DRIVEN: 20 APRIL 1942  
DATE TESTED: 23 APRIL 1942  

HAMMER TYPE: STEAM VULCAN NO. 1  
WEIGHT: 2.5 T  
STROKE: 36 in.  
ENERGY: 90 in.-tons  
BLOWS PR MIN:  
FINAL PENETRATION:  

PILE TYPE: STEEL MONOTUBE FN12  
PILE DIMENSIONS: Tapered - 7 Gage  
WEIGHT:  
DRIVEN LENGTH:  
EMBEDDED LENGTH: 75 ft  

TEST LOAD (TONS)  

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>See Note Pile 220</td>
<td>20.0</td>
<td></td>
</tr>
<tr>
<td>Tip of Pile</td>
<td>80.0</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: Test Pile No. 453 A Burke  
Brook Sewer  

SOURCE OF INFORMATION: FILE No.  
REPUBLIC STEEL CORP  
DEFENSE PLANT DPC 257 J540  
M-501
-PILE TEST DATA-

LOCATION CLEVELAND, OHIO
DATE DRIVEN 15 APRIL 1942
DATE TESTED 17 APRIL 1942

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM VULCAN No 1
WEIGHT 2.5T 5000 LBS.
STROKE 36 in 30 ft
ENERGY 90 in tons 15,000 ft-lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE STEEL MONOTUBE JN 14
PILE DIMENSIONS Tapered .7. Gage
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 60 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
</table>

SOIL DESCRIPTION

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
</table>

SOIL DESCRIPTION

SETTLEMENT IN INCHES

REMARKS. Test Pile No 447. Burke
          Brook Sewer

SOURCE OF INFORMATION FILE N.
REPUBLIC STEEL CORP J 189
DEFENSE PLANT DPC 257 J 340
M 301
**PILE TEST DATA**

**LOCATION** CLEVELAND OHIO  
**DATE DRIVEN** 16 APRIL 1942  
**DATE TESTED** 18 APRIL 1942

**HAMMER TYPE** STEAM VULCAN NO. 1  
**WEIGHT** 2.5 ft  
**STROKE** 36 in  
**ENERGY** 90 in-tons  
**BLOWS PR MIN**  
**FINAL PENETRATION**

**PILE TYPE** STEEL MONOTUBE JN14  
**PILE DIMENSIONS** Tapered- 9 Gage  
**WEIGHT**  
**DRIVEN LENGTH**  
**EMBEDDED LENGTH** 72 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH (FT)</th>
<th>Blows per ft PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>See Note Pile 220</td>
<td>0.25</td>
<td>20</td>
</tr>
<tr>
<td>40</td>
<td></td>
<td>0.50</td>
<td>40</td>
</tr>
<tr>
<td>60</td>
<td></td>
<td>0.75</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1.00</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS.** Test Pile No 417, Burke Brook Sewer

**SOURCE OF INFORMATION**  
REPUBLIC STEEL CORP.  
DEFENSE PLANT DPC257  
FILE N. J 340  
FILE N. 501
-PILE TEST DATA-

LOCATION CLEVELAND, OHIO
DATE DRIVEN 16 APRIL 1942
DATE TESTED 20 APRIL 1942

HAMMER TYPE STEAM VULCAN No. 1
WEIGHT 25 ft 5000 lbs
STROKE 36 in 30 ft
ENERGY 90 in tons 15,000 ft-lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE STEEL MONOTUBE JN 14
PILE DIMENSIONS Tapered 7 Gage
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 73 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>Blows per foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
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<td>20</td>
</tr>
<tr>
<td>50</td>
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<td></td>
<td>40</td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
<td>60</td>
</tr>
</tbody>
</table>

PENETRATION RATE

REMARS. Test Pile No 419 - Burke Brook Sewer

SOURCE OF INFORMATION
REPUBLIC STEEL CORP
DEFENSE PLANT DPC 257 J 540

FILE No.
M-501
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>CLEVELAND, OHIO</th>
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<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>13 APRIL 1942</td>
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<td>DATE TESTED</td>
<td>18 APRIL 1942</td>
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<tr>
<td>OWNER</td>
<td></td>
</tr>
<tr>
<td>CONTRACTOR</td>
<td></td>
</tr>
<tr>
<td>TESTED BY</td>
<td></td>
</tr>
<tr>
<td>HAMMER TYPE</td>
<td>STEAM VULCAN No. 60</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>37.5 ft 7,000 lbs</td>
</tr>
<tr>
<td>STROKE</td>
<td>39 in 3.25 ft</td>
</tr>
<tr>
<td>ENERGY</td>
<td>16.25 in tons 24,375 H ft</td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td></td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td></td>
</tr>
</tbody>
</table>

### Test Load (Tons)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
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<tbody>
<tr>
<td>SOIL DESCRIPTION</td>
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<td></td>
</tr>
<tr>
<td>DEPTH FT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bows per foot Penetration Rate</td>
<td>10</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**
Test Pile No. 20 Along Wall "B"

**SOURCE OF INFORMATION**

<table>
<thead>
<tr>
<th>REPUBLIC STEEL CORP</th>
<th>J 199</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEFENSE PLANT DPC 257</td>
<td>J 540</td>
</tr>
<tr>
<td>M 502</td>
<td></td>
</tr>
</tbody>
</table>
-PILE TEST DATA-

LOCATION CLEVELAND OHIO

DATE DRIVEN 14 APRIL 1942 OWNER
DATE TESTED 18 APRIL 1942 CONTRACTOR

HAMMER TYPE STEAM VULCAN NO. 0
WEIGHT 3.75 T 7,500 LBS
STROKE 30 IN 35 FT
ENERGY 166.25 IN TONS 24,375 FT LBS
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE CONCRETE CAST IN PLACE
PILE DIMENSIONS PEDESTAL
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 31 FT

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10</td>
<td>20</td>
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</tbody>
</table>

REMARKS. Test Pile No 32 Along Wall "B"

SOURCE OF INFORMATION
FILE N.
REPUBLIC STEEL CORP 1192
DEFENSE PLANT DPC 257 JS 40
M-502
LOCATION CLEVELAND OHIO
DATE DRIVEN 16 APRIL 1942
DATE TESTED 19 APRIL 1942

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM VULCAN No 0
WEIGHT 375 T 7,500 lbs
STROKE 39 in
ENERGY 146.25 in tons 24,375 ft lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE CONCRETE - CAST IN PLACE
PILE DIMENSIONS PEDESTAL
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 31 ft

TEST LOAD (TONS)
25 50 75

SOIL DESCRIPTION
DEPTH FT
10 20 30

PENETRATION RATE

SETS
Nok Pile 220
Bedding

SOURCE OF INFORMATION FILE No
REPUBLIC STEEL CORP 1 199
DEFENSE PLANT DPC 2.57 J540
M 502

Remarks Test Pile No 38 Along Wall "B"
-PILE TEST DATA-

LOCATION: CLEVELAND, OHIO
DATE DRIVEN: 11 APRIL 1942
DATE TESTED: 16 APRIL 1942
OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM VULCAN NO 1
WEIGHT: 2500 165
STROKE: 36 in
ENERGY: 90 ft-lb Tons
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE: STEEL MONOTUBE 1N 14
PILE DIMENSIONS: Tapered - 7 Gauge
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH: 408 ft

TEST LOAD (TONS)
25
50
75

SOIL DESCRIPTION

DEPT HE
PENETRATION RATE
10
20
30

SETTLEMENT IN INCHES
0.25
0.50
0.75
1.00

REMARKS: Test Pile No 5 Along Wall "A"

SOURCE OF INFORMATION: REPUBLIC STEEL CORP
FILE NO: M-503
DEFENSE PLANT DPC 257 J 540
-PILE TEST DATA-

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>CLEVELAND OHIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>13 APRIL 1942</td>
</tr>
<tr>
<td>DATE TESTED</td>
<td>15 APRIL 1942</td>
</tr>
<tr>
<td>HAMMER TYPE</td>
<td>STEAM VULCAN No 1</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>2.5 T 5000 lbs</td>
</tr>
<tr>
<td>STROKE</td>
<td>36 in 30 FT</td>
</tr>
<tr>
<td>ENERGY</td>
<td>90 IMP TONS 15,000 FT lbs</td>
</tr>
<tr>
<td>BLOWS PR. MIN</td>
<td></td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td></td>
</tr>
<tr>
<td>OWNER</td>
<td></td>
</tr>
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<td>CONTRACTOR</td>
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<tr>
<td>TESTED BY</td>
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</tr>
<tr>
<td>PILE TYPE</td>
<td>STEEL MANDREL JN 14</td>
</tr>
<tr>
<td>PILE DIMENSIONS</td>
<td>Tapered 7 Gage</td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
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<tr>
<td>DRIVEN LENGTH</td>
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<tr>
<td>EMBEDDED LENGTH</td>
<td>32 FT</td>
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<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25 50 75</th>
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<tr>
<td>SETTLEMENT INCHES</td>
<td></td>
</tr>
<tr>
<td>100</td>
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</tr>
<tr>
<td>75</td>
<td></td>
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<td>0.75</td>
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<td>0.50</td>
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<tr>
<td>0.25</td>
<td></td>
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<tr>
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</table>

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>20 40 60</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
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</tr>
</tbody>
</table>

REMARKS: Test Pile No. 31 Along Wall "A"

SOURCE OF INFORMATION FILE N.
REPUBLIC STEEL Corp J 199
DEFENSE PLANT DPC 267 J 540
M 503
- PILE TEST DATA -

LOCATION  CLEVELAND, OHIO
DATE DRIVEN  17 APRIL 1962
DATE TESTED  21 APRIL 1962

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE  STEAM  VULCAN NO 1
WEIGHT  2,500 lbs
STROKE  36 in
ENERGY  90 in-lbs  15,000 ft-lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE  STEEL PIPE
PILE DIMENSIONS  Diag. 16"

WEIGHT
DRIVEN LENGTH  70 ft
EMBEDDED LENGTH

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
</table>

SOIL DESCRIPTION  DEPTH FT  BLOWS PER FOOT PENETRATION RATE

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td>60</td>
</tr>
</tbody>
</table>

REMARKS  Pile No 64. Along dock line

SOURCE OF INFORMATION  FILE No
REPUBLIC STEEL CORP.  J 199
DEFENSE PLANT DPC 237  J 560
M 303
PILE TEST DATA

LOCATION: CLEVELAND, OHIO
DATE DRIVEN: 20 APRIL 1942
DATE TESTED: 22 APRIL 1942

HAMMER TYPE: STEAM, VULCAN No. 0
WEIGHT: 375 lb, 7500 lbs
STROKE: 39 in, 325 ft
ENERGY: 146.25 in tons, 24,375 ft-lbs
BLOWS PR MIN:
FINAL PENETRATION:

PILE TYPE: STEEL PIPE
PILE DIMENSIONS: Diam 16"
WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH:

TEST LOAD (TONS)
25  50  75

SOIL DESCRIPTION

DEPT (FT)

BLOWS PER FOOT PENETRATION RATE
40  80  120

REMARKS: Test Pile No. 71 Along Dock Line.

SOURCE OF INFORMATION
REPUBLIC STEEL CORP.  J.199
DEFENSE PLANT  DPC. 257  J.540
M-503
## Pile Test Data

**Location**: Cleveland, Ohio

**Date Driven**: 6 April 1942

**Date Tested**: 8 April 1942

**Hammer Type**: Steam Vulcan No. 0

**Weight**: 375 lb

**Stroke**: 39 in

**Energy**: 14625 in-lb

**Blows per Min**: 2435 ft-lb

**Final Penetration**: 43 ft

### Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
</tr>
<tr>
<td>50</td>
</tr>
<tr>
<td>75</td>
</tr>
</tbody>
</table>

### Soil Description

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Blows per Foot Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
<td>10</td>
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<tr>
<td></td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>30</td>
</tr>
</tbody>
</table>

### Settlemnt in Inches

- To 24 ft
- To 30 ft

**Remarks**: Test pile No. 36 Burke Brook Sewer

**Source of Information**: Republic Steel Corp.

**File No.**: J 198

**Defense Plant DFC 157**: J 540

**M 504**
-PILE TEST DATA-

LOCATION CLEVELAND OHIO
DATE DRIVEN 6 APRIL 1942
DATE TESTED 13 APRIL 1942

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE STEAM VULCAN NO.1
WEIGHT 375 lb 7500 lbs
STROKE 30 in 3.25 ft
ENERGY 166.25 in-lb 24375 ft-lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE CONCRETE - CAST IN PLACE
PILE DIMENSIONS Western Button Bottom with Pedestal

WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 46 ft

REMARKS. Test Pile No 36 Burke Brick Serm

SOURCE OF INFORMATION FILE N.
REPUBLIC STEEL CORP J 199
DEFENSE PLANT DPC 257 JS40
M 304
PILE TEST DATA

LOCATION  CLEVELAND  OHIO   OWNER
DATE DRIVEN  29 APRIL 1942  CONTRACTOR
DATE TESTED  5-6-7 MAY 1942  TESTED BY

HAMMER TYPE  STEAM  VULCAN NO. 1
WEIGHT  25T  5000 LBS
STROKE  36 in  30 FT
ENERGY  90 in-tan  15,000 FT-LBS
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE  STEEL PIPE
PILE DIMENSIONS  STEEL PIPE
Diam. 10" - Plate Point
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH  115 FT

TEST LOAD (TONS)

SOIL DESCRIPTION  DEPTH FT  Penetration Rate 100 200 300

REMARKS. Test Pile No 6 Blast Fumace B

SOURCE OF INFORMATION FILE No.
REPUBLIC STEEL CORP  J 199
DEFENSE PLANT DPC 257  JS 40
M 505

TEST LOAD (TONS)

SOIL DESCRIPTION  DEPTH FT  Penetration Rate 100 200 300

REMARKS. Test Pile No 6 Blast Fumace B

SOURCE OF INFORMATION FILE No.
REPUBLIC STEEL CORP  J 199
DEFENSE PLANT DPC 257  JS 40
M 505
PILE TEST DATA

LOCATION CLEVELAND OHIO
DATE DRIVEN 30 APRIL 1942
DATE TESTED 2-3 MAY 1942

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM VULCAN No 1
WEIGHT 2 5 T 5000 lbs
STROKE 36 in 30 ft
ENERGY 90 in tons 15,000 ft-lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE STEEL PIPE
PILE DIMENSIONS Diam 10" Plate Point
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 115 ft

TEST LOAD (TONS) 50 100 150

SOIL DESCRIPTION
DEPTH FT

Blows per foot PENETRATION RATE 100 200 300

REMARKS. Test Pile No 7 Blast Furnace 18"
**PILE TEST DATA**

**LOCATION**: CLEVELAND, OHIO

**DATE DRIVEN**: 12-18 JUNE 1942

**DATE TESTED**: 12-19 JUNE 1942

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE**: STEAM VULCAN NO. 1

**WEIGHT**: 2,500 LBS

**STROKE**: 36 IN

**ENERGY**: 920 IN-TON

**BLOWS PR MIN**

**FINAL PENETRATION**

**PILE TYPE**: STEEL PIPE

**PILE DIMENSIONS**: Diam 10 3/4"

**WEIGHT**

**DRIVEN LENGTH**

**EMBEDDED LENGTH**: 91 FT

---

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>Tons</th>
<th>0.25</th>
<th>0.50</th>
<th>0.75</th>
<th>1.00</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>50</td>
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</tr>
<tr>
<td>75</td>
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</tr>
</tbody>
</table>

---

**SOIL DESCRIPTION**

**DEPTH FT**

<table>
<thead>
<tr>
<th>Depth</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>200</td>
<td>200</td>
</tr>
<tr>
<td>300</td>
<td>300</td>
</tr>
</tbody>
</table>

---

**REMARKS**: Test Pile No. 63-12, Per. 63 Approach Trestle

---

**SOURCE OF INFORMATION**

**FILE No.**

**REPUBLIC STEEL CORP** J 199

**DEFENSE PLANT** DPC 257 J 540

**M. S. O. B.**
LOCATION CLEVELAND OHIO
DATE DRIVEN 9 JUNE 1942
DATE TESTED 12-13 JUNE 1942

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM VULCAN NO 1
WEIGHT 2.5 T 5000 LBS
STROKE 36 in. 30 FT
ENERGY 90 in.-tons 15,000 ft-lbs
BLOWS PR. MIN
FINAL PENETRATION

PILE TYPE STEEL PIPE
PILE DIMENSIONS Diam. 10 3/4"
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 92 FT

TEST LOAD (TONS)

25 50 75

SOIL DESCRIPTION

DEPT FT
Blows per foot

PENETRATION RATE

40 60 120

REMARKS. Test Pile No 63-11 Per 63
Approach Trestle

SOURCE OF INFORMATION FILE NO
REPUBLIC STEEL CORP 1959
DEFENSE PLANT DPC 257 USO D
M 506
PILE TEST DATA

LOCATION: CLEVELAND, OHIO
DATE DRIVEN: 10 JUNE 1942
DATE TESTED: 13 JUNE 1942

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM VULCAN NO 1
WEIGHT: 2.5 t
STROKE: 36 in
ENERGY: 90 in tons
BLOWS PR MIN: 15,000 ft-lbs
FINAL PENETRATION:

PILE TYPE: STEEL PIPE
PILE DIMENSIONS: 0.100 x 10\3/4"
WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH: 95 ft

TEST LOAD (TONS)
25 50 75

SOIL DESCRIPTION

DEPTH (FT)

PENETRATION RATE

BLOWS PER FOOT

REMARKS:
Test Pile No 637 for 63
Approach Trestle

SOURCE OF INFORMATION
FILE NO.
REPUBLIC STEEL CORP. 1.99
DEFENSE PLANT DPC 257 1.540
M 508
Pile Test Data

Location: Cleveland, Ohio
Date Driven: 9 June 1942
Date Tested: 14-15 June 1942
Hammer Type: Steam Vulcan No. 1
Weight: 2.5 T
Stroke: 36 in
Energy: 90 in-lbs
Final Penetration: 15,000 ft-lbs

Pile Type: Steel - Monotube FN 14
Pile Dimensions: Tapered - 7 Gage

Owner: 
Contractor: 
Tested By: 

Test Load (Tons): 25, 50, 75

Soil Description: 100 ft
Depth: 20, 40, 60
Blows per Foot Penetration Rate: 20, 40, 60

Remarks:
Test Pile No. 63-6 Per 63
Approach Test No

Source of Information: Republic Steel Corp
File No: 199
Defense Plant DPC 257 I 540
M. 508
-PILE TEST DATA-

LOCATION CLEVELAND OHIO
DATE DRIVEN 2 JUNE 1942
DATE TESTED 15-16 JUNE 1942
OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM VULCAN No 1
WEIGHT 25 ton 5000 lbs
STROKE 36 in 30 ft
ENERGY 90 m-tons 15,000 ft-lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE STEEL MONOTUBE FINED
PILE DIMENSIONS Tapered 7 Gage
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 70 ft.

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS per Foot PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

REMARKS. Test Pile No 63-18 Pier 63 Approach Truss.

SOURCE OF INFORMATION REPUBLIC STEEL CORP 3/4/49
FILE No.
DEFENSE PLANT DPC 257-J 540 M:508
PILE TEST DATA

LOCATION: CLEVELAND, OHIO

DATE DRIVEN: 30 APRIL 1942
DATE TESTED: 18 JUNE 1942

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM VULCAN No. 0
WEIGHT: 375 lb
STROKE: 39 in.
ENERGY: 146.25 in. lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE: STEEL PIPE
PILE DIMENSIONS: Diam 16"
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH: 124 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT Blows per foot

PENETRATION RATE

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT Blows per foot

PENETRATION RATE

SOURCE OF INFORMATION: REPUBLIC STEEL CORP
FILE No.: J 199
DEFENSE PLANT DPC 257 J 540
M 518

REMARKS: Test Pile No. 13 Along Dock
Wall "A"
-PILE TEST DATA-

LOCATION: CLEVELAND OHIO

DATE DRIVEN: 6 JUNE 1942
DATE TESTED: 19-21 JUNE 1942

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE: STEAM VULCAN NO 0
WEIGHT: 3.75 T
STROKE: 39 in
ENERGY: 146.25 in tons
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE: STEEL PIPE
PILE DIMENSIONS: Diam 10 3/4"
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH: 154 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS per Ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td>60</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>80</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>120</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>150</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tip</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Pile</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>220</td>
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</tr>
</tbody>
</table>

REMARKS: Test Pile No 1351 Along Dock
Wall "A" Tested with pipe
Filled with concrete

SOURCE OF INFORMATION
FILE N°
REPUBLIC STEEL CORP
DEFENSE PLANT DPC257
M-518
### PILE TEST DATA

**Location:** Cleveland, Ohio  
**Date Driven:** 11 June, 1942  
**Date Tested:** 17-18 June, 1942

<table>
<thead>
<tr>
<th>Hammer Type</th>
<th>Steam Vulcan No. 0</th>
</tr>
</thead>
</table>
| Weight      | 3.75 ft.  
| Stroke      | 39 in.  
| Energy      | 146.25 in. tons  
| Bows PR Min | x  
| Final Penetration | |

**Pile Type:** Steel Pipe  
**Pile Dimensions:** Diam. 10.5"  
**Weight:**  
**Driven Length:**  
**Embedded Length:** 136 ft.

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Penetration Rate (Bows per Foot)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td>80</td>
</tr>
<tr>
<td>150</td>
<td></td>
<td></td>
<td>120</td>
</tr>
</tbody>
</table>

**Remarks:**  
Test Pile No. 1349 Along Deck Well "A" Pile Tested Empty

**Source of Information**  
Republic Steel Corp.  7/1969  
Defense Plant DPC 257  J.500  
M.S.18
LOCATION       CLEVELAND OHIO
DATE DRIVEN    12 OCTOBER 1942
DATE TESTED    17 OCTOBER 1942

HAMMER TYPE    PILE TYPE       STEEL MONOTUBE FN 12
WEIGHT         PILE DIMENSIONS  Tapered - 7 3/8" clip
STROKE
ENERGY
BLOWS PR MIN
FINAL PENETRATION

TEST LOAD (TONS)  SOIL DESCRIPTION  DEPTH FT  BLOWS PER FOOT
                  25      50      75      20      40      60

TEST LOAD IN INCHES

REMARKS. Test pile No HB-4 in Power House

SOURCE OF INFORMATION   FILE N.
                        REPUBLIC STEEL CORP  1199
                        DEPWERE PLANT  DPC 257  5540
                        M-519
PILE TEST DATA

LOCATION CLEVELAND, OHIO
DATE DRIVEN 14 August 1942
DATE TESTED 26-27 August 1942

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM VULCAN No 1
WEIGHT 2.5 T 4000 lbs
STROKE 36 in 30 ft
ENERGY 90 in-tons 15,000 ft-lbs
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE STEEL MONOTUBE FN 12
PILE DIMENSIONS Tapered - 7 Gage
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 75 ft

TEST LOAD (TONS)

0.25

0.5

1.0

2.5

5.0

7.5

SOIL DESCRIPTION

DEPTH FT

20

40

60

80

BLOWS PER FOOT PENETRATION RATE

20

40

60

80

Source of information: File No.
REMARKS: Test Pile No 29 - Pump House

Source: Republic Steel Corp. 1949
Defense Plant DPC 257 JS 40
M-522
PILE TEST DATA

LOCATION: CLEVELAND OHIO
DATE DRIVEN: 20 OCTOBER 1942
DATE TESTED: 31 OCTOBER 1942

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE
WEIGHT
STROKE
ENERGY
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE: STEEL MONOTUBE FN 12
PILE DIMENSIONS: Tapered - 7-Gage

TEST LOAD (TONS) | SOIL DESCRIPTION | DEPTH FT | BLOWS per foot |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

PENETRATION RATE

DEPTH FT: 20 40 60

SEASETLEMENT IN INCHES

REMARKS: Test Pile No. DT-6 Power House

SOURCE OF INFORMATION: REPUBLIC STEEL CORP.
FILE NO.: J 199
DEFENSE PLANT DPC 257 J 540
M 521
**PILE TEST DATA**

**LOCATION** CLEVELAND OHIO  
**DATE DRIVEN** 10 October 1942  
**DATE TESTED** 7 November 1942  

**OWNER**  
**CONTRACTOR**  
**TESTED BY**

**HAMMER TYPE** STEAM VULCAN No 1  
**WEIGHT** 2.5 T  
**STROKE** 36 in.  
**ENERGY** 90 in.-tons  
**BLOWS PR MIN**  
**FINAL PENETRATION** 180 blows/12"  

**PILE TYPE** STEEL PIPE  
**PILE DIMENSIONS** Dia. 10  
**WEIGHT**  
**DRIVEN LENGTH** 99 ft  
**EMBEDDED LENGTH**

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

- See Note Pile 220
- To 36" @ 22 ft
- To tip of pile

**REMARKS.** Test pile No 1000 Along Wall "O"

**SOURCE OF INFORMATION**  
**FILE No.**  
**REPUBLIC STEEL CORP J 199**  
**DEFENSE PLANT DPC257 J54D**  
**M 522**
**PILE TEST DATA**

**Location:** Cleveland, Ohio  
**Date Driven:** 19 October 1942  
**Date Tested:** 9 November 1942

**Hammer Type:** Steam Vulcan No. 1  
**Weight:** 2.5 tons  
**Stroke:** 36 in.  
**Energy:** 90 in.-tons  
**B lows PR Min:** 180 blows/12"  
**Final Penetration:**  180 blows/12"  

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH (FT)</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks:** Test pile No. 966 along wall "D"  

**Source of Information:**  
- Republic Steel Corp.  257  
- Defense Plant  J-500  
- M-322

---

**Graph:**

- **Test Load (Tons):** 25, 50, 75  
- **Settlement in Inches:** 0, 0.25, 0.5, 1.0, 1.25  
- **Depth:** 20, 40, 60, 80, 100  
- **Penetration Rate:** Tip of pile

---

**Owner:**  
**Contractor:**  
**Tested By:**
**PILE TEST DATA**

**LOCATION** CLEVELAND, OHIO

**DATE DRIVEN** 9 October 1942

**DATE TESTED** 11 November 1942

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** STEAM VULCAN No. 1

**WEIGHT** 2.5 T. 5000 lb.

**STROKE** 36 in. 30 ft.

**ENERGY** 30 in. tons. 15,000 ft. lb.

**BLOWS PR MIN**

**FINAL PENETRATION** 180 blows /'2".

**PILE TYPE** STEEL PIPE

**PILE DIMENSIONS** Diam 10 3/4".

**Open End**

**WEIGHT**

**DRIVEN LENGTH**

**EMBEDDED LENGTH** 121 75 ft.

---

**TEST LOAD** (TONS)

<table>
<thead>
<tr>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
</table>

**SOIL DESCRIPTION**

**DEPTH FT**

**PENETRATION RATE**

---

**REMARKS:** Test Pile No 938 Along Wall "D".

---

**SOURCE OF INFORMATION**

FILE No.

REPUBLIC STEEL CORP J 1999

DEFENSE PLANT DPC 257 J 550

M 322
**PILE TEST DATA**

**LOCATION** CLEVELAND OHIO

**DATE DRIVEN** 4 SEPTEMBER 1942

**DATE TESTED** 16 NOVEMBER 1942

**HAMMER TYPE** STEAM VULCAN NO 0

**WEIGHT** 375 lb 3800 lbs

**STROKE** 39 in 3.25 ft

**ENERGY** 146.25 in-lb 24,375 ft-lb

**BLOWS PR MIN**

**FINAL PENETRATION** 168 blows/12"  

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

- See Note File 220

**SOURCE OF INFORMATION**

- REPUBLIC STEEL CORP  J.199
- DEFENSE PLANT DPC 257  J540
- M 582

**REMARKS.** Test file NO 1075 along Wall "D"
### PILE TEST DATA

**Location:** Cleveland, Ohio  
**Date Driven:** 5 September 1942  
**Date Tested:** 17 November 1942

**Hammer Type:** Steam Vulcan No. 0  
**Weight:** 3.75 T  
**Stroke:** 39 in  
**Energy:** 146,850 ft-lbs  
**Blows per Min:**  
**Final Penetration:** Refusal

**Owner:**  
**Contractor:**  
**Tested By:**

**Pile Type:** Steel Pipe  
**Pile Dimensions:** Dog 10  
**Weight:**  
**Driven Length:** 110.3 ft  
**Embedded Length:**

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Settlement in Inches:**
- 0.25
- 0.50
- 0.75
- 1.00

**Remarks:** Test Pile No. 1083 Along Wall 'D'

**Source of Information:**  
**File No.:** Republic Steel Corp.  
**Defence Plant DPC 257:**  
**S.522:**
**PILE TEST DATA**

**LOCATION**: CLEVELAND, OHIO

**DATE DRIVEN**: 31 August 1942

**DATE TESTED**: 9 September 1942

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE**: STEAM VULCAN NO. 1

**WEIGHT**: 2,500 lbs

**STROKE**: 36 in.

**ENERGY**: 93 in.-tons

**BLOWS PR MIN**

**PILE TYPE**: STEEL MONOTUBE FN 12

**PILE DIMENSIONS**: Tapered 76.375

**WEIGHT**

**DRIVEN LENGTH**

**EMBEDDED LENGTH**: 71.67 ft

### Soil Description

| Depth (ft) | Penetration Rate
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Blows per foot</td>
</tr>
<tr>
<td>40</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
</tr>
<tr>
<td>0.50</td>
</tr>
<tr>
<td>0.75</td>
</tr>
</tbody>
</table>

**REMARKS**: Test Pile No. 65-6 Power House

**SOURCE OF INFORMATION**

**FILE N.**

- **REPUBLIC STEEL CORP**: J 199
- **DEFENSE PLANT DPC**: 257 J 540
- **M 524**
PILE TEST DATA

LOCATION CLEVELAND, OHIO
DATE DRIVEN 13 AUGUST 1959
DATE TESTED 24 AUGUST 1959

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE Raymond 65c Cap Block
WEIGHT 5500 lbs
STROKE
ENERGY
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE Raymond Step Taper
PILE DIMENSIONS 60 ft. long
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH

TEST LOAD (TONS)

SOIL DESCRIPTION
DEPTH FT
100
20
30
40
50
60
70
80
90
100

Blows per foot PENETRATION RATE
20 40 60

SAME AS #162

REMARKS. Test Pile No. 2
Oxygen Furnace Site

SOURCE OF INFORMATION
PITTSBURGH TESTING PRIVATE
LABORATORY FOR CONSULTANTS
JONES & LAUGHLIN J540
**PILE TEST DATA**

**LOCATION**  Thames, London, England  
**DATE DRIVEN**  11 November 1947  
**DATE TESTED**  17-19 December 1947  

**OWNER**  
**CONTRACTOR**  
**TESTED BY**  

**HAMMER TYPE**  Gravity  
**WEIGHT**  20 t  
**STROKE**  36 in  
**ENERGY**  
**BLOWS PR MIN**  
**FINAL PENETRATION**  

**PILE TYPE**  Concrete  
**PILE DIMENSIONS**  d = 10 in square  
**WEIGHT**  156 t  
**DRIVEN LENGTH**  360 ft  
**EMBEDDED LENGTH**  300 ft  

### Test Load (Tons)

<table>
<thead>
<tr>
<th>Load (Tons)</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settlement in Inches</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

### Soil Description

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Depth (ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fill</td>
<td>10</td>
</tr>
<tr>
<td>Peaty Clay</td>
<td>20</td>
</tr>
<tr>
<td>Thames Gravel</td>
<td>30</td>
</tr>
</tbody>
</table>

### Blows per Foot Penetration Rate

<table>
<thead>
<tr>
<th>Blows per Foot</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
</table>

### Remarks

Test Pile No. 5

**Source of Information**  Bishop Collinbridge and Literature
O'Sullivan Geotechnique  J540
11 June 1948
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>Thames, London, England</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>13 November 1947</td>
</tr>
<tr>
<td>DATE TESTED</td>
<td>21-22 December 1947</td>
</tr>
<tr>
<td>HAMMER TYPE</td>
<td>Gravity</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>20 t</td>
</tr>
<tr>
<td>STROKE</td>
<td>24 in</td>
</tr>
<tr>
<td>ENERGY</td>
<td></td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td></td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td></td>
</tr>
<tr>
<td>OWNER</td>
<td></td>
</tr>
<tr>
<td>CONTRACTOR</td>
<td></td>
</tr>
<tr>
<td>TESTED BY</td>
<td></td>
</tr>
<tr>
<td>PILE TYPE</td>
<td>Concrete</td>
</tr>
<tr>
<td>PILE DIMENSIONS</td>
<td>d = 10 m square</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>156 t</td>
</tr>
<tr>
<td>DRIVEN LENGTH</td>
<td>360 in</td>
</tr>
<tr>
<td>EMBEDDED LENGTH</td>
<td>325 in</td>
</tr>
</tbody>
</table>

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 100</td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH (FT)</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fill</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Peaty Clay</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Thames Gravel</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:**

Test Pile No. 6

**SOURCE OF INFORMATION**

Bishop, Collinridge literature

AND O'SULLIVAN GEO- \( J540 \)

TECHNIQUE J: 1 JUNE 1948
PILE TEST DATA

LOCATION: THAMES, LONDON, ENGLAND
OWNER: 

DATE DRIVEN: 3 NOVEMBER 1947
DATE TESTED: 9-11 DECEMBER 1947

CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: GRAVITY
WEIGHT: 50 lbs
STROKE: 34 in
ENERGY: 
BLOWS PR MIN: 
FINAL PENETRATION: 

PILE TYPE: CONCRETE
PILE DIMENSIONS: d = 12 in square
WEIGHT: 
DRIVEN LENGTH: 420 in
EMBEDDED LENGTH: 380 in

TEST LOAD (TONS)

SOIL DESCRIPTION
FILL
POORLY CLAY
THOMAS GRANITE

SOURCES OF INFORMATION
BISHOP COLLINS
O'SULLIVAN: GEO TECHNIQUE 71 JUNE 1948

FILE No. LITERATURE
J540

REMARKS: Test Pile No. 4

SOURCES OF INFORMATION
BISHOP COLLINS
O'SULLIVAN: GEO TECHNIQUE 71 JUNE 1948

FILE No. LITERATURE
J540

SOURCES OF INFORMATION
BISHOP COLLINS
O'SULLIVAN: GEO TECHNIQUE 71 JUNE 1948

FILE No. LITERATURE
J540
PILE TEST DATA

LOCATION: THAMES, LONDON, ENGLAND
DATE DRIVEN: 30-31 OCTOBER 1947
DATE TESTED: 3-5 DECEMBER 1947

HAMMER TYPE: GRAVITY
WEIGHT: 200 lb
STROKE: 24 in
ENERGY: 
BLOWS PR MIN: 
FINAL PENETRATION: 

PILE TYPE: CONCRETE
PILE DIMENSIONS: d = 14 in square
WEIGHT: 3.37 t
DRIVEN LENGTH: 420 in
EMBEDDED LENGTH: 420 in

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH (FT)

Blows per test

PENETRATION RATE

REMARKS:
Test Pile No. 3

SOURCE OF INFORMATION: BISHOP, COLLINDEJIDE AND O'SULLIVAN
LITERATURE: J. 340
GEOLOGICAL STUDIES 1: 1 JUNE 1948
PILE TEST DATA

LOCATION  THAMES, LONDON, ENGLAND
DATE DRIVEN  27 OCTOBER 1947
DATE TESTED  26-28 NOVEMBER 1947

HAMMER TYPE  GRAVITY
WEIGHT  30 t
STROKE  34 in
ENERGY
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE  CONCRETE
PILE DIMENSIONS  d = 14 in square
WEIGHT  305 t
DRIVEN LENGTH  360 in
EMBEDDED LENGTH  340 in

TEST LOAD (TONS)

0  50  100  150

0.5

1.0

1.5

2.0

TEST LOAD (TONS)

0  50  100  150

0.5

1.0

1.5

2.0

SOIL DESCRIPTION

DEPTH FT

0  10  20  30  40

BLOWS PER FOOT PENETRATION RATE

40  80  120

SOURCE OF INFORMATION  BISHOP, COLLINDRIDGE AND O' Sullivan, J.40
LITERATURE  GEOTECHNIQUE 1/ JUNE 1948

REMARKS  Test Pile No 2.

FILE N.  LITERATURE

TEST LOAD (TONS)

0  50  100  150

0.5

1.0

1.5

2.0

SOIL DESCRIPTION

DEPTH FT

0  10  20  30  40

BLOWS PER FOOT PENETRATION RATE

40  80  120

SOURCE OF INFORMATION  BISHOP, COLLINDRIDGE AND O' Sullivan, J.40
LITERATURE  GEOTECHNIQUE 1/ JUNE 1948

REMARKS  Test Pile No 2.
LOCATION: NOXON RAPIDS, MONTANA

DATE DRIVEN: 19 FEBRUARY 1957
DATE TESTED: 22-23, FEBRUARY 1957

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: Diesel Delmag No 12
PILE TYPE: Steel - Armco Spiralweld

WEIGHT
STROKE
ENERGY
BLOWS PR MIN
FINAL PENETRATION

PILE DIMENSIONS: Diam 16" - ¾" flat plate welded on end, rim with cross lugs

TESTED BY

TEST LOAD (TONS)

50 100 150

SOIL DESCRIPTION

DEPTH FT

Blows per foot penetration rate

50 100 150

SETTLEMENT IN INCHES

REMARKS: Test Pile B-B - Abutment
No 1 Bridge 73 Noxon Rapids
Line Change - Approx Std.
1936 + 90. Pile was empty when tested.

N' - Relative Density - Number of blows required to drive 5’’ split spoon 12” with 250 lb weight falling 24’’

SOURCE OF INFORMATION: NORTHERN PACIFIC RR - MONTANA - J 479
FILE No: J 540
**- PILE TEST DATA-**

LOCATION: Noxon Rapids, Montana

DATE DRIVEN: 

DATE TESTED: 26-27 October 1956

HAMMER TYPE: Steam Vulcan No. 1

WEIGHT: 2.5 ton

STROKE: 24 in

ENERGY: 60-117 tons 10,000 ft-lbs

BLOWs PR MIN: 

FINAL PENETRATION: 

PILE TYPE: Steel Pipe

PILE DIMENSIONS: Diam 10"

WEIGHT: 

DRIVEN LENGTH: 

EMBEDDED LENGTH: 33 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS FOR 10 PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: Test Pile No. G4 - Abutment No. 9 Bridge 73 Noxon Rapids Line Change - Approx 5th

1935+60

N" Relative Density - Number of blows required to drive 3/4 split spoon 12" with 250 lb weight falling 24"

SOURCE OF INFORMATION: Northern Pacific RR Montana-J-479

J. 540
LOCATION: NOXON RAPIDS, MONTANA
DATE DRIVEN:  
DATE TESTED: 23-24 OCTOBER 1936

OWNER:  
CONTRACTOR:  
TESTED BY:  

HAMMER TYPE: STEAM  
WEIGHT: 2 1/2 ft.  
STROKE: 24 in.  
ENERGY: 50 in.-tons  
BLOWS PR MIN:  
FINAL PENETRATION:  

PILE TYPE: STEEL PIPE  
PILE DIMENSIONS: Diam. 10" - 3/4" flat plate welded on and  
WEIGHT:  
DRIVEN LENGTH:  
EMBEDDED LENGTH: 16 ft.

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>Blows per foot PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Strat pink gray,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>clay, silty clay,</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>silt, sand</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS. Test Pile No E-3 - Abutment 
No 9 Bridge 73 Noxon Rapids 
Line Change - Approx Std

1935 + 60

"N" = Relative Density - Number of blows required to drive 5 ft split spoon 12" with 250 lb weight falling 24"

SOURCE OF INFORMATION: FILE NO.
NORTHERN PACIFIC R.R., MONTANA-J479
J.S. A.D.
# PILE TEST DATA

**LOCATION:** NOXON RAPIDS, MONTANA  
**DATE DRIVEN:** 20 SEPT. 1956  
**DATE TESTED:** 21, 22, 24, 25 SEPT. 1956  
**OWNER:**  
**CONTRACTOR:**  
**TESTED BY:**

<table>
<thead>
<tr>
<th>HAMMER TYPE</th>
<th>STEAM</th>
<th>PILE TYPE</th>
<th>STEEL PIPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT</td>
<td>2.5+</td>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>STROKE</td>
<td>24.0 in.</td>
<td>ENERGY</td>
<td>50-in tons</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10,000 ft-lbs</td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td></td>
<td>DRIVER LENGTH</td>
<td></td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td></td>
<td>EMBEDDED LENGTH</td>
<td>68 ft</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH</th>
<th>BLOWES per foot PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**
- 9" - 12" - Typical Trench Gravel
- 67 - 87 - Sandy Loam
- 76 - 96 - Sandy Loam

**DEPTH**
- 20
- 40
- 60

**SOURCES OF INFORMATION**
- FILE No: 1479  
- NORTHERN PACIFIC R.R. MONTANA  
- J340

**REMARKS:**
- Test File No G-3  
- Abutment  
- No 9 Bridge 73  
- Noxon Rapids  
- Line Change Approx 50yds

1935-60  

*N* - Relative Density - Number of blows required to drive 3 1/2" split spoon 12" with 320-lb weight falling 24"
PILE TEST DATA

LOCATION: Charlestown, Mass

DATE DRIVEN: 23 April, 1969

DATE TESTED: 11 May, 1969

OWNER: 

CONTRACTOR: Raymond Concrete Pile Co

TESTED BY: 

HAMMER TYPE: Raymond 65C Differential

WEIGHT: 6800 lbs

STROKE: 16 in.

ENERGY: 19,500 ft lbs

BLOWS PR MIN: 80 lbs

PILE TYPE: 12"Ø Pipe 0.375"

PILE DIMENSIONS: Wall Seamless Steel Pipe

STROKE: 16 in.

ENERGY: 19,500 ft lbs

WEIGHT: 6800 lbs

BLOWS PR MIN: 80 lbs

PILE DIMENSIONS: 12"Ø Pipe 0.375"

WEIGHT: 6800 lbs

BLOWS PR MIN: 80 lbs

Drilled Length: 62' in Boston Blue Clay

Embedded Length: 62' in Boston Blue Clay

Final Penetration: 

Test Load (Tons): 

25 50 75

Soil Description: 

Depth FT: 

10 15

Blows per Foot Penetration Rate: 

5 10 15

Remarks: 

Source of Information: Haley & Aldrich

File No.: 9540

Consultants: 

Haley & Aldrich

Private
LOCATION: CLEVELAND, OHIO
DATE DRIVEN: 14-22 JUNE 1950
DATE TESTED: 14-22 JUNE 1950
OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: STEAM SUPER VULCAN 80 C
WEIGHT: 2 lb
STROKE: 16 5 in
ENERGY: 16,480 Ft lbs
BLOWS PR MIN: 3
FINAL PENETRATION: 

PILE TYPE: CONCRETE PIPE
PILE DIMENSIONS: 10 in diam pipe, wall thickness 0.3 C
WEIGHT: 38 2 lbs per foot
DRIVEN LENGTH: 170 0 ft
EMBEDDED LENGTH: 

TEST LOAD (TONS)
100 200 300

SOIL DESCRIPTION
DEPTH FT
40 60 120

PENETRATION RATE
40 60 120

REMARKS:
Test Pile No 1, Pile No 21, Lift
Spon Per No 2, Cuyahoga
River Bridge No 2 22
Driven with closed end Hardesty &
Hanner Consulting Engineers
Spon 2 1/2 Sample - Driven with 210 lb
weight - 18" Drop

SOURCE OF INFORMATION
FILE NO.
THE NICKEL PLATE RAILROADS
RAILROAD
J 140
J 540
PILE TEST DATA

LOCATION CLEVELAND, OHIO
DATE DRIVEN 1 FEBRUARY 1955
DATE TESTED 7-18 FEBRUARY 1955
HAMMER TYPE STEAM SUPER VULCAN NO 0
WEIGHT
STROKE
ENERGY
BLOWS PR MIN
FINAL PENETRATION
OWNER
CONTRACTOR
TESTED BY

PILE TYPE CONCRETE-PIPE-ARMCO
PILE DIMENSIONS 10% diam., wall thickness - 0.125"

PILE TYPE

PILED UNIONS /O BIT /O
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH

TEST LOAD (TONS)
100 200 300

SOIL DESCRIPTION

DEPTH FEET

PENETRATION RATE
50 100 150

REMARKS. East test pile, vertical lift
bridge No 184.50 - US 15
over Cuyahoga River
Hurd & Hurd Consulting Engineers
Split Spoon (3/4" sampler) driven with 280 lb
hammer, 24" drop

SOURCE OF INFORMATION
FILE NO.
THE NICKEL PLATE RAILROADS
RAILROAD
FILE NO.
J160
JS 540
- PILE TEST DATA -

LOCATION CLEVELAND, OHIO
OWNER
DATE DRIVEN 1 NOVEMBER 1954
DATE TESTED 10-16 NOVEMBER 1954
TESTED BY

HAMMER TYPE STEAM SUPER-VULCAN NO 0
PILE TYPE PIPE-ARMCO- CONCRETE

WEIGHT
PILE DIMENSIONS 10 3/4 Dia Steel Pipe
STROKE
V-burr Welded Joints - Armco
ENERGY
DRIVEN LENGTH
BLOWS PR MIN
EMBEDDED LENGTH
FINAL PENETRATION

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>100</th>
<th>200</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOIL DESCRIPTION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ELEV. FT.</td>
<td>540</td>
<td>520</td>
<td></td>
</tr>
<tr>
<td>PENETRATION RATE</td>
<td>40</td>
<td>80</td>
<td>120</td>
</tr>
</tbody>
</table>

REMARKS. West test pile Vertical lift
bridge No 184.50-0315 over Cuyahoga River Hardisty &
Hangover Consulting Engineers

SOURCE OF INFORMATION RAILROADS
FILE No. THE NICKEL PLATE -J160
RAILROADS -J540
**PILE TEST DATA**

**LOCATION** Virginia  
**DATE DRIVEN** 12-17-17 SEPTEMBER 1956  
**DATE TESTED**  
**OWNER**  
**CONTRACTOR**  
**TESTED BY**  
**HAMMER TYPE** Steam Vulcan No 1  
**PILE TYPE** Concrete, cast in place steel pipe  
**WEIGHT**  
**STROKE**  
**ENERGY**  
**BLOWS PR MIN**  
**FINAL PENETRATION** 100 blows/"  
**DRIVEN LENGTH** 850 ft  
**EMBEDDED LENGTH** 842 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOIL DESCRIPTION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPTH FT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLOWS PR FT PENETRATION RATE</td>
<td>20</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>N°</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
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<td>9</td>
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<td></td>
</tr>
<tr>
<td>32</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS.** Test Pile No 9 North Abut  
East Branch Creek Bridge  
Hampton Roads Project  
Contract 3-2  
Sta 740+49.25'  

**SOURCE OF INFORMATION**  
Parsons, Brinckerhoff, Private  
Hall, Hines, Donald, Consultants  
JS RO
**PILE TEST DATA**

**LOCATION**
Virginia

**DATE DRIVEN**
4 April 1956

**DATE TESTED**
10-16 April 1956

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE**
Steam Vulcan No. 1

**WEIGHT**

**STROKE**

**ENERGY**

**BLOWS PR MIN**
50

**PILE TYPE**
Steel pipe

**PILE DIMENSIONS**
7 gauge 12" diam.

**DRIVEN LENGTH**
35.0 ft

**EMBEDDED LENGTH**
30 ft

**PILE TYPF**
Screw driven

**PILE DIMENSIONS**

**WEIGHT**

**DRIVEN LENGTH**
35.0 ft

**EMBEDDED LENGTH**
30 ft

**FINAL PENETRATION**
12 blows/in.

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>Test Load Tons</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
</tr>
<tr>
<td>50</td>
</tr>
<tr>
<td>75</td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth Ft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fine sand</td>
<td>10</td>
</tr>
<tr>
<td>Sandy soil</td>
<td>20</td>
</tr>
<tr>
<td>Fine gravel</td>
<td>30</td>
</tr>
<tr>
<td>Sand and shell</td>
<td>40</td>
</tr>
<tr>
<td>Sand and shell</td>
<td>50</td>
</tr>
<tr>
<td>Gravel and shell</td>
<td>60</td>
</tr>
</tbody>
</table>

**DEPTH**

**BLOWS PER FOOT**

**PENETRATION RATE**

**REMARKS**
Test pile No 13 North Abut
East Branch Creek Bridge
Hampton Roads Project

Contract B-2 Pile not filled with concrete

Sta 740 + 925

**SOURCE OF INFORMATION**
Parsons, Brinckerhoff, Private
Hall & Mac Donald Consultants

**FILE NO.**
J540
### PILE TEST DATA

**Location:** VIRGINIA  
**Date Driven:** 4 April 1956  
**Date Tested:** 23 April - 2 May 1956

<table>
<thead>
<tr>
<th>Hammer Type</th>
<th>Weight</th>
<th>Stroke</th>
<th>Energy</th>
<th>Blows Pr Min</th>
<th>Final Penetration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steam Vulcan No 1</td>
<td></td>
<td></td>
<td></td>
<td>60</td>
<td>17 blows/ft</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pile Type</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>STEEL PIPE</td>
<td>7 1/2 in dia, Spiral Welded</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Owner</th>
<th>Contractor</th>
<th>Tested By</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Settlement in Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>0.025</td>
</tr>
<tr>
<td>50</td>
<td>0.050</td>
</tr>
<tr>
<td>75</td>
<td>0.100</td>
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</table>

<table>
<thead>
<tr>
<th>Test Load</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth (FT)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some sand above less shell fragment</td>
<td>10</td>
<td>TestPILE</td>
</tr>
<tr>
<td>Most firm sandy soil with some shell frag</td>
<td>20</td>
<td>TestPILE</td>
</tr>
<tr>
<td>Satiny clay with some shell frag</td>
<td>30</td>
<td>TestPILE</td>
</tr>
<tr>
<td>Moist fine green silt and sand</td>
<td>40</td>
<td>TestPILE</td>
</tr>
<tr>
<td>Very fine gravel</td>
<td>50</td>
<td>TestPILE</td>
</tr>
</tbody>
</table>


**Source of Information:** Parsons, Brinckerhoff, Private. Hall & MacDonald, Inc. Consultants.
PILE TEST DATA

LOCATION: VIRGINIA
DATE DRIVEN: 23 MAY 1956
DATE TESTED: 28 MAY - 4 JUNE 1956

HAMMER TYPE: STEAM VULCAN No 1
WEIGHT
STROKE
ENERGY
BLOWS PR MIN: 60
FINAL PENETRATION

OWNER
CONTRACTOR
TESTED BY

PILE TYPE: STEEL PIPE
PILE DIMENSIONS: 7 Gauge 12" diam
SPIRAL WELDED - 5/8" x 12½" weld, plate spig.

WEIGHT
DRIVEN LENGTH: 96 08 ft
EMBEDDED LENGTH: 73 67 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>LOAD</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>TEST</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>40</th>
<th>60</th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>PENETRATION RATE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS. Test Pile No 18 Par 4 E
East Branch Creek Bridge
Hampton Roads Project
Contract B-2

SOURCE OF INFORMATION
PARSONS, BRINCKERHOFF, PRIVATE
HALL & MAC DONALD, INC. CONSULTANTS
FILE No.

FILE N.
**- PILE TEST DATA -**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>VIRGINIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>31 AUGUST 1956</td>
</tr>
<tr>
<td>DATE TESTED</td>
<td>21-25 SEPTEMBER 1956</td>
</tr>
<tr>
<td>OWNER</td>
<td></td>
</tr>
<tr>
<td>CONTRACTOR</td>
<td></td>
</tr>
<tr>
<td>TESTED BY</td>
<td>CONCRETE CAST IN PLACE STEEL MONOTUBE</td>
</tr>
<tr>
<td>HAMMER TYPE</td>
<td>STEAM VULCAN NO 1</td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>STROKE</td>
<td></td>
</tr>
<tr>
<td>ENERGY</td>
<td></td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td>50</td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td>18 blows/1&quot;</td>
</tr>
<tr>
<td>PILE TYPE</td>
<td>3&quot; gauge tapered</td>
</tr>
<tr>
<td>PILE DIMENSIONS</td>
<td>Top diam 8&quot; Butt diam 12&quot;</td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>DRIVEN LENGTH</td>
<td>50.0 FT</td>
</tr>
<tr>
<td>EMBEDDED LENGTH</td>
<td>30 92</td>
</tr>
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<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS/PER INST PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>40</td>
</tr>
<tr>
<td></td>
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<td>-</td>
<td></td>
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<td></td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:**
Test Pile No 5 Pier No 3E  
John's Creek Bridge  
Hampton Roads Project  
Contract B-3

**SOURCE OF INFORMATION:**  
Parsons, Brinckerhoff, Private  
Hall, & Mac Donald, Inc, Consultants  
FILE N.: JS40
- PILE TEST DATA -

LOCATION: CHESAPEAKE BAY, VIRGINIA

DATE DRIVEN: 19 JULY 1985

DATE TESTED: 26 SEP - 1 OCT 1985

OWNER:

CONTRACTOR:

TESTED BY:

HAMMER TYPE: Steam McNierney-Terry 3-B

PILE TYPE: CONCRETE - PRESTRESSED

PILE DIMENSIONS: 24" sq

WEIGHT:

STROKE:

ENERGY:

BLOWS PR MIN:

FINAL PENETRATION:

25 blows/12"

PILE TEST DATA

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DATE DRIVEN</th>
<th>DATE TESTED</th>
<th>OWNER</th>
<th>CONTRACTOR</th>
<th>TESTED BY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHESAPEAKE BAY, VIRGINIA</td>
<td>19 JULY 1985</td>
<td>26 SEP - 1 OCT 1985</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HAMMER TYPE</th>
<th>WEIGHT</th>
<th>STROKE</th>
<th>ENERGY</th>
<th>BLOWS PR MIN</th>
<th>FINAL PENETRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steam McNierney-Terry 3-B</td>
<td></td>
<td></td>
<td></td>
<td>25 blows/12&quot;</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PILE TYPE</th>
<th>PILE DIMENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONCRETE - PRESTRESSED</td>
<td>24&quot; sq</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Fine Gravel &amp; Sand</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Muddy grey, sand &amp; gravel</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Fine Grey, sand &amp; gravel</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Fine Grey, sand &amp; gravel</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Fine Grey, clay &amp; sand</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Fine Grey, clay &amp; sand</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td>Fine Grey, clay &amp; sand</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>Fine Grey, clay &amp; sand</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>Fine Grey, clay &amp; sand</td>
<td>90</td>
<td></td>
</tr>
<tr>
<td>Fine Grey, clay &amp; sand</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: Test Pile No. 3, Bent No. 30N
North Approach Bridge
Hampton Roads Project

SOURCE OF INFORMATION: Private
FILE NO.: PAETNS, BRINCKERHOFF
CONSULTANTS: HALL, MAC DONALD, INC
PRIVATE: J540
PILE TEST DATA

LOCATION  CHESAPEAKE BAY VIRGINIA
DATE DRIVEN
DATE TESTED  7-12 OCTOBER 1955
OWNER  
CONTRACTOR  
TESTED BY  
HAMMER TYPE  
WEIGHT  
STROKE  
ENERGY  
BLOWS PR MIN  
FINAL PENETRATION  
PILE TYPE  CONCRETE - PRESTRESSED
PILE DIMENSIONS  24" Sq
TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

Galloes per Foot PENETRATION RATE

TEST LOAD IN INCHES

10

5

20

25

REMARKS.

Test Pile No 3, Bent No 635
South Approach Bridge
Hampton Roads Project

SOURCE OF INFORMATION  
Parsons, Brunnerhoff, Private
Hall & Mac Donald, Inc  Consultants

FILE NO  
37
38

50

40

30

20

10
LOCATION: Chesapeake Bay, Norfolk, Virginia
OWNER: 
CONTRACTOR: 
TESTED BY: 

DATE DRIVEN: 22 March - 3 April 1964
DATE TESTED: 

HAMMER TYPE: Steam Vulcan 4.0
WEIGHT: 
STROKE: 
ENERGY: 
BLOWS PR MIN: No 1 No 2
DRIVEN LENGTH: 52 ft 51 ft 51 ft
EMBEDDED LENGTH: 

PILE TYPE: Concrete Prestressed
PILE DIMENSIONS: 6" diam cylindrical

<table>
<thead>
<tr>
<th>PILE LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>EMBED. FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Water</td>
<td>10</td>
<td>50, 100, 150</td>
</tr>
<tr>
<td>200</td>
<td>Med. grey sand</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>300</td>
<td>Grey silt</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Silt/shells</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fine grey silt</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fine grey sand</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fine grey silt</td>
<td>60</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Silty sand</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: Test pile Nos 142 Bent No 165
Hampton Roads Bridge-Tunnel
Project - Load was supported
by both piles

SOURCE OF INFORMATION: Parson, Brinkerhoff, Hall
FILE No: Private
Consultants: McDonald Inc
J 540
**PILE TEST DATA**

**LOCATION** CUBSARENE BAY, VIRGINIA

**DATE DRIVEN**

**DATE TESTED** 14-20 JUNE 1956

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** STEAM VULCAN 4-0

**WEIGHT**

**STROKE**

**ENERGY**

**BLOWS PR MIN** No. 1 No. 2

**FINAL PENETRATION** 12 blows/12' 12 blows/12'

**PILE TYPE** CONCRETE PRESTRESSED

**PILE DIMENSIONS** 54'' Diam Cylindrical

**WATER LEVEL**

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>ELEV FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>ELEV FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**

Test Pile Nos 182 Book No 19-5

Hampton Roads Bridge-Tunnel

Project - Load was supported by West pile. (No 1?)

**SOURCE OF INFORMATION**

**FILE No.**

Parson, Brinckerhoff, PRIVATE

Hall, E Mac Donald Inc. CONSULTANTS

J540
LOCATION: Chesapeake Bay, Virginia

DATE DRIVEN: ____________
DATE TESTED: 3-16 February 1996

OWNER: ____________________
CONTRACTOR: ________________
TESTED BY: ________________

HAMMER TYPE: Steam Vulcan 4.0
WEIGHT: ____________________
STROKE: ____________________
ENERGY: ____________________
BLOWS PR MIN: No 1 No 2
FINAL PENETRATION: 15 blows/12" 14 blows/12" EMBEDDED LENGTH: 27' 4' 26'4" FT

PILE TYPE: Concrete Prestressed
PILE DIMENSIONS: 5'4" Diam Cylindrical

TEST LOAD (TONS)
100 200 300

SOIL DESCRIPTION ELEV. BLows per FOOT PENETRATION RATE

40 60 120

TEST LOAD (TONS) vs. SETTLEMENT IN INCHES

REMARKS:
Test Pile No 182 Beam No 245
Hampton Roads Bridge Tunnel
Project West pile was tested (No 17)

SOURCE OF INFORMATION: PARSONS, BRINCKERHOFF, PRIVATE
FILE No.: HALL & MACDONALD, INC CONSULTANTS

FILE No.: 1540
**PILE TEST DATA**

**LOCATION** Chesapeake Bay, Virginia  
**DATE DRIVEN** ___________________________  
**DATE TESTED** 9-10 October 1950  
**OWNER** ___________________________  
**CONTRACTOR** ___________________________  
**TESTED BY** ___________________________

**HAMMER TYPE** Steam Vulcan 4-0  
**PILE TYPE** Concrete Prestressed  
**PILE DIMENSIONS** 64" Dia Cylindrical  
**WEIGHT** No 1 No 2  
**STROKE** ___________________________  
**ENERGY** ___________________________  
**BLOWS PR MIN** No 1 No 2  
**DRIVEN LENGTH** 72' 72'  
**FINAL PENETRATION** 12 blows/12" 16 blows/12"  
**EMBEDDED LENGTH** 314' 487'  

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>ELEV FT</th>
<th>B'SH/P FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Med to Coarse</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey sand</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shells</td>
<td>-10</td>
<td></td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>-20</td>
<td></td>
</tr>
<tr>
<td>Grey green</td>
<td>-30</td>
<td></td>
</tr>
<tr>
<td>Silt race</td>
<td>-40</td>
<td></td>
</tr>
<tr>
<td>Fine grey</td>
<td>-50</td>
<td></td>
</tr>
<tr>
<td>Silt</td>
<td>-60</td>
<td></td>
</tr>
<tr>
<td>Med brown</td>
<td>-70</td>
<td></td>
</tr>
<tr>
<td>Sand</td>
<td>-80</td>
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<tr>
<td>Fine grey</td>
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<td>Silty clay</td>
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<tr>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/2</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>3/4</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
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<td>1/2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>1/4</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>1/8</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>1/16</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>1/32</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>1/64</td>
<td>8</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS.** Test Pile No 18, Bent No 45  
South Approach Bridge  
Hampton Roads Project  
Oct 11 rig rubbed against test pile and crumbled it.

**SOURCE OF INFORMATION** FILE No.
Parsons, Brinckerhoff, Private  
Hall & Macdonald, Inc. Consultants  
1540
# PILE TEST DATA

**Location:** Chesapeake Bay, Virginia

**Date Driven:** 16 September 1955 (22)

**Date Tested:** 17-21 September 1955

**Hammer Type:** Steam Vulcan No. 4-D

**Owner:**

**Contractor:**

**Tested by:**

**Overall Dimensions:** SA. Diam. Cylindrical

**Pile Dimensions:**

<table>
<thead>
<tr>
<th>Part</th>
<th>No. 1</th>
<th>No. 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hammer Type</strong></td>
<td>No. 1</td>
<td>No. 2</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Stroke</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Energy</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Blows per Min</strong></td>
<td>18 blows/12'</td>
<td>18 blows/12'</td>
</tr>
<tr>
<td><strong>Final Penetration</strong></td>
<td>18 blows/12'</td>
<td>18 blows/12'</td>
</tr>
<tr>
<td><strong>Driven Length</strong></td>
<td>800 ft</td>
<td>81.75 ft</td>
</tr>
<tr>
<td><strong>Embeded Length</strong></td>
<td>83.8 ft</td>
<td>27.7 ft</td>
</tr>
</tbody>
</table>

## Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (tons)</th>
<th>100</th>
<th>200</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Settlement in Inches</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>40</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Soil Description**

<table>
<thead>
<tr>
<th>Soil Type</th>
<th>Elevation FT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>10</td>
</tr>
<tr>
<td>Mod to coarse grey sand gravel &amp; shells</td>
<td>19</td>
</tr>
<tr>
<td>Grey green silt trace fine sand</td>
<td>24</td>
</tr>
<tr>
<td>Med brown sand</td>
<td>40</td>
</tr>
<tr>
<td>Fine grey sandy silt</td>
<td>50</td>
</tr>
<tr>
<td>Fine grey silt sand</td>
<td>60</td>
</tr>
</tbody>
</table>

**Remarks:**

Test pile No. 122, Bent No. 46
South Approach Bridge
Hampton Roads Project

Pile No. 2 was tested

**Source of Information:** Parsons, Brinckerhoff

**File No.:** Private

**Hall & Mac Donald, Inc. Consultants:** JESO
**PILE TEST DATA**

- **LOCATION**: Chesapeake Bay, Virginia
- **DATE DRIVEN**: 17 September 1955
- **DATE TESTED**: 15-20 July 1956
- **OWNER**
- **CONTRACTOR**
- **TESTED BY**

**HAMMER TYPE**: Steam Vulcan No 4-0
- **WEIGHT**
- **STROKE**
- **ENERGY**
- **BLOWS PR MIN**
- **FINAL PENETRATION**: 5 blows/12" 

**PILE TYPE**: Concrete Prestressed
- **PILE DIMENSIONS**: 34" Dia, Cylindrical

**WEIGHT**
- **DRIVEN LENGTH**: 48.0 ft
- **EMBEDDED LENGTH**: 32.2 ft

### Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load</th>
<th>100</th>
<th>200</th>
<th>300</th>
</tr>
</thead>
</table>

### Soil Description

- **ELEV FT**
- **Penetration Rate**

#### Remarks

- Test Pile No 1
- Bent No 59
- South Approach Bridge
- Hampton Roads Project

#### Source of Information

- Parsons, Brinckerhoff, Private
- Hall & Macdonald, Inc. Consultants
### PILE TEST DATA

**Location:** Washington D.C.

**Date Driven:** 25 Aug - 2 Sept 1942

**Hammer Type:** Steam Vulcan No. 1

**Weight:** 2.5 tons

**Stroke:** 36 in

**Energy:** 20,000 ft-lbs

**Blows per Min:** 21

**Final Penetration:** 8 1/2" 3/8"

**Owner:**

**Contractor:**

**Tested By:**

**PILE TYPE:** Concrete - Precast

**PILE DIMENSIONS:** 16" sq

**Energy:** 20,000 ft-lbs

**Weight:**

**Driven Length:**

**Embedded Length:** 44 25/"'

### Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
</table>

### Soil Description

- Yellow clay
- Brick, sandy, gravel

### Depth (FT)

- Blows per Foot
- Penetration Rate

### Penetration Rate

- 10
- 20
- 30
- 40
- 50

### Remarks

Test Pile No. B3 E, Abut. S.E. Wing Wall, Overpass 137 No. 121-1, Independence Ave.

**Source of Information:** District of Columbia

**File No:** Wash D.C.

**Dept of Highways:** 1540
### PILE TEST DATA

**Location:** Washington, D.C.

**Date Driven:**

**Date Tested:** 14 May 1942

**Hammer Type:** Steam Vulcan No. 1

**Weight:** 25 ft. 5,000 lbs

**Stroke:** 36 in.

**Energy:** 90 in. tons, 15,000 ft. lbs

**Blows pr. min:**

**Final Penetration:** 5 Blows/3'

### Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Soil Description

- Fill
- Any silt
- Slight sandy
- Thick clay
- Silt clay
- Sandy sand
- Clayey sand
- Coarse clay
- Grey clay
- Grey silt
- Clay
- Heavy sand
- Tip of Pile

### Depth

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>10</th>
<th>20</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Remarks

Test Pile No. 3 Bent No. 8 - 14th Street Grade Separation

### Source of Information

District of Columbia

File No.: JS 40

File No.: Wash D.C.

Dept of Highways: JS 40
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>WASHINGTON D.C.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td></td>
</tr>
<tr>
<td>DATE TESTED</td>
<td></td>
</tr>
<tr>
<td>HAMMER TYPE</td>
<td>STEAM VULCAN NO 1</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>2.5t, 5000 lbs</td>
</tr>
<tr>
<td>STROKE</td>
<td>36 in, 30 ft</td>
</tr>
<tr>
<td>ENERGY</td>
<td>90 in. tons, 15,000 ft lbs</td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td></td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td>15 Blows/3&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OWNER</th>
<th>CONTRACTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PILE TYPE</th>
<th>Steel Monotube</th>
</tr>
</thead>
<tbody>
<tr>
<td>PILE DIMENSIONS</td>
<td>11 - 14&quot; Tip - 8&quot;</td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>DRIVEN LENGTH</td>
<td></td>
</tr>
<tr>
<td>EMBEDDED LENGTH</td>
<td>92 ft</td>
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<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOIL DESCRIPTION</td>
<td>FILL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPTH FT</td>
<td>10</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>PENETRATION RATE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>REMARKS</th>
<th>Test Pile No 16, Bent No 22, 14th Street Grade Separation</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>SOURCE OF INFORMATION</th>
<th>FILE NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISTRICT OF COLUMBIA</td>
<td>3540 D.C.</td>
</tr>
<tr>
<td>DEPT. OF HIGHWAYS</td>
<td>J540</td>
</tr>
</tbody>
</table>
# Pile Test Data

**Location:** Washington, D.C.  
**Date Driven:** 25 May 1942  
**Date Tested:**

**Hammer Type:** Steam Vulcan No. 1  
**Weight:** 25' 5000 lbs  
**Stroke:** 36" 30 ft  
**Energy:** 90 in. tons 15,000 ft lbs  
**Blows per Min:**

**Pile Type:** Steel Monotube  
**Pile Dimensions:** Butt: 14"  
**Tip:** 6"  
**Weight:**

**Driven Length:** 64 ft  
**Embedded Length:**

## Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load</th>
<th>20</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.25</td>
<td>0.50</td>
<td></td>
</tr>
</tbody>
</table>

## Soil Description

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

## Remarks

Test Pile No. 3, Bent No. 26  
14th Street, Grade Separation

**Source of Information:** District of Columbia, Wash., D.C.

**File No.:** 1540

---

**Owner:**

**Contractor:**

**Tested By:**
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>Location</th>
<th>Washington D.C.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date Driven</td>
<td>July 2, 1942</td>
</tr>
<tr>
<td>Date Tested</td>
<td></td>
</tr>
<tr>
<td>Hammer Type</td>
<td>Steam McKinnon Twin 983</td>
</tr>
<tr>
<td>Weight</td>
<td></td>
</tr>
<tr>
<td>Stroke</td>
<td></td>
</tr>
<tr>
<td>Energy</td>
<td></td>
</tr>
<tr>
<td>Blows Pr Min</td>
<td></td>
</tr>
<tr>
<td>Final Penetration</td>
<td>35 Blows/2'</td>
</tr>
</tbody>
</table>

| Owner           |                 |
| Contractor      |                 |
| Tested By       |                 |
| Pile Type       | Steel Monotube  |
| Pile Dimensions | Butt - 14"      |
|                 | Tip - 8"        |
| Weight          |                 |
| Driven Length   | 66 3            |
| Embedded Length |                 |

### Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load</th>
<th>25</th>
<th>30</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Settlement in Inches

<table>
<thead>
<tr>
<th>Settlement</th>
<th>0.25</th>
<th>0.5</th>
<th>1.0</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Remarks

- Pile No. 62 South Por. 14 yd.
- Street Grade Separation
- Pile driven to resistance or 35 blows to last 3"

### Soil Description

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth (FT)</th>
<th>Penetration Rate (Blows per foot)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fill</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Grey silty clay</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(River Muck)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sandy silty clay</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td>clay sandy sand</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>silt, sand, clay</td>
<td>80</td>
<td>120</td>
</tr>
<tr>
<td>gravel, gravel, clay</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td>stone, stone, rock</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Source of Information

- District of Columbia: Wash D.C.
- Dept of Highways: J 540
-PILE TEST DATA-

LOCATION: WASHINGTON D.C.  
DATE DRIVEN:  
DATE TESTED: 26 JUNE 1942

OWNER:  
CONTRACTOR:  
TESTED BY:  

HAMMER TYPE: STEAM McMillan Terry 983  
PILE TYPE: STEEL Monotube  
PILE DIMENSIONS: BUT 14"  
TIP: 8"

WEIGHT:  
STROKE:  
ENERGY:  
BLOWS PR MIN: 35 Blows/3'  
FINAL PENETRATION:  
EQUIPMENT:  

TEST LOAD (TONS)

SOIL DESCRIPTION  
DEPTH (FT)  
FILL  20  40  80  120  
BRN  40  60  80  100  
GREY  60  80  100  120  
SILTY CLAY  
(RIVER MUCK)  
SANDY CLAY  
CLAY  
SILT  
SAND  
GRAVEL  
GREEN CLAY  
BEND  
GLACIAL FILL  
FILL  
ROCK  

Settlement in Inches

TEST LOAD (TONS)

REMARKS:
Test Pile No C 3 South Pier  
16th Street Grade Separation  
outlet structure. Pile driven  
to resistance of 35 blows to 10 ft 3"  

SOURCE OF INFORMATION:  
FILE NO:  

DISTRICT OF COLUMBIA  
WASH D.C.  
DEPT OF HIGHWAYS:  J540
PILE TEST DATA

LOCATION: WASHINGTON D.C.
DATE DRIVEN: 
DATE TESTED: 8 JUNE 1942
OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: STEAM VULCAN NO. 1
WEIGHT: 2.5 T
STROKE: 36 in
ENERGY: 90 tons
BLOWS PR MIN: 
FINAL PENETRATION: 

PILE TYPE: STEEL MONOTUBE
PILE DIMENSIONS: Butt - 14" Tip - 8"
WEIGHT: 
DRIVEN LENGTH: 74.23
EMBEDDED LENGTH: 

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS per 1000 PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Fill</td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Grey clay, sand, silt, organo matter gravel</td>
<td>0.50</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>sand, grey clay, silt</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: Test Pile No. 2 Bent No. 3
16th Street Grade Separation

Remarks: Driving stopped at 80' (10 blows/ft)
Next day drove 2' and mat natural - 12 blows for the last 20'.

SOURCE OF INFORMATION: DISTRICT OF COLUMBIA
FILE No: J540
DEPT OF HIGHWAYS: WASH DC
### PILE TEST DATA

**LOCATION:** Washington, D.C.  
**OWNER:**  
**DATE DRIVEN:** 3, 12 June 1942  
**DATE TESTED:**  
**TESTED BY:**  
**CONTRACTOR:**  
**PILE TYPE:** Steel  
**PILE DIMENSIONS:** Butt: 14"  
**WEIGHT:**  
**STROKE:**  
**ENERGY:**  
**BLOWS PR MIN:**  
**FINAL PENETRATION:**

<table>
<thead>
<tr>
<th>HAMMER TYPE</th>
<th>STEAM Vulcan No. 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT</td>
<td>25 ft</td>
</tr>
<tr>
<td></td>
<td>5000 lbs</td>
</tr>
<tr>
<td>STROKE</td>
<td>36 in</td>
</tr>
<tr>
<td>ENERGY</td>
<td>90 in tons</td>
</tr>
<tr>
<td></td>
<td>15,000 ft lbs</td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td></td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOIL DESCRIPTION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPTH FT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PENETRATION RATE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **SOIL DESCRIPTION:**
  - Fine brown clayey sand
  - Sand
  - Grey clayey sand
  - Grey silty clay
  - Sand and organic matter
  - Sand and clayey silt
  - Clayey silt
  - Sand and gravel
  - Sand and gravel
  - Tip of pile

- **BLOWS per FOOT PENETRATION RATE:**
  - 10
  - 20
  - 30

**REMARKS:**

Test Pile No. 586  
16th Street Bridge Separation  
Platform collapsed, failed to  
148 tons, hold of 0.33 in

**SOURCE OF INFORMATION:**  
**FILE NO.**

District of Columbia  
Washington, D.C.

Dept. of Highways  
J.540
**PILE TEST DATA**

**LOCATION** WASHINGTON, D.C.  
**DATE DRIVEN** 18 MAY 1942  
**DATE TESTED**  

**HAMMER TYPE** STEAM VULCAN NO 1  
**WEIGHT** 2.5 T  
**STROKE** 36 in.  
**ENERGY** 90 in. X 105  
**BLOWS PR. MIN**  

**OWNER**  
**CONTRACTOR**  
**TESTED BY**  

**PILE TYPE** STEEL MANGANESE  
**PILE DIMENSIONS** Butt. 14"  
**WEIGHT** 7¼ - 8  
**DRIVEN LENGTH**  

**EMBEDDED LENGTH** 32' 3"  

<table>
<thead>
<tr>
<th>WEIGHT</th>
<th>3000 lbs</th>
<th>30 ft</th>
<th>15,000 ft lbs.</th>
<th>14 B/min/3&quot;</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS PR FEET</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settled in inches</td>
<td>0.25</td>
<td>0.50</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS**  
Test Pile No 23, Bent No 26  
14th Street Grade Separation  
Pile partially collapsed 18 feet above point  

**SOURCE OF INFORMATION**  
DISTRICT OF COLUMBIA WASH D.C.  
DEPT OF HIGHWAYS J540  

**FILE No.**
PILE TEST DATA

LOCATION: WASHINGTON D.C.

DATE DRIVEN: 8 JUNE 1942

DATE TESTED: 8 JUNE 1942

OWNER: 

CONTRACTOR: 

TESTED BY: 

HAMMER TYPE: STEAM VULCAN NO. 1

WEIGHT: 2 ST. 5000 LBS

STROKE: 36 IN. 30 FT

ENERGY: 90 H.P.-TONS 15,000 FT LBS

BLOWS PR MIN: 

FINAL PENETRATION: 3 3/4 IN.

PILE TYPE: STEEL MANUFACTURE

PILE DIMENSIONS: Butt - 14

Tip - 8"

WEIGHT: 

DRIVEN LENGTH: 69 FT

EMBEDDED LENGTH: 65 FT

TEST LOAD (TONS)

25 50 75

SOIL DESCRIPTION

DEPTH FT

Blows per foot PENETRATION RATE

10 20 30

FILL

Grey clay. some silty organic matter gravel

sand

Grey clay & sand

Grey silty clay. some sand. organic matter

Grey sand

Fine sand

Grey clay silt

clayey silt

Sand & large gravel

REMARKS: Test Pile No. 4. Bent No. 14
14th Street Overpass

SOURCE OF INFORMATION: DISTRICT OF COLUMBIA
FILE No.: WASH D.C.

DEPT. OF HIGHWAYS: 1540
PILE TEST DATA

LOCATION: WASHINGTON, D.C.
DATE DRIVEN: 9 JUNE 1942
DATE TESTED: 9 JUNE 1942
OWNER:
CONTRACTOR:
TESTED BY:

HAMMER TYPE: STEAM VULCAN NO 1
WEIGHT: 25 ft
STROKE: 36 in
ENERGY: 90 in-lbs
BLOWS PR MIN:
FINAL PENETRATION: 15 blows/3'

PILE TYPE: STEEL MONOTUBE
PILE DIMENSIONS: Butt - 14" Tip - 8"
WEIGHT:
DRIVEN LENGTH: 97 3/4 ft
EMBEDDED LENGTH: 214 5/16 ft

TEST LOAD (TONS)
25 50 75

SOIL DESCRIPTION
DEPTH FT
Blows per foot PENETRATION RATE
10 20 30

FILE NO.
DISTRICT OF COLUMBIA WASH D.C.
DEPT OF HIGHWAYS: J540

REMARKS:
Test Pile No 18 Bent No 14
14th street Overpass

SOURCE OF INFORMATION:
Grovel Sonde Sntl tlh
Deiter urge AM
Soma cJay
Sreij Sand
e/atjZ e/by

Settlement in Inches
0.25
0.50

Graph showing test load vs settlement at different depths.

Graph showing soil description and blows per foot penetration rate at various depths.
PILE TEST DATA

LOCATION: Washington, D.C.
DATE DRIVEN: 15 June 1942
DATE TESTED: 

HAMMER TYPE: Steam Vulcan No. 1
WEIGHT: 25 ft
STROKE: 36 in
ENERGY: 5000 lbs
BLOWS PR MIN: 

PILE TYPE: Steel Monotube
PILE DIMENSIONS: Tip - 14'
WEIGHT: 
DRIVEN LENGTH: 960 ft
EMBEDDED LENGTH: 93.3 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOIL DESC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPTH FT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blows per ft</td>
<td>10</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>PENETRATION RATE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION:
- Grey clay
- Clayey sand
- Grey soil
- Sand
- Silt
- Organic matter
- Silty sand
- Grey clays
- Sand & gravel

REMARKS:
Test Pile No. 18, Bent No. 6
16th Street Grade Separation

SOURCE OF INFORMATION:
District of Columbia
FILE No.: J.540
DEPT. OF HIGHWAYS: WASH. D.C.
- PILE TEST DATA -

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>WASHINGTON, D.C.</th>
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<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>18 MAY 1942</td>
</tr>
<tr>
<td>DATE TESTED</td>
<td></td>
</tr>
<tr>
<td>OWNER</td>
<td></td>
</tr>
<tr>
<td>CONTRACTOR</td>
<td></td>
</tr>
<tr>
<td>TESTED BY</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HAMMER TYPE</th>
<th>STEAM VULCAN No. 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT</td>
<td>2.5 ft</td>
</tr>
<tr>
<td>STROKE</td>
<td>3000 lbs</td>
</tr>
<tr>
<td>ENERGY</td>
<td>36 in</td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td></td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PILE TYPE</th>
<th>STEEL MONOTUBE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PILE DIMENSIONS</td>
<td>BOLT - 14&quot; TIP - 8&quot;</td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>DRIVEN LENGTH</td>
<td>40 ft</td>
</tr>
<tr>
<td>EMBEDDED LENGTH</td>
<td>36.8 ft</td>
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<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>SETTLEMENT IN INCHES</td>
<td>0.25</td>
<td>0.50</td>
<td>0.75</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fill</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>Fill</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>Silt Mud</td>
<td>30</td>
<td>40</td>
</tr>
<tr>
<td>Clay Clayey</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS. Test Pile No B, Bent No 32
16th Street Grade Separation

SOURCE OF INFORMATION | DISTRICT OF COLUMBIA WASH. D.C.
FILE No. | DEPT OF HIGHWAYS J540
PILE TEST DATA

LOCATION: WASHINGTON D.C.

DATE DRIVEN: 11 MAY 1942

DATE TESTED: 11 MAY 1942

OWNER: 

CONTRACTOR: 

TESTED BY: 

HAMMER TYPE: STEAM VULCAN NO 1

WEIGHT: 25 ft 3,000 lbs

STROKE: 36 in 3.0 ft

ENERGY: 90 in-tens 15,000 ft-lbs

BLOWS PR MIN: 

FINAL PENETRATION: 11 Blows / 3" 

PILE TYPE: STEEL MONOPILE

PILE DIMENSIONS: Tip = 8" 

WEIGHT: 

DRIVEN LENGTH: 47 ft

EMBEDDED LENGTH: 43 ft

TEST LOAD (TONS):

25

50

75

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

BLOWS per foot

0.25

0.50

REMARKS: Test Pile No 3 Bent No 34

18th Street Overpass

SOURCE OF INFORMATION: DISTRICT OF COLUMBIA WASH D.C

FILE No: 1540

DEPT. OF HIGHWAYS

Mime A. Overpass
PILE TEST DATA

LOCATION CLEVELAND, OHIO

DATE DRIVEN 5 MAR 1951

DATE TESTED 22 MAR 1951

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE STEAM, VULCAN NO 02

WEIGHT 4650 LBS

STROKE 39 IN

ENERGY 182,710

BLOWS PR MIN 58

FINAL PENETRATION 42 1/2"

PILE TYPE STEEL pipe

PILE DIMENSIONS 10 3/8" OD pipe, 0.32" wall, 3 1/4" x 11 3/4" diam bottom flange

WEIGHT

DRIVEN LENGTH 118 FT

EMBEDDED LENGTH

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH FT

BLOWS PER FOOT PENETRATION RATE

20 to 40

15 to 50

9 to 60

3 to 90

25

50

75

100

125

Source of Information

FILE NO.

REPUBLIC STEEL CO ORD.

COLLECTION M-617-A

J. 540

REMARKS.

TEST PILE NO 4 OPEN HEARTH

SHOP NO 2 LOCATION 3 5 OF

3 7 DURING NO 5

Unconfined compressive strength values

(Qu) taken from ASCE Separate Note 5/3

October 1954

SOURCE OF INFORMATION

FILE NO.

REPUBLIC STEEL CO ORD.

COLLECTION M-617-A

J. 540
### PILE TEST DATA

**Location**: Cleveland, Ohio

**Date Driven**: 5 Mar 1951

**Date Tested**: 18 Mar 1951

**Hammer Type**: Steam, Vulcan No OR

**Weight**: 465 lb

**Stroke**: 39 in

**Energy**: 182 ft lb

**Blows Pr Min**: 59

**Final Penetration**: 36/12"

**Owner**: 

**Contractor**: 

**Tested By**: 

**Pile Type**: Steel Pipe

**Pile Dimensions**: 3/4" OD pipe, 0.312" wall. 3/4" x 11/2" diam bottom plate

**Weight**: 

**Driven Length**: 

**Embedded Length**: 126 ft

---

**Test Load (Tons)**

<table>
<thead>
<tr>
<th>100</th>
<th>200</th>
<th>300</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>15</td>
<td>50</td>
<td>75</td>
</tr>
<tr>
<td>25</td>
<td>100</td>
<td>125</td>
</tr>
</tbody>
</table>

**Soil Description**

<table>
<thead>
<tr>
<th>Depth FT</th>
<th>Blows per foot penetration rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>60</td>
</tr>
<tr>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>50</td>
<td>10</td>
</tr>
</tbody>
</table>

**Remarks**: Test pile No 3, open head

Shop No. 9, Location: 30' N & 20' E of ST No 1

Unconfined compressive strength values (Su)

Source of Information: Republic Steel Corp.

File No.: J-199

Formation: N-616-B

J-540
-PILE TEST DATA-

LOCATION: CLEVELAND, OHIO

DATE DRIVEN: 2 MAR 1951

DATE TESTED: 14 MAR 1951

HAMMER TYPE: STEAM, Vulkan no OP
WEIGHT: 4.65 t
STROKE: 39 in
ENERGY: 182.4 in
BLOWS PR MIN: 58
FINAL PENETRATION: 30'/2

PILE TYPE: STEEL, Pipe
PILE DIMENSIONS: 10 3/4" OD pipe, 0.32" wall
WEIGHT: 3 1/8" diam bottom pl

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
<td>Sand &amp; gravel</td>
<td>20</td>
<td>0.05 ft/ton</td>
</tr>
<tr>
<td>200</td>
<td>Silty clay</td>
<td>30</td>
<td>0.10 ft/ton</td>
</tr>
<tr>
<td>300</td>
<td>Gray silty</td>
<td>40</td>
<td>0.15 ft/ton</td>
</tr>
<tr>
<td></td>
<td>clay with pebbles</td>
<td>50</td>
<td>0.20 ft/ton</td>
</tr>
<tr>
<td></td>
<td>dense silt</td>
<td>60</td>
<td>0.25 ft/ton</td>
</tr>
<tr>
<td></td>
<td></td>
<td>70</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>80</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>90</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: TEST PILE NO 2, OPEN HEALTH
SHOP NO 2, LOCATION '85',
North 0 20', West of ST Bonaventure

SOURCE OF INFORMATION:
REPUBLIC STEEL CO.
FILE No: J 199
LOCATION: M-615-13

Unconfined compressive strength values (fs)
taken from ASCE Spec. No. 53, Sec. 1.54
- PILE TEST DATA -

LOCATION CLEVELAND, OHIO
DATE DRIVEN 27 FEB 1951
DATE TESTED 02 MAR 1951 X 28 MAR

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM, Vulcan No OR
WEIGHT 465 lb 9300 lb
STROKE 39 in 325 ft
ENERGY 182 ft lb 3000 ft lb
BLOWS PR MIN 58
FINAL PENETRATION 54 1/2'

PILE TYPE STEEL Pipe
PILE DIMENSIONS 10 3/4 OD PIPE
0 3/8" wall 4 1/4 x 1 1/4" chan bottom pl
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 126 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH</th>
<th>BLOWS per Foot PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td>5.0</td>
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</tr>
<tr>
<td>150</td>
<td></td>
<td>0.25</td>
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<tr>
<td>200</td>
<td></td>
<td>5.0</td>
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<tr>
<td>250</td>
<td></td>
<td>0.25</td>
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<tr>
<td>300</td>
<td></td>
<td>5.0</td>
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</tr>
<tr>
<td>350</td>
<td></td>
<td>0.25</td>
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<tr>
<td>400</td>
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<tr>
<td>450</td>
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<td>0.25</td>
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<td>0.25</td>
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<td>600</td>
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<td>650</td>
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<td>0.25</td>
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<td>700</td>
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<td>5.0</td>
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<td>750</td>
<td></td>
<td>0.25</td>
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<td>800</td>
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<td>5.0</td>
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<td>850</td>
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<td>0.25</td>
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<tr>
<td>900</td>
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<td>5.0</td>
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</tr>
<tr>
<td>950</td>
<td></td>
<td>0.25</td>
<td></td>
</tr>
<tr>
<td>1000</td>
<td></td>
<td>5.0</td>
<td></td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION
1. F to s sand
2. S or C s silt
3. F to coarse A soil
4. Gray silt clay
5. Clay
6. Gray silt clay
7. Gray silt clay
8. Gray silt clay

REMARKS.
TEST PILE NO. 1, OPEN HEARTH
SHOP NO. 2 LOCATION 12' EAST OF 37 BORING NO. 6
Uncalculated compressive strength values (G)
taken from ASCE separate No 313 Oct 1951

SOURCE OF INFORMATION
REPUBLIC STEEL CORP.
FILE No.
FORICATION N-613-B
N-618-B

309
- PILE TEST DATA -

LOCATION CLEVELAND, OHIO
DATE DRIVEN 24 APRIL 1949
DATE TESTED
OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM, Vulcan no 50-c
WEIGHT
STROKE
ENERGY
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE STEEL, pipe-pile
PILE DIMENSIONS 10 3/4" pipe
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 11/2 ft

TEST LOAD (TONS)

0
0.5
1.0
1.5

TEST LOAD (TONS)

50
100
150

SOIL DESCRIPTION

DEPTH FT

50
100
150

BLOWS per foot PENETRATION RATE

Glacial till

20
40
60
80
100

Glacial lake clays

Glacial till

REMARKS. PILE NO 17, PIER NO 51 1/2 B
OPEN HEARTH, NO 15 ON PC E

SOURCE OF INFORMATION FILE N.
REPUBLIC STEEL CO.
LOCATION M-587-A

FILE N. 3 199
3 540
### PILE TEST DATA

**Location:** Cleveland, Ohio  
**Date Driven:** 12 March 1949  
**Date Tested:**  
**Owner:**  
**Contractor:**  
**Tested by:**  

**Hammer Type:** STEM, Vulcan no 50-C  
**Weight:**  
**Stroke:**  
**Energy:**  
**Blows per min:**  
**Final Penetration:**  

**Pile Type:** Steel, Pipe-pile  
**Pile Dimensions:** 10 3/4" pipe  
**Weight:**  
**Driven Length:**  
**Embedded Length:** 130 ft  

### Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

### Soil Description

- Glacial till
- Glacial lake clays
- Glacial till

### Depth

<table>
<thead>
<tr>
<th>Depth (ft)</th>
<th>75</th>
<th>100</th>
<th>125</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

### Penetration Rate

<table>
<thead>
<tr>
<th>Blows per foot penetration rate</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source of Information: Republic Steel Corp.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**File No.:** J 199  
**Ration No. 15 on file:**  
**H-582-A:** J 540  

**Remarks:** Pile No 46, Pier No 56  
Open hearth, iron pipe
# Pile Test Data

**Location:** New Orleans, Louisiana  
**Owner:**  
**Contractor:**  
**Tested By:**  
**Date Driven:** 3 Jan 1956  
**Date Tested:** 19–23 Jan. 1956

**Hammer Type:** Steam, Vulcan No. 1  
**Weight:** 2 1/2 ton 5000 lbs  
**Stroke:** 36 in 3 ft  
**Energy:** 36 ft 10 in 1500 ft lbs  
**Blows Per Min:**  
**Final Penetration:** 4 1/2"  

### Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>25</th>
<th>50</th>
<th>70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settles Note</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
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<td></td>
<td>7</td>
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<td>9</td>
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<td></td>
<td>10</td>
<td>11</td>
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<tr>
<th>Soil Description</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
<th>5th</th>
<th>6th</th>
<th>7th</th>
<th>8th</th>
<th>9th</th>
<th>10th</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Source of Information</th>
<th>File No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greater New Orl Bridge</td>
<td>MID-0016</td>
</tr>
<tr>
<td>Thalia-Bingher St</td>
<td>S35K8</td>
</tr>
<tr>
<td>H&amp;M Supp. Draw 65</td>
<td>5140</td>
</tr>
</tbody>
</table>
**PILE TEST DATA**

**LOCATION:** NEW ORLEANS, LOUISIANA  
**DATE DRIVEN:** 4 Jan 1956  
**DATE TESTED:** 19 Jan-3 Feb 1956

**HAMMER TYPE:** STEAM, Vulcan No 1  
**WEIGHT:** 3.5 t  
**STROKE:** 3.75 m  
**ENERGY:** 30,000 ft lbs  
**BLOWS PR MIN:** 10/32"  
**FINAL PENETRATION:**

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soil Description</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depth FT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blows per foot</td>
<td>10</td>
<td>20</td>
<td>30</td>
</tr>
</tbody>
</table>

**REMARKS:**  
TEST PILE D, TOLL PLAZA  
No. 2 see Pile No 312

**SOIL DESCRIPTION:**
- L, T2: Soft gray clay with organic matter
- L, T3: Soft gray clay with soil lenses
- T2: Soft gray clay
- T3: Soft gray clay with soil lenses
- T4: Medium gray clay
- T5: Soft clay with shell fragments
- T6: Soft clay with silt inclusions
- Tip:  

**EMBEDDED LENGTH:** 100 ft

**LOCATION:**
- Source of Information: Greater New Orleans Bridge
- File No: THALIA-DRINGRIDGE ST
- Number: 65 SUPPL DRAW 65 7340

**CONTRACTOR:**
- OWNER:
- TESTED BY:
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>OWNER</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEW ORLEANS, LOUISIANA</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATE DRIVEN</th>
<th>DATE TESTED</th>
<th>HAMMER TYPE</th>
<th>WEIGHT</th>
<th>STROKE</th>
<th>ENERGY</th>
<th>BLOWS PR MIN</th>
<th>FINAL PENETRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 FEB 1956</td>
<td>21-27 FEB 1956</td>
<td>STEAM, Vulcan no. 1</td>
<td>8.5 t</td>
<td>36 in</td>
<td>90 ft</td>
<td>8,000 lb</td>
<td>3/8&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DATE DRIVEN</th>
<th>DATE TESTED</th>
<th>HAMMER TYPE</th>
<th>WEIGHT</th>
<th>STROKE</th>
<th>ENERGY</th>
<th>BLOWS PR MIN</th>
<th>FINAL PENETRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 FEB 1956</td>
<td>21-27 FEB 1956</td>
<td>STEAM, Vulcan no. 1</td>
<td>8.5 t</td>
<td>36 in</td>
<td>90 ft</td>
<td>8,000 lb</td>
<td>3/8&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PILE TYPE</th>
<th>PILE DIMENSIONS</th>
<th>HAMMER TYPE</th>
<th>WEIGHT</th>
<th>STROKE</th>
<th>ENERGY</th>
<th>BLOWS PR MIN</th>
<th>FINAL PENETRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIMBER</td>
<td>6&quot; tip x 16&quot; butt</td>
<td>STEAM, Vulcan no. 1</td>
<td>8.5 t</td>
<td>36 in</td>
<td>90 ft</td>
<td>8,000 lb</td>
<td>3/8&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>L, P1</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>70</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

- L, P1: Soft clay with organic matter
- Layers of clay
- Soft, grey clay with soft, grey clay
- Soft, grey clay with soft, grey clay
- Med dense sand
- Med dense sand

**REMARKS**

- TEST PILE - AT-3/1
- N, See Pile No 312

**SOURCE OF INFORMATION**

- GREATER NEW ORLEANS BRIDGE AUTHORITY
- THALIA-BRIGNIER ST MASTERS

**FILE N.**

- GREATER NEW ORLEANS BRIDGE AUTHORITY
- MEDICAL SUPPLY DRAW 66
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>NEW ORLEANS, LOUISIANA</th>
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<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>16 FEB 1956</td>
</tr>
<tr>
<td>DATE TESTED</td>
<td>21-26 FEB 1956</td>
</tr>
<tr>
<td>OWNER</td>
<td></td>
</tr>
<tr>
<td>CONTRACTOR</td>
<td></td>
</tr>
<tr>
<td>TESTED BY</td>
<td></td>
</tr>
<tr>
<td>HAMMER TYPE</td>
<td>STEAM, Vulcan no.1</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>22.5 ft</td>
</tr>
<tr>
<td>STROKE</td>
<td>36 in</td>
</tr>
<tr>
<td>ENERGY</td>
<td>90 lb</td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td>37.5</td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td>6/4</td>
</tr>
<tr>
<td>PILE TYPE</td>
<td>TIMBER</td>
</tr>
<tr>
<td>PILE DIMENSIONS</td>
<td>6&quot; tip &lt; 16&quot; butt</td>
</tr>
<tr>
<td>WEIGHT</td>
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<tr>
<td>DRIVEN LENGTH</td>
<td></td>
</tr>
<tr>
<td>EMBEDDED LENGTH</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>PENETRATION RATE</td>
<td>0.0</td>
<td>0.2</td>
<td>0.5</td>
</tr>
<tr>
<td>DEPTH (FT)</td>
<td>25</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>BLOWS per FOOT PENETRATION RATE</td>
<td>10</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>BLOWS per FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS:**

TEST PILE NO AT-3-2

†N See Pile No 312

**SOURCE OF INFORMATION FILE No:**

GREATER NEW ORLEANS BRIDGE MODIESKI
TALIAH-BRIGHGIE ST MASTERS
1729 SUPPL DRAW 65 7-540
-PILE TEST DATA-

LOCATION: NEW ORLEANS, LOUISIANA

DATE DRIVEN: 18 FEB 1986
DATE TESTED: 21-24 FEB 1986

HAMMER TYPE: STEAM, Vulcan No 1
WEIGHT: 40 kips
STROKE: 36 in
ENERGY: 20 ton-m
BLOWS PR MIN: 7
FINAL PENETRATION: 0.5 ft

PILE TYPE: TIMBER
PILE DIMENSIONS: 6 in dia, 16 in long

WEIGHT: 
DRIVEN LENGTH: 60 ft
EMBEDDED LENGTH: 

TEST LOAD (TONS)

SOIL DESCRIPTION

TEST PILE PT-4-1

REMARKS

SOURCE OF INFORMATION: GREATER NEW ORLEANS BRIDGE
FILE NO: H0303-

THALIA-BOINNER ST.
Masters
NEW SUPPL DRW 67 J 540
PILE TEST DATA

LOCATION: NEW ORLEANS, LOUISIANA

DATE DRIVEN: 18 FEB 1956
DATE TESTED: 21-23 FEB 1956

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE: STEAM, WILLCOX NO. 1
WEIGHT: 2.5 T
STROKE: 36 in
ENERGY: 90 lb
BLOWS PR MIN

STROKE: 3 in
ENERGY: 15000 FT lbs
BLOWS PR MIN

PILE TYPE: TIMBER
PILE DIMENSIONS: 6" top & 16" butt

WEIGHT

DRIVEN LENGTH

EMBEDDED LENGTH: 80 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH (FT)

BLOWS PER FOOT

PENETRATION RATE

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPTH (FT)

BLOWS PER FOOT

PENETRATION RATE

REMARKS: TEST PILE AT Y-4-2

SOURCE OF INFORMATION

FILE NO.

GEETER, NEW ORE BRIDGES

THALIA- DEIGNER ST MASTERS

M&H SUPPL DEW 67-340
**PILE TEST DATA**

**LOCATION** NEW ORLEANS, LOUISIANA

**DATE DRIVEN** 3 Nov 1954

**DATE TESTED** 5 - 11 Nov 1954

**OWNER**

**CONTRACTOR**

**TESTED BY**

**HAMMER TYPE** STEAM, Vulcan No 1

**WEIGHT** 2.5 t 5000 lbs

**STROKE** 36 in 3 ft

**ENERGY** 90 t in 18000 ft-lbs

**BLOWS PR MIN**

**FINAL PENETRATION** 

**PILE TYPE** TIMBER (Crosstied)

**PILE DIMENSIONS** 6" tip, 16" ball

**WEIGHT**

**DRIVEN LENGTH**

**EMBEDDED LENGTH** ~ 80 ft

---

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.5</td>
<td>1.0</td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

- Soft grey clay
- Med firm grey clay
- Soft grey clay

**DEPTH FT**

| 25 | 50 | 75 | 100 |

**Blows per foot PENETRATION RATE**

| 20 | 30 |

**REMARKS**

TEST PILE NO AT-2
*Note See File No 812

**SOURCE OF INFORMATION**

GREAT ERNEW ORL. BRIDGE

MOUROSKI

PHILIP BRINGIER 52

Masters

M.C.M SUPPL DRAW 40 J. 340
-PILE TEST DATA-

LOCATION: NEW ORLEANS, LOUISIANA

DATE DRIVEN: 10 NOVEMBER 1954
DATE TESTED: 12 NOVEMBER 1954

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE: STEAM, Vulcan No 1
WEIGHT: 25 t
STROKE: 36 in
ENERGY: 90 ft-lb
BLOWS PR MIN: 
FINAL PENETRATION: 41/12"

PILE TYPE: TIMBER (Crusoted)
PILE DIMENSIONS: 6" A.D., 16" B.D.
WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH: ~ 75 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH (FT)</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
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<td></td>
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<tr>
<td>150</td>
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<table>
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<tr>
<th>SETTLEMENT IN INCHES</th>
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<tr>
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<tr>
<td>9</td>
</tr>
<tr>
<td>9.5</td>
</tr>
<tr>
<td>10</td>
</tr>
</tbody>
</table>

REMARKS: TEST PILE NO NT-2
N^3 SEE PILE NO 312

SOURCE OF INFORMATION: GEEREGE NEW ORLEANS BRIDGE
FILE NO: MODERK
THULA-ZINGEZER STA: MASTERS
H.C. 3003, DEW 40: J 340
- PILE TEST DATA -

LOCATION: NEW ORLEANS, LOUISIANA
DATE DRIVEN: 3 JAN 1956
DATE TESTED: 12 - 16 JAN 1956

HAMMER TYPE: STEAM, Vulcan no. 1
WEIGHT: 65 ± 2000 lbs
STROKE: 36 in
ENERGY: 90 ft lbs
BLOWS PR MIN: 30/18
FINAL PENETRATION: 30/18

PILE TYPE: TIMBER (Creosoted)
PILE DIMENSIONS: 7 1/2 in. tip, 14 1/2 in. butt

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD</th>
<th>50</th>
<th>100</th>
</tr>
</thead>
</table>

DEPTH FT

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>20</td>
</tr>
<tr>
<td>30</td>
<td>30</td>
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</tbody>
</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loose sandy clay</td>
</tr>
<tr>
<td>Grey fine sand</td>
</tr>
<tr>
<td>Clay on mud</td>
</tr>
</tbody>
</table>

REMARKS:

TEST PILE NO. NT-3
N5, SEE PILE NO. 312

SOURCE OF INFORMATION:

FILE No.
GREATER NEW ORLEANS BRIDGE
MODISEK
THALO-DRINKER 31
MASTERS
M & M, SUPPL. DRAW 62
J 34G
PILE TEST DATA

LOCATION: NEW ORLEANS, LOUISIANA
DATE DRIVEN: 29 DEC 1955
DATE TESTED: 12-16 JAN 1955

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: STEAM, Vulcan No. 1
WEIGHT: 25 ft. 5000 lbs
STROKE: 36 in
ENERGY: 90 ft-lb 15000 ft-lb
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE: TIMBER, Crossted
PILE DIMENSIONS: 7\" tip, 14\" butt

WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH

TEST LOAD (TONS)

TEST PILE NO NT-4
N3 See Pile No 312

SOIL DESCRIPTION

DEPTH FT

BLOWS PER FOOT PENETRATION RATE
10 20 30

SAND
LOAM
GRAY
SOIL
SAND

REMARKS

SOURCE OF INFORMATION

FILE NO:

GREAT NEW ORL HOUSE
THALIBI-BOOHER JST
M & M SUPP DCAW 63 3540
PILE TEST DATA

LOCATION: NEW ORLEANS, LOUISIANA

DATE DRIVEN: 3, JAN. 1956
DATE TESTED: 12 - 16, JAN. 1956

OWNER: ___________________________
CONTRACTOR: ___________________________
TESTED BY: ___________________________

HAMMER TYPE: STEAM, Vulcan 201
WEIGHT: 2.5 t, 5000 lbs
STROKE: 36 - 10
ENERGY: 90 - 2.10
BLOWS PR MIN: ___________________________
FINAL PENETRATION: 52 1/4"

PILE TYPE: TIMBER (Untreated)
PILE DIMENSIONS: 7" tip, 15¾" butt

WEIGHT: ___________________________
DRIVEN LENGTH: ___________________________
EMBEDDED LENGTH: 65 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

BLOWS PER FOOT PENETRATION RATE

DEPTH (FT)

BLOWs PR MIN

ENTRANCE IN INCHES

REMARKS: TEST PILE NO NT-5
*N3 See Pile No 312

SOURCE OF INFORMATION: MASTERS
FILE No: M.M. SUPP, DEW 63 7 540

SOIL DESCRIPTION:

- N3: soft grey clay with organic material
- 25: soft grey clay with root
- 75: loose to compact grey fines sand
- 100: loose to compact grey fine sand

DEPTH (FT):

- 25
- 75
- 100
LOCATION: NEW ORLEANS, LOUISIANA
DATE DRIVEN: 4 JAN 1956
DATE TESTED: 12-16 JAN 1956

OWNER: __________________________
CONTRACTOR: ______________________
TESTED BY: _________________________

HAMMER TYPE: STEAM, Vulcan No 1
WEIGHT: 25 t
STROKE: 36 in
ENERGY: 90 t in
BLOWS PR MIN: ____________________
FINAL PENETRATION: 34'/2"

PILE TYPE: TIMBER (Untreated)
PILE DIMENSIONS: 7" tip, 15 1/4" butt
WEIGHT: _______________________
DRIVEN LENGTH: ___________________
EMBEDDED LENGTH: 75 ft

TEST LOAD (TONS)

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>Depth ft</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

SETTLEMENT IN INCHES

REMARKS:
- TEST PILE NO NT-6
- N3 SEE PILE NO 312

SOURCE OF INFORMATION: GREATER NEW ORLEANS HOSPITAL
FILE NO: THALIA-BRINGEER STA
N. M. SUPPL DEAN 63 7-340
LOCATION: NEW ORLEANS, LOUISIANA
DATE DRIVEN: 29 DEC 1955
DATE TESTED: 9 JAN 1956 - 14 JAN

HAMMER TYPE: STEAM, Vulcan No. 1
WEIGHT: 2.5 t
STROKE: 90 in
ENERGY: 90 x 10
BLOWS PR MIN: 36
FINAL PENETRATION: 36/2

PILE TYPE: STEEL, Monotube
PILE DIMENSIONS: 1/4 1/2
WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH

TEST LOAD (TONS)
25 50 75

SOIL DESCRIPTION

DEPTH (FT)
10 20 30

BLOWS PER FOOT PENETRATION RATE

SETTLEMENT IN INCHES
0.25

REMARKS: TEST PILE NO. 4, TOLL PLAZA
H2 SEE PILE NO. 312

SOURCE OF INFORMATION: ADAMS
FILE NO: G 47

TAHLIN-BRINGHURST 07 NASTER
McM SUPP, DEAN 64 J 540
## PILE TEST DATA

**LOCATION:** NEW ORLEANS, LOUISIANA  
**DATE DRIVEN:** 30 DEC 1986  
**DATE TESTED:** 9-14 JAN 1986  
**OWNER**  
**CONTRACTOR**  
**TESTED BY**  

| HAMMER TYPE | STEAM, Vulkan 901  
| WEIGHT | 264  
| STROKE | 36 in  
| ENERGY | 90 ft-lb  
| BLOWS PR MIN | 16/12"  

**PILE TYPE:** STEEL, Monotube  
**PILE DIMENSIONS:** 7½" x 14 Tor  
**WEIGHT:** 15000 lbs  
**DRIVEN LENGTH:** 72 ft  
**EMBEDDED LENGTH:**  

### TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Graph" /></td>
<td><img src="image2.png" alt="Graph" /></td>
<td><img src="image3.png" alt="Graph" /></td>
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</table>

### SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4.png" alt="Graph" /></td>
<td><img src="image5.png" alt="Graph" /></td>
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</tbody>
</table>

### REMARKS

TEST PILE B, TOLL PLAZA.  
See page No 312  

**SOURCE OF INFORMATION:**  
**FILE No.:**  

**THALST-BOINGHEOR ST**  
**MATEERS**  
**H. H. ROYER, DEW 64 J. 340**
PILE TEST DATA

LOCATION: New Orleans, Louisiana
DATE DRIVEN: 16 Aug 1954
DATE TESTED: 24 Sep - 4 Oct 1954

Hammer Type: Steam, Vulcan No. 1
Weight: 25t
Stroke: 36 in
Energy: 300 ft-lb
Bolws PR Min: 20
Final Penetration: 42 blows/12"

Test Load (Tons):

| Test Load | Se
tment in Inches |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>10</td>
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</tr>
</tbody>
</table>

Remarks: Test Pile No AR-1
*Note: See Pile 314

Soil Description

<table>
<thead>
<tr>
<th>Depth FT</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
</tr>
<tr>
<td>20</td>
</tr>
</tbody>
</table>

Blows per foot penetration rate

Source of Information: Greater New Orleans Bridge Moderators' Association
Thalia-Breinhart Sta. Masters
M&N Supply, Draw 27 - 1940
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>WASHTON D.C.</th>
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<tbody>
<tr>
<td>DATE DRIVEN</td>
<td></td>
</tr>
<tr>
<td>DATE TESTED</td>
<td>30 MAY 1942</td>
</tr>
<tr>
<td>OWNER</td>
<td></td>
</tr>
<tr>
<td>CONTRACTOR</td>
<td></td>
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<tr>
<td>TESTED BY</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HAMMER TYPE</th>
<th>STEAM VULCAN NO 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT</td>
<td>2.5 T</td>
</tr>
<tr>
<td>STROKE</td>
<td>36 in</td>
</tr>
<tr>
<td>ENERGY</td>
<td>90 in tons, 15,650 ft-lbs</td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td></td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td>sudden-stop refusal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PILE TYPE</th>
<th>STEEL MONOTUBE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PILE DIMENSIONS</td>
<td>Butt - 14&quot; Tip - 8&quot;</td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>DRIVEN LENGTH</td>
<td>94.0 ft</td>
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<tr>
<td>EMBEDDED LENGTH</td>
<td>87.5 ft</td>
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</tbody>
</table>

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
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<tbody>
<tr>
<td>0.50</td>
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<td>0.25</td>
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</table>

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>DEPTH</th>
<th>Blows per foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<td>10, 20, 30</td>
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<tr>
<td>Yellow clay</td>
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<td></td>
</tr>
<tr>
<td>Sand &amp; Fill</td>
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</tr>
<tr>
<td>Black silty</td>
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<tr>
<td>clay, silt,</td>
<td></td>
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<tr>
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</tr>
<tr>
<td>100</td>
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</tr>
</tbody>
</table>

**REMARKS.**

Test pile N 14 W 14th St Overpass

**SOURCE OF INFORMATION**

DISTRICT OF COLUMBIA

FILE NO. J540

DEPT OF HIGHWAYS
LOCATION: WASHINGTON, D.C.
DATE DRIVEN: 23 JUNE 1942
DATE TESTED: 23 JUNE 1942
OWNER:
CONTRACTOR:
TESTED BY:

HAMMER TYPE: STEAM MCKINNAN TERRY 983
WEIGHT: 0.80 T
STROKE: 17 in
ENERGY: 142 ft lbs
BLOWS PR MIN:
FINAL PENETRATION:

PILE TYPE: Steel Monotube
PILE DIMENSIONS: Butt - 14" Tip - 8"
WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH: 66.5 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH (FT)</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
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<td></td>
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<tr>
<td>75</td>
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</table>

REMARKS: Test Pile No 10 N. Pier
14th Street Overpass
Outlet Structure

SOURCE OF INFORMATION: DISTRICT OF COLUMBIA
FILE No: WASH D.C.
DEPT OF HIGHWAYS: J540
-PILE TEST DATA-

LOCATION WASHINGTON, D.C.
DATE DRIVEN 6-12 MAY 1942
DATE TESTED

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM VULCAN NO 1
WEIGHT 2.5 T 5000 lbs
STROKE 36 in 90
ENERGY 90 in-tons 15,000 ft-lbs
BLOWS PR MIN
FINAL PENETRATION 3 blows/in

PILE TYPE STEEL MONOTUBE
PILE DIMENSIONS Butt - 14" Tip - 8"
WEIGHT
DRIVEN LENGTH 37.0 ft
EMBEDDED LENGTH 32.3 ft

TEST LOAD (TONS)

SOIL DESCRIPTION DEPTH FT Blows per ft PENETRATION RATE
Fill
Sandy clay
Grey Black sand
Silt and Grey clay
Grey silt and gravel
Grey Blue sand
Sand and gravel
Some gravel

REMARKS Test Pile No MN-82 North Abut.
14th Street Grade Separation
Main Ave Structure

SOURCE OF INFORMATION FILE No
DISTRICT OF COLUMBIA WASHINGTON D.C.
DEPT OF HIGHWAYS J540
PILE TEST DATA

LOCATION WASHINGTON, D.C.
DATE DRIVEN ____________________
DATE TESTED 27 MAY 2 16 JUNE 1942

HAMMER TYPE STEAM VULCAN NO 1
WEIGHT 2.5 T 5000 IBS
STROKE 36 IN 30 FT
ENERGY 900 foot Ibs 15,000 ft Ibs
BLOWS PR MIN ____________________
FINAL PENETRATION 15 Blows /3

OWNER ____________________
CONTRACTOR ____________________
TESTED BY ____________________

PILE TYPE STEEL MONOTONE
PILE DIMENSIONS BOTT - 14" TIP - 8"
WEIGHT ____________________
DRIVEN LENGTH 92 4 FT
EMBEDDED LENGTH 89 1 FT

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
</table>

SOIL DESCRIPTION

Yellow clays sand & fill
Black silt clay, some sand
coarse sand & gravel

DEPTH FT

BLOWS per foot PENETRATION RATE

10 20 30

REMARKS.
Test Pile No 19 Bent No 18
14th street Grade Separation
Platform collapsed at 59 8 tons
Reloaded to 73 8 tons, held with
6 4" settlement

SOURCE OF INFORMATION ____________________
FILE NO ____________________
DISTRICT OF COLUMBIA WASH D.C.
DEPT OF HIGHWAYS JES 40
PILE TEST DATA

LOCATION: WASHINGTON, D.C.
DATE DRIVEN: 5 May 1942
DATE TESTED: 15-22 May 1942

OWNER: 
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: STEAM VULCAN No 1
WEIGHT: 25 ft
STROKE: 36 in
ENERGY: 30 in. tons
BLOWS PR. MIN: 0.2
TEST LOAD (TONS): 25 50 75
FINAL PENETRATION: 10 "Blows/3"" 

PILE TYPE: STEEL MONORUBE
PILE DIMENSIONS: Butt - 16" Tip - 8"
WEIGHT: 384.4 lbs
DRIVEN LENGTH: 30.4 ft
EMBEDDED LENGTH: 30.2 ft

SOIL DESCRIPTION

DEPTH FT
Blows per foot PENETRATION RATE 10 20 30

TEST LOAD (TONS) 25 50 75

SANDY CLAY

GAY-GUL

BROWN GREY CLAY

DEEP CLAYY

GAY BUL

SAND

ESMIT

SAND A GRAVEL

REMARKS: Test Pile No NA 24 Maine Ave 14th Street Overpass

SOURCE OF INFORMATION: DISTRICT OF COLUMBIA WASH D.C
FILE No: DEPT. OF HIGHWAYS J940
-PILE TEST DATA-

LOCATION: WASHINGTON, D.C.

DATE DRIVEN: 12 JANUARY 1948

DATE TESTED: 12 JANUARY 1948

OWNER:

CONTRACTOR:

TESTED BY:

HAMMER TYPE: STEAM MCIverNAN TERRY 983

WEIGHT: 0.80 t

STROKE: 17 in.

ENERGY: 1600 lbs.

PILE TYPE: STEEL MONOTUBE

PILE DIMENSIONS: Butt - 10" Tip - 8"

WEIGHT:

DRIVEN LENGTH: 32 5/8 ft

EMBEDDED LENGTH: 31 6/7 ft

TEST LOAD (TONS)

25 50 75

30 50 75 100 150

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

Clay Sand and Gravel

Clay Sand and Gravel

Silty Sand

Muck

Tip of Pile

0 10 20 30

TEST LOAD (TONS)

25 50 75

30 50 75 100 150

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

Clay Sand and Gravel

Clay Sand and Gravel

Silty Sand

Muck

Tip of Pile

0 10 20 30

SETTLEMENT IN INCHES

0.25

0.50

REMARKS:

Test Pile No. 231 - 14th St Bridge (East) Mt Vernon Blvd overpass

SOURCE OF INFORMATION

FILE No.

DISTRICT OF COLUMBIA

WASH. D.C.

DEPT. OF HIGHWAYS

J540
LOCATION: WASHINGTON D.C.

DATE DRIVEN: 
DATE TESTED: 

HAMMER TYPE: STEAM, MK & T 9-B3
WEIGHT: 
STROKE: 
ENERGY: 
BLOWS PR MIN: 195
FINAL PENETRATION: 18

PILE TYPE: STEEL, Union Metal
PILE DIMENSIONS: 7\(\times\)7\(\times\)\(\frac{3}{4}\)".

TEST LOAD (TONS): 

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS per foot PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Over-burden</td>
<td>50</td>
<td>50</td>
</tr>
<tr>
<td>50</td>
<td>Sand &amp; Clay</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>0.25</td>
<td>Clay</td>
<td>150</td>
<td>0</td>
</tr>
<tr>
<td>0.5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: FRANKLIN STREET BRIDGE OVER D & CO RR PILE no 47 in the north wall.

SOURCE OF INFORMATION: FILE N.
DISTRICT OF COLUMBIA: COLUMBIA
DEPT OF HIGHWAYS: 7 340.
PILE TEST DATA

LOCATION: WASHINGTON D.C.

DATE DRIVEN: 
 DATE TESTED: 

OWNER: DIAMOND CONSTRUCTION CO

TESTED BY: 

HAMMER TYPE: STEAM, McKee 9-B-9

PILE TYPE: STEEL, Union Metal

WEIGHT:
STROKE:
ENERGY:
BLOWS PR MIN: 128
FINAL PENETRATION: 25.0" 

PILE DIMENSIONS: 7" x 2

TEST LOAD (TONS) 

0
0.25
0.5
5
50

SOIL DESCRIPTION
Clay
Sand
Clay
Sand
Clay

DEPT FT
10
20
30
40
50

PENETRATION RATE
0
50
100
150

REMARKS: FRANKLIN ST BRIDGE OVER B & O RR PILE NO. 3 
EAST ABUTMENT

SOURCE OF INFORMATION FILE NO. 
DISTRICT OF COLUMBIA COLUMBIA
DEPT. OF HIGHWAYS 7540
LOCATION: Washington, D.C.
DATE DRIVEN: ____________________
DATE TESTED: ____________________
OWNER: __________________________
CONTRACTOR: ____________________
TESTED BY: ______________________
HAMMER TYPE: Steam, McKee 98-3
PILE TYPE: Steel, Union Metal
WEIGHT: __________________________
PILE DIMENSIONS: 7 1/2'
ENERGY: __________________________
WEIGHT: __________________________
BLOWS PR MIN: 150
DRIVEN LENGTH: 20'-6"
FINAL PENETRATION: 24 Blows/ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td>Clay</td>
<td>10</td>
<td>50</td>
</tr>
<tr>
<td>0.5</td>
<td>Sand, clay, c. gravel</td>
<td>20</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Clay</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sand</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: Franklin Street Bridge
          Over B 1/2 B.R. Pile No 20
          Bent No 7

SOURCE OF INFORMATION: Distr of Columbia
FILE No: Columbia
DEPT OF HIGHWAYS: 7 540
# Pile Test Data

**Location**: Washington D.C.  
**Owner**: Penzer Constra Co  
**Date Driven**: 16-19 May 1939  
**Contractor**: Penzer Consta Co  
**Tested By**:  

**Hammer Type**: Steam, McKee No. 10-B 3  
**Weight**:  
**Stroke**:  
**Energy**:  
**Blows Per Min**: 105  
**Final Penetration**: 2-0/3"  

**Pile Type**: Timber - unpeeled pine  
**Pile Dimensions**: 8" tip, 17" butt  
**Weight**:  
**Driven Length**: 68 ft  
**Embedded Length**: 68 ft  

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (FT)</th>
<th>Blow per Foot Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Water</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mud</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sand Clay</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>75</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**Remarks**: Penna Ave Bridge, 3 E  
**Pile**: No E-10, Pier No 6  

**Source of Information**: Dept of Highways  
**File No**: J 540
**-PILE TEST DATA-**

**LOCATION** WASHINGTON D.C.  
**DATE DRIVEN** 5-13 JAN 1940  
**DATE TESTED**  
**OWNER** PENKER CONSTE CO  
**CONTRACTOR**  
**TESTED BY**  

**HAMMER TYPE** STEAM, ML<7 10-B-3  
**PILE TYPE** TIMBER  
**PILE DIMENSIONS** 7" tip, 15" butt  
**WEIGHT**  
**STROKE**  
**ENERGY**  
**BLOWS PR MIN**  
**FINAL PENETRATION**  

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Fill e mud</td>
<td>25</td>
<td>TIP</td>
</tr>
<tr>
<td>50</td>
<td>C sand e gravel</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Gr e ca</td>
<td>75</td>
<td></td>
</tr>
</tbody>
</table>

**SOURCE OF INFORMATION** FILE N  
**DATE OF COLUMBIA** COLUMBIA  
**DEPT OF HIGHWAYS** 1540

**REMARKS.** PENNA AVE BRIDGE 3.E  
**PILE K2, EAST ABUT, BRCK** COL FTG 17'6" N &  

**SETTLEMENT IN INCHES**

<table>
<thead>
<tr>
<th>0</th>
<th>0.25</th>
<th>0.5</th>
</tr>
</thead>
</table>
## Pile Test Data

**Location:** Washington, D.C.  
**Date Driven:** 26 - 27 Dec 1938  
**Date Tested:**  
**Owner:**  
**Contractor:** Fencer Constr. Co  
**Tested By:**  

**Hammer Type:** Steam, McKee 10-B-3  
**Pile Type:** Timber  
**Pile Dimensions:** 10" tip, 18" butt  
**Final Penetration:**  

### Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
</tr>
</tbody>
</table>

### Soil Description

- Fill, sand, gravel
- Clay
- Tip

### Penetration Rate

- Source of Information: District of Columbia
- File No.: J 340

**Remarks:** Penna Ave Bridge SE  
Pile no W-7, W. Abut
**PILE TEST DATA**

**LOCATION**
WASHINGTON, D.C.

**DATE DRIVEN**

**DATE TESTED**
11-17 JULY 1939

**OWNER**

**CONTRACTOR** H.P. DICKENS

**TESTED BY**

**HAMMER TYPE**
STEAM, Vulcan no. 1

**WEIGHT**
35 t 5000 lbs

**STROKE**
36 in 3 ft

**ENERGY**
90 t in 15000 ft-lbs

**BLOWS PR MIN**

**FINAL PENETRATION** 10 1/2

**PILE TYPE**
STEEL-CONCRETE, Raymond std

**PILE DIMENSIONS**

**WEIGHT**

**DRIVEN LENGTH** 20 ft

**EMBEDDED LENGTH** ~18 ft

---

### TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SOIL DESCRIPTION</strong></td>
<td>Sandy clay</td>
<td>Clayey sand</td>
<td>Clayey sand</td>
</tr>
<tr>
<td><strong>DEPTH FT</strong></td>
<td>10</td>
<td>20</td>
<td>30</td>
</tr>
<tr>
<td><strong>BIOMS per foot PENETRATION RATE</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS.**
TAYLOR STREET, BENT NO. 9 (North) EAST APPROACH (File 93)

---

**SOURCE OF INFORMATION**
DISTRICT OF COLUMBIA

**FILE N.**
DEPT OF HIGHWAYS 7540
LOCATION: WASHINGTON D.C.  DATE DRIVEN: 23 June - 11 July 1968
DATE TESTED:  

HAMMER TYPE: STEAM, Vulcan No. 1
WEIGHT: 5000 lbs
STROKE: 36 in
ENERGY: 90 ft-lb
BLOWS PR MIN:  
FINAL PENETRATION: 10'/

PILE TYPE: STEEL-CONCRETE, Raymond std
PILE DIMENSIONS:  
WEIGHT:  
DRIVEN LENGTH:  
EMBEDDED LENGTH:  

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Clayey sand</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>50</td>
<td>Sandy silt</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>75</td>
<td>Sand &amp; gravel</td>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: TAYLOR ST BRIDGE N WALL EAST APPROACH, PILE NO 8

SOURCE OF INFORMATION: DISTRICT OF COLUMBIA
FILE No.: COLUMBIA DEPT OF HIGHWAYS

J 540
**PILE TEST DATA**

**LOCATION**  Washington D.C.  
**DATE DRIVEN**  16 Dec 1947  
**DATE TESTED**  29 Dec - 7 Jan - 8 Jan - 48  
**HARMER TYPE**  Steam, McKee 983  
**PILE TYPE**  Steel, Monotube  
**PILE DIMENSIONS**  14"  
**WEIGHT**  
**STROKE**  
**ENERGY**  
**BLOWS PER MIN**  
**FINAL PENETRATION**  46.7'  

**TEST LOAD (TONS)**  
0  
0.25  
0.5  

**SOIL DESCRIPTION**  
Clayey sand  
Silty sand  
Silty clay with lam layers of clayey silt sand  
Silt sand  

**DEPTH FT**  
25  
50  
75  
100  

**REMARKS**  
14 Street E Bridge N Abut  
File no 98  

**SOURCE OF INFORMATION**  
DISTRICT OF COLUMBIA  
COLUMBIA  
DEPT OF HIGHWAYS  

**FILE NO.**  J 590
LOCATION: WASHINGTON D.C.
DATE DRIVEN: 9/16 June 1939
DATE TESTED: 9/16 June 1939

OWNER
CONTRACTOR: H.E. Dickens
TESTED BY

HAMMER TYPE: STEAM, Vulcan no. 1
WEIGHT: 25 t
STROKE: 36 in
ENERGY: 90 ft-lb
BLOWS PR MIN: 165
FINAL PENETRATION: 19 in

PILE TYPE: STEEL-CONCRETE, Claymond Std
PILE DIMENSIONS

WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH: 21.5 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>30</td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

Clayey sand
Sandy soil
Sand gravel clay
Clayey sand
Sand silty clay

REMARKS:
TAYLOR STREET BRIDGE PILE
LOCATED AT SOUTH END OF PIER NO 6 - PILE NO 11-

SOURCE OF INFORMATION: DISTRICT OF COLUMBIA
FILE No. 3540
DEPT. OF HIGHWAYS

SETTLEMENT IN INCHES

0.05
0.10
0.20
0.25
0.5

0
PILE TEST DATA

LOCATION  WASHINGTON D.C.
DATE DRIVEN  19 - 27 JUNE 1969
DATE TESTED

OWNER  H. R. Dickerson
CONTRACTOR
TESTED BY

HAMMER TYPE  STEAM, Vulcan no. 1
WEIGHT  2.5 t  5000 lbs
STROKE  36 in  9 in
ENERGY  30 ft  1500 ft lbs
BLOWS PR MIN
FINAL PENETRATION  10/2""'

PILE TYPE  STEEL-CONCRETE, Raymond
PILE DIMENSIONS  Step-tapered
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH

TEST LOAD (TONS)

SOIL DESCRIPTION  DEPTH FT  BLOWS PER FOOT
Clayey sand  10  20  30
Sandy silt
Sandy gravelly clay
Clayey sand
Sand
Silty clay

REMARKS  TAYLOR ST BRIDGE, N.E.
OUTSIDE FT #2 SOUTH END PIER NO 6

SOURCE OF INFORMATION
DISTRICT OF COLUMBIA
DEPT OF HIGHWAYS
FILE No. 7540
PILE TEST DATA

LOCATION

DATE DRIVEN

DATE TESTED

HAMMER TYPE

WEIGHT

STROKE

ENERGY

BLOWS PR MIN

DATE COMPLETED

DATE QUALITY

HAMMER TYPE

PILE TYPE

PILE DIMENSIONS

WEIGHT

DRIVEN LENGTH

EMBEDDED LENGTH

OWNER

CONTRACTOR

TESTED BY

PILE TYPE

PILE DIMENSIONS

WEIGHT

DRIVEN LENGTH

EMBEDDED LENGTH

TEST LOAD (TONS)

SOIL DESCRIPTION

 DEPTH FT

PENETRATION RATE

BLOWs per foot

SRC OF INFO

FILE No.

NOTE:

REMARKS:

Test Pile No. 22 - Abutment No. 9
Bridge T3 Teton Rapids Line
Change 1st penetration of
28 ft to within 10 ft of underlying clay
Pile was driven again on Aug 10 to penetrate
30 ft into clay and tested
App Adj 1935-460

'N' Relative Density - Number of blows required to
drive 3/4 split spoon 12" with 250 lb weight falling 24"
PILE TEST DATA

LOCATION: NOXON RAPIDS, MONTANA

DATE DRIVEN: 18 JUNE, 1956
DATE TESTED: 19, 20, 22, 23, 29, 30 JUNE 1956

HAMMER TYPE: STEAM McKIERNAN-TERRY S-10
WEIGHT: 5.0 t
STROKE: 39.0 in
ENERGY: 185 in-tons
BLOWS PR MIN: 55
FINAL PENETRATION: 33 blows/8'

PILE TYPE: STEEL PIPE
PILE DIMENSIONS: Diam 10" WEIGH
DRIVEN LENGTH: 47.7 ft
EMBEDDED LENGTH:

TEST LOAD (TONS)

50 100 150

5 10 15 20 25 30

REMARKS: Test pile no 10-1 between
points 485 about 30 ft left
of Q of track, Bridge 73

N E OXON Rapids Line Change - Driven with
lower end capped with welded steel
plate Std 1940 +16.50

N - Relative Density - Number of blows
required to drive 5' split spoon 12" with
250 lb weight falling 24"

SOURCE OF INFORMATION: NORTHERN PACIFIC R R
FILE No: MONTANA-J540
PILE TEST DATA

LOCATION: NOXON RAPIDS, MONTANA

DATE DRIVEN: 3 JULY 1956
DATE TESTED: 3, 4, 6, 7, 13, 14 JULY 1956

OWNER

CONTRACTOR

TESTED BY

HAMMER TYPE: STEAM MECKIERNAN-TERRY S-10
WEIGHT: 500 lb
STROKE: 39.8 in
ENERGY: 195 in-lb
BLOWS PR MIN: 40

PILE TYPE: STEEL PIPE
PILE DIMENSIONS: Diam. - 16"

WEIGHT: 32,500 lb
DRIVEN LENGTH: 45.17 ft
EMBEDDED LENGTH: 39.3 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>LOAD (TONS)</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>SETTLEMENT IN INCHES</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>10</th>
<th>20</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth FT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Penetration Rate</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS:
Test pile no 16 - 1 - between piers
425 approx on 6 of track
Bridge 73 NOXON RAPIDS LINE

SOURCE OF INFORMATION: NORTHERN PACIFIC R R
FILE No.: MONTANA-J479
JOB No.: 340
-PILE TEST DATA-

LOCATION: Noxon Rapids, Montana

DATE DRIVEN: 21 July 1956
DATE TESTED: 2/1/56, 6/1/56, 1/1/57

OWNER:
CONTRACTOR:
TESTED BY:

HAMMER TYPE: Steam McKinnon-Terry 5-10
WEIGHT: 5.0 t
STROKE: 39.0 in
ENERGY: 195 in-tons
BLOWS PR MIN:
FINAL PENETRATION:

PILE TYPE: Steel, Armco Spiralweld
PILE DIMENSIONS: Diam 16", Wall Thickness 0.25
WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH: 40 ft

<table>
<thead>
<tr>
<th>PILE LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH (FT)</th>
<th>BLOWS/PER FT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: Test pile no 2 - 60 ft east of per no 4 at bridge 7.3 Noxon Rapids line change

N²: Relative Density - Number of blows required to drive 3/4 split spoon 12" with 260 lb weight falling 24"

SOURCE OF INFORMATION: File No.
NORTHERN PACIFIC RR: MONTANA J540

40 ft
PILE TEST DATA

LOCATION NOXON RAPIDS, MONTANA

DATE DRIVEN 16 JULY 1956
DATE TESTED 17-18, 19-21, 26-28, JULY 1956

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE STEAM McKiERNAN-TERRY S-10
WEIGHT 5.0 t 10,000 lbs
STROKE 39.0 in. 3.25 ft
ENERGY 195 in.-tons 32,500 ft-lbs
BLOWs PR MIN
FINAL PENETRATION 3 blows/6'

PILE TYPE STEEL PIPE
PILE DIMENSIONS Diam 10"

WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 54.5 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>LOAD</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS. Test pile No 10-2-59.9 ft east of & of Pier A & 17.3 ft. left of & of track, Bridge 73
Noxon Rapids Line change - Driven with lower end capped with welded steel plate
STA 1926+96.26
"N" - Relative Density - Number of blows
required 3" split spoon 1/2" with 250 lb weight falling 24"
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>Washington D.C.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>29 Jan - 2 Feb 1942</td>
</tr>
<tr>
<td>DATE TESTED</td>
<td></td>
</tr>
<tr>
<td>OWNER</td>
<td>C &amp; H Tompkins Co</td>
</tr>
<tr>
<td>TESTED BY</td>
<td></td>
</tr>
<tr>
<td>HAMMER TYPE</td>
<td>Steam, M X T 10-8-3</td>
</tr>
<tr>
<td>PILE TYPE</td>
<td>Timber</td>
</tr>
<tr>
<td>PILE DIMENSIONS</td>
<td>6&quot; tip x 14&quot; butt</td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>STROKE</td>
<td></td>
</tr>
<tr>
<td>ENERGY</td>
<td></td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td></td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td></td>
</tr>
</tbody>
</table>

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (FT)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>Water</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Concrete</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>gravel</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Black soil</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>So or some</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boulder</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>gravel</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td></td>
<td>gravel</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Decaying</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>rock</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

**REMARKS.**

Tidal Basin Bridge, North Pier, Pile No 1

**SOURCE OF INFORMATION**

DATE OF COMPLETION: Columbia
DEPT OF HIGHWAYS: 7 340
PILE TEST DATA

LOCATION: WASHINGTON D.C.
DATE DRIVEN: 1-12 Mar 1953
DATE TESTED: 

HAMMER TYPE: STEAM, Vulcan No. 1
WEIGHT: 25 c 5000 lbs
STROKE: 36 in 10
ENERGY: 90 ft-lb 15,000 ft-lb
BLOWS PR MIN: 
FINAL PENETRATION:

PILE TYPE: STEEL, H-pile
PILE DIMENSIONS: 33 lbs H-beam
WEIGHT: 
DRIVEN LENGTH: 
EMBEDDED LENGTH: 

TEST LOAD (TONS)

SOIL DESCRIPTION

DEPT FT

BLOWS PER FOOT PENETRATION RATE

REMARKS:

SOURCE OF INFORMATION: FILE N.

FILE N.: DEPT OF HIGHWAYS

FILE N.: DEPT OF COLUMBIA

SOURCE OF INFORMATION: DEPT OF COLUMBIA

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SOURCE OF INFORMATION: DEPT OF COLUMBIA

FILE N.: COLUMBIA
- PILE TEST DATA -

LOCATION: WASHINGTON D.C.

DATE DRIVEN: 
DATE TESTED: 15-29 DEC 1963

OWNER: CONSTRUCTOR: BALTIMORE CONTRACTORS INC.
TESTED BY: 

HAMMER TYPE: STEAM, SUPERVAULC 50C
WEIGHT: 
STROKE: 
ENERGY: 51,000 ft-lb
BLOWS PR MIN: 
FINAL PENETRATION: 

PILE TYPE: STEEL, H-PILE
PILE DIMENSIONS: 14 BP 73

WEIGHT: 
DRIVEN LENGTH: 
EMBEDDED LENGTH: 

TEST LOAD (TONS) 

<table>
<thead>
<tr>
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<th>50</th>
<th>75</th>
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<tbody>
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SOIL DESCRIPTION

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<tr>
<th>BLOWS per foot PENETRATION RATE</th>
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DEPTH FT

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REMARKS: EAST CAPITOL STREET BRIDGE
PIER NO 13

SOURCE OF INFORMATION: DISTRICT OF COLUMBIA
FILE No.: DEPT OF HIGHWAYS
J 140
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>LOCATION</th>
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<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>4 - 12 Nov 1953</td>
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<tr>
<td>DATE TESTED</td>
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<tr>
<td>OWNER</td>
<td>BALTIMORE CONTRACTORS INC</td>
</tr>
<tr>
<td>CONTRACTOR</td>
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<td>TESTED BY</td>
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<table>
<thead>
<tr>
<th>HAMMER TYPE</th>
<th>STEAM, Vulcan 301</th>
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<tr>
<td>WEIGHT</td>
<td>25' x 5000 lbs</td>
</tr>
<tr>
<td>STROKE</td>
<td>36 in</td>
</tr>
<tr>
<td>ENERGY</td>
<td>90 4 in</td>
</tr>
<tr>
<td>ENERGY</td>
<td>15000 ft-lbs</td>
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<td>BLOWS PR MIN</td>
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<tr>
<td>FINAL PENETRATION</td>
<td>21&quot;</td>
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</table>

### PILE DIMENSIONS
- **PILE TYPE**: STEEL, H-pile
- **PILE DIMENSIONS**: 53 lbs H-beam
- **WEIGHT**:                 
- **DRIVEN LENGTH**:          
- **EMBEDDED LENGTH**:        

### TEST LOAD (TONS)

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<thead>
<tr>
<th>TEST LOAD (TONS)</th>
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### SETTLEMENT IN INCHES

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### SOIL DESCRIPTION

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### BLOWS per foot PENETRATION RATE

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### REMARKS

**EAST CAPITOL STREET BRIDGE**

**PILE 10-5**

---

**SOURCE OF INFORMATION**

**FILE NO.**

**DATE OF COLUMBIA**

**DEPT OF HIGHWAYS**

**COLUMBIA**

**FILE N.**

**FILE N.**

**FILE N.**

**FILE N.**

**FILE N.**
PILE TEST DATA

LOCATION: WASHINGTON D.C.
DATE DRIVEN: [Missing]
DATE TESTED: 15-23 Dec 1963
OWNER: [Missing]
CONTRACTOR: BALTIMORE CONTRACTORS INC
TESTED BY: [Missing]

HAMMER TYPE: STEAM, Super-Vulcan 50C
WEIGHT: [Missing]
STROKE: [Missing]
ENERGY: 15,000 ft-lb
BLOWS PR MIN: [Missing]
FINAL PENETRATION: [Missing]

PILE TYPE: STEEL, H-pile
PILE DIMENSIONS: 14 BP 73
WEIGHT: [Missing]
DRIVEN LENGTH: [Missing]
EMBEDDED LENGTH: [Missing]

TEST LOAD (TONS)

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<tr>
<th>0</th>
<th>25</th>
<th>50</th>
<th>75</th>
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SOIL DESCRIPTION

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<tr>
<th>DEPTH FT</th>
<th>BLOWS per foot PENETRATION RATE</th>
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<tbody>
<tr>
<td>40</td>
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<td>60</td>
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<td>120</td>
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REMARKS: EAST CAPITOL STREET BRIDGE
PIER NO 13

SOURCE OF INFORMATION: DISTRICT OF COLUMBIA
FILE No.: DEPT OF HIGHWAYS
COLUMBIA
J 340
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DATE DRIVEN</th>
<th>DATE TESTED</th>
<th>HAMMER TYPE</th>
<th>WEIGHT</th>
<th>STROKE</th>
<th>ENERGY</th>
<th>BLOWS PR MIN</th>
<th>FINAL PENETRATION</th>
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**TEST LOAD (TONS)**

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<th>PENETRATION RATE</th>
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**REMARKS**

- SOURCE OF INFORMATION FILE N. 355

**OWNER**

**CONTRACTOR**

**DATE TESTED**

**PILE TEST DATA**

**PILE Type**

**PILE DIMENSIONS**

- **STEM**
- **PILE**

**EMBEDDED LENGTH**

**DRIVEN LENGTH**

**WEIGHT**

**ENERGY**

**STROKE**

**BLOWS PR MIN**

**FLEX**

**SHEAR**

**TENSION**

**COMPRESSION**

**SETTLEMENT IN INCHES**

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**REMARKS**

- SOURCE OF INFORMATION FILE N. 355
- PILE TEST DATA -

LOCATION: WASHINGTON D.C.

DATE DRIVEN: 29 March - 6 April 1954

DATE TESTED: 29 March - 6 April 1954

OWNER: CONTRACTOR: BALTIMORE CONTRACTORS INC

TESTED BY:

HAMMER TYPE: STEAM, Vulcan No. 1

WEIGHT: 25 ft 5000 lbs

STROKE: 36 in 3 ft

ENERGY: 90 ft 15000 ft lbs

BLOWS PR MIN: 0

FINAL PENETRATION: 0 ft

PILE TYPE: STEEL, H-pile

PILE DIMENSIONS: 12 BP 53

WEIGHT: 0

DRIVEN LENGTH: 0

EMBEDDED LENGTH: 0

<table>
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<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>Blows per foot PENETRATION RATE</th>
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<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td>40 80 120</td>
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<tr>
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<tr>
<td>75</td>
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REMARKS: EAST CAPITOL STREET BRIDGE, WEST APARTMENT

SOURCE OF INFORMATION: DEPT. OF COLUMBIA, DEPT. OF HIGHWAYS

FILE No.: J 540
LOCATION: WASHINGTON D.C.
DATE DRIVEN: 8-16, March 1954
DATE TESTED: 8-16, March 1954
OWNER: BALTIMORE CONTRACTORS INC
CONTRACTOR: BALTIMORE CONTRACTORS INC
TESTED BY: 

HAMMER TYPE: STEAM, Vulcan no 1
WEIGHT: 25, 3000 lbs
STROKE: 36 in, 3 ft
ENERGY: 90, 15,000 ft lbs
BLOWS PR MIN: 
FINAL PENETRATION: 21 Blows/ Min

PILE TYPE: STEEL, H-pile
PILE DIMENSIONS: 53 lbs H-beam
WEIGHT: 
DRIVEN LENGTH: 
EMBEDDED LENGTH: 

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<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BINGS PER FOOT PENETRATION RATE</th>
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REMARKS: EAST CAPITOL STREET BRIDGE
PIER 6-5

SOURCE OF INFORMATION: DISTRICT OF COLUMBIA
FILE NO: COLUMBIA
DEPT OF HIGHWAYS: J 540
- PILE TEST DATA -

LOCATION  INDIANA
DATE DRIVEN  19 November 1955
DATE TESTED  27 December 1955

OWNER  ARCOLE - MIDWEST
CONTRACTOR  
TESTED BY  

HAMMER TYPE  STEAM MCKINNON TERRY 1083
WEIGHT  13,100 lb
STROKE  
ENERGY  13,100 lb-ft
BLOWS PR MIN  8 blows/"
FINAL PENETRATION  500 ft

PILE TYPE  STEEL - ARMCO SNAIR WELDER Pipe
PILE DIMENSIONS  Diam 12", 3/4" Flange, plate welded on end

WEIGHT  500 ft
DRIVEN LENGTH  490 ft
EMBEDDED LENGTH  

TEST LOAD (TONS)  25  50  75

SOIL DESCRIPTION  
DEPTH FT  20  40  60
BLOWS PER 100’ PENETRATION RATE  

REMARKS: Test pile, Pier No. 3E, Structure 1A-1, Construction section C-1A

SOURCE OF INFORMATION  FILE N.  
INDIANA TOLL ROAD  DE LEUN
COMMISSION  CATH A R C O

J.S.40
LOCATION: INDIANA
DATE DRIVEN: 10 NOVEMBER 1955
DATE TESTED: 1 DECEMBER 1955

OWNER: ARCO - MIDWEST
CONTRACTOR: ARCO - MIDWEST
TESTED BY: HAMMER TYPE: STEAM MCKEOWN-TEMM 10 B-3
PILE TYPE: STEEL AMICO SPAR WELDED PIPE

WEIGHT: 13,100 ft lb
STROKE: 50.0 ft
ENERGY: 500 ft lb
BLOWS PR MIN: 10 blows/1'
FINAL PENETRATION: 480 ft

PILE DIMENSIONS: Diam 12", 3/4" Point
PILE: WEB WELD ON END

SOIL DESCRIPTION

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<th>DEPTH (FT)</th>
<th>PENETRATION RATE</th>
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TEST LOAD (TONS) 25 50 75

SOURCE OF INFORMATION: INDIANA TOLL ROAD
COMMISSION: CATHER & CO
FILE No.: 1540
PILE TEST DATA

LOCATION: INDIANA
DATE DRIVEN: 16 NOVEMBER 1955
DATE TESTED: 27 DECEMBER 1955
OWNER:
CONTRACTOR: ARCOLE MIDWEST
TESTED BY:

HAMMER TYPE: STEAM McKEVER-TERRY 180-3
WEIGHT:
STROKE:
ENERGY: 13,100 FT-LBS
BLOWS PR MIN: 50 blows/1'
FINAL PENETRATION:

PILE TYPE: STEEL-ARMCO Spiralwelded Pile
PILE DIMENSIONS: Dia 12", 1-3/4" Flattened plate welded on end
WEIGHT:
DRIVEN LENGTH: 60'
EMBEDDED LENGTH:

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS per foot</th>
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<td>75</td>
<td>Grey clay</td>
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<td>50</td>
</tr>
<tr>
<td></td>
<td>Very Hard grey</td>
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</tr>
<tr>
<td></td>
<td>Very Hard grey</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clay &amp; Shale</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: Test pile, Pier No. 6-W
Structure 1A-1, Construction
Section E-1A

SOURCE OF INFORMATION:
FILE No. INDIANA TOLL ROAD
COMMISSION: CATHER & CO

LOCATION
DATE DRIVEN
DATE TESTED
OWNER
CONTRACTOR
TESTED BY
HAMMER TYPE
WEIGHT
STROKE
ENERGY
BLOWS PR MIN
FINAL PENETRATION
PILE TYPE
PILE DIMENSIONS
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH
TEST LOAD (TONS)
SOIL DESCRIPTION
DEPTH FT
BLOWS per foot
REMARKS
SOURCE OF INFORMATION
FILE No.
**PILE TEST DATA**

**LOCATION** INDIANA  
**DATE DRIVEN** 14 NOVEMBER 1955  
**DATE TESTED** 8 DECEMBER 1955  
**OWNER**  
**CONTRACTOR** ARCOLE - MIDWEST  
**TESTED BY**  

**HAMMER TYPE** Steam Mckinney-Tenney 1033  
**WEIGHT**  
**STROKE**  
**ENERGY** 13,100 ft lb  
**BLOWS PR MIN**  
**FINAL PENETRATION** 8 blows/1"  

**PILE TYPE** Steel Armco Spiral Welded Pile  
**PILE DIMENSIONS** Diam 12", 1 3/16" Flat plate welded on end  
**WEIGHT**  
**DRIVEN LENGTH** 75'  
**EMBEDDED LENGTH** 50'  

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>25</th>
<th>50</th>
<th>75</th>
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<tbody>
<tr>
<td>SOIL DESCRIPTION</td>
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<tr>
<td>DEPTH (FT)</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PENETRATION RATE</td>
<td>40</td>
<td>80</td>
<td>120</td>
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<td></td>
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</tr>
</tbody>
</table>

**SOURCE OF INFORMATION**  
**FILE N°** INDIANA Toll Road  
**COMMISSION** CATER & CO  
**SOURCE** De Leon  

**REMARKS.** Test pile, Pier No 3  
Structure 1A-3, Construction  
Section C-1A  

---

Diagram showing test load and soil penetration.
-PILE TEST DATA-

LOCATION: INDIANA
DATE DRIVEN: 30 SEPTEMBER 1955
DATE TESTED: 1 OCTOBER 1955
OWNER: WINKELMAN - DOUGHERTY
CONTRACTOR: WINKELMAN - DOUGHERTY
TESTED BY:

HAMMER TYPE:
STEAM VULCAN 50 C

WEIGHT:

STROKE:

ENERGY:
12,600 H/IS

BLOWS PR MIN:

FINAL PENETRATION:
9 blows/"

PILE TYPE:
CONCRETE - CAST IN PLACE

PILE DIMENSIONS:
Diam. 12" Union Metal

WEIGHT:

DRIVEN LENGTH:
610 FT

EMBEDDED LENGTH:

TEST LOAD (TONS)

25 50 75

SOIL DESCRIPTION

DEPTH FT

40 60 120

PENETRATION RATE

Blows per foot

REMARKS:
Test Pile No. 6, Pier 1,
Structure 12, Contract C-12
C-2, Design Section D-1A

SOURCE OF INFORMATION:
FILE NO.

INDIANA TOLL ROAD
DELEW
COMMISSION
CABER ZIE
JS40
PILE TEST DATA

LOCATION: INDIANA
DATE DRIVEN: 3 October 1955
DATE TESTED: 4 October 1955

OWNER: WINKELMAN-DOUGHERTY
CONTRACTOR: DOUGHERTY
TESTED BY: 

HAMMER TYPE: STEAM VULCAN 80-C
WEIGHT: 
STROKE: 
ENERGY: 12,500 ft-lb
BLOWS PR MIN: 
FINAL PENETRATION: 

PILE TYPE: CONCRETE - CAST IN PLACE
PILE DIMENSIONS: Dia 12", Union Metal

WEIGHT: 
DRIVEN LENGTH: 611 ft
EMBEDDED LENGTH: 

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>LOAD (TONS)</th>
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<tbody>
<tr>
<td>25</td>
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<tr>
<td>50</td>
</tr>
<tr>
<td>75</td>
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</tbody>
</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH FT</th>
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<tbody>
<tr>
<td>20</td>
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<tr>
<td>30</td>
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<tr>
<td>40</td>
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<td>50</td>
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</tbody>
</table>

PENETRATION RATE

<table>
<thead>
<tr>
<th>BLOWs PER FOOT</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
</tr>
<tr>
<td>80</td>
</tr>
<tr>
<td>120</td>
</tr>
</tbody>
</table>

REMARKS: Test pile, Per No 15" Structure 1.3, Contract C-1 E C-2, Design Section D-1A

SOURCE OF INFORMATION FILE N. INDIANA TOLL ROAD DE LEUV COMMISSION CATER & CO

FILE N. 1540
### Pile Test Data

**Location**: Indiana  
**Owner**: Winkleman-Dougherty

**Hammer Type**: Steam Vulcan No SDC  
**Contractor**: Concrete-Cast in Place

**Weight**:  
**Pile Dimensions**: Diam 12", Union Metal

**Stroke**:  
**Driven Length**: 60 ft

**Energy**: 12,600 ft-lbs  
**Embedded Length**: 560 ft

**Date Driven**: October 4, 1955  
**Date Tested**: October 13, 1955

**Blows Per Min**: 8 blows/"  
**Final Penetration**: 500 ft

---

#### Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settlement (inches)</td>
<td>0.25</td>
<td>0.50</td>
<td>0.75</td>
</tr>
</tbody>
</table>

#### Soil Description

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slag Fill</td>
<td>10</td>
<td>Settled to here</td>
</tr>
<tr>
<td>Fine grey sand</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Soft grey clay</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Hard grey clay</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>Top of pile</td>
<td>50</td>
<td></td>
</tr>
</tbody>
</table>

#### Remarks

Test Pile, Pier 19, Structure 1.3  
Contract C-1 & C-2, Design  
Section D-1A

---

**Source of Information**: Indiana Toll Road Commission  
**File No.**: CATHER & CO  
**Toll**: J540
PILE TEST DATA

LOCATION: INDIANA
DATE DRIVEN: 22 NOVEMBER 1955
DATE TESTED: 1 DECEMBER 1955

HAMMER TYPE: Steam Vulcan No 50C
WEIGHT:
STROKE:
ENERGY: 12,500 ft.-lbs.
BLOWS PR MIN:
FINAL PENETRATION: 6 blows/ft.

PILE TYPE: Concrete - Cast in Place
PILE DIMENSIONS: Diam 16", Union

WEIGHT:
DRIVEN LENGTH: 63.0 ft.
EMBEDDED LENGTH: 61.0 ft.

TEST LOAD (TONS):
25
50
75

SOIL DESCRIPTION:

DEEP:

Settlement in Inches

0.25
0.50
0.75
1.00
1.25

REMARKS:
Test Pile No 6, Per No 1
Structure 14, Contract C-1 2
C-2 Design Section D-1A

SOURCE OF INFORMATION:
INDIANA TOLL ROAD COMMISSION
FILE No.
INDIANA TOLL ROAD DE LEUW
COMMISSION: CATHER & CO.
J. S. C. O.
**PILE TEST DATA**

**LOCATION:** INDIANA  
**DATE DRIVEN:** 17 AUGUST 1955  
**DATE TESTED:**  
**OWNER:** WINKELMAN - DOUGHERTY  
**CONTRACTOR:** WINKELMAN - DOUGHERTY  
**TESTED BY:**  
**HAMMER TYPE:** STEAM VULCAN NO 50 C  
**WEIGHT:**  
**STROKE:**  
**ENERGY:** 12,600 ft-lbs  
**BLOWS PR MIN:**  
**FINAL PENETRATION:** 10 blows/l  
**PILE TYPE:** CONCRETE - CAST IN PLACE  
**PILE DIMENSIONS:** Union Metal  
**WEIGHT:** 760 lbs  
**DRIVEN LENGTH:** 760 ft  
**EMBEDDED LENGTH:**  

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>40</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>80</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>120</td>
</tr>
</tbody>
</table>

**TEST LOAD:** See Remarks

**SOIL DESCRIPTION:**
- Clay
- Silt clay
- Silt sand
- Fine sand

**REMARKS:**

Test Pile, Pier No 1  
Structure 21, Contract C: I  
C2 Design Section D-1A  
The max settlement was 0.424 in under 800lb load. The total deflection after all load was removed was 0.052in.

**SOURCE OF INFORMATION:**
INDIANA TOLL ROAD COMMISSION  
CATER & CO  
FILE No.: J540
PILE TEST DATA

LOCATION  INDIANA
DATE DRIVEN  6 JULY 1955
DATE TESTED  14 JULY 1955
OWNER  CONTRACTOR WINKELMAN - DOUGHERTY
TESTED BY  
HAMMER TYPE  STEAM VULCAN NO.50 C
PILE TYPE  CONCRETE - CAST IN PLACE
WEIGHT  
STROKE  
ENERGY  12,700 ft lbs
BLOWS PR MIN  
FINAL PENETRATION  20 blows/5'
DRIVEN LENGTH  66'-0"
EMBEDDED LENGTH  63'-0"

TEST LOAD (TONS)

0.25
0.50
0.75
1.00

SETTLEMENT (INCHES)

SOIL DESCRIPTION  

DEPTI FT  BLOWS PER FOOT PENETRATION RATE

REMARKS.  Test Pile, Pier No. 4
Structure 22 Contract C-18
C2 Design Section D-1A

SOURCE OF INFORMATION  FILE NO.
INDIANA TOLL ROAD  DE LEUV
COMMISSION  CATHED R & CO

387
**PILE TEST DATA**

**LOCATION**: Indiana

**DATE DRIVEN**: 7 July, 1955

**DATE TESTED**: 15 August 1955

**HAMMER TYPE**: Steam Vulcan No. 50C

**WEIGHT**: 12,600 lb - lbs

**STROKE**: 

**ENERGY**: 7,500 ft - lbs

**BLOWS PR MIN.**: 

**FINAL PENETRATION**: 20 blows/ft

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

**SOIL DESCRIPTION**

<table>
<thead>
<tr>
<th>Depth FT</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td></td>
</tr>
<tr>
<td>60</td>
<td></td>
</tr>
<tr>
<td>120</td>
<td></td>
</tr>
</tbody>
</table>

**TEST LOAD DEPTH PENETRATION RATE**

**SOIL**

- Sandy loam F: 11
- Fine sand 2: 1 ft
- Si/ty grey clay 30
- Silty clay 60

**REMARKS**: Test Pile No. 4, Pier No. 1
Structure 23 Contract C-1 B
C-2 Design Section D-1A

**SOURCE OF INFORMATION**: Indiana Toll Road Commission
**FILE No.**: De Leuw Cather & Co

**CONTRACTOR**: Winkelmann - Douglas

**OWNER**: Concrete - Cast in Place

**PILE TYPE**: Dim 12", Union Steel

**PILE DIMENSIONS**: 65.5 ft

**DRIVEN LENGTH**: 50 ft

**EMBEDDED LENGTH**: 50 ft
**PILE TEST DATA**

**LOCATION**: Indiana  
**DATE DRIVEN**: 25 July 1955  
**DATE TESTED**: 9 August 1955  
**OWNER**:  
**CONTRACTOR**: Winkleman-Dougherty  
**TESTED BY**:  

**HAMMER TYPE**: Steam Vulcan No 50C  
**PILE TYPE**: Concrete Cast in Place  
**PILE DIMENSIONS**: Union Metal  

<table>
<thead>
<tr>
<th>WEIGHT</th>
<th>ENERGY</th>
<th>BLOWS PR MIN</th>
<th>FINAL PENETRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18,600</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(TONS)</td>
<td>H' 105</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**DATE TESTED**: 23 July 1955  
**DESCRIPTION**:  
**REMARKS**: Test File, Pier No 2  
Structure 2 & Contract C18  
C-2 Design Section D-1A  

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL**

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>40</td>
</tr>
</tbody>
</table>

**REMARKS**:  
**SOURCE OF INFORMATION**: Indiana Toll Road  
**FILE No.**: De Leuw  
**COMMISSION**: Cather & Co  
**J540**:  

**SETTLEMENT IN INCHES**:  
**TEST LOAD IN TONS**: 25, 50, 75  
**TEST LOAD IN TONS**: 40, 60, 120
LOCATION: Indiana
DATE DRIVEN: 20-21 June 1965
DATE TESTED: 27 June 1965

HAMMER TYPE: Steam Vulcan No. 50C
WEIGHT:
STROKE:
ENERGY: 12,704 ft-lb
BLOWS PR MIN:
FINAL PENETRATION: 20 blows/2 1/2'

OWNER:  
CONTRACTOR: Winnelmann & Dougherty
TESTED BY:

PILE TYPE: Concrete—Cast in Place
PILE DIMENSIONS: Union Metal

TEST LOAD (TONS):
25 50 75

SOIL DESCRIPTION:

DEPTH FT:

PENETRATION RATE:
20 40 60

REMARKS:
Test pile, Pier No. 2
Structure 25, Contract C-12
C-2 Design Section D-1A

SOURCE OF INFORMATION: FILE N:  
INDIANA TOLL ROAD: De Leuw
COMMISSION: CATHER & CO

1940
LOCATION: CHESTER, PENNSYLVANIA
DATE DRIVEN: 
DATE TESTED: 

HAMMER TYPE: STEAM VULCAN NO. 65C
WEIGHT: 3.25 t
STROKE: 36 in
ENERGY: 117 in-lb
BLOWS PR MIN: 
FINAL PENETRATION: 

PILE TYPE: CONCRETE CAST IN PLACE
PILE DIMENSIONS: pile-tip diam., 10 in
WEIGHT: 15,800 lbs
DRIVEN LENGTH: 
EMBEDDED LENGTH: 58.5 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>Blows per foot</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Fill</td>
<td>10</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>100</td>
<td>Grey silts, some organics, some small gravel</td>
<td>20</td>
<td>80</td>
<td></td>
</tr>
<tr>
<td>150</td>
<td>Coarse grey sand, trace silt &amp; gravel</td>
<td>30</td>
<td>120</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coarse grey sand &amp; gravel</td>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Coarse grey &amp; organics and gravel &amp; mixed flakes, silt &amp; clay</td>
<td>50</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Beaching rock fill</td>
<td>60</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: Pile No 1 Sun Ship Building Plant Load test No 2 was surge test consisting of five applications of 250 t load with max. settlement 0.477"
### PILE TEST DATA

**Location:** Washington, D.C.  
**Date Driven:** 13-19 August 1942  
**Date Tested:**  

**Hammer Type:** Steam Vulcan No. 1  
**Weight:** 3000 lbs  
**Stroke:** 36 in.  
**Energy:** 90 in. tons  
**Blows Pr. Min:**  
**Final Penetration:** 60 blows/ft  

**Pile Type:** Concrete - Precast  
**Pile Dimensions:**  
**Weight:**  
**Driven Length:**  
**Embedded Length:** 29 ft  

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth (ft)</th>
<th>Blows per Foot Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
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<tr>
<td>75</td>
<td></td>
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</tbody>
</table>

**Settlement in Inches**

**Remarks:**  
Test Pile No. 47 West About Tidal Basin Bridge in Line of Independence Ave

**Source of Information:**  
District of Columbia  
Dept of Highways  
FILE No. J340
-PILE TEST DATA-

LOCATION  Kootenay Landing, B.C
DATE DRIVEN  27-28 July 1954
DATE TESTED  30-31 July, 1-4 Aug 1954

OWNER  Dominion Bridge Co Ltd
CONTRACTOR  
TESTED BY  

HAMMER TYPE  Steam McKeehan Terry 903
WEIGHT  
STROKE  
ENERGY  
BLOWS PR MIN.  
FINAL PENETRATION  

PILE TYPE  Steel H-Pile
PILE DIMENSIONS  CBP 124 x 153 lbs
AAM SPEC  A7-52 T

WEIGHT  
DRIVEN LENGTH  1200 ft
EMBEDDED LENGTH  860 ft

TEST LOAD (TONS)  
50  100  150

SOIL DESCRIPTION  
DEPTH FT  50  100  150
PENETRATION RATE  
3/16  
5/16  
3/8  
1/2  
5/8  
3/4  
1  
1 1/2  
2  
2 1/2  
3  
3 1/2  
4  
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REMARKS  
Test Pile No 34, Pier No 3  
Bridge located at mouth of 
Kootenay River where the 
river joins the lake. (Design load 65 Tons)  

SOURCE OF INFORMATION  
Canadian Pacific Railroad
FILE No.  
J540
PILE TEST DATA

LOCATION: Brooklyn, Maryland
DATE DRIVEN: 4-5 May 1949
DATE TESTED: 6-11 May 1949
OWNER: 
CONTRACTOR: 
TESTED BY: 
HAMMER TYPE: Steam Vulcan No. 1
PILE TYPE: Steel H-Pile
PILE DIMENSIONS: 14" x 102/16

WEIGHT: 
ENERGY: 
STROKE: 
BLOWS PR MIN: 
FINAL PENETRATION: 

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>LOAD</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
</thead>
<tbody>
<tr>
<td>PENETRATION RATE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PENETRATION</td>
<td></td>
<td></td>
<td></td>
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SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>N</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMBEDDED LENGTH</td>
<td>92.5 ft</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

REMARKS: Test Pile No. 5, Center Pier No. 4, Bridge 3-14, Curtis Bay Bridge, over Patapsco River.

SOURCE OF INFORMATION: Baltimore, Ohio, Railroads
FILE N.: 3740

R RAILROAD COMPANY

J540
LOCATION: BROOKLYN, MARYLAND
DATE DRIVEN: 26 APRIL 1949
DATE TESTED: 30 APRIL - 2 MAY 1949

HAMMER TYPE: STEAM VULCAN No 1
WEIGHT: 2.5 t
STROKE: 36 in
ENERGY: 90 m tons
BLOWSPR MIN:
FINAL PENETRATION:

PILE TYPE: STEEL H-PILE
PILE DIMENSIONS: 14"-102"b
WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH:

TEST LOAD (TONS):

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
</tr>
<tr>
<td>50</td>
</tr>
<tr>
<td>75</td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION:

<table>
<thead>
<tr>
<th>SOIL DESCRIPTION</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid silt</td>
<td></td>
</tr>
<tr>
<td>Soft silt</td>
<td></td>
</tr>
<tr>
<td>Soft Med silt</td>
<td></td>
</tr>
<tr>
<td>Soft Wood</td>
<td></td>
</tr>
<tr>
<td>Soft silt</td>
<td></td>
</tr>
<tr>
<td>Soft Med silt</td>
<td></td>
</tr>
<tr>
<td>Soft Med sand</td>
<td></td>
</tr>
<tr>
<td>Dense sand</td>
<td></td>
</tr>
<tr>
<td>Dense sand</td>
<td></td>
</tr>
<tr>
<td>Dense sand</td>
<td></td>
</tr>
</tbody>
</table>

REMARKS: Test Pile No 5, Pier No 2
Bridge 3-4 Curtis Bay Bridge
over Patapsco River

SOURCE OF INFORMATION: BALTIMORE & OHIO RAILROADS
FILE No: 5540
# Pile Test Data

**Location:** Brooklyn, Maryland  
**Date Driven:** 30-31 March 1949  
**Date Tested:** 4-8 April 1949

**Hammer Type:** Steam Vulcan No. 1  
**Weight:** 2.5 T  
**Stroke:** 36 in.  
**Energy:** 90 in.-tons  
**Blows per Min.:**  
**Final Penetration:**

**Owner:**  
**Contractor:**  
**Tested By:**

**Pile Type:** Steel H-Pile  
**Pile Dimensions:** 14" - 18"/6

**Soil Description:**

<table>
<thead>
<tr>
<th>Soil Description</th>
<th>Elevation (Ft)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liquid silt</td>
<td>0</td>
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<tr>
<td>Soft silt</td>
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<tr>
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<tr>
<td>Mod sand</td>
<td>4</td>
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<tr>
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<td>4</td>
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<tr>
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<tr>
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<td>Mod sand</td>
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<tr>
<td>Mod sand</td>
<td>16</td>
</tr>
<tr>
<td>Soft silt</td>
<td>16</td>
</tr>
<tr>
<td>Mod sand</td>
<td>18</td>
</tr>
<tr>
<td>Soft silt</td>
<td>18</td>
</tr>
<tr>
<td>Mod sand</td>
<td>20</td>
</tr>
</tbody>
</table>

**Remarks:**
Test Pile No. 1, Pier No. 2  
Bridge 3-A - Curtis Bay Bridge  
over Patapsco River

**Source of Information:**  
**File No.:**

**Railroad Company:** Baltimore & Ohio

**Railroad:**

**File No.:** 1-340.
**PILE TEST DATA**

**LOCATION**: Galveston, Texas  
**DATE DRIVEN**: 10 October 1965  
**DATE TESTED**: 4-7 November 1965  
**OWNER**:  
**CONTRACTOR**: Parnsworth & Chambers  
**TESTED BY**:  

**HAMMER TYPE**: Steam McKean-Terry T-98-3  
**PILE TYPE**: Timber-Tapered  
**PILE DIMENSIONS**: Tip diam 6.7"  
**Butt diam 16"**  

<table>
<thead>
<tr>
<th>WEIGHT</th>
<th>ENERGY</th>
<th>BLOWS PR MIN</th>
<th>FINAL PENETRATION</th>
<th>OWNER</th>
<th>TESTED BY</th>
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<tbody>
<tr>
<td>19</td>
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<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH (FT)</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
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</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td>10</td>
<td>10</td>
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<tr>
<td>50</td>
<td></td>
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</tr>
<tr>
<td>75</td>
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<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

**TEST LOAD**

- **25**
- **50**
- **75**

**SOIL DESCRIPTION**

- Clay
- Silty Clay
- Clayey Silt

**DEPTH**

- 10 ft
- 20 ft
- 30 ft

**BLOWS PER FOOT PENETRATION RATE**

- 10
- 20
- 30

**REMARKS**: Test Pile No. W51, Sta. 70+45  
7 5 ft. Pelican Island Causeway

**SOURCE OF INFORMATION**

- Parsons, Brinckerhoff, Private
- Hall & Mac Donald, Inc, Consultants

**FILE No.**: J540
LOCATION: Galveston, Texas  
DATE DRIVEN: 12 October 1935  
DATE TESTED: 19-22 November 1935  
OWNER:  
CONTRACTOR: Farnsworth, Chambers  
TESTED BY:  

HAMMER TYPE: Steam McKean-Jerry 10-8-3  
WEIGHT:  
STROKE:  
ENERGY:  
BLOWS PR. MIN:  
FINAL PENETRATION:  

PILE TYPE: Timber- Tapered  
PILE DIMENSIONS: Tip diam. 8", Butt diam. 156"  
WEIGHT:  
DRIVEN LENGTH: 77.2 ft  
EMBEDDED LENGTH: 36.0 ft  

TEST LOAD (TONS)  

<table>
<thead>
<tr>
<th>TEST LOAD</th>
<th>25</th>
<th>50</th>
<th>75</th>
</tr>
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<tr>
<td>100</td>
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<tr>
<td>300</td>
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SOIL DESCRIPTION  

<table>
<thead>
<tr>
<th>DEPTH (FT)</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
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</thead>
<tbody>
<tr>
<td>10</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td></td>
</tr>
<tr>
<td>30</td>
<td></td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION  

- Clayey silt
- Clay

REMARKS: Test Pile No. WNI-572  
25 ft Ri 4 Pelican Island  
Causeway  

SOURCE OF INFORMATION:  
Parsons, Brinckerhoff, Private  
Hall, & Mac Donald, Inc. Consultants  
FILE No.  
J540
**PILE TEST DATA**

**LOCATION** Galveston, Texas  
**DATE DRIVEN** 4 November 1955  
**DATE TESTED** 30 Nov - 3 Dec 1955

**OWNER**  
**CONTRACTOR** Farnsworth & Chambers  
**TESTED BY**

**HAMMER TYPE** Steam Vulcan No OR  
**PILE TYPE** Concrete - Precast  
**PILE DIMENSIONS** 24" sq

<table>
<thead>
<tr>
<th><strong>WEIGHT</strong></th>
<th><strong>STROKE</strong></th>
<th><strong>ENERGY</strong></th>
<th><strong>BLOWS PR MIN</strong></th>
<th><strong>FINAL PENETRATION</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th><strong>TEST LOAD</strong> (TONS)</th>
<th><strong>SOIL DESCRIPTION</strong></th>
<th><strong>DEPTH</strong></th>
<th><strong>BLOWS PER FOOT PENETRATION RATE</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>sandy clay</td>
<td>16</td>
<td>40</td>
</tr>
<tr>
<td>100</td>
<td>clay</td>
<td>14</td>
<td>80</td>
</tr>
<tr>
<td>150</td>
<td>clay</td>
<td>12</td>
<td>120</td>
</tr>
</tbody>
</table>

**REMARKS.** Test Pile No C5-1 Sta 60+29  
5 ft Left of E. Pelican Island Causeway

**SOURCE OF INFORMATION**  
Parsons, Brinckerhoff  
**FILE N°** Private  
**HALL, E. Mac Donald, JNC** Consultants  
**J.60**
**PILE TEST DATA**

**LOCATION** Galveston, Texas  
**DATE DRIVEN** 18 November 1955  
**DATE TESTED** 28 December 1955

**OWNER**  
**CONTRACTOR** Farnsworth & Chambers  
**TESTER**

**HAMMER TYPE** Steam Vulcan No. OR  
**WEIGHT** 9300 lbs  
**STROKE**  
**ENERGY**  
**BLOWS PR MIN**  
**FINAL PENETRATION**

**PILE TYPE** Concrete Precast

**PILE DIMENSIONS** 24" Sq

**WEIGHT**  
**DRIVEN LENGTH** 65'  
**EMBEDDED LENGTH** 48'  

---

### TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
</table>

### SOIL DESCRIPTION  

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>BLOWS PER FOOT</th>
</tr>
</thead>
</table>

**SOIL**

- Sandy Clay  
- Sand  
- Silty Clay  
- Clay  
- Silt  
- Clay  
- Clay  
- Clay

**INCHES**

**SETTLEMENT IN INCHES**

**REMARKS**

Test Pile No CS2 Ste 65' 2D  
5th Lt. of E. Pelican Island Causeway

**SOURCE OF INFORMATION**

Parsons, Brinckerhoff, Private  
Hall & Mac Donald Inc, Consultants

**FILE NO.** 304.0
PILE TEST DATA

LOCATION: Galveston, Texas
DATE DRIVEN: 10 November 1955
DATE TESTED: 5-15 December 1955
OWNER:
CONTRACTOR: Fannsworth & Chalmers
TESTED BY:

HAMMER TYPE: Steam Vulcan No OR
WEIGHT: 5300 lbs
STROKE: 39 in
ENERGY:
BLOWS PR MIN:
FINAL PENETRATION:

PILE TYPE: Concrete - Precast
PILE DIMENSIONS: 24" Sq

TEST LOAD (TONS)

50 100 150

SOIL DESCRIPTION

N 4
silty sand

DEPTH FT

BLOWS per Foot PENETRATION RATE

40 80 120

SOURCE OF INFORMATION: PARSONS, BRINCKERHOF, PRIVATE
FILE N: HALL & MacDONALD INC, CONSULTANTS

REMARKS: Test Pile No. C1-1 Sta 80+15
15 ft Lt of & Pelican Island Causeway

SAND

Clay

Clayey Silt

Silt of Ab

0.5

0

SETTLEMENT IN INCHES

10
PILE TEST DATA

LOCATION: Galveston, Texas
OWNER: Farnsworth & Chambers

DATE DRIVEN: 10 October 1955
DATE TESTED: 17-25 November 1955

TESTED BY:

HAMMER TYPE: Steam Mckeehan Terry 10-8-3
PILE TYPE: Steel "W"-Pile
PILE DIMENSIONS: 14" x 14" B.D. #73

WEIGHT:
STROKE:
ENERGY:
BLOWS PR MIN:
FINAL PENETRATION:

WEIGHT:
DRIVEN LENGTH: 103.0 ft.
EMBEDDED LENGTH: 48.0 ft.

TEST LOAD (TONS):
50 100 150

SOIL DESCRIPTION:

DEPTH FT:

BLOWS PER FT PENETRATION RATE:
10 20 30

REMARKS:
Test Pile No. H-1 Sta. 72+00
Pelican Island Causeway

SOURCE OF INFORMATION:
Parsons, Brinckerhoff, Private
Hall, Mac Donald, Inc. Consultants

FILE No.
J-540
- PILE TEST DATA -

LOCATION: SAVANNAH, GEORGIA
DATE DRIVEN: 4-3
DATE TESTED: 24-28 APRIL 1953

HAMMER TYPE: STEAM MCELROY TRENCH 10-8-3
WEIGHT: _______________________
STROKE: _______________________
ENERGY: _______________________
BLOWS PR MIN: 105
FINAL PENETRATION: _______________________

PILE TYPE: TIMBER PILE
PILE DIMENSIONS: Tip diam. 8", Butt diam 12-1/2"
WEIGHT: _______________________
DRIVEN LENGTH: 50 ft
EMBEDDED LENGTH: 28 ft

TEST LOAD (TONS)
25 50 75

SOIL DESCRIPTION
ORGANIC SILT
FINE SAND
SAND
CLAY
GRANITE
GREEN SILT WITH SOME CLAY

ELEV FT
10 20 30

BLOWS PER FOOT PENETRATION RATE

REMARKS:
Test Pile No 79, Pier No 5-5
Savannah River Crossing
Capacity 233 ft

SOURCE OF INFORMATION
PARSONS, BRINCKERHOFF
MALL, E. MACDONALD

FILE NO.
PRIVATE
CONSULTANTS

J540
PILE TEST DATA

LOCATION: SAVANNAH, GEORGIA
DATE DRIVEN: ____________________
DATE TESTED: 19-24 MARCH 1953
OWNER: ________________________
CONTRACTOR: ____________________
TESTED BY: ____________________

HAMMER TYPE: STEAM McKEEEN-TERRY 10-8-3
WEIGHT: ____________________
STROKE: ____________________
ENERGY: ____________________
BLOWS PR MIN: 105
FINAL PENETRATION: 15 Blows/6" F2

PILE TYPE: TIMBER PILE
PILE DIMENSIONS: Tip diam 7.5" Butt diam 16"
WEIGHT: ____________________
DRIVEN LENGTH: 56.4 ft
EMBEDDED LENGTH: 40.0 ft

TEST LOAD (TONS)
25 50 75

SOIL DESCRIPTION
1. Soft peat and some clay
2. Grey mud dense fine sand
3. Green firm silt with sand and peats
4. Tip of Hole

SOURC OF INFORMATION: PARSONS, BRINCKERHOFF, HALL, E. MACDONALD
FILE No.: 1540
PILE TEST DATA

LOCATION: SAVANNAH, GEORGIA

DATE DRIVEN:

DATE TESTED: 22-28 SEPTEMBER 1953

OWNER:

CONTRACTOR:

TESTED BY:

HAMMER TYPE: STEAM VULCAN No 1

PILE TYPE: CONCRETE - PRECAST

PILE DIMENSIONS: 18" sq.

WEIGHT:

STROKE:

ENERGY:

BLOWS PR MIN: 20 Blows/2" (Note: This value is not consistent with other data provided in the table)

FINAL PENETRATION:

TEST LOAD (TONS):

SOIL DESCRIPTION:

ELEV FT

40

80

120

BLOWS PER FOOT PENETRATION RATE

SETTLEMENT IN INCHES

0.5

10

REMARKS: Test Pile No 2, Intermediate bent No 59 Savannah River Crossing - Capacity 50 Tons

SOURCE OF INFORMATION: PARSONS, BRINCKERHOFF, PRIVATE

FILE #: HALL & MACDONALD, CONSULTANTS

J640
LOCATION: CHELSEA, MASS

DATE DRIVEN: 9-11 FEBRUARY 1955
DATE TESTED: 23-26 FEBRUARY 1955

OWNER: ________________
CONTRACTOR: ________________
TESTER: ________________

HAMMER TYPE: STEAM VULCAN No. 1
WEIGHT: 25 ft
STROKE: 36 in
ENERGY: 90 in tons
BLOWS PR MIN: 60
FINAL PENETRATION: ________________

PILE TYPE: STEEL H. PILE
PILE DIMENSIONS: 14.8 P 73
WEIGHT: ________________
DRIVEN LENGTH: 100 ft
EMBEDDED LENGTH: ________________

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>Med. clay</td>
<td>40</td>
</tr>
<tr>
<td>100</td>
<td>Dark soil</td>
<td>80</td>
</tr>
<tr>
<td>150</td>
<td>EMB. clay</td>
<td>120</td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION:
- Med. clay
- Dark soil
- EMB. clay

REMARKS:
Test Pile No. 3-4, Ramp "D"
Bent C76d Northeast Expressway

SOURCE OF INFORMATION:
Parsons, Brinckerhoff, private

FILE No.: HALL & MACDONALD, INC. CONSULTANT J540
LOCATION: CHELSEA, MASS
DATE DRIVEN: 13-14 JANUARY 1955
DATE TESTED: 18-21 JANUARY 1955

HAMMER TYPE: STEAM VULCAN NO. 1
WEIGHT: 2500 lbs
STROKE: 36 in
ENERGY: 9000 ft-lbs
BLOWS PR MIN: 60

PILE TYPE: STEEL H-PILE
PILE DIMENSIONS: 14 x 80 x 73

WEIGHT: 1150 lbs
DRIVEN LENGTH: 99 ft
EMBEDDED LENGTH: 115 ft

TEST LOAD (TONS)

SETTLEMENT IN INCHES

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>BLOWS PER FOOT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td></td>
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</tr>
<tr>
<td>120</td>
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</table>

HOLE NO. 113

REMARKS: Test Pile No. 8-12, Bent C-67
Northeast Expressway

SOURCE OF INFORMATION: PARSONS, BRINCKERHOFF, PRIVATE

FILE NO.: 3540
CONSULTANT: HALL, 8 MAC DONALD, INC
**PILE TEST DATA**

**LOCATION**

Fort Isabel, Cameron Co, Texas

**DATE DRIVEN**

22 November 1952

**DATE TESTED**


**OWNER**


**CONTRACTOR**


**TESTED BY**


**HAMMER TYPE**

Stram McNiderm-Terry S-5

**PILE TYPE**

Concrete - Precast

**WEIGHT**

3000 lbs

**STROKE**

3.25 ft

**ENERGY**

16,250 ft-lbs

**BLOWS PR MIN**


**PILE DIMENSIONS**

18 in sq

**DRIVEN LENGTH**

70 ft

**EMBEDDED LENGTH**

320 ft

---

**TEST LOAD (TONS)** |
| 50 | 100 | 150 |

**SOIL DESCRIPTION**

1. Plastic clay
2. Gley clay
3. Silt clay
4. Clayey gravel
5. Sandy gravel
6. Capping gravel
7. Grey gravel
8. Gravelly sand
9. Sand
10. Silty sand
11. Clayey sand
12. Sandy clay
13. Silty sand
14. Clayey clay
15. Sand

**DEPTH (FT)**

10
20
30
40
50
60

**Blows per foot**

40
60
120

**PENETRATION RATE**

---

**REMARKS**

Test Pile No. 9 - Sta. 132 + 29.9

Soil at end of E. Padre Island Causeway

Note: N₃ is the number of blows per foot on a 3-inch dia. penetrometer.

**SOURCE OF INFORMATION**

Parsons, Brinckerhoff, Private

**FILE NO.**

J560
**PILE TEST DATA**

**LOCATION**: Port Isabel, Cameron Co, Texas

**DATE DRIVEN**: 7 March 1963

**DATE TESTED**: 

**OWNER**: 

**CONTRACTOR**: 

**TESTED BY**: 

**HAMMER TYPE**: Steam McKeehan-Terry 5.5

**WEIGHT**: 5000 lbs

**STROKE**: 3.25 ft

**ENERGY**: 16,250 ft-lbs

**BLOWS PR MIN**: 

**FINAL PENETRATION**: 10 blows/1.5" 

**PILE TYPE**: Concrete-Precast

**PILE DIMENSIONS**: 18" sq

**DRIVEN LENGTH**: 55.0 ft

**EMBEDDED LENGTH**: 43.0 ft

**TEST LOAD (TONS)**

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**SOIL DESCRIPTION**

- Plastic berm
- Grey silty clay
- Loose to firm grey very fine sand
- Tip of pile

**DEPT IN INCHES**

<table>
<thead>
<tr>
<th>DEPT IN INCHES</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
</tr>
<tr>
<td>0.50</td>
</tr>
</tbody>
</table>

**REMARKS**: Test Pile No 6A 510 +50, 50 ft. N of 6. Padre Island Causeway

Note: N is the number of blows per foot on a 3-inch dia penetrometer

**SOURCE OF INFORMATION**: Parsons, Brinckerhoff PRIVATE

**FILE NO**: 1540

**HALL & MACDONALD Inc. CONSULTANT**
**PILE TEST DATA**

<table>
<thead>
<tr>
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<th>VIRGINIA</th>
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<tbody>
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<td>DATE DRIVEN</td>
<td>21 JANUARY 1957</td>
</tr>
<tr>
<td>DATE TESTED</td>
<td>23 JANUARY 1957</td>
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<tr>
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<td>CONTRACTOR</td>
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<td>HAMMER TYPE</td>
<td>DELMAG NO ZIP</td>
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<tr>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>STROKE</td>
<td></td>
</tr>
<tr>
<td>ENERGY</td>
<td>22,500 ft-lbs</td>
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<td>BLOWS PR MIN</td>
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<tr>
<td>FINALE PENETRATION</td>
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<td>TESTED BY</td>
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<tr>
<td>PILE TYPE</td>
<td>CONCRETE</td>
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<tr>
<td>PILE DIMENSIONS</td>
<td>12&quot; Sq Prestressed</td>
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<tr>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>DRIVEN LENGTH</td>
<td></td>
</tr>
<tr>
<td>EMBEDDED LENGTH</td>
<td>370 FT</td>
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<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH</th>
<th>BLOWS PER FOOT PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>75</td>
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<td></td>
<td>120</td>
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</table>

<table>
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<tr>
<th>SETTLEMENT IN INCHES</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.25</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.50</td>
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</tr>
</tbody>
</table>

**REMARKS.** Test Pile No 61 South Approach, Structure A-B, Contract A-5-G
Richmond-Petersburg Turnpike

Sta. 1963+63.9 ft of L

**SOURCE OF INFORMATION**
- PARSONS, BRINCKERHOFF, PRIVATE
- MILL, EMAC DONALD, INC, CONSULTANT

**FILE N.** JESAO
**PILE TEST DATA**

**LOCATION**: VIRGINIA

**DATE DRIVEN**: 22 FEBRUARY 1957

**DATE TESTED**: __________

**OWNER**: __________

**CONTRACTOR**: __________

**TESTED BY**: __________

**HAMMER TYPE**: DELMAG No D12

**PILE TYPE**: CONCRETE

**PILE DIMENSIONS**: 12" Sq. Prestressed

**WEIGHT**: __________

**STROKE**: __________

**ENERGY**: 22,600 ft-lbs

**WEIGHT**: __________

**BLOWS PR MIN**: __________

**FINAL PENETRATION**: __________

**DRIVEN LENGTH**: __________

**EMBEDDED LENGTH**: 20.0 FT.

### TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>25</th>
<th>50</th>
<th>75</th>
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</thead>
<tbody>
<tr>
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### SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
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</thead>
<tbody>
<tr>
<td>20</td>
<td></td>
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<tr>
<td>40</td>
<td></td>
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<tr>
<td>60</td>
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</tbody>
</table>

### REMARKS

Test Pile No. 73 North Abutment Structure A-11, Contract A-5-G
Richmond-Petersburg Turnpike

### SOURCE OF INFORMATION

PARSONS, BRINCKERHOFF, PRIVATE

HALL, E. MAC DONALD, INC, CONSULTANT

FILE No. J.540
LOCATION: VIRGINIA
DATE DRIVEN: 20 MARCH 1957, 4 APRIL 1957
DATE TESTED: 

HAMMER TYPE: STEAM VULCAN NO 1
VULCAN NO 2
WEIGHT: 
STROKE: 
ENERGY: 
BLOWS PR. MIN: 
FINAL PENETRATION: 

PILE TYPE: Union Metal Monotube
PILE DIMENSIONS: 9F 9J
WEIGHT: 
DRIVEN LENGTH: 
EMBEDDED LENGTH: 630 FT

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>TEST LOAD</th>
<th>LOAD</th>
<th>SETTLEMENT IN INCHES</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>40</td>
<td>0.25</td>
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<tr>
<td>50</td>
<td>80</td>
<td>0.50</td>
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<tr>
<td>75</td>
<td>120</td>
<td>0.75</td>
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SOIL DESCRIPTION

<table>
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<th>PENETRATION RATE</th>
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<th>120</th>
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<td>4 ft</td>
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<td>7 ft</td>
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<td>10 ft</td>
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<tr>
<td>11 ft</td>
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<td></td>
</tr>
<tr>
<td>12 ft</td>
<td></td>
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</tbody>
</table>

REMARKS: Test Pile No 5 Pier No 3 Structure A-13 Contract A-8-G Richmond Petersburg Turnpike The pile was re driven on 4 April 1957 with a No 1 Vulcan hammer and re loaded Stan 1957 S 686
PILE TEST DATA

LOCATION: VIRGINIA
DATE DRIVEN: 10 DECEMBER 1956
DATE TESTED: 11-15 DECEMBER 1956

OWNER: 
CONTRACTOR: 
TESTED BY: CONCRETE CAST IN PLACE

HAMMER TYPE: VULCAN NO 65-C
PILE TYPE: RAYMOND STEP TAPER

WEIGHT: 
STROKE: 
ENERGY: 
BLOWS PR MIN: 5 Blows/1"
FINAL PENETRATION: 

PILE TYPE: 
PILE DIMENSIONS: 18-GAUGE TIP DIAM 10'

PILE DIAM 15"

WEIGHT: 
DRIVEN LENGTH: 480 FT
EMBEDDED LENGTH: 380 FT

TEST LOAD (TONS)
25 50 75

SOIL DESCRIPTION
ELEV. FT
Blows per foot PENETRATION RATE
20 40 60

REMARKS. Test Pile No 9 West Abutment
New Market Creek Structure
Hampton Roads Project Contract

SOURCE OF INFORMATION: FILE No.
PARSONS, BUCKRAM, HOFF, INC.
PUBLIC WORKS CONSULTANTS

FILE No. J540
# Pile Test Data

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<tr>
<th>Location</th>
<th>Virginia</th>
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<tbody>
<tr>
<td>Date Driven</td>
<td>9 January 1957</td>
</tr>
<tr>
<td>Date Tested</td>
<td>11-16 January 1957</td>
</tr>
<tr>
<td>Hammer Type</td>
<td>Raymond M-15</td>
</tr>
<tr>
<td>Pile Type</td>
<td>Raymond Stee Tape</td>
</tr>
<tr>
<td>Date</td>
<td>9 January 1957</td>
</tr>
<tr>
<td>Date</td>
<td>11-16 January 1957</td>
</tr>
<tr>
<td>Final Penetration</td>
<td>3 Blow/s/ft</td>
</tr>
<tr>
<td>Owner</td>
<td>Contractor</td>
</tr>
<tr>
<td>Tested By</td>
<td>Concrete Cast In Place</td>
</tr>
<tr>
<td>Pile Dimensions</td>
<td>16 Gauge Tip diam 10&quot; Butt diam 15&quot;</td>
</tr>
<tr>
<td>Weight</td>
<td>720 lb.</td>
</tr>
<tr>
<td>Driven Length</td>
<td>660 ft.</td>
</tr>
<tr>
<td>Embedded Length</td>
<td>720 ft.</td>
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<tr>
<td>Test Load (Tons)</td>
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</tr>
<tr>
<td>Soil Description</td>
<td>Elevation</td>
</tr>
<tr>
<td>Penetration Rate</td>
<td>20</td>
</tr>
</tbody>
</table>

## Remarks

Test Pile No. 18 Per No. 3 Pile
Chapel Road Structure
Hampton Roads Project Contract

Source of Information:
Parsons, Brinckerhoff, Private
Hall & MacDonald, Inc. Consultants

File No. J500
PILE TEST DATA

LOCATION: VIRGINIA

DATE DRIVEN: 6 MARCH 1957
DATE TESTED: 9-12 MARCH 1957

HAMMER TYPE: RAYMOND 65 C
WEIGHT:
STROKE:
ENERGY:
BLOWS PR MIN:
FINAL PENETRATION:

PILE TYPE: RAYMOND STEP TAPER
PILE DIMENSIONS: 16 Gauge Tapered 8'
OUT: 17.5'

TEST LOAD (TONS)

TESTED BY: CONCRETE CAST IN PLACE

OWNER:
CONTRACTOR:

TESTED BY:

PILE TYPE:
PILE DIMENSIONS:

WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH:

TESTED BY:

TEST LOAD (TONS)

TESTED BY:

TEST LOAD (TONS)

TEST LOAD (TONS)

SOIL DESCRIPTION

FT

ELEPHI

0.25

TEST LOAD (TONS)

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### PILE TEST DATA

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>VIRGINIA</th>
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<tbody>
<tr>
<td>DATE DRIVEN</td>
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</tr>
<tr>
<td>DATE TESTED</td>
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</tr>
<tr>
<td>HAMMER TYPE</td>
<td>Double Acting</td>
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<tr>
<td>WEIGHT</td>
<td></td>
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<tr>
<td>STROKE</td>
<td></td>
</tr>
<tr>
<td>ENERGY</td>
<td></td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td>198 Blows</td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td></td>
</tr>
<tr>
<td>OWNER</td>
<td></td>
</tr>
<tr>
<td>CONTRACTOR</td>
<td></td>
</tr>
<tr>
<td>TESTED BY</td>
<td>Concrete Cast In Place</td>
</tr>
<tr>
<td>PILE TYPE</td>
<td>Steel Monotube Tapered</td>
</tr>
<tr>
<td>PILE DIMENSIONS</td>
<td>9 Gage Ty diam 8&quot; Butt diam 14&quot;</td>
</tr>
<tr>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>DRIVEN LENGTH</td>
<td>45.5 ft</td>
</tr>
<tr>
<td>EMBEDDED LENGTH</td>
<td>28 ft</td>
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### Test Load (Tons)

<table>
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<th>Test Load (Tons)</th>
<th>25</th>
<th>50</th>
<th>75</th>
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<tbody>
<tr>
<td>Settlement (inches)</td>
<td>0.25</td>
<td>0.50</td>
<td>0.75</td>
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</table>

### Soil Description

- **Depth (ft)**: 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 45, 50
- **Penetration Rate**: 200, 400, 600

### Remarks

Test Pile No. 4, 3rd of 6, 24 ft 11" of 6 - La Salle Ave
Structure, Hampton Roads
Project Contract B1B

### Source of Information

Parsons, Brinckerhoff Private
Hall & MacDonald, Inc Consultants

FILE N.

J340
PILE TEST DATA

LOCATION: VIRGINIA
DATE DRIVEN: 23 AUGUST 1956
DATE TESTED: 27-31 AUGUST 1956

HAMMER TYPE: STEAM McKINNON-TERRY 983
WEIGHT:
ENERGY:
STROKE:
BLOWS PR MIN:
FINAL PENETRATION:

OWNER
CONTRACTOR
TESTED BY

PILE TYPE: STEEL MONOTUBE, TAPERED
PILE DIMENSIONS: 9 gauge Tip diam 3'

WEIGHT:
DRIVEN LENGTH: 30 33 ft
EMBEDDED LENGTH: 22 25 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>BLOWS per foot PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
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<td>80</td>
<td></td>
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<td></td>
<td>100</td>
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<tr>
<td>75</td>
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<td>150</td>
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</tbody>
</table>

Li & Aie Rep. Road Structure
Hampton Roads, Project
Contact 818

SOURCE OF INFORMATION: PARSONS, DRINKER HOPF, PRIVATE
FILE No.: HALL & McDONALD, INC, CONSULTANT

Graph showing settlement in inches vs. test load (25, 50, 75 tons) and soil description with penetration rate.
PILE TEST DATA

LOCATION: VIRGINIA
DATE DRIVEN: 13 AUGUST 1956
DATE TESTED: 15-21 AUGUST 1956

HAMMER TYPE: Double Acting Sona
WEIGHT: AIR RELICTION TERRY 98.3
STROKE: 
ENERGY: 
BLOWS PR. MIN: 
FINAL PENETRATION: 90 Blows/ft

CONTRACTOR: CONCRETE CAST IN PLACE
PILE TYPE: STEEL MONOTUBE TAPERED
PILE DIMENSIONS: 9 Gage, Tip diam 5/2, Butt diam 12'

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>Depth</th>
<th>Blow per foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>4</td>
<td>40</td>
</tr>
<tr>
<td>6</td>
<td>60</td>
</tr>
</tbody>
</table>

SOIL DESCRIPTION

- Gravel
- Sand
- Clay
- Shelly clays
- Wet fill
- Capped gravel
- Shelly sand
- Fine sand
- Medium from gravel
- Silty sand
- Coarse sand
- Mud

CONTRACTOR: E. H. B. Contract 813

SOURCE OF INFORMATION: PHILIP, private
FILE NO.: MCHAR, INC. CONSULTANTS J.40
PILE TEST DATA

LOCATION: Virginia
DATE DRIVEN: 6 September 1986
DATE TESTED: 8 November 1986

OWNER
CONTRACTOR
TESTED BY

HAMMER TYPE: Steam McKean 983
WEIGHT: 
STROKE: 
ENERGY: 
BLOWS PR MIN: 
FINAL PENETRATION: 100 Blows/1"

PILE TYPE: Steel monotube, Tarbad
PILE DIMENSIONS: 7 Gauge Tip diam 8", butt diam 12"

WEIGHT: 
DRIVEN LENGTH: 45 ft
EMBEDDED LENGTH: 310 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>Test Load</th>
<th>25</th>
<th>50</th>
<th>75</th>
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</thead>
<tbody>
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<td>0</td>
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<td>0.25</td>
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<td></td>
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<tr>
<td>0.50</td>
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</table>

SOIL DESCRIPTION

<table>
<thead>
<tr>
<th>Depth</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Gains per foot</td>
</tr>
<tr>
<td></td>
<td>50</td>
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</table>

REMARKS.
Test Pile No. 3, Sta. 658 + 32 - 18 ft of E, Rt. 134 Structure
Hampton Roads Project
Contract 8-18

SOURCE OF INFORMATION
FILE No.
PARSONS BRINCKERHOFF, Private
HALL & MACDONALD, INC., Consultants
J540
# Pile Test Data

**Location:** Virginia  
**Date Driven:** 6 July 1956  
**Date Tested:** 9-14 July 1956  
**Owner:**  
**Contractor:**  
**Tested By:**  

**Hammer Type:** Drop Hammer  
**Weight:** 2725 lbs  
**Stroke:** 20 ft  
**Energy:** 5460 ft lbs  
**Blows per Min:** 8  
**Final Penetration:** 1 Blow / f"  

**Pile Type:** Timber, Untreated  
**Pile Dimensions:** Tapered, Tip diam. 8", Butt diam. 13"  
**Weight:**  
**Driven Length:** 41.5 ft  
**Embedded Length:** 36 ft  

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth FT</th>
<th>Blows per foot Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td>50</td>
<td></td>
<td></td>
<td>20</td>
</tr>
<tr>
<td>75</td>
<td></td>
<td></td>
<td>30</td>
</tr>
</tbody>
</table>

**Source of Information:**  
**File No.:**  
**Parsons, Brinckerhoff, Private:**  
**Hall & Mac Donald, Inc., Consultants:**  
**J540**

**Remarks:** Test Pile No. 2, Sta. 721+34  
on Bollamy & Hampton Creek Bridge, Hampton Road Project  
Contract 82

**Soil Description:**  
- 1: Most fine to medium brown sand, some gravel and silt  
- 2: Most fine, medium brown, sandy, and clayey sand and shell  
- 3: Clayey and sand, fine sand  
- 4: Fine sand, medium sand  
- 5: Medium sand, fine sand  
- 6: Fine sand, medium sand  
- 7: Medium sand, fine sand  
- 8: Fine sand, medium sand  
- 9: Medium sand, fine sand  
- 10: Fine sand, medium sand  
- 11: Medium sand, fine sand  
- 12: Fine sand, medium sand  
- 13: Medium sand, fine sand  
- 14: Fine sand, medium sand  
- 15: Medium sand, fine sand  
- 16: Fine sand, medium sand  
- 17: Medium sand, fine sand  
- 18: Fine sand, medium sand  
- 19: Medium sand, fine sand  
- 20: Fine sand, medium sand  
- 21: Medium sand, fine sand  
- 22: Fine sand, medium sand  
- 23: Medium sand, fine sand  
- 24: Fine sand, medium sand  
- 25: Medium sand, fine sand  
- 26: Fine sand, medium sand  
- 27: Medium sand, fine sand  
- 28: Fine sand, medium sand  
- 29: Medium sand, fine sand  
- 30: Fine sand, medium sand  
- 31: Medium sand, fine sand  
- 32: Fine sand, medium sand  
- 33: Medium sand, fine sand  
- 34: Fine sand, medium sand  
- 35: Medium sand, fine sand  
- 36: Fine sand, medium sand  
- 37: Medium sand, fine sand  
- 38: Fine sand, medium sand  
- 39: Medium sand, fine sand  
- 40: Fine sand, medium sand  
- 41: Medium sand, fine sand  
- 42: Fine sand, medium sand  
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- 46: Fine sand, medium sand  
- 47: Medium sand, fine sand  
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- 51: Medium sand, fine sand  
- 52: Fine sand, medium sand  
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- 57: Medium sand, fine sand  
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- 60: Fine sand, medium sand  
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- 83: Medium sand, fine sand  
- 84: Fine sand, medium sand  
- 85: Medium sand, fine sand  
- 86: Fine sand, medium sand  
- 87: Medium sand, fine sand  
- 88: Fine sand, medium sand  
- 89: Medium sand, fine sand  
- 90: Fine sand, medium sand  
- 91: Medium sand, fine sand  
- 92: Fine sand, medium sand  
- 93: Medium sand, fine sand  
- 94: Fine sand, medium sand  
- 95: Medium sand, fine sand  
- 96: Fine sand, medium sand  
- 97: Medium sand, fine sand  
- 98: Fine sand, medium sand  

Tip of Pile
-PILE TEST DATA-

LOCATION: Drayton, N.D.  
DATE DRIVEN: 11-5-58  
DATE TESTED: 11-14-58, 11-22-58  
OWNER: N.P. Ry.  
HAMMER TYPE: Drop  
WEIGHT: 4100 lb  
STROKE: 10 ft  
ENERGY:  
BLOWS PR MIN:  
FINAL PENETRATION:  
TESTED BY:  
PILE TYPE: 12 BP 53  
PILE DIMENSIONS:  
WEIGHT:  
DRIVEN LENGTH:  
EMBEDDED LENGTH: 60'-0"  

TEST LOAD (TONS)  
50  100  150  

SOIL DESCRIPTION  
13: Clayey stiff, laminated, gray clay, silt and sand partings  
11: Gray clay  
10: Gray clay, occ. silt packets  
11: Gray clay, occ. pebbles  
13: Gritty gray clay  
17:  

PENETRATION RATE  

VALUES OF QU AVERAGED FOR EACH LAYER  
Sensitivity 1.5 to 2.0 (2" Shelby Tubes)  

SOURCE OF INFORMATION:  
FILE NO.:  

ABUTMENT 5  

REMARKS: Test Pile No. 1 (1st Stage)  

-PILE TEST DATA-  

401
LOCATION: DRAYTON, N.D.
DATE DRIVEN: 12-2-58
DATE TESTED: 12-9-58

HAMMER TYPE: Drop
WEIGHT: 1,000 lb
STROKE: 10 ft
ENERGY:
BLOWS PR MIN:
FINAL PENETRATION:

OWNER: N.P.Ry
CONTRACTOR:
TESTED BY:

PILE TYPE: 12 BP53
PILE DIMENSIONS:
WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH: 120'-0

TEST LOAD (TONS)

50
100
150

SOIL DESCRIPTION

DEPTH (FT)

PENETRATION RATE

SETLEMENT IN INCHES

0
0.5
1.0
1.5
2.0

ABUTMENT 5

REMARKS: Test File No 1 (2nd Stage)

SOURCE OF INFORMATION
FILE NO.
J601
J540
# Pile Test Data

**Location**: Drayton, N.D.  
**Owner**: N P Ry  
**Date Driven**: 11-5-58  
**Date Tested**: 11-15-58; 11-23-58  
**Hammer Type**: Drop  
**Weight**: 4,100 lb  
**Stroke**: 10 ft to 28', 6' below  
**Energy**:  
**Blows per Min**:  
**Final Penetration**:  
**Contractor**:  
**Tested By**:  
**Pile Type**: Steel pipe  
**Pile Dimensions**: 12" O.D. 0.512" thick  
**Til plate bottom, 13""  
**Driven Length**:  
**Embedded Length**: 75 ft

## Test Load (Tons)

<table>
<thead>
<tr>
<th>Test Load (Tons)</th>
<th>Soil Description</th>
<th>Depth FT</th>
<th>Penetration Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Remarks**: Test Pile No.2 (1st Stage)

**Source of Information**: File No. J601

**File No.**: J540
-PILE TEST DATA-

LOCATION Drayton, N.D
DATE DRIVEN 12-21-58
DATE TESTED 12-10-58

OWNER N.P. Ry
CONTRACTOR
TESTED BY

HAMMER TYPE Drop
WEIGHT 4100 lb
STROKE 6 ft
ENERGY
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE Steel pile
PILE DIMENSIONS 2 1/2" O.D.; 0.312" thick
PILE TYPE Steel pipe
PILE DIMENSIONS 1 3/4" O.D.; 0.438" thick
1" flat plate bottom, 18" @

WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 150'-0"

TEST LOAD (TONS)
50 100 150

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

SOURCES OF INFORMATION FILE No. J601

FILE No. J540

ABUTMENT 5

REMARKS Test Pile No. 2 (2nd Stage)

ABUTMENT 5

ABUTMENT 5

ABUTMENT 5

ABUTMENT 5

ABUTMENT 5
- PILE TEST DATA -

LOCATION: DRAYTON, N.D.
DATE DRIVEN: 11-5-58
LOCATION: DATE TESTED: A 11-20-58; B 12-3-58; C 12-20-58

OWNER: N.P.Ry.
CONTRACTOR:

TESTED BY:

HAMMER TYPE: Drop
WEIGHT: 1000 lb
STROKE: 10 ft below 17 ft
ENERGY:

BLOWS PR MIN:
FINAL PENETRATION:

PILE TYPE: Treated Timber
PILE DIMENSIONS: 8¼' tip, 14⅜' butt

WEIGHT:
DRIVEN LENGTH: 95 ft
EMBEDDED LENGTH: 80 ft

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>SOIL DESCRIPTION</th>
<th>DEPTH FT</th>
<th>PENETRATION RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>50</td>
<td>See Sheet No. 401</td>
<td></td>
<td></td>
</tr>
<tr>
<td>100</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>150</td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>ABUTMENT 5</th>
<th>SETTLEMENT IN INCHES</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>0</td>
</tr>
<tr>
<td>B</td>
<td>0.5</td>
</tr>
<tr>
<td>C</td>
<td>1.0</td>
</tr>
<tr>
<td>D</td>
<td>1.5</td>
</tr>
<tr>
<td>E</td>
<td>2.0</td>
</tr>
</tbody>
</table>

REMARKS:
Test Pile No. 3

SOURCE OF INFORMATION
FILE NO. J601
J540
-PILE TEST DATA-

LOCATION DRAYTON, N.D
DATE DRIVEN 11-6-58
DATE TESTED A 11-14-58; B 11-22-58

OWNER NPRy
CONTRACTOR
TESTED BY

HAMMER TYPE Drop
WEIGHT 4100 lb
STROKE 10 ft
ENERGY
BLOWS PR MIN
FINAL PENETRATION

PILE TYPE 12BP53
PILE DIMENSIONS
WEIGHT
DRIVEN LENGTH
EMBEDDED LENGTH 60 ft

TEST LOAD (TONS)

50 100 150

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

TEST LOAD (TONS)

0 0.5 1.0 1.5 2.0

ABUTMENT 1

REMARKS Test Pile No. 4 (1st Stage)

SOURCE OF INFORMATION
FILE N.
J601
J540
LOCATION: DRAYTON, N.D
DATE DRIVEN: 12-1-58
DATE TESTED: 12-9-58
HAMMER TYPE: Drop
WEIGHT: 4100 lb
STROKE: 10 ft
ENERGY:
BLOWS PR MIN:
FINAL PENETRATION:
OWNER: N.P. Ry
CONTRACTOR:
TESTED BY:
PILE TYPE:
PILE DIMENSIONS: 12BP53
WEIGHT:
DRIVEN LENGTH:
EMBEDDED LENGTH: 120 ft

TEST LOAD (TONS)

<table>
<thead>
<tr>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
</table>

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

SETTLEMENT IN INCHES

ABUTMENT 1

REMARKS: Test Pile No. 4 (2nd Stage)

SOURCE OF INFORMATION
FILE NO.
J601
J540
LOCATION: DRAYTON, N.D.  
DATE DRIVEN: 12-15-58  
DATE TESTED: 12-20-58  

HAMMER TYPE: Drop  
WEIGHT: 4100 lb  
STROKE: 10 ft  
ENERGY:  
BLOWS PR MIN:  
FINAL PENETRATION:  

OWNER: N P Ry  
CONTRACTOR:  
TESTED BY:  

PILE TYPE: 12 BP 53  
PILE DIMENSIONS:  
WEIGHT:  
DRIVEN LENGTH:  
EMBEDDED LENGTH: 231 ft  

TEST LOAD (TONS)  
50  
100  
150  

SOIL DESCRIPTION  
DEPTH FT  
PENETRATION RATE  

SETTLEMENT IN INCHES  
0.5  
1.0  
1.5  
2.0  

ABUTMENT 1  

REMARKS: Test Pile No. 4 (3rd Stage)  

SOURCE OF INFORMATION: FILE No. 5601  
J540
-PILE TEST DATA-

LOCATION: DRAYTON, N D
DATE DRIVEN: 11-6-58
DATE TESTED: A11-15-58; B 11-23-58

OWNER: N P Ry
CONTRACTOR: 
TESTED BY: 

HAMMER TYPE: Drop
WEIGHT: 4100 lb
STROKE: 6 ft
ENERGY: 
BLOWS PR MIN: 
FINAL PENETRATION: 

PILE TYPE: Steel Pipe
PILE DIMENSIONS: 123" O.D., 0.312" thick
FLAT PLATE BOTTOM, 13"

DRIVEN LENGTH: 
EMBEDDED LENGTH: 75 ft

TEST LOAD (TONS)

0
50
100
150

SOIL DESCRIPTION

DEPTH FT

PENETRATION RATE

50
100
150

ABUTMENT 1

REMARKS: Test Pile No. 5 (1st Stage)

SOURCE OF INFORMATION
FILE N.

FILE N.
J601
J540
**PILE TEST DATA**

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>ORAYTON, N.D</th>
<th>OWNER</th>
<th>N.P. Ry</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>12-1-58</td>
<td>CONTRACTOR</td>
<td></td>
</tr>
<tr>
<td>DATE TESTED</td>
<td>12-10-58</td>
<td>TESTED BY</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>HAMMER TYPE</th>
<th>Drop</th>
<th>PILE TYPE</th>
<th>Steel Pipe</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT</td>
<td>4100 lb</td>
<td>PILE DIMENSIONS</td>
<td>12° 00; 0.312” thick</td>
</tr>
<tr>
<td>STROKE</td>
<td>6 ft</td>
<td>1” flat plate bottom, 13%</td>
<td></td>
</tr>
<tr>
<td>ENERGY</td>
<td></td>
<td>WEIGHT</td>
<td></td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td></td>
<td>DRIVEN LENGTH</td>
<td></td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td></td>
<td>EMBEDDED LENGTH</td>
<td>150 ft</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOIL DESCRIPTION</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPTH FT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PENETRATION RATE</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TEST LOAD vs SETTLEMENT IN INCHES**

**REMARKS:**
Test Pile No. 5 (2nd Stage)

**SOURCE OF INFORMATION**
FILE N. 1601
J 540
<table>
<thead>
<tr>
<th>LOCATION</th>
<th>DRAYTON, N.D</th>
<th>OWNER</th>
<th>N P Ry</th>
</tr>
</thead>
<tbody>
<tr>
<td>DATE DRIVEN</td>
<td>12-17-58</td>
<td>CONTRACTOR</td>
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<tr>
<td>DATE TESTED</td>
<td>1-6-59</td>
<td>TESTED BY</td>
<td></td>
</tr>
<tr>
<td>HAMMER TYPE</td>
<td>Drop</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WEIGHT</td>
<td>4100 lb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STROKE</td>
<td>6 ft</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENERGY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BLOWS PR MIN</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FINAL PENETRATION</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PILE TYPE</th>
<th>Steel Pipe</th>
<th>PILE DIMENSIONS</th>
<th>12(\frac{3}{4}) in, 0.312&quot; thick</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIGHT</td>
<td></td>
<td></td>
<td>1&quot; flat plate bottom, 13# of</td>
</tr>
<tr>
<td>DRIVEN LENGTH</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EMBEDDED LENGTH</td>
<td></td>
<td></td>
<td>21 3/4 ft</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>TEST LOAD (TONS)</th>
<th>0</th>
<th>50</th>
<th>100</th>
<th>150</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOIL DESCRIPTION</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEPTH FT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PENETRATION RATE</td>
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</tbody>
</table>

**Source of Information:**
- File No.
  - J601
  - J540

**Remarks:**
- Test Pile No. 5 (3rd Stage)

**Graph:**
- Test Load ( tons ) vs. Settlemnt (inches)
- See Sheet No. 401
LOCATION: DRAYTON, N.D.  
DATE DRIVEN: 11-6-58  
DATE TESTED: A 11-20-58; B 12-3-58  

HAMMER TYPE: Drop  
WEIGHT: 4100 lb  
STROKE: 10 ft below 11 ft  
ENERGY:   
BLOWS PR MIN:   
FINAL PENETRATION:   

PILE TYPE: Treated Timber  
PILE DIMENSIONS: 8\(\frac{1}{4}\)" tip, 14\(\frac{3}{4}\)" butt  
DRIVEN LENGTH: 95 ft  
EMBEDDED LENGTH: 80 ft  

TEST LOAD (TONS)  
50  100  150  

SOIL DESCRIPTION  
DEPTH FT  
PENETRATION RATE  

REMARKS: Test Pile No. 6  

SOURCE OF INFORMATION: FILE N. J601  
J340
THE NATIONAL ACADEMY OF SCIENCES—NATIONAL RESEARCH COUNCIL is a private, nonprofit organization of scientists, dedicated to the furtherance of science and to its use for the general welfare. The ACADEMY itself was established in 1863 under a congressional charter signed by President Lincoln. Empowered to provide for all activities appropriate to academies of science, it was also required by its charter to act as an adviser to the federal government in scientific matters. This provision accounts for the close ties that have always existed between the ACADEMY and the government, although the ACADEMY is not a governmental agency.

The NATIONAL RESEARCH COUNCIL was established by the ACADEMY in 1916, at the request of President Wilson, to enable scientists generally to associate their efforts with those of the limited membership of the ACADEMY in service to the nation, to society, and to science at home and abroad. Members of the NATIONAL RESEARCH COUNCIL receive their appointments from the president of the ACADEMY. They include representatives nominated by the major scientific and technical societies, representatives of the federal government, and a number of members at large. In addition, several thousand scientists and engineers take part in the activities of the research council through membership on its various boards and committees.

Receiving funds from both public and private sources, by contribution, grant, or contract, the ACADEMY and its RESEARCH COUNCIL thus work to stimulate research and its applications, to survey the broad possibilities of science, to promote effective utilization of the scientific and technical resources of the country, to serve the government, and to further the general interests of science.

The HIGHWAY RESEARCH BOARD was organized November 11, 1920, as an agency of the Division of Engineering and Industrial Research, one of the eight functional divisions of the NATIONAL RESEARCH COUNCIL. The BOARD is a cooperative organization of the highway technologists of America operating under the auspices of the ACADEMY-COUNCIL and with the support of the several highway departments, the Bureau of Public Roads, and many other organizations interested in the development of highway transportation. The purposes of the BOARD are to encourage research and to provide a national clearinghouse and correlation service for research activities and information on highway administration and technology.