NCHRP 24-17

# LOAD AND RESISTANCE FACTOR DESIGN (LRFD) FOR DEEP FOUNDATIONS

APPENDIX B
LOAD AND RESISTANCE FACTOR DESIGN (LRFD)
FOR DYNAMIC ANALYSES OF DRIVEN PILES
APPENDICES A - D

Prepared for
National Cooperative Highway Research Program
Transportation Research Board
National Research Council

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July 2002

## ACKNOWLEDGEMENT OF SPONSORSHIP

This work was sponsored by the American Association of State Highway and Transportation Officials, in cooperation with the Federal Highway Administration, and was conducted in the National Cooperative Highway Research Program, which is administered by the Transportation Research Board of the National Research Council.

# APPENDIX A

# RELEVANT INFORMATION FROM DATABASES

**Table A.1.** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Refer. No. | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Area Ratio | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 1 | FN1-EOD | I-480 | Omaha NE | HP10x42 | 8000 | 21.95 | 21.95 | 4102 | silty clay | till |
| 2 | FN1-BOR1 | I-480 | Omaha NE | HP10x42 | 8000 | 21.95 | 21.98 | 4108 | silty clay | till |
| 3 | FN1-BOR2 | I-480 | Omaha NE | HP10x42 | 8000 | 21.95 | 22.25 | 4159 | silty clay | till |
| 4 | FN2-EOD | I-480 | Omaha NE | PSC12"sq | 92903 | 18.90 | 19.81 | 260 | silty clay | till |
| 5 | FN2-BOR | I-480 | Omaha NE | PSC12"sq | 92903 | 18.90 | 19.81 | 260 | silty clay | till |
| 6 | FN3-EOD | I-480 | Omaha NE | PSC14"sq | 126451 | 18.90 | 17.07 | 165 | silty clay | till |
| 7 | FN3-BOR | I-480 | Omaha NE | PSC14"sq | 126451 | 18.90 | 17.07 | 165 | silty clay | till |
| 8 | FN4-EOD | I-480 | Omaha NE | CEP12.75" | 12387 | 20.12 | 20.12 | 248 | silty clay | till |
| 9 | FN4-BOR | I-480 | Omaha NE | CEP12.75" | 12387 | 20.12 | 20.12 | 248 | silty clay | till |
| 10 | FIA-EOD | Site 1 | Iowa | HP14x89 | 16839 | 35.81 | 34.78 | 4470 | clayey sand | sand |
| 11 | FIA-BOR | Site 1 | Iowa | HP14x89 | 16839 | 35.81 | 34.78 | 4470 | clayey sand | sand |
| 12 | FIB-EOD | Site 1 | Iowa | CEP 14" | 13677 | 29.72 | 28.68 | 323 | clayey sand | sand |
| 13 | FIB-BOR | Site 1 | Iowa | CEP 14" | 13677 | 29.72 | 28.68 | 323 | clayey sand | sand |
| 14 | FO1-EOD | Cim S-1 | Oklahoma | CEP 26" | 43677 | 18.38 | 18.35 | 111 | silty sand | silty sand |
| 15 | FO1-BOR | Cim S-1 | Oklahoma | CEP 26" | 43677 | 18.38 | 18.35 | 111 | silty sand | silty sand |
| 16 | FO2-EOD | Cim S-1 | Oklahoma | PSC24"oct | 303806 | 18.75 | 19.20 | 128 | silty sand | silty sand |
| 17 | FO2-BOR | Cim S-1 | Oklahoma | PSC24"oct | 303806 | 18.75 | 19.23 | 128 | silty sand | silty sand |
| 18 | FO3-EOD | Cim S-2 | Oklahoma | HP14x117 | 22194 | 33.53 | 19.42 | 1919 | sa-si-clay | clayey sand |
| 19 | FO4-EOD | Cim S-2 | Oklahoma | RC24"sq | 371612 | 18.38 | 13.72 | 90 | sa-si-clay | clayey sand |
| 20 | FO4-BOR | Cim S-2 | Oklahoma | RC24"sq | 371612 | 18.38 | 17.01 | 112 | sa-si-clay | clayey sand |
| 21 | FOR1-EOD | Alsea | Oregon | PSC20"sq | 253548 | 39.93 | 38.25 | 307 | sand & silt | siltstone |
| 22 | FOR1-BOR | Alsea | Oregon | PSC20"sq | 253548 | 39.93 | 38.28 | 307 | sand & silt | siltstone |
| 23 | FM5-EOD | Site A | Maine | CEP 18" | 17742 | 35.75 | 30.18 | 264 | clay & sand | sand |
| 24 | FM5-BOR | Site A | Maine | CEP 18" | 17742 | 30.78 | 30.21 | 264 | clay & sand | sand |
| 25 | FM17-EOD | Site B | Maine | CEP 18" | 17742 | 23.71 | 21.67 | 190 | till | till |

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|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 26 | FM17-BOR | Site B | Maine | CEP 18" | 17742 | 23.71 | 21.73 | 190 | till | till |
| 27 | FM23-EOD | Site B | Maine | CEP 18" | 17742 | 17.31 | 15.45 | 135 | till | till |
| 28 | FM23-BOR | Site B | Maine | CEP 18" | 17742 | 17.31 | 15.48 | 135 | till | till |
| 29 | FC1-EOD | Crook | Colorado | CEP12.75" | 6335 | 10.21 | 10.21 | 126 | sand | sand |
| 30 | FC1-BOR | Crook | Colorado | CEP12.75" | 6335 | 10.21 | 10.33 | 128 | sand | sand |
| 31 | FC2-EOD | Crook | Colorado | CEP12.75" | 6335 | 8.38 | 8.08 | 100 | sand | sand |
| 32 | FC2-BOR | Crook | Colorado | CEP12.75" | 6335 | 8.38 | 8.20 | 101 | sand | sand |
| 33 | FMI1-EOD | Rt. 115 | Missouri | CEP 14" | 10387 | 25.30 | 25.30 | 285 | sand-gravel | sand |
| 34 | FMI1-BOR | Rt. 115 | Missouri | CEP 14" | 10387 | 25.30 | 25.33 | 285 | sand-gravel | sand |
| 35 | FMI2-EOD | Rt. 115 | Missouri | CEP 14" | 10387 | 18.75 | 18.59 | 209 | sand-gravel | sand |
| 36 | FMI2-BOR | Rt. 115 | Missouri | CEP 14" | 10387 | 18.75 | 18.59 | 209 | sand-gravel | sand |
| 37 | FWA-EOD | 3rd lake | Washingtn | CEP 48" | 71806 | 46.33 | 7.56 | 25 | till-gravel | till |
| 38 | FWA-BOR | 3rd lake | Washingtn | CEP 48" | 71806 | 46.33 | 7.59 | 25 | till-gravel | till |
| 39 | FWB-EOD | 3rd lake | Washingtn | CEP 48" | 71806 | 42.67 | 33.22 | 109 | till-gravel | till |
| 40 | FWB-BOR | 3rd lake | Washingtn | CEP 48" | 71806 | 42.67 | 33.31 | 109 | till-gravel | till |
| 41 | FA1-EOD | I-165 | Alabama | PSC 18"sq | 209032 | 19.20 | 19.51 | 171 | silty sand | silty sand |
| 42 | FA1-BOR1 | I-165 | Alabama | PSC 18"sq | 209032 | 19.20 | 19.66 | 172 | silty sand | silty sand |
| 43 | FA1-BOR2 | I-165 | Alabama | PSC 18"sq | 209032 | 19.20 | 19.75 | 173 | silty sand | silty sand |
| 44 | FA2-EOD | I-165 | Alabama | PSC 18"sq | 209032 | 22.25 | 22.86 | 200 | silty sand | silty sand |
| 45 | FA2-BOR1 | I-165 | Alabama | PSC 18"sq | 209032 | 22.25 | 22.95 | 201 | silty sand | silty sand |
| 46 | FA2-BOR2 | I-165 | Alabama | PSC 18"sq | 209032 | 22.25 | 23.01 | 201 | silty sand | silty sand |
| 47 | FA3-EOD | I-165 | Alabama | PSC 24"sq | 315483 | 19.20 | 19.51 | 151 | silty sand | silty sand |
| 48 | FA3-BOR1 | I-165 | Alabama | PSC 24"sq | 315483 | 19.20 | 19.54 | 151 | silty sand | silty sand |
| 49 | FA3-BOR2 | I-165 | Alabama | PSC 24"sq | 315483 | 19.20 | 19.66 | 152 | silty sand | silty sand |
| 50 | FA4-EOD | I-165 | Alabama | PSC 24"sq | 315483 | 22.25 | 22.86 | 177 | silty sand | silty sand |

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| No. | Pile-Case Number | Refer. No. | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Area Ratio | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 51 | FA4-BOR1 | I-165 | Alabama | PSC 24"sq | 315483 | 22.25 | 22.89 | 177 | silty sand | silty sand |
| 52 | FA4-BOR2 | I-165 | Alabama | PSC 24"sq | 315483 | 22.25 | 22.92 | 177 | silty sand | silty sand |
| 53 | FA5-EOD | I-165 | Alabama | PSC 36"sq | 579354 | 21.34 | 22.25 | 140 | silty sand | silty sand |
| 54 | FA5-BOR | I-165 | Alabama | PSC 36"sq | 579354 | 21.34 | 22.28 | 141 | silty sand | silty sand |
| 55 | FV15-EOD | WRJ | Vermont | HP14x73 | 13806 | 28.04 | 22.86 | 3556 | silt-d.sand | sand gravel |
| 56 | FV15-BOR | WRJ | Vermont | HP14x73 | 13806 | 28.04 | 23.10 | 3594 | silt-d.sand | sand gravel |
| 57 | FV10-EOD | WRJ | Vermont | HP14x73 | 13806 | 28.04 | 27.43 | 4267 | silt-d.sand | sand gravel |
| 58 | FV10-BOR | WRJ | Vermont | HP14x73 | 13806 | 28.04 | 27.55 | 4286 | silt-d.sand | sand gravel |
| 59 | FMN2-EOD | Rt. 18 | Minnesota | HP14x73 | 13806 | 29.57 | 29.26 | 4551 | sa-si-clay | fat clay |
| 60 | FMN2-BOR | Rt. 18 | Minnesota | HP14x73 | 13806 | 29.57 | 29.29 | 4556 | sa-si-clay | fat clay |
| 61 | FP5-EOD | Tioga | Penn. | Monotube | 4516 | 10.52 | 7.19 | 202 | sandy grvl | sandy grvl |
| 62 | FP5-BOR | Tioga | Penn. | Monotube | 4516 | 10.52 | 7.25 | 204 | sandy grvl | sandy grvl |
| 63 | FKG-EOD | Rt.27 | Kentucky | PSC14"sq | 126451 | 21.95 | 10.58 | 119 | soft clay | dense |
| 64 | FKG-BOR | Rt.27 | Kentucky | PSC14"sq | 126451 | 21.95 | 10.58 | 119 | soft clay | dense |
| 65 | FL3-EOD | Rt.415 | Louisiana | PSC24"sq | 298709 | 30.48 | 25.69 | 210 | silty clay | silty sand |
| 66 | FL3-BOR1 | Rt.415 | Louisiana | PSC24"sq | 298709 | 30.48 | 25.69 | 210 | silty clay | silty sand |
| 67 | FL3-BOR2 | Rt.415 | Louisiana | PSC24"sq | 298709 | 30.48 | 25.69 | 210 | silty clay | silty sand |
| 68 | CA1-EOD | Site C-L | O.S. Ont | CEP 9.6" | 9948 | 52.43 | 47.03 | 771 | si-sa-clay | si-sa-till |
| 69 | CA1-BOR | Site C-L | O.S. Ont | CEP 9.6" | 9948 | 52.43 | 47.03 | 771 | si-sa-clay | si-sa-till |
| 70 | CA2-BOR | Site C-L | O.S. Ont | CEP 9.6" | 9948 | 34.29 | 33.56 | 550 | si-sa-clay | si-sa-clay |
| 71 | CA5-BOR1 | Site A | N.Y. Ont | CEP11.73" | 7729 | 20.42 | 19.26 | 259 | fill-sand | sand |
| 72 | CA5-BOR2 | Site A | N.Y. Ont | CEP11.73" | 7729 | 20.42 | 19.99 | 268 | fill-sand | sand |
| 73 | CA3/8-BOR | Marina | Bar. Ont | CEP10.24" | 5639 | 22.49 | 19.63 | 302 | sand-silt | silt |
| 74 | CA24-BOR | Site D | Tor. Ont | CEP12.75" | 9381 | 11.77 | 11.77 | 145 | sand | sand |
| 75 | CA6-BOR1 | Site E | Ham. Ont | CEP12.75" | 9381 | 18.35 | 16.46 | 203 | sa-si-till | silt-till |

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|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 76 | CA6-BOR2 | Site E | Ham. Ont | CEP12.75" | 9381 | 18.35 | 16.46 | 203 | sa-si-till | silt-till |
| 77 | CA6-EOR | Site E | Ham. Ont | CEP12.75" | 8742 | 18.35 | 16.46 | 203 | sa-si-till | silt-till |
| 78 | WC3-EOD | White | Florida | PSC24"sq | 371612 | 14.75 | 8.32 | 55 | ls.-d.sand | dense |
| 79 | WC3-BOR1 | White | Florida | PSC24"sq | 371612 | 14.75 | 8.38 | 55 | ls.-d.sand | dense |
| 80 | WC3-BOR2 | White | Florida | PSC24"sq | 371612 | 11.43 | 8.38 | 55 | ls.-d.sand | dense |
| 81 | WC6-EOD | White | Florida | PSC24"sq | 371612 | 12.04 | 8.63 | 57 | ls.-d.sand | dense |
| 82 | WC6-BOR1 | White | Florida | PSC24"sq | 371612 | 12.04 | 8.69 | 57 | ls.-d.sand | dense |
| 83 | WC6-BOR2 | White | Florida | PSC24"sq | 371612 | 8.53 | 8.38 | 55 | ls.-d.sand | dense |
| 84 | WB9-BOR | West | Florida | PSC30"sq | 416451 | 39.62 | 39.17 | 287 | clayey sand | clayey |
| 85 | WB15-BOR | West | Florida | PSC30"sq | 416451 | 32.00 | 31.58 | 231 | sand | silt-clay |
| 86 | T1/A-EOD | offshore | Israel | OEP 60" | 136774 | 42.21 | 16.09 | 563 | clcr sand | sand |
| 87 | T1/A-ALT | offshore | Israel | OEP 60" | 136774 | 53.00 | 16.40 | 574 | clcr sand | sand |
| 88 | T1/B-EOD | offshore | Israel | OEP 60" | 136774 | 65.90 | 31.00 | 1085 | clcr sand | sand |
| 89 | T2/A-EOD | offshore | Israel | OEP 48" | 71826 | 35.69 | 16.00 | 853 | clcr sand | sand |
| 90 | T2/B-EOD | offshore | Israel | OEP 48" | 71826 | 79.40 | 55.50 | 2960 | clcr sand | sand |
| 91 | 35-1-BOR | C.N.R. | Toronto | HP12x74 | 14064 | 18.32 | 14.78 | 1920 | cl-sa-silt | silty sand |
| 92 | 35-4-BOR | C.N.R. | Toronto | CEP12.75" | 6323 | 15.91 | 14.69 | 181 | cl-sa-silt | silty sand |
| 93 | 35-5-BOR | C.N.R. | Toronto | HP12x74 | 14064 | 30.54 | 27.58 | 3582 | cl-sa-silt | silty sand |
| 94 | 35-6-BOR | C.N.R. | Toronto | CEP12.75" | 6323 | 32.13 | 27.43 | 339 | cl-sa-silt | silty sand |
| 95 | 35-7-BOR | C.N.R. | Toronto | T.Timber | 101290 | 13.53 | 12.68 | 284 | cl-sa-silt | silty sand |
| 96 | 35-10-BOR | C.N.R. | Toronto | PSC 12"sq | 92903 | 15.24 | 14.63 | 192 | cl-sa-silt | silty sand |
| 97 | E2-BOR | DFI | Raleigh | PSC 12"sq | 92903 | 13.26 | 13.56 | 178 | cl-sa-silt | cl-sa-silt |
| 98 | 63S-BOR | Mahonig | Penn. | HP12x53 | 10000 | 20.97 | 20.12 | 3621 | sand-silt | silt |
| 99 | LB21-BOR | Site A | NA | PSC 20"sq | 258064 | 10.97 | 10.97 | 86 | silt-sand | silt-sand |
| 100 | LB20-BOR | Site B | NA | PSC 20"sq | 258064 | 15.54 | 16.76 | 132 | sand | sand |

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|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 101 | LC3-BOR | Site C | NA | PSC 20"sq | 258064 | 35.05 | 26.21 | 206 | cl-sa-silt | cl-sa-silt |
| 102 | LIN16-BOR | Site D | NA | PSC 20"sq | 258064 | 47.24 | 28.65 | 226 | cl-sa-silt | cl-sa-silt |
| 103 | LE37-BOR | Site E | NA | PSC 10"sq | 64516 | 18.29 | 15.24 | 240 | cl-sa-silt | limestone |
| 104 | LE64-BOR | Site F | NA | PSC 10"sq | 64516 | 18.29 | 17.68 | 278 | cl-sa-silt | sa-cl-silt |
| 105 | ST1-EOD | Site H | Florida | PSC 18"sq | 209032 | 20.12 | 13.41 | 117 | - | carb sand |
| 106 | ST2-EOD | Site P | Florida | PSC 18"sq | 209032 | 18.90 | 12.19 | 107 | - | carb sand |
| 107 | ST9-BOR | I-664 | Virginia | PSC 54"sq | 496773 | 39.93 | 33.22 | 367 | - | silt-clay |
| 108 | ST46-EOD | Castletn | New York | CEP 10" | 3742 | 12.19 | 11.58 | 182 | silt-sand | silt-sand |
| 109 | GZA3-EOD | Civic | Prov. RI | CEP13.38" | 13097 | 43.59 | 38.25 | 451 | silt-sand | gr-sa-silt |
| 110 | GZA5-EOD | Civic | Prov. RI | CEP 9.75" | 10000 | 42.06 | 28.59 | 462 | silt-sand | till-shale |
| 111 | GZA6-EOD | Civic | Prov. RI | CEP 9.75" | 10000 | 52.12 | 47.55 | 768 | silt-sand | gr-sa-silt |
| 112 | GZBBC-EOD | Civic | Prov. RI | CEP 10" | 11871 | 35.36 | 30.33 | 478 | silt-sand | silt |
| 113 | GZBP2-EOD | Civic | Prov. RI | CEP13.38" | 13097 | 43.80 | 32.31 | 380 | silt-sand | gr-sa-silt |
| 114 | GZB6-EOD | Civic | Prov. RI | CEP13.38" | 13097 | 29.57 | 28.13 | 331 | silt-sand | si-sa-till |
| 115 | GZZ5-EOD | Deer Is. | Boston MA | CEP 14" | 13677 | 26.52 | 26.52 | 298 | till-clay | till |
| 116 | GZO5-EOD | Deer Is. | Boston MA | CEP 14" | 13677 | 26.52 | 16.46 | 185 | till-clay | till |
| 117 | GZCC5-EOD | Deer Is. | Boston MA | CEP 14" | 13677 | 35.66 | 24.38 | 274 | till-clay | till |
| 118 | GZL2-EOD | Deer Is. | Boston MA | CEP 14" | 13677 | 35.66 | 25.30 | 285 | till-clay | till |
| 119 | GZP14-EOD | Deer Is. | Boston MA | CEP 14" | 13677 | 32.00 | 18.44 | 207 | till-clay | till |
| 120 | GZP11-EOD | Deer Is. | Boston MA | CEP 14" | 13677 | 32.00 | 17.22 | 194 | till-clay | till |
| 121 | GZP12-EOD | Deer Is. | Boston MA | CEP 14" | 13677 | 35.20 | 21.03 | 237 | till-clay | till |
| 122 | GZB22-EOD | NWS | Colt Neck | OEP 36" | 34839 | 42.06 | 35.97 | 2966 | sand-clay | silt-clay |
| 123 | GZW1-EOR | Water | Vermont | CP12.75" | 9419 | 38.40 | 30.33 | 375 | silty sand | sand |
| 124 | A54-EOD | HICC | Australia | RC10.8"sq | 75626 | 20.70 | 20.60 | 299 | silty clay | clay |
| 125 | A54-BOR | HICC | Australia | RC10.8"sq | 75626 | 20.70 | 20.60 | 299 | silty clay | clay |

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|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 126 | A147-EOD | HICC | Australia | RC10.8"sq | 75626 | 20.70 | 20.60 | 299 | silty clay | clay |
| 127 | A147-BOR | HICC | Australia | RC10.8"sq | 75626 | 20.70 | 20.60 | 299 | silty clay | clay |
| 128 | GF19-EOD | Site 1 | Pgh. PA | HP10x42 | 7935 | 17.83 | 15.09 | 2843 | grvl-snd-slt | shale |
| 129 | GF110-EOD | Site 1 | Pgh. PA | HP12x74 | 14000 | 17.37 | 15.15 | 1976 | grvl-snd-slt | shale |
| 130 | GF222-EOD | Site 2 | Pgh. PA | HP12x74 | 14000 | 20.42 | 18.62 | 2430 | grvl-snd-slt | shale |
| 131 | GF224-EOD | Site 2 | Pgh. PA | Monotube | 6258 | 16.15 | 9.02 | 270 | grvl-snd-slt | grvl-snd-slt |
| 132 | GF312-EOD | Site 3 | Pgh. PA | HP12x74 | 14000 | 10.06 | 8.60 | 1121 | snd-grvl-shl | shale |
| 133 | GF313-EOD | Site 3 | Pgh. PA | HP10x57 | 10774 | 10.67 | 9.60 | 1352 | snd-grvl-shl | claystone |
| 134 | GF412-EOD | Site 4 | Pgh. PA | HP12x74 | 14000 | 14.78 | 10.24 | 1336 | grvl-snd-slt | claystone |
| 135 | GF413-EOD | Site 4 | Pgh. PA | HP10x57 | 10774 | 10.42 | 10.55 | 1486 | grvl-snd-slt | claystone |
| 136 | GF414-EOD | Site 4 | Pgh. PA | HP10x57 | 10774 | 14.48 | 10.58 | 1490 | grvl-snd-slt | claystone |
| 137 | GF415-EOD | Site 4 | Pgh. PA | HP12x74 | 14000 | 14.48 | 10.39 | 1356 | grvl-snd-slt | claystone |
| 138 | EF62-EOD | Ottawa | Canada | CP 9.625" | 10026 | - | 18.99 | 311 | si-sa-clay | till |
| 139 | EF167-BOR | Ottawa | Canada | CP 9.625" | 10026 | - | 21.00 | 343 | si-sa-clay | till |
| 140 | A3-EOD2 | Apalach | Florida | VC 24"sq | 298645 | 28.65 | 27.52 | 225 | clayey sand | sand |
| 141 | A3-BOR2 | Apalach | Florida | VC 24"sq | 298645 | 28.65 | 27.55 | 225 | clayey sand | sand |
| 142 | A3-BOR3 | Apalach | Florida | VC 24"sq | 298645 | 27.22 | 27.61 | 225 | clayey sand | clayey sand |
| 143 | A14-DD1 | Apalach | Florida | VC 24"sq | 298645 | 32.61 | 13.72 | 112 | sandy clay | sand |
| 144 | A14-DD2 | Apalach | Florida | VC 24"sq | 298645 | 32.61 | 14.33 | 117 | sandy clay | sand |
| 145 | A14-BOR1 | Apalach | Florida | VC 24"sq | 298645 | 32.61 | 17.83 | 146 | clayey sand | sand |
| 146 | A14-BOR2 | Apalach | Florida | VC 24"sq | 298645 | 22.86 | 17.92 | 82 | clayey sand | sand |
| 147 | A25-EOD | Apalach | Florida | VC 24"sq | 298645 | 32.31 | 16.79 | 137 | clayey sand | sand |
| 148 | A25-BOR1 | Apalach | Florida | VC 24"sq | 298645 | 32.31 | 16.82 | 137 | clayey sand | sand |
| 149 | A25-BOR2 | Apalach | Florida | VC 24"sq | 298645 | 18.07 | 16.89 | 138 | clayey sand | sand |
| 150 | A25-BOR3 | Apalach | Florida | VC 24"sq | 298645 | 18.07 | 16.92 | 138 | clayey sand | sand |

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|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 151 | A16-EOD | Apalach | Florida | PSC18"sq | 209032 | 19.81 | 18.47 | 162 | sandy clay | sand |
| 152 | A16-BOR1 | Apalach | Florida | PSC18"sq | 209032 | 19.81 | 18.47 | 162 | sandy clay | sand |
| 153 | A16-BOR2 | Apalach | Florida | PSC18"sq | 209032 | 18.96 | 18.59 | 163 | sandy clay | sand |
| 154 | A41-EOD | Apalach | Florida | VC 24"sq | 298645 | 27.74 | 15.85 | 129 | clay | sand |
| 155 | A41-BOR1 | Apalach | Florida | VC 24"sq | 298645 | 27.74 | 15.85 | 129 | clay | sand |
| 156 | A41-BOR2 | Apalach | Florida | VC 24"sq | 298645 | 18.75 | 16.09 | 131 | clay | sand |
| 157 | A101-EOD | Apalach | Florida | VC 24"sq | 298645 | 26.82 | 18.84 | 154 | clay | clayey sand |
| 158 | A101-BOR1 | Apalach | Florida | VC 24"sq | 298645 | 26.82 | 18.84 | 154 | clay | clayey sand |
| 159 | A101-BOR2 | Apalach | Florida | VC 24"sq | 298645 | 21.79 | 18.93 | 155 | clay | clayey sand |
| 160 | A133-EOD | Apalach | Florida | VC 24"sq | 298645 | 39.62 | 31.67 | 259 | clayey sand | sandy clay |
| 161 | A133-BOR | Apalach | Florida | VC 24"sq | 298645 | 35.27 | 31.97 | 261 | clayey sand | sandy clay |
| 162 | A145-EOD | Apalach | Florida | VC 24"sq | 298645 | 40.23 | 31.36 | 256 | clayey sand | sand |
| 163 | A145-BOR1 | Apalach | Florida | VC 24"sq | 298645 | 40.23 | 31.36 | 256 | clayey sand | sand |
| 164 | A145-BOR2 | Apalach | Florida | VC 24"sq | 298645 | 35.08 | 31.39 | 256 | clayey sand | sand |
| 165 | CB3-BOR | Choctw | Florida | PSC24"sq | 371612 | 23.74 | 23.47 | 154 | clayey sand | sand |
| 166 | CB3-BORL | Choctw | Florida | PSC24"sq | 371612 | 24.35 | 23.71 | 156 | clayey sand | sand |
| 167 | CB5-BOR | Choctw | Florida | VC 30"sq | 416470 | 26.52 | 16.18 | 118 | clayey sand | sand |
| 168 | CB5-BORL | Choctw | Florida | VC 30"sq | 416470 | 18.62 | 16.46 | 120 | clayey sand | sandy clay |
| 169 | CB11-BORL | Choctw | Florida | VC 30"sq | 416470 | 29.75 | 26.12 | 191 | clayey sand | clayey sand |
| 170 | CB11-EORL | Choctw | Florida | VC 30"sq | 416470 | 29.75 | 26.15 | 191 | clayey sand | clayey sand |
| 171 | CB17-BOR1 | Choctw | Florida | VC 30"sq | 416470 | 29.57 | 23.68 | 173 | clayey sand | clayey sand |
| 172 | CB17-BOR2 | Choctw | Florida | VC 30"sq | 416470 | 29.57 | 23.71 | 174 | clayey sand | clayey sand |
| 173 | CB17-BORL | Choctw | Florida | VC 30"sq | 416470 | 27.43 | 23.74 | 174 | clayey sand | clayey sand |
| 174 | CB17-DRL | Choctw | Florida | VC 30"sq | 416470 | 27.43 | 23.84 | 174 | clayey sand | clayey sand |
| 175 | CB23-BOR | Choctw | Florida | VC 30"sq | 416470 | 29.26 | 24.48 | 179 | clayey sand | sand |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Refer. No. | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Area Ratio | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 176 | CB23-BORL | Choctw | Florida | VC 30"sq | 416470 | 29.26 | 25.21 | 184 | clayey sand | sand |
| 177 | CB29-BORL | Choctw | Florida | VC 30"sq | 416470 | 28.99 | 25.76 | 188 | clayey sand | clayey sand |
| 178 | CB29-EORL | Choctw | Florida | VC 30"sq | 416470 | 28.99 | 25.76 | 188 | clayey sand | clayey sand |
| 179 | CB35-BOR1 | Choctw | Florida | VC 30"sq | 416470 | 29.60 | 23.93 | 175 | clayey sand | clayey sand |
| 180 | CB35-BOR2 | Choctw | Florida | VC 30"sq | 416470 | 29.60 | 24.05 | 176 | clayey sand | clayey sand |
| 181 | CB35-BORL | Choctw | Florida | VC 30"sq | 416470 | 27.16 | 24.11 | 176 | clayey sand | clayey sand |
| 182 | CB41-EOR | Choctw | Florida | VC 30"sq | 416470 | 31.18 | 19.72 | 144 | sandy clay | sandy clay |
| 183 | CB41-BOR | Choctw | Florida | VC 30"sq | 416470 | 30.88 | 19.72 | 144 | sandy clay | sandy clay |
| 184 | CB41-BORL | Choctw | Florida | VC 30"sq | 416470 | 24.08 | 19.93 | 146 | sandy clay | sandy clay |
| 185 | CB26-EOD | Choctw | Florida | PSC24"sq | 371612 | 24.41 | 19.05 | 125 | clayey sand | sand |
| 186 | CB26-BOR | Choctw | Florida | PSC24"sq | 371612 | 24.41 | 19.08 | 125 | clayey sand | sand |
| 187 | CB26-EOR | Choctw | Florida | PSC24"sq | 371612 | 24.41 | 19.75 | 130 | clayey sand | sandy clay |
| 188 | CB26-BOR2 | Choctw | Florida | PSC24"sq | 371612 | 19.81 | 19.81 | 130 | sandy clay | sandy clay |
| 189 | 33P1-EOD | Site P | Ontario | HP 12x74 | 14064 | 36.85 | 34.87 | 4528 | cl-sa-silt | silty sand |
| 190 | 33P1-BOR | Site P | Ontario | HP 12x74 | 14064 | 36.85 | 34.87 | 4528 | cl-sa-silt | silty sand |
| 191 | 33P1-EOR | Site P | Ontario | HP 12x74 | 14064 | 36.85 | 34.87 | 4528 | cl-sa-silt | silty sand |
| 192 | 33P2-EOD | Site P | Ontario | CP 12.75" | 6323 | 45.60 | 32.67 | 404 | cl-sa-silt | silty sand |
| 193 | 33P2-BOR | Site P | Ontario | CP 12.75" | 6323 | 33.83 | 32.67 | 404 | cl-sa-silt | silty sand |
| 194 | 33P2-EOR | Site P | Ontario | CP 12.75" | 6323 | 33.83 | 32.67 | 404 | cl-sa-silt | silty sand |
| 195 | 33P4-EOD | Site P | Ontario | PSC 12"sq | 92903 | 19.81 | 16.52 | 217 | cl-sa-silt | cl-silt-till |
| 196 | 33P5-EOD | Site P | Ontario | #14 Timber | 93484 | 13.11 | 8.66 | 123 | cl-sa-silt | cl-silt-till |
| 197 | TRD22-EOD | Site R | Ontario | HP 12x74 | 14064 | 6.86 | 6.13 | 796 | sand | till |
| 198 | TRD22-BOR | Site R | Ontario | HP 12x74 | 14064 | 6.86 | 6.13 | 796 | sand | till |
| 199 | TRE22-EOD | Site R | Ontario | HP 12x74 | 14064 | 9.14 | 7.83 | 1017 | sand | rock |
| 200 | TRE22-BOR | Site R | Ontario | HP 12x74 | 14064 | 9.14 | 7.83 | 1017 | sand | rock |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Refer. No. | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Area Ratio | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 201 | TRP5X-EOD | Site R | Ontario | HP 12x53 | 10064 | 7.62 | 7.68 | 1374 | sand | rock |
| 202 | TRP5X-BOR | Site R | Ontario | HP 12x53 | 10064 | 7.62 | 7.68 | 1374 | sand | rock |
| 203 | TR131-BOR | Site R | Ontario | CP 7.063" | 5097 | 8.17 | NA | 183 | sand | rock |
| 204 | TRAH-EOR | Site S | Brunswick | HP 12x89 | 17097 | 42.06 | 38.40 | 4279 | clayey silt | sandy gravel |
| 205 | TRBH-BOR | Site S | Brunswick | HP 12x89 | 17097 | 34.84 | 31.12 | 3468 | clayey silt | sandy gravel |
| 206 | TRBP-EOR | Site S | Brunswick | CP 12.75" | 8000 | 33.53 | 31.70 | 391 | clayey silt | sandy gravel |
| 207 | CHA1-EOD | Jones Is. | Wisconsin | CEP 12.75" | 9419 | 42.00 | 37.49 | 4048 | sa-si clay | silty sand |
| 208 | CHA1-BOR1 | Jones Is. | Wisconsin | CEP 12.75" | 9419 | 42.00 | 37.52 | 4052 | sa-si clay | silty sand |
| 209 | CHA1-BOR2 | Jones Is. | Wisconsin | CEP 12.75" | 9419 | 42.25 | 37.52 | 4053 | sa-si clay | silty sand |
| 210 | CHA4-EOD | Jones Is. | Wisconsin | CEP 12.75" | 9419 | 37.64 | 35.66 | 3852 | sa-si clay | silty sand |
| 211 | CHB2-EOD | Jones Is. | Wisconsin | HP12x63 | 11871 | 47.95 | 47.34 | 7224 | sa-si clay | silty sand |
| 212 | CHB2-BOR1 | Jones Is. | Wisconsin | HP12x63 | 11871 | 47.95 | 47.34 | 7224 | sa-si clay | silty sand |
| 213 | CHB2-BOR3 | Jones Is. | Wisconsin | HP12x63 | 11871 | 47.95 | 47.40 | 7236 | sa-si clay | silty sand |
| 214 | CHB2-BOR4 | Jones Is. | Wisconsin | HP12x63 | 11871 | 47.67 | 47.43 | 7240 | sa-si clay | silty sand |
| 215 | CHB2-BOR5a | Jones Is. | Wisconsin | HP12x63 | 11871 | 46.45 | 47.46 | 7245 | sa-si clay | silty sand |
| 216 | CHB2-BOR5b | Jones Is. | Wisconsin | HP12x63 | 11871 | 46.45 | 47.46 | 7245 | sa-si clay | silty sand |
| 217 | CHB3-EOD | Jones Is. | Wisconsin | HP12x63 | 11871 | 44.10 | 43.31 | 6611 | sa-si clay | silty sand |
| 218 | CHB3-BOR1 | Jones Is. | Wisconsin | HP12x63 | 11871 | 44.10 | 43.31 | 6611 | sa-si clay | silty sand |
| 219 | CHB3-BOR2 | Jones Is. | Wisconsin | HP12x63 | 11871 | 44.10 | 43.43 | 6631 | sa-si clay | silty sand |
| 220 | CHB3-BOR3 | Jones Is. | Wisconsin | HP12x63 | 11871 | 44.10 | 43.53 | 6643 | sa-si clay | silty sand |
| 221 | CHC3-EOD | Jones Is. | Wisconsin | CEP14" | 43548 | 47.70 | 47.30 | 1213 | sa-si clay | silty sand |
| 222 | CHC3-BOR | Jones Is. | Wisconsin | CEP14" | 43548 | 47.70 | 47.30 | 1213 | sa-si clay | silty sand |
| 223 | CHC3-BORL | Jones Is. | Wisconsin | CEP14" | 102774? | 47.70 | 47.34 | 515 | sa-si clay | silty sand |
| 224 | CH4-EOD | Jones Is. | Wisconsin | CEP9.63" | 10064 | 49.65 | 43.43 | 3315 | silty clay | |
| 225 | CH4-BOR | Jones Is. | Wisconsin | CEP9.63" | 10064 | 49.65 | 43.43 | 3315 | silty clay | |

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| No. | Pile-Case Number | Refer. No. | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Area Ratio | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 226 | CH39-EOD | Jones Is. | Wisconsin | CEP9.63" | 10581 | 44.81 | 43.28 | 3142 | silty clay | silty clay |
| 227 | CH39-BOR | Jones Is. | Wisconsin | CEP9.63" | 10581 | 44.81 | 43.28 | 3142 | silty clay | silty clay |
| 228 | CH39-BORL | Jones Is. | Wisconsin | CEP9.63" | 46581 | 44.81 | 43.37 | 715 | silty clay | silty clay |
| 229 | CH6-5B-EOD | Jones Is. | Wisconsin | CEP9.63" | 10064 | 46.24 | 43.89 | 3349 | silty clay | silty sand |
| 230 | CH6-5B-BOR | Jones Is. | Wisconsin | CEP9.63" | 10064 | 46.02 | 43.89 | 3349 | silty clay | silty sand |
| 231 | CH95B-EOD | Jones Is. | Wisconsin | CEP9.63" | 10064 | 49.68 | 42.37 | 3233 | silty clay | sand & grvl |
| 232 | CH95B-BOR | Jones Is. | Wisconsin | CEP9.63" | 10064 | 49.68 | 42.37 | 3233 | silty clay | sand & grvl |
| 233 | CH256-BOR3 | Jones Is. | Wisconsin | CEP9.63" | 10064 | 44.20 | 42.67 | 3256 | si-sa clay | si-sa & grvl |
| 234 | CH351-BOR2 | Jones Is. | Wisconsin | CEP9.63" | 10064 | 48.16 | 47.55 | 3629 | si-sa clay | si-sa & grvl |
| 235 | PO2-BOR1 | Port Orng | Florida | PSC18"sq | 209032 | 26.52 | 5.73 | 50 | sand | dense sand |
| 236 | PO2-BOR2 | Port Orng | Florida | PSC18"sq | 209032 | 26.52 | 6.07 | 53 | sand | dense sand |
| 237 | PO2-BORL | Port Orng | Florida | PSC18"sq | 209032 | 9.27 | 6.28 | 55 | sand | dense sand |
| 238 | PO19-BOR | Port Orng | Florida | PSC18"sq | 209032 | 26.52 | 4.63 | 41 | sand | dense sand |
| 239 | PO19-EOD | Port Orng | Florida | PSC18"sq | 209032 | 26.52 | 5.24 | 46 | sand | dense sand |
| 240 | PO19-EORL | Port Orng | Florida | PSC18"sq | 209032 | 9.51 | 5.36 | 47 | sand | dense sand |
| 241 | ER5-BOR1 | Escambia | Florida | PSC24"sq | 371612 | 31.70 | 25.97 | 170 | sand | sand |
| 242 | ER5-BOR2 | Escambia | Florida | PSC24"sq | 371612 | 31.70 | 26.03 | 171 | sand | sand |
| 243 | ER5-BORL | Escambia | Florida | PSC24"sq | 371612 | 26.82 | 26.15 | 172 | sand | sand |
| 244 | ER77-BOR | Escambia | Florida | PSC24"sq | 371612 | 29.84 | 18.56 | 122 | clayey sand | cl-si-sand |
| 245 | ER77-BORL | Escambia | Florida | PSC24"sq | 371612 | 18.59 | 18.68 | 123 | clayey sand | cl-si-sand |
| 246 | BB13-EOD | Duval Cnty | Florida | VC 30"sq | 481289 | 43.86 | 28.29 | 179 | clayey sand | sand |
| 247 | BB13-BOR1a | Duval Cnty | Florida | VC 30"sq | 481289 | 43.86 | 28.32 | 179 | clayey sand | sand |
| 248 | BB13-BOR1b | Duval Cnty | Florida | VC 30"sq | 481289 | 43.86 | 28.32 | 179 | clayey sand | sand |
| 249 | BB13-BOR2a | Duval Cnty | Florida | VC 30"sq | 481289 | 43.86 | 28.71 | 182 | clayey sand | sand |
| 250 | BB13-BOR2b | Duval Cnty | Florida | VC 30"sq | 481289 | 43.86 | 28.71 | 182 | clayey sand | sand |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Refer. No. | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Area Ratio | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 251 | BB13-BORL | Duval Cnty | Florida | VC 30"sq | 481289 | 33.83 | 28.80 | 182 | clayey sand | sand |
| 252 | BB19-BORa | Duval Cnty | Florida | VC 30"sq | 481289 | 46.30 | 27.13 | 172 | sand | sand |
| 253 | BB19-BORb | Duval Cnty | Florida | VC 30"sq | 481289 | 46.30 | 27.13 | 172 | sand | sand |
| 254 | BB19-BORL | Duval Cnty | Florida | VC 30"sq | 481289 | 32.74 | 27.19 | 172 | sand | sand |
| 255 | BB24-EOD | Duval Cnty | Florida | VC 30"sq | 481289 | 43.86 | 24.44 | 155 | sand | clay |
| 256 | BB24-BOR1a | Duval Cnty | Florida | VC 30"sq | 481289 | 43.86 | 24.48 | 155 | sand | clay |
| 257 | BB24-BOR1b | Duval Cnty | Florida | VC 30"sq | 481289 | 43.86 | 24.48 | 155 | sand | clay |
| 258 | BB24-BOR2a | Duval Cnty | Florida | VC 30"sq | 481289 | 43.86 | 24.63 | 156 | sand | clay |
| 259 | BB24-BOR2b | Duval Cnty | Florida | VC 30"sq | 481289 | 43.86 | 24.63 | 156 | sand | clay |
| 260 | BB24-BORL | Duval Cnty | Florida | VC 30"sq | 481289 | 30.97 | 24.69 | 156 | sand | clay |
| 261 | BB29-BOR | Duval Cnty | Florida | VC 30"sq | 481289 | 43.86 | 23.90 | 151 | sand | sand |
| 262 | BB29-BORL | Duval Cnty | Florida | VC 30"sq | 481289 | 29.26 | 23.96 | 152 | sand | sand |
| 263 | ABF6-BOR | Jacksonvil | Florida | PSC 24" sq | 371612 | 21.64 | 17.54 | 115 | si/clayey sand | clayey sand |
| 264 | ABF6-BORL | Jacksonvil | Florida | PSC 24" sq | 371612 | 19.20 | 17.84 | 117 | si/clayey sand | clayey sand |
| 265 | ABG13-BORL | Jacksonvil | Florida | PSC 24" sq | 371612 | 17.68 | 14.08 | 92 | clayey sand | limestone |
| 266 | ABH2-BOR | Jacksonvil | Florida | PSC 24" sq | 371612 | 12.47 | 10.90 | 72 | silt/silty clay | limestone |
| 267 | ABH2-BORL | Jacksonvil | Florida | PSC 24" sq | 371612 | 10.64 | 10.96 | 72 | silt/silty clay | limestone |
| 268 | BC79-EOD | Beaufort | S.Carolina | PSC 24" oct | 307741 | | 23.47 | 186 | si-cl-sand | calcar sand |
| 269 | BC79-BORL | Beaufort | S.Carolina | PSC 24" oct | 307741 | 23.93 | 23.50 | 186 | si-cl-sand | calcar sand |
| 270 | BC64-EOD | Beaufort | S.Carolina | PSC 24" oct | 307741 | | 18.59 | 147 | si-cl-sand | calcar sand |
| 271 | BC64-BORL | Beaufort | S.Carolina | PSC 24" oct | 307741 | 19.35 | 18.62 | 148 | si-cl-sand | calcar sand |
| 272 | D1-BOR1 | Delft | Holland | PSC 9.7"sq | 60903 | 10.91 | 10.91 | 177 | clay-sand | sand |
| 273 | D2-BOR1 | Delft | Holland | PSC 9.7"sq | 60903 | 14.30 | 14.30 | 231 | clay-sand | clay |
| 274 | D3-BORa | Delft | Holland | PSC 9.7"sq | 60903 | 18.29 | 18.29 | 296 | clay-sand | sand |
| 275 | D3-BORb | Delft | Holland | PSC 9.7"sq | 60903 | 18.29 | 18.29 | 296 | clay-sand | sand |

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| No. | Pile-Case Number | Refer. No. | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Area Ratio | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 276 | D5-BORa | Delft | Holland | PSC 9.7"sq | 60903 | 18.29 | 18.29 | 296 | clay-sand | sand |
| 277 | D5-BORb | Delft | Holland | PSC 9.7"sq | 60903 | 18.29 | 18.29 | 296 | clay-sand | sand |
| 278 | MB1-EOD | Myrtle Bch | S. Carolina | PSC 16"sq | 165161 | 18.90 | 18.90 | 186 | sand | silty sand |
| 279 | MB1-BOR | Myrtle Bch | S. Carolina | PSC 16"sq | 165161 | 18.90 | 19.20 | 189 | sand | silty sand |
| 280 | MB2-BOR | Myrtle Bch | S. Carolina | HP14x89 | 16839 | 23.47 | 20.12 | 2586 | silty sand | calcar. silt |
| 281 | MB3-BOR | Myrtle Bch | S. Carolina | OEP 16" | 15710 | 23.47 | 20.12 | 1635 | silty sand | calcar. silt |
| 282 | S1-EOD | Socastee | S. Carolina | OEP 24" | 25806 | 24.69 | 24.84 | 1843 | clayey sand | sandy silt |
| 283 | S1-BOR | Socastee | S. Carolina | OEP 24" | 25806 | 24.69 | 24.84 | 1843 | clayey sand | sandy silt |
| 284 | S2-EOD | Socastee | S. Carolina | HP14x73 | 13806 | 24.32 | 23.77 | 3698 | clayey sand | sandy silt |
| 285 | S2-BOR | Socastee | S. Carolina | HP14x73 | 13806 | 24.14 | 23.77 | 3698 | clayey sand | sandy silt |
| 286 | DD22-EOD | Orlando | Florida | PSC 14"sq | 126451 | 32.92 | 27.43 | 309 | clay | sand |
| 287 | DD22-BOR | Orlando | Florida | PSC 14"sq | 126451 | 32.92 | 27.74 | 312 | clay | sand |
| 288 | DD23-EOD | Orlando | Florida | CEP 12.75 | 82387 | 29.57 | 24.99 | 309 | clay | sand |
| 289 | DD23-BOR | Orlando | Florida | CEP 12.75 | 82387 | 25.91 | 25.09 | 310 | clay | sand |
| 290 | JR17-EOD | James River | Richmond, VA | PSC 24" sq | 371612 | 11.28 | 10.76 | 71 | cl-si-sand | silty sand |
| 291 | LB3-EOD | Luling Bridge | Kenner, LA | PSC 24" sq | 298645 | 24.38 | 24.84 | 203 | clay | Sand |
| 292 | LB3-BOR1 | Luling Bridge | Kenner, LA | PSC 24" sq | 298645 | 24.38 | 24.99 | 204 | clay | Sand |
| 293 | LB3-BOR2 | Luling Bridge | Kenner, LA | PSC 24" sq | 298645 | 24.38 | 24.99 | 204 | clay | Sand |
| 294 | LB3-BOR3 | Luling Bridge | Kenner, LA | PSC 24" sq | 298645 | 24.38 | 24.99 | 204 | clay | Sand |
| 295 | LB4-EOD | Luling Bridge | Kenner, LA | PSC 30" sq | 403483 | 24.38 | 24.99 | 189 | clay | Sand |
| 296 | LB4-BOR1 | Luling Bridge | Kenner, LA | PSC 30" sq | 403483 | 24.38 | 25.21 | 190 | clay | Sand |
| 297 | LB4-BOR2 | Luling Bridge | Kenner, LA | PSC 30" sq | 403483 | 24.38 | 25.27 | 191 | clay | Sand |
| 298 | LB4-BOR3 | Luling Bridge | Kenner, LA | PSC 30" sq | 403483 | 24.38 | 25.30 | 191 | clay | Sand |
| 299 | LB4-BOR4 | Luling Bridge | Kenner, LA | PSC 30" sq | 403483 | 24.38 | 25.30 | 191 | clay | Sand |
| 300 | LB5-EOD | Luling Bridge | Kenner, LA | PSC 30" sq | 403483 | 24.38 | 24.99 | 189 | clay | Sand |

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| No. | Pile-Case Number | Refer. No. | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Area Ratio | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 301 | LB5-BOR1 | Luling Bridge | Kenner, LA | PSC 30" sq | 403483 | 24.38 | 24.99 | 189 | clay | Sand |
| 302 | LB5-BOR2 | Luling Bridge | Kenner, LA | PSC 30" sq | 403483 | 24.38 | 24.99 | 189 | clay | Sand |
| 303 | LB5-BOR3 | Luling Bridge | Kenner, LA | PSC 30" sq | 403483 | 24.38 | 25.30 | 191 | clay | Sand |
| 304 | LB5-BOR4 | Luling Bridge | Kenner, LA | PSC 30" sq | 403483 | 24.38 | 25.30 | 191 | clay | Sand |
| 305 | LB6-EOD | Luling Bridge | Kenner, LA | PSC 36" cyl | 314193 | 24.38 | 24.69 | 226 | clay | Sand |
| 306 | LB6-BOR1 | Luling Bridge | Kenner, LA | PSC 36" cyl | 314193 | 24.38 | 24.69 | 226 | clay | Sand |
| 307 | LB6-BOR2 | Luling Bridge | Kenner, LA | PSC 36" cyl | 314193 | 24.38 | 24.69 | 226 | clay | Sand |
| 308 | LB6-BOR3 | Luling Bridge | Kenner, LA | PSC 36" cyl | 314193 | 24.38 | 24.99 | 229 | clay | Sand |
| 309 | LB6-BOR4 | Luling Bridge | Kenner, LA | PSC 36" cyl | 314193 | 24.38 | 24.99 | 229 | clay | Sand |
| 310 | LB7-EOD | Luling Bridge | Kenner, LA | PSC 36" cyl | 314193 | 24.38 | 24.60 | 225 | clay | Sand |
| 311 | LB7-BOR1 | Luling Bridge | Kenner, LA | PSC 36" cyl | 314193 | 24.38 | 24.69 | 226 | clay | Sand |
| 312 | LB7-BOR2 | Luling Bridge | Kenner, LA | PSC 36" cyl | 314193 | 24.38 | 24.69 | 226 | clay | Sand |
| 313 | LB7-BOR3 | Luling Bridge | Kenner, LA | PSC 36" cyl | 314193 | 24.38 | 24.69 | 226 | clay | Sand |
| 314 | LB7-BOR4 | Luling Bridge | Kenner, LA | PSC 36" cyl | 314193 | 24.38 | 24.69 | 226 | clay | Sand |
| 315 | DI221-EOD | Deer Island | Massachusetts | PSC 14" sq | 126451 | 26.21 | 19.20 | 216 | sa-si-clay | fine sand & silt |
| 316 | DI221-2DR | Deer Island | Massachusetts | PSC 14" sq | 126451 | 26.21 | 19.20 | 216 | sa-si-clay | fine sand & silt |
| 317 | TW488-EOD | MBTA Project | Massachusetts | PSC 14" sq | 126451 | 23.77 | 23.16 | 261 | stiff clay | stiff clay |
| 318 | TW488-3DR | MBTA Project | Massachusetts | PSC 14" sq | 126451 | 23.77 | 23.16 | 261 | stiff clay | stiff clay |
| 319 | NBTP2-EOD | Newbury | Massachusetts | HP12X74 | 14064 | 35.51 | 34.14 | 4433 | si-sa-clay | glacial till |
| 320 | NBTP2-1DR | Newbury | Massachusetts | HP12X74 | 14064 | 35.51 | 34.14 | 4433 | si-sa-clay | glacial till |
| 321 | NBTP2-6DR | Newbury | Massachusetts | HP12X74 | 14064 | 35.51 | 34.14 | 4433 | si-sa-clay | glacial till |
| 322 | NBTP3-EOD | Newbury | Massachusetts | HP12X74 | 14064 | 35.51 | 33.07 | 4295 | si-sa-clay | silty sand |
| 323 | NBTP3-1DR | Newbury | Massachusetts | HP12X74 | 14064 | 35.51 | 33.07 | 4295 | si-sa-clay | silty sand |
| 324 | NBTP3-6DR | Newbury | Massachusetts | HP12X74 | 14064 | 35.51 | 33.07 | 4295 | si-sa-clay | silty sand |
| 325 | NBTP5-EOD | Newbury | Massachusetts | CEP12.75" | 9406 | 35.72 | 33.83 | 418 | si-sa-clay | glacial till |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Refer. No. | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Area Ratio | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 326 | NBTP5-3DR | Newbury | Massachusetts | CEP12.75" | 9406 | 35.72 | 33.83 | 418 | si-sa-clay | glacial till |
| 327 | PR1-BOR1 | Pagan River | Virginia | PSC 24" sq | 371612 | 32.31 | 31.88 | 209 | sand & silt | silty sand |
| 328 | DD29-EOD | Orlando | Florida | CEP 12.75" | 9406 | 52.73 | 49.68 | 5374 | clayey sand | clayey sand |
| 329 | ND50-BOR1 | Norwood | Ohio | CEP 12" | 4852 | 12.34 | 6.71 | 1324 | silty clay | si-clayey sand |
| 330 | NZ12-BOR1 | Natchez | Mississippi | HP14X73 | 13806 | 11.03 | 11.89 | 1849 | silt | silt |
| 331 | DW1-BOR1 | Dawhoo | S. Carolina | PSC 24" sq | 371612 | 26.52 | 27.46 | 180 | silty clay | silty clay |
| 332 | DW1-BOR2 | Dawhoo | S. Carolina | PSC 24" sq | 371612 | 26.52 | 27.52 | 181 | silty clay | silty clay |
| 333 | DW2-BOR1 | Dawhoo | S. Carolina | HP14X73 | 16387 | 26.52 | 27.46 | 3599 | si-sa-clay | silty clay |
| 334 | DW2-BOR2 | Dawhoo | S. Carolina | HP14X73 | 16387 | 26.52 | 27.52 | 3607 | si-sa-clay | silty clay |
| 335 | DS1-BOR1 | Daughty St. | S. Carolina | PSC 12" sq | 92903 | 27.22 | 26.82 | 352 | cl-si-sand | calcar sand |
| 336 | DS1-BOR2 | Daughty St. | S. Carolina | PSC 12" sq | 92903 | 27.22 | 26.85 | 352 | cl-si-sand | calcar sand |
| 337 | PX2-BOR1 | Phoenix | Arizona | HP14X117 | 22194 | 14.94 | 14.02 | 1386 | clay & sand | sa-gr-cobble |
| 338 | PX3-EOD | Phoenix | Arizona | HP14X117 | 22194 | 19.51 | 15.24 | 1506 | clay & sand | sa-gr-cobble |
| 339 | PX3-BOR1 | Phoenix | Arizona | HP14X117 | 22194 | 16.46 | 15.24 | 1506 | clay & sand | sa-gr-cobble |
| 340 | PX4-EOD | Phoenix | Arizona | CEP 14" | 10355 | 8.84 | 6.83 | 737 | clay & sand | clayey sand |
| 341 | PX4-BOR1 | Phoenix | Arizona | CEP 14" | 10355 | 8.84 | 6.83 | 737 | clay & sand | clayey sand |
| 342 | PX5-BOR1 | Phoenix | Arizona | CEP 14" | 10355 | 8.84 | 7.53 | 812 | clay & sand | clayey sand |
| 343 | PX6-BOR1 | Phoenix | Arizona | PSC 16" sq | 152490 | 9.08 | 7.01 | 75 | clay & sand | clayey sand |
| 344 | PX7-EOD | Phoenix | Arizona | PSC 16" sq | 152490 | 7.32 | 6.10 | 65 | clay & sand | clay |
| 345 | PX7-BOR1 | Phoenix | Arizona | PSC 16" sq | 152490 | 7.32 | 6.10 | 65 | clay & sand | clay |
| 346 | CH11-42-BOR1 | Jones Island | Wisconsin | CEP 12.75" | 7865 | 29.78 | 28.99 | 3750 | sa-cl-silt | silty clay |
| 347 | SSTPD-5DR | Stockholm | Sweden | PSC 9.25" sq | 55226 | 13.20 | 12.80 | 218 | silty sand | silty sand |
| 348 | TSW/D62/1-EOD | Site 2 | Hong Kong | PSC 19.69" cyl | 125703 | 23.00 | 22.70 | 284 | sa-cl-silt | sandy silt |
| 349 | TSW/D62/1-BOR | Site 2 | Hong Kong | PSC 19.69" cyl | 125703 | 23.00 | 22.70 | 284 | sa-cl-silt | sandy silt |
| 350 | TSW/HHK9/1-EOD | Site 2 | Hong Kong | PSC 19.69" cyl | 125703 | 23.00 | 23.60 | 295 | sa-cl-silt | sandy silt |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Refer. No. | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Area Ratio | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 351 | TSW/HHK9/1-BOR | Site 2 | Hong Kong | PSC 19.69" cyl | 125703 | 23.00 | 23.60 | 295 | sa-cl-silt | sandy silt |
| 352 | TSW/D62/2-EOD | Site 3 | Hong Kong | HP12X120? | 22929 | 35.00 | 29.70 | 2438 | sa-cl-silt | sandy silt |
| 353 | TSW/D62/2-BOR | Site 3 | Hong Kong | HP12X120? | 22929 | 35.00 | 29.70 | 2438 | sa-cl-silt | sandy silt |
| 354 | TSW/HHK9/2-EOD | Site 3 | Hong Kong | HP12X120? | 22929 | 35.00 | 31.50 | 2586 | sa-cl-silt | sandy silt |
| 355 | TSW/HHK9/2-BOR | Site 3 | Hong Kong | HP12X120? | 22929 | 35.00 | 31.50 | 2586 | sa-cl-silt | sandy silt |
| 356 | OD1J-EOD | Site 1 | Oakland, CA | OEP 24" | 35342 | 9.14 | 8.47 | 459 | silty sand | silty clayey sand |
| 357 | OD2P-EOD | Site 2 | Oakland, CA | OEP 24" | 35342 | 12.22 | 12.19 | 661 | silty sand | silty sandy clay |
| 358 | OD2P-BOR | Site 2 | Oakland, CA | OEP 24" | 35342 | 12.22 | 12.19 | 661 | silty sand | silty sandy clay |
| 359 | OD2T-EOD | Site 2 | Oakland, CA | CEP 24" | 35342 | 12.19 | 10.67 | 578 | silty sand | silty sand & clay |
| 360 | OD3H-EOD | Site 3 | Oakland, CA | OEP 42" | 62703 | 30.78 | 30.63 | 1637 | stiff clay | clay w/ sa-si-gr |
| 361 | OD4L-EOD | Site 4 | Oakland, CA | CEP 24" | 23813 | 21.40 | 19.51 | 128 | sandy clay | silty sandy clay |
| 362 | OD4P-EOD | Site 4 | Oakland, CA | CEP 24" | 23813 | 21.34 | 17.07 | 112 | silty clay | silty sandy clay |
| 363 | OD4P-BOR | Site 4 | Oakland, CA | CEP 24" | 23813 | 21.34 | 17.07 | 112 | silty clay | silty sandy clay |
| 364 | OD4T-EOD | Site 4 | Oakland, CA | CEP 24" | 23813 | 21.34 | 18.29 | 120 | sandy clay | silty sandy clay |
| 365 | OD4T-BOR | Site 4 | Oakland, CA | CEP 24" | 23813 | 21.34 | 18.29 | 120 | sandy clay | silty sandy clay |
| 366 | OD4W-EOD | Site 4 | Oakland, CA | CEP 24" | 23813 | 21.40 | 18.29 | 120 | sandy clay | silty sandy clay |
| 367 | OD4W-BOR2 | Site 4 | Oakland, CA | CEP 24" | 23813 | 21.40 | 18.29 | 120 | sandy clay | silty sandy clay |
| 368 | OD4W-BOR3 | Site 4 | Oakland, CA | CEP 24" | 23813 | 21.40 | 18.38 | 121 | sandy clay | silty sandy clay |
| 369 | QC3-EOD | Queens County | New York | PSC 54" cyl | 496573 | 27.13 | 23.01 | 200 | sand | dense sand |
| 370 | QC3-14DR | Queens County | New York | PSC 54" cyl | 496573 | 27.13 | 23.01 | 200 | sand | dense sand |
| 371 | QC14-EOD | Queens County | New York | PSC 14" cyl | 126451 | 25.91 | 22.86 | 202 | sand | dense sand |
| 372 | QC14-30DR | Queens County | New York | PSC 14" cyl | 126451 | 25.91 | 22.86 | 202 | sand | dense sand |
| 373 | NYSP-EOD | SE New York | New York | HP10X42 | 10329 | 35.51 | 33.50 | 4849 | silty sand | silty sand w/gr |
| 374 | NYSP-BOR | SE New York | New York | HP10X42 | 10323 | 33.89 | 33.50 | 4849 | silty sand | silty sand w/gr |
| 375 | UFSS1A - BOR | Sunshine Skyway | Florida | PSC 24" sq | 371612 | 0.00 | 15.00 | 590 | cl-si-sand | silty clay |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Refer. No. | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Area Ratio | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | (mm2) | (m) | (m) | AR | Side | Tip |
| 376 | UFSS1B - BOR | Sunshine Skyway | Florida | PSC 20" sq | 258064 | 0.00 | 14.42 | 568 | cl-si-sand | silty clay |
| 377 | UFSS10 - BOR | Sunshine Skyway | Florida | PSC 24" sq | 371612 | 0.00 | 8.50 | 335 | sa-si-clay | silty clay |
| 378 | UFSS13B - BOR | Sunshine Skyway | Florida | PSC 24" sq | 371612 | 0.00 | 8.20 | 323 | sa-si-clay | silty clay |
| 379 | BIT20 - BOR | Jacksonville | Florida | PSC 20" sq | 258064 | 0.00 | 14.08 | 554 | silty sand | sand |
| 380 | BIT21 - BOR | Jacksonville | Florida | PSC 20" sq | 258064 | 10.97 | 11.09 | 437 | cl-si-sand | silty sand |
| 381 | HFLS3 - EOD | Tampa Bay | Florida | PSC 30" sq | 580644 | 0.00 | 12.07 | 475 | sa-si-clay | sandy clay |
| 382 | HFLS4L - EOD | Tampa Bay | Florida | PSC 30" sq | 580644 | 0.00 | 22.40 | 882 | cl-si-limestone-sand | limerock |
| 383 | HFLS4L - BOR | Tampa Bay | Florida | PSC 30" sq | 580644 | 0.00 | 22.40 | 882 | cl-si-limestone-sand | limerock |
| 384 | RBA30 - BOR | Stuart | Florida | PSC 30" sq | 580644 | 21.34 | 16.28 | 641 | silty sand | silty sand |
| 385 | RBB30W - BOR | Stuart | Florida | PSC 30" sq | 580644 | 18.59 | 13.35 | 526 | silty sand | silty sand |
| 386 | CC6 - BOR | Cape Canaveral | Florida | PSC 18" sq | 209032 | 23.47 | 16.18 | 637 | silty sand | sand |
| 387 | CC7 - BOR | Cape Canaveral | Florida | PSC 14" sq | 126451 | 23.47 | 23.23 | 914 | cl-si-sand | silty sand |
| 388 | CC14 - BOR | Cape Canaveral | Florida | PSC 14" sq | 126451 | 23.47 | 21.18 | 834 | cl-si-sand | silty sand |
| 389 | 49SB37 - EOD | Clearwater | Florida | PSC 30" sq | 580644 | 16.46 | 7.13 | 281 | sandy clay | silty limestone |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kN-m) | Delivered Energy (kN-m) | Blow Count (BP10cm) | Impedence EA/C (kN/m/s) | Vimp (m/s) | Fimp (kN) | VEA/C F | Dmax (mm) | 2L/C (ms) | Tip Quake (mm) | Side Quake (mm) | Tip Damping (sec/m) | Side Damping (sec/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | FN1-EOD | D-30 | 73.49 | 23.46 | 11.1 | 323.0 | 4.04 | 1434 | 0.909 | 20.1 | 8.57 | 5.08 | 2.54 | 0.230 | 0.558 |
| 2 | FN1-BOR1 | D-30 | 73.49 | 24.97 | 31.5 | 323.0 | 4.04 | 1402 | 0.930 | 20.7 | 8.57 | 2.54 | 2.54 | 1.312 | 0.427 |
| 3 | FN1-BOR2 | D-30 | 73.49 | 27.32 | 59.1 | 323.0 | 3.97 | 1374 | 0.934 | 21.3 | 8.57 | 2.54 | 2.54 | 1.903 | 0.361 |
| 4 | FN2-EOD | D-30 | 73.49 | 17.22 | 13.8 | 882.8 | 2.24 | 2055 | 0.963 | 11.3 | 9.55 | 5.08 | 5.59 | 0.164 | 0.886 |
| 5 | FN2-BOR | D-30 | 73.49 | 16.74 | 19.7 | 882.8 | 2.55 | 2264 | 0.994 | 10.4 | 9.55 | 2.03 | 3.81 | 0.328 | 1.083 |
| 6 | FN3-EOD | D-30 | 73.49 | 13.42 | 36.1 | 1253.5 | 1.87 | 2482 | 0.946 | 9.8 | 9.55 | 3.05 | 1.52 | 0.951 | 1.969 |
| 7 | FN3-BOR | D-30 | 73.49 | 21.96 | 23.6 | 1253.5 | 2.40 | 3074 | 0.979 | 11.7 | 9.55 | 5.33 | 1.78 | 1.115 | 1.017 |
| 8 | FN4-EOD | D-30 | 73.49 | 21.08 | 9.8 | 500.0 | 3.95 | 2128 | 0.929 | 13.5 | 7.85 | 3.81 | 3.05 | 0.164 | 0.492 |
| 9 | FN4-BOR | D-30 | 73.49 | 23.59 | 19.7 | 500.0 | 4.03 | 2116 | 0.953 | 13.1 | 7.85 | 2.54 | 2.79 | 0.164 | 0.591 |
| 10 | FIA-EOD | K-25 | 69.82 | 31.70 | 13.1 | 680.1 | 4.54 | 2971 | 1.039 | 17.4 | 13.98 | 7.62 | 4.32 | 1.572 | 0.161 |
| 11 | FIA-BOR | K-25 | 69.82 | 25.60 | 7.2 | 680.1 | 4.57 | 2925 | 1.062 | 14.2 | 13.98 | 1.27 | 2.54 | 1.959 | 0.180 |
| 12 | FIB-EOD | K-25 | 69.82 | 34.44 | 23.0 | 551.6 | 4.60 | 2470 | 1.027 | 17.5 | 11.59 | 5.08 | 3.81 | 0.217 | 0.194 |
| 13 | FIB-BOR | K-25 | 69.82 | 30.47 | 9.8 | 551.6 | 4.66 | 2439 | 1.054 | 17.1 | 11.59 | 3.81 | 2.54 | 0.423 | 0.223 |
| 14 | FO1-EOD | DE110 | 126.77 | 24.51 | 22.3 | 1762.9 | 1.65 | 3508 | 0.827 | 10.5 | 7.17 | 7.11 | 2.54 | 0.456 | 0.446 |
| 15 | FO1-BOR | DE110 | 126.77 | 50.80 | 19.7 | 1762.9 | 2.71 | 5443 | 0.878 | 13.7 | 7.17 | 7.11 | 2.54 | 0.302 | 0.302 |
| 16 | FO2-EOD | DE110 | 126.77 | 24.78 | 20.0 | 2905.6 | 1.19 | 3585 | 0.963 | 11.5 | 9.41 | 5.84 | 2.54 | 0.161 | 0.607 |
| 17 | FO2-BOR | DE110 | 126.77 | 42.53 | 47.2 | 2905.6 | 1.74 | 4955 | 1.018 | 11.4 | 9.41 | 6.35 | 2.54 | 0.128 | 0.545 |
| 18 | FO3-EOD | DE110 | 126.77 | 22.24 | 65.6 | 896.1 | 2.01 | 2177 | 0.828 | 15.9 | 13.08 | 1.27 | 2.03 | 2.215 | 0.269 |
| 19 | FO4-EOD | DE110 | 126.77 | 13.30 | 45.9 | 3131.9 | 0.76 | 2559 | 0.933 | 6.8 | 10.48 | 3.30 | 2.54 | 0.377 | 0.417 |
| 20 | FO4-BOR | DE110 | 126.77 | 30.82 | 3.9 | 3131.9 | 1.43 | 4500 | 0.997 | 9.2 | 10.48 | 5.08 | 3.05 | 0.801 | 0.633 |
| 21 | FOR1-EOD | D-46-23 | 142.36 | 40.82 | 36.1 | 2320.4 | 1.86 | 4208 | 1.025 | 21.3 | 20.96 | 9.65 | 6.35 | 0.197 | 0.587 |
| 22 | FOR1-BOR | D-46-23 | 142.36 | 32.23 | 304.4 | 2320.4 | 1.77 | 4084 | 1.004 | 11.7 | 20.96 | 5.59 | 5.59 | 0.807 | 0.607 |
| 23 | FM5-EOD | K-45 | 125.82 | 36.61 | 5.1 | 716.3 | 3.27 | 2449 | 0.957 | 26.2 | 13.96 | 8.13 | 2.54 | 0.135 | 0.282 |
| 24 | FM5-BOR | K-45 | 125.82 | 54.50 | 11.8 | 716.3 | 4.05 | 2928 | 0.992 | 24.9 | 12.02 | 9.91 | 2.54 | 0.318 | 0.243 |
| 25 | FM17-EOD | K-45 | 125.82 | 53.55 | 5.6 | 716.3 | 3.40 | 2628 | 0.926 | 28.1 | 9.26 | 13.46 | 2.29 | 0.253 | 0.249 |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kN-m) | Delivered Energy (kN-m) | Blow Count (BP10cm) | Impedence EA/C (kN/m/s) | Vimp (m/s) | Fimp (kN) | VEA/C F | Dmax (mm) | 2L/C (ms) | Tip Quake (mm) | Side Quake (mm) | Tip Damping (sec/m) | Side Damping (sec/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | FM17-BOR | K-45 | 125.82 | 49.49 | 11.8 | 716.3 | 4.01 | 3104 | 0.926 | 20.0 | 9.26 | 5.08 | 2.54 | 0.164 | 0.466 |
| 27 | FM23-EOD | K-45 | 125.82 | 45.15 | 5.2* | 716.3 | 3.47 | 2487 | 0.998 | 30.2 | 6.75 | 10.16 | 2.03 | 0.135 | 1.490 |
| 28 | FM23-BOR | K-45 | 125.82 | 42.03 | 7.9 | 716.3 | 3.22 | 2260 | 1.021 | 31.7 | 6.75 | 25.40 | 5.33 | 0.148 | 0.295 |
| 29 | FC1-EOD | KC-25 | 69.82 | 20.97 | 13.8* | 256.0 | 4.08 | 1213 | 0.862 | 20.3 | 3.98 | 7.62 | 3.99 | 0.118 | 0.118 |
| 30 | FC1-BOR | KC-25 | 69.82 | 21.95 | 15.0* | 256.0 | 4.08 | 1229 | 0.851 | 20.5 | 3.98 | 8.38 | 3.56 | 0.098 | 0.105 |
| 31 | FC2-EOD | KC-25 | 69.82 | 24.50 | 14.4* | 256.0 | 4.54 | 1290 | 0.901 | 20.5 | 3.27 | 8.38 | 3.76 | 0.135 | 0.085 |
| 32 | FC2-BOR | KC-25 | 69.82 | 18.52 | 15.7* | 256.0 | 3.99 | 1193 | 0.857 | 17.3 | 3.14 | 8.38 | 3.81 | 0.095 | 0.079 |
| 33 | FMI1-EOD | ICE-640 | 54.23 | 14.91 | 11.8* | 419.3 | 2.47 | 1113 | 0.919 | 18.7 | 9.87 | 2.54 | 2.54 | 0.167 | 0.154 |
| 34 | FMI1-BOR | ICE-640 | 54.23 | 16.27 | 11.8 | 419.3 | 2.68 | 1354 | 0.830 | 16.1 | 9.87 | 3.81 | 2.54 | 0.315 | 0.056 |
| 35 | FMI2-EOD | ICE-640 | 54.23 | 15.81 | 5.6* | 419.3 | 2.16 | 1024 | 0.886 | 21.9 | 7.32 | 3.56 | 2.54 | 0.098 | 0.197 |
| 36 | FMI2-BOR | ICE-640 | 54.23 | 18.41 | 11.8 | 419.3 | 2.74 | 1271 | 0.905 | 21.2 | 7.32 | 3.81 | 2.54 | 0.180 | 0.098 |
| 37 | FWA-EOD | Con300 | 122.02 | 60.88 | 185.0 | 2898.6 | 2.99 | 8563 | 1.011 | 23.4 | 18.08 | 12.70 | 6.60 | 0.312 | 0.994 |
| 38 | FWA-BOR | Con300 | 122.02 | 45.15 | 27.6 | 2898.6 | 2.68 | 7598 | 1.023 | 14.0 | 18.08 | 7.65 | 6.38 | 0.620 | 0.449 |
| 39 | FWB-EOD | Con300 | 122.02 | 63.99 | 118.1 | 2898.6 | 2.59 | 7629 | 0.990 | 16.0 | 16.66 | - | - | - | - |
| 40 | FWB-BOR | Con300 | 122.02 | 53.28 | 59.1 | 2898.6 | 2.32 | 6744 | 0.996 | 17.0 | 16.66 | - | - | - | - |
| 41 | FA1-EOD | K-45 | 125.82 | 23.77 | 5.9* | 2126.6 | 1.33 | 2797 | 1.013 | 18.5 | 9.40 | 2.54 | 2.54 | 0.404 | 0.768 |
| 42 | FA1-BOR1 | K-45 | 125.82 | 12.46 | 27.6 | 2126.6 | 1.10 | 2437 | 0.957 | 8.5 | 9.07 | 5.08 | 1.52 | 1.201 | 1.204 |
| 43 | FA1-BOR2 | K-45 | 125.82 | 29.61 | 27.6 | 2126.6 | 2.23 | 4777 | 0.990 | 12.2 | 9.07 | 6.35 | 2.54 | 1.191 | 1.056 |
| 44 | FA2-EOD | K-45 | 125.82 | 28.77 | 13.8* | 2126.6 | 1.21 | 2842 | 0.908 | 15.5 | 10.51 | 10.67 | 2.54 | 0.322 | 0.705 |
| 45 | FA2-BOR1 | K-45 | 125.82 | 30.74 | 27.6 | 2050.7 | 2.10 | 4555 | 0.946 | 10.9 | 10.90 | 6.35 | 2.54 | 0.925 | 0.673 |
| 46 | FA2-BOR2 | K-45 | 125.82 | 28.20 | 19.7 | 2126.6 | 2.04 | 4559 | 0.952 | 9.1 | 10.51 | 4.32 | 3.30 | 1.060 | 1.073 |
| 47 | FA3-EOD | K-45 | 125.82 | 30.90 | 11.1* | 3233.0 | 1.01 | 3243 | 1.006 | 16.4 | 9.16 | 8.89 | 2.54 | 0.600 | 1.079 |
| 48 | FA3-BOR1 | K-45 | 125.82 | 20.64 | 23.6 | 3210.5 | 1.04 | 3480 | 0.959 | 8.2 | 9.06 | 5.08 | 1.78 | 1.683 | 1.306 |
| 49 | FA3-BOR2 | K-45 | 125.82 | 22.11 | 19.7 | 3233.0 | 1.62 | 5333 | 0.979 | 7.0 | 9.00 | 5.21 | 2.03 | 1.014 | 1.296 |
| 50 | FA4-EOD | K-45 | 125.82 | 25.84 | 25.3* | 3233.0 | 1.09 | 3480 | 1.007 | 11.1 | 10.43 | 6.35 | 2.54 | 0.502 | 0.974 |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kN-m) | Delivered Energy (kN-m) | Blow Count (BP10cm) | Impedence EA/C (kN/m/s) | Vimp (m/s) | Fimp (kN) | VEA/C F | Dmax (mm) | 2L/C (ms) | Tip Quake (mm) | Side Quake (mm) | Tip Damping (sec/m) | Side Damping (sec/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | FA4-BOR1 | K-45 | 125.82 | 22.80 | 31.5 | 3209.6 | 1.58 | 4929 | 1.030 | 6.5 | 10.51 | 3.05 | 1.52 | 1.096 | 1.280 |
| 52 | FA4-BOR2 | K-45 | 125.82 | 27.69 | 70.9 | 3209.6 | 2.06 | 6530 | 1.013 | 7.2 | 10.51 | 3.81 | 2.54 | 0.925 | 1.168 |
| 53 | FA5-EOD | D-62-22 | 207.71 | 50.25 | 30.2* | 5894.2 | 1.55 | 9368 | 0.978 | 11.3 | 10.07 | 8.38 | 3.05 | 1.296 | 0.991 |
| 54 | FA5-BOR | D-62-22 | 207.71 | 61.70 | 19.7 | 5894.2 | 2.26 | 13416 | 0.991 | 7.3 | 10.45 | 6.10 | 1.78 | 1.299 | 1.296 |
| 55 | FV15-EOD | MKT-35B | 29.83 | 13.56 | 16.4* | 557.3 | 3.17 | 1794 | 0.985 | 12.1 | 10.95 | 7.62 | 2.54 | 0.459 | 0.335 |
| 56 | FV15-BOR | MKT-35B | 29.83 | 16.58 | 35.4 | 557.3 | 4.33 | 2326 | 1.037 | 16.3 | 10.95 | 7.62 | 2.54 | 1.391 | 0.292 |
| 57 | FV10-EOD | MKT-35B | 29.83 | 14.89 | 10.5* | 557.3 | 3.26 | 1858 | 0.978 | 12.4 | 10.95 | 7.62 | 2.54 | 1.237 | 0.663 |
| 58 | FV10-BOR | MKT-35B | 29.83 | 18.93 | 7.9 | 557.3 | 4.97 | 2709 | 1.022 | 17.1 | 10.95 | 8.64 | 3.18 | 0.906 | 0.538 |
| 59 | FMN2-EOD | ICE-90S | 122.02 | 38.36 | 7.2* | 557.3 | 4.57 | 2792 | 0.913 | 22.3 | 11.19 | 12.70 | 4.06 | 0.259 | 0.341 |
| 60 | FMN2-BOR | ICE-90S | 122.02 | 39.51 | 98.4 | 557.3 | 5.03 | 3005 | 0.932 | 20.4 | 11.19 | 3.81 | 3.86 | 0.279 | 0.374 |
| 61 | FP5-EOD | D-12 | 29.83 | 10.25 | 21.3* | 182.3 | 4.21 | 789 | 0.972 | 17.2 | 4.10 | 5.08 | 1.02 | 0.121 | 0.299 |
| 62 | FP5-BOR | D-12 | 29.83 | 10.24 | 51.2 | 182.3 | 4.54 | 856 | 0.967 | 14.5 | 4.10 | 4.83 | 1.14 | 0.098 | 0.289 |
| 63 | FKG-EOD | LB-520 | 42.03 | 11.27 | 91.5* | 1170.9 | 1.30 | 1572 | 0.971 | 11.8 | 11.39 | 6.35 | 2.29 | 0.341 | 0.840 |
| 64 | FKG-BOR | LB-520 | 42.03 | 10.52 | 70.9 | 1170.9 | 1.39 | 1661 | 0.978 | 10.3 | 11.39 | 3.56 | 1.52 | 0.371 | 0.925 |
| 65 | FL3-EOD | Vul-020 | 81.35 | 19.79 | 6.6* | 2973.4 | 1.00 | 3017 | 0.985 | 19.2 | 15.04 | 10.16 | 2.54 | 0.807 | 0.883 |
| 66 | FL3-BOR1 | Vul-020 | 81.35 | 23.09 | 15.7 | 2973.4 | 1.13 | 3609 | 0.929 | 11.0 | 15.04 | 6.35 | 3.81 | 1.240 | 1.286 |
| 67 | FL3-BOR2 | Vul-020 | 81.35 | 19.56 | 43.3 | 2973.4 | 1.13 | 3538 | 0.948 | 7.5 | 15.04 | 6.35 | 3.15 | 1.716 | 1.663 |
| 68 | CA1-EOD | B-400 | 62.37 | 27.55 | 84.0 | 406.7 | 4.80 | 1923 | 1.016 | 26.7 | 20.47 | 3.56 | 3.56 | 0.292 | 0.272 |
| 69 | CA1-BOR | B-400 | 62.37 | 25.71 | 157.5 | 406.7 | 4.40 | 1903 | 0.941 | 26.0 | 20.47 | 3.30 | 3.30 | 0.292 | 0.246 |
| 70 | CA2-BOR | B-400 | 62.37 | 22.70 | 55.1 | 406.7 | 4.60 | 1886 | 0.992 | 21.9 | 13.39 | 2.54 | 2.54 | 0.318 | 0.344 |
| 71 | CA5-BOR1 | 35kdrop | 52.5min | 41.30 | 98.4 | 312.0 | 4.60 | 1520 | 0.944 | 33.3 | 7.97 | 9.19 | 2.54 | 0.039 | 0.289 |
| 72 | CA5-BOR2 | 49kdrop | 73.5min | 42.63 | 43.3 | 312.0 | 4.10 | 1367 | 0.936 | 33.0 | 7.97 | 8.31 | 5.51 | 0.115 | 0.079 |
| 73 | CA3/8-BOR | ICE 40S | 54.23 | 25.80 | 16.7 | 227.7 | 4.70 | 1226 | 0.873 | 25.4 | 8.78 | 9.50 | 7.01 | 0.315 | 0.387 |
| 74 | CA24-BOR | D-12 | 32.54 | 11.97 | 196.9 | 196.1 | 4.30 | 959 | 0.879 | 12.7 | 4.59 | 4.50 | 3.00 | 0.371 | 0.253 |
| 75 | CA6-BOR1 | D-30-13 | 89.48 | 55.90 | 39.4 | 378.4 | 5.28 | 2199 | 0.909 | 29.6 | 7.16 | 8.99 | 7.01 | 0.157 | 0.164 |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kN-m) | Delivered Energy (kN-m) | Blow Count (BP10cm) | Impedence EA/C (kN/m/s) | Vimp (m/s) | Fimp (kN) | VEA/C F | Dmax (mm) | 2L/C (ms) | Tip Quake (mm) | Side Quake (mm) | Tip Damping (sec/m) | Side Damping (sec/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 76 | CA6-BOR2 | D-30-13 | 89.48 | 57.87 | 26.3 | 378.4 | 5.46 | 2236 | 0.924 | 31.2 | 7.16 | 10.01 | 6.50 | 0.154 | 0.171 |
| 77 | CA6-EOR | D-30-13 | 89.48 | 50.98 | 31.5 | 378.4 | 5.13 | 1858 | 1.045 | 29.4 | 7.16 | 8.51 | 6.50 | 0.121 | 0.203 |
| 78 | WC3-EOD | Delmag | 142.36 | 23.73 | 36.7 | 3922.1 | 1.29 | 4994 | 1.013 | 11.5 | 6.80 | 10.16 | 2.54 | 0.551 | 0.217 |
| 79 | WC3-BOR1 | Delmag | 142.36 | 22.91 | 36.7 | 3922.1 | 1.30 | 5247 | 0.968 | 10.5 | 6.80 | 8.89 | 3.30 | 0.118 | 0.643 |
| 80 | WC3-BOR2 | Delmag | 142.36 | 24.26 | 26.3 | 3922.1 | 1.06 | 4637 | 0.895 | 10.2 | 5.36 | 8.13 | 2.03 | 0.285 | 0.449 |
| 81 | WC6-EOD | Delmag | 142.36 | 23.86 | 19.7 | 3880.2 | 1.36 | 5298 | 0.998 | 12.9 | 5.54 | 10.67 | 2.54 | 0.387 | 0.469 |
| 82 | WC6-BOR1 | Delmag | 142.36 | 24.73 | 31.5 | 3880.2 | 1.37 | 5448 | 0.977 | 12.4 | 5.54 | 11.96 | 2.03 | 0.417 | 0.696 |
| 83 | WC6-BOR2 | Delmag | 142.36 | 35.63 | 26.3 | 3880.2 | 1.54 | 5917 | 1.007 | 16.9 | 3.93 | 15.49 | 2.54 | 0.157 | 1.020 |
| 84 | WB9-BOR | Con300 | 122.02 | 54.06 | 26.3 | 3962.5 | 1.96 | 7776 | 0.997 | 9.7 | 20.00 | 6.60 | 1.27 | 1.421 | 0.823 |
| 85 | WB15-BOR | Con300 | 122.02 | 47.05 | 19.7 | 3933.1 | 1.78 | 6822 | 1.025 | 9.5 | 16.28 | 5.72 | 1.52 | 0.794 | 1.594 |
| 86 | T1/A-EOD | D-55 | 169.48 | 61.00 | 29.0 | 5524.8 | 2.44 | 13198 | 1.022 | 6.6 | 16.49 | 3.81 | 1.27 | 0.230 | 0.377 |
| 87 | T1/A-ALT | D-55 | 169.48 | 205.41 | 9.0 | 5524.8 | 3.81 | 19674 | 1.070 | 21.1 | 20.70 | 5.08 | 2.54 | 0.515 | 0.259 |
| 88 | T1/B-EOD | M-2500 | NA | 234.19 | 8.0 | 5524.8 | 3.87 | 21294 | 1.004 | 22.1 | 25.74 | 1.52 | 1.52 | 0.069 | 0.154 |
| 89 | T2/A-EOD | D-55 | 169.48 | 82.19 | 19.0 | 2900.5 | 2.87 | 8412 | 0.988 | 14.5 | 13.94 | 3.81 | 1.02 | 0.771 | 0.285 |
| 90 | T2/B-EOD | M-2500 | NA | 228.70 | 20.0 | 2900.5 | 4.15 | 12517 | 0.961 | 29.7 | 31.01 | 1.78 | 1.78 | 0.505 | 0.108 |
| 91 | 35-1-BOR | B-400 | 62.37 | 17.76 | 7.2* | 568.1 | 3.11 | 1882 | 0.939 | 15.2 | 7.15 | 6.35 | 2.54 | 0.374 | 0.141 |
| 92 | 35-4-BOR | B-400 | 62.37 | 31.46 | 21.9* | 255.4 | 5.47 | 1677 | 0.833 | 25.7 | 6.21 | 7.62 | 2.54 | 0.079 | 0.108 |
| 93 | 35-5-BOR | B-400 | 62.37 | 24.00 | 40.6* | 568.1 | 4.42 | 2598 | 0.967 | 15.0 | 11.93 | 1.02 | 1.02 | 0.138 | 0.207 |
| 94 | 35-6-BOR | B-400 | 62.37 | 35.39 | 65.6* | 255.4 | 5.67 | 1655 | 0.875 | 28.7 | 12.55 | 2.54 | 1.52 | 0.003 | 0.305 |
| 95 | 35-7-BOR | B-225 | 39.32 | 13.42 | 10.0* | 276.8 | 3.26 | 965 | 0.935 | 23.1 | 8.88 | 5.08 | 2.54 | 0.131 | 0.154 |
| 96 | 35-10-BOR | B-400 | 62.37 | 15.05 | 23.6 | 883.8 | 2.77 | 2322 | 1.055 | 11.7 | 7.69 | 6.35 | 1.02 | 0.062 | 0.272 |
| 97 | E2-BOR | Conm65 | 35.93 | 20.35 | 39.4 | 936.9 | 2.43 | 2347 | 0.968 | 10.0 | 6.31 | 6.60 | 2.54 | 0.394 | 0.574 |
| 98 | 63S-BOR | ICE-640 | 54.23 | 16.45 | 17.7 | 442.8 | 3.31 | 1455 | 1.006 | 15.2 | 8.19 | 7.11 | 2.54 | 0.089 | 0.866 |
| 99 | LB21-BOR | VUL-510 | 67.79 | 18.26 | 15.7* | 2472.2 | 1.40 | 3655 | 0.948 | 9.5 | 5.50 | 7.87 | 2.54 | 0.420 | 0.554 |
| 100 | LB20-BOR | VUL-510 | 67.79 | 20.03 | 31.5 | 2361.3 | 1.80 | 4297 | 0.988 | 7.9 | 7.91 | 5.84 | 3.05 | 0.692 | 0.692 |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kN-m) | Delivered Energy (kN-m) | Blow Count (BP10cm) | Impedence EA/C (kN/m/s) | Vimp (m/s) | Fimp (kN) | VEA/C F | Dmax (mm) | 2L/C (ms) | Tip Quake (mm) | Side Quake (mm) | Tip Damping (sec/m) | Side Damping (sec/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101 | LC3-BOR | D-46-23 | 145.07 | 53.42 | 27.6 | 2362.8 | 2.53 | 6392 | 0.935 | 16.9 | 20.31 | 8.89 | 6.35 | 0.630 | 0.449 |
| 102 | LIN16-BOR | D-46-23 | 145.07 | 37.96 | 39.4* | 2362.8 | 1.80 | 4835 | 0.879 | 14.7 | 24.50 | 5.59 | 3.05 | 0.961 | 1.106 |
| 103 | LE37-BOR | VUL-01 | 20.34 | 7.32 | 39.4 | 566.2 | 1.75 | 1007 | 0.977 | 11.0 | 10.00 | 3.56 | 2.03 | 0.594 | 2.133 |
| 104 | LE64-BOR | VUL-01 | 20.34 | 9.36 | 21.7 | 566.2 | 1.86 | 1100 | 0.957 | 10.7 | 10.00 | 2.67 | 1.78 | 0.486 | 0.433 |
| 105 | ST1-EOD | D-36-13 | 113.89 | 44.92 | 9.5* | 1795.0 | 2.53 | 4606 | 0.986 | 21.5 | 11.52 | 7.62 | 2.03 | 0.177 | 0.200 |
| 106 | ST2-EOD | D-36-13 | 113.89 | 44.78 | 13.5* | 1929.3 | 1.93 | 3830 | 0.973 | 22.8 | 9.96 | 15.24 | 2.03 | 0.056 | 0.066 |
| 107 | ST9-BOR | CN5300 | 203.37 | 61.96 | 30.9* | 4948.8 | 1.86 | 9235 | 0.996 | 11.2 | 24.19 | 5.59 | 2.54 | 1.056 | 0.486 |
| 108 | ST46-EOD | VUL-1 | 20.34 | 7.46 | 10.5* | 151.0 | 3.05 | 456 | 1.010 | 20.1 | 4.52 | 10.16 | 3.81 | 0.108 | 0.138 |
| 109 | GZA3-EOD | ICE-640 | 54.23 | 21.86 | 78.7 | 528.3 | 3.29 | 1611 | 1.079 | 21.9 | 17.00 | 8.38 | 3.81 | 0.174 | 0.164 |
| 110 | GZA5-EOD | ICE-640 | 54.23 | 23.54 | 23.6 | 405.7 | 3.11 | 1338 | 0.942 | 27.0 | 16.50 | 8.13 | 3.81 | 0.098 | 0.164 |
| 111 | GZA6-EOD | ICE-640 | 54.23 | 18.17 | 59.1 | 404.3 | 2.47 | 978 | 1.021 | 27.3 | 20.37 | 6.35 | 3.18 | 0.387 | 0.174 |
| 112 | GZBBC-EOD | ICE-640 | 54.23 | 23.96 | 78.7 | 551.6 | 2.71 | 1611 | 0.929 | 22.5 | 13.79 | 1.47 | 1.27 | 0.299 | 0.246 |
| 113 | GZBP2-EOD | ICE-640 | 54.23 | 12.98 | 78.7 | 528.3 | 2.07 | 1151 | 0.952 | 18.0 | 17.08 | 1.02 | 1.27 | 0.167 | 0.423 |
| 114 | GZB6-EOD | ICE-640 | 54.23 | 21.57 | 43.3 | 404.3 | 3.32 | 1532 | 0.876 | 21.2 | 11.56 | 6.10 | 3.05 | 0.200 | 0.210 |
| 115 | GZZ5-EOD | ICE1070 | 98.43 | 38.95 | 16.5 | 551.6 | 4.05 | 2374 | 0.942 | 25.4 | 10.34 | 11.43 | 8.89 | 0.561 | 0.781 |
| 116 | GZO5-EOD | ICE1070 | 98.43 | 32.15 | 16.5 | 551.6 | 4.33 | 2527 | 0.945 | 22.3 | 10.34 | 14.73 | 2.54 | 0.194 | 2.657 |
| 117 | GZCC5-EOD | ICE1070 | 98.43 | 46.17 | 21.3 | 551.6 | 4.45 | 2627 | 0.934 | 30.0 | 13.91 | 10.92 | 5.59 | 0.095 | 0.384 |
| 118 | GZL2-EOD | ICE1070 | 98.43 | 34.99 | 35.4 | 551.6 | 3.93 | 2227 | 0.974 | 25.0 | 13.91 | 13.46 | 8.13 | 0.449 | 0.801 |
| 119 | GZP14-EOD | ICE1070 | 98.43 | 34.82 | 19.7 | 551.6 | 3.47 | 2234 | 0.858 | 22.4 | 12.48 | 11.43 | 2.54 | 0.253 | 0.335 |
| 120 | GZP11-EOD | ICE1070 | 98.43 | 21.87 | 20.9 | 551.6 | 3.41 | 2097 | 0.898 | 19.9 | 12.48 | 2.54 | 2.54 | 0.207 | 0.584 |
| 121 | GZP12-EOD | ICE1070 | 98.43 | 46.97 | 49.6 | 551.6 | 3.87 | 2222 | 0.961 | 29.3 | 13.73 | 2.79 | 4.32 | 0.125 | 0.610 |
| 122 | GZB22-EOD | MH72B | 183.04 | 74.80 | 33.5 | 1619.9 | 3.54 | 5899 | 0.971 | 21.8 | 18.71 | 1.65 | 1.65 | 0.679 | 0.413 |
| 123 | GZW1-EOR | K-25 | 63.72 | 17.34 | 47.2 | 380.9 | 3.72 | 1509 | 0.939 | 19.7 | 15.02 | 4.32 | 2.54 | 0.387 | 0.466 |
| 124 | A54-EOD | Banut-6 | 47.07 | 28.54 | 14.3 | 741.7 | 2.66 | 1810 | 1.090 | 21.9 | 12.07 | 3.51 | 2.51 | 0.653 | 0.331 |
| 125 | A54-BOR | Banut | 47.07 | 34.80 | 71.4* | 741.7 | 3.17 | 2184 | 1.077 | 21.0 | 12.07 | 2.54 | 8.71 | 0.289 | 0.358 |

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| No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kN-m) | Delivered Energy (kN-m) | Blow Count (BP10cm) | Impedence EA/C (kN/m/s) | Vimp (m/s) | Fimp (kN) | VEA/C F | Dmax (mm) | 2L/C (ms) | Tip Quake (mm) | Side Quake (mm) | Tip Damping (sec/m) | Side Damping (sec/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 126 | A147-EOD | Banut | 47.07 | 26.70 | 7.7* | 706.9 | 2.48 | 1798 | 0.976 | 22.4 | 11.18 | 16.99 | 2.54 | 0.190 | 0.367 |
| 127 | A147-BOR | Banut | 47.07 | 34.30 | 26.3* | 688.8 | 2.79 | 1945 | 0.987 | 19.8 | 10.89 | 5.56 | 2.54 | 0.246 | 0.328 |
| 128 | GF19-EOD | LB-520 | NA | 12.74 | 78.7 | 434.9 | 3.22 | 1525 | 0.918 | 11.9 | 9.45 | 2.79 | 2.54 | 0.115 | 0.203 |
| 129 | GF110-EOD | LB-520 | NA | 13.78 | 173.2 | 565.2 | 3.18 | 1997 | 0.900 | 9.7 | 6.79 | 4.06 | 2.79 | 0.112 | 0.384 |
| 130 | GF222-EOD | ICE-640 | NA | 22.51 | 78.7 | 565.2 | 3.84 | 2237 | 0.969 | 15.0 | 7.97 | 3.56 | 3.30 | 0.213 | 0.256 |
| 131 | GF224-EOD | ICE-640 | NA | 28.47 | 19.7 | 252.6 | 4.79 | 1152 | 1.050 | 22.9 | 6.30 | 2.03 | 0.76 | 0.151 | 0.075 |
| 132 | GF312-EOD | LB-520 | NA | 9.30 | 70.9 | 565.2 | 2.79 | 1762 | 0.899 | 7.2 | 3.93 | 3.05 | 2.03 | 0.377 | 0.187 |
| 133 | GF313-EOD | LB-520 | NA | 13.63 | 78.7 | 434.9 | 3.29 | 1566 | 0.915 | 10.2 | 4.16 | 3.81 | 2.03 | 0.436 | 0.141 |
| 134 | GF412-EOD | LB-520 | NA | 11.51 | 153.5 | 565.2 | 2.93 | 1818 | 0.911 | 9.1 | 5.78 | 3.05 | 3.05 | 0.190 | 0.085 |
| 135 | GF413-EOD | LB-520 | NA | 12.30 | 153.5 | 434.9 | 3.27 | 1603 | 0.888 | 10.6 | 4.07 | 2.54 | 3.05 | 0.210 | 0.095 |
| 136 | GF414-EOD | ICE-640 | NA | 22.33 | 189.0 | 434.9 | 3.45 | 1655 | 0.907 | 15.4 | 5.65 | 3.05 | 2.79 | 0.141 | 0.039 |
| 137 | GF415-EOD | ICE-640 | NA | 16.61 | 110.2 | 565.2 | 3.17 | 1969 | 0.909 | 11.6 | 5.66 | 3.30 | 2.54 | 0.184 | 0.089 |
| 138 | EF62-EOD | D30-32 | 70.50 | 37.00 | 24.0 | 407.9 | 5.18 | 2370 | 0.886 | 22.0 | - | - | - | - | - |
| 139 | EF167-BOR | D30-32 | 70.50 | 34.99 | 24.0 | 408.5 | 4.66 | 2134 | 0.892 | 21.0 | - | - | - | - | - |
| 140 | A3-EOD2 | Vul-020 | 81.35 | 25.56 | 13.5 | 3059.8 | 1.04 | 3509 | 0.904 | 13.7 | 13.43 | 6.35 | 3.81 | 0.525 | 0.591 |
| 141 | A3-BOR2 | Vul-020 | 81.35 | 22.87 | 15.7 | 3059.8 | 0.94 | 2984 | 0.966 | 10.5 | 13.43 | 0.51 | 2.03 | 0.492 | 0.853 |
| 142 | A3-BOR3 | Vul-020 | 81.35 | 29.73 | 118.1 | 3059.8 | 1.11 | 3351 | 1.010 | 8.6 | 12.76 | 4.32 | 2.54 | 0.853 | 0.722 |
| 143 | A14-DD1 | Con-300 | 122.02 | 40.42 | 34.4 | 4247.8 | 1.07 | 4574 | 0.996 | 15.6 | 15.35 | 9.91 | 2.54 | 0.427 | 0.919 |
| 144 | A14-DD2 | Con-300 | 122.02 | 41.91 | 42.6 | 4247.8 | 1.32 | 5421 | 1.034 | 15.2 | 15.35 | 9.40 | 3.56 | 0.361 | 0.919 |
| 145 | A14-BOR1 | Con-300 | 122.02 | 55.41 | 11.8 | 4247.8 | 1.91 | 7471 | 1.085 | 13.8 | 15.35 | 2.54 | 3.05 | 0.722 | 0.722 |
| 146 | A14-BOR2 | Con-300 | 122.02 | 30.68 | 78.7 | 4247.8 | 0.96 | 4283 | 0.955 | 8.1 | 10.76 | 5.08 | 3.81 | 0.394 | 0.755 |
| 147 | A25-EOD | Vul-020 | 81.35 | 30.53 | 15.7 | 3026.8 | 1.10 | 3231 | 1.031 | 18.7 | 15.31 | 8.89 | 3.05 | 0.262 | 0.394 |
| 148 | A25-BOR1 | Vul-020 | 81.35 | 25.84 | 31.5 | 3026.8 | 0.95 | 2897 | 0.994 | 14.3 | 15.31 | 8.13 | 2.54 | 0.328 | 0.361 |
| 149 | A25-BOR2 | Vul-020 | 81.35 | 30.10 | 78.7 | 3026.8 | 1.16 | 3413 | 1.033 | 12.7 | 15.31 | 9.65 | 6.86 | 1.017 | 0.328 |
| 150 | A25-BOR3 | Vul-020 | 81.35 | 30.00 | 78.7 | 3026.8 | 1.15 | 3353 | 1.040 | 13.2 | 15.31 | 9.65 | 6.35 | 0.853 | 0.623 |

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| No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kN-m) | Delivered Energy (kN-m) | Blow Count (BP10cm) | Impedence EA/C (kN/m/s) | Vimp (m/s) | Fimp (kN) | VEA/C F | Dmax (mm) | 2L/C (ms) | Tip Quake (mm) | Side Quake (mm) | Tip Damping (sec/m) | Side Damping (sec/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 151 | A16-EOD | Vul-010 | 44.06 | 15.62 | 12.5 | 2197.1 | 1.21 | 2540 | 1.049 | 15.2 | 9.05 | 5.84 | 2.54 | 0.492 | 0.328 |
| 152 | A16-BOR1 | Vul-010 | 44.06 | 14.62 | 23.6 | 2197.1 | 1.10 | 2375 | 1.015 | 11.6 | 9.05 | 8.38 | 2.54 | 0.525 | 0.328 |
| 153 | A16-BOR2 | Vul-010 | 44.06 | 12.26 | 30.2 | 2197.1 | 0.97 | 2033 | 1.051 | 7.6 | 8.66 | 6.10 | 2.03 | 2.133 | 0.525 |
| 154 | A41-EOD | Vul-002 | 81.35 | 29.75 | 16.4* | 3005.9 | 1.14 | 3508 | 0.977 | 15.3 | 13.24 | 7.37 | 2.03 | 0.492 | 0.262 |
| 155 | A41-BOR1 | Vul-020 | 81.35 | 34.45 | 19.7 | 3005.9 | 1.31 | 3684 | 1.072 | 16.6 | 13.24 | 9.40 | 2.29 | 0.459 | 0.295 |
| 156 | A41-BOR2 | Vul-020 | 81.35 | 29.31 | 31.5 | 3005.9 | 1.29 | 3851 | 1.004 | 12.6 | 8.95 | 8.89 | 2.54 | 0.427 | 0.328 |
| 157 | A101-EOD | Vul-020 | 81.35 | 28.40 | 11.5* | 3040.5 | 1.12 | 3133 | 1.088 | 18.2 | 12.65 | 10.16 | 3.05 | 0.131 | 1.017 |
| 158 | A101-BOR1 | Vul-020 | 81.35 | 28.74 | 23.6 | 3040.5 | 1.19 | 3311 | 1.089 | 13.7 | 12.65 | 3.05 | 2.03 | 0.394 | 0.525 |
| 159 | A101-BOR2 | Vul-020 | 81.35 | 19.98 | 94.5 | 3040.5 | 0.94 | 2864 | 0.997 | 9.1 | 10.28 | 2.54 | 2.29 | 0.656 | 0.689 |
| 160 | A133-EOD | Vul-020 | 81.35 | 24.46 | 20.7 | 3103.0 | 1.31 | 3701 | 1.096 | 16.6 | 18.31 | 8.89 | 4.57 | 0.853 | 0.689 |
| 161 | A133-BOR | Vul-020 | 81.35 | 20.91 | 236.2 | 3103.0 | 1.06 | 3363 | 0.976 | 9.0 | 16.30 | 3.30 | 3.30 | 0.689 | 0.623 |
| 162 | A145-EOD | Vul-020 | 81.35 | 25.31 | 20.7 | 3104.3 | 1.13 | 3430 | 1.026 | 15.9 | 18.59 | 4.83 | 2.29 | 0.492 | 0.787 |
| 163 | A145-BOR1 | Vul-020 | 81.35 | 23.73 | 51.2 | 3104.3 | 0.92 | 2900 | 0.982 | 12.4 | 18.59 | 4.32 | 4.32 | 0.558 | 0.886 |
| 164 | A145-BOR2 | Vul-020 | 81.35 | 22.40 | 189.0 | 3104.3 | 1.09 | 3330 | 1.020 | 10.4 | 16.21 | 4.06 | 3.56 | 0.689 | 0.689 |
| 165 | CB3-BOR | Vul-020 | 81.35 | 22.44 | 39.4 | 3722.6 | 0.94 | 3411 | 1.025 | 7.8 | 11.38 | 4.83 | 2.54 | 1.847 | 1.040 |
| 166 | CB3-BORL | Vul-020 | 81.35 | 21.49 | 39.4 | 3722.6 | 1.03 | 3596 | 1.063 | 7.1 | 11.67 | 4.83 | 2.79 | 1.729 | 1.243 |
| 167 | CB5-BOR | ICE200S | 135.58 | 20.80 | 47.2 | 4260.7 | 1.01 | 3993 | 1.077 | 7.2 | 12.45 | 3.56 | 2.54 | 1.030 | 3.048 |
| 168 | CB5-BORL | ICE200S | 135.58 | 33.85 | 63.0 | 4260.7 | 1.30 | 5735 | 0.962 | 11.5 | 8.74 | 7.62 | 2.54 | 0.745 | 1.329 |
| 169 | CB11-BORL | ICE200S | 135.58 | 38.45 | 70.9 | 4642.3 | 1.55 | 7272 | 0.992 | 8.2 | 12.81 | 3.56 | 4.57 | 4.380 | 0.817 |
| 170 | CB11-EORL | ICE200S | 135.58 | 39.48 | 63.0 | 4642.3 | 1.55 | 7253 | 0.989 | 8.1 | 12.81 | 3.05 | 4.32 | 2.165 | 1.765 |
| 171 | CB17-BOR1 | ICE200S | 135.58 | 39.58 | 63.0 | 4336.7 | 1.51 | 6600 | 0.991 | 8.4 | 13.63 | 3.30 | 5.33 | 1.355 | 0.846 |
| 172 | CB17-BOR2 | ICE200S | 135.58 | 49.60 | 60.4 | 4336.7 | 1.87 | 8107 | 1.003 | 10.6 | 13.63 | 6.35 | 4.06 | 1.043 | 0.909 |
| 173 | CB17-BORL | ICE200S | 135.58 | 27.79 | 141.7 | 4336.7 | 1.28 | 5591 | 0.995 | 7.6 | 12.65 | 5.59 | 0.76 | 1.148 | 0.410 |
| 174 | CB17-DRL | ICE200S | 135.58 | 36.40 | 65.0 | 4336.7 | 1.41 | 6753 | 0.908 | 8.4 | 12.65 | 6.35 | 0.25 | 1.076 | 0.102 |
| 175 | CB23-BOR | ICE200S | 135.58 | 19.08 | 31.5 | 4520.2 | 0.80 | 3745 | 0.971 | 6.8 | 12.95 | 3.56 | 3.30 | 2.159 | 0.932 |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kN-m) | Delivered Energy (kN-m) | Blow Count (BP10cm) | Impedence EA/C (kN/m/s) | Vimp (m/s) | Fimp (kN) | VEA/C F | Dmax (mm) | 2L/C (ms) | Tip Quake (mm) | Side Quake (mm) | Tip Damping (sec/m) | Side Damping (sec/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 176 | CB23-BORL | ICE200S | 135.58 | 31.02 | 47.2 | 4520.2 | 1.36 | 6261 | 0.979 | 8.6 | 12.95 | 1.27 | 4.32 | 5.492 | 1.755 |
| 177 | CB29-BORL | ICE200S | 135.58 | 12.05 | 102.4 | 4207.1 | 0.64 | 2844 | 0.951 | 5.4 | 13.78 | 2.29 | 2.54 | 2.320 | 1.585 |
| 178 | CB29-EORL | ICE200S | 135.58 | 22.94 | 78.7 | 4207.1 | 1.07 | 4530 | 0.994 | 8.4 | 13.78 | 5.08 | 2.54 | 0.423 | 2.664 |
| 179 | CB35-BOR1 | ICE200S | 135.58 | 42.48 | 34.4* | 4290.5 | 1.57 | 6203 | 1.084 | 16.2 | 13.79 | 6.10 | 2.54 | 0.371 | 0.312 |
| 180 | CB35-BOR2 | ICE200S | 135.58 | 30.78 | 78.7 | 4290.5 | 1.46 | 5962 | 1.048 | 8.5 | 13.79 | 4.57 | 2.54 | 0.371 | 1.421 |
| 181 | CB35-BORL | ICE200S | 135.58 | 26.57 | 51.2 | 4290.5 | 1.28 | 5484 | 0.999 | 7.3 | 12.66 | 2.29 | 4.32 | 2.297 | 0.741 |
| 182 | CB41-EOR | ICE200S | 135.58 | 43.63 | 59.7 | 4410.3 | 1.53 | 6689 | 1.011 | 14.2 | 14.14 | 6.60 | 2.54 | 0.463 | 0.686 |
| 183 | CB41-BOR | ICE200S | 135.58 | 36.73 | 94.5 | 4410.3 | 1.59 | 6917 | 1.016 | 12.4 | 14.00 | 6.60 | 2.79 | 0.417 | 0.650 |
| 184 | CB41-BORL | ICE200S | 135.58 | 29.15 | 34.3 | 4410.3 | 1.41 | 6452 | 0.963 | 8.4 | 10.92 | 3.56 | 3.30 | 1.152 | 1.286 |
| 185 | CB26-EOD | Vul-020 | 81.35 | 21.06 | 18.7 | 3821.3 | 0.87 | 3355 | 0.996 | 11.7 | 11.40 | 5.33 | 3.05 | 0.249 | 0.344 |
| 186 | CB26-BOR | Vul-020 | 81.35 | 30.74 | 21.5 | 3821.3 | 1.10 | 4214 | 1.001 | 12.9 | 11.40 | 6.86 | 2.79 | 0.325 | 0.194 |
| 187 | CB26-EOR | Vul-020 | 81.35 | 34.44 | 39.4 | 3821.3 | 1.17 | 4600 | 0.970 | 13.6 | 11.40 | 8.38 | 2.29 | 0.184 | 0.184 |
| 188 | CB26-BOR2 | Vul-020 | 81.35 | 28.38 | 47.2 | 3821.3 | 1.07 | 4172 | 0.977 | 9.3 | 9.25 | 5.84 | 2.54 | 0.577 | 2.415 |
| 189 | 33P1-EOD | B-400 | 62.37 | 44.29 | 47.2 | 567.7 | 4.69 | 2737 | 0.972 | 28.2 | 14.39 | 3.81 | 7.62 | 0.262 | 0.033 |
| 190 | 33P1-BOR | B-400 | 62.37 | 43.12 | 63.0 | 567.7 | 4.81 | 2835 | 0.963 | 20.0 | 14.39 | 1.52 | 1.02 | 0.098 | 0.125 |
| 191 | 33P1-EOR | B-400 | 62.37 | 44.06 | no set | 567.7 | 5.06 | 2918 | 0.984 | 21.5 | 14.39 | 2.54 | 2.54 | 0.039 | 0.092 |
| 192 | 33P2-EOD | B-400 | 62.37 | 44.53 | 153.5 | 256.0 | 5.01 | 1251 | 1.025 | 47.2 | 17.81 | 10.16 | 5.08 | 0.492 | 0.066 |
| 193 | 33P2-BOR | B-400 | 62.37 | 41.99 | 299.2 | 256.0 | 5.08 | 1410 | 0.922 | 36.0 | 13.21 | 7.62 | 7.62 | 0.157 | 0.151 |
| 194 | 33P2-EOR | B-400 | 62.37 | 42.36 | no set | 256.0 | 5.27 | 1502 | 0.885 | 34.9 | 13.21 | 7.62 | 7.62 | 0.033 | 0.108 |
| 195 | 33P4-EOD | B-400 | 62.37 | 33.18 | 19.7 | 958.5 | 3.33 | 3511 | 0.964 | 17.4 | 10.45 | 2.54 | 0.64 | 0.328 | 0.164 |
| 196 | 33P5-EOD | B-225 | 39.32 | 8.69 | 42.0 | 358.4 | 2.67 | 1072 | 0.892 | 13.4 | 6.94 | 2.29 | 2.54 | 0.131 | 0.131 |
| 197 | TRD22-EOD | D-12 | 30.51 | 13.26 | 118.1 | 564.8 | 3.20 | 1756 | 1.005 | 9.9 | 2.68 | 3.81 | 2.54 | 0.049 | 0.735 |
| 198 | TRD22-BOR | D-12 | 30.51 | 10.62 | 78.7 | 564.8 | 2.93 | 1825 | 0.886 | 8.2 | 2.68 | 4.06 | 2.54 | 0.348 | 0.709 |
| 199 | TRE22-EOD | D-22 | 54.23 | 20.59 | 86.6 | 564.8 | 4.06 | 2235 | 1.003 | 11.7 | 3.53 | 2.54 | 2.54 | 0.328 | 0.328 |
| 200 | TRE22-BOR | D-22 | 54.23 | 20.58 | 39.4 | 564.8 | 4.35 | 2676 | 0.896 | 10.5 | 3.53 | 6.35 | 2.54 | 0.059 | 0.443 |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kN-m) | Delivered Energy (kN-m) | Blow Count (BP10cm) | Impedence EA/C (kN/m/s) | Vimp (m/s) | Fimp (kN) | VEA/C F | Dmax (mm) | 2L/C (ms) | Tip Quake (mm) | Side Quake (mm) | Tip Damping (sec/m) | Side Damping (sec/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 201 | TRP5X-EOD | D-12 | 30.51 | 12.43 | 149.6 | 405.7 | 3.96 | 1673 | 0.960 | 10.4 | 2.94 | 3.81 | 2.54 | 0.066 | 0.364 |
| 202 | TRP5X-BOR | D-12 | 30.51 | 13.15 | 98.4 | 405.7 | 3.70 | 1608 | 0.933 | 11.0 | 2.94 | 3.81 | 2.54 | 0.043 | 0.420 |
| 203 | TR131-BOR | D-12 | 30.51 | 9.63 | 15.7 | 205.8 | 3.38 | 703 | 0.991 | 19.3 | 3.15 | 7.62 | 7.62 | 0.112 | 0.771 |
| 204 | TRAH-EOR | B-225 | 39.32 | 12.88 | no set | 681.5 | 3.14 | 2175 | 0.990 | 10.3 | 16.24 | 5.08 | 2.54 | 0.082 | 2.470 |
| 205 | TRBH-BOR | B-225 | 39.32 | 16.95 | 9.8 | 683.0 | 3.38 | 2366 | 0.974 | 18.5 | 13.40 | 1.27 | 1.27 | 3.412 | 0.676 |
| 206 | TRBP-EOR | B-225 | 39.32 | 11.66 | 18.4 | 318.1 | 3.93 | 1361 | 0.919 | 11.9 | 12.94 | 0.64 | 2.54 | 0.656 | 0.328 |
| 207 | CHA1-EOD | Vul-200C | 67.79 | 47.29 | 66.9 | 367.3 | 3.29 | 1208 | 1.000 | 43.6 | 16.40 | 3.81 | 2.54 | 0.131 | 0.331 |
| 208 | CHA1-BOR1 | Vul-200C | 67.79 | 41.81 | 189.0 | 367.3 | 3.68 | 1352 | 1.000 | 35.3 | 16.40 | 1.02 | 1.02 | 0.023 | 1.411 |
| 209 | CHA1-BOR2 | Vul-200C | 67.79 | 49.95 | 315.0 | 367.3 | 4.12 | 1512 | 1.000 | 35.9 | 16.50 | 0.76 | 0.76 | 0.023 | 0.180 |
| 210 | CHA4-EOD | Vul-200C | 67.79 | 31.17 | 14.8 | 367.3 | 2.84 | 1139 | 0.920 | 35.0 | 14.70 | 19.05 | 2.03 | 0.213 | 0.171 |
| 211 | CHB2-EOD | Vul-010 | 44.06 | 34.30 | 3.0 | 489.9 | 4.05 | 2046 | 0.970 | 42.4 | 18.73 | 3.05 | 3.05 | 0.282 | 0.233 |
| 212 | CHB2-BOR1 | Vul-010 | 44.06 | 24.81 | 9.8 | 489.9 | 3.57 | 1819 | 0.960 | 20.3 | 18.73 | 3.05 | 3.05 | 0.276 | 0.262 |
| 213 | CHB2-BOR3 | Vul-010 | 44.06 | 28.74 | 24.6 | 489.9 | 3.84 | 2015 | 0.930 | 20.1 | 18.73 | 3.05 | 3.05 | 0.262 | 0.259 |
| 214 | CHB2-BOR4 | 8tndrp | 65.08 | 47.32 | 15.7 | 489.9 | 3.26 | 1868 | 0.860 | 30.7 | 18.62 | 3.05 | 3.05 | 0.210 | 0.213 |
| 215 | CHB2-BOR5a | Vul-010 | 44.06 | 40.54 | ? | 489.9 | 5.17 | 2064 | 0.914 | 28.4 | 18.14 | 3.05 | 3.05 | 0.413 | 2.493 |
| 216 | CHB2-BOR5b | Vul-010 | 44.06 | 29.83 | ? | 489.9 | 6.01 | 2309 | 0.950 | 29.5 | 18.14 | 2.29 | 2.29 | 2.133 | 0.226 |
| 217 | CHB3-EOD | Vul-010 | 44.06 | 25.49 | 3.9 | 489.2 | 3.84 | 1944 | 0.970 | 31.0 | 17.22 | 2.54 | 2.54 | 0.377 | 0.394 |
| 218 | CHB3-BOR1 | Vul-010 | 44.06 | 19.12 | 7.9 | 489.2 | 3.17 | 1544 | 1.000 | 17.8 | 17.22 | 2.54 | 2.54 | 0.285 | 0.358 |
| 219 | CHB3-BOR2 | Vul-010 | 44.06 | 25.49 | 8.6 | 489.2 | 3.69 | 1806 | 1.000 | 20.1 | 17.22 | 2.54 | 2.03 | 0.299 | 0.381 |
| 220 | CHB3-BOR3 | 8tndrp | 65.08 | 38.37 | 9.4 | 489.2 | 3.20 | 1713 | 0.910 | 26.4 | 17.22 | 3.05 | 3.05-5.59 | 0.223 | 0.341 |
| 221 | CHC3-EOD | Vul-010 | 44.06 | 32.40 | 6.9 | 1759.1 | 2.44 | 4310 | 1.000 | 20.3 | 20.71 | 1.02 | 2.54 | 2.461 | 0.328 |
| 222 | CHC3-BOR | Vul-010 | 44.06 | 30.91 | 8.3 | 1759.1 | 2.68 | 4150 | 1.140 | 21.6 | 20.71 | | | | |
| 223 | CHC3-BORL | 8tndrp | 65.08 | 51.93 | 5.9 | 939.8? | 2.68 | 2825 | 0.890 | 29.7 | 25.04? | 12.70 | 3.05 | 0.121 | 0.249 |
| 224 | CH4-EOD | Vul-010 | 44.06 | 29.68 | 3.3 | 420.2 | 4.14 | 1721 | 1.010 | 38.7 | 20.11 | 20.32 | 3.81 | 0.348 | 0.164 |
| 225 | CH4-BOR | Vul-010 | 44.06 | 22.87 | 13.1 | 420.2 | 3.54 | 1561 | 0.950 | 20.4 | 20.11 | 5.59 | 3.81 | 0.883 | 0.085 |

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| No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kN-m) | Delivered Energy (kN-m) | Blow Count (BP10cm) | Impedence EA/C (kN/m/s) | Vimp (m/s) | Fimp (kN) | VEA/C F | Dmax (mm) | 2L/C (ms) | Tip Quake (mm) | Side Quake (mm) | Tip Damping (sec/m) | Side Damping (sec/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 226 | CH39-EOD | Vul-010 | 44.06 | 21.15 | 3.3 | 427.5 | 3.99 | 1793 | 0.950 | 22.6 | 17.50 | 3.81 | 3.81 | 0.436 | 0.075 |
| 227 | CH39-BOR | Vul-010 | 44.06 | 26.71 | 62.6 | 427.5 | 4.36 | 1819 | 1.020 | 21.6 | 17.50 | 3.56 | 3.56 | 0.210 | 0.210 |
| 228 | CH39-BORL | Vul-010 | 44.06 | 19.66 | 196.9 | 651.9 | 2.90 | 1877 | 1.010 | 15.0 | 22.54 | 3.30 | 3.81 | 0.102 | 0.128 |
| 229 | CH6-5B-EOD | Vul-010 | 44.06 | 18.51 | 2.0 | 406.6 | 4.76 | 1548 | 1.060 | 43.5 | 18.10 | | | | |
| 230 | CH6-5B-BOR | Vul-010 | 44.06 | 24.27 | 44.7 | 405.7 | 3.51 | 1406 | 1.010 | 20.8 | 18.02 | 2.03 | 3.05 | 1.178 | 0.279 |
| 231 | CH95B-EOD | Vul-010 | 44.06 | 42.78 | 4.6 | 406.6 | 4.22 | 1815 | 0.940 | 35.1 | 19.45 | 6.35 | 3.68 | 0.427 | 0.397 |
| 232 | CH95B-BOR | Vul-010 | 44.06 | 33.22 | 38.6 | 403.7 | 4.15 | 1677 | 1.000 | 25.9 | 19.39 | 1.27 | 1.93 | 0.564 | 0.325 |
| 233 | CH256-BOR3 | Vul-010 | 44.06 | 25.62 | 23.6/0 | 404.0 | 3.90 | 1601 | 0.980 | 22.4 | 17.26 | 2.54 | 2.54 | 0.131 | 0.108 |
| 234 | CH351-BOR2 | Vul-010 | 44.06 | 26.03 | 242.1 | 404.0 | 3.90 | 1659 | 0.950 | 20.1 | 18.81 | 1.27 | 1.52-3.81 | 0.279 | 0.098 |
| 235 | PO2-BOR1 | ICE-640 | 54.23 | 14.41 | 35.4 | 2008.1 | 1.46 | 2933 | 1.000 | 11.9 | 13.26 | 3.56 | 0.51 | 0.538 | 0.187 |
| 236 | PO2-BOR2 | ICE-640 | 54.23 | 13.31 | 28.6 | 2008.1 | 1.65 | 3333 | 0.990 | 10.7 | 13.26 | 5.33 | 0.38 | 0.463 | 0.361 |
| 237 | PO2-BORL | ICE-640 | 54.23 | 13.02 | 31.5 | 2008.1 | 1.25 | 2534 | 1.000 | 11.9 | 4.63 | 7.11 | 1.27 | 0.207 | 0.243 |
| 238 | PO19-BOR | ICE-640 | 54.23 | 15.77 | 63.0 | 1989.1 | 1.46 | 2927 | 0.990 | 11.4 | 13.39 | 4.70 | 0.15 | 0.722 | 0.318 |
| 239 | PO19-EOD | ICE-640 | 54.23 | 9.99 | 36.1 | 1989.1 | 1.10 | 2209 | 0.990 | 9.7 | 13.39 | 3.18 | 0.64 | 0.784 | 0.344 |
| 240 | PO19-EORL | ICE-640 | 54.23 | 11.05 | 21.0 | 1989.1 | 1.10 | 2423 | 0.910 | 11.0 | 4.80 | 6.10 | 0.41 | 0.423 | 0.131 |
| 241 | ER5-BOR1 | D46-23 | 145.34 | 24.69 | 28.7 | 3950.3 | 1.31 | 5349 | 0.970 | 6.3 | 14.33 | 5.33 | 1.14 | 0.325 | 1.037 |
| 242 | ER5-BOR2 | D46-23 | 145.34 | 28.23 | 49.2 | 3948.8 | 1.37 | 5650 | 0.960 | 7.1 | 14.33 | 4.06 | 1.14 | 0.325 | 1.007 |
| 243 | ER5-BORL | D46-23 | 145.34 | 19.93 | 40.9 | 3948.7 | 1.01 | 4140 | 0.960 | 6.5 | 12.13 | 5.59 | 1.27 | 0.778 | 1.004 |
| 244 | ER77-BOR | D46-23 | 145.34 | 29.76 | 40.7 | 3672.8 | 1.49 | 5509 | 1.000 | 7.8 | 14.50 | 5.84 | 2.54 | 0.502 | 0.886 |
| 245 | ER77-BORL | D46-23 | 145.34 | 29.83 | 127.4 | 3672.8 | 1.58 | 6048 | 0.960 | 6.7 | 9.04 | 4.83 | 3.81 | 0.748 | 0.814 |
| 246 | BB13-EOD | Con300 | 162.70 | 76.85 | 13.2 | 4548.6 | 1.89 | 9052 | 0.950 | 16.6 | 22.29 | 7.16 | 1.78 | 0.561 | 0.853 |
| 247 | BB13-BOR1a | Con300 | 162.70 | 93.28 | 20.5 | 4548.3 | 2.31 | 10698 | 0.980 | 16.1 | 22.30 | 5.97 | 1.02 | 0.361 | 0.541 |
| 248 | BB13-BOR1b | Con300 | 162.70 | 90.26 | 20.5 | 4548.6 | 2.25 | 10545 | 0.970 | 15.7 | 22.29 | 5.72 | 0.51 | 0.351 | 0.623 |
| 249 | BB13-BOR2a | Con300 | 162.70 | 98.30 | 16.4 | 4573.6 | 2.64 | 12064 | 1.000 | 14.1 | 22.17 | 4.83 | 2.57 | 0.427 | 0.636 |
| 250 | BB13-BOR2b | Con300 | 162.70 | 105.40 | 16.4 | 4580.7 | 2.73 | 12569 | 1.000 | 14.6 | 22.14 | 6.35 | 1.78 | 0.719 | 0.354 |

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| No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kN-m) | Delivered Energy (kN-m) | Blow Count (BP10cm) | Impedence EA/C (kN/m/s) | Vimp (m/s) | Fimp (kN) | VEA/C F | Dmax (mm) | 2L/C (ms) | Tip Quake (mm) | Side Quake (mm) | Tip Damping (sec/m) | Side Damping (sec/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 251 | BB13-BORL | Con300 | 162.70 | 76.69 | 41.0 | 4548.6 | 1.65 | 7746 | 0.970 | 14.3 | 17.20 | 5.08 | 1.85 | 0.499 | 0.997 |
| 252 | BB19-BORa | Con300 | 162.70 | 88.18 | 14.6 | 4615.9 | 2.11 | 9900 | 0.980 | 14.7 | 23.19 | 4.57 | 2.54 | 0.367 | 1.093 |
| 253 | BB19-BORb | Con300 | 162.70 | 89.36 | 14.6 | 4615.9 | 2.21 | 10401 | 0.980 | 14.7 | 23.19 | 6.73 | 3.18 | 0.377 | 0.538 |
| 254 | BB19-BORL | Con300 | 162.70 | 78.03 | 32.8 | 4615.9 | 1.80 | 8280 | 1.000 | 14.5 | 17.85 | 9.14 | 2.54 | 0.463 | 0.554 |
| 255 | BB24-EOD | Con300 | 162.70 | 87.78 | 22.6* | 4568.3 | 2.26 | 10502 | 0.980 | 13.7 | 22.20 | 6.73 | 0.25 | 0.377 | 0.758 |
| 256 | BB24-BOR1a | Con300 | 162.70 | 90.11 | 24.6 | 4550.2 | 2.47 | 11601 | 0.970 | 13.2 | 22.29 | 6.38 | 0.48 | 0.512 | 0.312 |
| 257 | BB24-BOR1b | Con300 | 162.70 | 88.52 | 24.6 | 4579.1 | 2.44 | 11314 | 0.990 | 13.2 | 22.15 | 7.49 | 1.04 | 0.328 | 0.482 |
| 258 | BB24-BOR2a | Con300 | 162.70 | 98.87 | 32.8 | 4615.9 | 2.66 | 12550 | 0.980 | 13.3 | 22.73 | 4.70 | 0.89 | 0.505 | 0.833 |
| 259 | BB24-BOR2b | Con300 | 162.70 | 91.54 | 32.8 | 4552.7 | 2.65 | 12302 | 0.980 | 12.6 | 22.10 | 6.12 | 1.91 | 0.328 | 0.604 |
| 260 | BB24-BORL | Con300 | 162.70 | 54.40 | 147.6 | 4550.2 | 1.34 | 6121 | 1.000 | 11.3 | 15.74 | 5.08 | 2.54 | 0.794 | 0.758 |
| 261 | BB29-BOR | Con 300 | 162.70 | 90.37 | 21.0* | 4554.3 | 2.23 | 10226 | 0.990 | 14.1 | 21.89 | | | | |
| 262 | BB29-BORL | Con 300 | 162.70 | 78.26 | 24.6* | 4604.7 | 1.78 | 8190 | 1.000 | 15.8 | 14.69 | 9.02 | 2.03 | 0.243 | 0.902 |
| 263 | ABF6-BOR | D46-32 | 145.34 | 30.70 | 15.7 | 3455.3 | 1.18 | 4323 | 0.950 | 17.6 | 11.18 | 15.24 | 2.87 | 0.161 | 0.482 |
| 264 | ABF6-BORL | D46-32 | 145.34 | 28.50 | 73.8 | 3455.3 | 1.24 | 4656 | 0.920 | 6.9 | 9.92 | 5.08 | 3.96 | 1.814 | 0.899 |
| 265 | ABG13-BORL | D46-32 | 145.34 | 33.85 | 73.8 | 3618.1 | 1.33 | 5183 | 0.930 | 8.2 | 9.32 | 5.84 | 3.30 | 0.472 | 0.538 |
| 266 | ABH2-BOR | D46-32 | 145.34 | 29.42 | 36.1 | 3618.4 | 1.35 | 4797 | 1.020 | 11.5 | 6.15 | 9.27 | 1.19 | 0.115 | 0.505 |
| 267 | ABH2-BORL | D46-32 | 145.34 | 29.49 | 57.4 | 3673.1 | 1.43 | 4869 | 1.080 | 10.2 | 5.17 | 8.28 | 2.79 | 0.161 | 0.764 |
| 268 | BC79-EOD | Vul 320/520 | 135.58 | 41.66 | 11.7 | | 2.05 | 5256 | 1.020 | 16.5 | 13.10 | | | | |
| 269 | BC79-BORL | Vul 320/520 | 135.58 | 50.63 | 7.9 | | 2.02 | 5595 | 1.020 | 20.4 | 12.57 | 11.43 | 2.03 | 0.230 | 0.249 |
| 270 | BC64-EOD | Vul 320/520 | 135.58 | 36.35 | 15.4 | | 1.54 | 3970 | 0.990 | 12.6 | 10.60 | | | | |
| 271 | BC64-BORL | Vul 320/520 | 135.58 | 58.73 | 15.7 | | 2.19 | 6297 | 1.000 | 14.5 | 9.85 | 7.11 | 4.32 | 0.344 | 0.210 |
| 272 | D1-BOR1 | IHC | 38.00 | 11.46 | 9.4 | 566.1 | 2.17 | 1516 | 0.810 | 15.4 | 5.74 | 3.18 | 1.27 | 0.164 | 0.492 |
| 273 | D2-BOR1 | IHC | 38.00 | 11.47 | 14.1 | 566.1 | 2.02 | 1449 | 0.790 | 11.6 | 7.53 | 4.45 | 1.02 | 0.164 | 0.656 |
| 274 | D3-BORa | IHC | 38.00 | 19.92 | 12.4 | 566.1 | 3.22 | 1958 | 0.930 | 14.6 | 9.64 | 1.27 | 2.54 | 0.492 | 0.656 |
| 275 | D3-BORb | IHC | 38.00 | 19.73 | 10.9 | 566.1 | 3.32 | 1991 | 0.940 | 15.5 | 9.64 | 0.64 | 2.54 | 0.492 | 0.656 |

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| No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kN-m) | Delivered Energy (kN-m) | Blow Count (BP10cm) | Impedence EA/C (kN/m/s) | Vimp (m/s) | Fimp (kN) | VEA/C F | Dmax (mm) | 2L/C (ms) | Tip Quake (mm) | Side Quake (mm) | Tip Damping (sec/m) | Side Damping (sec/m) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 276 | D5-BORa | IHC | 38.00 | 14.11 | 25.0 | 566.1 | 2.14 | 1355 | 0.890 | 12.8 | 9.64 | 6.60 | 5.08 | 0.033 | 0.656 |
| 277 | D5-BORb | IHC | 38.00 | 21.22 | 16.7 | 566.1 | 3.55 | 2190 | 0.920 | 13.4 | 9.64 | 3.81 | 3.81 | 0.492 | 0.820 |
| 278 | MB1-EOD | Con100E | 67.79 | 33.07 | 6.9* | 1571.9 | 2.04 | 3276 | 0.980 | 32.6 | 9.78 | 28.35 | 1.60 | 0.207 | 0.745 |
| 279 | MB1-BOR | Con100E | 67.79 | 15.36 | 22.0* | 1571.9 | 1.26 | 2000 | 0.990 | 9.6 | 9.54 | 3.05 | 1.78 | 0.489 | 0.994 |
| 280 | MB2-BOR | Con100E | 67.79 | 31.36 |  | 679.1 | 3.50 | 2477 | 0.960 | 17.8 | 9.17 | 3.05 | 2.57 | 0.325 | 0.607 |
| 281 | MB3-BOR | Con100E | 67.79 | 26.94 |  | 633.5 | 3.02 | 2005 | 0.950 | 18.7 | 9.17 | 2.72 | 3.94 | 0.276 | 0.410 |
| 282 | S1-EOD | Vul 512 | 81.35 | 40.93 | 14.8* | 1041.7 | 3.21 | 3487 | 0.960 | 17.9 | 9.64 | 11.18 | 3.43 | 0.381 | 0.696 |
| 283 | S1-BOR | Vul 512 | 81.35 | 47.17 |  | 1039.1 | 3.60 | 3953 | 0.950 | 16.4 | 9.64 | 6.40 | 5.46 | 1.207 | 0.692 |
| 284 | S2-EOD | Vul 512 | 81.35 | 23.33 | 5.6* | 557.5 | 2.79 | 1767 | 0.880 | 19.6 | 9.50 | 14.55 | 1.65 | 0.430 | 0.761 |
| 285 | S2-BOR | Vul 512 | 81.35 | 26.45 | 2.6* | 556.0 | 3.57 | 2223 | 0.890 | 17.3 | 9.40 | 14.55 | 1.65 | 0.430 | 0.761 |
| 286 | DD22-EOD | Vul 80C | 33.19 | 12.61 | 22.3 | 1096.0 | 1.55 | 1866 | 0.910 | 12.8 | 15.65 | 6.60 | 3.30 | 0.249 | 0.955 |
| 287 | DD22-BOR | Vul 010 | 44.06 | 24.24 | 25.6 | 1274.0 | 1.92 | 2391 | 1.020 | 14.9 | 15.65 | 3.56 | 2.29 | 0.558 | 0.361 |
| 288 | DD23-EOD | Vul 80C | 33.19 | 13.15 | 8.9 | 255.4 | 3.47 | 923 | 0.960 | 27.3 | 11.54 | 6.86 | 3.30 | 0.154 | 0.259 |
| 289 | DD23-BOR | Vul 010 | 44.06 | 26.79 | 11.8 | 255.4 | 4.36 | 1112 | 1.000 | 28.8 | 10.11 | 4.57 | 6.35 | 0.200 | 0.131 |
| 290 | JR17-EOD | D-46 | 142.36 | 40.00 | 106.3 | 3437.2 | 2.32 | 7985 | 1.000 | 18.8 | 5.93 | 9.53 | 1.78 | 0.128 | 0.230 |
| 291 | LB3-EOD | D46-13 | 75.84 | 34.13 | 3.3 | 3029.7 | 1.16 | 3545 | 0.990 | 42.2 | 11.55 | 13.97 | 13.97 | 1.329 | 0.669 |
| 292 | LB3-BOR1 | D46-13 | 75.84 | 28.43 | 6.9 | 3029.7 | 1.19 | 3817 | 0.940 | 21.2 | 11.55 | 3.05 | 3.05 | 1.404 | 0.367 |
| 293 | LB3-BOR2 | D46-13 | 75.84 | 23.77 | 23.6 | 2927.5 | 1.31 | 4148 | 0.930 | 11.2 | 11.95 | 4.57 | 3.30 | 1.243 | 0.696 |
| 294 | LB3-BOR3 | D46-13 | 75.84 | 19.77 | 47.2 | 2927.5 | 1.46 | 4209 | 1.020 | 9.2 | 11.95 | 4.83 | 4.83 | 0.909 | 0.955 |
| 295 | LB4-EOD | D46-13 | 75.84 | 31.39 | 4.6 | 3954.9 | 1.92 | 6155 | 1.230 | 32.2 | 11.95 | 20.32 | 5.08 | 1.388 | 1.388 |
| 296 | LB4-BOR1 | D46-13 | 75.84 | 37.79 | 7.6 | 3954.9 | 1.65 | 6710 | 0.970 | 19.3 | 11.95 | 19.05 | 3.05 | 1.427 | 1.004 |
| 297 | LB4-BOR2 | D46-13 | 75.84 | 42.88 | 19.7 | 3954.9 | 1.80 | 7434 | 0.960 | 16.2 | 11.95 | 7.62 | 5.08 | 1.191 | 1.309 |
| 298 | LB4-BOR3 | D46-13 | 75.84 | 43.97 | 78.7 | 3954.9 | 1.86 | 7699 | 0.960 | 13.3 | 11.95 | 7.62 | 4.45 | 1.109 | 1.519 |
| 299 | LB4-BOR4 | D46-13 | 75.84 | 30.90 | 55.1 | 3954.9 | 1.25 | 5188 | 0.950 | 10.8 | 11.95 | 9.40 | 3.56 | 1.135 | 1.578 |
| 300 | LB5-EOD | D46-13 | 70.01 | 15.24 | 7.2 | 3954.9 | 0.82 | 3517 | 0.930 | 26.1 | 11.95 | 17.78 | 5.08 | 0.331 | 0.331 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 301 | LB5-BOR1 | D46-13 | 70.01 | 31.03 | 19.4 | 3954.9 | 1.19 | 4842 | 0.970 | 18.7 | 11.95 | 17.78 | 5.08 | 0.666 | 1.473 |
| 302 | LB5-BOR2 | D46-13 | 70.01 | 31.01 | 31.5 | 3954.9 | 1.16 | 5093 | 0.900 | 11.9 | 11.95 | 10.67 | 5.08 | 1.093 | 1.552 |
| 303 | LB5-BOR3 | D46-13 | 70.01 | 32.87 | 29.8 | 3954.9 | 1.19 | 5363 | 0.880 | 10.0 | 11.95 | 8.89 | 4.32 | 1.562 | 1.608 |
| 304 | LB5-BOR4 | D46-13 | 70.01 | 27.88 | >78.7 | 3954.9 | 1.13 | 4943 | 0.900 | 9.9 | 11.95 | 9.53 | 5.84 | 1.404 | 1.178 |
| 305 | LB6-EOD | D46-13 | 75.84 | 20.69 | 4.9 | 3131.9 | 1.28 | 4002 | 1.000 | 28.0 | 11.43 | 22.86 | 2.54 | 0.328 | 0.522 |
| 306 | LB6-BOR1 | D46-13 | 75.84 | 27.56 | 11.1 | 3079.3 | 1.34 | 4304 | 0.960 | 17.0 | 11.43 | 13.97 | 5.08 | 0.919 | 0.965 |
| 307 | LB6-BOR2 | D46-13 | 75.84 | 27.40 | 21.0 | 3079.3 | 1.43 | 4674 | 0.940 | 11.2 | 11.43 | 3.81 | 3.81 | 0.909 | 1.378 |
| 308 | LB6-BOR3 | D46-13 | 75.84 | 20.30 | 53.1 | 3079.3 | 1.31 | 4432 | 0.910 | 7.5 | 11.43 | 6.73 | 3.05 | 0.981 | 1.106 |
| 309 | LB6-BOR4 | D46-13 | 75.84 | 27.58 | 37.1 | 3079.3 | 1.52 | 4973 | 0.940 | 7.8 | 11.43 | 7.24 | 3.05 | 0.591 | 0.823 |
| 310 | LB7-EOD | D46-13 | 75.84 | 9.17 | 15.5 | 3079.3 | 1.19 | 2894 | 1.260 | 13.1 | 11.85 | 6.35 | 3.81 | 0.577 | 0.758 |
| 311 | LB7-BOR1 | D46-13 | 75.84 | 27.05 | 10.5 | 3079.3 | 1.34 | 4785 | 0.860 | 17.1 | 11.94 | 15.24 | 7.62 | 1.165 | 0.896 |
| 312 | LB7-BOR2 | D46-13 | 75.84 | 23.78 | 33.5 | 3079.3 | 1.31 | 4759 | 0.850 | 10.9 | 12.31 | 8.13 | 7.62 | 0.623 | 1.135 |
| 313 | LB7-BOR3 | D46-13 | 75.84 | 25.16 | 55.1 | 3079.3 | 1.43 | 5150 | 0.860 | 9.4 | 12.31 | 9.78 | 5.59 | 1.014 | 0.686 |
| 314 | LB7-BOR4 | D46-13 | 75.84 | 24.80 | 61.0 | 3079.3 | 1.43 | 5033 | 0.880 | 8.7 | 12.31 | 7.11 | 5.08 | 0.833 | 0.827 |
| 315 | DI221-EOD | ICE 640 | 54.23 | 23.18 | 31.5 | 1179.8 | 1.83 | 2318 | 0.931 | 27.4 | 13.49 | --- | --- | --- | --- |
| 316 | DI221-2DR | ICE 640 | 54.23 | 20.74 | 35.4 | 1179.8 | 1.95 | 2647 | 0.870 | 16.8 | 13.49 | 14.48 | 2.03 | 0.558 | 0.384 |
| 317 | TW488-EOD | D30-32 | 99.87 | 20.20 | 2.6* | 1202.9 | 1.77 | 1824 | 1.166 | 44.7 | 12.15 | 7.62 | 7.62 | 2.110 | 0.479 |
| 318 | TW488-3DR | D30-32 | 99.87 | 27.66 | 10.5* | 1202.9 | 2.07 | 2758 | 0.904 | 19.8 | 12.15 | 17.78 | 6.35 | 0.988 | 0.801 |
| 319 | NBTP2-EOD | HPSI 1000 | 67.79 | 39.86 | 11.8 | 567.8 | 4.94 | 2900 | 0.967 | 30.0 | 13.86 | 1.27 | 5.72 | 0.039 | 0.138 |
| 320 | NBTP2-1DR | HPSI 1000 | 67.79 | 45.56 | 7.9 | 567.8 | 5.39 | 3087 | 0.992 | 30.0 | 13.86 | 1.27 | 5.33 | 0.046 | 0.135 |
| 321 | NBTP2-6DR | HPSI 1000 | 67.79 | 39.05 | 39.4 | 567.8 | 4.91 | 2798 | 0.996 | 26.4 | 13.86 | 1.27 | 6.35 | 0.066 | 0.135 |
| 322 | NBTP3-EOD | HPSI 1000 | 67.79 | 43.93 | 15.7 | 567.8 | 5.30 | 3060 | 0.984 | 29.7 | 13.86 | 6.60 | 1.27 | 0.305 | 0.092 |
| 323 | NBTP3-1DR | HPSI 1000 | 67.79 | 38.78 | 19.7 | 567.8 | 5.06 | 2847 | 1.009 | 27.7 | 13.86 | 6.35 | 1.27 | 0.285 | 0.056 |
| 324 | NBTP3-6DR | HPSI 1000 | 67.79 | 45.83 | 19.7 | 567.8 | 5.36 | 3065 | 0.994 | 28.7 | 13.86 | 6.86 | 1.27 | 0.289 | 0.062 |
| 325 | NBTP5-EOD | HPSI 1000 | 67.79 | 34.57 | 11.8 | 379.7 | 4.66 | 1882 | 0.941 | 31.0 | 13.94 | 13.97 | 1.27 | 0.200 | 0.230 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 326 | NBTP5-3DR | HPSI 1000 | 67.79 | 32.81 | 55.1 | 379.7 | 5.00 | 2068 | 0.918 | 25.9 | 13.94 | 3.81 | 2.54 | 0.279 | 0.240 |
| 327 | PR1-BOR1 | D 46-32 | 153.42 | 33.35 | 23.6 | 3184.3 | 1.31 | 4644 | 0.899 | 10.7 | 15.14 | 8.13 | 1.52 | 0.755 | 1.837 |
| 328 | DD29-EOD | Vul - 80C | 33.15 | 26.44 | 40.0 | 379.7 | 4.08 | 1535 | 1.011 | 25.4 | 24.71 | 3.56 | 3.56 | 0.217 | 0.719 |
| 329 | ND50-BOR1 | FEC 1500 | 36.73 | 10.17 | 14.1 | 195.8 | 3.03 | 885 | 0.671 | 15.6 | 5.79 | 3.05 | 1.63 | 0.174 | 0.236 |
| 330 | NZ12-BOR1 | D 19-32 | 57.49 | 23.46 | 23.6 | 557.7 | 3.87 | 2958 | 0.730 | 9.4 | 5.17 | 6.35 | 1.52 | 0.574 | 0.728 |
| 331 | DW1-BOR1 | Vul - 520 | 135.58 | 46.64 | 328.1 | 3388.2 | 1.72 | 6099 | 0.953 | 9.7 | 12.43 | 5.84 | 6.60 | 1.060 | 0.823 |
| 332 | DW1-BOR2 | Vul - 520 | 135.58 | 42.30 | 328.1 | 3388.2 | 1.41 | 6067 | 0.786 | 9.4 | 12.43 | 4.34 | 5.33 | 0.259 | 1.152 |
| 333 | DW2-BOR1 | Vul - 520 | 135.58 | 31.86 | 328.1 | 661.5 | 3.19 | 2660 | 0.793 | 16.9 | 12.43 | 2.36 | 3.76 | 0.745 | 0.433 |
| 334 | DW2-BOR2 | Vul - 520 | 135.58 | 47.72 | 328.1 | 661.5 | 3.86 | 3065 | 0.834 | 21.9 | 12.43 | 3.81 | 3.99 | 0.502 | 0.499 |
| 335 | DS1-BOR1 | ICE - 640 | 55.07 | 8.95 | 102.4 | 850.1 | 1.36 | 1299 | 0.890 | 9.0 | 12.76 | 3.89 | 3.51 | 0.823 | 0.774 |
| 336 | DS1-BOR2 | ICE - 640 | 55.07 | 10.44 | 105.0 | 850.1 | 1.56 | 1423 | 0.930 | 10.0 | 12.76 | 3.30 | 3.30 | 0.761 | 0.761 |
| 337 | PX2-BOR1 | MKTDE70B | 80.67 | 27.93 | 59.1 | 896.5 | 3.90 | 3946 | 0.886 | 10.7 | 7.00 | 6.86 | 3.30 | 0.072 | 0.161 |
| 338 | PX3-EOD | MKTDE70B | 80.67 | 12.07 | 100.7 | 896.5 | 2.23 | 2420 | 0.824 | 6.9 | 9.14 | 3.05 | 2.29 | 0.089 | 0.217 |
| 339 | PX3-BOR1 | MKTDE70B | 80.67 | 29.01 | 23.6 | 896.5 | 3.90 | 4003 | 0.874 | 10.4 | 7.71 | 1.78 | 1.78 | 0.072 | 0.207 |
| 340 | PX4-EOD | MKTDE70B | 80.67 | 16.81 | 256.9 | 418.3 | 3.72 | 2331 | 0.667 | 11.2 | 4.14 | 4.57 | 2.54 | 0.108 | 0.302 |
| 341 | PX4-BOR1 | MKTDE70B | 80.67 | 34.17 | 51.2 | 418.3 | 5.21 | 3011 | 0.724 | 16.5 | 4.14 | 7.62 | 3.81 | 0.089 | 0.112 |
| 342 | PX5-BOR1 | MKTDE70B | 80.67 | 28.34 | 63.0 | 418.3 | 4.85 | 2687 | 0.754 | 15.0 | 4.14 | 6.60 | 4.06 | 0.072 | 0.180 |
| 343 | PX6-BOR1 | MKTDE70B | 80.67 | 16.00 | 114.2 | 1365.7 | 2.41 | 3345 | 0.983 | 7.4 | 4.26 | 3.81 | 2.54 | 0.213 | 0.285 |
| 344 | PX7-EOD | MKTDE70B | 80.67 | 20.34 | 221.5 | 1365.7 | 1.71 | 3599 | 0.648 | 7.6 | 3.43 | 5.59 | 5.08 | 0.190 | 0.256 |
| 345 | PX7-BOR1 | MKTDE70B | 80.67 | 30.23 | 47.2 | 1365.7 | 3.32 | 4435 | 1.023 | 11.9 | 3.43 | 7.62 | 6.35 | 0.144 | 0.171 |
| 346 | CH11-42-BOR1 | Vul - 010 | 44.06 | 31.05 | 55.1 | 380.3 | 2.99 | 3256 | 0.349 | 13.2 | 13.96 | 4.83 | 3.81 | 0.554 | 0.623 |
| 347 | SSTPD-5DR | SECH | 8.00 | 9.10 | 6.9 | 552.1 | 1.84 | 1090 | 0.930 | 14.8 | 6.60 | 3.91 | 2.57 | 0.833 | 0.627 |
| 348 | TSW/D62/1-EOD | D62 | 223.71 | 86.80 | 14.3 | 1224.4 | 4.78 | 5770 | 1.010 | 25.9 | 11.80 | 14.20 | 1.27 | 0.098 | 0.456 |
| 349 | TSW/D62/1-BOR | D62 | 223.71 | 67.60 | 35.7 | 1236.8 | 4.25 | 5628 | 0.930 | 18.2 | 11.68 | 3.84 | 2.54 | 0.833 | 0.394 |
| 350 | TSW/HHK9/1-EOD | JunHHK9 | 105.89 | 82.89 | 15.4 | 1236.8 | 4.05 | 4842 | 1.030 | 23.0 | 11.68 | 10.21 | 1.88 | 0.141 | 0.328 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 351 | TSW/HHK9/1-BOR | JunHHK9 | 105.89 | 78.60 | 45.5 | 1236.8 | 3.94 | 4943 | 0.990 | 20.6 | 11.68 | 2.11 | 1.70 | 1.299 | 0.161 |
| 352 | TSW/D62/2-EOD | D62 | 223.71 | 90.89 | 17.2 | 940.0 | 5.60 | 5619 | 0.940 | 27.7 | 13.66 | 3.51 | 3.38 | 0.082 | 0.246 |
| 353 | TSW/D62/2-BOR | D62 | 223.71 | 98.88 | 41.7 | 939.4 | 5.70 | 5854 | 0.910 | 28.5 | 13.67 | 3.51 | 2.54 | 10.102 | 0.135 |
| 354 | TSW/HHK9/2-EOD | JunHHk9 | 105.89 | 98.89 | 14.3 | 939.4 | 5.52 | 5315 | 0.980 | 29.2 | 13.67 | 3.58 | 4.93 | 0.417 | 0.213 |
| 355 | TSW/HHK9/2-BOR | JunHHk9 | 105.89 | 87.04 | 25.6 | 939.4 | 5.30 | 5260 | 0.950 | 25.3 | 13.67 | 3.51 | 2.57 | 0.722 | 0.217 |
| 356 | OD1J-EOD | D62-22 | 178.15 | 96.13 | 6.6 | 1426.6 | 4.37 | 6777 | 0.919 | 23.8 | 3.57 | 23.22 | 0.64 | 0.118 | 0.390 |
| 357 | OD2P-EOD | D62-22 | 158.36 | 72.67 | 3.6 | 1426.6 | 3.77 | 5744 | 0.936 | 34.5 | 4.77 | 1.91 | 3.43 | 0.066 | 0.289 |
| 358 | OD2P-BOR | D62-23 | 197.95 | 157.95 | 4.9 | 1426.6 | 6.05 | 9204 | 0.938 | 38.9 | 4.77 | 12.70 | 1.50 | 0.253 | 0.233 |
| 359 | OD2T-EOD | D46-32 | 123.79 | 76.74 | 14.1 | 1426.6 | 4.49 | 6602 | 0.971 | 28.6 | 4.76 | 23.90 | 1.57 | 0.144 | 0.105 |
| 360 | OD3H-EOD | D62-22 | 178.15 | 89.35 | 3.6 | 2531.2 | 4.16 | 10574 | 0.996 | 27.1 | 12.02 | 1.65 | 1.27 | 0.062 | 0.568 |
| 361 | OD4L-EOD | D62-22 | 217.74 | 90.70 | 5.6 | 961.3 | 4.65 | 4475 | 1.000 | 42.7 | 8.35 | 33.76 | 1.63 | 0.174 | 0.482 |
| 362 | OD4P-EOD | D30-32 | 71.75 | 40.13 | 8.5 | 961.3 | 3.21 | 3244 | 0.951 | 29.8 | 8.33 | 21.69 | 2.03 | 0.217 | 0.846 |
| 363 | OD4P-BOR | D62-22 | 217.74 | 133.82 | 4.4 | 961.3 | 5.72 | 5623 | 0.978 | 44.6 | 8.33 | 34.29 | 2.54 | 0.089 | 0.417 |
| 364 | OD4T-EOD | D30-32 | 71.75 | 38.37 | 5.9 | 961.3 | 3.26 | 3419 | 0.915 | 20.9 | 8.33 | 11.05 | 4.09 | 0.066 | 0.653 |
| 365 | OD4T-BOR | D62-22 | 217.74 | 119.18 | 9.8 | 961.3 | 5.37 | 5805 | 0.890 | 27.9 | 8.33 | 24.49 | 4.67 | 0.082 | 0.636 |
| 366 | OD4W-EOD | D46-32 | 110.01 | 71.32 | 4.9 | 961.3 | 4.31 | 4215 | 0.982 | 40.4 | 8.35 | 34.32 | 3.18 | 0.157 | 0.689 |
| 367 | OD4W-BOR2 | D30-32 | 80.73 | 40.27 | 40.7 | 961.3 | 3.52 | 3647 | 0.929 | 17.1 | 8.35 | 10.52 | 6.99 | 0.466 | 0.400 |
| 368 | OD4W-BOR3 | D62-22 | 197.95 | 95.72 | 24.9 | 961.3 | 5.10 | 5178 | 0.947 | 26.5 | 8.35 | 22.86 | 5.08 | 0.430 | 0.348 |
| 369 | QC3-EOD | Con5300 | 203.37 | 25.49 | 31.5 | 4902.4 | 0.88 | 4302 | 1.010 | 11.2 | 13.20 | 7.11 | 0.76 | 1.745 | 0.696 |
| 370 | QC3-14DR | Con5300 | 203.37 | 42.03 | 98.4 | 4916.2 | 1.20 | 6179 | 0.960 | 8.6 | 13.16 | 5.08 | 0.76 | 0.564 | 1.253 |
| 371 | QC14-EOD | MKT S-8 | 35.25 | 7.86 | 47.2 | 1004.9 | 1.34 | 1339 | 1.010 | 8.4 | 15.29 | 3.35 | 0.99 | 2.060 | 0.653 |
| 372 | QC14-30DR | MKT S-8 | 35.25 | 11.52 | 90.6 | 1280.9 | 1.51 | 1899 | 1.020 | 8.7 | 12.00 | 5.51 | 1.27 | 1.942 | 0.636 |
| 373 | NYSP-EOD | Vulcan 06 | 26.44 | 13.29 | 51.2 | 416.9 | 3.07 | 1204 | 1.060 | 16.6 | 13.86 | 3.56 | 1.27 | 0.325 | 0.640 |
| 374 | NYSP-BOR | Vulcan 06 | 26.44 | 15.19 | 133.9 | 416.4 | 3.59 | 1390 | 1.080 | 15.1 | 13.24 | 3.73 | 1.57 | 1.135 | 0.869 |
| 375 | UFSS1A - BOR | ConC300 | 122.02 | 46.23 | 149.6 | 3317.2 | | | | 11.7 | | | | | |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 376 | UFSS1B - BOR | ConC300 | 122.02 | 21.56 | 110.2 | 2304.4 | | | | 8.6 | | | | | |
| 377 | UFSS10 - BOR | ConC300 | 122.02 | 50.71 | 102.4 | 3285.1 | | | | 12.2 | | | | | |
| 378 | UFSS13B - BOR | ConC300 | 122.02 | 32.00 | 63.0 | 3285.1 | | | | 12.7 | | | | | |
| 379 | BIT20 - BOR | Vulcan 510 | 44.06 | 6.55 | 51.2 | 2286.9 | | | | 6.1 | | | | | |
| 380 | BIT21 - BOR | Vulcan 510 | 44.06 | 5.60 | 27.6 | 2472.2 | 1.40 | 3655 | 0.948 | 9.0 | 5.50 | 7.87 | 2.54 | 0.420 | 0.554 |
| 381 | HFLS3 - EOD | ConC300 | 122.02 | 56.94 | 82.0 | 5205.6 | | | | 10.9 | | 7.37 | 3.56 | 0.190 | 0.167 |
| 382 | HFLS4L - EOD | ConC300 | 122.02 | 48.81 | 18.7 | 5205.6 | | | | 13.4 | | 9.65 | 3.81 | 0.233 | 0.650 |
| 383 | HFLS4L - BOR | ConC300 | 122.02 | 59.66 | 19.7 | 5205.6 | | | | 10.5 | | 5.08 | 2.54 | 0.676 | 0.138 |
| 384 | RBA30 - BOR | ICE 200S | 135.58 | 34.44 | 44.9 | 5442.1 | 1.43 | 7800 | 0.997 | 9.6 | 10.94 | 7.16 | 3.81 | 0.823 | 1.237 |
| 385 | RBB30W - BOR | ICE 200S | 135.58 | 39.05 | 20.9 | 5439.1 | 1.33 | 7481 | 0.968 | 11.4 | 9.53 | 9.58 | 3.81 | 1.273 | 0.525 |
| 386 | CC6 - BOR | ICE 640 | 54.23 | 18.17 | 35.4 | 1878.2 | 1.68 | 3291 | 0.957 | 9.2 | 12.71 | 5.69 | 3.30 | 0.646 | 1.398 |
| 387 | CC7 - BOR | ICE 640 | 54.23 | 15.19 | 39.4 | 1125.2 | 1.58 | 2076 | 0.857 | 9.6 | 12.84 | 3.56 | 3.56 | 0.515 | 0.751 |
| 388 | CC14 - BOR | ICE 640 | 54.23 | 15.32 | 51.2 | 1125.2 | 1.71 | 2185 | 0.879 | 9.8 | 12.84 | 4.83 | 4.32 | 0.594 | 0.771 |
| 389 | 49SB37 - EOD | D62-32 | 145.34 | 13.79 | 58.7 | 5611.4 | 1.55 | 8151 | 1.070 | 9.9 | 8.18 | 5.84 | 2.54 | 0.610 | 0.384 |

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| No. | Pile-Case Number | Load Test Type | Davisson's Criteria (kN) | Shape of Curve (kN) | Average Shape of Curve (kN) | Δ=1" (kN) | Δ=0.1B (kN) | DeBeer (kN) | Average DeBeer (kN) | Static Resist Rs (kN) | CAPWAP TEPWAP (kN) | Energy Appr. Ru (kN) | Ksp Rs Ru |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | FN1-EOD | Q | 1352 | 1334 | 1334 | 1352 | 1352 | 1334 | 1334 | 1334 | 1023 | 1610 | 0.829 |
| 2 | FN1-BOR1 | Q | 1352 | 1334 | 1334 | 1352 | 1352 | 1334 | 1334 | 1334 | 1668 | 2153 | 0.620 |
| 3 | FN1-BOR2 | Q | 1352 | 1334 | 1334 | 1352 | 1352 | 1334 | 1334 | 1334 | 1917 | 2380 | 0.561 |
| 4 | FN2-EOD | Q | 1592 | 1575 | 1575 | 1610 | 1628 | 1584 | 1584 | 1575 | 1005 | 1859 | 0.847 |
| 5 | FN2-BOR | Q | 1592 | 1575 | 1575 | 1610 | 1628 | 1584 | 1584 | 1575 | 1357 | 2166 | 0.727 |
| 6 | FN3-EOD | Q | 1681 | 1646 | 1646 | 1699 | 1748 | 1628 | 1628 | 1664 | 796 | 2135 | 0.779 |
| 7 | FN3-BOR | Q | 1681 | 1646 | 1646 | 1699 | 1748 | 1628 | 1628 | 1664 | 1321 | 2762 | 0.602 |
| 8 | FN4-EOD | Q | 1263 | 1246 | 1246 | 1281 | 1299 | 1254 | 1254 | 1246 | 1085 | 1784 | 0.698 |
| 9 | FN4-BOR | Q | 1263 | 1246 | 1246 | 1281 | 1299 | 1254 | 1254 | 1246 | 1281 | 2589 | 0.481 |
| 10 | FIA-EOD | Q | 4128 | 4155 | 4155 | 3434 | 4048 | 4092 | 4092 | 4137 | 1632 | 2531 | 1.634 |
| 11 | FIA-BOR | Q | 4128 | 4155 | 4155 | 3434 | 4048 | 4092 | 4092 | 4137 | 3252 | 3065 | 1.349 |
| 12 | FIB-EOD | Q | 2891 | 2135-2847 | 2491 | 2891 | NA | 2882 | 2882 | 2891 | 2273 | 3149 | 0.918 |
| 13 | FIB-BOR | Q | 2891 | 2135-2847 | 2491 | 2891 | NA | 2882 | 2882 | 2891 | 2318 | 3096 | 0.934 |
| 14 | FO1-EOD | Q | 2660 | 2224-2491 | 2358 | 2989 | NA | 2420 | 2420 | 2478 | 2206 | 3185 | 0.811 |
| 15 | FO1-BOR | Q | 2660 | 2224-2491 | 2358 | 2989 | NA | 2420 | 2420 | 2478 | 3114 | 5200 | 0.476 |
| 16 | FO2-EOD | Q | 3381 | 3336 | 3336 | 3470 | 3559 | 3354 | 3354 | 3336 | 2358 | 2874 | 1.161 |
| 17 | FO2-BOR | Q | 3381 | 3336 | 3336 | 3470 | 3559 | 3354 | 3354 | 3336 | 3252 | 5151 | 0.648 |
| 18 | FO3-EOD | Q | 3452 | 3114-3781 | 3447 | 3630 | 3834 | 3648 | 3648 | 3648 | 2518 | 2598 | 1.404 |
| 19 | FO4-EOD | Q | 7562 | 6228 | 6228 | 7633 | 8007 | 7402 | 7402 | 7340 | 2927 | 3394 | 2.163 |
| 20 | FO4-BOR | Q | 7562 | 6228 | 6228 | 7633 | 8007 | 7402 | 7402 | 7340 | 3412 | 5645 | 1.300 |
| 21 | FOR1-EOD | Q | 6050 | 6005 | 6005 | 5196 | 7117 | 6228 | 6228 | 6139 | 2487 | 3732 | 1.651 |
| 22 | FOR1-BOR | Q | 6050 | 6005 | 6005 | 5196 | 7117 | 6228 | 6228 | 6139 | 3243 | 5369 | 1.143 |
| 23 | FM5-EOD | Q | 1957 | 1601-1957 | 1779 | 2340 | NA | 2051 | 2051 | 1868 | 1539 | 1588 | 1.176 |
| 24 | FM5-BOR | Q | 1957 | 1601-1957 | 1779 | 2340 | NA | 2051 | 2051 | 1868 | 2220 | 3265 | 0.572 |
| 25 | FM17-EOD | Q | 1815 | 1668-1957 | 1815 | 2406 | NA | 1913 | 1913 | 1988 | 1886 | 2331 | 0.853 |

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| No. | Pile-Case Number | Load Test Type | Davisson's Criteria (kN) | Shape of Curve (kN) | Average Shape of Curve (kN) | Δ=1" (kN) | Δ=0.1B (kN) | DeBeer (kN) | Average DeBeer (kN) | Static Resist Rs (kN) | CAPWAP TEPWAP (kN) | Energy Appr. Ru (kN) | Ksp Rs Ru |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | FM17-BOR | Q | 1815 | 1668-1957 | 1815 | 2406 | NA | 1913 | 1913 | 1988 | 2340 | 3474 | 0.572 |
| 27 | FM23-EOD | Q | 1521 | 1290-1468 | 1379 | 1681 | NA | 1584 | 1584 | 1512 | 1437 | 1833 | 0.825 |
| 28 | FM23-BOR | Q | 1521 | 1290-1468 | 1379 | 1681 | NA | 1584 | 1584 | 1512 | 1512 | 1895 | 0.798 |
| 29 | FC1-EOD | Q | 1406 | 1423-1601 | 1512 | 1646 | 1655 | 1592 | 1592 | 1512 | 1201 | 1521 | 0.994 |
| 30 | FC1-BOR | Q | 1406 | 1423-1601 | 1512 | 1646 | 1655 | 1592 | 1592 | 1512 | 1179 | 1615 | 0.937 |
| 31 | FC2-EOD | Q | 1637 | 1557-1779 | 1668 | 1966 | NA | 1495 | 1495 | 1673 | 1668 | 1788 | 0.935 |
| 32 | FC2-BOR | Q | 1637 | 1557-1779 | 1668 | 1966 | NA | 1495 | 1495 | 1673 | 1512 | 1570 | 1.065 |
| 33 | FMI1-EOD | Q | 1468 | 1281-1410 | 1348 | 1481 | NA | 1423 | 1423 | 1379 | 1268 | 1094 | 1.260 |
| 34 | FMI1-BOR | Q | 1468 | 1281-1410 | 1348 | 1481 | NA | 1423 | 1423 | 1379 | 1419 | 1361 | 1.013 |
| 35 | FMI2-EOD | Q | 930 | 712 | 712 | NA | NA | 560 | 560 | 712 | 818 | 796 | 0.894 |
| 36 | FMI2-BOR | Q | 930 | 712 | 712 | NA | NA | 560 | 560 | 712 | 965 | 1241 | 0.573 |
| 37 | FWA-EOD | SM | 5783 | 5783 | 5783 | 5783 | NA | 5115 | 5115 | 5783 | 1312 | 5093 | 1.135 |
| 38 | FWA-BOR | SM | 5783 | 5783 | 5783 | 5783 | NA | 5115 | 5115 | 5783 | 2900 | 5133 | 1.127 |
| 39 | FWB-EOD | SM | 4448 | 5338 | 5338 | 4448 | NA | 6659 | 6659 | 5449 | plug | 7598 | 0.717 |
| 40 | FWB-BOR | SM | 4448 | 5338 | 5338 | 4448 | NA | 6659 | 6659 | 5449 | plug | 5694 | 0.957 |
| 41 | FA1-EOD | S | 1646 | 1446-1557 | 1503 | 1864 | NA | 1486 | 1486 | 1535 | 912 | 1343 | 1.142 |
| 42 | FA1-BOR1 | S | 1646 | 1446-1557 | 1503 | 1864 | NA | 1486 | 1486 | 1535 | 1143 | 2055 | 0.747 |
| 43 | FA1-BOR2 | S | 1646 | 1446-1557 | 1503 | 1864 | NA | 1486 | 1486 | 1535 | 1699 | 3737 | 0.411 |
| 44 | FA2-EOD | S | 2447 | 2135-2447 | 2291 | 2616 | NA | 2406 | 2406 | 2380 | 1904 | 2527 | 0.942 |
| 45 | FA2-BOR1 | S | 2447 | 2135-2447 | 2291 | 2616 | NA | 2406 | 2406 | 2380 | 2175 | 4226 | 0.563 |
| 46 | FA2-BOR2 | S | 2447 | 2135-2447 | 2291 | 2616 | NA | 2406 | 2406 | 2380 | 2664 | 3986 | 0.597 |
| 47 | FA3-EOD | S | 2780 | 2224-2847 | 2535 | 3020 | NA | 2882 | 2882 | 2731 | 1512 | 2433 | 1.122 |
| 48 | FA3-BOR1 | S | 2780 | 2224-2847 | 2535 | 3020 | NA | 2882 | 2882 | 2731 | 1366 | 3309 | 0.825 |
| 49 | FA3-BOR2 | S | 2780 | 2224-2847 | 2535 | 3020 | NA | 2882 | 2882 | 2731 | 2611 | 3674 | 0.743 |
| 50 | FA4-EOD | S | 3634 | 3047-3670 | 3358 | 3946 | NA | 3327 | 3327 | 3438 | 1984 | 3434 | 1.001 |

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| No. | Pile-Case Number | Load Test Type | Davisson's Criteria (kN) | Shape of Curve (kN) | Average Shape of Curve (kN) | Δ=1" (kN) | Δ=0.1B (kN) | DeBeer (kN) | Average DeBeer (kN) | Static Resist Rs (kN) | CAPWAP TEPWAP (kN) | Energy Appr. Ru (kN) | Ksp Rs Ru |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | FA4-BOR1 | S | 3634 | 3047-3670 | 3358 | 3946 | NA | 3327 | 3327 | 3438 | 2687 | 4724 | 0.728 |
| 52 | FA4-BOR2 | S | 3634 | 3047-3670 | 3358 | 3946 | NA | 3327 | 3327 | 3438 | 3790 | 6441 | 0.534 |
| 53 | FA5-EOD | S | 5071 | 4671 | 4671 | 5196 | NA | 4177 | 4177 | 4777 | 2945 | 6864 | 0.696 |
| 54 | FA5-BOR | S | 5071 | 4671 | 4671 | 5196 | NA | 4177 | 4177 | 4777 | 4204 | 9955 | 0.480 |
| 55 | FV15-EOD | Q | 1401 | 1334-1557 | 1446 | 1655 | 1957 | 1094 | 1094 | 1401 | 863 | 1495 | 0.938 |
| 56 | FV15-BOR | Q | 1401 | 1334-1557 | 1446 | 1655 | 1957 | 1094 | 1094 | 1401 | 881 | 1730 | 0.810 |
| 57 | FV10-EOD | Q | 1535 | 1023-1334 | 1179 | 1779 | 2153 | 1068 | 1068 | 1392 | 707 | 1357 | 1.026 |
| 58 | FV10-BOR | Q | 1535 | 1023-1334 | 1179 | 1779 | 2153 | 1068 | 1068 | 1392 | 796 | 1268 | 1.098 |
| 59 | FMN2-EOD | Q | 3403 | 3203-3292 | 3247 | 3212 | 3345 | 3221 | 3221 | 3292 | 1521 | 2117 | 1.555 |
| 60 | FMN2-BOR | Q | 3403 | 3203-3292 | 3247 | 3212 | 3345 | 3221 | 3221 | 3292 | 2900 | 3696 | 0.890 |
| 61 | FP5-EOD | Q | 1081 | 979-1045 | 1014 | NA | NA | 939 | 939 | 1010 | 934 | 939 | 1.076 |
| 62 | FP5-BOR | Q | 1081 | 979-1045 | 1014 | NA | NA | 939 | 939 | 1010 | 1063 | 1246 | 0.811 |
| 63 | FKG-EOD | Q | 1628 | 2135-2313 | 2224 | 2358 | NA | 2113 | 2113 | 2068 | 1281 | 1744 | 1.186 |
| 64 | FKG-BOR | Q | 1628 | 2135-2313 | 2224 | 2358 | NA | 2113 | 2113 | 2068 | 1312 | 1793 | 1.154 |
| 65 | FL3-EOD | LLT | 1779 | 1779 | 1779 | NA | NA | 1779 | 1779 | 1779 | 605 | 1148 | 1.550 |
| 66 | FL3-BOR1 | LLT | 1779 | 1779 | 1779 | NA | NA | 1779 | 1779 | 1779 | 1210 | 2660 | 0.669 |
| 67 | FL3-BOR2 | LLT | 1779 | 1779 | 1779 | NA | NA | 1779 | 1779 | 1779 | 1557 | 3972 | 0.448 |
| 68 | CA1-EOD | S | 2402 | 2224-2491 | 2358 | 1735 | 1735 | 2358 | 2358 | 2371 | 1824 | 1975 | 1.200 |
| 69 | CA1-BOR | S | 2402 | 2224-2491 | 2358 | 1735 | 1735 | 2358 | 2358 | 2371 | 2224 | 1926 | 1.231 |
| 70 | CA2-BOR | S | 1628 | 1423-1779 | 1601 | 1646 | 1646 | 1579 | 1579 | 1690 | 1521 | 1913 | 0.884 |
| 71 | CA5-BOR1 | S | 2082 | 2046-2224 | 2135 | 2224 | NA | 2046 | 2046 | 2135 | 1819 | 2402 | 0.888 |
| 72 | CA5-BOR2 | S | 2082 | 2046-2224 | 2135 | 2224 | NA | 2046 | 2046 | 2135 | 2175 | 2415 | 0.883 |
| 73 | CA3/8-BOR | Q | 841 | 890-1023 | 956 | 1205 | 1205 | 1010 | 1010 | 1023 | 1072 | 1641 | 0.623 |
| 74 | CA24-BOR | S | 1076 | 979-1157 | 1068 | NA | NA | 1094 | 1094 | 1081 | 921 | 1815 | 0.595 |
| 75 | CA6-BOR1 | S | 2936 | 2758-2936 | 2847 | 2624 | 2891 | 2847 | 2847 | 2936 | 2713 | 3479 | 0.844 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 76 | CA6-BOR2 | S | 2936 | 2758-2936 | 2847 | 2624 | 2891 | 2847 | 2847 | 2936 | 2598 | 3301 | 0.889 |
| 77 | CA6-EOR | S | 2936 | 2758-2936 | 2847 | 2624 | 2891 | 2847 | 2847 | 2936 | 2482 | 3132 | 0.938 |
| 78 | WC3-EOD | FQ | 2713 | 2447-2891 | 2669 | NA | NA | 2758 | 2758 | 2713 | 2264 | 3341 | 0.812 |
| 79 | WC3-BOR1 | FQ | 2713 | 2447-2891 | 2669 | NA | NA | 2758 | 2758 | 2713 | 2251 | 3474 | 0.781 |
| 80 | WC3-BOR2 | FQ | 2713 | 2447-2891 | 2669 | NA | NA | 2758 | 2758 | 2713 | 2384 | 3456 | 0.785 |
| 81 | WC6-EOD | FQ | 2015 | 1979-2424 | 2202 | NA | NA | 2389 | 2389 | 2202 | 2002 | 2656 | 0.829 |
| 82 | WC6-BOR1 | FQ | 2015 | 1979-2424 | 2202 | NA | NA | 2389 | 2389 | 2202 | 2135 | 3172 | 0.694 |
| 83 | WC6-BOR2 | FQ | 2015 | 1979-2424 | 2202 | NA | NA | 2389 | 2389 | 2202 | 1971 | 3434 | 0.641 |
| 84 | WB9-BOR | FQ | 4003 | 3692-3914 | 3803 | 4115 | NA | 3803 | 3803 | 3932 | 4186 | 7869 | 0.500 |
| 85 | WB15-BOR | FQ | 3648 | 3292-3514 | 3403 | 3705 | NA | 3412 | 3412 | 3407 | 3581 | 6441 | 0.529 |
| 86 | T1/A-EOD | SM | 8825 | 8825 | 8825 | 8825 | NA | 8042 | 8042 | 8825 | 7896 | 12139 | 0.726 |
| 87 | T1/A-ALT | SM | 8825 | 8825 | 8825 | 8825 | NA | 8042 | 8042 | 8825 | 8007 | 12766 | 0.690 |
| 88 | T1/B-EOD | SM | 12749* | 10787 | 10787 | NA | NA | 8238 | 8238 | 11770 | 10524 | 13531 | 0.871 |
| 89 | T2/A-EOD | SM | 5983 | 5885 | 5885 | NA | NA | 7357 | 7357 | 6539 | 5569 | 8327 | 0.785 |
| 90 | T2/B-EOD | SM | 14612 | >9804 | >9804 | NA | NA | NA | NA | 13701# | 12357 | 13185 | 1.040 |
| 91 | 35-1-BOR | S | 1432 | 1423-1557 | 1490 | 1575 | 1628 | 1415 | 1415 | 1446 | 1157 | 1219 | 1.184 |
| 92 | 35-4-BOR | S | 1468 | 1334-1468 | 1401 | 1486 | 1521 | 1397 | 1397 | 1423 | 1601 | 2082 | 0.684 |
| 93 | 35-5-BOR | S | 2722 | 2580-2758 | 2669 | 2669 | 2705 | 2669 | 2669 | 2669 | 2891 | 2749 | 0.971 |
| 94 | 35-6-BOR | S | 2669 | 2224-2447 | 2335 | 2358 | 2438 | 2340 | 2340 | 2358 | 2580 | 2340 | 1.007 |
| 95 | 35-7-BOR | S | 543 | 534-756 | 645 | 676 | 649 | 641 | 641 | 632 | 618 | 814 | 0.776 |
| 96 | 35-10-BOR | S | 1788 | 1646-1868 | 1757 | 1922 | 1975 | 1681 | 1681 | 1779 | 1486 | 1890 | 0.941 |
| 97 | E2-BOR | Q | 1846 | 1668-1757 | 1713 | NA | NA | 1641 | 1641 | 1735 | 1868 | 3256 | 0.533 |
| 98 | 63S-BOR | CRP | 1263 | 1112-1210 | 1161 | 1299 | NA | 1148 | 1148 | 1192 | 1241 | 1423 | 0.838 |
| 99 | LB21-BOR | S | 1690 | 1601 | 1601 | NA | 2064 | 1246 | 1246 | 1601 | 1606 | 2309 | 0.694 |
| 100 | LB20-BOR | S | 2580 | 2135 | 2135 | NA | NA | 2135 | 2135 | 2358 | 2108 | 3616 | 0.652 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101 | LC3-BOR | S | 2758 | 2669 | 2669 | 3025 | NA | 2491 | 2491 | 2847 | 2722 | 5200 | 0.547 |
| 102 | LIN16-BOR | S | 2669 | 2669 | 2669 | 2669 | NA | 2669 | 2669 | 2669 | 2589 | 4381 | 0.609 |
| 103 | LE37-BOR | S | 1112 | 1068 | 1068 | 1201 | NA | 1023 | 1023 | 1112 | 876 | 1072 | 1.037 |
| 104 | LE64-BOR | S | 1201 | 1068 | 1068 | NA | NA | 979 | 979 | 1157 | 1032 | 1219 | 0.949 |
| 105 | ST1-EOD | S | 1530 | 1246-1423 | 1334 | NA | NA | 1334 | 1334 | 1530 | 2246 | 2802 | 0.546 |
| 106 | ST2-EOD | S | 2269 | 2402 | 2402 | NA | NA | 2224 | 2224 | 2402 | 2740 | 2958 | 0.812 |
| 107 | ST9-BOR | S | 4092 | 3203-3737 | 3470 | 4092 | NA | 3559 | 3559 | 4003 | 3590 | 8572 | 0.467 |
| 108 | ST46-EOD | S | NA | 463 | 463 | NA | NA | 463 | 463 | 463 | 365 | 503 | 0.920 |
| 109 | GZA3-EOD | Q | 1957 | 2224 | 2224 | 2046 | 2313 | 2135 | 2135 | 2135 | 1624 | 1886 | 1.132 |
| 110 | GZA5-EOD | Q | 1139 | 712-934 | 823 | 1423 | 1397 | 1201 | 1201 | 1317 | 1303 | 1508 | 0.873 |
| 111 | GZA6-EOD | Q | 836 | 1557 | 1557 | 1406 | 1361 | 1557 | 1557 | 1450 | 1223 | 1250 | 1.160 |
| 112 | GZBBC-EOD | Q | 1957 | 2224-2491 | 2358 | 2224 | 2624 | 2491 | 2491 | 2358 | 1837 | 2015 | 1.169 |
| 113 | GZBP2-EOD | Q | 1246 | 1512 | 1512 | 1512 | 1441 | 1290 | 1290 | 1423 | 1410 | 1343 | 1.059 |
| 114 | GZB6-EOD | Q | 1690 | 1868 | 1868 | 2028 | 2358 | 1601 | 1601 | 1735 | 1517 | 1837 | 0.944 |
| 115 | GZZ5-EOD | Q | 2064 | 1868-2091 | 1979 | 2402 | NA | 1824 | 1824 | 1957 | 952 | 2478 | 0.790 |
| 116 | GZO5-EOD | Q | 2135 | 1957-2135 | 2046 | 2669 | NA | 2180 | 2180 | 2162 | 912 | 2273 | 0.951 |
| 117 | GZCC5-EOD | Q | 2002 | 2135-2313 | 2224 | 2313 | 3336 | NA | NA | 2180 | 2189 | 2664 | 0.818 |
| 118 | GZL2-EOD | Q | 2847 | 2669-2936 | 2802 | 3069 | 3381 | 2358 | 2358 | 2936 | 1188 | 2518 | 1.167 |
| 119 | GZP14-EOD | Q | 1735 | 1601-1779 | 1690 | 1957 | 2224 | 2135 | 2135 | 1868 | 1357 | 2535 | 0.737 |
| 120 | GZP11-EOD | Q | 1112 | 1512-1868 | 1690 | 1690 | 1957 | 1913 | 1913 | 1717 | 1063 | 1775 | 0.967 |
| 121 | GZP12-EOD | Q | 2224 | 2669 | 2669 | 2802 | NA | NA | NA | 2491 | 2313 | 2998 | 0.831 |
| 122 | GZB22-EOD | Q | 4982 | 4982 | 4982 | 4626 | NA | 3737 | 3737 | 4715 | 4933 | 6036 | 0.781 |
| 123 | GZW1-EOR | Q | 1601 | 1490-1779 | 1637 | 1797 | 1850 | 1570 | 1570 | 1690 | 1112 | 1588 | 1.064 |
| 124 | A54-EOD | CRP | 2900 | 2802-2900 | 2851 | 2749 | 2838 | 2842 | 2842 | 2838 | 1704 | 2064 | 1.437 |
| 125 | A54-BOR | CRP | 2900 | 2802-2900 | 2851 | 2749 | 2838 | 2842 | 2842 | 2838 | 2718 | 3105 | 0.914 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 126 | A147-EOD | CRP | 2482 | 2433 | 2433 | 2469 | 2491 | 2402 | 2402 | 2455 | 1152 | 1508 | 1.628 |
| 127 | A147-BOR | CRP | 2482 | 2433 | 2433 | 2469 | 2491 | 2402 | 2402 | 2455 | 2509 | 2905 | 0.845 |
| 128 | GF19-EOD | Q | 1468 | 1779-2046 | 1913 | 1690 | 1690 | 1446 | 1446 | 1766 | 1770 | 1931 | 0.915 |
| 129 | GF110-EOD | Q | 2224 | 2224-2669 | 2447 | 2491 | 2491 | 2002 | 2002 | 2447 | 2033 | 2691 | 0.909 |
| 130 | GF222-EOD | Q | 2580 | 2402-2669 | 2535 | 2624 | 2624 | 2402 | 2402 | 2535 | 2277 | 2771 | 0.916 |
| 131 | GF224-EOD | Q | NA | 2002-2091 | 2046 | NA | NA | 2068 | 2068 | 2060 | 1864 | 2037 | 1.011 |
| 132 | GF312-EOD | Q | 1512 | 1334-1379 | 1357 | NA | NA | 1246 | 1246 | 1379 | 1802 | 2148 | 0.642 |
| 133 | GF313-EOD | Q | 1486 | 1423-1468 | 1401 | NA | NA | 1486 | 1486 | 1468 | 1984 | 2366 | 0.620 |
| 134 | GF412-EOD | Q | 1068 | 1068-1246 | 1157 | 1308 | 1308 | 890 | 890 | 1210 | 2024 | 2358 | 0.513 |
| 135 | GF413-EOD | Q | 1334 | 1246-1423 | 1334 | 1557 | 1557 | 1201 | 1201 | 1334 | 1904 | 2184 | 0.611 |
| 136 | GF414-EOD | Q | 1601 | 1601-1868 | 1735 | 1868 | 1868 | 1423 | 1423 | 1735 | 2331 | 2802 | 0.619 |
| 137 | GF415-EOD | Q | 2046 | 2046-2313 | 2180 | 2402 | 2402 | 1957 | 1957 | 2224 | 2495 | 2664 | 0.835 |
| 138 | EF62-EOD | Q | 2233 | 1957-2269 | 2113 | 2073 | 2028 | 2135 | 2135 | 2122 | 2322 | 2829 | 0.750 |
| 139 | EF167-BOR | Q | 1205 | 1188 | 1188 | 1241 | 1232 | 1188 | 1188 | 1210 | 2131 | 2780 | 0.436 |
| 140 | A3-EOD2 | FQ | 4261 | 3781-4181 | 3981 | 4270 | NA | 4261 | 4261 | 4177 | 1637 | 2424 | 1.723 |
| 141 | A3-BOR2 | FQ | 4261 | 3781-4181 | 3981 | 4270 | NA | 4261 | 4261 | 4177 | 2055 | 2722 | 1.534 |
| 142 | A3-BOR3 | FQ | 4261 | 3781-4181 | 40012 | 4270 | NA | 4261 | 4261 | 4177 | 4115 | 6321 | 0.661 |
| 143 | A14-DD1 | FQ | NA | 3825-4204 | 4017 | NA | NA | 4039 | 4039 | 4026 | 3043 | 4368 | 0.922 |
| 144 | A14-DD2 | FQ | NA | 3825-4204 | 4017 | NA | NA | 4039 | 4039 | 4026 | 3296 | 4786 | 0.841 |
| 145 | A14-BOR1 | FQ | NA | 3825-4204 | 4017 | NA | NA | 4039 | 4039 | 4026 | 2687 | 4973 | 0.809 |
| 146 | A14-BOR2 | FQ | NA | 3825-4204 | 4017 | NA | NA | 4039 | 4039 | 4026 | 4279 | 6566 | 0.613 |
| 147 | A25-EOD | FQ | 3180 | 3336-3737 | 3536 | 3737 | NA | 3759 | 3759 | 3559 | 2042 | 2442 | 1.457 |
| 148 | A25-BOR1 | FQ | 3180 | 3336-3737 | 3536 | 3737 | NA | 3759 | 3759 | 3559 | 2469 | 2958 | 1.203 |
| 149 | A25-BOR2 | FQ | 3180 | 3336-3737 | 3536 | 3737 | NA | 3759 | 3759 | 3559 | 2011 | 4315 | 0.825 |
| 150 | A25-BOR3 | FQ | 3180 | 3336-3737 | 3536 | 3737 | NA | 3759 | 3759 | 3559 | 1966 | 4137 | 0.860 |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Load Test Type | Davisson's Criteria (kN) | Shape of Curve (kN) | Average Shape of Curve (kN) | Δ=1" (kN) | Δ=0.1B (kN) | DeBeer (kN) | Average DeBeer (kN) | Static Resist Rs (kN) | CAPWAP TEPWAP (kN) | Energy Appr. Ru (kN) | Ksp Rs Ru |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 151 | A16-EOD | FQ | 1401 | 1223-1401 | 1312 | 1557 | NA | 1210 | 1210 | 1370 | 996 | 1348 | 1.017 |
| 152 | A16-BOR1 | FQ | 1401 | 1223-1401 | 1312 | 1557 | NA | 1210 | 1210 | 1370 | 1254 | 1846 | 0.742 |
| 153 | A16-BOR2 | FQ | 1401 | 1223-1401 | 1312 | 1557 | NA | 1210 | 1210 | 1370 | 1317 | 2246 | 0.610 |
| 154 | A41-EOD | FQ | 2331 | 2224-2335 | 2282 | 2402 | NA | 2384 | 2384 | 2358 | 1917 | 2776 | 0.849 |
| 155 | A41-BOR1 | FQ | 2331 | 2224-2335 | 2282 | 2402 | NA | 2384 | 2384 | 2358 | 2237 | 3180 | 0.741 |
| 156 | A41-BOR2 | FQ | 2331 | 2224-2335 | 2282 | 2402 | NA | 2384 | 2384 | 2358 | 2513 | 3710 | 0.635 |
| 157 | A101-EOD | FQ | 3612 | 3559-3737 | 3648 | NA | NA | 3559 | 3559 | 3603 | 2300 | 2108 | 1.709 |
| 158 | A101-BOR1 | FQ | 3612 | 3559-3737 | 3648 | NA | NA | 3559 | 3559 | 3603 | 2976 | 3212 | 1.122 |
| 159 | A101-BOR2 | FQ | 3612 | 3559-3737 | 3648 | NA | NA | 3559 | 3559 | 3603 | 3572 | 3919 | 0.919 |
| 160 | A133-EOD | FQ | 3594 | 3470-3825 | 3648 | 3603 | NA | 3852 | 3852 | 3674 | 1383 | 2282 | 1.610 |
| 161 | A133-BOR | FQ | 3594 | 3470-3825 | 3648 | 3603 | NA | 3852 | 3852 | 3674 | 3470 | 4439 | 0.828 |
| 162 | A145-EOD | FQ | 4341 | 3825-4226 | 4026 | 4337 | NA | 4061 | 4061 | 4181 | 1570 | 2442 | 1.712 |
| 163 | A145-BOR1 | FQ | 4341 | 3825-4226 | 4026 | 4337 | NA | 4061 | 4061 | 4181 | 2851 | 3314 | 1.262 |
| 164 | A145-BOR2 | FQ | 4341 | 3825-4226 | 4026 | 4337 | NA | 4061 | 4061 | 4181 | 3385 | 4083 | 1.024 |
| 165 | CB3-BOR | FQ | 2224 | 2171-2224 | 2197 | 2091 | NA | 2100 | 2100 | 2153 | 2509 | 4350 | 0.495 |
| 166 | CB3-BORL | FQ | 2224 | 2171-2224 | 2197 | 2091 | NA | 2100 | 2100 | 2153 | 2233 | 4439 | 0.485 |
| 167 | CB5-BOR | FQ | 5560 | 5516 | 5516 | 5894 | NA | 5204 | 5204 | 5542 | 2527 | 4484 | 1.236 |
| 168 | CB5-BORL | FQ | 5560 | 5516 | 5516 | 5894 | NA | 5204 | 5204 | 5542 | 2598 | 5191 | 1.068 |
| 169 | CB11-BORL | FQ | 6383 | 6094 | 6094 | 6361 | NA | 6067 | 6067 | 6228 | 3621 | 8020 | 0.776 |
| 170 | CB11-EORL | FQ | 6383 | 6094 | 6094 | 6361 | NA | 6067 | 6067 | 6228 | 2842 | 8127 | 0.766 |
| 171 | CB17-BOR1 | FQ | 6739 | 6228 | 6228 | 6672 | NA | 6228 | 6228 | 6463 | 3648 | 7900 | 0.818 |
| 172 | CB17-BOR2 | FQ | 6739 | 6228 | 6228 | 6672 | NA | 6228 | 6228 | 6463 | 3332 | 8114 | 0.797 |
| 173 | CB17-BORL | FQ | 6739 | 6228 | 6228 | 6672 | NA | 6228 | 6228 | 6463 | 3038 | 6677 | 0.968 |
| 174 | CB17-DRL | FQ | 6739 | 6228 | 6228 | 6672 | NA | 6228 | 6228 | 6463 | 3759 | 7300 | 0.885 |
| 175 | CB23-BOR | FQ | 2860 | 2847-3603 | 3225 | 3256 | NA | 3372 | 3372 | 3123 | 2753 | 3843 | 0.813 |

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| No. | Pile-Case Number | Load Test Type | Davisson's Criteria (kN) | Shape of Curve (kN) | Average Shape of Curve (kN) | Δ=1" (kN) | Δ=0.1B (kN) | DeBeer (kN) | Average DeBeer (kN) | Static Resist Rs (kN) | CAPWAP TEPWAP (kN) | Energy Appr. Ru (kN) | Ksp Rs Ru |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 176 | CB23-BORL | FQ | 2860 | 2847-3603 | 3225 | 3256 | NA | 3372 | 3372 | 3123 | 1975 | 5809 | 0.538 |
| 177 | CB29-BORL | FQ | 4079 | 3870-4270 | 4070 | 4270 | NA | 4048 | 4048 | 4119 | 3452 | 3803 | 1.083 |
| 178 | CB29-EORL | FQ | 4079 | 3870-4270 | 4070 | 4270 | NA | 4048 | 4048 | 4119 | 1997 | 4755 | 0.866 |
| 179 | CB35-BOR1 | FQ | 6508 | 6228 | 6228 | 6628 | NA | 6228 | 6228 | 6392 | 3612 | 4453 | 1.436 |
| 180 | CB35-BOR2 | FQ | 6508 | 6228 | 6228 | 6628 | NA | 6228 | 6228 | 6392 | 4221 | 6325 | 1.011 |
| 181 | CB35-BORL | FQ | 6508 | 6228 | 6228 | 6628 | NA | 6228 | 6228 | 6392 | 4043 | 5734 | 1.115 |
| 182 | CB41-EOR | FQ | 6272 | 6139 | 6139 | 6383 | NA | 6036 | 6036 | 6210 | 3812 | 5507 | 1.128 |
| 183 | CB41-BOR | FQ | 6272 | 6139 | 6139 | 6383 | NA | 6036 | 6036 | 6210 | 3781 | 5449 | 1.140 |
| 184 | CB41-BORL | FQ | 6272 | 6139 | 6139 | 6383 | NA | 6036 | 6036 | 6210 | 2157 | 5169 | 1.201 |
| 185 | CB26-EOD | FQ | 4270 | 3781-4226 | 4003 | 4448 | NA | 4448 | 4448 | 4293 | 2171 | 2469 | 1.739 |
| 186 | CB26-BOR | FQ | 4270 | 3781-4226 | 4003 | 4448 | NA | 4448 | 4448 | 4293 | 2753 | 3505 | 1.225 |
| 187 | CB26-EOR | FQ | 4270 | 3781-4226 | 4003 | 4448 | NA | 4448 | 4448 | 4293 | 3185 | 4257 | 1.008 |
| 188 | CB26-BOR2 | FQ | 4270 | 3781-4226 | 4003 | 4448 | NA | 4448 | 4448 | 4293 | 2504 | 4951 | 0.867 |
| 189 | 33P1-EOD | S | >3559 | 3559 | 3559 | 2313 | 2669 | 3559 | 3559 | 3559 | 1953 | 2922 | 1.218 |
| 190 | 33P1-BOR | S | >3559 | 3559 | 3559 | 2313 | 2669 | 3559 | 3559 | 3559 | 3180 | 3995 | 0.891 |
| 191 | 33P1-EOR | S | >3559 | 3559 | 3559 | 2313 | 2669 | 3559 | 3559 | 3559 | 2891 | 4106 | 0.867 |
| 192 | 33P2-EOD | S | 2180 | 2002-2224 | 2113 | 2002 | 2180 | 2046 | 2046 | 2180 | 1290* | 1859 | 1.172 |
| 193 | 33P2-BOR | S | 2180 | 2002-2224 | 2113 | 2002 | 2180 | 2046 | 2046 | 2180 | 1579 | 2313 | 0.942 |
| 194 | 33P2-EOR | S | 2180 | 2002-2224 | 2113 | 2002 | 2180 | 2046 | 2046 | 2180 | 1784 | 2429 | 0.897 |
| 195 | 33P4-EOD | S | 2073 | 1557-2224 | 1890 | 2473 | 2633 | 2091 | 2091 | 2224 | 1779* | 2780 | 0.800 |
| 196 | 33P5-EOD | S | 730 | 712-890 | 801 | 1085 | 1174 | 890 | 890 | 890 | 636* | 1103 | 0.806 |
| 197 | TRD22-EOD | S | 1575 | 1557 | 1557 | NA | NA | 1584 | 1584 | 1557 | 1922 | 2460 | 0.633 |
| 198 | TRD22-BOR | S | 1575 | 1557 | 1557 | NA | NA | 1584 | 1584 | 1557 | 1308 | 2242 | 0.694 |
| 199 | TRE22-EOD | S | 2473 | 2535 | 2535 | NA | NA | 2535 | 2535 | 2535 | 2558* | 3203 | 0.792 |
| 200 | TRE22-BOR | S | 2473 | 2535 | 2535 | NA | NA | 2535 | 2535 | 2535 | 2740 | 3145 | 0.806 |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Load Test Type | Davisson's Criteria (kN) | Shape of Curve (kN) | Average Shape of Curve (kN) | Δ=1" (kN) | Δ=0.1B (kN) | DeBeer (kN) | Average DeBeer (kN) | Static Resist Rs (kN) | CAPWAP TEPWAP (kN) | Energy Appr. Ru (kN) | Ksp Rs Ru |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 201 | TRP5X-EOD | S | 1824 | 2224-2447 | 2335 | 2269 | 2491 | 1779 | 1779 | 2113 | 2153 | 2251 | 0.939 |
| 202 | TRP5X-BOR | S | 1824 | 2224-2447 | 2335 | 2269 | 2491 | 1779 | 1779 | 2113 | 1757 | 2180 | 0.969 |
| 203 | TR131-BOR | S | 623 | 712-890 | 801 | 934 | 890 | 890 | 890 | 667 | 738 | 752 | 0.888 |
| 204 | TRAH-EOR | S | 3247 | 2891-3114 | 3003 | 2669 | 2891 | 2847 | 2847 | 2891 | 970 | 2509 | 1.152 |
| 205 | TRBH-BOR | S | 1446 | 1223-1334 | 1281 | 1499 | 1566 | 1352 | 1352 | 1334 | 445 | 1183 | 1.128 |
| 206 | TRBP-EOR | S | 1512 | >1334 | >1334 | 1512 | 1512 | 1446 | 1446 | 1468 | 1103* | 1361 | 1.078 |
| 207 | CHA1-EOD | Q | 2909 | 2785-3034 | 2909 | 2785 | 2918 | 2669-3034 | 2851 | 2878 | 1735 | 2100 | 1.370 |
| 208 | CHA1-BOR1 | Q | 2909 | 2785-3034 | 2909 | 2785 | 2918 | 2669-3034 | 2851 | 2878 | 2068 | 2335 | 1.230 |
| 209 | CHA1-BOR2 | Q | 2909 | 2785-3034 | 2909 | 2785 | 2918 | 2669-3034 | 2851 | 2878 | 2304 | 2758 | 1.040 |
| 210 | CHA4-EOD | Q | 2251 | 2171-2251 | 2211 | 2251 | 2242 | 2251 | 2251 | 2242 | 1205 | 1495 | 1.500 |
| 211 | CHB2-EOD | Q | 1343 | 1246-1957 | 1601 | 1246 | 1334 | 1174-1779 | 1477 | 1401 | 489 | 899 | 1.560 |
| 212 | CHB2-BOR1 | Q | 1343 | 1246-1957 | 1601 | 1246 | 1334 | 1174-1779 | 1477 | 1401 | 1201 | 1628 | 0.860 |
| 213 | CHB2-BOR3 | Q | 1343 | 1246-1957 | 1601 | 1246 | 1334 | 1174-1779 | 1477 | 1401 | 1512 | 2384 | 0.590 |
| 214 | CHB2-BOR4 | Q | 1343 | 1246-1957 | 1601 | 1246 | 1334 | 1174-1779 | 1477 | 1401 | 2002 | 2553 | 0.550 |
| 215 | CHB2-BOR5a | Q | 1343 | 1246-1957 | 1601 | 1246 | 1334 | 1174-1779 | 1477 | 1401 | 2291 | | |
| 216 | CHB2-BOR5b | Q | 1343 | 1246-1957 | 1601 | 1246 | 1334 | 1174-1779 | 1477 | 1401 | 2126 | | |
| 217 | CHB3-EOD | Q | 890 | 783-1094 | 939 | 943 | 996 | 827 | 827 | 952 | 467 | 903 | 1.050 |
| 218 | CHB3-BOR1 | Q | 890 | 783-1094 | 939 | 943 | 996 | 827 | 827 | 952 | 1045 | 1254 | 0.760 |
| 219 | CHB3-BOR2 | Q | 890 | 783-1094 | 939 | 943 | 996 | 827 | 827 | 952 | 979 | 1606 | 0.590 |
| 220 | CHB3-BOR3 | Q | 890 | 783-1094 | 939 | 943 | 996 | 827 | 827 | 952 | 1490 | 2073 | 0.460 |
| 221 | CHC3-EOD | Q | 836 | 890-1357 | 1125 | 1050 | 1237 | 890-1157 | 1023 | 1054 | 489* | 1859 | 0.570 |
| 222 | CHC3-BOR | Q | 836 | 890-1357 | 1125 | 1050 | 1237 | 890-1157 | 1023 | 1054 | | 1837 | 0.570 |
| 223 | CHC3-BORL | Q | 836 | 890-1357 | 1125 | 1050 | 1237 | 890-1157 | 1023 | 1054 | 1735 | 2224 | 0.470 |
| 224 | CH4-EOD | Q | 1601 | 1592-1668 | 1632 | 1601 | 1601 | 1668 | 1668 | 1619 | 667 | 859 | 1.890 |
| 225 | CH4-BOR | Q | 1601 | 1592-1668 | 1632 | 1601 | 1601 | 1668 | 1668 | 1619 | 1512 | 1632 | 0.990 |

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| No. | Pile-Case Number | Load Test Type | Davisson's Criteria (kN) | Shape of Curve (kN) | Average Shape of Curve (kN) | Δ=1" (kN) | Δ=0.1B (kN) | DeBeer (kN) | Average DeBeer (kN) | Static Resist Rs (kN) | CAPWAP TEPWAP (kN) | Energy Appr. Ru (kN) | Ksp Rs Ru |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 226 | CH39-EOD | Q | 2936 | 2829-2936 | 2882 | 2473 | 2322 | 2936 | 2936 | 2918 | 832 | 796 | 3.660 |
| 227 | CH39-BOR | Q | 2936 | 2829-2936 | 2882 | 2473 | 2322 | 2936 | 2936 | 2918 | 2046 | 2304 | 1.270 |
| 228 | CH39-BORL | Q | 2936 | 2829-2936 | 2882 | 2473 | 2322 | 2936 | 2936 | 2918 | 2558 | 2535 | 1.150 |
| 229 | CH6-5B-EOD | Q | 1673 | 1503-1673 | 1588 | 1673 | 1673 | 1673 | 1673 | 1655 |  | 391 | 4.230 |
| 230 | CH6-5B-BOR | Q | 1673 | 1503-1673 | 1588 | 1673 | 1673 | 1673 | 1673 | 1655 | 1779 | 2104 | 0.790 |
| 231 | CH95B-EOD | Q | 2473 | 2464 | 2464 | 2464 | 2464 | 2438 | 2438 | 2464 | 983* | 1503 | 1.640 |
| 232 | CH95B-BOR | Q | 2473 | 2464 | 2464 | 2464 | 2464 | 2438 | 2438 | 2464 | 2358 | 2331 | 1.060 |
| 233 | CH256-BOR3 | Q | 2651 | 2384-2651 | 2518 | 2269 | 2197 | 2633 | 2633 | 2455 | 2224 |  |  |
| 234 | CH351-BOR2 | Q | 2669 | 2420-2660 | 2540 | 2393 | 2340 | 2669 | 2669 | 2527 | 2358 | 2544 | 0.990 |
| 235 | PO2-BOR1 | mQ | 1219 | 1228-1486 | 1357 | 1441 | 1610 | 1210 | 1210 | 1263 | 1352 | 1962 | 0.640 |
| 236 | PO2-BOR2 | mQ | 1219 | 1228-1486 | 1357 | 1441 | 1610 | 1210 | 1210 | 1263 | 1174 | 1882 | 0.670 |
| 237 | PO2-BORL | mQ | 1219 | 1228-1486 | 1357 | 1441 | 1610 | 1210 | 1210 | 1263 | 1250 | 1730 | 0.730 |
| 238 | PO19-BOR | mQ | 1023 | 1068-1246 | 1157 | 1290 | 1415 | 1210 | 1210 | 1179 | 1334 | 2433 | 0.480 |
| 239 | PO19-EOD | mQ | 1023 | 1068-1246 | 1157 | 1290 | 1415 | 1210 | 1210 | 1179 | 1090 | 1597 | 0.740 |
| 240 | PO19-EORL | mQ | 1023 | 1068-1246 | 1157 | 1290 | 1415 | 1210 | 1210 | 1179 | 1045 | 1406 | 0.840 |
| 241 | ER5-BOR1 | mQ | 3803 | 3123-3714 | 3421 | 3981 | NA | 3559 | 3559 | 3692 | 2927 | 5062 | 0.730 |
| 242 | ER5-BOR2 | mQ | 3803 | 3123-3714 | 3421 | 3981 | NA | 3559 | 3559 | 3692 | 4123 | 6156 | 0.600 |
| 243 | ER5-BORL | mQ | 3803 | 3123-3714 | 3421 | 3981 | NA | 3559 | 3559 | 3692 | 2611 | 4470 | 0.830 |
| 244 | ER77-BOR | mQ | 7433 | 6303-7126 | 6717 | NA | NA | 5107-6001 | 5556 | 6570 | 3363 | 5805 | 1.130 |
| 245 | ER77-BORL | mQ | 7433 | 6303-7126 | 6717 | NA | NA | 5107-6001 | 5556 | 6570 | 4484 | 7936 | 0.830 |
| 246 | BB13-EOD | mQ | 4475 | 4003-4688 | 4346 | 4644 | NA | 4110 | 4110 | 4395 | 3114 | 6419 | 0.680 |
| 247 | BB13-BOR1a | mQ | 4475 | 4003-4688 | 4346 | 4644 | NA | 4110 | 4110 | 4395 | 4092 | 8892 | 0.490 |
| 248 | BB13-BOR1b | mQ | 4475 | 4003-4688 | 4346 | 4644 | NA | 4110 | 4110 | 4395 | 3959 | 8785 | 0.500 |
| 249 | BB13-BOR2a | mQ | 4475 | 4003-4688 | 4346 | 4644 | NA | 4110 | 4110 | 4395 | 4760 | 9728 | 0.450 |
| 250 | BB13-BOR2b | mQ | 4475 | 4003-4688 | 4346 | 4644 | NA | 4110 | 4110 | 4395 | 4671 | 10186 | 0.430 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 251 | BB13-BORL | mQ | 4475 | 4003-4688 | 4346 | 4644 | NA | 4110 | 4110 | 4395 | 4008 | 9150 | 0.480 |
| 252 | BB19-BORa | mQ | 5169 | 4448-5498 | 4973 | 5418 | NA | 4333-5338 | 4835 | 5098 | 4155 | 8185 | 0.620 |
| 253 | BB19-BORb | mQ | 5169 | 4448-5498 | 4973 | 5418 | NA | 4333-5338 | 4835 | 5098 | 4666 | 8287 | 0.620 |
| 254 | BB19-BORL | mQ | 5169 | 4448-5498 | 4973 | 5418 | NA | 4333-5338 | 4835 | 5098 | 6512 | 8905 | 0.570 |
| 255 | BB24-EOD | mQ | 4955 | 4448-4893 | 4671 | 5000 | NA | 4822 | 4822 | 4866 | 5783 | 9693 | 0.500 |
| 256 | BB24-BOR1a | mQ | 4955 | 4448-4893 | 4671 | 5000 | NA | 4822 | 4822 | 4866 | 7517 | 10449 | 0.470 |
| 257 | BB24-BOR1b | mQ | 4955 | 4448-4893 | 4671 | 5000 | NA | 4822 | 4822 | 4866 | 7571 | 10280 | 0.470 |
| 258 | BB24-BOR2a | mQ | 4955 | 4448-4893 | 4671 | 5000 | NA | 4822 | 4822 | 4866 | 8420 | 12108 | 0.400 |
| 259 | BB24-BOR2b | mQ | 4955 | 4448-4893 | 4671 | 5000 | NA | 4822 | 4822 | 4866 | 7873 | 11721 | 0.420 |
| 260 | BB24-BORL | mQ | 4955 | 4448-4893 | 4671 | 5000 | NA | 4822 | 4822 | 4866 | 6241 | 9119 | 0.530 |
| 261 | BB29-BOR | mQ | 5053 | 5062 | 5062 | 5338 | NA | 4760 | 4760 | 5044 | 5458 | 9581 | 0.530 |
| 262 | BB29-BORL | mQ | 5053 | 5062 | 5062 | 5338 | NA | 4760 | 4760 | 5044 | 5115 | 7891 | 0.640 |
| 263 | ABF6-BOR | Q | 3345 | 2758-3309 | 3034 | 3879 | 4057 | 3817 | 3817 | 3630 | 1677 | 2567 | 1.410 |
| 264 | ABF6-BORL | Q | 3345 | 2758-3309 | 3034 | 3879 | 4057 | 3817 | 3817 | 3630 | 3474 | 6899 | 0.530 |
| 265 | ABG13-BORL | Q | 4742 | 3870-4644 | 4257 | 5560 | NA | 3639-4653 | 4146 | 4680 | 4826 | 7122 | 0.660 |
| 266 | ABH2-BOR | Q | 2518 | 2162-2669 | 2415 | 2980 | NA | 2189-2793 | 2491 | 2598 | 3594 | 4115 | 0.630 |
| 267 | ABH2-BORL | Q | 2518 | 2162-2669 | 2415 | 2980 | NA | 2189-2793 | 2491 | 2598 | 4092 | 4924 | 0.530 |
| 268 | BC79-EOD | Q | 2277 | 2224-2464 | 2344 | 2562 | NA | 2277 | 2277 | 2366 | | 3323 | 0.700 |
| 269 | BC79-BORL | Q | 2277 | 2224-2464 | 2344 | 2562 | NA | 2277 | 2277 | 2366 | 2447 | | |
| 270 | BC64-EOD | Q | 5071 | 4662 | 4662 | 5480 | NA | 4608 | 4608 | 4955 | | 3803 | 1.300 |
| 271 | BC64-BORL | Q | 5071 | 4662 | 4662 | 5480 | NA | 4608 | 4608 | 4955 | 5004 | | |
| 272 | D1-BOR1 | S | 302 | 298 | 298 | 316 | 316 | 285 | 285 | 298 | 423* | 956 | 0.310 |
| 273 | D2-BOR1 | S | 556 | 547 | 547 | 649 | 649 | 552 | 552 | 552 | 654* | 1339 | 0.410 |
| 274 | D3-BORa | S | 1005 | 979 | 979 | 1085 | 1072 | 974 | 974 | 992 | 818* | 1757 | 0.570 |
| 275 | D3-BORb | S | 1005 | 979 | 979 | 1085 | 1072 | 974 | 974 | 992 | 694* | 1597 | 0.620 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 276 | D5-BORa | S | 1050 | 979 | 979 | 1179 | 1170 | 992 | 992 | 1014 | 1334* | 1726 | 0.590 |
| 277 | D5-BORb | S | 1050 | 979 | 979 | 1179 | 1170 | 992 | 992 | 1014 | 1317* | 2184 | 0.460 |
| 278 | MB1-EOD | Q | 3590 | 3430-4172 | 3803 | 4075 | NA(4938) | 3114 | 3114 | 3643 | 756 | 1401 | 2.600 |
| 279 | MB1-BOR | Q | 3590 | 3430-4172 | 3803 | 4075 | NA(4938) | 3114 | 3114 | 3643 | 2326 | 2166 | 1.680 |
| 280 | MB2-BOR | Q | 3990 | 3857 | 3857 | 3492 | 4266 | 3870 | 3870 | 3879 | 2362 | | |
| 281 | MB3-BOR | Q | 4146 | 4168 | 4168 | 3696 | 4381 | 4252 | 4252 | 4128 | 2540 | | |
| 282 | S1-EOD | Q | 2651 | 2518 | 2518 | 2767 | NA(3140) | 2473 | 2473 | 2607 | 2046 | 3314 | 0.790 |
| 283 | S1-BOR | Q | 2651 | 2518 | 2518 | 2767 | NA(3140) | 2473 | 2473 | 2607 | 2687 | | |
| 284 | S2-EOD | Q | 1415 | 1326 | 1326 | 1539 | 1486 | 1317 | 1317 | 1415 | 956 | 1241 | 1.140 |
| 285 | S2-BOR | Q | 1415 | 1326 | 1326 | 1539 | 1486 | 1317 | 1317 | 1415 | 1366* | 956 | 1.480 |
| 286 | DD22-EOD | | NA(3745) | 2936-3576 | 3256 | 3625 | NA | 2922-3599 | 3261 | 3381 | 1134 | 1459 | 2.317 |
| 287 | DD22-BOR | | NA(3745) | 2936-3576 | 3256 | 3625 | NA | 2922-3599 | 3261 | 3381 | 2309 | 2571 | 1.315 |
| 288 | DD23-EOD | | 2206 | 2002 | 2002 | 2251 | NA | 1824-2193 | 2011 | 2117 | 681 | 681 | 3.111 |
| 289 | DD23-BOR | | 2206 | 2002 | 2002 | 2251 | NA | 1824-2193 | 2011 | 2117 | 1232 | 1437 | 1.474 |
| 290 | JR17-EOD | Q | 5422 | 5187-5845 | 5516 | NA | NA | NA | NA | 5471 | 2785 | 4052 | 1.350 |
| 291 | LB3-EOD | | 1842 | 1761 | 1761 | NA | NA | 1779 | 1779 | 1770 | 269 | 939 | 1.880 |
| 292 | LB3-BOR1 | | 1842 | 1761 | 1761 | NA | NA | 1779 | 1779 | 1770 | 912 | 1592 | 1.110 |
| 293 | LB3-BOR2 | | 1842 | 1761 | 1761 | NA | NA | 1779 | 1779 | 1770 | 1534 | 3075 | 0.580 |
| 294 | LB3-BOR3 | | 1842 | 1761 | 1761 | NA | NA | 1779 | 1779 | 1770 | 1677 | 3479 | 0.510 |
| 295 | LB4-EOD | | 2273 | 2002 | 2002 | NA | NA | 2015 | 2015 | 2015 | 202 | 1163 | 1.730 |
| 296 | LB4-BOR1 | | 2273 | 2002 | 2002 | NA | NA | 2015 | 2015 | 2015 | 887 | 2325 | 0.870 |
| 297 | LB4-BOR2 | | 2273 | 2002 | 2002 | NA | NA | 2015 | 2015 | 2015 | 1299 | 4039 | 0.500 |
| 298 | LB4-BOR3 | | 2273 | 2002 | 2002 | NA | NA | 2015 | 2015 | 2015 | 1521 | 6042 | 0.330 |
| 299 | LB4-BOR4 | | 2273 | 2002 | 2002 | NA | NA | 2015 | 2015 | 2015 | 1603 | 4881 | 0.410 |
| 300 | LB5-EOD | | NA | 1926 | 1926 | NA | NA | 1810 | 1810 | 1868 | 263 | 774 | 2.410 |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Load Test Type | Davisson's Criteria (kN) | Shape of Curve (kN) | Average Shape of Curve (kN) | Δ=1" (kN) | Δ=0.1B (kN) | DeBeer (kN) | Average DeBeer (kN) | Static Resist Rs (kN) | CAPWAP TEPWAP (kN) | Energy Appr. Ru (kN) | Ksp Rs Ru |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 301 | LB5-BOR1 | | NA | 1926 | 1926 | NA | NA | 1810 | 1810 | 1868 | 952 | 2601 | 0.720 |
| 302 | LB5-BOR2 | | NA | 1926 | 1926 | NA | NA | 1810 | 1810 | 1868 | 1402 | 4110 | 0.450 |
| 303 | LB5-BOR3 | | NA | 1926 | 1926 | NA | NA | 1810 | 1810 | 1868 | 1591 | 4940 | 0.380 |
| 304 | LB5-BOR4 | | NA | 1926 | 1926 | NA | NA | 1810 | 1810 | 1868 | 1752 | ? | ? |
| 305 | LB6-EOD | | 2411 | 2019 | 2019 | NA | NA | 2166 | 2166 | 2095 | 404 | 857 | 2.440 |
| 306 | LB6-BOR1 | | 2411 | 2019 | 2019 | NA | NA | 2166 | 2166 | 2095 | 883 | 2119 | 0.990 |
| 307 | LB6-BOR2 | | 2411 | 2019 | 2019 | NA | NA | 2166 | 2166 | 2095 | 1322 | 3443 | 0.610 |
| 308 | LB6-BOR3 | | 2411 | 2019 | 2019 | NA | NA | 2166 | 2166 | 2095 | 1767 | 4318 | 0.490 |
| 309 | LB6-BOR4 | | 2411 | 2019 | 2019 | NA | NA | 2166 | 2166 | 2095 | 2300 | 5256 | 0.400 |
| 310 | LB7-EOD | | 2402 | 2206 | 2206 | NA | NA | 2135 | 2135 | 2171 | 457 | 931 | 2.330 |
| 311 | LB7-BOR1 | | 2402 | 2206 | 2206 | NA | NA | 2135 | 2135 | 2171 | 875 | 2033 | 1.070 |
| 312 | LB7-BOR2 | | 2402 | 2206 | 2206 | NA | NA | 2135 | 2135 | 2171 | 1279 | 3419 | 0.630 |
| 313 | LB7-BOR3 | | 2402 | 2206 | 2206 | NA | NA | 2135 | 2135 | 2171 | 1891 | 4489 | 0.480 |
| 314 | LB7-BOR4 | | 2402 | 2206 | 2206 | NA | NA | 2135 | 2135 | 2171 | 2260 | 4803 | 0.450 |
| 315 | DI221-EOD | SD | 1477 | 1601 | 1601 | NA | NA | 1601 | 1601 | 1561 | --- | 1517 | 1.029 |
| 316 | DI221-2DR | SD | 1477 | 1601 | 1601 | NA | NA | 1601 | 1601 | 1561 | 1250 | --- | --- |
| 317 | TW488-EOD | Q | 1423 | 1388-1423 | 1406 | NA | NA | 1415-1441 | 1428 | 1419 | 365 | 507 | 2.798 |
| 318 | TW488-3DR | Q | 1423 | 1388-1423 | 1406 | NA | NA | 1415-1441 | 1428 | 1419 | 934 | --- | --- |
| 319 | NBTP2-EOD | SD | 1806 | 1806-1993 | 1899 | 1713 | 1904 | 1922 | 1922 | 1849 | 1352 | 2091 | 0.884 |
| 320 | NBTP2-1DR | SD | 1806 | 1806-1993 | 1899 | 1713 | 1904 | 1922 | 1922 | 1849 | 1601 | 2135 | 0.866 |
| 321 | NBTP2-6DR | SD | 1806 | 1806-1993 | 1899 | 1713 | 1904 | 1922 | 1922 | 1849 | 1686 | 2713 | 0.681 |
| 322 | NBTP3-EOD | SD | 2126 | NA | NA | 1757 | 2100 | NA | NA | 1994 | 1401 | 2402 | 0.830 |
| 323 | NBTP3-1DR | SD | 2126 | NA | NA | 1757 | 2100 | NA | NA | 1994 | 1601 | 2402 | 0.830 |
| 324 | NBTP3-6DR | SD | 2126 | NA | NA | 1757 | 2100 | NA | NA | 1994 | 1713 | 2669 | 0.747 |
| 325 | NBTP5-EOD | SD | 1632 | 1824 | 1824 | 1886 | NA | NA | NA | 1781 | 1423 | 1735 | 1.026 |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Load Test Type | Davisson's Criteria (kN) | Shape of Curve (kN) | Average Shape of Curve (kN) | Δ=1" (kN) | Δ=0.1B (kN) | DeBeer (kN) | Average DeBeer (kN) | Static Resist Rs (kN) | CAPWAP TEPWAP (kN) | Energy Appr. Ru (kN) | Ksp Rs Ru |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 326 | NBTP5-3DR | SD | 1632 | 1824 | 1824 | 1886 | NA | NA | NA | 1781 | 2046 | 2313 | 0.770 |
| 327 | PR1-BOR1 | Q | NA | 2068-2237 | 2153 | NA | NA | 2224 | 2224 | 2189 | 2304 | 4469 | 0.490 |
| 328 | DD29-EOD | Q | NA | 3318-3336 | 3327 | 3114 | 3367 | 3305 | 3305 | 3278 | 1561 | 1895 | 1.730 |
| 329 | ND50-BOR1 | S | 676 | 658-676 | 667 | 801 | NA | 672 | 672 | 704 | 796 | 898 | 0.784 |
| 330 | NZ12-BOR1 | Q | 2224 | 2224 | 2224 | 2224 | 2224 | 2224 | 2224 | 2224 | 2331 | 3441 | 0.646 |
| 331 | DW1-BOR1 | Q | 4742 | 4448-4706 | 4577 | 4849 | NA | 4644 | 4644 | 4703 | 4515 | 9345 | 0.503 |
| 332 | DW1-BOR2 | Q | 4742 | 4448-4706 | 4577 | 4849 | NA | 4644 | 4644 | 4703 | 5178 | 8697 | 0.541 |
| 333 | DW2-BOR1 | Q | 2753 | 2722-2749 | 2736 | 2709 | 2807 | 2722 | 2722 | 2745 | 2798 | 3706 | 0.741 |
| 334 | DW2-BOR2 | Q | 2753 | 2722-2749 | 2736 | 2709 | 2807 | 2722 | 2722 | 2745 | 3025 | 4305 | 0.638 |
| 335 | DS1-BOR1 | Q | 1601 | 1579 | 1579 | 1637 | NA | 1570 | 1570 | 1597 | 1214 | 1800 | 0.887 |
| 336 | DS1-BOR2 | Q | 1601 | 1579 | 1579 | 1637 | NA | 1570 | 1570 | 1597 | 1535 | 1901 | 0.840 |
| 337 | PX2-BOR1 | Q | NA | 6050-6308 | 6179 | 6107 | NA | NA | NA | 6143 | 2945 | 4519 | 1.359 |
| 338 | PX3-EOD | Q | NA | 5476 | 5476 | NA | NA | 5547 | 5547 | 5511 | 2464 | 3074 | 1.793 |
| 339 | PX3-BOR1 | Q | NA | 5476 | 5476 | NA | NA | 5547 | 5547 | 5511 | 2829 | 3962 | 1.391 |
| 340 | PX4-EOD | Q | 3207 | 3278-3456 | 3367 | 3745 | NA | 3327 | 3327 | 3412 | 2260 | 2907 | 1.174 |
| 341 | PX4-BOR1 | Q | 3207 | 3278-3456 | 3367 | 3745 | NA | 3327 | 3327 | 3412 | 2802 | 3701 | 0.922 |
| 342 | PX5-BOR1 | Q | 2971 | 4199-4315 | 4257 | 4141 | 4479 | 3861 | 3861 | 3942 | 2749 | 3420 | 1.153 |
| 343 | PX6-BOR1 | Q | 4235 | 4061-4800 | 4430 | 4800 | NA | 3959-4804 | 4381 | 4462 | 2406 | 3882 | 1.149 |
| 344 | PX7-EOD | Q | 4475 | 4822 | 4822 | 5196 | 5498 | 4978 | 4978 | 4994 | 2353 | 5039 | 0.991 |
| 345 | PX7-BOR1 | Q | 4475 | 4822 | 4822 | 5196 | 5498 | 4978 | 4978 | 4994 | 2758 | 4302 | 1.161 |
| 346 | CH11-42-BOR1 | Q | 1948 | 2117-2153 | 2135 | 2140 | 2246 | 1988-2086 | 2037 | 2101 | 2349 | 4148 | 0.507 |
| 347 | SSTPD-5DR | | 285 | 302 | 302 | 334 | 329 | 289 | 289 | 307 | 389 | 623 | 0.490 |
| 348 | TSW/D62/1-EOD | | 4359 | 4568 | 4568 | 4297 | NA | 4568 | 4568 | 4448 | 3358 | 5284 | 0.842 |
| 349 | TSW/D62/1-BOR | | 4359 | 4568 | 4568 | 4297 | NA | 4568 | 4568 | 4448 | 4755 | 6441 | 0.691 |
| 350 | TSW/HHK9/1-EOD | | NA(4604) | 4604 | 4604 | 4604 | NA | 4604 | 4604 | 4542 | 3812 | 5618 | 0.808 |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Load Test Type | Davisson's Criteria (kN) | Shape of Curve (kN) | Average Shape of Curve (kN) | Δ=1" (kN) | Δ=0.1B (kN) | DeBeer (kN) | Average DeBeer (kN) | Static Resist Rs (kN) | CAPWAP TEPWAP (kN) | Energy Appr. Ru (kN) | Ksp Rs Ru |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 351 | TSW/HHK9/1-BOR | | NA(4604) | 4604 | 4604 | 4604 | NA | 4604 | 4604 | 4542 | 4853 | 6895 | 0.659 |
| 352 | TSW/D62/2-EOD | | 4737 | 3594-4804 | 4199 | 4159 | 4591 | 4804 | 4804 | 4497 | 4853 | 5422 | 0.829 |
| 353 | TSW/D62/2-BOR | | 4737 | 3594-4804 | 4199 | 4159 | 4591 | 4804 | 4804 | 4497 | 4644 | 6401 | 0.703 |
| 354 | TSW/HHK9/2-EOD | | 4804 | 4804 | 4804 | 4252 | 4804 | 4804 | 4804 | 4693 | 4212 | 5462 | 0.859 |
| 355 | TSW/HHK9/2-BOR | | 4804 | 4804 | 4804 | 4252 | 4804 | 4804 | 4804 | 4693 | 4350 | 5961 | 0.787 |
| 356 | OD1J-EOD | STM | 7722 | 7393 | 7393 | 7571 | NA | 7397 | 7397 | 7522 | 3496 | 4924 | 1.528 |
| 357 | OD2P-EOD | STM | 3047 | 2607-2980 | 2793 | 2829 | NA | 2989 | 2989 | 2914 | 1557 | 2335 | 1.248 |
| 358 | OD2P-BOR | STM | 3047 | 2607-2980 | 2793 | 2829 | NA | 2989 | 2989 | 2914 | 2224 | 5333 | 0.546 |
| 359 | OD2T-EOD | STM | 3616 | 3020 | 3020 | NA | NA | NA | NA | 3314 | 3634 | 4301 | 0.770 |
| 360 | OD3H-EOD | STM | 4639 | 5329 | 5329 | 4777 | NA | 5258 | 5258 | 5000 | 1441 | 3261 | 1.533 |
| 361 | OD4L-EOD | STM | 4399 | 4150 | 4150 | 4346 | NA | 4172 | 4172 | 4266 | 2242 | 2989 | 1.427 |
| 362 | OD4P-EOD | STM | 3087 | 2914 | 2914 | 3203 | NA | 2971 | 2971 | 3043 | 1214 | 3461 | 0.879 |
| 363 | OD4P-BOR | STM | 3087 | 2914 | 2914 | 3203 | NA | 2971 | 2971 | 3043 | 2455 | 6454 | 0.471 |
| 364 | OD4T-EOD | STM | 3229 | 3154-3367 | 3261 | 3412 | NA | 3269 | 3269 | 3292 | 1339 | 2028 | 1.623 |
| 365 | OD4T-BOR | STM | 3229 | 3154-3367 | 3261 | 3412 | NA | 3269 | 3269 | 3292 | 2891 | 6263 | 0.526 |
| 366 | OD4W-EOD | STM | 3937 | 4057 | 4057 | 3968 | NA | 4101 | 4101 | 4017 | 1766 | 2349 | 1.710 |
| 367 | OD4W-BOR2 | STM | 3937 | 4057 | 4057 | 3968 | NA | 4101 | 4101 | 4017 | 2567 | 4110 | 0.977 |
| 368 | OD4W-BOR3 | STM | 3937 | 4057 | 4057 | 3968 | NA | 4101 | 4101 | 4017 | 3403 | 6276 | 0.640 |
| 369 | QC3-EOD | Q | 6361 | 6574 | 6574 | 6428 | NA | 6477 | 6477 | 6459 | 1802 | 3554 | 0.457 |
| 370 | QC3-14DR | Q | 6361 | 6574 | 6574 | 6428 | NA | 6477 | 6477 | 6459 | 5204 | 8710 | 0.186 |
| 371 | QC14-EOD | Q | 1392 | 1450 | 1450 | 1450 | 1459 | 1450 | 1450 | 1441 | 1241 | 1495 | 0.229 |
| 372 | QC14-30DR | Q | 1392 | 1450 | 1450 | 1450 | 1459 | 1450 | 1450 | 1441 | 1197 | 2362 | 0.145 |
| 373 | NYSP-EOD | TQT | 1388 | 302-340 | 1428 | 1357 | 1357 | 304-340 | 1432 | 1392 | 587 | 1432 | 0.972 |
| 374 | NYSP-BOR | TQT | 1388 | 302-340 | 1428 | 1357 | 1357 | 304-340 | 1432 | 1392 | 992 | 1922 | 0.725 |
| 375 | UFSS1A - BOR | | 3496 | 682-1102 | 3968 | 4706 | NA | 1120-1196 | 5151 | 4333 | 5427 | 7486 | 0.579 |

**Table A.1 (con't).** Relevant Information Pertaining to Database PD/LT2000.

| No. | Pile-Case Number | Load Test Type | Davisson's Criteria (kN) | Shape of Curve (kN) | Average Shape of Curve (kN) | Δ=1" (kN) | Δ=0.1B (kN) | DeBeer (kN) | Average DeBeer (kN) | Static Resist Rs (kN) | CAPWAP TEPWAP (kN) | Energy Appr. Ru (kN) | Ksp Rs Ru |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 376 | UFSS1B - BOR | | 2611 | 476-600 | 2393 | NA | NA | 430-600 | 2291 | 2433 | 3554 | 4519 | 0.538 |
| 377 | UFSS10 - BOR | | 5107 | 1008-1148 | 4795 | NA | NA | NA | NA | 4951 | 6228 | 7700 | 0.643 |
| 378 | UFSS13B - BOR | | 2771 | 787-1002 | 3981 | 4880 | NA | 963-1199 | 4809 | 4110 | 4226 | 4479 | 0.918 |
| 379 | BIT20 - BOR | | 2593 | 2375 | 2375 | NA | NA | 2358 | 2358 | 2442 | 2108 | 1628 | 1.500 |
| 380 | BIT21 - BOR | | 1637 | 378-448 | 1837 | 2060 | NA | 1326 | 1326 | 1717 | 1606 | 885 | 1.940 |
| 381 | HFLS3 - EOD | | 7073 | 7962 | 7962 | 8852 | NA | 8087 | 8087 | 7993 | 5787 | 9377 | 0.852 |
| 382 | HFLS4L - EOD | | 3354 | 3919 | 3919 | 4075 | 6010 | 3901 | 3901 | 3812 | 3136 | 5200 | 0.733 |
| 383 | HFLS4L - BOR | | 3354 | 3919 | 3919 | 4075 | 6010 | 3901 | 3901 | 3812 | 4070 | 7664 | 0.497 |
| 384 | RBA30 - BOR | | 4039 | 4573 | 4573 | 5022 | NA | 4635 | 4635 | 4568 | 3692 | 5849 | 0.781 |
| 385 | RBB30W - BOR | | 3461 | 685-861 | 3438 | 4123 | NA | 3732 | 3732 | 3732 | 3225 | 4822 | 0.774 |
| 386 | CC6 - BOR | | 1388 | 1357 | 1357 | NA | NA | 1352 | 1352 | 1366 | 1423 | 3025 | 0.451 |
| 387 | CC7 - BOR | | 1770 | 1726 | 1726 | NA | NA | 1713 | 1713 | 1735 | 1810 | 2500 | 0.694 |
| 388 | CC14 - BOR | | 1601 | 1557 | 1557 | 1699 | 1726 | 1535 | 1535 | 1624 | 1890 | 2611 | 0.622 |
| 389 | 49SB37 - EOD | | 5058 | 978-1276 | 5013 | 6147 | NA | 5289 | 5289 | 5378 | 4559 | 5467 | 0.984 |

**Table A.2.** Relevant Information Pertaining to Umass - Ukraine Database.

| Case No. | Location | Pile designation | Cyclic Bearing Capacity $P_{CYCL}$ | Davison's Criteria $P_D$ (kN) | Shape of Curve $P_2$ (kN) | De Beer $P_3$ (kN) | Δ=1" $P_4$ (kN) | Δ=0.1B $P_5$ (kN) | Representative Static Resistance $P_S$ (kN) | Ratio of $P_S$ divided by PCYCL $P_S/P_{CYCL}$ | Ratio of $P_D$ divided by PCYCL $P_D/P_{CYCL}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Herson | 1/1 | 903 | 1097 | 858-1056 | 780-970 | 1081 | 1094 | 916 | 1.014 | 1.215 |
| 2 | | 1/2 | 866 | 907 | 830-890 | 900 | 988 | 990 | 880 | 1.016 | 1.047 |
| 3 | Dnepropetrovsk | 2/1a | 418 | 430 | 373-433 | 350-420 | 418 | 418 | 418 | 1.000 | 1.029 |
| 4 | Press. | 2/1b | 640 | 660 | 600-700 | 610-680 | 760 | 780 | 650 | 1.016 | 1.031 |
| 5 | | 2/1c | 1073 | 1073 | 950-1260 | 1220 | 1271 | 1275 | 1125 | 1.048 | 1.000 |
| 6 | | 2/2 | 936 | 1000 | 900-1000 | 900 | - | - | 950 | 1.015 | 1.068 |
| 7 | | 2/3 | 842 | 868 | 770-854 | 860 | 938 | 955 | 847 | 1.006 | 1.031 |
| 8 | Dnepropetrovsk | 3/13 | 380 | 428 | 390-503 | 380-490 | 500 | 500 | 438 | 1.153 | 1.126 |
| 9 | Str.Januar | 3/13a | 650 | 468 | 694-800 | 700-800 | 800 | 815 | 748 | 1.151 | 0.720 |
| 10 | | 3/14 | 329 | 220 | 400 | 400 | 426 | 441 | 400 | 1.216 | 0.669 |
| 11 | | 3/15 | 632 | 463 | 568-716 | 700 | 718 | 719 | 670 | 1.060 | 0.733 |
| 12 | | 3/15a | 780 | 651 | 790-950 | 920 | 964 | 965 | 887 | 1.137 | 0.835 |
| 13 | Zaporogie | 4/2 | 840 | 860 | 880-900 | - | 951 | 967 | 880 | 1.048 | 1.024 |
| 14 | Zaporogie | 5/1 | 1040 | 600 | 1000-1060 | - | 1030 | 1080 | 1030 | 0.990 | 0.577 |
| 15 | A 7050 | 5/2 | 506 | 492 | 400-469 | 400-500 | 602 | 602 | 452 | 0.893 | 0.972 |
| 16 | | 5/2a | 760 | 748 | 706-790 | 690-780 | 852 | 862 | 743 | 0.978 | 0.984 |
| 17 | | 5/3 | 420 | 280 | 415 | - | 450 | 460 | 415 | 0.988 | 0.667 |
| 18 | | 5/3a | 750 | 630 | 680-700 | - | 730 | 750 | 700 | 0.933 | 0.840 |
| 19 | Herson | 6/2 | 1057 | 1077 | 1032-1120 | 1180 | 1200 | 1200 | 1102 | 1.043 | 1.019 |
| 20 | Kindy Road | 6/3 | 915 | 956 | 920-970 | - | 1118 | 1119 | 945 | 1.033 | 1.045 |
| 21 | | 6/1 | 1100 | 1108 | 1107-1200 | 1200 | 1220 | 1220 | 1158 | 1.053 | 1.007 |
| 22 | Zaporogie | 8/1 | 645 | 649 | 640-650 | 650 | 756 | 756 | 647 | 1.003 | 1.006 |
| 23 | | 8/2 | 1005 | 630 | 920-1080 | - | 1100 | 1130 | 1000 | 0.995 | 0.627 |
| 24 | | 8/3 | 950 | 710 | 970-900 | - | 995 | 1010 | 980 | 1.032 | 0.747 |
| 25 | | 8/4 | 750 | 760 | 670-780 | | 790 | 795 | 743 | 0.991 | 1.013 |

**Table A.2 (con't).** Relevant Information Pertaining to Umass - Ukraine Database.

| Case No. | Location | Pile designation | Cyclic Bearing Capacity | Davison's Criteria | Shape of Curve | De Beer | Δ=1" | Δ=0.1B | Representative Static Resistance | Ratio of $P_S$ divided by PCYCL | Ratio of $P_D$ divided by PCYCL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | $P_{CYCL}$ | $P_D$ (kN) | $P_2$ (kN) | $P_3$ (kN) | $P_4$ (kN) | $P_5$ (kN) | $P_S$ (kN) | $P_S/P_{CYCL}$ | $P_D/P_{CYCL}$ |
| 26 | | 8/5 | 603 | 602 | 600-620 | - | 660 | 680 | 612 | 1.015 | 0.998 |
| 27 | Zaporogie | 9/1 | 1110 | - | 1200 | - | - | - | 1200 | 1.081 | --- |
| 28 | Techn.school | 9/2 | 920 | 940 | 1050-1020 | - | - | - | 1035 | 1.125 | 1.022 |
| 29 | | 9/3 | 1120 | - | 1030-1200 | - | - | - | 1115 | 0.996 | --- |
| 30 | A 3438 | 10/1 | 810 | | 800-900 | - | 9210 | 920 | 850 | 1.049 | --- |
| 31 | A 3438 | 10/10 | 710 | 650 | 680-780 | - | 740 | 752 | 690 | 0.972 | 0.915 |
| 32 | A 3438 | 10/10a | 930 | 930 | 930 | | 960 | 970 | 930 | 1.000 | 1.000 |
| 33 | A 3438 | 10/12a | 980 | 900 | 1000-1050 | - | - | - | 1025 | 1.046 | 0.918 |
| 34 | A 3438 | 10/14 | 860 | 840 | 800-860 | - | 915 | 930 | 835 | 0.971 | 0.977 |
| 35 | A 3438 | 10/15 | 1150 | 1150 | 1100-1200 | - | - | - | 1150 | 1.000 | 1.000 |
| 36 | A 3438 | 10/16 | 1131 | 1209 | 1145-1200 | 1187 | 1225 | 1226 | 1185 | 1.048 | 1.069 |
| 37 | A 3438 | 10/17a | 830 | 920 | 900 | - | 1050 | 1070 | 910 | 1.096 | 1.108 |
| 38 | A 3438 | 10/3 | 1000 | 1100 | 900-1300 | - | - | - | 1100 | 1.100 | 1.100 |
| 39 | A 3438 | 10/6 | 1200 | - | 1000-1300 | - | - | - | 1200 | 1.000 | --- |
| 40 | A 3438 | 10/9 | 1070 | 750 | 1000-1120 | - | 1160 | 1180 | 1100 | 1.028 | 0.701 |
| 41 | A3438/1 | 11/8 | 830 | 800 | 800 | - | 830 | 840 | 800 | 0.964 | 0.964 |
| 42 | A3438/2 | 12/1 | 520 | 620 | 500-580 | - | 630 | 640 | 540 | 1.038 | 1.192 |
| 43 | A3438/2 | 12/1a | 780 | 810 | 820 | - | 825 | 835 | 800 | 1.026 | 1.038 |
| 44 | A3438/2 | 12/2 | 980 | 880 | 980 | - | 1000 | 1020 | 980 | 1.000 | 0.898 |
| 45 | A3438/2 | 12/3 | 766 | 649 | 600-893 | 650-700 | | | 698 | 0.911 | 0.847 |
| 46 | | 12/4 | 830 | 820 | 800-860 | - | - | - | 828 | 0.998 | 0.988 |
| 47 | Dnepropetrovsk | 13/1 | 830 | 700 | 800-880 | - | 940 | 960 | 840 | 1.012 | 0.843 |
| 48 | Novopolozk | 14/9a | 820 | 730 | 850-900 | - | 950 | 960 | 875 | 1.067 | 0.890 |
| 49 | | 14/9b | 1080 | 880 | 1000-1200 | - | 1230 | 1250 | 1100 | 1.019 | 0.815 |
| 50 | | 14/11 | 800 | 710 | 780-820 | - | 830 | 900 | 800 | 1.000 | 0.888 |

**Table A.2 (con't).** Relevant Information Pertaining to Umass - Ukraine Database.

| Case No. | Location | Pile designation | Cyclic Bearing Capacity | Davison's Criteria | Shape of Curve | De Beer | Δ=1" | Δ=0.1B | Representative Static Resistance | Ratio of $P_S$ divided by PCYCL | Ratio of $P_D$ divided by PCYCL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | $P_{CYCL}$ | $P_D$ (kN) | $P_2$ (kN) | $P_3$ (kN) | $P_4$ (kN) | $P_5$ (kN) | $P_S$ (kN) | $P_S/P_{CYCL}$ | $P_D/P_{CYCL}$ |
| 51 | Dnepropetrovsk | 15/1 | 681 | 696 | 600-800 | 650-700 | 746 | 765 | 689 | 1.012 | 1.022 |
| 52 | #60F4 | 15/1a | 1124 | 953 | 1000-1097 | 1063 | 1126 | 1155 | 1028 | 0.915 | 0.848 |
| 53 | | 15/2 | 550 | - | 550 | - | 600 | 600 | 560 | 1.018 | --- |
| 54 | | 15/3 | 670 | 670 | 650-690 | - | 710 | 720 | 670 | 1.000 | 1.000 |
| 55 | Odessa | 16/1 | 800 | 800 | 800 | - | 820 | 825 | 800 | 1.000 | 1.000 |
| 56 | OPZ | 16/2 | 870 | 800 | 820-920 | - | 910 | 950 | 870 | 1.000 | 0.920 |
| 57 | | 16/3 | 820 | 810 | 820 | - | 850 | 860 | 820 | 1.000 | 0.988 |
| 58 | | 16/4 | 440 | 430 | 430-510 | - | 530 | 540 | 456 | 1.036 | 0.977 |
| 59 | | 16/6a | 710 | 630 | 700 | - | 710 | 715 | 660 | 0.930 | 0.887 |
| 60 | | 16/6b | 750 | 610 | 800 | - | 810 | 820 | 800 | 1.067 | 0.813 |
| 61 | Dnepropetrovsk | 17/1 | 965 | 793 | 800-987 | 980 | 1028 | 1050 | 890 | 0.922 | 0.822 |
| 62 | | 17/3 | 1245 | - | 1100-1300 | 1050 | - | | 1150 | 0.924 | --- |
| 63 | Herson | 18/1 | 985 | 600 | 1030-1050 | - | 1065 | 1075 | 1040 | 1.056 | 0.609 |
| 64 | | 18/2 | 730 | 643 | 722-800 | 780 | 816 | 831 | 767 | 1.051 | 0.881 |
| 65 | A7460 | 19/1a | 581 | 453 | 453-558 | 580-600 | 634 | 649 | 530 | 0.912 | 0.780 |
| 66 | | 19/1b | 1209 | 1218 | 1218-1290 | 1259 | 1309 | 1327 | 1246 | 1.031 | 1.007 |
| 67 | | 19/2 | 563 | 538 | 550-687 | 670-700 | 712 | 725 | 578 | 1.027 | 0.956 |
| 68 | | 19/2a | 965 | 956 | 902-1028 | 1060 | 1065 | 1083 | 986 | 1.022 | 0.991 |
| 69 | Zaporogie | 22/4 | 1119 | 997 | 1017-1200 | 1202 | 1200 | 1200 | 1104 | 0.987 | 0.891 |
| 70 | Belgorod,#231 | 23/1 | 650 | 590 | 650-690 | - | 700 | 730 | 650 | 1.000 | 0.908 |
| 71 | | 23/2 | 630 | 600 | 600-700 | - | 710 | 720 | 633 | 1.005 | 0.952 |
| 72 | | 23/3a | 582 | 538 | 587 | 650 | 675 | 681 | 592 | 1.017 | 0.924 |
| 73 | | 23/3b | 939 | 620 | 977 | 1000 | 1033 | 1052 | 988 | 1.052 | 0.660 |
| 74 | | 23/5 | 559 | 604 | 603-630 | 670 | 709 | 720 | 626 | 1.120 | 1.081 |
| 75 | | 23/7 | 660 | 570 | 670-700 | - | 715 | 725 | 685 | 1.038 | 0.864 |

**Table A.2 (con't).** Relevant Information Pertaining to Umass - Ukraine Database.

| Case No. | Location | Pile designation | Cyclic Bearing Capacity | Davison's Criteria | Shape of Curve | De Beer | Δ=1" | Δ=0.1B | Representative Static Resistance | Ratio of $P_S$ divided by PCYCL | Ratio of $P_D$ divided by PCYCL |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | $P_{CYCL}$ | $P_D$ (kN) | $P_2$ (kN) | $P_3$ (kN) | $P_4$ (kN) | $P_5$ (kN) | $P_S$ (kN) | $P_S/P_{CYCL}$ | $P_D/P_{CYCL}$ |
| 76 | | 23/8a | 620 | 580 | 580-700 | - | 710 | 722 | 620 | 1.000 | 0.935 |
| 77 | | 23/8b | 916 | 810 | 900-1000 | - | 1010 | 1020 | 950 | 1.037 | 0.884 |
| 78 | | 23/9 | 570 | 600 | 570-660 | - | 715 | 725 | 610 | 1.070 | 1.053 |
| 79 | | 23/10a | 590 | 570 | 570-700 | - | 720 | 735 | 613 | 1.039 | 0.966 |
| 80 | | 23/10b | 850 | 700 | 1030-1050 | - | 1060 | 1080 | 926 | 1.089 | 0.824 |
| 81 | | 23/11 | 600 | 670 | 660-680 | - | 750 | 760 | 670 | 1.117 | 1.117 |

**Table A.3.** Relevant Information Pertaining to the GRLWEAP Data.

| ID # | Site | SLT Results | Standard EOD WEAP | WEAP SLT | Standard BOR WEAP | WEAP SLT | Adjusted EOD WEAP | WEAP SLT | Adjusted BOR WEAP | WEAP SLT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (kN) | (kN) | | (kN) | | (kN) | | (kN) | |
| 1 | Appalachi.,FL | 4226 | 2117 | 1.996 | 4515 | 0.936 | 2091 | 2.021 | 5872 | 0.720 |
| 2 | Appalachi., FL | 4239 | 2802 | 1.513 | 6316 | 0.671 | 2802 | 1.513 | 6228 | 0.681 |
| 3 | Appalachi., FL | 3158 | 2869 | 1.101 | 4359 | 0.724 | 3172 | 0.996 | 5026 | 0.628 |
| 4 | Appalachi., FL | 2313 | 2429 | 0.952 | 3425 | 0.675 | 2647 | 0.874 | 4137 | 0.559 |
| 5 | Appalachi., FL | 3559 | 2002 | 1.778 | 4404 | 0.808 | 2358 | 1.509 | 4404 | 0.808 |
| 6 | Appalachi., FL | 3559 | 2402 | 1.481 | 4359 | 0.816 | 2580 | 1.379 | 4381 | 0.812 |
| 8 | Pagan River, VA | 2260 | 645 | 3.503 | 3559 | 0.635 | 845 | 2.674 | 3559 | 0.635 |
| 9 | Charles River, MA | 2313 | 2767 | 0.836 | 2745 | 0.843 | 2398 | 0.965 | 2144 | 1.079 |
| 10 | West Bay Brg., FL | 4115 | 5649 | 0.728 | 6183 | 0.665 | 4960 | 0.830 | 5983 | 0.688 |
| 11 | West Bay Brg., FL | 3714 | 4537 | 0.819 | 5471 | 0.679 | 3581 | 1.037 | 4893 | 0.759 |
| 12 | Mobile Tunnel, AL | 1695 | 1423 | 1.191 | 3737 | 0.454 | 1090 | 1.555 | 3247 | 0.522 |
| 13 | Mobile Tunnel, AL | 2544 | 2313 | 1.100 | 2949 | 0.863 | 2189 | 1.163 | 2482 | 1.025 |
| 14 | Mobile Tunnel, AL | 2891 | 2024 | 1.429 | 3705 | 0.780 | 2006 | 1.441 | 2891 | 1.000 |
| 15 | Mobile Tunnel, AL | 3781 | 2847 | 1.328 | 4582 | 0.825 | 2691 | 1.405 | 4003 | 0.944 |
| 16 | Mobile Tunnel, AL | 4893 | 5098 | 0.960 | 4337 | 1.128 | 4751 | 1.030 | 4537 | 1.078 |
| 17 | Omaha, NE | 1361 | 1081 | 1.259 | 1677 | 0.812 | 970 | 1.404 | 1544 | 0.882 |
| 18 | Omaha, NE | 1690 | 1499 | 1.128 | 1499 | 1.128 | 1499 | 1.128 | 1392 | 1.214 |
| 19 | Omaha, NE | 1704 | 1957 | 0.870 | 1650 | 1.032 | 1957 | 0.870 | 2024 | 0.842 |
| 20 | Omaha, NE | 1277 | 1090 | 1.171 | 1557 | 0.820 | 1001 | 1.276 | 1410 | 0.905 |
| 22 | Portland ,ME | 1984 | 1779 | 1.115 | 2602 | 0.762 | 1401 | 1.416 | 2447 | 0.811 |
| 23 | Portland ,ME | 1957 | 1548 | 1.264 | 2447 | 0.800 | 1535 | 1.275 | 2313 | 0.846 |
| 24 | Portland ,ME | 1570 | 1557 | 1.009 | 2091 | 0.751 | 1415 | 1.110 | 1735 | 0.905 |
| 26 | White City, VT | 1468 | 925 | 1.587 | 1214 | 1.209 | 907 | 1.618 | 1361 | 1.078 |
| 27 | White City, VT | 1726 | 689 | 2.503 | 756 | 2.282 | 734 | 2.352 | 890 | 1.940 |
| 28 | W.B. Rouge, LA | 1726 | 1179 | 1.464 | 4404 | 0.392 | 854 | 2.021 | 3114 | 0.554 |

**Table A.3 (con't).** Relevant Information Pertaining to the GRLWEAP Data.

| ID # | Site | SLT Results | Standard EOD WEAP | WEAP SLT | Standard BOR WEAP | WEAP SLT | Adjusted EOD WEAP | WEAP SLT | Adjusted BOR WEAP | WEAP SLT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (kN) | (kN) | | (kN) | | (kN) | | (kN) | |
| 29 | GRL, MB-AL | 1201 | 899 | 1.337 | 1277 | 0.941 | 899 | 1.337 | 867 | 1.385 |
| 30 | GRL, MB-AL | 3381 | 2580 | 1.310 | 2847 | 1.188 | 1908 | 1.772 | 2380 | 1.421 |
| 31 | Turnpike, PA | 1254 | 774 | 1.621 | 1659 | 0.756 | 623 | 2.014 | 1321 | 0.949 |
| 32 | Choctawhat., FL | 3590 | 2624 | 1.368 | 6050 | 0.593 | 2624 | 1.368 | 6601 | 0.544 |
| 33 | Seattle, WA | 5614 | 4893 | 1.147 | 4671 | 1.202 | 4559 | 1.231 | 3114 | 1.803 |
| 34 | Orlando, FL | 3745 | 1944 | 1.927 | 1957 | 1.914 | 1597 | 2.345 | 2580 | 1.452 |
| 35 | Orlando, FL | 2211 | 947 | 2.333 | 1179 | 1.875 | 623 | 3.550 | 1223 | 1.807 |
| 37 | Dubuque, IA | 4146 | 1610 | 2.575 | 2362 | 1.755 | 1753 | 2.365 | 2304 | 1.799 |
| 38 | Dubuque, IA | 2936 | 1868 | 1.571 | 2144 | 1.369 | 2091 | 1.404 | 2068 | 1.419 |
| 41 | Cleveland, OH | 2473 | 3176 | 0.779 | 3060 | 0.808 | 2758 | 0.897 | 2945 | 0.840 |
| 42 | Cleveland, OH | 3203 | 3034 | 1.056 | 3372 | 0.950 | 2936 | 1.091 | 2882 | 1.111 |
| 43 | Cleveland, OH | 1370 | 1250 | 1.096 | 1646 | 0.832 | 1272 | 1.077 | 1744 | 0.786 |
| 44 | Norwood, OH | 681 | 810 | 0.841 | 956 | 0.712 | 810 | 0.841 | 685 | 0.994 |
| 45 | Hennipin, MN | 3367 | 1646 | 2.046 | 3069 | 1.097 | 1388 | 2.426 | 2567 | 1.312 |
| 46 | Choctawhat., FL | 2215 | 712 | 3.113 | 3781 | 0.586 | 712 | 3.113 | 3737 | 0.593 |
| 47 | Choctawhat., FL | 6272 | 2224 | 2.820 | 7006 | 0.895 | 2224 | 2.820 | 9030 | 0.695 |
| 48 | Choctawhat., FL | 6632 | 5792 | 1.145 | 6984 | 0.950 | 5792 | 1.145 | 7451 | 0.890 |
| 49 | Choctawhat., FL | 2811 | 3136 | 0.896 | 5516 | 0.510 | 3136 | 0.896 | 6050 | 0.465 |
| 50 | Choctawhat., FL | 4003 | 3425 | 1.169 | 6094 | 0.657 | 3425 | 1.169 | 3225 | 1.241 |
| 51 | Choctawhat., FL | 6437 | 5858 | 1.099 | 7340 | 0.877 | 5858 | 1.099 | 5961 | 1.080 |
| 54 | Natchez, MS | 2224 | 1303 | 1.706 | 1979 | 1.124 | 1303 | 1.706 | 1979 | 1.124 |
| 55 | Cimarron, OK | 2669 | 4626 | 0.577 | 3870 | 0.690 | 2326 | 1.147 | 3692 | 0.723 |
| 56 | Cimarron, OK | 3523 | 3781 | 0.932 | 4470 | 0.788 | 3038 | 1.160 | 4982 | 0.707 |
| 59 | Route 115, MO | 1446 | 1459 | 0.991 | 1401 | 1.032 | 1157 | 1.250 | 1125 | 1.285 |
| 60 | Route 115, MO | 1094 | 934 | 1.171 | 1468 | 0.745 | 685 | 1.597 | 1157 | 0.946 |

**Table A.3 (con't).** Relevant Information Pertaining to the GRLWEAP Data.

| ID # | Site | SLT Results | Standard EOD WEAP | WEAP SLT | Standard BOR WEAP | WEAP SLT | Adjusted EOD WEAP | WEAP SLT | Adjusted BOR WEAP | WEAP SLT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (kN) | (kN) | | (kN) | | (kN) | | (kN) | |
| 61 | Bailey fork, TN | 1188 | 1592 | 0.746 | 1890 | 0.628 | 965 | 1.230 | 1557 | 0.763 |
| 62 | White City, FL | 2891 | 3648 | 0.793 | 3025 | 0.956 | 3648 | 0.793 | 2891 | 1.000 |
| 63 | White City, FL | 2100 | 2589 | 0.811 | 2100 | 1.000 | 2157 | 0.973 | 2447 | 0.858 |
| 66 | SR 15 Tioga, PA | 1068 | 943 | 1.132 | 1214 | 0.879 | 721 | 1.481 | 867 | 1.231 |
| 67 | Annacis, Canada | 1757 | 3194 | 0.550 | 3336 | 0.527 | 2455 | 0.716 | 2914 | 0.603 |
| 68 | Dawhoo, SC | 4715 | 2380 | 1.981 | 6650 | 0.709 | 3087 | 1.527 | 8363 | 0.564 |
| 69 | Dawhoo, SC | 2624 | 1068 | 2.458 | 2945 | 0.891 | 1068 | 2.458 | 3381 | 0.776 |
| 70 | Dawhoo, SC | 2749 | 556 | 4.944 | 4012 | 0.685 | 418 | 6.574 | 2660 | 1.033 |
| 71 | Socastee, SC | 1392 | 1388 | 1.003 | 2535 | 0.549 | 756 | 1.841 | 2002 | 0.696 |
| 72 | Socastee, SC | 2669 | 2851 | 0.936 | 4070 | 0.656 | 2442 | 1.093 | 4048 | 0.659 |
| 74 | Doughty St., SC | 1601 | 1121 | 1.429 | 2135 | 0.750 | 1121 | 1.429 | 1761 | 0.909 |
| 75 | Battery Cr., SC | 2237 | 3158 | 0.708 | 2402 | 0.931 | 2949 | 0.759 | 2936 | 0.762 |
| 76 | Battery Cr., SC | 4648 | 4568 | 1.018 | 4337 | 1.072 | 4568 | 1.018 | 5649 | 0.823 |
| 78 | Phoenix, AZ | 5698 | 3069 | 1.857 | 2980 | 1.912 | 1882 | 3.028 | 2980 | 1.912 |
| 79 | Phoenix, AZ | 3292 | 3136 | 1.050 | 2344 | 1.404 | 2211 | 1.489 | 2491 | 1.321 |
| 80 | Phoenix, AZ | 3065 | 2624 | 1.168 | 2535 | 1.209 | 2624 | 1.168 | 2433 | 1.260 |
| 82 | Phoenix, AZ | 4448 | 4226 | 1.053 | 1935 | 2.299 | 4226 | 1.053 | 2802 | 1.587 |
| 83 | Franklin Br., FL | 4301 | 3679 | 1.169 | 4003 | 1.074 | 4404 | 0.977 | 4448 | 0.967 |
| 84 | Franklin Br., FL | 3648 | 2963 | 1.231 | 3603 | 1.012 | 3381 | 1.079 | 4537 | 0.804 |
| 85 | Port of LA, CA | 4537 | 5373 | 0.844 | 5338 | 0.850 | 4217 | 1.076 | 6744 | 0.673 |
| 87 | Jones Island, WI | 2918 | 2224 | 1.312 | 2758 | 1.058 | 2068 | 1.411 | 3198 | 0.912 |
| 88 | Jones Island, WI | 2091 | 2553 | 0.819 | 2482 | 0.842 | 1979 | 1.056 | 2847 | 0.734 |
| 89 | Jones Island, WI | 2580 | 765 | 3.372 | 1535 | 1.681 | 832 | 3.102 | 1548 | 1.667 |
| 90 | Jones Island, WI | 1690 | 311 | 5.429 | 1708 | 0.990 | 311 | 5.429 | 1699 | 0.995 |
| 92 | Jones Island, WI | 2922 | 436 | 6.704 | 1761 | 1.659 | 378 | 7.729 | 2291 | 1.276 |

**Table A.3 (con't).** Relevant Information Pertaining to the GRLWEAP Data.

| ID # | Site | SLT Results | Standard EOD WEAP | WEAP SLT | Standard BOR WEAP | WEAP SLT | Adjusted EOD WEAP | WEAP SLT | Adjusted BOR WEAP | WEAP SLT |
|---|---|---|---|---|---|---|---|---|---|---|
| | | (kN) | (kN) | | (kN) | | (kN) | | (kN) | |
| 93 | Jones Island, WI | 1690 | 476 | 3.551 | 1281 | 1.319 | 503 | 3.363 | 1210 | 1.397 |
| 101 | Newport, KY | 1615 | 2157 | 0.748 | 2068 | 0.781 | 2002 | 0.807 | 1913 | 0.844 |
| 102 | N/A | 1664 | 1966 | 0.846 | 2180 | 0.763 | 1570 | 1.059 | 1868 | 0.890 |
| 103 | N/A | 2318 | 2318 | 1.000 | 2647 | 0.876 | 2011 | 1.153 | 2277 | 1.018 |
| 104 | N/A | 1681 | 2055 | 0.818 | 2135 | 0.788 | 1735 | 0.969 | 1681 | 1.000 |
| 105 | Boston, MA | 2825 | 1953 | 1.446 | 2313 | 1.221 | 1779 | 1.588 | 1864 | 1.516 |
| 118 | Kontich, Belgium | 2108 | 1779 | 1.185 | 2358 | 0.894 | 1766 | 1.194 | 2380 | 0.886 |
| 119 | Kontich, Belgium | 1317 | 1713 | 0.769 | 2349 | 0.561 | 1686 | 0.781 | 2424 | 0.543 |
| 120 | Kontich, Belgium | 2558 | 2495 | 1.025 | 2847 | 0.898 | 2469 | 1.036 | 3158 | 0.810 |
| 126 | Arutmin, Indonesia | 2798 | 4115 | 0.680 | 4702 | 0.595 | 4115 | 0.680 | 3710 | 0.754 |
| 185 | Duluth, MN | 1890 | 1686 | 1.121 | 1677 | 1.127 | 1419 | 1.332 | 1339 | 1.412 |
| 187 | New Orleans, LA | 485 | 111 | 4.360 | 712 | 0.681 | 98 | 4.955 | 520 | 0.932 |
| 188 | New Orleans, LA | 578 | 93 | 6.190 | 618 | 0.935 | 93 | 6.190 | 467 | 1.238 |
| 189 | New Orleans, LA | 529 | 138 | 3.839 | 1076 | 0.492 | 138 | 3.839 | 689 | 0.768 |
| 190 | New Orleans, LA | 507 | 107 | 4.750 | 712 | 0.713 | 89 | 5.700 | 520 | 0.974 |
| 191 | Jakarta, Indonesia | 2865 | 3434 | 0.834 | 3381 | 0.847 | 3434 | 0.834 | 2865 | 1.000 |
| 192 | McDuffie Island, AL | 703 | 979 | 0.718 | 1134 | 0.620 | 872 | 0.806 | 1268 | 0.554 |
| 193 | McDuffie Island, AL | 1544 | 796 | 1.939 | 712 | 2.169 | 716 | 2.155 | 712 | 2.169 |
| 194 | McDuffie Island, AL | 1704 | 801 | 2.128 | 1059 | 1.609 | 947 | 1.798 | 1143 | 1.490 |
| 196 | Luling Brdg., LA | 1842 | 712 | 2.588 | 4359 | 0.422 | 689 | 2.671 | 3603 | 0.511 |
| 197 | Luling Brdg., LA | 2273 | 912 | 2.493 | 4782 | 0.475 | 872 | 2.607 | 5160 | 0.441 |
| 198 | Luling Brdg., LA | 2469 | 1241 | 1.989 | 5449 | 0.453 | 859 | 2.876 | 5560 | 0.444 |
| 199 | Luling Brdg., LA | 2406 | 956 | 2.516 | 3959 | 0.608 | 703 | 3.424 | 3959 | 0.608 |
| 200 | Luling Brdg., LA | 2406 | 2024 | 1.189 | 4448 | 0.541 | 1059 | 2.273 | 4724 | 0.509 |

**Table A.4.** Relevant Information Pertaining to the Case Data

| DB # | LOCATION | Time of Driving | Average Set (IN) | Blow Count (BPI) | Davisson Capacity $R_D$ (kips) | TEST DATE | $R_{MAX}$ (kips) | SMITH DAMPING FACTOR | CASE DAMPING FACTOR | $K_{SC}$ $R_D$ Rmax |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | HOWARD FRANKLAND/LS1 | BOR | 0.14 | 7.22 | 1000 | 05/20/86 | 970 | 0.04 | 0.20 | 1.031 |
| 2 | HOWARD FRANKLAND/LS3 | BOR | N/A | NA | 1549 | N/A | NA | NA | NA | |
| 3 | HOWARD FRANKLAND/LS4 - SHORT | BOR | N/A | NA | 1542 | N/A | NA | NA | NA | |
| 4 | HOWARD FRANKLAND/LS4 - LONG | BOR | 0.20 | 5.00 | 740 | 05/19/86 | 1080 | 0.07 | 0.20 | 0.686 |
| 5 | APPALACHICOLA RIVER BRIDGE/PIER 3 | BOR | 0.03 | 30.00 | 922 | 09/17/86 | 996 | 0.06 | 0.29 | 0.926 |
| 6 | APPALACHICOLA RIVER BRIDGE/PIER 14 | BOR | 0.05 | 20.00 | NA | 09/11/86 | 1144 | 0.10 | 0.40 | |
| 7 | APPALACHICOLA RIVER BRIDGE/PIER 25 | BOR | 0.05 | 20.00 | 672 | 10/01/86 | 680 | 0.06 | 0.20 | 0.988 |
| 8 | APPALACHICOLA RIVER BRIDGE/FSB16 | BOR | 0.13 | 7.67 | 308 | 10/30/86 | 410 | 0.05 | 0.13 | 0.752 |
| 9 | APPALACHICOLA BAY BRIDGE/BENT 41 | BOR | 0.13 | 8.00 | 530 | 10/13/86 | 636 | 0.06 | 0.20 | 0.834 |
| 10 | APPALACHICOLA BAY BRIDGE/BENT 101 | BOR | 0.04 | 24.00 | 739 | 10/23/86 | 920 | 0.03 | 0.12 | 0.803 |
| 11 | APPALACHICOLA BAY BRIDGE/BENT 133 | BOR | 0.02 | 56.00 | 734 | 12/05/86 | 884 | 0.05 | 0.20 | 0.830 |
| 12 | APPALACHICOLA BAY BRIDGE/BENT 145 | BOR | 0.02 | 48.00 | 955 | 12/16/86 | 884 | 0.05 | 0.20 | 1.080 |
| 13 | APPALACHICOLA BAY BRIDGE/FSB22 | BOR | 0.08 | 12.00 | 425 | 09/17/86 | 520 | 0.11 | 0.39 | 0.818 |
| 14 | BLOUNT ISLAND TERMINAL/B-20 | BOR | 0.08 | 13.00 | 579 | 04/23/87 | 538 | 0.12 | 0.40 | 1.077 |
| 15 | BLOUNT ISLAND TERMINAL/B-21 | BOR | 0.14 | 7.00 | 369 | 04/21/87 | 362 | 0.02 | 0.04 | 1.020 |
| 16 | ORLANDO/D-22 | BOR | 0.25 | 4.00 | 835 | 02/02/88 | NA | NA | NA | |
| 17 | DODGE ISLAND BRIDGE/3-E-18 | BOR | 0.38 | 2.67 | NA | 10/03/88 | 720 | 0.25 | 0.50 | |
| 18 | DODGE ISLAND BRIDGE/4-E-18 | BOR | 0.38 | 2.67 | NA | 10/10/88 | 770 | 0.23 | 0.50 | |
| 19 | DODGE ISLAND BRIDGE/6-E-20 | BOR | 0.14 | 7.08 | NA | 10/07/88 | 1050 | 0.17 | 0.50 | |
| 20 | DODGE ISLAND BRIDGE/8-E-20 | BOR | 0.07 | 15.00 | NA | 09/30/88 | 1830 | 0.10 | 0.50 | |
| 21 | DODGE ISLAND BRIDGE/9-E-20 | BOR | 0.05 | 21.00 | NA | 09/30/88 | 1780 | 0.10 | 0.50 | |
| 22 | DODGE ISLAND BRIDGE/LTP | BOR | 0.05 | 18.67 | 1250 | 10/14/88 | 1850 | 0.10 | 0.50 | 0.676 |
| 23 | CHOCTAWHATCHEE/FSB-3 | BOR | 0.10 | 10.00 | 497 | 12/21/88 | 724 | 0.14 | 0.40 | 0.687 |
| 24 | CHOCTAWHATCHEE/P-5 | BOR | 0.06 | 16.00 | 1231 | 05/12/87 | 732 | NA | NA | 1.681 |
| 25 | CHOCTAWHATCHEE/P-11 | BOR | 0.06 | 18.00 | 1405 | 04/17/89 | 1384 | 0.09 | 0.40 | 1.015 |

**Table A.4 (con't).** Relevant Information Pertaining to the Case Data

| DB # | LOCATION | Time of Driving | Average Set | Blow Count | Davisson Capacity $R_D$ | TEST DATE | $R_{MAX}$ | SMITH DAMPING FACTOR | CASE DAMPING FACTOR | $K_{SC}$ $\frac{R_D}{R_{max}}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | (IN) | (BPI) | (kips) | | (kips) | | | |
| 26 | CHOCTAWHATCHEE/P-17 | BOR | 0.03 | 36.00 | 1481 | 04/06/89 | 900 | 0.13 | 0.40 | 1.645 |
| 27 | CHOCTAWHATCHEE/P-23 | BOR | 0.08 | 12.00 | 626 | 03/10/89 | 800 | 0.15 | 0.40 | 0.783 |
| 28 | CHOCTAWHATCHEE/P-29 | BOR | 0.04 | 26.00 | 910 | 02/07/89 | 832 | 0.14 | 0.40 | 1.093 |
| 29 | CHOCTAWHATCHEE/P-35 | BOR | 0.05 | 22.00 | 1453 | 01/25/89 | 1048 | 0.11 | 0.40 | 1.387 |
| 30 | CHOCTAWHATCHEE/P-41 | BOR | 0.12 | 8.70 | 1368 | 01/13/89 | NA | NA | NA | |
| 31 | CHOCTAWHATCHEE/FSB-26 | BOR | 0.06 | 16.00 | 940 | 12/16/88 | 688 | 0.15 | 0.40 | 1.366 |
| 32 | CHOCTAWHATCHEE/TP-26 | BOR | 0.10 | 10.00 | 794 | 11/12/91 | 601 | 0.22 | 0.50 | 1.322 |
| 33 | CAPE CANAVERAL/T-1 | BOR | 0.03 | 36.00 | 451 | 07/24/89 | NA | NA | NA | |
| 34 | CAPE CANAVERAL/T-6 | BOR | 0.11 | 9.00 | 309 | 07/24/89 | NA | NA | NA | |
| 35 | CAPE CANAVERAL/T-7 | BOR | 0.10 | 10.00 | 395 | 07/24/89 | NA | NA | NA | |
| 36 | CAPE CANAVERAL/T-14 | BOR | 0.08 | 13.00 | 355 | 07/24/89 | NA | NA | NA | |
| 37 | WHITE CITY BRIDGE/TP1 | BOR | N/A | NA | NA | N/A | NA | NA | NA | |
| 38 | WHITE CITY BRIDGE/TP2 | BOR | 0.12 | 8.33 | NA | 03/22/90 | 590 | 0.19 | 0.41 | |
| 39 | WHITE CITY BRIDGE/TP3 | BOR | 0.15 | 6.67 | 632 | 03/30/90 | 480 | 0.29 | 0.52 | 1.317 |
| 40 | WHITE CITY BRIDGE/TP4 | BOR | 0.18 | 5.67 | NA | 03/22/90 | 480 | 0.23 | 0.41 | |
| 41 | WHITE CITY BRIDGE/TP5 | BOR | 0.15 | 6.67 | NA | 03/13/90 | 470 | 0.18 | 0.32 | |
| 42 | WHITE CITY BRIDGE/TP6 | BOR | 0.15 | 6.67 | 468 | 04/06/90 | 420 | 0.25 | 0.40 | 1.114 |
| 43 | WHITE CITY BRIDGE/TP7 | BOR | 0.06 | 16.00 | NA | 03/13/90 | 570 | 0.15 | 0.32 | |
| 44 | WHITE CITY BRIDGE/TP8 | BOR | 0.13 | 8.00 | NA | 03/13/90 | 490 | 0.18 | 0.32 | |
| 45 | ACOSTA BRIDGE/PIER F6 | BOR | 0.06 | 18.00 | 754 | 04/19/90 | 848 | 0.12 | 0.40 | 0.889 |
| 46 | ACOSTA BRIDGE/PIER G13 | BOR | 0.06 | 18.00 | 1090 | 05/03/90 | 1164 | 0.09 | 0.40 | 0.936 |
| 47 | ACOSTA BRIDGE/PIER H2 | BOR | 0.07 | 14.00 | 563 | 05/30/90 | 892 | 0.11 | 0.40 | 0.631 |
| 48 | WEST BAY BRIDGE/TP-9 | BOR | 0.15 | 6.67 | 919 | 03/07/91 | 1000 | 0.11 | 0.40 | 0.919 |
| 49 | WEST BAY BRIDGE/TP-15 | BOR | 0.20 | 5.00 | 832 | 01/23/91 | 890 | 0.12 | 0.40 | 0.935 |
| 50 | ESCAMBIA RIVER/BENT 5 | BOR | 0.10 | 10.00 | 869 | 11/21/92 | 568 | 0.19 | 0.40 | 1.529 |

**Table A.4 (con't).** Relevant Information Pertaining to the Case Data

| DB # | LOCATION | Time of Driving | Average Set (IN) | Blow Count (BPI) | Davisson Capacity $R_D$ (kips) | TEST DATE | $R_{MAX}$ (kips) | SMITH DAMPING FACTOR | CASE DAMPING FACTOR | $K_{SC}$ $\frac{R_D}{R_{max}}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 51 | ESCAMBIA RIVER/BENT 77 | BOR | 0.03 | 33.25 | 1578 | 12/14/91 | 954 | 0.11 | 0.40 | 1.654 |
| 52 | ROOSEVELT BRIDGE SITE/A-30 | BOR | 0.09 | 11.43 | 910 | 01/20/92 | 1000 | 0.21 | 0.55 | 0.910 |
| 53 | ROOSEVELT BRIDGE SITE/B-30-W | BOR | 0.19 | 5.33 | 786 | 01/20/92 | 840 | 0.24 | 0.55 | 0.936 |
| 54 | BUCKMAN BRIDGE/TS-13 | BOR | 0.10 | 10.00 | 974 | 05/11/93 | 1080 | 0.12 | 0.40 | 0.902 |
| 55 | BUCKMAN BRIDGE/TS-19 | BOR | 0.17 | 6.00 | 1089 | 06/21/93 | 1268 | 0.10 | 0.40 | 0.859 |
| 56 | BUCKMAN BRIDGE/TS-24 | BOR | 0.03 | 29.00 | 1110 | 07/14/93 | 1492 | 0.08 | 0.40 | 0.744 |
| 57 | BUCKMAN BRIDGE/TS-29 | BOR | 0.16 | 6.25 | 1103 | 05/29/93 | 1178 | 0.11 | 0.40 | 0.936 |
| 1 | HOWARD FRANKLAND/LS1 | EOD | 0.01 | 79.17 | 1000 | 05/12/86 | 1025 | 0.04 | 0.20 | 0.976 |
| 2 | HOWARD FRANKLAND/LS3 | EOD | 0.05 | 19.40 | 1549 | N/A | 1225 | 0.06 | 0.20 | 1.264 |
| 3 | HOWARD FRANKLAND/LS4 - SHORT | EOD | 0.03 | 29.17 | 1542 | N/A | 1500 | 0.05 | 0.20 | 1.028 |
| 4 | HOWARD FRANKLAND/LS4 - LONG | EOD | 0.21 | 4.76 | 740 | 04/24/86 | 750 | 0.10 | 0.20 | 0.987 |
| 5 | APPALACHICOLA RIVER BRIDGE/PIER 3 | EOD | 0.29 | 3.42 | 922 | 09/04/86 | 500 | 0.18 | 0.43 | 1.844 |
| 6 | APPALACHICOLA RIVER BRIDGE/PIER 14 | EOD | 0.33 | 3.00 | NA | 08/22/86 | 788 | 0.13 | 0.36 | |
| 7 | APPALACHICOLA RIVER BRIDGE/PIER 25 | EOD | 0.25 | 4.00 | 672 | 09/19/86 | 612 | 0.05 | 0.14 | 1.097 |
| 8 | APPALACHICOLA RIVER BRIDGE/FSB16 | EOD | 0.32 | 3.17 | 308 | 10/13/86 | 318 | 0.09 | 0.20 | 0.969 |
| 9 | APPALACHICOLA BAY BRIDGE/BENT 41 | EOD | 0.24 | 4.17 | 530 | 09/12/86 | 620 | 0.05 | 0.14 | 0.855 |
| 10 | APPALACHICOLA BAY BRIDGE/BENT 101 | EOD | 0.34 | 2.91 | 739 | 09/29/86 | 664 | 0.06 | 0.18 | 1.112 |
| 11 | APPALACHICOLA BAY BRIDGE/BENT 133 | EOD | 0.19 | 5.25 | 734 | 11/11/86 | 480 | 0.17 | 0.39 | 1.529 |
| 12 | APPALACHICOLA BAY BRIDGE/BENT 145 | EOD | 0.19 | 5.25 | 955 | 11/07/86 | 712 | 0.06 | 0.20 | 1.341 |
| 13 | APPALACHICOLA BAY BRIDGE/FSB22 | EOD | 0.24 | 4.17 | 425 | 09/04/86 | 266 | 0.10 | 0.19 | 1.598 |
| 14 | BLOUNT ISLAND TERMINAL/B-20 | EOD | 0.13 | 8.00 | 579 | N/A | NA | NA | NA | |
| 15 | BLOUNT ISLAND TERMINAL/B-21 | EOD | 0.26 | 3.92 | 369 | N/A | NA | NA | NA | |
| 16 | ORLANDO/D-22 | EOD | 0.18 | 5.67 | 835 | 01/26/88 | NA | NA | NA | |
| 17 | DODGE ISLAND BRIDGE/3-E-18 | EOD | 0.11 | 9.00 | NA | 09/30/88 | 1180 | 0.15 | 0.50 | |
| 18 | DODGE ISLAND BRIDGE/4-E-18 | EOD | 0.38 | 2.67 | NA | 10/06/88 | 660 | 0.27 | 0.50 | |

**Table A.4 (con't).** Relevant Information Pertaining to the Case Data

| DB # | LOCATION | Time of Driving | Average Set (IN) | Blow Count (BPI) | Davisson Capacity $R_D$ (kips) | TEST DATE | $R_{MAX}$ (kips) | SMITH DAMPING FACTOR | CASE DAMPING FACTOR | $K_{SC}$ $R_D$ Rmax |
|---|---|---|---|---|---|---|---|---|---|---|
| 19 | DODGE ISLAND BRIDGE/6-E-20 | EOD | 0.20 | 5.00 | NA | 10/06/88 | 910 | 0.20 | 0.50 | |
| 20 | DODGE ISLAND BRIDGE/8-E-20 | EOD | 0.05 | 22.00 | NA | 09/29/88 | 1840 | 0.10 | 0.50 | |
| 21 | DODGE ISLAND BRIDGE/9-E-20 | EOD | 0.05 | 19.00 | NA | 09/28/88 | 1790 | 0.10 | 0.50 | |
| 22 | DODGE ISLAND BRIDGE/LTP | EOD | 0.09 | 11.00 | 1250 | 10/13/88 | 1630 | 0.11 | 0.50 | 0.767 |
| 23 | CHOCTAWHATCHEE/FSB-3 | EOD | 1.00 | 1.00 | 497 | 12/08/88 | 232 | 0.44 | 0.40 | 2.144 |
| 24 | CHOCTAWHATCHEE/P-5 | EOD | 0.08 | 12.00 | 1231 | 02/06/89 | 1044 | NA | NA | 1.179 |
| 25 | CHOCTAWHATCHEE/P-11 | EOD | 0.59 | 1.69 | 1405 | 03/09/89 | 964 | 0.13 | 0.40 | 1.457 |
| 26 | CHOCTAWHATCHEE/P-17 | EOD | 0.07 | 14.17 | 1481 | 03/06/89 | 832 | 0.14 | 0.40 | 1.780 |
| 27 | CHOCTAWHATCHEE/P-23 | EOD | 0.27 | 3.67 | 626 | 02/28/89 | NA | NA | 0.40 | |
| 28 | CHOCTAWHATCHEE/P-29 | EOD | 0.50 | 2.00 | 910 | 01/05/89 | 312 | 0.37 | 0.40 | 2.916 |
| 29 | CHOCTAWHATCHEE/P-35 | EOD | 0.11 | 8.73 | 1453 | 12/30/89 | 960 | 0.12 | 0.40 | 1.514 |
| 30 | CHOCTAWHATCHEE/P-41 | EOD | 0.06 | 17.00 | 1368 | 12/20/88 | 908 | 0.13 | 0.40 | 1.506 |
| 31 | CHOCTAWHATCHEE/FSB-26 | EOD | 0.18 | 5.45 | 940 | 12/02/88 | 736 | 0.14 | 0.40 | 1.277 |
| 32 | CHOCTAWHATCHEE/TP-26 | EOD | 0.33 | 3.00 | 794 | 10/16/91 | NA | NA | NA | |
| 33 | CAPE CANAVERAL/T-1 | EOD | 0.40 | 2.50 | 451 | 07/22/89 | 245 | 0.13 | 0.40 | 1.839 |
| 34 | CAPE CANAVERAL/T-6 | EOD | 0.13 | 7.50 | 309 | 07/22/89 | 360 | 0.14 | 0.40 | 0.859 |
| 35 | CAPE CANAVERAL/T-7 | EOD | 0.50 | 2.00 | 395 | 07/22/89 | 260 | 0.12 | 0.40 | 1.521 |
| 36 | CAPE CANAVERAL/T-14 | EOD | 0.18 | 5.50 | 355 | 07/20/89 | 305 | 0.10 | 0.40 | 1.164 |
| 37 | WHITE CITY BRIDGE/TP1 | EOD | 0.02 | 53.00 | NA | 03/26/91 | 510 | NA | NA | |
| 38 | WHITE CITY BRIDGE/TP2 | EOD | 0.13 | 7.83 | NA | 03/22/90 | 580 | 0.19 | 0.41 | |
| 39 | WHITE CITY BRIDGE/TP3 | EOD | 0.11 | 9.33 | 632 | 03/22/90 | 490 | 0.22 | 0.41 | 1.290 |
| 40 | WHITE CITY BRIDGE/TP4 | EOD | 0.19 | 5.29 | NA | 03/22/90 | 480 | 0.23 | 0.41 | |
| 41 | WHITE CITY BRIDGE/TP5 | EOD | 0.14 | 7.17 | NA | 03/12/90 | 440 | 0.19 | 0.32 | |
| 42 | WHITE CITY BRIDGE/TP6 | EOD | 0.20 | 5.00 | 468 | 03/13/90 | 430 | 0.20 | 0.32 | 1.088 |
| 43 | WHITE CITY BRIDGE/TP7 | EOD | 0.09 | 10.67 | NA | 03/13/90 | 550 | 0.16 | 0.32 | |

**Table A.4 (con't).** Relevant Information Pertaining to the Case Data

| DB # | LOCATION | Time of Driving | Average Set (IN) | Blow Count (BPI) | Davisson Capacity $R_D$ (kips) | TEST DATE | $R_{MAX}$ (kips) | SMITH DAMPING FACTOR | CASE DAMPING FACTOR | $K_{SC}$ $\frac{R_D}{Rmax}$ |
|---|---|---|---|---|---|---|---|---|---|---|
| 44 | WHITE CITY BRIDGE/TP8 | EOD | 0.15 | 6.67 | NA | 03/13/90 | 470 | 0.18 | 0.32 | |
| 45 | ACOSTA BRIDGE/PIER F6 | EOD | 0.25 | 4.00 | 754 | 03/28/90 | 464 | 0.21 | 0.40 | 1.626 |
| 46 | ACOSTA BRIDGE/PIER G13 | EOD | 0.14 | 7.00 | 1090 | 04/20/90 | 860 | 0.12 | 0.40 | 1.267 |
| 47 | ACOSTA BRIDGE/PIER H2 | EOD | 0.11 | 8.83 | 563 | 05/11/90 | 876 | 0.11 | 0.40 | 0.643 |
| 48 | WEST BAY BRIDGE/TP-9 | EOD | 0.20 | 5.00 | 919 | 03/07/91 | 580 | 0.24 | 0.50 | 1.584 |
| 49 | WEST BAY BRIDGE/TP-15 | EOD | 0.30 | 3.33 | 832 | 01/23/91 | 500 | 0.21 | 0.40 | 1.665 |
| 50 | ESCAMBIA RIVER/BENT 5 | EOD | 0.14 | 7.00 | 869 | 10/29/92 | 596 | 0.18 | 0.40 | 1.457 |
| 51 | ESCAMBIA RIVER/BENT 77 | EOD | 0.06 | 18.00 | 1578 | 11/23/91 | 768 | 0.14 | 0.40 | 2.055 |
| 52 | ROOSEVELT BRIDGE SITE/A-30 | EOD | 0.12 | 8.58 | 910 | 01/15/92 | 880 | 0.23 | 0.55 | 1.034 |
| 53 | ROOSEVELT BRIDGE SITE/B-30-W | EOD | 0.23 | 4.33 | 786 | 01/17/92 | 820 | 0.25 | 0.55 | 0.959 |
| 54 | BUCKMAN BRIDGE/TS-13 | EOD | 0.29 | 3.42 | 974 | 04/08/93 | 774 | 0.16 | 0.40 | 1.258 |
| 55 | BUCKMAN BRIDGE/TS-19 | EOD | 0.19 | 5.25 | 1089 | 04/26/93 | 1082 | 0.11 | 0.40 | 1.007 |
| 56 | BUCKMAN BRIDGE/TS-24 | EOD | 0.18 | 5.50 | 1110 | 04/13/93 | 1280 | 0.09 | 0.40 | 0.867 |
| 57 | BUCKMAN BRIDGE/TS-29 | EOD | 0.17 | 6.00 | 1103 | 04/29/93 | 1048 | 0.12 | 0.40 | 1.052 |

**Table A.5.** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area ($in^2$) | Length Below Gauges (ft) | Penetr Depth (ft) | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Side | Tip |
| 1 | 96-104-1W-D | EOD | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 137 | 131.5 | Clay (BB) | Till/Rock |
| 2 | 96-104-1W-D | 1 DR | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 137 | | Clay (BB) | Till/Rock |
| 3 | 96-104-1W-I | EOD | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 137 | 125.0 | Clay (BB) | Till/Rock |
| 4 | 96-104-1W-I | 1 DR | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 126 | | Clay (BB) | Till/Rock |
| 5 | 96-104-2E-K | EOD | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 133 | 134.0 | Clay (BB) | Till/Rock |
| 6 | 96-104-2E-K | 1 DR | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 133 | | Clay (BB) | Till/Rock |
| 7 | 96-104-2W-R | EOD | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 141 | 130.0 | Clay (BB) | Till/Rock |
| 8 | 96-104-2W-R | 1 DR | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 142 | | Clay (BB) | Till/Rock |
| 9 | 96-104-3E-A | EOD | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 111.5 | 108.0 | Clay (BB) | Till/Rock |
| 10 | 96-104-3E-A | 1 DR | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 111.5 | | Clay (BB) | Till/Rock |
| 11 | 96-104-3W-G | EOD | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 117 | 103.0 | Clay (BB) | Till/Rock |
| 12 | 96-104-3W-G | 1 DR | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 102 | | Clay (BB) | Till/Rock |
| 13 | 96-104-5W-F | EOD | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 112 | 105.0 | Clay (BB) | Till/Rock |
| 14 | 96-104-5W-F | 4 DR | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 112 | | Clay (BB) | Till/Rock |
| 15 | 96-104-NA-4 | EOD | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 112 | 105.0 | Clay (BB) | Till/Rock |
| 16 | 96-104-NA-4 | 1 DR | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 112 | | Clay (BB) | Till/Rock |
| 17 | 96-104-NA-53 | EOD | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 117 | 111.0 | Clay (BB) | Till/Rock |
| 18 | 96-104-NA-53 | 1 DR | Newbury Brdg (N-10-15) | HP 12x74 | 21.8 | 117 | | Clay (BB) | Till/Rock |
| 19 | 96-104-TP1 | EOD | Newbury Brdg (N-10-15) | 12-3/4x3/8 Pipe | 14.6 | 57.5 | 58.0 | Clay (BB) | Silty Clay |
| 20 | 96-104-TP1 | 1 DR | Newbury Brdg (N-10-15) | 12-3/4x3/8 Pipe | 14.6 | 57.5 | | Clay (BB) | Silty Clay |
| 21 | 96-104-TP4 | EOD | Newbury Brdg (N-10-15) | HP12x74 | 21.8 | | 105.5 | Clay (BB) | Till/Rock |
| 22 | 96-104-TP4 | 1 DR | Newbury Brdg (N-10-15) | HP12x74 | 21.8 | 116.5 | | Clay (BB) | Till/Rock |
| 23 | 96-104-TP4 | 7 DR | Newbury Brdg (N-10-15) | HP12x74 | 21.8 | 116.5 | | Clay (BB) | Till/Rock |
| 24 | 96-104-W1-V26 | EOD | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 34 | 18.0 | Clay (BB) | Clay (BB) |
| 25 | 96-104-W1-V26 | 1 DR | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 23 | | Clay (BB) | Clay (BB) |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area ($in^2$) | Length Below Gauges (ft) | Penetr Depth (ft) | Soil Type Side | Soil Type Tip |
|---|---|---|---|---|---|---|---|---|---|
| 26 | 96-104-W2-V13 | EOD | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 73.5 | 57.5 | Clay (BB) | Silty Clay |
| 27 | 96-104-W2-V13 | 1 DR | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 73.5 | | Clay (BB) | Silty Clay |
| 28 | 96-104-W4-B36 | EOD | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 136.5 | 135.0 | Clay (BB) | Till/Rock |
| 29 | 96-104-W4-B36 | 3 DR | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 136.5 | | Clay (BB) | Till/Rock |
| 30 | 96-104-W4-V24 | EOD | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 132 | 123.0 | Clay (BB) | Till/Rock |
| 31 | 96-104-W4-V24 | 3 DR | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 132 | | Clay (BB) | Till/Rock |
| 32 | 96-104-W5-3 | EOD | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 118 | 115.0 | Clay (BB) | Till/Rock |
| 33 | 96-104-W5-3 | 1 DR | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 118 | | Clay (BB) | Till/Rock |
| 34 | 96-104-W5-8 | EOD | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 148 | 118.0 | Clay (BB) | Till/Rock |
| 35 | 96-104-W5-8 | 1 DR | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 117 | | Clay (BB) | Till/Rock |
| 36 | 96-104-W5-V27 | EOD | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 125.5 | 121.0 | Clay (BB) | Till/Rock |
| 37 | 96-104-W5-V27 | 1 DR | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 125.5 | | Clay (BB) | Till/Rock |
| 38 | 96-104-W5-V28 | EOD | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 123.5 | 121.0 | Clay (BB) | Till/Rock |
| 39 | 96-104-W5-V28 | 1 DR | Newbury Brdg (N-10-15) | 12.75x3/8" Pipe | 14.6 | 123.5 | | Clay (BB) | Till/Rock |
| 40 | 96-115-3 | EOD | Airport Toll Plaza | HP14x73 | 21.4 | 137 | 121.5 | Clay (BB) | Till/Rock |
| 41 | 96-115-3 | 1 DR | Airport Toll Plaza | HP14x73 | 21.4 | 137 | | Clay (BB) | Till/Rock |
| 42 | 96-115-7 | EOD | Airport Toll Plaza | HP14x73 | 21.4 | 129.5 | 121.0 | Clay (BB) | Till/Rock |
| 43 | 96-115-7 | 6 DR | Airport Toll Plaza | HP14x73 | 21.4 | 129.5 | | Clay (BB) | Till/Rock |
| 44 | 96-115-106 | EOD | Abut. 1A/D | 16" PPC Ind. Piles | 256 | 174 | 158.3 | Clay (BB) | Till/Rock |
| 45 | 96-115-106 | 41 DR | Abut. 1A/D | 16" PPC Ind. Piles | 256 | 174 | - | Clay (BB) | Till/Rock |
| 46 | 96-115-109 | EOD | Abut. 1A/D | 16" PPC Ind. Piles | 256 | 174 | 169.6 | Clay (BB) | Till/Rock |
| 47 | 96-115-109 | 41 DR | Abut. 1A/D | 16" PPC Ind. Piles | 256 | 174 | - | Clay (BB) | Till/Rock |
| 48 | 96-115-117 | EOD | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 88 | 89.0 | Clay (BB) | Clay (BB) |
| 49 | 96-115-117 | 14 DR | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 88 | - | Clay (BB) | Clay (BB) |
| 50 | 96-115-157 | EOD | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 83.5 | 81.5 | Clay (BB) | Clay (BB) |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area ($in^2$) | Length Below Gauges (ft) | Penetr Depth (ft) | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Side | Tip |
| 51 | 96-115-157 | 7 DR | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 83.5 | - | Clay (BB) | Clay (BB) |
| 52 | 96-115-158 | EOD | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 83.5 | 83.5 | Clay (BB) | Clay (BB) |
| 53 | 96-115-158 | 7 DR | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 83.5 | - | Clay (BB) | Clay (BB) |
| 54 | 96-115-163 | EOD | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 82 | 83.0 | Clay (BB) | Clay (BB) |
| 55 | 96-115-163 | 3 DR | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 82 | 83.0 | Clay (BB) | Clay (BB) |
| 56 | 96-115-182 | EOD | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 83 | 83.0 | Clay (BB) | Clay (BB) |
| 57 | 96-115-182 | 14 DR | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 81 | - | Clay (BB) | Clay (BB) |
| 58 | 96-115-258 | EOD | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | | 72.0 | Clay (BB) | Clay (BB) |
| 59 | 96-115-258 | 22 DR | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 72 | 72.0 | Clay (BB) | Clay (BB) |
| 60 | 96-115-279 | EOD | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 78 | 69.0 | Clay (BB) | Clay (BB) |
| 61 | 96-115-279 | 3 DR | Arrivals Tunnel | Rev. Criteria | 256 | 78 | | Clay (BB) | Clay (BB) |
| 62 | 96-115-279 | 54 DR | Arrivals Tunnel | Rev. Criteria | 256 | | | Clay (BB) | Clay (BB) |
| 63 | 96-115-357 | EOD | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 82 | 60.5 | Clay (BB) | Clay (BB) |
| 64 | 96-115-357 | 5 DR | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 82 | 60.5 | Clay (BB) | Clay (BB) |
| 65 | 96-115-375 | EOD | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 81 | 54.5 | Clay (BB) | Clay (BB) |
| 66 | 96-115-375 | 7 DR | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 59 | 54.5 | Clay (BB) | Clay (BB) |
| 67 | 96-115-414 | EOD | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 81 | 65.0 | Clay (BB) | Clay (BB) |
| 68 | 96-115-414 | 14 DR | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 81 | 65.0 | Clay (BB) | Clay (BB) |
| 69 | 96-115-806 | EOD | Abut. TA/D | 16" PPC Ind. Piles | 256 | 159 | 129.3 | Clay (BB) | Till/Rock |
| 70 | 96-115-806 | 55 DR | Abut. TA/D | 16" PPC Ind. Piles | 256 | 159 | - | Clay (BB) | Till/Rock |
| 71 | 96-115-816 | EOD | Abut. TA/D | 16" PPC Ind. Piles | 256 | 159 | 131.5 | Clay (BB) | Till/Rock |
| 72 | 96-115-816 | 56 DR | Abut. TA/D | 16" PPC Ind. Piles | 256 | 159 | - | Clay (BB) | Till/Rock |
| 73 | 96-115-910 | EOD | Toll Plaza | 16" PPC Ind. Piles | 256 | 131 | 125.5 | Clay (BB) | Till/Rock |
| 74 | 96-115-910 | 41 DR | Toll Plaza | 16" PPC Ind. Piles | 256 | 123.8 | | Clay (BB) | Till/Rock |
| 75 | 96-115-916 | EOD | Toll Plaza | 16" PPC Ind. Piles | 256 | 141 | 121.5 | Clay (BB) | Till/Rock |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area ($in^2$) | Length Below Gauges (ft) | Penetr Depth (ft) | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Side | Tip |
| 76 | 96-115-916 | 39 DR | Toll Plaza | 16" PPC Ind. Piles | 256 | 123.1 | | Clay (BB) | Till/Rock |
| 77 | 96-115-919 | EOD | Toll Plaza | 16" PPC Ind. Piles | 256 | 131 | 125.1 | Clay (BB) | Till/Rock |
| 78 | 96-115-919 | 39 DR | Toll Plaza | 16" PPC Ind. Piles | 256 | 121.4 | | Clay (BB) | Till/Rock |
| 79 | 96-115-926 | EOD | Toll Plaza | 16" PPC Ind. Piles | 256 | 131 | 125.8 | Clay (BB) | Till/Rock |
| 80 | 96-115-926 | 39 DR | Toll Plaza | 16" PPC Ind. Piles | 256 | 122.2 | | Clay (BB) | Till/Rock |
| 81 | 96-115-937 | EOD | Toll Plaza | 16" PPC Ind. Piles | 256 | 131 | 126.3 | Clay (BB) | Till/Rock |
| 82 | 96-115-937 | 39 DR | Toll Plaza | 16" PPC Ind. Piles | 256 | 125.8 | | Clay (BB) | Till/Rock |
| 83 | 96-115-940 | EOD | Toll Plaza | 16" PPC Ind. Piles | 256 | 141 | 122.5 | Clay (BB) | Till/Rock |
| 84 | 96-115-940 | 41 DR | Toll Plaza | 16" PPC Ind. Piles | 256 | 125.1 | | Clay (BB) | Till/Rock |
| 85 | 96-115-3111 | EOD | Arrivals Tunnel | Rev. Criteria | 256 | 60 | 58.5 | Clay (BB) | Clay (BB) |
| 86 | 96-115-3111 | 14 DR | Arrivals Tunnel | Rev. Criteria | 256 | 60 | - | Clay (BB) | Clay (BB) |
| 87 | 96-115-3115 | EOD | Arrivals Tunnel | Rev. Criteria | 256 | 60 | 53.5 | Clay (BB) | Clay (BB) |
| 88 | 96-115-3115 | 14 DR | Arrivals Tunnel | Rev. Criteria | 256 | 55.5 | - | Clay (BB) | Clay (BB) |
| 89 | 96-115-3117 | EOD | Arrivals Tunnel | Rev. Criteria | 256 | 60 | 53.0 | Clay (BB) | Clay (BB) |
| 90 | 96-115-3117 | 14 DR | Arrivals Tunnel | Rev. Criteria | 256 | 60 | - | Clay (BB) | Clay (BB) |
| 91 | 96-115-3118 | EOD | Arrivals Tunnel | Rev. Criteria | 256 | 60 | 59.0 | Clay (BB) | Clay (BB) |
| 92 | 96-115-3118 | 14 DR | Arrivals Tunnel | Rev. Criteria | 256 | 60 | - | Clay (BB) | Clay (BB) |
| 93 | 96-115-3181 | EOD | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 84 | 79.0 | Clay (BB) | Clay (BB) |
| 94 | 96-115-3181 | 33 DR | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 77 | - | Clay (BB) | Clay (BB) |
| 95 | 96-115-3220 | EOD | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 75 | 61.5 | Clay (BB) | Clay (BB) |
| 96 | 96-115-3220 | 4 DR | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 75 | 61.5 | Clay (BB) | Clay (BB) |
| 97 | 96-115-3259 | EOD | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 82 | 66.5 | Clay (BB) | Clay (BB) |
| 98 | 96-115-3259 | 5 DR | Arrivals Tunnel | 16" PPC Ind. Piles | 256 | 82 | 66.5 | Clay (BB) | Clay (BB) |
| 99 | 96-116-9 | EOD | Amesbury, MA Brdg | 14"x1/2" Pipe Piles | 21.2 | 106 | 97.5 | F. Sand | Till/Rock |
| 100 | 96-116-9 | 1 DR | Amesbury, MA Brdg | 14"x1/2" Pipe Piles | 21.2 | 106 | 97.5 | F. Sand | Till/Rock |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area ($in^2$) | Length Below Gauges (ft) | Penetr Depth (ft) | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Side | Tip |
| 101 | 96-116-12 | EOD | Amesbury, MA Brdg | 14"x1/2" Pipe Piles | 21.2 | 106 | 98.0 | F. Sand | Till/Rock |
| 102 | 96-116-12 | 1 DR | Amesbury, MA Brdg | 14"x1/2" Pipe Piles | 21.2 | 106 | 98.0 | F. Sand | Till/Rock |
| 103 | 96-117-A4 | EOD | Tewksbury, MA Brdg | 12.75x3/8 Pipe Pile | 14.6 | 32 | 20.0 | SW | SW/Till |
| 104 | 96-117-A4 | Res. | Tewksbury, MA Brdg | 12.75x3/8 Pipe Pile | 14.6 | 32 | - | SW | SW/Till |
| 105 | 97-102-TP2 | EOD | U. S. Air Terminal Add. | 14" PPC Test Piles | 196 | 111.5 | 109.0 | Silt/Clay | Rock |
| 106 | 97-102-TP2 | 6 DR | U. S. Air Terminal Add. | 14" PPC Test Piles | 196 | 111.5 | 109.0 | Silt/Clay | Rock |
| 107 | 97-104-TP1 (#7) | EOD | Whatley Brdg | HP 12x53 Test Piles | 15.5 | 173 | 162.0 | Silt/Clay | SW |
| 108 | 97-104-TP1 (#7) | 31 DR | Whatley Brdg | HP 12x53 Test Piles | 15.5 | 167 | 162.0 | Silt/Clay | SW |
| 109 | 97-104-TP2 (#18) | EOD | Whatley Brdg | HP 12x53 Test Piles | 15.5 | 101 | 80.0 | Silt/Clay | Clay |
| 110 | 97-104-TP2 (#18) | 3 DR | Whatley Brdg | HP 12x53 Test Piles | 15.5 | 101 | 80.5 | Silt/Clay | Clay |
| 111 | 97-104-TP2 (#18) | 34 DR | Whatley Brdg | HP 12x53 Test Piles | 15.5 | 101 | 80.8 | Silt/Clay | Clay |
| 112 | 97-106-TP1 | EOD | 96" Diam. Force Main | 12" PPC Ind. Piles | 144 | 51 | 42.5 | Silty Clay | Till |
| 113 | 97-106-TP1 | 8 DR | 96" Diam. Force Main | 12" PPC Ind. Piles | 144 | 51 | 42.5 | Silty Clay | Till |
| 114 | 97-106-TP2 | EOD | 96" Diam. Force Main | 12" PPC Ind. Piles | 144 | 51 | 35.5 | Silty Clay | Till |
| 115 | 97-106-TP2 | 8 DR | 96" Diam. Force Main | 12" PPC Ind. Piles | 144 | 51 | 35.5 | Silty Clay | Till |
| 116 | 97-106-TP3 | EOD | 96" Diam. Force Main | 12" PPC Ind. Piles | 144 | 51 | 40.5 | Silty Clay | Till |
| 117 | 97-106-TP3 | 7 DR | 96" Diam. Force Main | 12" PPC Ind. Piles | 144 | 51 | 40.5 | Silty Clay | Till |
| 118 | 97-108-#7 | EOD | South Harbor Garage | 13.75"x5/8" Pipe Piles | 25.8 | 42.5 | 36.0 | Silty Clay | Till |
| 119 | 97-108-#7 | 1 DR | South Harbor Garage | 13.75"x5/8" Pipe Piles | 25.8 | 42.5 | 36.0 | Silty Clay | Till |
| 120 | 97-108-#106 | EOD | South Harbor Garage | 13.75"x5/8" Pipe Piles | 25.8 | 42 | 43.5 | Silty Clay | Till |
| 121 | 97-108-#106 | 1 DR | South Harbor Garage | 13.75"x5/8" Pipe Piles | 25.8 | 42 | 43.5 | Silty Clay | Till |
| 122 | 97-108-#77 | EOD | South Harbor Garage | 13.75"x5/8" Pipe Piles | 25.8 | 40 | 39.0 | Silty Clay | Till |
| 123 | 97-108-#77 | 1 DR | South Harbor Garage | 13.75"x5/8" Pipe Piles | 25.8 | 40 | 39.0 | Silty Clay | Till |
| 124 | 97-108-#69 | EOD | South Harbor Garage | 13.75"x5/8" Pipe Piles | 25.8 | 43 | 42.5 | Silty Clay | Till |
| 125 | 97-108-#69 | Res. | South Harbor Garage | 13.75"x5/8" Pipe Piles | 25.8 | 43 | 43.0 | Silty Clay | Till |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | ($in^2$) | (ft) | (ft) | Side | Tip |
| 126 | 97-108-#27 | EOD | South Harbor Garage | 13.75"x5/8" Pipe Piles | 25.8 | 43.5 | 39.5 | Silty Clay | Till |
| 127 | 97-108-#27 | 1 DR | South Harbor Garage | 13.75"x5/8" Pipe Piles | 25.8 | 43.5 | 39.5 | Silty Clay | Till |
| 128 | 97-109-A10#64 (TP5) | EORD | Logan Walkways | HP14x89 | 26.2 | | 119.0 | Sand/Clay | Till |
| 129 | 97-109-A10#64 (TP5) | 2nd Res. | Logan Walkways | HP14x89 | 26.2 | 127 | 119'-1" | Sand/Clay | Till |
| 130 | 97-109-A3#20 (TP6) | EOID | Logan Walkways | HP14x89 | 26.2 | | 98.0 | Sand/Clay | Till |
| 131 | 97-109-A3#20 (TP6) | 1st Res. | Logan Walkways | HP14x89 | 26.2 | 107 | 105.0 | Sand/Clay | Till |
| 132 | 97-109-A3#28 (TP1) | EORD | Logan Walkways | HP14x89 | 26.2 | | 102.0 | Sand/Clay | Till |
| 133 | 97-109-A3#28 (TP1) | 2nd Res. | Logan Walkways | HP14x89 | 26.2 | 107 | 102'-1" | Sand/Clay | Till |
| 134 | 97-109-AE#42 (TP2) | EORD | Logan Walkways | HP14x89 | 26.2 | | 117.0 | Sand/Clay | Till |
| 135 | 97-109-AE#42 (TP2) | 2nd Res. | Logan Walkways | HP14x89 | 26.2 | | 117'-1" | Sand/Clay | Till |
| 136 | 97-109-AF#73 (TP4) | EORD | Logan Walkways | HP14x89 | 26.2 | | 126'-6" | Sand/Clay | Till |
| 137 | 97-109-AF#73 (TP4) | 2nd Res. | Logan Walkways | HP14x89 | 26.2 | 142 | 126'-6" | Sand/Clay | Till |
| 138 | 97-109-AG/A4 #31 (TP2) | EORD | Logan Walkways | HP14x89 | 26.2 | | 117.0 | Sand/Clay | Till |
| 139 | 97-109-AG/A4 #31 (TP2) | 2nd Res. | Logan Walkways | HP14x89 | 26.2 | 142 | 117'-1" | Sand/Clay | Till |
| 140 | 97-109-AH#96 (TP3) | EORD | Logan Walkways | HP14x89 | 26.2 | | 128'-4" | Sand/Clay | Till |
| 141 | 97-109-AH#96 (TP3) | 2nd Res. | Logan Walkways | HP14x89 | 26.2 | 147 | 128'-4" | Sand/Clay | Till |
| 142 | 97-109-LAETP8 N. Node #21 | EOD | Logan Walkways | HP14x89 | 26.2 | 117 | 92.0 | Sand/Clay | Till |
| 143 | 97-109-LAETP8 N. Node #21 | 3 DR | Logan Walkways | HP14x89 | 26.2 | 97 | - | Sand/Clay | Till |
| 144 | 97-109-LETP10 S. Node #78 | EOD | Logan Walkways | HP14x89 | 26.2 | 146.5 | 132.0 | Sand/Clay | Till |
| 145 | 97-109-LETP10 S. Node #78 | 2 DR | Logan Walkways | HP14x89 | 26.2 | 137 | - | Sand/Clay | Till |
| 146 | 97-109-LETP11 N. Node #11 | EOD | Logan Walkways | HP14x89 | 26.2 | 87 | 86.0 | Sand/Clay | Till |
| 147 | 97-109-LETP11 N. Node #11 | 3 DR | Logan Walkways | HP14x89 | 26.2 | 87 | - | Sand/Clay | Till |
| 148 | 97-109-LETP12 E3-106 | EOD | Logan Walkways | HP14x89 | 26.2 | 151.5 | 141.5 | Sand/Clay | Till |
| 149 | 97-109-LETP12 E3-106 | 2 DR | Logan Walkways | HP14x89 | 26.2 | 142.5 | - | Sand/Clay | Till |
| 150 | 97-109-LETP15 E4-86 | EOD | Logan Walkways | HP14x89 | 26.2 | 133 | 131.0 | Sand/Clay | Till |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | ($in^2$) | (ft) | (ft) | Side | Tip |
| 151 | 97-109-LETP15 E4-86 | 4 DR | Logan Walkways | HP14x89 | 26.2 | 133 | - | Sand/Clay | Till |
| 152 | 97-109-Strs#112 (TP7) | EOD | Logan Walkways | HP 14x89 (100 TDL) | 26.2 | 107 | 106.0 | Sand/Clay | Till |
| 153 | 97-109-Strs#112 (TP7) | BOR | Logan Walkways | HP 14x89 (100 TDL) | 26.2 | 107 | 106.0 | Sand/Clay | Till |
| 154 | 97-114-HBTP1 | EOD | Chapin Rd. Repl. Brdg | HP12x84 Test Pile | 24.6 | 27 | 23.7 | Sand | Rock |
| 155 | 97-114-HBTP1 | 5 DR | Chapin Rd. Repl. Brdg | HP12x84 Test Pile | 24.6 | 27 | - | Sand | Rock |
| 156 | 97-117-UMG-TP4 | EOD | UM Park. Gar. VT | HP 14x73 A-67 SE | 21.4 | 48.1 | 43.9 | Sand/Clay | Clay/Till |
| 157 | 97-117-UMG-TP4 | 1 DR | UM Park. Gar. VT | HP 14x73 A-67 SE | 21.4 | 48.1 | - | Sand/Clay | Clay/Till |
| 158 | 97-117-UMG-TP4 | 2 DR | UM Park. Gar. VT | HP 14x73 A-67 SE | 21.4 | 44 | - | Sand/Clay | Clay/Till |
| 159 | 97-117-UMG-TP8 | EOD | UM Park. Gar. VT | HP 14x73 E-5 S | 21.4 | 41.4 | 39.0 | Sand/Clay | Clay |
| 160 | 97-117-UMG-TP8 | 14 DR | UM Park. Gar. VT | HP 14x73 E-5 S | 21.4 | 41.4 | - | Sand/Clay | Clay |
| 161 | 97-120-MPTP1 (B-2) | EOD | Metro. Pipe Addition | 12.75 x 0.375 Pipe Piles | 14.6 | 59 | 54.0 | Sand/Clay | Till |
| 162 | 97-120-MPTP1 (B-2) | 8 DR | Metro. Pipe Addition | 12.75 x 0.375 Pipe Piles | 14.6 | 49.5 | 54.0 | Sand/Clay | Till |
| 163 | 97-120-MPTP2 (D-3) | EOD | Metro. Pipe Addition | 12.75 x 0.375 Pipe Piles | 14.6 | 57 | 48.5 | Sand/Clay | Till |
| 164 | 97-120-MPTP2 (D-3) | 8 DR | Metro. Pipe Addition | 12.75 x 0.375 Pipe Piles | 14.6 | 45 | 48.5 | Sand/Clay | Till |
| 165 | 97-123-B-12 | EOD | 6 Cambridge Center | 14" PPC Ind. Piles | 196 | 78 | 75.0 | Sand/Clay | Till/Rock |
| 166 | 97-123-B-12 | 7 DR | 6 Cambridge Center | 14" PPC Ind. Piles | 196 | 74.5 | | Sand/Clay | Till/Rock |
| 167 | 98-105-TP1 (E. Abut.) | EOD | Vill. Hill Rd Brdg Williamsburg | HP 14x89 | 26.1 | 42.9 | 33.0 | SM w/Grav | Rock |
| 168 | 98-105-TP1 (E. Abut.) | 3 DR | Vill. Hill Rd Brdg Williamsburg | HP 14x89 | 26.1 | 42.9 | - | SM w/Grav | Rock |
| 169 | 98-105-TP6 (W. Abut.) | EOD | Vill. Hill Rd Brdg Williamsburg | HP 14x89 | 26.1 | 32.3 | 21.5 | SM w/Grav | Rock |
| 170 | 98-105-TP6 (W. Abut.) | EOD | Vill. Hill Rd Brdg Williamsburg | HP 14x89 | 26.1 | 32.3 | 24.5 | SM w/Grav | Rock |
| 171 | 98-105-TP6 (W. Abut.) | 3 DR | Vill. Hill Rd Brdg Williamsburg | HP 14x89 | 26.1 | 32.3 | - | SM w/Grav | Rock |
| 172 | 98-106-#1 | EOD | Portland St. | Timber Test Piles | 121 | 29 | 25.0 | Org. Silt | H. Clay |
| 173 | 98-106-#1 | 11 DR | Portland St. | Timber Test Piles | 121 | 29 | - | Org. Silt | H. Clay |
| 174 | 98-106-#2 | EOD | Portland St. | Timber Test Piles | 121 | 30 | 26.0 | Org. Silt | H. Clay |
| 175 | 98-106-#2 | 11 DR | Portland St. | Timber Test Piles | | | - | Org. Silt | H. Clay |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area ($in^2$) | Length Below Gauges (ft) | Penetr Depth (ft) | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Side | Tip |
| 176 | 98-106-#3 | EOD | Portland St. | Timber Test Piles | 134 | 28 | 25.5 | Org. Silt | H. Clay |
| 177 | 98-106-#3 | 11 DR | Portland St. | Timber Test Piles | 134 | 28 | - | Org. Silt | H. Clay |
| 178 | 98-106-#4 | EOD | Portland St. | Timber Test Piles | 127 | 28 | 26.5 | Org. Silt | H. Clay |
| 179 | 98-106-#4 | 11 DR | Portland St. | Timber Test Piles | 127 | 28 | - | Org. Silt | H. Clay |
| 180 | 98-107-LCTP1 (#6) | EOD | CA/T C19E5 | 12" Timber Test Piles | 121 | 27 | 23.0 | Sand/Clay | Till |
| 181 | 98-107-LCTP1 (#6) | 1 DR | CA/T C19E5 | 12" Timber Test Piles | 121 | 27 | - | Sand/Clay | Till |
| 182 | 98-107-LCTP3 (#27) | EOD | CA/T C19E5 | 12" Timber Test Piles | | | 28.0 | Sand/Clay | Till |
| 183 | 98-107-LCTP3 (#27) | EOD | CA/T C19E5 | 12" Timber Test Piles | 121 | 29 | 28.0 | Sand/Clay | Till |
| 184 | 98-107-LCTP3 (#27) | 1 DR | CA/T C19E5 | 12" Timber Test Piles | 121 | 29 | - | Sand/Clay | Till |
| 185 | 98-109-C19TP1 | EOD | CA/T C19B1 Boston | 16" PPC Piles | 256 | 60 | 44.0 | Sand/Clay | SM/Till |
| 186 | 98-109-C19TP1 | 7 DR | CA/T C19B1 Boston | 16" PPC Piles | 256 | 60 | - | Sand/Clay | SM/Till |
| 187 | 98-109-C19TP2 | EOD | CA/T C19B1 Boston | 16" PPC Piles | 256 | 60 | 59.0 | Sand/Clay | SM/Rock |
| 188 | 98-109-C19TP2 | 6 DR | CA/T C19B1 Boston | 16" PPC Piles | 256 | 60 | - | Sand/Clay | SM/Rock |
| 189 | 98-109-C19TP3 | EOD | CA/T C19B1 Boston | 16" PPC Piles | 256 | 60 | 42.0 | Sand/Clay | SM/Till |
| 190 | 98-109-C19TP3 | 5 DR | CA/T C19B1 Boston | 16" PPC Piles | 256 | 60 | - | Sand/Clay | SM/Till |
| 191 | 98-109-C19TP3 | Redrive | CA/T C19B1 Boston | 16" PPC Piles | 256 | 60 | 47.0 | Sand/Clay | SM/Till |
| 192 | 98-109-C19TP4 | EOD | CA/T C19B1 Boston | 16" PPC Piles | 256 | 66 | 68.0 | Sand/Clay | SM/Rock |
| 193 | 98-109-C19TP4 | 46 DR | CA/T C19B1 Boston | 16" PPC Piles | 256 | 67 | - | Sand/Clay | SM/Rock |
| 194 | 98-109-C19TP5 | EOD | CA/T C19B1 Boston | 16" PPC Piles | 256 | 75 | 56.0 | Sand/Clay | SM/Till |
| 195 | 98-109-C19TP5 | 43 DR | CA/T C19B1 Boston | 16" PPC Piles | 256 | 75 | - | Sand/Clay | SM/Till |
| 196 | 98-109-C19TP6 | EOD | CA/T C19B1 Boston | 12" PPC Piles | 144 | 66 | 58.0 | Sand/Clay | SM/Till |
| 197 | 98-109-C19TP6 | 43 DR | CA/T C19B1 Boston | 12" PPC Piles | 144 | 66 | - | Sand/Clay | SM/Till |
| 198 | 98-109-260 | EOD | CA/T C19B1 Boston | 16" PPC Piles | 256 | 72 | 50.5 | Sand/Clay | SM/Till |
| 199 | 98-109-260 | 1 DR | CA/T C19B1 Boston | 16" PPC Piles | 256 | 52 | - | Sand/Clay | SM/Till |
| 200 | 98-109-1099 | EOD | CA/T C19B1 Boston | 16" PPC Piles | 256 | 72 | 37.0 | Sand/Clay | Clay/SM |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area ($in^2$) | Length Below Gauges (ft) | Penetr Depth (ft) | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Side | Tip |
| 201 | 98-109-1099 | 1 DR | CA/T C19B1 Boston | 16" PPC Piles | 256 | 42 | - | Sand/Clay | Clay/SM |
| 202 | 98-109-1043 | EOD | CA/T C19B1 Boston | 16" PPC Piles | 256 | 72 | 45.5 | Sand/Clay | SM/Till |
| 203 | 98-109-1043 | 1 DR | CA/T C19B1 Boston | 16" PPC Piles | 256 | 50 | - | Sand/Clay | SM/Till |
| 204 | 98-109-1050 | EOD | CA/T C19B1 Boston | 16" PPC Piles | 256 | 65 | 42.5 | Sand/Clay | SM/Till |
| 205 | 98-109-1050 | 2 DR | CA/T C19B1 Boston | 16" PPC Piles | 256 | 65 | - | Sand/Clay | SM/Till |
| 206 | 98-109-1201 | EOD | CA/T C19B1 Boston | 16" PPC Piles | 256 | 65 | 44.0 | Sand/Clay | SM/Till |
| 207 | 98-109-1201 | 2 DR | CA/T C19B1 Boston | 16" PPC Piles | 256 | 65 | - | Sand/Clay | SM/Till |
| 208 | 98-109-Test 1 | EOD | CA/T C19B1 Boston | 16" PPC Piles | 256 | 76.5 | 75.0 | Sand/Clay | SM/Rock |
| 209 | 98-109-Test 1 | 1 DR | CA/T C19B1 Boston | 16" PPC Piles | 256 | 76.5 | - | Sand/Clay | SM/Rock |
| 210 | 98-109-AC-4 | EOD | CA/T C19B1 Boston | 12" PPC Piles | 144 | 57 | 52.0 | Sand/Clay | SM/Till |
| 211 | 98-109-AC-4 | 7 DR | CA/T C19B1 Boston | 12" PPC Piles | 144 | 57 | - | Sand/Clay | SM/Till |
| 212 | 98-109-IND-1 | EOD | CA/T C19B1 Boston | 12" PPC Piles | 144 | 52 | 41.0 | Sand/Clay | SM/Till |
| 213 | 98-109-IND-1 | 1 DR | CA/T C19B1 Boston | 12" PPC Piles | 144 | 52 | - | Sand/Clay | SM/Till |
| 214 | 98-109-IND-2 | EOD | CA/T C19B1 Boston | 12" PPC Piles | 144 | 52 | 46.0 | Sand/Clay | SM/Till |
| 215 | 98-109-IND-2 | 1 DR | CA/T C19B1 Boston | 12" PPC Piles | 144 | 52 | - | Sand/Clay | SM/Till |
| 216 | 98-109-IND-3 | EOD | CA/T C19B1 Boston | 12" PPC Piles | 144 | 52 | 39.0 | Sand/Clay | Clay/SM |
| 217 | 98-109-IND-3 | 1 DR | CA/T C19B1 Boston | 12" PPC Piles | 144 | 52 | - | Sand/Clay | Clay/SM |
| 218 | 98-110-TP1 (9049) | EOD | CA/T C0702 Temp. Detour | HP 10x42 Test Piles | 12.2 | 67.5 | 63.0 | Fill/Clay | S. Clay/Till |
| 219 | 98-110-TP1 (9049) | 1 DR | CA/T C0702 Temp. Detour | HP 10x42 Test Piles | 12.2 | 67.5 | - | Fill/Clay | S. Clay/Till |
| 220 | 98-110-TP2 (9032) | EOD | CA/T C0702 Temp. Detour | HP 10x42 Test Piles | 12.2 | 67.5 | 65.0 | Fill/Clay | S. Clay/Till |
| 221 | 98-110-TP2 (9032) | 1 DR | CA/T C0702 Temp. Detour | HP 10x42 Test Piles | 12.2 | 67.5 | - | Fill/Clay | S. Clay/Till |
| 222 | 98-110-3 | EOD | CA/T C0702 Toll Plaza | HP 14x73 Test Piles | 21.4 | 137 | 121.5 | Fill/Clay | Rock |
| 223 | 98-110-3 | 1 DR | CA/T C0702 Toll Plaza | HP 14x73 Test Piles | 21.4 | 137 | - | Fill/Clay | Rock |
| 224 | 98-110-7 | EOD | CA/T C0702 Toll Plaza | HP 14x73 Test Piles | 21.4 | 129.5 | 121.0 | Fill/Clay | Rock |
| 225 | 98-110-7 | 6 DR | CA/T C0702 Toll Plaza | HP 14x73 Test Piles | 21.4 | 129.5 | - | Fill/Clay | Rock |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | ($in^2$) | (ft) | (ft) | Side | Tip |
| 226 | 98-112-LSTP2 (D10) | EOD | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 85 | 65.0 | Clay | Till |
| 227 | 98-112-LSTP2 (D10) | 8 DR | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 85 | - | Clay | Till |
| 228 | 98-112-LSTP3 (G10) | EOD | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 89 | 66.0 | Clay | Till |
| 229 | 98-112-LSTP3 (G10) | 8 DR | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 89 | - | Clay | Till |
| 230 | 98-112-LSTP4 (A10) | EOD | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 85 | 67.0 | Clay | Till |
| 231 | 98-112-LSTP4 (A10) | 8 DR | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 85 | - | Clay | Till |
| 232 | 98-112-LSTP5 (A6) | EOD | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 75 | 61.0 | Clay | Till |
| 233 | 98-112-LSTP5 (A6) | 8 DR | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 75 | - | Clay | Till |
| 234 | 98-112-LSTP6 (G1) | EOD | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 71 | 46.0 | Clay | Clay/Till |
| 235 | 98-112-LSTP6 (G1) | 7 DR | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 71 | - | Clay | Clay/Till |
| 236 | 98-112-LSTP7 (C1) | EOD | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 71 | 53.0 | Clay | Till |
| 237 | 98-112-LSTP7 (C1) | 7 DR | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 71 | - | Clay | Till |
| 238 | 98-112-LSTP9 (A1) | EOD | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 68 | 52.0 | Clay | Till |
| 239 | 98-112-LSTP9 (A1) | 7 DR | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 68 | - | Clay | Till |
| 240 | 98-112-LSTP10 (G5.1) | EOD | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 83 | 69.0 | Clay | Till |
| 241 | 98-112-LSTP10 (G5.1) | 5 DR | Lafayette Sch. Everett, MA | 14" PPC Ind. Piles | 196 | 83 | - | Clay | Till |
| 242 | 98-113-152 | EOD | CA/T C01A3 MBTA | 14" PPC Fric. Test Piles | 196 | 79 | 78.0 | Sand/Clay | Clay |
| 243 | 98-113-152 | 1 DR | CA/T C01A3 MBTA | 14" PPC Fric. Test Piles | 196 | 79 | - | Sand/Clay | Clay |
| 244 | 98-113-222 | EOD | CA/T C01A3 MBTA | 14" PPC Fric. Test Piles | 196 | 61 | 60.0 | Sand/Clay | Clay |
| 245 | 98-113-222 | 4 DR | CA/T C01A3 MBTA | 14" PPC Fric. Test Piles | 196 | 61 | - | Sand/Clay | Clay |
| 246 | 98-113-306 | EOD | CA/T C01A3 MBTA | 14" PPC Fric. Test Piles | 196 | 61 | 60.0 | Sand/Clay | Clay |
| 247 | 98-113-306 | 4 DR | CA/T C01A3 MBTA | 14" PPC Fric. Test Piles | 196 | 61 | - | Sand/Clay | Clay |
| 248 | 98-113-488 | EOD | CA/T C01A3 MBTA | 14" PPC Fric. Test Piles | 196 | 78 | 76.0 | Clay | Clay |
| 249 | 98-113-488 | 3 DR | CA/T C01A3 MBTA | 14" PPC Fric. Test Piles | 196 | 78 | - | Clay | Clay |
| 250 | 98-118-NB11 | EOD | Rt 146 (W-44-146) N. Abut. | HP 14x102 | 29.85 | 74 | 56.0 | Fill/MH | SW |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area ($in^2$) | Length Below Gauges (ft) | Penetr Depth (ft) | Soil Type Side | Soil Type Tip |
|---|---|---|---|---|---|---|---|---|---|
| 251 | 98-118-NB11 | 1 DR | Rt 146 (W-44-146) N. Abut. | HP 14x102 | 29.85 | 74 | - | Fill/MH | SW |
| 252 | 98-118-SB26 | EOD | Rt 146 (W-44-146) N. Abut. | HP 14x102 | 29.85 | 79.5 | 60.0 | Fill/MH | SW |
| 253 | 98-118-SB26 | 1 DR | Rt 146 (W-44-146) N. Abut. | HP 14x102 | 29.85 | | - | Fill/MH | SW |
| 254 | 98-118-29 | EOD | Rt 146 (W-44-146) S. Abut. | HP 14x102 | 29.85 | 57.5 | 54.0 | Fill/MH | SW |
| 255 | 98-118-29 | 1 DR | Rt 146 (W-44-146) S. Abut. | HP 14x102 | 29.85 | 57.5 | - | Fill/MH | SW |
| 256 | 98-118-44 | EOD | Rt 146 (W-44-146) S. Abut. | HP 14x102 | 29.85 | 67.5 | 65.0 | Fill/MH | SW |
| 257 | 98-118-44 | 1 DR | Rt 146 (W-44-146) S. Abut. | HP 14x102 | 29.85 | 67.5 | - | Fill/MH | SW |
| 258 | 98-118-TP30 | EOD | Rt 146 (W-44-147) | HP 14x102 | 29.85 | 57.2 | 43.0 | SW | Rock |
| 259 | 98-118-TP30 | 1 DR | Rt 146 (W-44-147) | HP 14x102 | 29.85 | 48 | - | SW | Rock |
| 260 | 98-118-TP31 | EOD | Rt 146 (W-44-147) | HP 14x102 | 29.85 | 57.2 | 35.0 | SW | Rock |
| 261 | 98-118-TP31 | 1 DR | Rt 146 (W-44-147) | HP 14x102 | 29.85 | 40.5 | - | SW | Rock |
| 262 | 98-118-TP34 | EOD | Rt 146 (W-44-147) N. Abut. | HP 14x102 | 29.85 | 57.2 | 53.0 | SW | Rock |
| 263 | 98-118-TP34 | 1 DR | Rt 146 (W-44-147) N. Abut. | HP 14x102 | 29.85 | 57.2 | - | SW | Rock |
| 264 | 98-118-TP35 | EOD | Rt 146 (W-44-147) N. Abut. | HP 14x102 | 29.85 | 57.2 | 46.5 | SW | SW/Rock |
| 265 | 98-118-TP35 | 1 DR | Rt 146 (W-44-147) N. Abut. | HP 14x102 | 29.85 | 51 | - | SW | SW/Rock |
| 266 | 98-118-TP52 | EOD | Rt 146 (W-44-147) | HP 14x102 | 29.85 | 57.2 | 28.0 | SW | Rock |
| 267 | 98-118-TP52 | 1 DR | Rt 146 (W-44-147) | HP 14x102 | 29.85 | 33 | - | SW | Rock |
| 268 | 98-118-TP62 | EOD | Rt 146 (W-44-147) N. Abut. | HP 14x102 | 29.85 | 57.2 | 44.5 | SW | SW/Rock |
| 269 | 98-118-TP62 | 1 DR | Rt 146 (W-44-147) N. Abut. | HP 14x102 | 29.85 | 49 | - | SW | SW/Rock |
| 270 | 98-118-TP8 | EOD | Rt 146 (W-44-147) | HP 14x102 | 29.85 | 57.2 | 30.0 | SW | Rock |
| 271 | 98-118-TP8 | 1 DR | Rt 146 (W-44-147) | HP 14x102 | 29.85 | 35 | - | SW | Rock |
| 272 | 98-118-TP8 | EOD | Rt 146 (W-44-147) N. Abut. | HP 14x102 | 29.85 | 57.2 | 45.0 | SW | SW/Rock |
| 273 | 98-118-TP8 | 1 DR | Rt 146 (W-44-147) N. Abut. | HP 14x102 | 29.85 | 49 | - | SW | SW/Rock |
| 274 | 98-129-CHTP1 | EOD | Chelsea St. Brdg Boston | HP 12x53 | 15.5 | 83 | 85.0 | GW/Clay | Rock |
| 275 | 98-129-CHTP1 | 1 DR | Chelsea St. Brdg Boston | HP 12x53 | 15.5 | 83 | - | GW/Clay | Rock |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area ($in^2$) | Length Below Gauges (ft) | Penetr Depth (ft) | Soil Type Side | Soil Type Tip |
|---|---|---|---|---|---|---|---|---|---|
| 276 | 98-129-CHTP2 | EOD | Chelsea St. Brdg Boston | HP 12x53 | 15.5 | 83 | 84.0 | GW/Clay | Rock |
| 277 | 98-129-CHTP2 | 1 DR | Chelsea St. Brdg Boston | HP 12x53 | 15.5 | 83 | - | GW/Clay | Rock |
| 278 | 98-131-Bent 1, #3 | EOD | Dover/Sherborn Brdg | 12.75"x 3/8" Pipe | 14.6 | 60.5 | 42.5 | SW/SM | SM |
| 279 | 98-131-Bent 1, #3 | 4 DR | Dover/Sherborn Brdg | 12.75"x 3/8" Pipe | 14.6 | 60.5 | | SW/SM | SM |
| 280 | 98-131-Bent 2, #1 | EOD | Dover/Sherborn Brdg | 12.75"x 3/8" Pipe | 14.6 | 57 | 45.0 | SW/SM | SM |
| 281 | 98-131-Bent 2, #1 | 1 DR | Dover/Sherborn Brdg | 12.75"x 3/8" Pipe | 14.6 | 57 | | SW/SM | SM |
| 282 | 98-138-17 | EOD | Bridge St, N. Abut. Eastham | 10.75" Pipe Piles | 11.9 | 83.2 | 80.0 | F. Sand | F. Sand |
| 283 | 98-138-17 | 1 DR | Bridge St, N. Abut. Eastham | 10.75" Pipe Piles | 11.9 | 83.2 | - | F. Sand | F. Sand |
| 284 | 98-138-5 | EOD | Bridge St, N. Abut. Eastham | 10.75" Pipe Piles | 11.9 | 89 | 81.5 | F. Sand | F. Sand |
| 285 | 98-138-5 | 1 DR | Bridge St, N. Abut. Eastham | 10.75" Pipe Piles | 11.9 | 89 | - | F. Sand | F. Sand |
| 286 | 98-138-9 | EOD | Bridge St, S. Abut. Eastham | 10.75" Pipe Piles | 11.9 | 84.5 | 65.0 | F. Sand | F. Sand |
| 287 | 98-138-9 | 1 DR | Bridge St, S. Abut. Eastham | 10.75" Pipe Piles | 11.9 | 84.5 | - | F. Sand | F. Sand |
| 288 | 98-138-18 | EOD | Bridge St, S. Abut. Eastham | 10.75" Pipe Piles | 11.9 | 82.5 | 64.0 | F. Sand | F. Sand |
| 289 | 98-138-18 | 1 DR | Bridge St, S. Abut. Eastham | 10.75" Pipe Piles | 11.9 | 82.5 | - | F. Sand | F. Sand |
| 290 | 99-112-1 | EOD | Tage Inn Somerville, MA | 12" PPC Piles | 144 | 92 | 88.0 | Clay/Till | Till/Rock |
| 291 | 99-112-1 | 4 DR | Tage Inn Somerville, MA | 12" PPC Piles | 144 | 92 | - | Clay/Till | Till/Rock |
| 292 | 99-112-13 | EOD | Tage Inn Somerville, MA | 12" PPC Piles | 144 | 82 | 62.3 | Clay/Till | Till/Rock |
| 293 | 99-112-13 | 4 DR | Tage Inn Somerville, MA | 12" PPC Piles | 144 | 82 | - | Clay/Till | Till/Rock |
| 294 | 99-112-159 | EOD | Tage Inn Somerville, MA | 12" PPC Piles | 144 | 82 | 72.5 | Clay/Till | Till/Rock |
| 295 | 99-112-159 | 4 DR | Tage Inn Somerville, MA | 12" PPC Piles | 144 | 82 | - | Clay/Till | Till/Rock |
| 296 | 99-114-D-2 (2) | EOD | Harborlights Boston, MA | 12.75" Pipe Piles | 14.6 | 93 | 85.0 | Clay/Till | Till/Rock |
| 297 | 99-114-D-2 (2) | 4 DR | Harborlights Boston, MA | 12.75" Pipe Piles | 14.6 | 93 | - | Clay/Till | Till/Rock |
| 298 | 99-114-B-2 (2) | EOD | Harborlights Boston, MA | 12.75" Pipe Piles | 14.6 | 93 | 84.0 | Clay/Till | Till/Rock |
| 299 | 99-114-B-2 (2) | 4 DR | Harborlights Boston, MA | 12.75" Pipe Piles | 14.6 | 93 | - | Clay/Till | Till/Rock |
| 300 | 99-117-3 | EOD | Channel Food Boston, MA | 12.75" Pipe Piles | 9.82 | 155 | 117.0 | OL/Clay | SW |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | ($in^2$) | (ft) | (ft) | Side | Tip |
| 301 | 99-117-3 | EOD | Channel Food Boston, MA | 12.75" Pipe Piles | 9.82 | 155 | - | OL/Clay | SW |
| 302 | 99-117-3 | 3 DR | Channel Food Boston, MA | 12.75" Pipe Piles | 9.82 | 155 | - | OL/Clay | SW |
| 303 | 99-117-5 | EOD | Channel Food Boston, MA | 12.75" Pipe Piles | 9.82 | 153 | 116.0 | OL/Clay | SW |
| 304 | 99-117-5 | 3 DR | Channel Food Boston, MA | 12.75" Pipe Piles | 9.82 | 153 | - | OL/Clay | SW |
| 305 | 99-123-100 | EOD | Lewis School | 14" PPC Ind. Piles | 196 | 87 | 68.0 | Clay/Till | Till/Rock |
| 306 | 99-123-100 | 2 DR | Lewis School | 14" PPC Ind. Piles | 196 | 87 | - | Clay/Till | Till/Rock |
| 307 | 99-123-113 | EOD | Lewis School | 14" PPC Ind. Piles | 196 | 80 | 53.0 | Clay/Till | Till/Rock |
| 308 | 99-123-113 | 3 DR | Lewis School | 14" PPC Ind. Piles | 196 | 80 | - | Clay/Till | Till/Rock |
| 309 | 99-123-172 | EOD | Lewis School | 14" PPC Ind. Piles | 196 | 93 | 71.0 | Clay/Till | Till/Rock |
| 310 | 99-123-172 | 2 DR | Lewis School | 14" PPC Ind. Piles | 196 | 93 | - | Clay/Till | Till/Rock |
| 311 | 99-123-184 | EOD | Lewis School | 14" PPC Ind. Piles | 196 | 73 | 59.0 | Clay/Till | Till/Rock |
| 312 | 99-123-184 | 3 DR | Lewis School | 14" PPC Ind. Piles | 196 | 73 | - | Clay/Till | Till/Rock |
| 313 | 99-123-227 | EOD | Lewis School | 14" PPC Ind. Piles | 196 | 73 | 56.0 | Clay/Till | Till/Rock |
| 314 | 99-123-227 | 3 DR | Lewis School | 14" PPC Ind. Piles | 196 | 77 | - | Clay/Till | Till/Rock |
| 315 | 99-123-281 | EOD | Lewis School | 14" PPC Ind. Piles | 196 | 96 | 82.0 | Clay/Till | Till/Rock |
| 316 | 99-123-281 | 2 DR | Lewis School | 14" PPC Ind. Piles | 196 | 96 | - | Clay/Till | Till/Rock |
| 317 | 99-123-293 | EOD | Lewis School | 14" PPC Ind. Piles | 196 | 87 | 67.0 | Clay/Till | Till/Rock |
| 318 | 99-123-293 | 1 DR | Lewis School | 14" PPC Ind. Piles | 196 | 87 | - | Clay/Till | Till/Rock |
| 319 | 99-123-303 | EOD | Lewis School | 14" PPC Ind. Piles | 196 | 80 | 67.0 | Clay/Till | Till/Rock |
| 320 | 99-123-303 | EOD | Lewis School | 14" PPC Ind. Piles | 196 | 80 | 68.0 | Clay/Till | Till/Rock |
| 321 | 99-123-303 | 1 DR | Lewis School | 14" PPC Ind. Piles | 196 | 80 | - | Clay/Till | Till/Rock |
| 322 | 99-124-N1 | EOD | Lyman St Brdg Waltham | HP 12x74 | 21.8 | 77.5 | 60.0 | Sand | Sand |
| 323 | 99-124-N1 | Redrive | Lyman St Brdg Waltham | HP 12x74 | 21.8 | 77.5 | 79.0 | Sand | Sand |
| 324 | 99-124-N1 | Redrive | Lyman St Brdg Waltham | HP 12x74 | 21.8 | 77.5 | 79.0 | Sand | Sand |
| 325 | 99-124-N4 | EOD | Lyman St Brdg Waltham | HP 12x74 | 21.8 | 62.5 | 64.0 | Sand | Sand |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area ($in^2$) | Length Below Gauges (ft) | Penetr Depth (ft) | Soil Type Side | Soil Type Tip |
|---|---|---|---|---|---|---|---|---|---|
| 326 | 99-124-N4 | 6 DR | Lyman St Brdg Waltham | HP 12x74 | 21.8 | 62.5 | 64.5 | Sand | Sand |
| 327 | 99-126-TP1 | EOD | Marina Bay Quincy, MA BA-B9 | 12.75"x 0.25" Pipe | 9.8 | 57 | 61.0 | Clay/Till | Till/Rock |
| 328 | 99-126-TP1 | 3 DR | Marina Bay Quincy, MA BA-B9 | 12.75"x 0.25" Pipe | 9.8 | 57 | - | Clay/Till | Till/Rock |
| 329 | 99-126-TP2 | EOD | Marina Bay Quincy, MA AJ-A2 | 12.75"x 0.25" Pipe | 9.8 | 57 | 60.0 | Clay/Till | Till/Rock |
| 330 | 99-126-TP2 | 3 DR | Marina Bay Quincy, MA AJ-A2 | 12.75"x 0.25" Pipe | 9.8 | 57 | - | Clay/Till | Till/Rock |
| 331 | 97-110-P105-S93 | EOD | Deer Is. Batt C | PPC 14 | 196 | 51 | 35.5 | Clay (BB) | Till/Rock |
| 332 | 97-110-P105-S93 | 3 DR | Deer Is. Batt C | PPC 14 | 196 | 51 | 35.5 | Clay (BB) | Till/Rock |
| 333 | 97-110-P16-S93 | EOD | Deer Is. Batt C | PPC 14 | 196 | 51 | 28.0 | Clay (BB) | Till/Rock |
| 334 | 97-110-P16-S93 | 6 DR | Deer Is. Batt C | PPC 14 | 196 | 32 | 35.5 | Clay (BB) | Till/Rock |
| 335 | 97-110-P332-S7 | EOD | Deer Is. Batt C | PPC 14 | 196 | 51 | 48.5 | Clay (BB) | Till/Rock |
| 336 | 97-110-P332-S7 | 3 DR | Deer Is. Batt C | PPC 14 | 196 | 51 | 35.5 | Clay (BB) | Till/Rock |
| 337 | 97-110-P566-S6 | EOD | Deer Is. Batt C | PPC 14 | 196 | 86 | 61.5 | Clay (BB) | Till/Rock |
| 338 | 97-110-P566-S6 | 3 DR | Deer Is. Batt C | PPC 14 | 196 | 86 | 61.5 | Clay (BB) | Till/Rock |
| 339 | 97-110-P56-S7 | EOD | Deer Is. Batt C | PPC 14 | 196 | 86 | 70.0 | Clay (BB) | Till/Rock |
| 340 | 97-110-P56-S7 | 3 DR | Deer Is. Batt C | PPC 14 | 196 | 86 | 70.0 | Clay (BB) | Till/Rock |
| 341 | 97-110-P86-S7 | EOD | Deer Is. Batt C | PPC 14 | 196 | 86 | 64.5 | Clay (BB) | Till/Rock |
| 342 | 97-110-P86-S7 | 3 DR | Deer Is. Batt C | PPC 14 | 196 | 86 | 70.0 | Clay (BB) | Till/Rock |
| 343 | 97-110-P212-S7 | EOD | Deer Is. Batt C | PPC 14 | 196 | 86 | 70.0 | Clay (BB) | Till/Rock |
| 344 | 97-110-P212-S7 | 3 DR | Deer Is. Batt C | PPC 14 | 196 | 86 | 70.0 | Clay (BB) | Till/Rock |
| 345 | 97-110-P350-S6 | EOD | Deer Is. Batt C | PPC 14 | 196 | 81 | 56.5 | Clay (BB) | Till/Rock |
| 346 | 97-110-P350-S6 | 2 DR | Deer Is. Batt C | PPC 14 | 196 | 81 | 56.5 | Clay (BB) | Till/Rock |
| 347 | 97-110-P499-S8 | EOD | Deer Is. Batt C | PPC 14 | 196 | 76 | 50.5 | Clay (BB) | Till/Rock |
| 348 | 97-110-P499-S8 | 2 DR | Deer Is. Batt C | PPC 14 | 196 | 76 | 50.5 | Clay (BB) | Till/Rock |
| 349 | 97-110-P30-S8 | EOD | Deer Is. Batt C | PPC 14 | 196 | 86 | 64.5 | Clay (BB) | Till/Rock |
| 350 | 97-110-P30-S8 | 2 DR | Deer Is. Batt C | PPC 14 | 196 | 86 | 64.5 | Clay (BB) | Till/Rock |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area ($in^2$) | Length Below Gauges (ft) | Penetr Depth (ft) | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Side | Tip |
| 351 | 97-110-P320-S7 | EOD | Deer Is. Batt C | PPC 14 | 196 | 86 | 69.5 | Clay (BB) | Till/Rock |
| 352 | 97-110-P320-S7 | 2 DR | Deer Is. Batt C | PPC 14 | 196 | 86 | 69.5 | Clay (BB) | Till/Rock |
| 353 | 97-110-P333-S6 | EOD | Deer Is. Batt C | PPC 14 | 196 | 51 | 27.5 | Clay (BB) | Till/Rock |
| 354 | 97-110-P333-S6 | 5 DR | Deer Is. Batt C | PPC 14 | 196 | 34 | 27.5 | Clay (BB) | Till/Rock |
| 355 | 97-110-P553-S6 | EOD | Deer Is. Batt C | PPC 14 | 196 | 66 | 49.0 | Clay (BB) | Till/Rock |
| 356 | 97-110-P553-S6 | 5 DR | Deer Is. Batt C | PPC 14 | 196 | 66 | 49.0 | Clay (BB) | Till/Rock |
| 357 | 97-110-P341-S6 | EOD | Deer Is. Batt C | PPC 14 | 196 | 71 | 43.5 | Clay (BB) | Till/Rock |
| 358 | 97-110-P341-S6 | 5 DR | Deer Is. Batt C | PPC 14 | 196 | 71 | 43.5 | Clay (BB) | Till/Rock |
| 359 | 97-110-P21-S8 | EOD | Deer Is. Batt C | PPC 14 | 196 | 81 | 62.5 | Clay (BB) | Till/Rock |
| 360 | 97-110-P21-S8 | 5 DR | Deer Is. Batt C | PPC 14 | 196 | 81 | 62.5 | Clay (BB) | Till/Rock |
| 361 | 97-110-P168-S8 | EOD | Deer Is. Batt C | PPC 14 | 196 | 86 | 70.0 | Clay (BB) | Till/Rock |
| 362 | 97-110-P168-S8 | 5 DR | Deer Is. Batt C | PPC 14 | 196 | 86 | 70.0 | Clay (BB) | Till/Rock |
| 363 | 97-110-P382-S8 | EOD | Deer Is. Batt C | PPC 14 | 196 | 76 | 60.5 | Clay (BB) | Till/Rock |
| 364 | 97-110-P382-S8 | 5 DR | Deer Is. Batt C | PPC 14 | 196 | 76 | 60.5 | Clay (BB) | Till/Rock |
| 365 | 97-110-P12-S8 | EOD | Deer Is. Batt C | PPC 14 | 196 | 61 | 46.5 | Clay (BB) | Till/Rock |
| 366 | 97-110-P12-S8 | 5 DR | Deer Is. Batt C | PPC 14 | 196 | 61 | 46.5 | Clay (BB) | Till/Rock |
| 367 | 97-110-P6-S8 | EOD | Deer Is. Batt C | PPC 14 | 196 | 51 | 39.5 | Clay (BB) | Till/Rock |
| 368 | 97-110-P6-S8 | 4 DR | Deer Is. Batt C | PPC 14 | 196 | 44 | 39.5 | Clay (BB) | Till/Rock |
| 369 | 97-110-P2-S6 | EOD | Deer Is. Batt C | PPC 14 | 196 | 51 | 22.0 | Clay (BB) | Till/Rock |
| 370 | 97-110-P2-S6 | 3 DR | Deer Is. Batt C | PPC 14 | 196 | 51 | 22.0 | Clay (BB) | Till/Rock |
| 371 | 97-110-P492-S8 | EOD | Deer Is. Batt C | PPC 14 | 196 | 71 | 60.5 | Clay (BB) | Till/Rock |
| 372 | 97-110-P492-S8 | 3 DR | Deer Is. Batt C | PPC 14 | 196 | 71 | 60.5 | Clay (BB) | Till/Rock |
| 373 | 97-110-P159-S8 | EOD | Deer Is. Batt C | PPC 14 | 196 | 81 | 58.5 | Clay (BB) | Till/Rock |
| 374 | 97-110-P159-S8 | 3 DR | Deer Is. Batt C | PPC 14 | 196 | 81 | 58.5 | Clay (BB) | Till/Rock |
| 375 | 97-110-P485-S8 | EOD | Deer Is. Batt C | PPC 14 | 196 | 81 | 47.5 | Clay (BB) | Till/Rock |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area | Length Below Gauges | Penetr Depth | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | ($in^2$) | (ft) | (ft) | Side | Tip |
| 376 | 97-110-P485-S8 | 3 DR | Deer Is. Batt C | PPC 14 | 196 | 81 | 47.5 | Clay (BB) | Till/Rock |
| 377 | 97-110-P522-S8 | EOD | Deer Is. Batt C | PPC 14 | 196 | 75 | 52.5 | Clay (BB) | Till/Rock |
| 378 | 97-110-P522-S8 | 3 DR | Deer Is. Batt C | PPC 14 | 196 | 75 | 52.5 | Clay (BB) | Till/Rock |
| 379 | PD-TP4 | EOD | | CEP 12.75 | 9.82 | | 57.0 | Sand/Silt | Sand |
| 380 | PD-TP4 | BOR | | CEP 12.75 | 9.82 | | 57.0 | Sand/Silt | Sand |
| 381 | PD-PN3 | EOD | | CEP 12x0.6 | 14.6 | | 60.0 | Silt/Grav | Sand/Silt |
| 382 | PD-PN3 | BOR | | CEP 12x0.6 | 14.6 | | 60.0 | Silt/Grav | Sand/Silt |
| 383 | PD-PN317 | EOD | | CEP 14x0.37 | 16.05 | | 125.0 | Silt | Sand/Grav |
| 384 | PD-PN317 | BOR | | CEP 14x0.37 | 16.05 | | 124.0 | Silt | Sand/Grav |
| 385 | PD-PN12 | EOD | | CEP 16 | 16.8 | | 77.0 | Sand | Sand |
| 386 | PD-PN12 | BOR | | CEP 16 | 16.8 | | 77.0 | Sand | Sand |
| 387 | PD-PN7 | EOD | | CEPIPE24 | 54.8 | | 60.3 | Clay/Sand | Clay/Sand |
| 388 | PD-PN7 | BOR | | CEPIPE24 | 54.8 | | 60.3 | Clay/Silt | Clay/Silt |
| 389 | PD-T1 | EOD | | HP 10x42 | 12.4 | | 72.0 | Clay/Silt | Clay |
| 390 | PD-T1 | BOR | | HP 10x42 | 12.4 | | 72.0 | Clay/Silt | Clay |
| 391 | PD-SHD1 | EOD | | HP 12x53 | 15.5 | | 82.0 | Clay/Sand | Limestone |
| 392 | PD-SHD1 | BOR | | HP 12x53 | 15.5 | | 82.0 | Clay/Sand | Limestone |
| 393 | PD-R1 | EOD | | HP 14x73 | 21.4 | | 71.0 | Clay/Silt | Clay |
| 394 | PD-R1 | BOR | | HP 14x73 | 21.4 | | 71.0 | Clay/Silt | Clay |
| 395 | PD-R10 | EOD | | HP 14x73 | 21.4 | | 72.0 | Clay/Silt | Clay |
| 396 | PD-R10 | BOR | | HP 14x73 | 21.4 | | 72.0 | Clay/Silt | Clay |
| 397 | PD-TP4 | EOD | | HP 14x73 | 21.4 | | 27.0 | Clay | Clay |
| 398 | PD-TP4 | BOR | | HP 14x73 | 21.4 | | 27.0 | Clay | Clay |
| 399 | PD-TP2 | EOD | | HP14x73 | 21.4 | | 42.1 | Clay/Silt | Clay/Silt |
| 400 | PD-TP2 | BOR | | HP14x73 | 21.4 | | 42.1 | Clay/Silt | Clay/Silt |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area ($in^2$) | Length Below Gauges (ft) | Penetr Depth (ft) | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Side | Tip |
| 401 | PD-PN13 | EOD | | PSC 12 | 144 | | 30.0 | Clay/Silt | Sand/Silt |
| 402 | PD-PN13 | BOR | | PSC 12 | 144 | | 30.0 | Clay/Silt | Sand/Silt |
| 403 | PD-PN6 | EOD | | MONO 11 | 8.14 | | 38.0 | Sand | Silt/Clay |
| 404 | PD-PN6 | RES | | MONO 11 | 8.14 | | 38.0 | Sand | Clay/Silt |
| 405 | PD-TP23 | EOD | | MONO14 NU | 8.14 | | 42.0 | Sand | Clay/Silt |
| 406 | PD-TP23 | BOR | | MONO14 NU | 8.14 | | 42.0 | Sand | Clay/Silt |
| 407 | PD-PN4 | EOD | | OEP 12x0.6 | 14.6 | | 60.0 | Silt/Grav | Sand/Silt |
| 408 | PD-PN4 | BOR | | OEP 12x0.6 | 14.6 | | 60.0 | Silt/Grav | Sand/Silt |
| 409 | PD-T4 | EOD | | PIPE 12.75 | 19.2 | | 66.0 | Clay/Silt | Clay |
| 410 | PD-T4 | BOR | | PIPE 12.75 | 19.2 | | 66.0 | Clay/Silt | Clay |
| 411 | PD-J31 | EOD | | PIPE 14" | 31.2 | | 91.0 | Clay/Silt | Rock |
| 412 | PD-J31 | BOR | | PIPE 14" | 31.2 | | 91.0 | Clay/Silt | Rock |
| 413 | PD-TP1799 | EOD | | PSC | 96.5 | | 70.0 | Sand/Silt | Clay |
| 414 | PD-TP1799 | RES | | PSC | 96.5 | | 73.0 | Sand/Silt | Clay |
| 415 | PD-TP1799 | X | | PSC | 96.5 | | 70.0 | Silt | Sand |
| 416 | PD-T2 | EOD | | PSC 12 | 144 | | 62.0 | Clay/Silt | Clay |
| 417 | PD-T2 | BOR | | PSC 12 | 144 | | 62.0 | Clay/Silt | Clay |
| 418 | PD-TP6 | EOD | | PSC 12 | 144 | | 53.0 | Sand/Silt | Clay/Silt |
| 419 | PD-TP6 | BOR | | PSC 12 | 144 | | 53.0 | Sand/Silt | Clay/Silt |
| 420 | PD-PNH20 | EOD | | PSC 12 | 144 | | 58.0 | Clay/Sand | Clay/Sand |
| 421 | PD-PNH20 | BOR | | PSC 12 | 144 | | 58.0 | Clay/Sand | Clay/Sand |
| 422 | PD-T3 | EOD | | PSC 14 | 196 | | 62.0 | Clay/Silt | Clay |
| 423 | PD-T3 | BOR | | PSC 14 | 196 | | 62.0 | Clay/Silt | Clay |
| 424 | PD-PN110 | EOD | | PSC 16 | 256 | | 35.0 | Sand/Clay | Clay/Silt |
| 425 | PD-PN110 | BOR | | PSC 16 | 256 | | 35.0 | Sand/Clay | Clay/Silt |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area ($in^2$) | Length Below Gauges (ft) | Penetr Depth (ft) | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Side | Tip |
| 426 | PD-PN111 | EOD | | PSC 16 | 256 | | 35.0 | Sand/Clay | Clay/Silt |
| 427 | PD-PN111 | BOR | | PSC 16 | 256 | | 35.0 | Sand/Clay | Clay/Silt |
| 428 | PD-TP3 | EOD | | PSC 18 | 324 | | 77.0 | Sand | Sandstone |
| 429 | PD-TP3 | BOR | | PSC 18 | 324 | | 77.0 | Sand | Sandstone |
| 430 | PD-TP21 | EOD | | PSC 36 | 487 | | 63.0 | Sand/Silt | Sand |
| 431 | PD-TP21 | BOR | | PSC 36 | 487 | | 63.0 | Sand/Silt | Sand |
| 432 | PD-TP11 | EOD | | PSC 36 | 487 | | 47.0 | Silt/Grav | Sand/Silt |
| 433 | PD-TP11 | BOR | | PSC 36 | 487 | | 47.0 | Sand/Silt | Sand |
| 434 | PD-TP11 | BOR | | PSC 36 | 487 | | 47.0 | Silt/Grav | Sand/Silt |
| 435 | PD-151 | EOD | | PSC12 | 144 | | 42.0 | Clay/Sand | Sand |
| 436 | PD-151 | BOR | | PSC12 | 144 | | 42.0 | Clay/Silt | Sand |
| 437 | PD-P3T1 | EOD | | PIPE 12.75 | 14.58 | | 75.0 | Sand/Silt | Rock |
| 438 | PD-P3T1 | BOR | | PIPE 12.75 | 14.58 | | 75.0 | Sand/Silt | Rock |
| 439 | PD-TP1 | EOD | | HP 14x73 | 21.4 | | 60.3 | Sand Clay | Sand Clay |
| 440 | PD-TP1 | BOR | | HP 14x73 | 21.4 | | 60.3 | Sand Clay | Sand Clay |
| 441 | PD-PN126 | EOD | | PSC 14 | 196 | | 70.0 | Clay | G. Till |
| 442 | PD-PN126 | BOR | | PSC 14 | 196 | | 70.0 | Clay | G. Till |
| 443 | PD-TP26 | EOD | | PSC 12 | 144 | | 62.0 | Sand/Silt | Sand/Silt |
| 444 | PD-TP26 | BOR | | PSC 12 | 144 | | 64.0 | Sand/Silt | Sand/Silt |
| 445 | PD-TP114 | EOD | | PSC 12 | 144 | | 64.0 | Sand/Silt | Sand/Silt |
| 446 | PD-TP114 | BOR | | PSC 12 | 144 | | 64.0 | Sand/Silt | Sand/Silt |
| 447 | PD-PN177 | EOD | | PSC 14 | 196 | | 70.0 | Clay | G. Till |
| 448 | PD-PN177 | BOR | | PSC 14 | 196 | | 72.0 | Clay | G. Till |
| 449 | PD-TP1 | EOD | | CEPIPE 1 | 12.4 | | 72.3 | Sand | Sand/Till |
| 450 | PD-TP1 | BOR | | E\CEPIPE | 12.4 | | 72.3 | Sand | Sand/Till |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Refer. Time | Location | Pile Type | Pile Area ($in^2$) | Length Below Gauges (ft) | Penetr Depth (ft) | Soil Type | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | Side | Tip |
| 451 | PD-D418 | EOD | | OEP 9.6 | 16 | | 45.0 | Clay/Shale | DOLOM |
| 452 | PD-D418 | BOR | | OEP 9.6 | 16 | | 45.0 | Clay/Shale | DOLOM |
| 453 | PD-PN2 | EOD | | MONO | 8.14 | | 43.0 | Sand | Silt |
| 454 | PD-PN2 | RES | | MONO 12 | 8.96 | | 43.0 | Sand | Sand |
| 455 | PD-PN26 | EOD | | PSC 12 | 144 | | 32.0 | Clay/Silt | Sand/Silt |
| 456 | PD-PN26 | BOR | | PSC 12 | 144 | | 32.0 | Clay/Silt | Sand/Silt |
| 457 | PD-PN49 | EOD | | PSC 12 | 144 | | 30.0 | Clay/Silt | Sand/Silt |
| 458 | PD-PN49 | BOR | | PSC 12 | 144 | | 30.0 | Clay/Silt | Sand/Silt |
| 459 | PD-PN6 | EOD | | PSC | 900 | | 134.0 | NA | NA |
| 460 | PD-PN6 | RES | | PSC 14 | 196 | | 107.0 | Sand/Silt | Sand/Silt |
| 461 | PD-TP1 | EOD | | PSC 14 | 196 | | 77.0 | Sand | Sandstone |
| 462 | PD-TP1 | BOR | | PSC 14 | 196 | | 77.0 | Sand | Sandstone |
| 463 | PD-TP2 | EOD | | PSC 12 | 144 | | 57.0 | Sand/Silt | Rock |
| 464 | PD-TP2 | BOR | | PSC 12 | 144 | | 64.0 | Sand/Silt | Sand/Silt |
| 465 | PD-TP8 | EOD | | PSC 14 | 196 | | 77.0 | Sand | Sandstone |
| 466 | PD-TP8 | BOR | | PSC 14 | 196 | | 77.0 | Sand | Sandstone |
| 467 | PD-PN7E3 | EOD | | PSC 30 | 900 | | 125.0 | NA | NA |
| 468 | PD-PN7E | BOR | | PSC 30 | 900 | | 116.0 | Sand | Sandstone |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 96-104-1W-D | HPSI 1000 | 35 | 28.4 | 5.0 | 16810 | 30000 | 38.91 | 15.4 | 605 | 0.990 | 1.13 | 16.30 |
| 2 | 96-104-1W-D | HPSI 1000 | 35 | 26.7 | 10.0 | 16810 | 30000 | 38.91 | 14.9 | 585 | 0.991 | 1.00 | 16.30 |
| 3 | 96-104-1W-I | HPSI 1000 | 35 | 30.8 | 3.0 | 16810 | 30000 | 38.91 | 16.7 | 668 | 0.973 | 1.21 | 16.30 |
| 4 | 96-104-1W-I | HPSI 1000 | 35 | 31.7 | 2.5 | 16810 | 30000 | 38.91 | 19.2 | 719 | 1.039 | 1.15 | 14.99 |
| 5 | 96-104-2E-K | HPSI 1000 | 35 | 30.9 | 8.0 | 16810 | 30000 | 38.91 | 17.5 | 686 | 0.992 | 1.06 | 15.82 |
| 6 | 96-104-2E-K | HPSI 1000 | 35 | 27.7 | 10.7 | 16810 | 30000 | 38.91 | 16.5 | 632 | 1.016 | 0.96 | 15.82 |
| 7 | 96-104-2W-R | HPSI 1000 | 35 | 25.7 | 4.0 | 16810 | 30000 | 38.91 | 15.4 | 597 | 1.004 | 1.11 | 16.78 |
| 8 | 96-104-2W-R | HPSI 1000 | 35 | 28.9 | 4.5 | 16810 | 30000 | 38.91 | 16.6 | 656 | 0.984 | 1.18 | 16.89 |
| 9 | 96-104-3E-A | HPSI 1000 | 35 | 27.7 | 6.0 | 16810 | 30000 | 38.91 | 16.5 | 657 | 0.977 | 1.15 | 13.27 |
| 10 | 96-104-3E-A | HPSI 1000 | 35 | 25.8 | 5.0 | 16810 | 30000 | 38.91 | 16 | 641 | 0.971 | 1.03 | 13.27 |
| 11 | 96-104-3W-G | HPSI 1000 | 35 | 29.5 | 4.0 | 16810 | 30000 | 38.91 | 17.4 | 653 | 1.037 | 1.05 | 13.92 |
| 12 | 96-104-3W-G | HPSI 1000 | 35 | 25.9 | 8.0 | 16810 | 30000 | 38.91 | 14.7 | 587 | 0.974 | 0.86 | 12.14 |
| 13 | 96-104-5W-F | HPSI 1000 | 35 | 28.4 | 4.0 | 16810 | 30000 | 38.91 | 17.1 | 659 | 1.010 | 1.06 | 13.33 |
| 14 | 96-104-5W-F | HPSI 1000 | 35 | 29.6 | 6.7 | 16810 | 30000 | 38.91 | 17.2 | 647 | 1.034 | 1.04 | 13.33 |
| 15 | 96-104-NA-4 | HPSI 1000 | 35 | 28.5 | 4.0 | 16810 | 30000 | 38.91 | 17.5 | 651 | 1.046 | 0.98 | 13.33 |
| 16 | 96-104-NA-4 | HPSI 1000 | 35 | 30.3 | 12.0 | 16810 | 30000 | 38.91 | 17.5 | 639 | 1.065 | 0.94 | 13.33 |
| 17 | 96-104-NA-53 | HPSI 1000 | 35 | 29.2 | 4.0 | 16810 | 30000 | 38.91 | 17 | 630 | 1.050 | 1.09 | 13.92 |
| 18 | 96-104-NA-53 | HPSI 1000 | 35 | 26.8 | 5.3 | 16810 | 30000 | 38.91 | 16.7 | 615 | 1.056 | 1.00 | 13.92 |
| 19 | 96-104-TP1 | HPSI 1000 | 50 | 13.7 | >20 | 16810 | 30000 | 26.06 | 13.6 | 535 | 0.662 | 0.66 | 6.84 |
| 20 | 96-104-TP1 | HPSI 1000 | 50 | 14.5 | >20 | 16810 | 30000 | 26.06 | 12 | 509 | 0.614 | 0.60 | 6.84 |
| 21 | 96-104-TP4 | HPSI 1000 | 50 | 30.5 | 3.0 | 16810 | 30000 | 38.91 | | | | | 0.00 |
| 22 | 96-104-TP4 | HPSI 1000 | 50 | 29.3 | 8.0 | 16810 | 30000 | 38.91 | 17.6 | 661 | 1.036 | 0.95 | 13.86 |
| 23 | 96-104-TP4 | HPSI 1000 | 50 | 27.4 | 10.0 | 16810 | 30000 | 38.91 | 17 | 643 | 1.029 | 0.94 | 13.86 |
| 24 | 96-104-W1-V26 | HPSI 1000 | 40 | 13.6 | 7.2 | 16810 | 30000 | 26.06 | 12.3 | 389 | 0.824 | 0.62 | 4.05 |
| 25 | 96-104-W1-V26 | HPSI 1000 | 40 | 15.2 | 7.0 | 16810 | 30000 | 26.06 | 13.5 | 433 | 0.812 | 0.54 | 2.74 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | 96-104-W2-V13 | HPSI 1000 | 40 | 17.7 | 6.4 | 16810 | 30000 | 26.06 | 14.3 | 533 | 0.699 | 0.66 | 8.74 |
| 27 | 96-104-W2-V13 | HPSI 1000 | 40 | 16.1 | 9.0 | 16810 | 30000 | 26.06 | 12.7 | 429 | 0.771 | 0.82 | 8.74 |
| 28 | 96-104-W4-B36 | HPSI 1000 | 30 | 17.5 | 6.0 | 16810 | 30000 | 26.06 | 15.1 | 442 | 0.890 | 0.81 | 16.24 |
| 29 | 96-104-W4-B36 | HPSI 1000 | 30 | 17.7 | 20.0 | 16810 | 30000 | 26.06 | 14.9 | 449 | 0.865 | 0.78 | 16.24 |
| 30 | 96-104-W4-V24 | HPSI 1000 | 30 | 22.7 | 5.7 | 16810 | 30000 | 26.06 | 15.8 | 495 | 0.832 | 0.96 | 15.70 |
| 31 | 96-104-W4-V24 | HPSI 1000 | 30 | 23.8 | 10.0 | 16810 | 30000 | 26.06 | 16.9 | 589 | 0.748 | 0.78 | 15.70 |
| 32 | 96-104-W5-3 | HPSI 1000 | 30 | 27.3 | 3.0 | 16810 | 30000 | 26.06 | 16.3 | 459 | 0.925 | 1.21 | 14.04 |
| 33 | 96-104-W5-3 | HPSI 1000 | 30 | 26.2 | 13.3 | 16810 | 30000 | 26.06 | 15.6 | 443 | 0.918 | 1.08 | 14.04 |
| 34 | 96-104-W5-8 | HPSI 1000 | 30 | 27.2 | 5.0 | 16810 | 30000 | 26.06 | 17.9 | 470 | 0.992 | 1.44 | 17.61 |
| 35 | 96-104-W5-8 | HPSI 1000 | 30 | 24.1 | 20.0 | 16810 | 30000 | 26.06 | 16.4 | 435 | 0.982 | 1.12 | 13.92 |
| 36 | 96-104-W5-V27 | HPSI 1000 | 30 | 19.4 | 5.0 | 16810 | 30000 | 26.06 | 14.9 | 473 | 0.821 | 0.84 | 14.93 |
| 37 | 96-104-W5-V27 | HPSI 1000 | 30 | 18.4 | 32.0 | 16810 | 30000 | 26.06 | 15.2 | 449 | 0.882 | 0.85 | 14.93 |
| 38 | 96-104-W5-V28 | HPSI 1000 | 30 | 21.2 | 5.2 | 16810 | 30000 | 26.06 | 15.1 | 478 | 0.823 | 0.92 | 14.69 |
| 39 | 96-104-W5-V28 | HPSI 1000 | 30 | 21.5 | 36.0 | 16810 | 30000 | 26.06 | 14.7 | 436 | 0.878 | 0.96 | 14.69 |
| 40 | 96-115-3 | ICE 640 | 40 | 13.8 | 14.7 | 16810 | 30000 | 38.19 | 9.2 | 404 | 0.870 | 0.69 | 16.30 |
| 41 | 96-115-3 | ICE 640 | 40 | 16.1 | 14.5 | 16810 | 30000 | 38.19 | 11.9 | 501 | 0.907 | 0.74 | 16.30 |
| 42 | 96-115-7 | ICE 640 | 40 | 13.8 | 12.3 | 16810 | 30000 | 38.19 | 8.5 | 425 | 0.764 | 0.63 | 15.41 |
| 43 | 96-115-7 | ICE 640 | 40 | 20.3 | 20.0 | 16810 | 30000 | 38.19 | 11.8 | 514 | 0.877 | 0.74 | 15.41 |
| 44 | 96-115-106 | HPSI 2000 | 80 | 29 | 11.0 | 13000 | 5467 | 107.66 |  | 670 | 0.000 | 0.97 | 26.77 |
| 45 | 96-115-106 | HPSI 2000 | 80 | 36 | 52.0 | 13000 | 5467 | 107.66 |  | 780 | 0.000 | 0.92 | 26.77 |
| 46 | 96-115-109 | HPSI 2000 | 80 | 40 | 8.0 | 13000 | 5467 | 107.66 |  | 820 | 0.000 | 1.08 | 26.77 |
| 47 | 96-115-109 | HPSI 2000 | 80 | 46 | 56.0 | 13000 | 5467 | 107.66 |  | 910 | 0.000 | 0.97 | 26.77 |
| 48 | 96-115-117 | HPSI 2000 | 80 | 33 | 12.0 | 13000 | 5467 | 107.66 | 6.8 | 770 | 0.951 | 0.76 | 13.54 |
| 49 | 96-115-117 | HPSI 2000 | 80 | 36 | 20<1" | 13000 | 5467 | 107.66 | 6.8 | 710 | 1.031 | 0.77 | 13.54 |
| 50 | 96-115-157 | HPSI 2000 | 80 | 31 | 15.2 | 13000 | 5467 | 107.66 | 6.1 | 660 | 0.995 | 0.78 | 12.85 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 51 | 96-115-157 | HPSI 2000 | 80 | 55 | 14<1" | 13000 | 5467 | 107.66 | 10.6 | 1120 | 1.019 | 0.89 | 12.85 |
| 52 | 96-115-158 | HPSI 2000 | 80 | 31 | 11.5 | 13000 | 5467 | 107.66 | 6.2 | 660 | 1.011 | 0.77 | 12.85 |
| 53 | 96-115-158 | HPSI 2000 | 80 | 38 | 17<1" | 13000 | 5467 | 107.66 | 7.8 | 820 | 1.024 | 0.75 | 12.85 |
| 54 | 96-115-163 | HPSI 2000 | 80 | 26 | 18.0 | 13000 | 5467 | 107.66 | 6.3 | 670 | 1.012 | 0.81 | 12.62 |
| 55 | 96-115-163 | HPSI 2000 | 80 | 41 | 16 per 4 in | 13000 | 5467 | 107.66 | 8.9 | 880 | 1.089 | 0.85 | 12.62 |
| 56 | 96-115-182 | HPSI 2000 | 80 | 36 | 14.5 | 13000 | 5467 | 107.66 | 7.2 | 770 | 1.007 | 0.76 | 12.77 |
| 57 | 96-115-182 | HPSI 2000 | 80 | 34 | 20<1" | 13000 | 5467 | 107.66 | 6.4 | 770 | 0.895 | 0.69 | 12.46 |
| 58 | 96-115-258 | HPSI 2000 | 80 | 47 | 13.7 | 13000 | 5467 | 107.66 | | | #VALUE! | | 0.00 |
| 59 | 96-115-258 | HPSI 2000 | 80 | 46 | 20<1" | 13000 | 5467 | 107.66 | 7.4 | 910 | 0.875 | 0.78 | 11.08 |
| 60 | 96-115-279 | HPSI 2000 | 80 | 32 | 10.0 | 13000 | 5467 | 107.66 | 6.5 | 720 | 0.972 | 1.01 | 12.00 |
| 61 | 96-115-279 | HPSI 2000 | 80 | 46 | 10.0 | 13000 | 5467 | 107.66 | 8.2 | 860 | 1.027 | 0.96 | 12.00 |
| 62 | 96-115-279 | HPSI 2000 | 80 | 35 | 15.0 | 13000 | 5467 | 107.66 | | | #VALUE! | | 0.00 |
| 63 | 96-115-357 | HPSI 2000 | 80 | 39 | 18.0 | 13000 | 5467 | 107.66 | 6.9 | 820 | 0.906 | 0.88 | 12.62 |
| 64 | 96-115-357 | HPSI 2000 | 80 | 42 | 40 per 4 in | 13000 | 5467 | 107.66 | 7.7 | 910 | 0.911 | 0.82 | 12.62 |
| 65 | 96-115-375 | HPSI 2000 | 80 | 37 | 39.0 | 13000 | 5467 | 107.66 | 6 | 720 | 0.897 | 0.92 | 12.46 |
| 66 | 96-115-375 | HPSI 2000 | 80 | 40 | 20.0 | 13000 | 5467 | 107.66 | 7.6 | 860 | 0.951 | 0.80 | 9.08 |
| 67 | 96-115-414 | HPSI 2000 | 80 | 34 | 20.0 | 13000 | 5467 | 107.66 | 6.2 | 710 | 0.940 | 0.87 | 12.46 |
| 68 | 96-115-414 | HPSI 2000 | 80 | 35 | 15 < 1" | 13000 | 5467 | 107.66 | 6 | 760 | 0.850 | 0.78 | 12.46 |
| 69 | 96-115-806 | HPSI 2000 | 80 | 37 | 10.7 | 13000 | 5467 | 107.66 | | 750 | 0.000 | 0.93 | 24.46 |
| 70 | 96-115-806 | HPSI 2000 | 80 | 37 | 80.0 | 13000 | 5467 | 107.66 | 6.6 | 800 | 0.888 | 0.88 | 24.46 |
| 71 | 96-115-816 | HPSI 2000 | 80 | 36 | 12.3 | 13000 | 5467 | 107.66 | | 860 | 0.000 | 0.94 | 24.46 |
| 72 | 96-115-816 | HPSI 2000 | 80 | 45 | 16.7 | 13000 | 5467 | 107.66 | 7.3 | 940 | 0.836 | 0.94 | 24.46 |
| 73 | 96-115-910 | HPSI 2000 | 80 | 30 | 10.0 | 13000 | 5467 | 107.66 | | 720 | 0.000 | 0.87 | 20.15 |
| 74 | 96-115-910 | HPSI 2000 | 80 | 35 | 20.0 | 13000 | 5467 | 107.66 | | 680 | 0.000 | 0.90 | 19.05 |
| 75 | 96-115-916 | HPSI 2000 | 80 | 32 | 6.2 | 13000 | 5467 | 107.66 | | 770 | 0.000 | 0.92 | 21.69 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 76 | 96-115-916 | HPSI 2000 | 80 | 30 | 13.5 | 13000 | 5467 | 107.66 | | 660 | 0.000 | 0.85 | 18.94 |
| 77 | 96-115-919 | HPSI 2000 | 80 | 36 | 9.2 | 13000 | 5467 | 107.66 | | 940 | 0.000 | 0.82 | 20.15 |
| 78 | 96-115-919 | HPSI 2000 | 80 | 33 | 9.0 | 13000 | 5467 | 107.66 | | 660 | 0.000 | 0.88 | 18.68 |
| 79 | 96-115-926 | HPSI 2000 | 80 | 36 | 9.3 | 13000 | 5467 | 107.66 | | 820 | 0.000 | 0.93 | 20.15 |
| 80 | 96-115-926 | HPSI 2000 | 80 | 33 | 8.3 | 13000 | 5467 | 107.66 | | 690 | 0.000 | 0.89 | 18.80 |
| 81 | 96-115-937 | HPSI 2000 | 80 | 39 | 13.3 | 13000 | 5467 | 107.66 | | 850 | 0.000 | 0.94 | 20.15 |
| 82 | 96-115-937 | HPSI 2000 | 80 | 33 | 16.8 | 13000 | 5467 | 107.66 | | 640 | 0.000 | 0.93 | 19.35 |
| 83 | 96-115-940 | HPSI 2000 | 80 | 34 | 9.7 | 13000 | 5467 | 107.66 | | 770 | 0.000 | 1.00 | 21.69 |
| 84 | 96-115-940 | HPSI 2000 | 80 | 29 | 16.7 | 13000 | 5467 | 107.66 | | 620 | 0.000 | 0.83 | 19.25 |
| 85 | 96-115-3111 | HPSI 2000 | 80 | 41 | 10.5 | 13000 | 5467 | 107.66 | 6.4 | 860 | 0.801 | 1.12 | 9.23 |
| 86 | 96-115-3111 | HPSI 2000 | 80 | 34 | 9.5 | 13000 | 5467 | 107.66 | 6 | 980 | 0.659 | 0.58 | 9.23 |
| 87 | 96-115-3115 | HPSI 2000 | 80 | 45 | 7.7 | 13000 | 5467 | 107.66 | 6.6 | 1010 | 0.704 | 1.23 | 9.23 |
| 88 | 96-115-3115 | HPSI 2000 | 80 | 49 | 6.5 | 13000 | 5467 | 107.66 | 8.3 | 1070 | 0.835 | 0.85 | 8.54 |
| 89 | 96-115-3117 | HPSI 2000 | 80 | 41 | 8.3 | 13000 | 5467 | 107.66 | 6.1 | 870 | 0.755 | 1.29 | 9.23 |
| 90 | 96-115-3117 | HPSI 2000 | 80 | 53 | 13.0 | 13000 | 5467 | 107.66 | 8 | 1180 | 0.730 | 0.84 | 9.23 |
| 91 | 96-115-3118 | HPSI 2000 | 80 | 35 | 12.0 | 13000 | 5467 | 107.66 | 4.8 | 840 | 0.615 | 1.11 | 9.23 |
| 92 | 96-115-3118 | HPSI 2000 | 80 | 40 | 8.5 | 13000 | 5467 | 107.66 | 6.7 | 1150 | 0.627 | 0.63 | 9.23 |
| 93 | 96-115-3181 | HPSI 2000 | 80 | 32 | 20.0 | 13000 | 5467 | 107.66 | 5.4 | 620 | 0.938 | 0.84 | 12.92 |
| 94 | 96-115-3181 | HPSI 2000 | 80 | 36 | 8.0 | 13000 | 5467 | 107.66 | 6.7 | 790 | 0.913 | 0.71 | 11.85 |
| 95 | 96-115-3220 | HPSI 2000 | 80 | 26 | 10.0 | 13000 | 5467 | 107.66 | 5.9 | 640 | 0.992 | 0.84 | 11.54 |
| 96 | 96-115-3220 | HPSI 2000 | 80 | 39 | 14.0 | 13000 | 5467 | 107.66 | 7 | 760 | 0.992 | 0.86 | 11.54 |
| 97 | 96-115-3259 | HPSI 2000 | 80 | 23 | 13.0 | 13000 | 5467 | 107.66 | 4.6 | 570 | 0.869 | 0.78 | 12.62 |
| 98 | 96-115-3259 | HPSI 2000 | 80 | 40 | 10.0 | 13000 | 5467 | 107.66 | 7.8 | 890 | 0.944 | 0.79 | 12.62 |
| 99 | 96-116-9 | ICE 60S | 60 | 27 | 10.0 | 16810 | 30000 | 37.83 | 14.6 | 600 | 0.921 | 0.90 | 12.61 |
| 100 | 96-116-9 | ICE 60S | 60 | 35.1 | 14.5 | 16810 | 30000 | 37.83 | 16.1 | 681 | 0.894 | 0.89 | 12.61 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 101 | 96-116-12 | ICE 60S | 60 | 24.2 | 9.0 | 16810 | 30000 | 37.83 | 15.6 | 606 | 0.974 | 0.93 | 12.61 |
| 102 | 96-116-12 | ICE 60S | 60 | 33.6 | 13<1" | 16810 | 30000 | 37.83 | 19 | 791 | 0.909 | 1.01 | 12.61 |
| 103 | 96-117-A4 | ICE 42S | 42 | 15.7 | 4.8 | 16810 | 30000 | 26.06 | 14.5 | 400 | 0.945 | 0.74 | 3.81 |
| 104 | 96-117-A4 | ICE 42S | 42 | 17.1 | 6.7 | 16810 | 30000 | 26.06 | 15.5 | 448 | 0.901 | 0.73 | 3.81 |
| 105 | 97-102-TP2 | ICE 640 | 40 | 18.6 | 10.0 | 12670 | 5193 | 80.33 | 6.2 | 541 | 0.921 | 0.68 | 17.60 |
| 106 | 97-102-TP2 | ICE 640 | 40 | 21.5 | 15.0 | 12670 | 5193 | 80.33 | 8.5 | 773 | 0.883 | 0.44 | 17.60 |
| 107 | 97-104-TP1 (#7) | ICE 42S | 42 | 13.2 | 3.5 | 16810 | 30000 | 27.66 | 14.1 | 413 | 0.944 | 0.79 | 20.58 |
| 108 | 97-104-TP1 (#7) | ICE 42S | 42 | 13.5 | 5.0 | 16810 | 30000 | 27.66 | 13.5 | 387 | 0.965 | 0.72 | 19.87 |
| 109 | 97-104-TP2 (#18) | ICE 42S | 42 | 12.8 | 0.5 | 16810 | 30000 | 27.66 | 13.9 | 334 | 1.151 | 1.87 | 12.02 |
| 110 | 97-104-TP2 (#18) | ICE 42S | 42 | 12.5 | 1.3 | 16810 | 30000 | 27.66 | 12.9 | 390 | 0.915 | 0.67 | 12.02 |
| 111 | 97-104-TP2 (#18) | ICE 42S | 42 | 15 | 7.3 | 16810 | 30000 | 27.66 | | | #VALUE! | | 12.02 |
| 112 | 97-106-TP1 | ICE 80S | 80 | 15.73 | 8.0 | 13000 | 5467 | 60.56 | | | #VALUE! | 0.53 | 7.85 |
| 113 | 97-106-TP1 | ICE 80S | 80 | 26.6 | 13.3 | 13000 | 5467 | 60.56 | 10.6 | 688 | 0.933 | 0.60 | 7.85 |
| 114 | 97-106-TP2 | ICE 80S | 80 | 11.83 | 7.3 | 13000 | 5467 | 60.56 | | | #VALUE! | 0.44 | 7.85 |
| 115 | 97-106-TP2 | ICE 80S | 80 | 25.2 | 13.3 | 13000 | 5467 | 60.56 | 9.8 | 671 | 0.884 | 0.59 | 7.85 |
| 116 | 97-106-TP3 | ICE 80S | 80 | 7.33 | 8.5 | 13000 | 5467 | 60.56 | | | #VALUE! | 0.36 | 7.85 |
| 117 | 97-106-TP3 | ICE 80S | 80 | 18.4 | 10.0 | 13000 | 5467 | 60.56 | 8.2 | 535 | 0.928 | 0.56 | 7.85 |
| 118 | 97-108-#7 | ICE 60S | 60 | 27.3 | 4.8 | 16810 | 29983 | 46.02 | | | #VALUE! | | 5.06 |
| 119 | 97-108-#7 | ICE 60S | 60 | 28.3 | 12.0 | 16810 | 29983 | 46.02 | 15.3 | 788 | 0.893 | 0.73 | 5.06 |
| 120 | 97-108-#106 | ICE 60S | 60 | 22.4 | 3.7 | 16810 | 29983 | 46.02 | | | #VALUE! | | 5.00 |
| 121 | 97-108-#106 | ICE 60S | 60 | 30.1 | 13.0 | 16810 | 29983 | 46.02 | 16.6 | 789 | 0.968 | 0.68 | 5.00 |
| 122 | 97-108-#77 | ICE 60S | 60 | 23 | 4.3 | 16810 | 29983 | 46.02 | | | #VALUE! | | 4.76 |
| 123 | 97-108-#77 | ICE 60S | 60 | 30.2 | 12.0 | 16810 | 29983 | 46.02 | 15.8 | 861 | 0.844 | 0.60 | 4.76 |
| 124 | 97-108-#69 | ICE 60S | 60 | 28.6 | 6.0 | 16810 | 29983 | 46.02 | | | #VALUE! | | 5.12 |
| 125 | 97-108-#69 | ICE 60S | 60 | 26.6 | 9.0 | 16810 | 29983 | 46.02 | 15.7 | 772 | 0.936 | 0.71 | 5.12 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 126 | 97-108-#27 | ICE 60S | 60 | 24.6 | 6.5 | 16810 | 29983 | 46.02 | | | #VALUE! | | 5.18 |
| 127 | 97-108-#27 | ICE 60S | 60 | 29.3 | 8.0 | 16810 | 29983 | 46.02 | 15.6 | 788 | 0.911 | 0.73 | 5.18 |
| 128 | 97-109-A10#64 (TP5) | HPSI 1000 | 50 | 43.7 to 45.2 | 50.0 | 16810 | 29983 | 46.73 | | | #VALUE! | 1.06 | 0.00 |
| 129 | 97-109-A10#64 (TP5) | ICE 80S | 99.2 | 44 | 20<1" | 16810 | 29983 | 46.73 | 18.5 | 861 | 1.004 | 1.03 | 15.11 |
| 130 | 97-109-A3#20 (TP6) | ICE 80S | 99.2 | 17.85 | 4.2 | 16810 | 29983 | 46.73 | | | #VALUE! | 0.55 | 0.00 |
| 131 | 97-109-A3#20 (TP6) | ICE 80S | 99.2 | 45 | 20<1" | 16810 | 29983 | 46.73 | 17.1 | 868 | 0.921 | 0.91 | 12.73 |
| 132 | 97-109-A3#28 (TP1) | ICE 60S | 60 | 20 to 25 | 14.2 | 16810 | 29983 | 46.73 | | | #VALUE! | 0.71 | 0.00 |
| 133 | 97-109-A3#28 (TP1) | ICE 60S | 60 | 37.9 | 20<1" | 16810 | 29983 | 46.73 | 16.1 | 789 | 0.954 | 0.91 | 12.73 |
| 134 | 97-109-AE#42 (TP2) | | | 23 to 27 | 19.2 | 16810 | 29983 | 46.73 | | | #VALUE! | 0.80 | 0.00 |
| 135 | 97-109-AE#42 (TP2) | | | 43..4 | 20/<1" | 16810 | 29983 | 46.73 | | | #VALUE! | 1.07 | 0.00 |
| 136 | 97-109-AF#73 (TP4) | D-30-32 | 73.7 | 15.7 to 23.8 | 11.1 | 16810 | 29983 | 46.73 | | | #VALUE! | 0.73 | 0.00 |
| 137 | 97-109-AF#73 (TP4) | ICE 80S | 99.2 | 27.6 | 20<1" | 16810 | 29983 | 46.73 | 12.8 | 634 | 0.943 | 0.83 | 16.89 |
| 138 | 97-109-AG/A4 #31 (TP2) | ICE 60S | 60 | 23 to 27 | 19.2 | 16810 | 29983 | 46.73 | | | #VALUE! | 0.80 | 0.00 |
| 139 | 97-109-AG/A4 #31 (TP2) | ICE 60S | 60 | 43.4 | 20/<1" | 16810 | 29983 | 46.73 | 18.3 | 867 | 0.986 | 1.07 | 16.89 |
| 140 | 97-109-AH#96 (TP3) | HPSI 1000 | 50 | 42.6 to 44.4 | 14.9 | 16810 | 29983 | 46.73 | | | #VALUE! | 1.05 | 0.00 |
| 141 | 97-109-AH#96 (TP3) | ICE 60S | 60 | 44.3 | 20<1" | 16810 | 29983 | 46.73 | 19.4 | 883 | 1.027 | 1.10 | 17.49 |
| 142 | 97-109-LAETP8 N. Node #21 | HPSI 1000 | 50 | 36.7 [42.3] | 7.0 | 16810 | 30000 | 46.76 | 17.8 | 796 | 1.046 | 1.12 | 13.92 |
| 143 | 97-109-LAETP8 N. Node #21 | HPSI 1000 | 50 | 37.8 | 13<1" | 16810 | 30000 | 46.76 | 18 | 834 | 1.009 | 0.93 | 11.54 |
| 144 | 97-109-LETP10 S. Node #78 | HPSI 1000 | 50 | 43.3 [44.8] | 8.0 | 16810 | 30000 | 46.76 | 18.8 | 876 | 1.003 | 1.18 | 17.43 |
| 145 | 97-109-LETP10 S. Node #78 | HPSI 1000 | 50 | 40.2 | 5<1" | 16810 | 30000 | 46.76 | 18.5 | 846 | 1.022 | 1.00 | 16.30 |
| 146 | 97-109-LETP11 N. Node #11 | HPSI 1000 | 50 | 40.5 | 5.8 | 16810 | 29983 | 46.73 | 18.1 | 861 | 0.982 | 1.03 | 10.35 |
| 147 | 97-109-LETP11 N. Node #11 | HPSI 1000 | 50 | 40.7 | 10<1/2" | 16810 | 30000 | 46.76 | 19.1 | 881 | 1.014 | 0.98 | 10.35 |
| 148 | 97-109-LETP12 E3-106 | HPSI 1000 | 50 | 40.5 | 12.0 | 16810 | 30000 | 46.76 | 18.7 | 786 | 1.112 | 1.17 | 18.02 |
| 149 | 97-109-LETP12 E3-106 | HPSI 1000 | 50 | 38.1 | 20 < 1" | 16810 | 30000 | 46.76 | 18.1 | 825 | 1.026 | 0.99 | 16.95 |
| 150 | 97-109-LETP15 E4-86 | HPSI 1000 | 50 | 40 | 8.8 | 16810 | 30000 | 46.76 | 18.8 | 847 | 1.038 | 1.12 | 15.82 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 151 | 97-109-LETP15 E4-86 | HPSI 1000 | 50 | 41.2 | 22 < 1" | 16810 | 30000 | 46.76 | 17.8 | 825 | 1.009 | 1.05 | 15.82 |
| 152 | 97-109-Strs#112 (TP7) | HPSI 1000 | 50 | 41.7 | 5.7 | 16810 | 30000 | 46.76 | 18 | 853 | 0.987 | 0.99 | 12.73 |
| 153 | 97-109-Strs#112 (TP7) | HPSI 1000 | 50 | 36.9 | 14.0 | 16810 | 30000 | 46.76 | 12.8 | 624 | 0.959 | 0.92 | 12.73 |
| 154 | 97-114-HBTP1 | D-19-32 | 42.8 | 15.6 | 9.0 | 16810 | 30000 | 43.90 | 12.4 | 598 | 0.910 | 0.45 | 3.21 |
| 155 | 97-114-HBTP1 | D-19-32 | 42.8 | 14.4 | 13.3 | 16810 | 30000 | 43.90 | 12.6 | 581 | 0.952 | 0.42 | 3.21 |
| 156 | 97-117-UMG-TP4 | ICE 660 | 51.6 | 9.7 | < 1" | 16810 | 30000 | 38.19 | | | #VALUE! | 0.43 | 5.72 |
| 157 | 97-117-UMG-TP4 | ICE 660 | 51.6 | 14.9 | < 1" | 16810 | 30000 | 38.19 | 11.4 | 487 | 0.894 | 0.49 | 5.72 |
| 158 | 97-117-UMG-TP4 | HPH-2400 | 17.4 | 12.2 | < 1" | 16810 | 30000 | 38.19 | 14.7 | 589 | 0.953 | 0.43 | 5.23 |
| 159 | 97-117-UMG-TP8 | HPH-2400 | 17.4 | 13.9 | 12.8 | 16810 | 30000 | 38.19 | 16.5 | 646 | 0.975 | 0.45 | 4.93 |
| 160 | 97-117-UMG-TP8 | B-3505 | | 17.2 | < 1/4" | 16810 | 30000 | 38.19 | 15.5 | 587 | 1.008 | 0.53 | 4.93 |
| 161 | 97-120-MPTP1 (B-2) | ICE-42S | 42 | 18.1 | 10.0 | 16810 | 30000 | 26.06 | 16.9 | 468 | 0.941 | 0.81 | 7.02 |
| 162 | 97-120-MPTP1 (B-2) | ICE-42S | 42 | 18.1 | - | 16810 | 30000 | 26.06 | 17 | 454 | 0.976 | 0.73 | 5.89 |
| 163 | 97-120-MPTP2 (D-3) | ICE-42S | 42 | 16 | 10.3 | 16810 | 30000 | 26.06 | 15.4 | 439 | 0.914 | 0.72 | 6.78 |
| 164 | 97-120-MPTP2 (D-3) | ICE-42S | 42 | 20.4 | - | 16810 | 30000 | 26.06 | 16.6 | 472 | 0.916 | 0.70 | 5.35 |
| 165 | 97-123-B-12 | ICE-640 | 40 | 21.6 | 20.0 | 13000 | 5467 | 82.43 | | 616 | 0.000 | 0.82 | 12.00 |
| 166 | 97-123-B-12 | ICE-640 | 40 | 21.9 | 26.7 | 13000 | 5467 | 82.43 | | 818 | 0.000 | 0.51 | 11.46 |
| 167 | 98-105-TP1 (E. Abut.) | B 2505 | 35.4471732 | 8.5 | 4.8 | 16810 | 30000 | 46.58 | NA | NA | #VALUE! | 0.33 | 5.10 |
| 168 | 98-105-TP1 (E. Abut.) | B 2505 | 35.4471732 | 8.5 | 10.8 | 16810 | 30000 | 46.58 | NA | NA | #VALUE! | 0.29 | 5.10 |
| 169 | 98-105-TP6 (W. Abut.) | B 2505 | 35.4471732 | 8.7 | 5.7 | 16810 | 30000 | 46.58 | NA | NA | #VALUE! | | 3.84 |
| 170 | 98-105-TP6 (W. Abut.) | B 2505 | 35.4471732 | 7.6 | 9.8 | 16810 | 30000 | 46.58 | NA | NA | #VALUE! | 0.36 | 3.84 |
| 171 | 98-105-TP6 (W. Abut.) | B 2505 | 35.4471732 | 8.3 | 10.3 | 16810 | 30000 | 46.58 | NA | NA | #VALUE! | 0.31 | 3.84 |
| 172 | 98-106-#1 | MKT 7 | 4.15 | 0.7 | 30.0 | 12333 | 1788 | 17.54 | NA | 122 | 0.000 | 0.23 | 4.70 |
| 173 | 98-106-#1 | MKT 9B3 | 8.75 | 2.2 | 14.0 | 12333 | 1788 | 17.54 | NA | 139 | 0.000 | 0.32 | 4.70 |
| 174 | 98-106-#2 | MKT 7 | 4.15 | 0.7 | 30.0 | 12333 | 1788 | 17.54 | NA | 89 | 0.000 | 0.21 | 4.86 |
| 175 | 98-106-#2 | MKT 9B3 | 8.75 | 2.4 | 46.7 | 12333 | 1788 | 0.00 | NA | ? | #VALUE! | ? | 0.00 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 176 | 98-106-#3 | MKT 7 | 4.15 | 0.5 | 44.0 | 11700 | 1609 | 18.43 | NA | 90 | 0.000 | 0.16 | 4.79 |
| 177 | 98-106-#3 | MKT 9B3 | 8.75 | 1.9 | 42.7 | 11700 | 1609 | 18.43 | NA | 115 | 0.000 | 0.31 | 4.79 |
| 178 | 98-106-#4 | MKT 7 | 4.15 | 0.9 | 30.0 | 13000 | 1986 | 19.40 | NA | 173 | 0.000 | 0.27 | 4.31 |
| 179 | 98-106-#4 | MKT 9B3 | 8.75 | 2.2 | 33.3 | 13000 | 1986 | 19.40 | NA | 137 | 0.000 | 0.30 | 4.31 |
| 180 | 98-107-LCTP1 (#6) | MKT 10B3 | 13.1 | 5.6 | 20.0 | 12000 | 1739 | 17.53 | 13.5 | 163 | 1.452 | 0.61 | 4.50 |
| 181 | 98-107-LCTP1 (#6) | MKT 10B3 | 13.1 | 5.4 | 34.0 | 12000 | 1739 | 17.53 | 14 | 177 | 1.387 | 0.50 | 4.50 |
| 182 | 98-107-LCTP3 (#27) | MKT 10B3 | 13.1 | 5.5 | 5.0 | 12000 | 1739 | 0.00 | | | #VALUE! | 0.54 | 0.00 |
| 183 | 98-107-LCTP3 (#27) | MKT 10B3 | 13.1 | 5.7 | 20.0 | 12000 | 1739 | 17.53 | 14.2 | 214 | 1.164 | 0.55 | 4.83 |
| 184 | 98-107-LCTP3 (#27) | MKT 10B3 | 13.1 | 4.3 | 48.0 | 12000 | 1739 | 17.53 | 13 | 183 | 1.246 | 0.46 | 4.83 |
| 185 | 98-109-C19TP1 | HPSI 1000 | 50 | 20 | 11.2 | 13000 | 5467 | 107.66 | 6 | 690 | 0.936 | 0.56 | 9.23 |
| 186 | 98-109-C19TP1 | HPSI 1000 | 50 | 18 | 26.0 | 13000 | 5467 | 107.66 | 5.9 | 680 | 0.934 | 0.44 | 9.23 |
| 187 | 98-109-C19TP2 | HPSI 1000 | 50 | 15 | 6.5 | 13000 | 5467 | 107.66 | 5.7 | 630 | 0.974 | 0.61 | 9.23 |
| 188 | 98-109-C19TP2 | HPSI 1000 | 50 | 16 | 11.2 | 13000 | 5467 | 107.66 | 5.9 | 670 | 0.948 | 0.44 | 9.23 |
| 189 | 98-109-C19TP3 | HPSI 1000 | 50 | 18 | 1.1 | 13000 | 5467 | 107.66 | 7.4 | 700 | 1.138 | 1.23 | 9.23 |
| 190 | 98-109-C19TP3 | HPSI 1000 | 50 | 17 | 3.4 | 13000 | 5467 | 107.66 | 5.7 | 630 | 0.974 | 0.62 | 9.23 |
| 191 | 98-109-C19TP3 | HPSI 1000 | 50 | 21 | 2.6 | 13000 | 5467 | 107.66 | 7.3 | 728 | 1.080 | 0.92 | 9.23 |
| 192 | 98-109-C19TP4 | HPSI 1000 | 50 | 17 | 9.5 | 13000 | 5467 | 107.66 | NA | 730 | 0.000 | 0.58 | 10.15 |
| 193 | 98-109-C19TP4 | HPSI 1250 | 50 | 27 | 40.0 | 13000 | 5467 | 107.66 | NA | 810 | 0.000 | 0.54 | 10.31 |
| 194 | 98-109-C19TP5 | HPSI 1000 | 50 | 14 | 4.8 | 13000 | 5467 | 107.66 | NA | 600 | 0.000 | 0.67 | 11.54 |
| 195 | 98-109-C19TP5 | HPSI 1250 | 50 | 26 | 10.0 | 13000 | 5467 | 107.66 | NA | 630 | 0.000 | 0.72 | 11.54 |
| 196 | 98-109-C19TP6 | HPSI 1000 | 50 | 12.6 | 7.0 | 13000 | 5467 | 60.56 | NA | 368 | 0.000 | 0.68 | 10.15 |
| 197 | 98-109-C19TP6 | HPSI 1250 | 50 | 16.7 | 24.0 | 13000 | 5467 | 60.56 | NA | 481 | 0.000 | 0.60 | 10.15 |
| 198 | 98-109-260 | HPSI 1000 | 50 | 25 | 9.3 | 13000 | 5540 | 109.10 | NA | 834 | 0.000 | 0.72 | 11.08 |
| 199 | 98-109-260 | HPSI 1000 | 50 | 20 | 18.0 | 13000 | 5467 | 107.66 | NA | 620 | 0.000 | 0.51 | 8.00 |
| 200 | 98-109-1099 | HPSI 1000 | 50 | 16 | 5.0 | 13000 | 5540 | 109.10 | NA | 640 | 0.000 | 0.57 | 11.08 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 201 | 98-109-1099 | HPSI 1000 | 50 | 30 | 8.0 | 13000 | 5467 | 107.66 | NA | 980 | 0.000 | 0.67 | 6.46 |
| 202 | 98-109-1043 | HPSI 1000 | 50 | 19 | 4.0 | 13000 | 5540 | 109.10 | NA | 700 | 0.000 | 0.91 | 11.08 |
| 203 | 98-109-1043 | HPSI 1000 | 50 | 22 | 7.3 | 13000 | 5467 | 107.66 | NA | 840 | 0.000 | 0.57 | 7.69 |
| 204 | 98-109-1050 | HPSI 1000 | 50 | 17 | 4.8 | 13000 | 5467 | 107.66 | 5.9 | 580 | 1.095 | 1.04 | 10.00 |
| 205 | 98-109-1050 | HPSI 1000 | 50 | 44 | 5.0 | 13000 | 5467 | 107.66 | 11.2 | 1240 | 0.972 | 1.03 | 10.00 |
| 206 | 98-109-1201 | HPSI 1000 | 50 | 18 | 4.3 | 13000 | 5467 | 107.66 | 6.1 | 660 | 0.995 | 0.66 | 10.00 |
| 207 | 98-109-1201 | HPSI 1000 | 50 | 30 | 6.7 | 13000 | 5467 | 107.66 | 7.4 | 800 | 0.996 | 0.69 | 10.00 |
| 208 | 98-109-Test 1 | HPSI 1250 | 50 | 20 | 6.8 | 13000 | 5467 | 107.66 | NA | 600 | 0.000 | 0.81 | 11.77 |
| 209 | 98-109-Test 1 | HPSI 1250 | 50 | 39 | 5 < 1" | 13000 | 5540 | 109.10 | NA | 1100 | 0.000 | 0.72 | 11.77 |
| 210 | 98-109-AC-4 | HPSI 1000 | 50 | 11.9 | 6.0 | 13000 | 5467 | 60.56 | 4.2 | 302 | 0.842 | 0.56 | 8.77 |
| 211 | 98-109-AC-4 | HPSI 1000 | 50 | 8.7 | 9.3 | 13000 | 5467 | 60.56 | 3.8 | 276 | 0.834 | 0.50 | 8.77 |
| 212 | 98-109-IND-1 | HPSI 1000 | 50 | 15.2 | 4.3 | 13000 | 5467 | 60.56 | 7.1 | 394 | 1.091 | 0.81 | 8.00 |
| 213 | 98-109-IND-1 | HPSI 1000 | 50 | 24.1 | 12.0 | 13000 | 5467 | 60.56 | 8.3 | 575 | 0.874 | 0.73 | 8.00 |
| 214 | 98-109-IND-2 | HPSI 1000 | 50 | 17.5 | 4.0 | 13000 | 5467 | 60.56 | 8.2 | 521 | 0.953 | 0.85 | 8.00 |
| 215 | 98-109-IND-2 | HPSI 1000 | 50 | 19.3 | 12.0 | 13000 | 5467 | 60.56 | 6.8 | 473 | 0.871 | 0.67 | 8.00 |
| 216 | 98-109-IND-3 | HPSI 1000 | 50 | 12.6 | 5.0 | 13000 | 5467 | 60.56 | 5.9 | 365 | 0.979 | 0.56 | 8.00 |
| 217 | 98-109-IND-3 | HPSI 1000 | 50 | 21.6 | 20.0 | 13000 | 5467 | 60.56 | 7.8 | 527 | 0.896 | 0.65 | 8.00 |
| 218 | 98-110-TP1 (9049) | ICE 640 | 40 | 17.1 | 10bpf+20bpi | 16810 | 30000 | 21.77 | NA | 389 | 0.000 | 0.91 | 8.03 |
| 219 | 98-110-TP1 (9049) | ICE 640 | 40 | 18.8 | 18 < 1" | 16810 | 30000 | 21.77 | 11.9 | NA | #VALUE! | 0.87 | 8.03 |
| 220 | 98-110-TP2 (9032) | ICE 640 | 40 | 11.8 | 8.3 | 16810 | 30000 | 21.77 | NA | 345 | 0.000 | 0.71 | 8.03 |
| 221 | 98-110-TP2 (9032) | ICE 640 | 40 | 19.7 | 20 < 1" | 16810 | 30000 | 21.77 | NA | 419 | 0.000 | 0.90 | 8.03 |
| 222 | 98-110-3 | ICE 640 | 40 | 12 | 14.7 | 16810 | 30000 | 38.19 | 9.2 | 404 | 0.870 | 0.69 | 16.30 |
| 223 | 98-110-3 | ICE 640 | 40 | 16.1 | 14.5 | 16810 | 30000 | 38.19 | 11.9 | 501 | 0.907 | 0.74 | 16.30 |
| 224 | 98-110-7 | ICE 640 | 40 | 14 | 12.3 | 16810 | 30000 | 38.19 | 8.5 | 425 | 0.764 | 0.63 | 15.41 |
| 225 | 98-110-7 | ICE 640 | 40 | 20.3 | 20.0 | 16810 | 30000 | 38.19 | 11.8 | 514 | 0.877 | 0.74 | 15.41 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 226 | 98-112-LSTP2 (D10) | ICE 640 | 40 | 14.5 | 10.7 | 13000 | 5467 | 82.43 | 4.9 | 488 | 0.828 | 0.56 | 13.08 |
| 227 | 98-112-LSTP2 (D10) | ICE 640 | 40 | 15.7 | 13.6 | 13000 | 5467 | 82.43 | 5.5 | 541 | 0.838 | 0.50 | 13.08 |
| 228 | 98-112-LSTP3 (G10) | ICE 640 | 40 | 13.2 | 10.0 | 13000 | 5467 | 82.43 | 4.8 | 457 | 0.866 | 0.53 | 13.69 |
| 229 | 98-112-LSTP3 (G10) | ICE 640 | 40 | 18.7 | 11.3 | 13000 | 5467 | 82.43 | 6.4 | 593 | 0.890 | 0.55 | 13.69 |
| 230 | 98-112-LSTP4 (A10) | ICE 640 | 40 | 15.1 | 11.0 | 13000 | 5467 | 82.43 | 5 | 513 | 0.803 | 0.53 | 13.08 |
| 231 | 98-112-LSTP4 (A10) | ICE 640 | 40 | 16.2 | 10.0 | 13000 | 5467 | 82.43 | 5.6 | 555 | 0.832 | 0.50 | 13.08 |
| 232 | 98-112-LSTP5 (A6) | ICE 640 | 40 | 15.1 | 10.0 | 13000 | 5467 | 82.43 | 5.1 | 532 | 0.790 | 0.49 | 11.54 |
| 233 | 98-112-LSTP5 (A6) | ICE 640 | 40 | 15.3 | 9.3 | 13000 | 5467 | 82.43 | 5.6 | 565 | 0.817 | 0.46 | 11.54 |
| 234 | 98-112-LSTP6 (G1) | ICE 640 | 40 | 16.3 | 10.0 | 13000 | 5467 | 82.43 | 5.7 | 565 | 0.832 | 0.52 | 10.92 |
| 235 | 98-112-LSTP6 (G1) | ICE 640 | 40 | 18.3 | 15.6 | 13000 | 5467 | 82.43 | 6 | 584 | 0.847 | 0.53 | 10.92 |
| 236 | 98-112-LSTP7 (C1) | ICE 640 | 40 | 16.3 | 9.0 | 13000 | 5467 | 82.43 | 5.6 | 554 | 0.833 | 0.56 | 10.92 |
| 237 | 98-112-LSTP7 (C1) | ICE 640 | 40 | 17.3 | 11.3 | 13000 | 5467 | 82.43 | 5.8 | 579 | 0.826 | 0.50 | 10.92 |
| 238 | 98-112-LSTP9 (A1) | ICE 640 | 40 | 15.7 | 10.0 | 13000 | 5467 | 82.43 | 5.3 | 542 | 0.806 | 0.50 | 10.46 |
| 239 | 98-112-LSTP9 (A1) | ICE 640 | 40 | 16.3 | 16.0 | 13000 | 5467 | 82.43 | 6.1 | 609 | 0.826 | 0.46 | 10.46 |
| 240 | 98-112-LSTP10 (G5.1) | ICE 640 | 40 | 12.7 | 14.0 | 13000 | 5467 | 82.43 | 4 | 408 | 0.808 | 0.52 | 12.77 |
| 241 | 98-112-LSTP10 (G5.1) | ICE 640 | 40 | 17.8 | 12.8 | 13000 | 5467 | 82.43 | 5.7 | 564 | 0.833 | 0.53 | 12.77 |
| 242 | 98-113-152 | D-30-32 | 73.66 | 16.9 | 1.2 | 13000 | 5467 | 82.43 | NA | 597 | 0.000 | 1.04 | 12.15 |
| 243 | 98-113-152 | D-30-32 | 73.66 | 9 | 14.7 | 13000 | 5467 | 82.43 | NA | 518 | 0.000 | 0.27 | 12.15 |
| 244 | 98-113-222 | D-30-32 | 73.66 | 18.7 | 1.0 | 13000 | 5467 | 82.43 | NA | 621 | 0.000 | 1.04 | 9.38 |
| 245 | 98-113-222 | D-30-32 | 73.66 | 26.4 | 1.6 | 13000 | 5467 | 82.43 | NA | 737 | 0.000 | 0.85 | 9.38 |
| 246 | 98-113-306 | D-30-32 | 73.66 | 15.8 | 1.2 | 13000 | 5467 | 82.43 | NA | 562 | 0.000 | 0.88 | 9.38 |
| 247 | 98-113-306 | D-30-32 | 73.66 | 25.4 | 1.3 | 13000 | 5467 | 82.43 | NA | 734 | 0.000 | 0.84 | 9.38 |
| 248 | 98-113-488 | D-30-32 | 73.66 | 14.9 | 0.7 | 13000 | 5467 | 82.43 | NA | 410 | 0.000 | 1.76 | 12.00 |
| 249 | 98-113-488 | D-30-32 | 73.66 | 20.4 | 2.7 | 13000 | 5467 | 82.43 | NA | 620 | 0.000 | 0.78 | 12.00 |
| 250 | 98-118-NB11 | D-30-32 | 73.4 | 39.5 | 5.0 | 16810 | 30000 | 53.27 | NA | 905 | 0.000 | 0.94 | 8.80 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 251 | 98-118-NB11 | D-30-32 | 73.4 | 39.6 | 5.0 | 16810 | 30000 | 53.27 | NA | 905 | 0.000 | 0.95 | 8.80 |
| 252 | 98-118-SB26 | D-30-32 | 73.4 | 35.6 | 5.0 | 16810 | 30000 | 53.27 | NA | 841 | 0.000 | 0.99 | 9.46 |
| 253 | 98-118-SB26 | D-30-32 | 73.4 | 37.6 | 5.0 | 16810 | 30000 | 53.27 | NA | 871 | 0.000 | 1.01 | 0.00 |
| 254 | 98-118-29 | D-30-32 | 73.4 | 25.4 | 4.5 | 16810 | 30000 | 53.27 | NA | 740 | 0.000 | 0.63 | 6.84 |
| 255 | 98-118-29 | D-30-32 | 73.4 | 26.8 | 12.0 | 16810 | 30000 | 53.27 | NA | 796 | 0.000 | 0.60 | 6.84 |
| 256 | 98-118-44 | D-30-32 | 73.4 | 26.4 | 4.3 | 16810 | 30000 | 53.27 | NA | 770 | 0.000 | 0.69 | 8.03 |
| 257 | 98-118-44 | D-30-32 | 73.4 | 38.3 | 20.0 | 16810 | 30000 | 53.27 | NA | 902 | 0.000 | 0.83 | 8.03 |
| 258 | 98-118-TP30 | D-30-32 | 73.4 | 32.1 | 10.0 | 16810 | 30000 | 53.27 | NA | 899 | 0.000 | 0.72 | 6.81 |
| 259 | 98-118-TP30 | D-30-32 | 73.4 | 32.4 | 10 per 0" | 16810 | 30000 | 53.27 | 15.3 | 899 | 0.907 | 0.71 | 5.71 |
| 260 | 98-118-TP31 | D-30-32 | 73.4 | 28.1 | 6.0 | 16810 | 30000 | 53.27 | NA | 811 | 0.000 | 0.69 | 6.81 |
| 261 | 98-118-TP31 | D-30-32 | 73.4 | 30.2 | 6.0 | 16810 | 30000 | 53.27 | 14.6 | 848 | 0.917 | 0.67 | 4.82 |
| 262 | 98-118-TP34 | D-30-32 | 73.4 | 20.5 | 4.0 | 16810 | 30000 | 53.27 | NA | 625 | 0.000 | 0.71 | 6.81 |
| 263 | 98-118-TP34 | D-30-32 | 73.4 | 29.6 | 5.0 | 16810 | 30000 | 53.27 | 15.5 | 774 | 1.067 | 0.86 | 6.81 |
| 264 | 98-118-TP35 | D-30-32 | 73.4 | 20.7 | 5.0 | 16810 | 30000 | 53.27 | NA | 675 | 0.000 | 0.63 | 6.81 |
| 265 | 98-118-TP35 | D-30-32 | 73.4 | 27.5 | 7.0 | 16810 | 30000 | 53.27 | NA | 798 | 0.000 | 0.68 | 6.07 |
| 266 | 98-118-TP52 | D-30-32 | 73.4 | 25.7 | 5.0 | 16810 | 30000 | 53.27 | NA | 831 | 0.000 | 0.70 | 6.81 |
| 267 | 98-118-TP52 | D-30-32 | 73.4 | 28.8 | 4.0 | 16810 | 30000 | 53.27 | 14.5 | 866 | 0.892 | 0.69 | 3.93 |
| 268 | 98-118-TP62 | D-30-32 | 73.4 | 27.3 | 7.3 | 16810 | 30000 | 53.27 | NA | 754 | 0.000 | 0.74 | 6.81 |
| 269 | 98-118-TP62 | D-30-32 | 73.4 | 40.8 | 7.0 | 16810 | 30000 | 53.27 | 16.1 | 877 | 0.978 | 0.95 | 5.83 |
| 270 | 98-118-TP8 | D-30-32 | 73.4 | 26.6 | 4.0 | 16810 | 30000 | 53.27 | NA | 785 | 0.000 | 0.76 | 6.81 |
| 271 | 98-118-TP8 | D-30-32 | 73.4 | 23.2 | 5.0 | 16810 | 30000 | 53.27 | 13.2 | 760 | 0.925 | 0.65 | 4.16 |
| 272 | 98-118-TP8 | D-30-32 | 73.4 | 26 | 4.0 | 16810 | 30000 | 53.27 | NA | 744 | 0.000 | 0.76 | 6.81 |
| 273 | 98-118-TP8 | D-30-32 | 73.4 | 30.4 | 4.0 | 16810 | 30000 | 53.27 | NA | 899 | 0.000 | 0.77 | 5.83 |
| 274 | 98-129-CHTP1 | ICE 640 | 40.6 | 15.3 | 36.0 | 16810 | 30000 | 27.66 | NA | 315 | 0.000 | 0.81 | 9.88 |
| 275 | 98-129-CHTP1 | ICE 640 | 40.6 | 18.7 | 3.0 | 16810 | 30000 | 27.66 | NA | 342 | 0.000 | 1.18 | 9.88 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 276 | 98-129-CHTP2 | ICE 640 | 40.6 | 18 | 33.0 | 16810 | 30000 | 27.66 | NA | 340 | 0.000 | 0.91 | 9.88 |
| 277 | 98-129-CHTP2 | ICE 640 | 40.6 | 15.8 | 2.0 | 16810 | 30000 | 27.66 | NA | 270 | 0.000 | 1.25 | 9.88 |
| 278 | 98-131-Bent 1, #3 | D-19-32 | 42.4 | 25.4 | 9.0 | 16810 | 30000 | 26.06 | NA | 503 | 0.000 | 1.01 | 7.20 |
| 279 | 98-131-Bent 1, #3 | D-19-32 | 42.4 | 23.3 | 14.0 | 16810 | 30000 | 26.06 | NA | 522 | 0.000 | 0.97 | 7.20 |
| 280 | 98-131-Bent 2, #1 | D-19-32 | 42.4 | 26.2 | 30.0 | 16810 | 30000 | 26.06 | 18 | 610 | 0.769 | 0.93 | 6.78 |
| 281 | 98-131-Bent 2, #1 | D-19-32 | 42.4 | 27.3 | 16.0 | 16810 | 30000 | 26.06 | 19.4 | 593 | 0.852 | 0.93 | 6.78 |
| 282 | 98-138-17 | HPH 1200 | 8.68 | 5 | 4.7 | 16810 | 30000 | 21.24 | 13.5 | 264 | 1.086 | 0.42 | 9.90 |
| 283 | 98-138-17 | HPH 1200 | 8.68 | 5.9 | 4.5 | 16810 | 30000 | 21.24 | 15.1 | 287 | 1.117 | 0.47 | 9.90 |
| 284 | 98-138-5 | HPH 1200 | 8.68 | 5.7 | 5.0 | 16810 | 30000 | 21.24 | 14.9 | 306 | 1.034 | 0.48 | 10.59 |
| 285 | 98-138-5 | HPH 1200 | 8.68 | 5.8 | 5.0 | 16810 | 30000 | 21.24 | 15.1 | 288 | 1.113 | 0.41 | 10.59 |
| 286 | 98-138-9 | HPH 1200 | 8.68 | 5.7 | 4.0 | 16810 | 30000 | 21.24 | NA | 302 | 0.000 | 0.51 | 10.05 |
| 287 | 98-138-9 | HPH 1200 | 8.68 | 5.7 | 4.8 | 16810 | 30000 | 21.24 | NA | 283 | 0.000 | 0.44 | 10.05 |
| 288 | 98-138-18 | HPH 1200 | 8.68 | 5.1 | 4.0 | 16810 | 30000 | 21.24 | NA | 291 | 0.000 | 0.44 | 9.82 |
| 289 | 98-138-18 | HPH 1200 | 8.68 | 5.3 | 4.0 | 16810 | 30000 | 21.24 | NA | 283 | 0.000 | 0.38 | 9.82 |
| 290 | 99-112-1 | ICE 640 | 40 | 9.1 | 12.0 | 13000 | 5467 | 60.56 | NA | 335 | 0.000 | 0.47 | 14.15 |
| 291 | 99-112-1 | ICE 640 | 40 | 11.6 | 19.0 | 13000 | 5467 | 60.56 | NA | 440 | 0.000 | 0.40 | 14.15 |
| 292 | 99-112-13 | ICE 640 | 40 | 9 | 11.3 | 13000 | 5467 | 60.56 | NA | 312 | 0.000 | 0.51 | 12.62 |
| 293 | 99-112-13 | ICE 640 | 40 | 11.5 | 19.0 | 13000 | 5467 | 60.56 | NA | 432 | 0.000 | 0.42 | 12.62 |
| 294 | 99-112-159 | ICE 640 | 40 | 10.8 | 7.8 | 13000 | 5467 | 60.56 | NA | 453 | 0.000 | 0.54 | 12.62 |
| 295 | 99-112-159 | ICE 640 | 40 | 13.5 | 20.0 | 13000 | 5467 | 60.56 | NA | 500 | 0.000 | 0.42 | 12.62 |
| 296 | 99-114-D-2 (2) | B3505 | 47.2 | 18.7 | 7.3 | 16810 | 30000 | 26.06 | NA | 456 | 0.000 | 1.08 | 11.06 |
| 297 | 99-114-D-2 (2) | B3505 | 47.2 | 20.6 | 20 <1" | 16810 | 30000 | 26.06 | NA | 545 | 0.000 | 0.71 | 11.06 |
| 298 | 99-114-B-2 (2) | B3505 | 47.2 | 24.2 | 8.0 | 16810 | 30000 | 26.06 | NA | 508 | 0.000 | 0.94 | 11.06 |
| 299 | 99-114-B-2 (2) | B3505 | 47.2 | 23.6 | 16.7 | 16810 | 30000 | 26.06 | NA | 504 | 0.000 | 0.87 | 11.06 |
| 300 | 99-117-3 | HPSI 200 | 80 | 17.3 | 6.3 | 16810 | 30000 | 17.53 | NA | 233 | 0.000 | 1.48 | 18.44 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 301 | 99-117-3 | HPSI 200 | 80 | 26.6 | 14.7 | 16810 | 30000 | 17.53 | NA | 310 | 0.000 | 1.79 | 18.44 |
| 302 | 99-117-3 | HPSI 200 | 80 | 44.1 | - | 16810 | 30000 | 17.53 | NA | 405 | 0.000 | 2.17 | 18.44 |
| 303 | 99-117-5 | HPSI 200 | 80 | 25.7 | 5.8 | 16810 | 30000 | 17.53 | NA | 273 | 0.000 | 1.80 | 18.20 |
| 304 | 99-117-5 | HPSI 200 | 80 | 30 | - | 16810 | 30000 | 17.53 | NA | 309 | 0.000 | 1.84 | 18.20 |
| 305 | 99-123-100 | ICE 640 | 40 | 16.8 | 11.7 | 13000 | 5467 | 82.43 | NA | 546 | 0.000 | 0.61 | 13.38 |
| 306 | 99-123-100 | ICE 640 | 40 | 16.3 | 26.0 | 13000 | 5467 | 82.43 | NA | 616 | 0.000 | 0.50 | 13.38 |
| 307 | 99-123-113 | ICE 640 | 40 | 15 | 10.3 | 13000 | 5467 | 82.43 | NA | 524 | 0.000 | 0.56 | 12.31 |
| 308 | 99-123-113 | ICE 640 | 40 | 15 | 20.0 | 13000 | 5467 | 82.43 | NA | 528 | 0.000 | 0.49 | 12.31 |
| 309 | 99-123-172 | ICE 640 | 40 | 16.6 | 12.7 | 13000 | 5467 | 82.43 | NA | 551 | 0.000 | 0.56 | 14.31 |
| 310 | 99-123-172 | ICE 640 | 40 | 15.8 | 18.0 | 13000 | 5467 | 82.43 | NA | 597 | 0.000 | 0.46 | 14.31 |
| 311 | 99-123-184 | ICE 640 | 40 | 19.2 | 9.0 | 13000 | 5467 | 82.43 | NA | 643 | 0.000 | 0.67 | 11.23 |
| 312 | 99-123-184 | ICE 640 | 40 | 17.5 | 22.0 | 13000 | 5467 | 82.43 | NA | 615 | 0.000 | 0.51 | 11.23 |
| 313 | 99-123-227 | ICE 640 | 40 | 17.1 | 10.7 | 13000 | 5467 | 82.43 | NA | 571 | 0.000 | 0.57 | 11.23 |
| 314 | 99-123-227 | ICE 640 | 40 | 14.5 | 17.5 | 13000 | 5467 | 82.43 | NA | 558 | 0.000 | 0.44 | 11.85 |
| 315 | 99-123-281 | ICE 640 | 40 | 16.4 | 8.7 | 13000 | 5467 | 82.43 | NA | 566 | 0.000 | 0.56 | 14.77 |
| 316 | 99-123-281 | ICE 640 | 40 | 14.7 | 13.0 | 13000 | 5467 | 82.43 | NA | 583 | 0.000 | 0.44 | 14.77 |
| 317 | 99-123-293 | ICE 640 | 40 | 16 | 9.3 | 13000 | 5467 | 82.43 | NA | 536 | 0.000 | 0.53 | 13.38 |
| 318 | 99-123-293 | ICE 640 | 40 | 16.5 | 25.0 | 13000 | 5467 | 82.43 | NA | 586 | 0.000 | 0.49 | 13.38 |
| 319 | 99-123-303 | ICE 640 | 40 | 17.7 | 9.0 | 13000 | 5467 | 82.43 | NA | 606 | 0.000 | 0.60 | 12.31 |
| 320 | 99-123-303 | ICE 640 | 40 | 17.6 | 11.3 | 13000 | 5467 | 82.43 | NA | 585 | 0.000 | 0.69 | 12.31 |
| 321 | 99-123-303 | ICE 640 | 40 | 15.9 | 13.3 | 13000 | 5467 | 82.43 | NA | 599 | 0.000 | 0.45 | 12.31 |
| 322 | 99-124-N1 | ICE 422 | 22.5 | 5.2 | 2.7 | 16810 | 30000 | 38.91 | NA | 238 | 0.000 | 0.56 | 9.22 |
| 323 | 99-124-N1 | ICE 422 | 22.5 | 7.9 | 5.0 | 16810 | 30000 | 38.91 | NA | 264 | 0.000 | 0.53 | 9.22 |
| 324 | 99-124-N1 | ICE 422 | 22.5 | 7.1 | 4.3 | 16810 | 30000 | 38.91 | NA | 228 | 0.000 | 0.52 | 9.22 |
| 325 | 99-124-N4 | ICE 422 | 22.5 | 5.5 | 2.3 | 16810 | 30000 | 38.91 | NA | 238 | 0.000 | 0.62 | 7.44 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 326 | 99-124-N4 | ICE 422 | 22.5 | 6.2 | 5.5 | 16810 | 30000 | 38.91 | NA | 336 | 0.000 | 0.33 | 7.44 |
| 327 | 99-126-TP1 | D-19-32 | 42.4 | 25.8 | 69-84 | 16810 | 30000 | 17.49 | NA | 337 | 0.000 | 1.23 | 6.78 |
| 328 | 99-126-TP1 | D-19-32 | 42.4 | 25.3 | 6.0 | 16810 | 30000 | 17.49 | NA | 352 | 0.000 | 1.08 | 6.78 |
| 329 | 99-126-TP2 | D-19-32 | 42.4 | 20.4 | 113-135 | 16810 | 30000 | 17.49 | NA | 316 | 0.000 | 1.18 | 6.78 |
| 330 | 99-126-TP2 | D-19-32 | 42.4 | 18.8 | 11.0 | 16810 | 30000 | 17.49 | NA | 446 | 0.000 | 0.86 | 6.78 |
| 331 | 97-110-P105-S93 | ICE 640 | 40 | 17.7 | 8.0 | 13000 | 5467 | 82.43 | 6.2 | 508 | 1.006 | 1.24 | 7.85 |
| 332 | 97-110-P105-S93 | ICE 640 | 40 | 17.7 | 8.0 | 13000 | 5467 | 82.43 | 8 | 705 | 0.935 | 0.84 | 7.85 |
| 333 | 97-110-P16-S93 | ICE 640 | 40 | 14.1 | 9.0 | 13000 | 5467 | 82.43 | 5.7 | 419 | 1.121 | 1.25 | 7.85 |
| 334 | 97-110-P16-S93 | ICE 640 | 40 | 17.7 | 8.0 | 12750 | 5259 | 80.84 | 6.9 | 596 | 0.936 | 0.75 | 5.02 |
| 335 | 97-110-P332-S7 | ICE 640 | 40 | 17.1 | 8.0 | 13000 | 5467 | 82.43 | 6 | 570 | 0.868 | 0.82 | 7.85 |
| 336 | 97-110-P332-S7 | ICE 640 | 40 | 17.7 | 8.0 | 13000 | 5467 | 82.43 | 6.5 | 607 | 0.883 | 0.46 | 7.85 |
| 337 | 97-110-P566-S6 | ICE 640 | 40 | 20 | 8.0 | 13000 | 5467 | 82.43 | 6.6 | 599 | 0.908 | 0.90 | 13.23 |
| 338 | 97-110-P566-S6 | ICE 640 | 40 | 17.9 | 8.0 | 12750 | 5259 | 80.84 | 7 | 655 | 0.864 | 0.56 | 13.49 |
| 339 | 97-110-P56-S7 | ICE 640 | 40 | 17.5 | 8.0 | 13000 | 5467 | 82.43 | 6.2 | 511 | 1.000 | 1.23 | 13.23 |
| 340 | 97-110-P56-S7 | ICE 640 | 40 | 15 | 8.0 | 12750 | 5259 | 80.84 | 6.5 | 514 | 1.022 | 0.81 | 13.49 |
| 341 | 97-110-P86-S7 | ICE 640 | 40 | 19.5 | 8.0 | 13000 | 5467 | 82.43 | 6.4 | 601 | 0.878 | 1.05 | 13.23 |
| 342 | 97-110-P86-S7 | ICE 640 | 40 | 15 | 8.0 | 12750 | 5259 | 80.84 | 6.5 | 584 | 0.900 | 0.57 | 13.49 |
| 343 | 97-110-P212-S7 | ICE 640 | 40 | 17 | 8.0 | 13000 | 5467 | 82.43 | 6.4 | 575 | 0.917 | 1.02 | 13.23 |
| 344 | 97-110-P212-S7 | ICE 640 | 40 | 15.6 | 9.0 | 12750 | 5259 | 80.84 | 6.8 | 615 | 0.894 | 0.50 | 13.49 |
| 345 | 97-110-P350-S6 | ICE 640 | 40 | 18.9 | 8.0 | 12750 | 5259 | 80.84 | 6.7 | 578 | 0.937 | 0.92 | 12.71 |
| 346 | 97-110-P350-S6 | ICE 640 | 40 | 18.9 | 8.0 | 12750 | 5259 | 80.84 | 7.1 | 576 | 0.997 | 0.60 | 12.71 |
| 347 | 97-110-P499-S8 | ICE 640 | 40 | 18.2 | 8.0 | 12750 | 5259 | 80.84 | 6.6 | 566 | 0.943 | 1.05 | 11.92 |
| 348 | 97-110-P499-S8 | ICE 640 | 40 | 18.2 | 8.0 | 12750 | 5259 | 80.84 | 6.6 | 570 | 0.936 | 0.48 | 11.92 |
| 349 | 97-110-P30-S8 | ICE 640 | 40 | 18.6 | 8.0 | 12750 | 5259 | 80.84 | 6.3 | 545 | 0.935 | 1.10 | 13.49 |
| 350 | 97-110-P30-S8 | ICE 640 | 40 | 18.6 | 8.0 | 12750 | 5259 | 80.84 | 6.8 | 622 | 0.884 | 0.74 | 13.49 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 351 | 97-110-P320-S7 | ICE 640 | 40 | 15.8 | 8.0 | 12750 | 5259 | 80.84 | 6.3 | 537 | 0.948 | 0.98 | 13.49 |
| 352 | 97-110-P320-S7 | ICE 640 | 40 | 15.8 | 8.0 | 12750 | 5259 | 80.84 | 7.1 | 615 | 0.933 | 0.56 | 13.49 |
| 353 | 97-110-P333-S6 | ICE 640 | 40 | 19.1 | 9.0 | 12750 | 5259 | 80.84 | 6.6 | 633 | 0.843 | 0.61 | 8.00 |
| 354 | 97-110-P333-S6 | ICE 640 | 40 | 13.4 | 9.0 | 12750 | 5259 | 80.84 | 7.1 | 630 | 0.911 | 0.34 | 5.33 |
| 355 | 97-110-P553-S6 | ICE 640 | 40 | 19.5 | 8.0 | 12750 | 5259 | 80.84 | 7 | 622 | 0.910 | 0.60 | 10.35 |
| 356 | 97-110-P553-S6 | ICE 640 | 40 | 19.5 | 8.0 | 12750 | 5259 | 80.84 | 7.3 | 675 | 0.874 | 0.42 | 10.35 |
| 357 | 97-110-P341-S6 | ICE 640 | 40 | 19.5 | 8.0 | 12750 | 5259 | 80.84 | 6.7 | 583 | 0.929 | 0.71 | 11.14 |
| 358 | 97-110-P341-S6 | ICE 640 | 40 | 19.5 | 8.0 | 12750 | 5259 | 80.84 | 6.1 | 563 | 0.876 | 0.41 | 11.14 |
| 359 | 97-110-P21-S8 | ICE 640 | 40 | 21.7 | 8.0 | 12750 | 5259 | 80.84 | 6.9 | 639 | 0.873 | 0.92 | 12.71 |
| 360 | 97-110-P21-S8 | ICE 640 | 40 | 21.7 | 8.0 | 12750 | 5259 | 80.84 | 6.9 | 629 | 0.887 | 0.42 | 12.71 |
| 361 | 97-110-P168-S8 | ICE 640 | 40 | 19.4 | 8.0 | 12750 | 5259 | 80.84 | 6.9 | 634 | 0.880 | 1.05 | 13.49 |
| 362 | 97-110-P168-S8 | ICE 640 | 40 | 19.4 | 8.0 | 12750 | 5259 | 80.84 | 6.8 | 640 | 0.859 | 0.46 | 13.49 |
| 363 | 97-110-P382-S8 | ICE 640 | 40 | 18.1 | 9.0 | 12750 | 5259 | 80.84 | 6.7 | 602 | 0.900 | 1.05 | 11.92 |
| 364 | 97-110-P382-S8 | ICE 640 | 40 | 18.1 | 9.0 | 12750 | 5259 | 80.84 | 8.5 | 776 | 0.886 | 0.46 | 11.92 |
| 365 | 97-110-P12-S8 | ICE 640 | 40 | 22.1 | 20.0 | 12750 | 5259 | 80.84 | 7.5 | 683 | 0.888 | 0.67 | 9.57 |
| 366 | 97-110-P12-S8 | ICE 640 | 40 | 22.1 | 20.0 | 12750 | 5259 | 80.84 | 9.3 | 867 | 0.867 | 0.46 | 9.57 |
| 367 | 97-110-P6-S8 | ICE 640 | 40 | 20.6 | 8.0 | 12750 | 5259 | 80.84 | 7.2 | 714 | 0.815 | 0.52 | 8.00 |
| 368 | 97-110-P6-S8 | ICE 640 | 40 | 14.5 | 10.0 | 12750 | 5259 | 80.84 | 7.1 | 617 | 0.930 | 0.40 | 6.90 |
| 369 | 97-110-P2-S6 | ICE 640 | 40 | 16.6 | 8.0 | 12750 | 5259 | 80.84 | 6.2 | 547 | 0.916 | 0.93 | 8.00 |
| 370 | 97-110-P2-S6 | ICE 640 | 40 | 16.6 | 8.0 | 12750 | 5259 | 80.84 | 6.5 | 558 | 0.942 | 0.55 | 8.00 |
| 371 | 97-110-P492-S8 | ICE 640 | 40 | 17.6 | 8.0 | 12750 | 5259 | 80.84 | 6.2 | 609 | 0.823 | 0.91 | 11.14 |
| 372 | 97-110-P492-S8 | ICE 640 | 40 | 17.6 | 8.0 | 12750 | 5259 | 80.84 | 8.2 | 750 | 0.884 | 0.63 | 11.14 |
| 373 | 97-110-P159-S8 | ICE 640 | 40 | 18.1 | 9.0 | 12750 | 5259 | 80.84 | 7.4 | 660 | 0.906 | 0.57 | 12.71 |
| 374 | 97-110-P159-S8 | ICE 640 | 40 | 18.1 | 9.0 | 12750 | 5259 | 80.84 | 7.2 | 655 | 0.889 | 0.45 | 12.71 |
| 375 | 97-110-P485-S8 | ICE 640 | 40 | 16.8 | 9.0 | 12750 | 5259 | 80.84 | 6.5 | 588 | 0.894 | 0.82 | 12.71 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 376 | 97-110-P485-S8 | ICE 640 | 40 | 16.8 | 9.0 | 12750 | 5259 | 80.84 | 8.3 | 731 | 0.918 | 0.54 | 12.71 |
| 377 | 97-110-P522-S8 | ICE 640 | 40 | 18.6 | 9.0 | 12750 | 5259 | 80.84 | 6.9 | 603 | 0.925 | 0.94 | 11.76 |
| 378 | 97-110-P522-S8 | ICE 640 | 40 | 18.6 | 9.0 | 12750 | 5259 | 80.84 | 8.4 | 746 | 0.910 | 0.54 | 11.76 |
| 379 | PD-TP4 | VUL 506 | | 11.01 | 10.0 | | 30000 | | 11.8 | 256 | | 0.81 | |
| 380 | PD-TP4 | VUL 506 | | 11.95 | 11.0 | | 30000 | | 12.7 | 264 | | 0.84 | |
| 381 | PD-PN3 | ICE 520 | | 10 | 10.7 | | 30000 | | 10 | 296 | | 0.70 | |
| 382 | PD-PN3 | ICE 520 | | 15.18 | 19.0 | | 30000 | | 12.6 | 401 | | 0.71 | |
| 383 | PD-PN317 | MH 35 | | 34.61 | 3.0 | | 30000 | | 15 | 465 | | 1.34 | |
| 384 | PD-PN317 | MH 35 | | 34.18 | 10.0 | | 30000 | | 15.3 | 523 | | 1.17 | |
| 385 | PD-PN12 | K25 | | 15.72 | 36.2 | | 30000 | | 10.9 | 368 | | 0.79 | |
| 386 | PD-PN12 | K25 | | 14.07 | 70.8 | | 30000 | | 11.1 | 359 | | 0.73 | |
| 387 | PD-PN7 | K35 | | 17.0947 | 13.5 | | 30000 | | 9.0336 | 854.213 | | 0.50 | |
| 388 | PD-PN7 | K35 | | 17.0947 | 13.5 | | 30000 | | 9.0336 | 854.213 | | 0.50 | |
| 389 | PD-T1 | D30 | | 17.99 | 2.8 | | 30000 | | 13.2 | 336 | | 0.79 | |
| 390 | PD-T1 | D30 | | 19.51 | 8.0 | | 30000 | | 14 | 392 | | 0.81 | |
| 391 | PD-SHD1 | ICE 640 | | 11.27 | 1.3 | | 30000 | | 7.2 | 224 | | 0.92 | |
| 392 | PD-SHD1 | ICE 640 | | 11.92 | 2.0 | | 30000 | | 8.3 | 271 | | 0.72 | |
| 393 | PD-R1 | D30 | | 16.92 | 3.2 | | 30000 | | 12.4 | 511 | | 0.54 | |
| 394 | PD-R1 | D30 | | 19.48 | 8.0 | | 30000 | | 13.3 | 548 | | 0.58 | |
| 395 | PD-R10 | D30 | | 14.75 | 6.7 | | 30000 | | 12 | 498 | | 0.50 | |
| 396 | PD-R10 | D30 | | 21.44 | 10.0 | | 30000 | | 13.8 | 583 | | 0.60 | |
| 397 | PD-TP4 | KOBE 25 | | 9.4327 | 4.0 | | 30000 | | 9.7839 | 398.4295 | | 0.48 | |
| 398 | PD-TP4 | KOBE 25 | | 10.7105 | 4.3 | | 30000 | | 10.7189 | 433.7605 | | 0.49 | |
| 399 | PD-TP2 | K25 | | 18.0686 | 2.3 | | 30000 | | 13.299 | 506.2578 | | 0.77 | |
| 400 | PD-TP2 | K25 | | 18.0686 | 2.3 | | 30000 | | 13.299 | 506.2578 | | 0.77 | |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 401 | PD-PN13 | D30-23 | | 19.12 | 1.3 | | 4400 | | 8.6 | 556 | | 1.08 | |
| 402 | PD-PN13 | D30-23 | | 19.6 | 1.7 | | 4400 | | 7.8 | 574 | | 0.63 | |
| 403 | PD-PN6 | D22-02 | | 11.54 | 3.3 | | 30000 | | 10.5 | 244 | | 0.75 | |
| 404 | PD-PN6 | D22-02 | | 20.56 | 3.2 | | 30000 | | 12.8 | 316 | | 1.04 | |
| 405 | PD-TP23 | D22 | | 7.47 | 1.7 | | 30000 | | 11.3 | 143 | | 0.90 | |
| 406 | PD-TP23 | D22 | | 14.96 | 2.8 | | 30000 | | 12.5 | 278 | | 0.85 | |
| 407 | PD-PN4 | ICE 520 | | 12.86 | 7.9 | | 30000 | | 12 | 340 | | 0.73 | |
| 408 | PD-PN4 | ICE 520 | | 11.88 | 15.0 | | 30000 | | 11.8 | 339 | | 0.68 | |
| 409 | PD-T4 | D30 | | 16.72 | 2.5 | | 30000 | | 13 | 514 | | 0.53 | |
| 410 | PD-T4 | D30 | | 17.43 | 5.0 | | 30000 | | 13.5 | 502 | | 0.52 | |
| 411 | PD-J31 | KOBE K-3 | | 35.2413 | 20.0 | | 30000 | | 11.6454 | 681.6792 | | 1.00 | |
| 412 | PD-J31 | KOBE K-3 | | 27.1798 | 58.3 | | 30000 | | 15.1662 | 860.7398 | | 0.65 | |
| 413 | PD-TP1799 | MKT DE33 | | 5.22 | 1.8 | | 6190 | | 4 | 223 | | 0.59 | |
| 414 | PD-TP1799 | MKT DE33 | | 2.66 | 14.4 | | 6190 | | 3.1 | 192 | | 0.23 | |
| 415 | PD-TP1799 | MKT DE33 | | 6.84 | 2.7 | | 6190 | | 4.9 | 251 | | 0.60 | |
| 416 | PD-T2 | D30 | | 12.74 | 5.0 | | 5452 | | 7.4 | 476 | | 0.44 | |
| 417 | PD-T2 | D30 | | 12.56 | 5.0 | | 5452 | | 8.6 | 541 | | 0.41 | |
| 418 | PD-TP6 | VUL 01 | | 6.18 | 100.0 | | 6116 | | 5.9 | 385 | | 0.32 | |
| 419 | PD-TP6 | VUL 01 | | 3.02 | 833.3 | | 6116 | | 3.2 | 219 | | 0.23 | |
| 420 | PD-PNH20 | VUL 06 | | 11.59 | 2.0 | | 5120 | | 8.2 | 426 | | 0.86 | |
| 421 | PD-PNH20 | VUL 06 | | 11.16 | 5.0 | | 5120 | | 7.9 | 472 | | 0.46 | |
| 422 | PD-T3 | D30 | | 9.86 | 9.2 | | 5934 | | 6.1 | 558 | | 0.39 | |
| 423 | PD-T3 | D30 | | 16.16 | 7.0 | | 5934 | | 8.1 | 717 | | 0.46 | |
| 424 | PD-PN110 | CON 65 | | 4.16 | 25.3 | | 5220 | | 2.9 | 424 | | 0.18 | |
| 425 | PD-PN110 | CON 65 | | 4.3 | 52.3 | | 5220 | | 3.6 | 451 | | 0.15 | |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 426 | PD-PN111 | CON 65 | | 1.83 | 44.7 | | 5057 | | 1.9 | 248 | | 0.12 | |
| 427 | PD-PN111 | CON 65 | | 4.56 | 166.7 | | 5057 | | 3.3 | 435 | | 0.15 | |
| 428 | PD-TP3 | ICE 640 | | 10.92 | 13.0 | | 4720 | | 4.7 | 665 | | 0.38 | |
| 429 | PD-TP3 | ICE 640 | | 8.76 | 28.5 | | 4767 | | 4.4 | 608 | | 0.24 | |
| 430 | PD-TP21 | CON 300E | | 26.87 | 8.7 | | 6782 | | 4.6 | 1081 | | 0.45 | |
| 431 | PD-TP21 | CON 300E | | 33.97 | 8.0 | | 6782 | | 5.6 | 1390 | | 0.47 | |
| 432 | PD-TP11 | CON 300E | | 23.99 | 19.6 | | 6720 | | 4.5 | 1068 | | 0.41 | |
| 433 | PD-TP11 | CON 300E | | 31.8 | 10.0 | | 6720 | | 5.5 | 1287 | | 0.46 | |
| 434 | PD-TP11 | CON 300E | | 32 | 10.0 | | 6720 | | 5.5 | 1287 | | 0.46 | |
| 435 | PD-151 | MKT DE40 | | 12.4082 | 10.6 | | 6230 | | 7.7704 | 531.7198 | | 0.40 | |
| 436 | PD-151 | MKT DE40 | | 10.4016 | 19.0 | | 6230 | | 6.6882 | 490.4773 | | 0.33 | |
| 437 | PD-P3T1 | VUL 06 | | 12.13 | 5.0 | | 30000 | | 12.5 | 331 | | 0.74 | |
| 438 | PD-P3T1 | VUL 06 | | 9.09 | 8.3 | | 30000 | | 10.3 | 276 | | 0.55 | |
| 439 | PD-TP1 | K25 | | 12.9738 | 5.0 | | 30000 | | 12.1064 | 464.3501 | | 0.58 | |
| 440 | PD-TP1 | K25 | | 12.8662 | 8.0 | | 30000 | | 10.693 | 434.9394 | | 0.55 | |
| 441 | PD-PN126 | VUL 140C | | 19.73 | 11.0 | | 4000 | | 6.7 | 520 | | 0.65 | |
| 442 | PD-PN126 | VUL 140C | | 11.84 | 21.0 | | 4000 | | 5.8 | 434 | | 0.43 | |
| 443 | PD-TP26 | D30-23 | | 23.21 | 1.3 | | 4660 | | 10.2 | 592 | | 1.00 | |
| 444 | PD-TP26 | D30-23 | | 26.04 | 4.0 | | 4661 | | 10 | 654 | | 0.66 | |
| 445 | PD-TP114 | D30-23 | | 28.02 | 1.1 | | 4583 | | 9.3 | 591 | | 1.24 | |
| 446 | PD-TP114 | D30-23 | | 34.86 | 3.0 | | 4583 | | 11.8 | 694 | | 0.95 | |
| 447 | PD-PN177 | VUL 140C | | 19.22 | 12.0 | | 3920 | | 6.1 | 476 | | 0.67 | |
| 448 | PD-PN177 | VUL 140C | | 11.51 | 15.0 | | 4000 | | 5.6 | 413 | | 0.45 | |
| 449 | PD-TP1 | D16-32 | | 15.9774 | 6.7 | | 30000 | | 15.7606 | 408.2024 | | 0.76 | |
| 450 | PD-TP1 | D16-32 | | 15.0187 | 13.3 | | 30000 | | 15.3736 | 413.6971 | | 0.64 | |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Hammer Type | Rated Hammer Energy (kip-ft) | Delivered Energy (max) (EMX) (kip-ft) | Blow Count (BPI) | WS "C" (ft/s) | EM "E" (KSI) | Impedence EA/C "Z" (kips/ft/s) | Vimp VMX (ft/s) | Fimp FMX (kips) | VEA/C F | Dmax DMX (in) | 2L/C (ms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 451 | PD-D418 | RAY 150C | | 12.26 | 90.0 | | 30000 | | 9.7 | 454 | | 0.52 | |
| 452 | PD-D418 | RAY 150C | | 10.13 | 47.0 | | 30000 | | 7.5 | 468 | | 0.46 | |
| 453 | PD-PN2 | D16-32 | | 13.97 | 2.3 | | 30000 | | 14.1 | 284 | | 0.78 | |
| 454 | PD-PN2 | ICE 520 | | 7.27 | 18.0 | | 30000 | | 10 | 304 | | 0.45 | |
| 455 | PD-PN26 | D30-23 | | 20.33 | 1.1 | | 4400 | | 8.7 | 470 | | 1.37 | |
| 456 | PD-PN26 | D30-23 | | 13.69 | 2.7 | | 4400 | | 6.7 | 504 | | 0.40 | |
| 457 | PD-PN49 | D30-23 | | 16.54 | 1.0 | | 4400 | | 8 | 436 | | 1.11 | |
| 458 | PD-PN49 | D30-23 | | 9.41 | 2.2 | | 4400 | | 5.3 | 440 | | 0.32 | |
| 459 | PD-PN6 | CON 300 | | 34.77 | | | 5057 | | 3.9 | 1463 | | 0.49 | |
| 460 | PD-PN6 | VUL 506 | | 10.34 | 12.0 | | 5171 | | 4.9 | 422 | | 0.42 | |
| 461 | PD-TP1 | ICE 640 | | 13.56 | 2.5 | | 4720 | | 5.5 | 494 | | 0.71 | |
| 462 | PD-TP1 | ICE 640 | | 10.98 | 36.0 | | 4720 | | 5.7 | 517 | | 0.35 | |
| 463 | PD-TP2 | CON 65E5 | | 17.16 | 15.0 | | 5057 | | 10.3 | 601 | | 0.58 | |
| 464 | PD-TP2 | D30-23 | | 26.07 | 3.0 | | 4583 | | 11.2 | 670 | | 0.64 | |
| 465 | PD-TP8 | ICE 640 | | 13.57 | 6.0 | | 4720 | | 5.5 | 509 | | 0.52 | |
| 466 | PD-TP8 | ICE 640 | | 19.72 | 14.0 | | 4720 | | 6.2 | 765 | | 0.49 | |
| 467 | PD-PN7E3 | CON 300 | | 29.81 | 8.0 | | 5554 | | 4.2 | 1652 | | 0.37 | |
| 468 | PD-PN7E | CON 300 | | 28.41 | 15.0 | | 5288 | | 3.5 | 1319 | | 0.37 | |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 1 | 96-104-1W-D | | | | | -- | 500 | -- |
| 2 | 96-104-1W-D | | | | | 450 | -- | 0.900 |
| 3 | 96-104-1W-I | | | | | -- | 480 | -- |
| 4 | 96-104-1W-I | | | | | 330 | -- | 0.688 |
| 5 | 96-104-2E-K | | | | | -- | 610 | -- |
| 6 | 96-104-2E-K | | | | | 555 | -- | 0.910 |
| 7 | 96-104-2W-R | | | | | -- | 430 | -- |
| 8 | 96-104-2W-R | | | | | 349 | -- | 0.812 |
| 9 | 96-104-3E-A | | | | | -- | 530 | -- |
| 10 | 96-104-3E-A | | | | | 420 | -- | 0.792 |
| 11 | 96-104-3W-G | | | | | -- | 540 | -- |
| 12 | 96-104-3W-G | | | | | 365 | -- | 0.676 |
| 13 | 96-104-5W-F | | | | | -- | 520 | -- |
| 14 | 96-104-5W-F | | | | | 525 | -- | 1.010 |
| 15 | 96-104-NA-4 | | | | | -- | 560 | -- |
| 16 | 96-104-NA-4 | | | | | 490 | -- | 0.875 |
| 17 | 96-104-NA-53 | | | | | -- | 525 | -- |
| 18 | 96-104-NA-53 | | | | | 390 | -- | 0.743 |
| 19 | 96-104-TP1 | 0.100 | 0.100 | 0.088 | 0.068 | -- | 500 | -- |
| 20 | 96-104-TP1 | 0.100 | 0.100 | 0.063 | 0.052 | 500 | -- | 1.000 |
| 21 | 96-104-TP4 | 0.350 | 0.100 | 0.053 | 0.040 | -- | 510 | -- |
| 22 | 96-104-TP4 | 0.260 | 0.050 | 0.058 | 0.056 | 550 | -- | 1.078 |
| 23 | 96-104-TP4 | 0.310 | 0.050 | 0.111 | 0.050 | 490 | -- | 0.961 |
| 24 | 96-104-W1-V26 | | | | | -- | 435 | -- |
| 25 | 96-104-W1-V26 | | | | | 440 | -- | 1.011 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 26 | 96-104-W2-V13 | | | | | -- | 525 | -- |
| 27 | 96-104-W2-V13 | | | | | 350 | -- | 0.667 |
| 28 | 96-104-W4-B36 | | | | | -- | 415 | -- |
| 29 | 96-104-W4-B36 | | | | | 496 | -- | 1.195 |
| 30 | 96-104-W4-V24 | | | | | -- | 455 | -- |
| 31 | 96-104-W4-V24 | | | | | 506 | -- | 1.112 |
| 32 | 96-104-W5-3 | | | | | -- | 420 | -- |
| 33 | 96-104-W5-3 | | | | | 420 | -- | 1.000 |
| 34 | 96-104-W5-8 | | | | | -- | 400 | -- |
| 35 | 96-104-W5-8 | | | | | 372 | -- | 0.930 |
| 36 | 96-104-W5-V27 | | | | | -- | 470 | -- |
| 37 | 96-104-W5-V27 | | | | | 500 | -- | 1.064 |
| 38 | 96-104-W5-V28 | | | | | -- | 460 | -- |
| 39 | 96-104-W5-V28 | | | | | 410 | -- | 0.891 |
| 40 | 96-115-3 | 0.320 | 0.150 | 0.155 | 0.061 | -- | 420 | -- |
| 41 | 96-115-3 | 0.330 | 0.170 | 0.110 | 0.123 | 317 | -- | 0.755 |
| 42 | 96-115-7 | 0.140 | 0.220 | 0.433 | 0.043 | -- | 466 | -- |
| 43 | 96-115-7 | 0.300 | 0.060 | 0.144 | 0.189 | 336 | -- | 0.721 |
| 44 | 96-115-106 | 0.210 | 0.050 | 0.359 | 0.359 | -- | 662 | -- |
| 45 | 96-115-106 | 0.190 | 0.100 | 0.234 | 0.155 | 843 | -- | 1.273 |
| 46 | 96-115-109 | 0.380 | 0.100 | 0.093 | 0.389 | -- | 810 | -- |
| 47 | 96-115-109 | 0.110 | 0.070 | 0.154 | 0.180 | 949 | -- | 1.172 |
| 48 | 96-115-117 | .30/.35 | 0.090 | .301/.082 | 0.209 | -- | 954 | -- |
| 49 | 96-115-117 | .20/.25 | 0.100 | .054/.191 | 0.238 | 923 | -- | 0.968 |
| 50 | 96-115-157 | .30/.21 | 0.090 | .376/.079 | 0.191 | -- | 907 | -- |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 51 | 96-115-157 | .15/.38 | 0.156 | .054/.092 | 0.190 | 888 | -- | 0.979 |
| 52 | 96-115-158 | .30/.32 | 0.080 | .300/.086 | 0.236 | -- | 919 | -- |
| 53 | 96-115-158 | .15/.26 | 0.100 | .161/.071 | 0.243 | 874 | -- | 0.951 |
| 54 | 96-115-163 | .20/.40 | 0.300 | .036/.063 | 0.412 | -- | 835 | -- |
| 55 | 96-115-163 | .20/.38 | 0.100 | .024/.079 | 0.163 | 794 | -- | 0.951 |
| 56 | 96-115-182 | .25/.37 | 0.100 | .250/.098 | 0.241 | -- | 1043 | -- |
| 57 | 96-115-182 | .15/.19 | 0.100 | .065/.082 | 0.191 | 960 | -- | 0.920 |
| 58 | 96-115-258 | .35/.42 | 0.050 | .014/.015 | 0.440 | -- | 1160 | -- |
| 59 | 96-115-258 | .25/.22 | 0.070 | .021/.072 | 0.113 | 1140 | -- | 0.983 |
| 60 | 96-115-279 | .80/.75 | 0.700 | .018/.167 | 0.097 | -- | 715 | -- |
| 61 | 96-115-279 | .40/.60 | 0.100 | .022/.122 | 0.075 | 625 | -- | 0.874 |
| 62 | 96-115-279 | .30/.32 | 0.110 | .070/.161 | 0.120 | 797 | -- | 1.115 |
| 63 | 96-115-357 | .40/.50 | 0.070 | .017/.074 | 0.075 | -- | 1020 | -- |
| 64 | 96-115-357 | .40/.45 | 0.400 | .020/.098 | 0.067 | 898 | -- | 0.880 |
| 65 | 96-115-375 | .40/.47 | 0.250 | .019/.02 | 0.099 | -- | 940 | -- |
| 66 | 96-115-375 | .35/.34 | 0.200 | .02/.061 | 0.067 | 1070 | -- | 1.138 |
| 67 | 96-115-414 | .45/.36 | 0.120 | .057/.048 | 0.106 | -- | 875 | -- |
| 68 | 96-115-414 | .20/.26 | 0.070 | .048/.063 | 0.054 | 1002 | -- | 1.145 |
| 69 | 96-115-806 | 0.410 | 0.130 | 0.143 | 0.161 | -- | 843 | -- |
| 70 | 96-115-806 | 0.330 | 0.050 | 0.147 | 0.123 | 768 | -- | 0.911 |
| 71 | 96-115-816 | 0.430 | 0.051 | 0.128 | 0.170 | -- | 838 | -- |
| 72 | 96-115-816 | 0.330 | 0.060 | 0.103 | 0.264 | 793 | -- | 0.946 |
| 73 | 96-115-910 | 0.320 | 0.200 | 0.088 | 0.123 | -- | 742 | -- |
| 74 | 96-115-910 | 0.280 | 0.210 | 0.166 | 0.063 | 863 | -- | 1.163 |
| 75 | 96-115-916 | 0.350 | 0.100 | 0.224 | 0.103 | -- | 729 | -- |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 76 | 96-115-916 | 0.340 | 0.140 | 0.219 | 0.049 | 696 | -- | 0.955 |
| 77 | 96-115-919 | 0.500 | 0.250 | 0.131 | 0.054 | -- | 970 | -- |
| 78 | 96-115-919 | 0.270 | 0.270 | 0.229 | 0.021 | 756 | -- | 0.779 |
| 79 | 96-115-926 | 0.400 | 0.100 | 0.149 | 0.035 | -- | 855 | -- |
| 80 | 96-115-926 | 0.400 | 0.210 | 0.161 | 0.061 | 701 | -- | 0.820 |
| 81 | 96-115-937 | | | | | -- | 881 | -- |
| 82 | 96-115-937 | 0.220 | 0.080 | 0.204 | 0.080 | 810 | -- | 0.919 |
| 83 | 96-115-940 | 0.500 | 0.250 | 0.162 | 0.050 | -- | 800 | -- |
| 84 | 96-115-940 | 0.300 | 0.250 | 0.252 | 0.044 | 728 | -- | 0.910 |
| 85 | 96-115-3111 | 1.00/1.00 | 0.200 | .024/.166 | 0.240 | -- | 807 | -- |
| 86 | 96-115-3111 | .35/.40 | 0.050 | .043/.541 | 0.033 | 739 | -- | 0.916 |
| 87 | 96-115-3115 | 1.20/1.00 | 0.050 | .036/.032 | 0.224 | -- | 780 | -- |
| 88 | 96-115-3115 | .70/.81 | 0.050 | .031/.186 | 0.151 | 721 | -- | 0.924 |
| 89 | 96-115-3117 | 1.20/1.20 | 0.050 | .043/.036 | 0.332 | -- | 700 | -- |
| 90 | 96-115-3117 | .70/.70 | 0.100 | .021/.150 | 0.185 | 782 | -- | 1.117 |
| 91 | 96-115-3118 | 1.00/.95 | 0.040 | .022/.022 | 0.303 | -- | 712 | -- |
| 92 | 96-115-3118 | .40/.54 | 0.050 | .021/.205 | 0.139 | 811 | -- | 1.139 |
| 93 | 96-115-3181 | .50/.53 | 0.050 | .032/.077 | 0.035 | -- | 835 | -- |
| 94 | 96-115-3181 | .3/.37 | 0.120 | .022/.158 | 0.096 | 830 | -- | 0.994 |
| 95 | 96-115-3220 | .40/.40 | 0.050 | .043/.064 | 0.040 | -- | 715 | -- |
| 96 | 96-115-3220 | .40/.34 | 0.050 | .018/.064 | 0.065 | 840 | -- | 1.175 |
| 97 | 96-115-3259 | .30/.34 | 0.300 | .022/.090 | 0.094 | -- | 730 | -- |
| 98 | 96-115-3259 | .30/.25 | 0.200 | .022/.062 | 0.178 | 932 | -- | 1.277 |
| 99 | 96-116-9 | 0.280 | 0.250 | 0.050 | 0.034 | -- | 635 | -- |
| 100 | 96-116-9 | 0.050 | 0.080 | 0.095 | 0.085 | 740 | -- | 1.165 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 101 | 96-116-12 | 0.370 | 0.340 | 0.066 | 0.024 | -- | 574 | -- |
| 102 | 96-116-12 | 0.210 | 0.100 | 0.063 | 0.168 | 600 | -- | 1.045 |
| 103 | 96-117-A4 | 0.500 | 0.100 | 0.065 | 0.046 | -- | 390 | -- |
| 104 | 96-117-A4 | 0.520 | 0.100 | 0.065 | 0.047 | 326 | -- | 0.836 |
| 105 | 97-102-TP2 | 0.100 | 0.300 | 0.113 | 0.042 | -- | 550 | -- |
| 106 | 97-102-TP2 | 0.250 | 0.250 | 0.887 | 0.073 | 417 | -- | 0.758 |
| 107 | 97-104-TP1 (#7) | 0.250 | 0.200 | 0.146 | 0.113 | -- | 320 | -- |
| 108 | 97-104-TP1 (#7) | 0.100 | 0.050 | 0.152 | 0.096 | 293 | -- | 0.916 |
| 109 | 97-104-TP2 (#18) | 0.050 | 0.050 | 0.079 | 0.051 | -- | 80 | -- |
| 110 | 97-104-TP2 (#18) | 0.400 | 0.050 | 0.166 | 0.158 | 110 | -- | 1.375 |
| 111 | 97-104-TP2 (#18) | 0.370 | 0.050 | 0.276 | 0.162 | 215 | -- | 2.688 |
| 112 | 97-106-TP1 | | | | | -- | 604 | -- |
| 113 | 97-106-TP1 | 0.300 | 0.100 | 0.103 | 0.182 | 531 | -- | 0.879 |
| 114 | 97-106-TP2 | | | | | -- | 532 | -- |
| 115 | 97-106-TP2 | 0.300 | 0.100 | 0.121 | 0.188 | 436 | -- | 0.820 |
| 116 | 97-106-TP3 | | | | | -- | 382 | -- |
| 117 | 97-106-TP3 | 0.300 | 0.100 | 0.092 | 0.187 | 421 | -- | 1.102 |
| 118 | 97-108-#7 | | | | | -- | 655 | -- |
| 119 | 97-108-#7 | 0.480 | 0.290 | 0.062 | 0.017 | 635 | -- | 0.969 |
| 120 | 97-108-#106 | | | | | -- | 585 | -- |
| 121 | 97-108-#106 | 0.420 | 0.250 | 0.049 | 0.021 | 730 | -- | 1.248 |
| 122 | 97-108-#77 | | | | | -- | 705 | -- |
| 123 | 97-108-#77 | 0.080 | 0.150 | 0.049 | 0.033 | 880 | -- | 1.248 |
| 124 | 97-108-#69 | | | | | -- | 785 | -- |
| 125 | 97-108-#69 | 0.430 | 0.270 | 0.046 | 0.043 | 625 | -- | 0.796 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 126 | 97-108-#27 | | | | | -- | 710 | -- |
| 127 | 97-108-#27 | 0.390 | 0.280 | 0.076 | 0.019 | 580 | -- | 0.817 |
| 128 | 97-109-A10#64 (TP5) | | | | | -- | 930 | -- |
| 129 | 97-109-A10#64 (TP5) | 0.120 | 0.310 | 0.238 | 0.104 | 546 | -- | 0.587 |
| 130 | 97-109-A3#20 (TP6) | | | | | -- | 542 | -- |
| 131 | 97-109-A3#20 (TP6) | 0.100 | 0.235 | 0.156 | 0.184 | 629 | -- | 1.160 |
| 132 | 97-109-A3#28 (TP1) | | | | | -- | 700 | -- |
| 133 | 97-109-A3#28 (TP1) | 0.070 | 0.170 | 0.072 | 0.061 | 830 | -- | 1.186 |
| 134 | 97-109-AE#42 (TP2) | | | | | -- | 704 | -- |
| 135 | 97-109-AE#42 (TP2) | 0.200 | 0.320 | 0.060 | 0.091 | 696 | -- | 0.989 |
| 136 | 97-109-AF#73 (TP4) | | | | | -- | 705 | -- |
| 137 | 97-109-AF#73 (TP4) | 0.070 | 0.100 | 0.056 | 0.102 | 691 | -- | 0.980 |
| 138 | 97-109-AG/A4 #31 (TP2) | | | | | -- | 710 | -- |
| 139 | 97-109-AG/A4 #31 (TP2) | 0.200 | 0.320 | 0.060 | 0.091 | 696 | -- | 0.980 |
| 140 | 97-109-AH#96 (TP3) | | | | | -- | 930 | -- |
| 141 | 97-109-AH#96 (TP3) | 0.150 | 0.290 | 0.050 | 0.155 | 659 | -- | 0.709 |
| 142 | 97-109-LAETP8 N. Node #21 | | | | | -- | 753 | -- |
| 143 | 97-109-LAETP8 N. Node #21 | 0.100 | 0.275 | 0.097 | 0.048 | 703 | -- | 0.934 |
| 144 | 97-109-LETP10 S. Node #78 | | | | | -- | 845 | -- |
| 145 | 97-109-LETP10 S. Node #78 | 0.121 | 0.210 | 0.179 | 0.065 | 762 | -- | 0.902 |
| 146 | 97-109-LETP11 N. Node #11 | | | | | -- | 900 | -- |
| 147 | 97-109-LETP11 N. Node #11 | 0.040 | 0.330 | 0.176 | 0.071 | 713 | -- | 0.792 |
| 148 | 97-109-LETP12 E3-106 | | | | | -- | 797 | -- |
| 149 | 97-109-LETP12 E3-106 | 0.096 | 0.190 | 0.120 | 0.053 | 724 | -- | 0.908 |
| 150 | 97-109-LETP15 E4-86 | | | | | -- | 821 | -- |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 151 | 97-109-LETP15 E4-86 | 0.080 | 0.240 | 0.120 | 0.068 | 815 | -- | 0.994 |
| 152 | 97-109-Strs#112 (TP7) | | | | | -- | 858 | -- |
| 153 | 97-109-Strs#112 (TP7) | 0.250 | 0.490 | 0.066 | 0.345 | 483 | -- | 0.563 |
| 154 | 97-114-HBTP1 | | | | | -- | 639 | -- |
| 155 | 97-114-HBTP1 | 0.287 | 0.100 | 0.038 | 0.053 | 621 | -- | 0.972 |
| 156 | 97-117-UMG-TP4 | | | | | -- | 541 | -- |
| 157 | 97-117-UMG-TP4 | 0.140 | 0.120 | 0.161 | 0.262 | 550 | -- | 1.017 |
| 158 | 97-117-UMG-TP4 | 0.140 | 0.050 | 0.067 | 0.208 | 455 | -- | 0.841 |
| 159 | 97-117-UMG-TP8 | 0.120 | 0.070 | 0.056 | 0.079 | 461 | 654 | -- |
| 160 | 97-117-UMG-TP8 | 0.210 | 0.150 | 0.177 | 0.073 | 530 | -- | 0.810 |
| 161 | 97-120-MPTP1 (B-2) | | | | | -- | 477 | -- |
| 162 | 97-120-MPTP1 (B-2) | 0.350 | 0.100 | 0.021 | 0.042 | 445 | -- | 0.933 |
| 163 | 97-120-MPTP2 (D-3) | | | | | -- | 468 | -- |
| 164 | 97-120-MPTP2 (D-3) | 0.390 | 0.060 | 0.045 | 0.052 | 440 | -- | 0.941 |
| 165 | 97-123-B-12 | 0.530 | 0.400 | 0.099 | 0.100 | -- | 610 | -- |
| 166 | 97-123-B-12 | 0.240 | 0.100 | 0.080 | 0.112 | 646 | -- | 1.059 |
| 167 | 98-105-TP1 (E. Abut.) | 0.220 | 0.050 | 0.163 | 0.137 | -- | 385 | -- |
| 168 | 98-105-TP1 (E. Abut.) | 0.190 | 0.050 | 0.129 | 0.122 | 372 | -- | 0.966 |
| 169 | 98-105-TP6 (W. Abut.) | | | | | -- | 380 | -- |
| 170 | 98-105-TP6 (W. Abut.) | 0.270 | 0.050 | 0.145 | 0.161 | -- | 468 | -- |
| 171 | 98-105-TP6 (W. Abut.) | 0.200 | 0.050 | 0.106 | 0.187 | 387 | -- | 0.827 |
| 172 | 98-106-#1 | | | | | -- | 59 | -- |
| 173 | 98-106-#1 | | | | | 51 | -- | 0.864 |
| 174 | 98-106-#2 | | | | | -- | 62 | -- |
| 175 | 98-106-#2 | | | | | 53 | -- | 0.855 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 176 | 98-106-#3 | | | | | -- | 62 | -- |
| 177 | 98-106-#3 | | | | | 56 | -- | 0.903 |
| 178 | 98-106-#4 | | | | | -- | 67 | -- |
| 179 | 98-106-#4 | | | | | 63 | -- | 0.940 |
| 180 | 98-107-LCTP1 (#6) | 0.270 | 0.080 | 0.044 | 0.191 | -- | 207 | -- |
| 181 | 98-107-LCTP1 (#6) | 0.160 | 0.070 | 0.040 | 0.105 | 203 | -- | 0.980 |
| 182 | 98-107-LCTP3 (#27) | 0.220 | 0.070 | 0.033 | 0.149 | -- | 178 | -- |
| 183 | 98-107-LCTP3 (#27) | 0.165 | 0.050 | 0.115 | 0.121 | -- | 228 | -- |
| 184 | 98-107-LCTP3 (#27) | | | | | 141 | -- | 0.618 |
| 185 | 98-109-C19TP1 | 0.360 | 0.120 | 0.101 | 0.164 | -- | 760 | -- |
| 186 | 98-109-C19TP1 | | | | | 628 | -- | 0.826 |
| 187 | 98-109-C19TP2 | 0.500 | 0.100 | 0.154 | 0.229 | -- | 471 | -- |
| 188 | 98-109-C19TP2 | | | | | 413 | -- | 0.877 |
| 189 | 98-109-C19TP3 | 0.700 | 0.300 | 0.170 | 0.283 | -- | 194 | -- |
| 190 | 98-109-C19TP3 | | | | | 278 | -- | 1.433 |
| 191 | 98-109-C19TP3 | | | | | - | 386 | - |
| 192 | 98-109-C19TP4 | 0.430 | 0.040 | 0.086 | 0.249 | -- | 587 | -- |
| 193 | 98-109-C19TP4 | 0.250 | 0.080 | 0.117 | 0.308 | 650 | -- | 1.107 |
| 194 | 98-109-C19TP5 | 0.540 | 0.090 | 0.173 | 0.103 | -- | 401 | -- |
| 195 | 98-109-C19TP5 | 0.500 | 0.100 | 0.047 | 0.260 | 485 | -- | 1.209 |
| 196 | 98-109-C19TP6 | 0.380 | 0.100 | 0.146 | 0.097 | -- | 340 | -- |
| 197 | 98-109-C19TP6 | 0.170 | 0.100 | 0.128 | 0.220 | 495 | -- | 1.456 |
| 198 | 98-109-260 | 0.450 | 0.200 | 0.134 | 0.203 | -- | 723 | -- |
| 199 | 98-109-260 | 0.300 | 0.150 | 0.144 | 0.087 | 670 | -- | 0.927 |
| 200 | 98-109-1099 | 0.400 | 0.100 | 0.142 | 0.220 | -- | 480 | -- |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 201 | 98-109-1099 | 0.550 | 0.200 | 0.172 | 0.113 | 440 | -- | 0.917 |
| 202 | 98-109-1043 | 0.800 | 0.100 | 0.211 | 0.164 | -- | 386 | -- |
| 203 | 98-109-1043 | 0.400 | 0.100 | 0.135 | 0.163 | 425 | -- | 1.101 |
| 204 | 98-109-1050 | 0.980 | 0.150 | 0.119 | 0.250 | -- | 325 | -- |
| 205 | 98-109-1050 | 0.900 | 0.100 | 0.062 | 0.182 | 326 | -- | 1.003 |
| 206 | 98-109-1201 | 0.455 | 0.070 | 0.140 | 0.214 | -- | 480 | -- |
| 207 | 98-109-1201 | 0.470 | 0.100 | 0.114 | 0.205 | 497 | -- | 1.035 |
| 208 | 98-109-Test 1 | 0.500 | 0.150 | 0.206 | 0.054 | -- | 509 | -- |
| 209 | 98-109-Test 1 | 0.500 | 0.150 | 0.190 | 0.125 | 492 | -- | 0.967 |
| 210 | 98-109-AC-4 | 0.450 | 0.050 | 0.208 | 0.243 | -- | 359 | -- |
| 211 | 98-109-AC-4 | 0.360 | 0.060 | 0.192 | 0.149 | 234 | -- | 0.652 |
| 212 | 98-109-IND-1 | 0.710 | 0.130 | 0.158 | 0.325 | -- | 347 | -- |
| 213 | 98-109-IND-1 | 0.470 | 0.150 | 0.095 | 0.202 | 395 | -- | 1.138 |
| 214 | 98-109-IND-2 | 0.760 | 0.120 | 0.287 | 0.151 | -- | 382 | -- |
| 215 | 98-109-IND-2 | 0.430 | 0.130 | 0.108 | 0.150 | 377 | -- | 0.987 |
| 216 | 98-109-IND-3 | 0.297 | 0.050 | 0.068 | 0.095 | -- | 416 | -- |
| 217 | 98-109-IND-3 | 0.270 | 0.070 | 0.081 | 0.170 | 450 | -- | 1.082 |
| 218 | 98-110-TP1 (9049) | 0.100 | 0.150 | 0.187 | 0.100 | -- | 446 | -- |
| 219 | 98-110-TP1 (9049) | 0.120 | 0.150 | 0.100 | 0.048 | 420 | -- | 0.942 |
| 220 | 98-110-TP2 (9032) | 0.050 | 0.080 | 0.187 | 0.145 | -- | 401 | -- |
| 221 | 98-110-TP2 (9032) | 0.110 | 0.110 | 0.100 | 0.054 | 417 | -- | 1.040 |
| 222 | 98-110-3 | 0.320 | 0.150 | 0.155 | 0.061 | -- | 420 | -- |
| 223 | 98-110-3 | 0.330 | 0.170 | 0.110 | 0.123 | 317 | -- | 0.755 |
| 224 | 98-110-7 | 0.140 | 0.220 | 0.433 | 0.043 | -- | 466 | -- |
| 225 | 98-110-7 | 0.300 | 0.060 | 0.144 | 0.189 | 336 | -- | 0.721 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 226 | 98-112-LSTP2 (D10) | | | | | -- | 532 | -- |
| 227 | 98-112-LSTP2 (D10) | 0.290 | 0.200 | 0.068 | 0.067 | 548 | -- | 1.030 |
| 228 | 98-112-LSTP3 (G10) | | | | | -- | 517 | -- |
| 229 | 98-112-LSTP3 (G10) | 0.350 | 0.200 | 0.085 | 0.066 | 553 | -- | 1.070 |
| 230 | 98-112-LSTP4 (A10) | | | | | -- | 584 | -- |
| 231 | 98-112-LSTP4 (A10) | 0.290 | 0.200 | 0.093 | 0.077 | 545 | -- | 0.933 |
| 232 | 98-112-LSTP5 (A6) | | | | | -- | 607 | -- |
| 233 | 98-112-LSTP5 (A6) | 0.275 | 0.100 | 0.055 | 0.236 | 567 | -- | 0.934 |
| 234 | 98-112-LSTP6 (G1) | | | | | -- | 631 | -- |
| 235 | 98-112-LSTP6 (G1) | 0.290 | 0.070 | 0.095 | 0.113 | 581 | -- | 0.921 |
| 236 | 98-112-LSTP7 (C1) | | | | | -- | 583 | -- |
| 237 | 98-112-LSTP7 (C1) | 0.250 | 0.100 | 0.038 | 0.180 | 624 | -- | 1.070 |
| 238 | 98-112-LSTP9 (A1) | | | | | -- | 628 | -- |
| 239 | 98-112-LSTP9 (A1) | 0.212 | 0.142 | 0.045 | 0.293 | 630 | -- | 1.003 |
| 240 | 98-112-LSTP10 (G5.1) | | | | | -- | 520 | -- |
| 241 | 98-112-LSTP10 (G5.1) | 0.287 | 0.100 | 0.093 | 0.195 | 604 | -- | 1.162 |
| 242 | 98-113-152 | 0.600 | 0.200 | 0.176 | 0.223 | -- | 200 | -- |
| 243 | 98-113-152 | 0.180 | 0.050 | 0.156 | 0.665 | 253 | -- | 1.265 |
| 244 | 98-113-222 | 0.300 | 0.250 | 0.266 | 0.113 | -- | 225 | -- |
| 245 | 98-113-222 | 0.850 | 0.150 | 0.045 | 0.159 | 254 | -- | 1.129 |
| 246 | 98-113-306 | 0.300 | 0.250 | 0.213 | 0.185 | -- | 231 | -- |
| 247 | 98-113-306 | 0.850 | 0.170 | 0.165 | 0.183 | 230 | -- | 0.996 |
| 248 | 98-113-488 | 0.300 | 0.300 | 0.643 | 0.146 | -- | 114 | -- |
| 249 | 98-113-488 | 0.700 | 0.250 | 0.301 | 0.244 | 210 | -- | 1.842 |
| 250 | 98-118-NB11 | 0.450 | 0.100 | 0.067 | 0.006 | -- | 832 | -- |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 251 | 98-118-NB11 | 0.480 | 0.100 | 0.073 | 0.043 | 670 | -- | 0.805 |
| 252 | 98-118-SB26 | 0.500 | 0.070 | 0.053 | 0.161 | -- | 724 | -- |
| 253 | 98-118-SB26 | 0.520 | 0.080 | 0.050 | 0.139 | 630 | -- | 0.870 |
| 254 | 98-118-29 | 0.200 | 0.100 | 0.062 | 0.102 | -- | 678 | -- |
| 255 | 98-118-29 | 0.150 | 0.100 | 0.059 | 0.078 | 790 | -- | 1.165 |
| 256 | 98-118-44 | 0.400 | 0.100 | 0.072 | 0.073 | -- | 680 | -- |
| 257 | 98-118-44 | 0.400 | 0.070 | 0.069 | 0.092 | 601 | -- | 0.884 |
| 258 | 98-118-TP30 | 0.274 | 0.100 | 0.076 | 0.063 | -- | 948 | -- |
| 259 | 98-118-TP30 | 0.260 | 0.100 | 0.058 | 0.084 | 830 | -- | 0.876 |
| 260 | 98-118-TP31 | 0.290 | 0.100 | 0.069 | 0.164 | -- | 766 | -- |
| 261 | 98-118-TP31 | 0.290 | 0.100 | 0.047 | 0.107 | 730 | -- | 0.953 |
| 262 | 98-118-TP34 | 0.450 | 0.100 | 0.111 | 0.048 | -- | 536 | -- |
| 263 | 98-118-TP34 | 0.500 | 0.100 | 0.073 | 0.073 | 545 | -- | 1.017 |
| 264 | 98-118-TP35 | 0.330 | 0.050 | 0.103 | 0.065 | -- | 587 | -- |
| 265 | 98-118-TP35 | 0.380 | 0.200 | 0.103 | 0.087 | 587 | -- | 1.000 |
| 266 | 98-118-TP52 | 0.420 | 0.090 | 0.056 | 0.083 | -- | 661 | -- |
| 267 | 98-118-TP52 | 0.540 | 0.080 | 0.082 | 0.075 | 500 | -- | 0.756 |
| 268 | 98-118-TP62 | 0.420 | 0.150 | 0.099 | 0.157 | -- | 643 | -- |
| 269 | 98-118-TP62 | 0.600 | 0.100 | 0.110 | 0.152 | 543 | -- | 0.844 |
| 270 | 98-118-TP8 | 0.500 | 0.101 | 0.098 | 0.072 | -- | 612 | -- |
| 271 | 98-118-TP8 | 0.450 | 0.100 | 0.076 | 0.052 | 507 | -- | 0.828 |
| 272 | 98-118-TP8 | 0.480 | 0.100 | 0.106 | 0.032 | -- | 599 | -- |
| 273 | 98-118-TP8 | 0.400 | 0.150 | 0.099 | 0.056 | 640 | -- | 1.068 |
| 274 | 98-129-CHTP1 | 0.480 | 0.060 | 0.037 | 0.087 | -- | 308 | -- |
| 275 | 98-129-CHTP1 | 0.351 | 0.110 | 0.147 | 0.031 | 191 | -- | 0.620 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 276 | 98-129-CHTP2 | 0.610 | 0.060 | 0.111 | 0.071 | -- | 328 | -- |
| 277 | 98-129-CHTP2 | 0.400 | 0.150 | 0.146 | 0.048 | 146 | -- | 0.445 |
| 278 | 98-131-Bent 1, #3 | 0.430 | 0.150 | 0.080 | 0.051 | -- | 542 | -- |
| 279 | 98-131-Bent 1, #3 | 0.340 | 0.150 | 0.087 | 0.058 | 461 | -- | 0.851 |
| 280 | 98-131-Bent 2, #1 | 0.230 | 0.070 | 0.069 | 0.260 | -- | 604 | -- |
| 281 | 98-131-Bent 2, #1 | 0.246 | 0.070 | 0.059 | 0.186 | 572 | -- | 0.947 |
| 282 | 98-138-17 | 0.250 | 0.100 | 0.085 | 0.141 | -- | 189 | -- |
| 283 | 98-138-17 | 0.200 | 0.150 | 0.064 | 0.154 | 116 | -- | 0.613 |
| 284 | 98-138-5 | 0.360 | 0.100 | 0.074 | 0.111 | -- | 201 | -- |
| 285 | 98-138-5 | 0.310 | 0.080 | 0.073 | 0.140 | 131 | -- | 0.652 |
| 286 | 98-138-9 | 0.380 | 0.090 | 0.067 | 0.068 | -- | 177 | -- |
| 287 | 98-138-9 | 0.270 | 0.150 | 0.062 | 0.145 | 138 | -- | 0.780 |
| 288 | 98-138-18 | 0.330 | 0.090 | 0.186 | 0.075 | -- | 172 | -- |
| 289 | 98-138-18 | 0.272 | 0.090 | 0.076 | 0.164 | 141 | -- | 0.820 |
| 290 | 99-112-1 | | | | | -- | 395 | -- |
| 291 | 99-112-1 | 0.190 | 0.100 | 0.149 | 0.133 | 421 | -- | 1.066 |
| 292 | 99-112-13 | | | | | -- | 361 | -- |
| 293 | 99-112-13 | 0.200 | 0.100 | 0.082 | 0.218 | 362 | -- | 1.001 |
| 294 | 99-112-159 | | | | | -- | 390 | -- |
| 295 | 99-112-159 | 0.200 | 0.100 | 0.117 | 0.277 | 389 | -- | 0.997 |
| 296 | 99-114-D-2 (2) | | | | | -- | 369 | -- |
| 297 | 99-114-D-2 (2) | 0.120 | 0.075 | 0.053 | 0.089 | 516 | -- | 1.398 |
| 298 | 99-114-B-2 (2) | 0.220 | 0.090 | 0.054 | 0.104 | -- | 525 | -- |
| 299 | 99-114-B-2 (2) | 0.200 | 0.090 | 0.059 | 0.126 | 472 | -- | 0.899 |
| 300 | 99-117-3 | | | | | -- | 253 | -- |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 301 | 99-117-3 | | | | | -- | 344 | -- |
| 302 | 99-117-3 | 0.171 | 0.100 | 0.047 | 0.090 | 429 | -- | 1.247 |
| 303 | 99-117-5 | | | | | -- | 313 | -- |
| 304 | 99-117-5 | 0.100 | 0.100 | 0.068 | 0.172 | 328 | -- | 1.048 |
| 305 | 99-123-100 | | | | | -- | 580 | -- |
| 306 | 99-123-100 | 0.200 | 0.100 | 0.063 | 0.164 | 562 | -- | 0.969 |
| 307 | 99-123-113 | | | | | -- | 545 | -- |
| 308 | 99-123-113 | 0.200 | 0.100 | 0.088 | 0.215 | 565 | -- | 1.037 |
| 309 | 99-123-172 | | | | | -- | 620 | -- |
| 310 | 99-123-172 | 0.200 | 0.100 | 0.035 | 0.171 | 545 | -- | 0.879 |
| 311 | 99-123-184 | | | | | -- | 590 | -- |
| 312 | 99-123-184 | 0.230 | 0.100 | 0.056 | 0.196 | 640 | -- | 1.085 |
| 313 | 99-123-227 | | | | | -- | 618 | -- |
| 314 | 99-123-227 | 0.170 | 0.100 | 0.091 | 0.145 | 540 | -- | 0.874 |
| 315 | 99-123-281 | | | | | -- | 587 | -- |
| 316 | 99-123-281 | 0.190 | 0.100 | 0.062 | 0.260 | 566 | -- | 0.964 |
| 317 | 99-123-293 | | | | | -- | 599 | -- |
| 318 | 99-123-293 | 0.130 | 0.100 | 0.080 | 0.205 | 723 | -- | 1.207 |
| 319 | 99-123-303 | | | | | -- | 597 | -- |
| 320 | 99-123-303 | | | | | -- | 535 | -- |
| 321 | 99-123-303 | 0.290 | 0.100 | 0.085 | 0.230 | 425 | -- | 0.794 |
| 322 | 99-124-N1 | | | | | -- | 133 | -- |
| 323 | 99-124-N1 | 0.400 | 0.160 | 0.124 | 0.067 | 208 | 250 | 1.564 |
| 324 | 99-124-N1 | | | | | -- | 221 | -- |
| 325 | 99-124-N4 | | | | | -- | 124 | -- |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 326 | 99-124-N4 | 0.200 | 0.080 | 0.077 | 0.241 | 182 | -- | 1.468 |
| 327 | 99-126-TP1 | -- | -- | -- | -- | -- | 433 | -- |
| 328 | 99-126-TP1 | 0.390 | 0.100 | 0.027 | 0.247 | 340 | -- | 0.785 |
| 329 | 99-126-TP2 | -- | -- | -- | -- | -- | 368 | -- |
| 330 | 99-126-TP2 | 0.050 | 0.100 | 0.070 | 0.215 | 454 | -- | 1.234 |
| 331 | 97-110-P105-S93 | -- | -- | -- | -- | -- | 309 | -- |
| 332 | 97-110-P105-S93 | 0.680 | 0.080 | 0.094 | 0.406 | 365 | -- | 1.181 |
| 333 | 97-110-P16-S93 | -- | -- | -- | -- | -- | 246 | -- |
| 334 | 97-110-P16-S93 | 0.630 | 0.070 | 0.164 | 0.201 | 363 | -- | 1.476 |
| 335 | 97-110-P332-S7 | -- | -- | -- | -- | -- | 406 | -- |
| 336 | 97-110-P332-S7 | 0.360 | 0.040 | 0.087 | 0.495 | 370 | -- | 0.911 |
| 337 | 97-110-P566-S6 | -- | -- | -- | -- | -- | 461 | -- |
| 338 | 97-110-P566-S6 | 0.410 | 0.040 | 0.223 | 0.105 | 375 | -- | 0.813 |
| 339 | 97-110-P56-S7 | -- | -- | -- | -- | -- | 310 | -- |
| 340 | 97-110-P56-S7 | 0.650 | 0.150 | 0.123 | 0.167 | 253 | -- | 0.816 |
| 341 | 97-110-P86-S7 | -- | -- | -- | -- | -- | 394 | -- |
| 342 | 97-110-P86-S7 | 0.530 | 0.130 | 0.351 | 0.149 | 262 | -- | 0.665 |
| 343 | 97-110-P212-S7 | -- | -- | -- | -- | -- | 356 | -- |
| 344 | 97-110-P212-S7 | 0.450 | 0.100 | 0.302 | 0.118 | 291 | -- | 0.817 |
| 345 | 97-110-P350-S6 | -- | -- | -- | -- | -- | 434 | -- |
| 346 | 97-110-P350-S6 | 0.480 | 0.150 | 0.291 | 0.330 | 275 | -- | 0.634 |
| 347 | 97-110-P499-S8 | -- | -- | -- | -- | -- | 372 | -- |
| 348 | 97-110-P499-S8 | 0.410 | 0.040 | 0.244 | 0.187 | 306 | -- | 0.823 |
| 349 | 97-110-P30-S8 | -- | -- | -- | -- | -- | 357 | -- |
| 350 | 97-110-P30-S8 | 0.560 | 0.080 | 0.175 | 0.086 | 303 | -- | 0.849 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 351 | 97-110-P320-S7 | -- | -- | -- | -- | -- | 337 | -- |
| 352 | 97-110-P320-S7 | 0.540 | 0.130 | 0.404 | 0.090 | 250 | -- | 0.742 |
| 353 | 97-110-P333-S6 | -- | -- | -- | -- | -- | 602 | -- |
| 354 | 97-110-P333-S6 | 0.290 | 0.050 | 0.266 | 0.254 | 375 | -- | 0.623 |
| 355 | 97-110-P553-S6 | -- | -- | -- | -- | -- | 599 | -- |
| 356 | 97-110-P553-S6 | 0.240 | 0.040 | 0.357 | 0.150 | 475 | -- | 0.793 |
| 357 | 97-110-P341-S6 | -- | -- | -- | -- | -- | 509 | -- |
| 358 | 97-110-P341-S6 | 0.340 | 0.180 | 0.500 | 0.237 | 310 | -- | 0.609 |
| 359 | 97-110-P21-S8 | -- | -- | -- | -- | -- | 459 | -- |
| 360 | 97-110-P21-S8 | 0.370 | 0.120 | 0.159 | 0.241 | 361 | -- | 0.786 |
| 361 | 97-110-P168-S8 | -- | -- | -- | -- | -- | 384 | -- |
| 362 | 97-110-P168-S8 | 0.370 | 0.120 | 0.195 | 0.151 | 362 | -- | 0.943 |
| 363 | 97-110-P382-S8 | -- | -- | -- | -- | -- | 374 | -- |
| 364 | 97-110-P382-S8 | 0.390 | 0.100 | 0.242 | 0.179 | 376 | -- | 1.005 |
| 365 | 97-110-P12-S8 | -- | -- | -- | -- | -- | 693 | -- |
| 366 | 97-110-P12-S8 | 0.240 | 0.100 | 0.147 | 0.109 | 580 | -- | 0.837 |
| 367 | 97-110-P6-S8 | -- | -- | -- | -- | -- | 718 | -- |
| 368 | 97-110-P6-S8 | 0.160 | 0.100 | 0.199 | 0.107 | 385 | -- | 0.536 |
| 369 | 97-110-P2-S6 | -- | -- | -- | -- | -- | 378 | -- |
| 370 | 97-110-P2-S6 | 0.450 | 0.080 | 0.210 | 0.125 | 313 | -- | 0.828 |
| 371 | 97-110-P492-S8 | -- | -- | -- | -- | -- | 401 | -- |
| 372 | 97-110-P492-S8 | 0.510 | 0.040 | 0.183 | 0.131 | 331 | -- | 0.825 |
| 373 | 97-110-P159-S8 | -- | -- | -- | -- | -- | 638 | -- |
| 374 | 97-110-P159-S8 | 0.090 | 0.180 | 0.248 | 0.107 | 466 | -- | 0.730 |
| 375 | 97-110-P485-S8 | -- | -- | -- | -- | -- | 425 | -- |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 376 | 97-110-P485-S8 | 0.290 | 0.100 | 0.138 | 0.062 | 438 | -- | 1.031 |
| 377 | 97-110-P522-S8 | -- | -- | -- | -- | -- | 425 | -- |
| 378 | 97-110-P522-S8 | 0.420 | 0.100 | 0.282 | 0.069 | 361 | -- | 0.849 |
| 379 | PD-TP4 | 0.320 | 0.060 | 0.481 | 0.320 | 262 | 291 | -- |
| 380 | PD-TP4 | 0.250 | 0.100 | 0.707 | 0.183 | 267 | 308 | 0.916 |
| 381 | PD-PN3 | 0.250 | 0.150 | 0.220 | 0.170 | 312 | 304 | -- |
| 382 | PD-PN3 | 0.300 | 0.150 | 0.198 | 0.254 | 376 | 475 | 1.236 |
| 383 | PD-PN317 | 0.430 | 0.150 | 0.180 | 0.550 | 383 | 496 | -- |
| 384 | PD-PN317 | 0.153 | 0.134 | 0.735 | 0.800 | 513 | 646 | 1.035 |
| 385 | PD-PN12 | 0.160 | 0.060 | 0.348 | 0.620 | 438 | 463 | -- |
| 386 | PD-PN12 | 0.100 | 0.060 | 0.759 | 0.462 | 411 | 456 | 0.887 |
| 387 | PD-PN7 | 0.330 | 0.075 | 0.116 | 0.240 | 507 | 714 | -- |
| 388 | PD-PN7 | 0.330 | 0.075 | 0.116 | 0.240 | 507 | 714 | 0.710 |
| 389 | PD-T1 | 0.270 | 0.100 | 0.047 | 1.631 | 230 | 377 | -- |
| 390 | PD-T1 | 0.100 | 0.086 | 0.301 | 2.058 | 375 | 499 | 0.995 |
| 391 | PD-SHD1 | 0.450 | 0.080 | 0.067 | 0.323 | 148 | 162 | -- |
| 392 | PD-SHD1 | 0.300 | 0.100 | 0.042 | 0.319 | 217 | 234 | 1.340 |
| 393 | PD-R1 | 0.120 | 0.140 | 0.196 | 0.898 | 285 | 473 | -- |
| 394 | PD-R1 | 0.110 | 0.110 | 0.198 | 1.644 | 422 | 666 | 0.892 |
| 395 | PD-R10 | 0.100 | 0.160 | 0.052 | 1.508 | 316 | 549 | -- |
| 396 | PD-R10 | 0.100 | 0.150 | 0.050 | 1.669 | 456 | 733 | 0.831 |
| 397 | PD-TP4 | 0.200 | 0.060 | 0.090 | 0.330 | 226 | 311 | -- |
| 398 | PD-TP4 | 0.350 | 0.050 | 0.150 | 0.400 | 235 | 353 | 0.755 |
| 399 | PD-TP2 | 0.320 | 0.090 | 0.208 | 0.240 | 326 | 362 | -- |
| 400 | PD-TP2 | 0.320 | 0.100 | 0.276 | 0.400 | 331 | 362 | 0.912 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 401 | PD-PN13 | 0.300 | 0.080 | 0.030 | 0.250 | 132 | 250 | -- |
| 402 | PD-PN13 | 0.400 | 0.060 | 0.025 | 0.470 | 285 | 383 | 1.138 |
| 403 | PD-PN6 | 0.390 | 0.100 | 0.070 | 0.490 | 208 | 263 | -- |
| 404 | PD-PN6 | 0.530 | 0.100 | 0.100 | 0.600 | 271 | 365 | 1.031 |
| 405 | PD-TP23 | 0.500 | 0.150 | 0.250 | 0.300 | 124 | 120 | -- |
| 406 | PD-TP23 | 0.300 | 0.110 | 0.044 | 0.637 | 226 | 298 | 1.885 |
| 407 | PD-PN4 | 0.230 | 0.120 | 0.300 | 0.250 | 345 | 360 | -- |
| 408 | PD-PN4 | 0.170 | 0.100 | 0.500 | 0.250 | 318 | 383 | 0.882 |
| 409 | PD-T4 | 0.180 | 0.120 | 0.025 | 0.950 | 244 | 431 | -- |
| 410 | PD-T4 | 0.100 | 0.110 | 0.055 | 1.298 | 288 | 583 | 0.668 |
| 411 | PD-J31 | 0.385 | 0.090 | 0.081 | 0.359 | 705 | 806 | -- |
| 412 | PD-J31 | 0.229 | 0.078 | 0.250 | 0.550 | 703 | 976 | 0.872 |
| 413 | PD-TP1799 | 0.620 | 0.040 | 0.080 | 0.250 | 101 | 111 | -- |
| 414 | PD-TP1799 | 0.100 | 0.100 | 0.330 | 0.580 | 226 | 212 | 2.043 |
| 415 | PD-TP1799 | 0.450 | 0.050 | 0.150 | 0.250 | 137 | 168 | |
| 416 | PD-T2 | 0.200 | 0.220 | 0.032 | 0.838 | 226 | 475 | -- |
| 417 | PD-T2 | 0.200 | 0.150 | 0.080 | 1.400 | 305 | 495 | 0.642 |
| 418 | PD-TP6 | 0.133 | 0.100 | 0.651 | 0.037 | 393 | 454 | -- |
| 419 | PD-TP6 | 0.070 | 0.070 | 0.773 | 0.091 | 277 | 309 | 0.611 |
| 420 | PD-PNH20 | 0.620 | 0.500 | 0.059 | 0.258 | 89 | 204 | -- |
| 421 | PD-PNH20 | 0.160 | 0.150 | 0.115 | 0.509 | 185 | 404 | 0.906 |
| 422 | PD-T3 | 0.310 | 0.060 | 0.247 | 0.750 | 179 | 478 | -- |
| 423 | PD-T3 | 0.360 | 0.069 | 0.400 | 0.700 | 297 | 644 | 0.621 |
| 424 | PD-PN110 | 0.140 | 0.070 | 0.150 | 0.550 | 282 | 466 | -- |
| 425 | PD-PN110 | 0.090 | 0.080 | 0.540 | 0.920 | 346 | 629 | 0.743 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 426 | PD-PN111 | 0.072 | 0.044 | 0.170 | 0.840 | 237 | 308 | -- |
| 427 | PD-PN111 | 0.110 | 0.100 | 0.100 | 1.100 | 329 | 702 | 1.067 |
| 428 | PD-TP3 | 0.260 | 0.100 | 0.254 | 0.102 | 357 | 571 | -- |
| 429 | PD-TP3 | 0.118 | 0.134 | 0.172 | 0.965 | 476 | 756 | 0.834 |
| 430 | PD-TP21 | 0.300 | 0.170 | 0.321 | 0.360 | 850 | 1151 | -- |
| 431 | PD-TP21 | 0.300 | 0.125 | 0.300 | 0.388 | 864 | 1363 | 0.751 |
| 432 | PD-TP11 | 0.250 | 0.130 | 0.415 | 0.312 | 786 | 1241 | |
| 433 | PD-TP11 | 0.330 | 0.160 | 0.370 | 0.277 | 976 | 1353 | 0.787 |
| 434 | PD-TP11 | 0.330 | 0.140 | 0.344 | 0.280 | 878 | 1362 | 0.708 |
| 435 | PD-151 | 0.179 | 0.085 | 0.350 | 0.350 | 499 | 600 | -- |
| 436 | PD-151 | 0.142 | 0.085 | 0.385 | 0.380 | 486 | 650 | 0.809 |
| 437 | PD-P3T1 | 0.200 | 0.080 | 0.400 | 0.120 | 281 | 309 | -- |
| 438 | PD-P3T1 | 0.080 | 0.080 | 0.500 | 0.200 | 248 | 324 | 0.802 |
| 439 | PD-TP1 | 0.280 | 0.080 | 0.750 | 0.250 | 353 | 397 | -- |
| 440 | PD-TP1 | 0.170 | 0.080 | 0.838 | 0.550 | 390 | 457 | 0.983 |
| 441 | PD-PN126 | 0.331 | 0.366 | 0.514 | 0.300 | 530 | 640 | -- |
| 442 | PD-PN126 | 0.218 | 0.326 | 0.530 | 0.350 | 442 | 595 | 0.691 |
| 443 | PD-TP26 | 0.200 | 0.100 | 0.037 | 0.250 | 206 | 310 | -- |
| 444 | PD-TP26 | 0.350 | 0.100 | 0.109 | 0.887 | 328 | 687 | 1.057 |
| 445 | PD-TP114 | 0.370 | 0.100 | 0.039 | 0.159 | 250 | 310 | -- |
| 446 | PD-TP114 | 0.600 | 0.100 | 0.065 | 0.547 | 325 | 651 | 1.047 |
| 447 | PD-PN177 | 0.340 | 0.120 | 0.500 | 0.100 | 489 | 616 | -- |
| 448 | PD-PN177 | 0.174 | 0.318 | 0.650 | 0.320 | 370 | 539 | 0.600 |
| 449 | PD-TP1 | 0.250 | 0.100 | 0.440 | 0.640 | 269 | 422 | -- |
| 450 | PD-TP1 | 0.080 | 0.080 | 0.346 | 1.265 | 332 | 504 | 0.785 |

**Table A.5 (con't).** Relevant Information Pertaining to Database PD2000.

| Ref. No. | Pile-Case Number | Quake Tip (in) | Quake Side (in) | Damping Tip (s/ft) | Damping Side (s/ft) | CAPWAP TEPWAP (kips) | Energy Appr. Ru (kips) | Kwe CAPWAP/Ru |
|---|---|---|---|---|---|---|---|---|
| 451 | PD-D418 | 0.080 | 0.100 | 0.971 | 0.514 | 490 | 555 | -- |
| 452 | PD-D418 | 0.050 | 0.080 | 0.473 | 0.458 | 482 | 507 | 0.868 |
| 453 | PD-PN2 | 0.170 | 0.050 | 0.080 | 0.800 | 229 | 277 | -- |
| 454 | PD-PN2 | 0.020 | 0.036 | 0.250 | 1.250 | 306 | 342 | 1.107 |
| 455 | PD-PN26 | 0.300 | 0.070 | 0.070 | 0.180 | 110 | 213 | -- |
| 456 | PD-PN26 | 0.170 | 0.150 | 0.050 | 1.000 | 385 | 426 | 1.808 |
| 457 | PD-PN49 | 0.500 | 0.150 | 0.030 | 0.200 | 127 | 188 | -- |
| 458 | PD-PN49 | 0.100 | 0.100 | 0.200 | 0.650 | 335 | 290 | 1.782 |
| 459 | PD-PN6 | 0.280 | 0.100 | 0.180 | 0.180 | 1211 | 1368 | -- |
| 460 | PD-PN6 | 0.060 | 0.060 | 0.138 | 1.430 | 495 | 495 | 0.362 |
| 461 | PD-TP1 | 0.500 | 0.100 | 0.065 | 0.157 | 234 | 295 | -- |
| 462 | PD-TP1 | 0.100 | 0.120 | 0.049 | 1.621 | 544 | 694 | 1.847 |
| 463 | PD-TP2 | 0.290 | 0.050 | 0.650 | 0.120 | 386 | 637 | -- |
| 464 | PD-TP2 | 0.150 | 0.130 | 0.210 | 0.991 | 320 | 642 | 0.502 |
| 465 | PD-TP8 | 0.340 | 0.100 | 0.135 | 0.311 | 354 | 474 | -- |
| 466 | PD-TP8 | 0.140 | 0.150 | 0.208 | 0.927 | 507 | 846 | 1.071 |
| 467 | PD-PN7E3 | 0.254 | 0.108 | 0.311 | 0.030 | 1090 | 1442 | -- |
| 468 | PD-PN7E | 0.080 | 0.090 | 0.628 | 0.200 | 1200 | 1547 | 0.832 |

**Table A.6.** Relevant Information Pertaining to Database PD/LTT2000.

| No. | Pile-Case Number | Driving Time | Time after Initial Driving | Time after Initial Driving | $t_1$ corrected time | Refer. No. | Location | Pile Type | Pile Diameter | Pile Area | Length Below Gauges | Penetr Depth | Area Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (days) | (hrs) | (hrs) | | | | (mm) | (mm2) | (m) | (m) | AR |
| 1 | FN1-EOD | EOD | --- | 0 | 0.0 | I-480 | Omaha NE | HP250x62 | 254.0 | 8000 | 21.95 | 21.95 | 4102 |
| 2 | FN1-BOR1 | BOR | 2 | 48 | 73.5 | I-480 | Omaha NE | HP250x62 | 254.0 | 8000 | 21.95 | 21.98 | 4108 |
| 3 | FN1-BOR2 | BOR | 12 | 288 | 440.8 | I-480 | Omaha NE | HP250x62 | 254.0 | 8000 | 21.95 | 22.25 | 4159 |
| 65 | FL3-EOD | EOD | --- | 0 | 0.0 | Rt.415 | Louisiana | PSC 610mm sq | 609.6 | 298709 | 30.48 | 25.69 | 210 |
| 66 | FL3-BOR1 | BOR | 1 | 24 | 6.0 | Rt.415 | Louisiana | PSC 610mm sq | 609.6 | 298709 | 30.48 | 25.69 | 210 |
| 67 | FL3-BOR2 | BOR | 9 | 216 | 54.0 | Rt.415 | Louisiana | PSC 610mm sq | 609.6 | 298709 | 30.48 | 25.69 | 210 |
| 207 | CHA1-EOD | EOD | 0 | 0 | 0.0 | Jones Is. | Wisconsin | CEP 324mm | 323.9 | 9419 | 42.00 | 37.49 | 4048 |
| 208 | CHA1-BOR1 | BOR | 2 | 24 | 21.3 | Jones Is. | Wisconsin | CEP 324mm | 323.9 | 9419 | 42.00 | 37.52 | 4052 |
| 209 | CHA1-BOR2 | BOR | 4 | 96 | 85.0 | Jones Is. | Wisconsin | CEP 324mm | 323.9 | 9419 | 42.25 | 37.52 | 4053 |
| 211 | CHB2-EOD | EOD | 0 | 0 | 0.0 | Jones Is. | Wisconsin | HP310x93 | 304.8 | 11871 | 47.95 | 47.34 | 7224 |
| 212 | CHB2-BOR1 | BOR | 2 | 48 | 48.5 | Jones Is. | Wisconsin | HP310x93 | 304.8 | 11871 | 47.95 | 47.34 | 7224 |
| 213 | CHB2-BOR3 | BOR | 7 | 168 | 169.7 | Jones Is. | Wisconsin | HP310x93 | 304.8 | 11871 | 47.95 | 47.40 | 7236 |
| 214 | CHB2-BOR4 | BOR | 16 | 384 | 387.9 | Jones Is. | Wisconsin | HP310x93 | 304.8 | 11871 | 47.67 | 47.43 | 7240 |
| 215 | CHB2-BOR5a | BOR | 132 | 3168 | 3199.9 | Jones Is. | Wisconsin | HP310x93 | 304.8 | 11871 | 46.45 | 47.46 | 7245 |
| 216 | CHB2-BOR5b | BOR | 132 | 3168 | 3199.9 | Jones Is. | Wisconsin | HP310x93 | 304.8 | 11871 | 46.45 | 47.46 | 7245 |
| 217 | CHB3-EOD | EOD | 0 | 0 | 0.0 | Jones Is. | Wisconsin | HP310x93 | 304.8 | 11871 | 44.10 | 43.31 | 6611 |
| 218 | CHB3-BOR1 | BOR | 1 | 24 | 24.2 | Jones Is. | Wisconsin | HP310x93 | 304.8 | 11871 | 44.10 | 43.31 | 6611 |
| 219 | CHB3-BOR2 | BOR | 8 | 192 | 193.9 | Jones Is. | Wisconsin | HP310x93 | 304.8 | 11871 | 44.10 | 43.43 | 6631 |
| 220 | CHB3-BOR3 | BOR | 13 | 312 | 315.1 | Jones Is. | Wisconsin | HP310x93 | 304.8 | 11871 | 44.10 | 43.53 | 6643 |
| 226 | CH39-EOD | EOD | 0 | 0 | 0.0 | Jones Is. | Wisconsin | CEP 245mm | 244.6 | 10581 | 44.81 | 43.28 | 3142 |
| 227 | CH39-BOR | BOR | 1 | 24 | 37.3 | Jones Is. | Wisconsin | CEP 245mm | 244.6 | 10581 | 44.81 | 43.28 | 3142 |
| 228 | CH39-BORL | BOR | 51 | 1224 | 1900.6 | Jones Is. | Wisconsin | CEP 245mm | 244.6 | 46581 | 44.81 | 43.37 | 715 |
| 291 | LB3-EOD | EOD | 0 | 0 | 0.0 | Luling Bridge | Kenner, LA | PSC 610mm sq | 609.6 | 298645 | 24.38 | 24.84 | 203 |
| 292 | LB3-BOR1 | BOR | 1 | 24 | 6.0 | Luling Bridge | Kenner, LA | PSC 610mm sq | 609.6 | 298645 | 24.38 | 24.99 | 204 |
| 293 | LB3-BOR2 | BOR | 10 | 240 | 60.0 | Luling Bridge | Kenner, LA | PSC 610mm sq | 609.6 | 298645 | 24.38 | 24.99 | 204 |

**Table A.6 (con't).** Relevant Information Pertaining to Database PD/LTT2000.

| No. | Pile-Case Number | Driving Time | Time after Initial Driving | Time after Initial Driving | $t_1$ corrected time | Refer. No. | Location | Pile Type | Pile Diameter | Pile Area | Length Below Gauges | Penetr Depth | Area Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (days) | (hrs) | (hrs) | | | | (mm) | (mm2) | (m) | (m) | AR |
| 294 | LB3-BOR3 | BOR | 18 | 432 | 108.0 | Luling Bridge | Kenner, LA | PSC 610mm sq | 609.6 | 298645 | 24.38 | 24.99 | 204 |
| 295 | LB4-EOD | EOD | 0 | 0 | 0.0 | Luling Bridge | Kenner, LA | PSC 762mm sq | 762.0 | 403483 | 24.38 | 24.99 | 189 |
| 296 | LB4-BOR1 | BOR | 1 | 24 | 3.8 | Luling Bridge | Kenner, LA | PSC 762mm sq | 762.0 | 403483 | 24.38 | 25.21 | 190 |
| 297 | LB4-BOR2 | BOR | 4 | 96 | 15.4 | Luling Bridge | Kenner, LA | PSC 762mm sq | 762.0 | 403483 | 24.38 | 25.27 | 191 |
| 298 | LB4-BOR3 | BOR | 9 | 216 | 34.6 | Luling Bridge | Kenner, LA | PSC 762mm sq | 762.0 | 403483 | 24.38 | 25.30 | 191 |
| 299 | LB4-BOR4 | BOR | 18 | 432 | 69.1 | Luling Bridge | Kenner, LA | PSC 762mm sq | 762.0 | 403483 | 24.38 | 25.30 | 191 |
| 300 | LB5-EOD | EOD | 0 | 0 | 0.0 | Luling Bridge | Kenner, LA | PSC 762mm sq | 762.0 | 403483 | 24.38 | 24.99 | 189 |
| 301 | LB5-BOR1 | BOR | 1 | 24 | 3.8 | Luling Bridge | Kenner, LA | PSC 762mm sq | 762.0 | 403483 | 24.38 | 24.99 | 189 |
| 302 | LB5-BOR2 | BOR | 4 | 96 | 15.4 | Luling Bridge | Kenner, LA | PSC 762mm sq | 762.0 | 403483 | 24.38 | 24.99 | 189 |
| 303 | LB5-BOR3 | BOR | 11 | 264 | 42.2 | Luling Bridge | Kenner, LA | PSC 762mm sq | 762.0 | 403483 | 24.38 | 25.30 | 191 |
| 304 | LB5-BOR4 | BOR | 20 | 480 | 76.8 | Luling Bridge | Kenner, LA | PSC 762mm sq | 762.0 | 403483 | 24.38 | 25.30 | 191 |
| 305 | LB6-EOD | EOD | 0 | 0 | 0.0 | Luling Bridge | Kenner, LA | PSC 914mm cyl | 914.4 | 314193 | 24.38 | 24.69 | 226 |
| 306 | LB6-BOR1 | BOR | 1 | 24 | 2.7 | Luling Bridge | Kenner, LA | PSC 914mm cyl | 914.4 | 314193 | 24.38 | 24.69 | 226 |
| 307 | LB6-BOR2 | BOR | 4 | 96 | 10.7 | Luling Bridge | Kenner, LA | PSC 914mm cyl | 914.4 | 314193 | 24.38 | 24.69 | 226 |
| 308 | LB6-BOR3 | BOR | 11 | 264 | 29.3 | Luling Bridge | Kenner, LA | PSC 914mm cyl | 914.4 | 314193 | 24.38 | 24.99 | 229 |
| 309 | LB6-BOR4 | BOR | 21 | 504 | 56.0 | Luling Bridge | Kenner, LA | PSC 914mm cyl | 914.4 | 314193 | 24.38 | 24.99 | 229 |
| 310 | LB7-EOD | EOD | 0 | 0 | 0.0 | Luling Bridge | Kenner, LA | PSC 914mm cyl | 914.4 | 314193 | 24.38 | 24.60 | 225 |
| 311 | LB7-BOR1 | BOR | 1 | 24 | 2.7 | Luling Bridge | Kenner, LA | PSC 914mm cyl | 914.4 | 314193 | 24.38 | 24.69 | 226 |
| 312 | LB7-BOR2 | BOR | 4 | 96 | 10.7 | Luling Bridge | Kenner, LA | PSC 914mm cyl | 914.4 | 314193 | 24.38 | 24.69 | 226 |
| 313 | LB7-BOR3 | BOR | 10 | 240 | 26.7 | Luling Bridge | Kenner, LA | PSC 914mm cyl | 914.4 | 314193 | 24.38 | 24.69 | 226 |
| 314 | LB7-BOR4 | BOR | 20 | 480 | 53.3 | Luling Bridge | Kenner, LA | PSC 914mm cyl | 914.4 | 314193 | 24.38 | 24.69 | 226 |
| 319 | NBTP2-EOD | EOD | 0 | 0 | 0.0 | Newbury | Massachusetts | HP310X110 | 304.8 | 14064 | 35.51 | 34.14 | 4433 |
| 320 | NBTP2-1DR | BOR | 1 | 24 | 23.5 | Newbury | Massachusetts | HP310X110 | 304.8 | 14064 | 35.51 | 34.14 | 4433 |
| 321 | NBTP2-6DR | BOR | 6 | 144 | 140.9 | Newbury | Massachusetts | HP310X110 | 304.8 | 14064 | 35.51 | 34.14 | 4433 |
| 322 | NBTP3-EOD | EOD | 0 | 0 | 0.0 | Newbury | Massachusetts | HP310X110 | 304.8 | 14064 | 35.51 | 33.07 | 4295 |

**Table A.6 (con't).** Relevant Information Pertaining to Database PD/LTT2000.

| No. | Pile-Case Number | Driving Time | Time after Initial Driving | Time after Initial Driving | $t_1$ corrected time | Refer. No. | Location | Pile Type | Pile Diameter | Pile Area | Length Below Gauges | Penetr Depth | Area Ratio |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | (days) | (hrs) | (hrs) | | | | (mm) | (mm2) | (m) | (m) | AR |
| 323 | NBTP3-1DR | BOR | 1 | 24 | 23.5 | Newbury | Massachusetts | HP310X110 | 304.8 | 14064 | 35.51 | 33.07 | 4295 |
| 324 | NBTP3-6DR | BOR | 6 | 144 | 140.9 | Newbury | Massachusetts | HP310X110 | 304.8 | 14064 | 35.51 | 33.07 | 4295 |
| 390 | UMLNB2-EOD | EOD | 0 | 0 | 0.0 | Newbury | Massachusetts | CEP 324mm | 323.9 | 12413 | 23.16 | 20.51 | 354 |
| 391 | UMLNB2-BOR1 | BOR | 1 | 22.17 | 19.6 | Newbury | Massachusetts | CEP 324mm | 323.9 | 12413 | 23.16 | 20.63 | 356 |
| 392 | UMLNB2-BOR2 | BOR | 8 | 184.44 | 163.4 | Newbury | Massachusetts | CEP 324mm | 323.9 | 12413 | 23.16 | 20.86 | 360 |
| 393 | UMLNB2-BOR3 | BOR | 24 | 567.41 | 502.6 | Newbury | Massachusetts | CEP 324mm | 323.9 | 12413 | 23.16 | 11.78 | 203 |
| 394 | UMLNB2-BOR4 | BOR | 94 | 2249.98 | 1993.1 | Newbury | Massachusetts | CEP 324mm | 323.9 | 12413 | 23.16 | 21.11 | 365 |
| 395 | UMLNB3-EOD | EOD | 0 | 0 | 0.0 | Newbury | Massachusetts | PSC 356mm sq | 355.6 | 126451 | 23.16 | 20.42 | 230 |
| 396 | UMLNB3-BOR1 | BOR | 1 | 24.2 | 17.8 | Newbury | Massachusetts | PSC 356mm sq | 355.6 | 126451 | 23.47 | 20.57 | 231 |
| 397 | UMLNB3-BOR2 | BOR | 4 | 94.61 | 69.5 | Newbury | Massachusetts | PSC 356mm sq | 355.6 | 126451 | 23.47 | 20.67 | 232 |
| 398 | UMLNB3-BOR3 | BOR | 14 | 327.91 | 240.9 | Newbury | Massachusetts | PSC 356mm sq | 355.6 | 126451 | 23.16 | 20.70 | 233 |
| 399 | UMLNB3-BOR4 | BOR | 33 | 787.53 | 578.6 | Newbury | Massachusetts | PSC 356mm sq | 355.6 | 126451 | 23.16 | 20.79 | 234 |
| 400 | UMLNB3-BOR5 | BOR | 81 | 1939.13 | 1424.7 | Newbury | Massachusetts | PSC 356mm sq | 355.6 | 126451 | 23.16 | 20.82 | 234 |
| 401 | UMLNB3-BOR6 | BOR | 97 | 2322.53 | 1706.3 | Newbury | Massachusetts | PSC 356mm sq | 355.6 | 126451 | 23.16 | 20.85 | 235 |
| 402 | UMLNB3-BOR7 | BOR | 167 | 4004.09 | 2941.8 | Newbury | Massachusetts | PSC 356mm sq | 355.6 | 126451 | 23.16 | 21.34 | 240 |
| x | DN1-EOD | EOD | 0 | 0 | 0.0 | Alborg | Denmark | PSC 25mm sq | 25.0 | 625 | | | |
| x | DN1-BOR1 | BOR | 52 | 1248 | 287.5 | Alborg | Denmark | PSC 25mm sq | 25.0 | 625 | | | |
| x | DN1-BOR2 | BOR | 114 | 2736 | 630.4 | Alborg | Denmark | PSC 25mm sq | 25.0 | 625 | | | |
| x | DN1-BOR3 | BOR | 184 | 4416 | 1017.4 | Alborg | Denmark | PSC 25mm sq | 25.0 | 625 | | | |

**Table A.6 (con't).** Relevant Information Pertaining to Database PD/LTT2000.

| No. | Pile-Case Number | Soil Type | | | | Hammer Type | Rated Hammer Energy | Delivered Energy | Blow Count | Impedence EA/C | Vimp | Fimp | VEA/C F | Dmax | 2L/C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Side | Side used in Analysis | Tip | Tip used in Analysis | | (kN-m) | (kN-m) | (BP10cm) | (kN/m/s) | (m/s) | (kN) | | (mm) | (ms) |
| 1 | FN1-EOD | silty clay | clay & till | till | clay & till | D-30 | 73.5 | 23.5 | 11.1 | 323.0 | 4.04 | 1434.1 | 0.909 | 20.1 | 8.57 |
| 2 | FN1-BOR1 | silty clay | clay & till | till | clay & till | D-30 | 73.5 | 25.0 | 31.5 | 323.0 | 4.04 | 1402.1 | 0.930 | 20.7 | 8.57 |
| 3 | FN1-BOR2 | silty clay | clay & till | till | clay & till | D-30 | 73.5 | 27.3 | 59.1 | 323.0 | 3.97 | 1374.1 | 0.934 | 21.3 | 8.57 |
| 65 | FL3-EOD | silty clay | clay & till | silty sand | sand & silt | Vul-020 | 81.3 | 19.8 | 6.6* | 2973.4 | 1.00 | 3017.2 | 0.985 | 19.2 | 15.04 |
| 66 | FL3-BOR1 | silty clay | clay & till | silty sand | sand & silt | Vul-020 | 81.3 | 23.1 | 15.7 | 2973.4 | 1.13 | 3609.3 | 0.929 | 11.0 | 15.04 |
| 67 | FL3-BOR2 | silty clay | clay & till | silty sand | sand & silt | Vul-020 | 81.3 | 19.6 | 43.3 | 2973.4 | 1.13 | 3538.1 | 0.948 | 7.5 | 15.04 |
| 207 | CHA1-EOD | sa-si clay | clay & till | silty sand | sand & silt | Vul-200C | 67.8 | 47.3 | 66.9 | 367.3 | 3.29 | 1208.1 | 1.000 | 43.6 | 16.40 |
| 208 | CHA1-BOR1 | sa-si clay | clay & till | silty sand | sand & silt | Vul-200C | 67.8 | 41.8 | 189.0 | 367.3 | 3.68 | 1351.8 | 1.000 | 35.3 | 16.40 |
| 209 | CHA1-BOR2 | sa-si clay | clay & till | silty sand | sand & silt | Vul-200C | 67.8 | 49.9 | 315.0 | 367.3 | 4.12 | 1511.9 | 1.000 | 35.9 | 16.50 |
| 211 | CHB2-EOD | sa-si clay | clay & till | silty sand | sand & silt | Vul-010 | 44.1 | 34.3 | 3.0 | 489.9 | 4.05 | 2046.2 | 0.970 | 42.4 | 18.73 |
| 212 | CHB2-BOR1 | sa-si clay | clay & till | silty sand | sand & silt | Vul-010 | 44.1 | 24.8 | 9.8 | 489.9 | 3.57 | 1819.3 | 0.960 | 20.3 | 18.73 |
| 213 | CHB2-BOR3 | sa-si clay | clay & till | silty sand | sand & silt | Vul-010 | 44.1 | 28.7 | 24.6 | 489.9 | 3.84 | 2015.0 | 0.930 | 20.1 | 18.73 |
| 214 | CHB2-BOR4 | sa-si clay | clay & till | silty sand | sand & silt | 8tndrp | 65.1 | 47.3 | 15.7 | 489.9 | 3.26 | 1868.3 | 0.860 | 30.7 | 18.62 |
| 215 | CHB2-BOR5a | sa-si clay | clay & till | silty sand | sand & silt | Vul-010 | 44.1 | 40.5 | ? | 489.9 | 5.17 | 2064.0 | 0.914 | 28.4 | 18.14 |
| 216 | CHB2-BOR5b | sa-si clay | clay & till | silty sand | sand & silt | Vul-010 | 44.1 | 29.8 | ? | 489.9 | 6.01 | 2308.6 | 0.950 | 29.5 | 18.14 |
| 217 | CHB3-EOD | sa-si clay | clay & till | silty sand | sand & silt | Vul-010 | 44.1 | 25.5 | 3.9 | 489.2 | 3.84 | 1943.9 | 0.970 | 31.0 | 17.22 |
| 218 | CHB3-BOR1 | sa-si clay | clay & till | silty sand | sand & silt | Vul-010 | 44.1 | 19.1 | 7.9 | 489.2 | 3.17 | 1543.5 | 1.000 | 17.8 | 17.22 |
| 219 | CHB3-BOR2 | sa-si clay | clay & till | silty sand | sand & silt | Vul-010 | 44.1 | 25.5 | 8.6 | 489.2 | 3.69 | 1806.0 | 1.000 | 20.1 | 17.22 |
| 220 | CHB3-BOR3 | sa-si clay | clay & till | silty sand | sand & silt | 8tndrp | 65.1 | 38.4 | 9.4 | 489.2 | 3.20 | 1712.6 | 0.910 | 26.4 | 17.22 |
| 226 | CH39-EOD | silty clay | clay & till | silty clay | clay & till | Vul-010 | 44.1 | 21.2 | 3.3 | 427.5 | 3.99 | 1792.6 | 0.950 | 22.6 | 17.50 |
| 227 | CH39-BOR | silty clay | clay & till | silty clay | clay & till | Vul-010 | 44.1 | 26.7 | 62.6 | 427.5 | 4.36 | 1819.3 | 1.020 | 21.6 | 17.50 |
| 228 | CH39-BORL | silty clay | clay & till | silty clay | clay & till | Vul-010 | 44.1 | 19.7 | 196.9 | 651.9 | 2.90 | 1877.1 | 1.010 | 15.0 | 22.54 |
| 291 | LB3-EOD | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 34.1 | 3.3 | 3029.7 | 1.16 | 3545.2 | 0.990 | 42.2 | 11.55 |
| 292 | LB3-BOR1 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 28.4 | 6.9 | 3029.7 | 1.19 | 3817.5 | 0.940 | 21.2 | 11.55 |
| 293 | LB3-BOR2 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 23.8 | 23.6 | 2927.5 | 1.31 | 4148.0 | 0.930 | 11.2 | 11.95 |

**Table A.6 (con't).** Relevant Information Pertaining to Database PD/LTT2000.

| No. | Pile-Case Number | Soil Type | | | | Hammer Type | Rated Hammer Energy | Delivered Energy | Blow Count | Impedence EA/C | Vimp | Fimp | VEA/C F | Dmax | 2L/C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Side | Side used in Analysis | Tip | Tip used in Analysis | | (kN-m) | (kN-m) | (BP10cm) | (kN/m/s) | (m/s) | (kN) | | (mm) | (ms) |
| 294 | LB3-BOR3 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 19.8 | 47.2 | 2927.5 | 1.46 | 4208.9 | 1.020 | 9.2 | 11.95 |
| 295 | LB4-EOD | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 31.4 | 4.6 | 3954.9 | 1.92 | 6154.6 | 1.230 | 32.2 | 11.95 |
| 296 | LB4-BOR1 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 37.8 | 7.6 | 3954.9 | 1.65 | 6709.7 | 0.970 | 19.3 | 11.95 |
| 297 | LB4-BOR2 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 42.9 | 19.7 | 3954.9 | 1.80 | 7433.9 | 0.960 | 16.2 | 11.95 |
| 298 | LB4-BOR3 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 44.0 | 78.7 | 3954.9 | 1.86 | 7699.4 | 0.960 | 13.3 | 11.95 |
| 299 | LB4-BOR4 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 30.9 | 55.1 | 3954.9 | 1.25 | 5188.0 | 0.950 | 10.8 | 11.95 |
| 300 | LB5-EOD | clay | clay & till | Sand | sand & silt | D46-13 | 70.0 | 15.2 | 7.2 | 3954.9 | 0.82 | 3517.2 | 0.930 | 26.1 | 11.95 |
| 301 | LB5-BOR1 | clay | clay & till | Sand | sand & silt | D46-13 | 70.0 | 31.0 | 19.4 | 3954.9 | 1.19 | 4842.3 | 0.970 | 18.7 | 11.95 |
| 302 | LB5-BOR2 | clay | clay & till | Sand | sand & silt | D46-13 | 70.0 | 31.0 | 31.5 | 3954.9 | 1.16 | 5092.8 | 0.900 | 11.9 | 11.95 |
| 303 | LB5-BOR3 | clay | clay & till | Sand | sand & silt | D46-13 | 70.0 | 32.9 | 29.8 | 3954.9 | 1.19 | 5362.8 | 0.880 | 10.0 | 11.95 |
| 304 | LB5-BOR4 | clay | clay & till | Sand | sand & silt | D46-13 | 70.0 | 27.9 | >78.7 | 3954.9 | 1.13 | 4942.9 | 0.900 | 9.9 | 11.95 |
| 305 | LB6-EOD | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 20.7 | 4.9 | 3131.9 | 1.28 | 4002.1 | 1.000 | 28.0 | 11.43 |
| 306 | LB6-BOR1 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 27.6 | 11.1 | 3079.3 | 1.34 | 4304.1 | 0.960 | 17.0 | 11.43 |
| 307 | LB6-BOR2 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 27.4 | 21.0 | 3079.3 | 1.43 | 4674.2 | 0.940 | 11.2 | 11.43 |
| 308 | LB6-BOR3 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 20.3 | 53.1 | 3079.3 | 1.31 | 4431.8 | 0.910 | 7.5 | 11.43 |
| 309 | LB6-BOR4 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 27.6 | 37.1 | 3079.3 | 1.52 | 4973.1 | 0.940 | 7.8 | 11.43 |
| 310 | LB7-EOD | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 9.2 | 15.5 | 3079.3 | 1.19 | 2894.5 | 1.260 | 13.1 | 11.85 |
| 311 | LB7-BOR1 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 27.0 | 10.5 | 3079.3 | 1.34 | 4785.0 | 0.860 | 17.1 | 11.94 |
| 312 | LB7-BOR2 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 23.8 | 33.5 | 3079.3 | 1.31 | 4758.7 | 0.850 | 10.9 | 12.31 |
| 313 | LB7-BOR3 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 25.2 | 55.1 | 3079.3 | 1.43 | 5149.7 | 0.860 | 9.4 | 12.31 |
| 314 | LB7-BOR4 | clay | clay & till | Sand | sand & silt | D46-13 | 75.8 | 24.8 | 61.0 | 3079.3 | 1.43 | 5033.2 | 0.880 | 8.7 | 12.31 |
| 319 | NBTP2-EOD | si-sa-clay | clay & till | glacial till | clay & till | HPSI 1000 | 67.8 | 39.9 | 11.8 | 567.8 | 4.94 | 2900.2 | 0.967 | 30.0 | 13.86 |
| 320 | NBTP2-1DR | si-sa-clay | clay & till | glacial till | clay & till | HPSI 1000 | 67.8 | 45.6 | 7.9 | 567.8 | 5.39 | 3087.1 | 0.992 | 30.0 | 13.86 |
| 321 | NBTP2-6DR | si-sa-clay | clay & till | glacial till | clay & till | HPSI 1000 | 67.8 | 39.0 | 39.4 | 567.8 | 4.91 | 2797.9 | 0.996 | 26.4 | 13.86 |
| 322 | NBTP3-EOD | si-sa-clay | clay & till | silty sand | sand & silt | HPSI 1000 | 67.8 | 43.9 | 15.7 | 567.8 | 5.30 | 3060.4 | 0.984 | 29.7 | 13.86 |

**Table A.6 (con't).** Relevant Information Pertaining to Database PD/LTT2000.

| No. | Pile-Case Number | Soil Type | | | | Hammer Type | Rated Hammer Energy | Delivered Energy | Blow Count | Impedence EA/C | Vimp | Fimp | VEA/C F | Dmax | 2L/C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Side | Side used in Analysis | Tip | Tip used in Analysis | | (kN-m) | (kN-m) | (BP10cm) | (kN/m/s) | (m/s) | (kN) | | (mm) | (ms) |
| 323 | NBTP3-1DR | si-sa-clay | clay & till | silty sand | sand & silt | HPSI 1000 | 67.8 | 38.8 | 19.7 | 567.8 | 5.06 | 2846.9 | 1.009 | 27.7 | 13.86 |
| 324 | NBTP3-6DR | si-sa-clay | clay & till | silty sand | sand & silt | HPSI 1000 | 67.8 | 45.8 | 19.7 | 567.8 | 5.36 | 3064.8 | 0.994 | 28.7 | 13.86 |
| 390 | UMLNB2-EOD | sa-si-clay | clay & till | sand | sand & silt | D19-32 | 57.5 | 23.6 | 3.9 | 501.2 | 1.51 | 698.4 | 1.083 | 34.0 | 9.04 |
| 391 | UMLNB2-BOR1 | sa-si-clay | clay & till | sand | sand & silt | D19-32 | 57.5 | 27.3 | 6.5 | 501.2 | 5.24 | 2606.7 | 1.008 | 24.4 | 8.05 |
| 392 | UMLNB2-BOR2 | sa-si-clay | clay & till | sand | sand & silt | D19-32 | 57.5 | 14.4 | 9.8 | 501.2 | 3.87 | 1765.9 | 1.099 | 15.0 | 8.14 |
| 393 | UMLNB2-BOR3 | sa-si-clay | clay & till | sand | sand & silt | D19-32 | 57.5 | 22.9 | 12.7 | 501.2 | 1.68 | 742.9 | 1.135 | 17.5 | 8.17 |
| 394 | UMLNB2-BOR4 | sa-si-clay | clay & till | sand | sand & silt | D30-32 | 99.9 | 20.3 | 7.4 | 501.2 | 3.90 | 2228.6 | 0.877 | 15.0 | 8.24 |
| 395 | UMLNB3-EOD | sa-si-clay | clay & till | sand | sand & silt | HPSI-1000 | 67.8 | 34.0 | 3.9 | 1198.2 | 2.41 | 2931.4 | 0.984 | 30.0 | 11.40 |
| 396 | UMLNB3-BOR1 | sa-si-clay | clay & till | sand | sand & silt | HPSI-1000 | 67.8 | 14.5 | 22.0 | 1198.2 | 1.22 | 1645.8 | 0.888 | 12.7 | 11.55 |
| 397 | UMLNB3-BOR2 | sa-si-clay | clay & till | sand | sand & silt | HPSI-1000 | 67.8 | 27.8 | 11.6 | 1198.2 | 1.98 | 2593.3 | 0.915 | 18.3 | 11.55 |
| 398 | UMLNB3-BOR3 | sa-si-clay | clay & till | sand | sand & silt | HPSI-1000 | 67.8 | 23.5 | 17.1 | 1198.2 | 1.55 | 2161.8 | 0.862 | 15.5 | 11.40 |
| 399 | UMLNB3-BOR4 | sa-si-clay | clay & till | sand | sand & silt | HPSI-1000 | 67.8 | 21.7 | 20.7 | 1198.2 | 1.71 | 2473.2 | 0.827 | 14.2 | 11.40 |
| 400 | UMLNB3-BOR5 | sa-si-clay | clay & till | sand | sand & silt | D19-32 | 58.0 | 15.6 | 21.9 | 1198.2 | 2.26 | 3220.5 | 0.839 | 7.4 | 11.40 |
| 401 | UMLNB3-BOR6 | sa-si-clay | clay & till | sand | sand & silt | D19-32 | 58.0 | 17.8 | 56.3 | 1198.2 | 2.35 | 3136.0 | 0.897 | 9.1 | 11.40 |
| 402 | UMLNB3-BOR7 | sa-si-clay | clay & till | sand | sand & silt | D30-32 | 99.9 | 40.7 | 24.6 | 1198.2 | 3.47 | 4759.6 | 0.875 | 16.3 | 11.40 |
| x | DN1-EOD | sand & clay | clay & till | sand | sand & silt | UDD H5H | 15.0 | | | | | | | | |
| x | DN1-BOR1 | sand & clay | clay & till | sand | sand & silt | UDD H5H | 30.0 | | | | | | | | |
| x | DN1-BOR2 | sand & clay | clay & till | sand | sand & silt | UDD H5H | 30.0 | | | | | | | | |
| x | DN1-BOR3 | sand & clay | clay & till | sand | sand & silt | UDD H5H | 40.0 | | | | | | | | |

**Table A.6 (con't).** Relevant Information Pertaining to Database PD/LTT2000.

| No. | Pile-Case Number | Tip Quake | Side Quake | Tip Damping | Side Damping | Load Test Type | Davisson's Criteria | Shape of Curve | Average Shape of Curve | Δ=1" | Δ=0.1B | DeBeer | Average DeBeer | Static Resist Rs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (mm) | (mm) | (sec/m) | (sec/m) | | (kN) | (kN) | (kN) | (kN) | (kN) | (kN) | (kN) | (kN) |
| 1 | FN1-EOD | 5.080 | 2.540 | 0.230 | 0.558 | Q | 1352 | 1334 | 1334 | 1352 | 1352 | 1334 | 1334 | 1334 |
| 2 | FN1-BOR1 | 2.540 | 2.540 | 1.312 | 0.427 | Q | 1352 | 1334 | 1334 | 1352 | 1352 | 1334 | 1334 | 1334 |
| 3 | FN1-BOR2 | 2.540 | 2.540 | 1.903 | 0.361 | Q | 1352 | 1334 | 1334 | 1352 | 1352 | 1334 | 1334 | 1334 |
| 65 | FL3-EOD | 10.160 | 2.540 | 0.807 | 0.883 | LLT | 1779 | 1779 | 1779 | NA | NA | 1779 | 1779 | 1779 |
| 66 | FL3-BOR1 | 6.350 | 3.810 | 1.240 | 1.286 | LLT | 1779 | 1779 | 1779 | NA | NA | 1779 | 1779 | 1779 |
| 67 | FL3-BOR2 | 6.350 | 3.150 | 1.716 | 1.663 | LLT | 1779 | 1779 | 1779 | NA | NA | 1779 | 1779 | 1779 |
| 207 | CHA1-EOD | 3.810 | 2.540 | 0.131 | 0.331 | Q | 2909 | 2785-3034 | 2909 | 2785 | 2918 | 2669-3034 | 2851 | 2878 |
| 208 | CHA1-BOR1 | 1.016 | 1.016 | 0.023 | 1.411 | Q | 2909 | 2785-3034 | 2909 | 2785 | 2918 | 2669-3034 | 2851 | 2878 |
| 209 | CHA1-BOR2 | 0.762 | 0.762 | 0.023 | 0.180 | Q | 2909 | 2785-3034 | 2909 | 2785 | 2918 | 2669-3034 | 2851 | 2878 |
| 211 | CHB2-EOD | 3.048 | 3.048 | 0.282 | 0.233 | Q | 1343 | 1246-1957 | 1601 | 1246 | 1334 | 1174-1779 | 1477 | 1401 |
| 212 | CHB2-BOR1 | 3.048 | 3.048 | 0.276 | 0.262 | Q | 1343 | 1246-1957 | 1601 | 1246 | 1334 | 1174-1779 | 1477 | 1401 |
| 213 | CHB2-BOR3 | 3.048 | 3.048 | 0.262 | 0.259 | Q | 1343 | 1246-1957 | 1601 | 1246 | 1334 | 1174-1779 | 1477 | 1401 |
| 214 | CHB2-BOR4 | 3.048 | 3.048 | 0.210 | 0.213 | Q | 1343 | 1246-1957 | 1601 | 1246 | 1334 | 1174-1779 | 1477 | 1401 |
| 215 | CHB2-BOR5a | 3.048 | 3.048 | 0.413 | 2.493 | Q | 1343 | 1246-1957 | 1601 | 1246 | 1334 | 1174-1779 | 1477 | 1401 |
| 216 | CHB2-BOR5b | 2.286 | 2.286 | 2.133 | 0.226 | Q | 1343 | 1246-1957 | 1601 | 1246 | 1334 | 1174-1779 | 1477 | 1401 |
| 217 | CHB3-EOD | 2.540 | 2.540 | 0.377 | 0.394 | Q | 890 | 783-1094 | 939 | 943 | 996 | 827 | 827 | 952 |
| 218 | CHB3-BOR1 | 2.540 | 2.540 | 0.285 | 0.358 | Q | 890 | 783-1094 | 939 | 943 | 996 | 827 | 827 | 952 |
| 219 | CHB3-BOR2 | 2.540 | 2.032 | 0.299 | 0.381 | Q | 890 | 783-1094 | 939 | 943 | 996 | 827 | 827 | 952 |
| 220 | CHB3-BOR3 | 3.048 | 3.05-5.59 | 0.223 | 0.341 | Q | 890 | 783-1094 | 939 | 943 | 996 | 827 | 827 | 952 |
| 226 | CH39-EOD | 3.810 | 3.810 | 0.436 | 0.075 | Q | 2936 | 2829-2936 | 2882 | 2473 | 2322 | 2936 | 2936 | 2918 |
| 227 | CH39-BOR | 3.556 | 3.556 | 0.210 | 0.210 | Q | 2936 | 2829-2936 | 2882 | 2473 | 2322 | 2936 | 2936 | 2918 |
| 228 | CH39-BORL | 3.302 | 3.810 | 0.102 | 0.128 | Q | 2936 | 2829-2936 | 2882 | 2473 | 2322 | 2936 | 2936 | 2918 |
| 291 | LB3-EOD | 13.970 | 13.970 | 1.329 | 0.669 | | 1842 | 1761 | 1761 | NA | NA | 1779 | 1779 | 1770 |
| 292 | LB3-BOR1 | 3.048 | 3.048 | 1.404 | 0.367 | | 1842 | 1761 | 1761 | NA | NA | 1779 | 1779 | 1770 |
| 293 | LB3-BOR2 | 4.572 | 3.302 | 1.243 | 0.696 | | 1842 | 1761 | 1761 | NA | NA | 1779 | 1779 | 1770 |

**Table A.6 (con't).** Relevant Information Pertaining to Database PD/LTT2000.

| No. | Pile-Case Number | Tip Quake | Side Quake | Tip Damping | Side Damping | Load Test Type | Davisson's Criteria | Shape of Curve | Average Shape of Curve | Δ=1" | Δ=0.1B | DeBeer | Average DeBeer | Static Resist Rs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (mm) | (mm) | (sec/m) | (sec/m) | | (kN) | (kN) | (kN) | (kN) | (kN) | (kN) | (kN) | (kN) |
| 294 | LB3-BOR3 | 4.826 | 4.826 | 0.909 | 0.955 | | 1842 | 1761 | 1761 | NA | NA | 1779 | 1779 | 1770 |
| 295 | LB4-EOD | 20.320 | 5.080 | 1.388 | 1.388 | | 2273 | 2002 | 2002 | NA | NA | 2015 | 2015 | 2015 |
| 296 | LB4-BOR1 | 19.050 | 3.048 | 1.427 | 1.004 | | 2273 | 2002 | 2002 | NA | NA | 2015 | 2015 | 2015 |
| 297 | LB4-BOR2 | 7.620 | 5.080 | 1.191 | 1.309 | | 2273 | 2002 | 2002 | NA | NA | 2015 | 2015 | 2015 |
| 298 | LB4-BOR3 | 7.620 | 4.445 | 1.109 | 1.519 | | 2273 | 2002 | 2002 | NA | NA | 2015 | 2015 | 2015 |
| 299 | LB4-BOR4 | 9.398 | 3.556 | 1.135 | 1.578 | | 2273 | 2002 | 2002 | NA | NA | 2015 | 2015 | 2015 |
| 300 | LB5-EOD | 17.780 | 5.080 | 0.331 | 0.331 | | 2469 | 1926 | 1926 | NA | NA | 1810 | 1810 | 1868 |
| 301 | LB5-BOR1 | 17.780 | 5.080 | 0.666 | 1.473 | | 2469 | 1926 | 1926 | NA | NA | 1810 | 1810 | 1868 |
| 302 | LB5-BOR2 | 10.668 | 5.080 | 1.093 | 1.552 | | 2469 | 1926 | 1926 | NA | NA | 1810 | 1810 | 1868 |
| 303 | LB5-BOR3 | 8.890 | 4.318 | 1.562 | 1.608 | | 2469 | 1926 | 1926 | NA | NA | 1810 | 1810 | 1868 |
| 304 | LB5-BOR4 | 9.525 | 5.842 | 1.404 | 1.178 | | 2469 | 1926 | 1926 | NA | NA | 1810 | 1810 | 1868 |
| 305 | LB6-EOD | 22.860 | 2.540 | 0.328 | 0.522 | | 2411 | 2019 | 2019 | NA | NA | 2166 | 2166 | 2095 |
| 306 | LB6-BOR1 | 13.970 | 5.080 | 0.919 | 0.965 | | 2411 | 2019 | 2019 | NA | NA | 2166 | 2166 | 2095 |
| 307 | LB6-BOR2 | 3.810 | 3.810 | 0.909 | 1.378 | | 2411 | 2019 | 2019 | NA | NA | 2166 | 2166 | 2095 |
| 308 | LB6-BOR3 | 6.731 | 3.048 | 0.981 | 1.106 | | 2411 | 2019 | 2019 | NA | NA | 2166 | 2166 | 2095 |
| 309 | LB6-BOR4 | 7.239 | 3.048 | 0.591 | 0.823 | | 2411 | 2019 | 2019 | NA | NA | 2166 | 2166 | 2095 |
| 310 | LB7-EOD | 6.350 | 3.810 | 0.577 | 0.758 | | 2402 | 2206 | 2206 | NA | NA | 2135 | 2135 | 2171 |
| 311 | LB7-BOR1 | 15.240 | 7.620 | 1.165 | 0.896 | | 2402 | 2206 | 2206 | NA | NA | 2135 | 2135 | 2171 |
| 312 | LB7-BOR2 | 8.128 | 7.620 | 0.623 | 1.135 | | 2402 | 2206 | 2206 | NA | NA | 2135 | 2135 | 2171 |
| 313 | LB7-BOR3 | 9.779 | 5.588 | 1.014 | 0.686 | | 2402 | 2206 | 2206 | NA | NA | 2135 | 2135 | 2171 |
| 314 | LB7-BOR4 | 7.112 | 5.080 | 0.833 | 0.827 | | 2402 | 2206 | 2206 | NA | NA | 2135 | 2135 | 2171 |
| 319 | NBTP2-EOD | 1.270 | 5.715 | 0.039 | 0.138 | SD | 1806 | 1806-1993 | 1899 | 1713 | 1904 | 1922 | 1922 | 1849 |
| 320 | NBTP2-1DR | 1.270 | 5.334 | 0.046 | 0.135 | SD | 1806 | 1806-1993 | 1899 | 1713 | 1904 | 1922 | 1922 | 1849 |
| 321 | NBTP2-6DR | 1.270 | 6.350 | 0.066 | 0.135 | SD | 1806 | 1806-1993 | 1899 | 1713 | 1904 | 1922 | 1922 | 1849 |
| 322 | NBTP3-EOD | 6.604 | 1.270 | 0.305 | 0.092 | SD | 2126 | NA | NA | 1757 | 2100 | NA | NA | 1994 |

**Table A.6 (con't).** Relevant Information Pertaining to Database PD/LTT2000.

| No. | Pile-Case Number | Tip Quake | Side Quake | Tip Damping | Side Damping | Load Test Type | Davisson's Criteria | Shape of Curve | Average Shape of Curve | Δ=1" | Δ=0.1B | DeBeer | Average DeBeer | Static Resist Rs |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | (mm) | (mm) | (sec/m) | (sec/m) | | (kN) | (kN) | (kN) | (kN) | (kN) | (kN) | (kN) | (kN) |
| 323 | NBTP3-1DR | 6.350 | 1.270 | 0.285 | 0.056 | SD | 2126 | NA | NA | 1757 | 2100 | NA | NA | 1994 |
| 324 | NBTP3-6DR | 6.858 | 1.270 | 0.289 | 0.062 | SD | 2126 | NA | NA | 1757 | 2100 | NA | NA | 1994 |
| 390 | UMLNB2-EOD | 23.774 | 1.270 | 0.226 | 0.761 | SM | 667 | 667 | 667 | 667 | 667 | 667 | 667 | 667 |
| 391 | UMLNB2-BOR1 | 13.411 | 1.016 | 0.167 | 0.820 | SM | 667 | 667 | 667 | 667 | 667 | 667 | 667 | 667 |
| 392 | UMLNB2-BOR2 | 8.255 | 2.032 | 0.505 | 0.669 | SM | 667 | 667 | 667 | 667 | 667 | 667 | 667 | 667 |
| 393 | UMLNB2-BOR3 | 11.227 | 1.626 | 0.427 | 0.262 | SM | 667 | 667 | 667 | 667 | 667 | 667 | 667 | 667 |
| 394 | UMLNB2-BOR4 | 12.446 | 2.032 | 0.397 | 0.000 | SM | 667 | 667 | 667 | 667 | 667 | 667 | 667 | 667 |
| 395 | UMLNB3-EOD | 7.366 | 3.048 | 0.157 | 0.679 | SM | 783 | 667-783 | 778 | 876 | NA | 801 | 801 | 810 |
| 396 | UMLNB3-BOR1 | 10.668 | 0.991 | 0.200 | 1.102 | SM | 783 | 667-784 | 778 | 876 | NA | 801 | 801 | 810 |
| 397 | UMLNB3-BOR2 | 16.688 | 1.016 | 0.423 | 0.663 | SM | 783 | 667-785 | 778 | 876 | NA | 801 | 801 | 810 |
| 398 | UMLNB3-BOR3 | 10.897 | 2.616 | 0.787 | 0.817 | SM | 783 | 667-786 | 778 | 876 | NA | 801 | 801 | 810 |
| 399 | UMLNB3-BOR4 | | | 0.000 | 0.000 | SM | 783 | 667-787 | 778 | 876 | NA | 801 | 801 | 810 |
| 400 | UMLNB3-BOR5 | 6.350 | 2.540 | 0.705 | 1.106 | SM | 783 | 667-788 | 778 | 876 | NA | 801 | 801 | 810 |
| 401 | UMLNB3-BOR6 | 6.147 | 1.041 | 0.981 | 1.056 | SM | 783 | 667-789 | 778 | 876 | NA | 801 | 801 | 810 |
| 402 | UMLNB3-BOR7 | 7.798 | 6.350 | 0.489 | 1.378 | SM | 783 | 667-790 | 778 | 876 | NA | 801 | 801 | 810 |
| x | DN1-EOD | | | | | | | | | | | | | 1250 |
| x | DN1-BOR1 | | | | | | | | | | | | | 1250 |
| x | DN1-BOR2 | | | | | | | | | | | | | 1250 |
| x | DN1-BOR3 | | | | | | | | | | | | | 1250 |

**Table A.6 (con't).** Relevant Information Pertaining to Database PD/LTT2000.

| No. | Pile-Case Number | CAPWAP TEPWAP Rc (kN) | Energy Appr. Ru (kN) | Ksp Rd Ru | Ksw Rd Rc | Kws Rc Rs |
|---|---|---|---|---|---|---|
| 1 | FN1-EOD | 1023 | 1610 | 0.840 | 1.322 | 0.767 |
| 2 | FN1-BOR1 | 1668 | 2153 | 0.628 | 0.811 | 1.250 |
| 3 | FN1-BOR2 | 1917 | 2380 | 0.568 | 0.705 | 1.437 |
| 65 | FL3-EOD | 605 | 1148 | 1.550 | 2.941 | 0.340 |
| 66 | FL3-BOR1 | 1210 | 2660 | 0.669 | 1.471 | 0.680 |
| 67 | FL3-BOR2 | 1557 | 3972 | 0.448 | 1.143 | 0.875 |
| 207 | CHA1-EOD | 1735 | 2100 | 1.386 | 1.677 | 0.603 |
| 208 | CHA1-BOR1 | 2068 | 2335 | 1.246 | 1.406 | 0.719 |
| 209 | CHA1-BOR2 | 2304 | 2758 | 1.055 | 1.263 | 0.801 |
| 211 | CHB2-EOD | 489 | 899 | 1.495 | 2.745 | 0.349 |
| 212 | CHB2-BOR1 | 1201 | 1628 | 0.825 | 1.119 | 0.857 |
| 213 | CHB2-BOR3 | 1512 | 2384 | 0.563 | 0.888 | 1.079 |
| 214 | CHB2-BOR4 | 2002 | 2553 | 0.526 | 0.671 | 1.429 |
| 215 | CHB2-BOR5a | 2291 | | | 0.586 | 1.635 |
| 216 | CHB2-BOR5b | 2126 | | | 0.632 | 1.517 |
| 217 | CHB3-EOD | 467 | 903 | 0.985 | 1.905 | 0.491 |
| 218 | CHB3-BOR1 | 1045 | 1254 | 0.709 | 0.851 | 1.098 |
| 219 | CHB3-BOR2 | 979 | 1606 | 0.554 | 0.909 | 1.028 |
| 220 | CHB3-BOR3 | 1490 | 2073 | 0.429 | 0.597 | 1.565 |
| 226 | CH39-EOD | 832 | 796 | 3.687 | 3.529 | 0.285 |
| 227 | CH39-BOR | 2046 | 2304 | 1.274 | 1.435 | 0.701 |
| 228 | CH39-BORL | 2558 | 2535 | 1.158 | 1.148 | 0.877 |
| 291 | LB3-EOD | 269 | 939 | 1.960 | 6.854 | 0.152 |
| 292 | LB3-BOR1 | 912 | 1592 | 1.157 | 2.020 | 0.515 |
| 293 | LB3-BOR2 | 1534 | 3075 | 0.599 | 1.200 | 0.867 |

**Table A.6 (con't).** Relevant Information Pertaining to Database PD/LTT2000.

| No. | Pile-Case Number | CAPWAP TEPWAP Rc (kN) | Energy Appr. Ru (kN) | Ksp Rd Ru | Ksw Rd Rc | Kws Rc Rs |
|---|---|---|---|---|---|---|
| 294 | LB3-BOR3 | 1677 | 3479 | 0.529 | 1.098 | 0.947 |
| 295 | LB4-EOD | 202 | 1163 | 1.954 | 11.256 | 0.100 |
| 296 | LB4-BOR1 | 887 | 2325 | 0.978 | 2.561 | 0.440 |
| 297 | LB4-BOR2 | 1299 | 4039 | 0.563 | 1.749 | 0.645 |
| 298 | LB4-BOR3 | 1521 | 6042 | 0.376 | 1.495 | 0.755 |
| 299 | LB4-BOR4 | 1603 | 4881 | 0.466 | 1.418 | 0.796 |
| 300 | LB5-EOD | 263 | 774 | 3.188 | 9.375 | 0.141 |
| 301 | LB5-BOR1 | 952 | 2601 | 0.949 | 2.593 | 0.510 |
| 302 | LB5-BOR2 | 1402 | 4110 | 0.601 | 1.761 | 0.750 |
| 303 | LB5-BOR3 | 1591 | 4940 | 0.500 | 1.552 | 0.851 |
| 304 | LB5-BOR4 | 1752 | ? | | 1.409 | 0.938 |
| 305 | LB6-EOD | 404 | 857 | 2.813 | 5.969 | 0.193 |
| 306 | LB6-BOR1 | 883 | 2119 | 1.138 | 2.730 | 0.421 |
| 307 | LB6-BOR2 | 1322 | 3443 | 0.700 | 1.824 | 0.631 |
| 308 | LB6-BOR3 | 1767 | 4318 | 0.558 | 1.365 | 0.843 |
| 309 | LB6-BOR4 | 2300 | 5256 | 0.459 | 1.048 | 1.098 |
| 310 | LB7-EOD | 457 | 931 | 2.580 | 5.258 | 0.210 |
| 311 | LB7-BOR1 | 875 | 2033 | 1.181 | 2.744 | 0.403 |
| 312 | LB7-BOR2 | 1279 | 3419 | 0.702 | 1.878 | 0.589 |
| 313 | LB7-BOR3 | 1891 | 4489 | 0.535 | 1.270 | 0.871 |
| 314 | LB7-BOR4 | 2260 | 4803 | 0.500 | 1.063 | 1.041 |
| 319 | NBTP2-EOD | 1352 | 2091 | 0.864 | 1.336 | 0.731 |
| 320 | NBTP2-1DR | 1601 | 2135 | 0.846 | 1.128 | 0.866 |
| 321 | NBTP2-6DR | 1686 | 2713 | 0.666 | 1.071 | 0.912 |
| 322 | NBTP3-EOD | 1401 | 2402 | 0.885 | 1.517 | 0.703 |

**Table A.6 (con't).** Relevant Information Pertaining to Database PD/LTT2000.

| No. | Pile-Case Number | CAPWAP TEPWAP Rc (kN) | Energy Appr. Ru (kN) | Ksp Rd Ru | Ksw Rd Rc | Kws Rc Rs |
|---|---|---|---|---|---|---|
| 323 | NBTP3-1DR | 1601 | 2402 | 0.885 | 1.328 | 0.803 |
| 324 | NBTP3-6DR | 1713 | 2669 | 0.797 | 1.242 | 0.859 |
| 390 | UMLNB2-EOD | 414 | 792 | 0.843 | 1.613 | 0.620 |
| 391 | UMLNB2-BOR1 | 487 | 1370 | 0.487 | 1.371 | 0.729 |
| 392 | UMLNB2-BOR2 | 593 | 1139 | 0.586 | 1.124 | 0.889 |
| 393 | UMLNB2-BOR3 | 857 | 1806 | 0.369 | 0.779 | 1.284 |
| 394 | UMLNB2-BOR4 | 1108 | 1432 | 0.466 | 0.602 | 1.661 |
| 395 | UMLNB3-EOD | 737 | 1228 | 0.638 | 1.062 | 0.910 |
| 396 | UMLNB3-BOR1 | 960 | 1650 | 0.474 | 0.815 | 1.186 |
| 397 | UMLNB3-BOR2 | 1055 | 2064 | 0.379 | 0.742 | 1.303 |
| 398 | UMLNB3-BOR3 | 1072 | 2206 | 0.355 | 0.730 | 1.325 |
| 399 | UMLNB3-BOR4 | | 2273 | 0.344 | | |
| 400 | UMLNB3-BOR5 | 1091 | 2602 | 0.301 | 0.717 | 1.348 |
| 401 | UMLNB3-BOR6 | 1060 | 3567 | 0.219 | 0.739 | 1.309 |
| 402 | UMLNB3-BOR7 | 1228 | 4075 | 0.192 | 0.638 | 1.516 |
| x | DN1-EOD | 600 | | | | 0.480 |
| x | DN1-BOR1 | 1335 | | | | 1.068 |
| x | DN1-BOR2 | 1502 | | | | 1.202 |
| x | DN1-BOR3 | 1572 | | | | 1.258 |

# APPENDIX B

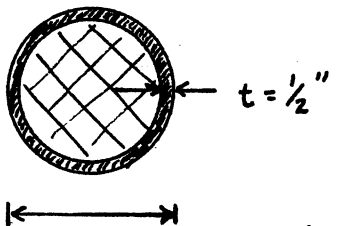
# BACKGROUND CALCULATIONS FOR

# CASE HISTORIES PRESENTED IN CHAPTER 2

# Newbury Site Project, Test Pile # 2

## Pile Dimensions

Steel Pipe Pile:



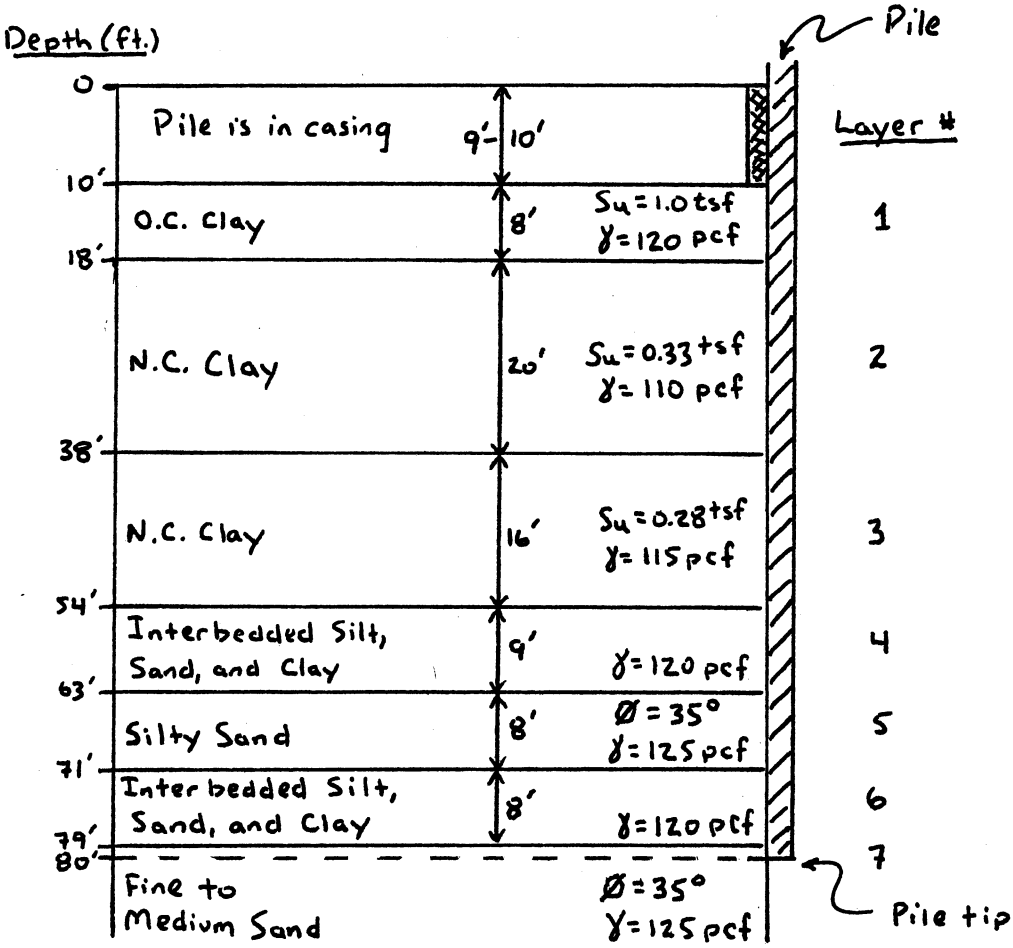

Embedment Length, $D_b$, $D_b'$

$D_b$ = 80 ft

$D_b'$ = 80 ft − 9 ft = 71 ft
(↑ casing)

$A_p = \pi (12.75^{in})^2/4 = 127.7\ in^2 = 0.8866\ ft^2$

## Soil Profile:



## Calculations to determine $Q_{ult}$ using traditional methods:

$\phi_{@tip} = 35°$ ;

$\sigma_v'_{@tip} = q_{@tip} = 125\,^{lb}/_{ft^3} \times 5.4\,ft + (125 - 62.4)\,^{lb}/_{ft^3} \times 2.6\,ft$
$+ (101 - 62.4)\,^{lb}/_{ft^3} \times 1\,ft + (120 - 62.4)\,^{lb}/_{ft^3} \times 9\,ft + (110 - 62.4)\,^{lb}/_{ft^3} \times 20\,ft$
$+ (115 - 62.4)\,^{lb}/_{ft^3} \times 16\,ft + (120 - 62.4)\,^{lb}/_{ft^3} \times 9\,ft + (125 - 62.4)\,^{lb}/_{ft^3} \times 8\,ft$
$+ (120 - 62.4)\,^{lb}/_{ft^3} \times 8\,ft + (125 - 62.4)\,^{lb}/_{ft^3} \times 1\,ft$

$= 4{,}731.0\,^{lb}/_{ft^2} = 2.37\,tsf$

### *Find $Q_p$:

General Values:

- Coyle & Castello:

$D_b/B = 80\,ft/1.0625\,ft = 75$
$\phi_{@tip} = 35°$
$\Rightarrow q_p = \underline{125\,tsf}$

- API:

$q_{p\,max} = 200\,^{k}/_{ft^2} = 100\,tsf$ ; $N_q = 40$
$q_p = 2.37\,tsf \times 40 = \underline{95\,tsf} < 100\,tsf$ O.K.

Meyerhof: $q_p = \sigma_v' \cdot N_q \leq \sigma_v'(@\,D_c) \cdot N_q$

$\sigma_v' = 2.37\,tsf$ $\qquad D_c/B = 11 \Rightarrow D_c = 12\,ft$
from chart with $\phi = 35° \Rightarrow N_q = 48$

$\sigma_v'(@12ft) = 125\,^{lb}/_{ft^3} \times 5.5\,ft + (125 - 62.4)\,^{lb}/_{ft^3} \times 2.5\,ft + (101 - 62.4)\,^{lb}/_{ft^3} \times 1\,ft$
$+ (120 - 62.4)\,^{lb}/_{ft^3} \times 3\,ft$

$= 1{,}055.4\,^{lb}/_{ft^2} = 0.53\,tsf$

$q_p = 2.37\,tsf \times 48 = 114\,tsf \leq 0.53\,tsf \times 48 = \underline{25\,tsf}$

**Vesic - Simplified:** $q_p = \sigma_o \cdot N_q$

$\phi = 35^\circ \rightarrow$ from chart $N_q = 60$

$K_o = 1 - \sin\phi = 1 - \sin 35^\circ = 0.43$

$\sigma_o = q \cdot \frac{(1 + 2 \cdot K_o)}{3} = 2.37^{tsf} \frac{(1 + 2 \cdot 0.43)}{3} = 1.47^{tsf}$

$q_p = 1.47^{tsf} \times 60 = \underline{88^{tsf}}$

**Vesic - Advanced:** $q_p = N_\sigma \cdot \sigma_o$

from above $\sigma_o = 1.47^{tsf}$ $\qquad I_{rr} = \frac{I_r}{1 + I_r \cdot \Delta}$

from table $I_r \approx 125$

say $\epsilon_{v_{min}} = 10\% = \Delta \Rightarrow I_{rr} = \frac{125}{1 + 125 \times 0.1} \approx 10$

maximum boundary $I_r = I_{rr} = 125$

from graph for $\phi = 35^\circ$

for $I_{rr} = 10 \Rightarrow N_\sigma = 34$

for $I_{rr} = 125 \Rightarrow N_\sigma = 95$

$q_{p(min)} = 34 \times 1.47^{tsf} = 50$

$q_{p(max)} = 95 \times 1.47^{tsf} = 140$

$\Rightarrow q_{p(avg)} = \underline{95^{tsf}}$

**Berezantzev:** $q_p = N_q (\sigma_v' \cdot \alpha_T)$

$D/B = 75 > 25 \therefore$ use 25 with $\phi = 35^\circ$

from table $\alpha_T = 0.65$

from graph with $\phi = 35^\circ \Rightarrow N_q = 75$

$q_p = 75 (2.37^{tsf} \times 0.65) = \underline{116^{tsf}}$

**SPT:** $q_p = 0.4 \cdot N_{corr} \times D_b/B \leq 4 \cdot N_{corr}$

$N_{@tip} = 24$; $\sigma'_{v@tip} = 2.37^{tsf}$

$N_{corr} = N \cdot \sqrt{1/\sigma_v'} = 24 \cdot \sqrt{\frac{1}{2.37^{tsf}}} = 15.6$

$q_p = 0.4 \times 15.6 \times \frac{80^{ft}}{1.0625^{ft}} = 470^{tsf} \leq 4 \times 15.6 = \underline{62^{tsf}}$

## Summary of $q_p$ to get $Q_p$:

| Method | $q_p$ |
|---|---|
| Coyle & Castello | 125 tsf |
| API | 95 tsf |
| Meyerhof | 25 tsf |
| Vesic - Simplified | 88 tsf |
| Vesic - Advanced | 95 tsf |
| Berezantzev | 116 tsf |
| SPT | 62 tsf |
| | $\Sigma$ = 606 tsf |

$$q_{p(avg)} = \frac{606 \text{ tsf}}{7} = \underline{\underline{87 \text{ tsf}}}$$

$$Q_p = q_p \cdot A_p$$

$$= 87 \text{ tsf} \times 0.8866 \text{ ft}^2 = \boxed{\underline{\underline{77 \text{ tons}}}}$$

* Find $Q_s$: (break up into layers according to different soil types, see Soil Profile)

**Layer #1** O.C. Clay $S_u = 1.0$ tsf

$\alpha$ method: $f_s = \alpha \cdot S_u$

$\theta_v'$ (@ midpoint) = 0.58 tsf (from Eff. Stress vs. Depth graph)

$\psi = S_u / \theta_v' = 1.0^{tsf} / 0.58^{tsf} = 1.72 > 1.0$

$\therefore \alpha = 0.5 \cdot \psi^{-0.25}$

$\alpha = 0.5\,(1.72)^{-0.25} = 0.44 < 1.0$ o.k.

$q_s = f_s = 0.44 \times 1.0^{tsf} = 0.44^{tsf}$

$Q_{s(1)} = f_s \cdot A_s = 0.44^{tsf} \times (\pi \times 1.0625^{ft} \times 8^{ft})$

$$Q_{s(1)} = \underline{12^{tons}}$$

$\lambda$ method: $f_s = \lambda(\theta_v' + 2 \cdot S_u)$

$\theta_{v_m}' = 0.58^{tsf}$ (from above)

from figure with $D_b = 80^{ft} \Rightarrow \lambda = 0.15$

$q_s = f_s = 0.15\,(0.58^{tsf} + 2 \times 1.0^{tsf}) = 0.39^{tsf}$

$Q_{s(1)} = f_s \cdot A_s = 0.39^{tsf} \times (\pi \times 1.0625^{ft} \times 8^{ft})$

$$Q_{s(1)} = \underline{10^{tons}}$$

Summary of Layer 1:

$$Q_{s(1)} = \frac{12^{tons} + 10^{tons}}{2} = \boxed{11^{tons}}$$

**Layer #2** Soft N.C. Clay $S_u = 0.33$ tsf

**$\alpha$ method:** $f_s = \alpha \cdot S_u$

$\theta_v'$ (@ midpoint) $= 0.94$ tsf (from Eff. Stress vs. Depth graph)

$\psi = \frac{S_u}{\theta_v'} = \frac{0.33 \text{ tsf}}{0.94 \text{ tsf}} = 0.35 < 1.0$

$\therefore \alpha = 0.5 \cdot \psi^{-0.5}$

$\alpha = 0.5 (0.35)^{-0.5} = 0.85 < 1.0$ o.k.

$q_s = f_s = 0.85 \times 0.33 \text{ tsf} = 0.28 \text{ tsf}$

$Q_{s(2)} = f_s \cdot A_s = 0.28 \text{ tsf} \times (\pi \times 1.0625 \text{ ft} \times 20 \text{ ft})$

$$Q_{s(2)} = \underline{19 \text{ tons}}$$

**$\lambda$ method:** $f_s = \lambda (\theta_v' + 2 \cdot S_u)$

$\theta_{v'm} = 0.94$ tsf (from above)

from figure with $D_b = 80$ ft $\Rightarrow \lambda = 0.15$

$q_s = f_s = 0.15 (0.94 \text{ tsf} + 2 \times 0.33 \text{ tsf}) = 0.24 \text{ tsf}$

$Q_{s(2)} = f_s \cdot A_s = 0.24 \text{ tsf} \times (\pi \times 1.0625 \text{ ft} \times 20 \text{ ft})$

$$Q_{s(2)} = \underline{16 \text{ tons}}$$

**Summary of Layer 2:**

$$Q_{s(2)} = \frac{19 \text{ tons} + 16 \text{ tons}}{2} = \boxed{17 \text{ tons}}$$

**Layer #3** N.C. Clay $S_u = 0.28$ tsf

**$\alpha$ method:** $f_s = \alpha \cdot S_u$

$\theta_v'$ (@ midpoint) $= 1.38$ tsf (from Eff. Stress vs. Depth graph)

$\psi = \frac{S_u}{\theta_v'} = \frac{0.28 \text{ tsf}}{1.38 \text{ tsf}} = 0.20 < 1.0$

$\therefore \alpha = 0.5 \cdot \psi^{-0.5}$

$\alpha = 0.5 (0.20)^{-0.5} = 1.12 > 1.0$ use 1.0

$q_s = f_s = 1.0 \times 0.28 \text{ tsf} = 0.28 \text{ tsf}$

$Q_{s(3)} = f_s \cdot A_s = 0.28 \text{ tsf} \times (\pi \times 1.0625 \text{ ft} \times 16 \text{ ft})$

$$Q_{s(3)} = \underline{15 \text{ tons}}$$

**$\lambda$ method:** $f_s = \lambda (\theta_v' + 2 \cdot S_u)$

$\theta_{v'_m} = 1.38$ tsf (from above)

from figure with $D_b = 80' \Rightarrow \lambda = 0.15$

$q_s = f_s = 0.15 (1.38 \text{ tsf} + 2 \times 0.28 \text{ tsf}) = 0.29 \text{ tsf}$

$Q_{s(3)} = f_s \cdot A_s = 0.29 \text{ tsf} \times (\pi \times 1.0625 \text{ ft} \times 16 \text{ ft})$

$$Q_{s(3)} = 15 \text{ tons}$$

## Summary of Layer 3:

$$Q_{s(3)} = \frac{15 \text{ tons} + 15 \text{ tons}}{2} = \boxed{15 \text{ tons}}$$

**Layer #4** Interbedded Silt, Sand, and Clay
Calculate both as clay with $S_u = 0.30^{tsf}$ & Sand with $\phi = 35^\circ$

- As Clay: $S_u = 0.30^{tsf}$

$\alpha$ method: $f_s = \alpha \cdot S_u$

$\sigma_{v'@midpoint} = 1.72^{tsf}$ (from Eff. Stress vs. Depth graph)

$\psi = \frac{S_u}{\sigma_{v'}} = \frac{0.30^{tsf}}{1.72^{tsf}} = 0.17 < 1.0$

$\therefore \alpha = 0.5\,\psi^{-0.5}$

$\alpha = 0.5(0.17)^{-0.5} = 1.21 > 1.0$ use 1.0

$q_s = f_s = 1.0 \times 0.30^{tsf} = 0.30^{tsf}$

$Q_{s(4)} = f_s \cdot A_s = 0.30^{tsf} \times (\pi \times 1.0625^{ft} \times 9^{ft})$

$$Q_{s(4)} = \underline{9^{tons}}$$

$\lambda$ method: $f_s = \lambda(\sigma_{v'} + z \cdot S_u)$

$\sigma_{v'm} = 1.72^{tsf}$ (from above)

from figure with $D_b = 80' \Rightarrow \lambda = 0.15$

$q_s = f_s = 0.15(1.72^{tsf} + 2 \times 0.30^{tsf}) = 0.35\ tsf$

$Q_{s(4)} = f_s \cdot A_s = 0.35^{tsf} \times (\pi \times 1.0625^{ft} \times 9^{ft})$

$$Q_{s(4)} = \underline{11^{tons}}$$

Summary assuming layer 4 is clay with $S_u = 0.30^{tsf}$

$$Q_{s(4)} = \frac{9^{tons} + 11^{tons}}{2} = \underline{\underline{10^{tons}}}$$

- As Sand: $\phi = 35°$

General Values: $f_s = \theta_v' \cdot K \cdot \tan\delta$

after Mansur & Hunter (1970) use $K = 1.25$

$\delta = \frac{2}{3}\phi = \frac{2}{3}(35°) = 23.3°$

considering critical depth for $\phi = 35° \Rightarrow D_c/B = 12$

$\therefore D_c = 12 \times 1.0625\,ft = 13\,ft$ for which $\theta_v' = 0.56\,tsf$

from $\theta_v'$ vs. Depth graph

$P_s = \pi \times 1.0625\,ft\,[9\,ft \times 0.56\,tsf] \times 1.25 \times \tan(23.3°)$

$Q_{s(4)} = P_s = \underline{9\,tons}$

API: (using charts)

$K = 1.0$; $\delta = 25°$; $f_{smax} = 1.85\,k/ft^2 = 0.925\,tsf$

$P_s = \pi \times 1.0625\,ft\left[9\,ft \times \frac{(1.59\,tsf + 1.85\,tsf)}{2}\right] \times 1.0 \times \tan 25°$

$Q_{s(4)} = P_s = 24\,tons$

check $f_{smax} = 1.85\,tsf \times 1.0 \times \tan 25° = 0.86\,tsf < 0.925\,tsf$ o.k.

$\therefore Q_{s(4)} = \underline{24\,tons}$

McClleland:

same as general values above, only use $\delta = \phi = 35°$

$P_s = \pi \times 1.0625\,ft\,[9\,ft \times 0.56\,tsf] \times 1.25 \times \tan 35°$

$Q_{s(4)} = P_s = \underline{15\,tons}$

Meyerhof: $f_s = N_{55}/50\,(tsf)$

from SPT calculations $N_{avg} = 19$ for layer

take correction factor for the midpoint of layer $\theta_v' = 1.72\,tsf$

$N_{corr} = N \cdot \sqrt{\frac{1}{\theta_v'}} = 19 \cdot \sqrt{\frac{1}{1.72\,tsf}} = 14$

$N_{55} = \frac{70}{55} \times 14 = 18$

$f_s = \frac{18}{50} = 0.36\,tsf$

$P_s = f_s \cdot A_s = 0.36\,tsf \times (\pi \times 1.0625\,ft \times 9\,ft)$

$Q_{s(4)} = P_s = \underline{11\,tons}$

Summary assuming layer 4 is sand with $\emptyset = 35°$

$$Q_{s(4)} = \frac{9\text{ tons} + 24\text{ tons} + 15\text{ tons} + 11\text{ tons}}{4} = \underline{15\text{ tons}}$$

## Summary of Layer 4:

Assuming layer is half silty sand and half Clay

$$Q_{s(4)} = \frac{10\text{ tons} + 15\text{ tons}}{2} = \boxed{12\text{ tons}}$$

**Layer #5** Silty Sand $\phi = 35°$

**General Values:** $f_s = \sigma_v' \cdot K \cdot \tan\delta$

after Mansur & Hunter (1970) use $K \cong 1.25$

$\delta = \frac{2}{3}\phi = \frac{2}{3}(35°) = 23.3°$

considering critical depth for $\phi = 35° \Rightarrow D_c/B = 12$

$\therefore D_c = 12 \times 1.0625^{ft} = 13^{ft} \Rightarrow$ for which $\sigma_v' = 0.56^{tsf}$

using $\sigma_v'$ vs. depth graph

$P_s = \pi \times 1.0625^{ft} \times [8^{ft} \times 0.56^{tsf}] \times 1.25 \times \tan(23.3°)$

$Q_{s(5)} = P_s = \underline{8 \text{ tons}}$

**API:** (using charts)

$K = 1.0$; $\delta = 28°$; $f_{s\,max} = 1.88^{k/ft^2} = 0.94^{tsf}$

$P_s = \pi \times 1.0625^{ft} \times \left[8^{ft}\left(\frac{1.85^{tsf} + 2.10^{tsf}}{2}\right)\right] \times 1.0 \times \tan 28°$

$Q_{s(5)} = P_s = 28 \text{ tons}$

check $f_{s\,max} = 2.10^{tsf} \times 1.0 \times \tan 28° = 1.12 > 0.94^{tsf}$ No Good!

$\therefore$ max $\sigma_v'$ to be used is:

$\sigma_v' \times 1.0 \times \tan 28° = 0.94^{tsf} \Rightarrow \sigma_v' = 1.77^{tsf}$ which occurs @ $60^{ft}$

so, $P_s = \pi \times 1.0625^{ft} \times [8^{ft} \times 1.77^{tsf}] \times 1.0 \times \tan 28°$

$Q_{s(5)} = P_s = \underline{25 \text{ tons}}$

**McClleland:**

same as general values above just use $\delta = \phi = 35°$

$P_s = \pi \times 1.0625^{ft} \times [8^{ft} \times 0.56^{tsf}] \times 1.25 \times \tan 35°$

$Q_{s(5)} = P_s = \underline{13 \text{ tons}}$

**Meyerhof:** $f_s = N_{55}/50$ (tsf)

from SPT calculations $N_{avg} = 34$ for layer

take correction factor for midpoint of layer $\sigma_v' = 1.97^{tsf}$

$N_{corr} = N \cdot \sqrt{1/\sigma_v'} = 34 \cdot \sqrt{1/1.97^{tsf}} = 24$

$N_{55} = 70/55 \times 24 = 31$

$f_s = 31/50 = 0.62$ tsf

$P_s = f_s \cdot A_s = 0.62^{tsf} \times [\pi \times 1.0625^{ft} \times 8^{ft}]$

$Q_{s(5)} = P_s = \underline{17 \text{ tons}}$

## Summary of Layer 5:

$$Q_{s(5)} = \frac{8 \text{ tons} + 25 \text{ tons} + 13 \text{ tons} + 17 \text{ tons}}{4}$$

$$= \boxed{16 \text{ tons}}$$

**Layer #6** Interbedded Silt, Sand, and Clay
Calculate both as clay with $S_u = 0.30^{tsf}$ and Sand with $\phi = 35°$

-As Clay: $S_u = 0.30^{tsf}$

$\alpha$ method: $f_s = \alpha \cdot S_u$

$\sigma_v'$ (@midpoint) $= 2.22^{tsf}$ (from $\sigma_v'$ vs. Depth graph)

$\psi = \frac{S_u}{\sigma_v'} = \frac{0.30^{tsf}}{2.22^{tsf}} = 0.14 < 1.0$

$\therefore \alpha = 0.5\,\psi^{-0.5}$

$= 0.5\,(0.14)^{-0.5} = 1.34 > 1.0$ use 1.0

$q_s = f_s = \alpha \cdot S_u = 1.0 \times 0.30^{tsf} = 0.30^{tsf}$

$Q_{s(6)} = f_s A_s = 0.30^{tsf} \times (\pi \times 1.0625^{ft} \times 8^{ft})$

$$Q_{s(6)} = \underline{8^{tons}}$$

$\lambda$ method: $f_s = \lambda(\sigma_v' + 2 \cdot S_u)$

$\sigma_{v'm} = 2.22^{tsf}$ (from above)

from figure with $D_b = 80' \Rightarrow \lambda = 0.15$

$q_s = f_s = 0.15\,(2.22^{tsf} + 2 \times 0.30^{tsf}) = 0.42^{tsf}$

$Q_{s(6)} = f_s \cdot A_s = 0.42^{tsf} \times (\pi \times 1.0625^{ft} \times 8^{ft})$

$$Q_{s(6)} = \underline{11^{tons}}$$

Summary assuming layer 6 is Clay with $S_u = 0.30^{tsf}$:

$$Q_{s(6)} = \frac{8^{tons} + 11^{tons}}{2} = \underline{9^{tons}}$$

- As Sand: $\phi = 35°$

General Values: $f_s = \sigma_v' \cdot K \cdot \tan\delta$

after Mansur & Hunter (1970) use $K = 1.25$

$\delta = \frac{3}{3}\phi = \frac{3}{3}(35°) = 23.3°$

considering critical depth for $\phi = 35° \Rightarrow D_c/B = 12$

$\therefore D_c = 12 \times 1.0625^{ft} = 13^{ft}$ for which $\sigma_v' = 0.56^{tsf}$

from $\sigma_v'$ vs. Depth graph

$P_s = \pi \times 1.0625^{ft} \times (8^{ft} \times 0.56^{tsf}) \times 1.25 \times \tan(23.3°)$

$Q_{s(6)} = P_s = \underline{8\ tons}$

API: (using charts)

$K = 1.0$; $\delta = 28°$; $f_{s\,max} = 1.88^{k/ft^2} = 0.94^{tsf}$

$P_s = \pi \times 1.0625^{ft} \times \left[8^{ft} \times \frac{(2.10^{tsf} + 2.33^{tsf})}{2}\right] \times 1.0 \times \tan 28°$

$Q_{s(6)} = P_s = \underline{31\ tons}$

check $f_{s\,max} = 2.33^{tsf} \times 1.0 \times \tan 28° = 1.24^{tsf} > 0.94^{tsf}$ No Good!

$\therefore$ max $\sigma_v'$ to be used is:

$\sigma_v' \times 1.0 \times \tan 28° = 0.94^{tsf} \Rightarrow \sigma_v' = 1.77^{tsf}$ which occurs @ $60^{ft}$

so, $P_s = \pi \times 1.0625^{ft} \times (8^{ft} \times 1.77^{tsf}) \times 1.0 \times \tan 28°$

$Q_{s(6)} = P_s = \underline{25\ tons}$

McClleland:

same as general values above, only use $\delta = \phi = 35°$

$P_s = \pi \times 1.0625^{ft} \times (8^{ft} \times 0.56^{tsf}) \times 1.25 \times \tan(35°)$

$Q_{s(6)} = P_s = \underline{13\ tons}$

Meyerhof: $f_s = N_{55}/50\ (tsf)$

from SPT calculations $N_{avg} = 41$ for layer

take correction factor for the midpoint of layer, $\sigma_v' = 2.23^{tsf}$

$N_{corr} = N \cdot \sqrt{1/\sigma_v'} = 41\sqrt{1/2.23^{tsf}} = 27$

$N_{55} = 70/55 \times 27 = 35$

$f_s = 35/50 = 0.70\ tsf$

$P_s = f_s \cdot A_s = 0.70^{tsf} \times (\pi \times 1.0625^{ft} \times 8^{ft})$

$Q_{s(6)} = P_s = \underline{19\ tons}$

Summary assuming Layer 6 is sand with $\phi = 35°$

$$Q_{s(6)} = \frac{8\text{ tons} + 25\text{ tons} + 13\text{ tons} + 19\text{ tons}}{4} = 16\text{ tons}$$

Summary of Layer 6:

Assuming layer is half silty sand and half clay:

$$Q_{s(6)} = \frac{9\text{ tons} + 16\text{ tons}}{2} = \boxed{13\text{ tons}}$$

**Layer #7** Fine to Medium Sand $\phi = 35°$

General Values: $f_s = \sigma_v' \cdot K \cdot \tan\delta$

after Mansur & Hunter (1970) use $K = 1.25$

$\delta = 2/3\,\phi = 2/3\,(35°) = 23.3°$

considering critical depth for $\phi = 35°$ = $D_c/B = 12$

$\therefore D_c = 12 \times 1.0625^{ft} = 13^{ft}$ for which $\sigma_v' = 0.56^{tsf}$

using $\sigma_v'$ vs. depth graph

$P_s = \pi \times 1.0625^{ft} \times (1^{ft} \times 0.56^{tsf}) \times 1.25 \times \tan(23.3°)$

$Q_{s(7)} = P_s = \underline{1^{ton}}$

API: (using charts)

$K = 1.0$; $\delta = 30°$; $f_{s\,max} = 2.0^{k/ft^2} = 1.0^{tsf}$

$P_s = \pi \times 1.0625^{ft} \times \left[1^{ft} \times \frac{(2.33^{tsf} + 2.36^{tsf})}{2}\right] \times 1.0 \times \tan(30°)$

$Q_{s(7)} = P_s = 5^{tons}$

check $f_{s\,max} = 2.37^{tsf} \times 1.0 \times \tan 30° = 1.36^{tsf} > 1.0^{tsf}$ No Good!

$\therefore$ max $\sigma_v'$ to be used is:

$\sigma_v' \times 1.0 \times \tan 30° = 1.0^{tsf} \Rightarrow \sigma_v' = 1.73^{tsf}$ which occurs @ $58^{ft}$

so, $P_s = \pi \times 1.0625^{ft} \times (1^{ft} \times 1.73^{tsf}) \times 1.0 \times \tan(30°)$

$Q_{s(7)} = P_s = \underline{3^{tons}}$

McClleland:

same as general values above, only use $\delta = \phi = 35°$

$P_s = \pi \times 1.0625^{ft} \times (1^{ft} \times 0.56^{tsf}) \times 1.25 \times \tan(35°)$

$Q_{s(7)} = P_s = \underline{2^{tons}}$

Meyerhof: $f_s = N_{55}/50\ (tsf)$

from SPT calculations $N_{avg} = 23$ for layer

take correction factor for the midpoint of layer $\sigma_v' = 2.35^{tsf}$

$N_{corr} = N \cdot \sqrt{1/\sigma_v'} = 23 \times \sqrt{1/2.35^{tsf}} = 19$

$N_{55} = 70/55 \times 15 = 19$

$f_s = 19/50 = 0.38\ tsf$

$P_s = f_s \cdot A_s = 0.38^{tsf} \times (\pi \times 1.0625^{ft} \times 1^{ft})$

$Q_{s(7)} = P_s = \underline{1^{ton}}$

Summary of Layer 7:

$$Q_{s(7)} = \frac{1 \text{ ton} + 3 \text{ tons} + 2 \text{ tons} + 1 \text{ ton}}{4}$$

$$= \boxed{2 \text{ tons}}$$

## Summary of $Q_{ult}$ by Traditional Methods:

$Q_p = 77$ tons

$Q_s$:

| Layer i | Material | $Q_{si}$ |
|---|---|---|
| 1 | O.C. Clay | 11 tons |
| 2 | Soft N.C. Clay | 17 tons |
| 3 | N.C. Clay | 15 tons |
| 4 | Silt, Sand, & Clay | 12 tons |
| 5 | Silty Sand | 16 tons |
| 6 | Silt, Sand, & Clay | 13 tons |
| 7 | Fine to Med. Sand | 2 tons |

$\Sigma = Q_s = 86$ tons

$Q_{ult} = ?$

$$Q_{ult} = Q_p + Q_s$$

$$= 77 \text{ tons} + 86 \text{ tons}$$

$$= \boxed{163 \text{ tons}}$$

## Calculations using SPT data to obtain $Q_{ult}$:

$Q_{ult} = Q_p + Q_s$

where: $Q_p = q_p \cdot A_p$

$Q_s = q_s \cdot A_s$

$q_p = \dfrac{0.4 \times N_{corr} \times D_b}{D} \leq 4 \cdot N_{corr}$ (AASHTO 10.7.3.2.4.2a-1)

$N_{corr} = [0.77 \cdot \log_{10}(^{20}/_{\sigma_v'})] \cdot N@tip$ (AASHTO 10.7.3.2.4.2a-2)

$D$ = diameter of pile @ tip

$D_b$ = embedded length

$\sigma_v'$ = effective vertical stress @ tip in tsf

$q_s = \dfrac{\bar{N}}{50}$ (tsf) (AASHTO 10.7.3.2.4.2b-1)

$\bar{N}$ = average N along pile

### *Find $Q_p$:

$N@tip = 24$

$\sigma_v'@tip = 125^{lb}/_{ft^3} \times 5.5^{ft} + (125-62.4)^{lb}/_{ft^3} \times 2.5^{ft} + (101-62.4)^{lb}/_{ft^3} \times 1^{ft}$
$+ (120-62.4)^{lb}/_{ft^3} \times 9^{ft} + (110-62.4)^{lb}/_{ft^3} \times 20^{ft} + (115-62.4)^{lb}/_{ft^3} \times 16^{ft}$
$+ (120-62.4)^{lb}/_{ft^3} \times 9^{ft} + (125-62.4)^{lb}/_{ft^3} \times 8^{ft} + (120-62.4)^{lb}/_{ft^3} \times 8^{ft}$
$+ (125-62.4)^{lb}/_{ft^3} \times 1^{ft}$

$= 4,737.2^{lb}/_{ft^3} = 2.37^{tsf}$

$N_{corr} = [0.77 \times \log_{10}(^{20}/_{2.37^{tsf}})] \times 24 = 17.12$

$q_p = \dfrac{0.4 \times 17.12 \times 71^{ft}}{1.0625^{ft}} = 453^{tsf} \leq 4 \times 17.12 = \underline{68.5^{tsf}}$

$A_p = \dfrac{\pi (12.75^{in})^2}{4} = 127.7^{in^2} = 0.8866^{ft^2}$

$Q_p = 68.5^{tsf} \times 0.8866^{ft^2}$

$= \underline{\underline{61^{tons}}}$

* Find $Q_s$:

$$\bar{N} = \left[4^{ft} \times \left(\frac{13+26}{2}\right) + 10^{ft} \times \left(\frac{26+0}{2}\right) + 25^{ft} \times (0) + 5^{ft} \times \left(\frac{0+22}{2}\right) + 5^{ft} \times \left(\frac{22+16}{2}\right) + 5^{ft} \times \left(\frac{16+22}{2}\right) + 10^{ft} \times \left(\frac{22+54}{2}\right) + 5^{ft} \times \left(\frac{54+21}{2}\right) + 2^{ft} \times \left(\frac{21+24}{2}\right)\right] / 71^{ft}$$

$$= 15.01$$

$$q_s = \frac{15.01}{50} = 0.3002 \text{ tsf}$$

$$A_s = \pi \times 1.0625^{ft} \times 71^{ft} = 237.0^{ft^2}$$

$$Q_s = 0.3002^{tsf} \times 237.0^{ft^2} = \underline{71^{tons}}$$

## Summary of $Q_{ult}$ using SPT:

$Q_p = \underline{61^{tons}}$

$Q_s = \underline{71^{tons}}$

* Find $Q_{ult}$:

$$Q_{ult} = 61^{tons} + 71^{tons}$$

$$= \boxed{132^{tons}}$$

## Calculations using CPT data to obtain $Q_{ult}$:

$$Q_{ult} = Q_p + Q_s$$

where: $Q_p = q_p \cdot A_p$

$$Q_s = K_s \left[ \sum_{i=1}^{N_i} \left(\frac{L_i}{8D_i}\right) \times f_{si} \times a_{si} \times h_i + \sum_{i=N_i}^{N_z} f_{si} \times a_{si} \times h_i \right] \quad \text{(AASHTO 10.7.3.4.3c-1)}$$

$$q_p = \frac{q_{c1} + q_{c2}}{2} \quad \text{(AASHTO 10.7.3.4.3b-1)}$$

*Find $Q_p$: $8D = 8(1.0625^{ft}) = 8.5^{ft}$

$4D = 4(1.0625^{ft}) = 4.25^{ft}$

$q_{c2} = (40^{tsf} \times 4^{ft} + 105^{tsf} \times 4^{ft} + 75^{tsf} \times 0.5^{ft}) / 8.5^{ft} = 72.65^{tsf}$

$q_{c1(min@2^{ft})} = (40^{tsf} \times 2^{ft}) / 2^{ft} = 40^{tsf}$

$$q_p = \frac{72.65^{tsf} + 40^{tsf}}{2} = 56.33^{tsf}$$

$A_p = \pi \times (12.75^{in})^2 / 4 = 127.7 in^2 = 0.8866 ft^2$

$Q_p = 56.33^{tsf} \times 0.8866^{ft^2} = \underline{50^{tons}}$

*Find $Q_s$: From figure 10.7.3.4.3c-1 of AASHTO with $^L/_D = {}^{80^{ft}}/_{1.0625^{ft}} = 75 \Rightarrow K_s = 0.30$

| Pile Segment i | $L_i$ (ft) | $D_i$ (ft) | $f_{si}$ (tsf) | $a_{si}$ ($ft^2/ft$) | $h_i$ (ft) | $Q_{si}$ (tons) |
|---|---|---|---|---|---|---|
| 1 | 4.25 | 1.0625 | 0.05 | 3.338 | 8.5 | 0.2 |
| 2 | N/A | N/A | 0.05 | 3.338 | 1.5 | 0.1 |
| 3 | N/A | N/A | 1.70 | 3.338 | 5 | 8.5 |
| 4 | N/A | N/A | 0.10 | 3.338 | 31 | 3.1 |
| 5 | N/A | N/A | 0.70 | 3.338 | 8 | 5.6 |
| 6 | N/A | N/A | 0.95 | 3.338 | 4 | 3.8 |
| 7 | N/A | N/A | 0.60 | 3.338 | 5 | 3.0 |
| 8 | N/A | N/A | 1.60 | 3.338 | 15 | 24.0 |
| 9 | N/A | N/A | 0.60 | 3.338 | 2 | 1.2 |

Example calculations to get $Q_s$:

- pile segment 1:

$$Q_{s_1} = 0.30 \times \left(\frac{4.25\ ft}{8 \times 1.0625\ ft}\right) \times 0.05\ tsf \times 3.338\ \frac{ft^2}{ft} \times 8.5\ ft = 0.2\ tons$$

- pile segment 9:

$$Q_{s_9} = 0.30 \times 0.60\ tsf \times 3.338\ ft^2/ft \times 2\ ft = 1.2\ tons$$

$$Q_s = \Sigma Q_s;$$
$$= 0.2\ tons + 0.1\ tons + 8.5\ tons + 3.1\ tons + 5.6\ tons + 3.8\ tons + 3.0\ tons + 24.0\ tons + 1.2\ tons$$
$$= \underline{50\ tons}$$

## Summary of $Q_{ult}$ using CPT:

$Q_p = \underline{50\ tons}$

$Q_s = \underline{50\ tons}$

* Find $Q_{ult}$:

$$Q_{ult} = 50\ tons + 50\ tons$$
$$= \boxed{100\ tons}$$

## Analysis of Static Load Test Results:

* **Analysis of compression static load test to find Qult:**

**Limiting Total Settlement:** (to 1.0 inch)
from compression test curve
$Q_{ult} = 75^{tons}$

**Limiting Plastic Settlement:** (use Mass. Building Code ½ inch)
from compression test curve
$Q_{ult} = 75^{tons}$

**Limiting Ratio:** ~~0.01 inch/ton~~ too large ; $0.03^{inch/ton}$
from compression test curve
$Q_{ult} = 70^{tons}$

**Davisson's Criteria:** $\Delta = \Delta_{plastic} + \Delta_{elastic}$

$$\Delta_{plastic} = 0.15'' + \frac{B(inch)}{120} = 0.15'' + \frac{12.75''}{120} = 0.26^{in}$$

$$\Delta_{elastic} = \frac{PL}{EA} = \frac{P \cdot 80^{ft} \times 12^{in/ft}}{29{,}000^{k/in^2} \times 19.24^{in^2} \times 1^{ton/2\,kip}} = P \times 0.003441^{\frac{inch}{ton}}$$

where $A = \frac{\pi(12.75^{in})^2}{4} - \frac{\pi(12.75^{in} - 2\times 0.5^{in})^2}{4} = 19.24^{in^2}$

$\Delta = 0.26^{in} + P \times 0.003441^{in/ton}$
from compression test curve
$Q_{ult} = P = 74^{tons}$

**Shape of Curve:**
from compression test curve
$Q_{ult} = 74^{tons}$

$$Q_{ult(avg)} = \frac{75^{tons} + 75^{tons} + 70^{tons} + 74^{tons} + 74^{tons}}{5} = 74^{tons}$$

* Analysis of tension static load test to find $Q_s$:

Limiting Total Movement: (to 1.0 inch)
from tension test curve
$Q_s$ = 48 tons

Limiting Plastic Movement: (use Mass. Building Code ½ inch)
from tension test curve
$Q_s$ = 48 tons

Limiting Ratio: ~~0.01 inch/ton~~ → too large; 0.03 in/ton
from tension test curve
$Q_s$ = 42 tons

Davisson's Criteria: $\Delta = \Delta_{plastic} + \Delta_{elastic}$

$\Delta_{plastic} = 0.15'' + {}^{B(inch)}/_{120} = 0.15'' + {}^{12.75''}/_{120} = 0.26\ in$

$\Delta_{elastic} = \frac{PL}{EA} = \frac{P \times 80\ ft \times {}^{12\ in}/_{1\ ft}}{29{,}000\ {}^{k}/_{in^2} \times 19.24\ in^2 \times {}^{1\ ton}/_{2\ kips}} = P \times 0.003441\ \frac{in}{ton}$

where $A = \frac{\pi(12.75^{in})^2}{4} - \frac{\pi(12.75^{in} - 2\times 0.5^{in})^2}{4} = 19.24\ in^2$

$\Delta = 0.26^{in} + P \times 0.003441\ {}^{in}/_{ton}$
from tension test curve
$Q_s = P$ = 45 tons

Shape of Curve:
from tension test curve
$Q_s$ = 47 tons

$$Q_{s(avg)} = \frac{48\ tons + 48\ tons + 42\ tons + 45\ tons + 47\ tons}{5} = 46\ tons$$

## Summary of $Q_{ult}$ by Static Load Test Results:

$Q_{ult} = \boxed{74 \text{ tons}}$

$Q_s = 46 \text{ tons}$

$Q_p = Q_{ult} - Q_s = 74 \text{ tons} - 46 \text{ tons}$

$Q_p = 28 \text{ tons}$

**Figure B-1**
**Blow Count vs. Depth for Newbury Site**

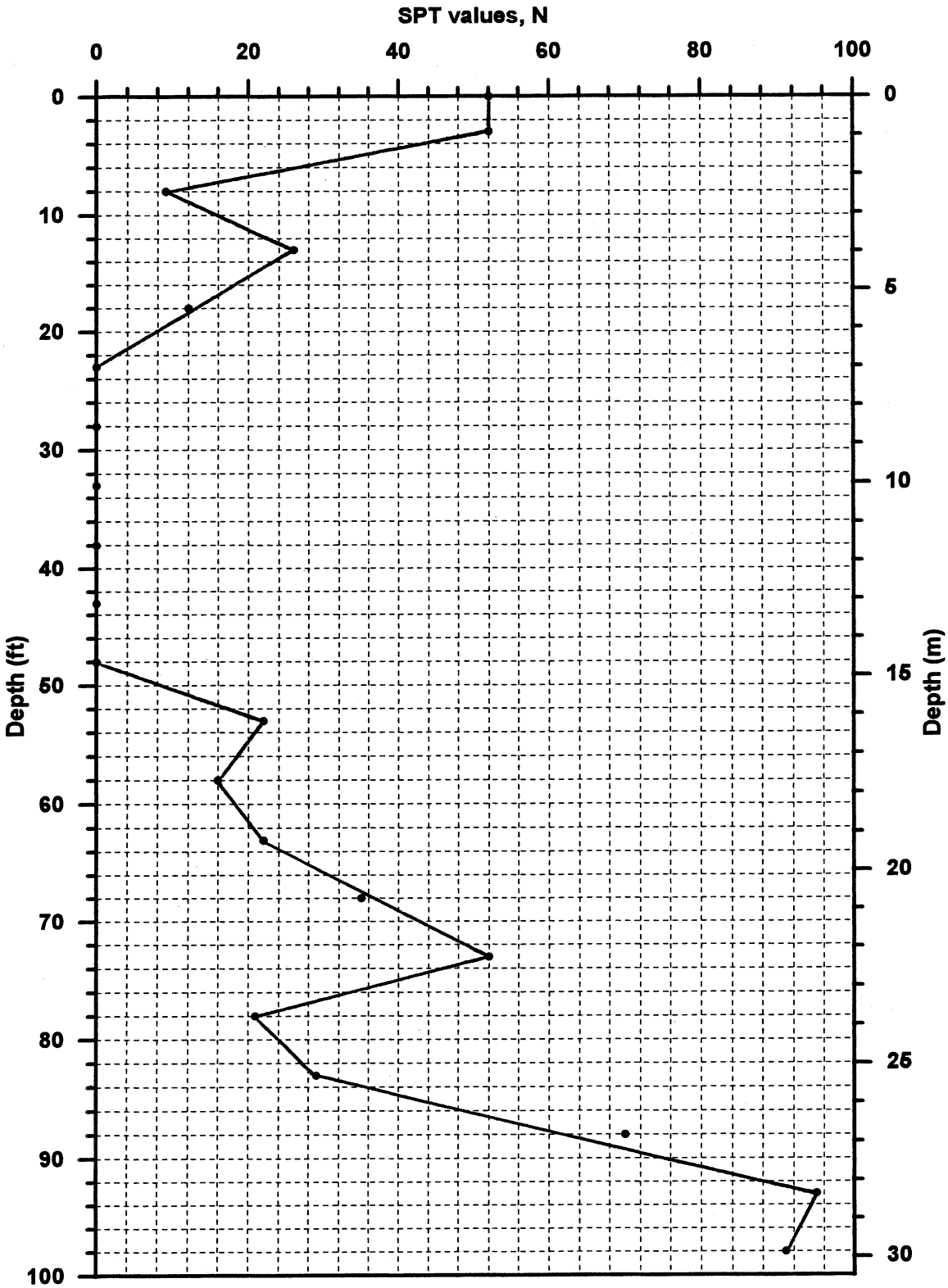


**Figure B-2**
**Vertical Effective Stress vs Depth for Newbury Site**

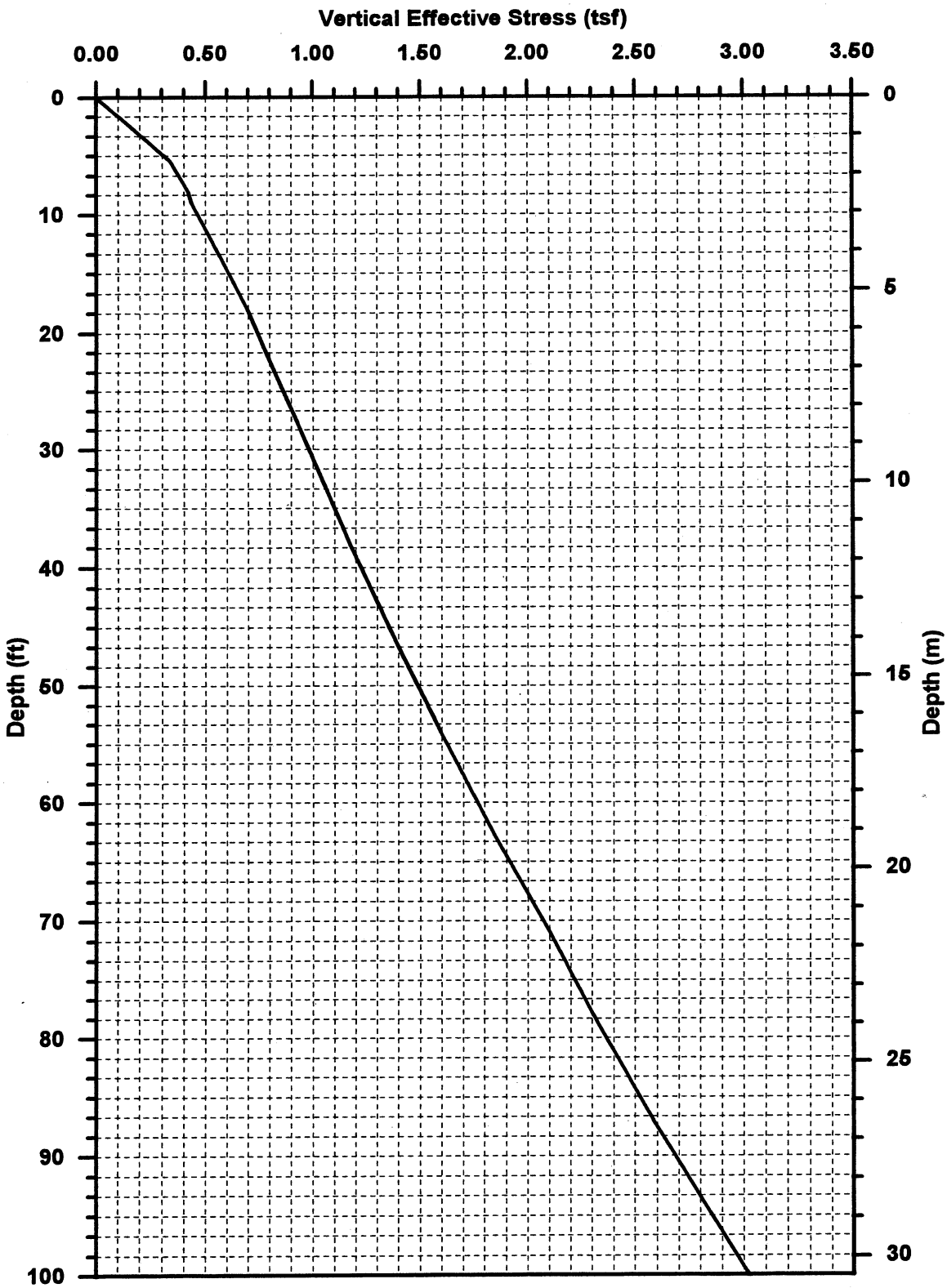


**Figure B-3**
**Tip Resistance vs Depth, CPT's, Newbury Site**

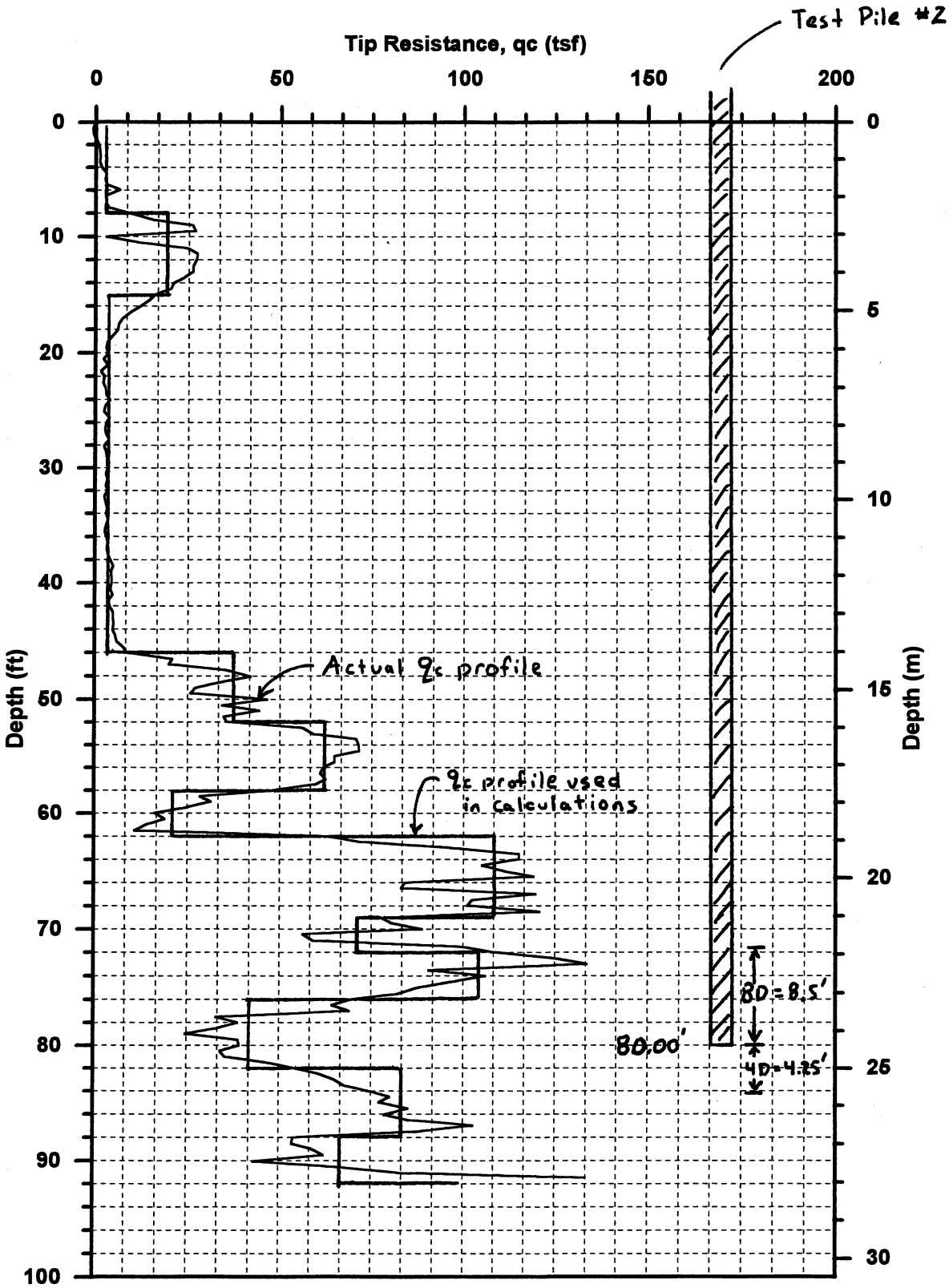


**Figure B-4**
**Side Resistance vs Depth, CPT's, Newbury Site**

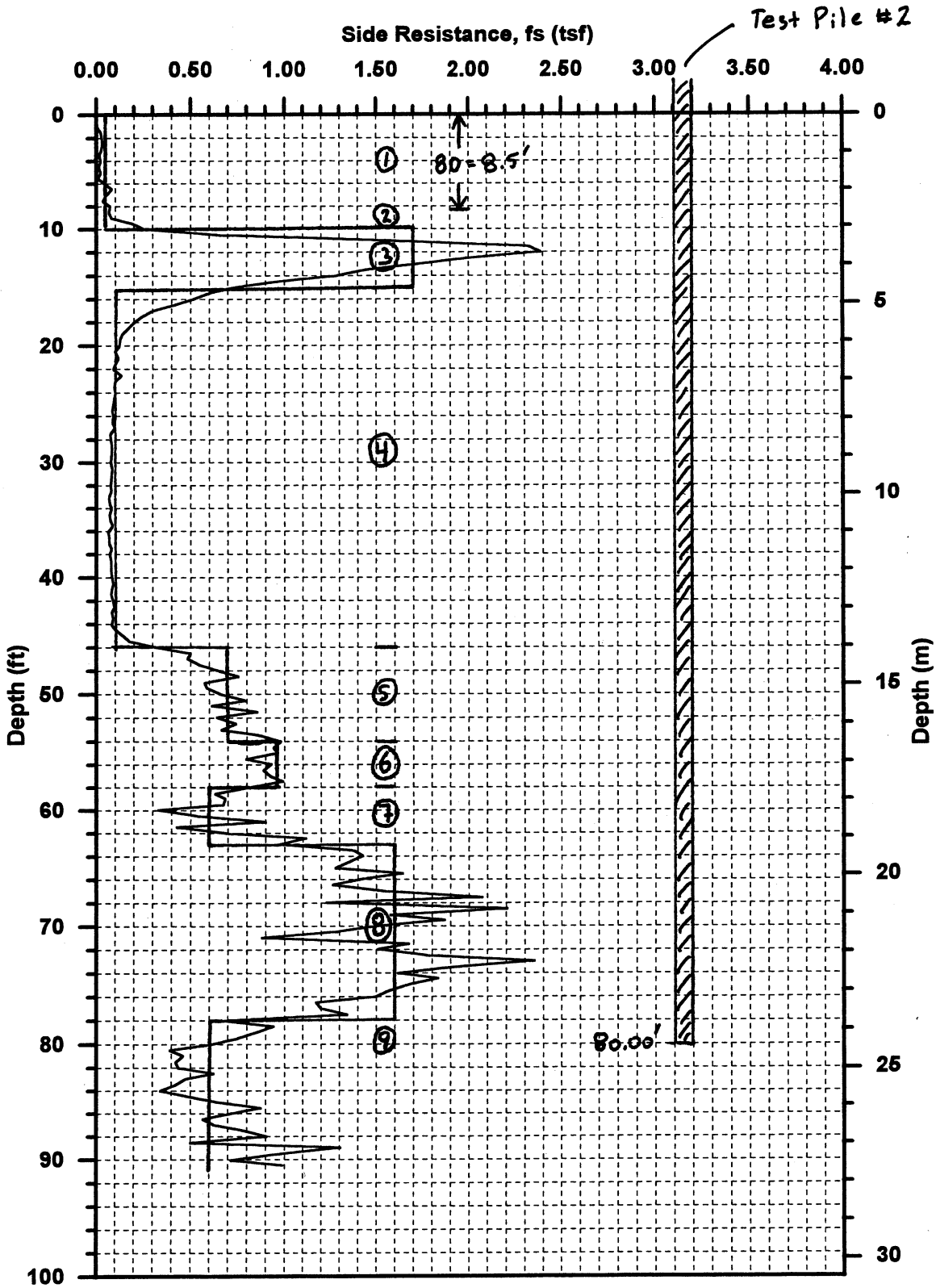


**Figure B-5**
**Load vs Deflection Curve, Compression Test, Newbury Site**

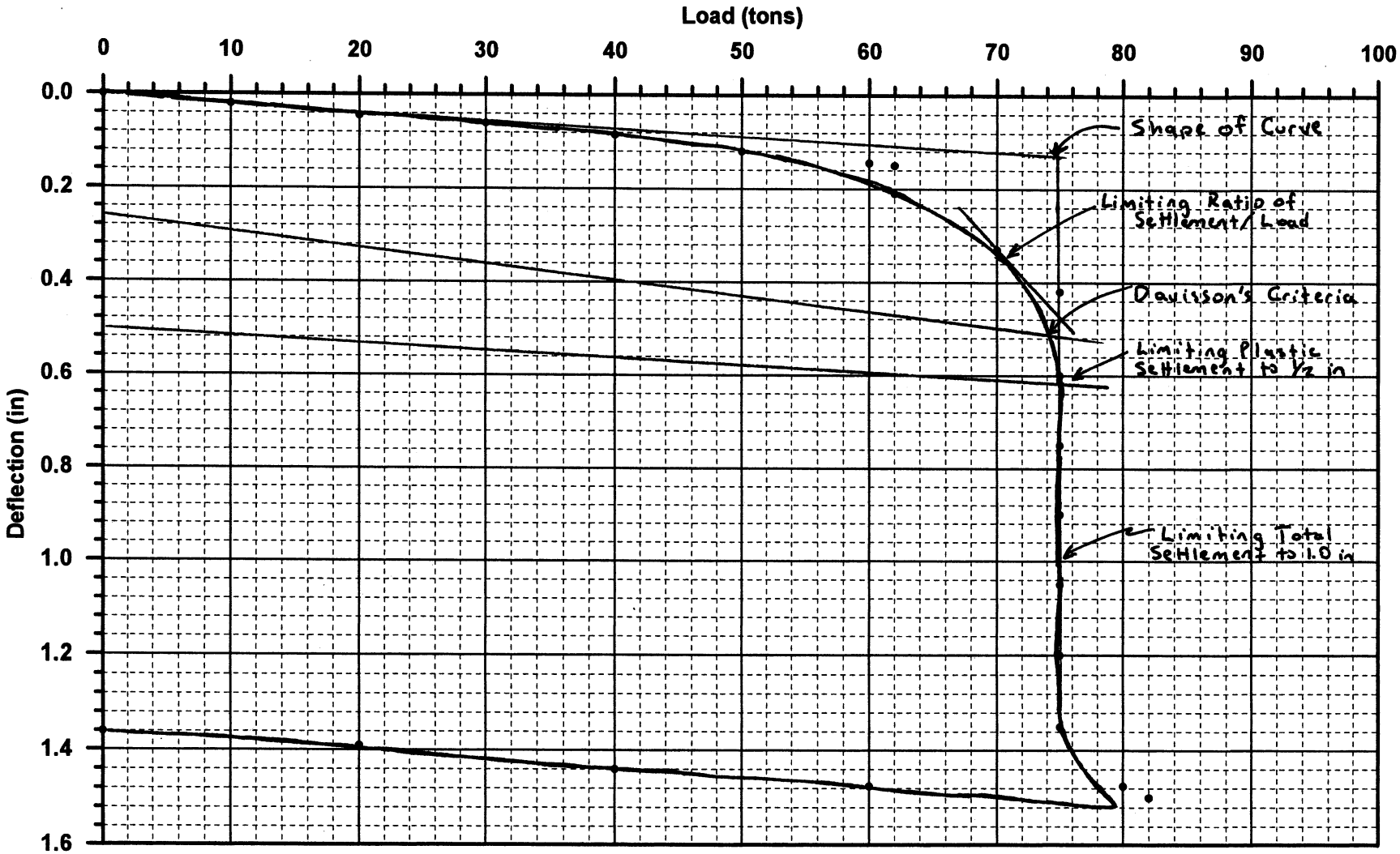
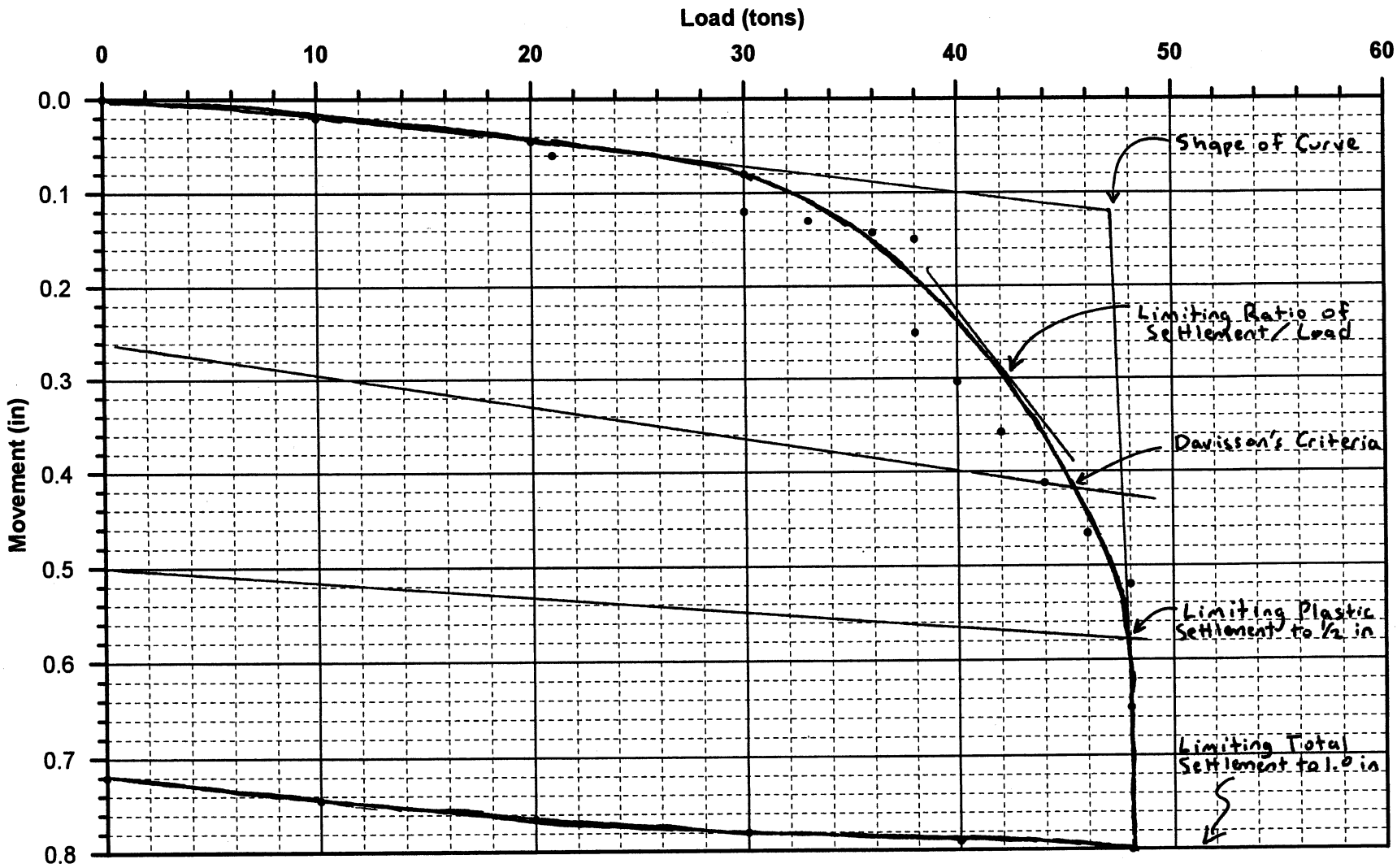


**Figure B-6**
**Load vs Deflection Curve, Tension Test, Newbury Site**



# APPENDIX C

# CALCULATED RESISTANCE FACTORS BY CALIBRATING TO THE STATIC LOAD TEST RESULTS

# Calculated Resistance Factors:

$Q_R = \phi \times Q_{ult}$ = constant (for any method)

$\phi_A \times Q_{ult\,A} = \phi_B \times Q_{ult\,B}$

$\phi_B = 1.0 = \phi_{load\ test}$ (assumed)

$\therefore \quad \phi_A = \dfrac{Q_{ult\,B}}{Q_{ult\,A}}$

## Newbury Site Project, Test Pile #2:

$Q_{ult}$ (load test) = 74 tons
$Q_{ult}$ (SPT) = 132 tons
$Q_{ult}$ (CPT) = 100 tons
$Q_{ult}$ (Nordlund) = 167 tons
$Q_{ult}$ (Traditional Methods) = 163 tons

- SPT Method:

$$\phi_{SPT} = \frac{74 \text{ tons}}{132 \text{ tons}} = \underline{0.56}$$

- CPT Method:

$$\phi_{CPT} = \frac{74 \text{ tons}}{100 \text{ tons}} = \underline{0.74}$$

- Driven 1.0 (Nordlund Method):

$$\phi_{Nordlund} = \frac{74 \text{ tons}}{167 \text{ tons}} = \underline{0.44}$$

- Traditional Methods:

$$\phi_{T.M.} = \frac{74 \text{ tons}}{163 \text{ tons}} = \underline{0.45}$$

## Newbury Site Project, Test Pile #3:

$Q_{ult}$ (load test) = 98 tons
$Q_{ult}$ (SPT) = 192 tons
$Q_{ult}$ (CPT) = 158 tons
$Q_{ult}$ (Nordlund) = 300 tons
$Q_{ult}$ (Traditional Methods) = 241 tons

- SPT Method:

$$\phi_{SPT} = \frac{98 \text{ tons}}{192 \text{ tons}} = \underline{0.51}$$

- CPT Method:

$$\phi_{CPT} = \frac{98 \text{ tons}}{192 \text{ tons}} = \underline{0.62}$$

- Driven 1.0 (Nordlund Method):

$$\phi_{Nordlund} = \frac{98 \text{ tons}}{300 \text{ tons}} = \underline{0.33}$$

- Traditional Methods:

$$\phi_{T.M.} = \frac{98 \text{ tons}}{241 \text{ tons}} = \underline{0.41}$$

## West Bay Project, Test Pile #9

$Q_{ult}$ (load test) = 468 tons
$Q_{ult}$ (SPT) = 590 tons
$Q_{ult}$ (CPT) = 340 tons
$Q_{ult}$ (Nordlund) = 1124 tons
$Q_{ult}$ (Traditional Methods) = 881 tons

- SPT Method:

$$\phi_{SPT} = \frac{468 \text{ tons}}{590 \text{ tons}} = \underline{0.79}$$

- CPT Method:

$$\phi_{CPT} = \frac{468 \text{ tons}}{340 \text{ tons}} = \underline{1.38}$$

- Driven 1.0 (Nordlund Method)

$$\phi_{Nordlund} = \frac{468 \text{ tons}}{1124 \text{ tons}} = \underline{0.42}$$

- Traditional Methods:

$$\phi_{T.M.} = \frac{468 \text{ tons}}{881 \text{ tons}} = \underline{0.53}$$

## West Bay Project, Test Pile #15:

$Q_{ult}$ (load test) = 423 tons
$Q_{ult}$ (SPT) = 564 tons
$Q_{ult}$ (CPT) = 481 tons
$Q_{ult}$ (Nordlund) = 1048 tons
$Q_{ult}$ (Traditional Methods) = 830 tons

- SPT Method:

$$\phi_{SPT} = \frac{423 \text{ tons}}{564 \text{ tons}} = \underline{0.75}$$

- CPT Method:

$$\phi_{CPT} = \frac{423 \text{ tons}}{481 \text{ tons}} = \underline{0.88}$$

- Driven 1.0 (Nordlund Method):

$$\phi_{Nordlund} = \frac{423 \text{ tons}}{1048 \text{ tons}} = \underline{0.40}$$

- Traditional Methods:

$$\phi_{T.M.} = \frac{423 \text{ tons}}{830 \text{ tons}} = \underline{0.51}$$

# APPENDIX D

# CASE HISTORY CALCULATIONS COMPARING THE WSD METHOD, THE LRFD METHOD AND THE PRESENT AASHTO CODE

## Static Pile Capacity Calculations

The presented calculations will compare the pile capacity predictions based on the Working Stress Design (WSD), the present AASHTO code, and the resistance factors as recommended in Chapter 9.

**Working Stress Design Method:**

$$Q_{all} = \frac{Q_{ult}}{FS}$$

for which:

$$Q_{ult} = Q_s + Q_p$$

where:

$$Q_s = q_s \times A_s$$

$$Q_p = q_p \times A_p$$

$Q_{all}$ = allowable or factored bearing resistance (F)
$Q_{ult}$ = bearing resistance of a single pile (F)
$Q_s$ = pile shaft resistance (F)
$Q_p$ = pile tip resistance (F)
$q_s$ = unit shaft resistance of pile ($F/L^2$)
$q_p$ = unit tip resistance of pile ($F/L^2$)
$A_s$ = surface area of pile shaft ($L^2$)
$A_p$ = area of pile tip ($L^2$)

**Present AASHTO Code (1998):**

$$Q_{all} = \phi_q \times Q_{ult} = \phi_{qs} \times Q_s + \phi_{qp} \times Q_p$$

for which:

$$Q_s = q_s \times A_s$$

$Q_p = q_p \times; A_p$

where:

$Q_{all}$ = factored bearing resistance
$Q_{ult}$ = bearing resistance of a single pile (F)
$Q_s$ = pile shaft resistance (F)
$Q_p$ = pile tip resistance (F)
$q_s$ = unit shaft resistance of pile ($F/L^2$)
$q_p$ = unit tip resistance of pile ($F/L^2$)
$A_s$ = surface area of pile shaft ($L^2$)
$A_p$ = area of pile tip ($L^2$)
$\phi_q$ = resistance factor for those methods that do not separate the resistance of a pile into contributions from the tip and shaft resistance.
$\phi_{qs}$ = resistance factor for shaft resistance specified in Table 10.5.5-2 of the 1998 AASHTO code for those method that separate the resistance of a pile into contributions from tip resistance and shaft resistance.
$\phi_{qs}$ = resistance factor for tip resistance specified in Table 10.5.5-2 of the 1998 AASHTO code for those method that separate the resistance of a pile into contributions from tip resistance and shaft resistance.

**Recommended Resistance Factors:**

The recommendation is to use the same process as described above and in the present AASHTO code, only using the resistance factors that were calculated in Chapter 9 and as presented in Table 9.6.

The process used for comparing predicted allowable pile capacities using the dynamic methods and the different codes and recommendations is a difficult one, as a direct comparison cannot be made. The problem lies in the present AASHTO code, which does not have recommended resistance factors for the dynamic methods. The method that is recommended is to calculate the pile capacity using the static methods and then if using a dynamic method to verify the pile capacity the static methods resistance factor can be multiplied by a $\lambda$ factor. Therefore, the first step in comparing

the different codes and the recommendations is to calculate the pile capacity using the static methods as described in the 1998 AASHTO code.

**Static methods to be used:**

***For the cohesive layers:***

α – method:

$$q_s = \alpha \times S_u$$

where: $S_u$ = mean undrained shear strength (tsf)
$\alpha$ = adhesion factor

β – method:

$$q_s = \beta \times \sigma'_v$$

where: $\sigma'_v$ = vertical effective stress (tsf)
$\beta$ = skin friction factor

λ – method:

$$q_s = \lambda \times (\sigma'_v + 2 \times S_u)$$

where: $\sigma'_v + 2S_u$ = passive lateral earth pressure (tsf)
$\lambda$ = an empirical coefficient

***For the Cohesionless layers:***

SPT – method:

$$q_p = \frac{0.4 \times N_{corr} \times D_b}{D} \leq q_l$$

for which:

$$N_{corr} = \left[ 0.77 \times \log_{10} \left( \frac{20}{\sigma'_v} \right) \right] \times N$$

where:

$N_{corr}$ = representative SPT blow count near the pile tip corrected for overburden pressure $\sigma'_v$ (blows/ft)
$N$ = measured SPT blow count (blows/ft)
$D$ = pile width or diameter (ft)
$D_b$ = depth of penetration in bearing strata (ft)
$q_l$ = limiting point resistance taken as $4N_{corr}$ for sands and $3N_{corr}$ for nonplastic silt (tsf)

$$q_s = \frac{\overline{N}}{50}$$ for driven displacement piles

$$q_s = \frac{\overline{N}}{100}$$ for nondisplacement pile (e.g., steel H-piles)

where:

$q_s$ = unit skin friction for driven piles
$\overline{N}$ = average (uncorrected) SPT-blow count along the pile shaft (blows/ft)

***Applied to all layers:***

CPT – method:

$$q_p = \frac{q_{c1} + q_{c2}}{2}$$

where:

$q_{c1}$ = average $q_c$ over a distance of yD below the pile tip (see AASHTO code for details.
$q_{c2}$ = average $q_c$ over a distance of 8D above the pile tip (see AASHTO code for details

$$Q_s = K_{s,c}\left[\sum_{i=1}^{N_1}\left(\frac{L_i}{8D_i}\right) f_{si} a_{si} h_i + \sum_{i=1}^{N_2} f_{si} a_{si} h_i\right]$$

where:

$K_{s,c}$ = correction factors: $K_c$ for clays and $K_s$ for sands from Figure 10.7.3.4.3c-1 of AASHTO code (DIM).
$L_i$ = depth to middle of length interval at the point considered (ft).
$D_i$ = pile width or diameter at the point considered (ft).
$f_{si}$ = unit local sleeve friction resistance from CPT at the point considered (tsf).
$a_{si}$ = pile perimeter at the point considered (ft).
$h_i$ = length interval at the point considered (ft).
$N_1$ = number of intervals between the ground surface an a point 8D below the ground surface.
$N_2$ = number of intervals between 8D below the ground surface and the tip of the pile.

**Newbury Test Site (2 friction piles):**

Soil Layers (see also Figure D.1):

| | | | |
|---|---|---|---|
| Layer 1: | Overconsolidated Clay | $\gamma$ = 120 pcf | Su = 1.0 tsf |
| Layer 2: | Soft Normally Consolidated Clay | $\gamma$ = 110 pcf | Su = 0.33 tsf |
| Layer 3: | Normally Consolidated Clay | $\gamma$ = 115 pcf | Su = 0.28 tsf |
| Layer 4: | Interbedded Sand, Silt, and Clay | $\gamma$ = 120 pcf | N' = 14.3 |
| | Therefore, from Bowles, 1996 | | $\phi$ = 34° |
| Layer 5: | Silty Sand | $\gamma$ = 125 pcf | $\phi$ = 35° |
| Layer 6: | Interbedded Sand, Silt, and Clay | $\gamma$ = 120 pcf | N' = 25.5 |
| | Therefore, from Bowles, 1996 | | $\phi$ = 36° |
| Layer 7: | Fine to Medium Sand | $\gamma$ = 125 pcf | $\phi$ = 35° |

Note: It is assumed that the two interbedded layers act as a Cohesionless soil.

***Test Pile # 2 (12.75" closed ended steel pipe pile driven 80ft, top 10 ft is encased):***

***Skin Friction:***

Layer 1 (8 ft thick layer):

$$A_s = \pi \times 12.75in \times 8\,ft \times \frac{1\,ft}{12in} = 26.704\,ft^2$$

*$\alpha$ – method:*

from Figure 10.7.3.3.2a-1 of 1998 AASHTO code with $S_u$ = 1.0 tsf, $\alpha$ = 0.90

$$q_s = 0.90 \times 1.0 = 0.90tsf$$

$$Q_s = 0.90tsf \times 26.704\,ft^2 = 24.03\,tons$$

*$\beta$ – method:*

From Paikowksy and Chen (1998), OCR $\approx$ 9 at 14 ft, therefore from Figure 10.7.3.3.2b-1 of 1998 AASHTO code $\beta$ = 1.3. $\sigma'_v$ = 0.582 tsf at 14 ft (midpoint of layer).

$$q_s = 1.3 \times 0.582tsf = 0.756tsf$$

$$Q_s = 0.756 tsf \times 26.704 ft^2 = 20.19 tons$$

λ - *method:*

From Figure 10.7.3.3.2c-1 of the 1998 AASHTO, λ = 0.15

$$q_s = 0.15 \times (0.582 tsf + 2 \times 1.0 tsf) = 0.387 tsf$$

$$Q_s = 0.387 tsf \times 26.704 ft^2 = 10.33 tons$$

Layer 2 (20 ft thick layer):

$$A_s = \pi \times 12.75 in \times 20 ft \times \frac{1 ft}{12 in} = 66.759 ft^2$$

α – *method:*

from Figure 10.7.3.3.2a-1 of 1998 AASHTO code with $S_u$ = 0.33 tsf, α = 0.97

$$q_s = 0.97 \times 0.33 = 0.320 tsf$$

$$Q_s = 0.320 psf \times 66.759 ft^2 = 21.36 tons$$

β – *method:*

From Paikowksy and Chen (1998), OCR ≈ 1 at 28 ft, therefore from Figure 10.7.3.3.2b-1 of 1998 AASHTO code β = 0.3. $\sigma'_v$ = 0.935 tsf at 28 ft (midpoint of layer).

$$q_s = 0.3 \times 0.935 tsf = 0.281 tsf$$

$$Q_s = 0.281 tsf \times 66.759 ft^2 = 18.76 tons$$

λ - *method:*

From Figure 10.7.3.3.2c-1 of the 1998 AASHTO, λ = 0.15

$$q_s = 0.15 \times (0.935 tsf + 2 \times 0.33 tsf) = 0.239 tsf$$

$$Q_s = 0.239 tsf \times 66.759 ft^2 = 15.96 tons$$

Layer 3 (16 ft thick layer):

$$A_s = \pi \times 12..75in \times 16ft \times \frac{1ft}{12in} = 53.407ft^2$$

*α – method:*

from Figure 10.7.3.3.2a-1 of 1998 AASHTO code with $S_u$ = 0.28 tsf, α = 0.98

$$q_s = 0.98 \times 0.28 = 0.274tsf$$

$$Q_s = 0.274tsf \times 53.407ft^2 = 14.63tons$$

*β – method:*

From Paikowksy and Chen (1998), OCR ≈ 1 at 46 ft, therefore from Figure 10.7.3.3.2b-1 of 1998 AASHTO code β = 0.3. $\sigma'_v$ = 1.384 tsf at 46 ft (midpoint of layer).

$$q_s = 0.3 \times 1.384tsf = 0.415tsf$$

$$Q_s = 0.415psf \times 53.407ft^2 = 22.16tons$$

*λ - method:*

From Figure 10.7.3.3.2c-1 of the 1998 AASHTO, λ = 0.15

$$q_s = 0.15 \times (1.384tsf + 2 \times 0.28tsf) = 0.292tsf$$

$$Q_s = 0.292tsf \times 53.407ft^2 = 15.59tons$$

Layer 4 (9 ft layer):

$$A_s = \pi \times 12..75in \times 9ft \times \frac{1ft}{12in} = 30.041ft^2$$

*SPT method:*

$$\overline{N} = 18.5$$

$$q_s = \frac{18.5}{50} = 0.370 tsf$$

$$Q_s = 0.370 tsf \times 30.041 ft^2 = 11.12 tons$$

Layer 5 (8 ft layer):

$$A_s = \pi \times 12..75 in \times 8 ft \times \frac{1 ft}{12 in} = 26.704 ft^2$$

*SPT method:*

$$\overline{N} = 32.9$$

$$q_s = \frac{32.9}{50} = 0.658 tsf$$

$$Q_s = 0.658 tsf \times 26.704 ft^2 = 17.57 tons$$

Layer 6 (8 ft layer):

$$A_s = \pi \times 12..75 in \times 8 ft \times \frac{1 ft}{12 in} = 26.704 ft^2$$

*SPT method:*

$$\overline{N} = 38.1$$

$$q_s = \frac{38.1}{50} = 0.762 tsf$$

$$Q_s = 0.762 tsf \times 26.704 ft^2 = 20.35 tons$$

Layer 7 (1 ft layer):

$$A_s = \pi \times 12..75 in \times 1 ft \times \frac{1 ft}{12 in} = 3.338 ft^2$$

*SPT method:*

$$\overline{N} = 23.4$$

$$q_s = \frac{23.4}{50} = 0.468 tsf$$

$$Q_s = 0.468 tsf \times 3.338 ft^2 = 1.56 tons$$

***Tip of Pile:***

$$A_p = \pi \times \left(\frac{12.75}{2}\right)^2 = 127.68 in^2 = 0.8866 ft^2$$

*SPT method:*

$\sigma'_v = 2.365$ tsf and $N = 24.2$ at the tip, i.e., depth of 80ft.

$$N_{corr} = \left[0.77 \times \log_{10}\left(\frac{20}{2.365}\right)\right] \times 24.2 = 17.3$$

$D = 12.75$ in $= 1.0625$ ft, $D_b = 80$ ft

$$q_p = \frac{0.4 \times 17.3 \times 80 ft}{1.0625 ft} = 521 tsf \leq 4 \times 17.3 = 69.2 tsf$$

therefore,

$$q_p = 69.2 tsf$$

$$Q_p = 69.2 tsf \times 0.8866 ft^2 = 61.35 tons$$

***CPT method:***

*Skin Friction:*

$8D = 8.5$ ft, therefore, the first term in calculating the skin friction is not needed as the pile is cased to 10 ft.

$\frac{L}{D} = \frac{80 ft}{1.0625 ft} = 75$, from Figure 10.7.3.4.3c-1 of AASHTO code $K_s = 0.30$

Set up Table using segments shown in Figure D.2.

| Pile Segment, $i$ | $f_{si}$ (tsf) | $a_{si}$ ($ft^2/ft$) | $h_i$ (ft) | $Q_{si}$ (tons) |
|---|---|---|---|---|
| 1 | 1.70 | 3.338 | 5 | 8.51 |
| 2 | 0.10 | 3.338 | 31 | 3.10 |
| 3 | 0.70 | 3.338 | 8 | 5.61 |
| 4 | 0.95 | 3.338 | 4 | 3.81 |
| 5 | 0.60 | 3.338 | 5 | 3.00 |
| 6 | 1.60 | 3.338 | 15 | 24.03 |
| 7 | 0.60 | 3.338 | 2 | 1.20 |
| | | | Total $Qs$ = | 49.26 tons |

Example for pile segment 3:

$$Q_{si} = 0.30 \times 0.70 tsf \times 3.338 ft \times 8 ft = 5.61 tons$$

*Tip Resistance:*

$$A_p = \pi \times \left(\frac{12.75 in}{4}\right)^2 = 127.68 in^2 = 0.8866 ft^2$$

$$8D = 8 \times 1.0625 ft = 8.5 ft$$

$$4D = 4 \times 1.0625 ft = 4.25 ft$$

Using the data presented in Figure D.3:

$$q_{c2} = \frac{40 tsf \times 4 ft + 105 tsf \times 4 ft + 75 tsf \times 0.5 ft}{8.5 ft} = 72.65 tsf$$

$$q_{c1(\min @ 2 ft)} = \frac{40 tsf \times 2 ft}{2 ft} = 40 tsf$$

$$q_p = \frac{40 tsf + 72.65 tsf}{2} = 56.33 tsf$$

$$Q_p = 56.33 tsf \times 0.8866 ft^2 = 49.94 tons$$

**Comparisons for Test Pile # 2:**

Ultimate Calculated Loads:

| | |
|---|---|
| CAPWAP prediction @ EOD: | 47 tons |
| CAPWAP prediction @ BOR(last): | 125 tons |
| Energy Approach prediction @ EOD: | 89 tons |
| Energy Approach prediction @ BOR(last): | 161 tons |
| ENR prediction with FS = 6 @ EOD: | 39 tons |
| ENR prediction with FS = 6 @ BOR(last): | 117 tons |
| Gates Equation prediction @ EOD: | 81 tons |
| Gates Equation prediction @ BOR(last): | 137 tons |
| FHWA version of the Gates equation prediction @ EOD: | 130 tons |
| FHWA version of the Gates equation prediction @ BOR(last): | 253 tons |

Working Stress Design Method:

Assuming that no static load test was completed the following are the recommended factors of safety for use.

| | |
|---|---|
| CAPWAP | 2.25 |
| Dynamic Equations | 3.50 |
| Energy Approach | No recommendation, so use 2.75 for comparison sake |

*CAPWAP EOD:*

$$Q_{all} = \frac{47 tons}{2.25} = 20.67 tons$$

*CAPWAP BOR (last):*

$$Q_{all} = \frac{125 tons}{2.25} = 55.38 tons$$

*Energy Approach EOD:*

$$Q_{all} = \frac{89 tons}{2.75} = 32.36 tons$$

*Energy Approach BOR (last):*

$$Q_{all} = \frac{161\,tons}{2.75} = 58.55\,tons$$

*ENR with FS = 6 EOD:*

$$Q_{all} = \frac{39\,tons}{3.50} = 11.14\,tons$$

*ENR with FS = 6 BOR (last):*

$$Q_{all} = \frac{117\,tons}{3.50} = 33.43\,tons$$

*Gates Equation EOD:*

$$Q_{all} = \frac{81\,tons}{3.50} = 23.14\,tons$$

*Gates Equation BOR (last):*

$$Q_{all} = \frac{137\,tons}{3.50} = 39.14\,tons$$

*FHWA version of the Gates Equation EOD:*

$$Q_{all} = \frac{130\,tons}{3.50} = 37.14\,tons$$

*FHWA version of the Gates Equation BOR (last):*

$$Q_{all} = \frac{253\,tons}{3.50} = 72.29\,tons$$

Present AASHTO Code:

Summary of Static Analysis:

| | Layer Number, $i$ | $\phi \times Q_{si}$ $\alpha$ – method $\phi = 0.70$ (tons) | $\phi \times Q_{si}$ $\beta$ – method $\phi = 0.50$ (tons) | $\phi \times Q_{si}$ $\lambda$ – method $\phi = 0.55$ (tons) | CPT – method $\phi = 0.55$ (tons) |
|---|---|---|---|---|---|
| Clay Layers | 1 | 16.82 | 10.10 | 5.68 | ----- |
| | 2 | 14.95 | 9.38 | 8.78 | ----- |
| | 3 | 10.24 | 11.08 | 8.57 | ----- |
| | | $\phi \times Q_{si}$, SPT – method, $\phi = 0.45$ (tons) | | | ----- |
| Sand Layers | 4 | 5.00 | 5.00 | 5.00 | ----- |
| | 5 | 7.91 | 7.91 | 7.91 | ----- |
| | 6 | 9.16 | 9.16 | 9.16 | ----- |
| | 7 | 0.70 | 0.70 | 0.70 | ----- |
| | $\Sigma\phi \times Q_{si}$ | 64.78 | 53.33 | 45.80 | 27.09 |
| Tip | $\phi \times Q_p$ | 27.61 | 27.61 | 27.61 | 27.47 |
| | $Q_{all}$ | 92.39 | 80.94 | 73.41 | 54.56 |

*$\alpha$ – method / SPT – method:*

*with CAPWAP verification, $\lambda_v = 1.00$:*

$Q_{all} = 1.00 \times 92.39\, tons = 92.39\, tons$

*with Energy Approach verification, $\lambda_v = 0.90$:*

$Q_{all} = 0.90 \times 92.39\, tons = 83.15\, tons$

*with dynamic equation verification, $\lambda_v = 0.80$:*

$Q_{all} = 0.80 \times 92.39\, tons = 73.91\, tons$

*$\beta$ – method / SPT – method:*

*with CAPWAP verification, $\lambda_v = 1.00$:*

$Q_{all} = 1.00 \times 80.94\, tons = 80.94\, tons$

*with Energy Approach verification, $\lambda_v = 0.90$:*

$Q_{all} = 0.90 \times 80.94\,tons = 72.85\,tons$

*with dynamic equation verification, $\lambda_v = 0.80$:*

$Q_{all} = 0.80 \times 80.94\,tons = 64.75\,tons$

*$\lambda$ – method / SPT – method:*

*with CAPWAP verification, $\lambda_v = 1.00$:*

$Q_{all} = 1.00 \times 73.41\,tons = 73.41\,tons$

*with Energy Approach verification, $\lambda_v = 0.90$:*

$Q_{all} = 0.90 \times 73.41\,tons = 66.07\,tons$

*with dynamic equation verification, $\lambda_v = 0.80$:*

$Q_{all} = 0.80 \times 73.41\,tons = 58.73\,tons$

*CPT – method:*

*with CAPWAP verification, $\lambda_v = 1.00$:*

$Q_{all} = 1.00 \times 54.56\,tons = 54.56\,tons$

*with Energy Approach verification, $\lambda_v = 0.90$:*

$Q_{all} = 0.90 \times 54.56\,tons = 49.10\,tons$

*with dynamic equation verification, $\lambda_v = 0.80$:*

$Q_{all} = 0.80 \times 54.56\,tons = 43.65\,tons$

Recommended Resistance Factors (Non-Redundant Pile):

*CAPWAP EOD, $\phi = 0.43$:*

$Q_{all} = 0.43 \times 47\,tons = 20.21\,tons$

*CAPWAP BOR (last), $\phi = 0.51$:*

$Q_{all} = 0.51 \times 125\,tons = 63.75\,tons$

*Energy Approach EOD, $\phi = 0.40$:*

$Q_{all} = 0.40 \times 89\,tons = 35.60\,tons$

*Energy Approach BOR (last), $\phi = 0.32$:*

$Q_{all} = 0.32 \times 161\,tons = 51.52\,tons$

*ENR with FS = 6 EOD, $\phi = 0.15$*

$Q_{all} = 0.15 \times 39\,tons = 5.85\,tons$

*ENR with FS = 6 BOR (last), $\phi = 0.15$*

$Q_{all} = 0.15 \times 117\,tons = 17.55\,tons$

*Gates Equation EOD, $\phi = 0.53$:*

$Q_{all} = 0.53 \times 81\,tons = 42.93\,tons$

*Gates Equation BOR (last), $\phi = 0.53$:*

$Q_{all} = 0.53 \times 137\,tons = 72.61\,tons$

*FHWA version of Gates Equation EOD, $\phi = 0.26$:*

$Q_{all} = 0.26 \times 130\,tons = 33.80\,tons$

*FHWA version of Gates Equation BOR (last), $\phi = 0.26$:*

$Q_{all} = 0.26 \times 253\,tons = 65.78\,tons$

***Test Pile # 3 (14" square concrete pile driven 80ft, top 10 ft is encased):***

***Skin Friction:***

Layer 1 (8 ft thick layer):

$$A_s = 4 \times 14in \times 8ft \times \frac{1ft}{12in} = 37.333ft^2$$

*α – method:*

from Figure 10.7.3.3.2a-1 of 1998 AASHTO code with $S_u$ = 1.0 tsf, α = 0.90

$$q_s = 0.90 \times 1.0 = 0.90tsf$$

$$Q_s = 0.90tsf \times 37.333ft^2 = 33.60tons$$

*β – method:*

From Paikowksy and Chen (1998), OCR ≈ 9 at 14 ft, therefore from Figure 10.7.3.3.2b-1 of 1998 AASHTO code β = 1.3. $\sigma'_v$ = 0.582 tsf at 14 ft (midpoint of layer).

$$q_s = 1.3 \times 0.582tsf = 0.756tsf$$

$$Q_s = 0.756tsf \times 37.333ft^2 = 28.22tons$$

*λ - method:*

From Figure 10.7.3.3.2c-1 of the 1998 AASHTO, λ = 0.15

$$q_s = 0.15 \times (0.582tsf + 2 \times 1.0tsf) = 0.387tsf$$

$$Q_s = 0.387tsf \times 37.333ft^2 = 14.45tons$$

Layer 2 (20 ft thick layer):

$$A_s = 4 \times 14in \times 20ft \times \frac{1ft}{12in} = 93.333ft^2$$

α – *method:*

from Figure 10.7.3.3.2a-1 of 1998 AASHTO code with $S_u$ = 0.33 tsf, α = 0.97

$$q_s = 0.97 \times 0.33 = 0.320 tsf$$

$$Q_s = 0.320 psf \times 93.333 ft^2 = 29.87 tons$$

β – *method:*

From Paikowksy and Chen (1998), OCR ≈ 1 at 28 ft, therefore from Figure 10.7.3.3.2b-1 of 1998 AASHTO code β = 0.3. $\sigma'_v$ = 0.935 tsf at 28 ft (midpoint of layer).

$$q_s = 0.3 \times 0.935 tsf = 0.281 tsf$$

$$Q_s = 0.281 tsf \times 93.333 ft^2 = 26.23 tons$$

λ - *method:*

From Figure 10.7.3.3.2c-1 of the 1998 AASHTO, λ = 0.15

$$q_s = 0.15 \times (0.935 tsf + 2 \times 0.33 tsf) = 0.239 tsf$$

$$Q_s = 0.239 tsf \times 93.333 ft^2 = 22.31 tons$$

Layer 3 (16 ft thick layer):

$$A_s = 4 \times 14 in \times 16 ft \times \frac{1 ft}{12 in} = 74.667 ft^2$$

α – *method:*

from Figure 10.7.3.3.2a-1 of 1998 AASHTO code with $S_u$ = 0.28 tsf, α = 0.98

$$q_s = 0.98 \times 0.28 = 0.274 tsf$$

$$Q_s = 0.274 tsf \times 74.667 ft^2 = 20.46 tons$$

β – *method:*

From Paikowksy and Chen (1998), OCR ≈ 1 at 46 ft, therefore from Figure 10.7.3.3.2b-1 of 1998 AASHTO code β = 0.3. $\sigma'_v$ = 1.384 tsf at 46 ft (midpoint of layer).

$$q_s = 0.3 \times 1.384 tsf = 0.415 tsf$$

$$Q_s = 0.415 psf \times 74.667 ft^2 = 30.99 tons$$

λ - *method:*

From Figure 10.7.3.3.2c-1 of the 1998 AASHTO, λ = 0.15

$$q_s = 0.15 \times (1.384 tsf + 2 \times 0.28 tsf) = 0.292 tsf$$

$$Q_s = 0.292 tsf \times 74.667 ft^2 = 21.80 tons$$

Layer 4 (9 ft layer):

$$A_s = 4 \times 14 in \times 9 ft \times \frac{1 ft}{12 in} = 42.000 ft^2$$

*SPT method:*

$$\overline{N} = 18.5$$

$$q_s = \frac{18.5}{50} = 0.370 tsf$$

$$Q_s = 0.370 tsf \times 42.000 ft^2 = 15.54 tons$$

Layer 5 (8 ft layer):

$$A_s = 4 \times 14 in \times 8 ft \times \frac{1 ft}{12 in} = 37.333 ft^2$$

*SPT method:*

$$\overline{N} = 32.9$$

$$q_s = \frac{32.9}{50} = 0.658 tsf$$

$$Q_s = 0.658 tsf \times 37.333 ft^2 = 24.57 tons$$

Layer 6 (8 ft layer):

$$A_s = 4 \times 14 in \times 8 ft \times \frac{1 ft}{12 in} = 37.333 ft^2$$

*SPT method:*

$$\overline{N} = 38.1$$

$$q_s = \frac{38.1}{50} = 0.762 tsf$$

$$Q_s = 0.762 tsf \times 37.333 ft^2 = 28.45 tons$$

Layer 7 (1 ft layer):

$$A_s = 4 \times 14 in \times 1 ft \times \frac{1 ft}{12 in} = 4.667 ft^2$$

*SPT method:*

$$\overline{N} = 23.4$$

$$q_s = \frac{23.4}{50} = 0.468 tsf$$

$$Q_s = 0.468 tsf \times 4.667 ft^2 = 2.18 tons$$

***Tip of Pile:***

$$A_p = (14 in)^2 = 196 in^2 = 1.3611 ft^2$$

*SPT method:*

$\sigma'_v = 2.365$ tsf and $N = 24.2$ at the tip, i.e., depth of 80ft.

$$N_{corr} = \left[0.77 \times \log_{10}\left(\frac{20}{2.365}\right)\right] \times 24.2 = 17.3$$

$D$ =14 in = 1.1667 ft, $D_b$ = 80 ft

$$q_p = \frac{0.4 \times 17.3 \times 80\,ft}{1.1667\,ft} = 475 tsf \leq 4 \times 17.3 = 69.2 tsf$$

therefore,

$$q_p = 69.2 tsf$$

$$Q_p = 69.2 tsf \times 1.1667\,ft^2 = 80.74\,tons$$

***CPT method:***

*Skin Friction:*

$8D$ = 9.33 ft, therefore, the first term in calculating the skin friction is not needed as the pile is cased to 10 ft.

$\frac{L}{D} = \frac{80\,ft}{1.1667\,ft} = 69$, from Figure 10.7.3.4.3c-1 of AASHTO code $K_s = 0.35$

Set up Table using segments shown in Figure D.2.

| Pile Segment, $i$ | $f_{si}$ (tsf) | $a_{si}$ ($ft^2/ft$) | $h_i$ (ft) | $Q_{si}$ (tons) |
|---|---|---|---|---|
| 1 | 1.70 | 4.667 | 5 | 13.88 |
| 2 | 0.10 | 4.667 | 31 | 5.06 |
| 3 | 0.70 | 4.667 | 8 | 9.15 |
| 4 | 0.95 | 4.667 | 4 | 6.21 |
| 5 | 0.60 | 4.667 | 5 | 4.90 |
| 6 | 1.60 | 4.667 | 15 | 39.20 |
| 7 | 0.60 | 4.667 | 2 | 1.96 |
| | | | Total $Qs$ = | 80.36 tons |

Example for pile segment 3:

$$Q_{si} = 0.35 \times 0.70 tsf \times 4.667 ft \times 8 ft = 9.15 tons$$

*Tip Resistance:*

$$A_p = (14in)^2 = 196in^2 = 1.3611 ft^2$$

$$8D = 8 \times 1.1667 ft = 9.33 ft$$

$$4D = 4 \times 1.1667 ft = 4.67 ft$$

Using the data presented in Figure D.3:

$$q_{c2} = \frac{40tsf \times 4 ft + 105tsf \times 4 ft + 75tsf \times 1.33 ft}{9.33 ft} = 72.86 tsf$$

$$q_{c1(\min @ 2 ft)} = \frac{40tsf \times 2 ft}{2 ft} = 40 tsf$$

$$q_p = \frac{40tsf + 72.86tsf}{2} = 56.43 tsf$$

$$Q_p = 56.43 tsf \times 1.3611 ft^2 = 76.81 tons$$

**Comparisons for Test Pile # 3:**

Ultimate Calculated Loads:

| | |
|---|---|
| CAPWAP prediction @ EOD: | 83 tons |
| CAPWAP prediction @ BOR(last): | 138 tons |
| Energy Approach prediction @ EOD: | 138 tons |
| Energy Approach prediction @ BOR(last): | 458 tons |
| ENR prediction with FS = 6 @ EOD: | 46 tons |
| ENR prediction with FS = 6 @ BOR (last): | 284 tons |
| Gates Equation prediction @ EOD: | 88 tons |
| Gates Equation prediction @ BOR(last): | 192 tons |
| FHWA version of the Gates equation prediction @ EOD: | 146 tons |
| FHWA version of the Gates equation prediction @ BOR(last): | 377 tons |

Working Stress Design Method:

Assuming that no static load test was completed the following are the recommended factors of safety for use.

| | |
|---|---|
| CAPWAP | 2.25 |
| Dynamic Equations | 3.50 |
| Energy Approach | No recommendation, so use 2.75 for comparison sake |

*CAPWAP EOD:*

$$Q_{all} = \frac{83 tons}{2.25} = 36.89 tons$$

*CAPWAP BOR (last):*

$$Q_{all} = \frac{138 tons}{2.25} = 61.33 tons$$

*Energy Approach EOD:*

$$Q_{all} = \frac{138 tons}{2.75} = 50.18 tons$$

*Energy Approach BOR (last):*

$$Q_{all} = \frac{458\,tons}{2.75} = 166.55\,tons$$

*ENR with FS = 6 EOD:*

$$Q_{all} = \frac{46\,tons}{3.50} = 13.14\,tons$$

*ENR with FS = 6 BOR (last):*

$$Q_{all} = \frac{284\,tons}{3.50} = 81.14\,tons$$

*Gates Equation EOD:*

$$Q_{all} = \frac{88\,tons}{3.50} = 25.14\,tons$$

*Gates Equation BOR (last):*

$$Q_{all} = \frac{192\,tons}{3.50} = 54.86\,tons$$

*FHWA version of the Gates Equation EOD:*

$$Q_{all} = \frac{146\,tons}{3.50} = 41.71\,tons$$

*FHWA version of the Gates Equation BOR (last):*

$$Q_{all} = \frac{377\,tons}{3.50} = 107.71\,tons$$

Present AASHTO Code:

Summary of Static Analysis:

| | Layer Number, $i$ | $\phi \times Q_{si}$ $\alpha$ – method $\phi = 0.70$ (tons) | $\phi \times Q_{si}$ $\beta$ – method $\phi = 0.50$ (tons) | $\phi \times Q_{si}$ $\lambda$ – method $\phi = 0.55$ (tons) | CPT – method $\phi = 0.55$ (tons) |
|---|---|---|---|---|---|
| Clay Layers | 1 | 23.52 | 14.11 | 7.95 | ----- |
| | 2 | 20.91 | 13.12 | 12.27 | ----- |
| | 3 | 14.32 | 15.50 | 11.99 | ----- |
| | | $\phi \times Q_{si}$, SPT – method, $\phi = 0.45$ (tons) | | | ----- |
| Sand Layers | 4 | 6.99 | 6.99 | 6.99 | ----- |
| | 5 | 11.06 | 11.06 | 11.06 | ----- |
| | 6 | 12.80 | 12.80 | 12.80 | ----- |
| | 7 | 0.98 | 0.98 | 0.98 | ----- |
| | $\Sigma\phi \times Q_{si}$ | 90.58 | 74.56 | 64.04 | 44.20 |
| Tip | $\phi \times Q_p$ | 36.33 | 36.33 | 36.33 | 42.25 |
| | $Q_{all}$ | 126.91 | 110.89 | 100.37 | 86.45 |

*$\alpha$ – method / SPT – method:*

*with CAPWAP verification, $\lambda_v = 1.00$:*

$$Q_{all} = 1.00 \times 126.91 \, tons = 126.91 \, tons$$

*with Energy Approach verification, $\lambda_v = 0.90$:*

$$Q_{all} = 0.90 \times 126.91 \, tons = 114.22 \, tons$$

*with dynamic equation verification, $\lambda_v = 0.80$:*

$$Q_{all} = 0.80 \times 126.91 \, tons = 101.53 \, tons$$

*$\beta$ – method / SPT – method:*

*with CAPWAP verification, $\lambda_v = 1.00$:*

$$Q_{all} = 1.00 \times 110.89 \, tons = 110.89 \, tons$$

*with Energy Approach verification, $\lambda_v = 0.90$:*

$Q_{all} = 0.90 \times 110.89\,tons = 99.80\,tons$

*with dynamic equation verification, $\lambda_v = 0.80$:*

$Q_{all} = 0.80 \times 110.89\,tons = 88.71\,tons$

*$\lambda$ – method / SPT – method:*

*with CAPWAP verification, $\lambda_v = 1.00$:*

$Q_{all} = 1.00 \times 100.37\,tons = 100.37\,tons$

*with Energy Approach verification, $\lambda_v = 0.90$:*

$Q_{all} = 0.90 \times 100.89\,tons = 90.33\,tons$

*with dynamic equation verification, $\lambda_v = 0.80$:*

$Q_{all} = 0.80 \times 100.89\,tons = 80.30\,tons$

*CPT – method:*

*with CAPWAP verification, $\lambda_v = 1.00$:*

$Q_{all} = 1.00 \times 86.45\,tons = 86.45\,tons$

*with Energy Approach verification, $\lambda_v = 0.90$:*

$Q_{all} = 0.90 \times 86.45\,tons = 77.81\,tons$

*with dynamic equation verification, $\lambda_v = 0.80$:*

$Q_{all} = 0.80 \times 86.45\,tons = 69.16\,tons$

Recommended Resistance Factors:

*CAPWAP EOD, $\phi = 0.43$:*

$Q_{all} = 0.43 \times 83\,tons = 35.69\,tons$

*CAPWAP BOR (last), $\phi = 0.51$:*

$Q_{all} = 0.51 \times 138\,tons = 70.38\,tons$

*Energy Approach EOD, $\phi = 0.40$:*

$Q_{all} = 0.40 \times 138\,tons = 55.20\,tons$

*Energy Approach BOR (last), $\phi = 0.32$:*

$Q_{all} = 0.32 \times 458\,tons = 146.56\,tons$

*ENR with FS = 6 EOD, $\phi = 0.15$*

$Q_{all} = 0.15 \times 46\,tons = 6.90\,tons$

*ENR with FS = 6 BOR (last), $\phi = 0.15$*

$Q_{all} = 0.15 \times 284\,tons = 42.60\,tons$

*Gates Equation EOD, $\phi = 0.53$:*

$Q_{all} = 0.53 \times 88\,tons = 46.64\,tons$

*Gates Equation BOR (last), $\phi = 0.53$:*

$Q_{all} = 0.53 \times 192\,tons = 101.76\,tons$

*FHWA version of Gates Equation EOD, $\phi = 0.26$:*

$Q_{all} = 0.26 \times 146\,tons = 37.96\,tons$

*FHWA version of Gates Equation BOR (last), $\phi = 0.26$:*

$Q_{all} = 0.26 \times 377\,tons = 98.02\,tons$

**Choctwhatchee River Project (1 end bearing pile):**

Soil Layers (see also Figure D.4):

| | | |
|---|---|---|
| Layer 1: | Silty Sand | $\gamma = 127.2$ pcf $\phi = 44°$ |
| Layer 2: | Sand | $\gamma = 107.3$ pcf $\phi = 32°$ |
| Layer 3: | Sand | $\gamma = 107.3$ pcf $\phi = 26°$ |
| Layer 4: | Clay/Silt | $\gamma = 101.2$ pcf $S_u = 0.126$ tsf |
| Layer 5: | Clay/Silty Clay | $\gamma = 101.2$ pcf $S_u = 0.197$ tsf |
| Layer 6: | Silty Sand | $\gamma = 113.4$ pcf $\phi = 34°$ |
| Layer 7: | Sand | $\gamma = 119.6$ pcf $\phi = 37°$ |

***Test Pile # P5 (30" square concrete pile with 18" center void, driven 53.96 ft):***

***Skin Friction:***

Layer 1 (11.5 ft thick layer):

$$A_s = 4 \times 30in \times 11.5ft \times \frac{1ft}{12in} = 115ft^2$$

*SPT method:*

$$\overline{N} = 10.5$$

$$q_s = \frac{10.5}{50} = 0.210tsf$$

$$Q_s = 0.210tsf \times 115ft^2 = 24.15tons$$

Layer 2 (8 ft thick layer):

$$A_s = 4 \times 30in \times 8ft \times \frac{1ft}{12in} = 80ft^2$$

*SPT method:*

$$\overline{N} = 2.8$$

$$q_s = \frac{2.8}{50} = 0.056tsf$$

$$Q_s = 0.056 tsf \times 80 ft^2 = 4.48 tons$$

Layer 3 (4 ft thick layer):

$$A_s = 4 \times 30 in \times 4 ft \times \frac{1 ft}{12 in} = 40 ft^2$$

*SPT method:*

$$\overline{N} = 1.4$$

$$q_s = \frac{1.4}{50} = 0.028 tsf$$

$$Q_s = 0.028 tsf \times 40 ft^2 = 1.12 tons$$

Layer 4 (3.5 ft layer):

$$A_s = 4 \times 30 in \times 3.5 ft \times \frac{1 ft}{12 in} = 35 ft^2$$

$\alpha$ – *method:*

from Figure 10.7.3.3.2a-1 of 1998 AASHTO code with $S_u$ = 0.126 tsf, $\alpha$ = 1.00

$$q_s = 1.00 \times 0.126 tsf = 0.126 tsf$$

$$Q_s = 0.126 tsf \times 35 ft^2 = 4.41 tons$$

$\beta$ – *method:*

OCR $\approx$ 1 at 25.25 ft, therefore from Figure 10.7.3.3.2b-1 of 1998 AASHTO code $\beta$ = 0.3. $\sigma'_v$ = 0.844 tsf at 25.25 ft (midpoint of layer).

$$q_s = 0.3 \times 0.844 tsf = 0.253 tsf$$

$$Q_s = 0.253 tsf \times 35 ft^2 = 8.86 tons$$

λ - *method:*

From Figure 10.7.3.3.2c-1 of the 1998 AASHTO, λ = 0.19

$$q_s = 0.19 \times (0.844tsf + 2 \times 0.126tsf) = 0.208tsf$$

$$Q_s = 0.208tsf \times 35ft^2 = 7.28tons$$

Layer 5 (9 ft layer):

$$A_s = 4 \times 30in \times 9ft \times \frac{1ft}{12in} = 90ft^2$$

α – *method:*

from Figure 10.7.3.3.2a-1 of 1998 AASHTO code with $S_u$ = 0.197 tsf, α = 1.00

$$q_s = 1.00 \times 0.197tsf = 0.197tsf$$

$$Q_s = 0.197tsf \times 90ft^2 = 17.73tons$$

β – *method:*

OCR ≈ 1 at 31.5 ft, therefore from Figure 10.7.3.3.2b-1 of 1998 AASHTO code β = 0.3. $\sigma'_v$ = 0.966 tsf at 14 ft (midpoint of layer).

$$q_s = 0.3 \times 0.966tsf = 0.290tsf$$

$$Q_s = 0.290tsf \times 90ft^2 = 26.10tons$$

λ - *method:*

From Figure 10.7.3.3.2c-1 of the 1998 AASHTO, λ = 0.19

$$q_s = 0.19 \times (0.966tsf + 2 \times 0.197tsf) = 0.258tsf$$

$$Q_s = 0.258tsf \times 90ft^2 = 23.22tons$$

Layer 6 (11 ft layer):

$$A_s = 4 \times 30in \times 11ft \times \frac{1ft}{12in} = 110ft^2$$

*SPT method:*

$$\overline{N} = 4.1$$

$$q_s = \frac{4.1}{50} = 0.082tsf$$

$$Q_s = 0.082tsf \times 110ft^2 = 9.02tons$$

Layer 7 (6.96 ft layer):

$$A_s = 4 \times 30in \times 6.96ft \times \frac{1ft}{12in} = 69.6ft^2$$

*SPT method:*

$$\overline{N} = 8.6$$

$$q_s = \frac{8.6}{50} = 0.172tsf$$

$$Q_s = 0.172tsf \times 69.6ft^2 = 11.97tons$$

***Tip of Pile:***

$$A_p = (30in)^2 - \pi \times \left(\frac{18in}{2}\right)^2 = 645.53in^2 = 4.4829ft^2$$

*SPT method:*

$\sigma'_v = 1.533$ tsf and $N = 12$ at the tip, i.e., depth of 53.96 ft.

$$N_{corr} = \left[0.77 \times \log_{10}\left(\frac{20}{1.533}\right)\right] \times 12 = 10.3$$

$D$ =30 in = 2.500 ft, $D_b$ = 53.96 ft

$$q_p = \frac{0.4 \times 10.3 \times 53.96\,ft}{2.500\,ft} = 88.92\,tsf \le 4 \times 10.3 = 41.2\,tsf$$

therefore,

$$q_p = 41.2tsf$$

$$Q_p = 41.2tsf \times 4.4829\,ft^2 = 184.70\,tons$$

***CPT method:***

*Skin Friction:*

$8D$ = 20 ft

$\frac{L}{D} = \frac{53.96\,ft}{2.50\,ft} = 22$, from Figure 10.7.3.4.3c-1 of AASHTO code $K_s$ = 0.41

Set up Table using segments shown in Figure D.5.

| Pile Segment, $i$ | $L_i$ (ft) | $D_i$ (ft) | $f_{si}$ (tsf) | $a_{si}$ ($ft^2$/ft) | $h_i$ (ft) | $Q_{si}$ (tons) |
|---|---|---|---|---|---|---|
| 1 | 4 | 2.5 | 1.8 | 10 | 8 | 11.81 |
| 2 | 12 | 2.5 | 1.1 | 10 | 8 | 21.65 |
| 3 | 18 | 2.5 | 0.3 | 10 | 4 | 4.43 |
| 4 | N/A | N/A | 0.3 | 10 | 4 | 4.92 |
| 5 | N/A | N/A | 1.8 | 10 | 5 | 36.90 |
| 6 | N/A | N/A | 0.4 | 10 | 4 | 6.56 |
| 7 | N/A | N/A | 0.2 | 10 | 5 | 4.10 |
| 8 | N/A | N/A | 0.8 | 10 | 8 | 26.24 |
| 9 | N/A | N/A | 1.4 | 10 | 3 | 17.22 |
| 10 | N/A | N/A | 2.2 | 10 | 3 | 27.06 |
| 11 | N/A | N/A | 1.8 | 10 | 1.96 | 14.46 |
| | | | | | Total $Qs$ = | 175.35 tons |

Example for pile segment 3:

$$Q_{si} = 0.41 \times \left( \frac{18}{8 \times 2.5} \right) \times 0.30 tsf \times 10 ft \times 4 ft = 4.43 tons$$

*Tip Resistance:*

$$A_p = (30in)^2 - \pi \times \left( \frac{18in}{2} \right)^2 = 645.53in^2 = 4.4829 ft^2$$

$$8D = 8 \times 2.500 ft = 20 ft$$

$$4D = 4 \times 2.500 ft = 10 ft$$

Using the data presented in Figure D.6:

$$q_{c2} = \frac{10tsf \times 8.04ft + 30tsf \times 4ft + 70tsf \times 7.96ft}{20ft} = 37.88tsf$$

$$q_{c1(\min@4.04ft)} = \frac{40tsf \times 4.04ft}{4.04ft} = 40tsf$$

$$q_p = \frac{40tsf + 37.88tsf}{2} = 38.94tsf$$

$$Q_p = 38.94tsf \times 4.4829ft^2 = 174.56tons$$

**Comparisons for Test Pile # P5:**

Ultimate Calculated Loads:

| | |
|---|---|
| CAPWAP prediction @ 1 day BOR: | 284 tons |
| CAPWAP prediction @ BOR (last): | 292 tons |
| Energy Approach prediction @ 1 day BOR: | 504 tons |
| Energy Approach prediction @ BOR (last): | 583 tons |
| ENR prediction with FS = 6 @ BOR: | 546 tons |
| ENR prediction with FS = 6 @ BOR (last): | 616 tons |
| Gates Equation prediction @ 1 day BOR: | 259 tons |
| Gates Equation prediction @ BOR (last): | 275 tons |
| FHWA version of the Gates equation prediction @ 1 day BOR: | 526 tons |
| FHWA version of the Gates equation prediction @ BOR (last): | 560 tons |

Working Stress Design Method:

Assuming that no static load test was completed the following are the recommended factors of safety for use.

| | |
|---|---|
| CAPWAP | 2.25 |
| Dynamic Equations | 3.50 |
| Energy Approach | No recommendation, so use 2.75 for comparison sake |

*CAPWAP 1 day BOR:*

$$Q_{all} = \frac{284tons}{2.25} = 126.22tons$$

*CAPWAP BOR (last):*

$$Q_{all} = \frac{292\,tons}{2.25} = 129.78\,tons$$

*Energy Approach 1 day BOR:*

$$Q_{all} = \frac{504\,tons}{2.75} = 183.27\,tons$$

*Energy Approach BOR (last):*

$$Q_{all} = \frac{583\,tons}{2.75} = 212.00\,tons$$

*ENR with FS = 6, 1 day BOR:*

$$Q_{all} = \frac{546\,tons}{3.50} = 156.00\,tons$$

*ENR with FS = 6 BOR (last):*

$$Q_{all} = \frac{616\,tons}{3.50} = 176.00\,tons$$

*Gates Equation 1 day BOR:*

$$Q_{all} = \frac{259\,tons}{3.50} = 74.00\,tons$$

*Gates Equation BOR (last):*

$$Q_{all} = \frac{275\,tons}{3.50} = 78.57\,tons$$

*FHWA version of the Gates Equation 1 day BOR:*

$$Q_{all} = \frac{526\,tons}{3.50} = 150.29\,tons$$

*FHWA version of the Gates Equation BOR (last):*

$$Q_{all} = \frac{560\,tons}{3.50} = 160\,tons$$

Present AASHTO Code:

Summary of Static Analysis:

| | Layer Number, $i$ | $\phi \times Q_{si}$ $\alpha$ – method $\phi = 0.70$ (tons) | $\phi \times Q_{si}$ $\beta$ – method $\phi = 0.50$ (tons) | $\phi \times Q_{si}$ $\lambda$ – method $\phi = 0.55$ (tons) | CPT – method $\phi = 0.55$ (tons) |
|---|---|---|---|---|---|
| Clay Layers | 4 | 3.09 | 4.43 | 4.00 | ----- |
| | 5 | 12.41 | 13.05 | 12.77 | ----- |
| | | $\phi \times Q_{si}$, SPT – method, $\phi = 0.45$ (tons) | | | ----- |
| Sand Layers | 1 | 10.87 | 10.87 | 10.87 | ----- |
| | 2 | 2.02 | 2.02 | 2.02 | ----- |
| | 3 | 0.50 | 0.50 | 0.50 | ----- |
| | 6 | 4.06 | 4.06 | 4.06 | ----- |
| | 7 | 5.39 | 5.39 | 5.39 | ----- |
| | $\Sigma\phi \times Q_{si}$ | 38.34 | 40.32 | 39.61 | 96.44 |
| Tip | $\phi \times Q_p$ | 83.12 | 83.12 | 83.12 | 96.01 |
| | $Q_{all}$ | 121.46 | 123.44 | 122.73 | 192.45 |

*$\alpha$ – method / SPT – method:*

*with CAPWAP verification, $\lambda_v = 1.00$:*

$$Q_{all} = 1.00 \times 121.46\, tons = 121.46\, tons$$

*with Energy Approach verification, $\lambda_v = 0.90$:*

$$Q_{all} = 0.90 \times 121.46\, tons = 109.31\, tons$$

*with dynamic equation verification, $\lambda_v = 0.80$:*

$$Q_{all} = 0.80 \times 121.46\, tons = 97.17\, tons$$

*β – method / SPT – method:*

*with CAPWAP verification, $\lambda_v$ = 1.00:*

$Q_{all} = 1.00 \times 123.44\, tons = 123.44\, tons$

*with Energy Approach verification, $\lambda_v$ = 0.90:*

$Q_{all} = 0.90 \times 123.44\, tons = 111.10\, tons$

*with dynamic equation verification, $\lambda_v$ = 0.80:*

$Q_{all} = 0.80 \times 123.44\, tons = 98.75\, tons$

*λ – method / SPT – method:*

*with CAPWAP verification, $\lambda_v$ = 1.00:*

$Q_{all} = 1.00 \times 122.73\, tons = 122.73\, tons$

*with Energy Approach verification, $\lambda_v$ = 0.90:*

$Q_{all} = 0.90 \times 122.73\, tons = 110.46\, tons$

*with dynamic equation verification, $\lambda_v$ = 0.80:*

$Q_{all} = 0.80 \times 122.73\, tons = 98.18\, tons$

*CPT – method:*

*with CAPWAP verification, $\lambda_v$ = 1.00:*

$Q_{all} = 1.00 \times 192.45\, tons = 192.45\, tons$

*with Energy Approach verification, $\lambda_v$ = 0.90:*

$Q_{all} = 0.90 \times 192.45\, tons = 173.21\, tons$

*with dynamic equation verification, $\lambda_v$ = 0.80:*

$Q_{all} = 0.80 \times 192.45\, tons = 153.96\, tons$

Recommended Resistance Factors:

*CAPWAP 1 day BOR, $\phi = 0.51$:*

$$Q_{all} = 0.51 \times 284\ tons = 144.84\ tons$$

*CAPWAP BOR (last), $\phi = 0.51$:*

$$Q_{all} = 0.51 \times 292\ tons = 148.92\ tons$$

*Energy Approach 1 day BOR, $\phi = 0.32$:*

$$Q_{all} = 0.32 \times 504\ tons = 161.28\ tons$$

*Energy Approach BOR (last), $\phi = 0.32$:*

$$Q_{all} = 0.32 \times 583\ tons = 186.56\ tons$$

*ENR with FS = 6, 1 day BOR, $\phi = 0.15$:*

$$Q_{all} = 0.15 \times 546\ tons = 81.90\ tons$$

*ENR with FS = 6 BOR (last), $\phi = 0.15$:*

$$Q_{all} = 0.15 \times 616\ tons = 92.40\ tons$$

*Gates Equation 1 day BOR, $\phi = 0.53$:*

$$Q_{all} = 0.53 \times 259\ tons = 137.27\ tons$$

*Gates Equation BOR (last), $\phi = 0.53$:*

$$Q_{all} = 0.53 \times 275\ tons = 145.75\ tons$$

*FHWA version of Gates Equation 1 day BOR, $\phi = 0.26$:*

$$Q_{all} = 0.26 \times 526\ tons = 136.76\ tons$$

*FHWA version of Gates Equation BOR (last), $\phi = 0.26$:*

$$Q_{all} = 0.26 \times 560\ tons = 145.60\ tons$$

**Table D.1.** Summary of Design Capacity Comparisons for Three Case History Piles.

| Type of Analysis | Method | $Q_{all}$ (kN) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Friction Piles | | | | | | End Bearing Pile | | |
| | | Newbury TP # 2 | | | Newbury TP # 3 | | | Choctawhatchee Peir 5 | | |
| | | WSD | AASHTO | Ch 9 $\phi$'s | WSD | AASHTO | Ch 9 $\phi$'s | WSD | AASHTO | Ch 9 $\phi$'s |
| Wave Matching | CAPWAP EOD | 187 | 667 | 178 | 329 | 943 | 320 | ----- | 1246 | ----- |
| | CAPWAP BOR | ----- | | ----- | ----- | | ----- | 1121 | | 1290 |
| | CAPWAP BORL | 489 | | 569 | 543 | | 623 | 1157 | | 1326 |
| Simplified Methods | EA EOD | 285 | 605 | 320 | 445 | 854 | 489 | ----- | 1121 | ----- |
| | EA BOR | ----- | | ----- | ----- | | ----- | 1628 | | 1432 |
| | EA BORL | 525 | | 463 | 1486 | | 1308 | 1886 | | 1664 |
| Dynamic Equations | ENR EOD | 98 | 534 | 53 | 116 | 756 | 62 | ----- | 996 | ----- |
| | ENR BOR | ----- | | ----- | ----- | | ----- | 1388 | | 730 |
| | ENR BORL | 294 | | 160 | 721 | | 383 | 1566 | | 818 |
| | Gates EOD | 205 | | 383 | 222 | | 418 | ----- | | ----- |
| | Gates BOR | ----- | | ----- | ----- | | ----- | 658 | | 1219 |
| | Gates BORL | 347 | | 649 | 489 | | 907 | 703 | | 1299 |
| | FHWA EOD | 329 | | 302 | 374 | | 338 | ----- | | ----- |
| | FHWA BOR | ----- | | ----- | ----- | | ----- | 1334 | | 1219 |
| | FHWA BORL | 641 | | 587 | 961 | | 872 | 1423 | | 1299 |
| Static Load Test Results | | $Q_{ult}$ = 658 kN | | | $Q_{ult}$ = 872 kN | | | $Q_{ult}$ = 5560 kN | | |

Note: The wave matching techniques are not recommended by GRL to be used at the EOD (Rausche, 2001) and the Energy Approach is not recommended to be used during restrike.

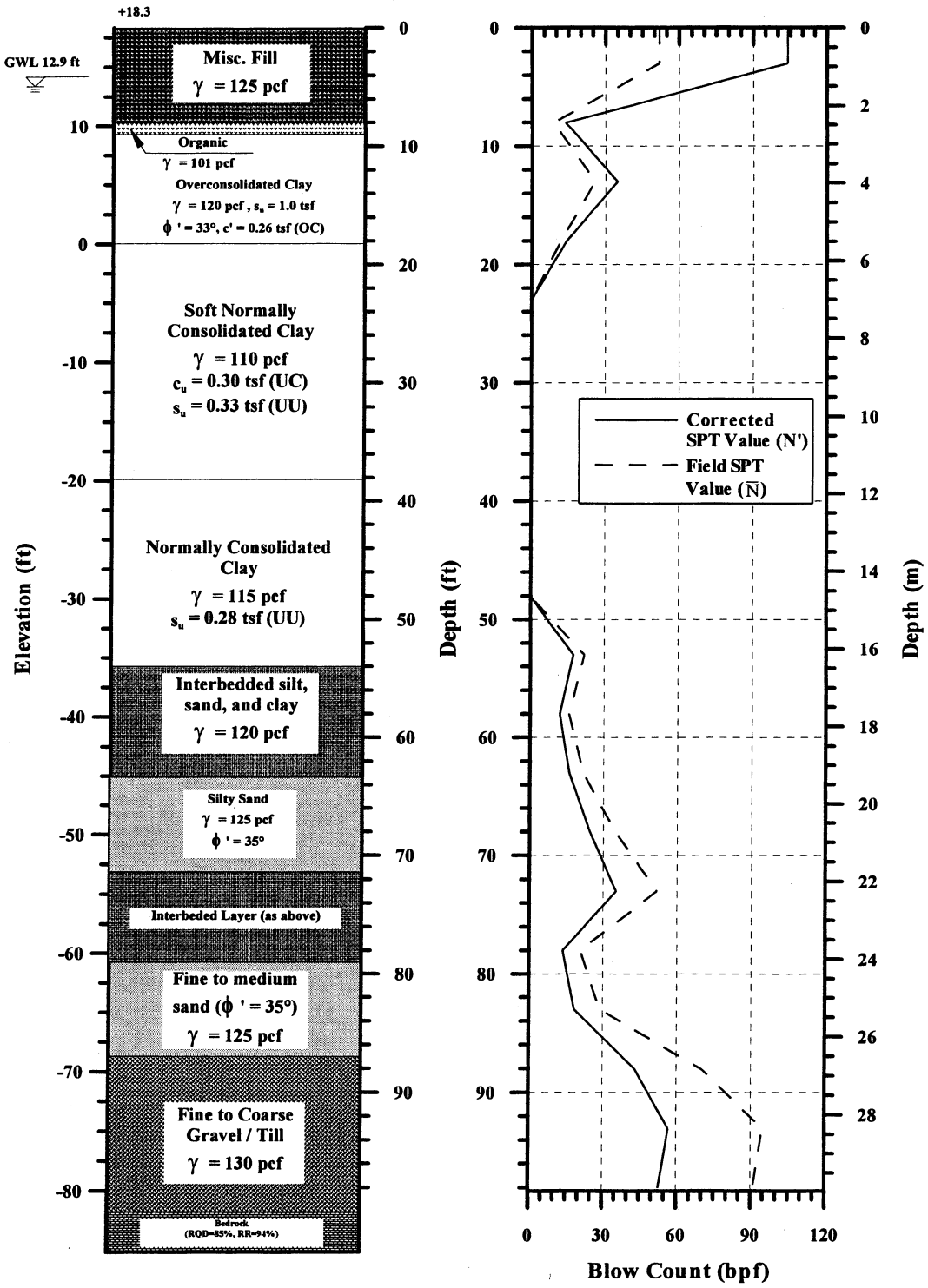



**Figure D.1.** Soil Profile and SPT values with Depth for the Newbury Site.

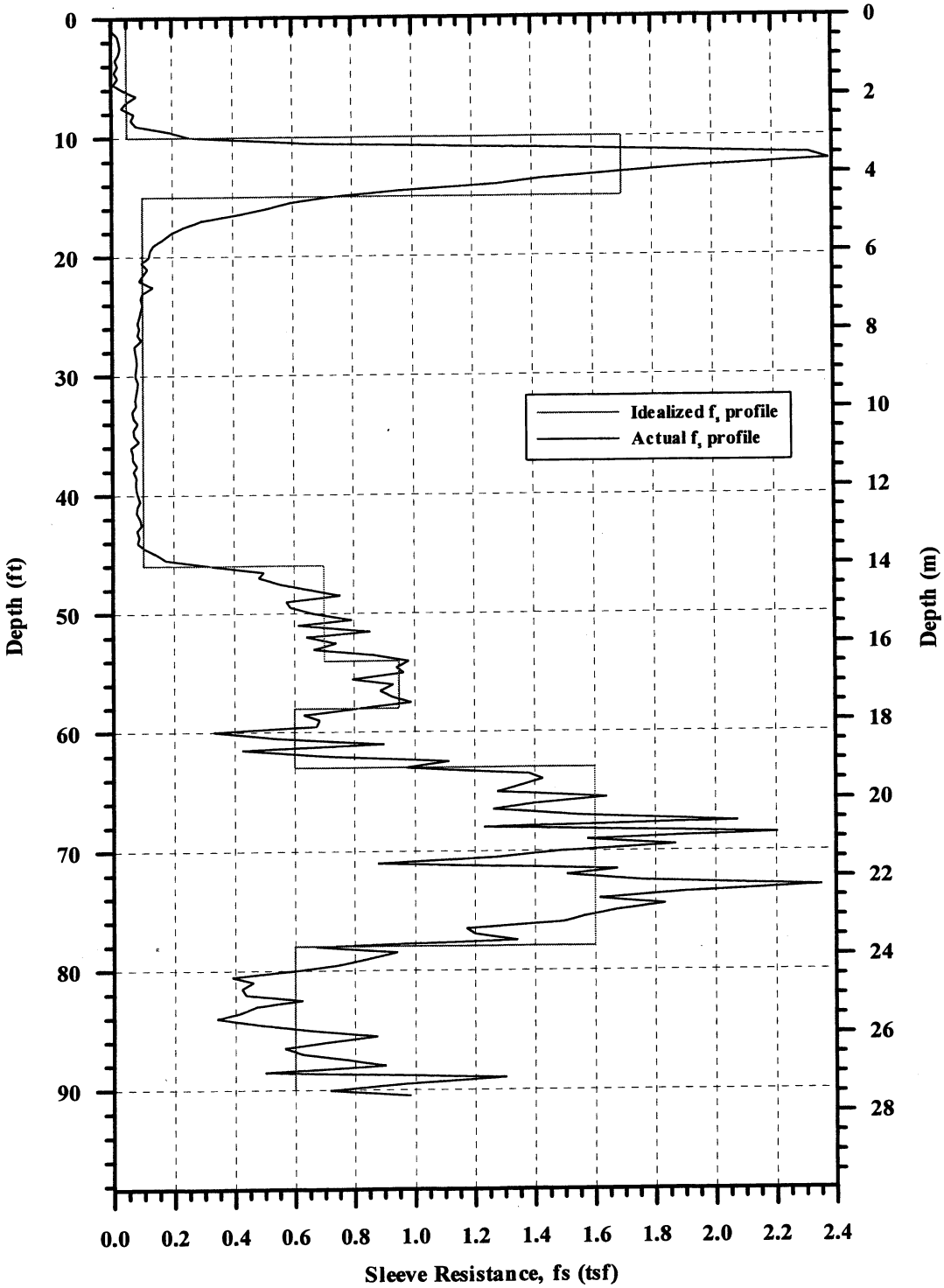



**Figure D.2.** CPT data, $f_s$ profile with Depth for the Newbury Site.

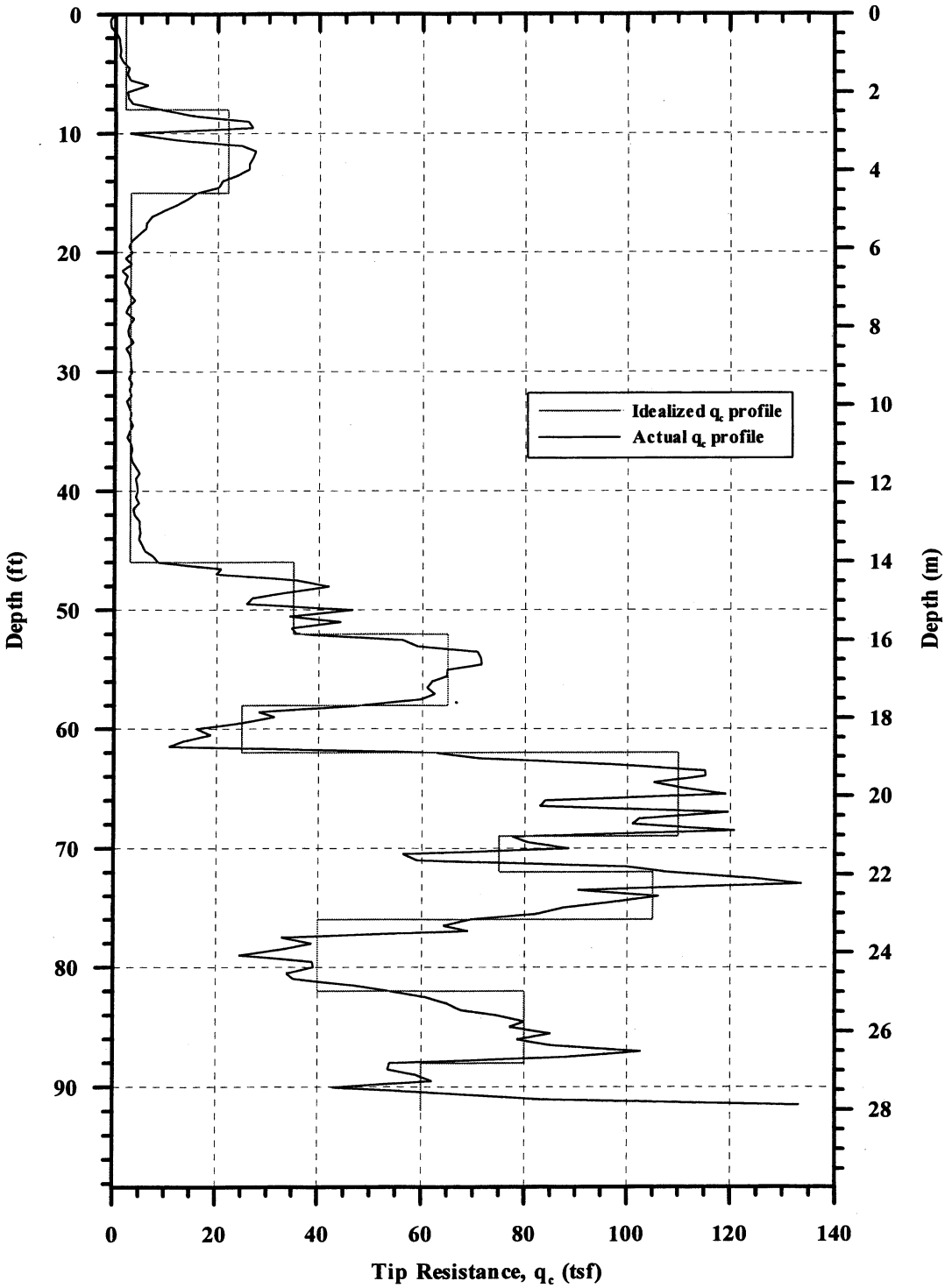



**Figure D.3.** CPT data, $q_c$ profile with Depth for the Newbury Site.

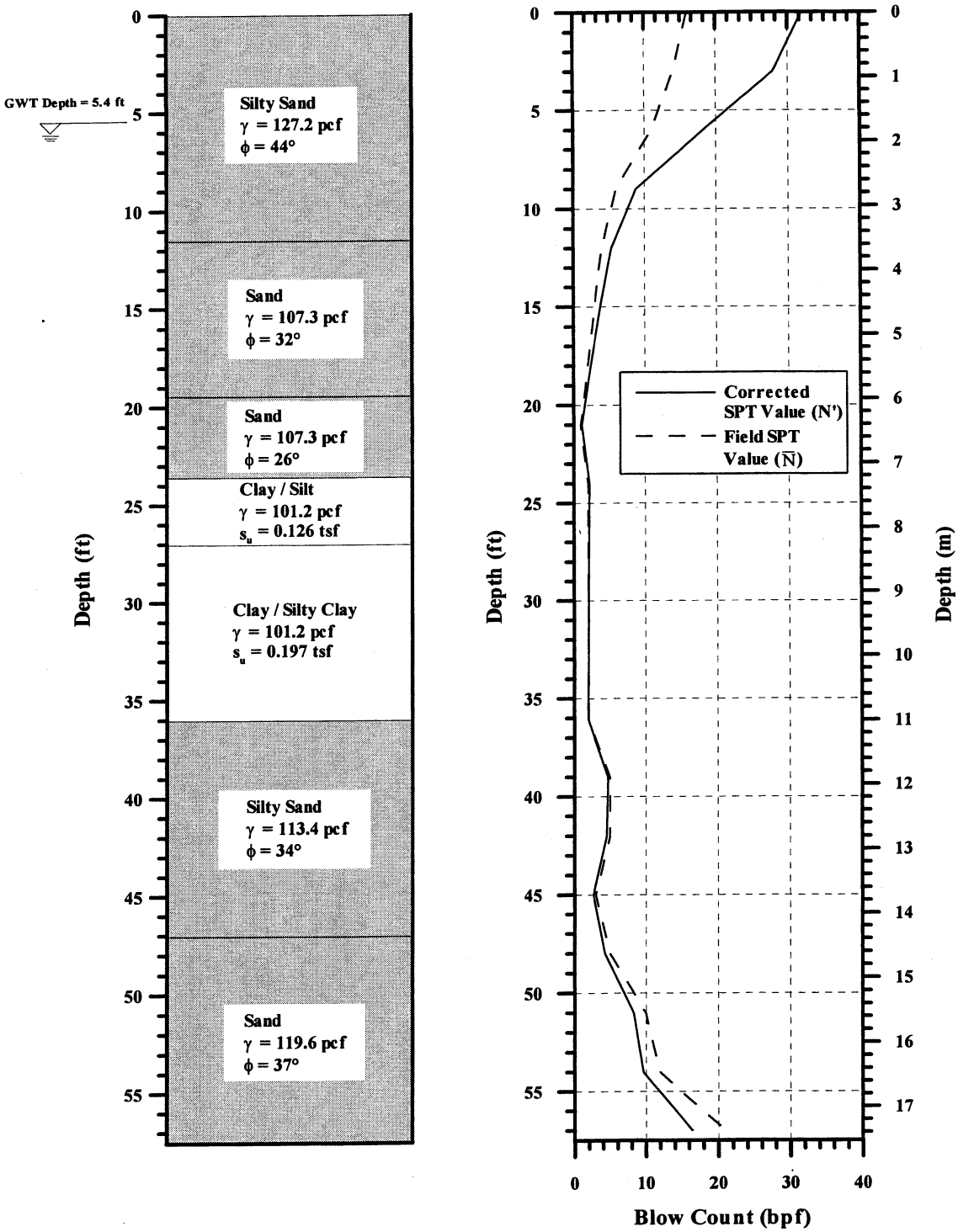



**Figure D.4.** Soil Profile and SPT values with Depth for the Choctawhatchee River Project.

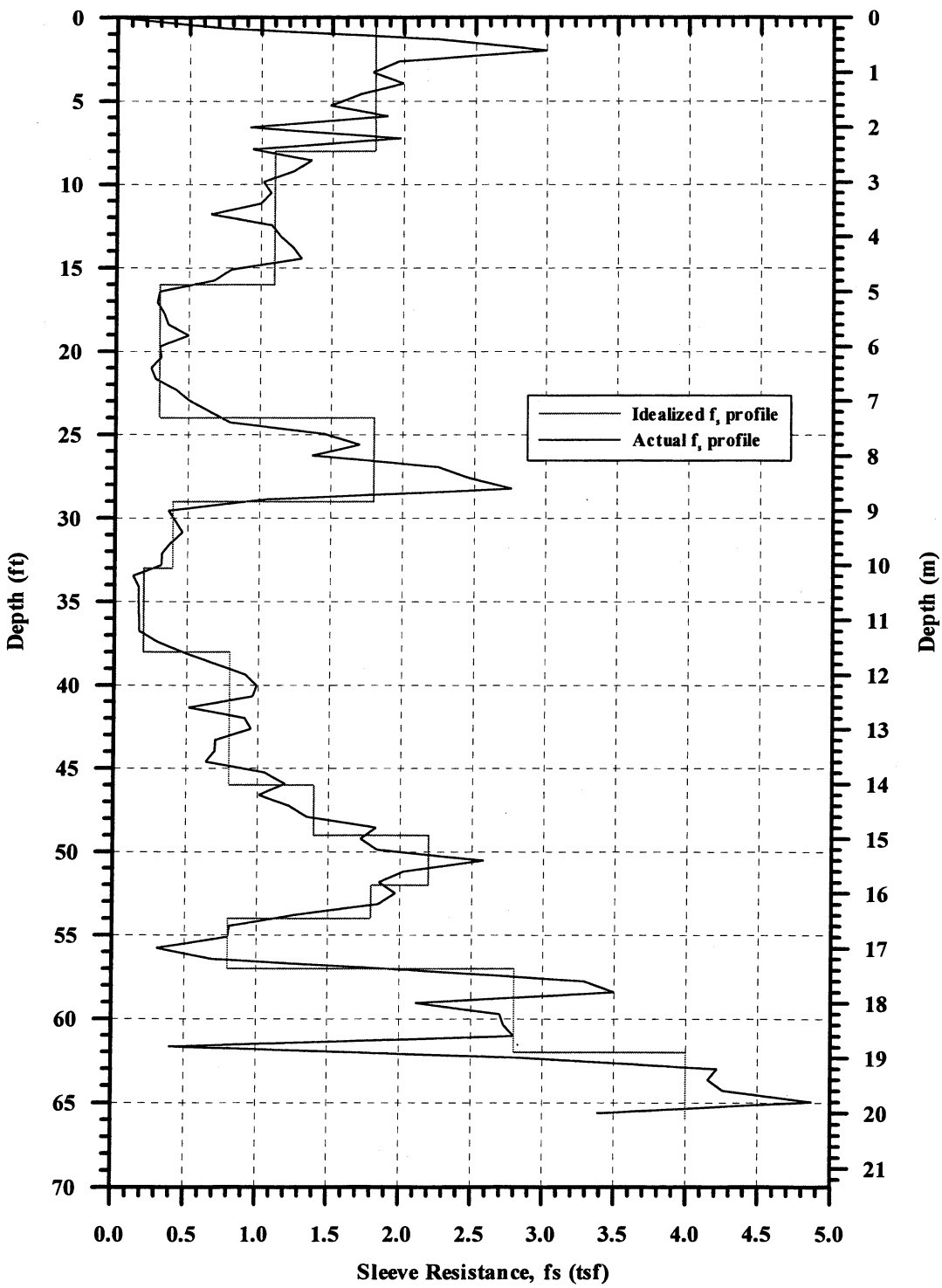



**Figure D.5.** CPT data, $f_s$ profile with Depth for the Choctawhatchee River Project.

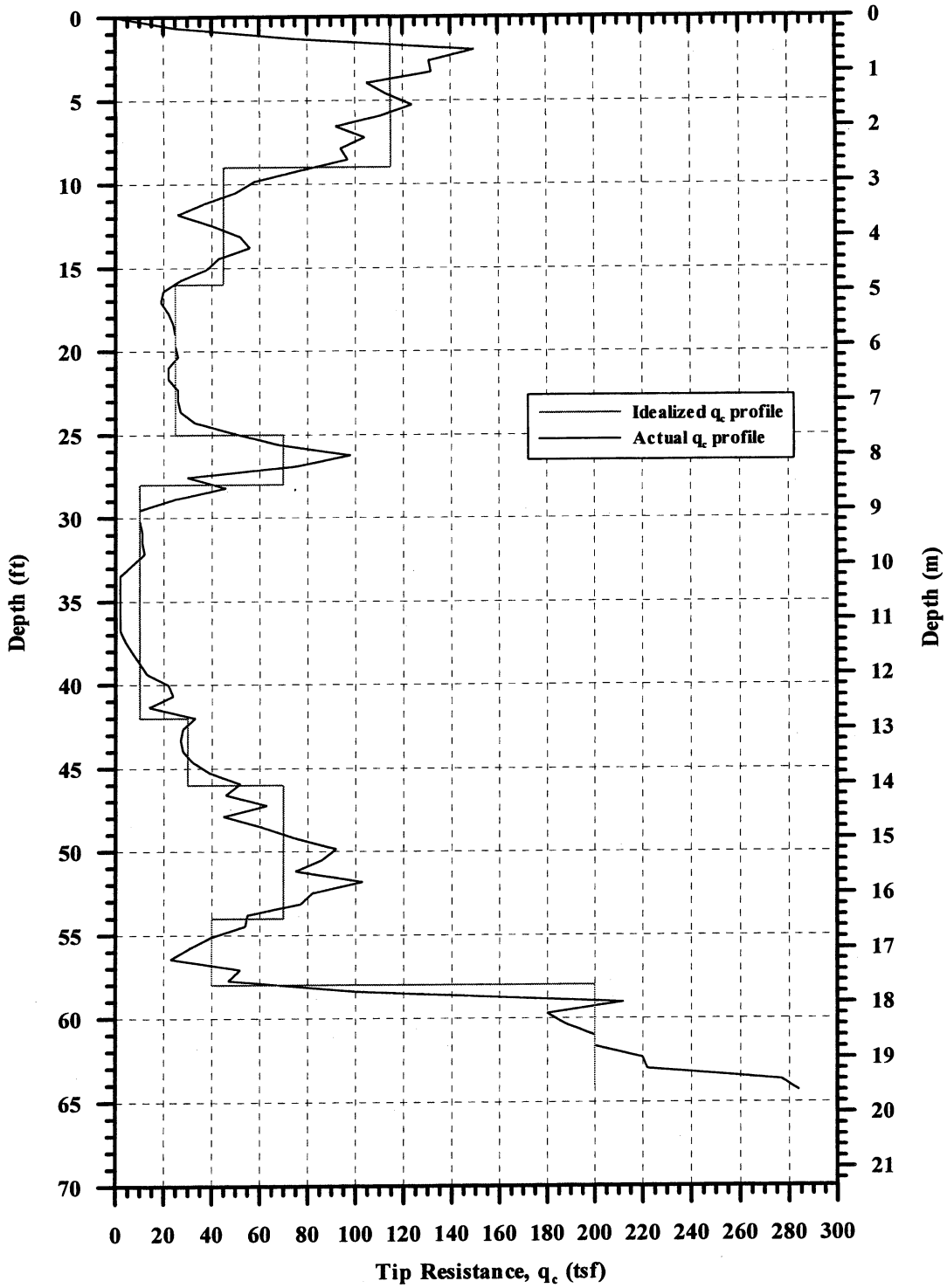



**Figure D.6.** CPT data, $q_c$ profile with Depth for the Choctawhatchee River Project.