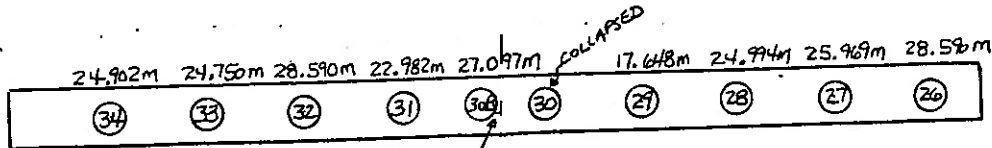


REF. NO. 90 - (507) 300mm CAST-IN-PLACE REINFORCED CONCRETE PILES,

ESTIMATED PAY LENGTH:

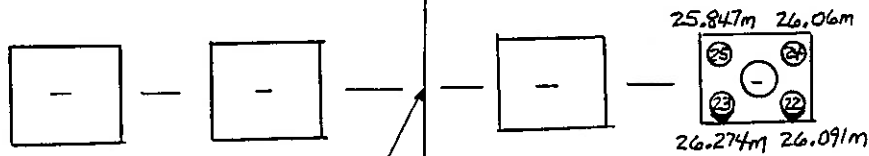
ABUTMENTS = 17 METERS
PIERS = 11 METERS



ULTIMATE BEARING:

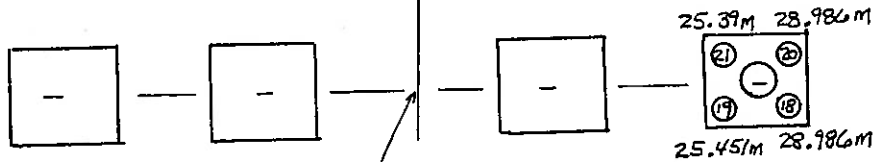
ABUTMENTS = 773 KN
PIERS = 872 KN

STA. 15+854.540
Q FORWARD ABUTMENT

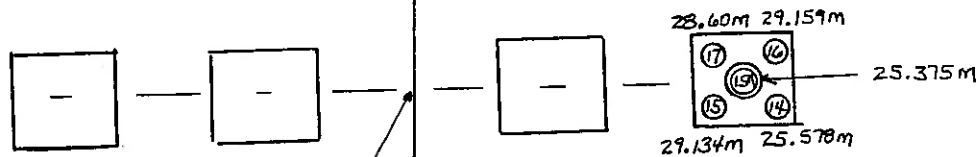


⊙ = 300mm BATTERED 1:4 PILE

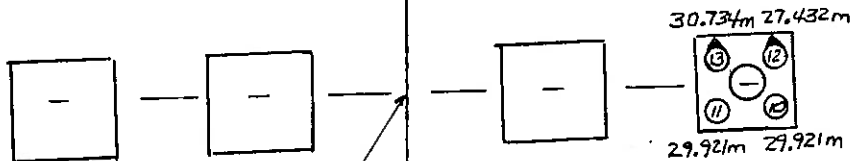
STA. 15+840.520
Q PIER 4



STA. 15+822.994
Q PIER 3



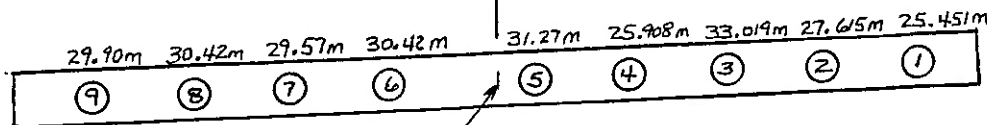
STA. 15+805.468
Q PIER 2



STA. 15+787.942
Q PIER 1



SUMMARY TOTALS	
REAR ABUT.	= 263.573m
PIER 1	= 118.008m
PIER 2	= 137.846m
PIER 3	= 108.813m
PIER 4	= 104.272m
FWD. ABUT.	= 225.522m
TOTAL	= 958.034m



STA. 15+773.922
Q REAR ABUTMENT

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Sheet 1
Recorder Doug George
Date 04/15/00

Guernsey _____ County
Section 14.352
Br. No. Gue-77-14 352 R
Location 1-77 over C.R. 431,
TR-4358 & CSX R.R.

PILING RECORD ~~Front~~ Abutment **FOOTING**

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile
Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F= 25866 Joules
Capacity formula: "R" = (334DF)/S+2.54 Required "R" = 773000 Newtons
Elev of top of pile (cut-off elev.): 251.009
Elev. of nominal point of zero penetration: 250.409

Pile No.	Pay Length (m)	Indicated "R" (N)	Remarks	Misc.
26	28.59 ✓	1004015		
27	25.969 ✓	819369		
28	24.994 ✓	819369		
29	17.648 ✓	799984		
30-B	27.097 ✓	783352	Pile #30 crushed. Pile #30-B was driven approx. 2' from defective pile.	
31	22.982 ✓	819369		
32	28.59 ✓	880063		
33	24.75 ✓	950468		
34	24.902 ✓	854405		

Total = 225.522 meters

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 26Guernsey CountyFwd. Abut. Abut / PierBridge No GUE-77-14 352 RDate Driven 04/06/00

PILE DRIVING LOG

Location I-77 over C.R. 431,TR-4358 & CSX R.R.Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F =

25866

Joules

Capacity formula: "R" = (334F)/S+2.54

Required "R" =

773000

Newtons

Elev. of top of pile (cut-off elev.) 251.009Elev. of nominal point of zero penetration: 250.409Elev. of pile point at final penetration: 222.419Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	1	304.80	28054	
0.610	1	304.80	28054	
0.914	1	304.80	28054	
1.219	1	304.80	28054	
1.524	1	304.80	28054	
1.829	1	304.80	28054	
2.134	1	304.80	28054	
2.438	1	304.80	28054	
2.743	1	304.80	28054	
3.048	1	304.80	28054	
3.353	1	304.80	28054	
3.658	1	304.80	28054	
3.962	1	304.80	28054	
4.267	1	304.80	28054	
4.572	1	304.80	28054	
4.877	2	152.40	55648	
5.182	2	152.40	55648	
5.486	2	152.40	55648	
5.791	2	152.40	55648	
6.096	2	152.40	55648	
6.401	15	20.32	377170	
6.706	15	20.32	377170	
7.010	15	20.32	377170	
7.315	15	20.32	377170	
7.620	16	19.05	399356	
7.925	17	17.93	421219	
8.230	18	16.93	442764	
8.534	18	16.93	442764	
8.839	18	16.93	442764	
9.144	18	16.93	442764	
9.449	19	16.04	464000	
9.754	19	16.04	464000	
10.058	19	16.04	464000	
10.363	20	15.24	484932	
10.668	20	15.24	484932	
10.973	18	16.93	442764	
11.278	19	16.04	464000	
11.582	19	16.04	464000	
11.887	19	16.04	464000	
12.192	19	16.04	464000	
12.497	20	15.24	484932	
12.802	20	15.24	484932	
13.106	20	15.24	484932	
13.411	20	15.24	484932	
13.716	20	15.24	484932	
14.021	28	10.89	642208	
14.326	27	11.29	623485	
14.630	27	11.29	623485	
14.935	26	11.72	604505	
15.240	26	11.72	604505	Splice #1, vis. insp. shows no sign of bent pile.
15.545	26	11.72	604505	
15.850	24	12.70	565755	
16.154	27	11.29	623485	
16.459	26	11.72	604505	
16.764	27	11.29	623485	
17.069	27	11.29	623485	
17.374	24	12.70	565755	
17.678	23	13.25	545973	
17.983	24	12.70	565755	
18.288	25	12.19	585263	
18.593	24	12.70	565755	
18.898	25	12.19	585263	

19.202	22	13.85	525913	
19.507	24	12.70	565755	
19.812	20	15.24	484932	
20.117	24	12.70	565755	
20.422	21	14.51	505568	
20.726	23	13.25	545973	
21.031	25	12.19	585263	
21.336	21	14.51	505568	
21.641	24	12.70	565755	
21.946	24	12.70	565755	
22.250	23	13.25	545973	
22.555	30	10.16	678905	
22.860	23	13.25	545973	
23.165	25	12.19	585263	
23.470	29	10.51	660680	
23.774	26	11.72	604505	
24.079	29	10.51	660680	
24.384	26	11.72	604505	
24.689	26	11.72	604505	
24.994	26	11.72	604505	
25.298	28	10.89	642208	
25.603	26	11.72	604505	
25.908	23	13.25	545973	
26.213	27	11.29	623485	
26.518	30	10.16	678905	
26.822	30	10.16	678905	
27.127	35	8.71	766506	
27.432	37	8.24	799984	
27.686	42	6.05	1004015	Bearing obtained. No penetration after 254mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 27
Fwd. Abut. Abut / Pier
Date Driven 04/06/00Guernsey County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 NewtonsElev. of top of pile (cut-off elev.) 251.009
Elev. of nominal point of zero penetration: 250.409
Elev. of pile point at final penetration: 225.04
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				
11.887				
12.192				
12.497				
12.802				
13.106				
13.411				
13.716				
14.021				
14.326				
14.630				
14.935	29	10.51	660680	
15.240	28	10.89	642208	Splice #1, vis. insp. shows no sign of bent pile.
15.545	21	14.51	505568	
15.850	23	13.25	545973	
16.154	30	10.16	678905	
16.459	27	11.29	623485	
16.764	27	11.29	623485	
17.069	25	12.19	585263	
17.374	24	12.70	565755	
17.678	26	11.72	604505	
17.983	25	12.19	585263	
18.288	26	11.72	604505	
18.593	232	1.31	2237302	
18.898	23	13.25	545973	

19.202	27	11.29	623485	
19.507	22	13.85	525913	
19.812	25	12.19	585263	
20.117	25	12.19	585263	
20.422	23	13.25	545973	
20.726	28	10.89	642208	
21.031	24	12.70	565755	
21.336	26	11.72	604505	
21.641	29	10.51	660680	
21.946	26	11.72	604505	
22.250	30	10.16	678905	
22.555	28	10.89	642208	
22.860	28	10.89	642208	
23.165	30	10.16	678905	
23.470	31	9.83	696890	
23.774	31	9.83	696890	
24.079	28	10.89	642208	
24.384	29	10.51	660680	
24.689	31	9.83	696890	
24.994	33	9.24	732153	
25.298	32	9.53	714637	
25.603	34	8.96	749441	
25.908	34	8.96	749441	
26.213	35	7.98	819369	Bearing obtained. No penetration after 279mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
 Pile No. 28
 Fwd. Abut. _____ Abut / Pier
 Date Driven 04/06/00

 Guernsey _____ County
 Bridge No GUE-77-14 352 R
 Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
 Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons
 Elev. of top of pile (cut-off elev.) 251.009
 Elev. of nominal point of zero penetration: 250.409
 Elev. of pile point at final penetration: 226.015
 Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				
11.887				
12.192				
12.497				
12.802				
13.106				
13.411				
13.716				
14.021				
14.326				
14.630				
14.935				
15.240				Splice #1, vis. insp. shows no sign of bent pile.
15.545				
15.850				
16.154				
16.459	20	15.24	484932	
16.764	23	13.25	545973	
17.069	24	12.70	565755	
17.374	25	12.19	585263	
17.678	31	9.83	696890	
17.983	32	9.53	714637	
18.288	28	10.89	642208	
18.593	24	12.70	565755	
18.898	23	13.25	545973	

19.202	27	11.29	623485	
19.507	25	12.19	585263	
19.812	27	11.29	623485	
20.117	25	12.19	585263	
20.422	25	12.19	585263	
20.726	26	11.72	604505	
21.031	22	13.85	525913	
21.336	27	11.29	623485	
21.641	24	12.70	565755	
21.946	23	13.25	545973	
22.250	24	12.70	565755	
22.555	20	15.24	484932	
22.860	23	13.25	545973	
23.165	25	12.19	585263	
23.470	27	11.29	623485	
23.774	26	11.72	604505	
24.079	29	10.51	660680	
24.384	29	10.51	660680	
24.689	28	10.89	642208	
24.968	35	7.98	819369	Bearing obtained. No penetration after 279mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 29
Fwd. Abut. _____ Abut / Pier
Date Driven 04/06/00Guernsey _____ County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons
Elev. of top of pile (cut-off elev.) 251.009
Elev. of nominal point of zero penetration: 250.409
Elev. of pile point at final penetration: 233.361
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	4	76.20	109501	
0.610	4	76.20	109501	
0.914	4	76.20	109501	
1.219	4	76.20	109501	
1.524	4	76.20	109501	
1.829	4	76.20	109501	
2.134	4	76.20	109501	
2.438	4	76.20	109501	
2.743	4	76.20	109501	
3.048	4	76.20	109501	
3.353	5	60.96	135781	
3.658	5	60.96	135781	
3.962	5	60.96	135781	
4.267	5	60.96	135781	
4.572	5	60.96	135781	
4.877	24	12.70	565755	
5.182	24	12.70	565755	
5.486	24	12.70	565755	
5.791	25	12.19	585263	
6.096	25	12.19	585263	
6.401	17	17.93	421219	
6.706	15	20.32	377170	
7.010	13	23.45	331796	
7.315	13	23.45	331796	
7.620	17	17.93	421219	
7.925	17	17.93	421219	
8.230	14	21.77	354652	
8.534	18	16.93	442764	
8.839	17	17.93	421219	
9.144	17	17.93	421219	
9.449	17	17.93	421219	
9.754	17	17.93	421219	
10.058	18	16.93	442764	
10.363	18	16.93	442764	
10.668	21	14.51	505568	
10.973	17	17.93	421219	
11.278	17	17.93	421219	
11.582	19	16.04	464000	
11.887	18	16.93	442764	
12.192	19	16.04	464000	
12.497	19	16.04	464000	
12.802	16	19.05	399356	
13.106	17	17.93	421219	
13.411	17	17.93	421219	
13.716	16	19.05	399356	
14.021	18	16.93	442764	
14.326	18	16.93	442764	
14.630	28	10.89	642208	
14.935	28	10.89	642208	
15.240	29	10.51	660680	Splice #1, vis. insp. shows no sign of bent pile.
15.545	23	13.25	545973	
15.850	28	10.89	642208	
16.154	28	10.89	642208	
16.459	29	10.51	660680	
16.764	32	9.53	714637	
17.069	33	9.24	732153	
17.374	35	8.71	766506	
17.678	37	8.24	799984	Bearing obtained. No penetration after 305mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Pile No. 30-B

Fwd. Abut. _____ Abut / Pier

Date Driven 06/10/00

Guernsey _____ County

Bridge No GUE-77-14 352 R

Location I-77 over C.R. 431,

TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules

Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons

Elev. of top of pile (cut-off elev.) 251.009

Elev. of nominal point of zero penetration: 250.409

Elev. of pile point at final penetration: 223.912

Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				This pile driven because Pile #30 crushed. Pile #30 is defective.
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582	15	20.32	377170	Splice #1, vis. insp. shows no sign of bent pile.
11.887	25	12.19	585263	
12.192	19	16.04	464000	
12.497	16	19.05	399356	
12.802	17	17.93	421219	
13.106	16	19.05	399356	
13.411	18	16.93	442764	
13.716	18	16.93	442764	
14.021	19	16.04	464000	
14.326	16	19.05	399356	
14.630	17	17.93	421219	
14.935	19	16.04	464000	
15.240	17	17.93	421219	
15.545	17	17.93	421219	
15.850	19	16.04	464000	
16.154	19	16.04	464000	
16.459	19	16.04	464000	
16.764	22	13.85	525913	
17.069	22	13.85	525913	
17.374	23	13.25	545973	
17.678	23	13.25	545973	
17.983	21	14.51	505568	
18.288	21	14.51	505568	
18.593	21	14.51	505568	
18.898	22	13.85	525913	

19.202	22	13.85	525913	
19.507	21	14.51	505568	
19.812	23	13.25	545973	
20.117	23	13.25	545973	
20.422	22	13.85	525913	
20.726	21	14.51	505568	
21.031	23	13.25	545973	
21.336	22	13.85	525913	
21.641	22	13.85	525913	
21.946	24	12.70	565755	
22.250	27	11.29	623485	
22.555	22	13.85	525913	
22.860	26	11.72	604505	
23.165	28	10.89	642208	
23.470	27	11.29	623485	
23.774	25	12.19	585263	Splice #2, vis. insp. shows no sign of bent pile.
24.079	27	11.29	623485	
24.384	26	11.72	604505	
24.689	21	14.51	505568	
24.994	32	9.53	714637	
25.298	30	10.16	678905	
25.603	31	9.83	696890	
25.908	33	9.24	732153	
26.213	36	8.47	783352	Bearing obtained. No penetration after 305mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 31Guernsey CountyFwd. Abut. Abut / PierBridge No GUE-77-14 352 RDate Driven 06/10/00

PILE DRIVING LOG

Location I-77 over C.R. 431,TR-4358 & CSX R.R.Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 NewtonsElev. of top of pile (cut-off elev.) 251.009Elev. of nominal point of zero penetration: 250.409Elev. of pile point at final penetration: 228.027Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				Splice #1, vis. insp. shows no sign of bent pile.
11.887	23	13.25	545973	
12.192	24	12.70	565755	
12.497	22	13.85	525913	
12.802	21	14.51	505568	
13.106	22	13.85	525913	
13.411	22	13.85	525913	
13.716	23	13.25	545973	
14.021	22	13.85	525913	
14.326	22	13.85	525913	
14.630	22	13.85	525913	
14.935	22	13.85	525913	
15.240	20	15.24	484932	
15.545	22	13.85	525913	
15.850	21	14.51	505568	
16.154	21	14.51	505568	
16.459	21	14.51	505568	
16.764	22	13.85	525913	
17.069	25	12.19	585263	
17.374	26	11.72	604505	
17.678	26	11.72	604505	
17.983	25	12.19	585263	
18.288	27	11.29	623485	
18.593	25	12.19	585263	
18.898	26	11.72	604505	

19.202	26	11.72	604505	
19.507	26	11.72	604505	
19.812	28	10.89	642208	
20.117	28	10.89	642208	
20.422	29	10.51	660680	
20.726	28	10.89	642208	
21.031	30	10.16	678905	
21.336	30	10.16	678905	
21.641	31	9.83	696890	
21.946	32	9.53	714637	
22.250	33	9.24	732153	
22.529	35	7.98	819369	Bearing obtained. No penetration after 279mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Pile No. 32
Fwd. Abut. _____ Abut / Pier
Date Driven 06/10/00

Guernsey _____ County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons
Elev. of top of pile (cut-off elev.) 251.009
Elev. of nominal point of zero penetration: 250.409
Elev. of pile point at final penetration: 222.419
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				Splice #1, vis. insp. shows no sign of bent pile.
11.887	20	15.24	484932	
12.192	21	14.51	505568	
12.497	17	17.93	421219	
12.802	17	17.93	421219	
13.106	16	19.05	399356	
13.411	16	19.05	399356	
13.716	17	17.93	421219	
14.021	16	19.05	399356	
14.326	16	19.05	399356	
14.630	17	17.93	421219	
14.935	17	17.93	421219	
15.240	17	17.93	421219	
15.545	17	17.93	421219	
15.850	17	17.93	421219	
16.154	17	17.93	421219	
16.459	17	17.93	421219	
16.764	17	17.93	421219	
17.069	19	16.04	464000	
17.374	19	16.04	464000	
17.678	20	15.24	484932	
17.983	20	15.24	484932	
18.288	20	15.24	484932	
18.593	20	15.24	484932	
18.898	19	16.04	464000	

19.202	21	14.51	505568	
19.507	20	15.24	484932	
19.812	20	15.24	484932	
20.117	19	16.04	464000	
20.422	22	13.85	525913	
20.726	20	15.24	484932	
21.031	21	14.51	505568	
21.336	20	15.24	484932	
21.641	20	15.24	484932	
21.946	22	13.85	525913	
22.250	21	14.51	505568	
22.555	24	12.70	565755	
22.860	22	13.85	525913	
23.165	21	14.51	505568	
23.470	26	11.72	604505	
23.774	26	11.72	604505	
24.079	27	11.29	623485	
24.384	26	11.72	604505	
24.689	24	12.70	565755	
24.994	31	9.83	696890	Splice #2, vis. insp. shows no sign of bent pile.
25.298	29	10.51	660680	
25.603	29	10.51	660680	
25.908	30	10.16	678905	
26.213	29	10.51	660680	
26.518	29	10.51	660680	
26.822	31	9.83	696890	
27.127	29	10.51	660680	
27.432	30	10.16	678905	
27.686	35	7.26	880063	Bearing obtained. No penetration after 254mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Pile No. 33
Fwd. Abut. _____ Abut / Pier
Date Driven 06/10/00

Guernsey _____ County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons
Elev. of top of pile (cut-off elev.) 251.009
Elev. of nominal point of zero penetration: 250.409
Elev. of pile point at final penetration: 226.259
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				Splice #1, vis. insp. shows no sign of bent pile.
11.887	18	16.93	442764	
12.192	18	16.93	442764	
12.497	19	16.04	464000	
12.802	20	15.24	484932	
13.106	18	16.93	442764	
13.411	18	16.93	442764	
13.716	18	16.93	442764	
14.021	18	16.93	442764	
14.326	19	16.04	464000	
14.630	17	17.93	421219	
14.935	17	17.93	421219	
15.240	16	19.05	399356	
15.545	19	16.04	464000	
15.850	18	16.93	442764	
16.154	17	17.93	421219	
16.459	18	16.93	442764	
16.764	17	17.93	421219	
17.069	18	16.93	442764	
17.374	19	16.04	464000	
17.678	19	16.04	464000	
17.983	23	13.25	545973	
18.288	23	13.25	545973	
18.593	23	13.25	545973	
18.898	20	15.24	484932	

19.202	23	13.25	545973	
19.507	21	14.51	505568	
19.812	21	14.51	505568	
20.117	25	12.19	585263	
20.422	22	13.85	525913	
20.726	22	13.85	525913	
21.031	22	13.85	525913	
21.336	22	13.85	525913	
21.641	23	13.25	545973	
21.946	24	12.70	565755	
22.250	24	12.70	565755	
22.555	25	12.19	585263	
22.860	28	10.89	642208	
23.165	27	11.29	623485	
23.470	26	11.72	604505	
23.774	28	10.89	642208	
24.079	30	10.16	678905	
24.308	35	6.53	950468	Bearing obtained. No penetration after 229mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Pile No. 34
 Fwd. Abut. _____ Abut / Pier
 Date Driven 06/10/00

Guernsey _____ County
 Bridge No GUE-77-14 352 R
 Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
 Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons
 Elev. of top of pile (cut-off elev.) 251.009
 Elev. of nominal point of zero penetration: 250.409
 Elev. of pile point at final penetration: 226.107
 Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				Splice #1, vis. insp. shows no sign of bent pile.
11.887	24	12.70	565755	
12.192	24	12.70	565755	
12.497	19	16.04	464000	
12.802	15	20.32	377170	
13.106	16	19.05	399356	
13.411	16	19.05	399356	
13.716	26	11.72	604505	
14.021	17	17.93	421219	
14.326	16	19.05	399356	
14.630	19	16.04	464000	
14.935	18	16.93	442764	
15.240	14	21.77	354652	
15.545	14	21.77	354652	
15.850	14	21.77	354652	
16.154	15	20.32	377170	
16.459	19	16.04	464000	
16.764	18	16.93	442764	
17.069	18	16.93	442764	
17.374	15	20.32	377170	
17.678	16	19.05	399356	
17.983	16	19.05	399356	
18.288	19	16.04	464000	
18.593	18	16.93	442764	
18.898	18	16.93	442764	

19.202	19	16.04	464000	
19.507	20	15.24	484932	
19.812	21	14.51	505568	
20.117	16	19.05	399356	
20.422	22	13.85	525913	
20.726	21	14.51	505568	
21.031	22	13.85	525913	
21.336	24	12.70	565755	
21.641	23	13.25	545973	
21.946	21	14.51	505568	
22.250	25	12.19	585263	
22.555	24	12.70	565755	
22.860	23	13.25	545973	
23.165	25	12.19	585263	
23.470	27	11.29	623485	
23.774	23	13.25	545973	
24.079	27	11.29	623485	
24.384	32	9.53	714637	
24.689	33	9.24	732153	
24.968	37	7.55	854405	Bearing obtained. No penetration after 279mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Sheet 1
Recorder Doug George
Date 04/15/00

Guernsey County
Section 14.352
Br. No. Gue-77-14 352 R
Location 1-77 over C.R. 431,
TR-4358 & CSX R.R.

PILING RECORD

Rear Abutment

FOOTING

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25866 Joules

Capacity formula: "R" = (334DF)/S+2.54

Required "R" = 773000 Newtons

Elev of top of pile (cut-off elev.): 251.009

Elev. of nominal point of zero penetration: 250.409

File No.	Pay Length (m)	Indicated "R" (N)	Remarks	Misc.
1	25.451 ✓	1631136		
2	27.615 ✓	1697264		
3	33.019 ✓	950468		
4	25.908 ✓	950468		
5	31.27 ✓	1250615		
6	30.42 ✓	1227808		
7	29.57 ✓	783352		
8	30.42 ✓	816405		
9	29.9 ✓	816405		

Total = 263.573 meters

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 1Guernsey CountyRear Abut. Abut / PierBridge No GUE-77-14 352 RDate Driven 04/12/00

PILE DRIVING LOG

Location I-77 over C.R. 431,TR-4358 & CSX R.R.Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 NewtonsElev. of top of pile (cut-off elev.) 251.009Elev. of nominal point of zero penetration: 250.409Elev. of pile point at final penetration: 225.558Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				
11.887				
12.192				
12.497				
12.802				
13.106				
13.411				
13.716				
14.021				
14.326				
14.630				Splice #1, vis. insp. shows no sign of bent pile.
14.935	21	14.51	505568	
15.240	18	16.93	442764	
15.545	19	16.04	464000	
15.850	17	17.93	421219	
16.154	18	16.93	442764	
16.459	17	17.93	421219	
16.764	19	16.04	464000	
17.069	17	17.93	421219	
17.374	17	17.93	421219	
17.678	18	16.93	442764	
17.983	15	20.32	377170	
18.288	17	17.93	421219	
18.593	16	19.05	399356	
18.898	17	17.93	421219	

19.202	17	17.93	421219	
19.507	17	17.93	421219	
19.812	17	17.93	421219	
20.117	18	16.93	442764	
20.422	18	16.93	442764	
20.726	22	13.85	525913	
21.031	22	13.85	525913	
21.336	17	17.93	421219	
21.641	20	15.24	484932	
21.946	19	16.04	464000	
22.250	19	16.04	464000	
22.555	22	13.85	525913	
22.860	19	16.04	464000	
23.165	20	15.24	484932	
23.470	23	13.25	545973	
23.774	25	12.19	585263	
24.079	23	13.25	545973	
24.384	24	12.70	565755	
24.689	23	13.25	545973	
24.994	26	11.72	604505	
25.298	33	9.24	732153	
25.400	37	2.75	1631136	Bearing obtained. No penetration after 102mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Pile No. 2
Rear Abut. _____ Abut / Pier _____
Date Driven 04/12/00

Guernsey _____ County _____
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons
Elev. of top of pile (cut-off elev.) 251.009
Elev. of nominal point of zero penetration: 250.409
Elev. of pile point at final penetration: 223.394
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				
11.887				
12.192				
12.497				
12.802				Splice #1, vis. insp. shows no sign of bent pile.
13.106				
13.411				
13.716				
14.021				
14.326				
14.630				
14.935				
15.240	17	17.93	421219	
15.545	17	17.93	421219	
15.850	17	17.93	421219	
16.154	16	19.05	399356	
16.459	16	19.05	399356	
16.764	15	20.32	377170	
17.069	18	16.93	442764	
17.374	14	21.77	354652	
17.678	16	19.05	399356	
17.983	15	20.32	377170	
18.288	16	19.05	399356	
18.593	16	19.05	399356	
18.898	15	20.32	377170	

19.202	16	19.05	399356	
19.507	15	20.32	377170	
19.812	16	19.05	399356	
20.117	16	19.05	399356	
20.422	17	17.93	421219	
20.726	18	16.93	442764	
21.031	17	17.93	421219	
21.336	17	17.93	421219	
21.641	19	16.04	464000	
21.946	18	16.93	442764	
22.250	18	16.93	442764	
22.555	19	16.04	464000	
22.860	20	15.24	484932	
23.165	20	15.24	484932	
23.470	22	13.85	525913	
23.774	22	13.85	525913	
24.079	20	15.24	484932	
24.384	23	13.25	545973	
24.689	25	12.19	585263	
24.994	28	10.89	642208	
25.298	32	9.53	714637	
25.603	28	10.89	642208	
25.908	26	11.72	604505	
26.213	27	11.29	623485	
26.518	28	10.89	642208	
26.822	37	8.24	799984	
27.127	36	8.47	783352	
27.432	40	7.62	848632	
27.534	40	2.54	1697264	Bearing obtained. No penetration after 102mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Pile No. 3
Rear Abut. Abut / Pier
Date Driven 04/12/00

Guernsey County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons
Elev. of top of pile (cut-off elev.) 251.009
Elev. of nominal point of zero penetration: 250.409
Elev. of pile point at final penetration: 217.99
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				
11.887				
12.192				
12.497				
12.802	20	15.24	484932	Splice #1, vis. insp. shows no sign of bent pile.
13.106	20	15.24	484932	
13.411	17	17.93	421219	
13.716	16	19.05	399356	
14.021	15	20.32	377170	
14.326	14	21.77	354652	
14.630	15	20.32	377170	
14.935	14	21.77	354652	
15.240	15	20.32	377170	
15.545	13	23.45	331796	
15.850	14	21.77	354652	
16.154	11	27.71	285037	
16.459	11	27.71	285037	
16.764	12	25.40	308593	
17.069	12	25.40	308593	
17.374	12	25.40	308593	
17.678	12	25.40	308593	
17.983	14	21.77	354652	
18.288	14	21.77	354652	
18.593	14	21.77	354652	
18.898	14	21.77	354652	

19.202	15	20.32	377170	
19.507	16	19.05	399356	
19.812	16	19.05	399356	
20.117	16	19.05	399356	
20.422	17	17.93	421219	
20.726	17	17.93	421219	
21.031	16	19.05	399356	
21.336	18	16.93	442764	
21.641	19	16.04	464000	
21.946	19	16.04	464000	
22.250	19	16.04	464000	
22.555	19	16.04	464000	
22.860	18	16.93	442764	
23.165	21	14.51	505568	
23.470	18	16.93	442764	
23.774	20	15.24	484932	
24.079	19	16.04	464000	
24.384	19	16.04	464000	
24.689	19	16.04	464000	
24.994	22	13.85	525913	
25.298	26	11.72	604505	
25.603	28	10.89	642208	
25.908	24	12.70	565755	
26.213	22	13.85	525913	
26.518	22	13.85	525913	
26.822	26	11.72	604505	
27.127	26	11.72	604505	
27.432	28	10.89	642208	
27.737	24	12.70	565755	
28.042	32	9.53	714637	
28.346	26	11.72	604505	
28.651	26	11.72	604505	
28.956	27	11.29	623485	
29.261	26	11.72	604505	
29.566	27	11.29	623485	
29.870	32	9.53	714637	
30.175	31	9.83	696890	
30.480	34	8.96	749441	
30.785	30	10.16	678905	
31.090	27	11.29	623485	
31.394	27	11.29	623485	
31.699	25	12.19	585263	
32.004	27	11.29	623485	
32.309	26	11.72	604505	
32.614	26	11.72	604505	
32.843	35	6.53	950468	Bearing obtained. No penetration after 229mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
 File No. 4
 Rear Abut. Abut / Pier
 Date Driven 04/12/00

 Guernsey County
 Bridge No GUE-77-14 352 R
 Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
 Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons
 Elev. of top of pile (cut-off elev.) 251.009
 Elev. of nominal point of zero penetration: 250.409
 Elev. of pile point at final penetration: 225.101
 Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				
11.887				
12.192				
12.497				
12.802				
13.106				
13.411				
13.716				
14.021				
14.326				
14.630				
14.935				
15.240				Splice #1, vis. insp. shows no sign of bent pile.
15.545	20	15.24	484932	
15.850	20	15.24	484932	
16.154	18	16.93	442764	
16.459	17	17.93	421219	
16.764	16	19.05	399356	
17.069	17	17.93	421219	
17.374	19	16.04	464000	
17.678	21	14.51	505568	
17.983	22	13.85	525913	
18.288	19	16.04	464000	
18.593	18	16.93	442764	
18.898	18	16.93	442764	

19.202	19	16.04	464000	
19.507	18	16.93	442764	
19.812	19	16.04	464000	
20.117	20	15.24	484932	
20.422	20	15.24	484932	
20.726	21	14.51	505568	
21.031	22	13.85	525913	
21.336	20	15.24	484932	
21.641	22	13.85	525913	
21.946	22	13.85	525913	
22.250	24	12.70	565755	
22.555	23	13.25	545973	
22.860	25	12.19	585263	
23.165	25	12.19	585263	
23.470	26	11.72	604505	
23.774	23	13.25	545973	
24.079	27	11.29	623485	
24.384	29	10.51	660680	
24.689	28	10.89	642208	
24.994	30	10.16	678905	
25.298	25	12.19	585263	
25.603	25	12.19	585263	
25.832	35	6.53	950468	Bearing obtained. No penetration after 229mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 5

Rear Abut. _____ Abut / Pier

Date Driven 06/14/00

Guernsey _____ County

Bridge No GUE-77-14 352 RLocation I-77 over C.R. 431,TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 NewtonsElev. of top of pile (cut-off elev.) 251.009Elev. of nominal point of zero penetration: 250.409Elev. of pile point at final penetration: 219.739Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				Splice #1, vis. insp. shows no sign of bent pile.
11.887	9	33.87	236827	
12.192	10	30.48	261117	
12.497	10	30.48	261117	
12.802	13	23.45	331796	
13.106	11	27.71	285037	
13.411	12	25.40	308593	
13.716	11	27.71	285037	
14.021	12	25.40	308593	
14.326	12	25.40	308593	
14.630	14	21.77	354652	
14.935	14	21.77	354652	
15.240	15	20.32	377170	
15.545	13	23.45	331796	
15.850	14	21.77	354652	
16.154	14	21.77	354652	
16.459	15	20.32	377170	
16.764	14	21.77	354652	
17.069	14	21.77	354652	
17.374	13	23.45	331796	
17.678	13	23.45	331796	
17.983	12	25.40	308593	
18.288	13	23.45	331796	
18.593	11	27.71	285037	
18.898	12	25.40	308593	

19.202	12	25.40	308593	
19.507	13	23.45	331796	
19.812	13	23.45	331796	
20.117	12	25.40	308593	
20.422	14	21.77	354652	
20.726	14	21.77	354652	
21.031	14	21.77	354652	
21.336	16	19.05	399356	
21.641	14	21.77	354652	
21.946	16	19.05	399356	
22.250	15	20.32	377170	
22.555	15	20.32	377170	
22.860	17	17.93	421219	
23.165	16	19.05	399356	
23.470	18	16.93	442764	
23.774	22	13.85	525913	Splice #2, vis. insp. shows no sign of bent pile.
24.079	22	13.85	525913	
24.384	18	16.93	442764	
24.689	20	15.24	484932	
24.994	24	12.70	565755	
25.298	24	12.70	565755	
25.603	28	10.89	642208	
25.908	21	14.51	505568	
26.213	20	15.24	484932	
26.518	20	15.24	484932	
26.822	19	16.04	464000	
27.127	20	15.24	484932	
27.432	22	13.85	525913	
27.737	19	16.04	464000	
28.042	22	13.85	525913	
28.346	23	13.25	545973	
28.651	19	16.04	464000	
28.956	24	12.70	565755	
29.261	21	14.51	505568	
29.566	21	14.51	505568	
29.870	25	12.19	585263	
30.175	27	11.29	623485	
30.480	27	11.29	623485	
30.785	31	9.83	696890	
31.090	30	10.16	678905	
31.394	35	8.71	766506	
31.544	35	4.35	1250615	Bearing obtained. No penetration after 150mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 6
Rear Abut. Abut / Pier
Date Driven 06/14/00Guernsey County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons
Elev. of top of pile (cut-off elev.) 251.009
Elev. of nominal point of zero penetration: 250.409
Elev. of pile point at final penetration: 220.589
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				Splice #1, vis. insp. shows no sign of bent pile.
11.887				
12.192				
12.497				
12.802				
13.106				
13.411				
13.716				
14.021				
14.326				
14.630				
14.935				
15.240				
15.545				
15.850				
16.154				
16.459				
16.764				
17.069				
17.374				
17.678				
17.983				
18.288				
18.593				
18.898				

19.202				
19.507				
19.812				
20.117				
20.422				
20.726				
21.031	20	15.24	484932	
21.336	20	15.24	484932	
21.641	20	15.24	484932	
21.946	20	15.24	484932	
22.250	22	13.85	525913	
22.555	22	13.85	525913	
22.860	22	13.85	525913	
23.165	21	14.51	505568	
23.470	21	14.51	505568	
23.774	21	14.51	505568	Splice #2, vis. insp. shows no sign of bent pile.
24.079	21	14.51	505568	
24.384	25	12.19	585263	
24.689	26	11.72	604505	
24.994	24	12.70	565755	
25.298	22	13.85	525913	
25.603	21	14.51	505568	
25.908	20	15.24	484932	
26.213	21	14.51	505568	
26.518	23	13.25	545973	
26.822	23	13.25	545973	
27.127	23	13.25	545973	
27.432	21	14.51	505568	
27.737	23	13.25	545973	
28.042	24	12.70	565755	
28.346	24	12.70	565755	
28.651	26	11.72	604505	
28.956	28	10.89	642208	
29.261	31	9.83	696890	
29.566	31	9.83	696890	Splice #3, vis. insp. shows no sign of bent pile.
29.795	51	4.48	1227808	Bearing obtained. No penetration after 229mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Pile No. 7
Rear Abut. _____ Abut / Pier
Date Driven 06/14/00

Guernsey _____ County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons
Elev. of top of pile (cut-off elev.) 251.009
Elev. of nominal point of zero penetration: 250.409
Elev. of pile point at final penetration: 221.439
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				Splice #1, vis. insp. shows no sign of bent pile.
11.887				
12.192				
12.497				
12.802				
13.106				
13.411				
13.716				
14.021				
14.326				
14.630				
14.935				
15.240				
15.545				
15.850				
16.154				
16.459				
16.764				
17.069				
17.374				
17.678				
17.983				
18.288				
18.593				
18.898				

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 8
Rear Abut. Abut / Pier
Date Driven 06/14/00Guernsey County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons
Elev. of top of pile (cut-off elev.) 251.009
Elev. of nominal point of zero penetration: 250.409
Elev. of pile point at final penetration: 220.589
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				Splice #1, vis. insp. shows no sign of bent pile.
11.887				
12.192				
12.497	16	19.05	399356	
12.802	16	19.05	399356	
13.106	15	20.32	377170	
13.411	16	19.05	399356	
13.716	15	20.32	377170	
14.021	15	20.32	377170	
14.326	15	20.32	377170	
14.630	15	20.32	377170	
14.935	15	20.32	377170	
15.240	15	20.32	377170	
15.545	14	21.77	354652	
15.850	15	20.32	377170	
16.154	15	20.32	377170	
16.459	15	20.32	377170	
16.764	15	20.32	377170	
17.069	15	20.32	377170	
17.374	14	21.77	354652	
17.678	15	20.32	377170	
17.983	14	21.77	354652	
18.288	14	21.77	354652	
18.593	15	20.32	377170	
18.898	14	21.77	354652	

19.202	15	20.32	377170	
19.507	15	20.32	377170	
19.812	15	20.32	377170	
20.117	16	19.05	399356	
20.422	19	16.04	464000	
20.726	17	17.93	421219	
21.031	17	17.93	421219	
21.336	18	16.93	442764	
21.641	19	16.04	464000	
21.946	19	16.04	464000	
22.250	19	16.04	464000	
22.555	19	16.04	464000	
22.860	19	16.04	464000	
23.165	20	15.24	484932	
23.470	21	14.51	505568	
23.774	22	13.85	525913	Splice #2, vis. insp. shows no sign of bent pile.
24.079	23	13.25	545973	
24.384	24	12.70	565755	
24.689	24	12.70	565755	
24.994	33	9.24	732153	
25.298	26	11.72	604505	
25.603	20	15.24	484932	
25.908	23	13.25	545973	
26.213	21	14.51	505568	
26.518	23	13.25	545973	
26.822	19	16.04	464000	
27.127	23	13.25	545973	
27.432	21	14.51	505568	
27.737	25	12.19	585263	
28.042	24	12.70	565755	
28.346	24	12.70	565755	
28.651	24	12.70	565755	
28.956	27	11.29	623485	
29.261	30	10.16	678905	
29.566	27	11.29	623485	
29.870	35	8.71	766506	
30.175	38	8.02	816405	Bearing obtained. No penetration after 305mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
 Pile No. 9
 Rear Abut. Abut / Pier
 Date Driven 06/14/00

 Guernsey County
 Bridge No GUE-77-14 352 R
 Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
 Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons
 Elev. of top of pile (cut-off elev.) 251.009
 Elev. of nominal point of zero penetration: 250.409
 Elev. of pile point at final penetration: 221.109
 Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				Splice #1, vis. insp. shows no sign of bent pile.
11.887				
12.192				
12.497				
12.802				
13.106	18	16.93	442764	
13.411	19	16.04	464000	
13.716	19	16.04	464000	
14.021	17	17.93	421219	
14.326	19	16.04	464000	
14.630	17	17.93	421219	
14.935	17	17.93	421219	
15.240	18	16.93	442764	
15.545	17	17.93	421219	
15.850	18	16.93	442764	
16.154	17	17.93	421219	
16.459	17	17.93	421219	
16.764	17	17.93	421219	
17.069	17	17.93	421219	
17.374	17	17.93	421219	
17.678	16	19.05	399356	
17.983	16	19.05	399356	
18.288	16	19.05	399356	
18.593	16	19.05	399356	
18.898	17	17.93	421219	

19.202	17	17.93	421219	
19.507	16	19.05	399356	
19.812	18	16.93	442764	
20.117	17	17.93	421219	
20.422	20	15.24	484932	
20.726	19	16.04	464000	
21.031	18	16.93	442764	
21.336	19	16.04	464000	
21.641	19	16.04	464000	
21.946	20	15.24	484932	
22.250	20	15.24	484932	
22.555	20	15.24	484932	
22.860	21	14.51	505568	
23.165	22	13.85	525913	
23.470	25	12.19	585263	
23.774	24	12.70	565755	Splice #2, vis. insp. shows no sign of bent pile.
24.079	26	11.72	604505	
24.384	34	8.96	749441	
24.689	31	9.83	696890	
24.994	27	11.29	623485	
25.298	28	10.89	642208	
25.603	26	11.72	604505	
25.908	24	12.70	565755	
26.213	24	12.70	565755	
26.518	25	12.19	585263	
26.822	26	11.72	604505	
27.127	25	12.19	585263	
27.432	25	12.19	585263	
27.737	27	11.29	623485	
28.042	26	11.72	604505	
28.346	29	10.51	660680	
28.651	33	9.24	732153	
28.956	38	8.02	816405	Bearing obtained. No penetration after 305mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Sheet 1
Recorder Doug George
Date 03/01/00

Guernsey _____ County
Section 14.352
Br. No. Gue-77-14 352 R
Location 1-77 over C.R. 431,
TR-4358 & CSX R.R.

PILING RECORD

Pier #1 _____

FOOTING

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25866 Joules

Capacity formula: "R" = (334DF)/S+2.54

Required "R" = 872000 Newtons

Elev of top of pile (cut-off elev.): 244.206

Elev. of nominal point of zero penetration: 243.596

Pile No.	Pay Length (m)	Indicated "R" (N)	Remarks	Misc.
10	29.921 ✓	1778086		
11	29.921 ✓	1156377		
12	27.432 ✓	861446	Battered pile. 1:4 batter.	
13	30.734 ✓	832441	Battered pile. 1:4 batter.	

Total = 118.008 meters

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 10Guernsey CountyPier #1 Abut / PierBridge No GUE-77-14 352 RDate Driven 03/01/00

PILE DRIVING LOG

Location I-77 over C.R. 431,TR-4358 & CSX R.R.Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R" 872000 NewtonsElev. of top of pile (cut-off elev.) 244.206Elev. of nominal point of zero penetration: 243.596Elev. of pile point at final penetration: 214.285Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				
11.887				
12.192				
12.497				
12.802				
13.106				
13.411				
13.716				
14.021				
14.326				No resistance observed in the 14.326 meters.
14.630	14	21.77	354652	
14.935	14	21.77	354652	
15.240	14	21.77	354652	
15.545	14	21.77	354652	
15.850	14	21.77	354652	
16.154	14	21.77	354652	
16.459	14	21.77	354652	
16.764	15	20.32	377170	
17.069	16	19.05	399356	
17.374	16	19.05	399356	
17.678	16	19.05	399356	
17.983	16	19.05	399356	
18.288	17	17.93	421219	
18.593	19	16.04	464000	
18.898	19	16.04	464000	

19.202	19	16.04	464000	
19.507	19	16.04	464000	
19.812	20	15.24	484932	
20.117	16	19.05	399356	
20.422	16	19.05	399356	
20.726	16	19.05	399356	
21.031	16	19.05	399356	
21.336	16	19.05	399356	
21.641	17	17.93	421219	
21.946	18	16.93	442764	
22.250	18	16.93	442764	
22.555	18	16.93	442764	
22.860	18	16.93	442764	
23.165	19	16.04	464000	
23.470	19	16.04	464000	
23.774	19	16.04	464000	
24.079	19	16.04	464000	
24.384	20	15.24	484932	
24.689	20	15.24	484932	
24.994	17	17.93	421219	
25.298	18	16.93	442764	
25.603	20	15.24	484932	
25.908	36	8.47	783352	
26.213	34	8.96	749441	
26.518	22	13.85	525913	
26.822	22	13.85	525913	
27.127	21	14.51	505568	
27.432	22	13.85	525913	
27.737	24	12.70	565755	
28.042	25	12.19	585263	
28.346	26	11.72	604505	
28.651	26	11.72	604505	
28.956	27	11.29	623485	
29.261	36	8.47	783352	
29.312	22	2.31	1778086	Bearing obtained. No penetration after 52mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Pile No. 11

Pier #1 _____ Abut / Pier

Date Driven 03/01/00

Guernsey _____ County

Bridge No GUE-77-14 352 R

Location I-77 over C.R. 431,

TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules

Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons

Elev. of top of pile (cut-off elev.) 244.206

Elev. of nominal point of zero penetration: 243.596

Elev. of pile point at final penetration: 214.285

Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				
11.887				
12.192				
12.497				
12.802				
13.106				
13.411				
13.716				
14.021				
14.326				No resistance observed in the 14.326 meters.
14.630	12	25.40	308593	
14.935	12	25.40	308593	
15.240	12	25.40	308593	
15.545	12	25.40	308593	
15.850	12	25.40	308593	
16.154	12	25.40	308593	
16.459	12	25.40	308593	
16.764	12	25.40	308593	
17.069	16	19.05	399356	
17.374	17	17.93	421219	
17.678	17	17.93	421219	
17.983	17	17.93	421219	
18.288	17	17.93	421219	
18.593	20	15.24	484932	
18.898	20	15.24	484932	

19.202	15	20.32	377170	
19.507	15	20.32	377170	
19.812	16	19.05	399356	
20.117	15	20.32	377170	
20.422	18	16.93	442764	
20.726	16	19.05	399356	
21.031	14	21.77	354652	
21.336	15	20.32	377170	
21.641	15	20.32	377170	
21.946	16	19.05	399356	
22.250	17	17.93	421219	
22.555	14	21.77	354652	
22.860	18	16.93	442764	
23.165	16	19.05	399356	
23.470	18	16.93	442764	
23.774	17	17.93	421219	
24.079	21	14.51	505568	
24.384	17	17.93	421219	
24.689	15	20.32	377170	
24.994	17	17.93	421219	
25.298	19	16.04	464000	
25.603	18	16.93	442764	
25.908	20	15.24	484932	
26.213	35	8.71	766506	
26.518	28	10.89	642208	
26.822	24	12.70	565755	
27.127	18	16.93	442764	
27.432	18	16.93	442764	
27.737	28	10.89	642208	
28.042	20	15.24	484932	
28.346	26	11.72	604505	
28.651	26	11.72	604505	
28.956	30	10.16	678905	
29.261	23	13.25	545973	
29.566	27	11.29	623485	
29.718	31	4.92	1156377	Bearing obtained. No penetration after 152mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
 Pile No. 12(BAT.)
 Pier #1 _____ Abut / Pier _____
 Date Driven 03/01/00

 Guernsey _____ County _____
 Bridge No GUE-77-14 352 R
 Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
 Capacity formula: "R" = (334DF)/S+2.54 Required "R" 708824 Newtons

 Elev. of top of pile (cut-off elev.) 244.206
 Elev. of nominal point of zero penetration: 243.596
 Elev. of pile point at final penetration: 216.774
 Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				Battered pile. 1:4 batter.
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				
11.887				
12.192				
12.497				
12.802				
13.106				
13.411				
13.716				
14.021				
14.326				
14.630				
14.935				No resistance observed in the 14.935 meters.
15.240	9	33.87	224012	
15.545	9	33.87	224012	
15.850	9	33.87	224012	
16.154	9	33.87	224012	
16.459	10	30.48	246988	
16.764	10	30.48	246988	
17.069	11	27.71	269613	
17.374	11	27.71	269613	
17.678	11	27.71	269613	
17.983	11	27.71	269613	
18.288	11	27.71	269613	
18.593	11	27.71	269613	
18.898	12	25.40	291895	

19.202	12	25.40	291895	
19.507	12	25.40	291895	
19.812	12	25.40	291895	
20.117	10	30.48	246988	
20.422	10	30.48	246988	
20.726	10	30.48	246988	
21.031	10	30.48	246988	
21.336	10	30.48	246988	
21.641	11	27.71	269613	
21.946	11	27.71	269613	
22.250	11	27.71	269613	
22.555	11	27.71	269613	
22.860	11	27.71	269613	
23.165	13	23.45	313842	
23.470	13	23.45	313842	
23.774	13	23.45	313842	
24.079	13	23.45	313842	
24.384	13	23.45	313842	
24.689	15	20.32	356761	
24.994	13	23.45	313842	
25.298	14	21.77	335461	
25.603	27	11.29	589747	
25.908	14	21.77	335461	
26.213	14	21.77	335461	
26.518	31	9.83	659180	
26.747	33	6.93	861446	Bearing obtained. No penetration after 229mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 13(BAT.)

Pier #1 _____ Abut / Pier

Date Driven 03/01/00

Guernsey _____ County

Bridge No GUE-77-14 352 RLocation I-77 over C.R. 431,TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334DF)/S+2.54 Required "R" 708824 NewtonsElev. of top of pile (cut-off elev.) 244.206Elev. of nominal point of zero penetration: 243.596Elev. of pile point at final penetration: 213.472Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				Battered pile. 1:4 batter.
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				
11.887				
12.192				
12.497				
12.802				
13.106				
13.411				
13.716				
14.021				
14.326				
14.630				
14.935				
15.240				No resistance observed in the 15.240 meters.
15.545	13	23.45	313842	
15.850	13	23.45	313842	
16.154	13	23.45	313842	
16.459	14	21.77	335461	
16.764	14	21.77	335461	
17.069	12	25.40	291895	
17.374	12	25.40	291895	
17.678	12	25.40	291895	
17.983	13	23.45	313842	
18.288	13	23.45	313842	
18.593	11	27.71	269613	
18.898	12	25.40	291895	

19.202	12	25.40	291895	
19.507	12	25.40	291895	
19.812	12	25.40	291895	
20.117	13	23.45	313842	
20.422	13	23.45	313842	
20.726	13	23.45	313842	
21.031	13	23.45	313842	
21.336	13	23.45	313842	
21.641	11	27.71	269613	
21.946	11	27.71	269613	
22.250	11	27.71	269613	
22.555	12	25.40	291895	
22.860	12	25.40	291895	
23.165	14	21.77	335461	
23.470	14	21.77	335461	
23.774	14	21.77	335461	
24.079	14	21.77	335461	
24.384	15	20.32	356761	
24.689	14	21.77	335461	
24.994	15	20.32	356761	
25.298	12	25.40	291895	
25.603	15	20.32	356761	
25.908	14	21.77	335461	
26.213	12	25.40	291895	
26.518	17	17.93	398426	
26.822	25	12.19	553594	
27.127	21	14.51	478211	
27.432	15	20.32	356761	
27.737	15	20.32	356761	
28.042	18	16.93	418806	
28.346	16	19.05	377747	
28.651	19	16.04	438893	
28.956	17	17.93	398426	
29.261	19	16.04	438893	
29.566	18	16.93	418806	
29.870	21	14.51	478211	Splice #2, vis. insp. shows no sign of bent pile.
30.175	23	13.25	516430	
30.480	42	7.26	832441	Bearing obtained. No penetration after 305mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Sheet 1
Recorder Doug George
Date 02/25/00

Guernsey County
Section 14.352
Br. No. Gue-77-14 352 R
Location 1-77 over C.R. 431,
TR-4358 & CSX R.R.

PILING RECORD

Pier #2

FOOTING

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25866 Joules

Capacity formula: "R" = (334DF)/S+2.54

Required "R" = 872000 Newtons

Elev of top of pile (cut-off elev.): 242.906

Elev. of nominal point of zero penetration: 242.296

Pile No.	Pay Length (m)	Indicated "R" (N)	Remarks	Misc.
14	25.578 ✓	1080077		
15	29.134 ✓	954017		
15A	25.375 ✓	1080077	This pile is shown on plan pg. 49/88, but not on pg. 46/88.	
16	29.159 ✓	1272948		
17	28.6 ✓	1454797		

Total = 137.846 meters

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
 Pile No. 14
 Pier #2 Abut / Pier
 Date Driven 02/24/00

 Guernsey County
 Bridge No GUE-77-14 352 R
 Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R" = 872000 NewtonsElev. of top of pile (cut-off elev.) ~~244.296~~ 242.906Elev. of nominal point of zero penetration: ~~242.906~~ 242.296Elev. of pile point at final penetration: ~~242.906~~ 217.328Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	4	76.20	109501	
0.610	4	76.20	109501	
0.914	4	76.20	109501	
1.219	4	76.20	109501	
1.524	4	76.20	109501	
1.829	4	76.20	109501	
2.134	4	76.20	109501	
2.438	4	76.20	109501	
2.743	5	60.96	135781	
3.048	5	60.96	135781	
3.353	5	60.96	135781	
3.658	5	60.96	135781	
3.962	5	60.96	135781	
4.267	5	60.96	135781	
4.572	5	60.96	135781	
4.877	5	60.96	135781	
5.182	5	60.96	135781	
5.486	5	60.96	135781	
5.791	5	60.96	135781	
6.096	5	60.96	135781	
6.401	8	38.10	212158	
6.706	8	38.10	212158	
7.010	9	33.87	236827	
7.315	9	33.87	236827	
7.620	9	33.87	236827	
7.925	9	33.87	236827	
8.230	9	33.87	236827	
8.534	10	30.48	261117	
8.839	10	30.48	261117	
9.144	10	30.48	261117	
9.449	11	27.71	285037	
9.754	12	25.40	308593	
10.058	12	25.40	308593	
10.363	12	25.40	308593	
10.668	12	25.40	308593	
10.973	13	23.45	331796	
11.278	13	23.45	331796	
11.582	13	23.45	331796	
11.887	13	23.45	331796	
12.192	13	23.45	331796	
12.497	13	23.45	331796	
12.802	13	23.45	331796	
13.106	14	21.77	354652	
13.411	13	23.45	331796	
13.716	14	21.77	354652	
14.021	14	21.77	354652	
14.326	14	21.77	354652	
14.630	12	25.40	308593	Splice #1, vis. insp. shows no sign of bent pile.
14.935	12	25.40	308593	
15.240	12	25.40	308593	
15.545	12	25.40	308593	
15.850	12	25.40	308593	
16.154	12	25.40	308593	
16.459	13	23.45	331796	
16.764	13	23.45	331796	
17.069	17	17.93	421219	
17.374	17	17.93	421219	
17.678	17	17.93	421219	
17.983	18	16.93	442764	
18.288	18	16.93	442764	

18.593	15	20.32	377170	
18.898	15	20.32	377170	
19.202	15	20.32	377170	
19.507	16	19.05	399356	
19.812	16	19.05	399356	
20.117	17	17.93	421219	
20.422	18	16.93	442764	
20.726	18	16.93	442764	
21.031	18	16.93	442764	
21.336	18	16.93	442764	
21.641	19	16.04	464000	
21.946	19	16.04	464000	
22.250	19	16.04	464000	
22.555	20	15.24	484932	
22.860	20	15.24	484932	
23.165	18	16.93	442764	
23.470	18	16.93	442764	
23.774	20	15.24	484932	
24.079	18	16.93	442764	
24.384	19	16.04	464000	
24.689	21	14.51	505568	
24.994	29	10.51	660680	
25.223	42	5.44	1080077	Bearing obtained. No penetration after 229mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
 Pile No. 15
 Pier #2 Abut / Pier
 Date Driven 02/24/00

 Guernsey County
 Bridge No GUE-77-14 352 R
 Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
 Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons
 Elev. of top of pile (cut-off elev.) 242.906
 Elev. of nominal point of zero penetration: 242.296
 Elev. of pile point at final penetration: 213.772
 Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	4	76.20	109501	
0.610	4	76.20	109501	
0.914	4	76.20	109501	
1.219	4	76.20	109501	
1.524	4	76.20	109501	
1.829	4	76.20	109501	
2.134	4	76.20	109501	
2.438	4	76.20	109501	
2.743	4	76.20	109501	
3.048	4	76.20	109501	
3.353	5	60.96	135781	
3.658	5	60.96	135781	
3.962	5	60.96	135781	
4.267	5	60.96	135781	
4.572	5	60.96	135781	
4.877	5	60.96	135781	
5.182	5	60.96	135781	
5.486	5	60.96	135781	
5.791	5	60.96	135781	
6.096	5	60.96	135781	
6.401	8	38.10	212158	
6.706	8	38.10	212158	
7.010	8	38.10	212158	
7.315	8	38.10	212158	
7.620	9	33.87	236827	
7.925	9	33.87	236827	
8.230	10	30.48	261117	
8.534	10	30.48	261117	
8.839	10	30.48	261117	
9.144	10	30.48	261117	
9.449	11	27.71	285037	
9.754	11	27.71	285037	
10.058	11	27.71	285037	
10.363	12	25.40	308593	
10.668	12	25.40	308593	
10.973	13	23.45	331796	
11.278	13	23.45	331796	
11.582	13	23.45	331796	
11.887	13	23.45	331796	
12.192	14	21.77	354652	
12.497	14	21.77	354652	
12.802	14	21.77	354652	
13.106	14	21.77	354652	
13.411	15	20.32	377170	
13.716	14	21.77	354652	
14.021	13	23.45	331796	
14.326	13	23.45	331796	
14.630	14	21.77	354652	Splice #1, vis. insp. shows no sign of bent pile.
14.935	13	23.45	331796	
15.240	13	23.45	331796	
15.545	13	23.45	331796	
15.850	13	23.45	331796	
16.154	14	21.77	354652	
16.459	19	16.04	464000	
16.764	18	16.93	442764	
17.069	17	17.93	421219	
17.374	17	17.93	421219	
17.678	17	17.93	421219	
17.983	17	17.93	421219	
18.288	17	17.93	421219	

18.593	14	21.77	354652	
18.898	14	21.77	354652	
19.202	14	21.77	354652	
19.507	14	21.77	354652	
19.812	15	20.32	377170	
20.117	14	21.77	354652	
20.422	14	21.77	354652	
20.726	14	21.77	354652	
21.031	15	20.32	377170	
21.336	15	20.32	377170	
21.641	16	19.05	399356	
21.946	16	19.05	399356	
22.250	16	19.05	399356	
22.555	16	19.05	399356	
22.860	17	17.93	421219	
23.165	16	19.05	399356	
23.470	16	19.05	399356	
23.774	18	16.93	442764	
24.079	13	23.45	331796	
24.384	16	19.05	399356	
24.689	22	13.85	525913	
24.994	37	8.24	799984	
25.298	25	12.19	585263	
25.603	20	15.24	484932	
25.908	19	16.04	464000	
26.213	18	16.93	442764	
26.518	17	17.93	421219	
26.822	16	19.05	399356	
27.127	19	16.04	464000	
27.432	18	16.93	442764	
27.737	25	12.19	585263	
28.042	21	14.51	505568	
28.346	25	12.19	585263	
28.625	43	6.50	954017	Bearing obtained. No penetration after 279mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 15A
Pier #2 Abut / Pier
Date Driven 02/24/00Guernsey County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons
Elev. of top of pile (cut-off elev.) 242.906
Elev. of nominal point of zero penetration: 242.296
Elev. of pile point at final penetration: 217.531
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	4	76.20	109501	
0.610	4	76.20	109501	
0.914	4	76.20	109501	
1.219	4	76.20	109501	
1.524	4	76.20	109501	
1.829	4	76.20	109501	
2.134	4	76.20	109501	
2.438	4	76.20	109501	
2.743	4	76.20	109501	
3.048	4	76.20	109501	
3.353	4	76.20	109501	
3.658	5	60.96	135781	
3.962	5	60.96	135781	
4.267	5	60.96	135781	
4.572	5	60.96	135781	
4.877	5	60.96	135781	
5.182	5	60.96	135781	
5.486	5	60.96	135781	
5.791	5	60.96	135781	
6.096	5	60.96	135781	
6.401	8	38.10	212158	
6.706	8	38.10	212158	
7.010	8	38.10	212158	
7.315	8	38.10	212158	
7.620	8	38.10	212158	
7.925	9	33.87	236827	
8.230	9	33.87	236827	
8.534	9	33.87	236827	
8.839	10	30.48	261117	
9.144	10	30.48	261117	
9.449	11	27.71	285037	
9.754	11	27.71	285037	
10.058	11	27.71	285037	
10.363	11	27.71	285037	
10.668	11	27.71	285037	
10.973	12	25.40	308593	
11.278	12	25.40	308593	
11.582	13	23.45	331796	
11.887	13	23.45	331796	
12.192	13	23.45	331796	
12.497	13	23.45	331796	
12.802	13	23.45	331796	
13.106	13	23.45	331796	
13.411	14	21.77	354652	
13.716	14	21.77	354652	
14.021	13	23.45	331796	
14.326	14	21.77	354652	
14.630	14	21.77	354652	Splice #1, vis. insp. shows no sign of bent pile.
14.935	25	12.19	585263	
15.240	26	11.72	604505	
15.545	26	11.72	604505	
15.850	26	11.72	604505	
16.154	40	7.62	848632	
16.459	37	8.24	799984	
16.764	47	6.49	955348	
17.069	40	7.62	848632	
17.374	39	7.82	832620	
17.678	27	11.29	623485	
17.983	27	11.29	623485	
18.288	27	11.29	623485	

18.593	28	10.89	642208	
18.898	23	13.25	545973	
19.202	24	12.70	565755	
19.507	25	12.19	585263	
19.812	22	13.85	525913	
20.117	26	11.72	604505	
20.422	24	12.70	565755	
20.726	24	12.70	565755	
21.031	26	11.72	604505	
21.336	27	11.29	623485	
21.641	27	11.29	623485	
21.946	31	9.83	696890	
22.250	29	10.51	660680	
22.555	34	8.96	749441	
22.860	28	10.89	642208	
23.165	25	12.19	585263	
23.470	24	12.70	565755	
23.774	27	11.29	623485	
24.079	24	12.70	565755	
24.384	24	12.70	565755	
24.689	40	7.62	848632	
24.918	42	5.44	1080077	Bearing obtained. No penetration after 229mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
 Pile No. 16
 Pier #2 Abut / Pier
 Date Driven 02/23/00

 Guernsey County
 Bridge No GUE-77-14 352 R
 Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
 Capacity formula: "R" = (334F)/S+2.54 Required "R": 872000 Newtons

 Elev. of top of pile (cut-off elev.) 242.906
 Elev. of nominal point of zero penetration: 242.296
 Elev. of pile point at final penetration: 213.747
 Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	3	101.60	82793	
0.610	3	101.60	82793	
0.914	3	101.60	82793	
1.219	3	101.60	82793	
1.524	3	101.60	82793	
1.829	3	101.60	82793	
2.134	3	101.60	82793	
2.438	3	101.60	82793	
2.743	3	101.60	82793	
3.048	4	76.20	109501	
3.353	4	76.20	109501	
3.658	4	76.20	109501	
3.962	4	76.20	109501	
4.267	4	76.20	109501	
4.572	4	76.20	109501	
4.877	4	76.20	109501	
5.182	4	76.20	109501	
5.486	4	76.20	109501	
5.791	4	76.20	109501	
6.096	4	76.20	109501	
6.401	6	50.80	161644	
6.706	6	50.80	161644	
7.010	6	50.80	161644	
7.315	7	43.54	187100	
7.620	7	43.54	187100	
7.925	6	50.80	161644	
8.230	7	43.54	187100	
8.534	7	43.54	187100	
8.839	7	43.54	187100	
9.144	7	43.54	187100	
9.449	8	38.10	212158	
9.754	9	33.87	236827	
10.058	9	33.87	236827	
10.363	9	33.87	236827	
10.668	9	33.87	236827	
10.973	9	33.87	236827	
11.278	10	30.48	261117	
11.582	10	30.48	261117	
11.887	10	30.48	261117	
12.192	10	30.48	261117	
12.497	10	30.48	261117	
12.802	10	30.48	261117	
13.106	10	30.48	261117	
13.411	10	30.48	261117	
13.716	10	30.48	261117	
14.021	10	30.48	261117	
14.326	11	27.71	285037	
14.630	12	25.40	308593	Splice #1, vis. insp. shows no sign of bent pile.
14.935	15	20.32	377170	
15.240	15	20.32	377170	
15.545	15	20.32	377170	
15.850	15	20.32	377170	
16.154	15	20.32	377170	
16.459	15	20.32	377170	
16.764	15	20.32	377170	
17.069	12	25.40	308593	
17.374	16	19.05	399356	
17.678	14	21.77	354652	
17.983	15	20.32	377170	
18.288	13	23.45	331796	

18.593	13	23.45	331796	
18.898	13	23.45	331796	
19.202	13	23.45	331796	
19.507	13	23.45	331796	
19.812	12	25.40	308593	
20.117	13	23.45	331796	
20.422	12	25.40	308593	
20.726	13	23.45	331796	
21.031	13	23.45	331796	
21.336	13	23.45	331796	
21.641	14	21.77	354652	
21.946	18	16.93	442764	
22.250	16	19.05	399356	
22.555	17	17.93	421219	
22.860	21	14.51	505568	
23.165	16	19.05	399356	
23.470	14	21.77	354652	
23.774	16	19.05	399356	
24.079	16	19.05	399356	
24.384	15	20.32	377170	
24.689	15	20.32	377170	
24.994	33	9.24	732153	
25.298	41	7.43	864445	
25.603	26	11.72	604505	
25.908	19	16.04	464000	
26.213	20	15.24	484932	
26.518	17	17.93	421219	
26.822	21	14.51	505568	
27.127	22	13.85	525913	
27.432	20	15.24	484932	
27.737	23	13.25	545973	
28.042	22	13.85	525913	
28.346	24	12.70	565755	
28.651	25	12.19	585263	
28.905	60	4.23	1272948	Bearing obtained. No penetration after 254mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
 Pile No. 17
 Pier #2 Abut / Pier
 Date Driven 02/23/00

 Guernsey County
 Bridge No GUE-77-14 352 R
 Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
 Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons
 Elev. of top of pile (cut-off elev.) 242.906
 Elev. of nominal point of zero penetration: 242.296
 Elev. of pile point at final penetration: 214.306
 Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	3	101.60	82793	
0.610	3	101.60	82793	
0.914	3	101.60	82793	
1.219	3	101.60	82793	
1.524	3	101.60	82793	
1.829	3	101.60	82793	
2.134	3	101.60	82793	
2.438	4	76.20	109501	
2.743	4	76.20	109501	
3.048	4	76.20	109501	
3.353	4	76.20	109501	
3.658	4	76.20	109501	
3.962	4	76.20	109501	
4.267	4	76.20	109501	
4.572	4	76.20	109501	
4.877	4	76.20	109501	
5.182	4	76.20	109501	
5.486	4	76.20	109501	
5.791	4	76.20	109501	
6.096	4	76.20	109501	
6.401	7	43.54	187100	
6.706	7	43.54	187100	
7.010	7	43.54	187100	
7.315	7	43.54	187100	
7.620	7	43.54	187100	
7.925	6	50.80	161644	
8.230	6	50.80	161644	
8.534	6	50.80	161644	
8.839	7	43.54	187100	
9.144	7	43.54	187100	
9.449	8	38.10	212158	
9.754	9	33.87	236827	
10.058	9	33.87	236827	
10.363	9	33.87	236827	
10.668	9	33.87	236827	
10.973	10	30.48	261117	
11.278	10	30.48	261117	
11.582	10	30.48	261117	
11.887	10	30.48	261117	
12.192	10	30.48	261117	
12.497	11	27.71	285037	
12.802	10	30.48	261117	
13.106	11	27.71	285037	
13.411	10	30.48	261117	
13.716	11	27.71	285037	
14.021	10	30.48	261117	
14.326	10	30.48	261117	
14.630	12	25.40	308593	Splice #1, vis. insp. shows no sign of bent pile.
14.935	12	25.40	308593	
15.240	10	30.48	261117	
15.545	16	19.05	399356	
15.850	16	19.05	399356	
16.154	14	21.77	354652	
16.459	18	16.93	442764	
16.764	16	19.05	399356	
17.069	16	19.05	399356	
17.374	17	17.93	421219	
17.678	16	19.05	399356	
17.983	14	21.77	354652	
18.288	14	21.77	354652	

18.593	14	21.77	354652	
18.898	14	21.77	354652	
19.202	14	21.77	354652	
19.507	14	21.77	354652	
19.812	13	23.45	331796	
20.117	14	21.77	354652	
20.422	14	21.77	354652	
20.726	14	21.77	354652	
21.031	16	19.05	399356	
21.336	16	19.05	399356	
21.641	14	21.77	354652	
21.946	18	16.93	442764	
22.250	17	17.93	421219	
22.555	18	16.93	442764	
22.860	18	16.93	442764	
23.165	20	15.24	484932	
23.470	15	20.32	377170	
23.774	19	16.04	464000	
24.079	17	17.93	421219	
24.384	15	20.32	377170	
24.689	20	15.24	484932	
24.994	19	16.04	464000	
25.298	37	8.24	799984	
25.603	24	12.70	565755	
25.908	23	13.25	545973	
26.213	20	15.24	484932	
26.518	17	17.93	421219	
26.822	18	16.93	442764	
27.127	20	15.24	484932	
27.432	18	16.93	442764	
27.737	21	14.51	505568	
28.042	22	13.85	525913	
28.346	22	13.85	525913	
28.651	20	15.24	484932	
28.956	24	12.70	565755	
29.108	45	3.39	1454797	Bearing obtained. No penetration after 152mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Sheet 1
Recorder Doug George
Date 02/09/00

Guernsey County
Section 14.352
Br. No. Gue-77-14 352 R
Location 1-77 over C.R. 431,
TR-4358 & CSX R.R.

PILING RECORD

Pier #3

FOOTING

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25866 Joules

Capacity formula: "R" = (334DF)/S+2.54

Required "R" = 872000 Newtons

Elev of top of pile (cut-off elev.): 244.633

Elev. of nominal point of zero penetration: 244.023

File No.	Pay Length (m)	Indicated "R" (N)	Remarks	Misc.
18	28.986 ✓	1272948		
19	25.451 ✓	1080077		
20	28.986 ✓	937961		
21	25.39 ✓	1168808		

Total = 108.813 meters

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 18
Pier #3 Abut / Pier
Date Driven 01/28/00Guernsey County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R": 872000 NewtonsElev. of top of pile (cut-off elev.) 244.633
Elev. of nominal point of zero penetration: 244.023
Elev. of pile point at final penetration: 215.643
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	0	0	0	
0.610	0	0	0	
0.914	0	0	0	
1.219	0	0	0	
1.524	0	0	0	
1.829	0	0	0	
2.134	0	0	0	
2.438	0	0	0	
2.743	0	0	0	
3.048	0	0	0	
3.353	0	0	0	
3.658	0	0	0	
3.962	0	0	0	
4.267	0	0	0	
4.572	0	0	0	
4.877	0	0	0	
5.182	0	0	0	
5.486	0	0	0	
5.791	0	0	0	
6.096	0	0	0	
6.401	0	0	0	
6.706	0	0	0	
7.010	0	0	0	
7.315	0	0	0	From 0.305 - 7.315, the weight of the hammer drove the pile. No blow counts.
7.620	2	152.40	55648	
7.925	4	76.20	109501	
8.230	4	76.20	109501	
8.534	4	76.20	109501	
8.839	4	76.20	109501	
9.144	4	76.20	109501	
9.449	4	76.20	109501	
9.754	4	76.20	109501	
10.058	4	76.20	109501	
10.363	4	76.20	109501	
10.668	6	50.80	161644	
10.973	7	43.54	187100	
11.278	7	43.54	187100	
11.582	7	43.54	187100	
11.887	7	43.54	187100	
12.192	7	43.54	187100	
12.497	8	38.10	212158	
12.802	8	38.10	212158	
13.106	8	38.10	212158	
13.411	8	38.10	212158	
13.716	8	38.10	212158	
14.021	7	43.54	187100	
14.326	7	43.54	187100	
14.630	7	43.54	187100	Splice #1, vis. insp. shows no sign of bent pile.
14.935	10	30.48	261117	
15.240	10	30.48	261117	
15.545	10	30.48	261117	
15.850	10	30.48	261117	
16.154	10	30.48	261117	
16.459	10	30.48	261117	
16.764	12	25.40	308593	
17.069	11	27.71	285037	
17.374	11	27.71	285037	
17.678	11	27.71	285037	
17.983	11	27.71	285037	
18.288	13	23.45	331796	

18.593	10	30.48	261117	
18.898	10	30.48	261117	
19.202	10	30.48	261117	
19.507	10	30.48	261117	
19.812	12	25.40	308593	
20.117	11	27.71	285037	
20.422	11	27.71	285037	
20.726	11	27.71	285037	
21.031	11	27.71	285037	
21.336	12	25.40	308593	
21.641	13	23.45	331796	
21.946	13	23.45	331796	
22.250	13	23.45	331796	
22.555	13	23.45	331796	
22.860	17	17.93	421219	
23.165	15	20.32	377170	
23.470	12	25.40	308593	
23.774	13	23.45	331796	
24.079	16	19.05	399356	
24.384	11	27.71	285037	
24.689	17	17.93	421219	
24.994	30	10.16	678905	
25.298	37	8.24	799984	
25.603	37	8.24	799984	
25.908	30	10.16	678905	
26.213	18	16.93	442764	
26.518	20	15.24	484932	
26.822	20	15.24	484932	
27.127	19	16.04	464000	
27.432	21	14.51	505568	
27.737	21	14.51	505568	
28.042	43	7.09	895489	Splice #2, vis. insp. shows no sign of bent pile.
28.346	30	10.16	678905	
28.651	31	9.83	696890	
28.829	42	4.23	1272948	Bearing obtained. No penetration in 178mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 19
Pier #3 Abut / Pier
Date Driven 02/07/00Guernsey County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons
Elev. of top of pile (cut-off elev.) 244.633
Elev. of nominal point of zero penetration: 244.023
Elev. of pile point at final penetration: 219.182
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	3	101.60	82793	
0.610	3	101.60	82793	
0.914	3	101.60	82793	
1.219	3	101.60	82793	
1.524	3	101.60	82793	
1.829	3	101.60	82793	
2.134	3	101.60	82793	
2.438	3	101.60	82793	
2.743	3	101.60	82793	
3.048	3	101.60	82793	
3.353	3	101.60	82793	
3.658	3	101.60	82793	
3.962	3	101.60	82793	
4.267	3	101.60	82793	
4.572	3	101.60	82793	
4.877	3	101.60	82793	
5.182	3	101.60	82793	
5.486	3	101.60	82793	
5.791	3	101.60	82793	
6.096	3	101.60	82793	
6.401	3	101.60	82793	
6.706	3	101.60	82793	
7.010	3	101.60	82793	
7.315	3	101.60	82793	
7.620	3	101.60	82793	
7.925	3	101.60	82793	
8.230	3	101.60	82793	
8.534	3	101.60	82793	
8.839	3	101.60	82793	
9.144	3	101.60	82793	
9.449	3	101.60	82793	
9.754	3	101.60	82793	
10.058	3	101.60	82793	
10.363	3	101.60	82793	
10.668	3	101.60	82793	
10.973	3	101.60	82793	
11.278	3	101.60	82793	
11.582	20	15.24	484932	
11.887	20	15.24	484932	
12.192	20	15.24	484932	
12.497	20	15.24	484932	
12.802	21	14.51	505568	
13.106	21	14.51	505568	
13.411	32	9.53	714637	
13.716	32	9.53	714637	
14.021	16	19.05	399356	
14.326	16	19.05	399356	
14.630	16	19.05	399356	Splice #1, vis. insp. shows no sign of bent pile.
14.935	17	17.93	421219	
15.240	17	17.93	421219	
15.545	18	16.93	442764	
15.850	18	16.93	442764	
16.154	18	16.93	442764	
16.459	19	16.04	464000	
16.764	19	16.04	464000	
17.069	19	16.04	464000	
17.374	19	16.04	464000	
17.678	20	15.24	484932	
17.983	21	14.51	505568	
18.288	18	16.93	442764	

18.593	26	11.72	604505	
18.898	23	13.25	545973	
19.202	23	13.25	545973	
19.507	26	11.72	604505	
19.812	25	12.19	585263	
20.117	22	13.85	525913	
20.422	22	13.85	525913	
20.726	22	13.85	525913	
21.031	25	12.19	585263	
21.336	22	13.85	525913	
21.641	22	13.85	525913	
21.946	40	7.62	848632	
22.175	42	5.44	1080077	Bearing obtained. No penetration after 229mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 20
Pier #3 Abut / Pier
Date Driven 02/07/00Guernsey County
Bridge No GUE-77-14 352 R.
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 NewtonsElev. of top of pile (cut-off elev.) 244.633
Elev. of nominal point of zero penetration: 244.023
Elev. of pile point at final penetration: 215.647
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	4	76.20	109501	
0.610	4	76.20	109501	
0.914	4	76.20	109501	
1.219	4	76.20	109501	
1.524	4	76.20	109501	
1.829	4	76.20	109501	
2.134	4	76.20	109501	
2.438	4	76.20	109501	
2.743	4	76.20	109501	
3.048	4	76.20	109501	
3.353	4	76.20	109501	
3.658	4	76.20	109501	
3.962	4	76.20	109501	
4.267	4	76.20	109501	
4.572	4	76.20	109501	
4.877	4	76.20	109501	
5.182	4	76.20	109501	
5.486	4	76.20	109501	
5.791	4	76.20	109501	
6.096	4	76.20	109501	
6.401	4	76.20	109501	
6.706	4	76.20	109501	
7.010	4	76.20	109501	
7.315	4	76.20	109501	
7.620	4	76.20	109501	
7.925	4	76.20	109501	
8.230	4	76.20	109501	
8.534	4	76.20	109501	
8.839	4	76.20	109501	
9.144	4	76.20	109501	
9.449	4	76.20	109501	
9.754	4	76.20	109501	
10.058	4	76.20	109501	
10.363	4	76.20	109501	
10.668	4	76.20	109501	
10.973	4	76.20	109501	
11.278	4	76.20	109501	
11.582	4	76.20	109501	
11.887	4	76.20	109501	
12.192	4	76.20	109501	
12.497	4	76.20	109501	
12.802	4	76.20	109501	
13.106	4	76.20	109501	
13.411	4	76.20	109501	
13.716	5	60.96	135781	
14.021	5	60.96	135781	
14.326	5	60.96	135781	
14.630	10	30.48	261117	Splice #1, vis. insp. shows no sign of bent pile.
14.935	10	30.48	261117	
15.240	11	27.71	285037	
15.545	15	20.32	377170	
15.850	15	20.32	377170	
16.154	13	23.45	331796	
16.459	13	23.45	331796	
16.764	13	23.45	331796	
17.069	12	25.40	308593	
17.374	12	25.40	308593	
17.678	13	23.45	331796	
17.983	13	23.45	331796	
18.288	13	23.45	331796	

18.593	10	30.48	261117	
18.898	10	30.48	261117	
19.202	11	27.71	285037	
19.507	11	27.71	285037	
19.812	11	27.71	285037	
20.117	12	25.40	308593	
20.422	10	30.48	261117	
20.726	11	27.71	285037	
21.031	12	25.40	308593	
21.336	11	27.71	285037	
21.641	12	25.40	308593	
21.946	15	20.32	377170	
22.250	15	20.32	377170	
22.555	15	20.32	377170	
22.860	14	21.77	354652	
23.165	12	25.40	308593	
23.470	15	20.32	377170	
23.774	12	25.40	308593	
24.079	14	21.77	354652	
24.384	12	25.40	308593	
24.689	12	25.40	308593	
24.994	31	9.83	696890	
25.298	39	7.82	832620	
25.603	36	8.47	783352	
25.908	21	14.51	505568	
26.213	16	19.05	399356	
26.518	16	19.05	399356	
26.822	18	16.93	442764	
27.127	19	16.04	464000	
27.432	18	16.93	442764	
27.737	22	13.85	525913	
28.042	21	14.51	505568	
28.346	23	13.25	545973	
28.625	42	6.65	937961	Bearing obtained. No penetration after 279mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 21
Pier #3 Abut / Pier
Date Driven 01/26/00Guernsey County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons
Elev. of top of pile (cut-off elev.) 244.633
Elev. of nominal point of zero penetration: 244.023
Elev. of pile point at final penetration: 219.243
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	1	304.80	28054	
0.610	1	304.80	28054	
0.914	1	304.80	28054	
1.219	1	304.80	28054	
1.524	1	304.80	28054	
1.829	1	304.80	28054	
2.134	1	304.80	28054	
2.438	1	304.80	28054	
2.743	1	304.80	28054	
3.048	1	304.80	28054	
3.353	2	152.40	55648	
3.658	2	152.40	55648	
3.962	2	152.40	55648	
4.267	2	152.40	55648	
4.572	2	152.40	55648	
4.877	2	152.40	55648	
5.182	2	152.40	55648	
5.486	3	101.60	82793	
5.791	5	60.96	135781	
6.096	5	60.96	135781	
6.401	7	43.54	187100	
6.706	7	43.54	187100	
7.010	7	43.54	187100	
7.315	7	43.54	187100	
7.620	7	43.54	187100	
7.925	6	50.80	161644	
8.230	6	50.80	161644	
8.534	6	50.80	161644	
8.839	6	50.80	161644	
9.144	6	50.80	161644	
9.449	7	43.54	187100	
9.754	7	43.54	187100	
10.058	7	43.54	187100	
10.363	7	43.54	187100	
10.668	7	43.54	187100	
10.973	6	50.80	161644	
11.278	6	50.80	161644	
11.582	6	50.80	161644	
11.887	7	43.54	187100	
12.192	8	38.10	212158	
12.497	7	43.54	187100	
12.802	7	43.54	187100	
13.106	7	43.54	187100	
13.411	7	43.54	187100	
13.716	7	43.54	187100	
14.021	11	27.71	285037	
14.326	11	27.71	285037	
14.630	12	25.40	308593	Splice #1, vis. insp. shows no sign of bent pile.
14.935	9	33.87	236827	
15.240	9	33.87	236827	
15.545	9	33.87	236827	
15.850	9	33.87	236827	
16.154	9	33.87	236827	
16.459	9	33.87	236827	
16.764	10	30.48	261117	
17.069	24	12.70	565755	
17.374	24	12.70	565755	
17.678	20	15.24	484932	
17.983	20	15.24	484932	
18.288	22	13.85	525913	

18.593	16	19.05	399356	
18.898	17	17.93	421219	
19.202	20	15.24	484932	
19.507	20	15.24	484932	
19.812	22	13.85	525913	
20.117	23	13.25	545973	
20.422	21	14.51	505568	
20.726	21	14.51	505568	
21.031	18	16.93	442764	
21.336	19	16.04	464000	
21.641	23	13.25	545973	
21.946	20	15.24	484932	
22.250	23	13.25	545973	
22.555	23	13.25	545973	
22.860	20	15.24	484932	
23.165	21	14.51	505568	
23.470	20	15.24	484932	
23.774	20	15.24	484932	
24.079	20	15.24	484932	
24.384	20	15.24	484932	
24.689	37	8.24	799984	
24.892	42	4.84	1168608	Bearing obtained. No penetration in 203mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
 Pile No. 22(BAT.)
 Pier #4 _____ Abut / Pier _____
 Date Driven 02/07/00

 Guernsey _____ County _____
 Bridge No GUE-77-14 352 R
 Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
 Capacity formula: "R" = (334DF)/S+2.54 Required "R": 708824 Newtons
 Elev. of top of pile (cut-off elev.) 244.206
 Elev. of nominal point of zero penetration: 243.596
 Elev. of pile point at final penetration: 218.116
 Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	5	60.96	128434	Battered pile. 1:4 batter.
0.610	5	60.96	128434	
0.914	5	60.96	128434	
1.219	5	60.96	128434	
1.524	5	60.96	128434	
1.829	5	60.96	128434	
2.134	5	60.96	128434	
2.438	5	60.96	128434	
2.743	5	60.96	128434	
3.048	5	60.96	128434	
3.353	5	60.96	128434	
3.658	5	60.96	128434	
3.962	5	60.96	128434	
4.267	5	60.96	128434	
4.572	5	60.96	128434	
4.877	5	60.96	128434	
5.182	5	60.96	128434	
5.486	5	60.96	128434	
5.791	5	60.96	128434	
6.096	5	60.96	128434	
6.401	5	60.96	128434	
6.706	5	60.96	128434	
7.010	5	60.96	128434	
7.315	5	60.96	128434	
7.620	5	60.96	128434	
7.925	5	60.96	128434	
8.230	5	60.96	128434	
8.534	5	60.96	128434	
8.839	5	60.96	128434	
9.144	5	60.96	128434	
9.449	5	60.96	128434	
9.754	5	60.96	128434	
10.058	6	50.80	152897	
10.363	6	50.80	152897	
10.668	6	50.80	152897	
10.973	6	50.80	152897	
11.278	6	50.80	152897	
11.582	6	50.80	152897	
11.887	6	50.80	152897	
12.192	6	50.80	152897	
12.497	6	50.80	152897	
12.802	6	50.80	152897	
13.106	6	50.80	152897	
13.411	6	50.80	152897	
13.716	6	50.80	152897	
14.021	6	50.80	152897	
14.326	6	50.80	152897	
14.630	6	50.80	152897	Splice #1, vis. insp. shows no sign of bent pile.
14.935	6	50.80	152897	
15.240	10	30.48	246988	
15.545	11	27.71	269613	
15.850	11	27.71	269613	
16.154	12	25.40	291895	
16.459	12	25.40	291895	
16.764	12	25.40	291895	
17.069	10	30.48	246988	
17.374	10	30.48	246988	
17.678	11	27.71	269613	
17.983	11	27.71	269613	
18.288	11	27.71	269613	

18.593	11	27.71	269613	
18.898	11	27.71	269613	
19.202	11	27.71	269613	
19.507	11	27.71	269613	
19.812	11	27.71	269613	
20.117	12	25.40	291895	
20.422	13	23.45	313842	
20.726	13	23.45	313842	
21.031	13	23.45	313842	
21.336	13	23.45	313842	
21.641	13	23.45	313842	
21.946	13	23.45	313842	
22.250	15	20.32	356761	
22.555	13	23.45	313842	
22.860	15	20.32	356761	
23.165	14	21.77	335461	
23.470	16	19.05	377747	
23.774	16	19.05	377747	
24.079	13	23.45	313842	
24.384	15	20.32	356761	
24.689	13	23.45	313842	
24.994	12	25.40	291895	
25.298	14	21.77	335461	
25.603	21	14.51	478211	
25.883	33	8.47	740964	Bearing obtained. No penetration after 280mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
 Pile No. 23(BAT.)
 Pier #4 _____ Abut / Pier
 Date Driven 02/07/00

 Guernsey _____ County
 Bridge No GUE-77-14 352 R
 Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
 Capacity formula: "R" = (334DF)/S+2.54 Required "R" 708824 Newtons
 Elev. of top of pile (cut-off elev.) 244.206
 Elev. of nominal point of zero penetration: 243.596
 Elev. of pile point at final penetration: 217.932
 Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	4	76.20	103576	Battered pile. 1:4 batter.
0.610	4	76.20	103576	
0.914	4	76.20	103576	
1.219	4	76.20	103576	
1.524	4	76.20	103576	
1.829	4	76.20	103576	
2.134	4	76.20	103576	
2.438	4	76.20	103576	
2.743	4	76.20	103576	
3.048	4	76.20	103576	
3.353	4	76.20	103576	
3.658	4	76.20	103576	
3.962	4	76.20	103576	
4.267	4	76.20	103576	
4.572	4	76.20	103576	
4.877	4	76.20	103576	
5.182	4	76.20	103576	
5.486	4	76.20	103576	
5.791	4	76.20	103576	
6.096	4	76.20	103576	
6.401	4	76.20	103576	
6.706	4	76.20	103576	
7.010	4	76.20	103576	
7.315	4	76.20	103576	
7.620	4	76.20	103576	
7.925	7	43.54	176976	
8.230	7	43.54	176976	
8.534	7	43.54	176976	
8.839	7	43.54	176976	
9.144	7	43.54	176976	
9.449	7	43.54	176976	
9.754	7	43.54	176976	
10.058	7	43.54	176976	
10.363	7	43.54	176976	
10.668	7	43.54	176976	
10.973	7	43.54	176976	
11.278	7	43.54	176976	
11.582	7	43.54	176976	
11.887	7	43.54	176976	
12.192	7	43.54	176976	
12.497	9	33.87	224012	
12.802	9	33.87	224012	
13.106	9	33.87	224012	
13.411	9	33.87	224012	
13.716	10	30.48	246988	
14.021	8	38.10	200678	
14.326	8	38.10	200678	
14.630	8	38.10	200678	Splice #1, vis. insp. shows no sign of bent pile.
14.935	8	38.10	200678	
15.240	10	30.48	246988	
15.545	10	30.48	246988	
15.850	10	30.48	246988	
16.154	10	30.48	246988	
16.459	10	30.48	246988	
16.764	10	30.48	246988	
17.069	10	30.48	246988	
17.374	10	30.48	246988	
17.678	10	30.48	246988	
17.983	11	27.71	269613	
18.288	11	27.71	269613	

18.593	11	27.71	269613	
18.898	11	27.71	269613	
19.202	12	25.40	291895	
19.507	12	25.40	291895	
19.812	12	25.40	291895	
20.117	11	27.71	269613	
20.422	14	21.77	335461	
20.726	12	25.40	291895	
21.031	12	25.40	291895	
21.336	11	27.71	269613	
21.641	13	23.45	313842	
21.946	13	23.45	313842	
22.250	14	21.77	335461	
22.555	14	21.77	335461	
22.860	14	21.77	335461	
23.165	15	20.32	356761	
23.470	12	25.40	291895	
23.774	15	20.32	356761	
24.079	14	21.77	335461	
24.384	11	27.71	269613	
24.689	15	20.32	356761	
24.994	12	25.40	291895	
25.298	12	25.40	291895	
25.603	21	14.51	478211	
25.908	26	11.72	571794	
26.137	32	7.14	842189	Bearing obtained. No penetration after 229mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
 Pile No. 24
 Pier #4 Abut / Pier
 Date Driven 02/08/00

 Guemsey County
 Bridge No GUE-77-14 352 R
 Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile
 Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
 Capacity formula: "R" = (334F)/S+2.54 Required "R": 872000 Newtons
 Elev. of top of pile (cut-off elev.) 244.206
 Elev. of nominal point of zero penetration: 243.596
 Elev. of pile point at final penetration: 218.146
 Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	1	304.80	28054	
0.610	1	304.80	28054	
0.914	1	304.80	28054	
1.219	1	304.80	28054	
1.524	1	304.80	28054	
1.829	1	304.80	28054	
2.134	1	304.80	28054	
2.438	1	304.80	28054	
2.743	1	304.80	28054	
3.048	1	304.80	28054	
3.353	3	101.60	82793	
3.658	3	101.60	82793	
3.962	3	101.60	82793	
4.267	4	76.20	109501	
4.572	4	76.20	109501	
4.877	4	76.20	109501	
5.182	4	76.20	109501	
5.486	4	76.20	109501	
5.791	4	76.20	109501	
6.096	5	60.96	135781	
6.401	4	76.20	109501	
6.706	4	76.20	109501	
7.010	5	60.96	135781	
7.315	5	60.96	135781	
7.620	5	60.96	135781	
7.925	5	60.96	135781	
8.230	6	50.80	161644	
8.534	6	50.80	161644	
8.839	6	50.80	161644	
9.144	6	50.80	161644	
9.449	6	50.80	161644	
9.754	6	50.80	161644	
10.058	6	50.80	161644	
10.363	6	50.80	161644	
10.668	6	50.80	161644	
10.973	6	50.80	161644	
11.278	6	50.80	161644	
11.582	7	43.54	187100	
11.887	7	43.54	187100	
12.192	7	43.54	187100	
12.497	7	43.54	187100	
12.802	7	43.54	187100	
13.106	7	43.54	187100	
13.411	8	38.10	212158	
13.716	8	38.10	212158	
14.021	8	38.10	212158	
14.326	8	38.10	212158	
14.630	8	38.10	212158	Splice #1, vis. insp. shows no sign of bent pile.
14.935	11	27.71	285037	
15.240	11	27.71	285037	
15.545	12	25.40	308593	
15.850	12	25.40	308593	
16.154	12	25.40	308593	
16.459	12	25.40	308593	
16.764	12	25.40	308593	
17.069	14	21.77	354652	
17.374	14	21.77	354652	
17.678	14	21.77	354652	
17.983	14	21.77	354652	
18.288	14	21.77	354652	

18.593	12	25.40	308593	
18.898	14	21.77	354652	
19.202	14	21.77	354652	
19.507	14	21.77	354652	
19.812	14	21.77	354652	
20.117	15	20.32	377170	
20.422	15	20.32	377170	
20.726	15	20.32	377170	
21.031	15	20.32	377170	
21.336	13	23.45	331796	
21.641	17	17.93	421219	
21.946	16	19.05	399356	
22.250	17	17.93	421219	
22.555	17	17.93	421219	
22.860	16	19.05	399356	
23.165	18	16.93	442764	
23.470	18	16.93	442764	
23.774	17	17.93	421219	
24.079	19	16.04	464000	
24.384	15	20.32	377170	
24.689	19	16.04	464000	
24.994	18	16.93	442764	
25.298	28	10.89	642208	
25.450	32	4.76	1180705	Bearing obtained. No penetration after 152mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 25
Pier #4 Abut / Pier
Date Driven 02/08/00Guernsey County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R" 872000 NewtonsElev. of top of pile (cut-off elev.) 244.206Elev. of nominal point of zero penetration: 243.596Elev. of pile point at final penetration: 218.359Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	2	152.40	55648	
0.610	2	152.40	55648	
0.914	2	152.40	55648	
1.219	2	152.40	55648	
1.524	2	152.40	55648	
1.829	2	152.40	55648	
2.134	2	152.40	55648	
2.438	2	152.40	55648	
2.743	2	152.40	55648	
3.048	2	152.40	55648	
3.353	2	152.40	55648	
3.658	2	152.40	55648	
3.962	2	152.40	55648	
4.267	2	152.40	55648	
4.572	2	152.40	55648	
4.877	3	101.60	82793	
5.182	3	101.60	82793	
5.486	3	101.60	82793	
5.791	3	101.60	82793	
6.096	3	101.60	82793	
6.401	5	60.96	135781	
6.706	5	60.96	135781	
7.010	6	50.80	161644	
7.315	6	50.80	161644	
7.620	6	50.80	161644	
7.925	6	50.80	161644	
8.230	6	50.80	161644	
8.534	7	43.54	187100	
8.839	7	43.54	187100	
9.144	7	43.54	187100	
9.449	9	33.87	236827	
9.754	9	33.87	236827	
10.058	10	30.48	261117	
10.363	10	30.48	261117	
10.668	10	30.48	261117	
10.973	11	27.71	285037	
11.278	11	27.71	285037	
11.582	11	27.71	285037	
11.887	11	27.71	285037	
12.192	11	27.71	285037	
12.497	12	25.40	308593	
12.802	12	25.40	308593	
13.106	12	25.40	308593	
13.411	12	25.40	308593	
13.716	12	25.40	308593	
14.021	9	33.87	236827	
14.326	9	33.87	236827	
14.630	10	30.48	261117	Splice #1, vis. insp. shows no sign of bent pile.
14.935	10	30.48	261117	
15.240	10	30.48	261117	
15.545	10	30.48	261117	
15.850	11	27.71	285037	
16.154	16	19.05	399356	
16.459	16	19.05	399356	
16.764	16	19.05	399356	
17.069	17	17.93	421219	
17.374	18	16.93	442764	
17.678	18	16.93	442764	
17.983	18	16.93	442764	
18.288	18	16.93	442764	

18.593	15	20.32	377170	
18.898	15	20.32	377170	
19.202	16	19.05	399356	
19.507	16	19.05	399356	
19.812	16	19.05	399356	
20.117	15	20.32	377170	
20.422	15	20.32	377170	
20.726	17	17.93	421219	
21.031	17	17.93	421219	
21.336	17	17.93	421219	
21.641	18	16.93	442764	
21.946	18	16.93	442764	
22.250	18	16.93	442764	
22.555	18	16.93	442764	
22.860	18	16.93	442764	
23.165	20	15.24	484932	
23.470	17	17.93	421219	
23.774	16	19.05	399356	
24.079	19	16.04	464000	
24.384	15	20.32	377170	
24.689	18	16.93	442764	
24.994	21	14.51	505568	
25.298	42	7.26	880063	Bearing obtained. No penetration after 305mm.

REF. NO. 90-(507) 300mm CAST-IN-PLACE REINFORCED CONCRETE PILES.

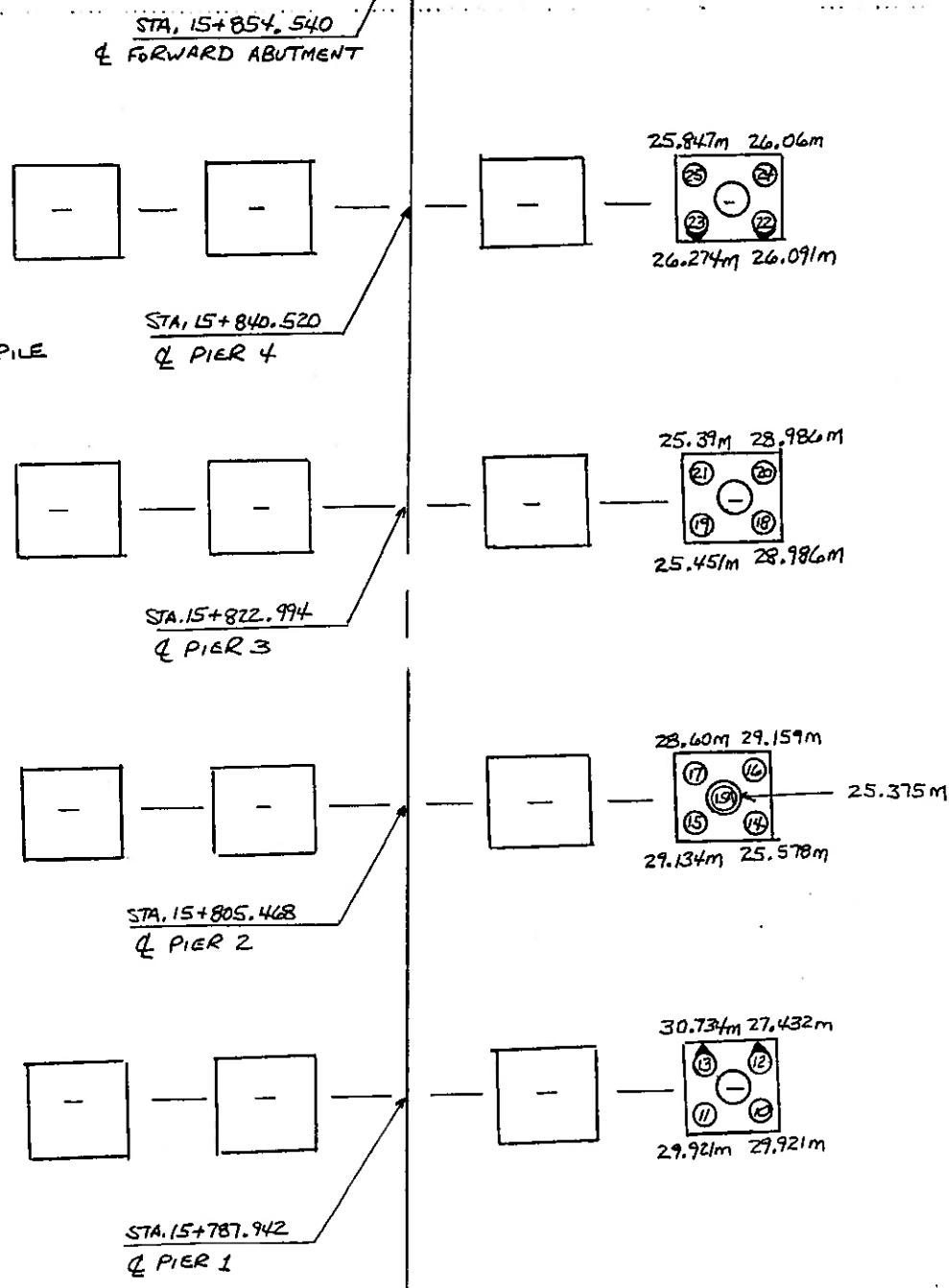
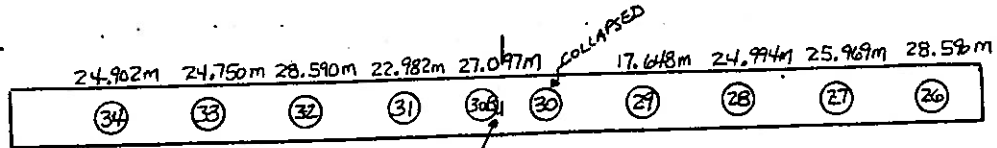
ESTIMATED PAY LENGTH:

ABUTMENTS = 17 METERS
PIERS = 11 METERS

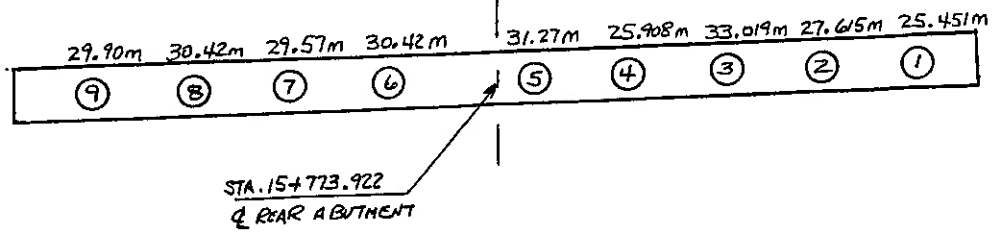
ULTIMATE BEARING:

ABUTMENTS = 773 KN
PIERS = 872 KN

○ = 300mm BATTERED 1:4 PILE



SUMMARY TOTALS	
REAR ABUT.	= 263.573m
PIER 1	= 118.008m
PIER 2	= 137.846m
PIER 3	= 108.813m
PIER 4	= 104.272m
FWD. ABUT.	= 225.522m
TOTAL	= 958.034m



BR-5
11-83

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Sheet 1
Recorder Doug George
Date 02/09/00

Guernsey County
Section 14.352
Br. No. Gue-77-14.352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILING RECORD

Pier #4

FOOTING

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25868 Joules

Capacity formula: "R" = (334DF)/S+2.54

Required "R" = 872000 Newtons

Elev of top of pile (cut-off elev.): 244.208

Elev. of nominal point of zero penetration: 243.596

Pile No.	Pay Length (m)	Indicated "R" (N)	Remarks	Misc.
22	26.091 ✓	740964	Battered pile. 1:4 batter.	
23	26.274 ✓	842189	Battered pile. 1:4 batter.	
24	26.08 ✓	1180705		
25	25.847 ✓	880063		

Total = 104.272 meters

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 22(BAT.)Pier #4 Abut / PierDate Driven 02/07/00Guernsey CountyBridge No GUE-77-14 352 RLocation I-77 over C.R. 431,TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334DF)/S+2.54 Required "R": 708824 NewtonsElev. of top of pile (cut-off elev.) 244.206Elev. of nominal point of zero penetration: 243.596Elev. of pile point at final penetration: 218.116Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	5	60.96	128434	Battered pile. 1:4 batter.
0.610	5	60.96	128434	
0.914	5	60.96	128434	
1.219	5	60.96	128434	
1.524	5	60.96	128434	
1.829	5	60.96	128434	
2.134	5	60.96	128434	
2.438	5	60.96	128434	
2.743	5	60.96	128434	
3.048	5	60.96	128434	
3.353	5	60.96	128434	
3.658	5	60.96	128434	
3.962	5	60.96	128434	
4.267	5	60.96	128434	
4.572	5	60.96	128434	
4.877	5	60.96	128434	
5.182	5	60.96	128434	
5.486	5	60.96	128434	
5.791	5	60.96	128434	
6.096	5	60.96	128434	
6.401	5	60.96	128434	
6.706	5	60.96	128434	
7.010	5	60.96	128434	
7.315	5	60.96	128434	
7.620	5	60.96	128434	
7.925	5	60.96	128434	
8.230	5	60.96	128434	
8.534	5	60.96	128434	
8.839	5	60.96	128434	
9.144	5	60.96	128434	
9.449	5	60.96	128434	
9.754	5	60.96	128434	
10.058	6	50.80	152897	
10.363	6	50.80	152897	
10.668	6	50.80	152897	
10.973	6	50.80	152897	
11.278	6	50.80	152897	
11.582	6	50.80	152897	
11.887	6	50.80	152897	
12.192	6	50.80	152897	
12.497	6	50.80	152897	
12.802	6	50.80	152897	
13.106	6	50.80	152897	
13.411	6	50.80	152897	
13.716	6	50.80	152897	
14.021	6	50.80	152897	
14.326	6	50.80	152897	
14.630	6	50.80	152897	Splice #1, vis. insp. shows no sign of bent pile.
14.935	6	50.80	152897	
15.240	10	30.48	246988	
15.545	11	27.71	269613	
15.850	11	27.71	269613	
16.154	12	25.40	291895	
16.459	12	25.40	291895	
16.764	12	25.40	291895	
17.069	10	30.48	246988	
17.374	10	30.48	246988	
17.678	11	27.71	269613	
17.983	11	27.71	269613	
18.288	11	27.71	269613	

18.593	11	27.71	269613	
18.898	11	27.71	269613	
19.202	11	27.71	269613	
19.507	11	27.71	269613	
19.812	11	27.71	269613	
20.117	12	25.40	291895	
20.422	13	23.45	313842	
20.728	13	23.45	313842	
21.031	13	23.45	313842	
21.336	13	23.45	313842	
21.641	13	23.45	313842	
21.946	13	23.45	313842	
22.250	15	20.32	356761	
22.555	13	23.45	313842	
22.860	15	20.32	356761	
23.165	14	21.77	335461	
23.470	16	19.05	377747	
23.774	16	19.05	377747	
24.079	13	23.45	313842	
24.384	15	20.32	356761	
24.689	13	23.45	313842	
24.994	12	25.40	291895	
25.298	14	21.77	335461	
25.603	21	14.51	478211	
25.883	33	8.47	740964	Bearing obtained. No penetration after 280mm.

Pile No. 24Pier #4 Abut / PierDate Driven 02/03/00STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONGuernsey CountyBridge No GUE-77-14 352 RLocation I-77 over C.R. 431,TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R": 872000 NewtonsElev. of top of pile (cut-off elev.) 244.206Elev. of nominal point of zero penetration: 243.596Elev. of pile point at final penetration: 218.146Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	1	304.80	28054	
0.610	1	304.80	28054	
0.914	1	304.80	28054	
1.219	1	304.80	28054	
1.524	1	304.80	28054	
1.829	1	304.80	28054	
2.134	1	304.80	28054	
2.438	1	304.80	28054	
2.743	1	304.80	28054	
3.048	1	304.80	28054	
3.353	3	101.60	82793	
3.658	3	101.60	82793	
3.962	3	101.60	82793	
4.267	4	76.20	109501	
4.572	4	76.20	109501	
4.877	4	76.20	109501	
5.182	4	76.20	109501	
5.486	4	76.20	109501	
5.791	4	76.20	109501	
6.096	5	60.96	135781	
6.401	4	76.20	109501	
6.706	4	76.20	109501	
7.010	5	60.96	135781	
7.315	5	60.96	135781	
7.620	5	60.96	135781	
7.925	5	60.96	135781	
8.230	6	50.80	161644	
8.534	6	50.80	161644	
8.839	6	50.80	161644	
9.144	6	50.80	161644	
9.449	6	50.80	161644	
9.754	6	50.80	161644	
10.058	6	50.80	161644	
10.363	6	50.80	161644	
10.668	6	50.80	161644	
10.973	6	50.80	161644	
11.278	6	50.80	161644	
11.582	7	43.54	187100	
11.887	7	43.54	187100	
12.192	7	43.54	187100	
12.497	7	43.54	187100	
12.802	7	43.54	187100	
13.106	7	43.54	187100	
13.411	8	38.10	212158	
13.716	8	38.10	212158	
14.021	8	38.10	212158	
14.326	8	38.10	212158	
14.630	8	38.10	212158	Splice #1, vis. insp. shows no sign of bent pile.
14.935	11	27.71	285037	
15.240	11	27.71	285037	
15.545	12	25.40	308593	
15.850	12	25.40	308593	
16.154	12	25.40	308593	
16.459	12	25.40	308593	
16.764	12	25.40	308593	
17.069	14	21.77	354652	
17.374	14	21.77	354652	
17.678	14	21.77	354652	
17.983	14	21.77	354652	
18.288	14	21.77	354652	

18.593	12	25.40	308593	
18.898	14	21.77	354652	
19.202	14	21.77	354652	
19.507	14	21.77	354652	
19.812	14	21.77	354652	
20.117	15	20.32	377170	
20.422	15	20.32	377170	
20.726	15	20.32	377170	
21.031	15	20.32	377170	
21.336	13	23.45	331796	
21.641	17	17.93	421219	
21.946	16	19.05	399356	
22.250	17	17.93	421219	
22.555	17	17.93	421219	
22.860	16	19.05	399356	
23.165	18	16.93	442764	
23.470	18	16.93	442764	
23.774	17	17.93	421219	
24.079	19	16.04	464000	
24.384	15	20.32	377170	
24.689	19	16.04	464000	
24.994	18	16.93	442764	
25.298	28	10.89	642208	
25.450	32	4.76	1180705	Bearing obtained. No penetration after 152mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION
 Pile No. 18
 Pier #3 Abut / Pier
 Date Driven 01/28/00

 Guernsey County
 Bridge No GUE-77-14 352 R
 Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons
 Elev. of top of pile (cut-off elev.) 244.633
 Elev. of nominal point of zero penetration: 244.023
 Elev. of pile point at final penetration: 215.643
 Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	0	0	0	
0.610	0	0	0	
0.914	0	0	0	
1.219	0	0	0	
1.524	0	0	0	
1.829	0	0	0	
2.134	0	0	0	
2.438	0	0	0	
2.743	0	0	0	
3.048	0	0	0	
3.353	0	0	0	
3.658	0	0	0	
3.962	0	0	0	
4.267	0	0	0	
4.572	0	0	0	
4.877	0	0	0	
5.182	0	0	0	
5.486	0	0	0	
5.791	0	0	0	
6.096	0	0	0	
6.401	0	0	0	
6.706	0	0	0	
7.010	0	0	0	
7.315	0	0	0	From 0.305 - 7.315, the weight of the hammer drove the pile. No blow counts.
7.620	2	152.40	55648	
7.925	4	76.20	109501	
8.230	4	76.20	109501	
8.534	4	76.20	109501	
8.839	4	76.20	109501	
9.144	4	76.20	109501	
9.449	4	76.20	109501	
9.754	4	76.20	109501	
10.058	4	76.20	109501	
10.363	4	76.20	109501	
10.668	6	50.80	161644	
10.973	7	43.54	187100	
11.278	7	43.54	187100	
11.582	7	43.54	187100	
11.887	7	43.54	187100	
12.192	7	43.54	187100	
12.497	8	38.10	212158	
12.802	8	38.10	212158	
13.106	8	38.10	212158	
13.411	8	38.10	212158	
13.716	8	38.10	212158	
14.021	7	43.54	187100	
14.326	7	43.54	187100	
14.630	7	43.54	187100	Splice #1, vis. insp. shows no sign of bent pile.
14.935	10	30.48	261117	
15.240	10	30.48	261117	
15.545	10	30.48	261117	
15.850	10	30.48	261117	
16.154	10	30.48	261117	
16.459	10	30.48	261117	
16.764	12	25.40	308593	
17.069	11	27.71	285037	
17.374	11	27.71	285037	
17.678	11	27.71	285037	
17.983	11	27.71	285037	
18.288	13	23.45	331796	

18.593	10	30.48	261117	
18.896	10	30.48	261117	
19.202	10	30.48	261117	
19.507	10	30.48	261117	
19.812	12	25.40	308593	
20.117	11	27.71	285037	
20.422	11	27.71	285037	
20.726	11	27.71	285037	
21.031	11	27.71	285037	
21.336	12	25.40	308593	
21.641	13	23.45	331796	
21.946	13	23.45	331796	
22.250	13	23.45	331796	
22.555	13	23.45	331796	
22.860	17	17.93	421219	
23.165	15	20.32	377170	
23.470	12	25.40	308593	
23.774	13	23.45	331796	
24.079	16	19.05	399356	
24.384	11	27.71	285037	
24.689	17	17.93	421219	
24.994	30	10.16	678905	
25.298	37	8.24	799984	
25.603	37	8.24	799984	
25.908	30	10.16	678905	
26.213	18	16.93	442764	
26.518	20	15.24	484932	
26.822	20	15.24	484932	
27.127	19	16.04	464000	
27.432	21	14.51	505568	
27.737	21	14.51	505568	
28.042	43	7.09	895489	Splice #2, vis. insp. shows no sign of bent pile.
28.346	30	10.16	678905	
28.651	31	9.83	696890	
28.829	42	4.23	1272948	Bearing obtained. No penetration in 178mm.

BR-2-75
7-83

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Pile No. 20
Pier #3 Abut / Pier
Date Driven 02/07/00

Guernsey County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons
Elev. of top of pile (cut-off elev.) 244.633
Elev. of nominal point of zero penetration: 244.023
Elev. of pile point at final penetration: 215.647
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	4	76.20	109501	
0.610	4	76.20	109501	
0.914	4	76.20	109501	
1.219	4	76.20	109501	
1.524	4	76.20	109501	
1.829	4	76.20	109501	
2.134	4	76.20	109501	
2.438	4	76.20	109501	
2.743	4	76.20	109501	
3.048	4	76.20	109501	
3.353	4	76.20	109501	
3.658	4	76.20	109501	
3.962	4	76.20	109501	
4.267	4	76.20	109501	
4.572	4	76.20	109501	
4.877	4	76.20	109501	
5.182	4	76.20	109501	
5.486	4	76.20	109501	
5.791	4	76.20	109501	
6.096	4	76.20	109501	
6.401	4	76.20	109501	
6.706	4	76.20	109501	
7.010	4	76.20	109501	
7.315	4	76.20	109501	
7.620	4	76.20	109501	
7.925	4	76.20	109501	
8.230	4	76.20	109501	
8.534	4	76.20	109501	
8.839	4	76.20	109501	
9.144	4	76.20	109501	
9.449	4	76.20	109501	
9.754	4	76.20	109501	
10.058	4	76.20	109501	
10.363	4	76.20	109501	
10.668	4	76.20	109501	
10.973	4	76.20	109501	
11.278	4	76.20	109501	
11.582	4	76.20	109501	
11.887	4	76.20	109501	
12.192	4	76.20	109501	
12.497	4	76.20	109501	
12.802	4	76.20	109501	
13.106	4	76.20	109501	
13.411	4	76.20	109501	
13.716	5	60.96	135781	
14.021	5	60.96	135781	
14.326	5	60.96	135781	
14.630	10	30.48	261117	Splice #1, vis. insp. shows no sign of bent pile.
14.935	10	30.48	261117	
15.240	11	27.71	285037	
15.545	15	20.32	377170	
15.850	15	20.32	377170	
16.154	13	23.45	331796	
16.459	13	23.45	331796	
16.764	13	23.45	331796	
17.069	12	25.40	308593	
17.374	12	25.40	308593	
17.678	13	23.45	331796	
17.983	13	23.45	331796	
18.288	13	23.45	331796	

18.593	10	30.48	261117	
18.898	10	30.48	261117	
19.202	11	27.71	285037	
19.507	11	27.71	285037	
19.812	11	27.71	285037	
20.117	12	25.40	308593	
20.422	10	30.48	261117	
20.726	11	27.71	285037	
21.031	12	25.40	308593	
21.336	11	27.71	285037	
21.641	12	25.40	308593	
21.946	15	20.32	377170	
22.250	15	20.32	377170	
22.555	15	20.32	377170	
22.860	14	21.77	354652	
23.165	12	25.40	308593	
23.470	15	20.32	377170	
23.774	12	25.40	308593	
24.079	14	21.77	354652	
24.384	12	25.40	308593	
24.689	12	25.40	308593	
24.994	31	9.83	696890	
25.298	39	7.82	832620	
25.603	36	8.47	783352	
25.908	21	14.51	505568	
26.213	16	19.05	399356	
26.518	16	19.05	399356	
26.822	18	16.93	442764	
27.127	19	16.04	464000	
27.432	18	16.93	442764	
27.737	22	13.85	525913	
28.042	21	14.51	505568	
28.346	23	13.25	545973	
28.625	42	6.65	937961	Bearing obtained. No penetration after 279mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Sheet 1
Recorder Doug George
Date 02/25/00

Guernsey County
Section 14.352
Br. No. Gue-77-14 352 R
Location 1-77 over C.R. 431,
TR-4358 & CSX R.R.

PILING RECORD

Pier #2

FOOTING

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25866 Joules

Capacity formula: "R" = (334DF)/S+2.54

Required "R" = 872000 Newtons

Elev of top of pile (cut-off elev.): 242.906

Elev. of nominal point of zero penetration: 242.296

File No.	Pay Length (m)	Indicated "R" (N)	Remarks	Misc.
14	25.578 ✓	1080077		
15	29.134 ✓	954017		
15A	25.375 ✓	1080077	This pile is shown on plan pg. 49/88, but not on pg. 46/88.	
16	29.159 ✓	1272948		
17	28.6 ✓	1454797		

Total = 137.846 meters

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 14
Pier #2 Abut / Pier
Date Driven 02/24/00Guernsey County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R": 872000 NewtonsElev. of top of pile (cut-off elev.) 244.296 242.906
Elev. of nominal point of zero penetration: 242.906 242.296
Elev. of pile point at final penetration: 242.296 217.328
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	4	76.20	109501	
0.610	4	76.20	109501	
0.914	4	76.20	109501	
1.219	4	76.20	109501	
1.524	4	76.20	109501	
1.829	4	76.20	109501	
2.134	4	76.20	109501	
2.438	4	76.20	109501	
2.743	5	60.96	135781	
3.048	5	60.96	135781	
3.353	5	60.96	135781	
3.658	5	60.96	135781	
3.962	5	60.96	135781	
4.267	5	60.96	135781	
4.572	5	60.96	135781	
4.877	5	60.96	135781	
5.182	5	60.96	135781	
5.486	5	60.96	135781	
5.791	5	60.96	135781	
6.096	5	60.96	135781	
6.401	8	38.10	212158	
6.706	8	38.10	212158	
7.010	9	33.87	236827	
7.315	9	33.87	236827	
7.620	9	33.87	236827	
7.925	9	33.87	236827	
8.230	9	33.87	236827	
8.534	10	30.48	261117	
8.839	10	30.48	261117	
9.144	10	30.48	261117	
9.449	11	27.71	285037	
9.754	12	25.40	308593	
10.058	12	25.40	308593	
10.363	12	25.40	308593	
10.668	12	25.40	308593	
10.973	13	23.45	331796	
11.278	13	23.45	331796	
11.582	13	23.45	331796	
11.887	13	23.45	331796	
12.192	13	23.45	331796	
12.497	13	23.45	331796	
12.802	13	23.45	331796	
13.106	14	21.77	354652	
13.411	13	23.45	331796	
13.716	14	21.77	354652	
14.021	14	21.77	354652	
14.326	14	21.77	354652	
14.630	12	25.40	308593	Splice #1, vis. insp. shows no sign of bent pile.
14.935	12	25.40	308593	
15.240	12	25.40	308593	
15.545	12	25.40	308593	
15.850	12	25.40	308593	
16.154	12	25.40	308593	
16.459	13	23.45	331796	
16.764	13	23.45	331796	
17.069	17	17.93	421219	
17.374	17	17.93	421219	
17.678	17	17.93	421219	
17.983	18	16.93	442764	
18.288	18	16.93	442764	

18.593	15	20.32	377170	
18.898	15	20.32	377170	
19.202	15	20.32	377170	
19.507	16	19.05	399356	
19.812	16	19.05	399356	
20.117	17	17.93	421219	
20.422	18	16.93	442764	
20.726	18	16.93	442764	
21.031	18	16.93	442764	
21.336	18	16.93	442764	
21.641	19	16.04	464000	
21.946	19	16.04	464000	
22.250	19	16.04	464000	
22.555	20	15.24	484932	
22.860	20	15.24	484932	
23.165	18	16.93	442764	
23.470	18	16.93	442764	
23.774	20	15.24	484932	
24.079	18	16.93	442764	
24.384	19	16.04	464000	
24.689	21	14.51	505568	
24.994	29	10.51	660680	
25.223	42	5.44	1080077	Bearing obtained. No penetration after 229mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 16
Pier #2 Abut / Pier
Date Driven 02/23/00Guernsey County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R": 872000 Newtons
Elev. of top of pile (cut-off elev.) 242.906
Elev. of nominal point of zero penetration: 242.296
Elev. of pile point at final penetration: 213.747
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	3	101.60	82793	
0.610	3	101.60	82793	
0.914	3	101.60	82793	
1.219	3	101.60	82793	
1.524	3	101.60	82793	
1.829	3	101.60	82793	
2.134	3	101.60	82793	
2.438	3	101.60	82793	
2.743	3	101.60	82793	
3.048	4	76.20	109501	
3.353	4	76.20	109501	
3.658	4	76.20	109501	
3.962	4	76.20	109501	
4.267	4	76.20	109501	
4.572	4	76.20	109501	
4.877	4	76.20	109501	
5.182	4	76.20	109501	
5.486	4	76.20	109501	
5.791	4	76.20	109501	
6.096	4	76.20	109501	
6.401	6	50.80	161644	
6.706	6	50.80	161644	
7.010	6	50.80	161644	
7.315	7	43.54	187100	
7.620	7	43.54	187100	
7.925	6	50.80	161644	
8.230	7	43.54	187100	
8.534	7	43.54	187100	
8.839	7	43.54	187100	
9.144	7	43.54	187100	
9.449	8	38.10	212158	
9.754	9	33.87	236827	
10.058	9	33.87	236827	
10.363	9	33.87	236827	
10.668	9	33.87	236827	
10.973	9	33.87	236827	
11.278	10	30.48	261117	
11.582	10	30.48	261117	
11.887	10	30.48	261117	
12.192	10	30.48	261117	
12.497	10	30.48	261117	
12.802	10	30.48	261117	
13.106	10	30.48	261117	
13.411	10	30.48	261117	
13.716	10	30.48	261117	
14.021	10	30.48	261117	
14.326	11	27.71	285037	
14.630	12	25.40	308593	Splice #1, vis. insp. shows no sign of bent pile.
14.935	15	20.32	377170	
15.240	15	20.32	377170	
15.545	15	20.32	377170	
15.850	15	20.32	377170	
16.154	15	20.32	377170	
16.459	15	20.32	377170	
16.764	15	20.32	377170	
17.069	12	25.40	308593	
17.374	16	19.05	399356	
17.678	14	21.77	354652	
17.983	15	20.32	377170	
18.288	13	23.45	331796	

18.593	13	23.45	331796	
18.898	13	23.45	331796	
19.202	13	23.45	331796	
19.507	13	23.45	331796	
19.812	12	25.40	308593	
20.117	13	23.45	331796	
20.422	12	25.40	308593	
20.726	13	23.45	331796	
21.031	13	23.45	331796	
21.336	13	23.45	331796	
21.641	14	21.77	354652	
21.946	18	16.93	442764	
22.250	16	19.05	399356	
22.555	17	17.93	421219	
22.860	21	14.51	505568	
23.165	16	19.05	399356	
23.470	14	21.77	354652	
23.774	16	19.05	399356	
24.079	16	19.05	399356	
24.384	15	20.32	377170	
24.689	15	20.32	377170	
24.994	33	9.24	732153	
25.298	41	7.43	864445	
25.603	26	11.72	604505	
25.908	19	16.04	464000	
26.213	20	15.24	484932	
26.518	17	17.93	421219	
26.822	21	14.51	505568	
27.127	22	13.85	525913	
27.432	20	15.24	484932	
27.737	23	13.25	545973	
28.042	22	13.85	525913	
28.346	24	12.70	565755	
28.651	25	12.19	585263	
28.905	60	4.23	1272948	Bearing obtained. No penetration after 254mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Sheet 1
Recorder Doug George
Date 03/01/00

Guernsey County
Section 14.352
Br. No. Gue-77-14 352 R
Location 1-77 over C.R. 431,
TR-4358 & CSX R.R.

PILING RECORD

Pier #1

FOOTING

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25866 Joules

Capacity formula: "R" = (334DF)/S+2.54

Required "R" = 872000 Newtons

Elev of top of pile (cut-off elev.): 244.206

Elev. of nominal point of zero penetration: 243.596

Pile No.	Pay Length (m)	Indicated "R" (N)	Remarks	Misc.
10	29.921 ✓	1778086		
11	29.921 ✓	1156377		
12	27.432 ✓	861446	Battered pile. 1:4 batter.	
13	30.734 ✓	832441	Battered pile. 1:4 batter.	

Total = 118.008 meters

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 10
Pier #1 Abut / Pier
Date Driven 03/01/00Guernsey County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" 872000 Newtons
Elev. of top of pile (cut-off elev.) 244.206
Elev. of nominal point of zero penetration: 243.596
Elev. of pile point at final penetration: 214.285
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				
11.887				
12.192				
12.497				
12.802				
13.106				
13.411				
13.716				
14.021				
14.326				No resistance observed in the 14.326 meters.
14.630	14	21.77	354652	
14.935	14	21.77	354652	
15.240	14	21.77	354652	
15.545	14	21.77	354652	
15.850	14	21.77	354652	
16.154	14	21.77	354652	
16.459	14	21.77	354652	
16.764	15	20.32	377170	
17.069	16	19.05	399356	
17.374	16	19.05	399356	
17.678	16	19.05	399356	
17.983	16	19.05	399356	
18.288	17	17.93	421219	
18.593	19	16.04	464000	
18.898	19	16.04	464000	

19.202	19	16.04	464000	
19.507	19	16.04	464000	
19.812	20	15.24	484932	
20.117	16	19.05	399356	
20.422	16	19.05	399356	
20.726	16	19.05	399356	
21.031	16	19.05	399356	
21.336	16	19.05	399356	
21.641	17	17.93	421219	
21.946	18	16.93	442764	
22.250	18	16.93	442764	
22.555	18	16.93	442764	
22.860	18	16.93	442764	
23.165	19	16.04	464000	
23.470	19	16.04	464000	
23.774	19	16.04	464000	
24.079	19	16.04	464000	
24.384	20	15.24	484932	
24.689	20	15.24	484932	
24.994	17	17.93	421219	
25.298	18	16.93	442764	
25.603	20	15.24	484932	
25.908	36	8.47	783352	
26.213	34	8.96	749441	
26.518	22	13.85	525913	
26.822	22	13.85	525913	
27.127	21	14.51	505568	
27.432	22	13.85	525913	
27.737	24	12.70	565755	
28.042	25	12.19	585263	
28.346	26	11.72	604505	
28.651	26	11.72	604505	
28.956	27	11.29	623485	
29.261	36	8.47	783352	
29.312	22	2.31	1778086	Bearing obtained. No penetration after 52mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Pile No. 12(BAT.)
Pier #1 _____ Abut / Pier _____
Date Driven 03/01/00

Guernsey _____ County _____
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334DF)/S+2.54 Required "R" 708824 Newtons
Elev. of top of pile (cut-off elev.) 244.206
Elev. of nominal point of zero penetration: 243.596
Elev. of pile point at final penetration: 216.774
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				Battered pile. 1:4 batter.
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				
11.887				
12.192				
12.497				
12.802				
13.106				
13.411				
13.716				
14.021				
14.326				
14.630				
14.935				No resistance observed in the 14.935 meters.
15.240	9	33.87	224012	
15.545	9	33.87	224012	
15.850	9	33.87	224012	
16.154	9	33.87	224012	
16.459	10	30.48	246988	
16.764	10	30.48	246988	
17.069	11	27.71	269613	
17.374	11	27.71	269613	
17.678	11	27.71	269613	
17.983	11	27.71	269613	
18.288	11	27.71	269613	
18.593	11	27.71	269613	
18.898	12	25.40	291895	

19.202	12	25.40	291895	
19.507	12	25.40	291895	
19.812	12	25.40	291895	
20.117	10	30.48	246988	
20.422	10	30.48	246988	
20.726	10	30.48	246988	
21.031	10	30.48	246988	
21.336	10	30.48	246988	
21.641	11	27.71	269613	
21.946	11	27.71	269613	
22.250	11	27.71	269613	
22.555	11	27.71	269613	
22.860	11	27.71	269613	
23.165	13	23.45	313842	
23.470	13	23.45	313842	
23.774	13	23.45	313842	
24.079	13	23.45	313842	
24.384	13	23.45	313842	
24.689	15	20.32	356761	
24.994	13	23.45	313842	
25.298	14	21.77	335461	
25.603	27	11.29	589747	
25.908	14	21.77	335461	
26.213	14	21.77	335461	
26.518	31	9.83	659180	
26.747	33	6.93	861446	Bearing obtained. No penetration after 229mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Sheet 1
Recorder Doug George
Date 04/15/00

Guernsey County
Section 14.352
Br. No. Gue-77-14 352 R
Location 1-77 over C.R. 431,
TR-4358 & CSX R.R.

PILING RECORD

Rear Abutment

FOOTING

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25866 Joules

Capacity formula: "R" = (334DF)/S+2.54

Required "R" = 773000 Newtons

Elev of top of pile (cut-off elev.): 251.009

Elev. of nominal point of zero penetration: 250.409

Pile No.	Pay Length (m)	Indicated "R" (N)	Remarks	Misc.
1	25.451 ✓	1631136		
2	27.615 ✓	1697264		
3	33.019 ✓	950468		
4	25.908 ✓	950468		
5	31.27 ✓	1250615		
6	30.42 ✓	1227808		
7	29.57 ✓	783352		
8	30.42 ✓	816405		
9	29.9 ✓	816405		

Total = 263.573 meters

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Pile No. 1
Rear Abut. Abut / Pier
Date Driven 04/12/00

Guernsey County
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons
Elev. of top of pile (cut-off elev.) 251.009
Elev. of nominal point of zero penetration: 250.409
Elev. of pile point at final penetration: 225.558
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				
11.887				
12.192				
12.497				
12.802				
13.106				
13.411				
13.716				
14.021				
14.326				
14.630				Splice #1, vis. insp. shows no sign of bent pile.
14.935	21	14.51	505568	
15.240	18	16.93	442764	
15.545	19	16.04	464000	
15.850	17	17.93	421219	
16.154	18	16.93	442764	
16.459	17	17.93	421219	
16.764	19	16.04	464000	
17.069	17	17.93	421219	
17.374	17	17.93	421219	
17.678	18	16.93	442764	
17.983	15	20.32	377170	
18.288	17	17.93	421219	
18.593	16	19.05	399356	
18.898	17	17.93	421219	

19.202	17	17.93	421219	
19.507	17	17.93	421219	
19.812	17	17.93	421219	
20.117	18	16.93	442764	
20.422	18	16.93	442764	
20.726	22	13.85	525913	
21.031	22	13.85	525913	
21.336	17	17.93	421219	
21.641	20	15.24	484932	
21.946	19	16.04	464000	
22.250	19	16.04	464000	
22.555	22	13.85	525913	
22.860	19	16.04	464000	
23.165	20	15.24	484932	
23.470	23	13.25	545973	
23.774	25	12.19	585263	
24.079	23	13.25	545973	
24.384	24	12.70	565755	
24.689	23	13.25	545973	
24.994	26	11.72	604505	
25.298	33	9.24	732153	
25.400	37	2.75	1631136	Bearing obtained. No penetration after 102mm.

Pile No. 9
 Rear Abut. Abut / Pier
 Date Driven 06/14/00

STATE OF OHIO
 DEPARTMENT OF TRANSPORTATION

Guernsey County
 Bridge No GUE-77-14 352 R
 Location I-77 over C.R. 431,
 TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
 Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons
 Elev. of top of pile (cut-off elev.) 251.009
 Elev. of nominal point of zero penetration: 250.409
 Elev. of pile point at final penetration: 221.109
 Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				
11.887				Splice #1, vis. insp. shows no sign of bent pile.
12.192				
12.497				
12.802				
13.108	18	16.93	442764	
13.411	19	16.04	464000	
13.716	19	16.04	464000	
14.021	17	17.93	421219	
14.326	19	16.04	464000	
14.630	17	17.93	421219	
14.935	17	17.93	421219	
15.240	18	16.93	442764	
15.545	17	17.93	421219	
15.850	18	16.93	442764	
16.154	17	17.93	421219	
16.459	17	17.93	421219	
16.764	17	17.93	421219	
17.069	17	17.93	421219	
17.374	17	17.93	421219	
17.678	16	19.05	399356	
17.983	16	19.05	399356	
18.288	16	19.05	399356	
18.593	16	19.05	399356	
18.898	17	17.93	421219	

19.202	17	17.93	421219	
19.507	16	19.05	399356	
19.812	18	16.93	442764	
20.117	17	17.93	421219	
20.422	20	15.24	484932	
20.726	19	16.04	464000	
21.031	18	16.93	442764	
21.336	19	16.04	464000	
21.641	19	16.04	464000	
21.946	20	15.24	484932	
22.250	20	15.24	484932	
22.555	20	15.24	484932	
22.860	21	14.51	505568	
23.165	22	13.85	525913	
23.470	25	12.19	585263	
23.774	24	12.70	565755	Splice #2, vis. insp. shows no sign of bent pile.
24.079	26	11.72	604505	
24.384	34	8.96	749441	
24.689	31	9.83	696890	
24.994	27	11.29	623485	
25.298	28	10.89	642208	
25.603	26	11.72	604505	
25.908	24	12.70	565755	
26.213	24	12.70	565755	
26.518	25	12.19	585263	
26.822	26	11.72	604505	
27.127	25	12.19	585263	
27.432	25	12.19	585263	
27.737	27	11.29	623485	
28.042	26	11.72	604505	
28.346	29	10.51	660680	
28.651	33	9.24	732153	
28.956	38	8.02	816405	Bearing obtained. No penetration after 305mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Sheet 1
Recorder Doug George
Date 04/15/00

Guernsey County
Section 14.352
Br. No. Gue-77-14 352 R
Location 1-77 over C.R. 431,
TR-4358 & CSX R.R.

PILING RECORD

~~Rear~~ ^{Fwd.} Abutment

FOOTING

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer

WH or F= 25866 Joules

Capacity formula: "R" = (334DF)/S+2.54

Required "R" = 773000 Newtons

Elev of top of pile (cut-off elev.): 251.009

Elev. of nominal point of zero penetration: 250.409

Pile No.	Pay Length (m)	Indicated "R" (N)	Remarks	Misc.
26	28.59 ✓	1004015		
27	25.969 ✓	819369		
28	24.994 ✓	819369		
29	17.648 ✓	799984		
30-B	27.097 ✓	783352	Pile #30 crushed. Pile #30-B was driven approx. 2' from defective pile.	
31	22.982 ✓	819369		
32	28.59 ✓	880063		
33	24.75 ✓	950468		
34	24.902 ✓	854405		

Total = 225.522 meters

STATE OF OHIO
DEPARTMENT OF TRANSPORTATION

Pile No. 26
Fwd. Abut. _____ Abut / Pier _____
Date Driven 04/06/00

Guernsey _____ County _____
Bridge No GUE-77-14 352 R
Location I-77 over C.R. 431,
TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-in-Place Reinforced Concrete Pile

Hammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 Joules
Capacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 Newtons

Elev. of top of pile (cut-off elev.) 251.009
Elev. of nominal point of zero penetration: 250.409
Elev. of pile point at final penetration: 222.419
Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305	1	304.80	28054	
0.610	1	304.80	28054	
0.914	1	304.80	28054	
1.219	1	304.80	28054	
1.524	1	304.80	28054	
1.829	1	304.80	28054	
2.134	1	304.80	28054	
2.438	1	304.80	28054	
2.743	1	304.80	28054	
3.048	1	304.80	28054	
3.353	1	304.80	28054	
3.658	1	304.80	28054	
3.962	1	304.80	28054	
4.267	1	304.80	28054	
4.572	1	304.80	28054	
4.877	2	152.40	55648	
5.182	2	152.40	55648	
5.486	2	152.40	55648	
5.791	2	152.40	55648	
6.096	2	152.40	55648	
6.401	15	20.32	377170	
6.706	15	20.32	377170	
7.010	15	20.32	377170	
7.315	15	20.32	377170	
7.620	16	19.05	399356	
7.925	17	17.93	421219	
8.230	18	16.93	442764	
8.534	18	16.93	442764	
8.839	18	16.93	442764	
9.144	18	16.93	442764	
9.449	19	16.04	464000	
9.754	19	16.04	464000	
10.058	19	16.04	464000	
10.363	20	15.24	484932	
10.668	20	15.24	484932	
10.973	18	16.93	442764	
11.278	19	16.04	464000	
11.582	19	16.04	464000	
11.887	19	16.04	464000	
12.192	19	16.04	464000	
12.497	20	15.24	484932	
12.802	20	15.24	484932	
13.106	20	15.24	484932	
13.411	20	15.24	484932	
13.716	20	15.24	484932	
14.021	28	10.89	642208	
14.326	27	11.29	623485	
14.630	27	11.29	623485	
14.935	26	11.72	604505	
15.240	26	11.72	604505	Splice #1, vis. insp. shows no sign of bent pile.
15.545	26	11.72	604505	
15.850	24	12.70	565755	
16.154	27	11.29	623485	
16.459	26	11.72	604505	
16.764	27	11.29	623485	
17.069	27	11.29	623485	
17.374	24	12.70	565755	
17.678	23	13.25	545973	
17.983	24	12.70	565755	
18.288	25	12.19	585263	
18.593	24	12.70	565755	
18.898	25	12.19	585263	

19.202	22	13.85	525913	
19.507	24	12.70	565755	
19.812	20	15.24	484932	
20.117	24	12.70	565755	
20.422	21	14.51	505568	
20.726	23	13.25	545973	
21.031	25	12.19	585263	
21.336	21	14.51	505568	
21.641	24	12.70	565755	
21.946	24	12.70	565755	
22.250	23	13.25	545973	
22.555	30	10.16	678905	
22.860	23	13.25	545973	
23.165	25	12.19	585263	
23.470	29	10.51	660680	
23.774	26	11.72	604505	
24.079	29	10.51	660680	
24.384	26	11.72	604505	
24.689	26	11.72	604505	
24.994	26	11.72	604505	
25.298	28	10.89	642208	
25.603	26	11.72	604505	
25.908	23	13.25	545973	
26.213	27	11.29	623485	
26.518	30	10.16	678905	
26.822	30	10.16	678905	
27.127	35	8.71	766506	
27.432	37	8.24	799984	
27.686	42	6.05	1004015	Bearing obtained. No penetration after 254mm.

STATE OF OHIO
DEPARTMENT OF TRANSPORTATIONPile No. 34

Fwd. Abut. _____ Abut / Pier

Date Driven 06/10/00

Guernsey _____ County

Bridge No GUE-77-14 352 RLocation I-77 over C.R. 431,TR-4358 & CSX R.R.

PILE DRIVING LOG

Type of Pile: 300mm Cast-In-Place Reinforced Concrete PileHammer: F.E.C. APE Model D1.9-32 Single Acting Impact Hammer WH or F = 25866 JoulesCapacity formula: "R" = (334F)/S+2.54 Required "R" = 773000 NewtonsElev. of top of pile (cut-off elev.) 251.009Elev. of nominal point of zero penetration: 250.409Elev. of pile point at final penetration: 226.107Length of pile in leads 15.24 Meters

Penetration (meter)	Blows	"S" (mm)	Indicated "R" (Newtons)	Remarks
0.305				
0.610				
0.914				
1.219				
1.524				
1.829				
2.134				
2.438				
2.743				
3.048				
3.353				
3.658				
3.962				
4.267				
4.572				
4.877				
5.182				
5.486				
5.791				
6.096				
6.401				
6.706				
7.010				
7.315				
7.620				
7.925				
8.230				
8.534				
8.839				
9.144				
9.449				
9.754				
10.058				
10.363				
10.668				
10.973				
11.278				
11.582				Splice #1, vis. insp. shows no sign of bent pile.
11.887	24	12.70	565755	
12.192	24	12.70	565755	
12.497	19	16.04	464000	
12.802	15	20.32	377170	
13.106	16	19.05	399356	
13.411	16	19.05	399356	
13.716	26	11.72	604505	
14.021	17	17.93	421219	
14.326	16	19.05	399356	
14.630	19	16.04	464000	
14.935	18	16.93	442764	
15.240	14	21.77	354652	
15.545	14	21.77	354652	
15.850	14	21.77	354652	
16.154	15	20.32	377170	
16.459	19	16.04	464000	
16.764	18	16.93	442764	
17.069	18	16.93	442764	
17.374	15	20.32	377170	
17.678	16	19.05	399356	
17.983	16	19.05	399356	
18.288	19	16.04	464000	
18.593	18	16.93	442764	
18.898	18	16.93	442764	

19.202	19	16.04	464000	
19.507	20	15.24	484932	
19.812	21	14.51	505568	
20.117	16	19.05	399356	
20.422	22	13.85	525913	
20.726	21	14.51	505568	
21.031	22	13.85	525913	
21.336	24	12.70	565755	
21.641	23	13.25	545973	
21.946	21	14.51	505568	
22.250	25	12.19	585263	
22.555	24	12.70	565755	
22.860	23	13.25	545973	
23.165	25	12.19	585263	
23.470	27	11.29	623485	
23.774	23	13.25	545973	
24.079	27	11.29	623485	
24.384	32	9.53	714637	
24.689	33	9.24	732153	
24.968	37	7.55	854405	Bearing obtained. No penetration after 279mm.