STRUCTURE GEOTECHNICAL REPORT

SN 003-0062 Existing SN: 003-0034

IL 143 over Shoal Creek FAP Route 793 Section (40,112)BR-1 Bond County D-98-108-05 PTB #169/035

Checked By: EAG

Prepared By: Sarah L. Wiszkon, P.E.

Geotechnical Investigations Engineer

IDOT, Region 5, District 8

Geotechnical Unit (618) 346-3309

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 August 31, 2015

Prepared For: Benjamin A. Nebel, P.E., S.E.

Hutchison Engineering, Inc.

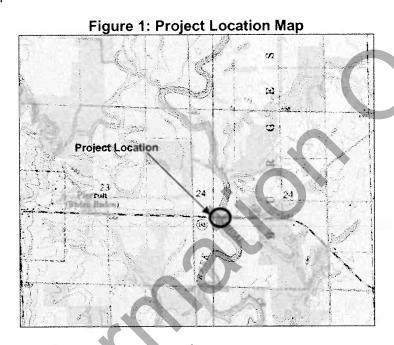
Jacksonville, IL (217) 245-7164

Attachments

- Preliminary TS&L Plans
- Soil Profile
- Soil Boring Logs
- Drilled Shaft Analysis
- Pile Analysis

Project Description

This project consists of the complete replacement of existing structure 003-0034 with proposed structure 003-0062. The structure is located at the intersection of FAP 793 (IL 143) over Shoal Creek at Station 389+69.5 in Bond County. Specifically, the structure is located in the southwest quadrant of Section 24, Township 4 North, Range 4 West, 3rd Principal Meridian. The location of the structure is 5.2 miles east of the Madison County Line. See Figure 1 for the Project Location Map.



Existing and Proposed Structure Information

The existing structure consists of a 22-span reinforced concrete deck bridge with steel beams on concrete pile bent abutments, concrete pile bent piers, and solid wall concrete piers with pile supported footings. The existing structure is 1129'-8.875" back-to-back abutments and 32'-6" out-to-out deck. It was originally constructed in 1934 as FA 793, Section 112-BR, reconstructed in 1972, and beam repaired in 2011. The existing structure has been programmed for total replacement due to the severe deteriorated conditions of both the superstructure and the substructure.

The proposed structure will consist of a 9-span composite plate girder beam bridge on stub abutments and eight solid wall piers on pile supported footings. The planned length is 1352'-0" back-to-back abutments and 35'-2" out-to-out deck. The proposed structure station is 385+04.50, while the proposed stationing for the substructure units is as follows:

- W. Abut Station 378+32
- Pier 1 Station 379+62
- Pier 2 Station 381+17
- Pier 3 Station 382+72
- Pier 4 Station 384+27

- Pier 5 Station 385+82
- Pier 6 Station 387+37
- Pier 7 Station 388+92
- Pier 8 Station 390+47
- East Abut Station 391+72

The proposed axial and lateral loads for each substructure unit, as provided by Hutchison Engineering, are as follows:

Substructure Unit	Axial Load (kips)	Lateral Load (kips)
East & West Abutments	1,300	65
Piers 1, 2, 3, 4, & 6	2,600	110
Piers 5, 7, & 8	3,700	165

Soils Investigation

Area Geology

The proposed structure lies in the Springfield Plain physiographic province of Illinois and the Tills Plains Section of the Central Lowlands Province of the United States. The location consists of surficial materials from the Cahokia Formation. Bedrock is generally limestone, sandstone, shale, and underclay of the Modesto Formation, formed during the Pennsylvanian period. There is one coal layer in the Modesto Formation – the No. 8 Coal.

Based on a review of the Bond County Soil Survey, the primary soil type at the proposed structure is the Wakeland Silt Loam. This soil has 0-2 percent slopes and is frequently flooded and somewhat poorly drained, and consists of alluvium formed on flood plains.

Subsurface Profile

Twenty-two boring logs were conducted by IDOT from April through June of 1971. The locations of the borings are as follows:

Location	Station	Offset (ft)
W Abut	379+88.20	13.0 Right
1 Bent #2	380+48.10	21.0 Right
2 Bent #3	380+97.72	22.7 Right
3 Bent #4	381+49.12	19.0 Right
4 Bent #5	382+00.49	19.5 Right
5 Bent #6	382+51.69	20.0 Right
6 Bent #7	383+03.07	21.0 Right
7 Bent #8	383+61.37	22.0 Right
8 Bent #9	384+00.73	20.0 Right
9 Bent #10	384+58.00	22.0 Right
10 Bent #11	385+08.63	21.5 Right
11 Bent #12	385+59.91	21.0 Right
12 Bent #13	386+13.35	21.3 Right
13 Bent #14	386+64.63	22.0 Right
14 Bent #15	387+15.01	21.0 Right
15 Bent #16	387+66.46	21.0 Right
16 Bent #17	388+16.89	21.0 Right
17 Bent #18	388+69.23	19.5 Right
18 Pier #1	389+00.40	21.3 Right
19 Pier #2	390+39.66	20.7 Left
20 Bent #19	390+74.09	22.9 Left
E Abut	391+33.00	10.0 Left

Two borings were conducted by TSi for IDOT in October 2014. Boring B-1 was taken at Station 389+14, 26.0 feet Right, and Boring B-2 was taken at Station 390+20, 26.0 feet right.

These borings describe a soil profile of intermingling layers of clay, clay loam, clay till, loam, sandy clay, silt, silty clay, and silty sandy clay over sand and gravel, which overlies intermingling layers of clay, clay till, silt, silty sandy clay, silty clay, and silty clay loam. Sand was encountered in each boring between Elev. 441.7 and Elev. 417.1 (these elevations are the upper and lower bounds for all borings). A relatively thin (less than 4 feet) layer of sand overlies bedrock at borings West Abut, Bent 4, Bent 5, Bent 14, Bent 15, and B-2. Weathered shale was encountered at the following elevations:

- W. Abut Elev. 404.4
- Bent #2 Elev. 402.0
- Bent #3 Elev. 402.1
- Bent #4 Elev. 403.0
- Bent #5 Elev. 399.2
- Bent #6 Elev. 403.0
- Bent #7 Elev. 393.4

- Bent #8 Elev. 387.7
- Bent #14 Elev. 389.1
- Bent #15 Elev. 390.7
- B-1 Elev. 394.5
- B-2 Elev. 391.5
- Bent #19 Elev. 391.6

Competent bedrock was encountered at Elev. 390.5 at B-1 (shale) and at Elev. 391.0 at B-2 (shale over limestone). Groundwater elevations varied between Elev. 429.0 and Elev. 449.6.

Geotechnical Evaluation

Liquefaction

The peak seismic ground acceleration (A_s) for the project location is 0.093. Based on AGMU Memo 10.1 (Liquefaction Analysis), areas within Seismic Performance Zone 2 with an A_s less than 0.15 do not require a liquefaction analysis.

Mining Activity

According to the Illinois State Geological Survey's collection of County Coal Mine Maps and Directories, there has been no recorded mining activity in the effective area of the project.

Scour

According to the Horner & Shifrin Hydraulic Report dated January 2011, the proposed structure is subject to 10 feet of scour at Piers 1 through 7 (Right Overbank) at the 100-year event level and 14 feet of scour at the 500-year event level, while 7 feet of scour is expected at Pier 8 (Left Overbank) at the 100-year event level and 5 feet of scour at the 500-year event levels. Abutment scour depths were not calculated due to the tendency of equations to be overly conservative. The structure does not overtop through the 500-year frequency.

The Design Scour Table provides the appropriate elevations at each of the substructure units. Note that the scour elevation at each of the abutments is at the bottom of the abutment cap. Assuming that the Class A4 riprap is an appropriate scour countermeasure, the abutment piles do not need to be designed for scour.

The proposed scour depths for Piers 1 and 5 can be reduced by 20%, as per Section 2.3.6.3.2 of the Bridge Manual.

				Design S	cour Elevat	ion (feet)				
100000000000000000000000000000000000000	W. Abut	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	Pier 8	E Abut
Q ₁₀₀	458.0	447.5	443.5	442.5	443.0	446.7	446.8	445.0	449.0	457.4
Q ₅₀₀	458.0	443.5	439.5	438.5	439.0	444.7	442.5	441.0	451.0	457.4
Design	458.0	447.5	443.5	445.5	443.0	446.7	446.8	445.0	445.0	457.4
Check	458.0	443.4	439.5	438.5	439.0	444.7	442.5	441.0	445.0	457.4

Seismic

The area is within the Seismic Performance Zone 2. The site's soil profile is most accurately described as Soil Site Class D. The Design Spectral Acceleration at 1 second is 0.24 g and 0.55 g at 0.2 seconds.

Settlement

Approximately 2.3 feet of additional embankment is to be added to the East Abutment bridge cone, while 2.9 feet of additional embankment is to be added at the West Abutment bridge cones. Our calculations, utilizing split spoon boring data available at the site, estimate the settlement to be on the order of 0.40 inches at the abutments. As a result, the effect of downdrag does not need to be accounted for in the substructure design.

Slope Stability

Based on information obtained from the borings and recommendations from the IDOT Geotechnical Manual, slope stability calculations have been performed using the computer program Slide. The Factors of Safety (FOS) are acceptable for the side slopes with FOS values ranging from 2.491 for the static analysis to 1.767 for the seismic analysis for the east end of the structure (3:1 H:V slopes) and FOS values ranging from 3.513 for the static analysis to 2.644 for the seismic analysis for the west end of the structure (2.5:1 H:V slopes). The use of 2:1 (H:V) end slopes results in acceptable Factors of Safety ranging from 4.863 for the static analysis to 3.735 for the seismic analysis.

Design Recommendations

The following top of rock elevations should be used for the drilled shaft and pile recommendations.

- West Abutment 404.4 ft
- Pier 1 404.4 ft
- Pier 2 402.1 ft
- ▶ Pier 3 403.0 ft
- Pier 4 387.4 ft

- Pier 5 389.0 ft
- Pier 6 390.7 ft
- Pier 7 396.4 ft
- Pier 8 395.4 ft
- East Abutment 400.1 ft

Spread Footings

Spread footings are not feasible at the structure, due to low soil strengths and relative densities.

Drilled Shafts

It appears that drilled shaft substructures should be feasible for all substructure locations given the preliminary axial loads provided by Hutchison Engineering, Inc.

With the soil conditions present, it appears that drilled shafts set in rock are a suitable pile type to be used at all substructures.

Drilled Shaft Design Table - West Abutment

Consideration and the second	Diameter (ff)	Tip Elevation	Factored Resistance Available (kips)	Mode of Resistance
	3.0	401.40	177.93	Side
	4.0	401.40	237.24	Side
	5.0	401.40	296.55	Side

Drilled Shaft Design Table - Pier 1

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Diameter	Tip Elevation	Factored Resistance	Mode of
(ft)	(ft)	Available (kips)	Resistance
3.0	397.35	444.83	Side
4.0	398.60	474.48	Side
5.0	399.85	444.83	Side

Drilled Shaft Design Table - Pier 2

Diameter	Tip Elevation	Factored Resistance	Mode of
(ft)	(ft)	Available (kips)	Resistance
3.0	388.35	617.32	Side
4.0	390.85	452.52	Side
5.0	390.85	565.65	Side

Drilled Shaft Design Table - Pier 3

Diameter	Tip Elevation	Factored Resistance	Mode of
(ft)	(ft)	Available (kips)	Resistance
3.0	393.00	489.89	Side
4.0	394.25	534.56	Side
5.0	395.50	519.93	Side

Drilled Shaft Design Table - Pier 4

Diameter	Tip Elevation	Factored Resistance	Mode of
(ft)	(ft)	Available (kips)	Resistance
3.0	379.90	459.85	Side
4.0	381.15	494.51	Side
5.0	382.40	469.86	Side

Drilled Shaft Design Table - Pier 5

Diameter	Tip Elevation	Factored Resistance	Mode of
(ft)	(ft)	Available (kips)	Resistance
3.0	384.00	281.92	Side
4.0	384.00	375.89	Side
5.0	385.25	321.59	Side

Drilled Shaft Design Table - Pier 6

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Diameter	Tip Elevation	Factored Resistance	Mode of
(ft)	(ft)	Available (kips)	Resistance
3.0	383.20	459.85	Side
4.0	384.45	494.51	Side
5.0	385.70	469.86	Side

Drilled Shaft Design Table - Pier 7

Diameter	Tip Elevation	Factored Resistance	Mode of
(ft)	(ft)	Available (kips)	Resistance
3.0	391.40	355.86	Side
4.0	392.65	355.86	Side
5.0	393.90	296.55	Side

Drilled Shaft Design Table - Pier 8

Diameter	Tip Elevation	Factored Resistance	Mode of
(ft)	(ft)	Available (kips)	Resistance
3.0	387.90	311.96	Side
4.0	389.15	346.62	Side
5.0	390.40	346.62	Side

Drilled Shaft Design Table - East Abutment

Diameter	Tip Elevation	Factored Resistance	Mode of
(ft)	(ft)	Available (kips)	Resistance
3.0	396.35	155.98	Side
4.0	396.35	207.97	Side
5.0	397.60	173.31	Side

Piles

It appears that pile-supported substructures should be feasible for all substructure locations given the preliminary axial loads provided by Hutchison Engineering, Inc. With the soil conditions present, it appears that end-bearing steel H-piles are a suitable pile type to be used at all substructures. Metal shell piles were not considered as the majority of pile strength comes from end-bearing resistance.

Design Capacity Limitations

No geotechnical losses due to scour were taken into account in the design of the abutment piles because the end slopes have effective scour countermeasures. According to our analyses, scour appears to be applicable to the pier locations without pile supported footings. Geotechnical losses due to scour range from 4 to 5 kips at Piers 3 and 5, and 3 kips at Pier 6.

The pile design tables assume two rows of piles for the abutment locations, three rows of piles at the pier locations; and pile cutoff elevations one foot into the footing or abutment cap.

Pile Design Table - West Abutment

Est.	HP 1	0x42	HP 1	2x53	HP 1	2x63	HP 1	4x73	HP 1	4x89	HP 1	4x117
Pile	Max L	ength:	Max L	ength:	Max L	ength:	Max L	ength:	Max L	ength:	Max L	ength:
Length	56	1.1	56	5.0	57	7.5	56	3.9	58	3.9	62	2.3
(ft)	R_N	R_F	R_N	R _F	R _N	R _F	R _N	R _F	R_N	R _F	R _N	R _F
(14)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)
33	123	68	147	81	151	83	179	98	182	100	189	104
38	146	80	183	100	186	100	221	121	225	124	231	127
43	141	78	173	97	177	98	216	119	219	120	225	124
48	171	94	213	117	215	118	263	144	266	146	273	150
53	260	143	311	171	320	176	379	209	390	215	409	225
Max	335	185	418	230	497	274	578	317	705	387	929	510

Pile Design Table - Pier 1

Est.	HP 1	2x53	HP 1	2x63	HP 1	4x73	HP 1	4x89	HP 14	4x117
Pile	Max Len	gth: 53.8	Max Len	gth: 55.3	Max Len	gth: 54.7	Max Len	gth: 56.7	Max Ler	ngth:60.1
Length	R _N	RF	R_N	R _F	R_N	R _F	R _N	R _F	R_N	R₅
(ft)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)
38	137	75	139	76	169	93	171	94	175	97
41	161	89	163	90	199	110	202	111	207	114
44	182	100	184	101	224	123	227	125	233	128
47	202	111	204	112	249	137	252	139	259	143
50	290	160	299	165	354	195	365	201	383	211
53	381	209	385	212	467	257	475	261	559	307
Max	418	230	497	275	578	317	705	387	929	510

Pile Design Table - Pier 2

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Est.	HP 1	2x53	HP 1	2x63	HP 1	4x73	HP 1	4x89	HP 14	4x117
Pile	Max Ler	ngth:57.3	Max Ler	ngth:58.7	Max Lei	ngth:58.2	Max Ler	ngth:60.2	Max Len	gth:63.6
Length	R _N	R _F	R _N	R⊧	R_N	R _F	R _N	R _F	R _N	R_F
(ft)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)
44	157	86	159	87	190	104	193	106	198	109
47	154	85	155	85	189	104	191	105	196	108
51	165	91	167	92	201	111	204	112	208	115
54	239	132	245	135	290	159	296	163	307	169
57	405	223	410	225	504	277	512	281	525	289
Max	418	231	497	272	578	318	705	387	929	511

Pile Design Table - Pier 3

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Est.	HP 1	2x53	HP 1	2x63	HP1	4x73	HP 1	4x89	HP 1	4x117
Pile	Max Ler	ngth:56.6	Max Ler	igth:58.1	Max Lei	ngth:57.6	Max Ler	gth:59.6	Max Ler	ngth:63.0
Length	R _N	R _F	R _N	R_{F}	R_N	R⊧	R_N	R_F	R_N	R _F
(ft)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)
51	162	85	163	85	198	104	201	105	206	108
52	182	96	185	97	222	117	226	119	233	123
53	203	107	206	109	246	130	251	133	259	137
54	223	118	228	121	270	143	276	147	286	152
55	330	177	335	179	401	215	408	219	420	226
56	389	210	393	212	481	259	488	263	502	271
Max	418	226	497	270	578	314	705	384	929	508

Pile Design Table - Pier 4

Est.	HP 1	2x53	HP 1	2x63	HP 1	4x73	HP 1	4x89	HP 14	4x117
Pile	Max Ler	ngth:69.5	Max Ler	ngth:71.1	Max Ler	gth:70.5	Max Ler	ngth:72.5	Max Ler	gth:75.9
Length	R _N	RF	R _N	R _F	R _N	R _F	R_N	R _F	R_N	R_F
(ft)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)
45	192	105	194	106	234	129	237	131	243	134
50	212	116	214	118	257	141	260	143	266	146
55	243	134	245	135	295	162	299	164	306	168
60	274	151	276	152	333	183	337	185	345	190
65	276	152	279	153	331	182	335	184	342	188
70			444	245	548	301	556	306	571	314
Max	418	229	497	275	578	317	705	387	929	510
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Pile De	sign Ta	ble – Pi	er 5							
Fst		2x53		2x63	HP 1	4x73	HP 1	4x89	HP 1	4x117

Est.	HP 1	2x53	HP 1	2x63	HP 1	4x73	HP 1	4x89	HP 1	4x117
Pile	Max Ler	ngth:63.1	Max Ler	ngth:64.6	Max Lei	ngth:64.0	Max Ler	igth:66.0	Max Ler	ngth:69.4
Length (ft)	R _N (kips)	R _F (kips)	R _N (kips)	R _F (kips)						
50	228	121	230	123	277	148	281	150	288	154
54	240	128	242	129	291	155	294	157	301	161
58	267	143	269	145	324	174	328	176	336	180
62	365	197	370	199	446	241	453	245	466	251
64			469	254	577	313	585	317	601	326
Max	418	227	497	271	578	313	705	382	929	505

Pile Design Table - Pier 6

	9									
Est.	HP 1	2x53	HP 1	2x63	HP 1	4x73	HP 1	4x89	HP 1	4x117
Pile	Max Ler	ngth:65.6	Max Ler	ngth:67.1	Max Ler	ngth:66.6	Max Lei	ngth:68.6	Max Ler	ngth:72.0
Length (ft)	R _N (kips)	R _F (kips)	R _N (kips)	R _F (kips)						
48	158	84	160	85	196	105	199	106	204	109
52	164	88	166	89	200	107	202	108	207	111
56	166	89	168	89	199	106	202	108	206	110
60	229	123	232	126	276	149	281	151	288	155
64	333	181	340	185	404	219	411	223	423	229
66			442	240	544	296	552	300	568	309
Max	418	227	497	270	578	316	705	385	929	508

Pile Design Table - Pier 7

Est.	HP 1	2x53	HP 1	2x63	HP 1	4x73	HP 1	4x89	HP 1	4x117
Pile	Max Ler	ngth:51.7	Max Ler	gth:53.2	Max Ler	ngth:52.6	Max Ler	ngth:54.6	Max Ler	ngth:58.0
Length	R_N	R_F	R_N	R _F	R_N	R _F	R⋈	R _F	R _N	R _F
(ft)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)
48	208	114	210	115	251	138	254	140	260	143
49	252	139	257	141	305	168	310	171	319	175
50	296	163	303	167	359	197	366	201	377	207
51	386	212	390	214	475	261	482	265	496	272
52			439	242	542	298	550	302	565	311
Max	418	231	497	275	578	317	705	387	929	510

Pile Design Table - Pier 8

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Est.	HP 1	2x53	HP 1	2x63	HP (14x73	HP 1	4x89	HP 1	4x117
Pile	Max Ler	ngth:53.9	Max Ler	ngth:55.4	Max Lei	ngth:54.9	Max Ler	ngth:56.9	Max Lei	ngth:60.3
Length (ft)	R _N (kips)	R _F (kips)								
51	203	112	209	115	247	136	253	139	263	144
52	305	168	311	171	369	203	376	206	387	213
53	369	203	375	206	453	246	460	253	473	260
54			425	234	525	286	533	293	547	301
55			475	261			592	325	608	334
Max	418	228	497	272	578	318	705	387	929	510

Pile Design Table - East Abutment

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Est.		0x42		2x53	l .	2x63		4x73		4x89		4x117
Pile	Max L	ength:	Max L	ength:	Max L	ength:	Max L	.ength:	Max L	.ength:	Max L	ength:
Length	61	1.1	60).9	62	2.5	61	1.9	64	1.0	67	7.4
(ft)	R _N	R₽	R_N	R_F	R_N	R _F	R _N	R _F	R _N	R₽	R_N	R _F
(10)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)
44	106	58	134	74	135	74	167	92	169	93	174	96
49	124	68	154	85	155	85	186	104	191	105	196	108
54	135	74	166	91	167	92	201	110	203	112	208	114
58	210	116	252	138	258	142	305	168	311	171	322	177
59	249	138	307	169	314	173	372	205	379	208	390	215
60	290	159	366	201	371	204	453	249	461	253	473	260
Max	335	184	418	229	497	274	578	316	705	389	929	512

Test Piles

Due to the varying depth to bedrock between the substructure units, we recommend that 4 test piles be driven, one each at Pier 3, Pier 4, Pier 7, and East Abutment, if piles are chosen as the substructure type.

Metal Shoes

No conditions exist which would require metal shoes to be installed on any of the piles at this site.

Lateral Loading

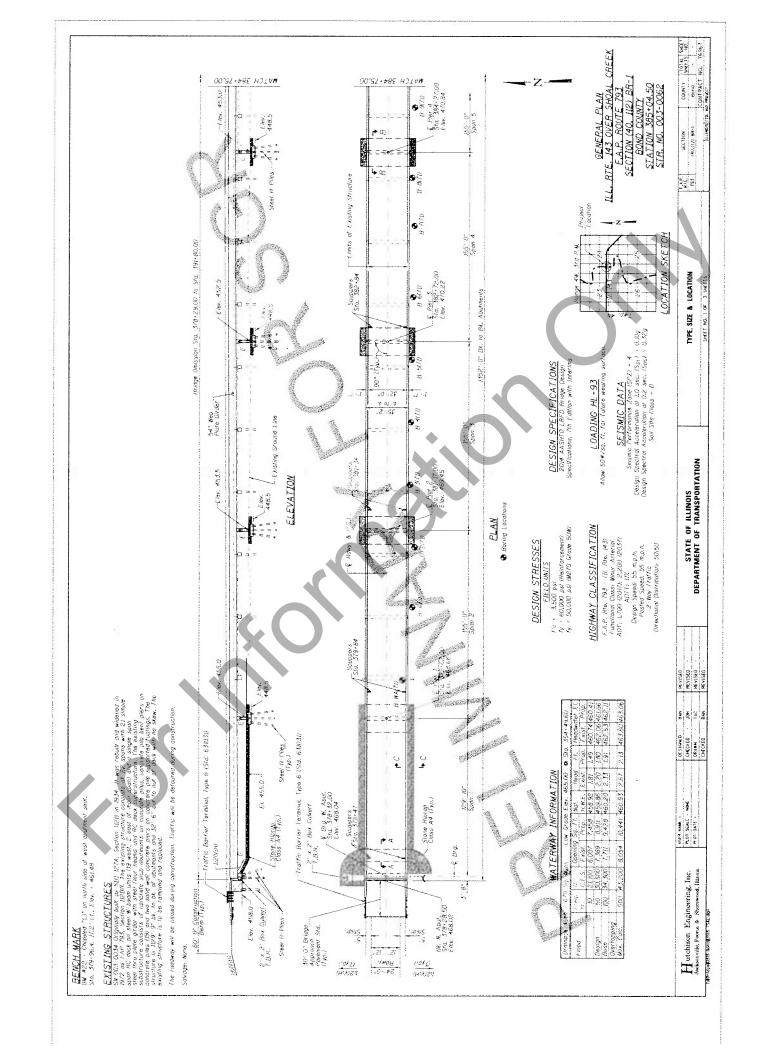
The factored lateral loading for all the substructure units is anticipated to exceed 3 kips per pile. However, the maximum exposed height of the piles at the substructure units is 1 foot, therefore, no lateral analysis should be necessary.

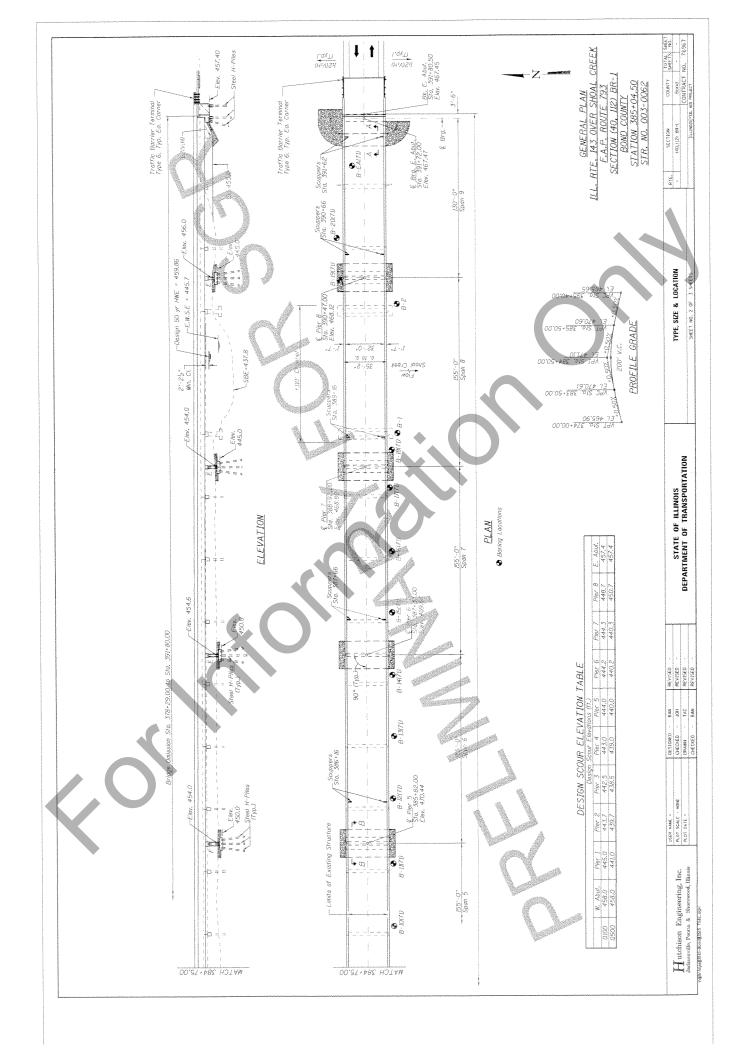
Construction Considerations

The structure will be closed for construction and stage construction will not be utilized. Therefore, temporary retention will not be necessary.

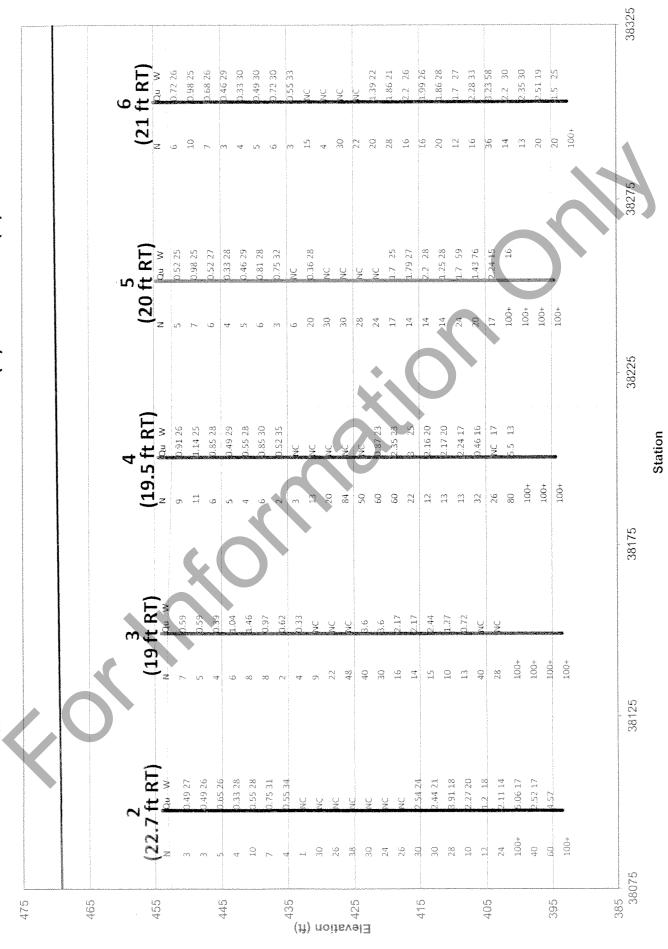
If Shoal Creek is experiencing flooding that overtops the top of bank elevation of 455.0 ft, cofferdams may be required to pour the footings in dry conditions; if pile supported footings are the chosen foundation type.

The 2' x 2' box culvert at Station 378+30.4 should be removed before constructing the foundation for the West Abutment.





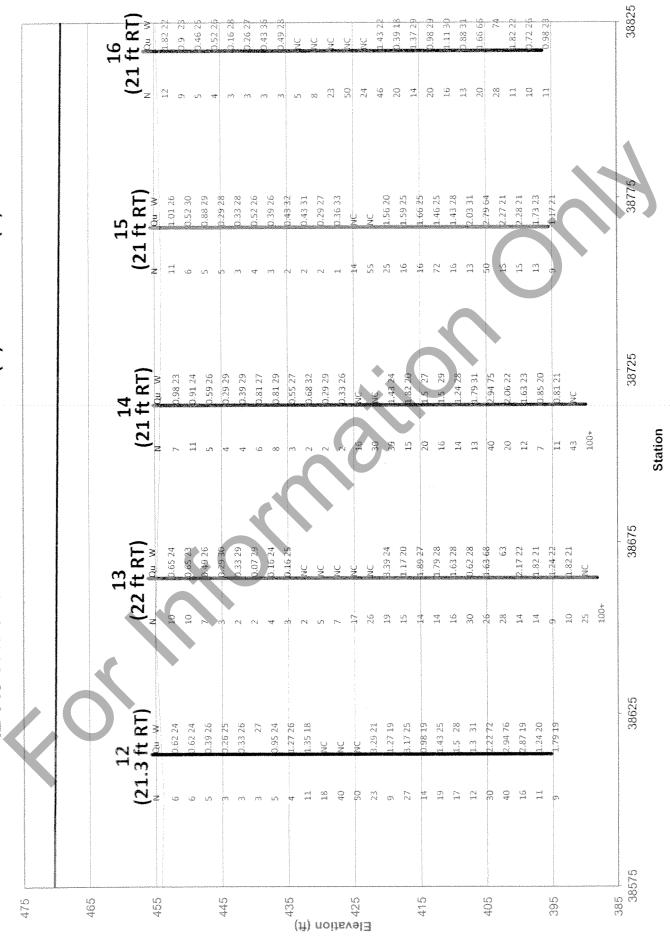
IL 143 over Shoal Creek - SN 003-0034 (E) / 003-0062 (P)



IL 143 over Shoal Creek - SN 003-0034 (E) / 003-0062 (P)

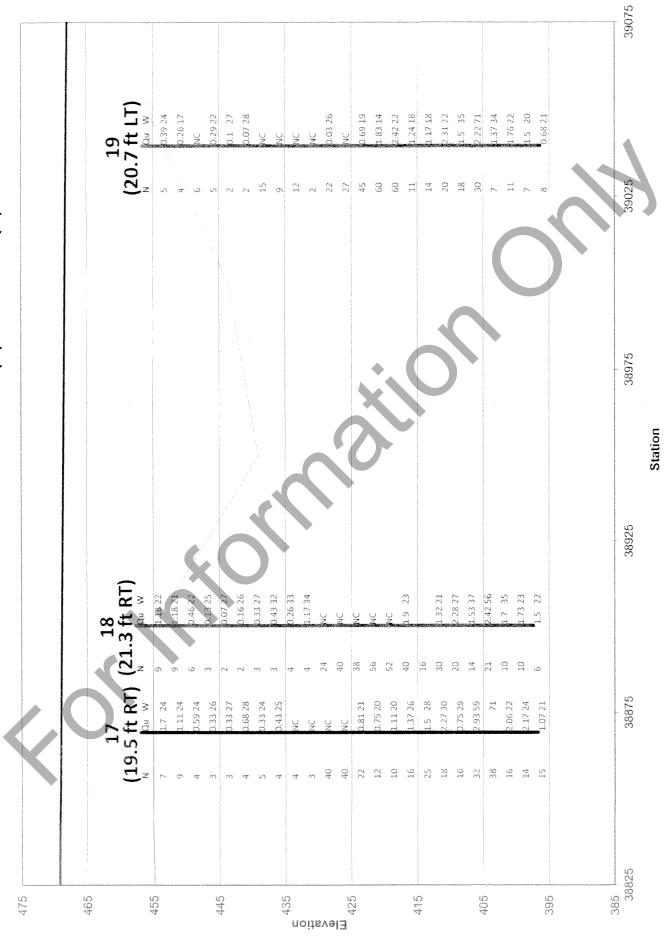
Care (RPT)							
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1,072 6 1,022 7 1,023 7 1,022 7 1,02	9	2.59 25					1.56 20
155.27 4 0.26 5.2 6 0.83 26 17 8.1 24 15 104.22 10 2.06 24 17 2.23 25 15 2.25 15 104.27 7 1.02 24 17 2.23 22 9 15.02 25 13 105.33 6 1.04 22 17 2.03 24 8 15.02 25 13 NC 28 1.04 22 17 1.04 21 5 11 NC 28 NC 5 NC 5 NC 9 NC 28 NC 5 NC 5 NC 9 NC 28 NC 5 NC 5 NC 9 NC 29 NC 25 NC 26 NC 9 NC 30 NC 25 NC 30 NC 36 NC 30 NC 25 NC 36 32 11120 30<	9	1.07 26	.V.G				2.27 24
D.72 28 10 2.06 24 12 2.28 23 15 2.2 25 13 1.04 27 7 1.03 24 17 1.23 22 9 1.50 25 13 1.04 27 6 1.04 22 17 1.62 24 9 1.50 25 13 1.33 36 10 MC 5 MC 5 MC 9 NC 28 MC 17 1.04 1 1 1 NC 28 MC 5 MC 5 MC 9 NC 28 MC 17 MC 5 MC 9 NC 32 MC 17 MC 5 MC 9 NC 32 MC 17 MC 5 MC 9 NC 46 MC 17 MC 5 MC 9 NC 50 MC 5 MC 5 MC 9 14	un	0.85 27			1.6		2.51.2
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2.2 2.4 2.0 111.26 14 1.0% 6 2.93 21 2.4 2.28 25 18 2.44 26 15 2.28 28 18 2.9 25 20 1.82 27 15 2.45 26 14 1.63 29 19 1.17 28 14 2.28 26 17 2.87 26 12 1.96 28 14 1.5 27 12 2.38 32 52 2.42 74 25 2.17 41 38 5.66 71 10 2.38 32 52 2.42 74 26 1.83 55 20 3.26 35 30 2.17 43 10 2.06 35 12 1.96 20 14 1.96 23 11 1.82 37 10 1.82 23 12 1.66 22 14 1.96 23 11 1.07 21 1.4 1.66 22 1.4 1.96 23 1 1 1.07 21 1.4 1.66 22 1.4 1.96 23 1 1 1.07 21 1.4 1.66 24 1.66 24	₩**	1.11.20	70.32				
1.82 27 18 2.44 26 19 1.72 25 14 1.82 27 15 2.45 26 14 1.63 29 19 1.17 28 14 2.28 26 17 2.87 26 12 1.96 28 14 1.5 27 12 2.28 26 17 2.87 26 14 1.63 25 10 1.73 30 12 2.38 32 52 2.42 74 25 2.17 41 38 366 71 10 2.17 43 16 2.35 34 12 1.96 34 10 2.03 35 13 1.82 37 11 2.77 40 12 1.96 34 10 2.03 35 11 1.56 34 10 1.82 23 12 1.65 27 10 1.66 22 10 1.77 43 10 1.82 23 12 1.96 34 10 2.03 32 11 1.56 34 10 1.82 23 12 1.66 22 10 1.66 22 10 1.7 1.4 1.5 1.5	76	2.2 24					6.77.6
2.28 26 15 2.45 26 12 1.96 28 14 1.5 27 12 2.38 32 16 1.89 30 14 1.63 25 10 1.73 30 12 2.38 32 52 2.42 74 25 2.17 41 38 5.66 71 10 2.38 32 52 2.42 74 26 1.83 55 20 3.26 35 30 2.17 43 10 2.06 35 12 1.96 34 10 2.03 32 13 182 37 11 2.77 40 12 1.96 30 14 1.96 23 11 1.5 5 34 10 1.82 23 12 1.63 23 7 1.66 22 10 1.9 7 21 1.4 1.56 22 10 1.00 20 10 1.00 20 10	27	1 87 27		-			1.82 28
0.39 31 17 2.87 26 14 1.63 25 10 1.73 30 12 2.38 32 5.2 2.42 74 25 2.17 41 38 3.66 71 10 2.38 32 5.2 2.42 74 26 1.83 55 20 3.26 35 30 2.17 43 10 2.06 35 12 1.96 20 14 1.96 23 11 1.82 37 11 2.72 40 12 1.66 20 14 1.96 23 11 1.3 22 1.3 22 1.66 22 1.63 23 7 1.66 22 10 1.97 21 1.4 1.4 1.4 1.66 22 10	14	2.28 26					2.51.28
2.38.32 5.2 2.42.74 2.5 2.17.41 3.8 3.66.71 10 74 15 2.35.34 2.6 1.83.55 2.0 1.4 1.5 2.3 3.4 10 1.5 3.4 10 1.5 3.4 10 1.5 3.4 10 1.5 3.4 10 1.5 3.4 10 1.5 3.4 10 1.5 3.4 10 1.5 3.5 3.5 3.5 3.0 1.5 3.6 3.5 3.5 3.0 1.5 3.6 3.5 3.5 3.0 1.5 3.6 3.5 3.5 3.0 1.6 3.2 3.1 11 1.6 2.0 3.3 2.1 11 1.7 1.6 2.2 3.3 11 1.8 2.2 3 1.9 1.6 3.2 3 1.0 1.3 2.2 10	27	0.39 31	/x2.7				0.39 37
74 15 2.35 34 26 1.83 55 20 3.26 35 30 2.17 43 15 2.35 34 12 1.96 34 10 2.03 32 13 2.51 1.82 37 11 2.77 40 12 1.96 20 14 1.96 23 11 2.44 1.56 34 10 1.82 23 12 1.63 23 7 1.66 32 10 1.5 1.07 21 1.4 1.4 1.4 1.66 32 10 1.5	13	2.38 32				the factor of the second secon	26.99
2.1743 10 2.0635 12 1.9634 10 2.0332 13 2.51 1.8237 11 2.7740 12 1.9620 14 1.9623 11 2.44 1.5634 10 1.8223 12 1.0323 7 1.6622 10 1.5 1.0721	35	74	7				7.
1.82.37 11 2.77.40 12 1.96.20 14 1.96.23 11 2.44 1.56.23 10 1.5 1.07.21 1.4 1.96.23 10 1.5 1.5 1.5 1.4 1.96.23 10 1.5 1.5 1.5 1.66.22 1.07.21	10	2.17 43	2 00				2.5147
1.56.34 10 1.82.23 12 1.63.23 7 1.66.22 10 1.5 1.5 1.07.21 1.4	80	1,82 37					2.44 23
1.07 21	1	1.5634				7	
1.07.2	00	1.3 22					
. 17	01	1.07 21					
	100+	T. 24	ос народ не родине вогом — мусторительного ком на также пактама под народ подостоя под	er effere van here and en en erene en en els éléments au mandre en en els éléments de la company de la company de parties par parties par en	dürek ide felderell te dir labi derlektember bilik üseksenbehandiseben bahasakspatylisen byrg per	erdateastan oliministes säävänivä mirestadatuan säänyläisekääljä. Säämmäinistenderlaisilaisus jampionaysen saa T	ofisidarefity-serias seasonestevandes accesses desilicans

IL 143 over Shoal Creek - SN 003-0034 (E) / 003-0062 (P)

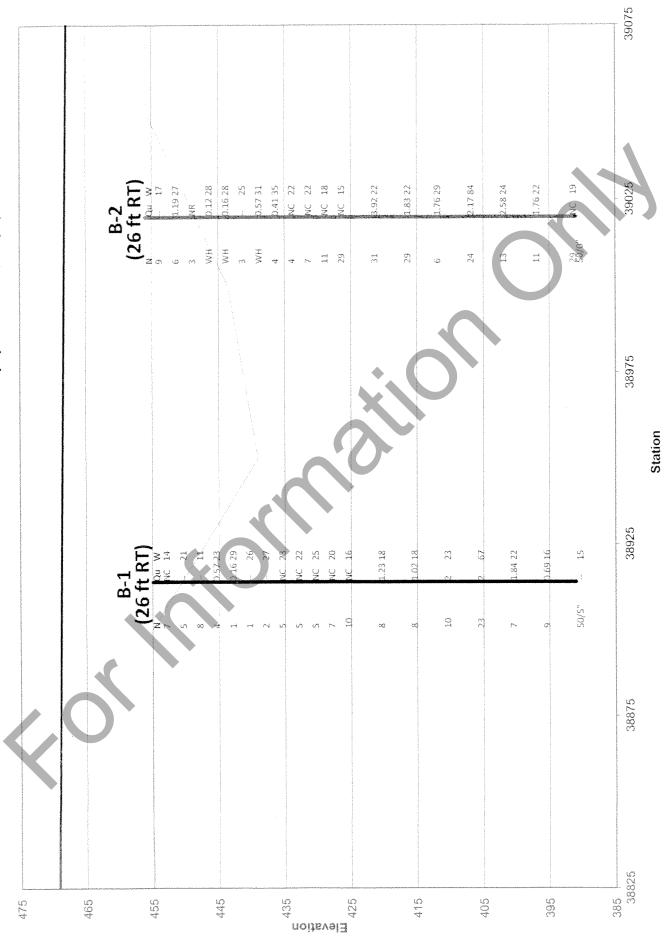


Log Plot - 38575 to 38825 (SLW 3415).xls

IL 143 over Shoal Creek - SN 003-0034 (E) / 003-0062 (P)



IL 143 over Shoal Creek - SN 003-0034 (E) / 003-0062 (P)



39150

IL 143 over Shoal Creek - SN 003-0034 (E) / 003-0062 (P) E Abut (10 FT It) 39 15 .96 25 139-21 23 23 23 23 23 23 Station 26 23 39100 ,46 24 ,59 20 116 25 .91.24 16 28 .65 21 .85 19 38.26 .24 23 .99 34 35 67 46.26

465

475

455

445

Elevation (ft)

415

405

395

385 | 39050

39200



Page $\underline{1}$ of $\underline{2}$

Date 3/5/71

ROUTE FAP 793 (FA 149) DESCRIPTION					IL 143	over Shoal Creek	LOGGE	D BY	<u>C</u>	. Hoffr	nan
SECTION 112BR	LO	CATI	ON	NW 1/	4, SW	1/4, SEC. 24, TWP. 4N, RNG.	4W, 3 PM			4	
COUNTY Bond	DRILLING	G ME	THOD		Hol	low Stem Auger HAN	MER TYPE	_	Unk	nown	
STRUCT. NO. 003-0034 (I 003-0062 (I 003-00	P)	D E P	B L O	U C S	M O I	Surface Water Elev. Stream Bed Elev.	ft	DEP	B L O	U C S	M O I
BORING NO. W. Abut Station 379+88.2 Offset 13.00ft Rig Ground Surface Elev. 46	ht	T H (ff)	W S (/6")	Qu (tsf)	S T (%)	Groundwater Elev.: First Encounter Upon Completion After Hrs.	149.0 ft Y	H (ft)	W S (/6")	Qu (tsf)	S T (%)
	3,2 N	1,,	(, ,	()	(,,,,	Gray and Brown Silty Slightly		,			
Brown Silty CLAY		~~~		arrange and a second a second and a second a	en contrata de la contrata del contrata de la contrata del contrata de la contrata del contrata de la contrata de la contrata de la contrata del contrata de la contrata del contrata de la contrata del contrata de la contrata del contr	Sandy CLAY (continued)			5	0.49 B	23
				audit a sa a gamma munda mika subjedina namang a na	And Andreas An		•				
		doloni	10	1.11 B	23				9	0.49 B	23
		-5						-25			
			23	2.77 E	17		438.5		9	1.04 B	27
				a control of the cont		Gray Slightly Silty CLAY	400.0	,			
			15	2.77 S	16		436.0		7	0.20 B	27
	X	-10		and the same and t		Gray Medium SAND		-30			
	453.5		21	3.00 S	28				8	NC	
Brown and Gray Slightly Silty CLAY	700.0		mananamakapunkanakanakanakanakanakanakanakanakanaka	An announce have been a south							
CLAT	A51 (15	2.35 S	25				30	NC	
Gray Slightly Silty CLAY	451.0		and the state of t	enrendenske skilde (1904) de kelende				-35			
	449.0	¥-	7	1.11 B	25	The second of th			32	NC	
Gray and Brown Slightly Silty CLAY		nessestanettee				The state of the s					
TARACTA AND THE STATE OF THE ST			8	1.46 B	25			- Miles	40	NG	
Gray and Brown Silty Slightly	446.0	-20			diamento according			-40		Party Control of the	



Page 2 of 2

Date ___3/5/71

ROUTE FAP 793 (FA 149) DESCRIPTION IL 143 over Shoal Creek LOGGED BY C. Hoffman SECTION 112BR LOCATION NW 1/4, SW 1/4, SEC. 24, TWP. 4N, RNG. 4W, 3 PM COUNTY Bond DRILLING METHOD Hollow Stem Auger Unknown HAMMER TYPE 003-0034 (E) / STRUCT. NO. 003-0062 (P) D В U M U Surface Water Elev. E С 0 L Station 389+70 C 0 Stream Bed Elev. ft P 0 S P T W S BORING NO. W. Abut Groundwater Elev.: W S Н Station 379+88.2 S Qu T First Encounter 449.0 Qu T Offset 13.00ft Right **Upon Completion** ft (ft) (/6") Ground Surface Elev. 465.2 (%) (tsf) (ft) (/6") After Hrs. (tsf) (%) Gray Medium SAND (continued) Gray Coarse SAND (continued) 30 404.4 Gray Weathered SHALE NC 403.9 NC End of Boring NOTE: Value in "Blows" column is equal to the N-value. NC Gray Clayey SILT 2.06 В 2.68 Gray-Green Silty CLAY 36 2.71 В 30 3.36 23 Gray Silt Sand TILL 20 2.77 16 S Gray Coarse SAND



Page $\underline{1}$ of $\underline{2}$

Date __4/19/71

ROUTE FAP 793 (FA 149) DESCRI	PTION	1	,		IL 143	over Shoal Creek L	OGGED	BY	<u>C</u>	. Hoffr	nan
SECTION 112BR	LO	CATI	ON _	NW 1/	4, SW	1/4, SEC. 24, TWP. 4N, RNG. 4W, 3	PM			4	
COUNTY Bond DRI	LLING	ME	THOD		Hol	low Stem Auger HAMMER T	YPE _	\	Unk	nown	White continues and a second
STRUCT. NO. 003-0034 (E) / 003-0062 (P) Station 389+70		D E P T	В L О W	UCS	M O I S	Surface Water Elev. Stream Bed Elev. Groundwater Elev.:		DWPT	B L O W	U C S	M O I S
BORING NO. 1 Bent #2 Station 380+48.1 Offset 21.00ft Right		Н	S	Qu	T	First Encounter 449.6	ft 🕎	H	S	Qu	Т
Offset 21.00ft Right Ground Surface Elev. 454.0	ft	(ft)	(/6'')	(tsf)	(%)	Upon Completion After Hrs.	ft ft	(ft)	(/6'')	(tsf)	(%)
Ground Scride Liev. 404.0	FL	1	· · /			Gray Medium SAND (continued)					
Gray CLAY					and the second s		_		1	NO	
										NC	
					in the second se	* . ()	wak				
			7	1.37	27		- Samu		34		
	449.6	_		В						NC	
Gray Silty CLAY			American designation of the control					-25			manda atau atau atau atau atau atau atau at
			2	0.36	33		The state of the s		32		
				В						NC	
		*****				Gray Coarse SAND	_427.0 _				nama angan angan angan
			4	0.52	28	Gray Godios Grato	-		30		
				В	ļ		-			NC	
		-10		nanawania.	-			-30			may then schamby a standard
				The state of the s		Gray Fine SAND with Coarse	-				
			6	1.01 B	25	Gravel	1946		44	NC	A. AAAAA ay ya Ariilinada
	442.0		-				422.0				
Gray and Brown Silty CLAY				eriforespidedelstop		Gray SILT					SIMPLE TO A STATE OF THE STATE
Gray and Brown Gildy CLAT			9	1.33	26	Gray Sier			34	2.22	21
				В		And the second s	vi-			S	
		-15		National Association of the Control				-35		Note described to the state of	o de desarro de contra de
							~~		2.15	0.00	
			6	1.04 B	26		-		40	2.22 E	
				1	†		***				
	436.1	reine									Provide the second
	400,1		6				-		60	1.04	23
Gray Medium SAND				NC	-		***			S	
				WAT THE PROPERTY OF THE PROPER				-40			MARINE ALLEGANISM



ROUTE FAP 793 (FA 149) DESCRIPTION

SOIL BORING LOG

IL 143 over Shoal Creek

Page 2 of 2

Date 4/19/71

LOGGED BY C. Hoffman

HAMMER TYPE Unknown Μ Ε C 0 Stream Bed Elev. 0 S W S S Qu T First Encounter **Upon Completion** (ft) (/6") ___ Hrs. (tsf) After ___ (%) 392.6

SECTION _____112BR ____ LOCATION _ NW 1/4, SW 1/4, SEC. 24, TWP. 4N, RNG. 4W, 3 PM COUNTY Bond DRILLING METHOD Hollow Stem Auger 003-0034 (E) / D U M STRUCT. NO. 003-0062 (P) Surface Water Elev. E L C 0 **Station** ______ 389+70 P 0 S į T W S BORING NO. 1 Bent #2 Groundwater Elev.: Н S Qu T 380+48.1 Station Offset 21.00ft Right (ft) (%) (/6")(tsf) Ground Surface Elev. Grav SILT (continued) Gray Weathered SHALE (Thixotropic) (continued) 48 3.45 S End of Boring NOTE: Value in "Blows" column is 24 2.80 equal to the N-value. S 409.5 Gray Clayey SILT 20 3.17 407.0 Blue Gray Silty CLAY 2.75 S 2.35 19 S Gray Weathered SHALE 80 14 72 100+



Page 1 of 2

Date <u>4/26/71</u>

ROUTE FAP 793 (FA 149) DESCRIPTION IL						IL 143	over Shoal Creek	LOGGE	D BY	/c	. Hoffr	nan
SECTION	112BR	LOC	ATI	ON _	NW 1/	4, SW	1/4, SEC. 24, TWP. 4N,	RNG. 4W, 3 PM			4	
		LLING	ME.	THOD	and annual comment of the second of the	Hol	low Stem Auger	HAMMER TYPE	_	Unk	nown	
STRUCT, NO.	003-0034 (E) / 003-0062 (P) 389+70	-	D E P	B L O	U C S	M 0 1	Surface Water Elev. Stream Bed Elev.		DEP	B L O	U C S	M 0 1
Station	2 Bent #3 380+97.72 22.70ft Right	-	Н		Qu	S T	Upon Completion	449.6 ft Y	- CHORNE	W S	Qu	S T
Ground Surfac	ce Elev. 454.0	ft	(ft)	(/6")	(tsf)	(%)	After Hrs. Gray Fine SAND (cont		(ft)	(/6")	(tsf)	(%)
Brown and Gray CLAY	Slightly Silty	-607			efection and the second	ocoocoocoocoocoocoocoocoocoocoocoocooco	Gray i ille GAND (COI)	inacay		1	NC	
man o de de man a caracidad de afroncación de la constitución de la co		eloni										
municipal management of the control				3	0.49 E	27				30	NC	
og a gregorija og g		j	Z5		And de compression and de compression de compressio	The state of the s	7		-25			
A control of the cont		Made		3	0.49 B	26		427.1		26	NC	
						a mary management of the state	Gray Fine SAND and					
de mais un mandre de mandr				5	0.65 B	26			ransanna - afredmaritiskumanum	38	NC	
		-	-10		0.00				-30		**************************************	
The air of the reference of the control of the cont	11	-		4	0.33 B	28				30	NC	
	1	-		10	0.55	-				24		
A C		-		10	0.55 B	28				24	NC	
		uer	-15						-35		4 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	
		437.1		7	0.75 B	31		417.1	haladda an dalada a dhaada	26	NC	
Gray Silty CLA		_ w		And the same and t			Gray SILT	and and the tree of the angle of the second				
				4	0.55 B	34				30	2.54 S	24
Grav Fine SAN	<u> </u>	434.5		and a company	Commence		Common construction					



Page $\underline{2}$ of $\underline{2}$

Date <u>4/26/71</u>

ROUTE FAP 793 (FA 149) DESCRIPTION					IL 143	Bover Shoal Creek	LOGGED	BY	C. Hoffr	nan_
SECTION 112BR	LO	CATI	ON _	NW 1/	4, SW	1/4, SEC. 24, TWP. 4N, RNG. 4W,	3 PM		4	
COUNTY Bond DRII	LLINC	S ME	THOD		Hol	ilow Stem Auger HAMMER	TYPE _	Un	known	
STRUCT. NO. 003-0034 (E) / 003-0062 (P) Station 389+70	ormino.	D E P	B L O W	U C S	M O I S	Surface Water Elev. Stream Bed Elev.	- ft	D B E L P O	U C S	M 0 - 0
BORING NO. 2 Bent #3 Station 380+97.72 Offset 22.70ft Right	inde	Н	S	Qu (tof)	T		ft	H S ft) (/6")	Qu	S T
Ground Surface Elev. 454.0 Gray SILT (continued) (Thixotropic)	π	(11)	30	2.44	21	After Hrs. Gray Weathered SHALE (continued)	ft	100+		(%)
	4 <u>12.1</u>			S	**************************************	End of Boring	392.6			eriteration a massacraticas,
Gray-Green Silty CLAY			28	3.91	18	NOTE: Value in "Blows" column is equal to the N-value.	•			
		-45		S			**don/ddd	-65		
			10	2.27 B	20	O		The state of the s		
Gray Green Silty Sandy CLAY	4 <u>07.1</u>									
		-50	12	1.20 B	18			-70		ment abdebe di trib abberg i melly me Nyved benevate and journey
	402.1		24	2.11 S	14		umanan		to the state of th	memorate pri di socrato controlo controlo controlo del co
Gray Weathered SHALE	a manuful makana		100+	5.06	17		P describes		Andrewski belik delektrik erreske ker	and the state of t
1,0		-55		S			ندون مددن	-75		
			40	2.52 S	17		concern		The second secon	manifestation and a series of the series of
			60	4.57	7000				MAN A A Pracipal Andrea (Libra anno Legis)	1.000
		~~~~		S		The second secon	municipal pro-		andichan — reasonmy vos	



Page  $\underline{1}$  of  $\underline{2}$ 

Date <u>4/28/71</u>

ROUTE FAP 793 (FA 149) DESCR	RIPTIO	N		······	IL 143	over Shoal Creek	LOGGE	D BY	С	. Hoffn	nan
SECTION 112BR	_ LO	CATI	ON _	NW 1/	4, SW	1/4, SEC. 24, TWP. 4N, RNG. 4W, 3	3 PM			4	
		G ME	THOD		Hol	low Stem Auger HAMMER	TYPE _	<u> </u>	Unk	nown	
STRUCT. NO. 003-0034 (E) / 003-0062 (P) Station 389+70		D E P	B L O	U C S	M 0	Surface Water Elev. Stream Bed Elev.		D E P	BLO	U C S	M 0 1
BORING NO.         3 Bent #4           Station         381+49.12           Offset         19.00ft Right		T H	S	Qu	S T	Groundwater Elev.: First Encounter Upon Completion	_ ft	ĺ	W S (6")	Qu (tsf)	S T (%)
Ground Surface Elev. 454.0	ft	(11)	(10)	(tsf)	(70)	After Hrs. Gray Sandy Gravelly CLAY	ft	(10)	4	0.33	25
Gray Slightly Silty CLAY			of the second special form of the second special speci	and the state of t	aga a jan da ka da k	(continued)	432.0			В	
		contents of the contents of th	7	0.59 E	25	Gray Coarse SAND and GRAVEL	obi		9	NC	
Brown and Gray Silty CLAY	_449.5	-5	5	0.59	*27		-	-25	22		
				В			-			NC	
		<u> </u>	4	0.39	28				48		
	<b>C</b> . (			В			424.5	An an annual section of the section		NC	
		-10	6	1.04 B	28	Gray SILT		-30	40	3.60 E	25
		***************************************	8	1.46	27		na.		30	3.60	21
			0	8	21	(Thixotropic)	420.0			S.00	2.1
		-15	8	0.97	30	Gray Silty CLAY		-35	16	2.17	22
	437.0	)		S	arrandiscrete or control of the cont		٠	1	materialistical and the second collection in t	8	
Gray Silty CLAY			2	0.62 B	35		-		14	2.17 B	20
Gray Sandy Gravelly CLAY	43_4_5	Ž	-		Opposition of the state of the			-dn			And a second sec



Page 2 of 2

Date 4/28/71

ROUTE FAP 793 (FA 149) DESCRIPTION IL 143 over Shoal Creek LOGGED BY C. Hoffman SECTION 112BR LOCATION NW 1/4, SW 1/4, SEC. 24, TWP. 4N, RNG. 4W, 3 PM Bond COUNTY DRILLING METHOD Hollow Stem Auger Unknown 003-0034 (E) / 
 STRUCT. NO.
 003-0062 (P)

 Station
 389+70
 D В U M В M Surface Water Elev. Ε L C 0 Station C 0 Stream Bed Elev. Р 0 S Ĭ 0 S I Т W S BORING NO. 3 Bent #4 W S Groundwater Elev .: H Qu T 381+49.12 S Qu T Station First Encounter 19.00ft Right Offset **Upon Completion** ft Ground Surface Elev. ___ (ft) (/6")(tsf) (%) (ft) (/6") Hrs. (tsf) (%) Gray Silty CLAY (continued) 15 2.44 Gray Weathered SHALE (continued) В End of Boring Gray Silty Slightly Sandy CLAY 10 1.27 NOTE: Value in "Blows" column is В equal to the N-value. 0.72 В Gray Medium SAND NC 17 NC Gray Weathered SHALE Dark Gray Weathered SHALE 100+ Gray Weathered SHALE 100+ 100+



Page  $\underline{1}$  of  $\underline{2}$ 

Date 5/3/71 ROUTE FAP 793 (FA 149) DESCRIPTION | IL 143 over Shoal Creek | LOGGED BY | C. Hoffman SECTION 112BR LOCATION NW 1/4, SW 1/4, SEC. 24, TWP. 4N, RNG. 4W, 3 PM COUNTY Bond DRILLING METHOD Hollow Stem Auger HAMMER TYPE Unknown 003-0034 (E) / STRUCT. NO. 003-0062 (P) В U Μ Surface Water Elev. Ε L C 389+70 0 C 0 Station Stream Bed Elev. Р 0 S ſ 0 S -Т BORING NO. ____ W S W S 4 Bent #5 Groundwater Elev.: Н S Qu **Station** 382+00.49 T S Qu Ŧ First Encounter 19.50ft Right Upon Completion ft (ft) (/6") (tsf) (%) (ft) (/6")Ground Surface Elev. After ____ Hrs. ft (tsf) (%) Gray Coarse SAND (continued) Brown and Tan SILT NC 0.91 26 13 B NC Grav Coarse SAND and GRAVEL 25 1.14 20 В NC Brown Slightly Silty CLAY 0.85 В NC 0.49 29 NC Brown and Gray Silty Slightly Gray SILT 0.55 28 Sandy CLAY 0.87 23 В (Thixotropic) 0.85 60 2.35 23 (Thixotropic) Gray CLAY 0.52 3.00 25 S Gray Coarse SAND Gray Silty CLAY



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Date <u>5/3/71</u>

ROUTE FAP 793 (FA 149) DESCRIPTION	***************************************	IL 143	over Shoal Creek		LOGGED BY	<u>C. F</u>	loffman		
SECTION 112BR I	LOCAT	TION _	NW 1/	4, SW	1/4, <b>SEC.</b> 24, <b>TWP</b> . 4N.	RNG. 4W.	3 PM		
COUNTY Bond DRILLI	NG MI	ETHOD	***************************************	Hol	low Stem Auger	HAMMER	TYPE	Unkno	wh
STRUCT. NO. 003-0034 (E) / 003-0062 (P) Station 389+70	P	L O	U C S	M 0 1	Surface Water Elev Stream Bed Elev		ft E	L	U M O S I S
BORING NO.         4 Bent #5           Station         382+00.49           Offset         19.50ft Right	T H	S	Qu (tsf)	S T (%)	Upon Completion	447.7	ft Y H		Qu T
Ground Surface Elev. 454.4  Gray Silty CLAY (continued)	ft   (ft	) (/ <b>6</b> ")	2.16		After Hrs. Gray Weathered SHAL	E	- '	100+	.5., (70,
Gray Only Obstr (Oostanada)			В		(continued)		393.2		Landan Adam Control Co
			Company of the Compan	en e de la composiçõe d	End of Boring			eg jajoja kumanan kannan k	Anderson and the second of the
	enderlander.	13	2.17 B	20	NOTE: Value in "Blows equal to the N-value.	s" column is			Anne eurobeiden von die de die rege en de
							-65	di albertara establishe establishe	
		13	2.24 B	17	0		- Salamanan area (Salamanan ar	)-) After designative control to detail	ulausean and control of the second
40	7.7.							100	
Gray Sandy SILT		32	0.46 B	16			-70		
40	5.2		D.					desde un Partid d'AVARIENTATION CONTRA	
Gray Coarse SAND and GRAVEL		26	NC	17			70	nomination college of 800 persons sent	
40	2.7		140					o po de compresso	and the same and a sam
Dark Gray and Black Weathered SHALE		80	5.50	13	The state of the s			an annual to the control of the cont	
40	0.2		S	and the same approach to	The state of the s				
Gray Coarse SAND	9.2	55 100+	*				-75		A pipe a siperata mpiotana de plados
Gray Weathered SHALE					The state of the s			de para de la constitución de la	nemánica addice jeje projekty
			es a contrata de la contrata del la contrata de la		n production construction			a de la composição de l	Legisland Marie Control
	Vermon	100+	-		The second secon		- Anniel		Ordered reserver
		-		-	Abbytovalalakator Trooping Brooking			The second second second	drivenoscoppi miljer
	1000		(Instably address address		The state of the s		-30		construction of the second of



Page  $\underline{1}$  of  $\underline{2}$ 

Date 5/4/71

ROUTE FAP 793 (FA 149) DESCRIPT	ION _			IL 143	over Shoal Creek	LOGGED	BY	<u>C.</u>	Hoffm	<u>nan</u>
SECTION 112BR	LOCAT	ON_	NW 1/-	4, SW	1/4, SEC. 24, TWP. 4N, RNG. 4W, 3	PM			_	
COUNTY Bond DRILL	ING MI	ETHOD		Holl	ow Stem Auger HAMMER	TYPE _	\$	Unkı	nown	
003-0034 (E) / STRUCT. NO. 003-0062 (P) Station 389+70	D E P	L 0	U C S	M O I	Surface Water Elev. Stream Bed Elev.	11.	D E P	B L O	U C S	M O
BORING NO.         5 Bent #6           Station         382+51.69           Offset         20.00ft Right	H H	1	Qu /tef\	S T (%)	Groundwater Elev.: First Encounter 445.5 Upon Completion	ft \	T H (ff)	S (/6")	Qu (tsf)	S T (%)
Ground Surface Elev. 454.6	ft (ft	, (,0)	(131)	(70)	After Hrs.  Gray Coarse SAND and GRAVEL	- ''	(14)	6	(.0.)	(,0)
Brown and Tan Clayey SILT	namen and a second		delication of the decision and the second of the second		(continued)	<u>433.0</u>			NC	
	nerenden med d	5	0.52	25	Gray Sandy Silty CLAY			20	0.36	28
	0.100.000		В		X	4 <u>30.5</u> _			В	
		5 7	0.98	25	Gray Coarse SAND and GRAVEL	-	-25	30		
			В			, adm			NC	
		6	0.52	27		ے۔		30		
			В			-	7		NC	
S		10 4	0.33	28		-	-30	28		
	) Amount of		В			-			NC	
Brown and Gray Silty Slightly	43.0	ateriores d				*			and decorate an accountry reversion	and a dead of the second secon
Sandy CLAY		5	0.46 B	29		-	The state of the s	24	NC	or distance for the state of th
			demonstrated and an artist and a second and	and the state of t		<u>420,5</u> .			Population and the state of the	a de la comunicación de del properto de la comunicación de del properto de la comunicación de del properto de la comunicación d
	-	6	0.81 B	28	Gray Clayey SILT		-35	17	1.70 B	25
4	<u>38.0</u> .		- 1.7							
Gray Silty CLAY	eta efectiva	3	0.75	32				14	1.79	27
4	35.5		В						S	
Gray Coarse SAND and GRAVEL		-20	Add at the special and a second			one and an analysis of the second of the sec	-40	والمستوال والمستوال والمراسات	and the second s	



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Date 5/4/71

ROUTE FAP 79	93 (FA 149) DESC	RIPTION		iniddal <u>alidalando sov</u>	IL 143	3 over Shoal Creek		LOGGED E	3Y	. Hoffn	nan
SECTION	112BR	LOCA	ATION _	NW 1	/4, SW	/ 1/4, SEC. 24, TWP. 4N.	RNG. 4W,	3 <b>PM</b>		4	
			METHOD	)	Но	llow Stem Auger	HAMMER	TYPE	Uni	nown	Manufallahan asara asara
STRUCT. NO. Station	003-0034 (E) / 003-0062 (P) 389+70		D B E L P O	U C S	M 0 1	Surface Water Elev. Stream Bed Elev.		ft D ft E	L	U C S	M O I
Station Offset	5 Bent #6 382+51.69 20.00ft Right		T W H S	Qu	S T	Upon Completion	445.5	ft	W S	Qu	S T
	ce Elev454.6 LT (continued)	ft ***(	14		- L	After Hrs. Gray Weathered SHA (continued)	LE	ft (ft 393.5	100+	(tsf)	(%)
						End of Boring				and the second s	
And the second s		410.5	14	1.25 B	28	NOTE: Value in "Blow equal to the N-value.	s" column is			THE PROPERTY OF THE PROPERTY O	
Dark Brown SIL (with Organics)	- Total Control Contro		-45 24	1.70	59			**************************************	5	odi	
de en		Annem		S						enter de la contraction de la	
			20	1.43 S	76						
Gray Silty Sand	ly CLAY	405.5	30 17	2.24 B	15	And the second s		endermonen en en 7 energenen			
Gray Weathere	d SHALE	403.0						A control de control d			
			100+	The state of the s	16						
	)	- marketer	55 100+					ermone data	5		
		decision	Annual Control of the	Terminal and place as Associated and Associated Associa						and the charge plane of party and property of the charge o	
dente material reproduction of the control of the c			100+	The state of the s				— ministrativos		OOV (A) From The A distribution and a service a visit	
- Audinitation and analysis of the contract of		*****	60	ennemen handsondholdered seed							



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Date <u>4/5/71</u>

ROUTE FAP 793	OUTE FAP 793 (FA 149) DESCRIPTION IL 143 over Shoal Cre												
SECTION	112BR	LOC	CATIO	ON	NW 1/	4, SW	1/4, SEC. 24, TWP. 4N,	RNG. 4W.	3 <b>PM</b>			•	Mikadanka (mari) ario, al'y al'a al'abb
COUNTY	Bond DRIL	LING	ME	THOD		Holl	ow Stem Auger	HAMMER	TYPE _		Unkr	nown	
	003-0034 (E) / 003-0062 (P) 389+70	Chancel Section and American an	D E P	В L О	U C S	M O I	Surface Water Elev Stream Bed Elev		_ft _ft	Р	BLO	U C S	M 0 1
Station Offset	6 Bent #7 383+03.07 21,00ft Right	- A	T H (ft)	W S (/6")	Qu (tsf)	S T (%)	Groundwater Elev.: First Encounter Upon Completion After Hrs.		ft	Н		Qu (tsf)	S T (%)
Brown and Tan							Gray Silty CLAY (conti					0.55 B	33
in populario de la manda del de conferencia del conferencia de		-			Anna anna anna anna anna anna anna anna				433.4			A Control of the Cont	
and the contract of the contra				6	0.72 B	26	Gray Coarse SAND ar	10 GRAVEL			15	NC	
A color and the			-5		makanak internetional variation				-	-25			
				10	0.98 B	25	0				4	NC	
				7	0.68	26			-		30		
					В	20			, ee			NC	
			-10	3	0.46	29			~	-30	22	NC	
					В				-			NO	
	~ \			4	0.33 B	30	Gray SILT	·	422.4		20	1.39 S	22
<b>/</b> C			-15		(c)))) o committee and the second				-	-35			Albanasanovanasanananananan
				5	0.49 B	30	(Thixotropic)				28	1.86 S	21
		437.4				de la constantina del constantina de la constantina del constantina de la constantin						2.00	~~
Gray Silty CLA	Y			6	0.72 B	30					16	2.20 B	26
			-20	and the second s	Maria de Colonia de Paris de Colonia de Colo	Notice was a dy-defendant of the deleted of	No. of the control of			40			en para di manda di m



Page  $\underline{2}$  of  $\underline{2}$ 

Date <u>4/5/71</u>

ROUTE FAP 793 (FA 149) DESCRIP				IL 143	over Shoal Creek	LOGGED B	/C	. Hoffr	<u>nan</u>	
SECTION 112BR	LO	CATI	ON _	NW 1/	4. SW	1/4, SEC. 24, TWP. 4N, RNG. 4W, 3	3 PM			
COUNTY Bond DRIL	LING	ME	THOD	charl Established and Asia Asia	Hol	llow Stem Auger HAMMER	TYPE	Unk	nown	**************************************
003-0034 (E) /   003-0062 (P)   Station   389+70		D E P T H	L O W S		M O I S T	Surface Water Elev. Stream Bed Elev.  Groundwater Elev.: First Encounter 445.9 Upon Completion After Hrs.	_ft ₽ T ft ▼ H	O W S	U S Qu (tsf)	M O I S T
Gray SILT (continued)		• •	16	1.99	26	Dark Gray Slightly Clayey SILT		20	1.50	25
Gray Slightly Clayey SILT	13.4		20	1.86 B	28	(continued)  Gray Weathered SHALE  End of Boring	391.4		В	
4.	08.4	-45	12	1.70 B	27	NOTE: Value in "Blows" column is equal to the N-value.	-65			And
Gray Silty CLAY	05.9		16	2.28 B	33				Andriel empetiolises som esservous se accesa constantes processos.	н теритер ден теритер ден теритер ден ден теритер ден
Dark Brown SILT (with much Organic matter)	03.4	-50	36	3.23 S	58		-70			рал үшідің әсімделелінде мей өсемен желейен түсінде естектетеле
Dark Gray Slightly Clayey SILT			14	2.20 B	30					на анамина отвер дел обитель дела на делах метельного дела делах метельного дела делах метельного дела делах метельного дела делах метельного
		-55	13	2.35 B	30		-75			ede enterer die debeste kannen gegen wegen wegen wegen der eine gegeben ver
			20	2.51 B	19					e mengelija de rekolo melje od stalju i melje de kolo de



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Date <u>5/17/71</u>

ROUTE FAP 793 (FA 149) DESCRIPTIO			IL 143	over Shoal Creek	_ LOGGE	D BY	C. Hof	man_	
SECTION 112BR LO	CATI	ON _	NW 1/	4, SW	1/4, SEC. 24, TWP. 4N, RNG. 4	W, 3 <b>PM</b>	na an ann an		
COUNTY Bond DRILLING	G ME	THOD		Hol	low Stem Auger HAMM	IER TYPE		Unknown	
003-0034 (E) / 003-0062 (P) Station 389+70	D E P	B L O	U C S	M 0 1	Surface Water Elev. Stream Bed Elev.	ft ft	EP	B U L C S	M 0 1
BORING NO.         7 Bent #8           Station         383+61.37           Offset         22.00ft Right	T H /#\		Qu (tsf)	S T (%)	Groundwater Elev.: First Encounter Upon Completion	ft		N Qu S Qu 6") (tsf)	
Ground Surface Elev. 454.6 ft	1117	(/0 )	(151)	( /0)	After Hrs. Gray Slightly Silty CLAY	ft	(11) (//		-
Brown and Tan SILT		governing interest grant of the control of the cont	eventure of the second		(continued)	,		2 0.33 B	36
		val amountaine	non-bloom de sui de grande de desarra	V. (1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		432.7		out.	
		6	0.59	23	Gray Coarse SAND			3	
			В	anno anno anno anno anno anno anno anno			_	NC	- Paragraphic Control of the Control
	-5	- Company Control of the Control of	undereilerend Antonio des el destados				-25	angene anne anne en	the second contract of
	***************************************	6	0.59 B	25				28 NC	
								.,,	
				00	of production and the second s				
		6	1.07 B	26				NC NC	
×	-10		Andreas and the a college of the analytical	Transport dependence of the contract of the co			-30	na nde sudjende voje suplanja ka sa sumila a kiad	Constant and the second of the
		5	0.85 B	27				20 NC	
		<u></u>							
		4	0.72	28				15	
			В					NC	
440.2	-15	de la company				420.2	-35	de and de	e-philipse-system-juma-in-
Brown and Tan Clayey SILT		8	1.04 B	27	Gray Clayey SILT			15 1.11 B	20
437.7	7				All and a second				
Gray Slightly Silty CLAY		-	0.52	30				18 220	74
		4	0.52 B	3U	OR PROPERTY AND A STATE OF THE			16 2.20 B	24
	75/7				X-000000000000000000000000000000000000		40	hass i bhasshirinn i r-beirge	



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Date <u>5/17/71</u>

ROUTE FAP 793 (FA 149) DESCRIPTION					IL 143	over Shoal Creek	LOGG	SED B	Y _ C	. Hoffr	man
SECTION 112BR	_ LO	CATI	ON _	NW 1/	4. SW	1/4, SEC. 24, TWP. 4N, RNG.	4W, 3 PM			4	
COUNTY Bond DR	ILLING	3 ME	THOD	***************************************	Hol	low Stem Auger HAN	MER TYPE		Unk	nown	<del></del>
STRUCT. NO. 003-0034 (E) / 003-0062 (P) Station 389+70	Admir al delibera	D E P	В L О	U C S	M 0 1	Surface Water Elev. Stream Bed Elev.	ft ft	DEP	B L O	UCS	M O I
BORING NO.         7 Bent #8           Station         383+61.37           Offset         22.00ft Right		H	S S	Qu	S T	Groundwater Elev.: First Encounter Upon Completion	ft	Å H		Qu	S T
Ground Surface Elev. 454.6 Gray Clayey SILT (continued)	ft	(ft)	(/6")			After Hrs.  Dark Gray SILT (continued)	ft	(ft)	(/6")	(tsf)	(%)
olay olayey ole ( toolianded)			20	2.28 S	25	Bank Gray Ole 1 (commodu)		-	7	1.56 B	34
		*******	16	1.82	27	. 0	*		8	1.30	22
				S		X	390	2	0	B	22
		<u>-45</u>				Gray Sandy SILT		. <b>∠</b> . 65			
			14	2.28 B	26	O'		***************************************	10	1.07 B	21
						Gray Weathered SHALE	387,	7	Providence Agencia		
			27	0.39 B	31		385	8_	100+		14
	X	-50		Accounts of a manual accounts of the second		End of Boring		-70			
	403.3		13	2.38 S	32	NOTE: Value in "Blows" colu equal to the N-value.	ımn is				
Dark Brown SILT (Highly Organic with much Plant	•		A apportance de l'acquipment à accel dessurigion					orbinada orminada			
Material)		-	35		74						
Dark Brown SILT	_400.2	-55	nak girakanda Agira a da ang kang					<u>-75</u>			
Dark Didwir Ole 1			10	2.17 B	43	o principal de la constanta de					
0-1-0-1-0-1-	_397.7		references de la constanció de la consta	Andrews destribited and early		Management of the second of th					
Dark Gray SILT			8	1.82 B	37						
Terrenance Assessment		-60				webstandings					



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Date __5/18/71

ROUTE FAP 793 (FA 149) DESCRIPTION IL 14					3 over Shoal Creek	LOGGE	ED B'	Y	C. Hoff	man	
SECTION 112BR											
COUNTY Bond DRILL	ING ME	THOD		Ho	llow Stem Auger HAMMER	HAMMER TYPE Unknown					
STRUCT. NO. 003-0034 (E) / 003-0062 (P) Station 389+70  BORING NO. 8 Bent #9 Station 384+00.73	D E P T H	L O W	U C S Qu	M O I S T	Surface Water Elev. Stream Bed Elev.  Groundwater Elev.: First Encounter 446.9	_ft ft ¥	DEPTH	B L O W S	U C s	M O I S T	
Offset 20.00ft Right Ground Surface Elev. 454.0	t (ft)	(/6")	(tsf)	(%)		ft	(ft)	(/6")	(tsf)	(%)	
Dark Brown and Gray Silty CLAY		encoderista de la compressión	edibbolin o ono o o o o o o o o o o o o o o o o	i de	Brown and Gray SILT (continued) Gray Medium SAND	433.4	And the second s	10	NC		
	anderdroppe only up a second	8	0.59 B	30		429.5		28	NC		
	-5	4	0.52 B	32	Gray Coarse SAND and GRAVEL		-25	25	NC		
	<u> </u>	3	0.33 B	30		*		32		and the state of t	
	-10		design of the second	32			-30	6.0	NC	Basic Para (Control of Control of	
442	.0		В	UZ.		422.0		60	NC	The best of the second	
Brown and Gray Clayey SILT		10	2.06 B	24	Gray SILT (Thixotropic)			30	3.46 S	21	
	-15	7	1.63	24		end.	-35	26	2.27	23	
Brown and Gray SILT	0	Bridge Policy Control of the Control	В	-	(Thixotropic)	_416 <u>.5</u>	Annual to Annual series and An	Say Tag 3	S		
	75	6	1.04 B	22	Gray Clayey SILT	*****		20	1.11	26	



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Date <u>5/18/71</u>

ROUTE FAP 793 (FA 149) DESCRIPT	TON			IL 143	3 over Shoal Creek	LOGGE	ED BY	C. Hoff	man
SECTION 112BR	LOCATI	ON _	NW 1	4, SW	1/4, SEC. 24, TWP. 4N, RNG. 4W	, 3 <b>PM</b>		4	
COUNTY Bond DRILL	ING ME	THOD		<u> Ho</u>	ilow Stem Auger HAMMEI	R TYPE	U	nknown	
STRUCT. NO.   003-0034 (E) /   003-0062 (P)	D E P T H	B L O W S	U C S Qu (tsf)	M O I S T	Surface Water Elev. Stream Bed Elev.  Groundwater Elev.: First Encounter 446.9 Upon Completion After Hrs.	ft	D B E L P O T W H S (ft) (/6'	C S Qu	M O I S T
Gray Clayey SILT (continued)		18	2.44 B	26	Dark Brown Clayey SILT (continued)	392.4	10	1.82 8	23
	-45	15	2.45 S	26	End of Boring  NOTE: Value in "Blows" column i equal to the N-value.	5	-65		
	4.9	17	2.87 B	30					
Dark Brown SILT (Highly Organic, much Plant Material)	-50	52	2.42 S	74			-70		олин долж винеризургуйн районал, наврем интеризургуйн американска
Dark Brown Clayey SILT	-55	15	2.35 B	34			-75	ecentricità halborament Abroso anna marquesta hace	ден үчүнүү гізанда кандарда финдульта «Селда техана жазана а
		And the second s	2.06 B	35		and and an			
		April 1	2.77 B	40		one		eerookaa koosin ola muusi kuu suutaa ee kansaa ee k	anderprophysical and decide and and activities of the Ann



Page  $\underline{1}$  of  $\underline{2}$ 

Date 5/17/71 ROUTE FAP 793 (FA 149) DESCRIPTION IL 143 over Shoal Creek LOGGED BY C. Hoffman SECTION 112BR LOCATION NW 1/4, SW 1/4, SEC. 24, TWP. 4N, RNG. 4W, 3 PM COUNTY Bond DRILLING METHOD Unknown Hollow Stem Auger HAMMER TYPE 003-0034 (E) / D STRUCT. NO. 003-0062 (P) В U M В U Μ Surface Water Elev. E L С 389+70 0 C Station E 0 Stream Bed Elev. Р 0 S ł 1 T W S BORING NO. ____ 9 Bent #10 S Groundwater Elev.: Qu T Station 384+58 S First Encounter Qu T 22.00ft Right Offset Upon Completion Ground Surface Elev. 454.9 (ft) (/6") (tsf) (%) (/6") (ft) (%) __ Hrs. (tsf) Gray Silty SAND (continued) Brown Clayey SILT 14 NC 0.81 S NC 430.4 Gray Medium to Coarse SAND (with Gravel) 0.33 28 S NC Brown and Gray Silty CLAY Gray Clay TILL 0.23 27 2.25 29 В S 0.81 2.42 20 26 Brown and Gray Clay TILL Gray Clayey SILT 12 2.28 23 100+ (Large Gravel) В NS 2.25 22 2.42 21 S Gray Silty CLAY 0.81 14 1.96 26 S В Gray Silty SAND



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Date 5/17/71

ROUTE FAP 79	3 (FA 149	DESCR	IPTIO	N		***************************************	IL 14	3 over Shoal Creek		LOGG	ED B	<b>Y</b> (	C. Hoff	man
								V 1/4, SEC. 24, TWP. 4N					1	
COUNTY	Bond	DRI						ollow Stem Auger				Uni	known	
STRUCT. NO	003-00 003-0 389	034 (E) / <u>062 (P)</u> 9+70	duality -	D E P	3	U C S	M 0 -	Surface Water Elev. Stream Bed Elev.		ft ft	D E P		$\overline{}$	м 0
BORING NO. Station Offset	384 22.001	+58 t Riaht		Н	S	Qu	S T	Groundwater Elev.: First Encounter Upon Completion	447.6	_ ft _	T	W S	Qu	S
Gray Silty CLAY	e Elev. (continue	454.9 ⊋d)	ft	(ft)	(/6")	<u> </u>	<u> </u>	After Hrs. Gray Silty CLAY (conti		ft	(ft)	(/6")	(tsf)	(%)
. The state of the		,			15	2.28 B	28	Oray Sitty CEAT (COTIL	riuea)	393.6	-	12	1.63 B	23
And we will be a second and a s					14	1.63	29	End of Boring  NOTE: Value in "Blows	of column in			or that annuaced a pri-formus quadrama.	Only in a ball to a bid in ball any my of the annual party.	
						S		equal to the N-value.	s column is			On another the final dissipation and the second	de la constante de la constant	and the state of t
				-45	12	1.96 S	28	0			-65		edicondeli – planskani sprajskanima po	e route desirable de la réference de production de la reconsence de
			4 <u>07.9</u>									Access of the state of the stat	White Herrit with his account	and the second s
Gray SILT			-		14	1.63 S	25					de l'est de constitue de l'est	Transmitter of a sign day face of a second	websites and the second
		\$		-50		3					-70	PRANDOLINA JOSP Jib. Oldo promosa na possa na		PRETTO COMPANIA A SPRINTAGO CO
					25	2.17 S	41						бүсү те берекенде деменин жазына жарырдында	di memographica de colonidas de populações de que las Nobem
Brown SILT (Organic)		4	-02 <u>.9</u> -		26	1.83	55				The state of the s		(Africandelli med proprie chi disidi miq qipo (A.A	чен де да вышения най-күүдүүдүүү
		4	<u>0</u> 0 <u>.4</u> .		And the state of t	s	Address of Associations and Association and As			-		бене са най-колония процедельных ка	Application of the second physical delegancy.	Addition in the spring and the shaded display
Brown and Gray C	LAY		1886	-55	12	1.96 B	34			-	-75			ter der men de met den de proposition of jungsprop
		3	97.9_	1			To the second se			-	***************************************	Try childenthy who become		
Gray Silty CLAY			****	7	12	1.96 B	20			~~		tradelinin is analysis of the state of the s	Addentifation of the Engledon monocentario	realism despendentials in many constraints in the con-
			WELLOW.	-60			1			*****		The second secon		



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Date ___5/19/71

ROUTE FAP 79	3 (FA 149	) DESCRI	PTIO	N	·	···	IL 14	3 over Shoal Creek		LOGGE	ED B	Y	). Hoff	man
SECTION	1128	R	LO	CAT	ON _	NW 1.	/4, SW	/ 1/4, SEC, 24, TWP. 4N	. RNG. 4W,	3 <b>PM</b>	- Heledonia			
COUNTY			LLING	3 ME	THOD		Ho	ollow Stem Auger	HAMMER	TYPE		Unk	known	
STRUCT. NOStation	389	062 (P) I+70		D E P T	B L O W	U C S	M O I S	Surface Water Elev. Stream Bed Elev.		_ ft _ ft	D E P	B L O	UCS	M 0
BORING NO Station Offset	385+(	08.63		Н	į.	Qu	T	Groundwater Elev.: First Encounter Upon Completion		_ ft _ ft	Н	S S	Qu	S
Ground Surfac	e Elev.	454.7	ft	(ft)	(/6")	(tsf)	(%)	After Hrs.		ft	(ft)	(/6")	(tsf)	(%)
Brown Clayey Si	ILT					oona arkkatomon aabaankan sasya sasyastaanoon	demonstrate of the property of	Gray Clayey Medium S (continued)	SAND			7	1.04 B	21
PROVINCE AND					6	0.75	21	Gray Coarse SAND		432.7		5		
reformation (Arcanomy and Arcanomy and Arcan						В							NC	
The Medical Association of the Section of the Secti				-5	13	1.52	20				-25	-00		
		,	447.7		, 0	\$ (						26	NC	
Brown and Tan (	CLAY		, www.		9	2.68 S	23	Gray Coarse SAND an	d GRAVEL	427.7 .		22		
		\$		-10	and the second of the second o	3				-	-30	and believe to the state of the	NC	
					17	3.10 S	24	The state of the s		~		16	NC	A Andrew many
					hander of the second control of the second c		As an halp de all you adjust by such associations.	Works of the Control		_422.7 _				THE PROPERTY OF THE PROPERTY O
		4	140.4		15	2.20 S	25	Gray Sandy SILT		-		30	1.43 S	18
Gray Tan Silty CI	AY		`	-15	9	1.96	25	Gray Coarse SAND		_420.2 -	-35	24	Accidentation and accommodition of the second	
		4	- k37.7	-	-	В						34	NC	
Gray and Brown :	Sandy SIL		~ ~		8	1.59 S	22	Gray SILT		417.7		36	2.93 S	21
Gray Clayey Med	ium SANI	5 4	<u>35.2</u>	-20	ed midulman viloussa	- Company	2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Gray Clayey SILT	and contains among special about Markov (	415.2			7	



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Date ___5/19/71__

ROUTE FAP 79	3 (FA 149) DESC	CRIPTIO	N			IL 14	3 over Shoal Creek		LOGG	ED B	Y (	C. Hoff	man
							V 1/4, SEC. 24, TWP. 4N				-	1	
COUNTY	Bond I	DRILLIN					ollow Stem Auger				Uni	known	
STRUCT, NO.	003-0034 (E) 003-0062 (P) 389+70	/	D E P	B L	UC	M O	Surface Water Elev. Stream Bed Elev.			DE	B		M O
Station	10 Bent #11 385+08.63		T	1	S Qu	S T	Groundwater Elev.: First Encounter	440,4	ft I	P T H	O W S	S Qu	S T
Ground Surfac	21.50ft Right e Elev. 454.7	ft	(ft)	(/6")	(tsf)	(%)	Upon Completion After Hrs.		ft ft	(ft)	(/6")	(tsf)	(%)
Gray Clayey SIL	T (continued)	444.00	****************	18	2.90 B	25	Gray Clayey SILT (cor	atinued)			7	1.66 B	22
-	the form order than proper three colors colors.	412.7					End of Boring		393.4		**************************************	D	
Gray CLAY				19	1.17 B	28	NOTE: Value in "Blowed equal to the N-value.	s" column is				The Control of Control	D. Property of the Control of the Co
·					-		, and a second second				maga myanahananananananananananananananananana	#@AARKAGOOPErendosepaquas	MODinance of principles of all common
Annual Control of the			-45	14	1.50	27				-65			The state of the s
	the same with the same and some with the same	4 <u>07.7</u>			В							VI-11-0-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	
Gray Clayey SIL	·	-		10	1.73	30					Control of the Contro	*****	
and the same to be a		405.2	=		В				-	1	den Velkeren, en se sammen, en per per	and the state of t	maniply in the constant and an ender
Dark Brown SILT (Highly Organic v Material)	vith much Plant		-50	38	3.66 S	71			902 -402	-70	ROZÓNIOZNÓW JERON KOMPONY WORKO ZOŁOŁOŚCIA ZOŁOŁOŚCIA ZOŁOŁOŚCIA ZOŁOŁOŚCIA ZOŁOŁOŚCIA ZOŁOŁOŚCIA ZOŁOŁOŚCIA Z	тійн жий далынын женері түгін алартырдардарда	men q = Nije (A Shaka), disho) e service ne si si si si si si si si si
Gray Clayey SILT		402,7			100.1						-	men de de la maria de la proposición de la composición del composición de la composición de la composición del composición de la composición de la composición de la composición de la composición del composición de la composición del composición del composición del composición del composición del composición del compo	
, , , , , , , , , , , , , , , , , , , ,				20	3.26 B	35				- Company	e Personal State and definitions and the state of the sta	e de d'Annes de Allindon Andre	ener basasanany que ép. de Japane
//	) `		-55	histologia (p. 186) amoustaman ny p	and the state of t				_	-75	PRODUCTION AND ADDRESS OF THE PROPERTY OF THE	hiddelalam myy sse fi ddy, afer mann	The disconnection of the State Control and t
X			1	10	2.03 B	32			- who		Mahahal serbanan mayarasa	sometime apply militarious side in the physical sid	Triff or published the state and and quite
					Volasserijo iro česej načenina kar	200			· musé	- Indiana de la constantina della constantina de		1,1	
		***		14	1.96 B	23					ermina to the section of the section	MAN mychototototototototototototototototototot	Manager and American
									Attacker		to the same and th	910000000000000000000000000000000000000	Water State of the



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Date ___5/20/71

ROUTE FAP 793 (FA 149) DESCR	RIPTIO	٧			IL 14	3 over Shoal Creek	LOGG	ED B	Y	C. Hoff	man
SECTION 112BR	LO	CAT	ION _	NW 1	/4, SV	/ 1/4, SEC. 24, TWP. 4N, RNG. 4W	, 3 <b>PM</b>	-			
COUNTY Bond DR	RILLING	3 ME	THOD		Но	illow Stem Auger HAMME	R TYPE		Uni	known	
STRUCT. NO.     003-0034 (E) / 003-0062 (P)       Station     389+70       BORING NO.     11 Bent #12       Station     385+59.91       Offset     21.00ft Right       Ground Surface Elev.     455.2		D E P T H	L O W S	U C S Qu	M O I S T	Surface Water Elev. Stream Bed Elev.  Groundwater Elev.: First Encounter 433. Upon Completion After Hrs.	ft 5 ft ]	/	L O W S	C S Qu	M O I S T
	II.	(14)	-	(131)	(70)	Brown and Gray Silty CLAY		1		(tsf)	
Brown and Tan SILT				and the control of th		(with abundant pellets of Limonit (continued)			5	S S	- 22
		And Andrews	9	0.91	22	Gray Medium SAND	433.5	Ī	1		and the same of th
				S		X				NC	
		-5	40	4 50		Gray Coarse SAND and Fine	430 <u>.7</u>	-25			
			12	1.56 S.	20	GRÁVEL			9	NC	
Brown Silty CLAY	448.2		14	2.27 B	24				26	NC	
		-10				Gray Coarse SAND and Coarse		-30	and the second s		
	443.2		15	2.51 S	23	GRAVEL GRAVEL			34	NC	
Brown and Gray Silty CLAY						Gray SILT	423.2	_		William Administration of the Control of the Contro	Which is the plane of the second at
	-		13	2.41 S	25	(Thixotropic)			34	2.63 S	22
/.U		-15	and the state of t		* Andrew Construction (A)		420.7	-35	and the same of th	obedomach aceb k com-	
	t and		13	1.86 S	23	Gray Slightly Clayey SILT			12	1.50 B	18
	438.2		And the State of Angle States and	Stranger School Street			418.2		Freegy-rights date on ween		Post de La Carte d
Brown and Gray Silty CLAY (with abundant pellets of Limonite)	max		8	1.04 S	25	Gray SILT (Thixotropic)	,		24	2.77 S	23
		20	BU i y tur yan da nada di band	a de agreca de de como en esta	mente i de electro della saladada	,/				Bushing and any of	



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Date <u>5/20/71</u>

ROUTE FAP 793 (FA 149) DESC	CRIPTION	٧		************	IL 14	3 over Shoal Creek	LOGGED E	Y	D. Hoffr	man
						V 1/4, SEC. 24, TWP. 4N, RNG. 4W,				
		ME	THOD	)	Hc	ollow Stem Auger HAMMER	TYPE	Unl	known	
STRUCT. NO.     003-0034 (E) / 003-0062 (P)       Station     389+70       BORING NO.     11 Bent #12       Station     385+59.91       Offset     21.00ft Right       Ground Surface Elev.     455.2		D E P T H	L O W S	U C S Qu (tef)	M O I S T	Surface Water Elev. Stream Bed Elev.  Groundwater Elev.: First Encounter 433.5 Upon Completion	ft P T H ft	B L O W S	U C S Qu	M 0 1 S T
Gray SILT (continued)		(,,,	,,,,,	2.64	-	After Hrs. Gray Slightly Clayey Sandy SILT	_ft (ft)	(/6")	<u> </u>	(%)
(Thixotropic)	413.2		20	S S	44	(continued)  End of Boring	394.0	10	1.50 B	21
Gray Clayey SILT	-		14	1.82 S	28	NOTE: Value in "Blows" column is equal to the N-value.				Per del matematico de constante a mando e e e e e e e e e e e e e e e e e e e
	408.2	-45	12	2.51 B	28		-65		namment vijektikustikus dit väärkemiken monateriussa asa asa	TO THE PROPERTY OF THE PROPERT
Gray Silty CLAY	<u> </u>		12	0.39 B	32		-70	Steelde Anders Anders de Albert en		A TOTAL COMMENT AND A PARTICULAR AND A P
	403.2		10	1.99 B	33		-/0	erente en eus pro-efficients han y ((s) mercente en namen en en en	ten Mahambapp proprocessa dy view docodoron i ni anom	en e
Dark Brown SILT (Highly Organic with much Plant Material)			30	Total and the second se	70			an man man mido priori, decimina de ser el Arrive de presenta de ser el des	manusipi silepija kaadasiinintaksjiis-la-sii silepija pyryyy yeesse	Addition on the state of the st
Dark Gray Slightly Clayey SILT	400.7 - 398.2	-55	13	2.51 S	47		-75 	er e minimum saga-dell'economic metado en l'epop (con con copi de decens		ender en ender Gerosetten deskensjoher, delt beskrivenske bede en eller, in en er er er
Gray Slightly Clayey SILT	320.2	via de la constanta de la cons	and a second sec	2.44 B	23				-t-rol (indentedarus)men yanggapagigatirdaran in	PORM TEAN AND INSTITUTED AND INVESTIGATE PRESENCES, PRISE
Gray Slightly Clayey Sandy SILT	395.7	-60		Trans Control (FR) day Access and	en manne same, i en più est			der Valoreda på das desenten	distribution and a same paper of	eritativiterilerilerilerileri



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Date <u>5/21/71</u>

ROUTE FAP 793 (FA 149) DESC	CRIPTIO	N			IL 14	3 over Shoal Creek	LOGO	SED B	Υ	C. Hoff	man
SECTION 112BR									·		
COUNTY Bond		G ME	THOD	)	H	ollow Stem Auger H	IAMMER TYPE	1	Un	known	
STRUCT. NO.         003-0034 (E)           Station         003-0062 (P)           389+70	and the Marian de Arthur	D E P T	B L O W	UCS	M 0 1	Surface Water Elev. Stream Bed Elev.	ft ft	D III P	B L O		M O I
BORING NO.         12 Bent #13           Station         386+13.35           Offset         21.30ft Right		H	S	Qu	S T	Groundwater Elev.: First Encounter Upon Completion	443.8 ft	A H	S	Qu	S
Ground Surface Elev. 455.7	ft	(ft)	(/6")	(tsf)	(%)	After Hrs.		(ft)	(/6")	(tsf)	(%)
Brown Silty CLAY			and the second s	Additional desirability of the composition and an additional and a second a second and a second	Nama a mana prijeljejeja na cog di dima na maja je je je	Gray CLAY (continued)		+200millionaria	4	1.27 B	26
						Gray Slightly Clayey SILT	433.	7	odddowyd ar at at a dae		
	451.2		6	0.62 E	24			**************************************	11	1.35 S	18
Brown and Tan Clayey SILT		-5	6	0.62	24	Gray Coarse SAND and F	4 <u>31.2</u> ine		18		
				В					10	NC	- and a second s
			5	0.39	26						
	<b>C.</b> (			0.39 B	20				40	NC	
		-10	3	0.26	25			-30	50		
	,	Y	- Transfer of the second secon	В						NC	
	-		3	0.33 B	26	Gray SILT	422.8		23	3.29 S	21
Brown Very Sandy CLAY	441.2	-15		To Alle Williams	Application of the state of the	-	421.2	-35		3	
Brown very Sandy CLAY	_	and the second s	3		27	Gray Silty CLAY (Till) (with small Pebbles)			9	1.27 B	19
The state that the day and state and the sta	438.7_		the state of the s				418.7				
Brown and Gray Sandy Clayey SILT	-		5	0.95 B	24	Gray SILT (Thixotropic)			27	3.17 S	25
Gray CLAY	436.2	20			1 - C. A. C.	Gray CLAY	416.2		William III	3	



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Date <u>5/21/71</u>

ROUTE FAP 79	3 (FA 149	DESCF	RIPTIO	N			IL 14	3 over Shoal Creek		LOGGE	BY	C. Hoffi	man
								/ 1/4, SEC. 24, TWP. 4N,					
COUNTY	Bond	DF	RILLING	G ME	THOO		Нс	Illow Stem Auger	HAMMER	TYPE _	Un	known	
STRUCT. NO Station BORING NO	389 12 Be	9+70 ent #13	derimmus solvalit	D E P T	0 W	U C S	M O - S	Surface Water Elev. Stream Bed Elev. Groundwater Elev.:		ft ft	D B L P O T W	U C S	M O I S
Station Offset	386+	13.35		Н	S	Qu	Т	First Encounter	443.8	_ft 💆	-	Qu	Ť
Ground Surfac	e Elev	455.7	ft	(ft)	(/6")	(tsf)	(%)	Upon Completion After Hrs.		_ ft ft (	ft) (/6")	(tsf)	(%)
Gray CLAY (con (with small Pe	,				14	0.98 B	19	Gray Clayey SILT (con	tinued)	394.3	9	1.79 B	19
						ANGELER BEING ANGELER BEING		End of Boring					
					19	1.43 B	25	NOTE: Value in "Blows equal to the N-value.	" column is	Northpar		and the second s	COLUMN TO THE PART OF THE PART
Gray Silty CLAY		re there while away dealers	411.2	45	17	1.50	28	9,			-65	definition of the control of the con	Malija Arroppi (Voca da la de) da amende amengo (majo, majo, majo, majo, majo, majo, majo, majo, majo, majo, m
		mer alamanyer volondan dispilah andalah	408.7			В				J. Sandaran.		TAXABLE PARTY AND TAXABLE PARTY AND TAXABLE PARTY AND TAXABLE PARTY.	
Gray Clayey SILT			406.2	-50	12	1.30 S	31			- The state of the	70	Pary all districtives and another process propriet and adjusts all parts all parts.	mente en established in les conscions and parties of mente experience experience.
Dark Brown SILT (Highly Organic, I Material)		nt			30	2.22 S	72					en cerempero que e a acame a meçode cada do cito de apó acide arres	And the Assessment of the State of Stat
1 C			401.2		40	2.94 S	76			- And Andrews		THE REAL PROPERTY OF THE PARTY	and Grap a fish of the Astronomeron encycloped and an along a period (see
Gray Clayey SILT			Poli no	-55	16	2.87 B	19				75	Verden before en stepe e Verde sich bestellt, der de jahr before som som dere et	is efilodolista assista antima (pro-yoyoyo (o.o., a) apply (o)
					erkerkerilementasiyasiyasiden dan mentakasi asayası Qelak	1.24 B	20					вести биль и турдал дах	Variation (Variation and State Specific and State Specific Actions)
			near the second		Aprenio Annallin i asi saa		and the second and a second and			***************************************	manufactor strong to	manandament british (constraints)	door a manage of the party of t



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Date 6/7/71

ROUTE FAP 793 (FA 149) DESCRIP	PTION				IL 14	3 over Shoal Creek	LO	GGED I	3Y(	C. Hoff	man
SECTION 112BR	LOC	CATI	ON _	NW 1	/4, SV	/ 1/4, SEC. 24, TWP. 4N.	RNG. 4W, 3 P	M		1	-
COUNTY Bond DRIL	LING	ME	THOD	***************************************	Но	llow Stem Auger	HAMMER TY	PE _	Un	known	
STRUCT. NO. 003-0034 (E) / 003-0062 (P) Station 389+70	-	D E P	B L 0	U C S	M 0	Surface Water Elev. Stream Bed Elev.	ft ft		L	UCS	M 0
BORING NO.         13 Bent #14           Station         386+64.63           Offset         22.00ft Right	difference reason, place	H	S	Qu		Upon Completion	444.2 ft	Ţ H	W S	Qu	S T
Ground Surface Elev. 456.1	ft	(ft)	(/6")	(tsf)	(%)	After Hrs.	n	(ft	(/6")	(tsf)	(%)
Brown SILT	, and					Gray Clayey SAND (co	ontinued)		3	0.16 S	25
	~		10	0.65	24	Gray Medium SAND	43	34.1	1 2		
	· · · ·		-	E			4	716		NC	
		-5	10	0.654	03	Gray Coarse SAND	THE CONTRACT	2			
Brown Silty Sandy CLAY	<u> 50.1</u> _		10	8	23			State	5	NC	
Slowin Only Gardy GEAT								100000000000000000000000000000000000000			
			7	0.49 S	26			No.	7	NC	
		-10		OF THE PARTY OF TH		man that when the control to the con		26 <u>.6</u>	and the same of th	PERSONAL MANAGEMENT AND ADMINISTRATION OF THE PERSONAL PROPERTY AN	
	_		3	0.29 B	30	Gray Coarse SAND and GRAVEL	d Fine		17	NC	
	7						42	4.1			
	-		2	0.33 B	29	Gray Coarse SAND and GRAVEL	d Coarse		26		
10,	-			- 0			42	1.6		NC	
	10-100 10-100	-15	2	0.07 B	29	Gray SILT (Thixotropic)		-35 	19	3.39 S	24
	ntonto	4		-			41	9.1		3	
	depend		4	0.16 B	24	Gray Silty CLAY (with Pebbles) (Till)			15	1.17 B	20
Grav Clavev SAND	36.6										



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Date 6/7/71

ROUTE FAP 793 (FA 149) DESCRIPTION IL 143 over Shoal Creek LOGGED BY C. Hoffman SECTION 112BR LOCATION NW 1/4, SW 1/4, SEC. 24, TWP. 4N, RNG. 4W, 3 PM COUNTY Bond DRILLING METHOD Hollow Stem Auger Unknown HAMMER TYPE 003-0034 (E)/ U STRUCT. NO. ____003-0062 (P) В U Surface Water Elev. M Ε L C 0 Station Ε Stream Bed Elev. С 0 ft P 0 S ı S Т W BORING NO. 13 Bent #14 S W Groundwater Elev.: S Н Qu T **Station** 386+64.63 First Encounter S Qu T ft Offset 22,00ft Right **Upon Completion** ft (ft) (/6") Ground Surface Elev. 456.1 (tsf) (%) After ____ Hrs. (ft) (/6") (tsf) (%) Gray Silty CLAY Gray Silty Sandy CLAY (with Pebbles) 1.89 (continued) 14 1.24 22 (Till) (continued) В В 14 1.79 1.82 21 В -65 Gray Coarse SAND and Coarse 16 28 1.63 25 Gray Clayey SILT Gray Weathered SHALE 0.62 100+ 16 End of Borina Dark Brown SILT (Highly Organic) 1.63 NOTE: Value in "Blows" column is (Wood Stems) equal to the N-value. 28 63 2.17 22 В Gray Silty CLAY 1.82 S Gray Silty Sandy CLAY



Page  $\underline{1}$  of  $\underline{2}$ 

Date 6/8/71

ROUTE FAP 793 (FA 149) DES	SCRIPTION			IL 14	3 over Shoal Creek	LOGGE	ED BY	′	C. Hoff	man
SECTION 112BR	LOCA	ATION	NW 1	/4, SV	V 1/4, SEC. 24, TWP. 4N, RNG. 4W	, 3 <b>PM</b>	·		1	
		METHOD	)	Ho	ollow Stem Auger HAMME	R TYPE		Unl	cnown	
STRUCT. NO.     003-0034 (E       Station     003-0062 (F       BORING NO.     14 Bent #15       Station     387+15.01	delevanta independenta	D B L O T W S	U C S Qu	M O I S T	Surface Water Elev. Stream Bed Elev. Groundwater Elev.:	ft	DHPFI	B L O W S	U C S Qu	M O I S T
Offset 21.00ft Righ Ground Surface Elev. 455	t	verile de Werkenn			First Encounter 443. Upon Completion After Hrs.	4_ft ¥ —ft —ft		(/6")		(%)
Brown Clayey SILT					Gray Clayey Medium SAND (continued)	11		3	0.55 B	
	Securitarian de la constantina della constantina	7	0.98	23	Gray Sandy CLAY	433.2			0.00	700
			B	23		430.7		2	0.68 B	32
	**************************************	-5 11	0.91 B	24	Gray Clayey Medium SAND		-25	2	0.29 B	29
					Gray Silty Sandy CLAY	428.2				
	445.7		0.59 B	26				2	0.33 B	26
Brown and Tan Silty CLAY		10 4	0.29	29		424.9	-30	16		
	27 - 12 - 12 - 12 - 12 - 12 - 12 - 12 -		В	destructions	Gray Coarse SAND and Coarse GRAVEL	423.2			NC	
		4	0.39 B	29	Gray and Brown Medium GRAVEL	•		30	NC	
Brown and Gray Silty CLAY	440.7	15			Gray SILT	420.7	-35	of the presence of the state of		
	**************************************	6	0.81 B	27	(Thixotropic)	es.		39	1.43 S	24
	-	8	0.81 B	29	Gray Slightly Silty CLAY (Till)	417.4		15	1.82 B	20
Gray Clayey Medium SAND	435.7		)		(with small Pebbles)	***		***************************************	D	to the control of the



Page <u>2</u> of <u>2</u>

Date 6/8/71

ROUTE FAP 79	93 (FA 149) DESC	CRIPTIO	N			IL 14	3 over Shoal Creek		LOGGE	ED B	Y	. Hoffi	man
SECTION	1128R	LO	CAT	ION _	NW 1	/4, SV	/ 1/4, SEC. 24, TWP. 4N,	RNG. 4W,	3 <b>PM</b>				
			G ME	THOD	)	Ho	llow Stem Auger	HAMMER	TYPE		Unl	nown	
Station BORING NO Station	003-0034 (E) / 003-0062 (P) 389+70 14 Bent #15 387+15.01		DEPTH	L 0 W	U C S Qu	M O I S T	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter	443.4	_ft	DEPTH	B L O W S	U C S	M O I S T
Ground Surfac	21.00ft Right ce Elev. 455.2		(ft)	(/6")	(tsf)	(%)	Upon Completion After Hrs.		_ ft _ ft	(ft)	(/6")	(tsf)	(%)
The contract of the contract o	oles) (continued)			20	1.50 S	27	Gray Sandy Silty CLAY (continued)			***********	11	0.81 B	21
Gray Slightly Sil	ty CLAY	413.2		16	1.50	29	Gray Coarse SAND and	GRAVEL	392.7		43	helmelo ara a successione de propositione de la companya del companya de la companya de la companya del companya de la companya del la companya de la compan	<del>nd od s</del> ectorization
			-45		S	(				-65	The second secon	NC	minima di manana anta propinsi di Salama
				14	1.24 B	28	Gray Weathered SHALE		388.9	- 1	100+	and the same of th	
	(	405.7	and the state of t	13	1.79 B	31	End of Boring  NOTE: Value in "Blows" equal to the N-value.	column is			form the contract of the contr		
Dark Brown SILT (Highly Organic	T wth Plant Stems)	403.2	-50	40	2.94 S	75				-70		richalmus (s), hefyrink firsklikusutasuskuj spotialakum	and Art (Committee of the Arthur annual Complete of the Committee of the Arthur annual Arthur (Committee of the
Gray Slightly Silt	y CLAY	-		20	2.06 B	22					Andrewski en		Amond de de la companya de la compan
Gray Silty CLAY		400.7	-55	12	1.63 B	23				-75	es en employe i doctorio de la companya de la compa	propulation and analysis policial for the management resonance and appropriate the second second second second	
Gray Sandy Silty	CLAY	398.2		7	0.85 B	20			- constant	The second secon	de andre mente en	emperatura de la constitución de	needwad y minyspillahamy, synddyd ameny mysgisio, abda aca
			50	Lingle Admy of Complements	446/11/11/11/11/11/11/11/11/11/11/11/11/11	And of the control of			ribunes	_	abit thatis que ju person unes	with the action and delicate maps, the	The state of the s



Page  $\underline{1}$  of  $\underline{2}$ 

Date __6/10/71

ROUTE FAP 79	3 (FA 14	9) DESCRI	PTION	i			IL 14:	3 over Shoal Creek	L	OGGE	D BY	<u> </u>	. Hoff	man
SECTION	1128	3R	LO	CATI	ON _	NW 1.	/4, SW	/ 1/4, SEC. 24, TWP. 4N,	<b>RNG</b> . 4W, 3 I	PM	والمعاولة	~~~		
			LLING	ME	THOD		Но	flow Stem Auger	HAMMER T	YPE .		Unk	nown	***
STRUCT. NOStation  BORING NOStationOffset	38 15 Be 3874 21.00	39-70 ent #16 -66.46 ift Right	Salaniar Marianiar	DEPTH	L O W S	U C S Qu	M O I S T	Surface Water Elev. Stream Bed Elev.  Groundwater Elev.: First Encounter Upon Completion	429.0	ft ft	DEPTH	B L O W S	U C S Qu	M O I S T
Ground Surfac	e Elev.	455.6	ft	(ft)	(/6")	(tsf)	(%)	After Hrs.  Gray Silty Sandy CLAY		ft	(ft)		(tsf)	(%)
Dark Brown CLA	Υ					manora manara		(continued)		-		2	0.43 B	32
					11	1.01 S	26					2	0.43 B	31
				-5	6	0.52	-30	Gray Clayey Sandy SIL		4 <u>31.2</u> .	-25	2	0.20	2.7
						E				~~		2	0.29 B	27
Gray and Brown CLAY	Slightly S		448.7		5	0.88 B	29	Gray Sandy CLAY		4 <u>28.0</u> -		***************************************	0.36 B	33
		(C		-10	5	0.29 B	28	Gray Coarse SAND and GRAVEL		426.2	-30	14	NC	
			nana.		3	0.33 B	28					55	NC	
				-15	4	0.52 B	26	Gray SILT	the same same same same same	4 <u>21.2</u> -	-35	25	1.56 B	20
Gray Silty CLAY	ut délak rama sama rama		4 <u>38.7</u> _	- Let grow de access agrif de accessor de grant de actions a	3	0.39 B	26	Gray Slightly Silty CLAY		1 <u>18.7</u> _		16	1.59 B	25
Gray Silty Sandy	CLAY	or over some some management	136.2							مىرد. م			-	



Page  $\underline{2}$  of  $\underline{2}$ 

Date 6/10/71

ROUTE FAP 793 (FA 149) DESCRIPTION	)N			IL 14	3 over Shoal Creek	L	.OGGED B	Y	. Hoffi	man
SECTION 112BR LC										
COUNTY Bond DRILLIN								Unk	nown	
003-0034 (E) / STRUCT. NO. 003-0062 (P) Station 389-70	D E P	1	U C S	M 0	Surface Water Elev Stream Bed Elev.		ft D E p	B L O	U C S	М
BORING NO.         15 Bent #16           Station         387+66.46           Offset         21.00ft Right	Т	w s	Qu	S T	Groundwater Elev.: First Encounter Upon Completion	429.0	ft Y H	W	Qu	S T
Ground Surface Elev. 455.6 ft Gray Slightly Silty CLAY	(ft)	1			After Hrs.		ft (ft)	(/6")	(tsf)	(%)
(continued)		16	1.66 S	25	Gray Silty Sandy CLAY (continued)		394.5	9	1.17 B	21
Gray SILT	7	Wormstein der	of the control of the same than the control of the control	A MONTH OF THE PARTY OF THE PAR	End of Boring				AND INTRODUCES IN THE PROPERTY OF THE PROPERTY	
Gray SILT		72	1.46 S	25	NOTE: Value in "Blows equal to the N-value.	" column is		e de entre de la composition de la depuis	Militar A A A A College Colleg	
	***	Motor and Market and American	de de la composição de la				ortanite de la composition della composition del	Annella approprieta policana.		
Gray CLAY		16	1.43 B	28			65			And the state of t
									de conserve anno antique de principal de la construira.	eledergrammente de data, jung jelemen
		13	2.03 B	31				Mary Perfession in National States	Add at his of \$7000 than the grade December	Production of the Control of the Con
406.2	-50							anner um çe şêşijê çe,,,,i,i,,,,,,	urdenne þeil der þer rærði neve onn	
Dark Brown SILT (Highly Organic with Plant Stems)		50	2.79 S	64	To the state of th		70	JAKU KANDERSON KANDANAN AND BURGO		and distributed the second consequent
403.7								More transmission of the design of the second		reproductive and a decrease and the second s
Gray Slightly Silty CLAY		15	2.27 B	21					Bobba Bay reconstruction and a second	обласов аанубанору вуубозого
	-								and the second s	
	-55	15	2.28	21			-75		Parkamoresponessinala	
			В					man the section of th	m-b-Pyry-dyry-ddaman, physic pro-	On the desired the second second
		13	1.73	23				) () — Pool State (new finds the proper processes	After the second of the second	er merer han polytyke de nobes dada
			В					Account of the contrast	WILDIAM COURT COURT A	
Gray Silty Sandy CLAY 396.2			Processing Constitution					edit selenjemelje tejeve	december proof in processed	ere principles of principles and a second an



#### of Transportation SOIL BORING LOG

Page  $\underline{1}$  of  $\underline{2}$ 

Date __6/11/71

ROUTE FAP 793 (FA 149) DESCRIPTION | IL 143 over Shoal Creek | LOGGED BY | C. Hoffman SECTION 112BR LOCATION NW 1/4, SW 1/4, SEC. 24, TWP. 4N, RNG. 4W, 3 PM COUNTY Bond DRILLING METHOD Hollow Stem Auger Unknown 003-0034 (E)/ STRUCT. NO. ____003-0062 (P) Surface Water Elev. В U Μ Ε L C 0 Station ____ Stream Bed Elev. E C 0 ft P 0 S I I Т W BORING NO. 16 Bent #17 S Groundwater Elev.: W S H S Qu T Station 388+16.89 S First Encounter Qu T Offset 21.00ft Right **Upon Completion** ft (ft) (/6") Ground Surface Elev. 456.6 (tsf) (%) After ____ Hrs. (ft) (/6")(%) Gray Sandy Silty CLAY Brown Clayey SILT 0.49 28 (continued) 3 В Gray Medium SAND 1.82 5 S NC Gray Coarse SAND and Coarse GRAVEL 0.90 23 S NC Brown Silty CLAY 0.46 23 NC 0.52 26 В NC 0.16 (Thixotropic) NC Brown and Tan Sandy Silty CLAY Gray SILT 0.26 1.43 22 S (Thixotropic) (Thixotropic) Gray CLAY (Till) 0.43 36 0.39 18 (with small Pebbles) Gray Sandy Silty CLAY В (Thixotropic) Gray Slightly Silty CLAY



Page  $\underline{2}$  of  $\underline{2}$ 

Date __6/11/71_

ROUTE FAP 79	93 (FA 149)	DESCRIPT	ION _			IL 14	3 over Shoal Creek	LOGG	GED BY _	C. Hoff	man
							V 1/4, SEC. 24, TWP. 4N				
COUNTY	Bond	DRILL	ING ME	ETHOD		Ho	ollow Stem Auger	HAMMER TYPE	Ur	nknown	
STRUCT. NOStation	003-003 003-00 389-	34 (E) / 162 (P) +70	D E P	L	UCS	M 0 -	Surface Water Elev. Stream Bed Elev.	ft ft	D B E D O	С	M O
BORING NO Station Offset	388+1	6.89	T H	(	Qu	S T	Groundwater Elev.: First Encounter	442.4 ft	T W		S T
Ground Surfac	e Elev.	456.6 1	t (ft)	(/6")	(tsf)	(%)	Upon Completion After Hrs	ft	(ft) (/6"	) (tsf)	(%)
Gray Slightly Sil (continued)	ty CLAY			14	1.37 B	29	Gray Silty CLAY (contin	nued) 395.	11	0.98 B	23
			- Contract	20	0.98	29	End of Boring				
Anna Anna Anna Anna Anna Anna Anna Anna				20	S S	29	NOTE: Value in "Blows equal to the N-value.	" column is		and William mondage chance and make a partie of the control of the	The state of the s
Participation of the Participa			-45	16	1,11	30	0		-65		nde denormande opp Adok somman sprog glip og Gal
			4		В	1.000					
		<b>C.</b>		13	0.88 B	31			un erretoren	dan maka-dajin koping spilaka ma madapa yaya mida.	The second secon
Dade Drawn Cill T		406	4 -50	20	1.66	66			-70	ANA Objektor monoverska askada je je pravadajnje objektor se objektor se objektor se objektor se objektor se o	er den delekstaten mendepengepungan dan Julya Ag
Dark Brown SILT (Highly Organic v	vith Plant S	tems)			S				***************************************		denden or or other deases and public military in its contraction.
				28	and experience of the contract	74				e Processio — moneto e manana	
Gray Slightly Silty	CLAY	402.	-55	Parameter and property of the section of the sectio	1.82 B	22			-75 -75	Without the side of the second constraints and constraints and desired in the second constraints.	medium milyami (A-sumining-phay (2016) ) (Antonio (1018) in minera (1018)
▼				10	0.72 B	26				eminos estados de estados esta	AASAA + + 0.0000, edocentra-aasaa - essá jupajos, job dom (m. N. a
Gray Silty CLAY	status white compe which ap-	397.	80	And deposit data to managery and control		The latest and the la			10 N T T T T T T T T T T T T T T T T T T	O P COMPTON PERMIT	Nadahahah (Madaha pyumunin ng



Page  $\underline{1}$  of  $\underline{2}$ 

Date __6/21/71

ROUTE FAP 793	(FA 149)	DESCRI	PTIO	N			IL 143	3 over Shoal Creek		LOGGE	D B	Y	. Hoffi	man
SECTION	112BF	}	LO	CAT	ON _	NW 1.	/4, SW	/ 1/4, SEC. 24, TWP. 4N	RNG. 4W.	3 <b>PM</b>	****			
				Э МЕ	THOD		Ho	Ilow Stem Auger	HAMMER	TYPE		Unl	known	
STRUCT. NOStation	389- 17 Ben	+70 it #18		D E P T H	B L O W S	U C S Qu	M O I S	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter	444.9	_ ft	DEPFH	B L O W S	U C S	M O I S T
Offset Ground Surface	19.50ft	Right	 ft	(ft)	(/6")	(tsf)	(%)	Upon Completion	744.5	ft ft		(/6")		(%)
Brown Silty CLAY				Print management			The state of the s	Gray Clayey SAND (co	ontinued)			4	0.43 B	25
					7	1.70	24	Gray Mêdium SAND a GRAVEL	nd Coarse	4 <u>34.9</u> _		4	And the second s	
mend timer with their state heigh while their same		4	4 <u>52.4</u>	-5		S			denote seems became training any	432.4			NC	hadring the second property of the second pro
Brown Clayey SIL	T				9	1.11 S	24	Gray Coarse SAND an GRAVEL	d Coarse	-	-25	3	NC	
					4	0.59 B	24					40	NC	
				-10	3	0.33 B	26			on.	-30	40	NC	
Brown Silty Sandy	OLAY	4	44.9	Y						_424.9 _			The second secon	policy definition and the style of the style
(Thixotropic)	CLA		-		3	0.33 B	27	Gray SILT		-		22	0.81 B	21
Brown Silty CLAY  (Thixotropic)			42.4	-15	4	0.68 B	28	Gray Slightly Silty CLA' (with small Pebbles)	 Y (Till)	422.4	-35	12	0.75 B	20
		4	3 <u>9.2</u> -		5	0.33	24			- Series - V-200		10	1.1	20
Gray Silty Sandy C (Thixotropic) Gray Clayey SAND			37.4	-20	mahdonasoo di lahiili jebbaan dabbaba	В	Manager and an anti-manager and an anti-manage						В	



Page 2 of 2

Date 6/21/71

ROUTE FAP 793 (FA 149) DESC	RIPTIO	N	***************************************		IL 14:	3 over Shoal Creek		LOGGI	ED B'	Y	. Hoffr	man
SECTION 112BR										Photoshibosomanasasasasa	1	
COUNTY Bond D		G ME	THOD		Ho	illow Stem Auger	HAMMER	TYPE		Unk	nown	
STRUCT. NO.     003-0034 (E) / 003-0062 (P)       Station     389+70       BORING NO.     17 Bent #18       Station     388+69.23	-	D P T H	B L O W S	U C S	M O I S T	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter	444.9	ft	DEPFH	B L O W S	U C S Qu	M O I S T
Offset 19.50ft Right Ground Surface Elev. 456.9		(ft)	(/6")	(tsf)	(%)	Upon Completion After Hrs.		ft ft		(/6")	(tsf)	(%)
Gray Slightly Silty CLAY (Till) (with small Pebbles) (continued)			16	1.37 S	26	Gray Silty Sandy CLAY (continued)		395.7		15	1.07 B	21
	440		25	1.50 B	28	End of Boring  NOTE: Value in "Blows equal to the N-value.	s" column is		To College Address of the College Address of		The specific the specific terms and the specific terms are the speci	
Gray Silty CLAY	412.4	-45	18	2.27 B	30				-65	оолындерердинен оп вология сология для дамере предуставления	Hillian Parameter property Medical Late and the Parameter Science Associated by the Parameter Science	
Dark Brown SILT	407.4	50	32	0.75 B	29				-70			
(Highly Organic with Plant Stems)			32	S S				-		des d'Ambres des de une mois me un product décide en la mois de de	hefma me rissoo na sa sijiin biqifik qiliyeke pribabilah disibilah di	to Cold had a ship in spire of the Spire of
	_402.4		38		71					rije elektrisist kalanda	And the state of t	Mara de de de esta en e
Gray CLAY		-55	16	2.06 B	22			-1	-75	особу, явля вызава за ф.—1 БДР обучатуюм, обоку, вызада маказа	er yn yn ym ym ac	
			14	2.17 8	24						a (19) An America (minorita mala mana populari populari pa	Removable the descrimination of Francis Laborates and analysis the proper
Grav Silfy Sandy CI AV	397.4	-	obiobs, hiderben	open commercial contractions and contractions and contractions are contracting as the contraction of the con	ALLES AND THE STATE OF THE STAT							



Page  $\underline{1}$  of  $\underline{2}$ 

Date 6/22/71

ROUTE FAP 793 (FA 149) DESCRIP	PTION		-	IL 14	3 over Shoal Creek	LOGGE	D BY	C. Hoffr	nan
SECTION 112BR								1	
COUNTY Bond DRIL	LING ME	THOD	)	Ho	llow Stem Auger	HAMMER TYPE	Un	known	-
STRUCT. NO.         003-0034 (E) / 003-0062 (P)           Station         389+70           BORING NO.         18 Pier #1           Station         389+00.4           Offset         21.30ft Right	Н	L O W S	U C S Qu	MOIST	Surface Water Elev. Stream Bed Elev.  Groundwater Elev.: First Encounter Upon Completion	ft 446.6ft <b>Y</b> ft		S Qu	M O S T
Ground Surface Elev. 457.6	ft (nt)	(/6")	(tsf)	(%)	After Hrs.	ft	(ft) (/6")	(tsf)	(%)
Brown Silty CLAY		eret od mannerskinde og eret forderet det det eret	MONTH CONTRACTOR AND	erando a martina de la companya de l	Gray Sandy Silty CLAY (some Organics) (continu	ded) 435.6	3	0.43 B	32
4	153,1	9	1.18 E	22	Gray Clayey SAND		4	0.26 B	33
Brown SILT	-5	9	1.18 S	21	Gray CLAY (with some Organics)	432.4	-25 4	1.17 B	34
		6	0.46 B	22	Gray Coarse SAND	430.6 _	24	NC	TO A A Franch Association and Management and Association and A
Brown Silty CLAY	48.1 -10	3	0.13 B	25	Gray Coarse SAND and C		-30 40	NC	
(Thixotropic)		2	0.07 B	27			38	NC	Andreas and Andreas (Andreas (
Brown Sandy Silty CLAY  (Thixotropic)	43.1	2	0.16 B	26		ener.	-35 - 56	NC	
Gray Sandy Silty CLAY (some Organics)	40.6	3	0.33 B	27			52	NC	
		Alabahaman	of the second	And the section of th	Grav Sli T	418.1	diameter (A)	the second secon	



Page 2 of 2

Date __6/22/71

ROUTE FAP 793 (FA 149) DESCRIPTION IL 143 over Shoal Creek LOGGED BY ___C. Hoffman SECTION 112BR LOCATION NW 1/4, SW 1/4, SEC. 24, TWP. 4N, RNG. 4W, 3 PM Bond DRILLING METHOD COUNTY Hollow Stem Auger Unknown HAMMER TYPE 003-0034 (E) / D В U M STRUCT. NO. 003-0062 (P) В U Surface Water Elev. M Е L C 0 Ε C Stream Bed Elev. 0 ft Р 0 S ě S 1 Т W S BORING NO. 18 Pier #1 Groundwater Elev.: S 
 Station
 389+00.4

 Offset
 21.30ft Right
 Η S Qu T First Encounter S Qu T 446.6 **Upon Completion** ft Ground Surface Elev. (ft) (%) (/6")(tsf) (ft) (/6")(tsf) (%) ft Gray SILT (continued) Gray Silty Sandy CLAY 23 1.90 1.50 22 40 (continued) 6 S В (Thixotropic) End of Boring NOTE: Value in "Blows" column is equal to the N-value. 30 1.32 S (Thixotropic) Gray Clayey SILT 2.28 27 1.53 405.6 Dark Brown SILT (Highly Organic with Wood Stems) 2.42 56 S 403.1 10 1.70 35 Gray Silty Sandy CLAY 1.73 В



Page  $\underline{1}$  of  $\underline{3}$ 

Date 10/6/14

ROUTE FAP 793 (FA 149) DESCRI	PTIO	ν	Debriologica e exemplesso		IL 14	3 over Shoal Creek	LOGGI	ED B	Y	JAS (T	Si)
SECTION 112BR	LO	CATI	ON	NW 1	/4, SV	/ 1/4, SEC. 24, TWP. 4N, RNG. 4W,	3 <b>PM</b>		train district de la companya de manda de la companya de la companya de la companya de la companya de la compa	1	
COUNTY Bond DRIE	LLING	3 ME	THOD	W-W-L-Weimen-	Ho	illow Stem Auger HAMMER	₹ TYPE		40# A	utome	ıtic
STRUCT. NO.   003-0034 (E) /   003-0062 (P)	-	D E P H (ft)	B L O W S	U C S Qu (tsf)	M O - S T (%)	Surface Water Elev. Stream Bed Elev.  Groundwater Elev.: First Encounter 437.0 Upon Completion After Hrs.	ft ft ¥		B L O W S (/6")	U C S Qu (tsf)	M O I S T
Brown (Moist, Medium Stiff) Silty CLAY with Trace Gravel	454.0					Gray (Moist, Very Loose) SAND (continued)	Action of the Control	, ,			
Brown (Moist, Loose) Fine Sandy LOAM See Gradation @ 2 ft	150 N		3 4	NC	14				2 2 3	NC	22
Brown (Moist, Medium Stiff) LOAM A-4(3) See Class @ 5 ft		1	2 3 2	200 200	21			-25	3 3 2	NC	25
Limestone Pieces	,		4	The second secon	11	Gray (Moist, Loose) Sandy LOAM			2	NC	20
Soft		-10	2 2 2 2	0.57 B	23	Gray (Moist, Medium Dense) SAND with Trace Wood Pieces See Gradation @ 30 ft Trace Gravel		-30	3 5 5	NC	16
Very Soft	-		WH WH	0.16 B	29		423.0		tem (27) A to the delicate of photos del manusca communicate del section del s		
Gray	-	Ch.	WH WH	opunite.	26	Gray (Moist, Stiff) Silty Clay LOAM with Trace Limestone Pieces and Gravel	-	-35	5 4 4	1.23 B	18
	38.0		WH		27		, abi		and the second s	delphilifipes de fechde ach nemes new protection to mankamengaphysyste.	QLilan Bala Majori Po PRIP (A0010.0000 (voji) tra niši razazaza
Gray (Moist, Very Loose) SAND See Gradation @ 20 ft Gray & Brown, Loose		-20	1 2 3	NC	23		ina.	40	2 4	1.02 S	*8



Page 2 of 3

Date 10/6/14

ROUTE FAP 793	(FA 149) DESC	RIPTIO	Ν			IL 14	3 over Shoal Creek		LOGGI	ED BY		IAS (T	Si)
							/ 1/4, SEC. 24, TWP. 4N,						
			G ME	THOD		Ho	illow Stem Auger	HAMMER	TYPE	1	40# A	utoma	tic
STRUCT. NO Station BORING NO	389+70		D E P	B L O W	UCS	M O I S	Surface Water Elev. Stream Bed Elev. Groundwater Elev.:		_ft _ft	D E P	BLOW	U C S	M 0 1
Station Offset	389+14 26.00ft Right	Pro-Pro-Monday (Marie Const.)	Н	S	Qu	T		437.0	_ ft _ ft		s	Qu	S T
Ground Surface Gray (Moist, Stiff)		ft	(ft)	(/6")	(tsf)	(%)	After Hrs.		ft		(/6")	(tsf)	(%)
LOAM with Trace Pieces and Grave	Limestone						Gray Weathered SHAL	E	_394.5	-	delata de la constanta de la c	restablished de de manuer en en en en Paris, de crossida a de jedes despera	
				_							ANNELS STEELS AND ANNELS AND ANNE	nhweenhissiesses	And desired to a series of the
		410.5		5	2.00	23			390.5		50/5"	-	15
Gray (Moist, Stiff)	Silty CLAY	408.0	-45	5	S		Borehole continued with coring.	h rock		-65	n bell dep ( u m) menemente interes debende men en en per proceso		POTERTOCIO CHECHE REGISTRA DE LA CAPITACIÓN (PER ACESTA DE LA CAPITACIÓN D
Gray to Brown (Mo Silty Clay LOAM w A-7-5(21) See Class @ 50 ft	vith Organics		-50	7 9 14	2.00 S	67			-	-70			Моней на выполня учений выполня на пределений выполня на пределений выполня выполня выполня выполня выполня вы
Gray (Moist, Medit CLAY	um Stiff) Silty	403.0		and the control of th					-	And the state of t	manda y pop (D) populje, do abd a abd an y e meja penemenja so	AND THE RESIDENCE OF THE PROPERTY OF THE PROPE	үчүн болданийникасу (-) 4 ( ( ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )
<-C			-55	4 3 4	1.84 S	22				-75	териту да 4 май дамана май дор дорогова продава ана бол на навала на труг	and dependence and a constraint of the second of the secon	e annual menerily igiji diriji makada kerjeja menikar iba aya karana seriye menye a karana seriye a
Gray (Moist, Stiff) ( Trace Gravel	Clay LOAM with	_3 <u>98.0</u> _ - -		4	0.69	16			*****	To combine the second s	distandishahahappandishinishahmam:n====1/cassah=====drumn	ческа аны алық түрінде бұрадыр бұрақтарында адырда адырда желерінде же	



#### **ROCK CORE LOG**

Page  $\underline{3}$  of  $\underline{3}$ 

Date __10/6/14

ROUTE FAP 793 (FA 149) DESCRIPTION   IL 143 over Shoal Creek		_ L(	OGGE	D BY	JAS	(TSi)
SECTION 112BR LOCATION NW 1/4, SW 1/4, SEC. 24, TWP. 4N, RNG						
COUNTY Bond CORING METHOD			R		CORE	s
Core Diameter 2 in	D E P	COD	E C O V L	R Q	T M	T R E N
20.00K Tright	H	RE	E R Y	D	E	G T H
390.50	(ft) -65	(#)	(%) 100	92	(min/ft)	(tsf)
Gray, Soft to Moderately Hard, Slightly Weathered, Thin to Thick Bedded, Finely Grained SHALE		1	100	92	The state of the s	And the second s
		1	100	92	1	
	1	1	100	92	1	
		1	100	92	1	
	-70	2	100	85	Agrana	di
	- Control of the Cont	2	100	85	*	
	A STATE OF THE STA	2	100	85	1	
	-	2	100	85	1	
380.50		2	100	85	4	
END OF BORING AND ROCK CORE	-75	e bez a selle de desde de la periodica de la constanta de la c	- Annie de la constitución de la	and the same of the same		
	The second second	Commission of the Commission o	end terminal	woorstoos caspasa.	and dependence of the second control of	Annoning Overden and the new
			And Alley helife of the connection of	derentrollenamental state	есская адууствуу русууу,	***************************************
		Prof. Og 11 Contraction of the C	9000 BC 9128 BARBERTO BABBARTO	And distance and the spirit of the control	divide de amb les montes de condices	Manage ( American and American)
		department of the second department of the sec		Ada-Add Fared (Insurance on you	gengeronalakan any si g	
	80	tera in production designations (see		ecu versusadores qui propiis		
		Catalana de Catalana de Propinsión de Catalana de Cata	(commandament)	at the same of the		Commence of the Commence of th
	-	Witch Commencer	MinePersonnerpointaina	wheeleftercontainment	menday (mandelaning)	recomment of the control of the cont
	_	-	100	de debrechtshammennen an	And the state of t	Terronalina dinamena asa
nemotion (					pilling opinion in a second	

Color pictures of the cores

Cores will be stored for examination until Yes

The "Strength" column represents the uniaxial compressive strength of the core sample (ASTM D-2938)



Page 1 of 3

Date 10/7/14 ROUTE FAP 793 (FA 149) DESCRIPTION | IL 143 over Shoal Creek LOGGED BY JP (TSi) SECTION _____ 112BR ____ LOCATION _ NW 1/4, SW 1/4, SEC. 24, TWP. 4N, RNG. 4W, 3 PM COUNTY Bond DRILLING METHOD Hollow Stem Auger HAMMER TYPE 140# Automatic 003-0034 (E) / STRUCT. NO. 003-0062 (P) Surface Water Elev. М Ε C Station L 0 E Stream Bed Elev. C 0 0 S I Ō S I Т BORING NO. W S W Groundwater Elev .: S 390+20 Qu Т Station _____ First Encounter Н S Qu T 26,00ft Right Upon Completion Ground Surface Elev. 456.0 (/6") (ft) (tsf) (%) After ____ Hrs. (/6") (tsf) (%) Gray Silty CLAY (continued) 435.5 Brown Clay LOAM with Trace Weathered Limestone Pieces 4 Grav SAND WH A-6(6) See Gradation @ 25 ft 4 See Class @ 1.5 ft 1 NC 22 5 3 Rotary Wash Brown Silty Clay LOAM 3 A-4(6) 3 1.19 Trace Fine Gravel 3 NC 22 See Class @ 5 ft 3 3 NR 3 NC 18 Gray Silty Clay Parting 8 Gray Fine to Coarse SAND with 8 Fine to Medium Gravel 13 NC 15 See Gradation @ 30 ft 16 WH WH 0.16 WH Gray SILT Brown LOAM WH 10 25 See Class @ 15 3.92 22 2 16 440.5 Gray Silty CLAY WH WH 0.57 WH WH 14 0.41 35 17 1.83 22 3

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Date 6/23/71

ROUTE FAP 79:	3 (FA 149	9) DESCRI	IPTIO	N			IL 14	3 over Shoal Creek	LOGG	ED B	Υ(	C. Hoff	man
SECTION	112E	3R	LO	CAT	ION _	NW 1	/4, SV	V 1/4, SEC. 24, TWP. 4N, RNG. 4\	N, 3 <b>PM</b>		***************************************	1	
				3 МЕ	THOD	)	Ho	ollow Stem Auger HAMM	ER TYPE		Un	known	<u> </u>
STRUCT. NO	003-0 003-0 38	034 (E) / 0062 (P) 9+70		D E P	B L O	UCS	M 0 -	Surface Water Elev. Stream Bed Elev.	ft	D E p	BLO	UCS	M O
BORING NO. Station Offset	390+ 20.70	-39.66 Oft Left	anti-manage.	H		Qu	S T	Groundwater Elev.: First Encounter 442 Upon Completion	2.4 ft 1	T H	W	Qu	S
Ground Surfac	e Elev.	456.6	ft	(ft)	(/6")	(tsf)	(%)	After Hrs.	ft	(ft)	(/6")	(tsf)	(%)
Brown Silty CLA	Y				orroop o constante pour management			Brown Coarse SAND (continue	d)		9	NC	
					5	0.39	24				12		
				******		В				-Myrandydy		NC	
Brown Sandy SIL		ener energe sende velaser sende sende	452.1	-5	4	0.00		Brown Coarse SAND and Fine	432.1	-25		With the control of t	Average of the common of the c
					4	0.26 S		GRAVEL			2	NC	The decommend of the state of t
			448.9					Gray Sandy Silty CLAY	429.6	-			
Brown Medium S	AND		170.0		6	NC		Oldy Canay Chity CLA!	428.4		22	0.03	26
			447.1	-10		NC		Gray Coarse SAND and Fine to Medium GRAVEL		-30		<u>B</u>	
Brown Sandy CL	AY				5	0.29 B	22				27	NC	
					2	0.10	27	Gray Very Sandy SILT	424.6				·
			442,4 ]	¥-	error error.	В	21				45	0.69 S	19
Brown and Gray	Sandy Cl	LAY	-	-15	2	0.07	28	Gray Sandy SILT (with Coarse Gravel embedded)	422.1	-35	60	1.83	*4
		* ******	4 <u>39.6</u>	managas Tamp garaterana		В	Arraneous	(Thixotropic)	419.6			S	AMARIA COMMISSIONI DE LA COMMISSIONI DELLA COMISSIONI DELLA COMISSIONI DELLA COMMISSIONI DELLA COMMISSIONI DELLA COMMISS
Brown Coarse SA	ND		vio	and the same of th	15	NC		Gray SILT (Thixotropic)			60	2.42	22
			-1-		among the control of			Gray Silh: CLAY	417.1		and a second and a second and a second as	S	And the second s



Page  $\underline{2}$  of  $\underline{2}$ 

Date <u>6/23/71</u>

ROUTE FAP 79	3 (FA 149) DES	SCRIPTIO	N	*****************		IL 14:	3 over Shoal Creek	MACANIA SA	LOGGE	ED BY	/	. Hoffi	man
SECTION	112BR	LC	CAT	ON _	NW 1	/4, SW	/ 1/4, <b>SEC</b> . 24, <b>TWP</b> . 4N	, <b>RNG</b> , 4W, 3	PM				
			G ME	THOD		Но	llow Stem Auger	HAMMER	TYPE		Unk	known	
STRUCT. NOStationBORING NO	389+70		D E P T	0 W	UCS	M O I S	Surface Water Elev. Stream Bed Elev. Groundwater Elev.:		ft	DEPT	B L O W	U C S	M O I S
Station Offset	390+39.66 20.70ft Left		Н	S	Qu	T	First Encounter Upon Completion	442.4	ft ¥		S	Qu	Ť
Ground Surface Gray Silty CLAY		.6 ft	(π)	(/6")		<u> </u>	After Hrs. Gray Silty Sandy CLA		ft	(ft)	(/6")	(tsf)	(%)
(with Pebbles) (Organic) (Till)	,			11	1.24 B	18	(continued)		395.4		8	0.68 B	21
(1181)							End of Boring					To the second se	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA
			-	14	1.17 B	18	NOTE: Value in "Blow equal to the N-value.	s" column is			e de la constanta de la consta	de establisma sellem have a hypothysystem	stronover augspipping stimpoons
			-45						-		Maliture da ye optiyoda himida ass	aboli utati i se coma ha coma an	
				20	2.31 B	22			-	<u>-65</u>		The state of the s	
		409.6							**			médicalisación atación	ale es a de la colonia de la c
Gray Clayey SILT	Г			18	1.50	35			-		Printed and the state of the st	pereprefisablendrotte ere e	malabata ga ga ya
anne billa billa stene stene salar salar sagar appar ap	• ··· <u>·</u> ·	407.1			В				···	-70	Manage of the first was the assessment of the physicisty to pro-	ni Andri Californi Service (Antre constitutata de la peri per p	
Dark Brown SILT (Highly Organic w		()		30	2.22 S	71			÷	<u>-70</u>	Andrew State Communication of the Communication of		hadig I dan san managanan
-		404.6		and discount of the last						-	and the second s	REPRESENTATION OF THE PROPERTY	Water the section of the property of the later
Gray Silty CLAY			_	7	1.37	34						mete sprank/dambandomptomp	SSANA Labeleura a canappopola
10		402.1			В	A District Control of the Control of			100.00			err Velicité de Josephaneses	de sentan menten en e
Gray Slightly Silty	CLAY		-55	4-	1.76	22				-75	Assertance and	demand the contribution of	Ministrative days are seen and the second
			Lista de la Carte		В				***	Andrew states and a second	Andrew Contraction of the State	teatron management (statement of the statement of the sta	тений на выполнять поддуст
Ť		-	-	-					Seesa		- 000 data dan bergi di phanasanana	Saddhanasa and the sagene	THE COUNTY OF THE SAME
				7	1.50 B	20			Visiting		As de distance of the control of the	eated (0,000/kateka.esteka.estek	ddd ddwyddwyddynau acae
Gray Silty Sandy (	CLĀY	397.1		AND THE PARTY OF T		distance of the second			tutted		and the second s	An-Address and a second as a s	Material Residence and physiciphy of place



Page  $\underline{1}$  of  $\underline{2}$ 

Date 6/24/71

ROUTE FAP 793 (FA 14  SECTION 112  COUNTY Bond  O03-0  STRUCT. NO. 003-( Station 38  BORING NO. 20 Be Station 390+ Offset 22.90 Ground Surface Elev.  Brown SILT  Brown SlLT  Brown Sandy CLAY	DRIL 0034 (E) / 0062 (P) 89+70 ent #19 +74.09 Oft Left 455.1	LOC	D E P T H	THOU B L O	NW D U C S	1/4, S	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Upon Completion	HAMMER  438.3	3 PM TYPE  ft ft ft ft ft	D E P T H (ft)	Un B L O W S	knowr C S Qu (tsf)	N C I S T
STRUCT. NO. 003-0 STRUCT. NO. 003-0 Station 38  BORING NO. 20 Be Station 390+ Offset 22.90 Ground Surface Elev.  Brown SILT  Brown Clayey SILT  Brown Sandy CLAY	DRIL 10034 (E) / 10062 (P) 139+70 ent #19 1+74.09 10ft Left 1455.1	ft	D E P T H	B L O W S (/6")	U C S Qu (tsf	N C I S T T	Surface Water Elev. Stream Bed Elev. Groundwater Elev.: First Encounter Upon Completion After Hrs.	HAMMER 438.3  (continued)	TYPE  ft ft ft	D E P H (ft)	B L O W S (/6")	Qu (tsf)	NO I S T
STRUCT. NO. 003-( Station 38  BORING NO. 20 Be Station 390+ Offset 22.90 Ground Surface Elev.  Brown SILT  Brown Clayey SILT  Brown Sandy CLAY	0062 (P) 99+70 ent #19 +74.09 Oft Left 455.1	ft	E P T H	L O W S (/6")	C S Qu (tsf	(%	Stream Bed Elev.  Groundwater Elev.: First Encounter Upon Completion After Hrs.	438.3 O (continued)	_ ft _ ft _ ft	E P H (ft)	B L O W S (/6")	Qu (tsf)	NO I S T
Brown Clayey SILT  Brown Sandy CLAY  Brown Silty Slightly Sandy		50.6	-5	70,000		24	Brown Medium SANE	) (continued)			9	NC	(/6
Brown Clayey SILT  Brown Sandy CLAY  Brown Silty Slightly Sandy		50.6	1/2	70,000		24					13		Fed mois tables brooks - class required
Brown Clayey SILT  Brown Sandy CLAY  Brown Silty Slightly Sandy			-5	6						T .		NC_	
rown Silty Slightly Sandy	· <u>44</u> 8		_		0.59 B	20	Gray Fine SAND and I		430.6	-25	25	NC	·
				3	0.16 B	25	¥				1	NC	
	445 CLAY	5.6	10	2	0.13 B	31	Gray Medium SAND ar GRAVEL	nd Medium	all records and re	-30 4	0	NC	
(Thixotropic)	440.	6		2 (	D.20 B	30	Gray Slightly Silty CLAY (with Pebbles)		423.1	1	3 0	.98 B	17
own Sandy CLAY (Thixotropic)	438.3	~ ***	5	1 0	J.16 B	28	Gray Coarse SAND and GRAVEL	-	120.6	35	ļ	4C	design destruction of the second seco
own Medium SAND	- was start to see a second to s	The contract of the contract o	8		#C		Gray Slightly Silty CLAY (with Pebbles)		18.1	10	1	65 2	21



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Date 6/24/71

(with Pebbles) (continued)  11   0.85   19   8   9   15   1.46   8   9   9   15   1.46   8   9   9   9   9   9   9   9   9   9	ROUTE FAP 7	93 (FA 149) DES	CRIPTION			IL 14	13 over Shoal Creek		LOGG	ED R	Y c	عملا ٢	fra
COUNTY   Bond   DRILLING METHOD   Hollow Stem Auger   HAMMER TYPE	SECTION	112BR	LOCA	TION	NW ·	1/4, SV	V 1/4, SEC. 24, TWP. 4N	. RNG 4W/	3 PM			4	:# FFC##
STRUCT. No.   003-0062 (P)   Continued	COUNTY	Bond	DRILLING N	<b>I</b> ETHOI	D	Ho	ollow Stem Auger	HAMMER	TYPE		Uni	known	
Station   399+74-99	STRUCT. NO	003-0034 (E) 003-0062 (P 389+70		) B L ) O	UC	M 0	Surface Water Elev.		ft /	DE	B	U	M 0
Cray Slightly Silty CLAY (Fili) (with Pebbles) (continued)	Station	390+74.09 22.90ft Left	H	S		T	First Encounter Upon Completion			H	W		S
20 2.38 26	Gray Slightly Sil	tv CLAY (Till)	1 1 11		1	+	After Hrs.			(ft)	(/6")		
20 2.38 26 B Gray Weathered SHALE 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 391.6 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 405.8 40		,	413 1	- 11	[						15		22
B Gray Weathered SHALE 391.8 35  End of Bening 65  26 4.24 23 NOTE: Value in "Blows" column is equal to the N-value.  25 1.99 34 B Gray Weathered SHALE 391.3 35  End of Bening 65  NOTE: Value in "Blows" column is equal to the N-value.  25 1.99 34 B Gray Silty Clay 15 1.46 26 B Gray Weathered SHALE 391.3 35  End of Bening 65  A03.1 1.40 25 B Gray Weathered SHALE 391.3 35  End of Bening 65  A51 1.99 34 B Gray Weathered SHALE 391.3 35  End of Bening 65  A52 1.99 34 B Gray Weathered SHALE 391.3 35  End of Bening 65  A53 1.99 34 B Gray Weathered SHALE 391.3 35  End of Bening 65 A51 1.99 A51		Marie Marie Allaho andre mayo Jungo virgin balah	The second of the second	20	2.38	26				=	h dala-den alga a san Ay d'es samuje y per da a	TO THE PERSON NAMED AND ADDRESS OF THE PERSON NAMED AND ADDRES	
26 4.24 23 NOTE: Value in "Blows" column is equal to the N-value.  25 1.99 34 B  26 4.24 23 NOTE: Value in "Blows" column is equal to the N-value.  27 1.99 34 B  28 1.99 34 B  29 25 1.99 34 B  20 27 27 27 27 27 27 27 27 27 27 27 27 27			monospinskips.		1		Gray Weathered SHAL	E	391.6 391.3		35		12
B equal to the N-value.  25 1.99 34 B			45						~	-65	de la constitución de del de la constitución de la	nas pinyahas saku dada menggap pi	
Dark Brown SILT Highly Organic with Plant Stems)  -34 2.35 67 S  -70  -70  -70  -70  -70  -70  -70			- Control of the Cont	20		23	NOTE: Value in "Blows' equal to the N-value.	" column is		- Harden	half-frystering das de mographicas		To the state of th
Dark Brown SILT Highly Organic with Plant Stems)  -34 2.35 67 S  -70  -70  -70  -70  -70  -70  -70			-Pitanding summ		The state of the s		Y					and the state of t	wiferplat themselven oppy and a que que
Dark Brown SILT Highly Organic with Plant Stems)  -70  -70  -70  -70  -70  -70  -70  -7			1	25		34			****		Ado emercergo Adda anis polycomou	Holmanippoprazionala and projetty	AND STATE OF THE PARTY AND ADDRESS OF THE PART
Aughly Organic with Plant Stems) 34 2.35 67 S S S S S S S S S S S S S S S S S S	ark Brown SILT	at company regular plants and appear comment bloom com-	-50	-		The state of the s			1000	-70		The state of the s	***************************************
Gray Silty CLAY  15 1.46 26  B  -55  -75  13 1.40 25  B	Highly Organic w	ith Plant Stems)		34		67			~			edemokrat in meddeligh keithorne general	-
15   1.46   26	rav Silty CLAY		403.1	Portunitario del Professiono del Casa d	Vollation of the Control of the Cont	оол объема для абайстверене фол			**************************************		assamble i (A) Addumi feccessoria	may a top to change periods followers and as	May Paul Balanten Paul Proposition of the Assault
13 1.40 25 B	Tay Only OLA			15		26							min i Colina hadisana Anna Nasia
B			-55	- Professional Anna Statement		Company of the compan			Windows.	-	NAME AND ADDRESS OF THE PARTY O	the fact the second	Observation de management on pa
				13	1	25			An Prince Standille	·75	ene a planta da depripação de se se de	At of except in the Basis of pay opposite the state of th	
				17 Mary Donato And Assa							and the second s	And the control of th	AAA hoosy caracter printing can
				1	į.	24			•		Mediahan santan dan pendagai	li Nesta della della della grapia della	
- B					0	To the second second			-v krahasan	-	Annual Community of the Land o	7	MANUFACTOR AND A STATE OF THE S



Page  $\underline{1}$  of  $\underline{2}$ 

Date ___2/26/71 ROUTE FAP 793 (FA 149) DESCRIPTION ______ IL 143 over Shoal Creek _____ LOGGED BY ____ J. King SECTION 112BR LOCATION NW 1/4, SW 1/4, SEC. 24, TWP. 4N, RNG. 4W, 3 PM COUNTY Bond DRILLING METHOD Hollow Stem Auger Unknown HAMMER TYPE 003-0034 (E) / STRUCT. NO. 003-0062 (P) U Surface Water Elev. В Station ____ 389+70 Ε L C 0 Stream Bed Elev. C Р 0 0 S į BORING NO. E. Abut 0 S Т 1 W S Groundwater Elev.: 
 Station
 391+33

 Offset
 10.00ft Left
 W S S Qu T First Encounter 449.2 S Qu 10.00ft Left T Upon Completion Ground Surface Elev. 465.9 ft (ft) (/6") (tsf) (%) After ____ Hrs. (ft) (/6") (tsf) (%) Brown Sandy SILT (continued) Brown Sandy SILT (Fill) 23 (with Fine Gravel) 1 0.81 26 S Brown Fine Silty SAND 0.39 S NC Brown and Gray CLAY NC Brown SILT Brown and Gray Medium SAND 0.39 (with Gravel) NC Brown Sandy SILT Gray Sandy CLAY 2 21 0.20 SAND and GRAVEL 23 40 NC 23 43 NC



Page <u>2</u> of <u>2</u>

Date __2/26/71 ROUTE FAP 793 (FA 149) DESCRIPTION ______ IL 143 over Shoal Creek LOGGED BY _____J. King SECTION 112BR LOCATION NW 1/4, SW 1/4, SEC. 24, TWP. 4N, RNG. 4W, 3 PM COUNTY Bond DRILLING METHOD Hollow Stem Auger HAMMER TYPE Unknown 003-0034 (E) / STRUCT. NO. 003-0062 (P) D В U M Surface Water Elev. Station ____ E L С 0 Stream Bed Elev. Р 0 C S ŀ 0 BORING NO. E. Abut Т W 0 ı S Groundwater Elev.: Station 391+33 Н S Qu T. S First Encounter Offset 10.00ft Left 449.2 Qu Т **Upon Completion** Ground Surface Elev. 465.9 (ft) ft (tsf) (%) SAND and GRAVEL (continued) __ Hrs. (ft) (/6") (%) Brown Clayey SILT (continued) 32 (with Wood) NC 2.57 31 End of Boring NOTE: Value in "Blows" column is equal to the N-value. 422.2 NC Gray Silty CLAY 1.94 23 S Gray Sandy Silty CLAY 2.32 Gray Silty CLAY 1.55 2.71 S 2.20 S 2.24 23 S Brown Clayey SILT

#### COHESIVE SOIL SETTLEMENT ESTIMATE

I.D.O.T. BBS FOUNDATIONS AND GEOTECHNICAL UNIT

Medified on 12/9/14

ASSUMPTIONS:

Soil Deposit is Normally Consolidated Cohesive Layers are Saturated

Soils have a Low Sensitivity
Liquid Limit (LL)=Moist. Content (MC%) Initial Void Ratio (Eo)=2.7*(MC%)/100

Neglecting Granular & Secondary Settlem't

Comp. Index (Cc)=0.009*(LL-10)

t (1=2:1 bridge cone, 2=continuous embank., 3=rectangular surch.)

DEPTH TO WATER TABLE (below top of existing embankment) == 16.2 FT

NEW EMBANKMENT

NEW EMBANKMENT FILL UNIT WEIGHT ========= 120 PCF

NEW EMBANKMENT FILL HEIGHT ============ 2.84 FT

PROPOSED WIDTH AT TOP =============== 35.17 FT

EXISTING EMBANKMENT (IF ANY):

EXISTING WIDTH AT TOP ========= FT

LAYER THICK (FT)	TOTAL UNIT WT. (PCF)	UNCONF, COMP. STRENGTH (Qu) (TSF)	MOIST. CONTENT (%)	EXISTING PRESSURE (KSF)	PRESSURE INCREASE (KSF)	INITIAL VOID RATIO	COMPRESSION INDEX (Cc)	Qu CORRECTION FACTOR	LAYER SETTLEMENT (IN.)
4.5	120	1,11	23	0.270	0.300	0,621	0.117	0.183	0.23
7 2	120	2.85	20	0.972	0.233	0.549	0.093	0.100	0.05
2.5	120	2.35	25	1.554	0.204	0.675	0.135	0.100	0.01
2 0	120	1.11	25	1.824	0.193	0.675	0.135	0.183	0.02
3 0	120	1.46	25	2.030	0.183	0.675	0.135	0.145	0.02
7.5	120	0.67	24	2.333	0.162	0.657	0.129	0.280	0.06
2 5	120	0.20	27	2.521	0.146	0.729	0.153	0.700	0.04
17.0	120	0.00		3.182	0.120			1.000	Granular
5 3	120	2.37	20	3.825	0.098	0,540	0.090	0.100	0.00
5.2	120	3.04	21	4.127	0.090	0.567	0.099	0.100	0.00
2 3	120	2.77	16	4.343	0.085	0.432	0.054	0.100	0.00

TOTAL SETTLEMENT UNDER CENTER OF BRIDGE CONE = 0.43 IN.

EMBANKMENT AND SOIL PROFILE

SETTLEMENT=0.23 INCHES SETTLEMENT=0.05 INCHES SETTLEMENT=0.01 INCHES SETTLEMENT=0.02 INCHES -20 SETTLEMENT=0.08 INCHES SETTLEMENT=0.04 INCHES 30 SETTLEMENT=0 00 INCHES SETTLEMENT=0 00 INCHES SETTLEMENT=0 00 INCHES TOTAL SETTLEMENT TO AS INCHES

10

#### COHESIVE SOIL SETTLEMENT ESTIMATE

I.D.O T. BBS FOUNDATIONS AND GEOTECHNICAL UNIT

Modified on 12/9/1:

=== 1 (1=2:1 bridge cone, 2=continuous embank, 3=rectangular surch.)

ASSUMPTIONS:

DEPTH TO WATER TABLE (below top of existing embankment) == 16.7 FT

NEW EMBANKMENT:

Soil Deposit is Normally Consolidate

Cohesive Layers are Saturated

Soils have a Low Sensitivity
Liquid Limit (LL)=Moist, Content (MC%)

Initial Void Ratio (E0)=2.7"(MC%)/100
Comp. Index (Cc)=0.009"(LL-10)
Neglecting Granular & Secondary Settlem't

LAYER	TOTAL	UNCONF. COMP.	MOIST.	EXISTING	PRESSURE	INITIAL	COMPRESSION	Qu	LAYER
THICK		STRENGTH (Qu)	CONTENT	PRESSURE	INCREASE	VOID	INDEX	CORRECTION	SETTLEMENT
(FT)	(PCF)	(TSF)	(%)	(KSF)	(KSF)	RATIO	(Cc)	FACTOR	(IN.)
40	120	0.81	13	0.240	0.243	0.351	0.027	0.239	0.07
2.7	120	0.39	15	0.642	0.203	0.405	0.045	0.445	0.06
2.5	120	1.96	25	0.954	0.184	0,675	0.135	0.113	0.02
2.5	120	0.39	21	1.254	0.171	0.567	0.099	0.445	0.05
5.0	120	0.30	22	1.704	0.156	0.594	0.108	0.550	0.09
7 5	120	0.30	24	2.220	0.135	0.648	0.126	0.550	0.10
7.5	120	0.00		2.652	0.115			1.000	Granular
2.6	120	0.20	23	2.943	0.103	0.621	0.117	0.700	0.02
9.4	120	0.00		3.288	0.092			1.000	Granular
3.0	120	1.94	23	3.646	0.082	0.621	0.117	0.114	0.00
2.6	120	2.32	16	3.807	0.078	0.432	0.054	0 100	0.00

TOTAL SETTLEMENT UNDER CENTER OF BRIDGE CONE = 0.40 IN.

#### EMBANKMENT AND SOIL PROFILE

PROP 2.5 FT HIGH EMBANKMT

WITH 3.0 L SIDE SLOPE
SETTLEMENT=0 07 INCHES

SETTLEMENT=0 02 INCHES
SETTLEMENT=0.02 INCHES
SETTLEMENT=0.09 INCHES

SETTLEMENT=0.09 INCHES

SETTLEMENT=0.09 INCHES

SETTLEMENT=0.09 INCHES

SETTLEMENT=0.09 INCHES

SETTLEMENT=0.09 INCHES

SETTLEMENT=0.09 INCHES

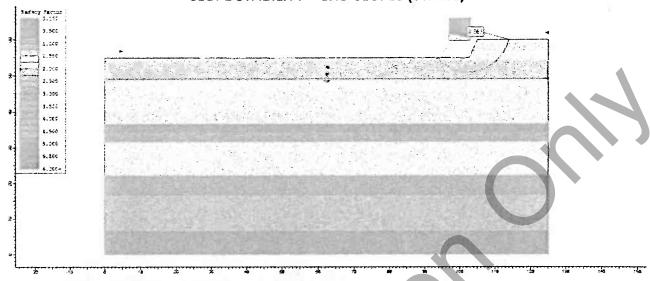
SETTLEMENT=0.09 INCHES

SETTLEMENT=0.09 INCHES

SETTLEMENT=0.09 INCHES

10

#### **SLOPE STABILITY - END SLOPES (STATIC)**



#### Analysis Methods Used: Bishop Simplified, Janbu Simplified

Circular Surface Type

Grid Search

Number of Slices: 25 Tolerance: 0.005

Maximum Number of Iterations: 50

Materials Properties (from top to bottom in above graphic)

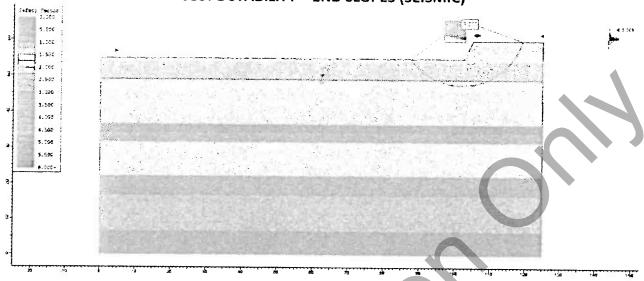
Material	Strength Type	Unsaturated Unit Weight (lb/ft³)	Saturated Unit Weight (lb/ft ³ )	Cohesion (psf)	Friction Angle (deg)	Water Surface
1				390	0	Above
2				1960	0	
3			125	390	0	
4				0	27.5	
5				0	27.5	
6		120		0	29.5	
7	Mohr-Coulomb			0	30.5	
8	di.			200	0	
9				0	37.5	Below
10			1940	0		
11			2320	0		
12			2175	0		
13				2570	0	

#### Water Table: 449.2 feet (49.1 on above graphic)

#### Search Grid

96.891	59.614
102.978	59.614
102.978	65.701
96.891	65.701

#### SLOPE STABILITY - END SLOPES (SEISMIC)



Analysis Methods Used: Bishop Simplified, Janbu Simplified

Circular Surface Type

**Grid Search** 

Number of Slices: 25 Tolerance: 0.005

Maximum Number of Iterations: 50

Seismic Load Coefficient (Horizontal): 0.088

Materials Properties (from top to bottom in above graphic)

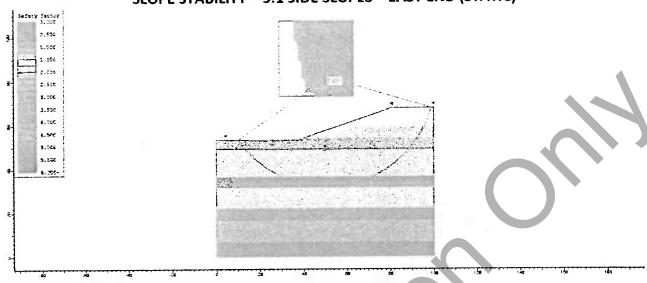
Material	Strength Type	Unsaturated Unit Weight (lb/ft³)	Saturated Unit Weight (lb/ft ³ )	Cohesion (psf)	Friction Angle (deg)	Water Surface
1			125	390	0	Above
2		$\mathbf{x} \cup \mathbf{y}$		1960	0	
3				390	0	
4				0	27.5	
5		120		0	27.5	Веlo <b>w</b>
6				0	29.5	
7	Mahr-Coulomb			0	30.5	
8				200	0	
9				0	37.5	
10				1940	0	
11				2320	0	
12				2175	0	
13				2570	0	

Water Table: 449.2 feet (49.1 on above graphic)

#### Search Grid

96.891	59.614
102.978	59.614
102.978	65.701
96.891	65.701

#### SLOPE STABILITY - 3:1 SIDE SLOPES - EAST END (STATIC)



Analysis Methods Used: Bishop Simplified, Janbu Simplified

Circular Surface Type

**Grid Search** 

Number of Slices: 25 Tolerance: 0.005

Maximum Number of Iterations: 50

Materials Properties (from top to bottom in above graphic)

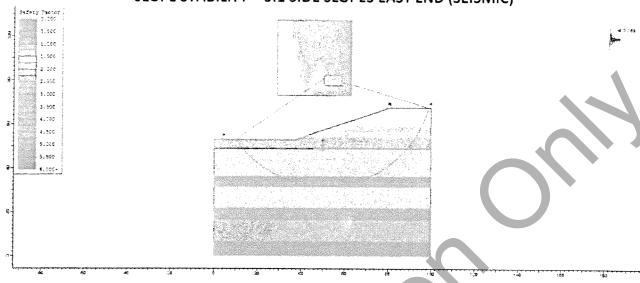
Material	Strength Type	Unsaturated Unit Weight (lb/ft ³ )	Saturated Unit Weight (lb/ft ³ )	Cohesion (psf)	Friction Angle (deg)	Water Surface
1a - Fill			120 125	1000	0	Above
1				600	0	
2				1960	0	
3				390	0	
4				0	28.5	
5				0	28.5	
6				0	29.5	
7	Mohr-Coulomb	120		0	30.5	
8		>		200	0	
9				0	37.5	Below
10				1940	0	
11				2320	0	
12				2175	0	
13				2570	0	

Water Table: 449.2 feet (49.1 on above graphic)

#### Search Grid

29.017	73.128
62.970	73.128
62.970	107.081
29.017	107.081

### SLOPE STABILITY - 3:1 SIDE SLOPES EAST END (SEISMIC)



### Analysis Methods Used: Bishop Simplified, Janbu Simplified

Circular Surface Type

Grid Search

Number of Slices: 25 Tolerance: 0.005

Maximum Number of Iterations: 50

### Seismic Load Coefficient (Horizontal): 0.088

Materials Properties (from top to bottom in above graphic)

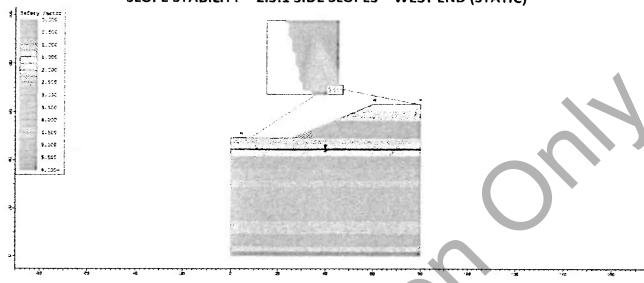
Material	Strength Type	Unsaturated Unit Weight (lb/ft³)	Saturated Unit Weight (lb/ft³)	Cohesion (psf)	Friction Angle (deg)	Water Surface		
1a – Fill				1000	0	***************************************		
11				600	0			
2	•			1960	0	Above		
3				390	0			
4				0	28.5			
5		and the second s		0	28.5			
6	Mohr-Coulomb	120	125	0	29.5			
7	William Coalouing	120	123	30.5				
8				200	0			
9		And A continue of the Andrews		0	37.5 Beld			
10				1940	0			
11				2320	0			
12		State of the state		2175	0			
13				2570	0			

Water Table: 449.2 feet (49.1 on above graphic)

#### Search Grid

29.017	73.128
62.970	73.128
62.970	107.081
29.017	107.081

### SLOPE STABILITY - 2.5:1 SIDE SLOPES - WEST END (STATIC)



Analysis Methods Used: Bishop Simplified, Janbu Simplified

Circular Surface Type

**Grid Search** 

Number of Slices: 25 Tolerance: 0.005

Maximum Number of Iterations: 50

Materials Properties (from top to bottom in above graphic)

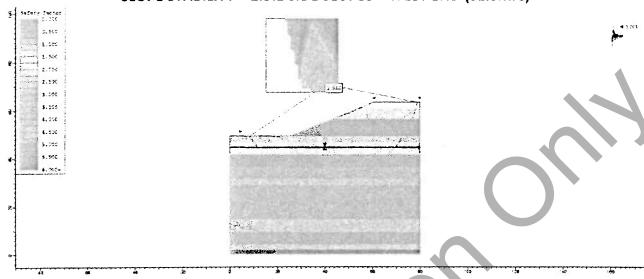
Material	Strength Type	Unsaturated Unit Weight (lb/ft ³ )	Saturated Unit Weight (lb/ft ³ )	Cohesion (psf)	Friction Angle (deg)	Water Surface
Filt				1000	0	
1				1110	0	
2				2846.7	0	Above
3				2350	. 0	
4				1110	0	
5				1460	0	
6				490	0	
7	Mohr-Coulomb	120	125	1040	0	
8				200	0	
9				0	32	S - 1 - 1 -
10				0	36.9	Below
11				2370	0	
12				3035	0	
13				2700	0	
14				0	50	

Water Table: 449.0 feet (44.6 on above graphic)

#### Search Grid

15.108	67.391
45.422	67.391
45.422	97.705
15.108	97.705

### SLOPE STABILITY - 2.5:1 SIDE SLOPES - WEST END (SEISMIC)



### Analysis Methods Used: Bishop Simplified, Janbu Simplified

Circular Surface Type

Grid Search

Number of Slices: 25 Tolerance: 0.005

Maximum Number of Iterations: 50

### Seismic Load Coefficient (Horizontal): 0.088

Materials Properties (from top to bottom in above graphic)

Material	Strength Type	Unsaturated Unit Weight (lb/ft ³ )	Saturated Unit Weight (lb/ft ³ )	Cohesion (psf)	Friction Angle (deg)	Water Surface
Fill	(			1000	0	
1				1110	0	
2				2846.7	0	Above
3				2350	0	
4				1110	0	
5				1460	0	
6				490	0	
7	Mohr-Coulomb	120	125	1040	0	
8				200	0	
9				0	32	Oatan
10				0	36.9	Below
11				2370	0	
12				3035	0	
13				2700	0	
14				0	50	

Water Table: 449.0 feet (44.6 on above graphic)

### Search Grid

15.108	67.391
45.422	67.391
45.422	97.705
15.108	97.705

# DRILLED SHAFT AXIAL CAPACITY ---- ROCK I.D.O.T. 3BS FOUNDATIONS AND GEOTECHNICAL UNIT Modified on 2

SHAFT DIAMETER IN ROCK====== 3 50 FT. LRFD or ALLOWASLE STRESS ===: LRFD ESTIMATED TOP OF ROCK ELEV : 404 40 FT. NOTE: 1 "THE LAYER THICKNESSES INPUT SHOULD BE NO LARGER THAN 18 inches (thus adjacent layers will often have identical data to allow program interpolation)"

NOTE: 2 The "IDOT Joint Spacing & Condition Ranking" below should be made in conjuction with AASHTO LRFD Table 10.4.6.4-1 ... ... where "5" is best and "1" is worst.

									AMONTO LAPE	1308 10 4.0	3 a-1	wner	9 2 13	s Destario i	IZ MOARE		A
								Cumlative	<b>E</b>						2 x Dia.	dament date	
			Unconf.					Factored	IDOT Joint Spac	ing				Factored	Factored	Controling	Controling
Socket	Tip	Layer	Comp.		Joint Type			Side	& Condition	Rock	RMR			End Bear.	End	Mode of	Factored
Depth	Elev.	Thick.	Streng.	200	(open or	Em/El	Alpha E	Resist.	Ranking	Type	Rating	177	\$	in Layer	Bearing	Resistance	Resistance
(FT)	(FT)	(FT)	(KSF)	(%)	closed)	(Ratio)	reduct.	(KIPS)	(1, 2, 3, 4, 5)	(A,B,C)	aprox.	Coef.	Coef.	(KIPS)	(KIPS)	(Side, End)	(KIPS)
0.50	403 90	0.50	0.0	G	open	0.05	0.450	0.00	1	В					\$1.03	End	6.03
1 75	402 65	1.25	150.0	92	open	0.45	0.770	88 97	4.	3	32	0.04	0.00	5,03	6 03	Side	88.97
3.00	401.40	1 25	150 0	92	open	0.45	0.770	177.93	1	3	3.2	0.04	0.00	5.03	6.03	Side	177.93
4 25	400.15	1 25	150 0	92	open	0 45	0.770	266 90	1	8	32	0.04	0.00	8 03	5 03	Side	266.90
5.50	398.90	1 25	150 0	92	open	0.45	0.778	355 86	1	3	32	0.04	0.00	6.03	6 03	Side	35 <b>5</b> .8 <b>6</b>
6.75	397.65	1 25	150 0	9.5	open	0 45	0.770	444 83	1	3	32	0.04	0.00	6.03	5 02	Side	444.83
	396.40	i	150.0	92	open	0.45	0.770	533 79	1	8	32	0.04	0.00	6.03	3.77	Side	533.79
9.25	395.15	1.25	150 0	92	open	0.45	0 770	622.76	†	В	32	0.04	0.00	5 03	2.51	Side	622.76
	393.90		150 0	92	open	0.45	0.770	711 72	1	В	32	0.04	0.00	6.03	1.26	Side	711.72
11 75	392.65	1 25	150.0	92	open	0 45	0.770	800 69	1	Э	32	0.04	0.00	6.03	0.00	Side	800.69
												5					

10.0 T BBS FOUNDATIONS AND GEOTECHNICAL UNIT

Modifed on 2/07/2010

SHAFT DIAMETER IN ROCK====== 3 00 FT LRFD or ALLOWABLE STRESS === LRFD ESTIMATED TOP OF ROCK ELEV. = 404 10 FT

NOTE: 1 "THE LAYER THICKNESSES INPUT SHOULD BE NO LARGER THAN 18 inches (thus adjacent layers will offen have identical data to allow program interpolation)"

NOTE: 2 The "IDOT Joint Spacing & Condition Ranking" below should be made in conjuction with AASHTO LRFD Table 10.4.6.4-1 ... ... where "5" is best and "1" is worst

								Cumlative							2 x Día.		
			Unconf.					Factored	IDOT Joint Spac	ing				Factored	Factored	Controling	Controlling
Socket	Tip	Layer	Comp.		Joint Type			Side	& Condition	Rock	RMR			End Bear.	End	Mode of	Factored
Depth	Elev.	Thick.	Streng,	ROD	(open or	Em/El	Alpha E	Resist.	Ranking	Type	Rating	(TS	s	in Layer	Bearing	Resistance	Resistance
(FT)	(FT)	(FT)	(KSF)	(%)	closed)	(Ratio)	reduct.	(KIPS)	(1,2,3,4,5)	(A, B, C)	aprox.	Coef.	Coef.	(KIPS)	(KIPS)	(Side,End)	(KIPS)
0.50	403.60	0.50	0.0	Ĵ	open	0.05	0 450	0.00	1	8					3 03	End	6.03
1.75	402.35	1.25	150 0	92	open	0.45	0.770	88.97	1	8	32	0.04	0.00	6.03	6.03	Side	38.97
3.00	401.10		150 0	92	open	0.45	0.770	177.93	1	8	32	0.04	0.00	6 03	6 03	Side	177.93
	399 85		150.0	32	open	0.45	0.770	266.90	1	8	32	0.04	0.00	6.03	5 03	Side	256.90
5.50	398,60	1 25	150.0	92	spen	0.45	0.770	355 36	1	8	32	0.04	0.00	6.03	6 03	Side	355.86
	397 35	£	150 0	92	open	0 45	0 770	444.83	1	8	32		0.00	8.03	5 02	Side	444.83
8.00	396.10	2	150.0	92	open	0.45	0.770	533.79	. 1	8	32	0.04	0.00	8.03	3 77	Side	533.79
	394.85	è	150.0	92	open	0.45	0.770	822.76	1	8	32		0.00	6.03	2.51	Side	622.76
	393 60		150 0	92	open	0.45	0 770	711 72	1	8	32		0.00	6.03	1 26	Side	711.72
11.75	392.35	1 25	150 0	92	open	0.45	0.770	800.69	1	8	32	0.04	0.00	6.03	0.00	Side	800.69
												5					

100 T 885 FOUNDATIONS AND GEOTECHNICAL UNIT

Modifed on 2/07/2010

SHAFT DIAMETER IN ROCK====== 3 00 FT LRFD or ALLOWABLE STRESS ===: LRFD ESTIMATED TOP OF ROCK ELEV. = 402 10 FT

NOTE. 1 "THE LAYER THICKNESSES INPUT SHOULD BE NO LARGER THAN 18 inches (thus adjacent layers will often have identical data to allow program interpolation)".

NOTE 2 The "IDOT Joint Spacing & Condition Ranking" below should be made in conjuction with AASHTO LRFD Table 10.4.6.4-1 where "5" is best and "1" is worst.

								Cumlative							2 x Dia.		
			Unconf.						IDOT Joint Space	ing				Factored	Factored	Controling	Controlling
Socket	Tip	Layer	Comp.		Joint Type			Side	& Condition	Rock	RMR			End Bear.	End	Mode of	Factored
Depth	Elev.	Thick.	Streng.	RQD	(open or	Em/Ei	Alpha E	Resist.	Ranking	Type	Rating	/77	s	in Layer	Bearing	Resistance	Resistance
(FT)	(FT)	(FT)	(KSF)	(%)	closed)	(Ratio)	reduct.	(KIPS)	(1, 2, 3, 4, 5)	(A,B,C)	aprox.	Coef.	Coef.	(KIPS)	(KIPS)	(Side,End)	(KIRS)
	400.85		8.1	0	open	0.05	0.450	12.08	1	9		smortikolesusukesee	rieseccomments.	ninematennity (Needland America)	0.07	Side	12.08
	399 60		3 1	0	open	0.05	0 450	24.16	*	8	14	0.01	0.00	0.07	1.06	Side	24.15
3.75	398.35	1 25	8 1	0	open	0.05	0.450	36 25	†	8	14	0.01	0.00		2.30	Side	36.25
	397 10		8.1	đ	open	0.05	0.450	48.33	1	8	14	0.01	0.00	0 07	3 54	Sida	48.33
	395.85		81	9	open	0.05	0.450	50.41	1	B	14	0.01	0.00	0 07	4 79	Side	50,41
	394 60	ž.	3.1	0	open	0.05	0 450	72.49	†	8	14	0.01	0.00	0,07	6 03	Side	72.49
	393,35	i	150 G	92	open	0.45	0 770	161 46	1	8	32	0.04	0.00	6.03	5.03	Side	161.48
10.00	392,10	1 25	150 0	92	open	0.45	0.770	250.42	1	8	32	0.04	0.00	6 03	5 02	Side	250.42
11.25	390.85	1.25	150 0	92	open	0.45	0.770	339 39	1	В	32	0.04	0.00	ê 03	3.77	Side	339.39
	389.60	j	150 0	92	open	0.45	0.770	428.35	1	8	32	0.04	0.00	6.03	2 51	Side	428.35
	388 35	3	150 0	92	open	0.45	0.770	517 32	1	В	32	0.04	0.00	6 03	1 26	Side	517.32
15.00	387 10	1.25	150 0	92	open	0.45	0.770	806.29	Ī	8	32	0 94	0.00	6 03	0.00	Side	606.29

IDOT 85\$ FOUNDATIONS AND GEOTECHNICAL UNIT

Modifed on 2/07/201/

SHAFT DIAMETER IN ROCK====== 3 00 FT LRFD or ALLOWABLE STRESS === LRFD ESTIMATED TOP OF ROCK ELEV = 403 00 FT. NOTE: 1 "THE LAYER THICKNESSES INPUT SHOULD BE NO LARGER THAN 18 inches (thus adjacent layers will often have identical data to allow program interpolation)"

NOTE: 2 The "IDOT Joint Spacing & Condition Ranking" below should be made in conjuction with AASHTO LRFD Table 10.4.6.4-1 . . . where "5" is best and "1" is worst.

								Cumlative							2 x Dia.		
			Uncont.					Factored	IDOT Joint Spac	ing				Factored	Factored	Controling	Controlling
Socket	Tip	Layer	Comp.		Joint Type			Side	& Condition	Rock	RMR			End Bear.	End	Mode of	Factored
Depth	Elev.	Thick.	Streng,	RQD	(open or	Em/El	Alpha E	Resist.	Ranking	Type	Rating	177	s	in Layer	Bearing	Resistance	Resistance
(FT)	(FT)	(FT)	(KSF)	(%)	clased)	(Ratio)	reduct.	(KIPS)	(1, 2, 3, 4, 5)	(A,B,C)	aprox.	Coef.	Coef.	(KIPS)	(KIPS)	(Side, End)	(KIPS)
1 25	401.75	1.25	150 0	0	open	0.05	0.450	5199	†	5	er interestation de la constitución de la constituc		oleitaleen voorbid	Security production of the second	Y 24	Side	51.99
2.50	400 50	1 25	150 0	Ü	open	0.05	0.450	103 99	1	8	15	0.01	0.00	1 24	2 04	Side	103.99
3.75	399 25	1 25	150 0	0	open	0.05	0 450	155.98	1	8	15	0.01	0.00	1 24	3 03	Side	155.98
5.00	398 00	(	150 0	0	open	0.05	0.450	207 97	1	8	15	0.01	0.00	1 24	4 03	Side	207.97
6 25	396.75		150.0	0	open	0.05	0.450	259.96	1	8	15	0.01	0.00	1 24	5 03	Side	259.96
7 50	395 50	1 25	150 0	0	open	0.05	0.450	31196	1	8	15	0.01	0.00	1.24	5 02	Side	311.96
	394 25		150 0	92	open	0.45	0 770	400 92	1	В	32	0.04	0.00	3 03	3.77	Side	400.92
	393 00		150.0	92	open	0.45	0.770	489.89	4	8	32	0.04	0.00	6 03	2.51	Side	489.89
11.25	39175	1 25	150 0	92	open	0.45	0 770	578 85	1	8	32	0.04	0.00	6 03	1 26	Side	578.85
12 50	390 50	1 25	150 0	92	open	0.45	0.770	667.82	1	8	32	0.04	0 00	5 03	0.00	Side	567.82
												5					вы от противор на верения выполняться выполняться выполняться выполняться выполняться выполняться выполняться в

ID O T BBS FOUNDATIONS AND GEOTECHNICAL UNIT-

Modifed on 2/07/2010

SHAFT DIAMETER IN ROCK====== 3 00 FT.
LRFD or ALLOWABLE STRESS ===: LRFD
ESTIMATED TOP OF ROCK ELEV. 2 387 40 FT

NOTE: 1 "THE LAYER THICKNESSES INPUT SHOULD BE NO LARGER THAN 18 inches (thus adjacent layers will often have identical data to allow program interpolation)"

NOTE: 2 The "IDOT Joint Spacing & Condition Ranking" below should be made in conjuction with AASHTO LRFD Table 10.4.6.4-1 . . . . where "5" is best and "1" is worst.

								Cumlative							2 x Dia.		
			Unconf.					Factored	100T Joint Spac	ing				Factored	Factored	Controling	Controlling
Socket	Tip	Layer	Comp.		Joint Type			Side	& Condition	Rock	RMR			End Bear.			Factored
Depth	Elev.	Thick.	Streng,	RQD	(open or	Em/Ei	Alpha E	Resist.	Ranking	Type	Rating	177	5	in Layer	Bearing .		Resistance
(FT)	(F1)	(FT)	(KSF)	(%)	closed)	(Ratio)	reduct.	(KIPS)	(1, 2, 3, 4, 5)	(A,B,C)	aprox.	Coef.	Coef.	(KIPS)		(Side, End)	
	386 15		160 0	Ç	open	0.05	0 450	5199	. 1	8	COLOR DE LA CO	Protection of the Control of the Con			5.03	Side	51,99
	384 90		150 0	Ü	open	0.05	0.450	103.99	1	8	15	0.01	0.00	1 24	6.03	Side	103.99
	383 65		150 0	92	open	0 45	0 770	192.95	1	8	32	0.04			6 93	Side	192.95
	382 40		150.0	92	open	0.45	0.770	281 92	٦	В	32	0.04			5.03	Side	281.92
	381 15	\$	150 0	92	open	0.45	0.770	370 88	1	8	32	0.04			5.02	Side	370.88
	379 90	\$	150 0	92	open	0.45	0.770	459.85	1	8	32	0.04			3 77	Side	459.85
	378 65	3	150 0	92	open	0.45	0.770	548.81	Ť	8	32	0.04			2.51	Side .	548.81
	377.40	8	150 0	92	open	9.45	9 770	637 78	1	В	32	0.04			1.26	Side	637.78
11.25	375.15	1 25	150 0	92	open	0.45	0 770	726 74	1	В	32	0.04	0.00	6.03	0.00	Side	728.74
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LD O T BBS FOUNDATIONS AND GEOTECHNICAL UNIT

Modifed on 2/07/2011

SHAFT DIAMETER IN ROCK====== 3 00 FT LRFD or ALLOWABLE STRESS === LRFD ESTIMATED TOP OF ROCK ELEV = 389 00 FT

NOTE: 1 "THE LAYER THICKNESSES INPUT SHOULD BE NO LARGER THAN 18 inches (thus adjacent layers will often have identical data to allow program interpolation)".

NOTE 2 The "IDOT Joint Spacing & Condition Ranking" below should be made in conjuction with AASHTO LRFD Table 10 4,6.4-1 . . . where "5" is best and "1" is worst

									AASHTO LRFD	Table 10 4.6	.4-1	where	'5" IS	best and "I	'is worst		A
								Cumlative	30-A446						2 x Dia.	appropries	
			Unconf.						IDOT Joint Space	ing				Factored	Factored	Controling	Controling
Socket	Tin	i avar	Comp.		Joint Type			Side	& Condition	Rock	RMR		i	End Bear.	End	Mode of	Factored
Depth			Streng.	200		Em/El	Alpha E	Resist.	Ranking	Type	Rating	171	5	in Layer	Bearing	Resistance	Resistance
(FT)	(FT)	(FT)	(KSF)	(%)	c/osed)	(Ratio)	reduct.	(KIPS)	(1,2,3,4,5)	(A,B,C)	aprox.	Coef.	Coef.	(KIPS)		(Side,End)	
	387.75	of community and control or a first or and con-	150.0	0	open	0.05	0.450	51 99		<del></del>			a to carge to come		5 03	Side	51.99
	386 50	2	150 0	0	open	0.05	0 450	103.99		8	15	0.01	0.00	1.24	6 03	Side	103,99
	385.25	1	150 0	92	open	0.45	0.770	192.95		8	32	0.04		5.03	5.03	Side	192.95
	384 00		150 0	92	open	0.45	0.770	281.92		8	32	0.04		6 03	6 03	Side	281.92
	382.75	£	150.0	92	open	0.45	0.770	370 88	1	8	32	0.04		6 03	5 0 2	Side	370.88
	381 50		150.0	92	open	0.45	0.770	459.85	1	B	32	0.04	0.00	6.03	3 77/	Side	459.85
	380 25	8	150 0	92	epen	0.45	0.770	548.81	1	8	32	0.04	0.00	6.03	2 51	Side	548.81
	379 00		150.0	92	open	0.45		637.78		9	32	0.04	0.00	6 03	1.26	Side	537.78
	377 75		150.0	92	open	0.45		726.74	1	В	32	0.04	0.00	6 03	0.00	Side	726.74
		на подавальная повы выправления выпра															от выпалня достояння от ответства на правода негова

10 O.T. 38S FOUNDATIONS AND GEOTECHNICAL UNIT

Modifed on 2/07/20

SHAFT DIAMETER IN ROCK====== 3 00 FT LRFD or ALLOWABLE STRESS ==== LRFD ESTIMATED TOP OF ROCK ELEV = 390 70 FT NOTE: 1 "THE LAYER THICKNESSES INPUT SHOULD BE NO LARGER THAN 18 inches (thus adjacent layers will often have identical data to allow program interpolation)"

NOTE: 2 The "IDOT Joint Spacing & Condition Ranking" below should be made in conjuction with AASHTO LRFD Table 10.4.6.4-1 ...... where "5" is best and "1" is worst.

								Cumlative	on designation						2 x Dia.		
			Unconf.					Factored	IDOT Joint Spac	ing				Factored	Factored	Controling	Controling
Socket	Tip	Layer	Comp.		Joint Type			Side	& Condition	Rock	RMR			End Bear.	End	Mode of	Factored
Depth	Elev.	Thick.	Streng,	RQD	(open or	Em/Ei	Alpha E	Resist.	Ranking	Type	Rating	m	5	in Layer	Bearing	Resistance	Resistance
(FT)	(FT)	(FT)	(KSF)	(36)	closed)	(Ratio)	reduct.	(KIPS)	(1, 2, 3, 4, 5)	(A,B,C)	aprox.	Coef.	Coef.	(KIPS)	(KIPS)	(Side, End)	(KIPS)
1.25	389 45	1 25	150.0	0	open	0.05	0 450	5199	1	ŝ			-		5 93	Side	51.99
2.50	388 20	1 25	150 0	0	open	0.05	0.450	103 99	1	8	15	0.01	0.00	1 24	6.03	Side	103.99
3.75	386.95	1 25	150.0	92	apen	0.45	0.770	192.95	į	B	32	0.04	0.00	6.03	6.03	Side	192.95
5.00	385.70	1.25	150 0	92	open	0.45	0 770	281 92	1	8	32	0.04	0.00	5.03	6.93	Side	281.92
6.25	384 45	1 25	150 0	92	open	0.45	0.770	370.38	†	В	32	0.04	0.00	6.03	5 02	Side	370.88
7.50	383.20	1 25	150 0	32	open	0.45	0.770	459.85	ţ	8	32	0.04	0.00	6.03	3,77	Side	459.85
	381.95		150 0	92	open	0.45	0.770	548.81	1	3	32	0.04	0.00	6.03	2.51	Side	548.81
	380 70		150 0	92	open	0.45	0.770	637.78	;	3	32	0.04	0.00	6.93	1.28	Side	637.78
11.25	379.45	1 25	150 0	92	open	0.45	0.770	726.74	1	3	32	0.04	0.06	5.03	0.00	Side	728.74

LO O.T. BBS. FOUNDATIONS AND GEOTECHNICAL UNIT

Modifed on 2:07/2015

SHAFT DIAMETER IN ROCK====== 3 00 FT LRFD or ALLOWABLE STRESS === LRFD ESTIMATED TOP OF ROCK ELEV. = 395 40 FT

NOTE: 1 "THE LAYER THICKNESSES INPUT SHOULD BE NO LARGER THAN 18 inches (thus adjacent layers will often have identical data to allow program interpolation)"

NOTE 2 The "IDOT Joint Spacing & Condition Ranking" below should be made in conjuction with AASHTO LRFD Table 10.4.6.4-1 ... where "5" is best and "1" is worst.

								Cumlative							2 x Dia.		
			Unconf.						IDOT Joint Spac								Controling
Socket	,		Comp.		Joint Type			Side	& Condition	Rock	RMR			End Bear.	End	Mode of	Factored
Depth	Elev.	Thick.	Streng.	RQD	(open or	Em/Ei	Alpha E	Resist.	Ranking	Type	Rating	177	s	in Layer	Bearing	Resistance	Resistance
(FT)	(FT)	(FT)	(KSF)	(%)	closed)	(Ratio)	reduct.	(KIPS)	(1,2,3,4,5)	(A,B,C)	aprox.	Coef.	Coef.	(KIPS)	(KIPS)	(Side,End)	(KIP\$)
	395.15	3	150 0	92	cpen	0.45	0.770	88.97	:	3					6 03	Side	88.97
	393.90		150 0	92	open	0.45	0.770	177 93	1	8	32	0.04	0.00	6 03	6.03	Side	177.93
	392 65		150.0	92	open	0.45	0.770	266.90	1	3	32	0.04	0.00	5 03	6.03	Side	265.90
	391.40		150 0	92	open	0.45	0.770	355 86	1	3	32	0.04	0.00	5 03	6 03	Side	355.86
	390.15		150 0	92	open	0.45	0.770	444 83	1	8	32	0.04	0.00	6.03	5 02	Side	444.83
	388.90		150 0	32	apen	0 45	0 770	533.79	1	8	32	0.04	0.00	6 03	3,77	Side	533.79
	387.65		150.0	92	open	0.45	0.770	522.76	T	8	32	0.64	0.00	5.03	2.51	Side	622.76
	386 40		150 0	35	apen	0.45	0.770	711 72	-	3	32	0.04	0.00	5 03	1 26	Side	711.72
11 25	385.15	1 25	150.0	32	open	0.45	0.770	800 59	1	8	32	0.04	0.00	6 03	.0.00	Side	800.69
												5					

FD.O.T. BBS FOUNDATIONS AND GEOTECHNICAL UNIT

Modifed on 2/07/201

SHAFT DIAMETER IN ROCK====== 3 00 FT.
LRFD or ALLOWABLE STRESS ==== LRFD
ESTIMATED TOP OF ROCK ELEV. = 395 40 FT

NOTE: 1 THE LAYER THICKNESSES INPUT SHOULD BE NO LARGER THAN 18 inches (thus adjacent layers will often have identical data to allow program interpolation)."

NOTE: 2 The "IDOT Joint Spacing & Condition Ranking" below should be made in conjuction with AASHTO LRFD Table 10 4.6 4-1 ... where "5" is best and "1" is worst

			Unconf.					Cumlative Factored	IDOT Joint Spac	ina				Factored	2 x Dia.	Controlina	Controlling
Socket	Tip	Layer	Comp.		Joint Type			Side	& Condition	Rock	RMR			End Bear.		Mode of	Factored
Depth	Elev.	Thick	Streng,	RQD	(open or	Em/El	Alpha E	Resist.	Ranking	Type	Rating	177		in Layer	Í		
(FT)	(FT)	(FT)	(KSF)	(96)	closed)	(Ratio)	reduct	(KIPS)	(1, 2, 3, 4, 5)	(A,B,C)	aprox.					(Side,End)	Resistance
100100000000000000000000000000000000000	394.15	1 25	150 0	12	open	0.05	0 450	51.99	*	8	in an in the same	0000	COCI.	(705-3)	1.24		arterior account to provide the second
2.50	392.90	1.25	150 0	12	open	0.05	0 450	103.99	1	8	15	0.01	0.00	1.24	2.04	Side Side	51.99
3.75	391.55	1.25	150 0	12	open	0.05	0.450	155.98	1	8	15		0.00		3 03	Side Side	103.99
5.00	390,40	1 25	150 0	12	open	0.05	0 450	207 97	†	В	15		0 00		4,03	Side	155,98
8.25	389.15	1 25	150.0	12	open	0.05	0.450	259.96	1	8	15		0.00		4 02	Side	207.97 259.96
7.50	387.90	1 25	150.0	12	open	0.05	0.450	311.96	1	8	15		0.00		3,77	Side	311.96
8.75	386.88	1.25	150 0	66	open	0.10	0.550	375.50	1	8	25		0.00		2.51	Side	375.50
10,00	385.40	1.25	150 0	66	open	0.10	0.550	439.05	1	8	25	0.04		5.03	1 26	Side	439.05
11.25	384.15	1.25	150 0	66	open	0.10	0.550	502.60	1	8	25	0.04		6.03	0.00	Side	502.60
												5				en e	вийновий визоноболи андибели анамана на най-инжения автостивательностического предуставления выпостивательности

1 D O F BBS FOUNDATIONS AND GEOTECHNICAL UNIT

Modifed on 2/07/29:

SHAFT DIAMETER IN ROCK====== 3 00 FT
LRFD or ALLOWABLE STRESS ===: LRFD
ESTIMATED TOP OF ROCK ELEV = 400 10 FT

NOTE: 1 "THE LAYER THICKNESSES INPUT SHOULD BE NO LARGER THAN 18 inches (thus adjacent layers will often have identical data to allow program interpolation)."

NOTE. 2 The "IDOT Joint Spacing & Condition Ranking" below should be made in conjuction with AASHTO LRFD Table 10.4.6.4-1 ...... where "5" is best and "1" is worst.

									AASHIO LREU	:30m3 IV.4.0	4-7	. W.Dere	3 13	i dest and i	IS WG/SE		
								Cumiative	L-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A						2 x Dia.	5	
			Unconf.						IDOT Joint Spac	ina				Factored		Controlina	Controlling
Socket	Tia	Laver	Comp.		Joint Type			Side	& Condition	Rock	RMR			End Bear.	End		Factored
Oepth	Elev.	Thick.	Streng.	RQD		Em/Ei	Alpha E	Resist	Ranking	Type	Rating	/73	s	in Layer	Bearing	Resistance	Resistance
(FT)	(FT)	(FT)	(KSF)	(%)	closed)	(Ratio)	reduct.	(KIPS)	(1, 2, 3, 4, 5)	(A,B,C)	aprox.	Coef.(	Coef.	(KIPS)	(KIPS)	(Side,End)	(KIPS)
	398 85	************	150 0	12	open	0.05	0.450	51.99	1	3	codited as a training described				1/24	Side	51.99
	397 60		150.0	12	open	0.05	0.450	103.99	1	3	15	0.01	0.00	1.24	1.24	Side	103.99
	396 35		150 0	12	open	0.05	0.450	155.98	1	В	15	0.01	0.00	1 24	1.24	Side	155.98
5 00	395 10	1.25	150 0	12	open	0.05	0.450	207 97	1	8	15	0.01	0.00	1 24	1 24	Side	207.97
6.25	393 95	1 25	150.0	12	open	0.05	0.450	259.96		3	15	0.01	0.00	1 24	1 03	Side	259.96
7.50	392.60	1.25	150 0	12	open	0.05	0.450	311.96	1	3	15	0.01	0.00	1.24	0,77	Side	311.96
8.75	391 35	1.25	150 0	12	open	0.05	0.450	363 95	1	8	15	0 01	0.00	1 24	đ 52	Side	363.95
10.00	390.10	1 25	150.0	12	open	0.05	0.450	415 94	1	3	15	0.01	0.00	1 24	0.26	Side	415.94
11.25	388 85	1.25	150.0	12	open	0.05	0.450	467.94	1	Б	15	0.01	0.00	1 24	0.00	Side	467.94
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Maximum Nominal

LD O T. BBS. FOUNDATIONS AND GROTECHNICAL UNIT.

Modified 15/15/2011

Maximum

PILE CUTOFF ELEV. *********************** 459 00 ft GROUND SURFACE ELEV. AGAINST PILE DURING DR 458.00 # GEOTECHNICAL LOSS TYPE (None, Scour, Liquef , DD None 

TOTAL FACTORED SUBSTRUCTURE LOAD ======== TOTAL LENGTH OF SUBSTRUCTURE (along skew)=== 35.17 ft
NUMBER OF ROWS OF PILES PER SUBSTRUCTURE:

Approx Factored Loading Applied per pile at 8 ft. Cts ====== 147 87 KIPS Approx. Factored Loading Applied per pile at 3 ft. Cts ===== 55.45 KIPS

PILE TYPE AND SIZE =======

Steel HP 12 X 53

MAX REQUIRED BEARING & RESISTANCE for Selected Pile, Sail Profile, & Losses

Maximum Factored

230 KIPS

Pesistance Avalable in E

Maximum Nominal

418 KiPS

07.					NO	WINAL PLUG	GED	NO	WNAL UNPLL	IG D	NGSENAL	FACTORED GEOTECH	FACTORED GEOTECH.	FACTORED	ESTIMATE
OF YER	LAYER	UNCONF. COMPR.	S.P.T.	GRANULAR OR ROCK LAYER	SIDE	END BRG	TOTAL	SIGE	END BRG.	TOTAL	REGID	LOSS FROM	LOSS LOAD	RESISTANCE	ESTIMATE:
LEV.	THICK	STRENGTH		DESCRIPTION	RESIST.	RESIST.	RESIST	RESIST.	RESIST	RESIST.	BEARING	SCOUR or DO	FROM DD	AVAILABLE	LENGTH
FT)	(FT.)	(TSF.)	(BLOWS)	DESCTIME 175.4	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(FT)
5.70	2 30	2 77	15		13.2		54.5	19.3		23.8	24	C	0	13	3
3 50	2.20	3.00	21		13.4	413	58 9	19.5	4.5	\$2.4	42	0	0	23	6
1 00	2.50	2 35	15		12.8	32.4	54.7	18.7	3.5	59.2	5.5	0	9	- 30	8
9.00	2.00	3.17	1 7 1		5.1	15.3	55.5	90	1.7	68.7	56	0	Q.	36	10
6 00	3 00	1.46	3		11.2	20 1	63.5	18.4	2.2	88.7	63	0	0	35	13
3 20	2.80	0.49	5		4.3	5.8	67.7	5/2	0.7	89.9	58	0	0	37	18
0.70	2.50	0 49	9		3.8	6.8	79.1	5.5	0.7	96.3	79	0	ð	44	18
8 50	2 20	1.04	9		6-4	14.3	73.9	94	13	104.3	7.4	0	0	41	21
6 00	2.50	0.20	7		1.6	2.8	92.4	2.4	0.3	108.6	92	0	0	51	23
3 20	2.60	***************************************	9	Medium Sand	16	19.6 73.5	147 9	2.4	80	115.8 125.7	126	0	0 0	84 69	26 28
0.70	2.50		30	Medium Sand	5.7	1	158.3	9.1	1.0 1.6	125.7	137	9	0	75	28 31
8 20	2.50		3.2	Wedium Sand	6.2 9.0	78.4 98.0		13.1	10.7	147.4	147	0	O O	81	33
5 70	2.50	1	40 30	Medium Sand Medium Sand	57	73.5	247 9	9.3	8.0	163.7	184	0	ð	90	35
3 20	2 30	1	50	Medium Sand Medium Sand	18.9	47.0	186 0	27.7	16.1	182.5	183	0	0	100	38
9 00	2 50 1 70	-	27	Vedium Sand	3.4	68.1	151.6	4.9	7.2	183.3	152	0	ő	83	40
5 70	3 30	2.06	24	A GOINT CRUIT	15.5	28.4	175.7	22.7	3.1	208.9	176	0	Ö	97	43
3 70	2 00	2.58	32		11.2	38 9	187.3	18.4	4.0	223 4	187		Č	103	45
0.70	3.00	2.71	38		15.9	37.3	213.2	24.6	41	249 1	213	0	ō	117	48
8.50	2 20	1.38	30		4.5	46.3	219.6	212	5.1	269 4	220	o l	0	121	51
8 20	2 30	2.77	20		13.2	38/2	439 8	19.3	4.2	311.4	311	0	0	171	53
34 40	1 30	-	100	Cream Coarse Saint	33.3	2450	350.4	48.7	26.8	346.7	347	0	Ö	191	55
13 90	0.50			Shale	24.7	122.5	375.1	38.1	13.4	382 8	375	0	0	206	55 1
2.90	1.00			Shaite	49.4	122.5	424.5	72.3	13.4	455 1	435	9		275	33 t
11 90	1 00			Shale	49 4	122.5	474.0	72.3	13.4	527.3	484	9	O	381	55.1
00.00	1.00	1		Straile	49.4	122.5	523.4	72.3	13.4	599.6	589	- 0	2	238	56.3
99.90	1.00	-		Shale	49.4	122.5	572.8	723	13.4	6718	52.5	0		375	59.7
98 90	1.00			Shala	49.4	122 5	522.2	72.3	13.4	744.1	628	0	3	333	60, 1
97 90	1.00			Snale	49.4	122.5	571.6	723	13.4	816.3	872	-2		342	511
96.50	1.00	THE PERSON NAMED IN COLUMN 1		Shale	49.4	122.5	721.0	723	13.4	888.5	123	0		324	82.3
95 90	1.00			Shale	49.4	122 5	770.4	72.3	13.4	980 3	2.00	Ü	9	424	63 t
34 90				Shale		1225		delica de del constante de la	And the second s		e ette verenepide e demonstration de la demons				

Maximum Vominal

 Pegg Bearing of Pile
 Peg d Bearing of Bots

 418 KIPS
 418 KIPS

10 0 T. 395 FOUNDATIONS AND GEOTECHNICAL LINE

GROUND SURFACE ELEV AGAINST PILE DURING DR 448.50 H GEOTECHNICAL LOSS TYPE (None, Scour, Liquet DD Scour BOTTOM ELEV OF SCOUR, LIQUEF, or DD ======= 447 50 ft 

TOTAL FACTORED SUBSTRUCTURE LOAD ======= 2600 kips TOTAL LENGTH OF SUBSTRUCTURE (along skew)=== 35.17 ft

NUMBER OF ROWS OF PILES PER SUBSTRUCTURE: Approx. Factored Loading Applied per pile at 8 ft. Cts ===== 197 15 KIPS Approx Factored Loading Applied per pile at 3 ft. Cts ===== 73 93 KIPS

PILE TYPE AND SIZE =======

MAX. REQUIRED BEARING & RESISTANCE for Selected Pile, Soil Profile, & Losses

Maximum Factored

230 KIPS

Pesystance Available in Bo

Maximum Nomical

BOT. OF		UNCONF	3, P. T.	GRANULAR	NCA	NNAL PLUG	GED	NOA	MINAL UNPLU	/G'D	NOMINAL.	FACTORED GEOTECH	FACTORED GEOTECH	FACTORED	ESTIMATED
LAYER	LAYER	COMPR	N	OR ROCK LAYER	SIDE	END BRG.	TOTAL	SIDE	ENO BRG.	TOTAL	REQID	LOSS FROM	LOSS LOAD	RESISTANCE	PILE
ELEV	THICK	STRENGTH	VALUE	DESCRIPTION	RESIST.	RESIST.	RESIST.	RESIST.	RESIST.	RESIST.	BEARING	SCOUR or DD	FROM DD	AVAILABLE	LENGTH
(FT.)	(FT)	(TSF.)	(BLOWS)		(KIPS)	(KIPS)	(KIPS)	(KIP5)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(FT.)
446 50	2.00	3 60	21		12.1		44.5	17.7		21.3	-21	٥	9	12	3
444 00	2 50	2 35	15		12.3	32.4	40-2	18.7	3.5	38.2	38	0	0	21	6
442.00	2.00	4.14	7		6.1	15.3	51.2	9.0	4.4	47.5	48	0	. 0	26	8
439.00	3.00	1.45	8		11.2	20.1	49.1	15.4	2.2	52.6	49	٥	0	27	11
436 20	2.50	0.49	5		4.3	6.8	53.3	6.2	0.7	888	53	0	ŭ.	29	13
433 70	2.50	0.49	9		3.8	5.8	64.7	5 5	7.0	75.2	65	9	9	36	18
431 50	2.20	1.04	9		6.4	14.3	59.5	9.4	16	83.3	60	0	0	33	18
429 00	2 50	0.20	7		1.5	2.8	78.0	2.4	0.3	37.5	78	0	9	43	21
426.20	2.30		8	Madium Sand	16	19.6	133.5	2.4	2.5	95.8	96 105	0.	0	53 58	23 26
423.70	2.50		30	Madium Sand	5.7	73.5	144.1	83	80	104.8	105	0	0	55 64	28
421 20	2.30		32	Medium Sand	5.2 9.0	79.4 98.0	154.4		8.5 10.7	115.9	116	0	G	69	28 31
418 70	2 50		4G	Medium Sand	9.0 5.7	73.5	233.5	13 1	8.0	142.5	143	0	0	73	33
416 20	2.50		30 60	Medium Sand Medium Band	18.9	147 0	171.5	27.7	15.1	151.5	161	0	0	89	36
413.70	2.50		27	Medium Sand Medium Sand	3.4	66.1	137.2	13	7.2	182.2	137	5	0	75	38
412 00	1	2 06	24	Medium Sand	15.5	28.4	151.3	22.7	3 1	185.9	161	0	d	89	41
408-70 406-70	3 30	2 96 2 58	32		11.2	35.9	172.9	15.4	40	202.3	173	0	0	95	43
409.70	3.00	2.71	36		16.9	37.3	198.8	24.8	4.1	228 1	199	0	ď	109	46
401 50	2 20	3.36	30		14.5	46.3	205.2	21.2	5.1	248 4	205	ő	ō	113	48
399 20	2 30	2 77	20		13.2	38.2	425.2	19.3	4.2	290.3	290	ě	ō	160	50
397 40	1 85	2. 1.	100	Clean Coarse Sand	33.3	245 0	336.0	48.7	26.8	325.6	326	0	Ö	179	52
396 90	0.50		130	Shate	24.7	122.5	360.7	36.1	13.4	361.8	361	٥	ō	198	52.6
395 90	1 50			Shala	49.4	122.5	410.1	723	13.4	434.0	410	0	e	726	53.6
394 90	1.05			Shale	19.1	122.5	459.6	72.3	13.4	506.3	250	)	0	250	94.6
393 90	1.00			Shale	19 1	122.5	509.0	72.3	13.4	578.5	574		3	280	99.4
392.90	1 50			State	49.4	122.5	558.4	723	13.4	650.8	JA4		3	47.7	76 A
391.90	1.60			Shale	49.4	122.5	507.8	72.3	13.4	723.0	6/18	9	J.	1,93	5/4
390.90	Y 66		i i	Sr.a(a	49.4	122 5	657.2	723	13.4	795 3	Ağı Z	9	2	387	58 F
389 90	100			Shale	49.4	122.5	706.6	72.3	13.4	867.5	597	0		je2	19-3
388.90	1.00			Shale	49.4	122.5	756.0	72.3	13.4	939 8	755	- G		17-5	6%rs2
387 90	1 90			Smale		122.5			13.4				***************************************		Sherry Sherry
	A thurst and the state of the s				edependent de mentre de la companya			restancopadásis hurcum vindy hope opi výrodi magy-		Advisabilitation or property and an advisability and a second of the sec	Можения в применя в п		**************************************		ta-endutavosa metro-organismo do

FDIGITI BBS FOUNDATIONS AND GEOTECHNICAL UNIT

PILE CUTOFF ELEV ------------------------- 449 50 R GROUND SURFACE ELEV AGAINST PILE DURING OR 448 50 H GEOTECHNICAL LOSS TYPE (None, Scour, Liquef., DD Scour BOTTOM ELEV OF SCOUR, LIQUEF , or DO ======= 443 50 ft 

TOTAL FACTORED SUBSTRUCTURE LOAD ======== TOTAL LENGTH OF SUBSTRUCTURE (along skew)=== 35 17 it NUMBER OF ROWS OF PILES PER SUBSTRUCTURE :

Approx. Factored Loading Applied per pile at 5 ft. Cts ====== 197.15 KIPS Approx. Factored Loading Applied per pile at 3 ft. Cts ===== 73 93 KIPS

PILE TYPE AND SIZE ========

Steel HP 12 X 53

Plugged Pile End Bearing Areassessesses 3 967 FT. Unplugged Pile Perimetersessesses 3 967 FT. Unplugged Pile End Bearing Areassessesses 0 983 SQFT. Unplugged Pile End Bearing Areassessesses

Maximum Nominal

MAX. REQUIRED BEARING & RESISTANCE for Selected Pile, Soil Profile, & Losses

Vlaximum Factored

230 KIPS

Maximum Nominal

5.800 FT

:	0.108	SQFT.	

COMPR.   RENGTH   VAI (TSF.)   BLC   COMPR.	GRANULAR OR ROCK LAYER OESCRIPTION  TO BE SAND THE SAND Fine Sand Fine Sand Fine Sand Sandy Gravel Sandy Gravel Sandy Gravel Sandy Gravel	SIDE HESIST. (KIPS) 91 3.8 4.9 91 3.8 4.9 4.0 2.5 1.3 0.8 6.7 6.1 1.4 0.2 1.3 0.8 0.5 7.5 1.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1 1.2 6.1	END BRG, RESIST, (KAPS) 6.5 9.0 4.5 7.6 10.3 7.6 2.4 73.5 63.7 93.1 73.5 63.7 93.1 73.5 63.7 93.1 73.5	RESIST. (KIPS) 15.9 21.9 22.3 28.0 35.0 37.5 36.8 108.0 103.3 137.0 123.6 134.2 111.6 124.2	S(DE RESIST. (KIPS) 12.3 5.5 7 2 3 8 6 2 7 6 4 4 0.2 7 5 8 2 13.0 11.8 8 3 8 9 20.5	END BRG. RESIST. (KIPS) 0.7 0.0 0.5 0.8 1.1 0.8 0.3 2.0 7.0 10.2 8.0 6.4 7.0 3.8	TOTAL RESIST. (KIPS) 14.1 19.8 28.5 30.7 37.7 44.6 50.5 58.5 64.9 74.4 91.2 101.2 110.0 115.8	NOMINAL REQ 0 BEARING (KIPS) 14 20 22 28 35 38 37 59 65 74 91 101	GEOTECH. SSS FROM SCOUR OF DD (KUPS) 0 0 0 0 0 0 0 0 0 0	GEOTECH. LOSS LOAD FROM DD (KUPS) 0 0 0 0 0 0 0 0 0 0	FACTORED AVAILABLE (KUPS) 3 11 12 15 19 21 20 32 36 41 50 56 61	ESTIMATE PILE LENGTH (FT.) 7 10 12 15 17 19 22 25 27 29 32 35
(TSF) BLC U 48 0 65 0 33 0 055 0 75 0 75 0 55 3 2 2 54 2 54 3 3 3 3 3 2 2 54 3 3 9 7 2 6 6 7 7 7 7 8 7 8 8 7 8 8 8 8 8 8 8 8 8	Source   Sand   Sandy Cravel   Sandy	91 38 49 26 42 53 44 02 51 42 13,0 80 57 51 140	(KIPS) 6.8 9.0 4.5 7.6 10.3 7.8 2.4 7.5 63.7 93.1 73.5 58.8 33.7	15.9 21.9 22.3 28.0 35.0 37.5 36.8 108.0 103.3 137.0 123.6 134.2 111.8 124.2	(KIPS) 12.3 5.5 7.2 3.8 6.2 7.8 6.4 0.2 7.5 6.2 13.6 8.3 8.9	(KIPS)  0.7  1.0  0.5  0.8  1.1  0.8  0.3  3.0  7.0  10.2  8.0  6.4  7.0	(KIPS) 14,1 19,8 28,5 30.7 37,7 44,6 50.5 58.5 64,9 74,4 91,2 101,2 110,0	(K)P\$) 14 20 22 28 35 38 37 59 85 74 91 101	(KIPS)  0  0  0  0  0  0  0  0  0  0  0  0  0	(KIPS) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	AVARABLE (AUPS)  3 11 12 15 19 21 20 32 36 41 50 56	LENGTH (FT)  7 10 12 15 17 19 22 25 27 29 32 35
0 49 0 49 0 65 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	3 3 5 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6 6	91 38 4.9 26 42 53 44 02 51 42 13.0 80 57 61 140	6.8 90 4.5 7.6 10.3 7.6 2.4 73.5 63.7 93.1 73.5 53.8 33.7	15.9 21.9 22.3 28.0 35.0 37.5 36.8 108.0 103.3 137.0 130.4 123.6 134.2 111.8	13.3 5.5 7.2 3.8 6.2 7.5 6.2 7.5 6.2 13.0 11.6 8.3 6.9	0.7 1.0 0.5 0.8 1.1 0.8 0.3 8.0 7.0 10.2 8.0 6.4 7.0	14.1 19.8 28.5 30.7 37.2 44.6 50.5 58.5 64.9 74.4 91.2 101.2 110.0	14 20 22 28 35 38 37 59 65 74 91	(KIPS)  0  0  0  0  0  0  0  0  0  0  0  0  0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 11 12 15 19 21 20 32 36 41 50 56	(FT) 7 10 12 15 17 19 22 25 27 29 32 35
0.49 0.85 9.085 9.075 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75 9.75	5 5 5 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	3 8 4.9 6 4.2 5 3 4 4 4 0 2 2 5 1 4 2 13.0 8 0 5 7 5 1 14 0	9.0 4,5 7.6 10.3 7.6 2.4 73.5 63.7 93.1 73.5 58.8 63.7	21 9 22.3 28.0 35.0 37.5 36.8 108 0 103 3 137 0 130 4 123 6 134 2 111.8	5.5 7.2 3.8 6.2 7.8 5.4 0.2 7.5 8.2 19.0 11.6 8.3 8.9	10 0.5 0.8 11 08 0.3 80 70 10.2 80 64 70	19.8 28.5 30.7 37.2 44.6 50.5 58.5 64.9 74.4 91.2 101.2 110.0	20 22 28 35 38 37 59 65 74 91	0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	11 12 15 19 21 20 32 36 41 50 56	10 12 15 17 19 22 25 27 29 32 35
0 85	Fine Sand Fine Sand Fine Sand Fine Sand Fine Sand Sandy Gravet Sandy Gravet Sandy Gravet Sandy Gravet	4.9 2.6 4.2 5.1 4.4 0.2 13.0 8.0 5.7 14.0	9.0 4,5 7.6 10.3 7.6 2.4 73.5 63.7 93.1 73.5 58.8 63.7	22.3 28.0 35.0 37.5 36.8 108 0 103 3 137 0 130 4 123 6 134 2 111.8	7 2 3.8 6 2 7 8 6 4 0.2 7 5 6 2 19.0 11.8 8 3	10 0.5 0.8 11 08 0.3 80 70 10.2 80 64 70	28 5 30.7 37 2 44 6 50.5 58.5 64.9 74 4 91.2 101.2 110.0	22 28 35 38 37 59 65 74 91	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0	12 15 19 21 20 32 36 41 50 58	12 15 17 19 22 25 27 29 32 35
0.33	Fine Sand Fine Sand Fine Sand Fine Sand Sandy Gravel Sandy Gravel Sandy Gravel Sandy Gravel	26 42 53 44 02 51 42 13.0 80 57 61 140	4.5 7.6 10.3 7.8 2.4 73.5 63.7 93.1 73.5 58.8 63.7	28.0 35.0 37.5 36.8 108 0 103 3 137 0 130 4 123 6 134 2 111.8 124.2	3.8 6.2 7.8 6.4 0.2 7.5 6.2 13.0 11.6 8.3	0.5 0.8 1.1 0.8 0.3 8.0 7.0 10.2 8.0 6.4 7.0	30.7 37.2 44.6 50.5 58.5 64.9 74.4 91.2 101.2 110.0	28 35 38 37 59 65 74 91	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0	15 19 21 20 32 36 41 50	15 17 19 22 25 27 29 32 35
0 95 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	7 Fine Sand 6 Fine Sand 5 Fine Sand 8 Sandy Gravet 6 Sandy Cravet 6 Sandy Gravet 5 Sandy Gravet 9 Sandy Gravet	42 53 44 02 51 42 13.0 80 57 61 140	7 6 10 3 7.6 2.4 73.5 63.7 93.1 73.5 58.8 63.7	35.0 37.5 36.8 108.0 103.3 137.0 130.4 123.6 123.6 124.2	6 2 7 8 6 4 0 2 7 5 6 2 13 0 11.6 8 3	08 11 08 0.3 80 70 10.2 80 64 70	37 2 44 6 50.5 58.5 64.9 74 4 91.2 101.2 110.0	35 38 37 59 85 74 91	0 0 0	0 0 0 0	19 21 20 32 36 41 50	17 19 22 25 27 29 32 35
075 055 33 22 254 3391 22	Fine Sand Fine Sand Fine Sand Fine Sand Sandy Gravet Sandy Gravet Sandy Gravet Sandy Gravet	53 44 02 51 42 13,0 8,0 5,7 6,1 14,0	10.3 7.6 2.4 73.5 63.7 93.1 73.5 58.8 63.7	37.5 38.8 108.0 103.3 137.0 130.4 123.6 134.2 111.8 124.2	7.8 6.4 0.2 7.5 8.2 19.0 11.6 8.3 8.9	1.1 0.8 0.3 8.0 7.0 10.2 8.0 6.4 7.0	44 6 50.5 58.5 64.9 74 4 91.2 101.2 110.0	36 37 59 65 74 91	0 0 0 0	0 0 0 0 0	21 20 32 36 41 50 56	19 22 25 27 29 32 35
0.55 3 2 3 3 3 2 2 2.54 3 2.44 3 3.9; 2.2	Fine Sand Fine Sand Fine Sand Fine Sand Sandy Gravel Sandy Gravel Sandy Gravel Sandy Gravel	13.0 8.0 5.7 6.1 14.0	7.8 2.4 73.5 63.7 93.1 73.5 58.8 33.7 35.0	36.8 108.0 103.3 137.0 130.4 123.6 134.2 111.8	6.4 0.2 7.5 8.2 19.0 11.5 8.3 8.9	0 8 0.3 8 0 7 0 10.2 8 0 6 4 7 0	50.5 58.5 64.9 74.4 91.2 101.2 110.0	37 59 65 74 91	0 0 0	0 0 0 0	20 32 36 41 50 58	22 25 27 29 32 35
2 64 3 3 3 3 3 4 4 3 3 9 5 2 2 6 4 3 3 9 5 2 2 6 4 3 3 9 5 2 2 6 4 3 3 9 5 2 2 6 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	Fine Sand Fine Sand Fine Sand Fine Sand Sandy Gravet Sandy Gravet Fine Sandy Cravet Sandy Cravet Sandy Cravet	0 2 5 1 4 2 13.0 8 0 5 7 6 1 14 0	2.4 73.5 53.7 93.1 73.5 58.8 33.7	108 0 103 3 137 0 130.4 123 6 134 2 111.8 124.2	0.2 7.5 8.2 19.0 11.6 8.3 8.9	0.3 8 0 7 0 10.2 8 0 6 4 7 0	58.5 64.9 74.4 91.2 101.2 110.0	59 85 74 91	0 0 0	0 0 0	32 36 41 50 58	25 27 29 32 35
2 54 3 3 3 4 4 3 3 9 5 2 2 5 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Fire Sand Fire Sand Sandy Gravet Sandy Gravet Sandy Cravet Sandy Cravet Sandy Cravet Sandy Cravet	5 t 4 2 13.0 8 0 5 7 6 1 14 0	73.5 53.7 93.1 73.5 53.8 63.7	103 3 137 0 130.4 123 6 134 2 111.8 124.2	7 5 6 2 19.0 11.5 8 3 8 9	80 70 10.2 80 64 70	64,9 74.4 91.2 101.2 110.0	65 74 91 101	0 0	0 0 0	36 41 50 56	27 29 32 35
2 64 3 3 3 4 3 3 9 5 2 2 5 4 4 3 3 9 5 2 2 5 4 5 3 3 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 Fine Sand 8 Sandy Gravet 0 Sandy Gravet 4 Sandy Cravet 5 Sandy Gravet 0	42 13.0 8.0 5.7 6.1	53.7 93.1 73.5 53.8 83.7	137 0 130 4 123 6 134 2 111.8 124.2	8 2 19.0 11.6 8 3 8 9	70 10.2 80 64 70	74.4 91.2 101.2 110.0	74 91 101	0	0 0 0	41 50 56	29 32 35
2 64 3 3 91 2	3 Sandy Gravel 5 Sendy Gravel 4 Sandy Gravel 5 Sandy Gravel 0	13.0 8.0 5.7 6.1	93.1 73.5 58.8 33.7	130.4 123.6 134.2 111.8 124.2	19.0 11.8 8.3 8.9	10.2 8 0 6 4 7 0	91.2 101.2 110.0	91 101	0	0	50 58	3.2 3.5
2 54 3 3 9 5 2 2 3 4 4 3 3 9 5 2 2 4 4 3 3 9 5 2 2 4 4 3 3 9 5 2 2 4 4 3 3 9 5 2 2 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 3 3 9 5 2 4 4 4 4 3 3 9 5 2 4 4 4 4 3 3 9 5 2 4 4 4 4 3 3 9 5 2 4 4 4 4 3 3 9 5 2 4 4 4 4 3 3 9 5 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	Sandy Gravel Sandy Cravel Sandy Gravel Sandy Gravel	8 5 7 1 0 5 5 5 1 0	73.5 58.8 83.7 35.0	123 6 134 2 111.8 124.2	11.8 93 89	80 64 70	101.2 110.0	101	0	0	56	35
2 54 3 2 44 3 3 9; 2	4 Sandy Gravel 5 Sandy Gravel 0	5.7 6.1 14.0	58.8 83.7 35.0	134.2 111.8 124.2	83 89	6.4 7.0	110.0		-		i	
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	4			157 1	18.4	3.7	156.8	157	0	a	86	44
		19.2	53.9	153.7	28.1	5.9	182.4	154	0	Ö	85	47
2.27	0	120	31.3	151,0	17.6	3.4	198.4	151	0	0	83	49
1 20 1	2	8.5	15.5	172.0	12.4	1.8	2121	172	0	o	95	52
2 11 2	4	115	29.1	276.9	16.8	3.2	239,1	239	0	ð	132	54
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			Shale 49.4	Shale 49.4 122.5	Shale 49.4 122.5 375.7 5hale 49.4 122.5 474.5 5hale 49.4 122.5 523.9 5hale 49.4 122.5 573.3 5hale 49.4 122.5 573.3 5hale 49.4 122.5 572.7 5hale 49.4 122.5 672.7 5hale 49.4 122.5 771.6 6hale 49.4 122.5 771.6 6hale 49.4 122.5 771.6 6hale 49.4 122.5 820.4 6hale 49.4 6hale 49.4 122.5 820.4 6hale 49.4	Shate 49.4 122.5 375.7 72.3   Shate 49.4 122.5 425.1 72.3   Shate 49.4 122.5 474.5 72.3   Shate 49.4 122.5 523.9 72.3   Shate 49.4 122.5 573.3 72.3   Shate 49.4 122.5 572.7 72.3   Shate 49.4 122.5 572.7 72.3   Shate 49.4 122.5 572.7 72.3   Shate 49.4 122.5 72.6 72.3   Shate 49.4 122.5 771.6 72.3   Shate 49.4 122.5 771.0 72.3   Shate 49.4 122.5 771.0 72.3   Shate 49.4 122.5 771.0 72.3   Shate 49.4 122.5 820.4 72.3   Shate 49.4 122.5 820.4 72.3	Shale         49.4         122.5         375.7         72.3         13.4           Shale         49.4         122.5         425.1         72.3         13.4           Shale         49.4         122.5         474.5         72.3         13.4           Shale         49.4         122.5         523.9         72.3         13.4           Shale         49.4         122.5         522.7         72.3         13.4           Shale         49.4         122.5         522.7         72.3         13.4           Shale         49.4         122.5         672.2         72.3         13.4           Shale         49.4         122.5         721.6         72.3         13.4           Shale         49.4         122.5         721.6         72.3         13.4           Shale         49.4         122.5         371.0         72.3         13.4           Shale         49.4         122.5         320.4         72.3         13.4           Shale         49.4         122.5         320.4         72.3         13.4	Shale 49.4 122.5 375.7 72.3 13.4 435.9 Shale 49.4 122.5 425.1 72.3 13.4 455.9 Shale 49.4 122.5 425.1 72.3 13.4 455.9 Shale 49.4 122.5 523.9 72.3 13.4 509.4 514.6 49.4 122.5 573.3 72.3 13.4 509.4 122.5 573.3 72.3 13.4 809.4 122.5 573.3 72.3 13.4 872.6 Shale 49.4 122.5 572.7 72.3 13.4 744.9 Shale 49.4 122.5 672.2 72.3 13.4 817.1 5hale 49.4 122.5 721.6 72.3 13.4 899.4 89.4 122.5 721.6 72.3 13.4 899.4 89.4 122.5 721.6 72.3 13.4 899.4 89.4 122.5 721.6 72.3 13.4 899.4 89.4 122.5 820.4 72.3 13.4 891.5 98.9 4 94.1 122.5 820.4 72.3 13.4 891.5 98.9 4 94.1 122.5 820.4 72.3 13.4 961.6 98.9 4 94.1 122.5 820.4 72.3 13.4 961.6 98.9 4 94.1 122.5 820.4 72.3 13.4 1033.9 98.9 4 94.1 122.5 820.4 72.3 13.4 1033.9	Shale         49.4         12.5         375.7         72.3         13.4         383.6         378           Shale         49.4         122.5         425.1         72.3         13.4         485.9         40.8           Shale         49.4         122.5         474.5         72.3         13.4         588.1         478.           Shale         49.4         122.5         523.9         72.3         13.4         800.4         50.4           Shale         49.4         122.5         573.3         72.3         13.4         744.9         573.5           Shale         49.4         122.5         572.7         72.3         13.4         744.9         502.3           Shale         49.4         122.5         572.2         72.3         13.4         894.4         702.2           Shale         49.4         122.5         721.6         72.3         13.4         894.4         702.2           Shale         49.4         122.5         721.6         72.3         13.4         894.4         702.2           Shale         49.4         122.5         771.0         72.3         13.4         896.4         702.2           Shale         49.4 </td <td>Shale 49.4 122.5 375.7 72.3 13.4 383.8 376 0  Shale 49.4 122.5 425.1 72.3 13.4 455.9 425. 7  Shale 49.4 122.5 474.5 72.3 13.4 455.9 425. 7  Shale 49.4 122.5 523.9 72.3 13.4 528.1 475. 9  Shale 49.4 122.5 573.3 72.3 13.4 600.4 50.4 0  Shale 49.4 122.5 573.3 72.3 13.4 572.8 570. 2  Shale 49.4 122.5 572.3 72.3 13.4 572.8 570. 2  Shale 49.4 122.5 572.2 72.3 13.4 677.1 672.3 3  Shale 49.4 122.5 771.6 72.3 13.4 689.4 562.4 6  Shale 49.4 122.5 771.0 72.3 13.4 689.4 562.4 6  Shale 49.4 122.5 771.0 72.3 13.4 661.6 572.1 0  Shale 49.4 122.5 771.0 72.3 13.4 1033.9 374.0 0</td> <td>  Shale</td> <td>  Shale</td>	Shale 49.4 122.5 375.7 72.3 13.4 383.8 376 0  Shale 49.4 122.5 425.1 72.3 13.4 455.9 425. 7  Shale 49.4 122.5 474.5 72.3 13.4 455.9 425. 7  Shale 49.4 122.5 523.9 72.3 13.4 528.1 475. 9  Shale 49.4 122.5 573.3 72.3 13.4 600.4 50.4 0  Shale 49.4 122.5 573.3 72.3 13.4 572.8 570. 2  Shale 49.4 122.5 572.3 72.3 13.4 572.8 570. 2  Shale 49.4 122.5 572.2 72.3 13.4 677.1 672.3 3  Shale 49.4 122.5 771.6 72.3 13.4 689.4 562.4 6  Shale 49.4 122.5 771.0 72.3 13.4 689.4 562.4 6  Shale 49.4 122.5 771.0 72.3 13.4 661.6 572.1 0  Shale 49.4 122.5 771.0 72.3 13.4 1033.9 374.0 0	Shale	Shale

Maximum Nominai

Pegg Seering of Pile Regid Searing of Book

ID O T BBS FOUNDATIONS AND GEOTECHNICAL UNIT

March Fed 10:18:201

MAX. REQUIRED BEARING & RESISTANCE for Selected Pile, Soil Profile, & Losses

Maximum Factored

Resistance Available in <u>Born</u>

225 KIPS

Maximum Nominal

418 KIPS

TOTAL FACTORED SUBSTRUCTURE LOAD ======== 2500 kip\$

TOTAL LENGTH OF SUBSTRUCTURE (slong skew)=== 35 17 ft

NUMBER OF ROWS OF PILES PER SUBSTRUCTURE : 3

Approx Factored Loading Applied per pile at 8 ft. Cts ===== 197 15 KiPS Approx. Factored Loading Applied per pile at 3 ft. Cts ===== 73 93 KiPS

PILE TYPE AND SIZE ========= Steel HP 12 X 53

BOT. OF		UNCONF.	\$.P.T.	GRANULAR	NON	BNAL PLUG	GED	NO	MNAL UNPLL	(0.0	NOMINAL	FACTORED GEÖTECH.	FACTORED GEOTECH.	FACTORED	ESTIMATEL
IYER	LAYER	COMPR	N	OR ROCK LAYER	SIDE	END BRG	TOTAL	SIDE	END BRG.	TOTAL	REQ'D	LOSS FROM	LOSS LOAD	RESISTANCE	PILE
LEV.	THICK.	STRENGTH	VALUE	DESCRIPTION	RESIST.	RESIST.	RESIST.	RESIST.	RESIST	RESIST.	BEARING	SCOUR or DD	FROM DD	AVAILABLE	LENGTH
FT.	(FT)	(TSF.)	(BLOWS)		(XCPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIP3)	(KIP\$)	(KIPS)	(KIPS)	(FT.)
13 60	4 93	C 52	5		7.9		21.4	11.5		13.0	13	4	0	3	8
11 10	2.50	0.98	7		6.9	13.5	22,0	10.1	1.5	22.4	22	4	0	8	8
88.60	2.50	0.52	- 5		4.0	72	23.3	5.9	0.8	28.0	23	4	0	9	111
56 00	360	0.33	4		2.7	4.5	27.9	40	0.5	32.2	28	4	0	11	14
33 50	2.50	0.46	5		3.6	5.3	34.3	5.2	0.7	37 9	36	4	9	16	16
31.00	2.50	0.61	5		59	11.2	41.4	8.7	1.2	46·5	41	4	0	18	19
26 50	2.50	0.75	3		5.5	10.3	51.3	8 1	1.1	55 1	51	4	0	24	21
26 00	2.50		- 6	Sandy Gravel	1.4	147	42.9	2.5	1.5	56.0	43	4	0	19	24
23 50	2.50	0.38	20		2.9	50	114.3	4.2	0.5	67.7	58	4	0	33	25 28
21.10	2.40		30	Sandy Gravel	7.6	73.5	121.9	11.2	8.0	78.9	79	4	0	39	28
8 60	2.50		30	Sandy Gravel	30	73.5	125 0	11.8	80	90.0	90	4	ū	45	33
16 10	2.50		28	Sandy Gravel	7.1	68.6	122 3	10.4	7.5	99.2	99 93	4	0	50 47	33 38
13 50	2.60		24	Sandy Gravet	5.9	58.8	92.8	8.6	6.4	104.0 118.7	104	4	0	47 53	38
1 10	2.40	1.70	17		10.0	23.4	104.0	14.5	2.6		1	4	0	53 62	41
8 60	2.50	1.79	14		10.7	247	120.4	15 7	2.7	135.0 151.5	120 120	4	0	62 61	43
6.10	2.50	2.20	14		12.3	30 3	119.6	17.9	3.3	164.9	134	4	0	70	45
3 50	2.50	1.25	14		B 7	172	134.5	12.7	2.6	179.7	134	4	ė.	73	49
1 00	2.50	1.70	2.4		10 4	23.4	141.1	15.2	22	194.4	162	4	9	7.3 85	51
8 50	2.50	1 43	20		9/2	19 7	161.5	13.5	3.4	222.6	223	4	0	118	54
98 00	2 50	2.24	17		12.4	30 9	265 6 315 0	18.2 72.3	13.4	294.9	295	4	0	158	54.5
15 00	1.00			Shale	49.4	122.5	384.4	72.3	13.4	387.1	253	4	ó	196	55.5
94.00	1.00			Shale	49 4	122.5	413.8	72.3	13.4	439 4	414	4	o	223	56.5
3 00	1.00			Shale	33.4	122.5	463.2	723	13.4	511.5	3/3	1	7	2.50	37.5
92.00	1.00	1		Shale	43.4	122.5	493.2 512.6	723	13.4	583.9	513	1	3	278	34.5
1.00	100	1		Share	49.4	122.3	562.1	723	13.4	656.1	63.2		2	30.5	59.5
00.0	1.00			Shale Shale	49.4	122.5	811.5	723	13.4	728.4	611	4	ű	1.12	347.5
9.00	1	Ì		Shafa Shafa	49.4	122.5	660.9	723	13.4	800.6	851	3	3	3.59	67.5
8 00	1.00	enter.			49.4	122.5	710.3	723	13.4	872 9	210		Š	374	82.3
7 00 6 00	100			Shale Shale	49.4	122.5	759.7	723	13.4	945.1	190	4		5.5	63.5
5 00	100			Shake	47.4	122.5	122.7	1 . 2 0	13.4						
			A POST TIPLE		manana da			foreign may overgo have got a defenda de mandra de descripción de foreign de		n-occusions rotates and assumption of the state of the st	egesegi kajandarja da serindarja da serindarja da serindarja da serindarja da serindarja da serindarja da seri				

TO OIT BBS FOUNDATIONS AND GEOTECHNICAL UNIT

GROUND SURFACE ELEV. AGAINST PILE DURING DR 448 50 ft GEOTECHNICAL LOSS TYPE (None, Scour, Liquef , OD Scour BOTTOM ELEV OF SCOUR. LIQUEF, or DD ======= 443.00 ft 

Maximum Nomelat Maximum Factored Maximum Resid Bearing of Pile Regid Searing of Box 418 KIPS 418 KIPS 230 KIPS

MAX. REQUIRED BEARING & RESISTANCE for Selected Pile, Soil Profile, & Losses

TOTAL FACTORED SUBSTRUCTURE LOAD ======= 2600 kips TOTAL LENGTH OF SUBSTRUCTURE (along skew)=== 35.17 R NUMBER OF ROWS OF PILES PER SUBSTRUCTURE

Approx. Factored Loading Applied per pile at 8 ft. Cts ===== 197.15 KIPS Approx Factored Loading Applied per pile at 3 ft. Cfs ===== 73 93 KIPS

PILE TYPE AND SIZE ======= Steel HP 12 X 53

Unplugged Pile Permeter======= 5 800 FT. 

BOT.		[		**************************************	1,004	*150 * 1 * 100 * 100		T				FACTORED	FACTORED		
0#		UNCONF.	3.P.T.	GRANULAR	NOS	MNAL PLUG	sist U	Nos	RNAL UNPLL	JG D	NOMENAL	деотесн.	GEOTECH.	FACTORED	EST/MATED
LAYER	LAYER	COMPR	N	OR ROCK LAYER	SiDE	END BRG.	TOTAL	SIDE	END BRG.	TOTAL	REGIO	LOSS FROM	LOSS LOAD	RESISTANCE	PILE
ELEV.	THICK.	STRENGTH		DESCRIPTION	RESIST.	RESIST.	RESIST.	RESIST.	RESIST.	RESIST.	BEARING	SCOUR or DD	FROM DD	AVAILABLE	LENGTH
(FT.)	(FT.)	(TSF.)	(BLOWS)		(KUPS)	(K)PS)	(KIPS)	(KIPS)	(KIPS)	(K)PS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(FT.)
442 50	6.30	0.59	8		10.8		17.9	15.8		15.5	17	O	0	9	7
440 00	2.50	0.52	4		4.0	7.2	19.3	5.9	0.8	22.1	19	0	0	11	10
437 50	2.50	0.33	3-		2.6	4.5	21.0	38	0.5	25.8	21	Ö	Ø.	12	12
435 00	2 50	0.26	4		2.1	3.6	47.9	3.1	0.4	31.6	32	0	0	17	15
432.50	2 50	2 06	10		11.5	28.4	53.7	17.2	3.1	48.2	48	0	0	25	17
430 00	2.50	1 63	7		10.1	22.5	55.7	14.8	2.5	62.0	56	0	ø	31	20
426.40 424.90	3 80 1 50	1 04	8		10.5	14.3	76.3	15.3	1.6	78.5	76	Ō	g.	42	23
424.90	2.40		10 23	Medium Sand Medium Sand	1.1	24.5	121.5	1.6	27	34.9	65	. 0	0	4.7	25
420.00	2.50		25 25	Medium Sand Sandy Gravet	5.0 6.0	68.6	119 1	7.3	7.5	91,3	91	0	ű	50	27
417.50	2.50		32	Sandy Graver Sandy Graver	5.U 8.9	51.2 78.4	142.2 219.8	3 Y	5.7	101.9	102	0	0	5-5	30
415.00	2 50		50	Sandy Graves	32.4	147.0	219.8 152.9	13.1 47.4	8.5	122.5	122	0	. 0	67	32
412.50	2.50	3.46	30	Dendy Drawer	16.8	47 7	153.3		16.1	159.0	153	0	3	84	35
409.50	3 00	2.27	26		15.0	313	152.4	24.6	5.2	181 9	153	0	Ò	94	37
407.00	2.50	1 2 1	20		7.7	15.3	178.3	22.0	3.4	202.1	152	0	0	84	40
404 50	2.50	2.44	18		13.1	33.5	191.6	11.2 19.2	1.7 .	215.3 234.5	178	0	ê	98	43
402.00	2 50	2.45	15		13.2	33.B	210.6	193	37	254.5 254.4	192 211	0	0	105	45
399 50	2.50	2.87	17		4.7	39.5	211.8	21.5	43	274.4	212	0	0	116	48
397.90	1.50	189	18		71	26.0	226.2	104	29	285.8	225	0	0	116	50
394 50	3.40	2 42	52		17.8	33.3	243.0	25.0	3.6	311.5	243	0	3	124	52
392.00	2.50	2 35	15		12.8	32.4	251.8	13.7	3.5	329.3	252	0	9	134	55
389 50	2.50	2.06	10		11.8	25.4	273.8	17.2	3 1	348 1	274	0	0	139	58
387.00	2.50	2 80	11		14.4	38.6	274.5	21.1	4.7	367.8	274	0	0	151	60
385.40	1.60	1.80	10		6.9	248	274.5	10.1	27	377 1	274	0	0	151	63 64
382.90	2.50	130	8		8.8	17.9	279.9	12.6	2.0	389.4	280	ě	c c	154	67
380 40	2.50	107	10		7.4	147	395.1	10.9	16	4120	395	0	3	217	59
379.40	1.00			Shale	49.4	122.5	444.5	72.3	13.4	484.3	346	0	j l	344	19.7
378.40	1.60			Shake	49 4	122.5	493.9	723	13.4	556.5	104		7	0.72	211
377 40	1.00	ļ	-	Shale	49 4	122.5	543.3	723	13.4	628.8	543	5		: 49	
376 40	1.00		į	Shale	43.4	122.5	592.8	723	13.4	7010	70,03	i,	1.	126	13.1
375 40	1.00	-		Shale	49 4	122.5	542.2	72.3	13.4	773 3	743	9		354	45.9
374.40	1 30			Shale	49.4	122.5	591.6	723	13.4	845.5	502	j [		340	75 4
373 40	1.00			Shale	49 4	122.5	741.0	723	13.4	917.8	7.52			-54	76.1
372.40	1.00			Shale		122.5	***************************************		13.4	1	nave e				docum
And the second second			and the same	an A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-A-			Aministration and an acceptance of the second	and the second s		**************************************		Opposition is adjusted to any of process	COCA Ada alla alla algungump		Amouthbushas del su visión color à s

Maximum Nominal Maximum Nominal Regid Bearing of Pile Redid Bearing of Born 418 KIPS 418 KIPS

TO OIT BOS FOUNDATIONS AND GEOTECHNICAL UNIT

Minished 10/18/201

MAX. REQUIRED BEARING & RESISTANCE for Selected Pile, Soil Profile, & Losses

Red d Bearing of Born Resistance Available in Born

Maximum Factored

226 KIPS

Approx. Factored Loading Applied per pile at 8 ft. Cts ===== 280 57 K/PS Approx. Factored Loading Applied per pile at 3 ft. Cts ===== 105 21 K/PS

PILE TYPE AND SIZE ======== Steel HP 12 X 53

80T.								T				FACTORED	FACTORED	od.	
OF		UNCONF	3.P.T.	GRANULAR	NOS	MNAL PLUC	GED	NO	MNAL UNPL	UGD	NOMINAL	GEOTECH.	GEOTECH.	FACTORED	ESTIMATED
LAYER	LAYER	COMPR	N	OR ROCK LAYER	SiD€	END BRG.	TOTAL	310€	END BRG.	TOTAL	REQ'D	LOSS FROM	LOSS LOAD	RESISTANCE	PILE
ELEV.	THICK	STRENGTH		DESCRIPTION	RESIST.	RESIST	RESIST.	RESIST.	RESIST.	RESIST.	BEARING	SCOUR or DO	FROM DD	AVA/LABLE	LENGTH
(FT.)	(FT.)	(TSF)	(BLOWS)		(KIPS)	(K)PS)	(KIPS)	(KIPS)	(KIPS)	(KIRS)	(KIPS)	(KIFS)	(KUP\$)	(KIPS)	(FT.)
448.20	1.80	1.55	12		71		38.3	10.3		13.7	14	4	Ö	4	3
445.70	2.50	2.27	14		12.5	31.3	54.2	18.3	3 4	32.4	-32	4	٥	14	5
443.20	2.50	2.51	15		134	34.6	66.2	19.5	3:8	51.8	52	4	. 0	25	8
440.70	2.50	2.41	13		13.0	33.2	71.6	19.1	3.6	70.1	70	4	0	35	10
438 20	2.50	1.96	13		11.0	25.6	71.4	16 1	2.8	84 9	71	4	0	35	13
435.70	2.50	1 04	8		7.3	143	78.6	10.6	1.6	95 8	79	4	0	39	15
433.50	2.29	1 04	5		5.4	14.3	73.1	9.4	15	103.6	73	4	0	36	18
430.70	2 80		-	Medium Sand	0.2	2.4	92.9	0.3	0.3	106 1	93	4	ā	47	20
428 20	2.50		9	Sandy Gravet	2.1	22.0	136.7	3.0	2.4	113.7	114	4	0	59	23
425.70	2.50		26	Sandy Gravel	6.3	53.7	152 6	9.2	70	125.0	125	4	0	65	25
423,20	2.50		34	Sandy Gravel	10.0	83.3	175.5	14.6	9.1	134.5	126	4	0	65	28
420.70	2.50	2.53	34		13-8	38.2	123.8	20.2	40	153 1	124	4	0	64	30
418.20	2.50	1.50	12		9.5	20.7	150.8	13.9	2.3	168.9	151	4	0	79	33
415 70	2.50	2.77	24		14.3	38.2	163.4	21.0	4.2	189.7	163	4	0	56	35
413.20	2.50	2.64	20		13.9	36 4	166.0	20.3	40	208.7	166	4	0	97	38
410.70	2.50	1.82	14		10.9	25.1	186.3	15.9	2.7	225.6	186	4	0	99	40
408.20	2 50	2.51	12		13.4	34.5	170,5	19.5	3.8	242 0	171	4	0	90	43 45
405 70	2 50	0.39	12 10		1/1.5		195.8	4.5 16.8	0.6 3.0	248 9 266 5	196 214	4	Ö	104 114	45 48
403 20	2 50	1.99 2.50	30			27.4 34.5	214.2 227.7	19.5	3.8	266.5 286.1	214	4	. U	121	48 50
400.70 398.20	2.50 2.50	2.50	13		13.4	34.5	240.1	19.5	3.8	305.5	240	4	0	121	53
395.20	2 50	2 44	11		13.1	33.5	240.1	192	3.7	323 4	240	4	Ü	128	55
394.00	170	2 44 1 50	10		8.5	20.7	240.3 251.2	95	2.3	323.4	251	4	0	134	57
391.50	2 50	1.87	10		10.9	25 1	298.2	15.9	2.3	353.3	298	1 4	0	160	60
389.00	2.50	1.02	25	Sandy Gravel	5.0	512	365.4	87	87	353.2 368.6	365	4	0	197	62
368.00	1 (9)		59	Shale	49.4	122.5	414.8	723	13.4	440 9	415	4	0	224	63
387.00	100			Shale	49.4	122.5	464.2	72.3	13.4	513 1	475		9	224	8.1
386.00	1 00			Shala	49.4	122 5	513.7	723	13.4	585.4	534		3	219	60
385.00	100			Sinale	49 4	122.5	563.1	723	13.4	657.6	553	1		36.6	
384.00	1 00			Shele	49.4	122.5	612.5	72.3	13.4	729.9	317	-		2.43	100
383.00	199			Shale	49.4	122.5	561.9	723	13.4	802 1	ر الم	1		786	ને સં
382.00	1.00			Shale	49.4	122 5	711.3	723	13.4	874.4	711			242	43
381.00	100			Shake	49.4	122.5	760.7	723	13.4	946.6	25.1		3	4/3	7.0
380 00	100	·		Shale	47.4	122 5	100.1	123	13.4	5-47-0	, 4		-/		
220 00				⇒३ तवस द		: 50 m2 m2		umblemedenamable(umresmits)	1.3 *	Name of the Control o				And produce the second	

ID DIT BES FOUNDATIONS AND GEOTECHNICAL UNIT

Maximum Pile

PILE CUTOFF ELEV ANDERSEES SEES 451 90 R GROUND SURFACE ELEV AGAINST PILE DURING DR 450.00 ft GEOTECHNICAL LOSS TYPE (None, Scour, Liquef , DD Scour BOTTOM ELEV OF SCOUR, LIQUEF , or DD ======= 446.80 ft 

TOTAL FACTORED SUBSTRUCTURE LOAD ======= 2600 kips TOTAL LENGTH OF SUBSTRUCTURE (along skew)### 35 17 ft NUMBER OF ROWS OF PILES PER SUBSTRUCTURE: 3

Approx. Factored Loading Applied per pile at 3 ft. Cts ===== 197 15 KIPS Approx, Factored Loading Applied per pile at 3 ft. Cts ===== 73 93 KiPS

PILE TYPE AND SIZE ========

Steel HP 12 X 53

Regid Bearing of <u>Pie</u>

	0.000	1 2 1
100	0.108	SOFT.

Maximum Nominal Req i Seaning of Scot

MAX. REQUIRED BEARING & RESISTANCE for Selected Pile, Soil Profile, & Losses

Maxamum Factored

Resistance Avadable in Bo

eat. OF		UNCONF.	5.P.T.	GRANULAR	NCA	HNAL PLUG	GED	NON	MNAL UNPLI	JG'D	NCMINAL	FACTORED GEOTECH.	FACTORED GEOTECH.	FACTORED	ESTIMATED
AYER	LAYER	COMPR.	N	OR ROCK LAYER	SIDE	END BRG.	TOTAL	SIDE	END BRG.	TOTAL	REGIO	LOSS FROM	LOSS LOAD	RESISTANCE	PILE
ELEV.	THICK.	STRENGTH	VALUE	DESCRIPTION	RESIST.	RESIST.	RESIST.	RESIST.	RESIST	RESIST.	BEARING	SCOUR or DO	FROM DD	AVAILABLE	LENGTH
(FT)	(FT.)	(TSF.)	(BLCWS)		(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIP3)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(FT.)
48 20	180	0.98	7		5.0		17.5	7.3		8.7	9	3	0	2	3
45.70	2.50	0.91	- (1		8.5	12.5	196	9.5	14	17.7	18	3	0	7	5
42 70	3 00	0.59	5		5.4	. 8.1	20,9	. 7.9	0.9	25.2	21	. 3	, 0	9	. 8
40 20	2.50	0.29	4		2.3	40	24.5	3.4	0.4	28.7	25	3	Ö	11	11
37 70	2.50	0.39	.5		3.1	5.4	33.5	4.5	0.6	33.8	33	3	0	16	13
35 20	2.50	0.81	8		5 9	11.2	39.4	8.7	1.2	42.5	39	3	C	19	15
32.70	2.50	0.81	8		5.9	112	41.7	87	13	50.7	42	3	Ø	20	18
80 20	2.50	0.55	- 3		4.2	7.6	47.7	6.2	0.8	57 1	48	3	O	24	21
7.70	2.50	0.68	2		5.1	9.4	47.4	7.4	1.0	64.0	47	3	0	23	23
25 20	2.50	0.79	2		2.3	40	50.3	3.4	0.4	57.4	50	3	0	25	26
1 90	3.30	0.33	2		3.5	4.5	88.4	5.1	0.5	78.3	76	3	G.	39	29
20-20	1.78		15	Sandy Gravel	2.5	39.2	125-3	3.7	4.3	83.7	84	3	ė.	43	31
7.70	2.50		30	Sandy Gravel	80	73.5	79.4	11.6	8.0	89.5	79	3	0	41	33
4 40	3.30	1.43	39		12.2	19.7	97.0	17.8	2.2	107 9	97	3	٥	51	37
2 40	2.00	1.62	15		3.7	25 5	101.3	12.7	2.7	120.1	101	3	ō	53	39
0.20	2.20	1 50	25		8.4	20.7	109,8	12.3	2.3	132.4	110	3	0	58	41
7.70	2.50	1.50	15		9.5	20.7	115.6	13.9	2.3	145 9	116	3	0	61	43
5 20	2.50	1.24	14		8.3	17 1	131.5	12.2	1.9	158.9	132	3	0	70	46
2 70	2.50	1.79	13		10.7	24.7	158.1	15.7	2.7	176.4	158	3	0	84	48
10.20	2.50	2.94	40		15 0	40.5	150.9	21.9	4.4	196 9	161	3	Ů.	86	51 53
7.70	2.50	2.06	20		113	28 4	166.8	17.2	3.1	213.5	167	3	0	89	53 58
5 20	2.50	1 = 3	12		10.1	22.5	166.1	14.8	2.5	227 0	166	3	0	89	
2 70	2.50	0.85	7		8.2	1117	171.7	90	13	236.9	172	3	0	92	58 61
9 70	3.00	0.81	- 11		7.1	11.2	273.0	10.4	12	256.7	257 278	3	0	138	63
7 70	2.00		43	Sandy Gravel	13.3	105 3	303 5 352 9	19.5 72.3	13.4	278.1 350.3	278 350	3	0	190	63 34.3
5 70	1.00			Shake	49 4	122.5	302.9 402.3	723	134	422.5	350 402	3	0	219	54.3 55.3
5 70	1.60			Shale	49 4 49 4	122.5	402.3 451.7	72.3	13.4	494.8	452	3	U	219	99 3 86 3
4 70	1.00			Shale	49 4	122.5	501 2	72.3	13.4	567.1	501	1 3		273	67.J
3.70	1.00		and the second	Shale	49.4	122.5	550.8	723	13.4	639.3	551	1 1	é	3.0	87.0
2 70	5 00	All controls and control controls and control controls and control controls and control control controls and		Shale	49.4	122.5	500.0	723	13.4	711.5	120	,	- 5	327	62.3
1 70	100	a contract		Shale	49.4	122.5	649.4	723	13.4	783.8	5.43		0	1745	1, 3
0 70	1.00			Shale	49 4	122.5	698,8	72.3	13.4	856.1	994	1 1	5	38.2	74.7
9.70	1.00			Shale	49.4	122.5	748.7	72.3	13.4	928.3	7.1%	1 1	ő	-09	72.7
8 70 7 70	1 00			Shale	1 774	122.5	1+0.2	1 23	13.4	34,3,3					
, 13				W	App graphophophophophophophophophophophophophop			generalizakon kindonesa g			and reading and color and the			Additional Control of the Control of	

Maximum Nominal Maximum Nominal

418 KIPS

Pegid Searing of Fig. Reg d Bearing of <u>Borin</u> Resistance Avalishe in <u>Bor</u>

418 KPS

TO OIT BES FOUNDATIONS AND GEOTECHNICAL UNIT

Monthed 10:18/2011

Maximum P

MAX. REQUIRED BEARING & RESISTANCE for Selected Pile, Soil Profile, & Losses

Maximum Factored

230 KPS

GROUND SURFACE ELEV. AGAINST PILE DURING DR 445 00 ft GEOTECHNICAL LOSS TYPE (None, Scour, Liquet , DD Scour BOTTOM ELEV OF SCOUR, LIQUEF, or DD ======== 445 00 ft 

3700 kips

Approx. Factored Loading Applied per pile at 8 ft. Cfs ===== 280 57 KIPS Approx. Factored Loading Applied per pile at 3 ft. Cts ===== 105 21 KIPS

Steel HP 12 X 53 PILE TYPE AND SIZE =======

UNCONF. COMPR. STRENGTH (TSF.) 0.19 0.33 0.43 0.25 1.17	S.P.T. N VALUE (BLOWS) 2 2 3 3 4 4 40	GRANULAR OR ROCK LAYER DESCRIPTION	3/DE RESIST. (KIPS) 0.4 1.3 2.5 3.4 2.7	ENG BRG. RESIST. (KIPS)	TOTAL RESIST. (KIPS) 2.6 8.3	\$10E RESIST. (KIPS) 0.6 1.9	END BRG. RESIST, (KIPS)	TOTAL RESIST. (KIRS)	NOMINAL REQ'D BEARING (KIPS)	GEOTECH. LOSS FROM SCOUR or DD (KIPS)	GEOTECH. LOSS LOAD FROM DD (KIPS)	FACTORED RESISTANCE AVAILABLE (KIPS)	ESTIMATE PILE LENGTH (FT.)
STRENGTH (TSF.) 0.07 0.19 0.33 0.43 0.25	VALUE (BLOWS) 2 2 2 3 3 4 4 24		RESIST. (KIPS) 0.4 1.3 2.5 3.4	RESIST. (KIPS) 2.2 4.5	RESIST. (KIPS) 2.6 6.3	RESIST. (KIPS) 0.6	RESIST.	RESIST. (KIPS)	BEARING (KIPS)	SCOUR OF DD	FROM DO	AVAILABLE	LENGTH
(73F) 9 07 0.16 9 33 9.43 0.25	(BLOWS) 2 2 2 3 3 4 4 24	DL CCTTP / 1004	04 13 25 34	2.2 4.5	(KIPS) 2.5 6.3	(KIPS)		(KIPS)	(KIPS)				
0.16 0.33 0.43 0.25	2 3 4 4 24	and developed the second of the second secon	13 25 34	45	6.3			-	Contract the second section in the contract of				
0.43 0.43 0.25	3 4 4 24		25 34	45		4.0		0.9	_1	9	٥	O	3
0.43 0.25	3 4 4 24		3.4	1		1.7	0.2	3.1	3	0	٥	2	5
0.25	4 4 24		E .		10.3	38	0.5	7.4	7	- 0	0	4.	. 8
	4 24		2.7	5.3	11.3	49	0.6	11.7	11	0	9	6	10
1.17	24			3.5	26.6	3.9	0.4	17.0	17	٥	0	9	14
			5.7	15.1	75.0	8.4	1.5	30.1	30	0	9	17	15
	10	Clean Coarse Sand	4.8	58.8	1189	7.0	6.4	41.3	41	0	0	23	18
	40	Sandy Gravel	13.9	98.0	127.9	20/3	10.7	51.1	-51	0	G.	34	20
	38	Sandy Gravel	12.5	93.1	184 5	183	19/2	84.2	84	Ō	ð	46	23
	56	Sandy Gravet	29.7	137 2	203.4	42.0	15 0	125.1	125	0	0	69	25
	52	Sandy Gravel	25.0	127 4	127.3	36.6	13.9	150 6	127	0	0	70	28
1.90	40		11.2	28.2	134,3	16.3	2.9	166.5	134	Ö	0	74	30
1										-	-		33
1	1		ł .			1					- 1		35
1	: !					1				- 1			38
1	1					1				-			40
	,					1		,				1	43
	1 - 1									-			45 48
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FOIGHT 885 FOUNDATIONS AND GEOTECHNICAL UNIT

LRFD or ASD or SEISMIC ============== LRFD PILE CUTOFF ELEV ****************** 448 00 ft GROUND SURFACE ELEV AGAINST PILE DURING DR 445 00 H GEOTECHNICAL LOSS TYPE (None, Scour, Liquet, DD Scour BOTTOM ELEV OF SCOUR, LIQUEF, or DD ======= 449 00 R 

MAX. REQUIRED BEARING & RESISTANCE for Selected Pile, Soil Profile, & Losses

Maximum Neminal	Maximum Yominai	Maximum Factored	Maximum Pile
Peq'd Bearing of Pile	Bad q Seaked of <u>South</u>	Resistance Available in <u>Boring</u>	Driveable Langer in Boong
418 KPS	418 KPS	230 KPS	55 FT

TOTAL FACTORED SUBSTRUCTURE LOAD ======= 3700 kips TOTAL LENGTH OF SUBSTRUCTURE (along skew)=== 35.17 fl
NUMBER OF ROWS OF PILES PER SUBSTRUCTURE : 35.17

Approx. Factored Loading Applied per pile at 8 ft. Cts ===== 280.57 KIPS Approx. Factored Loading Applied per pile at 3 ft. Cts ===== 105.21 KIPS

80T.					1/01	UNAL PLUG			WNAL UNPLU	(12 12 th		FACTORED	FACTORED		
OF		UNCONF.	S.P.T.	GRANULAR	NUN	umal pluc	9550	NUR	MNAL UNPLI	JG D	NOSENAL	GEOTECH.	GEOTECH.	FACTORED	ESTMATED
LAYER	LAYER	COMPR	N	OR ROCK LAYER	SIDE	END BRG.	TOTAL	S/C€	END BRG.	TOTAL	REQ'D	LOSS FROM	LOSS LOAD	RESISTANCE	PILE
ELEV.	THICK.	STRENGTH	VALUE	DESCRIPTION	RESIST.	RESIST.	RESIST.	RESIST.	RESIST.	RESIST.	BEARING	SCOUR or DD	FROM DD	AVAILABLE	LENGTH
(FT.)	(FT.)	(TSF.)	(BLCWS)		(XIPS)	(KIPS)	(KIP\$)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(FT.)
444 90	0.10	0.09	5		0.1		1.5	0.1		0.3	2	0	0	0	
442,40	2.50	0.10	2		0.8	1.4	1.9	1.2	0.2	1,5	1	0	0	1	4
439.60	. 2 80	0,07	2		0.7	1.0	. 30.6	. 1.0	0,1	5,5	5 .	. 0.	. 0 .	- 3-	- 6
437 10	2 50		15	Clean Coarse Sand	3.0	29 0	26.6	4.3	32	9.0	3	0	0	5	9
434 50	2.50		9	Clean Charse Sand	18	22.0	35.7	2.6	2 4	12.5	12	0	Ð	7	11
432.10	2.50		12	Clash Coarse Sand	2.4	29.4	13.5	3,5	3.2	13.2	13	0	0	7	14
429 60	2.50		2	Sandy Gravet	0.5	49	9.6	0.7	0.5	13.4	10	ð	0	5	16
428 40	1.20	0.03	22		0.1	0.4	75.4	0.2	9.0	20.8	21	0	0	11	18
424 50	3 80		27	Sandy Gravel	10.2	56 1	24.8	149	7.2	29 0	25	G G	0	1.4	21
422 10	2 50	0.39	45		3.1	5.4	47.7	45	0.6	35.7	36	0	0	20	24
419 60	2.50	1.63	60		10.9	25.2	66.8	15.9	28	52.5	52	0	0	29	25
417 10	2.50	2 42	60		13.1	33.3	53.6	19.1	3.6	69.8	6-4	0	Q.	35	29
414 60	2 50	1.24	11		33	17.1	70.9	12.2	19	81.9	71	0	ô	39	31
412 10	2.50	1 17	1.4		80	16-1	94.6	11.7	1.8	95 3	95	٥	۵	52	34
409 60	2.50	2.31	20		12.7	31.8	96.1	18.5	3.5	112.6	96	· •	0	53	36
407 10	2.50	1 50	15		95	20.7	175.8	13.9	23	127.6	116	9	0	64	39
404 50	2.50	2 22	30		12.3	30.6	116,2	15.0	3.3	144.4	116	c c	0	64	41
402 10	2 50	: 37	7		90	18.9	130.5	13.1	21	158.0	131	0	0	72	44
399 60	2.50	1.70	11		10.6	24.3	137.6	15.5	2.7	173.2	138	3	0	78	46
397 10	2.50	1 50	7		9.5	20.7	135.8	13.9	2.3	1859	138	ō i	0	75	49
395 40	1 79	0.68	3		3.5	9.4	252.4	51	7.0	203.3	203	0	0	112	51
394 40	1.00	The state of the s		Share	49.4	122 5	301.8	723	13.4	275.6	275	0	0	152	51.6
393 40	1 68			Shale	49.4	122.5	3512	72.3	13.4	347.8	348	0	c	191	52.6
392 40	100	1		3hate	49.4	122.5	400.6	723	13.4	420 1	401	0	0	220	53.5
391 40	1.00			Shale	49.4	122 5	450.0	723	13.4	492.3	460	0	12	2-14	54 6
390 40	1.00		4	Share	49 4	122.5	499.5	72.3	13.4	564.6	dila	1	0	215	35.6
389 40	1 00			Shale	49 4	122.5	548.9	72.3	13,4	636.9	5-5-4	9 ]	2	302	36.5
388 40	1 50		-	Shale	49 4	122.5	598.3	72.3	13.4	709.1	398	.3		399	57.5
387 40	1 00	į	1	Shale	49 4	122 5	547.7	72.3	13.4	781.4	1.53	2		3349	58.6
386 40	1	ĺ		Shale	49.4	122.5	697.1	723	13.4	853.5	244	- 4		387	59.3
385 40	1 00			Strails.	49.4	122.5	746,5	723	13.4	925 9	, au	à	9	417	Gaz e
	\$ 20		A CONTRACTOR OF THE PROPERTY O	S^2క్ e		132.5			**************************************		And the state of t	Actual designation of the second seco	menump property company to the control of the contr	Code Carlo Temper de codam anno montre de codam ann	bodak dalmátin. A fejerálem ever szedénatatt ágy

10.0.T BBS FOUNDATIONS AND GEOTECHNICAL UNIT

Modified 10/18/2011

REFERENCE BORING ======== E Abut PILE CUTOFF ELEV. ************************ 458.40 ft GROUND SURFACE ELEV. AGAINST PILE DURING DR 457 40 ft GEOTECHNICAL LOSS TYPE (None, Scour, Liquet., DD None 

MAX. REQUIRED BEARING & RESISTANCE for Selected Pile, Soil Profile, & Losses

Viaximum Nominal	Maximum Nominal	Maximum Factored	Maximum Pile
Raqid Bearing of Pla	Req.d Bearing of Borin	Pesistance Available in <u>Boring</u>	Driveable Langth in <u>Boting</u>
418 KIPS	418 KIPS	230 KIPS	51 FT

Approx, Factored Loading Applied per pile at 8 ft. Cts ===== 147 87 KIPS Approx. Factored Loading Applied per pile at 3 ft. Cts ===== 55.45 KIPS

PILE TYPE AND SIZE ========

Steel HP 12 X 53

BOT. OF		UNCONE			NON	NNAL PLUC	GED	1901	MINAL UNPL	VG10		FACTORED	FACTORED		
LAYER	LAYER	COMPAL	S.P.T.	GRANULAR OR ROCK LAYER	3/0€	END BRG	TOTAL	S/DE	END BRG.	TOTAL	NOMINAL REO'D	GEOTECH. LØSS FROM	GEOTECH.	FACTORED	ESTIMATED
ELEV.	THICK	STRENGTH	VALUE	DESCRIPTION	RESIST.	RESIST.	RESIST.	RESIST	RESIST.	RESIST	BEARING		LOSS LOAD	RESISTANCE	PILE
(FT.)	(FT.)	/TSF.)	(BLOWS)	DESCRIPTION	(KIPS)	(KIPS)	IKIPSI	(ACAS)	(KIPS)	KESISI.	IKIPSI	SCOUR or DD (KIPS)	FROM DO (K)PS)	AVAILABLE (KIPS)	LENGTH (FT.)
456.70	0.70	1.98	3		3.2	de la companya de la	8.8	4.7		5.3	3	0	0	TOTAL CONTRACTOR CONTRACTOR CONTRACTOR	HONOR DESCRIPTION OF THE PERSON OF THE PERSO
454.20	2.50	0.39	4		3.1	5.4	9.1	4.5	9.6	9.5	9	0	Ö	3	2
451.70	2.50	. 0.59	2	Very Fine SWy Sand	0.3	2.8	12.1	0.5	93	10.2	10		. 0	. 5 6	. 4. 7
449 20	2 50		3	Very Fine Sitty Sand	0.5	5.5	10.7	07	0.6	10.Z	11	a	0	6	9
446 70	2 5G		z	Very Fine Sitty Sand	0.3	3.7	9.2	0.5	0.4	10.9	9	o o	0	5	12
444 20	2.50		1 1	Very Fine Sitty Sand	0.2	18	9.3	0.2	0.2	11.2	9	0	0	5	
441 70	2.50			Very Fine Silty Sand	0.2	1.6	15.0	0.2	0.2	12.0	12	0	ø	7	14 17
439 20	2.50		4	Very Fine Sitty Sand	0.5	73	13.8	0.9	0.2	12.7	13	0	0	7	
438.60 438.60	2.50		3	Very Fine Sity Sand	0.5	55	35.7	0.7	0.5	15.8	16	0	0	9	19
434 20	2.40		11	Medium Sand	19	26.9	13.4	2.8	2.9	15.9	13	0		7	22
431 50	2.60	0.20	9	Programmy Control	1.7	2.8	110.4	2.5	0.3	28.8	29	0	0		24 27
429 10	2.50	0.0	40	Sandy Gravel	13.9	98.0	131.6	20 3	10.7	49.9	29 50	0		16	
426.60	2 50		43	Sandy Gravel	15.7	105.3	121.3	24.4	11.5	71.4	71	0	0	27 39	29
424.10	2.50		32	Sandy Cravel	8.9	78.4	137.6	13.1	88	85.2	85	0	0	39 47	32
422.20	1.90		35	Sandy Gravel	8.1	85.7	36.6	11.8	9.4	90.5	87	0	0	48	34
419 20	3.06	194	32	Gauch Cuasa	13.6	26.7	105.5	19.9	2.9	1110	105	0			36
418.60	2.50	7 32	5G		13.2	32.8	108.1	19.3	3.5	129.1	108	0	0	58	39
414 10	2.50	1 55	45		9.8	21.4	133.8	143	2.3	145.1	134	0	9	59 74	42
411.60	2.50	2.71	25		14.1	37 3	140.9	20 6	4.1	165.0	141	0	0	77	44 47
409.10	2.50	2.20	26		12.3	30.3	153.7	17.9	3.3	183.0	154	0	G G		49
406.70	2 40	2.24	27		11.9	30.9	170,2	17.4	3.3	200.9	170	0	0	85 94	49 52
404 70	2.00	2.57	31		10.9	35.4	185.8	153	39	215.2	166	0	0	94 91	54
402.40	2.30	1 46	15		3.5	20 1	174.4	12.6	2.2	227 B	174	0	0	96	56 5
400.10	2.30	1 #6	15		8.5	20 1	285.4	12.6	2 2	251.6	252	3	Ö		58 58
399.10	1.00	1 40	12	Shala	49.4	122.5	334.8	72.3	13.4	323.8	324	0	Ø	138	
398 10	1.00		4	Shale	49.4	122.5	384.2	72.3	13.4	323.0	324 384	0		178	59 3
397.10	1.00			Shale	49.4	122.5	433.6	72.3	13.4	458.3	304 534	ن	0	211	503
396.10	1.00			Smale	49.4	122.5	483.0	72.3	13.4	540.8	483		. g	238	67.3
395.10	1 00			Sicole	49.4	122.5	532.5	72.3	13.4	612.9	552		j.	254	62 3
394.10	1 30			Shalig	49.4	122.5	581.9	72.3	13.4	585.1	162			243	93-3
393 10	1.00			Shale	49.4	122.5	6313	72.3	13.4	757.3	192 13:i	· · · · · · · · · · · · · · · · · · ·	2	320 347	54 J
392.10	1.00			Shake	49.4	122.5	639.7	723	13.4	829.8	581 581	3		54.4	50.3
391 10	1.00			Shale	49.4	122.5	730.1	723	13.4	9018	7.00	2	ė.		96-3
390.10	1.00			Shale	49.4	122.5	779.5	723	13.4	9018	7 (2) 2 (2) 1 (2)	-J	ĝ	402	97.3 64.4
389.10	1.00			Shale	43.4	122.5	113.3	123	13.4	3141	1.150	. 2	ş	454	Sec. 3.
3.0				set road		S distribution			13.4			Secured in Albandon Administration of the second of the se		ELEPOCE IN SAME IN PROCESSION PRO	

# Hutchison Engineering, Inc.

# Since 1945 Jacksonville • Shorewood • Peoria

To: Files Job No. 3515

From: Jim Hamilton

Subject:

FAP 793 (IL 143) over Shoal Creek

Bond County SN 003-0062 P-98-011-13 PTB 169/035

SUBSTRUCTURE LOADING

**SGR REPORT** 

The substructure loadings are factored using LRFD. Maximum load factors are applied. The estimated dead load of the abutments, piers and approach slab are included in the calculated loadings.

The abutments are pile supported stub abutments. Piers 1, 2, 3, 4 and 6 are encased pile bent piers, and piers 5, 7 and 8 are solid wall piers with cap and pile supported footing.

Abutments	Piers 1-4 & 6	Piers 5, 7 & 8
Strl	Str I	Str I
P = 1,300k	P = 2,600k	P = 3,700k
V = 65k	V = 110k	V = 165k
	Str III	Str III
	P = 1,850k	P = 2,950k
	V = 105k	V = 230k
	Str IV	Str IV
	P = 2,425k	P = 3,550k
	V = 95k	V = 180k