

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT



**SUBSURFACE INVESTIGATION**

STATE JOB NO. 040749

FEDERAL AID PROJECT NO. ER-0024(34)

I-40 SLIDE REPAIR (OZARK) (S)

STATE HIGHWAY 40 SECTION 12

IN FRANKLIN COUNTY

The information contained herein was obtained by the Department for design and estimating purposes only. It is being furnished with the express understanding that said information does not constitute a part of the Proposal or Contract and represents only the best knowledge of the Department as to the location, character and depth of the materials encountered. The information is only included and made available so that bidders may have access to subsurface information obtained by the Department and is not intended to be a substitute for personal investigation, interpretation and judgment of the bidder. The bidder should be cognizant of the possibility that conditions affecting the cost and/or quantities of work to be performed may differ from those indicated herein.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 4  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 4+33  
LOCATION: 189' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 27 & 28, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 41.2

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R O D
			SURFACE ELEVATION: 599.1									
5		X	Moist, Very Stiff, Reddish Brown Sandy Clay with Gravel (Rock Fragments)							4 10-10		
10		X	Moist, Very Stiff, Reddish Brown Clay with Gravel (Shale Fragments)							9 10-11		
15		X	SHALE WITH CLAY LAYERS - Highly Weathered, Soft, Gray and Reddish Brown							13 17-17		
20		X								9 19-26		
25		X	SHALE WITH CLAY LAYERS - Highly Weathered, Very Soft, Brown *							11 7-8		
30		X								3 4-6		
35										11 (0")		

REMARKS: Inclinator 4 was installed on this boring, its top elevation is 602.7'.  
Water was encountered at 29.2' below ground level.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 4  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 4+33  
LOCATION: 189' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 27 & 28, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 41.2

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 599.1									
40			SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Slightly Weathered, Medium Hard, Dark Gray								100	100
			SANDSTONE - Unweathered, Cemented, Gray								94	31
45			Boring Terminated									
50												
55												
60												
65												
70												

REMARKS: Inclinator 4 was installed on this boring, its top elevation is 602.7'.  
Water was encountered at 29.2' below ground level.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 6  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 4+45  
LOCATION: 51' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 6 & 8, 2016  
TYPE OF DRILLING: Hollow Stem Auger -  
Diamond Core - Rotary Wash  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 68.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R O D
			SURFACE ELEVATION: 645.0									
5			Dry, Hard, Gray Sandy Clay with Gravel (Rock Fragments)						8 22-11			
10			Moist, Medium Stiff, Brown Sandy Clay with Some Gravel (Rock Fragments)						1 2-4			
15			Moist, Very Stiff, Gray Sandy Clay with Gravel (Rock Fragments)						6 11-11			
			Boulder									
20			Moist, Hard, Gray Sandy Clay with Gravel (Rock Fragments)						14 15-41			
			Boulder									
25			Moist, Very Hard, Brown Sandy Clay with Gravel (Rock Fragments)						23 20 (4")			
30			Moist, Hard, Brown Clay with Some Gravel (Shale Fragments)						10 15-17			
35									9			

REMARKS: Inclinator 2 was installed on this boring, its top elevation is 649.2'.



**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 6  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 4+45  
LOCATION: 51' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 6 & 8, 2016  
TYPE OF DRILLING: Hollow Stem Auger -  
Diamond Core - Rotary Wash  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 68.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 645.0									
40			Moist, Hard to Very Hard, Brown Clay with Gravel (Shale Fragments)							13-19		
45										10 24-37		
50			Moist, Brown Clay with Gravel (Shale Fragments)							13 15-16	34	0
55											4	0
60			SHALE - Weathered, Medium Hard, Dark Gray								50	0
			SHALE - Slightly Weathered, Medium Hard, Dark Gray								100	52
65			SHALE - Slightly Weathered, Medium Hard, Frequent Fractures, Dark Gray									
			SHALE WITH OCCASIONAL SANDSTONE LAYERS - Unweathered, Medium Hard, Occasional Fractures, Dark Gray								100	59
70			Boring Terminated									

REMARKS: Inclinometer 2 was installed on this boring, its top elevation is 649.2'.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 11  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 5+16  
LOCATION: 20' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry - J.C. Sloan

DATE: May 25 & 26, 2016  
TYPE OF DRILLING: Hollow Stem Auger -  
Rotary Wash - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 67.6

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 655.3									
5			ASPHALT									
10			Moist, Stiff, Brown Clay with Gravel and Cobbles (Rock Fragments)							8 5-6		
15			Moist, Very Stiff, Sandy Clay with Gravel (Rock Fragments)							6 14-13		
20			Moist, Stiff, Dark Gray and Reddish Brown Gravel and Cobbles (Rock Fragments) with Sandy Clay							9 9-6		
20			Boulder							20 (0")		
25										6 9-20		
30			Moist, Stiff to Very Stiff, Dark Gray and Reddish Brown Sandy Clay with Gravel (Rock Fragments)							8 7-6		
35												

REMARKS: Inclinometer 1 was installed on this boring, its top elevation is 655.3'.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 11  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 5+16  
LOCATION: 20' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry - J.C. Sloan

DATE: May 25 & 26, 2016  
TYPE OF DRILLING: Hollow Stem Auger -  
Rotary Wash - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 67.6

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 655.3							11 9-13		
40			Boulder							20 (0") 4 5-7		
			Moist, Stiff, Dark Gray and Reddish Brown Sandy Clay with Gravel (Rock Fragments)									
45			Moist, Hard, Reddish Brown Sandy Clay with Some Gravel							14 24-23		
50			Moist, Very Hard, Reddish Brown Sandy Clay with Gravel and Cobbles (Rock Fragments)							44 29-60 (9")		
55			Moist, Very Hard, Reddish Brown Clay with Gravel (Shale Fragments)							6 12-60		
			SHALE - Highly Weathered, Medium Hard, Dark Gray								100	0
			SHALE - Weathered, Medium Hard, Dark Gray									
60			SHALE - Slightly Weathered, Medium Hard, Dark Gray								96	72
65			SHALE - Unweathered, Medium Hard, Dark Gray								96	61
			Boring Terminated									
70												

REMARKS: Inclinator 1 was installed on this boring, its top elevation is 655.3'.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 17  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 6+72  
LOCATION: 197' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 15, 16, & 20, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 48.3

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 604.7									
5			Moist, Medium Stiff, Dark Gray to Reddish Brown Sandy Clay with Gravel (Rock Fragments)							4 5-3		
10			Moist, Soft, Brown Clay with Trace Gravel (Rock Fragments)							1 2-2		
15			Moist, Stiff, Reddish Brown Sandy Clay with Some Gravel (Rock Fragments)							2 3-7		
20			Moist, Stiff, Brown Sandy Clay with Gravel (Rock Fragments)							2 8-6		
25			Moist, Stiff, Reddish Brown Sandy Clay with Gravel (Rock Fragments)							5 5-5		
30			Moist, Stiff, Reddish Brown Sandy Clay with Some Gravel (Rock Fragments)							3 4-6		
35										11		

REMARKS: Inclinator 3 was installed on this boring, its top elevation is 609.1'.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 17  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 6+72  
LOCATION: 197' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

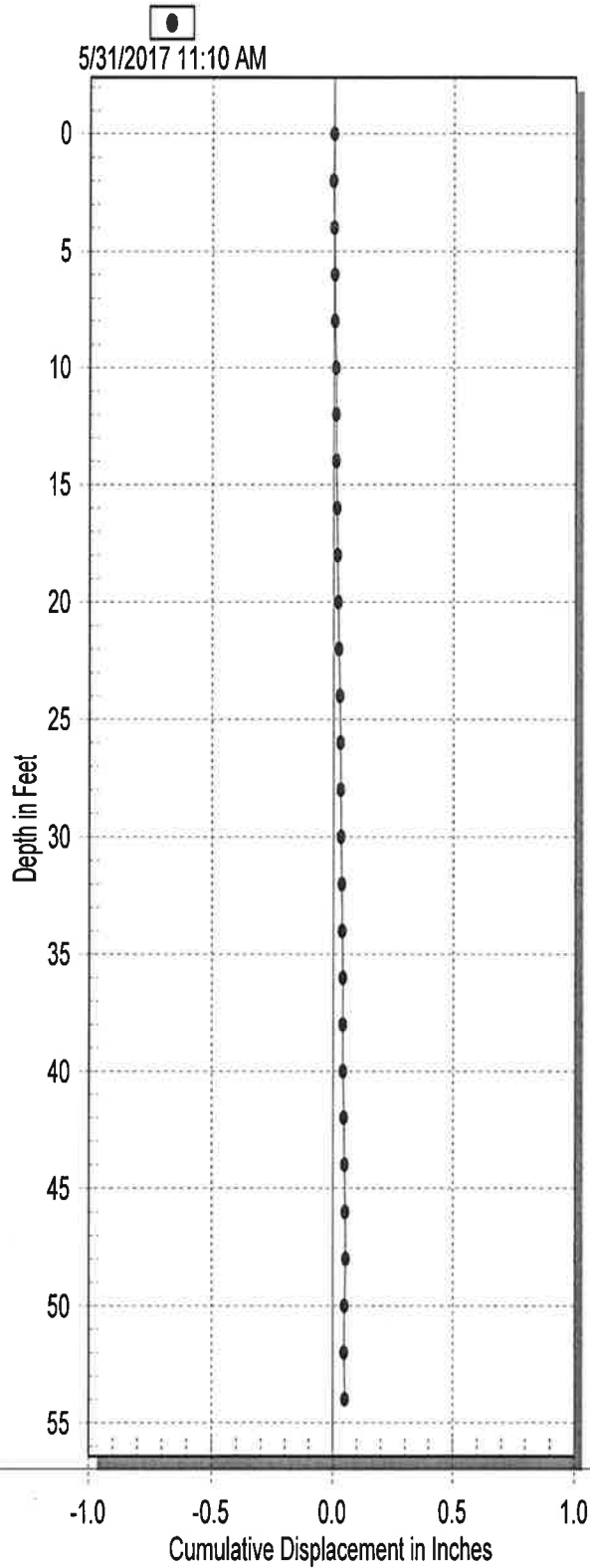
DATE: June 15, 16, & 20, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 48.3

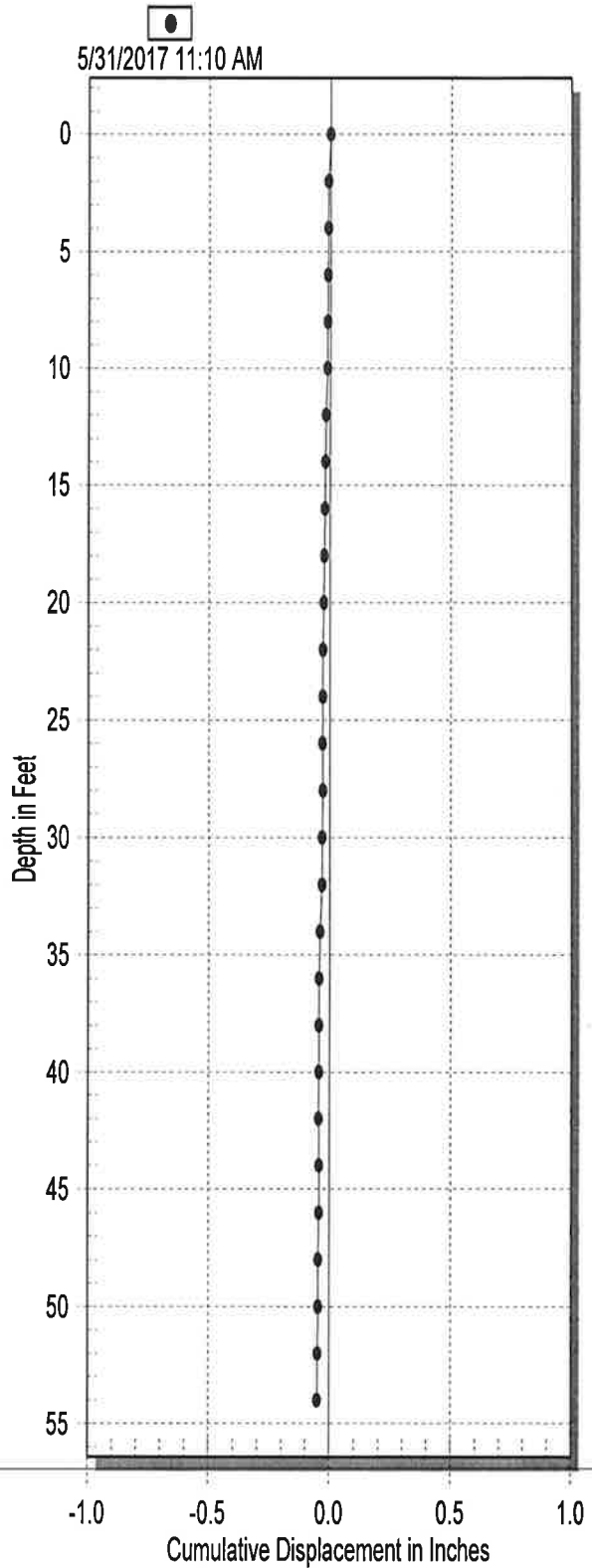
DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 604.7									
			SHALE - Highly Weathered, Very Soft, Dark Gray							7-7		
40			SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Slightly Weathered, Medium Hard, Dark Gray							10 (0")	99	99
45			SANDSTONE - Unweathered, Cemented, Gray								92	76
50			Boring Terminated									
55												
60												
65												
70												

REMARKS: Inclinator 3 was installed on this boring, its top elevation is 609.1'.

D04221:INC 1 - A Axis  
Initial survey: 4/18/2017 02:07 PM

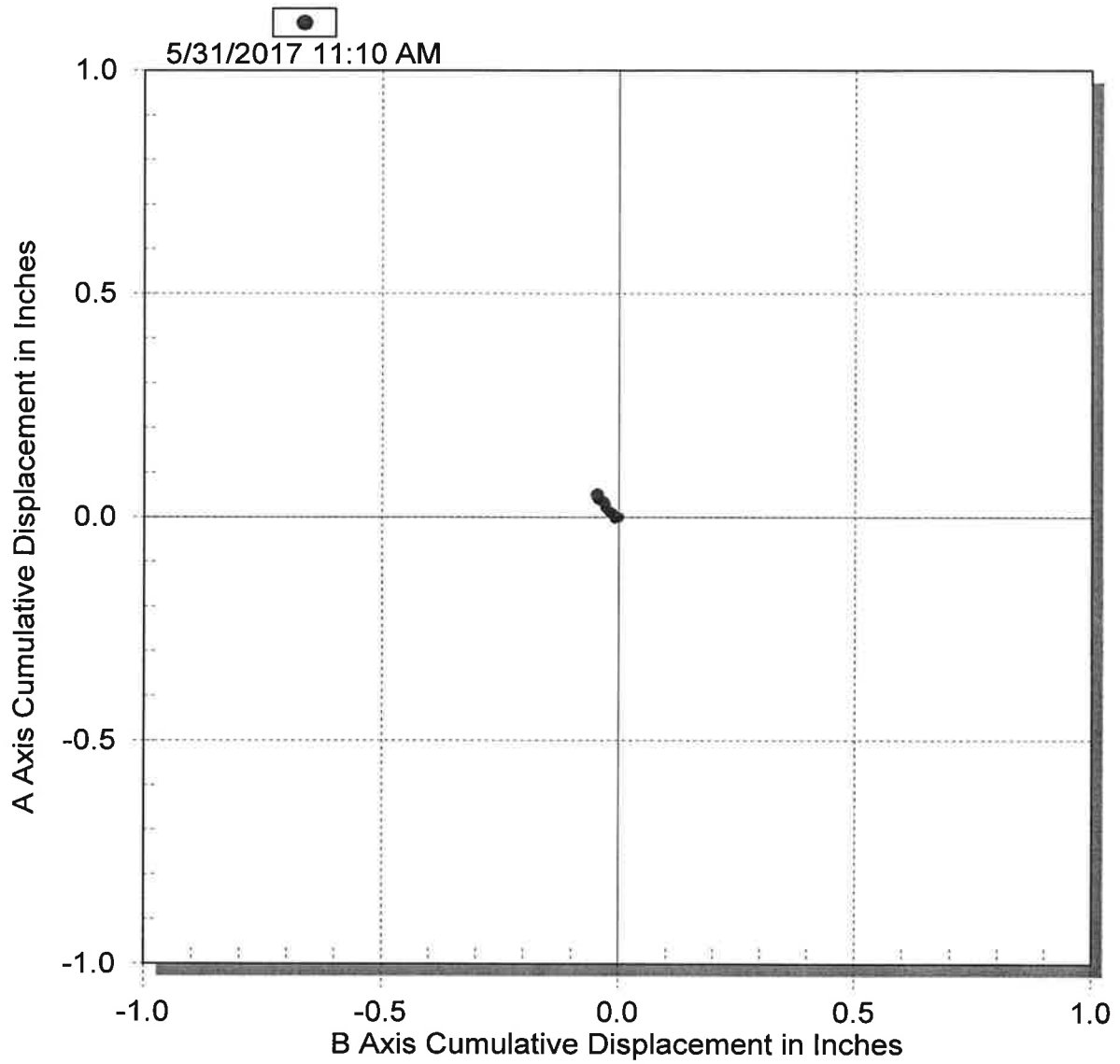


D04221:INC 1 - B Axis  
Initial survey: 4/18/2017 02:07 PM



# D04221:INC 1 - A Axis vs B Axis

Initial survey: 4/18/2017 02:07 PM



SITE : D04221  
 INSTALLATION : INC 1  
 DESCRIPTION : From DataMate  
  
 CURRENT SURVEY : 5/31/2017 11:10:39 AM  
 Probe Serial No : 29421  
  
 INITIAL SURVEY : 4/18/2017 2:07:05 PM  
 Probe Serial No : 29421  
  
 DATE PRINTED : 5/31/2017 3:11:00 PM

Data Reduction for A Axis:

Depth (ft)	Initial A0	Initial A180	Initial Incr. Dev. (in)	Current A0	Current A180	Current Incr. Dev. (in)	Incr. Disp. (in)	Cum. Disp. (in)
0	0	0	0.0000	0	0	0.0000	0.0000	0.0000
2	-259	287	0.3276	-268	273	0.3246	-0.0030	-0.0030
4	-192	203	0.2370	-194	206	0.2400	0.0030	0.0000
6	-163	170	0.1998	-164	173	0.2022	0.0024	0.0024
8	-103	113	0.1296	-104	114	0.1308	0.0012	0.0036
10	-118	130	0.1488	-122	134	0.1536	0.0048	0.0084
12	-109	121	0.1380	-109	123	0.1392	0.0012	0.0096
14	-57	63	0.0720	-57	65	0.0732	0.0012	0.0108
16	44	-37	-0.0486	44	-32	-0.0456	0.0030	0.0138
18	199	-188	-0.2322	197	-186	-0.2298	0.0024	0.0162
20	293	-282	-0.3450	291	-279	-0.3420	0.0030	0.0192
22	370	-356	-0.4356	368	-354	-0.4332	0.0024	0.0216
24	444	-431	-0.5250	440	-427	-0.5202	0.0048	0.0264
26	489	-477	-0.5796	487	-474	-0.5766	0.0030	0.0294
28	548	-536	-0.6504	547	-536	-0.6498	0.0006	0.0300
30	536	-524	-0.6360	534	-522	-0.6336	0.0024	0.0324
32	504	-494	-0.5988	502	-491	-0.5958	0.0030	0.0354
34	485	-474	-0.5754	483	-473	-0.5736	0.0018	0.0372
36	462	-449	-0.5466	459	-447	-0.5436	0.0030	0.0402
38	406	-394	-0.4800	405	-395	-0.4800	0.0000	0.0402
40	371	-361	-0.4392	371	-359	-0.4380	0.0012	0.0414
42	353	-339	-0.4152	351	-335	-0.4116	0.0036	0.0450
44	314	-301	-0.3690	312	-297	-0.3654	0.0036	0.0486
46	248	-239	-0.2922	246	-236	-0.2892	0.0030	0.0516
48	263	-248	-0.3066	262	-246	-0.3048	0.0018	0.0534
50	199	-195	-0.2364	207	-195	-0.2412	-0.0048	0.0486
52	230	-219	-0.2694	232	-220	-0.2712	-0.0018	0.0468
54	318	-309	-0.3762	315	-306	-0.3726	0.0036	0.0504

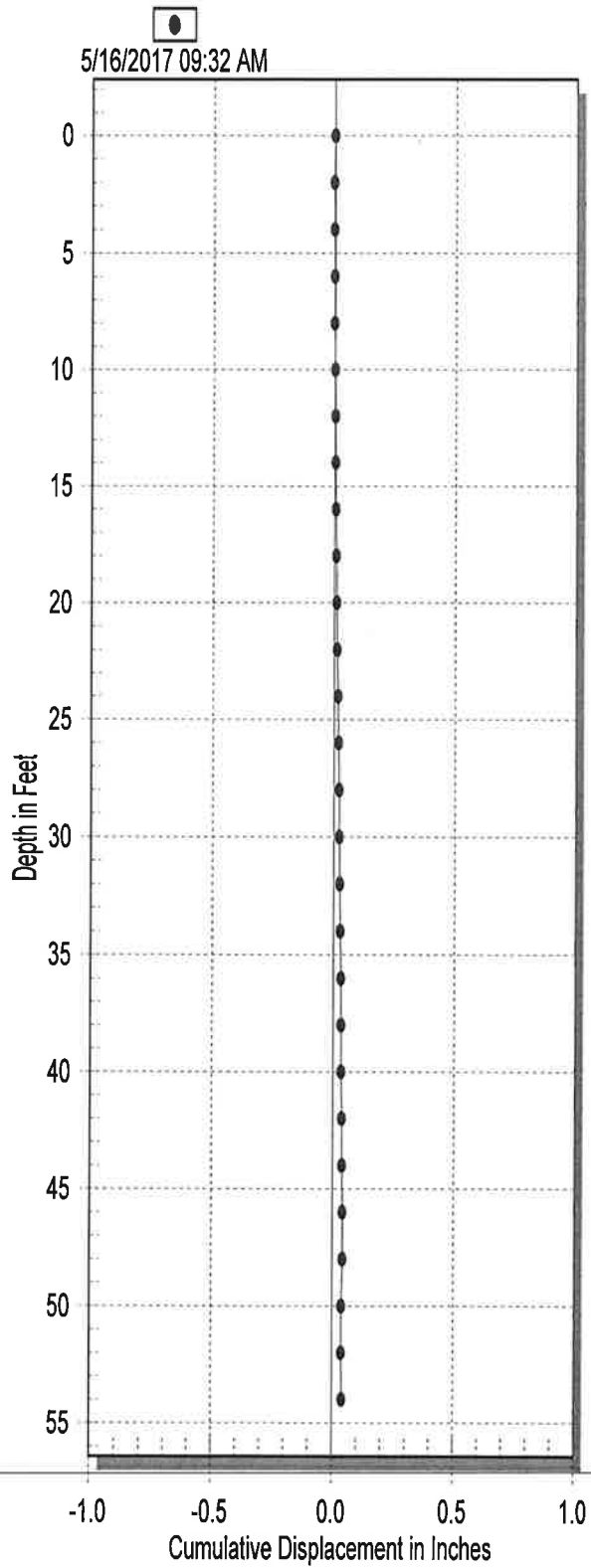


SITE : D04221  
 INSTALLATION : INC 1  
 DESCRIPTION : From DataMate  
  
 CURRENT SURVEY : 5/31/2017 11:10:39 AM  
 Probe Serial No : 29421  
  
 INITIAL SURVEY : 4/18/2017 2:07:05 PM  
 Probe Serial No : 29421  
  
 DATE PRINTED : 5/31/2017 3:11:00 PM

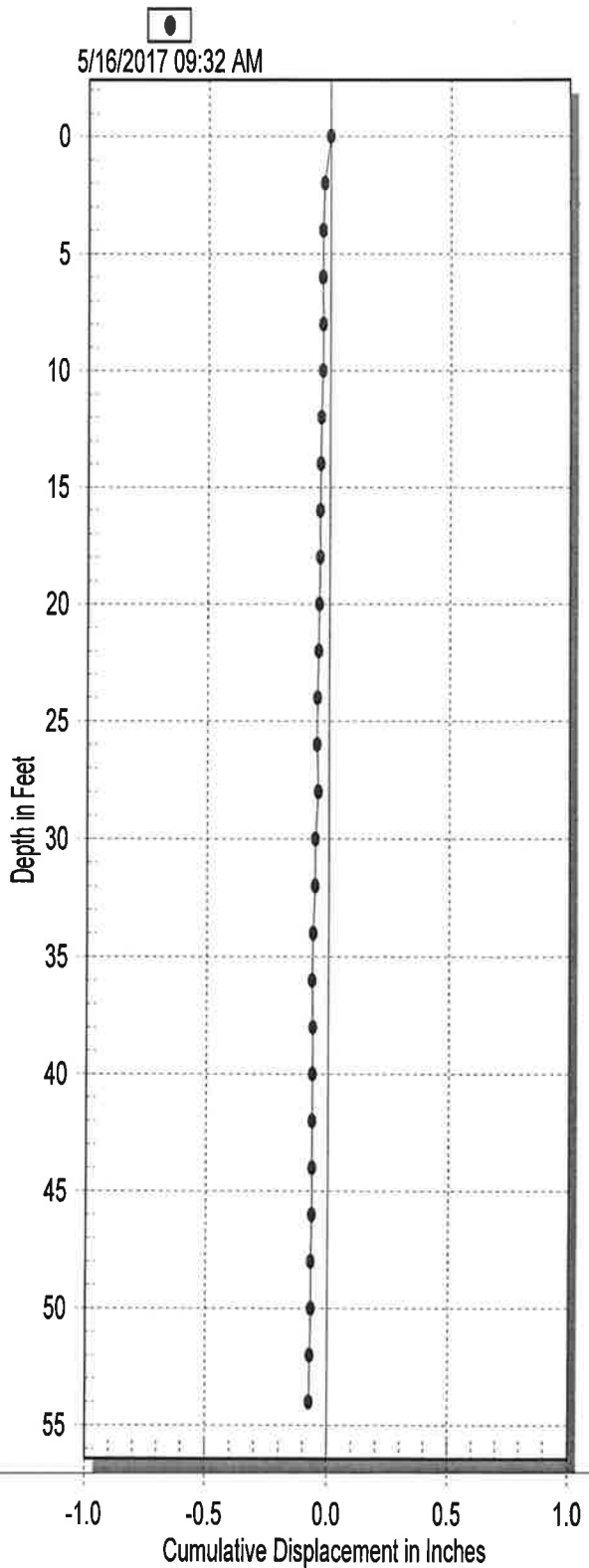
Data Reduction for B Axis:

Depth (ft)	Initial B0	Initial B180	Initial Incr. Dev. (in)	Current B0	Current B180	Current Incr. Dev. (in)	Incr. Disp. (in)	Cum. Disp. (in)
0	0	0	0.0000	0	0	0.0000	0.0000	0.0000
2	-429	438	0.5202	-433	420	0.5118	-0.0084	-0.0084
4	-468	449	0.5502	-469	447	0.5496	-0.0006	-0.0090
6	-433	425	0.5148	-431	424	0.5130	-0.0018	-0.0108
8	-291	280	0.3426	-291	279	0.3420	-0.0006	-0.0114
10	-169	152	0.1926	-167	153	0.1920	-0.0006	-0.0120
12	-31	9	0.0240	-23	8	0.0186	-0.0054	-0.0174
14	112	-131	-0.1458	115	-131	-0.1476	-0.0018	-0.0192
16	196	-207	-0.2418	197	-209	-0.2436	-0.0018	-0.0210
18	307	-322	-0.3774	308	-325	-0.3798	-0.0024	-0.0234
20	379	-394	-0.4638	380	-397	-0.4662	-0.0024	-0.0258
22	439	-457	-0.5376	442	-459	-0.5406	-0.0030	-0.0288
24	466	-488	-0.5724	471	-484	-0.5730	-0.0006	-0.0294
26	510	-531	-0.6246	509	-533	-0.6252	-0.0006	-0.0300
28	504	-533	-0.6222	504	-530	-0.6204	0.0018	-0.0282
30	487	-517	-0.6024	489	-521	-0.6060	-0.0036	-0.0318
32	479	-497	-0.5856	477	-499	-0.5856	0.0000	-0.0318
34	440	-458	-0.5388	449	-462	-0.5466	-0.0078	-0.0396
36	462	-477	-0.5634	469	-477	-0.5676	-0.0042	-0.0438
38	561	-579	-0.6840	560	-581	-0.6846	-0.0006	-0.0444
40	607	-624	-0.7386	606	-625	-0.7386	0.0000	-0.0444
42	668	-691	-0.8154	669	-691	-0.8160	-0.0006	-0.0450
44	703	-717	-0.8520	702	-714	-0.8496	0.0024	-0.0426
46	711	-719	-0.8580	710	-720	-0.8580	0.0000	-0.0426
48	684	-697	-0.8286	686	-700	-0.8316	-0.0030	-0.0456
50	662	-678	-0.8040	663	-677	-0.8040	0.0000	-0.0456
52	666	-693	-0.8154	675	-689	-0.8184	-0.0030	-0.0486
54	684	-702	-0.8316	685	-703	-0.8328	-0.0012	-0.0498

D04221:INC 1 - A Axis  
Initial survey: 4/18/2017 02:07 PM



D04221:INC 1 - B Axis  
Initial survey: 4/18/2017 02:07 PM



SITE : D04221  
 INSTALLATION : INC 1  
 DESCRIPTION : From DataMate  
  
 CURRENT SURVEY : 5/16/2017 9:32:42 AM  
 Probe Serial No : 29421  
  
 INITIAL SURVEY : 4/18/2017 2:07:05 PM  
 Probe Serial No : 29421  
  
 DATE PRINTED : 5/31/2017 8:00:38 AM

Data Reduction for A Axis:

Depth (ft)	Initial A0	Initial A180	Initial Incr. Dev. (in)	Current A0	Current A180	Current Incr. Dev. (in)	Incr. Disp. (in)	Cum. Disp. (in)
0	0	0	0.0000	0	0	0.0000	0.0000	0.0000
2	-259	287	0.3276	-270	269	0.3234	-0.0042	-0.0042
4	-192	203	0.2370	-192	205	0.2382	0.0012	-0.0030
6	-163	170	0.1998	-163	172	0.2010	0.0012	-0.0018
8	-103	113	0.1296	-102	114	0.1296	0.0000	-0.0018
10	-118	130	0.1488	-121	132	0.1518	0.0030	0.0012
12	-109	121	0.1380	-109	123	0.1392	0.0012	0.0024
14	-57	63	0.0720	-58	64	0.0732	0.0012	0.0036
16	44	-37	-0.0486	44	-34	-0.0468	0.0018	0.0054
18	199	-188	-0.2322	196	-187	-0.2298	0.0024	0.0078
20	293	-282	-0.3450	292	-279	-0.3426	0.0024	0.0102
22	370	-356	-0.4356	369	-354	-0.4338	0.0018	0.0120
24	444	-431	-0.5250	440	-428	-0.5208	0.0042	0.0162
26	489	-477	-0.5796	487	-474	-0.5766	0.0030	0.0192
28	548	-536	-0.6504	546	-534	-0.6480	0.0024	0.0216
30	536	-524	-0.6360	535	-523	-0.6348	0.0012	0.0228
32	504	-494	-0.5988	502	-492	-0.5964	0.0024	0.0252
34	485	-474	-0.5754	482	-472	-0.5724	0.0030	0.0282
36	462	-449	-0.5466	459	-446	-0.5430	0.0036	0.0318
38	406	-394	-0.4800	405	-393	-0.4788	0.0012	0.0330
40	371	-361	-0.4392	370	-360	-0.4380	0.0012	0.0342
42	353	-339	-0.4152	351	-336	-0.4122	0.0030	0.0372
44	314	-301	-0.3690	313	-299	-0.3672	0.0018	0.0390
46	248	-239	-0.2922	246	-237	-0.2898	0.0024	0.0414
48	263	-248	-0.3066	263	-246	-0.3054	0.0012	0.0426
50	199	-195	-0.2364	207	-194	-0.2406	-0.0042	0.0384
52	230	-219	-0.2694	231	-219	-0.2700	-0.0006	0.0378
54	318	-309	-0.3762	317	-306	-0.3738	0.0024	0.0402

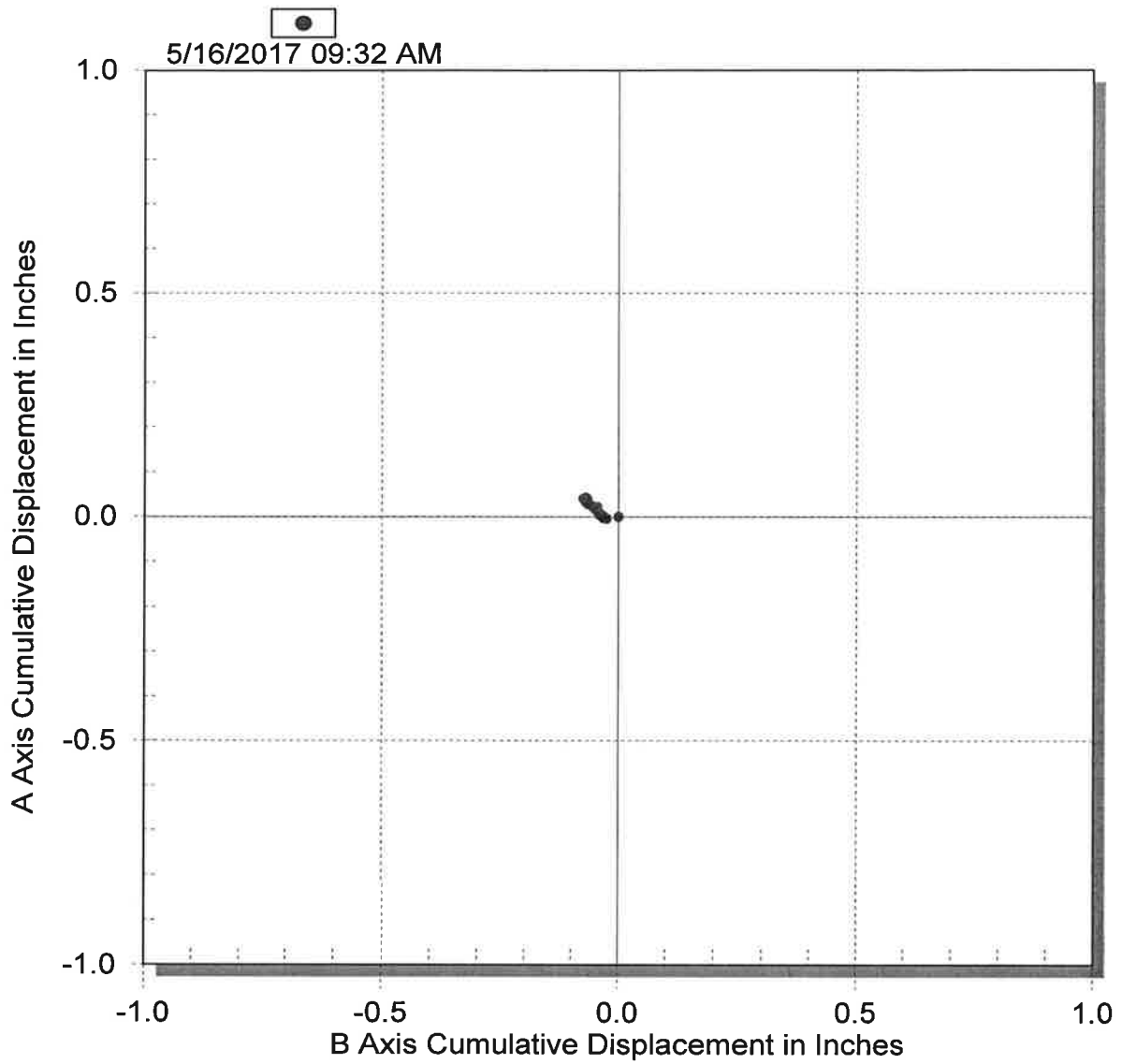
SITE : D04221  
 INSTALLATION : INC 1  
 DESCRIPTION : From DataMate  
  
 CURRENT SURVEY : 5/16/2017 9:32:42 AM  
 Probe Serial No : 29421  
  
 INITIAL SURVEY : 4/18/2017 2:07:05 PM  
 Probe Serial No : 29421  
  
 DATE PRINTED : 5/31/2017 8:00:38 AM

Data Reduction for B Axis:

Depth (ft)	Initial B0	Initial B180	Initial Incr. Dev. (in)	Current B0	Current B180	Current Incr. Dev. (in)	Incr. Disp. (in)	Cum. Disp. (in)
0	0	0	0.0000	0	0	0.0000	0.0000	0.0000
2	-429	438	0.5202	-419	406	0.4950	-0.0252	-0.0252
4	-468	449	0.5502	-460	446	0.5436	-0.0066	-0.0318
6	-433	425	0.5148	-434	423	0.5142	-0.0006	-0.0324
8	-291	280	0.3426	-293	281	0.3444	0.0018	-0.0306
10	-169	152	0.1926	-168	152	0.1920	-0.0006	-0.0312
12	-31	9	0.0240	-25	6	0.0186	-0.0054	-0.0366
14	112	-131	-0.1458	114	-133	-0.1482	-0.0024	-0.0390
16	196	-207	-0.2418	197	-209	-0.2436	-0.0018	-0.0408
18	307	-322	-0.3774	305	-323	-0.3768	0.0006	-0.0402
20	379	-394	-0.4638	380	-397	-0.4662	-0.0024	-0.0426
22	439	-457	-0.5376	440	-460	-0.5400	-0.0024	-0.0450
24	466	-488	-0.5724	470	-491	-0.5766	-0.0042	-0.0492
26	510	-531	-0.6246	510	-533	-0.6258	-0.0012	-0.0504
28	504	-533	-0.6222	506	-522	-0.6168	0.0054	-0.0450
30	487	-517	-0.6024	496	-527	-0.6138	-0.0114	-0.0564
32	479	-497	-0.5856	479	-499	-0.5868	-0.0012	-0.0576
34	440	-458	-0.5388	448	-462	-0.5460	-0.0072	-0.0648
36	462	-477	-0.5634	468	-477	-0.5670	-0.0036	-0.0684
38	561	-579	-0.6840	553	-581	-0.6804	0.0036	-0.0648
40	607	-624	-0.7386	604	-628	-0.7392	-0.0006	-0.0654
42	668	-691	-0.8154	669	-692	-0.8166	-0.0012	-0.0666
44	703	-717	-0.8520	703	-716	-0.8514	0.0006	-0.0660
46	711	-719	-0.8580	710	-721	-0.8586	-0.0006	-0.0666
48	684	-697	-0.8286	686	-700	-0.8316	-0.0030	-0.0696
50	662	-678	-0.8040	661	-677	-0.8028	0.0012	-0.0684
52	666	-693	-0.8154	674	-692	-0.8196	-0.0042	-0.0726
54	684	-702	-0.8316	688	-702	-0.8340	-0.0024	-0.0750

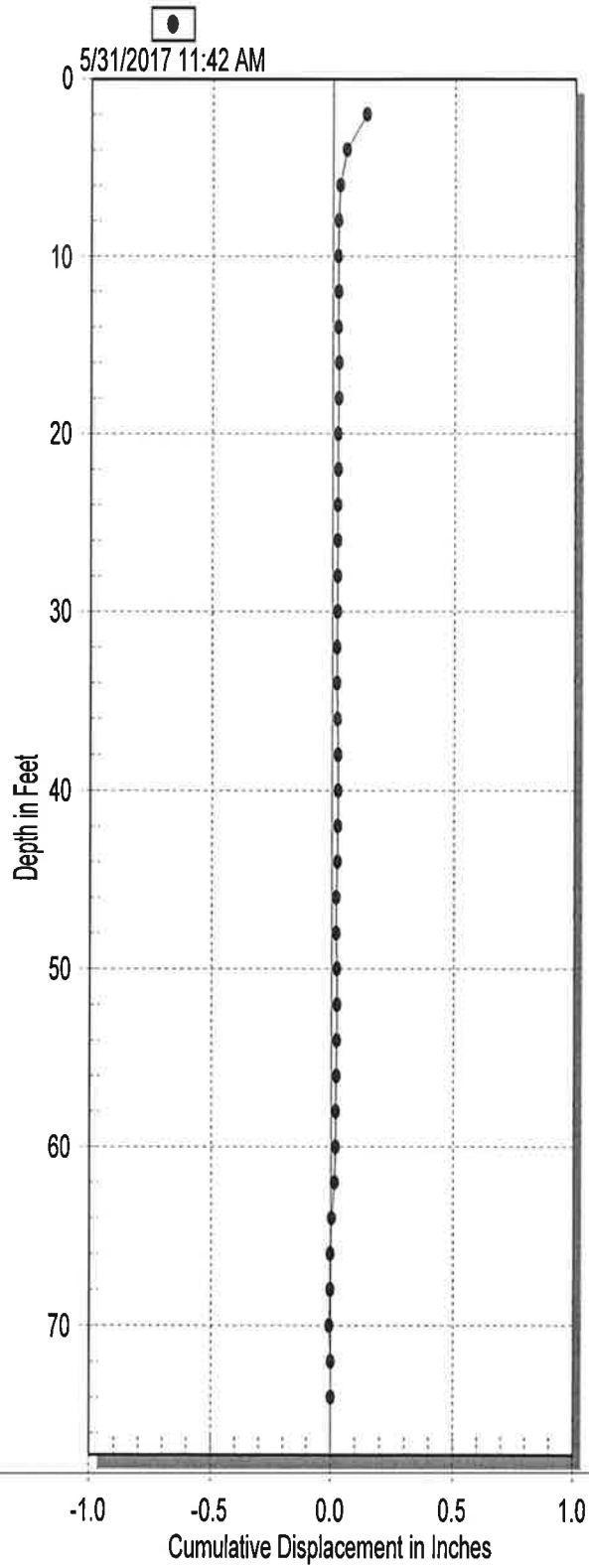
# D04221:INC 1 - A Axis vs B Axis

Initial survey: 4/18/2017 02:07 PM



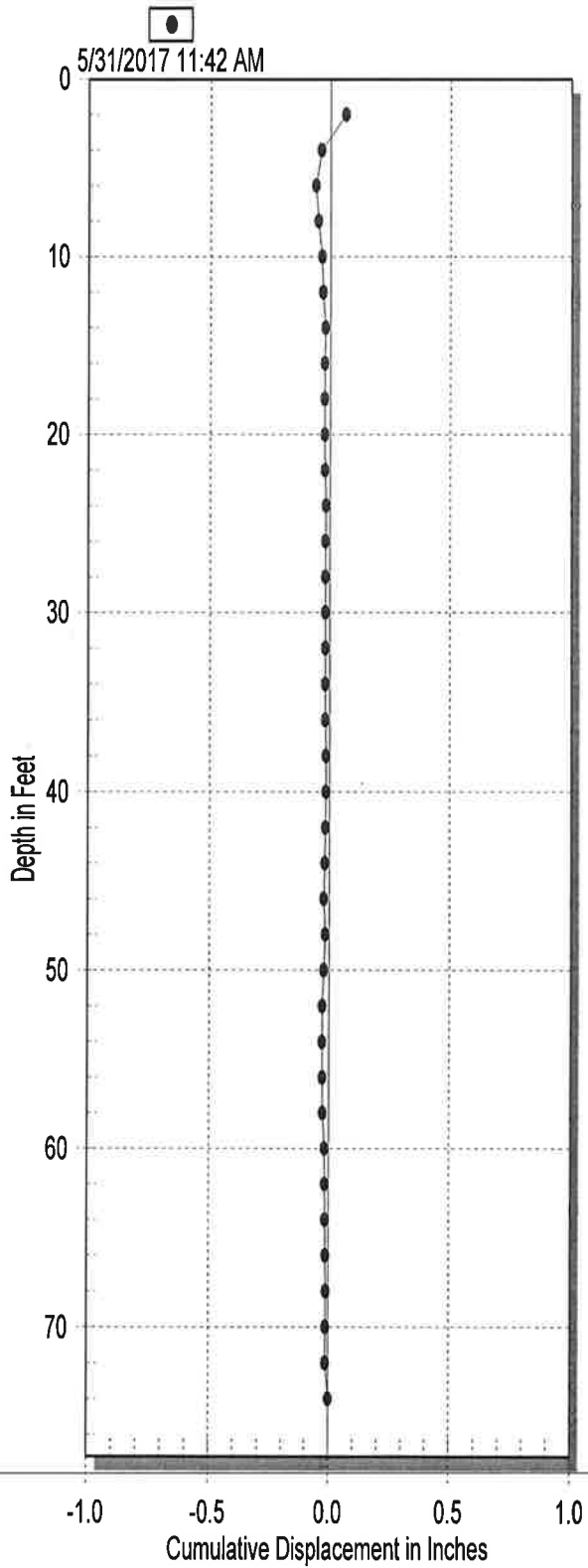
### D04221:INC2 - A Axis

Initial survey: 5/16/2017 10:06 AM



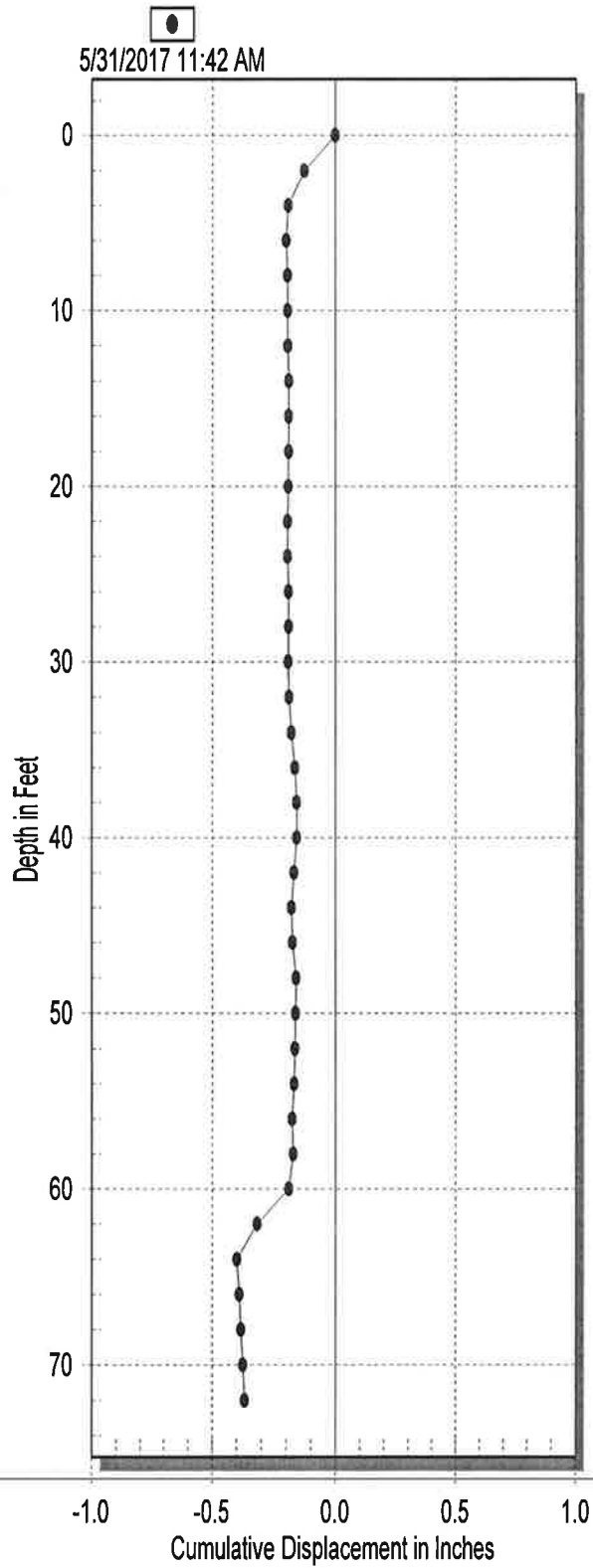
### D04221:INC2 - B Axis

Initial survey: 5/16/2017 10:06 AM



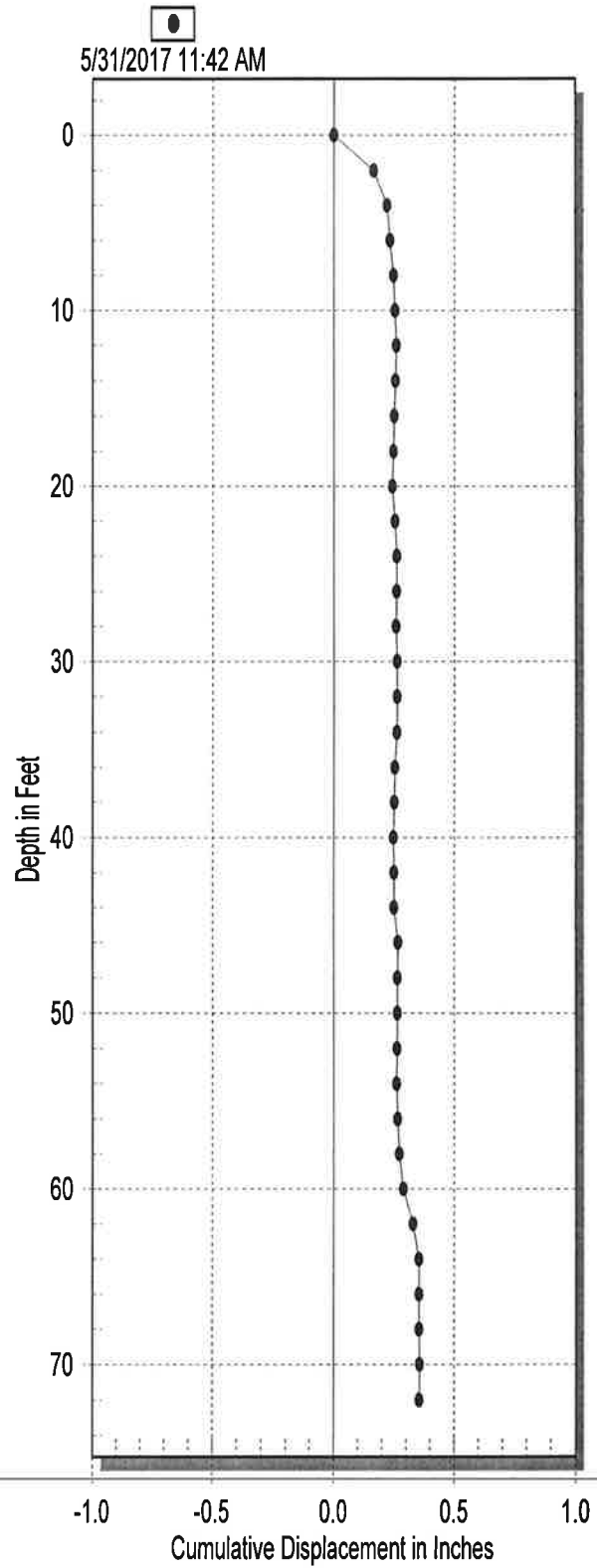
### D04221:INC2 - A Axis

Initial survey: 3/22/2017 02:17 PM



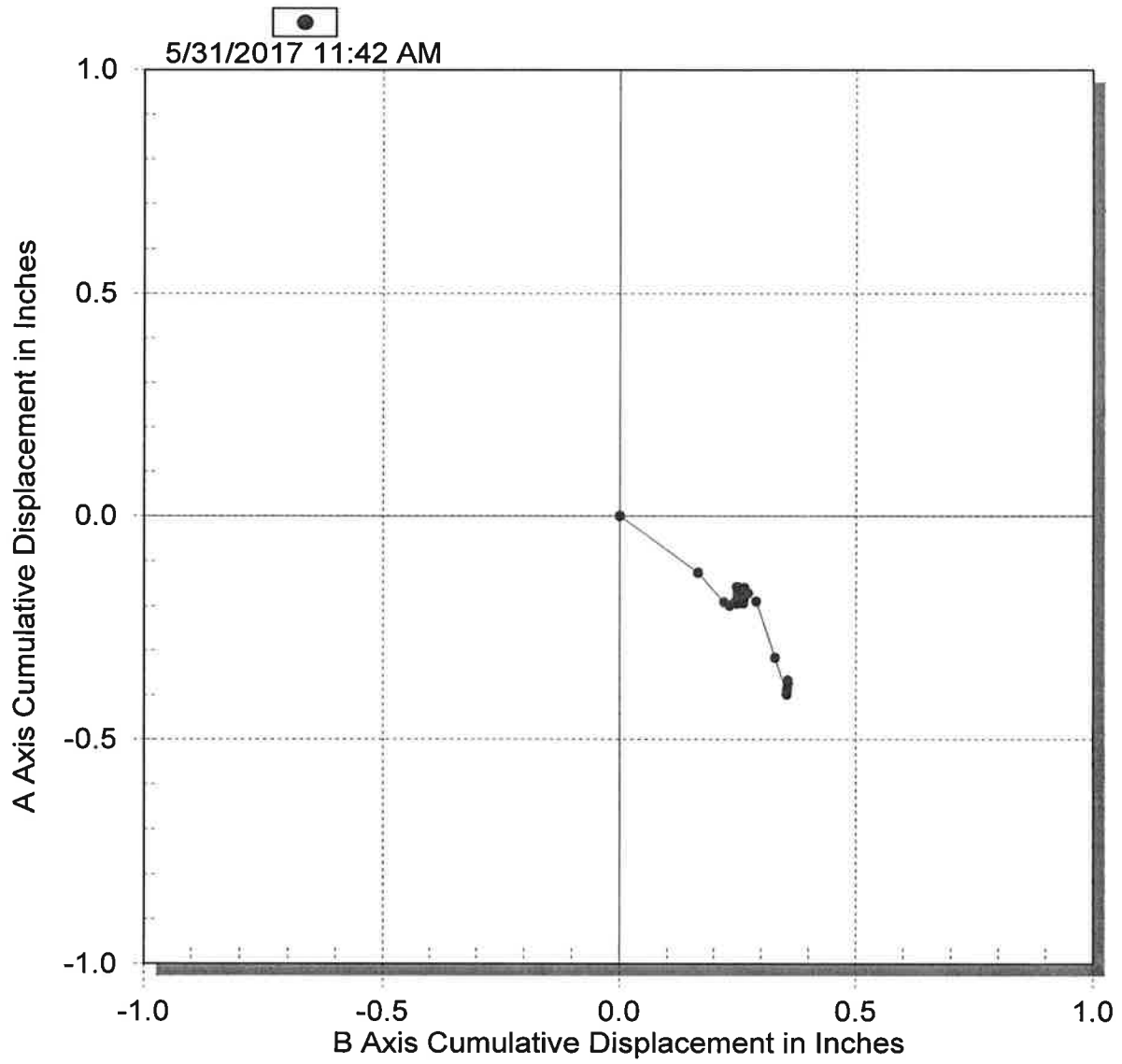
### D04221:INC2 - B Axis

Initial survey: 3/22/2017 02:17 PM



# D04221:INC2 - A Axis vs B Axis

Initial survey: 3/22/2017 02:17 PM





SITE : D04221  
 INSTALLATION : INC2  
 DESCRIPTION : From DataMate  
  
 CURRENT SURVEY : 5/31/2017 11:42:35 AM  
 Probe Serial No : 29421  
  
 INITIAL SURVEY : 3/22/2017 2:17:26 PM  
 Probe Serial No : 29421  
  
 DATE PRINTED : 6/1/2017 8:03:10 AM

Data Reduction for A Axis:

Depth (ft)	Initial A0	Initial A180	Initial Incr. Dev. (in)	Current A0	Current A180	Current Incr. Dev. (in)	Incr. Disp. (in)	Cum. Disp. (in)
0	0	0	0.0000	0	0	0.0000	0.0000	0.0000
2	58	-77	-0.0810	137	-208	-0.2070	-0.1260	-0.1260
4	90	-106	-0.1176	152	-154	-0.1836	-0.0660	-0.1920
6	152	-146	-0.1788	162	-149	-0.1866	-0.0078	-0.1998
8	70	-58	-0.0768	65	-55	-0.0720	0.0048	-0.1950
10	-59	71	0.0780	-60	72	0.0792	0.0012	-0.1938
12	-113	124	0.1422	-114	124	0.1428	0.0006	-0.1932
14	-114	124	0.1428	-118	126	0.1464	0.0036	-0.1896
16	-103	114	0.1302	-102	114	0.1296	-0.0006	-0.1902
18	-215	224	0.2634	-214	225	0.2634	0.0000	-0.1902
20	-323	333	0.3936	-317	336	0.3918	-0.0018	-0.1920
22	-392	401	0.4758	-389	400	0.4734	-0.0024	-0.1944
24	-444	452	0.5376	-443	453	0.5376	0.0000	-0.1944
26	-574	589	0.6978	-578	591	0.7014	0.0036	-0.1908
28	-739	750	0.8934	-738	752	0.8940	0.0006	-0.1902
30	-859	871	1.0380	-858	868	1.0356	-0.0024	-0.1926
32	-991	1004	1.1970	-994	1007	1.2006	0.0036	-0.1890
34	-1088	1099	1.3122	-1095	1108	1.3218	0.0096	-0.1794
36	-1021	1032	1.2318	-1032	1045	1.2462	0.0144	-0.1650
38	-911	922	1.0998	-917	928	1.1070	0.0072	-0.1578
40	-769	787	0.9336	-775	781	0.9336	0.0000	-0.1578
42	-639	651	0.7740	-631	641	0.7632	-0.0108	-0.1686
44	-535	547	0.6492	-526	539	0.6390	-0.0102	-0.1788
46	-547	560	0.6642	-550	564	0.6684	0.0042	-0.1746
48	-750	762	0.9072	-761	775	0.9216	0.0144	-0.1602
50	-984	997	1.1886	-981	996	1.1862	-0.0024	-0.1626
52	-973	983	1.1736	-970	982	1.1712	-0.0024	-0.1650
54	-947	958	1.1430	-943	956	1.1394	-0.0036	-0.1686
56	-815	829	0.9864	-809	821	0.9780	-0.0084	-0.1770
58	-790	802	0.9552	-794	806	0.9600	0.0048	-0.1722
60	-688	698	0.8316	-672	684	0.8136	-0.0180	-0.1902
62	-446	457	0.5418	-343	350	0.4158	-0.1260	-0.3162
64	-122	133	0.1530	-53	64	0.0702	-0.0828	-0.3990
66	-39	50	0.0534	-48	58	0.0636	0.0102	-0.3888
68	-336	350	0.4116	-345	352	0.4182	0.0066	-0.3822
70	-580	590	0.7020	-586	598	0.7104	0.0084	-0.3738
72	-701	715	0.8496	-708	719	0.8562	0.0066	-0.3672

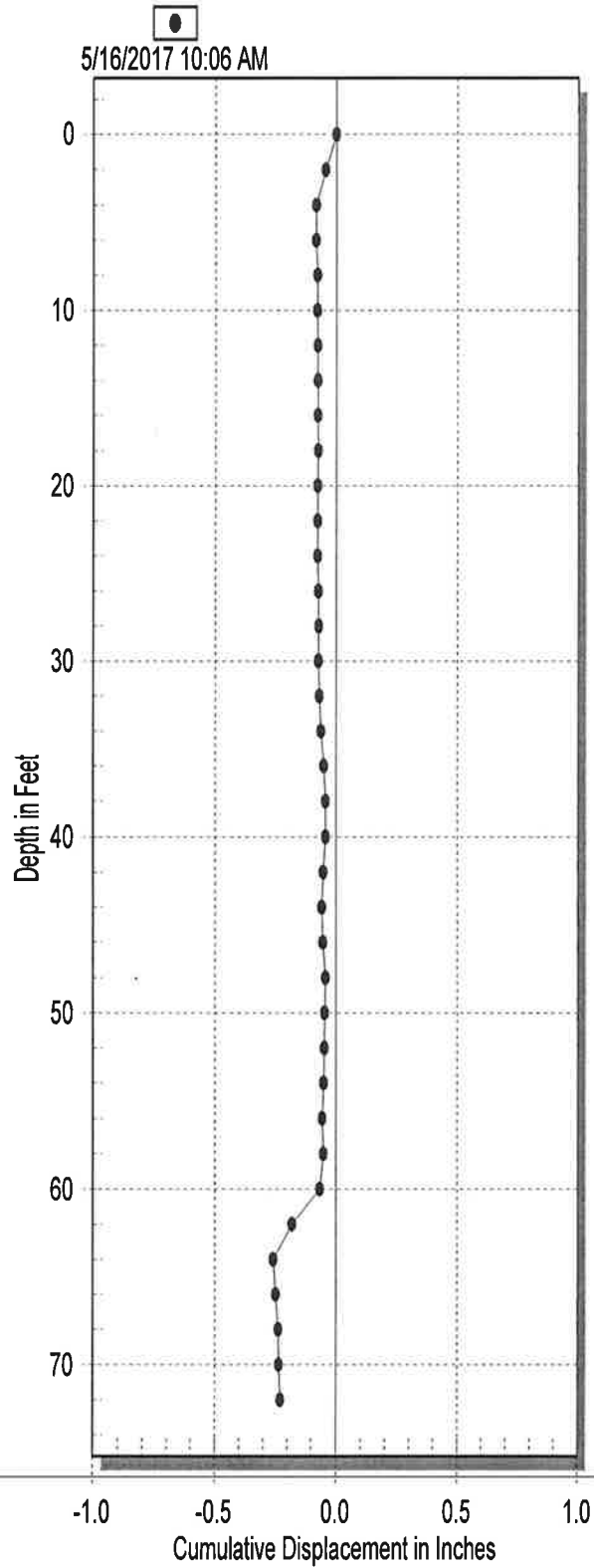
SITE : D04221  
 INSTALLATION : INC2  
 DESCRIPTION : From DataMate  
  
 CURRENT SURVEY : 5/31/2017 11:42:35 AM  
 Probe Serial No : 29421  
  
 INITIAL SURVEY : 3/22/2017 2:17:26 PM  
 Probe Serial No : 29421  
  
 DATE PRINTED : 6/1/2017 8:03:10 AM

Data Reduction for B Axis:

Depth (ft)	Initial B0	Initial B180	Initial Incr. Dev. (in)	Current B0	Current B180	Current Incr. Dev. (in)	Incr. Disp. (in)	Cum. Disp. (in)
0	0	0	0.0000	0	0	0.0000	0.0000	0.0000
2	-121	109	0.1380	-243	263	0.3036	0.1656	0.1656
4	-88	75	0.0978	-134	121	0.1530	0.0552	0.2208
6	-87	61	0.0888	-97	71	0.1008	0.0120	0.2328
8	-73	42	0.0690	-77	62	0.0834	0.0144	0.2472
10	-61	35	0.0576	-69	38	0.0642	0.0066	0.2538
12	-22	11	0.0198	-26	16	0.0252	0.0054	0.2592
14	-27	6	0.0198	-27	0	0.0162	-0.0036	0.2556
16	-71	42	0.0678	-66	38	0.0624	-0.0054	0.2502
18	-95	65	0.0960	-91	64	0.0930	-0.0030	0.2472
20	-144	123	0.1602	-137	123	0.1560	-0.0042	0.2430
22	-241	215	0.2736	-247	227	0.2844	0.0108	0.2538
24	-228	226	0.2724	-244	223	0.2802	0.0078	0.2616
26	-159	131	0.1740	-158	130	0.1728	-0.0012	0.2604
28	-79	50	0.0774	-76	50	0.0756	-0.0018	0.2586
30	-23	-2	0.0126	-25	2	0.0162	0.0036	0.2622
32	53	-72	-0.0750	54	-71	-0.0750	0.0000	0.2622
34	153	-178	-0.1986	155	-177	-0.1992	-0.0006	0.2616
36	209	-238	-0.2682	211	-250	-0.2766	-0.0084	0.2532
38	199	-223	-0.2532	201	-225	-0.2556	-0.0024	0.2508
40	115	-130	-0.1470	120	-131	-0.1506	-0.0036	0.2472
42	-8	-9	-0.0006	-9	-6	0.0018	0.0024	0.2496
44	-141	120	0.1566	-141	120	0.1566	0.0000	0.2496
46	-163	131	0.1764	-178	144	0.1932	0.0168	0.2664
48	-159	139	0.1788	-159	135	0.1764	-0.0024	0.2640
50	-78	64	0.0852	-77	65	0.0852	0.0000	0.2640
52	26	-52	-0.0468	27	-54	-0.0486	-0.0018	0.2622
54	60	-74	-0.0804	57	-79	-0.0816	-0.0012	0.2610
56	-30	2	0.0192	-34	5	0.0234	0.0042	0.2652
58	-87	56	0.0858	-91	63	0.0924	0.0066	0.2718
60	-115	91	0.1236	-140	95	0.1410	0.0174	0.2892
62	-99	68	0.1002	-130	104	0.1404	0.0402	0.3294
64	-82	51	0.0798	-103	71	0.1044	0.0246	0.3540
66	-109	79	0.1128	-110	79	0.1134	0.0006	0.3546
68	-141	113	0.1524	-151	104	0.1530	0.0006	0.3552
70	-146	123	0.1614	-149	123	0.1632	0.0018	0.3570
72	-98	86	0.1104	-95	87	0.1092	-0.0012	0.3558

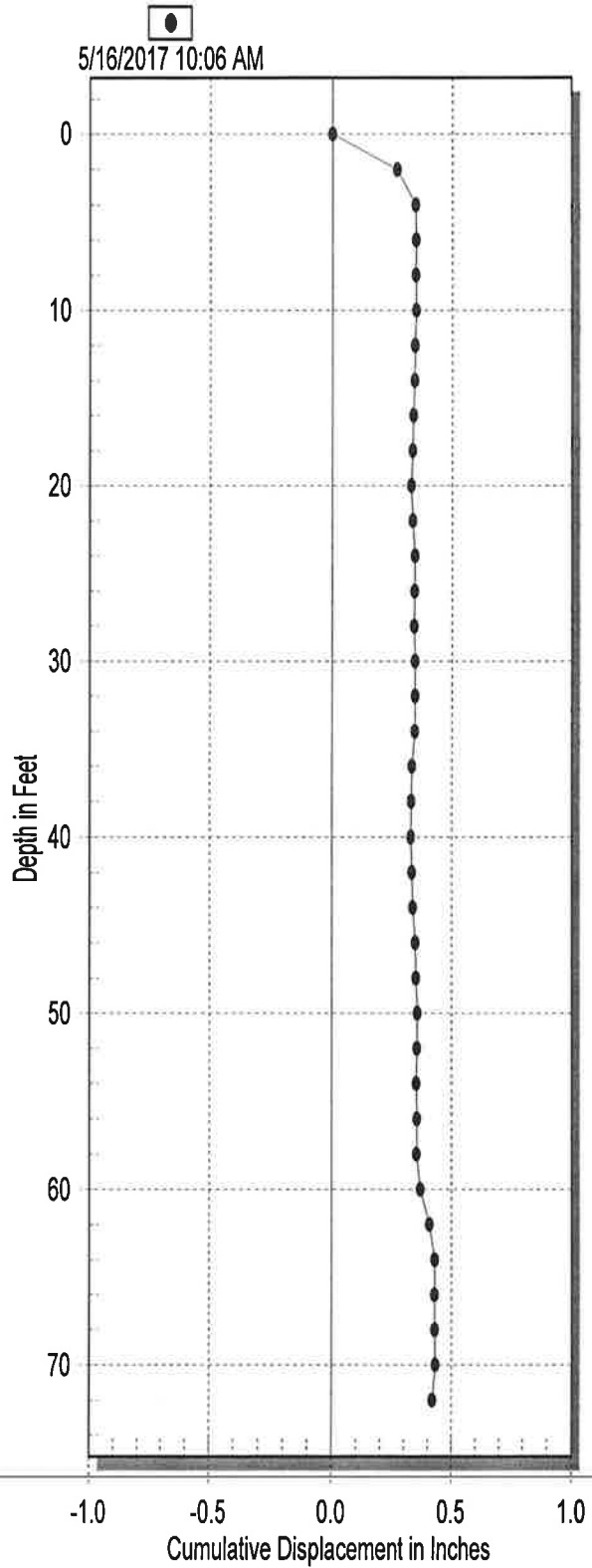
# D04221:INC2 - A Axis

Initial survey: 3/22/2017 02:17 PM



# D04221:INC2 - B Axis

Initial survey: 3/22/2017 02:17 PM



SITE : D04221  
 INSTALLATION : INC2  
 DESCRIPTION : From DataMate  
  
 CURRENT SURVEY : 5/16/2017 10:06:56 AM  
 Probe Serial No : 29421  
  
 INITIAL SURVEY : 3/22/2017 2:17:26 PM  
 Probe Serial No : 29421  
  
 DATE PRINTED : 5/31/2017 7:58:52 AM

Data Reduction for A Axis:

Depth (ft)	Initial A0	Initial A180	Initial Incr. Dev. (in)	Current A0	Current A180	Current Incr. Dev. (in)	Incr. Disp. (in)	Cum. Disp. (in)
0	0	0	0.0000	0	0	0.0000	0.0000	0.0000
2	58	-77	-0.0810	98	-111	-0.1254	-0.0444	-0.0444
4	90	-106	-0.1176	126	-134	-0.1560	-0.0384	-0.0828
6	152	-146	-0.1788	156	-143	-0.1794	-0.0006	-0.0834
8	70	-58	-0.0768	65	-53	-0.0708	0.0060	-0.0774
10	-59	71	0.0780	-58	70	0.0768	-0.0012	-0.0786
12	-113	124	0.1422	-114	126	0.1440	0.0018	-0.0768
14	-114	124	0.1428	-114	125	0.1434	0.0006	-0.0762
16	-103	114	0.1302	-102	115	0.1302	0.0000	-0.0762
18	-215	224	0.2634	-216	227	0.2658	0.0024	-0.0738
20	-323	333	0.3936	-319	332	0.3906	-0.0030	-0.0768
22	-392	401	0.4758	-391	402	0.4758	0.0000	-0.0768
24	-444	452	0.5376	-442	454	0.5376	0.0000	-0.0768
26	-574	589	0.6978	-578	591	0.7014	0.0036	-0.0732
28	-739	750	0.8934	-739	752	0.8946	0.0012	-0.0720
30	-859	871	1.0380	-858	870	1.0368	-0.0012	-0.0732
32	-991	1004	1.1970	-994	1007	1.2006	0.0036	-0.0696
34	-1088	1099	1.3122	-1093	1106	1.3194	0.0072	-0.0624
36	-1021	1032	1.2318	-1030	1043	1.2438	0.0120	-0.0504
38	-911	922	1.0998	-916	928	1.1064	0.0066	-0.0438
40	-769	787	0.9336	-772	785	0.9342	0.0006	-0.0432
42	-639	651	0.7740	-632	642	0.7644	-0.0096	-0.0528
44	-535	547	0.6492	-530	543	0.6438	-0.0054	-0.0582
46	-547	560	0.6642	-551	563	0.6684	0.0042	-0.0540
48	-750	762	0.9072	-758	772	0.9180	0.0108	-0.0432
50	-984	997	1.1886	-980	996	1.1856	-0.0030	-0.0462
52	-973	983	1.1736	-970	983	1.1718	-0.0018	-0.0480
54	-947	958	1.1430	-944	957	1.1406	-0.0024	-0.0504
56	-815	829	0.9864	-810	824	0.9804	-0.0060	-0.0564
58	-790	802	0.9552	-794	806	0.9600	0.0048	-0.0516
60	-688	698	0.8316	-675	687	0.8172	-0.0144	-0.0660
62	-446	457	0.5418	-350	363	0.4278	-0.1140	-0.1800
64	-122	133	0.1530	-55	70	0.0750	-0.0780	-0.2580
66	-39	50	0.0534	-48	58	0.0636	0.0102	-0.2478
68	-336	350	0.4116	-346	358	0.4224	0.0108	-0.2370
70	-580	590	0.7020	-583	591	0.7044	0.0024	-0.2346
72	-701	715	0.8496	-706	720	0.8556	0.0060	-0.2286

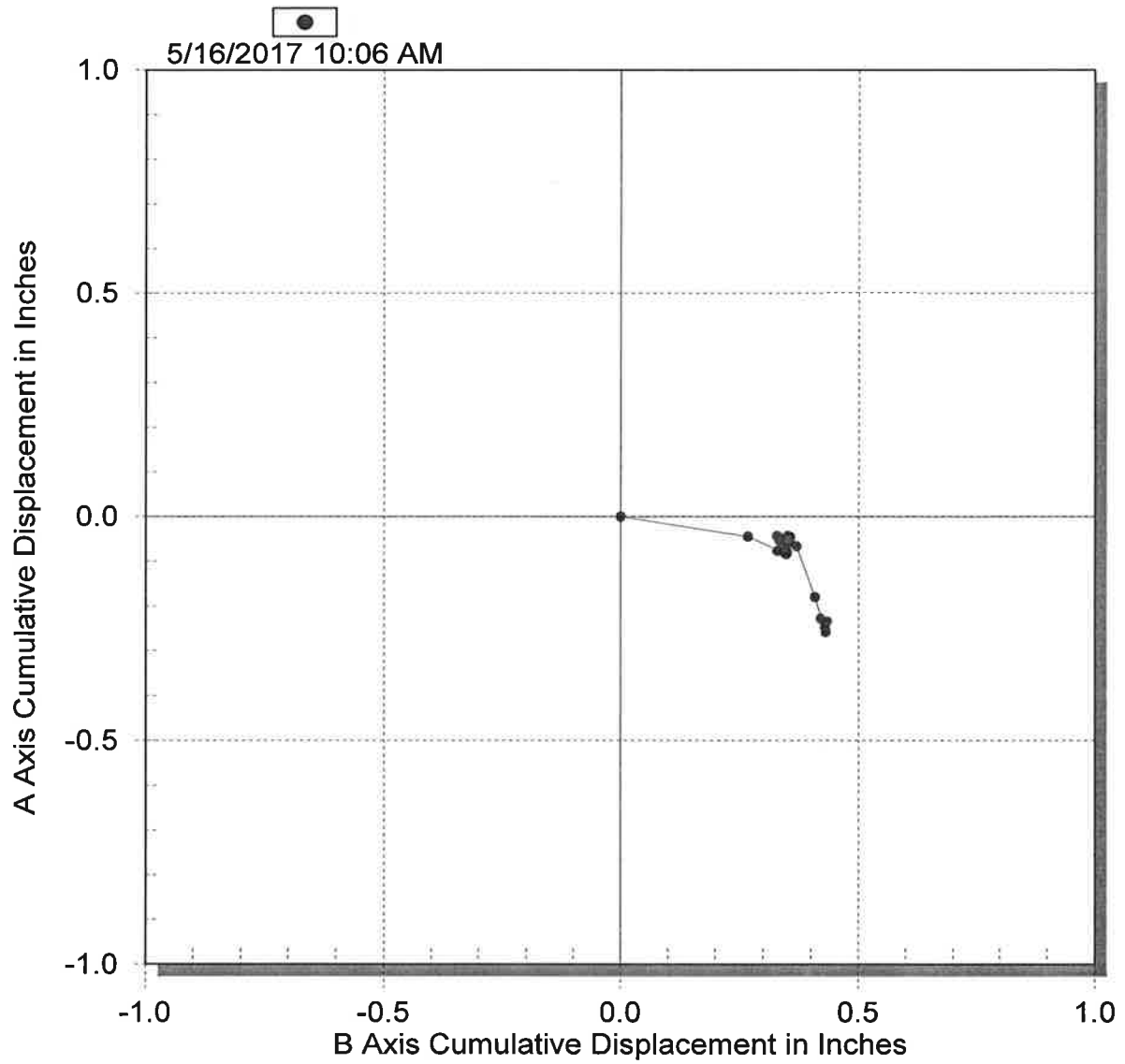
SITE : D04221  
 INSTALLATION : INC2  
 DESCRIPTION : From DataMate  
  
 CURRENT SURVEY : 5/16/2017 10:06:56 AM  
 Probe Serial No : 29421  
  
 INITIAL SURVEY : 3/22/2017 2:17:26 PM  
 Probe Serial No : 29421  
  
 DATE PRINTED : 5/31/2017 7:58:52 AM

Data Reduction for B Axis:

Depth (ft)	Initial B0	Initial B180	Initial Incr. Dev. (in)	Current B0	Current B180	Current Incr. Dev. (in)	Incr. Disp. (in)	Cum. Disp. (in)
0	0	0	0.0000	0	0	0.0000	0.0000	0.0000
2	-121	109	0.1380	-341	336	0.4062	0.2682	0.2682
4	-88	75	0.0978	-168	125	0.1758	0.0780	0.3462
6	-87	61	0.0888	-93	58	0.0906	0.0018	0.3480
8	-73	42	0.0690	-71	42	0.0678	-0.0012	0.3468
10	-61	35	0.0576	-66	34	0.0600	0.0024	0.3492
12	-22	11	0.0198	-25	-1	0.0144	-0.0054	0.3438
14	-27	6	0.0198	-29	3	0.0192	-0.0006	0.3432
16	-71	42	0.0678	-69	35	0.0624	-0.0054	0.3378
18	-95	65	0.0960	-93	61	0.0924	-0.0036	0.3342
20	-144	123	0.1602	-140	118	0.1548	-0.0054	0.3288
22	-241	215	0.2736	-249	217	0.2796	0.0060	0.3348
24	-228	226	0.2724	-247	223	0.2820	0.0096	0.3444
26	-159	131	0.1740	-160	128	0.1728	-0.0012	0.3432
28	-79	50	0.0774	-78	48	0.0756	-0.0018	0.3414
30	-23	-2	0.0126	-28	-1	0.0162	0.0036	0.3450
32	53	-72	-0.0750	50	-74	-0.0744	0.0006	0.3456
34	153	-178	-0.1986	154	-179	-0.1998	-0.0012	0.3444
36	209	-238	-0.2682	213	-254	-0.2802	-0.0120	0.3324
38	199	-223	-0.2532	199	-227	-0.2556	-0.0024	0.3300
40	115	-130	-0.1470	117	-131	-0.1488	-0.0018	0.3282
42	-8	-9	-0.0006	-12	-5	0.0042	0.0048	0.3330
44	-141	120	0.1566	-147	120	0.1602	0.0036	0.3366
46	-163	131	0.1764	-176	136	0.1872	0.0108	0.3474
48	-159	139	0.1788	-166	137	0.1818	0.0030	0.3504
50	-78	64	0.0852	-82	70	0.0912	0.0060	0.3564
52	26	-52	-0.0468	27	-53	-0.0480	-0.0012	0.3552
54	60	-74	-0.0804	57	-82	-0.0834	-0.0030	0.3522
56	-30	2	0.0192	-34	3	0.0222	0.0030	0.3552
58	-87	56	0.0858	-92	48	0.0840	-0.0018	0.3534
60	-115	91	0.1236	-141	92	0.1398	0.0162	0.3696
62	-99	68	0.1002	-131	100	0.1386	0.0384	0.4080
64	-82	51	0.0798	-103	68	0.1026	0.0228	0.4308
66	-109	79	0.1128	-112	74	0.1116	-0.0012	0.4296
68	-141	113	0.1524	-153	103	0.1536	0.0012	0.4308
70	-146	123	0.1614	-151	122	0.1638	0.0024	0.4332
72	-98	86	0.1104	-94	68	0.0972	-0.0132	0.4200

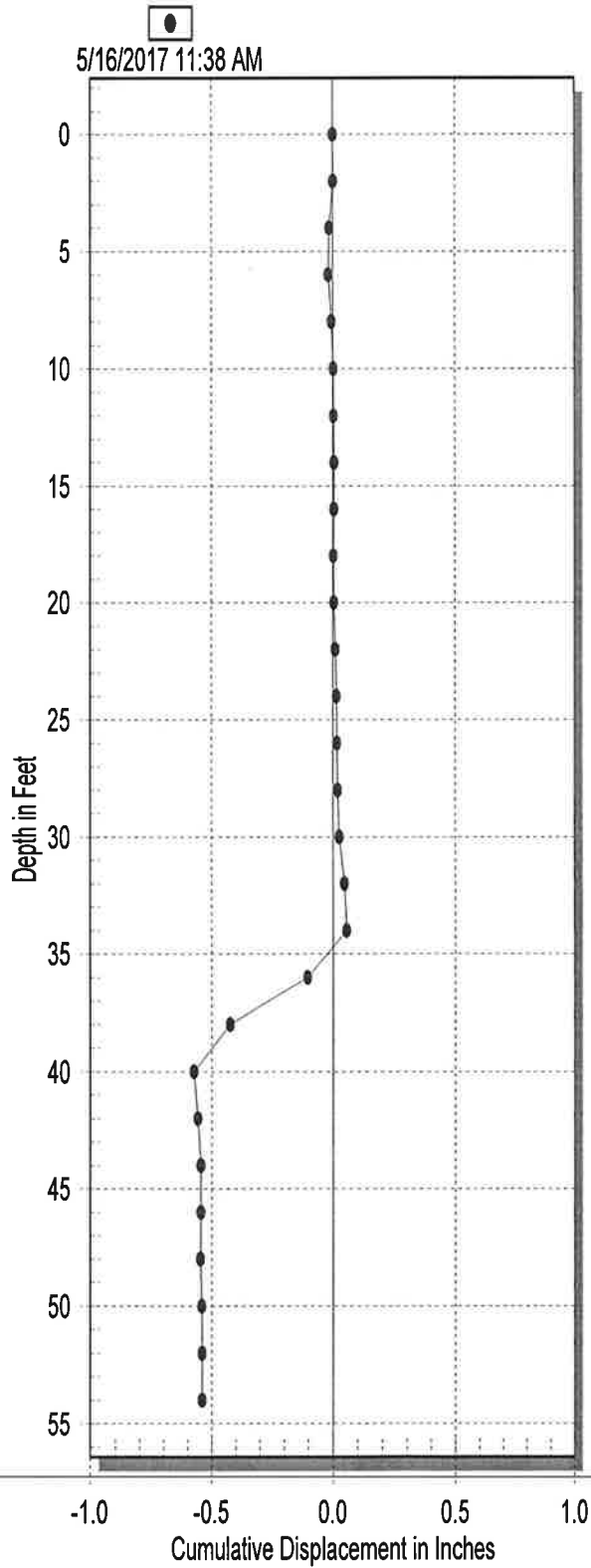
# D04221:INC2 - A Axis vs B Axis

Initial survey: 3/22/2017 02:17 PM



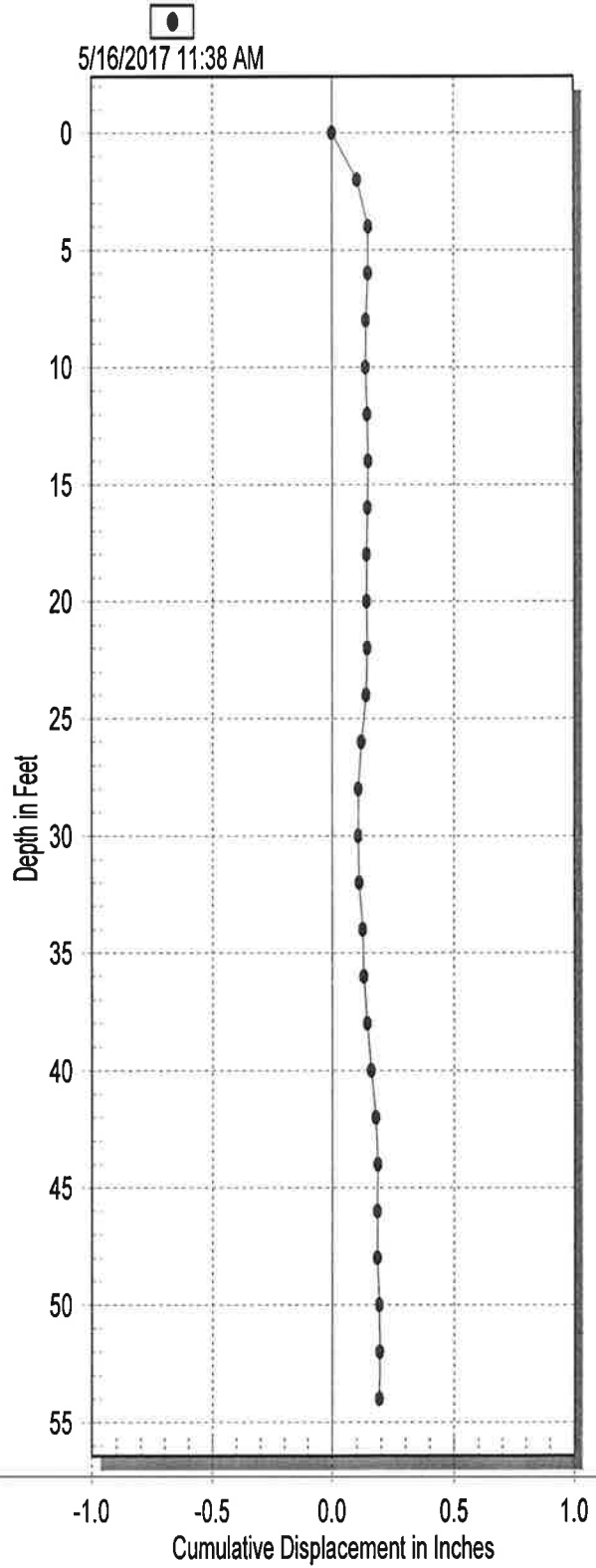
# D04221:INC3 - A Axis

Initial survey: 2/1/2017 12:01 PM



# D04221:INC3 - B Axis

Initial survey: 2/1/2017 12:01 PM



SITE : D04221  
 INSTALLATION : INC3  
 DESCRIPTION : From DataMate  
  
 CURRENT SURVEY : 5/16/2017 11:38:16 AM  
 Probe Serial No : 29421  
  
 INITIAL SURVEY : 2/1/2017 12:01:33 PM  
 Probe Serial No : 29421  
  
 DATE PRINTED : 5/31/2017 7:56:05 AM

Data Reduction for A Axis:

Depth (ft)	Initial A0	Initial A180	Initial Incr. Dev. (in)	Current A0	Current A180	Current Incr. Dev. (in)	Incr. Disp. (in)	Cum. Disp. (in)
0	0	0	0.0000	0	0	0.0000	0.0000	0.0000
2	-121	27	0.0888	-87	63	0.0900	0.0012	0.0012
4	-163	122	0.1710	-131	128	0.1554	-0.0156	-0.0144
6	-172	176	0.2088	-171	171	0.2052	-0.0036	-0.0180
8	-121	134	0.1530	-134	142	0.1656	0.0126	-0.0054
10	-54	68	0.0732	-61	73	0.0804	0.0072	0.0018
12	-7	21	0.0168	-9	20	0.0174	0.0006	0.0024
14	12	2	-0.0060	8	3	-0.0030	0.0030	0.0054
16	16	-3	-0.0114	18	-2	-0.0120	-0.0006	0.0048
18	-2	13	0.0090	1	11	0.0060	-0.0030	0.0018
20	12	1	-0.0066	11	4	-0.0042	0.0024	0.0042
22	11	1	-0.0060	7	7	0.0000	0.0060	0.0102
24	15	-1	-0.0096	9	0	-0.0054	0.0042	0.0144
26	23	-9	-0.0192	22	-7	-0.0174	0.0018	0.0162
28	17	-3	-0.0120	14	-1	-0.0090	0.0030	0.0192
30	-22	33	0.0330	-23	42	0.0390	0.0060	0.0252
32	-108	120	0.1368	-120	143	0.1578	0.0210	0.0462
34	-192	207	0.2394	-200	215	0.2490	0.0096	0.0558
36	-243	255	0.2988	-116	116	0.1392	-0.1596	-0.1038
38	-240	252	0.2952	28	-13	-0.0246	-0.3198	-0.4236
40	-249	263	0.3072	-116	147	0.1578	-0.1494	-0.5730
42	-301	314	0.3690	-311	330	0.3846	0.0156	-0.5574
44	-322	336	0.3948	-335	345	0.4080	0.0132	-0.5442
46	-333	346	0.4074	-331	347	0.4068	-0.0006	-0.5448
48	-322	333	0.3930	-321	330	0.3906	-0.0024	-0.5472
50	-313	326	0.3834	-314	335	0.3894	0.0060	-0.5412
52	-405	418	0.4938	-405	420	0.4950	0.0012	-0.5400
54	-375	388	0.4578	-377	386	0.4578	0.0000	-0.5400



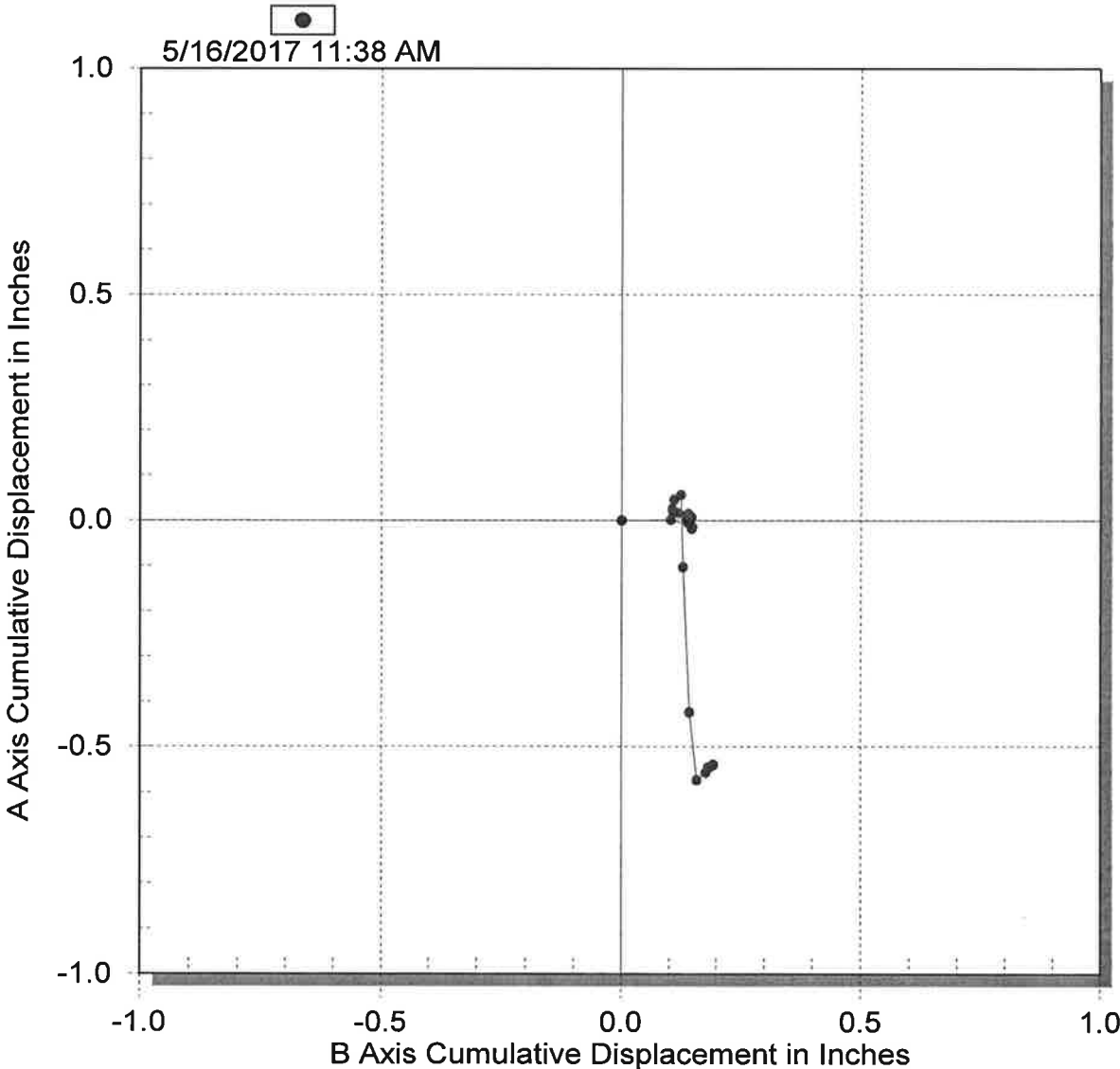
SITE : D04221  
 INSTALLATION : INC3  
 DESCRIPTION : From DataMate  
  
 CURRENT SURVEY : 5/16/2017 11:38:16 AM  
 Probe Serial No : 29421  
  
 INITIAL SURVEY : 2/1/2017 12:01:33 PM  
 Probe Serial No : 29421  
  
 DATE PRINTED : 5/31/2017 7:56:05 AM

Data Reduction for B Axis:

Depth (ft)	Initial B0	Initial B180	Initial Incr. Dev. (in)	Current B0	Current B180	Current Incr. Dev. (in)	Incr. Disp. (in)	Cum. Disp. (in)
0	0	0	0.0000	0	0	0.0000	0.0000	0.0000
2	506	-496	-0.6012	424	-407	-0.4986	0.1026	0.1026
4	535	-539	-0.6444	488	-510	-0.5988	0.0456	0.1482
6	516	-532	-0.6288	518	-532	-0.6300	-0.0012	0.1470
8	433	-464	-0.5382	445	-466	-0.5466	-0.0084	0.1386
10	358	-374	-0.4392	364	-371	-0.4410	-0.0018	0.1368
12	223	-261	-0.2904	224	-250	-0.2844	0.0060	0.1428
14	182	-234	-0.2496	179	-230	-0.2454	0.0042	0.1470
16	168	-211	-0.2274	173	-210	-0.2298	-0.0024	0.1446
18	184	-214	-0.2388	187	-218	-0.2430	-0.0042	0.1404
20	196	-228	-0.2544	195	-228	-0.2538	0.0006	0.1410
22	235	-265	-0.3000	231	-265	-0.2976	0.0024	0.1434
24	293	-317	-0.3660	295	-322	-0.3702	-0.0042	0.1392
26	340	-366	-0.4236	355	-384	-0.4434	-0.0198	0.1194
28	360	-393	-0.4518	373	-401	-0.4644	-0.0126	0.1068
30	341	-373	-0.4284	344	-371	-0.4290	-0.0006	0.1062
32	301	-331	-0.3792	301	-325	-0.3756	0.0036	0.1098
34	270	-285	-0.3330	255	-276	-0.3186	0.0144	0.1242
36	254	-285	-0.3234	251	-280	-0.3186	0.0048	0.1290
38	241	-290	-0.3186	238	-270	-0.3048	0.0138	0.1428
40	210	-256	-0.2796	201	-238	-0.2634	0.0162	0.1590
42	191	-240	-0.2586	184	-216	-0.2400	0.0186	0.1776
44	198	-230	-0.2568	193	-221	-0.2484	0.0084	0.1860
46	225	-257	-0.2892	225	-261	-0.2916	-0.0024	0.1836
48	267	-303	-0.3420	269	-301	-0.3420	0.0000	0.1836
50	239	-267	-0.3036	238	-254	-0.2952	0.0084	0.1920
52	191	-224	-0.2490	191	-221	-0.2472	0.0018	0.1938
54	233	-247	-0.2880	239	-243	-0.2892	-0.0012	0.1926

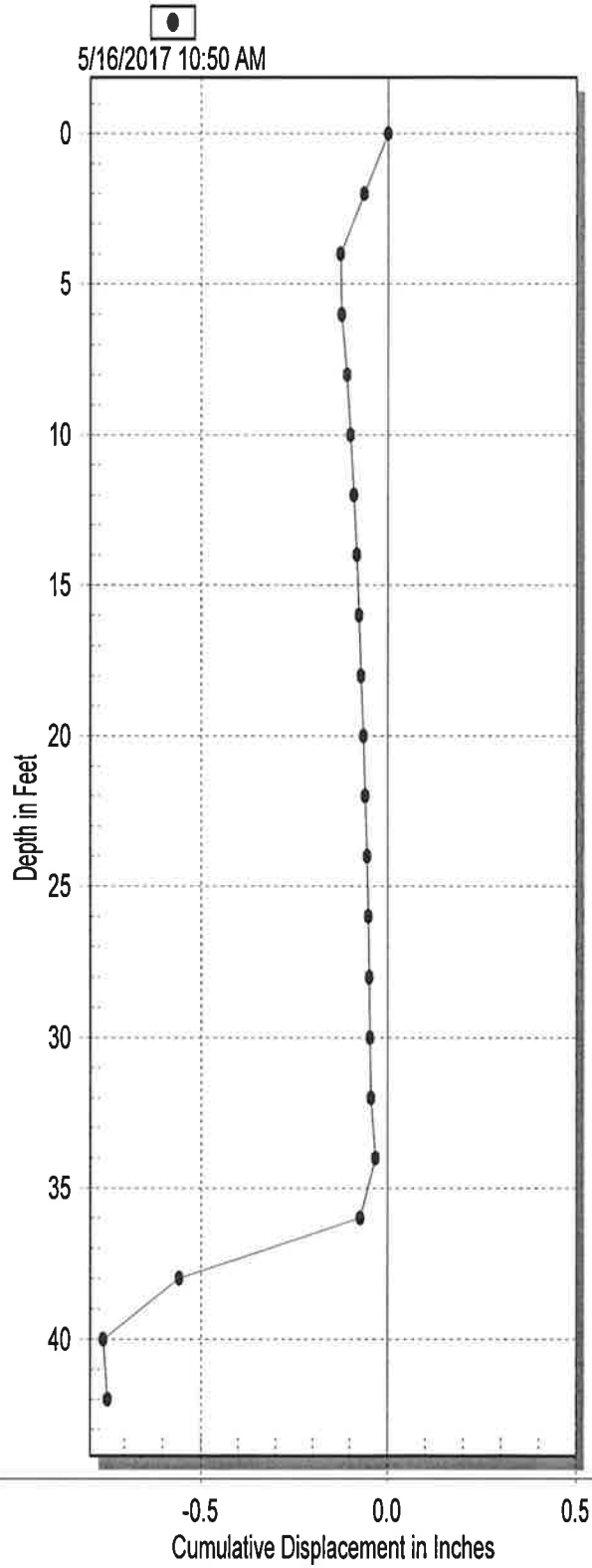
# D04221:INC3 - A Axis vs B Axis

Initial survey: 2/1/2017 12:01 PM



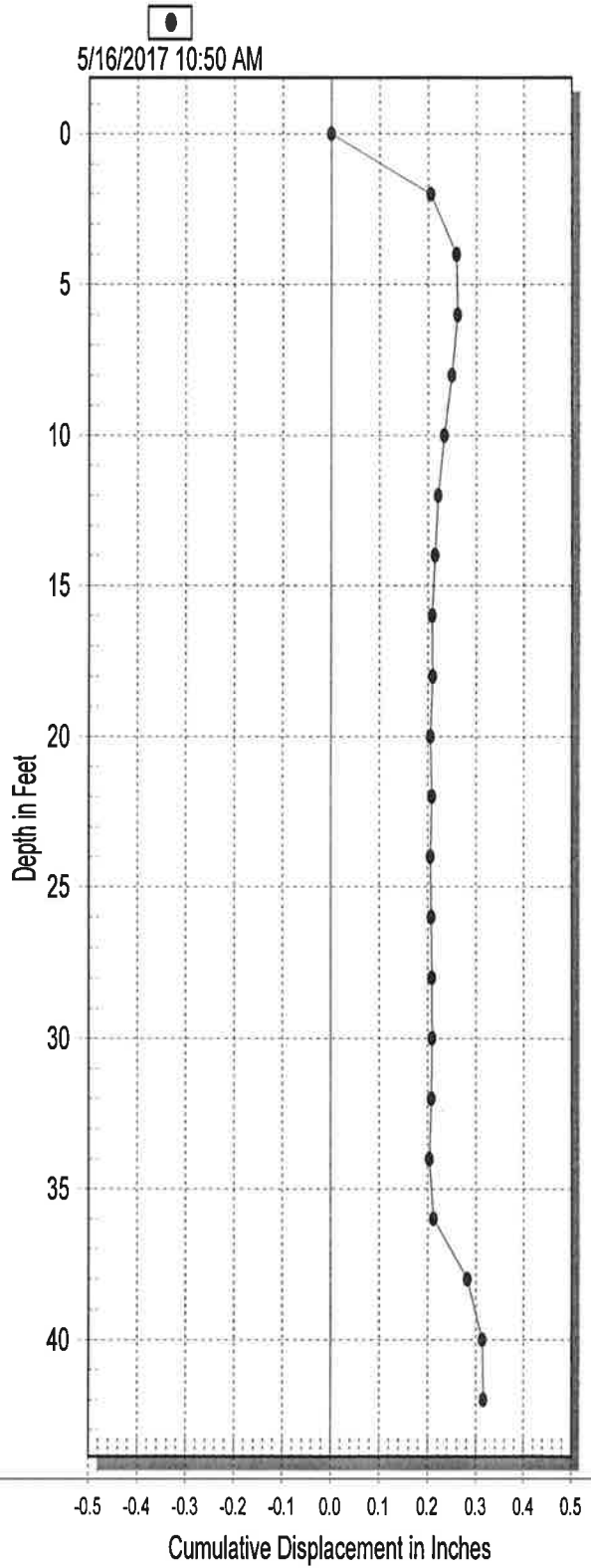
### D04221:INC4 - A Axis

Initial survey: 2/1/2017 11:12 AM



### D04221:INC4 - B Axis

Initial survey: 2/1/2017 11:12 AM



SITE : D04221  
 INSTALLATION : INC4  
 DESCRIPTION : From DataMate  
  
 CURRENT SURVEY : 5/16/2017 10:50:20 AM  
 Probe Serial No : 29421  
  
 INITIAL SURVEY : 2/1/2017 11:12:33 AM  
 Probe Serial No : 29421  
  
 DATE PRINTED : 5/31/2017 7:54:00 AM

Data Reduction for A Axis:

Depth (ft)	Initial A0	Initial A180	Initial Incr. Dev. (in)	Current A0	Current A180	Current Incr. Dev. (in)	Incr. Disp. (in)	Cum. Disp. (in)
0	0	0	0.0000	0	0	0.0000	0.0000	0.0000
2	-149	239	0.2328	-158	124	0.1692	-0.0636	-0.0636
4	-236	231	0.2802	-179	183	0.2172	-0.0630	-0.1266
6	-165	170	0.2010	-163	177	0.2040	0.0030	-0.1236
8	-176	184	0.2160	-186	198	0.2304	0.0144	-0.1092
10	-216	227	0.2658	-223	236	0.2754	0.0096	-0.0996
12	-257	269	0.3156	-265	276	0.3246	0.0090	-0.0906
14	-282	291	0.3438	-287	299	0.3516	0.0078	-0.0828
16	-292	302	0.3564	-297	307	0.3624	0.0060	-0.0768
18	-268	277	0.3270	-272	282	0.3324	0.0054	-0.0714
20	-239	253	0.2952	-245	258	0.3018	0.0066	-0.0648
22	-231	243	0.2844	-235	247	0.2892	0.0048	-0.0600
24	-233	245	0.2868	-236	250	0.2916	0.0048	-0.0552
26	-216	232	0.2688	-219	235	0.2724	0.0036	-0.0516
28	-190	198	0.2328	-192	200	0.2352	0.0024	-0.0492
30	-200	213	0.2478	-202	214	0.2496	0.0018	-0.0474
32	-180	192	0.2232	-184	193	0.2262	0.0030	-0.0444
34	-153	165	0.1908	-162	176	0.2028	0.0120	-0.0324
36	-152	163	0.1890	-116	131	0.1482	-0.0408	-0.0732
38	-152	161	0.1878	251	-243	-0.2964	-0.4842	-0.5574
40	-163	176	0.2034	-2	8	0.0060	-0.1974	-0.7548
42	-155	170	0.1950	-164	179	0.2058	0.0108	-0.7440

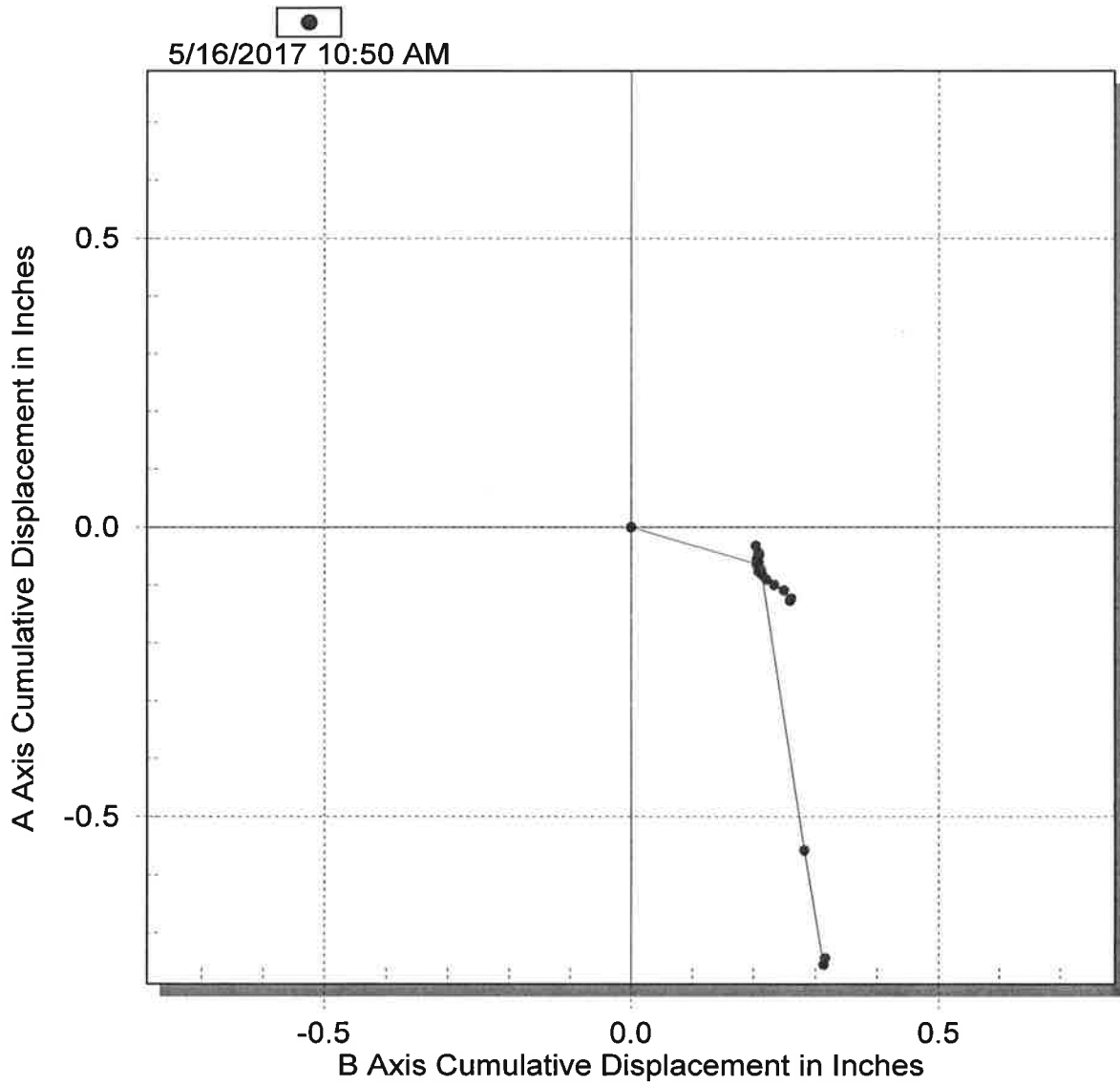
SITE : D04221  
 INSTALLATION : INC4  
 DESCRIPTION : From DataMate  
  
 CURRENT SURVEY : 5/16/2017 10:50:20 AM  
 Probe Serial No : 29421  
  
 INITIAL SURVEY : 2/1/2017 11:12:33 AM  
 Probe Serial No : 29421  
  
 DATE PRINTED : 5/31/2017 7:54:00 AM

Data Reduction for B Axis:

Depth (ft)	Initial B0	Initial B180	Initial Incr. Dev. (in)	Current B0	Current B180	Current Incr. Dev. (in)	Incr. Disp. (in)	Cum. Disp. (in)
0	0	0	0.0000	0	0	0.0000	0.0000	0.0000
2	179	-295	-0.2844	65	-67	-0.0792	0.2052	0.2052
4	302	-353	-0.3930	273	-293	-0.3396	0.0534	0.2586
6	326	-351	-0.4062	323	-350	-0.4038	0.0024	0.2610
8	355	-371	-0.4356	359	-387	-0.4476	-0.0120	0.2490
10	373	-384	-0.4542	376	-407	-0.4698	-0.0156	0.2334
12	395	-406	-0.4806	396	-426	-0.4932	-0.0126	0.2208
14	415	-434	-0.5094	416	-444	-0.5160	-0.0066	0.2142
16	432	-458	-0.5340	436	-464	-0.5400	-0.0060	0.2082
18	477	-503	-0.5880	481	-497	-0.5868	0.0012	0.2094
20	540	-569	-0.6654	546	-570	-0.6696	-0.0042	0.2052
22	596	-624	-0.7320	595	-620	-0.7290	0.0030	0.2082
24	651	-659	-0.7860	652	-663	-0.7890	-0.0030	0.2052
26	654	-680	-0.8004	648	-683	-0.7986	0.0018	0.2070
28	698	-726	-0.8544	697	-725	-0.8532	0.0012	0.2082
30	751	-781	-0.9192	751	-780	-0.9186	0.0006	0.2088
32	786	-816	-0.9612	787	-817	-0.9624	-0.0012	0.2076
34	820	-839	-0.9954	823	-843	-0.9996	-0.0042	0.2034
36	849	-881	-1.0380	844	-872	-1.0296	0.0084	0.2118
38	871	-898	-1.0614	813	-839	-0.9912	0.0702	0.2820
40	882	-908	-1.0740	862	-876	-1.0428	0.0312	0.3132
42	912	-935	-1.1082	915	-928	-1.1058	0.0024	0.3156

# D04221:INC4 - A Axis vs B Axis

Initial survey: 2/1/2017 11:12 AM



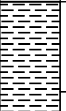
**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 1  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 2+80  
LOCATION: 150' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 22, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 39.4

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 601.6									
5			Soil Not Sampled									
10												
15												
20												
25												
30												
35											98	75

REMARKS:

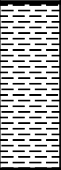
**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 1  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 2+80  
LOCATION: 150' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 22, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 39.4

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 601.6									
			SHALE - Slightly Weathered, Medium Hard, Dark Gray								98	26
40			Boring Terminated									
45												
50												
55												
60												
65												
70												

REMARKS:



**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 2  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 3+43  
LOCATION: 180' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 14, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 43.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 598.3									
5			Moist, Stiff, Brown Clay							4 7-7		
10			Moist, Very Stiff, Brown Clay with Gravel (Shale Fragments) *							5 8-9		
15			Moist, Medium Stiff, Brown Clay with Gravel (Shale Fragments)							4 8-10		
20			Moist, Stiff, Brown Clay with Gravel (Shale Fragments)							2 3-4		
25			Moist, Stiff, Brown Clay with Gravel (Shale Fragments)							3 6-9		
30			Wet, Stiff, Brown and Gray Clay with Gravel (Shale Fragments) **							6 7-7		
35			Wet, Very Hard, Brown and Gray Clay with							60		

REMARKS: \* 24hr water-level reading was 14' feet below ground level.  
\*\* Water was encountered at 27.8' below ground level. Boring collapsed at 33' below ground level.

<b>ARKANSAS HWY. &amp; TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.</b>		BORING NO. 2 PAGE 2 OF 2
JOB NO. D04221 Franklin County	JOB NAME: I-40 Slide (Ozark) Section 12 Log Mile 35.28	DATE: June 14, 2016
STATION: 3+43	LOCATION: 180' Left of Westbound Centerline	TYPE OF DRILLING: Hollow Stem Auger - Diamond Core
LOGGED BY: Paul Christenberry		EQUIPMENT: CME 850
COMPLETION DEPTH: 43.5		HAMMER CORRECTION FACTOR: 1.23

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 598.3									
	▨		Gravel (Shale Fragments)							(5")		
	▨		SHALE								100	100
40	▨		SHALE WITH FREQUENT SANDSTONE SEAMS AND LAYERS - Slightly Weathered, Medium Hard, Gray								97	97
45			Boring Terminated									
50												
55												
60												
65												
70												

REMARKS: \* 24hr water-level reading was 14' feet below ground level.  
 \*\* Water was encountered at 27.8' below ground level. Boring collapsed at 33' below ground level.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 3  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 3+48  
LOCATION: 48' Left of Westbound Centerline  
LOGGED BY: Paul Campbell

DATE: 5/31/2016 to 6/01/2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 68

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 641.9									
5		⊗	Moist, Medium Dense, Light Gray and Brown Clayey Sand with Gravel (Rock Fragments)							13 9-6		
10		⊗								8 8-7		
15		⊗	Moist, Dense, Gray and Redbrown Clayey Sand with Gravel (Rock Fragments)							15 26-14		
20		⊗	Dry, Very Dense, Light Brown Sand with Gravel and Some Clay							42 44-60		
25		⊗	Dry, Very Dense, Brown Sand and Gravel (Rock Fragments)							28 46-60		
30		⊗								8 10-13		
35		⊗	SHALE - Highly Weathered, Soft, Brown and Gray							14		

REMARKS: Bulldozer work will effect elevation at this location \*Partial water loss at 38.7 feet \*\*Total Water Loss at 56.7 feet \*\*\*Drill pump failure at 58.0 feet resulting in 4.8 foot core run. An inclinometer was

<b>ARKANSAS HWY. &amp; TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.</b>		BORING NO. 3 PAGE 2 OF 2
JOB NO. D04221 Franklin County	DATE: 5/31/2016 to 6/01/2016	
JOB NAME: I-40 Slide (Ozark) Section 12 Log Mile 35.28	TYPE OF DRILLING: Hollow Stem Auger - Diamond Core	
STATION: 3+48	EQUIPMENT: CME 850	
LOCATION: 48' Left of Westbound Centerline	HAMMER CORRECTION FACTOR: 1.23	
LOGGED BY: Paul Campbell		

COMPLETION DEPTH: 68

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 641.9							16-23		
			SHALE - Highly Weathered, Soft, Brown and Gray*								64	0
40			SHALE - Highly Weathered, Soft to Medium Hard, Brown and Gray								68	0
45			SHALE - Highly Weathered with Weathered Layers, Soft to Medium Hard, Gray								66	0
50			SHALE - Wethered with Highly Weathered Seams, Medium Hard, Gray								52	8
			SHALE - Highly Weathered, Soft, Frequent Clay Layers, Gray									
55			SHALE - Highly Weathered, Soft, Frequent Clay Layers, Gray**								52	21
			SHALE - Slightly Weathered, Medium Hard, Gray									
60			SHALE - Unweathered, Medium Hard, Occasional Fractures, Gray								100	50
65											56	100
70			Boring Terminated									

REMARKS: Bulldozer work will effect elevation at this location \*Partial water loss at 38.7 feet \*\*Total Water Loss at 56.7 feet \*\*\*Drill pump failure at 58.0 feet resulting in 4.8 foot core run. An inclinometer was

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 4  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 4+33  
LOCATION: 189' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

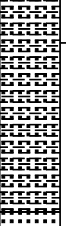
DATE: June 27 & 28, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 41.2

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 599.1									
5		⊗	Moist, Very Stiff, Reddish Brown Sandy Clay with Gravel (Rock Fragments)							4 10-10		
10		⊗	Moist, Very Stiff, Reddish Brown Clay with Gravel (Shale Fragments)							9 10-11		
15		⊗	SHALE WITH CLAY LAYERS - Highly Weathered, Soft, Gray and Reddish Brown							13 17-17		
20		⊗	SHALE WITH CLAY LAYERS - Highly Weathered, Soft, Gray and Reddish Brown							9 19-26		
25		⊗	SHALE WITH CLAY LAYERS - Highly Weathered, Very Soft, Brown *							11 7-8		
30		⊗	SHALE WITH CLAY LAYERS - Highly Weathered, Very Soft, Brown *							3 4-6		
35		⊗								11 (0")		

REMARKS: Water was encountered at 29.2' below ground level. An inclinometer was installed on this boring.

<b>ARKANSAS HWY. &amp; TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.</b>		BORING NO. 4 PAGE 2 OF 2
JOB NO. D04221 Franklin County	JOB NAME: I-40 Slide (Ozark) Section 12 Log Mile 35.28	DATE: June 27 & 28, 2016
STATION: 4+33	LOCATION: 189' Left of Westbound Centerline	TYPE OF DRILLING: Hollow Stem Auger - Diamond Core
LOGGED BY: Paul Christenberry		EQUIPMENT: CME 850
COMPLETION DEPTH: 41.2		HAMMER CORRECTION FACTOR: 1.23

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 599.1									
40			SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Slightly Weathered, Medium Hard, Dark Gray								100	100
			SANDSTONE - Unweathered, Cemented, Gray								94	31
45			Boring Terminated									
50												
55												
60												
65												
70												

REMARKS: Water was encountered at 29.2' below ground level. An inclinometer was installed on this boring.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 5  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 4+45  
LOCATION: 31' Right of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: May 10, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23



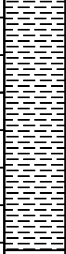
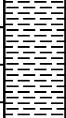
COMPLETION DEPTH: 47.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
5			Moist, Stiff, Brown and Gray Sandy Clay with Gravel (Shale Fragments)							3 5-4		
10			Moist, Very Dense, Brown Clayey Sand with Gravel and Cobbles (Rock Fragments)							4 60 (5")		
15			Moist, Very Stiff, Reddish Brown Clay with Gravel (Rock Fragments)							5 4-15		
			Dry, Very Dense, Gray Cobbles (Sandstone Fragments)*							31 34-29		
20			Moist, Very Dense, Brown Sand with Clay and Gravel (Rock Fragments)							11 22-35		
			Boulders (Rock Fragments)							10 (0")		
25			Dry, Very Dense, Gray Boulders								29	9
30											32	0
			Moist, Brown Clay**								80	0
35			Moist, Very Stiff, Brown Sandy Clay with Gravel (Shale Fragments)							4 9-13		

REMARKS: \* 24-hour Water-level reading was 18' below ground level. \*\* Core barrel blocked off by clay at 33 feet below ground level. \*\*\* Total Water Loss at 35.7 feet below ground level.

<b>ARKANSAS HWY. &amp; TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.</b>		BORING NO. 5 PAGE 2 OF 2
JOB NO. D04221 Franklin County	DATE: May 10, 2016	
JOB NAME: I-40 Slide (Ozark) Section 12 Log Mile 35.28	TYPE OF DRILLING: Hollow Stem Auger - Diamond Core	
STATION: 4+45	EQUIPMENT: CME 850	
LOCATION: 31' Right of Westbound Centerline	HAMMER CORRECTION FACTOR: 1.23	
LOGGED BY: Paul Christenberry		

COMPLETION DEPTH: 47.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			SURFACE ELEVATION: 646.7									
			Moist, Brown Clay with Gravel (Shale Fragments)***								43	0
			SHALE - Weathered, Medium Hard, Dark Gray									
40			SHALE - Slightly Weathered, Medium Hard, Occasional Fractures, Dark Gray								80	64
45			SHALE - Unweathered, Medium Hard, Dark Gray								97	66
50			Boring Terminated									
55												
60												
65												
70												

REMARKS: \* 24-hour Water-level reading was 18' below ground level. \*\* Core barrel blocked off by clay at 33 feet below ground level. \*\*\* Total Water Loss at 35.7 feet below ground level.



**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 6  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 4+45  
LOCATION: 51' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 6 & 8, 2016  
TYPE OF DRILLING: Hollow Stem Auger -  
Diamond Core - Rotary Wash  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 68.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
5	[Diagonal Hatching]	X	Dry, Hard, Gray Sandy Clay with Gravel (Rock Fragments)							8 22-11		
10			Moist, Medium Stiff, Brown Sandy Clay with Some Gravel (Rock Fragments)						1 2-4			
15	[Diagonal Hatching]	X	Moist, Very Stiff, Gray Sandy Clay with Gravel (Rock Fragments)							6 11-11		
			Boulder									
20	[Diagonal Hatching]	X	Moist, Hard, Gray Sandy Clay with Gravel (Rock Fragments)							14 15-41		
			Boulder									
25	[Diagonal Hatching]	X	Moist, Very Hard, Brown Sandy Clay with Gravel (Rock Fragments)							23 20 (4")		
30			Moist, Hard, Brown Clay with Some Gravel (Shale Fragments)						10 15-17			
35	[Diagonal Hatching]	X								9		

REMARKS: An inclinometer was installed on this boring.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 6  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 4+45  
LOCATION: 51' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 6 & 8, 2016  
TYPE OF DRILLING: Hollow Stem Auger -  
Diamond Core - Rotary Wash  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 68.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 645.0									
40		⊗	Moist, Hard to Very Hard, Brown Clay with Gravel (Shale Fragments)							13-19 10 24-37		
45		⊗								13 15-16		
50			Moist, Brown Clay with Gravel (Shale Fragments)								34	0
55											4	0
60			SHALE - Weathered, Medium Hard, Dark Gray								50	0
			SHALE - Slightly Weathered, Medium Hard, Dark Gray								100	52
65			SHALE - Slightly Weathered, Medium Hard, Frequent Fractures, Dark Gray									
			SHALE WITH OCCASIONAL SANDSTONE LAYERS - Unweathered, Medium Hard, Occasional Fractures, Dark Gray								100	59
70			Boring Terminated									

REMARKS: An inclinometer was installed on this boring.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 7  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 4+46  
LOCATION: 20' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 7, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 66.7

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 652.3									
5			Asphalt							12 5-6		
10			Moist, Stiff, Brown Sandy Clay with Gravel (Rock Fragments)							7 10-9		
15										8 8-9		
20			Moist, Very Stiff, Brown and Gray Sandy Clay with Gravel (Rock Fragments)							11 8-8		
25										13 17-12		
30			Moist, Medium Dense, Clayey Sand with Gravel (Rock Fragments)							5 6-5		
35												

REMARKS:

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 7  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 4+46  
LOCATION: 20' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 7, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 66.7

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 652.3									
			Moist, Very Stiff, Brown Clay with Shale Fragments							7 9-12		
40			Moist, Hard, Brown Sandy Clay with Gravel (Rock Fragments)							9 16-21		
			Moist, Brown and Gray Clay with Gravel (Shale Fragments)								100	0
			Moist, Brown Clay with Gravel (Shale Fragments)								64	0
45			SHALE WITH FREQUENT CLAY LAYERS - Highly Weathered, Soft, Brown and Gray									
			SHALE WITH FREQUENT CLAY SEAMS - Highly Weathered, Soft, Brown and Gray								84	0
50			SHALE WITH FREQUENT CLAY SEAMS AND LAYERS - Highly Weathered, Soft, Brown and Gray								52	0
55			SHALE - Highly Weathered, Soft, Dark Gray									
60			SHALE - Slightly Weathered, Medium Hard, Dark Gray									
			SHALE - Highly Weathered, Soft, Dark Gray									
65			SHALE - Slightly Weathered, Medium Hard, Dark Gray									
			Boring Terminated									
70												

REMARKS:

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 8  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 5+14  
LOCATION: 198' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 22, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 43.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 601.4									
5			Soil Not Sampled									
10												
15												
20												
25												
30												
35				Soil Not Sampled *								

REMARKS: \* Water encountered at approximately 33.8' below ground level.

<b>ARKANSAS HWY. &amp; TRANS. DEPARTMENT MATERIALS DIVISION - GEOTECHNICAL SEC.</b>		BORING NO. 8 PAGE 2 OF 2
JOB NO. D04221 Franklin County	JOB NAME: I-40 Slide (Ozark)	DATE: June 22, 2016
STATION: 5+14	Section 12 Log Mile 35.28	TYPE OF DRILLING: Hollow Stem Auger - Diamond Core
LOCATION: 198' Left of Westbound Centerline	LOGGED BY: Paul Christenberry	EQUIPMENT: CME 850
COMPLETION DEPTH: 43.5		HAMMER CORRECTION FACTOR: 1.23

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 601.4									
40			SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Slightly Weathered, Medium Hard, Dark Gray								97	83
											98	95
45			Boring Terminated									
50												
55												
60												
65												
70												

REMARKS: \* Water encountered at approximately 33.8' below ground level.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 9  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 5+15  
LOCATION: 31' Right of Westbound Centerline  
LOGGED BY: Steve Faulkner

DATE: May 11, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 42.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			Dry, Dense, Brown Sand with Gravel and Cobbles (Rock Fragments)									
5			Dry, Dense, Brown Sand with Some Gravel (Rock Fragments) (Poor Recovery)							14 15-17		
10			Moist, Medium Stiff, Brown Sandy Clay with Gravel (Rock Fragments)							1 2-4		
15			Moist, Hard, Dark Brown Sandy Clay with Gravel (Rock Fragments)							12 24-27		
			Moist, Hard, Sandy Clay with Gravel and Cobbles (Rock Fragments)									
20			Moist, Medium Stiff, Brown Sandy Clay with Gravel (Rock Fragments)							4 2-3		
25			Moist, Very stiff, Brown Sandy Clay with Gravel (Shale Fragments)							5 10-10		
30			SHALE - Weathered, Medium Hard, Dark Gray							14 58-60 (7")		
			SHALE - Slightly Weathered, Medium Hard, Dark Gray								100	63
35												

REMARKS:

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 9  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 5+15  
LOCATION: 31' Right of Westbound Centerline  
LOGGED BY: Steve Faulkner

DATE: May 11, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 42.5

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% TCR	% RQD
			SURFACE ELEVATION: 647.8									
	[Hatched Pattern]		SHALE - Unweathered, Medium Hard, Dark Gray								97	62
40												93
45			Boring Terminated									
50												
55												
60												
65												
70												

REMARKS:



**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 10  
PAGE 1 OF 3

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 5+15  
LOCATION: 47' Left of Westbound Centerline  
LOGGED BY: Paul Cambell - Paul Christenberry

DATE: May 19 & 23, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 74.2

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
5			Moist, Medium Dense, Gray Gravel (Rock Fragments) and Sand							12 11-11		
10			Moist, Medium Dense, Brown Sand with Clay and Gravel (Rock Fragments)							22 13-11		
15			Moist, Very Stiff, Brown Sandy Clay with Gravel (Rock Fragments)							8 12-14		
20			Moist, Hard, Brown Sandy Clay with Gravel (Rock Fragments)							4 15-20		
25			Moist, Very Stiff, Brown Clay with Sand and Some Gravel (Rock Fragments)							2 5-13		
30			Moist, Very Stiff, Dark Gray Sandy Clay with Gravel (Rock Fragments)							9 13-10		
35												

REMARKS:

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 10  
PAGE 2 OF 3

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 5+15  
LOCATION: 47' Left of Westbound Centerline  
LOGGED BY: Paul Cambell - Paul Christenberry

DATE: May 19 & 23, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 74.2

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
40		X	Moist, Very Stiff, Brown Sandy Clay with Gravel (Rock Fragments)							10 10-9		
45		X	Moist, Very Stiff, Reddish Brown Sandy Clay with Some Gravel (Rock Fragments)							3 5-19		
50		X	Moist, Very Stiff, Reddish Brown Sandy Clay with Gravel and Cobbles (Rock Fragments)							24 12-12		
50		X	SHALE - Highly Weathered, Medium Hard, Reddish Brown							9 16-54		
55			Moist, Reddish Brown Clay with Gravel (Shale Fragments)								52	0
60			SHALE WITH FREQUENT CLAY LAYERS - Highly Weathered, Soft, Reddish Brown and Dark Gray								60	0
60			Moist, Reddish Brown Clay with Gravel (Shale Fragments)								78	24
65			SHALE - Highly Weathered, Soft, Dark Gray								98	48
70												

REMARKS:

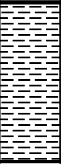
**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 10  
PAGE 3 OF 3

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 5+15  
LOCATION: 47' Left of Westbound Centerline  
LOGGED BY: Paul Cambell - Paul Christenberry

DATE: May 19 & 23, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 74.2

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 648.3									
											99	98
75			Boring Terminated									
80												
85												
90												
95												
100												
105												

REMARKS:

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 11  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 5+16  
LOCATION: 20' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry - J.C. Sloan

DATE: May 25 & 26, 2016  
TYPE OF DRILLING: Hollow Stem Auger -  
Rotary Wash - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 67.6

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 655.3									
5			ASPHALT									
			Moist, Stiff, Brown Clay with Gravel and Cobbles (Rock Fragments)							8 5-6		
10			Moist, Very Stiff, Sandy Clay with Gravel (Rock Fragments)							6 14-13		
15			Moist, Stiff, Dark Gray and Reddish Brown Gravel and Cobbles (Rock Fragments) with Sandy Clay							9 9-6		
20			Boulder							20 (0")		
25			Moist, Stiff to Very Stiff, Dark Gray and Reddish Brown Sandy Clay with Gravel (Rock Fragments)							6 9-20		
30										8 7-6		
35												

REMARKS: An inclinometer was installed on this boring.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 11  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 5+16  
LOCATION: 20' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry - J.C. Sloan

DATE: May 25 & 26, 2016  
TYPE OF DRILLING: Hollow Stem Auger -  
Rotary Wash - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 67.6

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 655.3							11 9-13		
40			Boulder							20 (0") 4		
			Moist, Stiff, Dark Gray and Reddish Brown Sandy Clay with Gravel (Rock Fragments)							5-7		
45			Moist, Hard, Reddish Brown Sandy Clay with Some Gravel							14 24-23		
50			Moist, Very Hard, Reddish Brown Sandy Clay with Gravel and Cobbles (Rock Fragments)							44 29-60 (9")		
55			Moist, Very Hard, Reddish Brown Clay with Gravel (Shale Fragments)							6 12-60		
			SHALE - Highly Weathered, Medium Hard, Dark Gray								100	0
			SHALE - Weathered, Medium Hard, Dark Gray									
60			SHALE - Slightly Weathered, Medium Hard, Dark Gray								96	72
65			SHALE - Unweathered, Medium Hard, Dark Gray								96	61
70			Boring Terminated									

REMARKS: An inclinometer was installed on this boring.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 12  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 5+90  
LOCATION: 198' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 21, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 48.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 606.2									
5			Soil Not Sampled *									
10												
15												
20												
25												
30												
35												

REMARKS: \* 17-hr water-level reading was 29' below ground level.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 12  
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JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 5+90  
LOCATION: 198' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 21, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 48.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 606.2									
			Soil Not Sampled									
40			SHALE								98	76
45			SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Slightly Weathered, Medium Hard, Dark Gray								90	70
			SANDSTONE - Unweathered, Cemented, Gray									
50			Boring Terminated									
55												
60												
65												
70												

REMARKS: \* 17-hr water-level reading was 29' below ground level.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 13  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 6+01  
LOCATION: 42' Left of Westbound Centerline  
LOGGED BY: Paul Campbell

DATE: March 18, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 63.4

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 653.1									
5			Moist, Stiff, Reddish Brown Sandy Clay							5 7-5		
			Moist, Medium Dense, Dark Gray Gravel (Rock Fragments) with Clay and Sand									
			Clay with Gravel (Rock Fragments)									
10			Moist, Medium Dense, Dark Gray Sandy Clay with Gravel (Rock Fragments)							2 2-3		
15			Moist, Dense, Gray Sand with Gravel and Cobbles (Rock Fragments)							26 18-18		
20			Moist, Very Stiff, Reddish Brown Sandy Clay with Some Gravel (Rock Fragments)							4 6-11		
25			Moist, Very Hard, Reddish Brown Clay							12		
			Moist, Very Dense, Gray Clayey Sand with Gravel (Rock Fragments)							12-50 (5")		
			Moist, Medium Stiff, Gray Sandy Clay with Gravel (Rock Fragments)							3 5-2		
30			Moist, Stiff, Brown and Gray Sandy Clay with Some Gravel (Rock Fragments)							2 7-4		
			Moist, Medium Dense, Gray Gravel (Rock Fragments) with Sand									
35										6		

REMARKS: \* Water was encountered at 35.8' below ground level. 24-hr water-level was 38' below ground level.  
\*\* Total water loss at 47.3' below ground level.



**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 13  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 6+01  
LOCATION: 42' Left of Westbound Centerline  
LOGGED BY: Paul Campbell

DATE: March 18, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 63.4

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 653.1									
			Wet, Medium Dense, Gray Gravel (Rock Fragments) with Clay and Sand *							11-2		
40			Wet, Medium Stiff, Reddish Brown Clay with Gravel (Shale Fragments)							1 3-5		
45			SHALE - Wet, Highly Weathered, Medium Hard, Reddish Brown							17 40-60 (5")		
			SHALE - Highly Weathered, Soft, Dark Gray **								72	0
50			SHALE - Weathered with Occasional Highly Weathered Layers, Medium Hard with Occasional Soft Layers, Dark Gray								96	48
55			SHALE - Weathered, Medium Hard, Dark Gray								100	62
60			SHALE - Slightly Weathered, Medium Hard, Dark Gray								100	22
65			Boring Terminated									
70												

REMARKS: \* Water was encountered at 35.8' below ground level. 24-hr water-level was 38' below ground level.  
\*\* Total water loss at 47.3' below ground level.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 14  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 6+02  
LOCATION: 21' Left of Westbound Centerline  
LOGGED BY: Steve Faulkner

DATE: March 24, 2026  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 80  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 57.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
5			Asphalt							60 (5')		
10			Moist, Loose, Gray Sand with Clay and Gravel (Rock Fragments)							3 3-4		
15			Moist, Medium Stiff, Sandy Clay with Some Gravel (Rock Fragments) *							6 3-3		
20			Moist, Medium Stiff, Brown Sandy Clay with Gravel (Rock Fragments)							7 4-3		
25										6 18-9		
30			Moist, Very Stiff, Brown Sandy Clay with Gravel (Rock Fragments) **							8 13-10		
35												

REMARKS: \* 24-hr water-level was 15' below ground level. \*\* Boring caved in at 32' below ground level. \*\*\*  
Wood encountered at depth of approximately 35' below ground level.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 14  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 6+02  
LOCATION: 21' Left of Westbound Centerline  
LOGGED BY: Steve Faulkner

DATE: March 24, 2026  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 80  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 57.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 658.8									
40		X	Moist, Very Stiff, Brown Sandy Clay Gravel (Rock Fragments) and Some Organic Matter (Wood) ***							6 12-12		
45		X	Moist, Very Stiff, Reddish Brown Clay with Gravel (Shale Fragments)							5 8-13		
50		X	SHALE - Highly Weathered, Medium Hard, Reddish Brown and Dark Gray							9 24-51		
			SHALE - Weathered, Medium Hard, Dark Gray									
55			SHALE - Weathered with Occassional Highly Weathered Layers, Medium Hard with Soft Layers, Dark Gray									
60			Boring Terminated									
65												
70												

REMARKS: \* 24-hr water-level was 15' below ground level. \*\* Boring caved in at 32' below ground level. \*\*\* Wood encountered at depth of approximately 35' below ground level.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 15  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 6+03  
LOCATION: 24' Right of Westbound Centerline  
LOGGED BY: Paul Campbell

DATE: March 16, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 42.6

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 653.4									
			Moist, Dense, Brown Sand with Organic Matter									
5			Moist, Dense, Dark Gray Clayey Sand with Gravel and Cobbles (Rock Fragments)							8 6-28		
10			Dry, Dense, Brown and Gray Gravel (Rock Fragments) with Clay and Sand							5 6-31		
			Moist, Medium Dense, Brown Sandy Clay with Gravel (Rock Fragments)									
15			Moist, Medium Dense, Dark Gray Gravel (Shale Fragments) with Clay and Sand *							3 5-6		
20			Sandstone Cobbles and Boulders							30 (0")	18	0
25			Moist, Reddish Brown, Clay with Gravel (Rock Fragments)								6	0
30			Moist, Reddish Brown, Clay with Gravel (Shale Fragments)									
			SHALE - Highly Weathered, Soft, Dark Gray								82	22
35			SHALE - Slightly Weathered, Medium Hard,									

REMARKS: 24-hour water-level was 14.5' below ground level. Hole caved in to 16.0' below ground level.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 15  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 6+03  
LOCATION: 24' Right of Westbound Centerline  
LOGGED BY: Paul Campbell

DATE: March 16, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 42.6

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 653.4									
			Frequent Fractures, Dark Gray								94	62
40			SHALE - Unweathered, Medium Hard, Occasional Fractures, Dark Gray								92	78
45			Boring Terminated									
50												
55												
60												
65												
70												

REMARKS: 24-hour water-level was 14.5' below ground level. Hole caved in to 16.0' below ground level.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 16  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 6+51  
LOCATION: 20' Left of Westbound Centerline  
LOGGED BY: Stanley Bates

DATE: September 7, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 75  
HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 57.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			Asphalt									
5			Moist, Very Stiff, Brown Sandy Clay with Some Gravel (Rock Fragments)							5 6-10		
10			Dry, Medium Dense, Dark Gray Gravel and Cobbles (Shale Fragments)							36 12-11		
15			Moist, Stiff, Dark Gray Sandy Clay with Gravel (Rock Fragments)							7 6-6		
20			Boulder (22.5' to 24.2')									
25			Wet, Hard, Brown Sandy Clay with Gravel (Rock Fragments)							7 15-17		
30												
35												

REMARKS:

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 16  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 6+51  
LOCATION: 20' Left of Westbound Centerline  
LOGGED BY: Stanley Bates

DATE: September 7, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 75  
HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 57.8

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 660.6									
40		X	Moist, Very Stiff, Reddish Brown Clay with Some Gravel (Shale Fragments)							7 6-51		
45		X	Moist, Very Stiff, Reddish Brown Clay with Gravel (Shale Fragments)							13 33-40		
			SHALE - Highly Weathered, Medium Hard, Dark Gray							60 (3")	100	89
50			SHALE - Weathered, Medium Hard, Dark Gray								92	63
55			SHALE - Slightly Weathered, Medium Hard, Dark Gray								100	56
60			Boring Terminated									
65												
70												

REMARKS:

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 17  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 6+72  
LOCATION: 197' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 15, 16, & 20, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 48.3

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
5		⊗	Moist, Medium Stiff, Dark Gray to Reddish Brown Sandy Clay with Gravel (Rock Fragments)							4 5-3		
10		⊗	Moist, Soft, Brown Clay with Trace Gravel (Rock Fragments)							1 2-2		
15		⊗	Moist, Stiff, Reddish Brown Sandy Clay with Some Gravel (Rock Fragments)							2 3-7		
20		⊗	Moist, Stiff, Brown Sandy Clay with Gravel (Rock Fragments)							2 8-6		
25		⊗	Moist, Stiff, Reddish Brown Sandy Clay with Gravel (Rock Fragments)							5 5-5		
30		⊗	Moist, Stiff, Reddish Brown Sandy Clay with Some Gravel (Rock Fragments)							3 4-6		
35		⊗								11		

REMARKS: An inclinometer was installed on this boring.





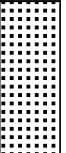
**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 17  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 6+72  
LOCATION: 197' Left of Westbound Centerline  
LOGGED BY: Paul Christenberry

DATE: June 15, 16, & 20, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 850  
HAMMER CORRECTION FACTOR: 1.23

COMPLETION DEPTH: 48.3

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 604.7									
			SHALE - Highly Weathered, Very Soft, Dark Gray							7-7		
40			SHALE WITH FREQUENT SANDSTONE PARTINGS AND SEAMS - Slightly Weathered, Medium Hard, Dark Gray							10 (0")	99	99
45			SANDSTONE - Unweathered, Cemented, Gray								92	76
50			Boring Terminated									
55												
60												
65												
70												

REMARKS: An inclinometer was installed on this boring.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 18  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 7+25  
LOCATION: 19' Left of Westbound Centerline  
LOGGED BY: Stanley Bates

DATE: August 31 and September 6, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Rotary Wash  
EQUIPMENT: CME 75  
HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 53

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 663.5									
5		⊗	Moist, Medium Dense, Brown Clayey Sand with Some Gravel (Rock Fragments)							5 9-13		
10		⊗	Moist, Very Stiff, Sandy Clay with Gravel (Rock Fragments)							6 6-10		
15		⊗	Moist, Medium Stiff, Sandy Clay with Some Gravel (Rock Fragments)							3 3-4		
20			SANDSTONE BOULDER (17.6'-19.8')							30 (1")		
25		⊗	Wet, Soft, Reddish Brown Sandy Clay with Gravel (Rock Fragments)							2 2-2		
30		⊗								5 9-13		
35		⊗	Wet, Very Stiff, Brown and Gray Sandy Clay									

REMARKS:

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 18  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 7+25  
LOCATION: 19' Left of Westbound Centerline  
LOGGED BY: Stanley Bates

DATE: August 31 and September 6, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Rotary Wash  
EQUIPMENT: CME 75  
HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 53

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 663.5									
			with Gravel (Rock Fragments)							2 4-13		
40			Wet, Very Hard, Reddish Brown Clay with Some Gravel (Shale Fragments)							11 60 (5')	8	0
45			SHALE - Highly Weathered, Soft, Dark Gray								98	0
50			SHALE - Weathered, Medium Hard, Dark Gray								92	56
			SHALE - Slightly Weathered, Medium Hard, Dark Gray									
55			Boring Terminated									
60												
65												
70												

REMARKS:

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 19  
PAGE 1 OF 1

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 8+06  
LOCATION: 19' Left of Westbound Centerline  
LOGGED BY: Paul Campbell

DATE: August 30, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Rotary Wash  
EQUIPMENT: CME 75  
HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 27

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 666.8									
5		⊗	Moist, Hard, Dark Gray, Sandy Clay with Gravel (Rock Fragments)							17 25-25		
10		⊗	Moist, Medium Dense, Dark Gray Clayey Sand with Gravel (Rock Fragments)							7 11-18		
15		⊗	Moist, Very Hard, Dark Gray, Sandy Clay with Gravel (Rock Fragments)							4 9-60 (10")		
20		⊗	Dry, Very Dense, Dark Gray Gravel and Cobbles (Shale Fragments)							8 60 (5")		
25		⊗	Wet, Very Stiff, Dark Gray Sandy Clay with Gravel (Rock Fragments)							15 12-15		
		⊗	Wet, Medium Dense, Reddish Brown Sand and Gravel (Rock Fragments)*							4 6-9		
30			Boring Terminated									
35												

REMARKS: \* Hole terminated due to crooked augers.

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 20  
PAGE 1 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 8+12  
LOCATION: 19' Left of Westbound Centerline  
LOGGED BY: Stanley Bates

DATE: August 30 and 31, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 75  
HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 52.9

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
5			Moist, Hard, Brown Sandy Clay with Gravel (Rock Fragments)							5 15-16		
10			Moist, Hard, Dark Gray Sandy Clay with Gravel (Rock Fragments)							5 6-31		
15			Moist, Medium Dense, Dark Gray Sand with Gravel and Cobbles (Rock Fragments)							5 7-6		
20			Moist, Medium Dense, Dark Gray Clayey Sand with Gravel (Rock Fragments)							7 9-8		
25										3 5-7		
30			Moist, Stiff, Reddish Brown Clay with Sand with Some Shale Fragments							4 4-7		
35												

REMARKS: 24-hour water-level was 21' below ground level.




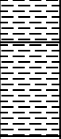
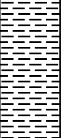

**ARKANSAS HWY. & TRANS. DEPARTMENT  
MATERIALS DIVISION - GEOTECHNICAL SEC.**

BORING NO. 20  
PAGE 2 OF 2

JOB NO. D04221 Franklin County  
JOB NAME: I-40 Slide (Ozark)  
Section 12 Log Mile 35.28  
STATION: 8+12  
LOCATION: 19' Left of Westbound Centerline  
LOGGED BY: Stanley Bates

DATE: August 30 and 31, 2016  
TYPE OF DRILLING:  
Hollow Stem Auger - Diamond Core  
EQUIPMENT: CME 75  
HAMMER CORRECTION FACTOR: 1.37

COMPLETION DEPTH: 52.9

DEPTH FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOIST.	LIQUID LIMIT	DRY WEIGHT	LBS PER CU.FT.	NO. OF BLOWS PER 6-IN.	% T C R	% R Q D
			SURFACE ELEVATION: 667.0									
		X	Moist, Stiff, Reddish Brown Clay with Some Shale Fragments							6 7-9		
40			SHALE - Highly Weathered, Medium Hard, Dark Gray							35 (4')	97	21
			SHALE - Highly Weathered, Soft, Dark Gray									
45			SHALE - Weathered, Medium Hard, Dark Gray								91	72
			SHALE - Slightly Weathered, Medium Hard, Dark Gray									
50			SHALE - Unweathered, Medium Hard, Dark Gray								98	88
55			Boring Terminated									
60												
65												
70												

REMARKS: 24-hour water-level was 21' below ground level.

## Water Level Readings in Feet Above Sea Level

<b>Date:</b>	<b>Inc. 1/ Bor 11</b>	<b>Inc. 2/ Bor 6</b>	<b>Inc. 3/ Bor 17</b>	<b>Inc. 4/ Bor 4</b>
7/6/2016	618.60	599.45	587.88	577.22
7/26/2016	612.65	599.35	586.00	577.65
8/9/2016	611.55	598.06	584.17	576.17
8/23/2016	612.57	602.09	585.58	576.96
9/7/2016	611.63	599.15	584.64	576.90
9/20/2016	611.27	599.68	584.01	575.96
10/5/2016	611.05	597.81	583.73	575.89
10/19/2016	611.18	597.35	583.35	575.55
11/8/2016	611.00	599.02		
12/6/2016	611.55	600.28	583.66	576.35
12/29/2016	610.70	597.34		
2/1/2017	612.95	599.73	585.13	577.77
3/22/2017	612.35	599.51		
4/17/2017	613.74	602.25		
5/16/2017	615.00	602.34	597.80	580.11
5/31/2017	614.78	601.87		

INDEX OF SHEETS

NOTE: FOR INDEX OF SHEETS, SPECIAL PROVISIONS AND GENERAL NOTES, REFER TO SHEET NO. 2

"A FULLY CONTROLLED ACCESS FACILITY"

STATE OF ARKANSAS

STATE HIGHWAY COMMISSION

PLAN AND PROFILE OF PROPOSED STATE HIGHWAY

JCT. HWY. 23 - EAST GAR CREEK  
GRADING AND STRUCTURES  
FRANKLIN COUNTY

ROUTE 40 SECTION 1  
FED. AID PROJECT 1-40-1(21)35

JOB 4487

LAYOUT SCALE 1" = 2000'

DATE REVISED	BY	DATE FILMED	DATE	NO.	NO.	NO.	NO.
				6	ARK	1-40-1	12135
						4487	1 252

② JCT HWY 23 - EAST GAR CREEK

DESIGN DATA

DESIGN YEAR	1989
1969 ADT	5,400
1989 ADT	11,100
1989 D.H.V.	1,221
DIRECTIONAL DISTRIBUTION	60%
TRUCKS	17.2% DURING D.H.V.
DESIGN VELOCITY	70 MPH.

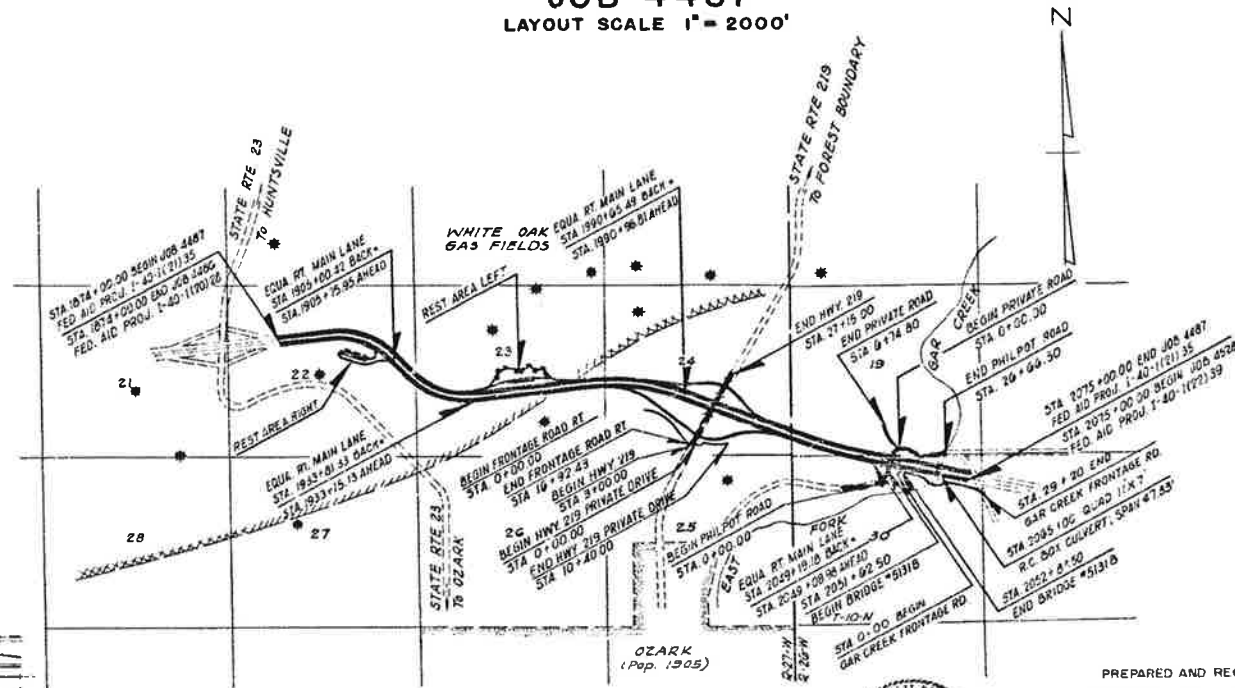
**CONVENTIONAL SIGNS**

STATE LINE	RETAINING WALL
COUNTY LINE	BASE OR SURVEY LINE
CITY OR VILLAGE	LEVEL
TOWNSHIP LINE	CULVERTS
SECTION LINE	DROP INLET
GRANT LINE	TROLLEY POLE
FENCE LINE	POWER POLE
UNFENCED PROPERTY	TELEPHONE OR TELEGRAPH
RIGHT OF WAY LINE	MARSH
TRAVELED WAY	HEDGE
RAILROADS	BUILDINGS
	GAS WELLS

SCALES | PLAN 1" = 100' | PROFILE HORIZ 1" = 100' | VERTICAL 1" = 10'

LENGTH COMPUTED ALONG RIGHT MAIN LANE

GROSS LENGTH OF PROJECT	20,067.55 FEET OR	3.800 MILES
NET	ROADWAY 19,898.72	3.768
NET	BRIDGES 168.83	0.072
NET	PROJECTS 20,067.55	3.800



PREPARED AND RECOMMENDED BY  
GARVER AND GARVER, INC.  
CONSULTING ENGINEERS  
LITTLE ROCK ARKANSAS

P & S JOB 1353 I-40-1(110)

RECOMMENDED FOR APPROVAL

RECOMMENDED FOR APPROVAL

RECOMMENDED FOR APPROVAL

APPROVED

DEPARTMENT OF TRANSPORTATION  
BUREAU OF PUBLIC ROAD

RECOMMENDED FOR APPROVAL

APPROVED



FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	ARK	1-40-1 (2) 35		16	262
JOB NO. 4487					
SOIL SURVEY					

SOIL SURVEY

BORING NO.	LOCATION		LIMIT OF SAMPLE		DEPTH	A. A. S. H. O. SOIL CLASS	LIQUID LIMIT	PLAST. INDEX	BORING NO.	LOCATION		LIMIT OF SAMPLE		DEPTH	A. A. S. H. O. SOIL CLASS	LIQUID LIMIT	PLAST. INDEX
	STATION	REMARK	STATION	STATION						STATION	REMARK	STATION	STATION				
SP-1	1871	42'R	1870	1873	0'-1'	A-4(1)	17	2	SP-21	1964	42'L	1962	1966	0'-1'	A-2-4(0)	19	6
					1'-1.5'	A-2-6(1)	36	16						1'-2'	A-2-4(0)	19	6
SP-2	1876	42'L	1873	1878	0'-1'	A-2-4(0)	25	7	SP-22	1968	42'R	1966	1971	0'-1'	A-2-4(0)	18	4
					1'-2'	A-6(7)	37	18						1'-2'	A-2-4(0)	19	4
SP-3	1880	42'R	1878	1882	0'-1'	A-4(0)	20	4	SP-23	1973	42'L	1971	1976	0'-0.8'	A-2-4(0)	18	4
					1'-1.3'	A-4(0)	20	4						0.8'-2'	A-2-4(0)	18	4
SP-4	1884	42'R	1882	1886	0'-1'	A-4(4)	25	9	SP-24	1978	42'R	1976	1981	0'-2'	A-2-4(0)	18	4
					1'-1.8'	A-4(4)	25	9	SP-25	1983	42'L	1981	1986	0'-1'	A-4(1)	20	5
SP-5	1888	42'L	1886	1889	0'-1'	A-4(1)	17	3						1'-2'	A-4(1)	20	5
					1'-3.2'	A-4(1)	17	3	SP-26	1988	☐	1986	1991	0'-2'	A-4(0)	18	3
SP-6	1890	42'R	1889	1893	0'-1'	A-4(4)	20	5	SP-27	1993	☐	1991	1996	0'-1.5'	A-4(0)	18	3
					1'-1.4'	A-4(4)	20	5	SP-28	1998	☐	1996	2001	0'-1'	A-2-4(0)	18	4
SP-7	1895	42'R	1893	1898	0'-1'	A-4(4)	20	5	SP-29	2003	☐	2001	2006	0'-1'	A-4(2)	18	4
					1'-2'	A-2-4(0)	21	6						1'-2'	A-4(2)	18	4
SP-8	1900	42'R	1898	1903	0'-1'	A-2(0)	23	6	SP-30	2008	☐	2006	2011	0'-1.5'	A-4(2)	18	4
					1'-1.5'	A-2(0)	23	6	SP-31	2013	☐	2011	2016	0'-1'	A-1-6(0)	18	4
SP-9	1905	42'L	1903	1908	0'-1'	A-2-4(0)	23	6	SP-32	2018	42'L	2016	2021	0'-1'	A-6(6)	28	12
					1'-1.5'	A-7-6(19)	53	29						1'-3.5'	A-6(6)	28	12
SP-10	1910	42'L	1908	1913	0'-1'	A-2-4(0)	23	6	SP-33	2023	42'L	2021	2026	0'-2'	A-4(8)	28	8
SP-11	1915	42'R	1913	1918	0'-1'	A-2-4(0)	21	5						2'-3.5'	A-4(8)	28	8
					1'-2'	A-2-4(0)	20	5	SP-34	2028	42'R	2026	2031	0'-1'	A-6(6)	33	15
SP-12	1920	☐	1918	1923	0'-1'	A-2-4(0)	22	6	SP-35	2033	☐	2031	2036	0'-1'	A-4(0)	22	6
					1'-2.3'	A-2-4(0)	21	5						1'-3'	A-4(0)	22	6
SP-13	1925	☐	1923	1928	0'-1'	A-7-6(15)	52	29	SP-36	2038	☐	2036	2041	0'-1'	A-4(3)	23	8
					1'-2.8'	A-7-6(15)	52	29						1'-4'	A-4(5)	24	9
SP-14	1930	☐	1928	1933	0'-1'	A-2-4(0)	20	5						A'-5'	A-4(5)	24	9
					1'-2'	A-2-4(0)	20	5	SP-37	2043	42'L	2041	2046	0'-1'	A-6(4)	35	17
SP-15	1935	☐	1933	1938	0'-1'	A-2-4(0)	21	5						1'-5'	A-7-5(23)	66	33
					1'-2'	A-2-4(0)	22	6						5'-6'	A-7-6(23)	66	33
SP-16	1940	☐	1938	1943	0'-1.5'	A-4(0)	20	5						6'-7'	A-7-5(28)	68	39
					1.5'-2.5'	A-4(0)	20	5	SP-38	2048	42'L	2046	2051	0'-1.5'	A-7-5(23)	66	33
SP-17	1945	42'L	1943	1948	0'-1'	A-2-4(0)	22	8	SP-39	2053	42'R	2051	2056	0'-2'	A-6(4)	35	17
					1'-1.3'	A-2-4(0)	22	8						2'-2.5'	A-6(4)	35	17
SP-18	1950	42'L	1948	1953	0'-1'	A-2-4(0)	19	6	SP-40	2058	☐	2056	2061	0'-1'	A-4(1)	26	9
					1'-1.5'	A-2-4(0)	19	6						1'-3'	A-4(1)	26	9
SP-19	1955	42'L	1953	1958	0'-3'	A-2-4(0)	22	8	SP-41	2063	☐	2061	2066	0'-1'	A-4(1)	26	9
					3'-5'	A-2-4(0)	22	8						1'-2.8'	A-2-4(0)	19	3
SP-20	1960	42'R	1958	1962	0'-2'	A-2-4(0)	19	6	SP-42	2068	☐	2066	2071	0'-1'	A-2-4(0)	25	10
					2'-3'	A-2-4(0)	19	6	SP-43	2073	42'R	2071	2076	1'-2.5'	A-2-4(0)	21	7

\* INDICATES AUGER REFUSAL

Note: Soil characteristics tabulated above are representative of the location of the sample and from surface indications are typical for the limits shown. These data are shown for information only. The State will not be responsible for any variations in the soil characteristics and/or extent of some differing from the tabulation.

ARKANSAS STATE HIGHWAY COMMISSION  
LITTLE ROCK, ARKANSAS

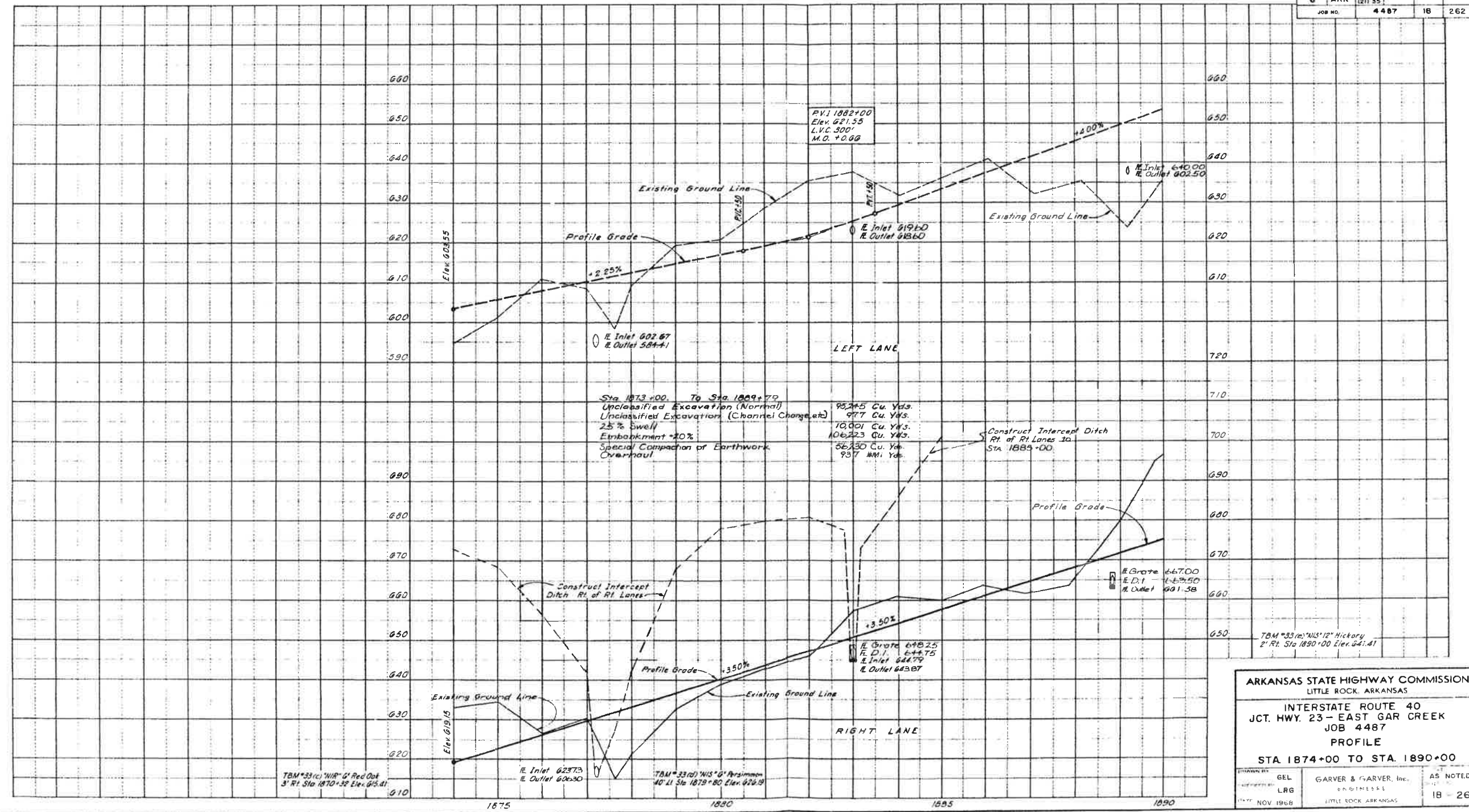
INTERSTATE ROUTE 40  
JCT. HWY. 23 - EAST GAR CREEK  
JOB 4487

SOIL SURVEY

DRAWN BY V.L.B.	CHECKED BY L.R.G.	DATE NOV 1966	ENGINEERS GARVER & GARVER, Inc. LITTLE ROCK, ARKANSAS	SCALE NONE	SHEET NO. 16 OF 262
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262

FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	ARK	4487	18	262	



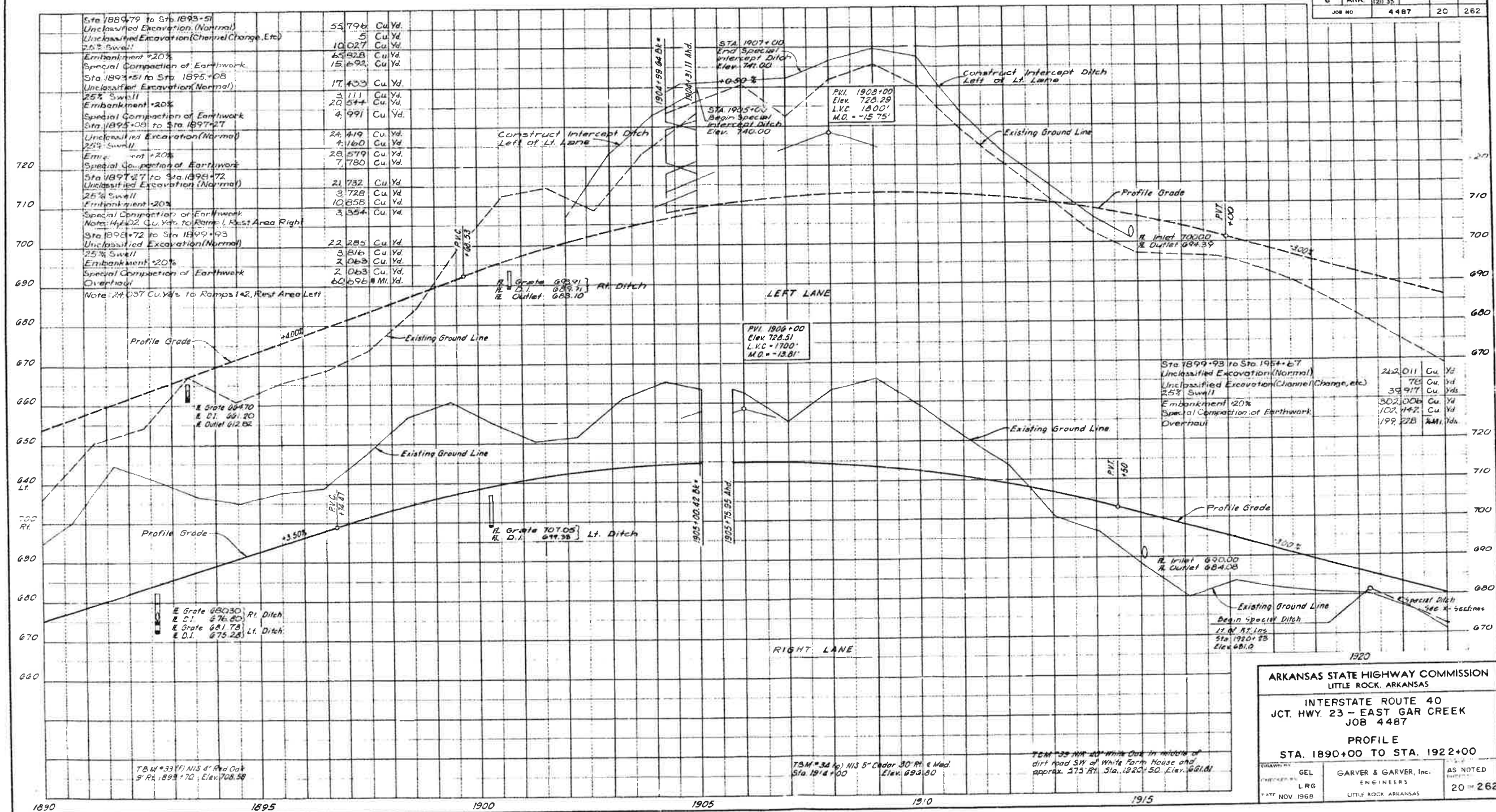
ARKANSAS STATE HIGHWAY COMMISSION  
 LITTLE ROCK, ARKANSAS

INTERSTATE ROUTE 40  
 JCT. HWY. 23 - EAST GAR CREEK  
 JOB 4487  
 PROFILE  
 STA 1874+00 TO STA 1890+00

DESIGNED BY GEL	GARVER & GARVER, Inc. ENGINEERS LITTLE ROCK, ARKANSAS	AS NOTED
DRAWN BY LRG		18 - 262
DATE NOV. 1968		

**271**

FED. ROAD DIST.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
6	ARK	1-40-1	1968	20	262
JOB NO.				4487	



Sta 1890+79 to Sta 1895+51	55,796	Cu. Yd.
Unclassified Excavation (Normal)	5	Cu. Yd.
Unclassified Excavation (Channel Change, etc.)	10,027	Cu. Yd.
25% Swell	65,828	Cu. Yd.
Embankment +20%	15,692	Cu. Yd.
Special Compaction of Earthwork	17,403	Cu. Yd.
Sta 1895+51 to Sta. 1895+08	3	Cu. Yd.
Unclassified Excavation (Normal)	20,544	Cu. Yd.
25% Swell	4,991	Cu. Yd.
Embankment +20%	24,419	Cu. Yd.
Special Compaction of Earthwork	4	Cu. Yd.
Sta. 1895+08 to Sta. 1897+27	4	Cu. Yd.
Unclassified Excavation (Normal)	21,732	Cu. Yd.
25% Swell	3,728	Cu. Yd.
Embankment +20%	10,858	Cu. Yd.
Special Compaction of Earthwork	7,780	Cu. Yd.
Sta 1897+27 to Sta 1898+72	21,732	Cu. Yd.
Unclassified Excavation (Normal)	3,728	Cu. Yd.
25% Swell	10,858	Cu. Yd.
Embankment +20%	3,554	Cu. Yd.
Special Compaction of Earthwork	22,285	Cu. Yd.
Note: 14,402 Cu. Yds. to Ramps, Rest Area Right		
Sta 1898+72 to Sta 1899+93	22,285	Cu. Yd.
Unclassified Excavation (Normal)	3,816	Cu. Yd.
25% Swell	2,063	Cu. Yd.
Embankment +20%	2,063	Cu. Yd.
Special Compaction of Earthwork	60,696	Mi. Yd.
Overhaul		
Note: 24,037 Cu. Yds. to Ramps, Rest Area Left		

Sta 1899+93 to Sta 1904+67	262,011	Cu. Yd.
Unclassified Excavation (Normal)	761	Cu. Yd.
Unclassified Excavation (Channel Change, etc.)	39,917	Cu. Yd.
25% Swell	302,004	Cu. Yd.
Embankment +20%	107,442	Cu. Yd.
Special Compaction of Earthwork	199,228	Mi. Yds.
Overhaul		

**ARKANSAS STATE HIGHWAY COMMISSION**  
LITTLE ROCK, ARKANSAS

**INTERSTATE ROUTE 40**  
**JCT. HWY. 23 - EAST GAR CREEK**  
**JOB 4487**

**PROFILE**  
**STA. 1890+00 TO STA. 1922+00**

DRAWN BY	GEL	GARVER & GARVER, Inc.	AS NOTED
CHECKED BY	LRG	ENGINEERS	
DATE	NOV 1968	LITTLE ROCK, ARKANSAS	20 OF 262

T.B.M. #3377 NIS 4' Rod Oak  
9' Rt. 1893+70, Elev. 708.58

T.B.M. #36 (g) NIS 5' Cedar 30' Rt. & West  
Sta. 1914+00 Elev. 693.00

T.B.M. #35 NIS 10' White Oak in vicinity of  
dirt road SW of White Farm House and  
approx. 275' Rt. Sta. 1820+50, Elev. 681.00



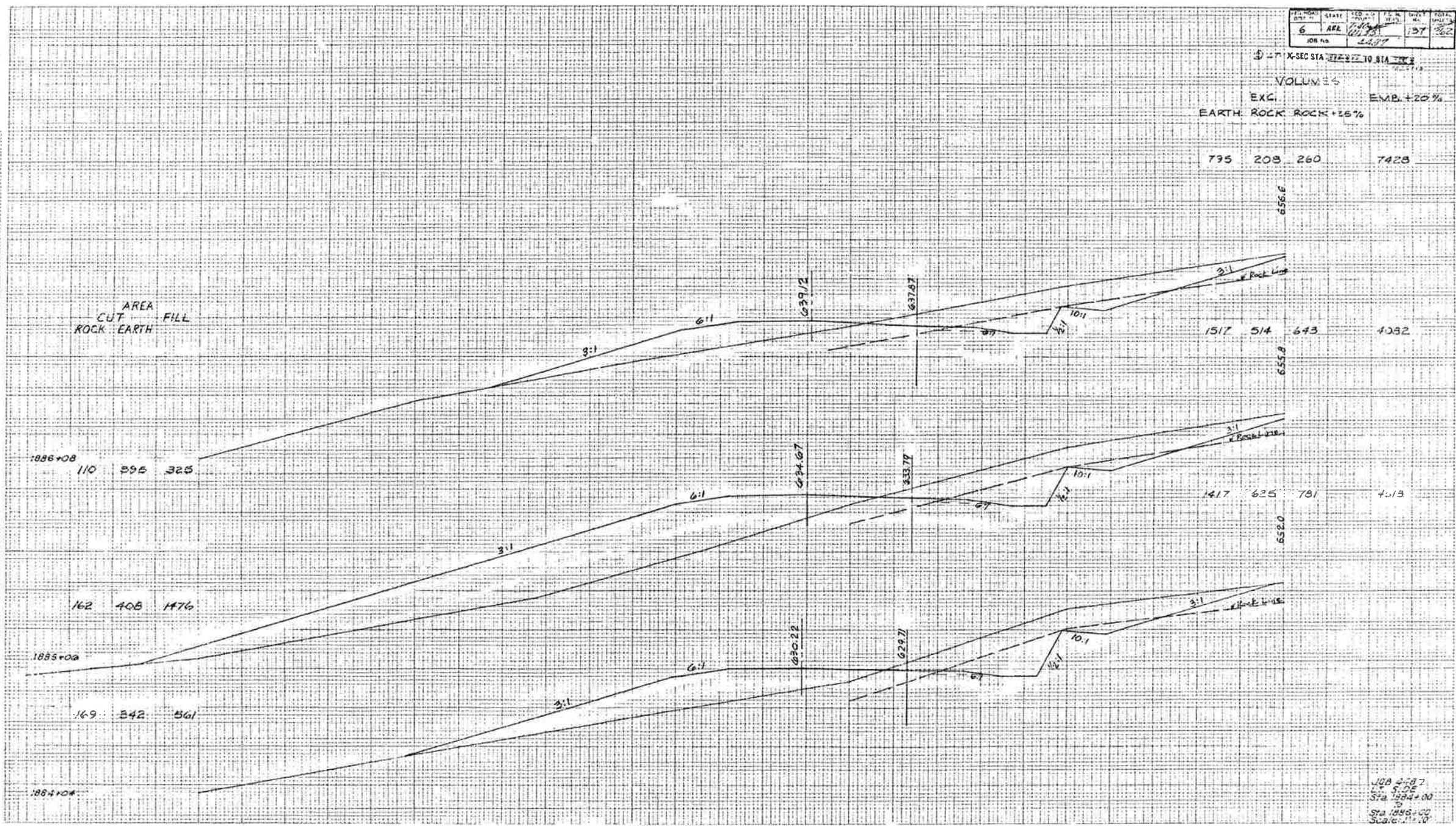
STATE	NO.	DATE	BY
6	ARE	11/1/57	37
JOB NO.		4-2-57	

X-SEC STA 1884+00 TO 1886+00

VOLUMES

EXG. EMB. +20%  
 EARTH ROCK ROCK +25%

795 208 260 7428



SCALE 3 CROSS SECTION IN 1" = 40' HORIZONTAL  
 1" = 10' VERTICAL

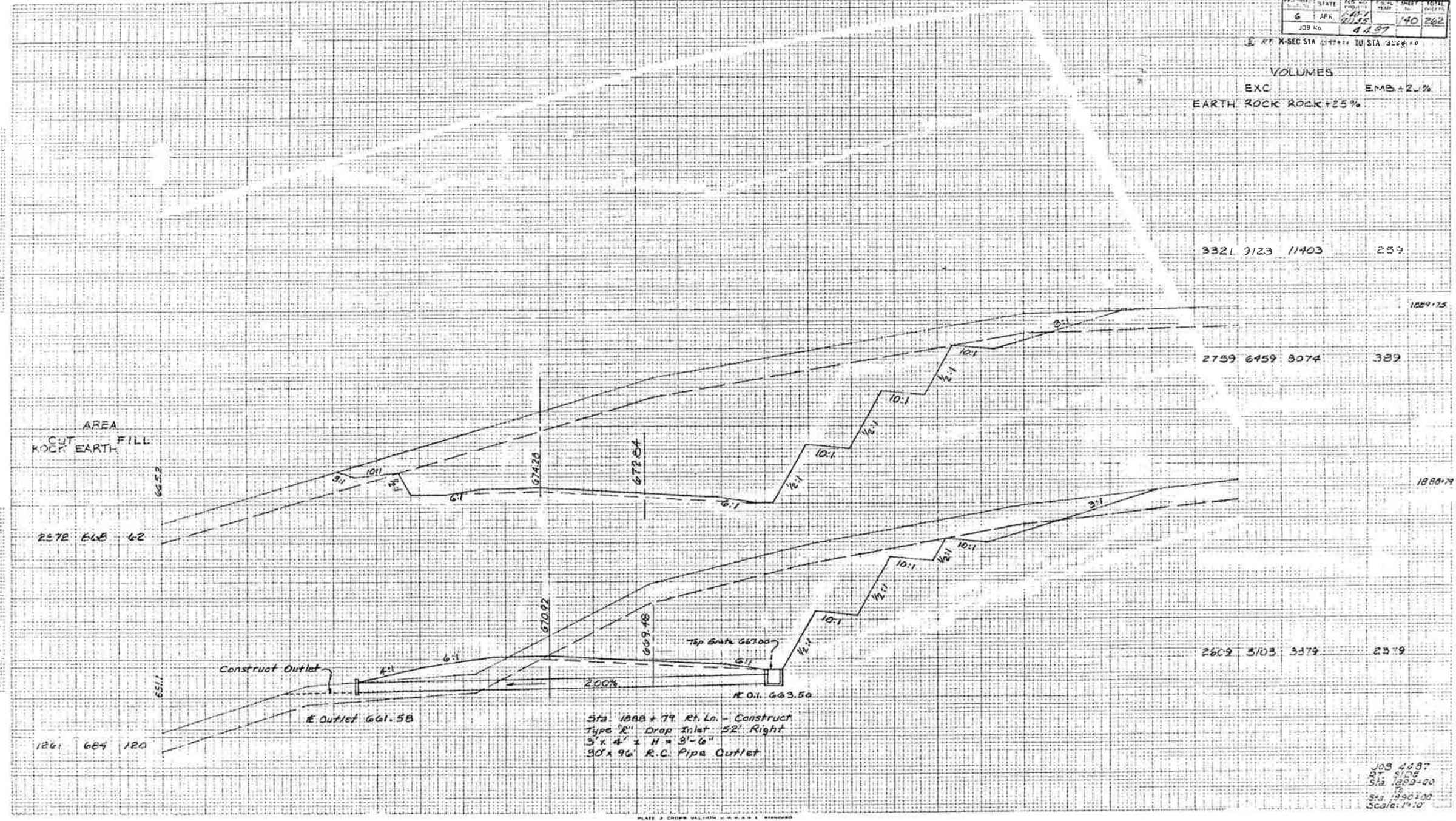






STATE	NO.	DATE	SHEET	TOTAL
6	APN	6/15	140	262
JOB No.		4487		

VOLUMES  
 EXC EMB +2.5%  
 EARTH ROCK ROCK+25%



Sta. 1088+79 R.L. - Construct  
 Type 'R' Drop Inlet 52' Right  
 3' x 4' x H = 3'-6"  
 30' x 96' R.C. Pipe Outlet

JOB 4487  
 BY SLD  
 STA. 1088+00  
 STA. 1090+00  
 Scale: 1"=10'

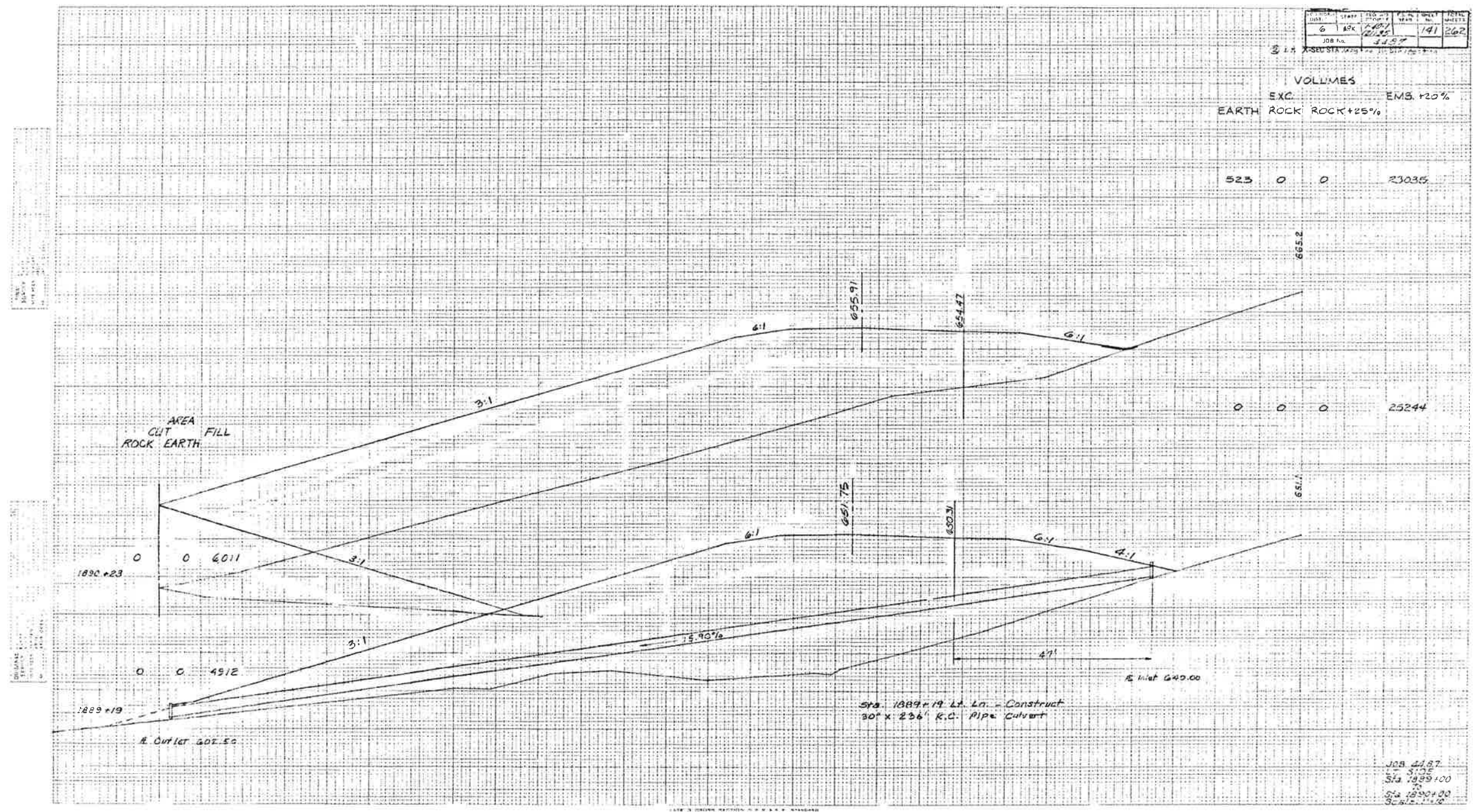


DATE	STAFF	NO.	DATE	NO.	DATE	NO.
6	ASX	1201	1941	262		
JOB No.		4187				

VOLUMES  
 EXC. EMB. +25%  
 EARTH ROCK ROCK+25%

523 0 0 23035

0 0 0 25244



JOB 4187  
 Sta 1889+00  
 Sta 1890+00  
 Scale 1" = 40'

LETTER TO BE OPENED SEPARATELY TO THE ENGINEER AND ARCHITECT



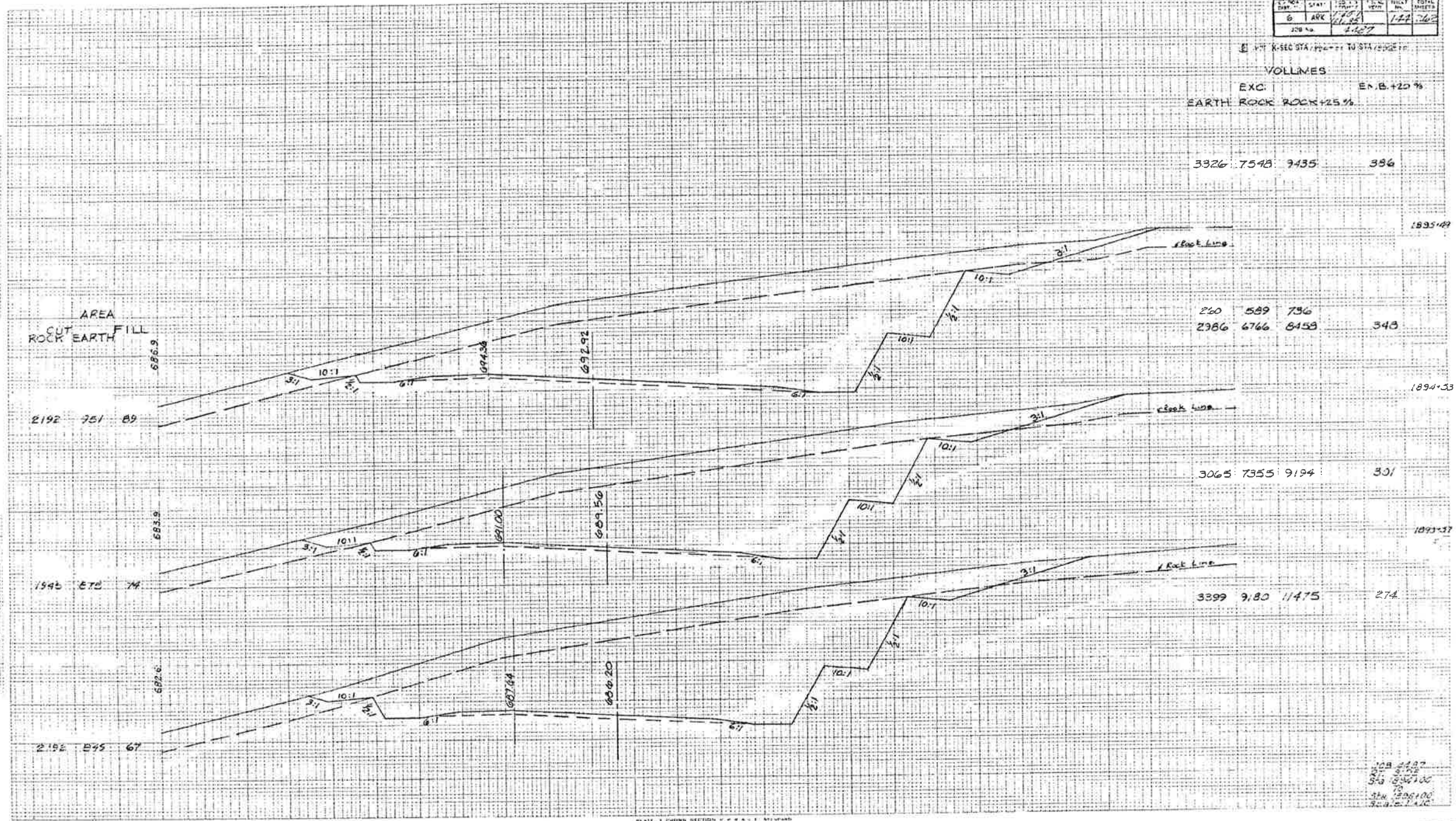




STATE	PROJECT	SECTION	SHEET NO.	TOTAL SHEETS
ARK	11182	11182	112	162
JOB No.	4187			

X-SEC STA. TO STA. 2000

VOLUMES  
 EXC. E.A.B. +20 %  
 EARTH ROCK ROCK +25 %



TITLE SHEET  
 SURVEY  
 DATE  
 DRAWN BY  
 CHECKED BY  
 APPROVED BY

PROJECT  
 LOCATION  
 SCALE  
 DATE

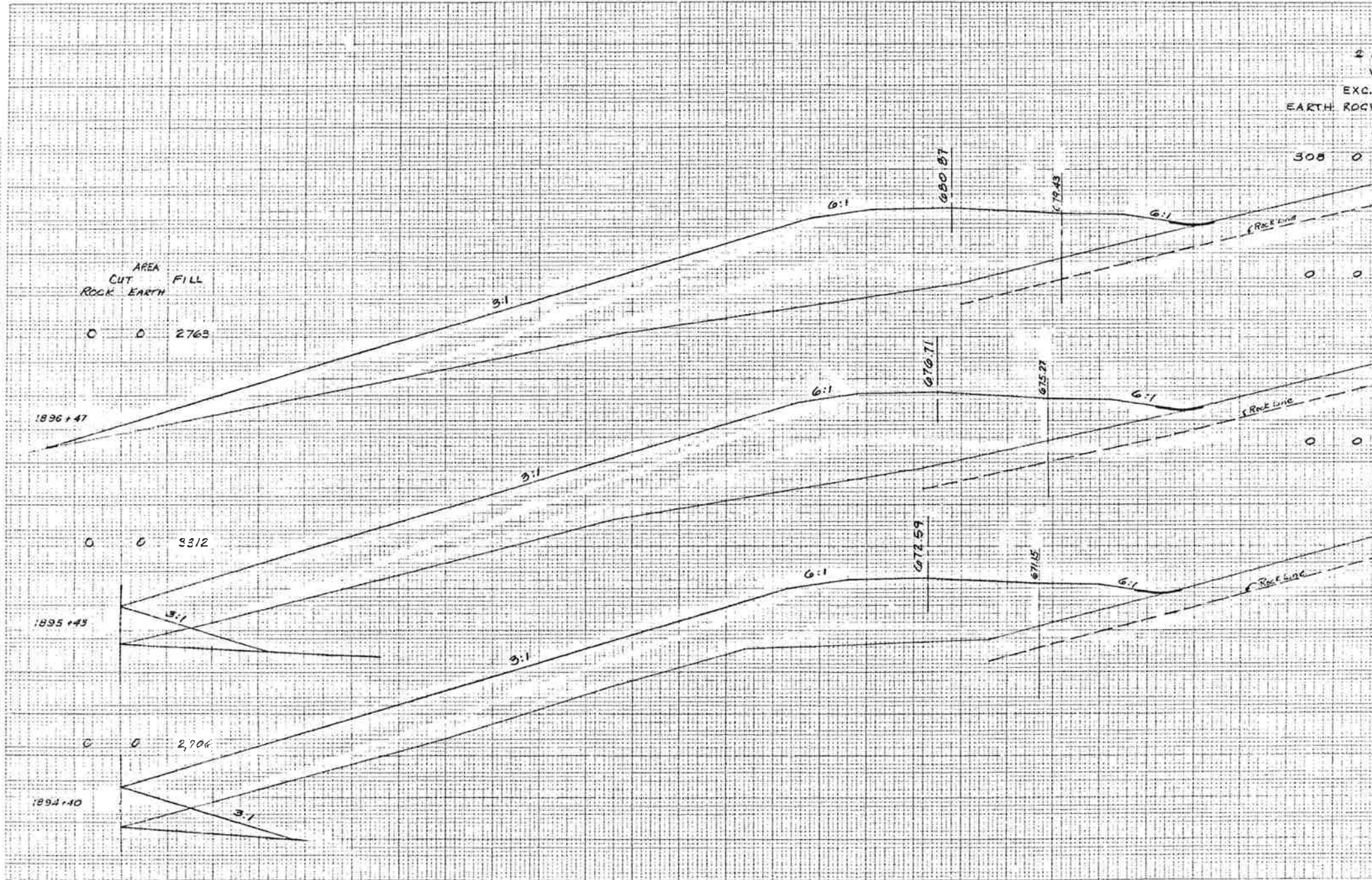
JOB 4187  
 STA. 2192  
 50' 100' 150'  
 1" = 100' 0"



NO.	DATE	BY	CHKD.	SCALE	TOTAL
6	ARK	11.25	11.5	262	
		11.25			
		11.25			

LT X-SECTION 194+00 TO 196+00  
 VOLUMES

EXC. EMB. +20%  
 EARTH ROCK ROCK+25%



AREA	CUT	FILL
ROCK	EARTH	
0	0	2763

0 0 3312

0 0 2706

308 0 0 12134

0 0 0 14040

0 0 0 25189

683.9

682.6

686.9

688.9

JOB 4487  
 LT. SIDE  
 STA. 1894+00  
 STA. 1896+00  
 Scale: 1"=10'

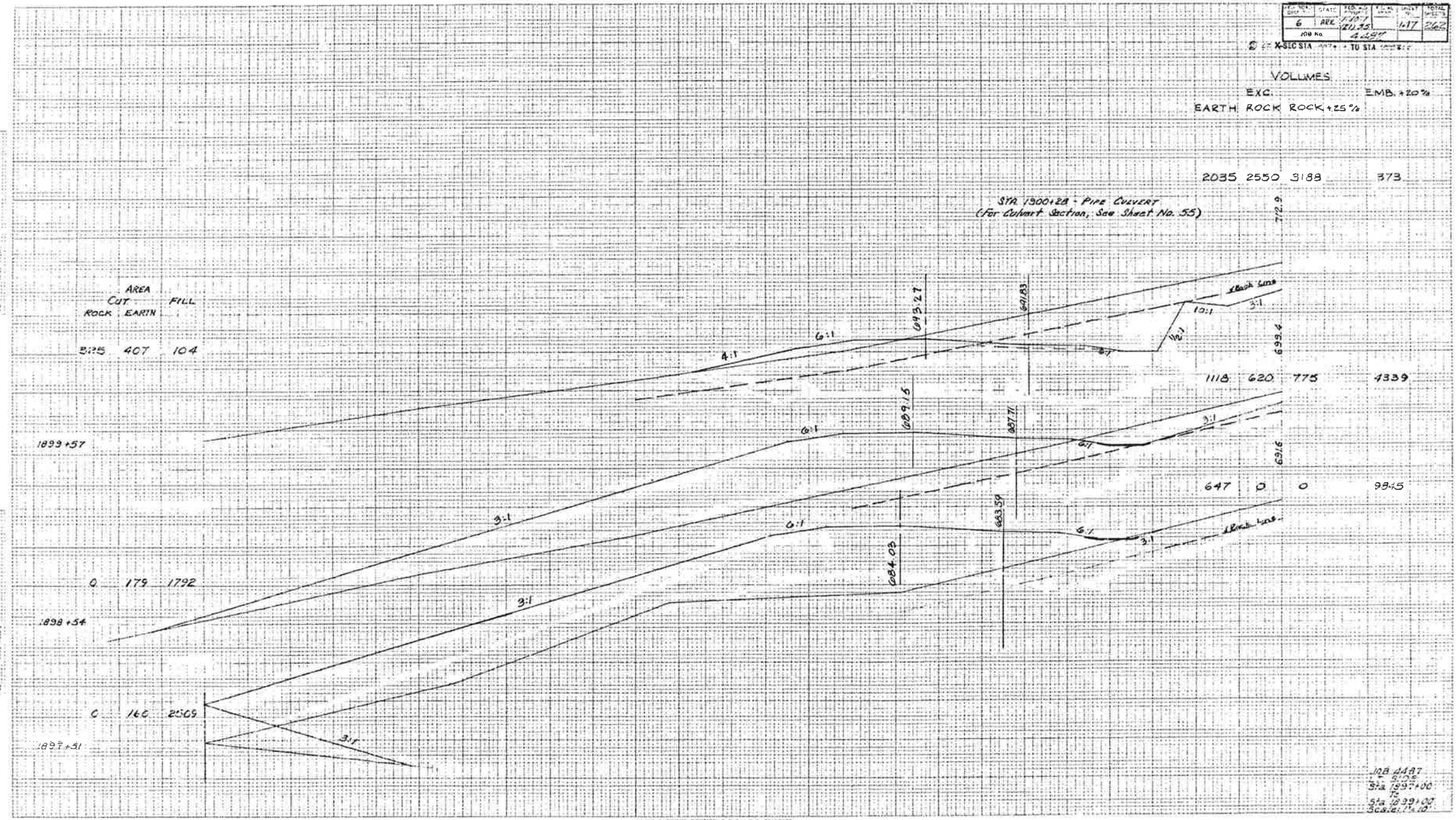






NO.	DATE	BY	CHKD.	APP'D.
6	REK	2/1/55	1/17	2/6/55
JOB No.		4-597		

VOLUMES  
 EXC. EMB. +20%  
 EARTH ROCK ROCK +25%



AREA CUT FILL  
 ROCK EARTH  
 325 407 104

ORIGINAL  
 EARTH  
 0 179 1792

JOB 4487  
 Sta 1897+00  
 To  
 Sta 1899+00  
 Scale 1" = 10'

ARKANSAS STATE HIGHWAY AND TRANSPORTATION DEPARTMENT

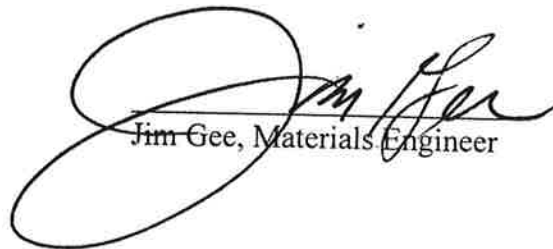
September 5, 2000

**TO:** Mr. Phillip McConnell, Roadway Design Engineer

**SUBJECT:** Job No. B40103 - Slide Investigation Reports  
Hwy. 219 - West  
I-40, Section 12  
Franklin County

Transmitted herewith are reports and supporting data that were transmitted (IOM's dated February 8, 1988; April 6, 1987; January 6, 1987; November 12, 1986; September 5, 1986; August 29, 1986; June 20, 1986; October 24, 1979 and August 17, 1979) for the active slide within the Westbound Lanes of Interstate 40 near Ozark. The report dated February 8, 1988 summarizes the problem and possible solutions. Also, a report dated May 2, 1986 from the Federal Highway Administration summarizes a review of the slide area and recommendations produced by Mr. Andy Munoz.

If additional information is needed, please let us know.



Jim Gee, Materials Engineer

*file*

INTER OFFICE MEMORANDUM

February 8, 1988

DATE

Mr. Paul Debusk, Roadway Design Engineer

TO: *f* Engineer of Materials and Research Division

FROM: Job No. 4988

SUBJECT: I-40 Slide Repair (Ozark)  
Interstate 40, Section 12  
Franklin County

*Ferry P. Westerman*

Transmitted herewith are the logs of the rotary wash borings, latest water level observations, and a case history report for the above job.

The samples obtained by the Standard Penetration tests were brought to the laboratory and visually classified. The stationing and locations for the four water level monitoring wells previously reported should be corrected as to the attached water level report. The boring numbers will remain the same.

If additional information is required, please contact this office

LW:klm

cc: Mr. Steve Teague, Engineer of Programs & Contracts Division  
Mr. Carl Sanders, District 4 Engineer  
R.E. c/o D.E.

CASE HISTORY  
I-40 Slide Repair (Ozark)

Along the westbound lane on I-40 between the Rest Area and Exit 35 near Ozark, there have been numerous failures within an approximately 500 foot long section of the north side slope. The purposes of this report are to provide a history of events and an update of the latest information obtained.

In the past, District 4 maintenance forces had simply redressed side slope material after failures and it is understood that in certain cases the head of the slides had encroached within the north, paved shoulder. In the summer of 1979, a field inspection of the area was conducted by Geotechnical and District personnel. At that time, a large amount of material had moved down the north side slope and the end of the pipe crossdrain (located at Sta 1893+00) was exposed and appeared to be broken underneath the roadway.

In August and October of the same year, several 4-inch, continuous flight auger borings were drilled in the general area in order to determine the source and depth of the troublesome water. No free water was encountered in any of the borings at that time. Since the side hill fill is quite high (a maximum of 80 feet as measured from the toe of the slope to the grade line of the westbound lane), it was uncertain as to whether settlement of the embankment, long-term creep of the fill and/or underlying natural slope, or water seeping from underlying rock and saturation of the slope caused the slope instability and the breakage of the pipe.

Since the pipe was already broken and to reduce the amount of water being introduced into the slope, it was recommended that the cross drain be sealed at the drop inlet (on the south side of the westbound lane at Sta 1893+00) and the water be redirected to another cross drain located farther down the hill in a more stable area. This measure was considered to be very inexpensive, especially, if it helped to stabilize the slope but it was also recommended that the area be monitored to evaluate the effectiveness.

Although the above drop inlet was sealed, failures continued to occur in the side slope. Sometime around 1983, District forces excavated material in the vicinity of the toe of the slope and replaced it with granular material. This replacement material was to serve as a small buttress but, more importantly, as a means to safely drain water. At the time of the last field inspection, water was continuing to seep from the buttress area.

It is interesting to note that a gas line was located in the vicinity of and follows the alignment of the toe of the slope in the failure area. This gas line is not shown on the original construction plans nor is it indicated on later published Soil Conservation Service or United States Geological Survey maps.

Additional right of way was purchased and the gas line was moved just outside the right of way fence, because the above construction encroached within the limits of the buried pipeline. Though initially suspicious, no breaks in the pipeline have been noted which should have occurred if involved within the sliding mass.

In 1985, a dip in the concrete roadway of the westbound lane became quite noticeable to the traveling public. The dip was located in the vicinity of Sta 1889+50 to Sta 1890+00 and started at the inside shoulder and became more pronounced towards the outside shoulder located to the north. Upon inspection, some cracking was noted in the pavement as well as the paved shoulder. Also, there was apparently some insignificant leakage within the buried concrete pipe system previously placed to connect the aforementioned drop inlet (at Sta 1893+00) to the cross drain located farther down the hill. Further inspection revealed no bulging of the slope or any sign of imminent failure.

Although no dramatic failure had occurred, District personnel were quite concerned about the dip because it had occurred on an interstate road and, more importantly, past experience indicated that the movement was simply the first signs of a developing failure area. After much discussion among Departmental personnel, Roadway Design Division requested that a geotechnical investigation be conducted and recommendations be submitted.

In accordance with that request, several 4-inch, continuous flight auger borings as well as combined hollow stem auger and rotary wash borings were drilled in the area in January and February of 1986. Although every effort was made to advance the borings without using water, large rock pieces (from the cuts) stymied hole advancement especially near the fill/original ground interface where rotary wash methods had to be used. However, it is believed that only a small amount of free water was present in a few isolated places within the embankment, at the fill/natural ground interface and at the rock line. When the large rock pieces were encountered at the fill/original ground interface, drilling fluid could not be recirculated because of the apparent, high permeability of this layer's material.

At the end of the drilling, several observations were made. First, according to the original plans and the drilling results, the paved ditching was placed near the top of rock starting at Sta. 1893+00 and continued in a rock cut up the hill (up station). The ditch paving located down the hill (downstation) was constructed almost entirely within a cut made within the original overburden material. Therefore, significant amounts of surface water should not be entering the fill. Also, cuttings from a boring drilled totally within the original overburden were dry.



It is believed that the subsurface water regime is similar to that encountered at the nearby slide area on U.S. 64. Therefore, the majority of the water was flowing through cracks in the shale rather than the overburden/rock interface. This same seepage can be observed in rock cut face located just up the hill next to the eastbound lane.

It is always best to try an intercept surface and, most especially, subsurface water on the uphill side of the roadway. To accomplish that here, cutting into rock to an indeterminate depth must be done along at least a part of the area uphill from the sliding. Just to intercept the water encountered in the borings (levels currently being monitored) would require an outlet to be placed deeper than the one presently functioning. To insure water interception, the required construction would necessitate the destruction of at least a part of the existing pavement and we would not be fully confident that the system would alleviate the problem.

A less satisfactory solution would be to buttress and drain the toe of the slope. District forces have already done this over a portion of the toe which has helped to alleviate the yearly sliding. However, although a major slide has not occurred, the extensive cracking that has been observed on the slope does not allow confidence in the long-term stability of the area.

A retaining wall could be constructed in the area of the existing guardrail. However, since bedrock is quite deep, the wall would be difficult to construct and very expensive.

Finally, it was believed that the best and most feasible solution is to move the roadway away from the unstable area and to unload some of the driving weight.

In conclusion, it is believed that the dip was caused by creep exacerbated by the subsurface water conditions. Unless the water situation is alleviated and/or the driving weight retained or removed, this area of the interstate will continue to be unstable.

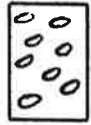
WATER LEVEL BELOW GROUND SURFACE

DATE	Boring No. 4	Boring No. 6	Boring No. 9	Boring No. 10
	Depth of 2" Pipe - 23.0'	Depth of 2" Pipe - 29.3'	Depth of 2" Pipe - 48.3'	Depth of 2" Pipe - 29.0'
	Station 1888+27	Station 1889+18	Station 1889+72	Station 1890+20
	Location 53' Lt of R.E. of LML	Location 52' Lt. of R.E. of LML	Location 129' Lt of R.E. LML	Location 50' Lt of R.E. of LML
	Elevation 644.9		Elevation 652.9	Elevation 652.4
4/20	20.3	21.5	47.5	23.0
4/27	21.1	23.0	48.0	23.4
7/6	17.0	20.0	47.6	23.0
8/3	21.3	25.2	47.7	25.9
8/28	17.6	22.0	47.3	23.1
9/21	19.6	21.8	47.7	23.0
12/31	16.0	15.0	44.8	19.0

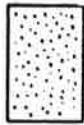
# LEGEND

## SOIL TYPES

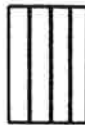
(SHOWN IN SYMBOL COLUMN)  
(PREDOMINANT TYPE SHOWN HEAVY)



GRAVEL



SAND



SILT



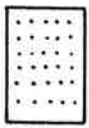
CLAY



ORGANIC  
MATTER

## ROCK TYPES

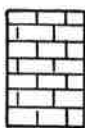
(SHOWN IN SYMBOL COLUMN)



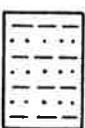
SANDSTONE



SHALE,  
or SILTSTONE



LIMESTONE  
or DOLOMITE



ALTERNATING  
LAYERS of  
SHALE and  
SANDSTONE



OTHER

## SAMPLER TYPES

(SHOWN IN SAMPLE COLUMN)

### SHELBY TUBE



UNDISTURBED  
SAMPLE  
RECOVERY



DISTURBED  
SAMPLE  
RECOVERY



NO  
RECOVERY

### SPLIT SPOON



SAMPLE  
RECOVERY



NO  
RECOVERY

### ROCK CORING



% RECOVERY  
INDICATED ON LOGS

## TERMS DESCRIBING CONSISTENCY OR CONDITION

GRANULAR SOIL		CLAY		CLAY-SHALE		SHALE	
"N" Value	Density	"N" Value	Consistency	"N" Value	Condition	"N" Value	Condition
0-4	Very Loose	0-1	Very Soft			31-60	Soft
5-10	Loose	2-4	Soft			Over 60	
11-30	Medium Dense	5-8	Medium Stiff	5-8	Medium Stiff	More than 2"	
30-50	Dense	9-15	Stiff	9-15	Stiff	Penetration	
Over 50	Very Dense	16-30	Very Stiff	16-30	Very Stiff	in 60 Blows:	Medium Hard
		31-60	Hard	31-60	Hard	Less than 2"	
		Over 60	Very Hard	Over 60	Very Hard	Penetration	
						in 60 Blows:	Hard

## GENERAL NOTES



1. Ground water elevations indicated on boring logs represent ground water elevation at date or time shown on drilling log. Absence of water surface implies that no ground water data is available but does not necessarily mean that ground water will not be encountered at locations or within the vertical reaches of these borings.
2. Borings represent subsurface conditions at their respective locations for their respective depths. Variations in conditions between or adjacent to boring locations may be encountered.
3. Terms used for describing soils according to their texture or grain size distribution are in accordance with the Unified Soil Classification System.

Standard Penetration Test – Driving a 2.0" O.D., 1-3/8" I.D., sampler a distance of 1.0 foot into undisturbed soil with a 140 pound hammer free falling a distance of 30.0 inches. It is customary to drive the spoon 6.0 inches to seat into undisturbed soil, then perform the test. The number of hammer blows for seating the spoon and making the tests are recorded for each 6.0 inches of penetration on the drill log (Example – The "N" Value can be obtained by adding the bottom two numbers (i.e. 6 + 8 + 9 = 17 blows/ft)

ARKANSAS HWY. & TRANS. DEPARTMENT  
 MATERIALS & RESEARCH DIVISION — GEOTECHNICAL SECTION

BORING NO. 1  
 PAGE NO. 1 of 1

Job No. <u>4988</u>	Franklin County	Date <u>February 13, 1986</u>
Job Name <u>I-40 Slide Repair</u>	<u>Ozark</u>	Type of Drilling <u>Hollow Stem Auger</u>
Station No. <u>1887+25</u>		Equipment <u>CME Drill</u>
Location <u>53' Left of R.E. of LML</u>		Logged By <u>Charles Whitehead</u>
Completion Depth <u>11.4</u> ft.      Depth to Water at _____ hrs. _____ ft.		

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	UNIT DRY WT. LBS./CU. FT.	NO. BLOWS /6 INCHES	% RECOVERY
			Surface Elevation <u>637.1</u>							
5			Moist, Stiff to Very Stiff, Brown Silty Clay with Sandstone Fragments							
10			Moist, Very Dense, Brown Sandstone Fragments with Some Clay						50 60(0. 1')	
			Boring Terminated						44 60(0. 4')	

REMARKS \_\_\_\_\_

Job No. <u>4988</u>	Franklin County	Date <u>February 14, 1986</u>
Job Name <u>I-40 Slide Repair</u>	<u>Ozark</u>	Type of Drilling <u>Hollow Stem Auger</u>
Station No. <u>1887+45</u>		Equipment <u>CME Drill</u>
Location <u>31' Right of R.E. of LML</u>		Logged By <u>Charles Whitehead</u>
Completion Depth <u>15.5</u> ft.      Depth to Water at _____ hrs. _____ ft.		

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	UNIT DRY WT. LBS./CU. FT.	NO. BLOWS /6 INCHES	% RECOVERY
			Surface Elevation <u>661.0</u>							
			Moist, Soft, Brown and Gray Silty Clay (Fill Material)							
5		X	Soft, Dark Gray Shale (Fill Material)						8 6-6	
			Moist, Medium Stiff, Brown and Gray Sandy Clay with Shale Fragments (Fill Material)						4 3-4	
10		X	Moist, Medium Dense to Very Dense, Brown Sandstone Fragments with Sandy Clay						3 3-5 22 14-10	
15		X	Boring Terminated						60(0. 2') 51 60(0. 3')	

REMARKS \_\_\_\_\_

Job No. <u>4988</u>	Franklin County	Date <u>February 14, 1986</u>
Job Name <u>I-40 Slide Repair</u>	<u>Ozark</u>	Type of Drilling <u>Hollow Stem Auger</u>
Station No. <u>1888+21</u>		Equipment <u>CME Drill</u>
Location <u>53' Right of R.E. of LML</u>		Logged By <u>Charles Whitehead</u>
Completion Depth <u>20.5</u> ft.      Depth to Water at _____ hrs. _____ ft.		

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	UNIT DRY WT. LBS./CU. FT.	NO. BLOWS /6 INCHES	% RECOVERY
			Surface Elevation <u>665.6</u>							
5	o		Moist, Stiff, Brown and Gray Clay with Sandstone Fragments and Some Shale (Fill Material)							
10	o									
15	o	X	Moist, Stiff, Brown Sandy Clay with Sandstone Fragments						7 4-6	
20	o	X	Medium Hard, Brown and Gray Weathered Shale						38	
			Boring Terminated						60(0.5')	

REMARKS \_\_\_\_\_

Job No. <u>4988</u>	Franklin County	Date <u>February 13, 1986</u>
Job Name <u>I-40 Slide Repair</u>		Type of Drilling <u>Hollow Stem Auger</u>
<u>Ozark</u>		Equipment <u>CME Drill</u>
Station No. <u>1888+27</u>		Logged By <u>Charles Whitehead</u>
Location <u>53' Left of R.E. of LML</u>		
Completion Depth <u>20.9</u> ft.      Depth to Water at _____ hrs. _____ ft.		

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	UNIT DRY WT. LBS./CU. FT.	NO. BLOWS /6 INCHES	% RECOVERY
			Surface Elevation <u>644.9</u>							
5			Moist, Stiff, Brown Silty Clay with Sandstone Fragments and Some Shale (Fill Material)							
10			Moist, Very Dense to Dense, Brown and Gray Sandstone Fragments							
15			Moist, Soft, Brown and Gray Silty Clay with Sandstone and Shale Fragments							
15			Moist, Stiff, Brown Silty Clay with Shale Fragments						15	
20			Soft, Brown and Gray Weathered Shale with Sandstone Fragments						19-22	
20			Medium Hard, Dark Gray Shale						22-60	0.4'
			Boring Terminated							

REMARKS \_\_\_\_\_

**ARKANSAS HWY. & TRANS. DEPARTMENT**  
**MATERIALS & RESEARCH DIVISION — GEOTECHNICAL SECTION**

BORING NO. 5  
 PAGE NO. 1 of 1

Job No. <u>4988</u>	Franklin County	Date <u>February 14, 1986</u>
Job Name <u>I-40 Slide Repair</u>	<u>Ozark</u>	Type of Drilling <u>Hollow Stem Auger</u>
Station No. <u>1888+83</u>		Equipment <u>CME Drill</u>
Location <u>59' Right of R.E. of LML</u>		Logged By <u>Charles Whitehead</u>
Completion Depth <u>25.2</u> ft.      Depth to Water at _____ hrs. _____ ft.		

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	UNIT DRY WT. LBS./CU. FT.	NO. BLOWS /6 INCHES	% RECOVERY
			Surface Elevation <u>668.3</u>							
5			Moist, Stiff, Brown Silty Clay with Sandstone Fragments							
10										
15		X	Soft, Brown and Gray Weathered Shale						25 20-20	
20		X							14 18-24	
25		X	Medium Hard, Dark Gray Shale						13 15-20	
			Boring Terminated						39 60(0.2')	

REMARKS \_\_\_\_\_



Job No. <u>4988</u> Franklin County	Date <u>February 12, 1986</u>
Job Name <u>I-40 Slide Repair</u>	Type of Drilling <u>Hollow Stem Auger</u>
<u>Ozark</u>	Equipment <u>CME Drill</u>
Station No. <u>1889+18</u>	Logged By <u>Charles Whitehead</u>
Location <u>52' Left of R.E. of LMI</u>	
Completion Depth <u>25.1</u> ft. Depth to Water at _____ hrs. _____ ft.	

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	UNIT DRY WT. LBS./CU. FT.	NO. BLOWS /6 INCHES	% RECOVERY
			Surface Elevation <u>647.8</u>							
5			Moist, Stiff, Brown and Gray Clay with Sandstone Fragments and Some Shale (Fill Material)							
10			Moist, Stiff, Brown and Gray Clay with Sandstone and Shale Fragments							
15										
20			Moist, Stiff, Brown Clay with Shale Fragments							
25			Medium Hard, Brown and Gray Weathered Shale Medium Hard, Dark Gray Shale						19 60(0.4')	
			Boring Terminated							

REMARKS \_\_\_\_\_

Job No. <u>4988</u>	Franklin County	Date <u>February 12, 1986</u>
Job Name <u>I-40 Slide Repair</u>	<u>Ozark</u>	Type of Drilling <u>Hollow Stem Auger</u>
Station No. <u>1889+20</u>		Equipment <u>CME Drill</u>
Location <u>52' Left of R.E. of LML</u>		Logged By <u>Charles Whitehead</u>
Completion Depth <u>6.5</u> ft.      Depth to Water at _____ hrs. _____ ft.		

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	UNIT DRY WT. LBS./CU. FT.	NO. BLOWS /6 INCHES	% RECOVERY
			Surface Elevation <u>648.0</u>							
5	0-0		Moist, Stiff, Brown Silty Clay with Sandstone Fragments and Some Shale (Fill Material)							
			Very Hard, Brown Sandstone Boulder Boring Terminated							

REMARKS \_\_\_\_\_

Job No. <u>4988</u>	Franklin County	Date <u>January 28, 1986</u>
Job Name <u>I-40 Slide Repair</u>	<u>Ozark</u>	Type of Drilling <u>H.Stem &amp; Rotary Wash</u>
Station No. <u>1889+62</u>		Equipment <u>CME Drill</u>
Location <u>112' Left of R.E.of LML</u>		Logged By <u>Charles Whitehead</u>
Completion Depth <u>47</u> ft.      Depth to Water at <u>    </u> hrs. <u>    </u> ft.		

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	UNIT DRY WT. LBS./CU. FT.	NO. BLOWS /6 INCHES	% RECOVERY
			Surface Elevation <u>655.1</u>							
5			Moist, Stiff, Brown Sandy Clay with Sandstone Fragments							
10										
15										
20			Moist, Very Stiff, Brown Clay with Sandstone Cobbles							
			Hard, Brown Sandstone Boulder							
25										
30			Moist, Dense to Very Dense, Brown Sandstone Fragments with Some Clay							
35										

REMARKS Hollow stem augers were utilized to a depth of 38.2'.

Job No. <u>4988</u>	Franklin County	Date <u>January 28, 1986</u>
Job Name <u>I-40 Slide Repair</u>	<u>Ozark</u>	Type of Drilling <u>H.Stem &amp; Rotary Wash</u>
Station No. <u>1889+63</u>		Equipment <u>CME Drill</u>
Location <u>112' Left of R.E. of LML</u>		Logged By <u>Charles Whitehead</u>
Completion Depth <u>47</u> ft.      Depth to Water at <u>    </u> hrs. <u>    </u> ft.		

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	UNIT DRY WT. LBS./CU. FT.	NO. BLOWS /6 INCHES	% RECOVERY
			Surface Elevation <u>655.1</u>							
45	/	X	Moist, Very Stiff, Brown Clay with Some Shale Fragments						6	
			Soft to Medium Hard, Gray Weathered Shale						19	
			Boring Terminated						50(0.5')	

REMARKS \_\_\_\_\_

Job No. <u>4988</u>	Franklin County	Date <u>January 28, 1986</u>
Job Name <u>I-40 Slide Repair</u>		Type of Drilling <u>Hollow Stem Auger</u>
<u>Ozark</u>		Equipment <u>CME Drill</u>
Station No. <u>1889+72</u>		Logged By <u>Charles Whitehead</u>
Location <u>129' Left of R.E. of LML</u>		
Completion Depth <u>45.5</u> ft.      Depth to Water at <u>    </u> hrs. <u>    </u> ft.		

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	UNIT DRY WT. LBS./CU. FT.	NO. BLOWS /6 INCHES	% RECOVERY
			Surface Elevation <u>652.9</u>							
			Moist, Stiff, Gray Clay with Sandstone Fragments (Fill Material)							
5			Moist, Very Stiff, Gray Clay with Some Shale (Fill Material)						11 15-13 6 6-13 9	
10			Moist, Very Stiff, Gray to Brown Sandy Clay with Sandstone Fragments						13-6 4 9-8 12 12-10 4	
15									5-16 8 8-4 3	
20			Moist, Stiff to Very Stiff, Brown and Gray Sandy Clay with Sandstone and Shale Fragments						7-14 5 6-7 12 10-10 3	
25			Moist, Medium Stiff, Brown Clay with Sandstone Fragments						4-3 17	
			Moist, Dense, Brown Sandstone Fragments with Some Sandy Clay						28-9 14 22-12 10	
30			Moist, Very Stiff, Brown Sandy Clay with Sandstone and Shale Fragments						12-6 11 9-7 7	
35			Moist, Dense, Brown Sandstone Fragments with Some Sandy Clay						9-13 9	
			Moist, Very Stiff, Brown Clay with Shale Fragments						8-28 36 9-8	

REMARKS \_\_\_\_\_

Job No. <u>4988</u>	Franklin County	Date <u>January 28, 1986</u>
Job Name <u>I-40 Slide Repair</u>	<u>Ozark</u>	Type of Drilling <u>Hollow Stem Auger</u>
Station No. <u>1889+72</u>		Equipment <u>CME Drill</u>
Location <u>129' Left of R.E. of LMI</u>		Logged By <u>Charles Whitehead</u>
Completion Depth <u>45.5</u> ft.      Depth to Water at <u>    </u> hrs. <u>    </u> ft.		

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	UNIT DRY WT. LBS./CU. FT.	NO. BLOWS /6 INCHES	% RECOVERY
			Surface Elevation <u>652.9</u>							
	/	X	Moist, Very Stiff, Brown Clay with Shale Fragments						8 13-14	
45		X	Soft to Medium Hard, Brown and Gray Weathered Shale						7 9-22 23	
			Boring Terminated						45-48	

REMARKS \_\_\_\_\_

Job No. <u>4988</u>	Franklin County	Date <u>February 12, 1986</u>
Job Name <u>I-40 Slide Repair</u>	<u>Ozark</u>	Type of Drilling <u>Hollow Stem Auger</u>
Station No. <u>1890+20</u>		Equipment <u>CME Drill</u>
Location <u>50' Left of R.E. of LML</u>		Logged By <u>Charles Whitehead</u>
Completion Depth <u>26.5</u> ft.      Depth to Water at <u>    </u> hrs. <u>    </u> ft.		

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	UNIT DRY WT. LBS./CU. FT.	NO. BLOWS /6 INCHES	% RECOVERY
			Surface Elevation <u>652.4</u>							
			Moist Soft, Brown Silty Clay (Fill Material)							
5			Moist, Very Dense, Gray Shale, Sandstone Gravel and Shale Fragments (Fill Material)						14 17-60 29 39-22	
10										
15			Moist, Very Stiff, Brown Sandy Clay with Sandstone Fragments						6 10-10	
20			Moist, Stiff, Brown and Gray Clay with Sandstone and Shale Fragments						5 5-6	
25			Very Soft to Soft, Brown and Gray Weathered Shale						7 11-11 19(0.5) 23 25-15	
			Boring Terminated							

REMARKS \_\_\_\_\_

Job No. <u>4988</u>	Franklin County	Date <u>February 13, 1986</u>
Job Name <u>I-40 Slide Repair</u>	<u>Ozark</u>	Type of Drilling <u>Hollow Stem Auger</u>
Station No. <u>1890+68</u>		Equipment <u>CME Drill</u>
Location <u>49' Left of R.E. of LML</u>		Logged By <u>Charles Whitehead</u>
Completion Depth <u>19.5</u> ft.      Depth to Water at _____ hrs. _____ ft.		

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	UNIT DRY WT. LBS./CU. FT.	NO. BLOWS /6 INCHES	% RECOVERY
			Surface Elevation <u>654.8</u>							
	/		Moist, Stiff, Brown Clay with Some Sandstone Gravel and Shale Fragments						4 7-12	
5	/	X	Moist, Very Stiff, Brown and Gray Clay with Shale Fragments						7 10-14	
10	/	X							10 11-12	
15	/	X							25 22-18	
			Soft to Very Soft, Brown and Gray Weathered Shale						9 14-15	
20			Boring Terminated							

REMARKS \_\_\_\_\_



Job No. 4988	Franklin County	Date January 29, 1986
Job Name I-40 Slide Repair		Type of Drilling Rotary Wash
	Ozark	Equipment CME Drill
Station No. 1892+25		Logged By Charles Whitehead
Location 106' Left of R.E. of LML		
Completion Depth 37.2 ft. Depth to Water at _____ hrs. _____ ft.		

DEPTH, FT.	SYMBOL	SAMPLES	DESCRIPTION OF MATERIAL	SOIL GROUP	PLASTIC LIMIT	% MOISTURE	LIQUID LIMIT	UNIT DRY WT. LBS./CU. FT.	NO. BLOWS /6 INCHES	% RECOVERY
			Surface Elevation 666.4							
5			Moist, Soft, Brown Sandy Clay (Fill Material)							
10										
15			Moist, Stiff, Brown Sandy Clay with Sandstone Fragments and Cobbles (Fill Material)							
20			Moist, Very Stiff, Brown Clay with Sandstone and Shale Fragments (Fill Material)						9 9-7	
25			Moist, Stiff, Brown Clay with Sandstone and Shale Fragments						8 8-7	
30										
35			Moist, Very Stiff, Brown Clay with Shale Fragments						6 11-13	
			Medium Hard, Dark Gray Shale						60(0.2')	
			Boring Terminated							

REMARKS Hollow stem augers were utilized to a depth of 29.0'.



# I-40 SLIDE REPAIR (OSARK)

JOB NO. 4983

