

KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO. 70-89	SOUNDING NO. CD#1	SHEET 1 OF 2
BRIDGE STA. 40+598.795 EB & WB	PROJ. NO. K-6358-01	BRIDGE NO. 70-89-0000(002) EB 70-89-0.010(001) WB
SITE NAME I-70 over Kassville Road (RS 315)		HOLE STA. 40+573.38 m. Lt. Proj. E
GEOLOGIST Randy Billinger	SCALE: 1:100 (10mm = 1 Meter)	DATE 1-30-01
DRILLER Rob Veruyneck	RIG TYPE Mobile B-61	TOP HOLE ELEV. 306.99
GROUNDWATER ELEV 304.85	TOTAL DEPTH 20.75 m	M/B ELEV. 305.78

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION	STANDARD PENETRATION OR CASING DRIVE	
							BLOWS	ELEV
			0'	306.99				
	Mantle		1.21	305.78	Mantle, Silty clay. Casing set to 305.78.			
	Ludwig Sh.		1.55	305.44	Shale, weathered, yellow-brown.			
	Tarkio Ls Mbr.			305	Limestone, blocky, tan/brown, hard. Abundant fusulinid fossils.	1297.7	Sample 1	304.92
				304		619.8	Sample 2	304.10
			3.56	303.43		15077.9	Sample 3	303.58
				303	Shale, sandy, gray, firm.	Sample Broke	Sample 4	301.97
				302	Thin sandstone lenses are common.			
				301				
				300		876.5	Sample 5	300.41
				299		1307.1	Sample 6	299.16
			8.28	298.61				
				298	Shale, gray, firm, clayey.	Sample Broke	Sample 7	297.88
				297				
				296		1955.1	Sample 8	296.14
				295		1567.9	Sample 9	295.11
				294				
				293				
				292				

		SOUNDING NO. <u>CD #1</u>		PROJECT NO. <u>K-6358-01</u>		SHEET <u>2</u> OF <u>2</u>	
DATE <u>1-30-01</u>		RTE./CO. <u>70-89</u>		TOTAL DEPTH <u>20²⁵ m</u>		THE <u>306.99</u>	
BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION	STANDARD PENETRATION OR CASING DRIVE
							BLOWS ELEV.
				292			
	Willard Shale Fm.	Core 11 10		291	Shale, gray, firm, clayey. Maybe a couple thin limestone stringers.	2142.8	Sample 10 291 ⁹⁷
		Core 12		290		1542.8	Sample 11 290 ⁶⁶
				289			
				288 ⁶⁵		1704.10	Sample 12 288 ⁸⁶
	Elmont LS	Core 13 19 ⁶⁵		288	Limestone, platy & shaly. Interbedded limy shale beds.	11765.9	Sample 13 287 ⁴¹
				287 ³⁴			
	Harveysville Sh.	14 20 ²⁵		287	Shale, firm, gray-green.	1415.8	Sample 14 287 ⁰⁰
				286 ²⁴			
				286			

I-70 over Rossville Road

	<u>meters</u>		<u>feet</u>	
1-30-01				
Core Hole #1	306.99	0 ⁰ -1.21	1007.18	0 ⁰ -4 ⁰
Sta 40+573.38 m	305.78	1.21-1.37	1003.11	4 ⁰ -4 ⁵
& Project	305.62	1.37	1002.68	4 ⁵
Land, Rob, B:11				
open closed				
2.13 m				
(304.85)				

Casing
1 4.7

4.0 ft in ground (1.21 m)
.7 out

se casing: hit weathered shale @ $\pm 3^{\circ}$ ft
weathered shale, yellow-brown
begin coring

Wameso
Sh.

1-30-01

I-70 over Rossville Road

12

Core 3

145-187 ft

4.41-5.69 m

Cut 4² (1.28 m)Recov. 3⁹ (1.18 m)RQD = $1\frac{8}{4}^2 = 43\%$

302.58	4 ⁴¹ -4 ⁹³	992.68	145-16 ²
302.06	4 ⁹³ -5 ⁶⁹	990.98	16 ² -18 ⁷
301.30	5 ⁶⁹	988.48	18 ⁷

Shale, gray sandy

Shale, more clayey with sandy lenses, gray

End core 3

Willard shale

1-31-01

Core 4

187-231 ft

5⁶⁹-7⁰⁴ mCut 4⁴ (1.34 m)Recov. 4¹ (1.24 m)RQD = $2\frac{6}{4}^4 = 59\%$ lost 0²

301.30	5 ⁶⁹ -7 ⁰⁴	988.48	187-231
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299.95	7 ⁰⁴	984.08	231
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Shale, gray, firm, sandy, numerous very sandy to shaly ss lenses.

End core 4

sample 5 21⁰-21⁶ shale, gray
(6.4-6.58 m)

300.41

I-70 over Rossville Rd

13

	meters	Feet
Core 5	299.95	7 ⁰⁴ -8 ³⁸
23'-27 ⁵	298.61	8 ³⁸
7 ⁰⁴ -8 ³⁸ m		979.68
Cut 4.4 (1.34 m)		23'-27 ⁵
Recov 4 ³ (1.31 m)		27 ⁵
RQD = 4 ³ /4 ⁴ = 91%		
lost 0'		

Core 6	298.61	8 ³⁸ -9 ⁹⁰
27 ⁵ -32 ⁵	297.09	9 ⁹⁰
8 ³⁸ -9 ⁹⁰ m		979.68
Cut 5 ⁰ (1.52 m)		27 ⁵ -32 ⁵
Recov 5 ⁰ (1.52 m)		32 ⁵
RQD = 4 ¹ /5 ⁰ = 82%		

Core 7	297.09	9 ⁹⁰ -11 ¹²
32 ⁵ -36 ⁵	295.87	11 ¹²
9 ⁹⁰ -11 ¹² m		974.68
Cut 4 ⁰ (1.21 m)		32 ⁵ -36 ⁵
Recov 3 ⁷ (1.12 m)		36 ⁵
RQD = 100%		

Shale, gray, less sandy, firm
End core 5

sample 6 25'-25⁷ Shale, gray
(7.65 - 7.83 m)

299.16

Shale, gray, mostly, clayey, firm
End core 6

Sample 7 29⁴-29⁹ - Shale, gray
(8.96 - 9.11 m)

297.88

Shale, clayey, gray firm
End core 7

Sample 8 35⁰-35⁶ Shale, gray
(10.66 - 10.85 m)

296.14

Willard Shale

I-70 over Rossville Rd

14

Willard Shale

meters

feet

Core 8
36.5-41.3 ft
11.12-12.58 m
Cut 48 (1.46m)
Recov. 48 (1.46m)
RQD = $38/48 = 79\%$

225.57	11.12-12.58	970.62	36.5-41.3
224.41	12.58	965.88	41.3

Shale, gray, firm clayey
End Core 8

Sample 9 38.4-39.0 Shale, gray
(11.70-11.88 m)
295.11

Core 9
41.3-46.5 ft
12.58-14.17 m
Cut 52 (1.58m)
Recov. 55 (1.58m)
RQD = did not get
an RQD. Overfilled
the core barrel

294.41	12.58-14.17	965.88	41.3-46.5
292.82	14.17	960.68	46.5

Shale, gray, firm clayey
End core 9

did not take a sample over filled core barrel

Core 10
46.5-51.5 ft
14.17-15.69 m
Cut 50 (1.52m)
Recov. 41 (1.40m)
RQA = 100%
lost 0.4

292.82	14.17-15.69	960.68	46.5-51.5
291.30	15.69	955.68	51.5

Shale, gray, firm, clayey
End core 10

Sample 10 48.8-49.3 Shale gray
(14.87-15.02 m)
291.97

I-70 over Rossville Road 15

	meters	feet
Core 11	291.30 15 ⁶⁹ -16 ⁵²	955.68 51 ⁵ -54 ²
51 ⁵ -55 ⁵ pt	290.97 16 ⁵² -16 ⁵⁵	952.98 54 ² -54 ³
15 ⁶⁹ -16 ⁹¹ m	290.44 16 ⁵⁵ -16 ⁹¹	952.88 54 ³ -55 ⁵
Cut 4° (1.21m)	290.08 16 ⁹¹	951.68 55 ⁵
Recov. 4° (1.21m)		
RQD = 100%		

Core 12	290.08 16 ⁹¹ -18 ¹³	951.68 55 ⁵ -59 ⁵
55 ⁵ -59 ⁵ pt	288.86 18 ¹³	947.68 59 ⁵
16 ⁹¹ -18 ¹³ m		
Cut 4° (1.21m)		
Recov. 4° (1.21m)		
RQD = 100%		

Core 13	288.86 18 ¹³ -18 ³⁴	947.68 59 ⁵ -60 ²
59 ⁵ -64 ⁵ pt	288.65 18 ³⁴ -18 ⁷⁴	946.98 60 ² -61 ⁵
18 ¹³ -19 ⁶⁵ m	288.25 18 ⁷⁴ -18 ⁹²	945.68 61 ⁵ -62 ¹
Cut 5° (1.52m)	288.07 18 ⁹² -19 ⁵⁰	945.08 62 ¹ -64 ⁰
Recov. 5° (1.52m)	287.49 19 ⁵⁰ -19 ⁶²	943.18 64 ⁰ -64 ⁴
RQD = 29/5° = 58%	287.37 19 ⁶² -19 ⁶⁵	942.78 64 ⁴ -64 ⁵
	287.31 19 ⁶⁵	942.68 64 ⁵

Shale, gray, firm clayey

LS lense

Shale gray

End core 11

Sample 11 53°-53⁶ shale gray
(16.15-16.33 m)
290.66

Shale, gray, very firm
End core 12

Sample 12 59°-59⁵ shale, gray, firm
(17⁹⁸-18¹³ m)
288.86

Shale, gray, firm, clayey
LS, platy, gray

Shale, limy, gray

LS, blocky gray, couple thin shale bracks

Shale, limy blocky, gray-green

LS,

End core 13

Sample 13 63¹-63⁶ LS, gray
(19²³-19³⁹ m) 287.61

Willard shale 11.584

15 ft + 10 in 13

cut 3^6 (1.09m)
Recov. 3^4 (1.03m)
RQP = 100%

feet

286.24 20⁷⁵

939.18	68
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T-70 over Russell Rd.

Shale, very firm, gray-green
Total Depth End Core Hole

16
Harveyville
Shale

Sample 14 (65^0-65^6) Shale, gray green
(19.81 - 19.99 m)

287.0

I-70 over Rossville Rd Core Hole #1

Project No. 70-89 K-6358-01

	<u>Elevation</u>	<u>Depth</u>		
Core Hole #1	306.99	0.00	Set casing. Weathered shale @ 0.9 m.	
Sta. 40+573	305.78	1.21	Weathered shale, yellow brown.	Wamego Shale
38 m Lt. Project C.L.	305.62	1.37	Start coring.	Member
Water Level 2.13 m				
Water Elevation 304.85				
Date Drilled 1/30/01				
Core # 1	305.62	1.37	Weathered shale. Lost top 0.09 m.	Wamego
1.37 to 2.89 m	305.53	1.46	Shale, weathered.	Shale
Cut 1.52 m	305.44	1.55	Limestone, platy to blocky, tan, abundant fusulinids.	
Recovered 1.43 m	305.29	1.70	Limestone, blocky, weathered, abundant fusulinids.	
RQD = 74%	304.10	2.89	End core 1.	Tarkio Limestone
			Sample 1 1.92 to 2.07	Limestone, weathered, tan..
			Sample 2 2.74 to 2.89	Limestone, weathered, tan..
Core # 2	304.10	2.89	Limestone, hard.	Tarkio Limestone
2.89 to 4.41 m	304.07	2.92	Shale, soft, light tan.	
Cut 1.52 m	303.98	3.01	Limestone, hard, unit bedded, tan, abundant fusulinids	
Recovered 1.52 m	303.43	3.56	Shale, gray, sandy.	Willard Shale
RQD = 52%	302.58	4.41	End core 2.	Formation
			Sample 3 3.26 to 3.41	Limestone, hard, tan.
Core # 3	302.58	4.41	Shale, sandy, gray.	Willard Shale
4.41 to 5.69 m	302.06	4.93	Shale, less sandy, but sandy lenses, gray	
Cut 1.28 m	301.30	5.69	End core 3.	Formation
Recovered 1.18 m				
RQD = 43%			Sample 4 4.87 to 5.02	Shale, sandy, gray.
Core # 4	301.30	5.69	Shale, firm, gray, sandy, thin sandstone lenses	
5.69 to 7.04 m	299.95	7.04	End core 4	
Cut 1.34m				
Recovered 1.24 m			Sample 5 6.4 to 6.58	Shale, gray.
RQD = 59%				
Core # 5	299.95	7.04	Shale, gray.	Willard Shale
7.04 to 8.38 m	298.61	8.38	End core 5.	Formation
Cut 1.34 m				
Recovered 1.31 m			Sample 6 7.65 to 7.83	Shale, gray.
RQD = 91%				

I-70 over Rossville Rd Core Hole #1

Project No. 70-89 K-6358-01

Core # 6	298.61	8.38	Shale, gray, firm, mostly clayey.	Willard Shale Formation
8.38 to 9.90 m	297.09	9.90	End core 6.	
Cut 1.52 m				
Recovered 1.52 m			Sample 7 8.96 to 9.11 Shale, gray, firm.	
RQD = 82%				
Core # 7	297.09	9.90	Shale, gray, clayey, firm.	Willard Shale Formation
9.90 to 11.12 m	295.87	11.12	End core 7.	
Cut 1.21 m				
Recovered 1.12 m			Sample 8 10.66 to 10.85 Shale, gray.	
RQD = 100%				
Core # 8	295.87	11.12	Shale, gray, firm, clayey.	Willard Shale Formation
11.12 to 12.58 m	294.41	12.58	End core 8.	
Cut 1.46 m				
Recovered 1.46 m			Sample 9 11.70 to 11.88 Shale, gray.	
RQD = 79 %				
Core # 9	294.41	12.58	Shale, gray, firm, clayey.	Willard Shale Formation
12.58 to 14.17 m	292.82	14.17	End core 9.	
Cut 1.58 m				
Recovered 1.58 m			No sample taken. Overfilled cored barrel.	
RQD = NA				
RQD not recorded. Overfilled the core barrel.				
Core # 10	292.82	14.17	Shale, gray, firm, clayey.	Willard Shale Formation
14.17 to 15.69 m	291.30	15.69	End core 10.	
Cut 1.52 m				
Recovered 1.40 m			Sample 10 14.87 to 15.02 Shale, gray.	
RQD = 100 %				
Core # 11	291.30	15.69	Shale, gray, firm, clayey.	Willard Shale Formation
15.69 to 16.91 m	290.47	16.52	Limestone stringer, gray.	
Cut 1.21 m	290.44	16.55	Shale, gray, firm, clayey.	
Recovered 1.21 m	290.08	16.91	End core 11.	
RQD = 100%			Sample 11 16.15 to 16.33 Shale, gray.	
Core # 12	290.08	16.91	Shale, gray, firm, clayey.	Willard Shale Formation
16.91 to 18.13 m	288.86	18.13	End core 12.	
Cut 1.21 m				
Recovered 1.21 m			Sample 12 17.98 to 18.13 Shale, gray.	
RQD = 100%				

I-70 over Rossville Rd Core Hole #1**Project No. 70-89 K-6358-01**

Core # 13	288.86	18.13	Shale, gray, firm, clayey.	Willard Shale
18.13 to 19.65 m	288.65	18.34	Limestone, platy, gray.	Elmont
Cut 1.52 m	288.25	18.74	Shale, limy, gray.	Limestone
Recovered 1.52 m	288.07	18.92	Limestone, blocky, gray.	Member
RQD = 58%	287.49	19.50	Shale, limy, blocky, gray-green.	
	287.37	19.62	Limestone.	
	287.34	19.65	End core 13.	

Sample 13 19.23 to 19.38 Limestone, gray.

Core # 14	287.34	19.65	Shale, very firm, gray-green.	Harveyville Shale
19.65 to 20.75 m	286.24	20.75	Total depth. End core hole 1. Stopped in shale.	
Cut 1.09 m				
Recovered 1.03 m				
RQD = 100%			Sample 14 19.81 to 19.99 Shale, gray-green, firm.	

Kansas Department of Transportation

Report of sample of Shelby/Geology Cores

Laboratory No. 01-274

Date Reported February 16, 2001

Date Received February 6, 2001

Specification No. -- Quantity --
 Source of material Project
 Sample from Project
 Submitted by Randy Billinger, Lawrence Regional Geology Office
 Identification marks Tags with samples
 Project or POV 70-89 K-6358-01, Shawnee County
 Type of construction Bridge I-70 over Rossville Rd CD #1

TEST RESULTS

Sample No.	Station	Dist. m	Depth m	Description	Qu. kPa	Dry Unit Weight kg/m ³	Moisture (% of Dry Wt.)
S# 1	40+573	38m LT	1.92-2.07	LS, Weathered	1,297.7	2,590	3.3%
S# 2	"	"	2.74-2.89	LS, Weathered	619.8	2,296	7.4%
S# 3	"	"	3.26-3.41	LS, Tan, Hard	157.3 15,077.9	144.1 2,310	6.1%
S# 4	"	"	4.87-5.02	Shale, Sandy, Gray	"	"	"
S# 5	"	"	6.4-6.58	Shale, Gray	9,154.5 876.5	127.9 2,049	12.0%
S# 6	"	"	7.65-7.83	Shale, Gray	1,307.1	2,074	11.0%
S# 7	"	"	8.96-9.11	Shale, Gray	#	#	#
S# 8	"	"	10.66-10.85	Shale, Gray	20,413.5 1,955.1	126.8 2,032	12.3%
S# 9	"	"	11.70-11.88	Shale, Gray	1,567.9	2,008	13.2%
S# 10	"	"	14.87-15.02	Shale, Gray	2,142.8	2,075	11.6%
S# 11	"	"	16.15-16.33	Shale, Gray	1,542.8	2,056	12.3%
S# 12	"	"	17.98-18.13	Shale, Gray	1,704.1	2,069	13.1%
S# 13	"	"	19.23-19.38	LS, Gray	11,765.9	2,425	3.6%
S# 14	"	"	19.81-19.99	Shale, Gray-Green	1,415.8	2,034	12.3%

* Sample broken on delivery

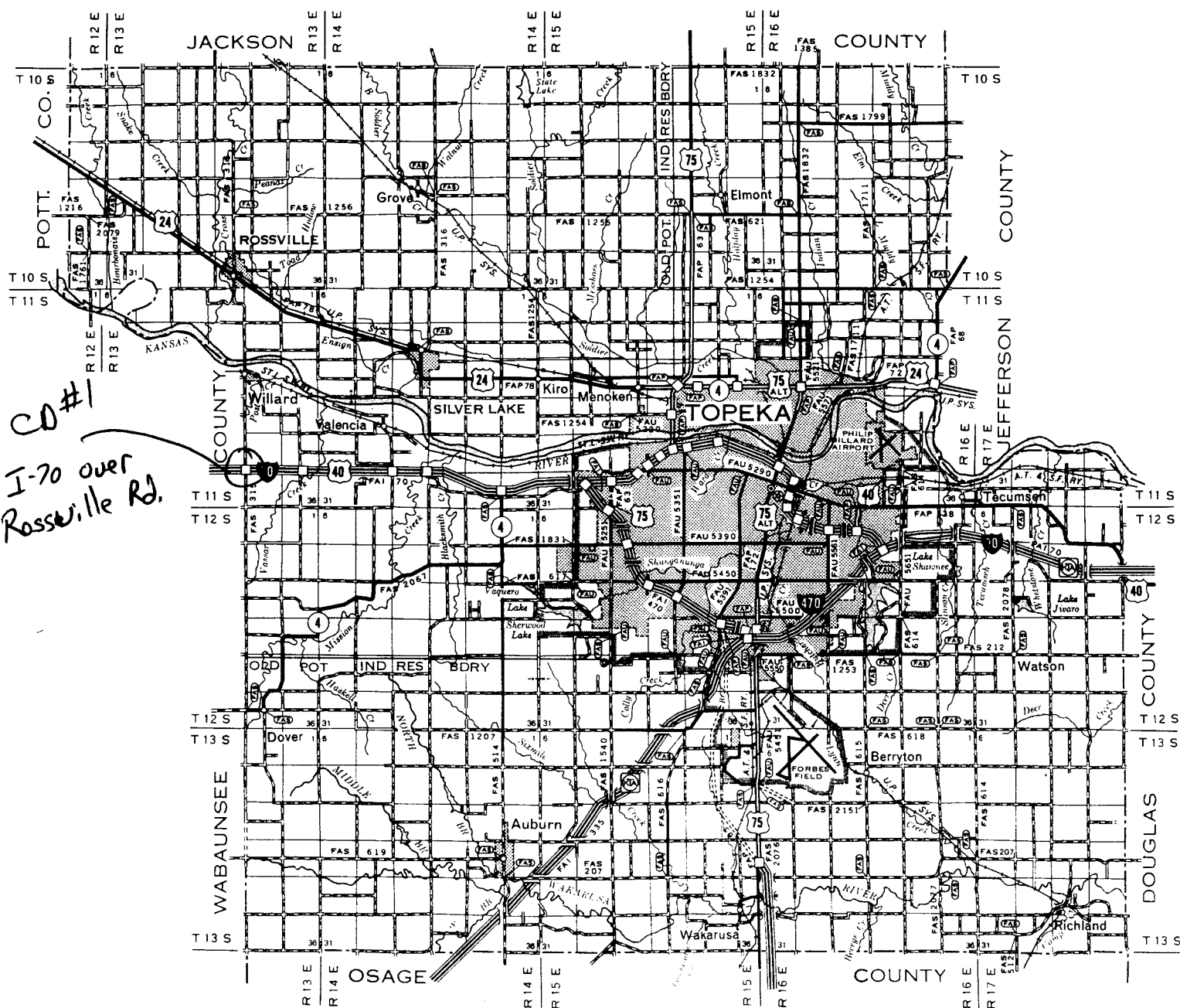
Sample broken during trimming

cc I. S. Ingram
 G. R. Koontz
 D. Thompson
 J. J. Brennan
 Soil Section
 File

Reported by: Lucia Hunt for

Title James J. Brennan, Soils Engineer

2AAD ✓



CO#1
I-70 over
Rossville Rd.

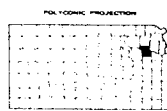
LEGEND

ROADS AND ROADWAY FEATURES

- PRIMITIVE ROAD
- UNIMPROVED ROAD
- GRADED AND DRAINED ROAD
- SOIL SURFACED ROAD
- GRAVEL OR STONE ROAD
- NOT GRADED OR DRAINED
- GRAVEL OR STONE ROAD
- GRADED AND DRAINED
- GRAVEL OR STONE ROAD WITH STABILIZED SURFACE
- BITUMINOUS ROAD—LOW TYPE
- PAVED ROAD
- DIVIDED HIGHWAY
- HIGHWAY WITH FULL CONTROL OF ACCESS AND INTERCHANGE

ROAD SYSTEM DESIGNATION

- FEDERAL-AID INTERSTATE HIGHWAY SYSTEM
- FEDERAL-AID PRIMARY HIGHWAY SYSTEM
- FEDERAL-AID SECONDARY HIGHWAY SYSTEM
- INTERSTATE NUMBERED HIGHWAY
- U.S. NUMBERED HIGHWAY
- STATE HIGHWAY SYSTEM OR STATE NUMBERED HIGHWAY
- END OF DESIGNATED SYSTEM OR MARKED ROUTE



FA SYSTEM REVISED TO MAR. 15, 1988

GENERAL HIGHWAY MAP SHAWNEE COUNTY KANSAS

PREPARED BY THE
KANSAS DEPARTMENT OF TRANSPORTATION
BUREAU OF TRANSPORTATION PLANNING
IN COOPERATION WITH THE
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

