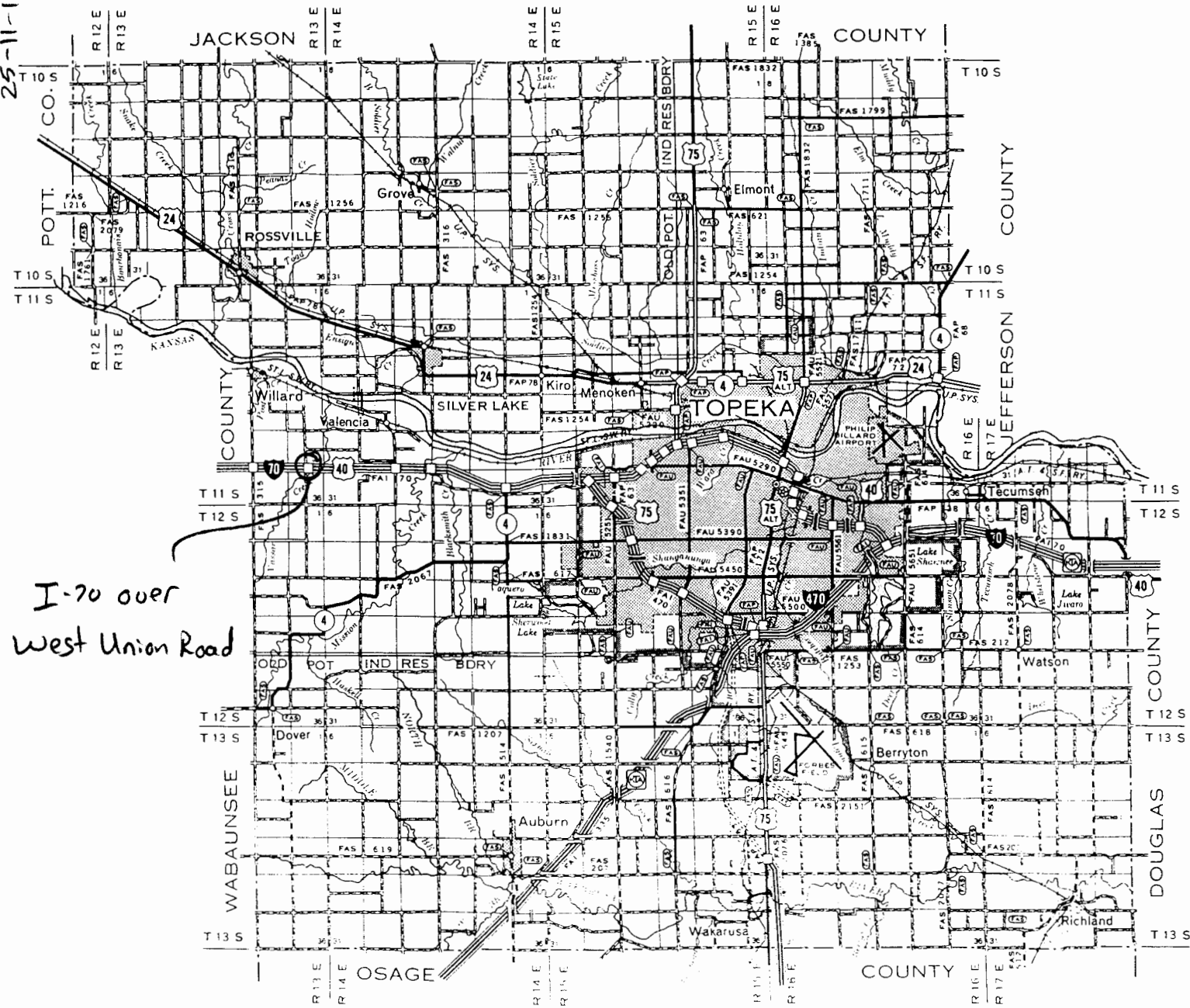


Project 70-89 K-6358-01 CD2 ✓
 I-70 over West Union Rd.

25-11-13E



I-70 over
 West Union Road

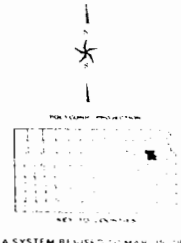
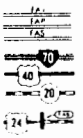
LEGEND

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



GENERAL HIGHWAY MAP
 SHAWNEE COUNTY
 KANSAS

KANSAS DEPARTMENT OF TRANSPORTATION
 BUREAU OF TRANSPORTATION PLANNING

2 CE D



KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO. 70-89	SOUNDING NO. CD 2	SHEET 1 OF 2
BRIDGE STA. 43+00.7686 ^{EB} _{WB}	PROJ. NO. K-6358-01	BRIDGE NO. 70-89-1.490(004) ^{EB} _{WB} 70-89-1.500(003) ^{WB}
SITE NAME I-70 over West Union Road		HOLE STA. 43+017.37 m L ^t Proj. 2
GEOLOGIST Randy B. Illinger	SCALE: 1:100 (10mm = 1 Meter)	DATE 3/6/01
DRILLER Rob Veruynck	RIG TYPE Mobil B-61	TOP HOLE ELEV. 295.44
GROUNDWATER ELEV 292.30	TOTAL DEPTH 13.44 m	M/B ELEV. 291.12

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION kPa	STANDARD PENETRATION OR CASING DRIVE	
							BLOWS	ELEV
			0.0	295.44				
				295				
				294	Silty clay, brown.			
				293				
				292				
			4.32	291.12				
				291	Limestone, weathered, brown, platy, shaly.			
			4.99	290				
				290				
				289	Shale, dark gray, firm.			
				288				
						818.7 Sample 1		289.14

			SOUNDING NO. CD 2		PROJECT NO. K-6358-01		SHEET 2 OF 2	
DATE 3/6/01			RTE./CO. 70-89		TOTAL DEPTH 13⁴⁴ m		THE 295.44	
BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION kPa	STANDARD PENETRATION OR CASING DRIVE	
							BLOWS	ELEV
	Reading Ls. Member	Shale	8 ⁷¹	287 ⁷³	Shale, dark gray, firm.	686.6	Sample 2	287 ¹⁵
				286 ⁷³				
					Limestone, hard, massive, light gray.	1,539.9	Sample 3	286 ³⁶
				286				
			9 ⁷⁸	285 ⁶⁶		4,251.5	Sample 4	285 ⁰¹
					Mudstone, hard, green-gray.			
				285				
					Several shale breaks.	10,471.8	Sample 5	284 ⁶²
				284		15,346.6	Sample 6	284 ¹⁷
						10,766.2	Sample 7	283 ⁵³
				283				
						878.3	Sample 8	283 ⁰⁴
			13 ⁴⁴	282	Total Depth			

I-70 over West Union Road Core Hole #2

Project No. 70-89 K-6358-01

	<u>Elevation</u>	<u>Depth</u>		
Core Hole #2	295.44	0.00	Set casing. Brown silty clay in the casing when we cleaned it out.	
Sta. 43+017				
37 m Lt. Project C.L.	291.12	4.32	Limestone, hard.	Elmont Limestone
Water Level 3.14 m	291.03	4.41	Start coring.	Member
Water Elevation 292.30				
Date Drilled 3/06/01				
Core # 1	291.03	4.41	Limestone, gray, hard.	Elmont
4.41 to 5.85	290.69	4.75	Limestone, dark gray, shaly.	Limestone
Cut 1.43 m	290.57	4.87	Limestone, gray, hard.	Member
Recovered 0.64 m	290.45	4.99	Shale, dark gray, clayey.	Harveyville Sh.
Lost 0.88 m off the bottom.	290.42	5.02	Shale, dark gray. This portion was ground away.	
Limestone jammed in the barrel.	289.59	5.85	End Core 1.	Member
Core # 2	289.59	5.85	Shale, firm, dark gray.	Harveyville Sh.
5.85 to 7.31	288.13	7.31	End core 2.	Member
Cut 1.46 m				
Recovered 1.46 m				
RQD = 100%			Sample 1 6.09 to 6.30 Shale, gray.	
Core # 3	288.13	7.31	Shale, gray.	Harveyville
7.31 to 8.86 m	288.04	7.40	Shale, limy, gray.	Shale
Cut 1.55 m	287.64	7.80	Shale, gray.	Member
Recovered 1.55 m	286.85	8.59	Shale, limy, to shaly limestone.	
RQD = 86%	286.73	8.71	Limestone, light gray, hard.	Reading Limestone
	286.58	8.86	End core 3.	Member
			Sample 2 8.07 to 8.29 Shale, gray.	
Core # 4	286.58	8.86	Limestone, hard, massive bedded, light gray.	
8.86 to 10.39 m	285.66	9.78	Mudstone, shaly, light gray-green.	Auburn
Cut 1.52 m	285.05	10.39	End core 4.	Shale
Recovered 1.49 m				
RQD = 100%			Sample 3 8.93 to 9.08 Limestone, light gray.	
			Sample 4 9.41 to 9.63 Limestone, light gray.	

I-70 over West Union Road Core Hole #2

Project No. 70-89 K-6358-01

	<u>Elevation</u>	<u>Depth</u>		
Core # 5	285.05	10.39	Limestone/mudstone, hard, light gray-green.	
10.39 to 11.91 m	284.56	10.88	Shale break, gray-green.	Auburn
Cut 1.52 m	284.50	10.94	Mudstone, shaly, gray-green to tan.	Shale
Recovered 1.52 m	283.86	11.58	Green shale to green mudstone, hard.	Frm.
RQD = 100%	283.53	11.91	End core 5.	

Sample 5 10.69 to 10.82 Ls/mudstone, hard, gray-green.

Sample 6 11.09 to 11.27 Ls/mudstone, tan.

Sample 7 11.82 to 11.91 Mudstone, green.

Core # 6	283.53	11.91	Mudstone, hard, green.	Auburn
11.91 to 13.44 m	283.22	12.22	Shale, blocky, green.	Shale
Cut 1.52 m	282.40	13.04	Mudstone, hard, tan-green.	Formation
Recovered 1.52 m	282.22	13.22	Shale, tan-green.	
RQD = 94%	282.13	13.31	Mudstone, light tan-white.	
	282.00	13.44	End core 6.	
			Total depth. End core hole 2.	

Sample 8 12.2 to 12.4 Shale, green.

Kansas Department of Transportation

Report of sample of Shelby/Geology Cores

Laboratory No. 01-523

Date Reported. March 19, 2001

Date Received. March 8, 2001

Specification No. -- Quantity ---

Source of material Project

Sample from Project

Submitted by Delmar Thompson, 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 West Union Road CD #2

TEST RESULTS

Sample No.	Station	☐	Depth m	Description	Qu. kPa	Dry Unit	Moisture
		Dist. m				Weight kg/m ³	(% of Dry Wt.)
S# 1	43+017	15 LT	6.09-6.30	Shale, Gray	818.7	2,047	11.8%
S# 2	"	"	8.07-8.29	Shale, Gray	688.6	1,968	13.4%
S# 3	"	"	8.93-9.08	Limestone, Light Gray	1,539.9	2,272	8.4%
S# 4	"	"	9.41-9.63	Limestone, Light Gray	4,251.5	2,263	8.5%
S# 5	"	"	10.69-10.82	Limestone, Mudstone, Gray-Green	10,471.8	2,353	5.6%
S# 6	"	"	11.09-11.27	Limestone, Mudstone, Tan-Green	15,346.6	2,246	7.6%
S# 7	"	"	11.82-11.91	Mudstone green	10,766.2	2,314	6.6%
S# 8	"	"	12.20-12.40	Shale- Green	878.3	2,062	10.6%

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

Reported by: Lee A. Thompson

Title James J. Brennan, Soils Engineer

3-6-01

Meters

Feet

Core Hole #2

295.44

0°

0°-142

Sta 43+017

291.12

4.32

291.12 142-145

37 m lt Project &

291.03

4.41

145

H₂O 10.3 ft

3.14 m

292.30

Core 1

291.03

4.41

145-152

145-192 ft

290.69

4.75

152-160

4.41-5.85 m

290.57

4.87

160-164

cut 4 ft / 1.43 m

290.45

4.99

164-165

Recov. 2 ft / 0.61 m

290.42

5.02

165-192

RQD = N.A.

last 2 ft off bottom

289.59

5.85

192

Core barrel plugged &

we ground it away

RQD = 1 1/2' & what we recovered

The shale is probably 100%

Core 2

289.59

5.85

192-240

192-240

288.13

7.31

240

5.85-7.31

cut 4 ft / 1.46 m

Recov. 4 ft / 1.46 m

RQD = 100%

I-70 over West Union Rd

38

Casing set, cleaned out casing, brown silty clay

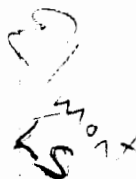
LS, hard

Start casing

Casing 7' + 7' = 142 + 19 =

14.2 ft in ground

4.32 m in ground



LS, gray, hard

0.67 m

LS, dark gray, shaly

LS, gray, hard

Shale, dark gray, clayey

Shale, dark gray (This portion was ground away)

End Core 1

Shale, dark gray, firm

End Core 2

Sample 1 20°-207 ft Shale, gray
(6.09-6.30 m)

289.14

Hard
sh.

meters

feet

I-70 over West Union Rd

38.7

39

Core 3	288.13	7.31	24 ⁰ -24 ³
24 ⁰ -29'	288.04	7.40	24 ³ -25 ⁶
7.31 - 8.86	287.64	7.80	25 ⁶ -28 ²
Cut 5' ft / 1.55m	286.85	8.59	28 ² -28 ⁶
Recov. 5' ft / 1.55m	286.73	8.71	28 ⁶ -29'
RQD = 4 ⁴ /5'	286.58	8.86	29'
= 86%			

Core 4	286.58	8.86	29'-32'
29'-34' ft	285.66	9.78	32'-34'
8.86-10.39 m	285.05	10.39	34'
Cut 5' ft / 1.52m			
Recov. 4' ft / 1.49m			
RQD = 100%			

Shale, gray
Shale, limy, gray
Shale, gray
Shale, limy tan to shaly LS
LS, light gray, hard
End core 3

Harveysville
Shale
12.2

Reading LS

Sample 2 26⁵-27² ft Shale, gray
(8.07-8.29m)
287.15

LS, hard, massive bedded, light gray.
LS to mudstone, shaly, light gray-green.
End core 4

— ?

Sample 3 29³-29⁸ ft LS, light gray
(8.93-9.08m)
286.36

Sample 4 30⁹-31⁶ ft LS, light gray
(9.41-9.63m)
285.81

Core 5	285.05	10.39	34'-35'
34'-39' $\frac{1}{2}$	284.56	10.88	35'-35'
10.39-11.91 m	284.50	10.94	35'-38'
Cut 5' $\frac{1}{2}$ / 1.52m	283.86	11.58	38'-39'
Recov. 5' $\frac{1}{2}$ / 1.52m	283.53	11.91	39'
RQD = 100%			

Core 6	283.53	11.91	39'-40'
39'-44'	283.22	12.22	40'-42'
11.91-13.44	282.40	13.04	42'-43'
Cut 5' $\frac{1}{2}$ / 1.52m	282.22	13.22	43'-43'
Recov. 5' $\frac{1}{2}$ / 1.52m	282.13	13.31	43'-44'
RQD = 47/50	282.0	13.44	44'
= 94%			

I-70 over West Union Rd.

40

28'

LS or hard mudstone, gray-green
Shale break, gray-green
mudstone, shaly, gray-green to tan
Shale, green to green mudstone?, hard
End Core 5

Sample 5 35'-35' LS/mudstone, gray-green
(10.69-10.82 m)
284.62

Sample 6 36'-37' mudstone/LS tan
(11.09-11.27 m)
284.17

Sample 7 38'-39' mudstone, green
(11.82-11.91)
283.53

mudstone, hard, green
Shale, blocky, green
mudstone, tan-green
Shale, tan-green
Mudstone, tan-white
End Core 6 Total Depth

Sample 8 40'-40' Shale, green
(12'-12' m)
283.04