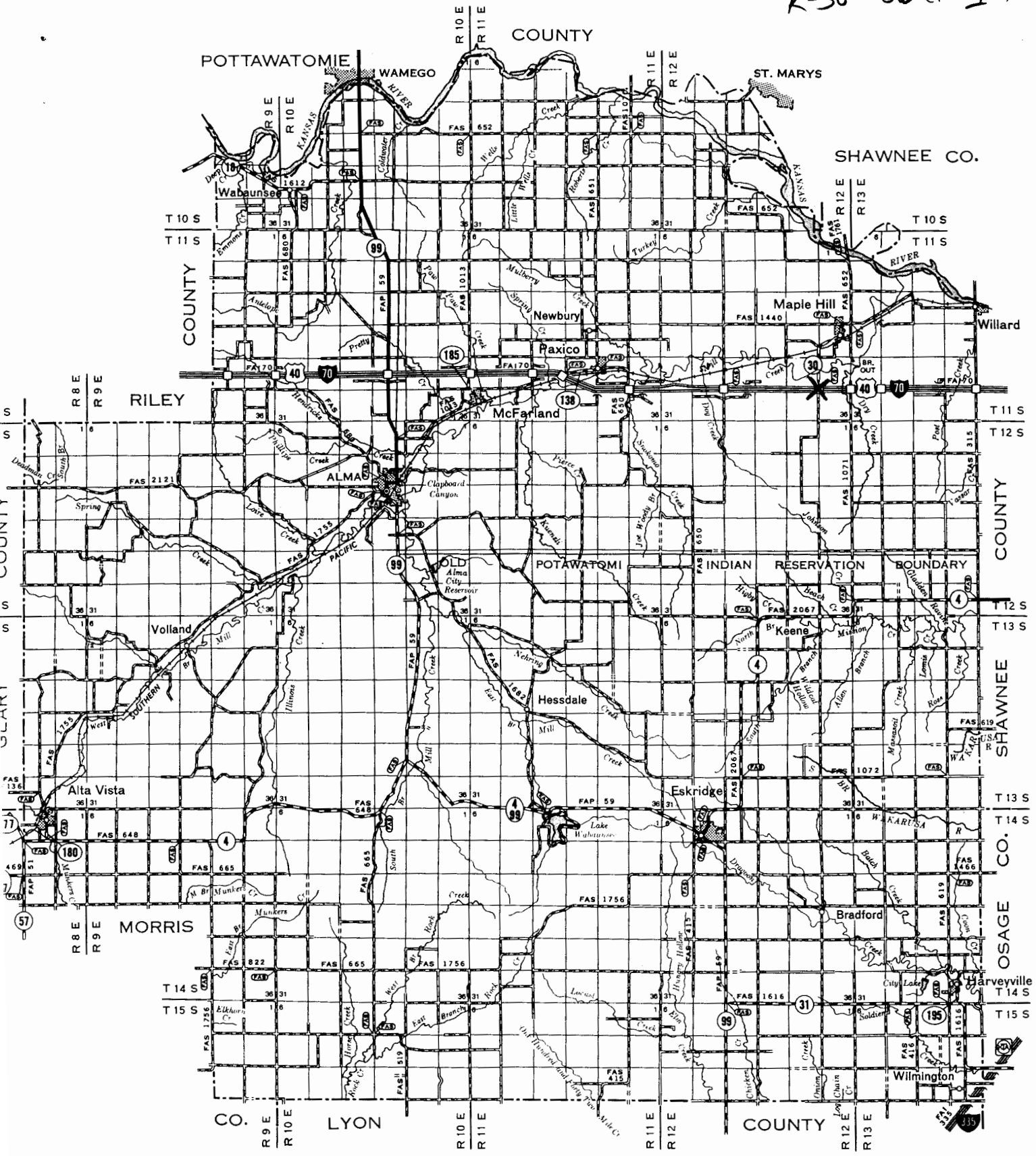


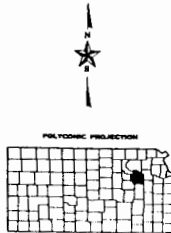
K-30 over I-70



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



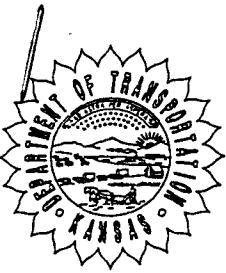
**GENERAL HIGHWAY MAP
WABAUNSEE COUNTY
KANSAS**

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



EC-26 THIS RFE
SE

KANSAS DEPARTMENT OF TRANSPORTATION



RTE./CO. 70-99	SOUNDING NO. 1	SHEET OF
BRIDGE STA. 32+566.133	PROJ. NO. K-5633-01	BRIDGE NO. 30-99-00.00
SITE NAME K-30 over I-70 at Maple Hill Exit	HOLE STA. 5+047.6, 8.7 Rt.	
GEOLOGIST Billinger	SCALE: 1:100 (10mm - 1 Meter)	DATE 2-23-98
DRILLER B. Bergman	RIG TYPE Mobile B-61	TOP HOLE ELEV. 303.909
GROUNDWATER ELEV. 299.77	TOTAL DEPTH 10.668	M/B ELEV. 300.770

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION kPa	STANDARD PENETRATION OR CASING DRIVE	
							BLOWS	ELEV
			0.00	303.909				
	Mantle			303	Silty clay, brown			
			3.139	300.770		135.0	shelby #1	301.928
	Dry Shale		4.663	299.246	shale, weathered, yellowish grading olive.	207.6	Sample 1	299.55
	Dover Limestone		6.492	297.417	Limestone, gray impure shaly zone Limestone hard, light gray massive	16468.1	2	298.697
				296.9	Limestone, shaly.	46958.2	3	298.164
	Pillsbury Shale			295	shale, sandy grading to sandy siltstone to sandstone. gray-green.	1804.2	4	297.081
						1722.6	5	296.746
						3196.1	6	295.954
						5230.1	7	294.887
			10.668	293.241		5237.8	8	293.698
K-30 over I-70 at Maple Hill Exit								

Date: 2/23/98

Project No. 070-099 K-5633-01
Bridge No. 30-99-00.00

Location: K-30 Over I-70 At Maple Hill Exit

Core 1		Core 2		Core 3		Core 4		Core 5	
3.627 to 4.724		4.724 to 6.248		6.248 to 7.620		7.620 to 9.144		9.144 to 10.668	
300.282 - 299.185		299.185 - 297.661		297.661 - 296.289		296.289 - 294.765		294.765 - 293.241	
Cut	1.097	Cut	1.524	Cut	1.372	Cut	1.524	Cut	1.524
Recov.	1.097	Recov.	1.524	Recov.	1.372	Recov.	1.524	Recov.	1.494
RQD=	94 %	RQD=	100 %	RQD=	95 %	RQD=	100 %	RQD=	86 %

Shelby #1

1.372 to 1.981

302.537 to 301.928

Pushed 0.61

Recovered 0.488

Silty-clay, brown, some small gravel.

KANSAS DEPARTMENT OF TRANSPORTATION

Report of sample of Geology Cores/Shelby Tubes

Laboratory No. 98-451

Date Rep'td. March 20, 1998

Date Rec'd. March 2, 1998

Specification No. - - Quantity - - -

Source of material Project

Sample from Project

Submitted by Delmar Thompson, Lawrence Regional Geo. Office

Identification marks Tags with samples

Project or POV 070-099 K-5633-01

Type of construction Bridge #30-99-00.00, K-30 over I-70, Core hole 1 @ Abut. #2

TEST RESULTS

Sample No.	Metric Station	Dist. m CL	Depth m	Description	Qu. kPa	Sample kg/m ³ by Dry Wt.	Moisture (% of Dry Wt.)
T.H.E. = 303.909							
SH #1	5+047.6	8.7 Rt.	1372-1981	Silty clay w/sm. grvl	135.0	1514.00	28.6
S #1	"	" "	4176-4359	Shale, buff to olive	207.6	1661.00	24.6
S #2	"	" "	5029-5212	LS, gray	16468.1	2504.00	3.1
S #3	"	" "	5547-5745	LS, Lt. gray, massv.	46958.2	2508.00	2.9
S #4	"	" "	6675-6828	SH, very sndy, green	1804.2	2142.00	9.5
S #5	"	" "	7010-7163	Sandstone, green	1722.6	2064.00	10.0
S #6	"	" "	7772-7955	" "	3196.1	2098.00	10.9
S #7	"	" "	8839-9022	" "	5230.1	2173.00	8.9
S #8	"	" "	10058-10211	" "	5237.8	2172.00	9.4

See attached routine analysis test results.

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

Reported by Man

Title James

	TSF	lbs/ft ³
SH 1	1.41	94.52
# 1	2.17	703.69
2	171.84	156.32
3	490.00	156.57
4	18.82	133.72
5	17.97	128.85
6	33.35	130.97
7	54.58	135.65
8	54.66	135.59

K-30 over I-70 Core Hole #1

2-23-98

Sta 5+047.6

8.7 R+ of

New Bridge

Abut 2

BB, RU, RB

Water level 1 meter
plugged 4-13-98

Casing

1-6 4/8

2-4 5/8

10.9 ft

Abut #2

Elev

meters

meters

Elev.

ft.

ft.

303.909

997.077

0⁰ 10⁸

300.770

3.139

10³-11⁹

Core #1

11⁹-15⁵

Cut 3⁶

Rec. 3⁶

RQD 3⁴/3⁶

94.4%

300.282

3.627

11⁹-15³

299.246

4.663

15³-15⁵

58

70-99-K-5633-01

Bridge # 70-99-00.00

Casing set, casing open to 7⁸

Silty clay - brown

Shelby 4⁵-6⁵ Pushed 2⁰ Recov. 1⁶

Silty clay
with small gravel
brown/orange

Shale, very weathered, buff, soft

starts to grade slightly olive to 11⁵

Shale, weathered, buff & olive,

Fairly soft, clayey

LS, buff, weathered, fossiliferous

Over
LS

Sample 1 13⁷-14³ ft 4.176-4.359 m
shale, buff & olive, weathered

K-30
Core Hole

I-70
Maple Hill

Dry
Shale

	Elev. meters	Depth ²⁰³ meters	elevation ft	Depth ft.
Core #2	299.185	4.724		15 ⁵ -15 ⁶
15 ⁵ -20 ⁵				15 ⁶ -17 ⁶
cut 5 ⁰				17 ⁶ -18 ²
Recov 5 ⁰				
RQD=100%	298.362	5.547		18 ² -20 ⁵
Core #3				
20 ⁵ -25 ⁰	297.661	6.248		20 ⁵ -21 ³
cut 4 ⁵	297.417	6.492		21 ³ -22 ⁴
Recov 4 ⁵				
RQD=4 ³ / ₄ ⁵				22 ⁴ -24 ⁷
95.5%				24 ⁷ -25 ⁰
22-23 ²				
23 ⁶ -24 ⁵				

17⁸-18¹

59

LS, brown hard, fossiliferous

LS, gray hard, fossiliferous, impure

LS, shaly gray fossiliferous

shaly partings/shaly

LS, light gray hard, massive

Dover
LSSample 2 16⁵-17^{1/2} ft 5.029-5.212 m

LS, gray fossiliferous

Sample 3 18²-18⁸⁵ 5.547-5.745 m

LS, light gray massive hard

Core #3

20⁵-25⁰ 297.661 6.248 20⁵-21³cut 4⁵ 297.417 6.492 21³-22⁴Recov 4⁵RQD=4³/₄⁵

95.5%

22⁴-24⁷24⁷-25⁰

LS, shaly green, (paleo soils)

shale, very sandy, green, pyrite

21³-21⁶ LS nodules

SS, gray/gray-green

shale, very sandy to soft SS, green

Dover LS

Pillsbury
Sh.Sample 4 21⁹-22⁴ ft 6.675-6.828 m

shale, very sandy, green

Sample 5 23⁰-23⁵ ft 7.010-7.163 m

SS, green

T-70 over
K-13
Pacific
Core Hole

	Elev. meters	meters	Elev. ft	ft
Core 4	296.289	7.62		25 ⁰ -27 ²
25 ⁰ -30 ⁰				27 ² -27 ³
Cut 5 ⁰				27 ³ -30 ⁰
Recov 5 ⁰				
RQD = 100%				

Core 5	294.765	9.144		30 ⁰ -30 ⁸
30 ⁰ -35 ⁰				30 ⁸ -31 ³
Cut 5 ⁰				31 ³ -31 ⁷
Recov 4 ⁹				31 ⁷ -32 ⁹
RQD = 43%				32 ⁹ -34 ⁵
86%				34 ⁵ -35 ⁰

293.241 10.668 35⁰

SS, green,
LS, stringy, sandy
SS, green

Pillsbury
Sh.

Sample 6 25⁵-26¹ 7.772-7.955 m
SS, green

Sample 7 29⁰-29⁶ 8.839-9.022 m
SS, green

SS, green
SS, shaly
SS, gray-green
SS, shaly to very sandy shale, gray-green
SS
SS, shaly

Pillsbury
Sh.

Sample 8 33⁰-33⁵ 10.058-10.211 m
SS, gray-green soft

End Core Hole 1

T-70
 K-130
 R-130
 Core Hole