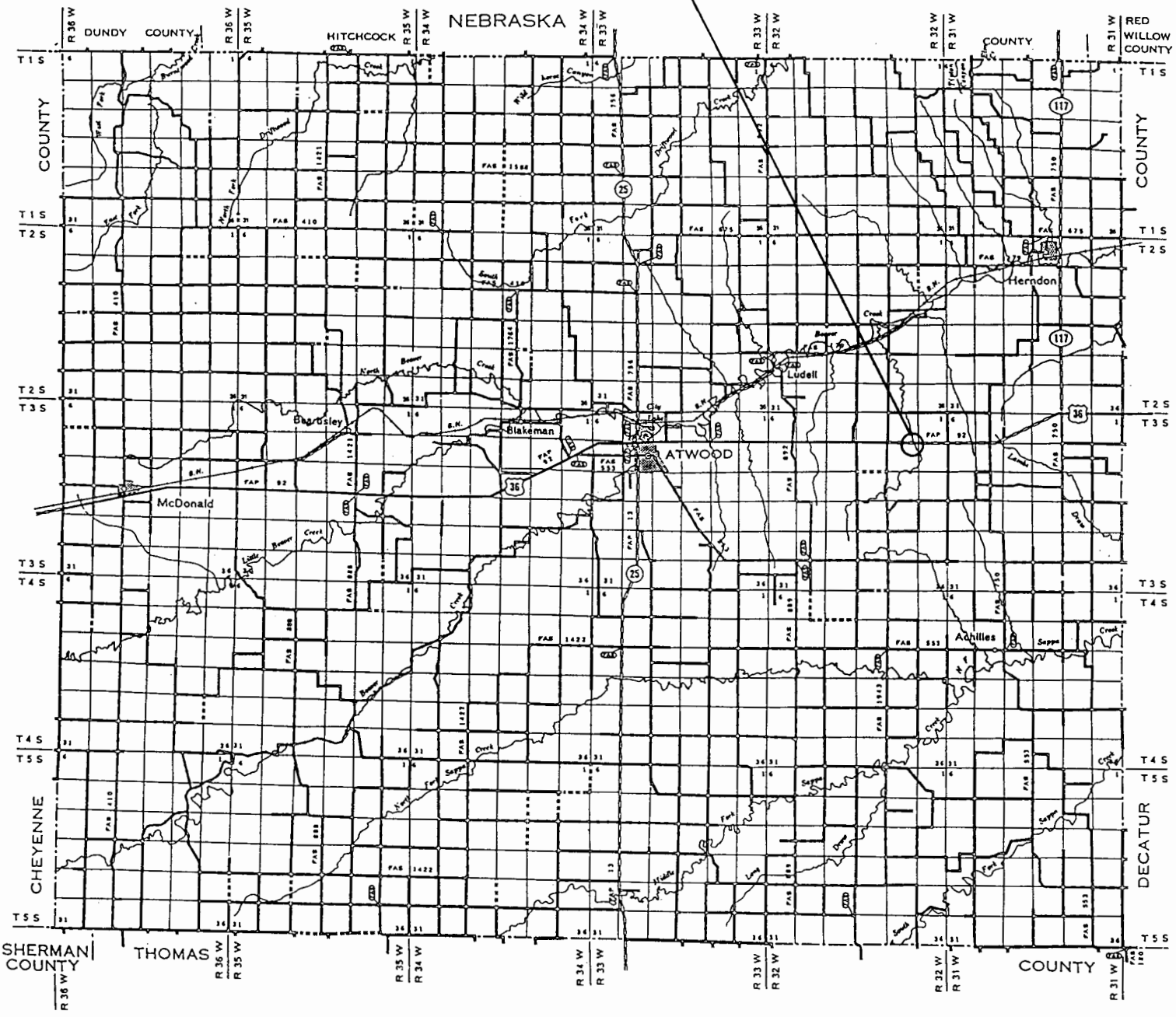
BRIDGE FOUNDATION GEOLOGY REPORT

36-77 K-5741-01
Bridge No. 36-77-29.09
US-36 over the Beaver Creek Drainage



T3S R32W

Rawlins County

SE ¼ Sec 2 T3S R32W

KANSAS DEPARTMENT OF TRANSPORTATION

RTE./CO. 36-77	SOUNDING NO. CD #1	SHEET 1 OF 3
BRIDGE STA. 11+540.20	PROJ. NO. K-5741-01	BRIDGE NO. 36-77-29.09
SITE NAME U.S.-36 over Beaver Creek Drainage		HOLE STA. 11+524.2, ℄
GEOLOGIST Streiler/Billinger	SCALE: 1:100 (10mm = 1 Meter)	DATE 11-18-98
DRILLER Bergman	RIG TYPE Mobile B-61	TOP HOLE ELEV. 866.96
GROUNDWATER ELEV 862.39	TOTAL DEPTH 19.76 m	M/B ELEV. 853.96

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION	STANDARD PENETRATION OR CASING DRIVE BLOWS/300 mm	ELEV
			0.00	866.96				
	Mantle			866	Silt (Loess) brown to light tan. Split spoon #1 1.50 - 1.95		8	865.16
			2.30	864.66				
				864	Gravel with silt & silty clay			
				863				
			4.54	862.42			2	862.12
	Ogalla Formation				Sandy Silt & clay. Some gravel. light gray			
				861	Split spoon #2 4.54 - 4.99			
				860	Split spoon #3 7.58 - 8.03			
							43	859.08
			8.30	858.66				
			8.70	858.26	Mortar bed			
			9.32	857.64	clay, firm, light gray			
			10.02	856.94	Mortar bed			
				856	Clay firm, tan & gray. Split spoon #4 10.62 - 11.07		32	856.0
			11.84	855.12				
			12.11	854.85	Mortar bed			
			13.0	853.96	Clay, firm yellow-brown & gray		34	853.0
	Pierre Fm.		14.0	852.96	Shale, weathered, yellow-brown & gray. firm. Split spoon #5			
				852	Shale, dark gray, very firm. Split spoon #6			
				851				

	SOUNDING NO. CD #1	PROJECT NO. K-5741-01	SHEET 2 OF 3
DATE 11-18-98	RTE./CO. 36-77	TOTAL DEPTH 19.76	THE 866.98

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION	STANDARD PENETRATION OR CASING DRIVE BLOWS	STANDARD PENETRATION OR CASING DRIVE ELEV
				851				
	Pierre Fm.	core 2	19.76	850	Shale, dark gray, very firm.		67	850
				849				849.43
				848				848.74
				847.2				848.06

Split spoon #1 1.50-1.95 Loess light brown/tan.
- 1.50 - 1.65 3 blows
- 1.65 - 1.80 3 blows
- 1.80 - 1.95 5 blows

Split spoon #2 4.54-4.99 Sandy, Silty clay, wet.
- 4.54 - 4.69 1 blow
- 4.69 - 4.84 1 blow
- 4.84 - 4.99 1 blow

Split spoon #3 7.58-8.03 Silty Sand, light gray, some cementation. Firm clay @ base.
- 7.58 - 7.73 10 blows
- 7.73 - 7.88 23 blows
- 7.88 - 8.03 20 blows

Split spoon #4 10.62 - 11.07 Clay, firm, tan & gray.
- 10.62 - 10.77 7 blows
- 10.77 - 10.92 14 blows
- 10.92 - 11.07 18 blows

Split spoon #5 13.66 - 14.11 Clay, gray, firm.
- 13.66 - 13.81 9 blows
- 13.81 - 13.96 15 blows
- 13.96 - 14.11 19 blows

Split spoon #6 16.70 - 17.15 Shale, dark gray, very firm.
- 16.70 - 16.85 16 blows
- 16.85 - 17.00 30 blows
- 17.00 - 17.15 37 blows

	SOUNDING NO. CD #1	PROJECT NO. K-5741-01	SHEET 3 OF 3
DATE 11-18-98	RTE./CO. 36-77	TOTAL DEPTH 19.76	THE 866.98

BIT TYPE	GEOLOGIC NAME	STRATIGRAPHIC COLUMN	DEPTH	ELEVATION	CLASSIFICATION OF MATERIALS DESCRIPTION AND REMARKS	UNCONFINED COMPRESSION	STANDARD PENETRATION OR CASING DRIVE BLOWS	STANDARD PENETRATION OR CASING DRIVE ELEV
					Core #1 17.12 - 18.24 Shale, dark gray, very firm.			
					Cut 1.12			
					Recov. 1.12 Sample 1 17.36 - 17.53			
					RQD = 96% Sample 2 18.02 - 18.22			
					Core #2			
					18.24 - 19.76 Shale, dark gray, very firm.			
					Cut 1.57 Note: 0.5 of the core was lost			
					Recov. 1.07 in the hole.			
					RQD = 85%			
					Sample 3 18.70 - 18.90			

36-77- K-5741-01

Pier #1 ℄

Sta 11+524.2, ℄

CD #1

Bergman
Law
Derr
Streiler/Billinger

W.L. = 4.572m
plugged

meters	meters
866.96	0.00-0.35
	0.35-1.50
	1.50-1.95
	1.95-2.30
	2.30-3.50
	3.50-4.54
	4.54-4.99
	4.99-6.60
	6.60-7.58
	7.58-8.03
	8.03-8.30
	8.30-8.70
	8.70-9.32
	9.32-10.02
856.94	10.02-10.62
	10.62-11.07

Br. E. of Atwood Nov 18, 1996

Streiler
Bergman
Law
Derr

- brown silty clay - topsoil
- light brown silt (loess)
- Splitspoon #1 (1.50-1.65, 3 blows)(1.65-1.80, 3 blows) (1.80-1.95, 5 blows) } Loess
- brown silt (loess) gravel @ base
- brown silt (loess)
- gravel w/ silt - soft, dry
- gravel w/ silty clay - moist
- Split Spoon #2 (4.54-4.69, 1 blows) (4.69-4.84, 1 blows) (4.84-4.99, 1 blows)
- Sandy silty clay - wet
- Sandy silt
- Silty clay w/ gravel - firm
- Split Spoon #3 (7.58-7.73, 10 blows) (7.73-7.88, 23 blows) (7.88-8.03, 20 blows)
- Silty sand - some cementation, light gray firm clay @ base
- silty clay - firm
- Mortar bed - lightly cemented
- light gray clay - firm
- Mortar bed - lightly cemented, thinly bedded interbedded w/ firm clay
- firm clay - gray
- Split Spoon #4 (10.62-10.77, 7 blows) (10.77-10.92, 14 blows)(10.92-11.07, 18 blows)
- tan & gray clay - firm

Ogallala formation

36-77
K-5741-01
Pier #1 ℄ cont.

.24 - .41 11-18-98

	11.07-11.84	firm clay
	11.84-12.11	Mortar bed lightly cemented
854.85	12.11-13.66	clay - firm
	13.66-14.11	Split Spoon #5 (13.66-13.81, 9 blows) (13.81-13.96, 15 blows) (13.96-14.11, 19 blows)
		gray clay w/ red-brown iron staining - firm
852.85	14.11-16.70	clay - firm
850.26	16.70-17.00	Split Spoon #6 (16.70-16.85, 16 blows) (16.85-17.00, 30 blows) (17.00-17.15, 37 blows)
		black shale (very dark gray)

Gallala Fm

Pierre Shale

Bedrock contact
≈ 13.0m = 853.96

* spun augers to 17.00, start coring!

Core #1
17.12 - 18.24
Cut 1.12
Rec 1.12
RQD = 96%

17.12 - 17.81	Shale, very dark gray, very firm
17.81 - 17.86	Iron stone, rust brown, very hard
17.86 - 18.24	Shale, very dark gray, very firm
18.24	End core 1

Pierre Shale

17.36 - 17.53	Sample 1 Shale, very dark gray, very firm
18.02 - 18.22	Sample 2 " " " "

Core 2
18.24–19.76
Cut 1.52
Recov. 1.07
RQD = 0.8/1.07

RQD is probably near 100%. believe we made most of the breaks

18.24 – 19.31
19.31 – 19.76
19.76

18.70 – 18.90

Shale, very dark gray, very firm
left in hole, (same as above)
End core 2 End OD ≈ 1

Sample 3 Shale, very dark gray very firm

Pierre #3.