REVISIONS		
REV. NO.	DESCRIPTION	DATE

LOAD AND RESISTANCE FACTOR DESIGN

DESIGN DATA

CLASS AA CONCRETE	f'c = 4,000 PSI
CLASS A CONCRETE	f'c = 3,000 PSI
P.C. BEAM TYPE III(70')	f'ci = 6,300 PSI
P.C. BEAM TYPE III(70')	f'c = 9,000 PSI
REINFORCING STEEL	Fy = 60,000 PSI
STRUCTURAL STEEL M270 (GRADE 50W)	Fy = 50,000 PSI
STAINLESS STEEL A240 (AUSTENITIC STAINLESS STEEL TYPE 316)	Fy = 30,000 PSI

LOADING: HL-93 OR OKLAHOMA OVERLOAD TRUCK AND 20 LB. PER SQ. FT. FUTURE WEARING SURFACE AND 5 P.S.F. STAY-IN-PLACE FORMS.

DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 4th EDITION WITH 2009 INTERIMS
ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE
ANSI/AWS D1.6 STRUCTURAL WELDING CODE - STAINLESS STEEL

LFD OPERATING RATING: HS 43.9

FOUNDATION DATA

ABUTMENTS (HP 12x53 PILING)

	ABUTMENT NO. 1 & NO. 2
FACTORED PILE REACTION [1]	= 66.1 TONS/PILE

PIERS (5'-0" DIAMETER DRILLED SHAFTS)

	PIER NO. 1	PIER NO. 2
FACTORED REACTION	= 598.3 TONS/SHAFT	= 587.0 TONS/SHAFT
NOMINAL UNIT BEARING RESISTANCE	= 34.9 TONS/SQ. FT.	= 14.9 TONS/SQ. FT.
BEARING RESISTANCE FACTOR	= 0.7	= 0.7
FACTORED BEARING RESISTANCE	= 479.7 TONS/SHAFT	= 204.8 TONS/SHAFT
NOMINAL UNIT FRICTION RESISTANCE	= 5.4 TONS/SQ. FT.	= 9.0 TONS/SQ. FT.
FRICTION RESISTANCE FACTOR	= 0.45	= 0.45
FACTORED FRICTION RESISTANCE	= 229.0 TONS/SHAFT	= 636.2 TONS/SHAFT
DEPTH OF ROCK NEGLECTED FOR FRICTION	= 15.0 FT.	= 5.0 FT.
TOTAL FACTORED RESISTANCE	= 708.7 TONS/SHAFT	= 841.0 TONS/SHAFT

[1] ALL ABUTMENT PILING SHALL BE DRIVEN THROUGH THE COMPACTED FILL. PILING SHALL BE DRIVEN TO POINT BEARING ON SOLID FOUNDATION MATERIAL AT THE APPROXIMATE ELEVATION SHOWN ON THE PLANS. IF THE REQUIRED FACTORED PILE CAPACITY IS NOT OBTAINED AT THIS ELEVATION, DRIVING SHALL CONTINUE UNTIL THE REQUIRED FACTORED PILE CAPACITY IS OBTAINED. THE LENGTH OF STEEL PILING SHOWN ON THE PLANS IS FOR ESTIMATING PURPOSES ONLY.

HYDRAULIC DATA

DRAINAGE AREA	= 617.00 SQ. MI
CONTROLLED AREA	= 118.00 SQ. MI
EFFECTIVE AREA	= 499.00 SQ. MI

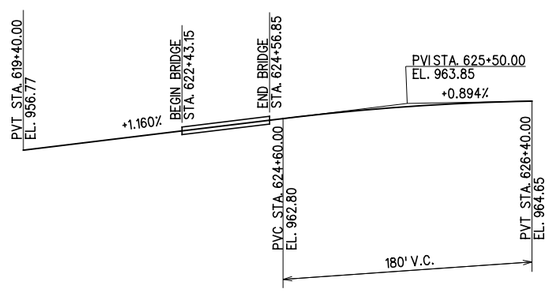
Q2	1,208.21 C.F.S.	Q50	12,329.91 C.F.S.
V2	3.33 F.P.S.	V50	10.34 F.P.S.
Q2 HIGHWATER	EL. 945.31	Q50 HIGHWATER	EL. 954.34
Q5	3,325.36 C.F.S.	Q100	15,341.89 C.F.S.
V5	5.55 F.P.S.	V100	10.76 F.P.S.
Q5 HIGHWATER	EL. 948.05	Q100 HIGHWATER	EL. 956.11
		PIER SCOUR DEPTH = 22.62 FT.	
Q10	5,455.43 C.F.S.	CONTRACTION SCOUR DEPTH = 13.73 FT.	
V10	7.14 F.P.S.	TOTAL SCOUR DEPTH = 36.35 FT.	
Q10 HIGHWATER	EL. 949.89		
Q25	8,983.72 C.F.S.	Q-OT = Q50 = 12,339.48 C.F.S.	
V25	8.95 F.P.S.	PIER SCOUR DEPTH = 23.23 FT.	
Q25 HIGHWATER	EL. 952.42	CONTRACTION SCOUR DEPTH = 11.25 FT.	
		TOTAL SCOUR DEPTH = 34.48 FT.	

SUMMARY OF QUANTITIES

ITEM	UNIT	ABUTS.	PIERS	SUPERSTR.	APPR.	TOTAL
SUBSTRUCTURE EXCAVATION COMMON	C.Y.	235.0	---	---	---	235.0
CLSM BACKFILL	C.Y.	247.0	---	---	---	247.0
PRESTRESSED CONCRETE BEAMS (TYPE III)	L.F.	---	---	836.1	---	836.1
APPROACH SLAB	S.Y.	---	---	---	384.4	384.4
SAW-CUT GROOVING	S.Y.	---	---	949.0	364.6	1,313.6
SEALED EXPANSION JOINT	L.F.	---	---	49.1	---	49.1
CONCRETE RAIL (TR4)	L.F.	---	---	427.2	164.0	591.2
STRUCTURAL STEEL	LB.	---	---	1,680.0	---	1,680.0
STAINLESS STEEL FIXED BEARING ASSSEMBLY	EA.	---	---	8.0	---	8.0
STAINLESS STEEL EXPANSION BEARING ASSEMBLY	EA.	---	---	16.0	---	16.0
CLASS AA CONCRETE	C.Y.	---	---	250.5	---	250.5
CLASS A CONCRETE	C.Y.	101.6	111.8	---	---	213.4
REINFORCING STEEL	LB.	---	800.0	---	---	800.0
EPOXY COATED REINFORCING STEEL	LB.	13,190.0	17,550.0	67,460.0	---	98,200.0
(1) CLASS B BRIDGE DECK REPAIR	S.Y.	---	---	---	---	20.0
(1) CLASS C BRIDGE DECK REPAIR	S.Y.	---	---	---	---	10.0
PILES, FURNISHED (HP 10X42)	L.F.	140.0	---	---	---	140.0
PILES, FURNISHED (HP 12X53)	L.F.	562.0	---	---	---	562.0
PILES, DRIVEN (HP 10X42)	L.F.	140.0	---	---	---	140.0
PILES, DRIVEN (HP 12X53)	L.F.	562.0	---	---	---	562.0
PILE SPLICE, H-PILE (NON-BIDDABLE)	EA.	1.0	---	---	---	1.0
WATER REPELLENT (VISUALLY INSPECTED)	S.Y.	126.0	288.0	689.0	76.0	1,179.0
DRILLED SHAFTS 60" DIAMETER	L.F.	---	132.0	---	---	132.0
CROSSHOLE SONIC LOGGING	EA.	---	1.0	---	---	1.0
SEALER CRACK PREPARATION	L.F.	---	---	46.7	---	46.7
SEALER RESIN	GAL.	---	---	0.5	---	0.5
(SP) NEST PREVENTION - NETTING	L.SUM	---	---	---	---	1.0
TYPE 1-A PLAIN RIPRAP	TON	---	---	---	---	3,210.0
TYPE 1-A FILTER BLANKET	TON	---	---	---	---	715.0
6" PERFORATED PIPE UNDERDRAIN ROUND	L.F.	96.0	---	---	---	96.0
6" NON-PERF. PIPE UNDERDRAIN RND.	L.F.	60.0	---	---	---	60.0
REMOVAL OF EXISTING BRIDGE STRUCTURE	L.SUM	---	---	---	---	1.0

(1) TO BE USED ON THE EXISTING BRIDGE AS DIRECTED BY THE ENGINEER.

SHEET INDEX



PROFILE GRADE DATA

GROSSMAN & KEITH
ENGINEERING COMPANY
10408 GREENBRIAR PL., OKLA. CITY OK. 73159
PH. 691-3213 FAX 691-3214
CA. #74 EXPIRES 06/30/2016

DESIGN		
DRAWN		
CHECKED		
APPROVED		
SQUAD	G/K ENGR.	

U.S. 277 OVER DEEP RED CREEK OVERFLOW COTTON COUNTY
BRIDGE "C"

DESIGN DATA & SUMMARY OF QUANTITIES

JOB PIECE NO. 28036(04) SHEET NO. 69

6/2/2016 X:\guernsey\EC-1360\Struc\Bridge_C\DESDATA.dgn