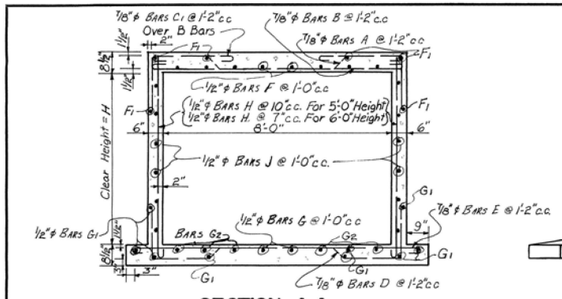
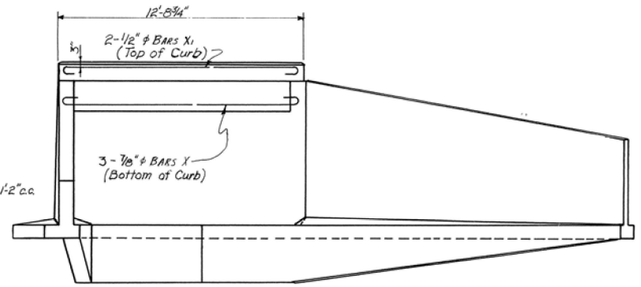
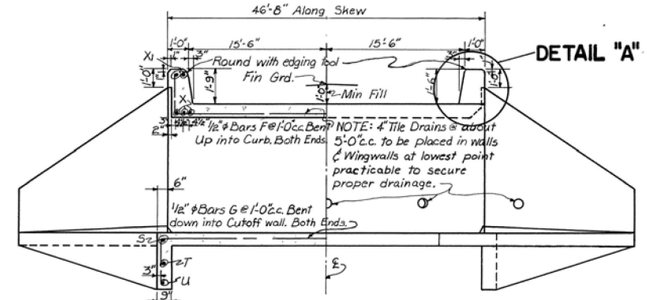
FED ROAD DIST NO	STATE	FED AID PROJ NO	FISCAL YEAR	SHEET NO	TO SH
3	TENN.		19		



SECTION A-A



END ELEVATION



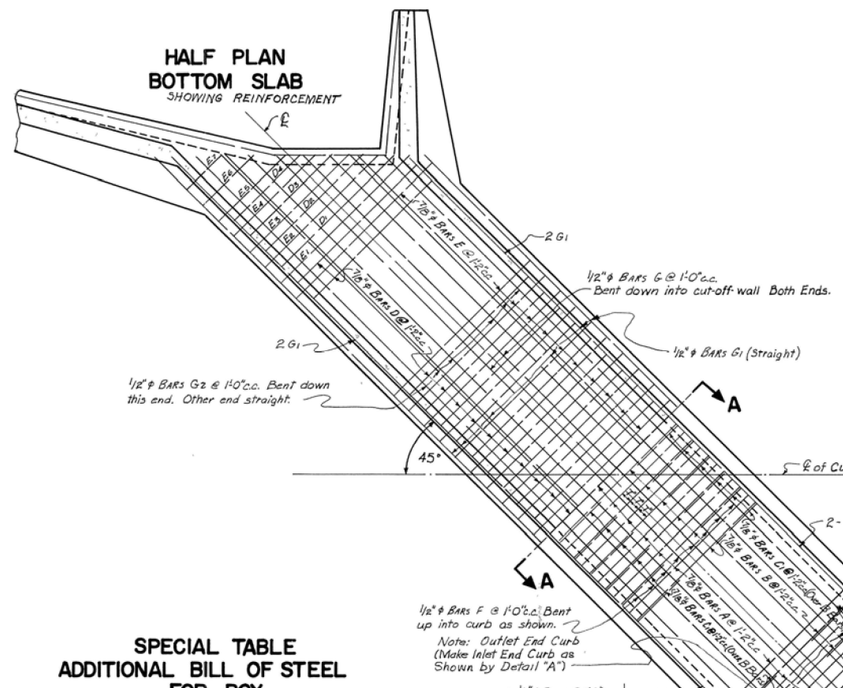
HALF SECTION OUTLET END — HALF ELEVATION INLET END

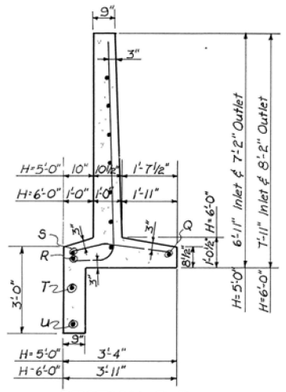
AT RIGHT ANGLE TO ℄ ROADWAY

BILL OF STEEL - WINGWALLS

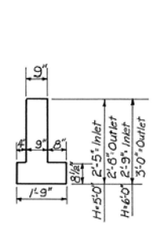
ALL BARS 1/2" φ

8'-0" x 6'-0"								8'-0" x 5'-0"							
Long Wing				Short Wing				Long Wing				Short Wing			
BAR	NO	Length Inlet	Length Outlet	BAR	NO.	Length Inlet	Length Outlet	BAR	NO.	Length Inlet	Length Outlet	BAR	NO	Length Inlet	Length Outlet
M	1	6'-3"	7'-9"	M	1	3'-0"	3'-6"	M	1	9'-0"	10'-6"	M	1	3'-6"	3'-6"
M1	1	11'-9"	13'-3"	M1	1	4'-6"	5'-0"	M1	1	14'-9"	16'-3"	M1	1	5'-0"	5'-0"
M2	1	17'-3"	18'-9"	M2	1	6'-0"	6'-6"	M2	4	17'-3"	17'-3"	M2	1	6'-6"	6'-6"
M3	4	19'-3"	19'-3"	M3	1	7'-6"	8'-0"					M3	3	8'-6"	8'-6"
				M4	3	9'-6"	9'-6"								
N	1	5'-0"	5'-3"	N	1	2'-9"	3'-0"	N	1	4'-3"	4'-6"	N	1	2'-6"	2'-6"
N1	1	5'-3"	5'-6"	N1	1	3'-6"	3'-9"	N1	1	4'-6"	4'-9"	N1	1	3'-3"	3'-3"
N2	1	5'-6"	5'-9"	N2	1	4'-6"	4'-9"	N2	1	4'-9"	5'-0"	N2	1	4'-0"	4'-0"
N3	2	5'-9"	6'-0"	N3	1	5'-3"	5'-6"	N3	1	5'-0"	5'-3"	N3	1	4'-9"	4'-9"
N4	2	6'-3"	6'-6"	N4	1	6'-0"	6'-3"	N4	2	5'-3"	5'-6"	N4	1	5'-6"	5'-6"
N5	1	6'-6"	6'-9"	N5	1	6'-9"	7'-0"	N5	1	5'-6"	5'-9"	N5	1	6'-3"	6'-3"
N6	1	6'-9"	7'-0"	N6	1	7'-6"	7'-9"	N6	1	5'-9"	6'-0"	N6	1	7'-0"	7'-0"
N7	1	7'-0"	7'-3"	N7	1	8'-3"	8'-6"	N7	1	6'-0"	6'-3"				
N8	2	7'-3"	7'-6"					N8	1	6'-3"	6'-6"				
N9	2	7'-6"	7'-9"					N9	1	6'-6"	6'-9"				
N10	1	7'-9"	8'-0"					N10	2	6'-9"	7'-0"				
N11	2	8'-0"	8'-3"					N11	1	7'-0"	7'-3"				
N12	2	8'-3"	8'-6"					N12	1	7'-3"	7'-6"				
N13	1	8'-6"	8'-9"												
P	1	1'-9"	1'-9"	P	1	1'-3"	1'-3"	P	1	1'-6"	1'-6"	P	2	1'-6"	1'-6"
P1	3	2'-0"	2'-0"	P1	1	1'-6"	1'-6"	P1	3	1'-9"	1'-9"	P1	1	1'-9"	1'-9"
P2	3	2'-3"	2'-3"	P2	1	1'-9"	1'-9"	P2	3	2'-0"	2'-0"	P2	1	2'-0"	2'-0"
P3	3	2'-6"	2'-6"	P3	1	2'-3"	2'-3"	P3	3	2'-3"	2'-3"	P3	1	2'-3"	2'-3"
P4	3	2'-9"	2'-9"	P4	1	2'-6"	2'-6"	P4	3	2'-6"	2'-6"	P4	1	2'-6"	2'-6"
P5	4	3'-0"	3'-0"	P5	1	2'-9"	2'-9"	P5	2	2'-9"	2'-9"				
P6	2	3'-3"	3'-3"	P6	1	3'-0"	3'-0"								
				P7	1	3'-3"	3'-3"								
Q	1	22'-6"	22'-6"	Q	1	11'-6"	11'-6"	Q	1	20'-0"	20'-0"	Q	1	10'-6"	10'-6"
R	1	17'-3"	17'-3"	R	1	7'-6"	7'-6"	R	1	15'-3"	15'-3"	R	1	6'-8"	6'-8"

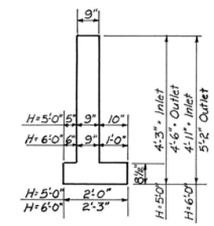




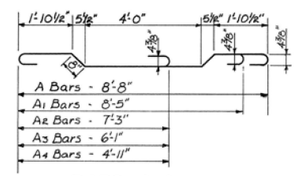
SECTION B-B



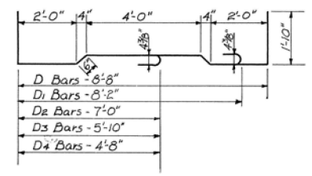
ELEVATION C-C



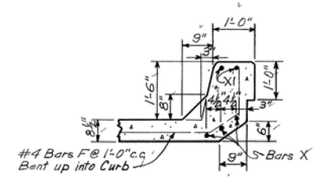
ELEVATION D-D



BARS A-A4

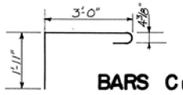


BARS D-D4

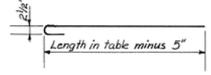


DETAIL "A"

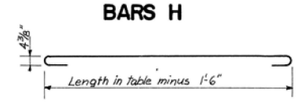
Showing Bevel in Top Slab Inlet End Only



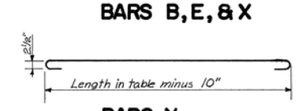
BARS C1



BARS H



BARS B, E, & X



BARS X1

GENERAL NOTES:

SPECIFICATIONS: Standard Road & Bridge Specifications of The Tennessee Dept. of Highways.
CONCRETE: Shall be Class "A".
REINFORCING STEEL: See Specifications.
FORMS & FINISH: See Specifications.

FILL SECTIONS

Fill	Dwg. No.	Clear Height
62"—72"	K-38-142	5'
62'—82'	K-52-110	6'
12'—62'	H-5-150	3'—8'

SPECIAL TABLE ADDITIONAL BILL OF STEEL FOR BOX

ALL BARS 7/8" φ

Bar	No.	Length	Bar	No.	Length
A1	2	10'-4"	D1	2	11'-1"
A2	2	9'-0"	D2	2	9'-9"
A3	2	7'-10"	D3	2	8'-7"
A4	2	6'-8"	D4	2	7'-5"
B1	2	9'-4"	E1	2	10'-10"
B2	2	8'-2"	E2	2	9'-8"
B3	2	7'-0"	E3	2	8'-6"
B4	2	5'-10"	E4	2	7'-4"
B5	2	4'-8"	E5	2	6'-2"
B6	2	3'-6"	E6	2	5'-0"
			E7	2	3'-10"

TABLE OF DIMENSIONS & ESTIMATED QUANTITIES (BASED ON LENGTH 46'-8")

Skew	Waterway Span	Waterway Clear Height H	Box and Curbs: Bars A, B, C1, D, E & X Are 7/8"φ - All Others Are 1/2"φ (Bars A1-A4; Bars B1-B6; Bars D1-D4; Bars E1-E7 - See Special Table)																												Reinf. Steel Pounds		Concrete Class "A" Cu. Yds.		Wingwalls: Reinf. Steel Lbs.		Wingwalls: Concrete Class "A" Cu. Yds.		Cut-off Walls: Reinforcing Steel All Bars 1/2"φ								Cut-off Walls: Conc. cl. "A" Cu. Yds.	Total Quantities: Reinf. Steel Lbs.	Total Quantities: Concrete Class "A" Cu. Yds.
			Bars A		Bars B		Bars C1		Bars D		Bars E		Bars F		Bars F1		Bars G		Bars G1		Bars G2		Bars H		Bars J		Bars X		Bars X1								Bars S		Bars T		Bars U		Inlet + Outlet			
			No.	Lgth.	No.	Lgth.	No.	Lgth.	No.	Lgth.	No.	Lgth.	No.	Lgth.	No.	Lgth.	No.	Lgth.	No.	Lgth.	No.	Lgth.	No.	Lgth.	No.	Lgth.	No.	Lgth.	No.	Lgth.	Per Ft.	Total	Per Ft.	Total	Inlet	Outlet	Inlet	Outlet	No.	Lgth.	No.	Lgth.	No.	Lgth.	Inlet	Outlet		
45°	8'	5'	40	31	10'-7"	32	10'-2"	74	5'-8"	53	12'-8"	30	11'-6"	8	49'-5"	6	45'-6"	2	52'-6"	8	47'-6"	6	50'-0"	1/2	6'-5"	10	46'-0"	6	13'-9"	4	13'-0"	136.44	6365	.70	34.7	234	241	4.5	4.7	2	32'-3"	2	24'-9"	2	32'-9"	120	2.8	6960	46.7
		6'	48																					1/2	7'-5"	12						143.48	6731	.74	36.3	315	324	6.3	6.5	2	35'-3"	2	24'-6"	2	35'-9"	128	3.0	7498	52.3

NOTE: When Culvert is in more than a minimum fill, deduct .30 cu. yds of Concrete from Box & CURBS. Same dimensions and quantities as given for Inlet End apply also to Outlet End.

NOTE: Culvert as Detailed is for Right Skew; Left Skew same but opposite hand.

DESIGNED BY Ray Canter DATE 3-8-61
DRAWN BY E. Hall DATE 3-23-61
TRACED BY G. Parker DATE 3-17-61
CHECKED BY DATE 3-17-61

STATE OF TENNESSEE
DEPARTMENT OF HIGHWAYS
NASHVILLE

STANDARD CONCRETE BOX CULVERTS
SPAN 8'-0" CLEAR HEIGHTS 5'-0" & 6'-0"
ROADWAY 31'-0" MAXIMUM FILL 12'-0"
SKEW 45°
1961

CORRECT Fred Guess BRIDGE ENGINEER
APPROVED M. Dunlop STATE HIGHWAY ENGINEER

K-3

2 COPIES WITH DWG. C-2-