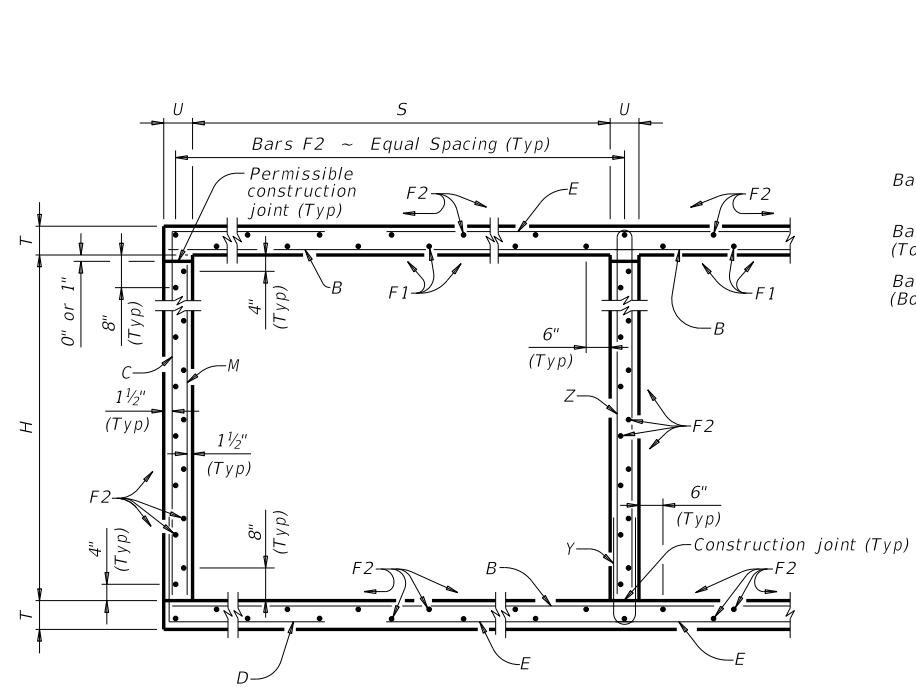
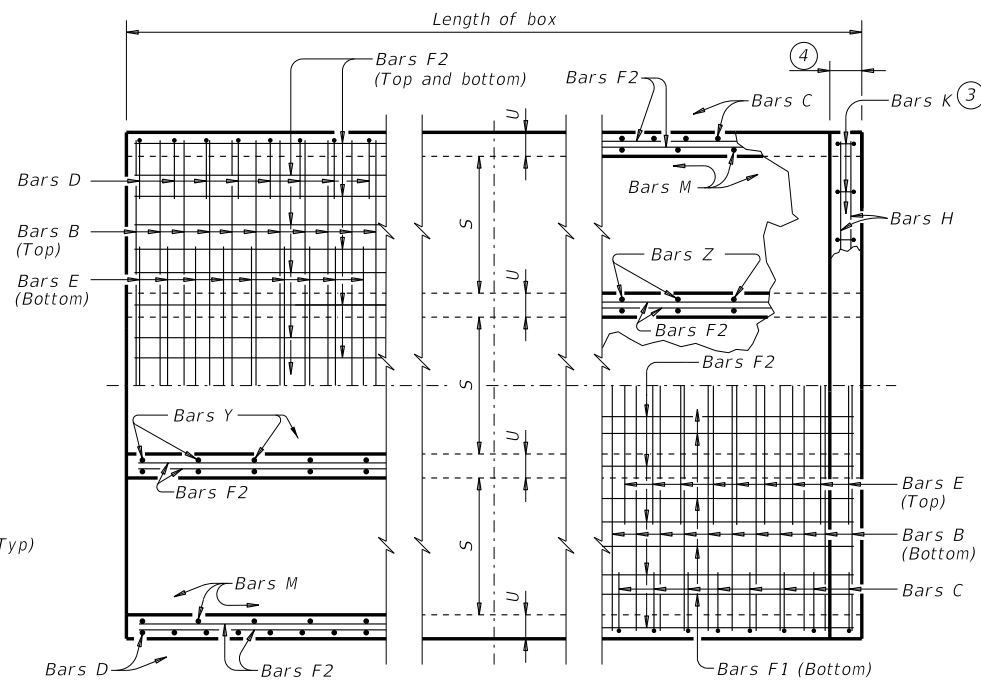


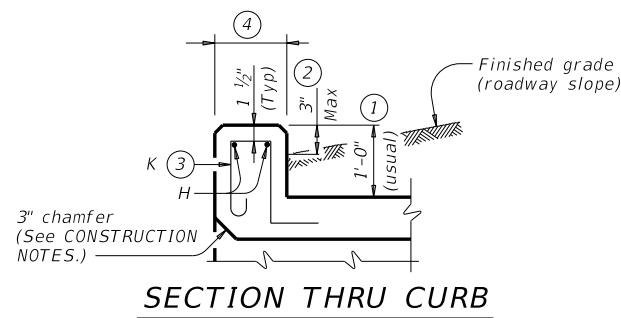
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TYPICAL SECTION

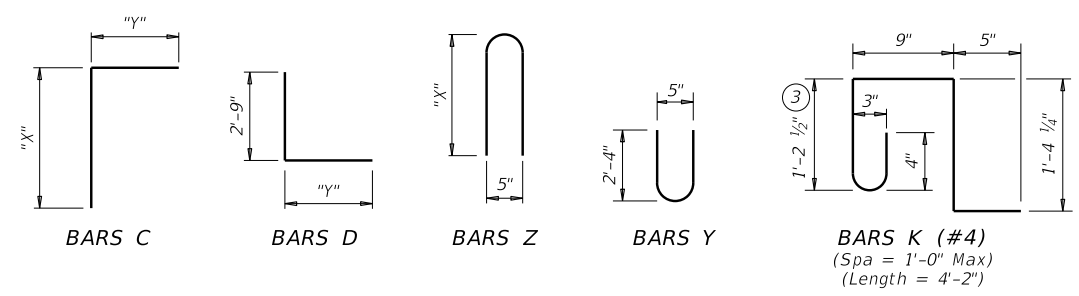


PART PLANS



SECTION THRU CURB

TABLE OF BAR DIMENSIONS		
H	"X"	"Y"
3'-0"	3'-8 1/2"	4'-6"
4'-0"	4'-8 1/2"	4'-6"
5'-0"	5'-8 1/2"	4'-6"
6'-0"	6'-8 1/2"	4'-6"
7'-0"	7'-8 1/2"	4'-6"



- 0" Min to 5'-0" Max. Estimated curb heights are shown elsewhere in the plans. For structures with pedestrian rail or curbs taller than 1'-0", refer to the Extended Curb Details (ECD) standard sheet. For structures with T631 or T631LS bridge rail, refer to the Mounting Details for T631 & T631LS Rails (T631-CM) standard sheet. Refer to the Rail Anchorage Curb (RAC) standard sheet for structures with bridge rail other than T631 or T631LS.
- For vehicle safety, the following requirements must be met:
 - For structures without bridge rail, construct curbs no more than 3" above finished grade.
 - For structures with bridge rail, construct curbs flush with finished grade. Reduce curb heights, if necessary, to meet the above requirements. No changes will be made in quantities and no additional compensation will be allowed for this work.
- For curbs less than 1'-0" high, tilt Bars K or reduce bar height as necessary to maintain cover. For curbs less than 3" high, Bars K may be omitted.
- 1'-0" typical. 2'-3" when the Rail Anchorage Curb (RAC) standard sheet is referred to elsewhere in the plans.

The Contractor may replace Bars B, C, D, E, F1, F2, M, Y, and/or Z with deformed welded wire reinforcement (WWR) meeting the requirements of ASTM A1064. The area of required reinforcement may be reduced by the ratio of 60 ksi / 70 ksi. Spacing of WWR is limited to 4" Min and 18" Max. When required, provide lap splices in the WWR of the same length required for the equivalent bar size, rounded up for wire sizes between conventional bar sizes. The lap length required for WWR is never less than the lap length required for uncoated #4 bars.

Example conversion: Replacing No. 6 Gr 60 at 6" Spacing with WWR
 Required WWR = (0.44 sq. in. per 0.5 ft.) x (60 ksi / 70 ksi) = 0.755 sq. in. per ft.
 If D30.6 wire is used to meet the 0.755 sq. in. per ft. requirement in this example, the required spacing = (0.306 sq. in.) / (0.755 sq. in. per ft.) x (12 in. per ft.) = 4.86" Max spacing. Required lap length for the provided D30.6 wire is 2'-1" (the same minimum lap length required for uncoated #5 bars, as listed under MATERIAL NOTES).

CONSTRUCTION NOTES:
 Do not use permanent forms.
 Chamfer the bottom edge of the top slab 3" at the entrance.
 Optionally, raise construction joints shown at the flow line by a maximum of 6". If this option is taken, Bars M may be cut off or raised, Bars C and D may be reversed, and Bars Y and Z may be reversed.

MATERIAL NOTES:
 Provide Grade 60 reinforcing steel.
 Provide galvanized reinforcing steel if required elsewhere in the plans.
 Provide Class C concrete (f'c = 3,600 psi) for culvert barrel and curb.
 Provide bar laps, where required, as follows:
 • Uncoated or galvanized ~ #4 = 1'-8" Min
 • Uncoated or galvanized ~ #5 = 2'-1" Min
 • Uncoated or galvanized ~ #6 = 2'-6" Min

GENERAL NOTES:
 Designed according to AASHTO LRFD Bridge Design Specifications for the range of fill heights shown.
 See the Multiple Box Culverts Cast-In-Place Miscellaneous Detail (MC-MD) standard sheet for details pertaining to skewed ends, angle sections, and lengthening.

Cover dimensions are clear dimensions, unless noted otherwise.
 Reinforcing bar dimensions shown are out-to-out of bar.



MULTIPLE BOX CULVERTS CAST-IN-PLACE
 7'-0" SPAN
 2' TO 23' FILL
 MC-7-23


FILE: CD-MC723-20.dgn	DN: TBE	CK: BMP	DW: TxDOT	CK: TxDOT
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DATE: FILE:

NUMBER OF SPANS	SECTION DIMENSIONS				BILLS OF REINFORCING STEEL (For Box Length = 40 feet)																														QUANTITIES														
					Bars B					Bars C & D					Bars E					Bars F1 ~ #4			Bars F2 ~ #4			Bars M ~ #4			Bars Y & Z ~ #4				Bars H 4 ~ #4		Bars K		Per Foot of Barrel		Curb		Total								
	S	H	T	U	No.	Size	Spa	Length	Wt	No.	Size	Spa	Bars C		Bars D		No.	Size	Spa	Length	Wt	No.	Spa	Length	Wt	No.	Spa	Length	Wt	No.	Spa	Length	Wt	No.	Spa	Bars Y		Bars Z		Length	Wt	No.	Wt	Conc (CY)	Ref (Lb)	Conc (CY)	Ref (Lb)	Conc (CY)	Ref (Lb)
													Length	Wt	Length	Wt																				Length	Wt	Length	Wt										
2	7'-0"	3'-0"	10"	8"	108	#6	9"	15'-9"	2,555	162	#5	6"	8'-2"	1,380	7'-3"	1,225	108	#6	9"	7'-6"	1,217	10	18"	39'-9"	266	54	18"	39'-9"	1,434	82	12"	3'-0"	164	41	12"	5'-0"	137	7'-8"	210	15'-9"	42	34	102	1.210	214.7	1.2	144	49.6	8,732
3	7'-0"	3'-0"	10"	8"	108	#6	9"	23'-5"	3,799	162	#5	6"	8'-2"	1,380	7'-3"	1,225	108	#6	9"	14'-6"	2,352	15	18"	39'-9"	398	77	18"	39'-9"	2,045	82	12"	3'-0"	164	82	12"	5'-0"	274	7'-8"	420	23'-5"	63	50	150	1.757	301.4	1.7	213	72.0	12,270
4	7'-0"	3'-0"	10"	8"	108	#6	9"	31'-1"	5,042	162	#5	6"	8'-2"	1,380	7'-3"	1,225	108	#6	9"	21'-6"	3,488	20	18"	39'-9"	531	100	18"	39'-9"	2,655	82	12"	3'-0"	164	123	12"	5'-0"	411	7'-8"	630	31'-1"	83	66	198	2.305	388.2	2.3	281	94.5	15,807
5	7'-0"	3'-0"	10"	8"	108	#6	9"	38'-9"	6,286	162	#5	6"	8'-2"	1,380	7'-3"	1,225	108	#6	9"	28'-6"	4,623	25	18"	39'-9"	664	123	18"	39'-9"	3,266	82	12"	3'-0"	164	164	12"	5'-0"	548	7'-8"	840	38'-9"	104	80	240	2.852	474.9	2.9	344	117.0	19,340
6	7'-0"	3'-0"	10"	8"	108	#6	9"	46'-5"	7,530	162	#5	6"	8'-2"	1,380	7'-3"	1,225	108	#6	9"	35'-6"	5,759	30	18"	39'-9"	797	146	18"	39'-9"	3,877	82	12"	3'-0"	164	205	12"	5'-0"	685	7'-8"	1,050	46'-5"	124	96	289	3.399	561.7	3.4	413	139.4	22,880
2	7'-0"	4'-0"	10"	8"	108	#6	9"	15'-9"	2,555	162	#5	6"	9'-2"	1,549	7'-3"	1,225	108	#6	9"	7'-6"	1,217	10	18"	39'-9"	266	54	18"	39'-9"	1,434	82	12"	4'-0"	219	41	12"	5'-0"	137	9'-8"	265	15'-9"	42	34	102	1.284	221.7	1.2	144	52.5	9,011
3	7'-0"	4'-0"	10"	8"	108	#6	9"	23'-5"	3,799	162	#5	6"	9'-2"	1,549	7'-3"	1,225	108	#6	9"	14'-6"	2,352	15	18"	39'-9"	398	77	18"	39'-9"	2,045	82	12"	4'-0"	219	82	12"	5'-0"	274	9'-8"	530	23'-5"	63	50	150	1.856	309.8	1.7	213	76.0	12,604
4	7'-0"	4'-0"	10"	8"	108	#6	9"	31'-1"	5,042	162	#5	6"	9'-2"	1,549	7'-3"	1,225	108	#6	9"	21'-6"	3,488	20	18"	39'-9"	531	100	18"	39'-9"	2,655	82	12"	4'-0"	219	123	12"	5'-0"	411	9'-8"	794	31'-1"	83	66	198	2.428	397.9	2.3	281	99.4	16,195
5	7'-0"	4'-0"	10"	8"	108	#6	9"	38'-9"	6,286	162	#5	6"	9'-2"	1,549	7'-3"	1,225	108	#6	9"	28'-6"	4,623	25	18"	39'-9"	664	123	18"	39'-9"	3,266	82	12"	4'-0"	219	164	12"	5'-0"	548	9'-8"	1,059	38'-9"	104	80	240	3.000	486.0	2.9	344	122.9	19,783
6	7'-0"	4'-0"	10"	8"	108	#6	9"	46'-5"	7,530	162	#5	6"	9'-2"	1,549	7'-3"	1,225	108	#6	9"	35'-6"	5,759	30	18"	39'-9"	797	146	18"	39'-9"	3,877	82	12"	4'-0"	219	205	12"	5'-0"	685	9'-8"	1,324	46'-5"	124	96	289	3.572	574.1	3.4	413	146.3	23,378
2	7'-0"	5'-0"	10"	8"	108	#6	9"	15'-9"	2,555	162	#5	6"	10'-2"	1,718	7'-3"	1,225	108	#6	9"	7'-6"	1,217	10	18"	39'-9"	266	60	18"	39'-9"	1,593	82	12"	5'-0"	274	41	12"	5'-0"	137	11'-8"	320	15'-9"	42	34	102	1.358	232.6	1.2	144	55.5	9,449
3	7'-0"	5'-0"	10"	8"	108	#6	9"	23'-5"	3,799	162	#5	6"	10'-2"	1,718	7'-3"	1,225	108	#6	9"	14'-6"	2,352	15	18"	39'-9"	398	85	18"	39'-9"	2,257	82	12"	5'-0"	274	82	12"	5'-0"	274	11'-8"	639	23'-5"	63	50	150	1.955	323.4	1.7	213	79.9	13,149
4	7'-0"	5'-0"	10"	8"	108	#6	9"	31'-1"	5,042	162	#5	6"	10'-2"	1,718	7'-3"	1,225	108	#6	9"	21'-6"	3,488	20	18"	39'-9"	531	110	18"	39'-9"	2,921	82	12"	5'-0"	274	123	12"	5'-0"	411	11'-8"	959	31'-1"	83	66	198	2.551	414.2	2.3	281	104.4	16,850
5	7'-0"	5'-0"	10"	8"	108	#6	9"	38'-9"	6,286	162	#5	6"	10'-2"	1,718	7'-3"	1,225	108	#6	9"	28'-6"	4,623	25	18"	39'-9"	664	135	18"	39'-9"	3,585	82	12"	5'-0"	274	164	12"	5'-0"	548	11'-8"	1,278	38'-9"	104	80	240	3.148	505.0	2.9	344	128.8	20,545
6	7'-0"	5'-0"	10"	8"	108	#6	9"	46'-5"	7,530	162	#5	6"	10'-2"	1,718	7'-3"	1,225	108	#6	9"	35'-6"	5,759	30	18"	39'-9"	797	160	18"	39'-9"	4,248	82	12"	5'-0"	274	205	12"	5'-0"	685	11'-8"	1,598	46'-5"	124	96	289	3.745	595.9	3.4	413	153.2	24,247
2	7'-0"	6'-0"	10"	8"	108	#6	9"	15'-9"	2,555	162	#5	6"	11'-2"	1,887	7'-3"	1,225	108	#6	9"	7'-6"	1,217	10	18"	39'-9"	266	66	18"	39'-9"	1,752	82	12"	6'-0"	329	41	12"	5'-0"	137	13'-8"	374	15'-9"	42	34	102	1.432	243.6	1.2	144	58.5	9,886
3	7'-0"	6'-0"	10"	8"	108	#6	9"	23'-5"	3,799	162	#5	6"	11'-2"	1,887	7'-3"	1,225	108	#6	9"	14'-6"	2,352	15	18"	39'-9"	398	93	18"	39'-9"	2,469	82	12"	6'-0"	329	82	12"	5'-0"	274	13'-8"	749	23'-5"	63	50	150	2.053	337.1	1.7	213	83.9	13,695
4	7'-0"	6'-0"	10"	8"	108	#6	9"	31'-1"	5,042	162	#5	6"	11'-2"	1,887	7'-3"	1,225	108	#6	9"	21'-6"	3,488	20	18"	39'-9"	531	120	18"	39'-9"	3,186	82	12"	6'-0"	329	123	12"	5'-0"	411	13'-8"	1,123	31'-1"	83	66	198	2.675	430.6	2.3	281	109.3	17,503
5	7'-0"	6'-0"	10"	8"	108	#6	9"	38'-9"	6,286	162	#5	6"	11'-2"	1,887	7'-3"	1,225	108	#6	9"	28'-6"	4,623	25	18"	39'-9"	664	147	18"	39'-9"	3,903	82	12"	6'-0"	329	164	12"	5'-0"	548	13'-8"	1,497	38'-9"	104	80	240	3.296	524.1	2.9	344	134.7	21,306
6	7'-0"	6'-0"	10"	8"	108	#6	9"	46'-5"	7,530	162	#5	6"	11'-2"	1,887	7'-3"	1,225	108	#6	9"	35'-6"	5,759	30	18"	39'-9"	797	174	18"	39'-9"	4,620	82	12"	6'-0"	329	205	12"	5'-0"	685	13'-8"	1,872	46'-5"	124	96	289	3.918	617.6	3.4	413	160.2	25,117
2	7'-0"	7'-0"	10"	8"	108	#6	9"	15'-9"	2,555	162	#5	6"	12'-2"	2,056	7'-3"	1,225	108	#6	9"	7'-6"	1,217	10	18"	39'-9"	266	66	18"	39'-9"	1,752	82	12"	7'-0"	383	41	12"	5'-0"	137	15'-8"	429	15'-9"	42	34	102	1.506	250.5	1.2	144	61.4	10,164
3	7'-0"	7'-0"	10"	8"	108	#6	9"	23'-5"	3,799	162	#5	6"	12'-2"	2,056	7'-3"	1,225	108	#6	9"	14'-6"	2,352	15	18"	39'-9"	398	93	18"	39'-9"	2,469	82	12"	7'-0"	383	82	12"	5'-0"	274	15'-8"	858	23'-5"	63	50	150	2.152	345.4	1.7	213	87.8	14,027
4	7'-0"	7'-0"	10"	8"	108	#6	9"	31'-1"	5,042	162	#5	6"	12'-2"	2,056	7'-3"	1,225	108	#6	9"	21'-6"	3,488	20	18"	39'-9"	531	120	18"	39'-9"	3,186	82	12"	7'-0"	383	123	12"	5'-0"	411	15'-8"	1,287	31'-1"	83	66	198	2.798	440.2	2.3	281	114.2	17,890
5	7'-0"	7'-0"	10"	8"	108	#6	9"	38'-9"	6,286	162	#5	6"	12'-2"	2,056	7'-3"	1,225	108	#6	9"	28'-6"	4,623	25	18"	39'-9"	664	147	18"	39'-9"	3,903	82	12"	7'-0"	383	164	12"	5'-0"	548	15'-8"	1,716	38'-9"	104	80	240	3.444	535.1	2.9	344	140.6	21,748
6	7'-0"	7'-0"	10"	8"	108	#6	9"	46'-5"	7,530	162	#5	6"	12'-2"	2,056	7'-3"	1,225	108	#6	9"	35'-6"	5,759	30	18"	39'-9"	797	174	18"	39'-9"	4,620	82	12"	7'-0"	383	205	12"	5'-0"	685	15'-8"	2,145	46'-5"	124	96	289	4.091	630.0	3.4	413	167.1	25,613

				Bridge Division Standard	
MULTIPLE BOX CULVERTS CAST-IN-PLACE 7'-0" SPAN 2' TO 23' FILL MC-7-23					
FILE: CD-MC723-20.dgn	DN: TBE	CK: BMP	DW: TxDOT	CK: TxDOT	
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REVISIONS					
	DIST	COUNTY		SHEET NO.	