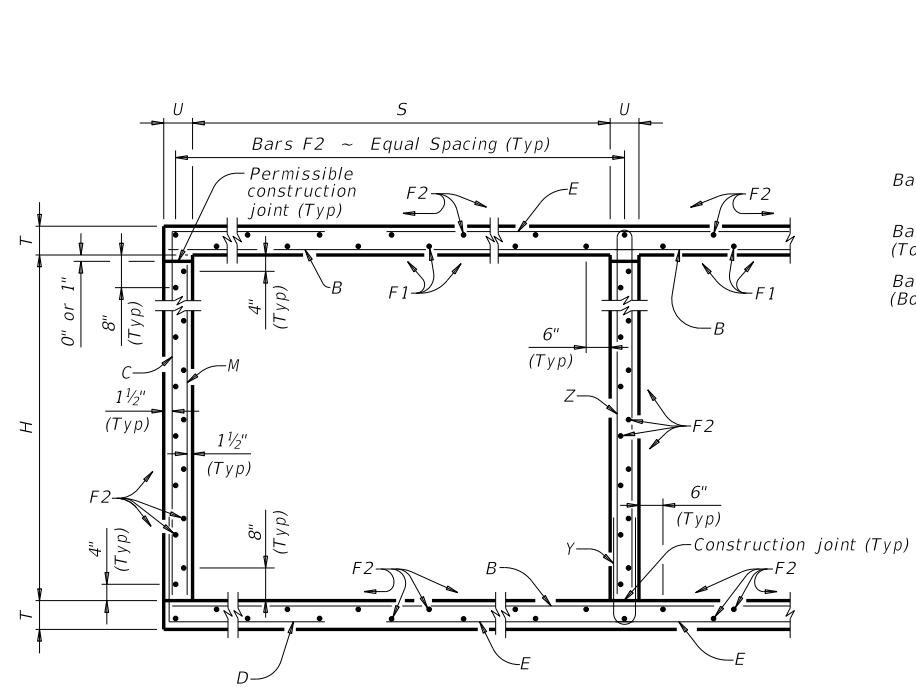
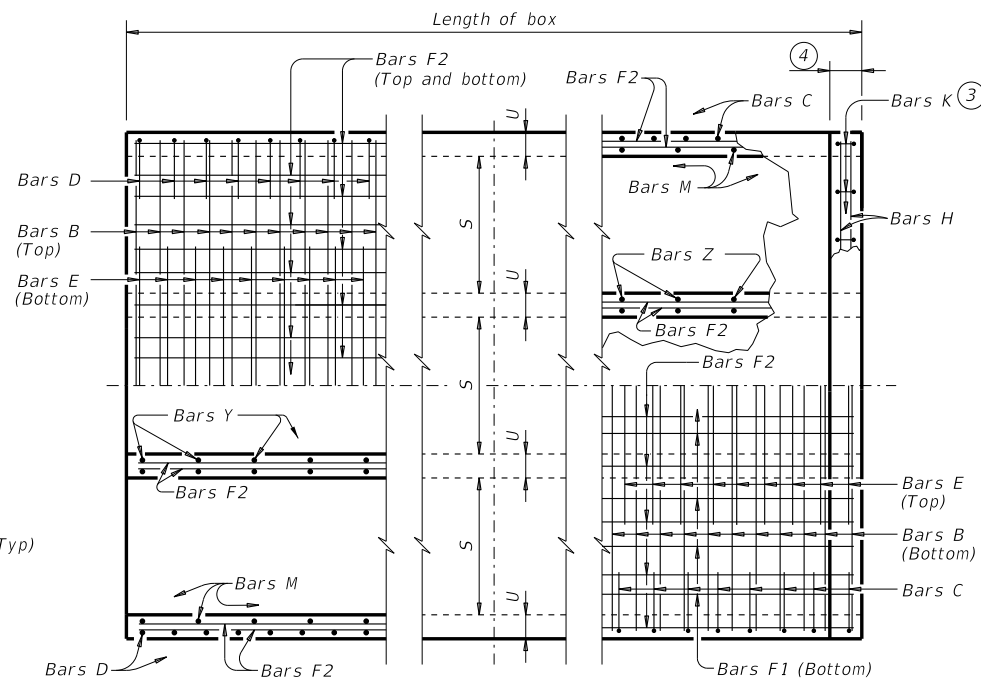


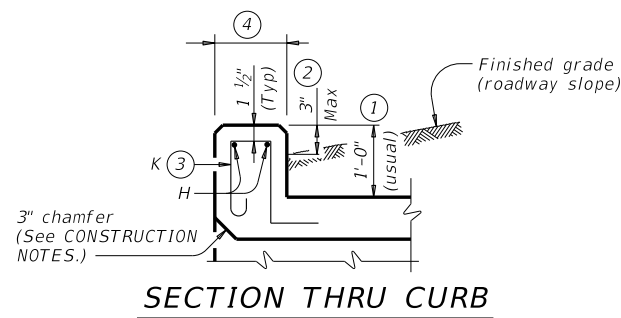
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TYPICAL SECTION

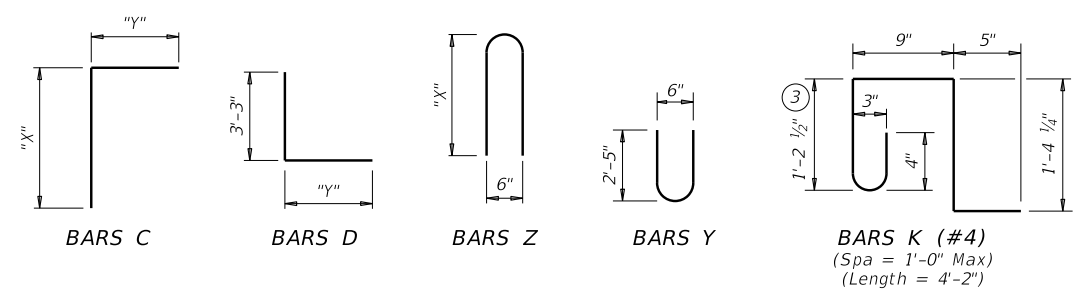


PART PLANS



SECTION THRU CURB

TABLE OF BAR DIMENSIONS		
H	"X"	"Y"
4'-0"	4'-9 1/2"	5'-11"
5'-0"	5'-9 1/2"	5'-11"
6'-0"	6'-9 1/2"	5'-11"
7'-0"	7'-9 1/2"	5'-11"
8'-0"	8'-9 1/2"	5'-11"
9'-0"	9'-9 1/2"	5'-11"
10'-0"	10'-9 1/2"	5'-11"



- 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
 10'-0" SPAN
 2' TO 16' FILL
 MC-10-16

FILE: CD-MC1016-20.dgn	DN: TBE	CK: BMP	DW: TxDOT	CK: TxDOT
©TxDOT February 2020	CONT	SECT	JOB	HIGHWAY
REVISIONS				
	DIST	COUNTY		SHEET NO.

DATE:
FILE:

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DATE: FILE:

NUMBER OF SPANS	SECTION DIMENSIONS				BILLS OF REINFORCING STEEL (For Box Length = 40 feet)																								QUANTITIES																				
					Bars B ⁽⁵⁾				Bars C & D				Bars E				Bars F1 ~ #4			Bars F2 ~ #4			Bars M ~ #4			Bars Y & Z ~ #4				Bars H ⁽⁵⁾ 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)	Reinf (Lb)	Conc (CY)	Reinf (Lb)	Conc (CY)	Reinf (Lb)
													Length	Wt	Length	Wt																				Length	Wt	Length	Wt										
2	10'-0"	4'-0"	11"	9"	162	#6	6"	22'-0"	5,353	108	#6	9"	10'-9"	1,744	9'-3"	1,500	162	#6	6"	9'-8"	2,352	14	18"	39'-9"	372	66	18"	39'-9"	1,752	108	9"	4'-0"	289	54	9"	5'-2"	186	9'-10"	355	22'-0"	59	46	128	1.844	347.6	1.6	187	75.4	14,090
3	10'-0"	4'-0"	11"	9"	162	#6	6"	32'-9"	7,969	108	#6	9"	10'-9"	1,744	9'-3"	1,500	162	#6	6"	19'-8"	4,785	21	18"	39'-9"	558	95	18"	39'-9"	2,523	108	9"	4'-0"	289	108	9"	5'-2"	373	9'-10"	709	32'-9"	88	68	189	2.685	511.3	2.4	277	109.8	20,727
4	10'-0"	4'-0"	11"	9"	162	#6	6"	43'-6"	10,585	108	#6	9"	10'-9"	1,744	9'-3"	1,500	162	#6	6"	29'-8"	7,219	28	18"	39'-9"	743	124	18"	39'-9"	3,293	108	9"	4'-0"	289	162	9"	5'-2"	559	9'-10"	1,064	43'-6"	116	90	251	3.526	674.9	3.2	367	144.3	27,363
5	10'-0"	4'-0"	11"	9"	162	#6	6"	54'-3"	13,200	108	#6	9"	10'-9"	1,744	9'-3"	1,500	162	#6	6"	39'-8"	9,652	35	18"	39'-9"	929	153	18"	39'-9"	4,063	108	9"	4'-0"	289	216	9"	5'-2"	745	9'-10"	1,419	54'-3"	145	112	312	4.367	838.5	4.0	457	178.7	33,998
6	10'-0"	4'-0"	11"	9"	162	#6	6"	67'-6"	16,424	108	#6	9"	10'-9"	1,744	9'-3"	1,500	162	#6	6"	49'-8"	12,085	42	18"	39'-9"	1,115	182	18"	39'-9"	4,833	108	9"	4'-0"	289	270	9"	5'-2"	932	9'-10"	1,774	66'-8"	178	132	367	5.208	1,017.4	4.8	545	213.1	41,241
2	10'-0"	5'-0"	11"	9"	162	#6	6"	22'-0"	5,353	108	#6	9"	11'-9"	1,906	9'-3"	1,500	162	#6	6"	9'-8"	2,352	14	18"	39'-9"	372	72	18"	39'-9"	1,912	108	9"	5'-0"	361	54	9"	5'-2"	186	11'-10"	427	22'-0"	59	46	128	1.927	359.2	1.6	187	78.7	14,556
3	10'-0"	5'-0"	11"	9"	162	#6	6"	32'-9"	7,969	108	#6	9"	11'-9"	1,906	9'-3"	1,500	162	#6	6"	19'-8"	4,785	21	18"	39'-9"	558	103	18"	39'-9"	2,735	108	9"	5'-0"	361	108	9"	5'-2"	373	11'-10"	854	32'-9"	88	68	189	2.796	526.0	2.4	277	114.3	21,318
4	10'-0"	5'-0"	11"	9"	162	#6	6"	43'-6"	10,585	108	#6	9"	11'-9"	1,906	9'-3"	1,500	162	#6	6"	29'-8"	7,219	28	18"	39'-9"	743	134	18"	39'-9"	3,558	108	9"	5'-0"	361	162	9"	5'-2"	559	11'-10"	1,281	43'-6"	116	90	251	3.665	692.8	3.2	367	149.8	28,079
5	10'-0"	5'-0"	11"	9"	162	#6	6"	54'-3"	13,200	108	#6	9"	11'-9"	1,906	9'-3"	1,500	162	#6	6"	39'-8"	9,652	35	18"	39'-9"	929	165	18"	39'-9"	4,381	108	9"	5'-0"	361	216	9"	5'-2"	745	11'-10"	1,707	54'-3"	145	112	312	4.534	859.5	4.0	457	185.4	34,838
6	10'-0"	5'-0"	11"	9"	162	#6	6"	67'-6"	16,424	108	#6	9"	11'-9"	1,906	9'-3"	1,500	162	#6	6"	49'-8"	12,085	42	18"	39'-9"	1,115	196	18"	39'-9"	5,204	108	9"	5'-0"	361	270	9"	5'-2"	932	11'-10"	2,134	66'-8"	178	132	367	5.403	1,041.5	4.8	545	220.9	42,206
2	10'-0"	6'-0"	11"	9"	162	#6	6"	22'-0"	5,353	108	#6	9"	12'-9"	2,068	9'-3"	1,500	162	#6	6"	9'-8"	2,352	14	18"	39'-9"	372	78	18"	39'-9"	2,071	108	9"	6'-0"	433	54	9"	5'-2"	186	13'-10"	499	22'-0"	59	46	128	2.011	370.9	1.6	187	82.1	15,021
3	10'-0"	6'-0"	11"	9"	162	#6	6"	32'-9"	7,969	108	#6	9"	12'-9"	2,068	9'-3"	1,500	162	#6	6"	19'-8"	4,785	21	18"	39'-9"	558	111	18"	39'-9"	2,947	108	9"	6'-0"	433	108	9"	5'-2"	373	13'-10"	998	32'-9"	88	68	189	2.907	540.8	2.4	277	118.7	21,908
4	10'-0"	6'-0"	11"	9"	162	#6	6"	43'-6"	10,585	108	#6	9"	12'-9"	2,068	9'-3"	1,500	162	#6	6"	29'-8"	7,219	28	18"	39'-9"	743	144	18"	39'-9"	3,824	108	9"	6'-0"	433	162	9"	5'-2"	559	13'-10"	1,497	43'-6"	116	90	251	3.804	710.7	3.2	367	155.4	28,795
5	10'-0"	6'-0"	11"	9"	162	#6	6"	54'-3"	13,200	108	#6	9"	12'-9"	2,068	9'-3"	1,500	162	#6	6"	39'-8"	9,652	35	18"	39'-9"	929	177	18"	39'-9"	4,700	108	9"	6'-0"	433	216	9"	5'-2"	745	13'-10"	1,996	54'-3"	145	112	312	4.701	880.6	4.0	457	192.1	35,680
6	10'-0"	6'-0"	11"	9"	162	#6	6"	67'-6"	16,424	108	#6	9"	12'-9"	2,068	9'-3"	1,500	162	#6	6"	49'-8"	12,085	42	18"	39'-9"	1,115	210	18"	39'-9"	5,576	108	9"	6'-0"	433	270	9"	5'-2"	932	13'-10"	2,495	66'-8"	178	132	367	5.597	1,065.7	4.8	545	228.7	43,173
2	10'-0"	7'-0"	11"	9"	162	#6	6"	22'-0"	5,353	108	#6	9"	13'-9"	2,230	9'-3"	1,500	162	#6	6"	9'-8"	2,352	14	18"	39'-9"	372	78	18"	39'-9"	2,071	108	9"	7'-0"	505	54	9"	5'-2"	186	15'-10"	571	22'-0"	59	46	128	2.094	378.5	1.6	187	85.4	15,327
3	10'-0"	7'-0"	11"	9"	162	#6	6"	32'-9"	7,969	108	#6	9"	13'-9"	2,230	9'-3"	1,500	162	#6	6"	19'-8"	4,785	21	18"	39'-9"	558	111	18"	39'-9"	2,947	108	9"	7'-0"	505	108	9"	5'-2"	373	15'-10"	1,142	32'-9"	88	68	189	3.019	550.2	2.4	277	123.2	22,286
4	10'-0"	7'-0"	11"	9"	162	#6	6"	43'-6"	10,585	108	#6	9"	13'-9"	2,230	9'-3"	1,500	162	#6	6"	29'-8"	7,219	28	18"	39'-9"	743	144	18"	39'-9"	3,824	108	9"	7'-0"	505	162	9"	5'-2"	559	15'-10"	1,713	43'-6"	116	90	251	3.943	722.0	3.2	367	160.9	29,245
5	10'-0"	7'-0"	11"	9"	162	#6	6"	54'-3"	13,200	108	#6	9"	13'-9"	2,230	9'-3"	1,500	162	#6	6"	39'-8"	9,652	35	18"	39'-9"	929	177	18"	39'-9"	4,700	108	9"	7'-0"	505	216	9"	5'-2"	745	15'-10"	2,285	54'-3"	145	112	312	4.867	893.7	4.0	457	198.7	36,203
6	10'-0"	7'-0"	11"	9"	162	#6	6"	67'-6"	16,424	108	#6	9"	13'-9"	2,230	9'-3"	1,500	162	#6	6"	49'-8"	12,085	42	18"	39'-9"	1,115	210	18"	39'-9"	5,576	108	9"	7'-0"	505	270	9"	5'-2"	932	15'-10"	2,856	66'-8"	178	132	367	5.792	1,080.6	4.8	545	236.5	43,768
2	10'-0"	8'-0"	11"	9"	162	#6	6"	22'-0"	5,353	108	#6	9"	14'-9"	2,393	9'-3"	1,500	162	#6	6"	9'-8"	2,352	14	18"	39'-9"	372	84	18"	39'-9"	2,230	108	9"	8'-0"	577	54	9"	5'-2"	186	17'-10"	643	22'-0"	59	46	128	2.177	390.2	1.6	187	88.7	15,793
3	10'-0"	8'-0"	11"	9"	162	#6	6"	32'-9"	7,969	108	#6	9"	14'-9"	2,393	9'-3"	1,500	162	#6	6"	19'-8"	4,785	21	18"	39'-9"	558	119	18"	39'-9"	3,160	108	9"	8'-0"	577	108	9"	5'-2"	373	17'-10"	1,287	32'-9"	88	68	189	3.130	565.1	2.4	277	127.6	22,879
4	10'-0"	8'-0"	11"	9"	162	#6	6"	43'-6"	10,585	108	#6	9"	14'-9"	2,393	9'-3"	1,500	162	#6	6"	29'-8"	7,219	28	18"	39'-9"	743	154	18"	39'-9"	4,089	108	9"	8'-0"	577	162	9"	5'-2"	559	17'-10"	1,930	43'-6"	116	90	251	4.082	739.9	3.2	367	166.5	29,962
5	10'-0"	8'-0"	11"	9"	162	#6	6"	54'-3"	13,200	108	#6	9"	14'-9"	2,393	9'-3"	1,500	162	#6	6"	39'-8"	9,652	35	18"	39'-9"	929	189	18"	39'-9"	5,019	108	9"	8'-0"	577	216	9"	5'-2"	745	17'-10"	2,573	54'-3"	145	112	312	5.034	914.7	4.0	457	205.4	37,045
6	10'-0"	8'-0"	11"	9"	162	#6	6"	67'-6"	16,424	108	#6	9"	14'-9"	2,393	9'-3"	1,500	162	#6	6"	49'-8"	12,085	42	18"	39'-9"	1,115	224	18"	39'-9"	5,948	108	9"	8'-0"	577	270	9"	5'-2"	932	17'-10"	3,216	66'-8"	178	132	367	5.986	1,104.8	4.8	545	244.3	44,735
2	10'-0"	9'-0"	11"	9"	162	#6	6"	22'-0"	5,353	162	#6	6"	15'-9"	3,832	9'-3"	2,251	162	#6	6"	9'-8"	2,352	14	18"	39'-9"	372	90	18"	39'-9"	2,390	108	9"	9'-0"	649	54	9"	5'-2"	186	19'-10"	715	22'-0"	59	46	128	2.261	452.5	1.6	187	92.1	18,287
3	10'-0"	9'-0"	11"	9"	162	#6	6"	32'-9"	7,969	162	#6	6"	15'-9"	3,832	9'-3"	2,251	162	#6	6"	19'-8"	4,785	21	18"	39'-9"	558	127	18"	39'-9"	3,372	108	9"	9'-0"	649	108	9"	5'-2"	373	19'-10"	1,431	32'-9"	88	68	189	3.241	630.5	2.4	277	132.1	25,497
4	10'-0"	9'-0"	11"	9"	162	#6	6"	43'-6"	10,585	162	#6	6"	15'-9"	3,832	9'-3"	2,251	162	#6	6"	29'-8"	7,219	28	18"	39'-9"	743	164	18"	39'-9"	4,355	108	9"																		