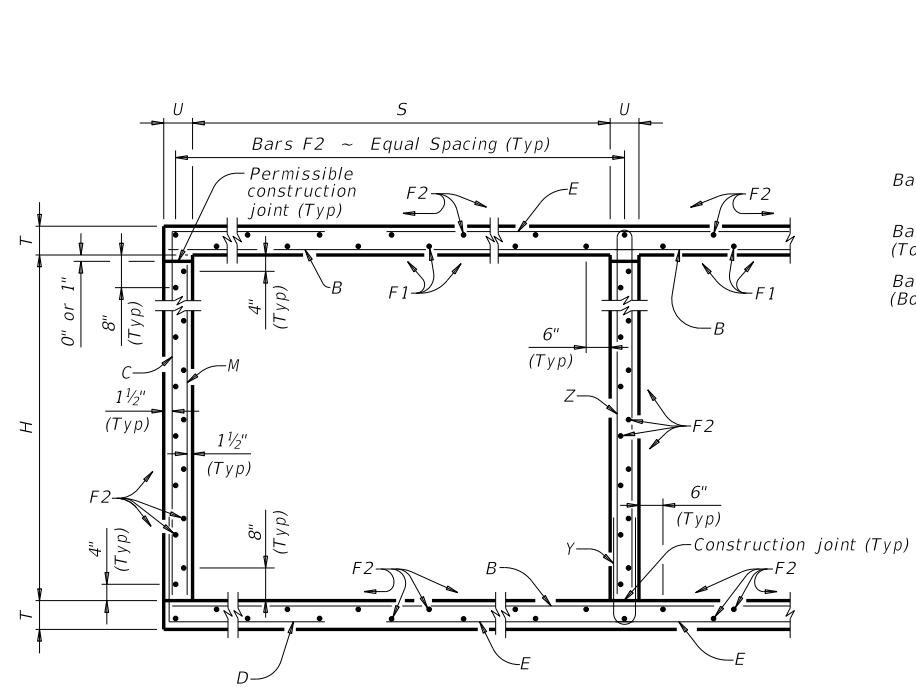
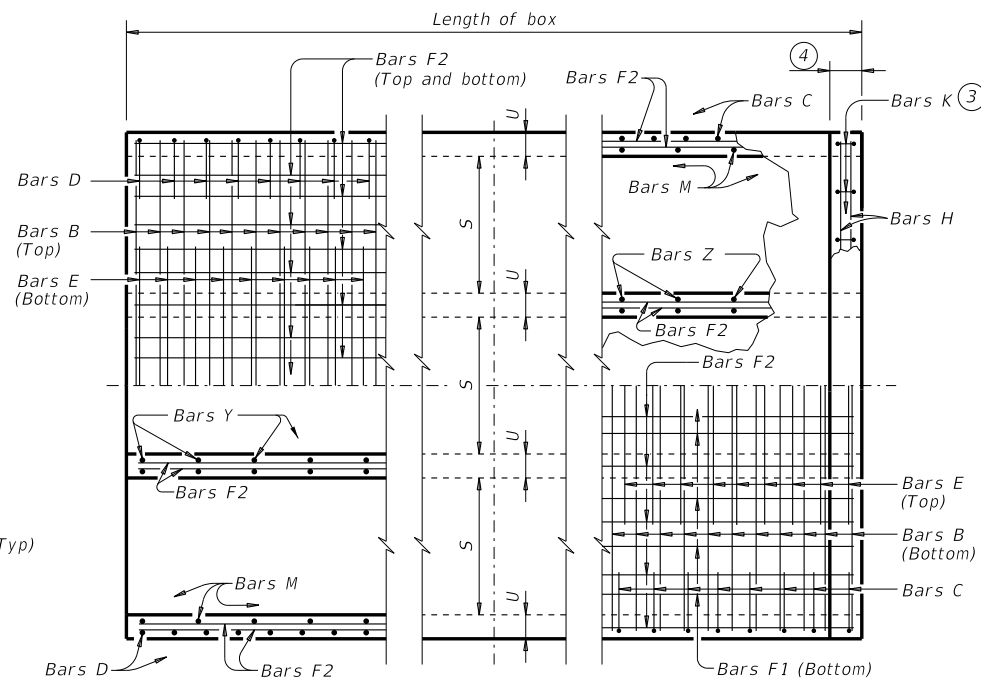


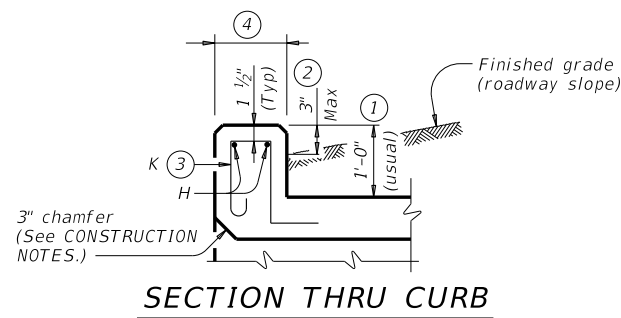
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TYPICAL SECTION

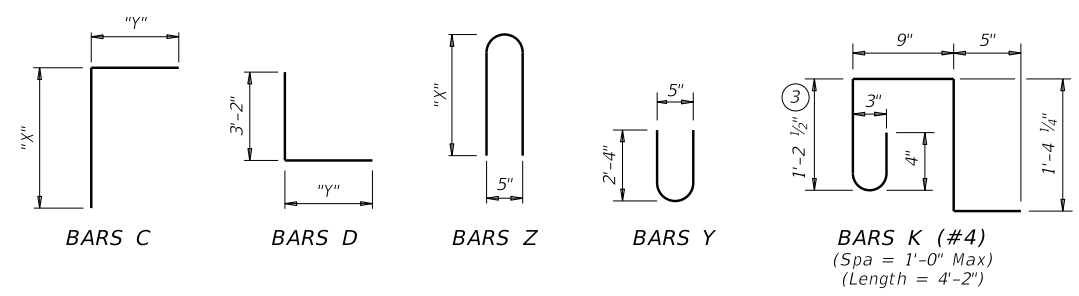


PART PLANS



SECTION THRU CURB

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



- 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 13' FILL
 MC-10-13**

FILE: CD-MC1013-20.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)	Ref (Lb)	Conc (CY)	Ref (Lb)	Conc (CY)	Ref (Lb)
													Length	Wt	Length	Wt																				Length	Wt	Length	Wt										
2	10'-0"	4'-0"	10"	8"	162	#6	6"	21'-9"	5,292	108	#6	9"	10'-7"	1,717	9'-1"	1,473	162	#6	6"	9'-7"	2,332	14	18"	39'-9"	372	66	18"	39'-9"	1,752	82	12"	4'-0"	219	41	12"	5'-0"	137	9'-8"	265	21'-9"	58	46	128	1.654	339.0	1.6	186	67.8	13,745
3	10'-0"	4'-0"	10"	8"	162	#6	6"	32'-5"	7,888	108	#6	9"	10'-7"	1,717	9'-1"	1,473	162	#6	6"	19'-7"	4,765	21	18"	39'-9"	558	95	18"	39'-9"	2,523	82	12"	4'-0"	219	82	12"	5'-0"	274	9'-8"	530	32'-5"	87	68	189	2.412	498.7	2.4	276	98.9	20,223
4	10'-0"	4'-0"	10"	8"	162	#6	6"	43'-1"	10,483	108	#6	9"	10'-7"	1,717	9'-1"	1,473	162	#6	6"	29'-7"	7,198	28	18"	39'-9"	743	124	18"	39'-9"	3,293	82	12"	4'-0"	219	123	12"	5'-0"	411	9'-8"	794	43'-1"	115	90	251	3.169	658.3	3.2	366	130.0	26,697
5	10'-0"	4'-0"	10"	8"	162	#6	6"	53'-9"	13,079	108	#6	9"	10'-7"	1,717	9'-1"	1,473	162	#6	6"	39'-7"	9,632	35	18"	39'-9"	929	153	18"	39'-9"	4,063	82	12"	4'-0"	219	164	12"	5'-0"	548	9'-8"	1,059	53'-9"	144	110	306	3.926	818.0	4.0	450	161.0	33,169
6	10'-0"	4'-0"	10"	8"	162	#6	6"	66'-11"	16,282	108	#6	9"	10'-7"	1,717	9'-1"	1,473	162	#6	6"	49'-7"	12,065	42	18"	39'-9"	1,115	182	18"	39'-9"	4,833	82	12"	4'-0"	219	205	12"	5'-0"	685	9'-8"	1,324	66'-1"	177	132	367	4.683	992.8	4.8	544	192.1	40,257
2	10'-0"	5'-0"	10"	8"	162	#6	6"	21'-9"	5,292	108	#6	9"	11'-7"	1,879	9'-1"	1,473	162	#6	6"	9'-7"	2,332	14	18"	39'-9"	372	72	18"	39'-9"	1,912	82	12"	5'-0"	274	41	12"	5'-0"	137	11'-8"	320	21'-9"	58	46	128	1.728	349.8	1.6	186	70.7	14,177
3	10'-0"	5'-0"	10"	8"	162	#6	6"	32'-5"	7,888	108	#6	9"	11'-7"	1,879	9'-1"	1,473	162	#6	6"	19'-7"	4,765	21	18"	39'-9"	558	103	18"	39'-9"	2,735	82	12"	5'-0"	274	82	12"	5'-0"	274	11'-8"	639	32'-5"	87	68	189	2.510	512.1	2.4	276	102.8	20,761
4	10'-0"	5'-0"	10"	8"	162	#6	6"	43'-1"	10,483	108	#6	9"	11'-7"	1,879	9'-1"	1,473	162	#6	6"	29'-7"	7,198	28	18"	39'-9"	743	134	18"	39'-9"	3,558	82	12"	5'-0"	274	123	12"	5'-0"	411	11'-8"	959	43'-1"	115	90	251	3.292	674.5	3.2	366	134.9	27,344
5	10'-0"	5'-0"	10"	8"	162	#6	6"	53'-9"	13,079	108	#6	9"	11'-7"	1,879	9'-1"	1,473	162	#6	6"	39'-7"	9,632	35	18"	39'-9"	929	165	18"	39'-9"	4,381	82	12"	5'-0"	274	164	12"	5'-0"	548	11'-8"	1,278	53'-9"	144	110	306	4.074	836.8	4.0	450	166.9	33,923
6	10'-0"	5'-0"	10"	8"	162	#6	6"	66'-11"	16,282	108	#6	9"	11'-7"	1,879	9'-1"	1,473	162	#6	6"	49'-7"	12,065	42	18"	39'-9"	1,115	196	18"	39'-9"	5,204	82	12"	5'-0"	274	205	12"	5'-0"	685	11'-8"	1,598	66'-1"	177	132	367	4.856	1,014.4	4.8	544	199.0	41,119
2	10'-0"	6'-0"	10"	8"	162	#6	6"	21'-9"	5,292	108	#6	9"	12'-7"	2,041	9'-1"	1,473	162	#6	6"	9'-7"	2,332	14	18"	39'-9"	372	78	18"	39'-9"	2,071	82	12"	6'-0"	329	41	12"	5'-0"	137	13'-8"	374	21'-9"	58	46	128	1.802	360.5	1.6	186	73.7	14,607
3	10'-0"	6'-0"	10"	8"	162	#6	6"	32'-5"	7,888	108	#6	9"	12'-7"	2,041	9'-1"	1,473	162	#6	6"	19'-7"	4,765	21	18"	39'-9"	558	111	18"	39'-9"	2,947	82	12"	6'-0"	329	82	12"	5'-0"	274	13'-8"	749	32'-5"	87	68	189	2.609	525.6	2.4	276	106.8	21,300
4	10'-0"	6'-0"	10"	8"	162	#6	6"	43'-1"	10,483	108	#6	9"	12'-7"	2,041	9'-1"	1,473	162	#6	6"	29'-7"	7,198	28	18"	39'-9"	743	144	18"	39'-9"	3,824	82	12"	6'-0"	329	123	12"	5'-0"	411	13'-8"	1,123	43'-1"	115	90	251	3.416	690.6	3.2	366	139.8	27,991
5	10'-0"	6'-0"	10"	8"	162	#6	6"	53'-9"	13,079	108	#6	9"	12'-7"	2,041	9'-1"	1,473	162	#6	6"	39'-7"	9,632	35	18"	39'-9"	929	177	18"	39'-9"	4,700	82	12"	6'-0"	329	164	12"	5'-0"	548	13'-8"	1,497	53'-9"	144	110	306	4.222	855.7	4.0	450	172.9	34,678
6	10'-0"	6'-0"	10"	8"	162	#6	6"	66'-11"	16,282	108	#6	9"	12'-7"	2,041	9'-1"	1,473	162	#6	6"	49'-7"	12,065	42	18"	39'-9"	1,115	210	18"	39'-9"	5,576	82	12"	6'-0"	329	205	12"	5'-0"	685	13'-8"	1,872	66'-1"	177	132	367	5.029	1,036.0	4.8	544	205.9	41,982
2	10'-0"	7'-0"	10"	8"	162	#6	6"	21'-9"	5,292	108	#6	9"	13'-7"	2,203	9'-1"	1,473	162	#6	6"	9'-7"	2,332	14	18"	39'-9"	372	78	18"	39'-9"	2,071	82	12"	7'-0"	383	41	12"	5'-0"	137	15'-8"	429	21'-9"	58	46	128	1.877	367.3	1.6	186	76.7	14,878
3	10'-0"	7'-0"	10"	8"	162	#6	6"	32'-5"	7,888	108	#6	9"	13'-7"	2,203	9'-1"	1,473	162	#6	6"	19'-7"	4,765	21	18"	39'-9"	558	111	18"	39'-9"	2,947	82	12"	7'-0"	383	82	12"	5'-0"	274	15'-8"	858	32'-5"	87	68	189	2.708	533.7	2.4	276	110.7	21,625
4	10'-0"	7'-0"	10"	8"	162	#6	6"	43'-1"	10,483	108	#6	9"	13'-7"	2,203	9'-1"	1,473	162	#6	6"	29'-7"	7,198	28	18"	39'-9"	743	144	18"	39'-9"	3,824	82	12"	7'-0"	383	123	12"	5'-0"	411	15'-8"	1,287	43'-1"	115	90	251	3.539	700.1	3.2	366	144.8	28,371
5	10'-0"	7'-0"	10"	8"	162	#6	6"	53'-9"	13,079	108	#6	9"	13'-7"	2,203	9'-1"	1,473	162	#6	6"	39'-7"	9,632	35	18"	39'-9"	929	177	18"	39'-9"	4,700	82	12"	7'-0"	383	164	12"	5'-0"	548	15'-8"	1,716	53'-9"	144	110	306	4.370	866.6	4.0	450	178.8	35,113
6	10'-0"	7'-0"	10"	8"	162	#6	6"	66'-11"	16,282	108	#6	9"	13'-7"	2,203	9'-1"	1,473	162	#6	6"	49'-7"	12,065	42	18"	39'-9"	1,115	210	18"	39'-9"	5,576	82	12"	7'-0"	383	205	12"	5'-0"	685	15'-8"	2,145	66'-1"	177	132	367	5.202	1,048.2	4.8	544	212.9	42,471
2	10'-0"	8'-0"	10"	8"	162	#6	6"	21'-9"	5,292	108	#6	9"	14'-7"	2,366	9'-1"	1,473	162	#6	6"	9'-7"	2,332	14	18"	39'-9"	372	84	18"	39'-9"	2,230	82	12"	8'-0"	438	41	12"	5'-0"	137	17'-8"	484	21'-9"	58	46	128	1.951	378.1	1.6	186	79.7	15,310
3	10'-0"	8'-0"	10"	8"	162	#6	6"	32'-5"	7,888	108	#6	9"	14'-7"	2,366	9'-1"	1,473	162	#6	6"	19'-7"	4,765	21	18"	39'-9"	558	119	18"	39'-9"	3,160	82	12"	8'-0"	438	82	12"	5'-0"	274	17'-8"	968	32'-5"	87	68	189	2.807	547.3	2.4	276	114.7	22,166
4	10'-0"	8'-0"	10"	8"	162	#6	6"	43'-1"	10,483	108	#6	9"	14'-7"	2,366	9'-1"	1,473	162	#6	6"	29'-7"	7,198	28	18"	39'-9"	743	154	18"	39'-9"	4,089	82	12"	8'-0"	438	123	12"	5'-0"	411	17'-8"	1,452	43'-1"	115	90	251	3.663	716.3	3.2	366	149.7	29,019
5	10'-0"	8'-0"	10"	8"	162	#6	6"	53'-9"	13,079	108	#6	9"	14'-7"	2,366	9'-1"	1,473	162	#6	6"	39'-7"	9,632	35	18"	39'-9"	929	189	18"	39'-9"	5,019	82	12"	8'-0"	438	164	12"	5'-0"	548	17'-8"	1,935	53'-9"	144	110	306	4.519	885.5	4.0	450	184.7	35,869
6	10'-0"	8'-0"	10"	8"	162	#6	6"	66'-11"	16,282	108	#6	9"	14'-7"	2,366	9'-1"	1,473	162	#6	6"	49'-7"	12,065	42	18"	39'-9"	1,115	224	18																						