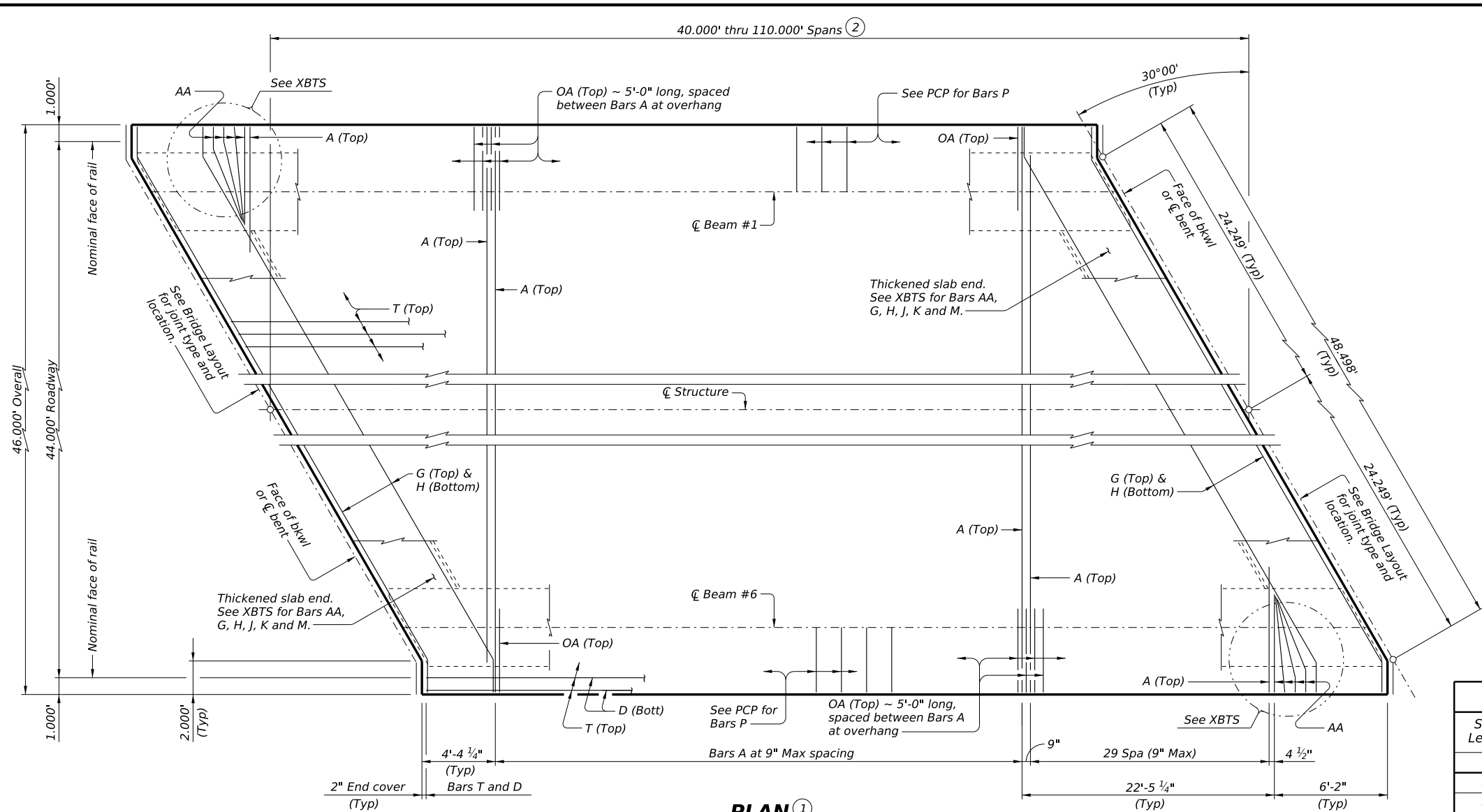


DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act." No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

**BAR TABLE**

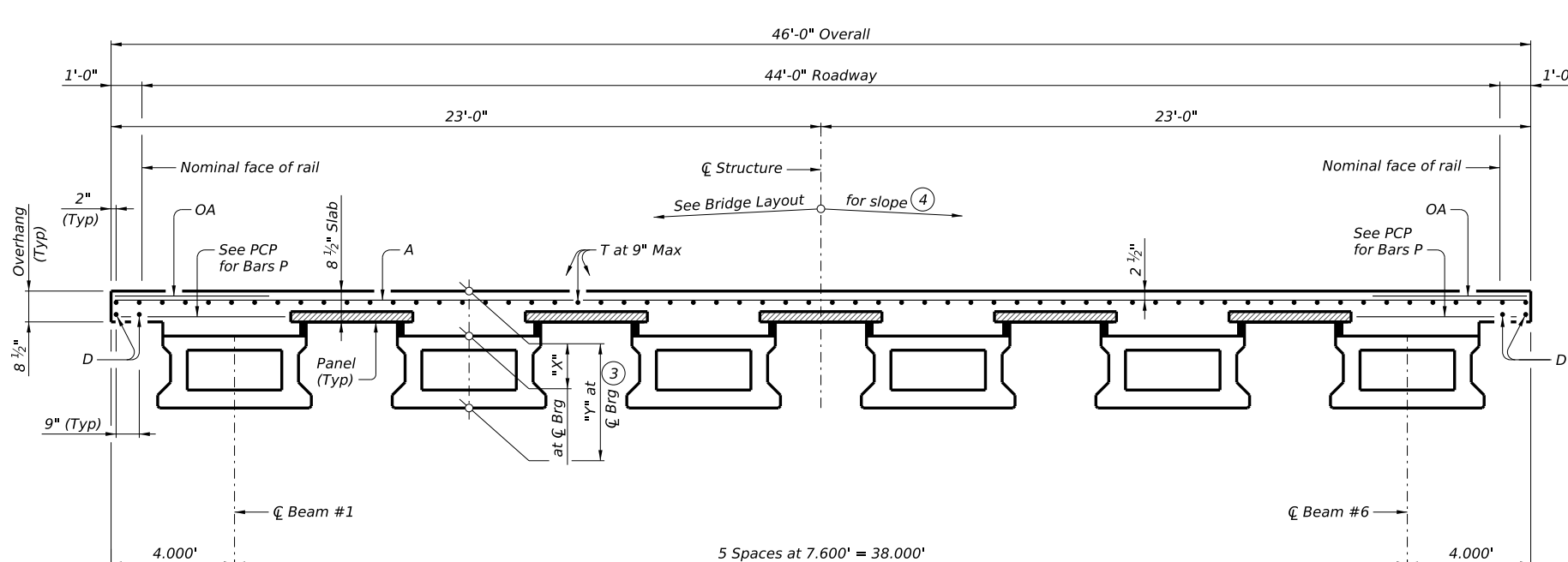
BAR	SIZE
A	#4
AA	#4
D	#4
G	#4
H	#4
J	#4
K	#4
M	#4
OA	#5
P	#4
T	#4



- 1 If multi-span units (with slab continuous over interior bents) are indicated on the Bridge Layout, see X-Beam Continuous Slab Details (XBCS) standard for adjustment to slab reinforcement and quantities.
- 2 Span lengths for Prestressed Concrete X-Beam type:  
Type 5XB20 for spans lengths 40.000' through 65.000'.  
Type 5XB28 for spans lengths 40.000' through 85.000'.  
Type 5XB34 for spans lengths 40.000' through 100.000'.  
Type 5XB40 for spans lengths 40.000' through 110.000'.
- 3 "Y" value shown is based on theoretical beam camber, dead load deflection from an 8 1/2" concrete slab, a constant roadway grade, and using precast concrete panels (PCP).
- 4 This standard does not provide for changes in roadway cross-slopes within the structure.

**TABLE OF SECTION DEPTHS**

Span Length	Beam Type 5XB20		Beam Type 5XB28		Beam Type 5XB34		Beam Type 5XB40	
	"X"	"Y" (3)	"X"	"Y" (3)	"X"	"Y" (3)	"X"	"Y" (3)
Ft	In	Ft/In	In	Ft/In	In	Ft/In	In	Ft/In
40	10 1/2"	2'-6 1/2"	10 1/2"	3'-2 1/2"	10 1/2"	3'-8 1/2"	10 1/2"	4'-2 1/2"
45	10 1/2"	2'-6 1/2"	10 1/2"	3'-2 1/2"	10 1/2"	3'-8 1/2"	10 1/2"	4'-2 1/2"
50	10 1/2"	2'-6 1/2"	10 1/2"	3'-2 1/2"	10 1/2"	3'-8 1/2"	10 1/2"	4'-2 1/2"
55	10 3/4"	2'-6 3/4"	10 1/2"	3'-2 1/2"	10 1/2"	3'-8 1/2"	10 1/2"	4'-2 1/2"
60	11"	2'-7"	10 1/2"	3'-2 1/2"	10 1/2"	3'-8 1/2"	10 1/2"	4'-2 1/2"
65	11 1/2"	2'-7 1/2"	10 1/2"	3'-2 1/2"	10 1/2"	3'-8 1/2"	10 1/2"	4'-2 1/2"
70	---	---	10 1/2"	3'-2 1/2"	10 1/2"	3'-8 1/2"	10 1/2"	4'-2 1/2"
75	---	---	11"	3'-3"	10 1/2"	3'-8 1/2"	10 1/2"	4'-2 1/2"
80	---	---	11 1/2"	3'-3 1/2"	10 1/2"	3'-8 1/2"	10 1/2"	4'-2 1/2"
85	---	---	11 3/4"	3'-3 3/4"	11"	3'-9"	10 1/2"	4'-2 1/2"
90	---	---	---	---	11 1/2"	3'-9 1/4"	10 1/2"	4'-2 1/2"
95	---	---	---	---	11 1/2"	3'-9 1/2"	10 1/2"	4'-2 1/2"
100	---	---	---	---	---	---	11"	4'-3"
105	---	---	---	---	---	---	11 1/4"	4'-3 1/4"
110	---	---	---	---	---	---	11 1/2"	4'-3 1/2"



HL93 LOADING SHEET 1 OF 2

Texas Department of Transportation Bridge Division Standard

**PRESTRESSED CONCRETE X-BEAM SPANS (TYPE 5XB20 THRU 5XB40) 44' ROADWAY 30° SKEW SXB-44-30**

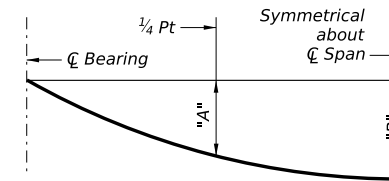
FILE: XB-SXB4430-24.dgn	DN: BMP	CK: EFC	DW: JER	CK: TAR
©TxDOT August 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS				
11-24: Flipped top mat.	DIST	COUNTY	SHEET NO.	

DATE: FILE:

DISCLAIMER: The use of this standard is governed by the "Texas Engineering Practice Act." No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

**TABLE OF DEAD LOAD DEFLECTIONS**

TYPE 5XB20 BEAMS			TYPE 5XB28 BEAMS			TYPE 5XB34 BEAMS			TYPE 5XB40 BEAMS		
Span Length	"A"	"B"	Span Length	"A"	"B"	Span Length	"A"	"B"	Span Length	"A"	"B"
Ft	Ft	Ft	Ft	Ft	Ft	Ft	Ft	Ft	Ft	Ft	Ft
40	0.012	0.017	40	0.005	0.007	40	0.003	0.005	40	0.002	0.003
45	0.020	0.028	45	0.008	0.011	45	0.005	0.007	45	0.003	0.004
50	0.031	0.044	50	0.012	0.018	50	0.007	0.011	50	0.005	0.007
55	0.046	0.065	55	0.019	0.026	55	0.011	0.016	55	0.007	0.010
60	0.066	0.094	60	0.027	0.038	60	0.016	0.022	60	0.010	0.015
65	0.092	0.130	65	0.037	0.053	65	0.022	0.031	65	0.014	0.020
			70	0.050	0.071	70	0.030	0.042	70	0.020	0.028
			75	0.067	0.095	75	0.040	0.056	75	0.026	0.037
			80	0.087	0.123	80	0.052	0.073	80	0.034	0.048
			85	0.111	0.158	85	0.066	0.094	85	0.043	0.062
						90	0.084	0.119	90	0.055	0.078
						95	0.104	0.148	95	0.068	0.097
						100	0.129	0.183	100	0.084	0.120
									105	0.103	0.146
									110	0.124	0.176



**DEAD LOAD DEFLECTION DIAGRAM**

Calculated deflections shown are due to the concrete slab on interior beams only ( $E_c = 5,000$  ksi). Adjust values as required for exterior beams and if optional slab forming is used. These values may require field verification.

**TABLE OF ESTIMATED QUANTITIES**

SPAN LENGTH	REINF CONCRETE SLAB	PRESTR CONCRETE X-BEAMS	TOTAL REINF STEEL
		(5) LF	(6) Lb
Ft	SF		
40	1,840	236.54	4,232
45	2,070	266.54	4,761
50	2,300	296.54	5,290
55	2,530	326.54	5,819
60	2,760	356.54	6,348
65	2,990	386.54	6,877
70	3,220	416.54	7,406
75	3,450	446.54	7,935
80	3,680	476.54	8,464
85	3,910	506.54	8,993
90	4,140	536.54	9,522
95	4,370	566.54	10,051
100	4,600	596.54	10,580
105	4,830	626.54	11,109
110	5,060	656.54	11,638

- (5) Fabricator will adjust lengths for beam slopes as required.
- (6) Reinforcing steel weight is calculated using an approximate factor of 2.3 lbs/SF.

**MATERIAL NOTES:**

Provide Class S concrete ( $f'_c = 4,000$  psi).  
 Provide Class S (HPC) concrete if shown elsewhere in the plans.  
 Provide Grade 60 reinforcing steel.  
 Provide bar laps, where required, as follows:  
 Uncoated ~ #4 = 1'-7"  
 Epoxy coated ~ #4 = 2'-5"  
 Deformed welded wire reinforcement (WWR) (ASTM A1064) of equal size and spacing may be substituted for Bars A, AA, D, OA, P, or T unless noted elsewhere.

**GENERAL NOTES:**

Designed according to AASHTO LRFD Bridge Design Specifications.  
 This standard does not provide for vertical curves in roadway grade within the structure.  
 Multi-span units, with slab continuous over interior bents, may be formed with the details shown on this sheet and the X-Beam Continuous Slab Details (XBCS) standard.  
 This standard is drawn showing right forward skew. See Bridge Layout for actual skew dimensions.  
 See X-Beam Thickened Slab End Details (XBTS) standard for details and quantity adjustments.  
 See Prestressed Concrete Panels (PCP) standard and Prestressed Concrete Panel Fabrication Details (PCP-FAB) standard for panel details not shown.  
 See X-Beam Minimum Erection and Bracing Requirements with Miscellaneous Slab Details (XBBR-MS) standard for miscellaneous details.  
 See applicable rail details for rail anchorage in slab.  
 See Permanent Metal Deck Forms (PMD) standard for details and quantity adjustments if this option is used.  
 This standard does not support the use of transition bents.

Cover dimensions are clear dimensions, unless noted otherwise.

HL93 LOADING

SHEET 2 OF 2



**PRESTRESSED CONCRETE X-BEAM SPANS (TYPE 5XB20 THRU 5XB40) 44' ROADWAY 30° SKEW SXB-44-30**

FILE: XB-SXB4430-24.dgn	DN: BMP	CK: EFC	DW: JER	CK: TAR
© TxDOT August 2022	CONT	SECT	JOB	HIGHWAY
REVISIONS				
11-24: Flipped top mat.	DIST	COUNTY	SHEET NO.	

DATE:  
FILE: