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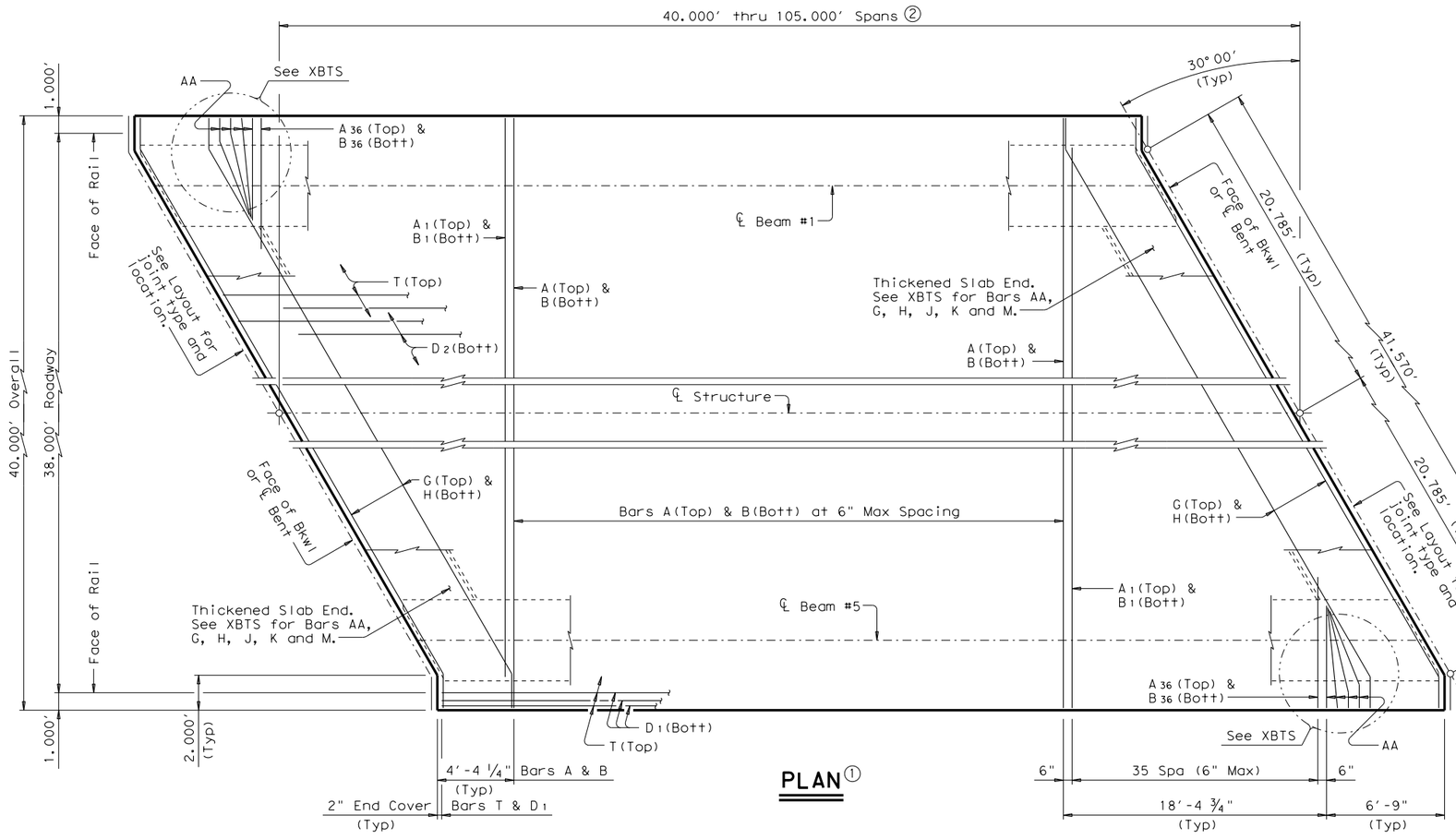
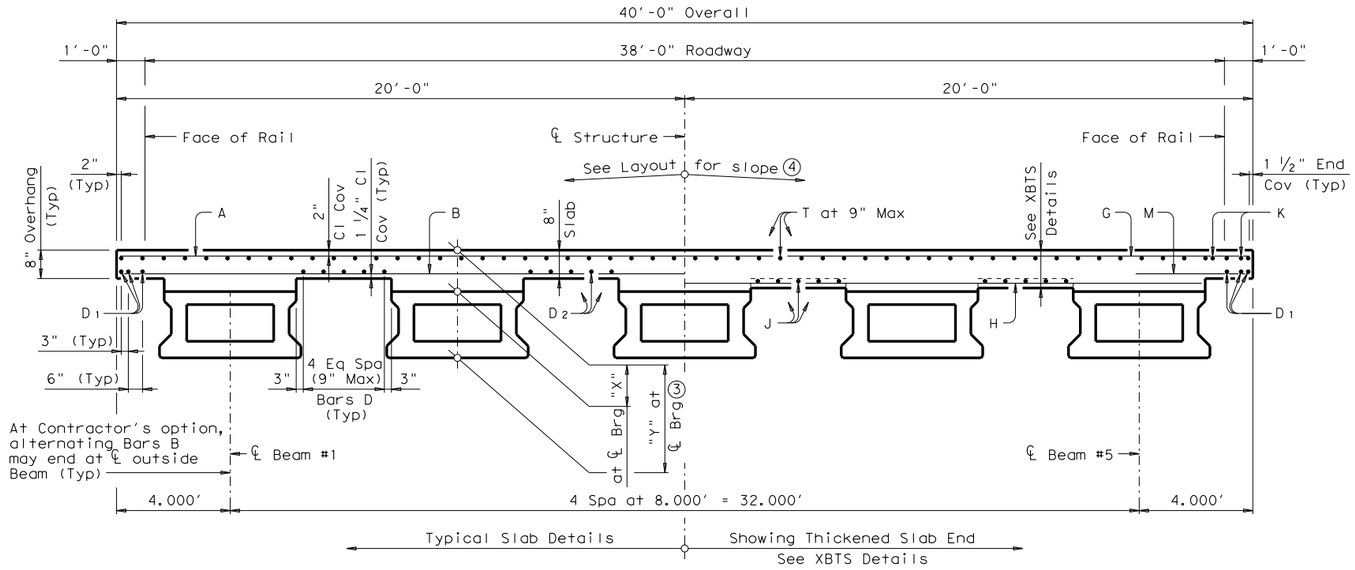


PLAN ①



TYPICAL TRANSVERSE SECTION

(Showing Beam Type 5XB28)

BAR TABLE

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

① If multi-span units (with slab continuous over interior bents) are indicated on the Bridge Layout, see Standard XBCS for adjustment to slab reinforcement and quantities.

② Span Lengths for Prestressed Concrete X-Beam Type:
Type 5XB20 for Spans Lengths 40.000' thru 65.000'.
Type 5XB28 for Spans Lengths 40.000' thru 85.000'.
Type 5XB34 for Spans Lengths 40.000' thru 100.000'.
Type 5XB40 for Spans Lengths 40.000' thru 105.000'.

③ "Y" value shown is based on theoretical beam camber, dead load deflection from an 8" cast-in-place concrete slab and a constant roadway grade.

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"	2'-6"	10"	3'-2"	10"	3'-8"	10"	4'-2"
45	10"	2'-6"	10"	3'-2"	10"	3'-8"	10"	4'-2"
50	10"	2'-6"	10"	3'-2"	10"	3'-8"	10"	4'-2"
55	10"	2'-6"	10"	3'-2"	10"	3'-8"	10"	4'-2"
60	10 1/2"	2'-6 1/2"	10"	3'-2"	10"	3'-8"	10"	4'-2"
65	11"	2'-7"	10"	3'-2"	10"	3'-8"	10"	4'-2"
70	---	---	10"	3'-2"	10"	3'-8"	10"	4'-2"
75	---	---	10 1/2"	3'-2 1/2"	10"	3'-8"	10"	4'-2"
80	---	---	11"	3'-3"	10"	3'-8"	10"	4'-2"
85	---	---	11"	3'-3"	10"	3'-8"	10"	4'-2"
90	---	---	---	---	10 1/2"	3'-8 1/2"	10"	4'-2"
95	---	---	---	---	11"	3'-9"	10"	4'-2"
100	---	---	---	---	11"	3'-9"	10 1/2"	4'-2 1/2"
105	---	---	---	---	---	---	10 1/2"	4'-2 1/2"

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE X-BEAM SPANS (TYPE 5XB20 THRU 5XB40)

38' ROADWAY 30° SKEW

SXB-38-30

FILE: xbstde59.dgn	DN: JMH	CK: AM	DW: JTR	CK: JMH
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REVISIONS				
	DIST	COUNTY		SHEET NO.

DATE:
FILE:

TABLE OF DEAD LOAD DEFLECTIONS

TYPE 5XB20 BEAMS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.012	0.017
45	0.020	0.028
50	0.031	0.043
55	0.046	0.065
60	0.066	0.093
65	0.092	0.129

TYPE 5XB28 BEAMS

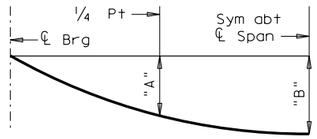
SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.005	0.007
45	0.008	0.011
50	0.013	0.018
55	0.019	0.026
60	0.026	0.037
65	0.037	0.052
70	0.051	0.071
75	0.067	0.094
80	0.087	0.122
85	0.112	0.157

TYPE 5XB34 BEAMS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.003	0.004
45	0.005	0.007
50	0.007	0.010
55	0.011	0.015
60	0.016	0.022
65	0.022	0.031
70	0.030	0.042
75	0.040	0.056
80	0.052	0.073
85	0.066	0.093
90	0.084	0.118
95	0.105	0.147
100	0.129	0.181

TYPE 5XB40 BEAMS

SPAN LENGTH	"A"	"B"
Ft	Ft	Ft
40	0.002	0.003
45	0.003	0.004
50	0.005	0.007
55	0.007	0.010
60	0.011	0.015
65	0.014	0.020
70	0.019	0.027
75	0.026	0.036
80	0.034	0.048
85	0.043	0.061
90	0.055	0.077
95	0.068	0.096
100	0.085	0.119
105	0.103	0.145



DEAD LOAD DEFLECTION DIAGRAM

Calculated deflections shown are due to the concrete slab on interior beams only (Ec = 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	⑤ PRESTR CONCRETE X-BEAMS	CLASS "S" CONCRETE	⑥ TOTAL REINF STEEL
Ft	SF	LF	CY	Lb
40	1,600	197.11	45.7	10,400
45	1,800	222.11	51.1	11,700
50	2,000	247.11	56.7	13,000
55	2,200	272.11	62.4	14,300
60	2,400	297.11	68.0	15,600
65	2,600	322.11	73.5	16,900
70	2,800	347.11	78.8	18,200
75	3,000	372.11	84.0	19,500
80	3,200	397.11	89.3	20,800
85	3,400	422.11	94.0	22,100
90	3,600	447.11	98.5	23,400
95	3,800	472.11	102.9	24,700
100	4,000	497.11	110.0	26,000
105	4,200	522.11	114.3	27,300

⑤ Fabricator will adjust lengths for beam slopes as required.

⑥ Reinforcing steel weight is calculated using an approximate factor of 6.5 Lbs/SF.

GENERAL NOTES:

Designed according to AASHTO LRFD 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 Standard XBCS.
This standard is drawn showing right forward skew. See Bridge Layout for actual skew direction.
See XBTS Standard for Thickened Slab End Details and quantity adjustments.
See PCP or PMDF Standards for details and quantity adjustments if either of these options are used.
See XBMS Standard for miscellaneous details.
All reinforcing must be Grade 60.
Concrete strength f'c = 4,000 psi.
Bar laps, where required, will be as follows:
Uncoated ~ #4 = 1'-5"
~ #5 = 1'-9"
Epoxy Coated ~ #4 = 2'-1"
~ #5 = 2'-7"
See railing details for rail anchorage in slab.
This standard does not support the use of Transition Bents.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE X-BEAM SPANS (TYPE 5XB20 THRU 5XB40)

38' ROADWAY 30° SKEW

SXB-38-30

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