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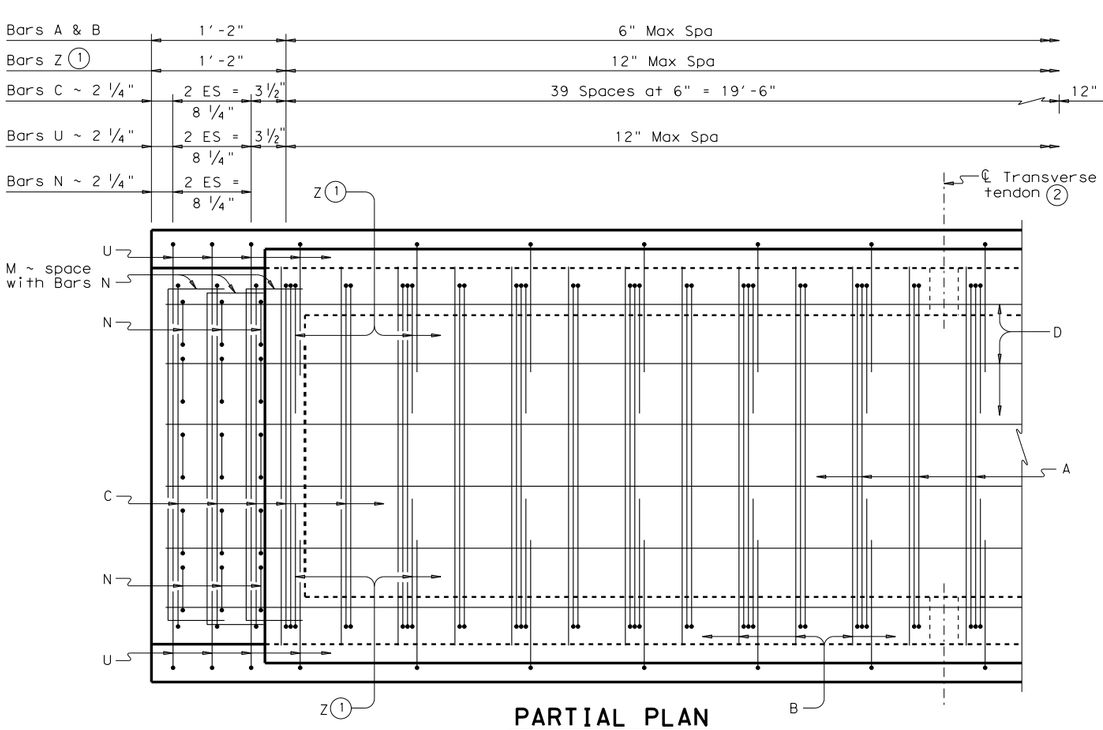
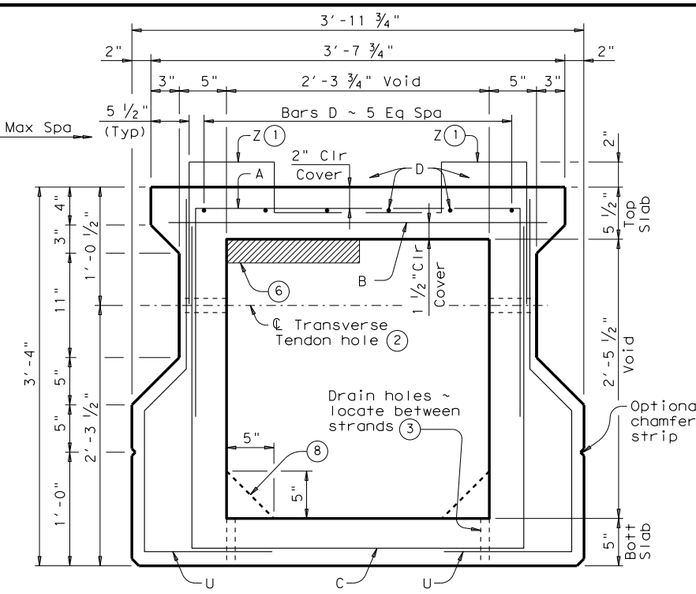
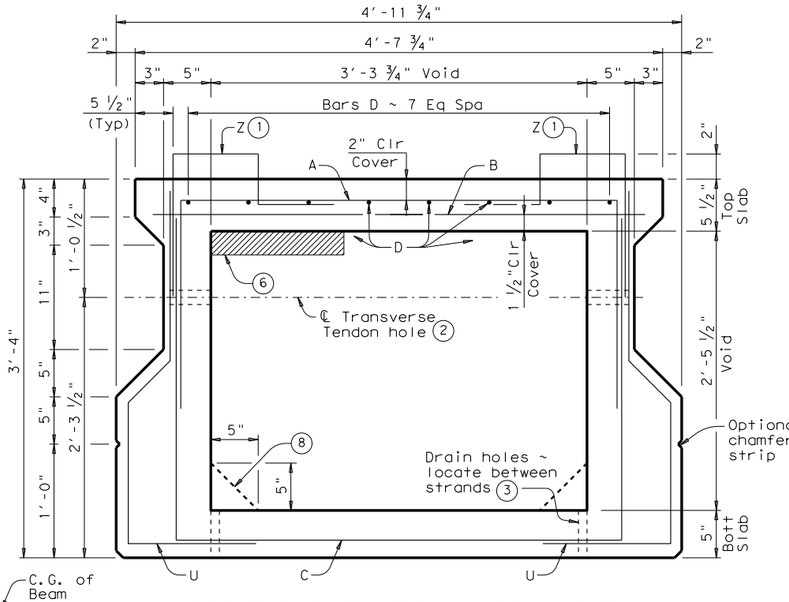


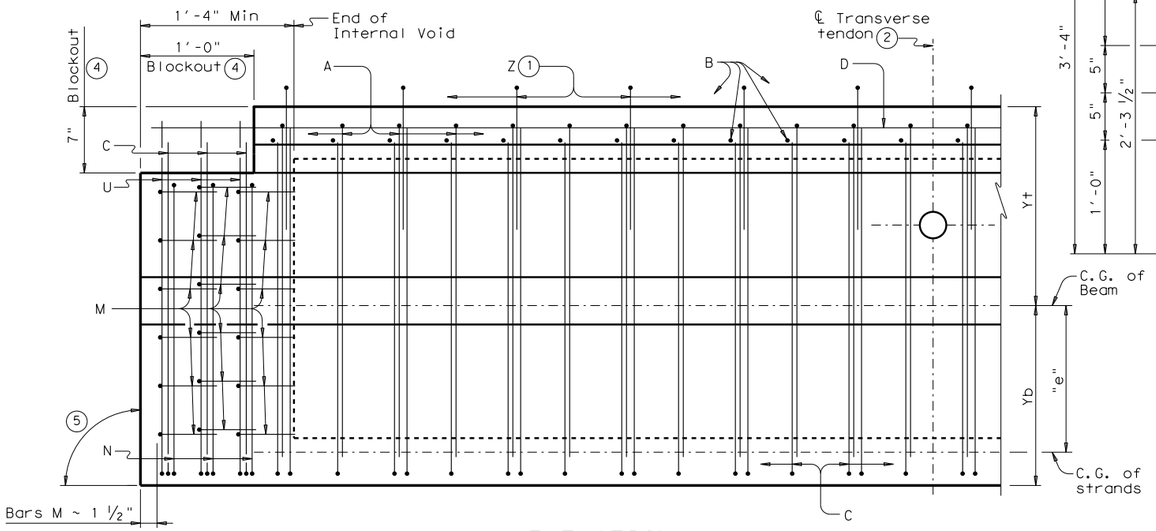
PARTIAL PLAN
(Showing Type 4B40)



TYPICAL SECTION ~ TYPE 4B40



TYPICAL SECTION ~ TYPE 5B40



ELEVATION

BEAM PROPERTIES		Type 4B40		Type 5B40	
		100 feet or less	over 100 feet (8)	100 feet or less	over 100 feet (8)
Area	in^2	918.8	943.8	1044.8	1069.8
Y top	in	21.31	21.63	21.07	21.36
Y bott	in	18.69	18.37	18.93	18.64
I	in^4	176,607	180,159	215,300	219,007
Weight (7)	lb/ft	957	983	1,088	1,114

(1) Bars Z are required for beams topped with a cast-in-place concrete slab only.

(2) Post-tensioning tendons are required for beams not topped with a Min 5" cast-in-place concrete slab. See span details for number and spacing of transverse tendons. Cast interior diaphragms in exterior beams and beams that serve temporarily as exterior beams in staged constructed bridges. See "Blockout, Interior Diaphragm, and Drain Details". Form 3" Dia holes in interior beams. See standard BBPT for details.

(3) Place drain holes (1" Dia PVC Sch 40 Pipe) as shown in all beam void corners including each side of interior diaphragms. See "Blockout, Interior Diaphragm, and Drain Details".

(4) Blockouts required at ends of all beams. Extend beam reinforcement into blockouts.

(5) 90° at conventional Interior Bents. Ends of beams shall be vertical at Abutment backwall and Inverted Tee Bent Stems.

(6) Showing void modification required in exterior beams not topped with a Min 5" cast-in-place concrete slab. See standard BBRA0 for void modification dimensions.

(7) Based on 150 pcf weight density of concrete. Weight of end blocks and interior diaphragms is not included.

(8) Add chamfers as shown when beam length is over 100 ft. Locate drain holes at toe of chamfers.

GENERAL NOTES:

Designed according to AASHTO LRFD Specifications.

Use Class H concrete. Use Class H (HPC) if required elsewhere in plans. All reinforcing steel must be Grade 60.

Two-stage monolithic casting is required. The concrete in the first stage cast (bottom beam flange) must remain plastic until the second stage cast (webs and top beam flange) is placed. Vibrate as required to ensure consolidation between the two casts.

1 1/4" clear cover to reinforcement is required unless noted otherwise.

See standard BBRAS or BBRAO for railing anchorage at bridge edges to be cast in beams.

An equal area of welded wire reinforcement (WWR) meeting the requirements of ASTM A1064 may be substituted for Bars A, B, C, and D.

These details are applicable for skews up to 30 degrees only.

Chamfer bottom beam corners 3/4" or round to a 3/4" radius.

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PRESTRESSED CONCRETE BOX BEAM DETAILS (TYPE B40)

BB-B40

FILE: bbstds04.dgn	DN: TxDOT	CK: TxDOT	DW: TxDOT	CK: TxDOT
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REVISIONS 01-12: Bars Z.	DIST	COUNTY		SHEET NO.

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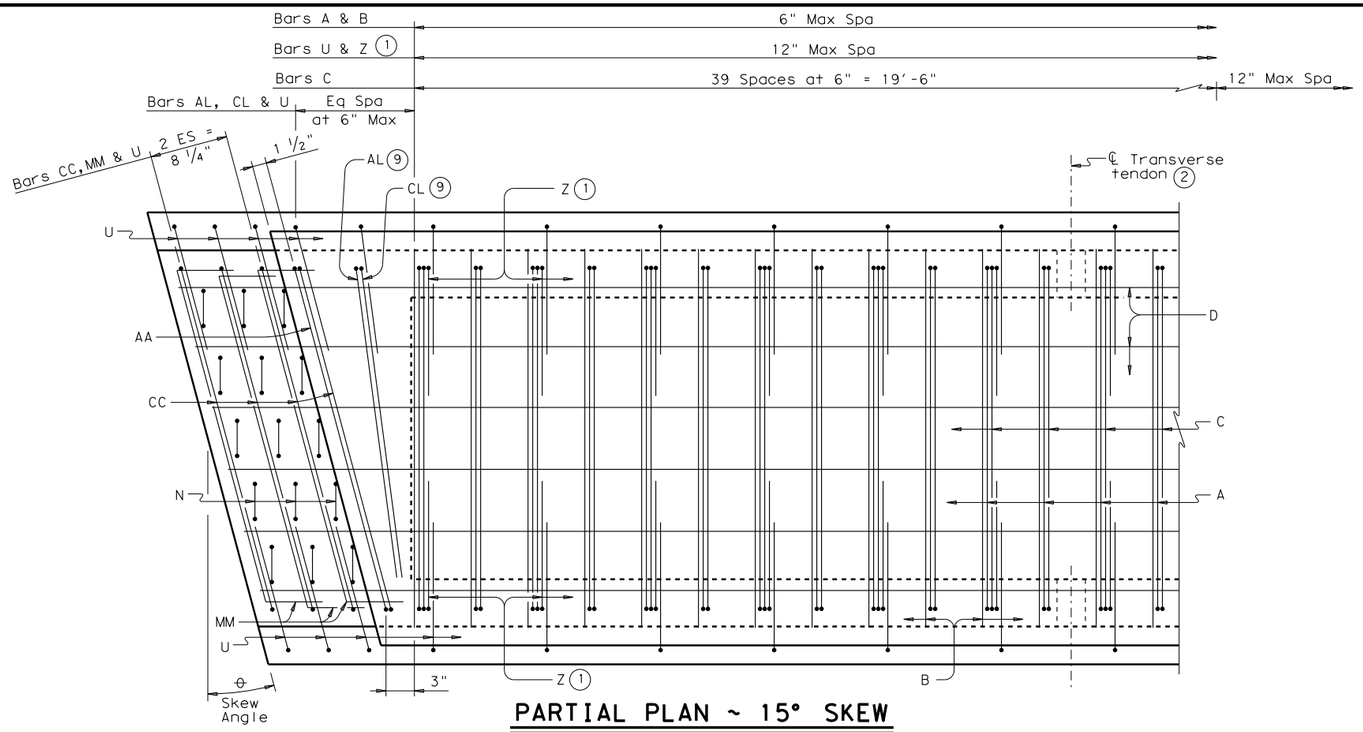
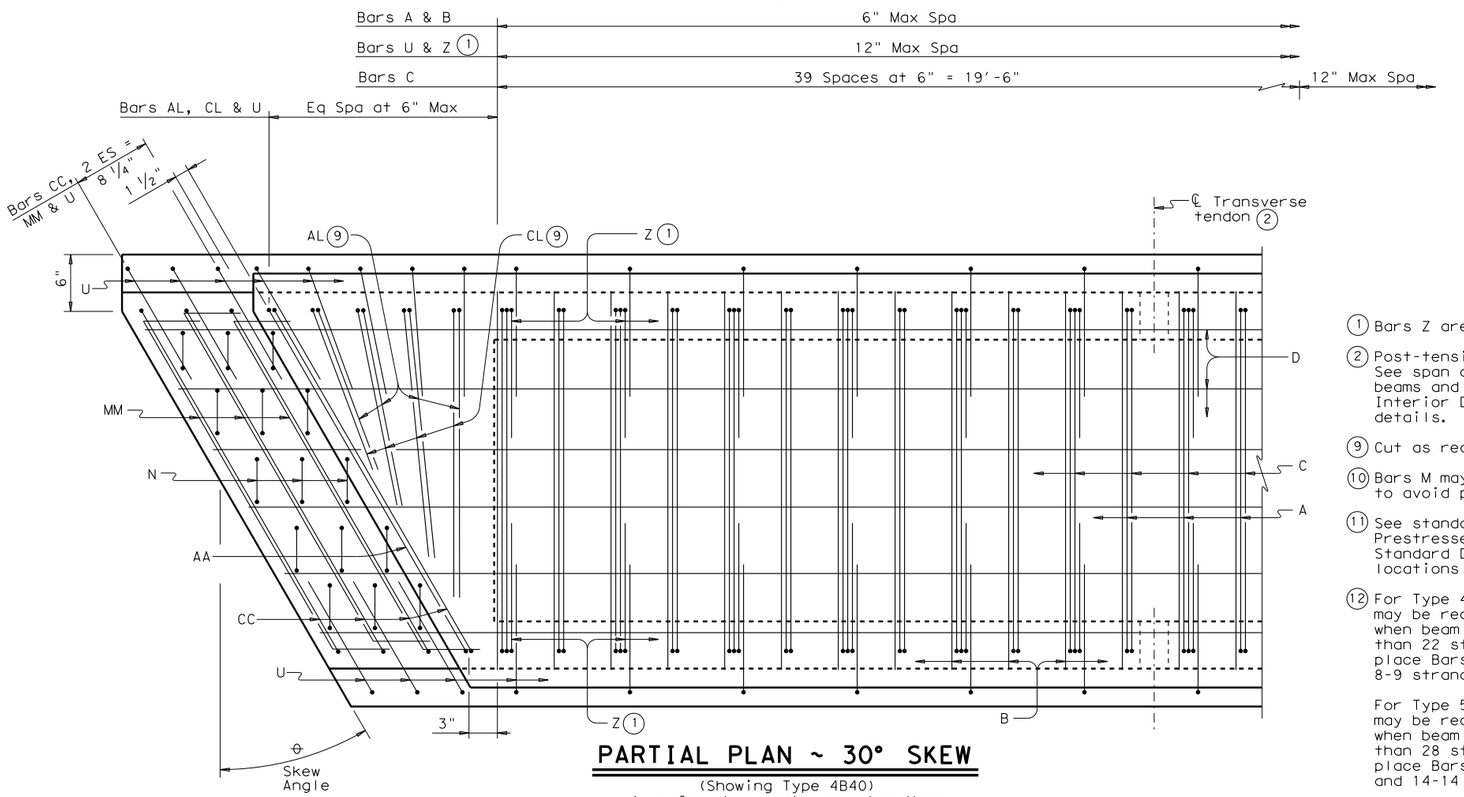


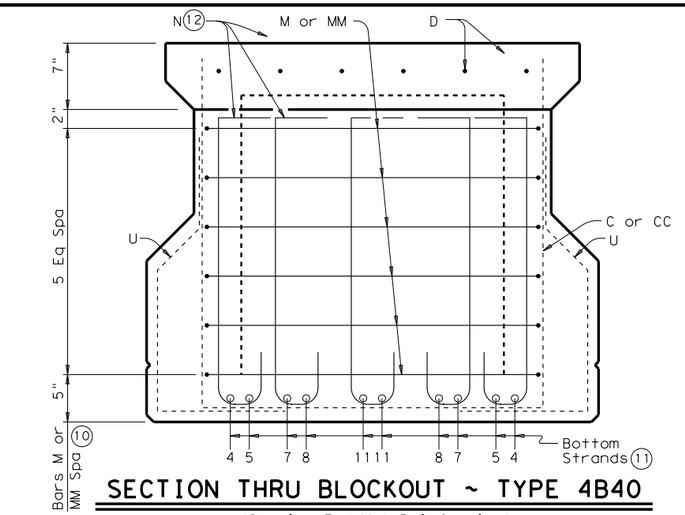
PARTIAL PLAN ~ 15° SKEW

(Showing Type 4B40)
(use for skew angles of 15° or less)



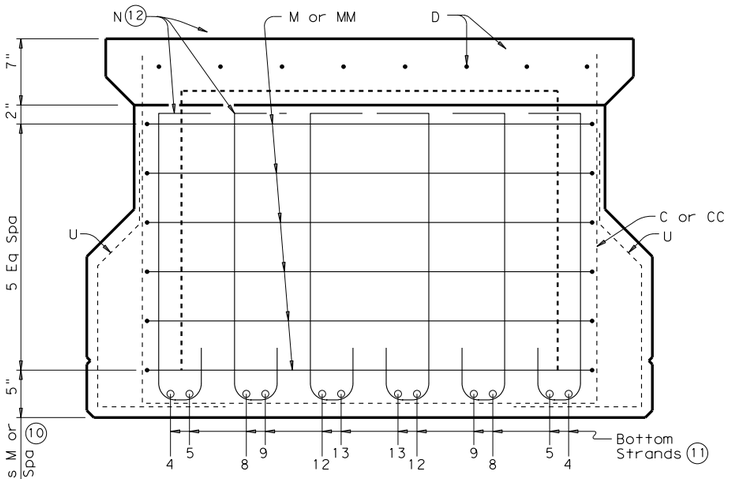
PARTIAL PLAN ~ 30° SKEW

(Showing Type 4B40)
(use for skew angles greater than 15° and less than or equal to 30°)



SECTION THRU BLOCKOUT ~ TYPE 4B40

(Showing End Mat Reinforcing)



SECTION THRU BLOCKOUT ~ TYPE 5B40

(Showing End Mat Reinforcing)

(1) Bars Z are required for beams topped with a cast-in-place concrete slab only.

(2) Post-tensioning tendons are required for beams not topped with a Min 5" cast-in-place concrete slab. See span details for number and spacing of transverse tendons. Cast interior diaphragms in exterior beams and beams that serve temporarily as exterior beams in staged constructed bridges. See "Blockout, Interior Diaphragm, and Drain Details". Form 3" Dia holes in interior beams. See Standard BBPT for details.

(9) Cut as required to maintain one inch clear between bars.

(10) Bars M may be adjusted vertically as required to avoid pretensioning strands in web.

(11) See standard BBND or appropriate Prestressed Concrete Box Beam Standard Designs sheet for locations of pretensioning strands.

(12) For Type 4B40 Box Beams: Bars N may be reduced to 4 bars per row when beam design contains fewer than 22 strands. In this case, place Bars N at the 5-6 and 8-9 strand locations.

For Type 5B40 Box Beams: Bars N may be reduced to 5 bars per row when beam design contains fewer than 28 strands. In this case, place Bars N at the 4-5, 9-10 and 14-14 strand locations.

HL93 LOADING

Texas Department of Transportation

Bridge Division Standard

PRESTRESSED CONCRETE BOX BEAM DETAILS (TYPE B40)

BB-B40

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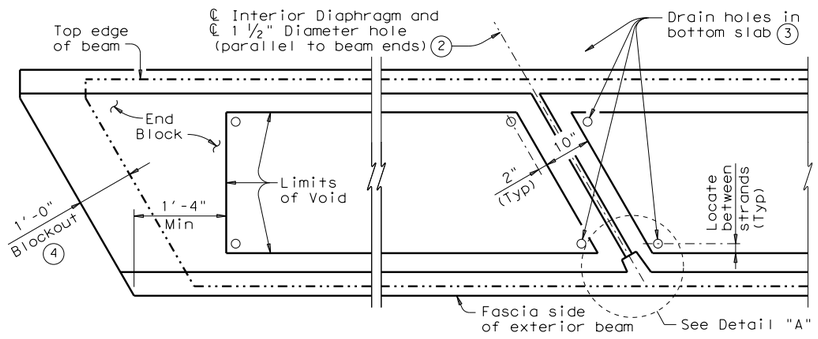
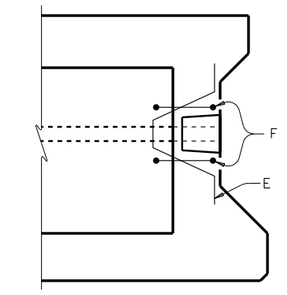
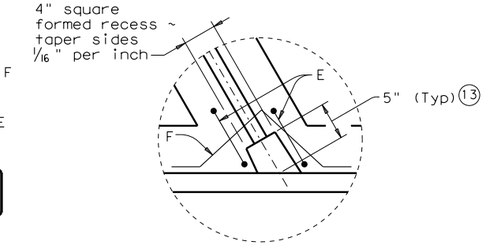


BLOCKOUT, INTERIOR DIAPHRAGM AND DRAIN DETAILS

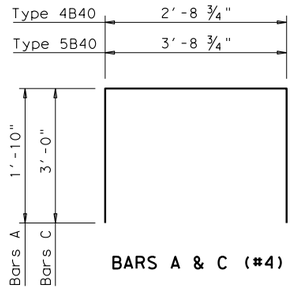
(Showing 30° skew)



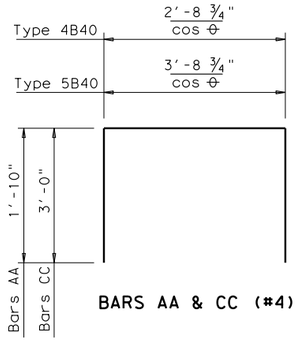
POST-TENSION ANCHORAGE DETAIL



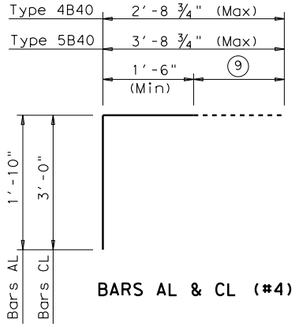
DETAIL A



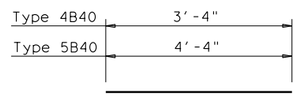
BARS A & C (#4)



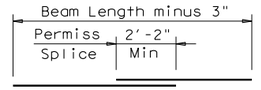
BARS AA & CC (#4)



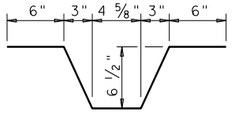
BARS AL & CL (#4)



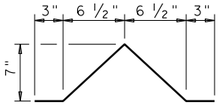
BARS B (#4)



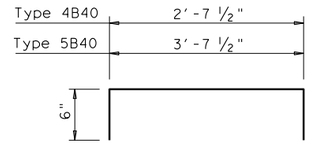
BARS D (#5)
Permissible splices to be placed in middle third of span



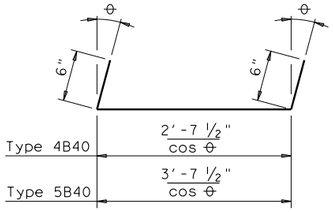
BARS E (#4)



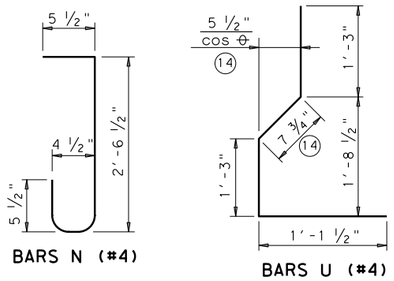
BARS F (#4)



BARS M (#4)

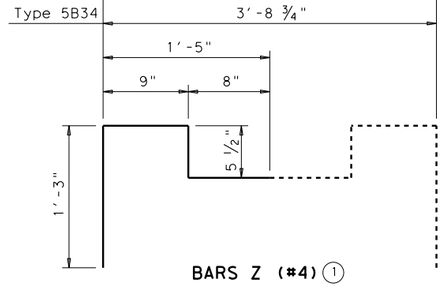


BARS MM (#4)



BARS N (#4)

BARS U (#4)



BARS Z (#4) (1)
At fabricator's option, Bars Z pairs may be fabricated using one continuous bar. If this option is used, Bars B at Bar Z locations (only) may be omitted.

(1) Bars Z are required for beams topped with a cast-in-place concrete slab only.

(2) Post-tensioning tendons are required for beams not topped with a Min 5" cast-in-place concrete slab. See span details for number and spacing of transverse tendons. Cast interior diaphragms in exterior beams and beams that serve temporarily as exterior beams in staged constructed bridges. Form 3" Dia holes in interior beams. See "Blockout, Interior Diaphragm, and Drain Details". See standard BBPT for details.

(3) Place drain holes (1" Dia PVC Sch 40 Pipe) as shown in all beam void corners including each side of interior diaphragms. See "Blockout, Interior Diaphragm, and Drain Details".

(4) Blockouts required at ends of all beams. Extend beam reinforcement into blockouts.

(9) Cut as required to maintain one inch clear between bars.

(13) 5" (Typ) or sufficient depth to provide 1" Cover on cut-off tendon. See BBPT for details.

(14) Dimension will vary slightly with skew. Adjust as necessary.

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PRESTRESSED CONCRETE BOX BEAM DETAILS (TYPE B40)

BB-B40

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