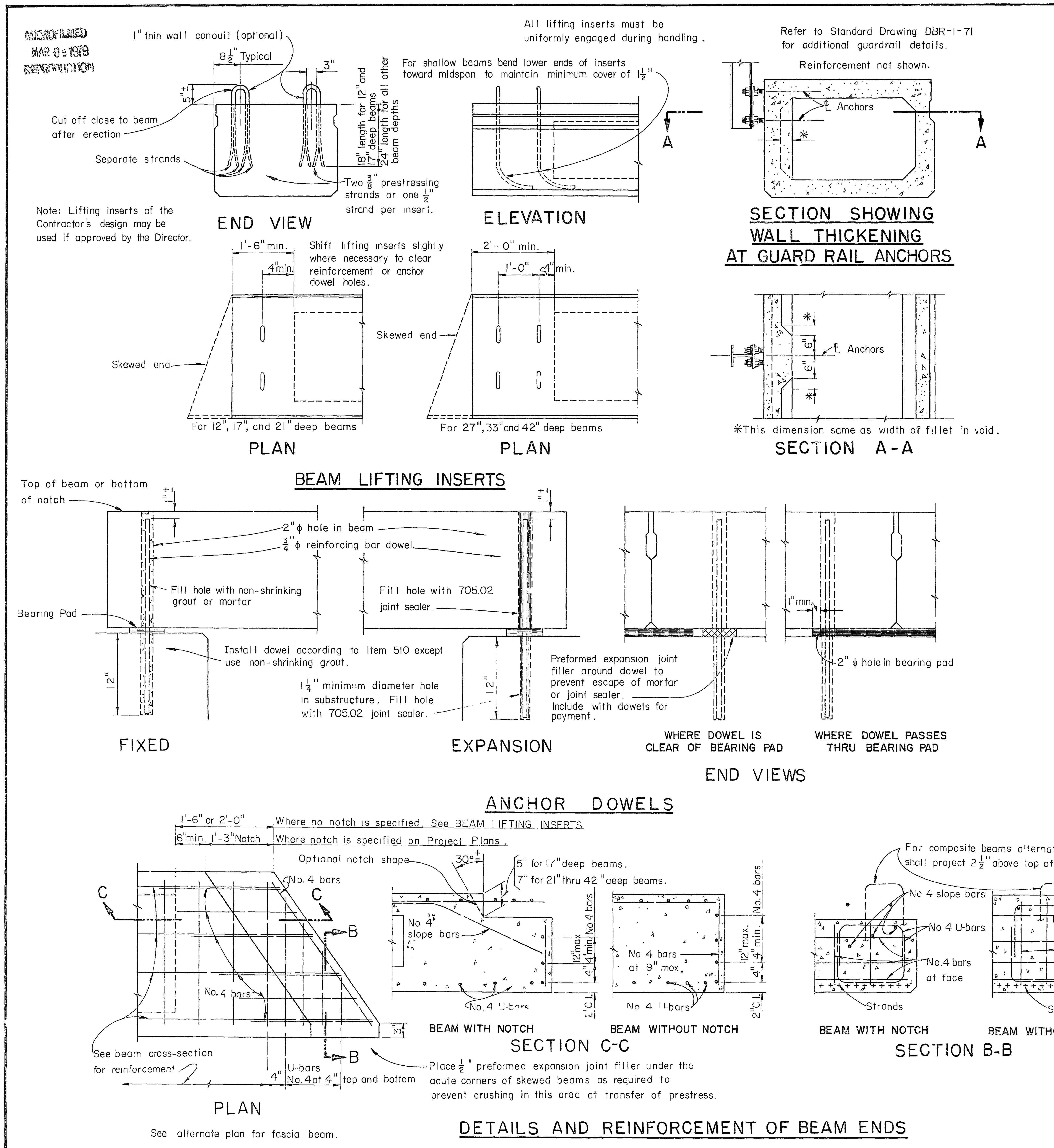


GENERAL: The project plans shall specify the details on this standard drawing which are to apply.

TRANSVERSE TIE RODS shall be 1" diameter steel rods of A36 steel, threaded both ends and with nut and washer at both ends. Threads may be cut or rolled. If rolled threads are used, minimum diameter of rod at root of threads shall be 0.838". Tension shall be applied by a torque of approximately 250 foot-pounds. After the tie rods are tightened the recesses in the fascia beams shall be filled with non-shrinking mortar of the same color as the beams.

PRESTRESSING STRANDS: The project plans shall specify the number, location, size, and strength of prestressing strands, the required prestressing force, and deflected or de-bonded strand data.

GALVANIZING: All anchor bolts, studs, inserts, tie rods, nuts and washers shall be galvanized [illegible]

ANCHOR DOWELS: The beam ends to be anchored shall be indicated on the project plans. Anchor dowel holes and prestressing strands shall be located to avoid mutual interference. The general spacing of the holes in the beam shall be such that the anchor dowels either clear the elastomeric bearing pads or pass thru 2" ϕ holes in the pads. Holes in pads shall have 1" minimum clearance from edges of pads.

After tensioning of the transverse tie rods the dowel holes shall be drilled into the abutment or pier seat and dowels installed. Cost of installing anchor dowels shall be included with item 515 for payment if not listed as a separate item.

BEARING PADS: Size, hardness, and location of elastomeric bearing pads shall be shown on the project plans.

NOTCHES shall be provided in beam ends where shown on the project plans to provide continuity over piers or to accommodate anchorage for end dams or expansion joints.

NON-SHRINKING MORTAR AND GROUT, to qualify as non-shrinking, shall have as its cement component either of the following:

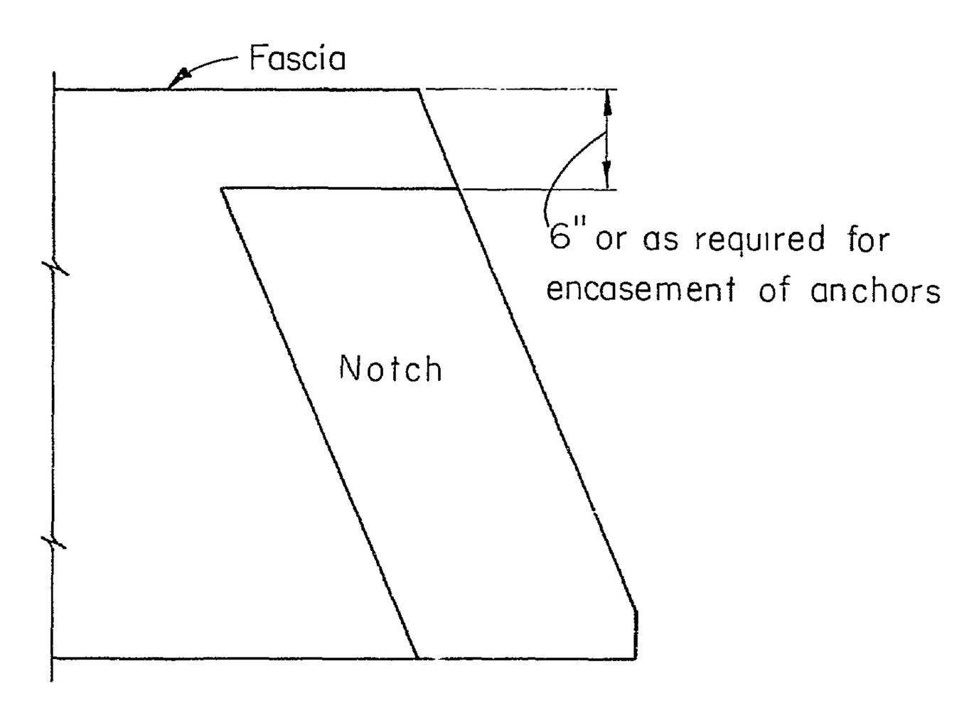
a. Shrinkage compensating cement.
b. Ordinary portland cement mortar with an additive, a primary function of which is to eliminate or substantially reduce drying shrinkage. Additives shall be subject to approval by the Director.

MORTARING OF SHEAR KEYS: After the transverse tie rods have been tightened shear keys shall be filled with non-shrinking mortar. Before mortaring, the keyway surfaces shall be wetted, but no free water shall be allowed to remain in the keyways. Mortar shall be placed into the keyways in a manner that insures complete and solid filling. This work is included with Item 515 for payment.

COMPOSITE BRIDGES: The following notes apply to composite bridges only:

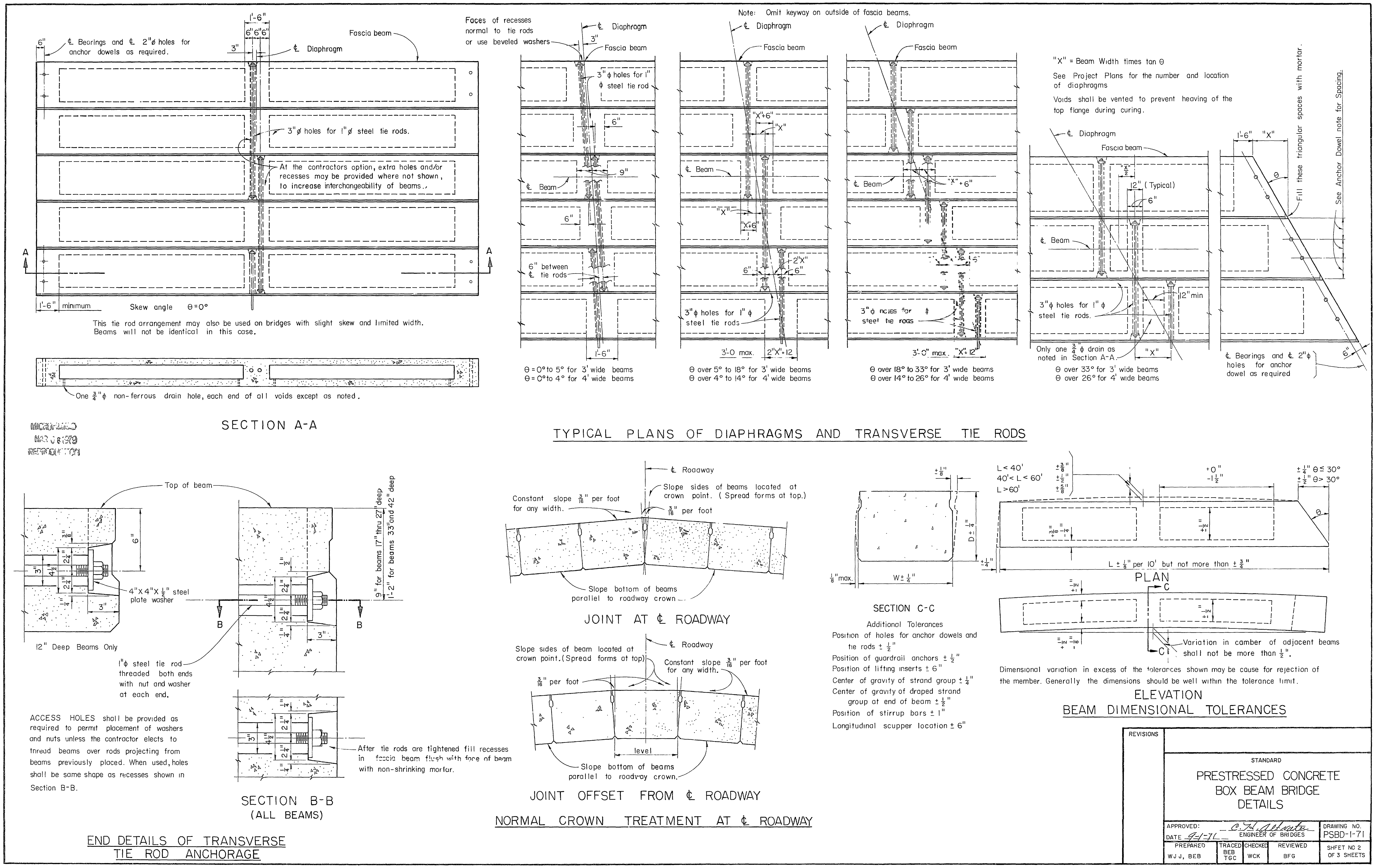
CLEANING PRIOR TO PLACEMENT OF COMPOSITE SLAB: Before placement of the slab concrete, the tops of all beams shall be thoroughly cleaned of all dirt, dust, and other foreign matter. The surface shall be flushed with clear water and shall be wet, without free water, when the concrete is placed.

SLAB PLACEMENT: On multi-span bridges with slab continuous over piers, construction joints perpendicular to the centerline of roadway may be placed near the center of a span. However, composite slab pours shall be as long as practicable. On multi-span bridges with joints at piers, composite slabs shall be placed between joints without additional construction joints.



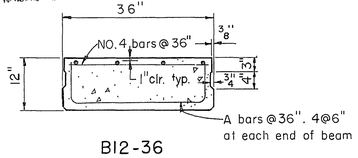
PLAN-FASCIA BEAM WITH NOTCH

REVISIONS	
STANDARD	
PRESTRESSED CONCRETE BOX BEAM BRIDGE DETAILS	
APPROVED: [signature] ENGINEER OF BRIDGES DATE: 9-1-71	DRAWING NO. PSBD-1-71
PREPARED: WJJ & BEB; TRACED: GFJ TGC; CHECKED: WCK; REVIEWED: BFG	SHEET NO. 1 OF 3 SHEETS

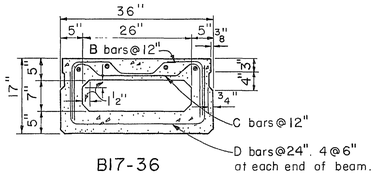


℄ Bearings and ℄ 2"φ holes for anchor dowels as required.
Fascia beam
℄ Diaphragm
3" φ holes for 1" φ steel tie rods.
At the contractors option, extra holes and/or recesses may be provided where not shown, to increase interchangeability of beams.
1'-6" minimum
Skew angle θ = 0°
This tie rod arrangement may also be used on bridges with slight skew and limited width. Beams will not be identical in this case.
One 3/4" φ non-ferrous drain hole, each end of all voids except as noted.
SECTION A-A
Faces of recesses normal to tie rods or use beveled washers
3" φ holes for 1" φ steel tie rod
6" between ℄ tie rods
θ = 0° to 5° for 3' wide beams
θ = 0° to 4° for 4' wide beams
Note: Omit keyway on outside of fascia beams.
3" φ holes for 1" φ steel tie rods
3'-0 max.
θ over 5° to 18° for 3' wide beams
θ over 4° to 14° for 4' wide beams
θ over 18° to 33° for 3' wide beams
θ over 14° to 26° for 4' wide beams
"X" = Beam Width times tan θ
See Project Plans for the number and location of diaphragms
Voids shall be vented to prevent heaving of the top flange during curing.
12" (Typical)
12" min
Only one 3/4" φ drain as noted in Section A-A.
θ over 33° for 3' wide beams
θ over 26° for 4' wide beams
℄ Bearings and ℄ 2"φ holes for anchor dowel as required
Fill these triangular spaces with mortar.
See Anchor Dowel note for Spacing.
TYPICAL PLANS OF DIAPHRAGMS AND TRANSVERSE TIE RODS
Top of beam
4"X4"X 1/2" steel plate washer
12" Deep Beams Only
1"φ steel tie rod threaded both ends with nut and washer at each end.
9" for beams 17" thru 27" deep
1'-2" for beams 33" and 42" deep
ACCESS HOLES shall be provided as required to permit placement of washers and nuts unless the contractor elects to thread beams over rods projecting from beams previously placed. When used, holes shall be same shape as recesses shown in Section B-B.
SECTION B-B
(ALL BEAMS)
After tie rods are tightened fill recesses in fascia beam flush with face of beam with non-shrinking mortar.
END DETAILS OF TRANSVERSE TIE ROD ANCHORAGE
℄ Roadway
Constant slope 3/16" per foot for any width.
Slope sides of beams located at crown point. (Spread forms at top.)
Slope bottom of beams parallel to roadway crown.
JOINT AT ℄ ROADWAY
Slope sides of beam located at crown point. (Spread forms at top)
level
JOINT OFFSET FROM ℄ ROADWAY
NORMAL CROWN TREATMENT AT ℄ ROADWAY
SECTION C-C
Additional Tolerances
Position of holes for anchor dowels and tie rods ± 1/2"
Position of guardrail anchors ± 1/2"
Position of lifting inserts ± 6"
Center of gravity of strand group ± 1/4"
Center of gravity of draped strand group at end of beam ± 1/2"
Position of stirrup bars ± 1"
Longitudinal scupper location ± 6"
L < 40'
40' < L < 60'
L > 60'
L ± 1/8" per 10' but not more than ± 3/4"
PLAN
Variation in camber of adjacent beams shall not be more than 1/2".
Dimensional variation in excess of the tolerances shown may be cause for rejection of the member. Generally the dimensions should be well within the tolerance limit.
ELEVATION
BEAM DIMENSIONAL TOLERANCES
REVISIONS
STANDARD
PRESTRESSED CONCRETE BOX BEAM BRIDGE DETAILS
APPROVED: C. H. [signature] ENGINEER OF BRIDGES
DATE 9-1-71
DRAWING NO. PSBD-1-71
PREPARED WJJ, BEB
TRACED BEB TGC
CHECKED WCK
REVIEWED BFG
SHEET NO 2 OF 3 SHEETS

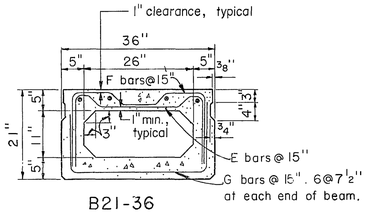
MICROFILMED
MAR 0 6 1979
RENUMBERED



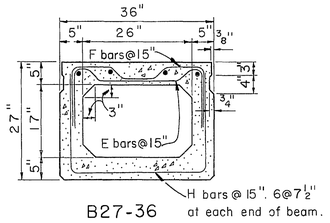
B12-36



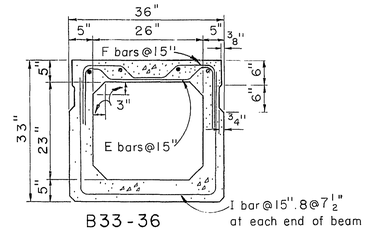
B17-36



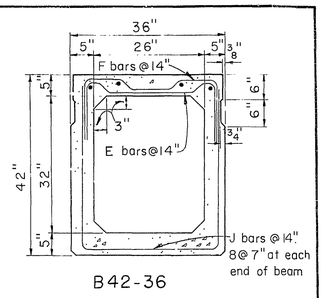
B21-36



B27-36

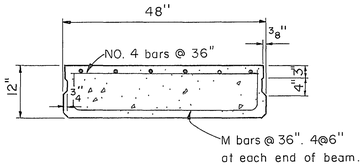


B33-36

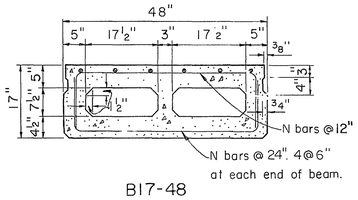


B42-36

NOTE: Place all bottom stirrups on top of bottom layer of strands.



B12-48



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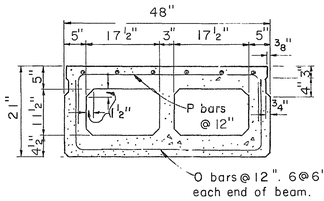

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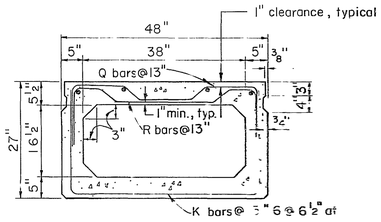

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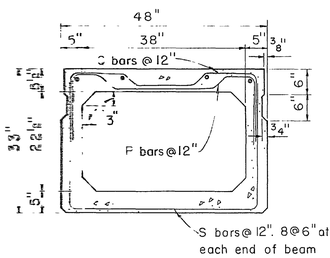

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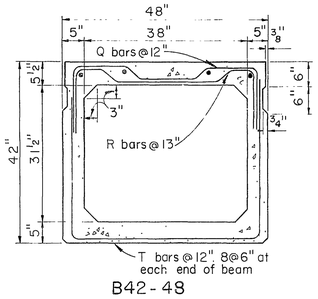
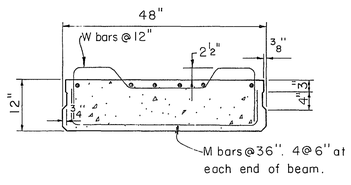


B42-48

48" WIDE NON-COMPOSITE BEAMS



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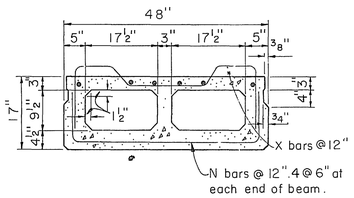

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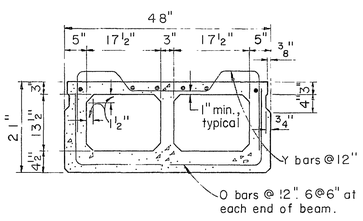

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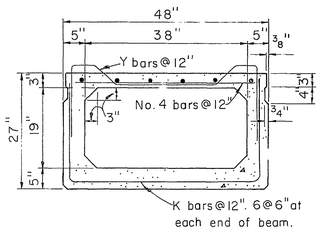

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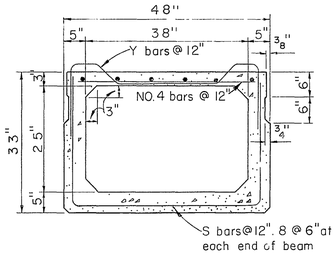

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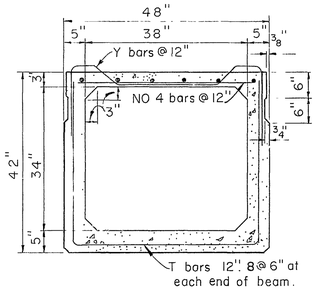


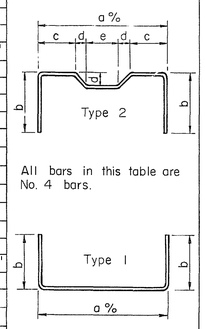
CB42-48

48" WIDE COMPOSITE BEAMS

Bent Reinforcing Bars

Mark	Type	a	b	c	d	e
A	1	31"	9"			
B	2	31"	11"	9"	2 1/2"	8"
C	2	31"	11"	3"	2 1/2"	20"
D	1	31"	13"			
E	2	31"	14"	3"	2 1/2"	20"
F	2	31"	14"	9"	2 1/2"	8"
G	1	31"	17"			
H	1	31"	23"			
I	1	31"	29"			
J	1	31"	38"			
K	1	43"	23"			
M	1	43"	8"			
N	1	43"	13"			
O	1	43"	17"			
P	1	43"	11"			
Q	2	43"	14"	12"	3"	13"
R	2	43"	14"	6"	3"	25"
S	1	43"	29"			
T	1	43"	38"			
W	2	43"	12"	9"	4"	17"
X	2	43"	14"	9	4"	17"
Y	2	43"	17"	9"	4"	17"

Bending Diagrams



LONGITUDINAL REINFORCING STEEL

36" wide non-composite beams: 4 - No. 5 bars

48" wide non-composite beams:

B12 thru B21, 6 - No. 4 bars

B27 thru B42, 4 - No. 5 bars

48" wide composite beams: 6 - No. 4 bars

REVISION	

STANDARD

PRESTRESSED CONCRETE BOX BEAM BRIDGE DETAILS

APPROVED				DRAWING NO
DATE 9-1-71	ENGINEER OF BRIDGES C. H. Abbate			PSBD-1-71
PREPARED	TRACED	CHECKED	REVIEWED	SHEET NO. 3 OF 3 SHEETS
WJJ, BEB	GFJ TGC	WCK	BFG	