

DESIGN NOTES

DESIGN SPECIFICATIONS AASHTO

Standard Specifications for Highway Bridges (10th Edition) with subsequent Interim Specifications.

DESIGN LOADS: HS-20-44 or Interstate loading

DESIGN STRESSES:

1. R.C. beams & slabs - See AASHTO Specifications and Special Provisions except as otherwise noted.

Class A	Class E
$f'_c = 3,000 \text{ psi}$	$4,500 \text{ psi}$
$f_c = 1,200 \text{ psi}$	$1,800 \text{ psi}$
$n = 10$	8
$f_s = \text{ASTM A615, see Special Provisions}$	

2. Prestressed Girders

$f'_c = 5,500 \text{ psi}$ | $\frac{1}{2}$ " dia. 7 wire strands
 $f_{ci} = 4,000 \text{ psi}$ | Tensioning load = 28,900 lbs. per strand
 Design load = 23,550 lbs. per strand.
 Forms must be removed and the beams inspected before the strands are cut.

3. Pile Capacity - See corresponding bridge detail drawings.

GENERAL NOTES

MATERIALS:

1. All concrete shall be class A except as otherwise noted on plans. Concrete for prestressed concrete girders see Standard Specifications and as noted under Design Stresses.
2. Preformed fabric elastomeric bridge bearing pads, and deck drain & pipe leader, are incidental to concrete & will not be paid for separately.
3. See Special Provisions for admixture in concrete.
4. All piles to be prestressed concrete piles Type I - see Standard Det. Sht. Nos. DB-300-1, DB-300-2.
5. The limits of the structure fill or backfill material requiring a sand equivalent value of not less than 20 shall extend up to the bottom of the roadway subgrade lines.

CONSTRUCTION METHODS:

1. See Standard Specifications and Special Provisions.
2. Piles driven through embankment which is more than 5 feet above natural ground shall be driven in holes drilled through the embankment.
3. For Concrete finish see Special Provisions. Concrete seats and creep blocks to be poured monolithically with pier. Top surfaces of conc. seats to have hard trowel finish.
4. See details for additional surface finish.
5. In general, top & edge of concrete deck of superstructure shall be constructed to follow the finish roadway vertical & horizontal curves and grades.

6. Backfilling for both abutments to be placed simultaneously at each abutment after the superstructure is cured.

REFERENCE:

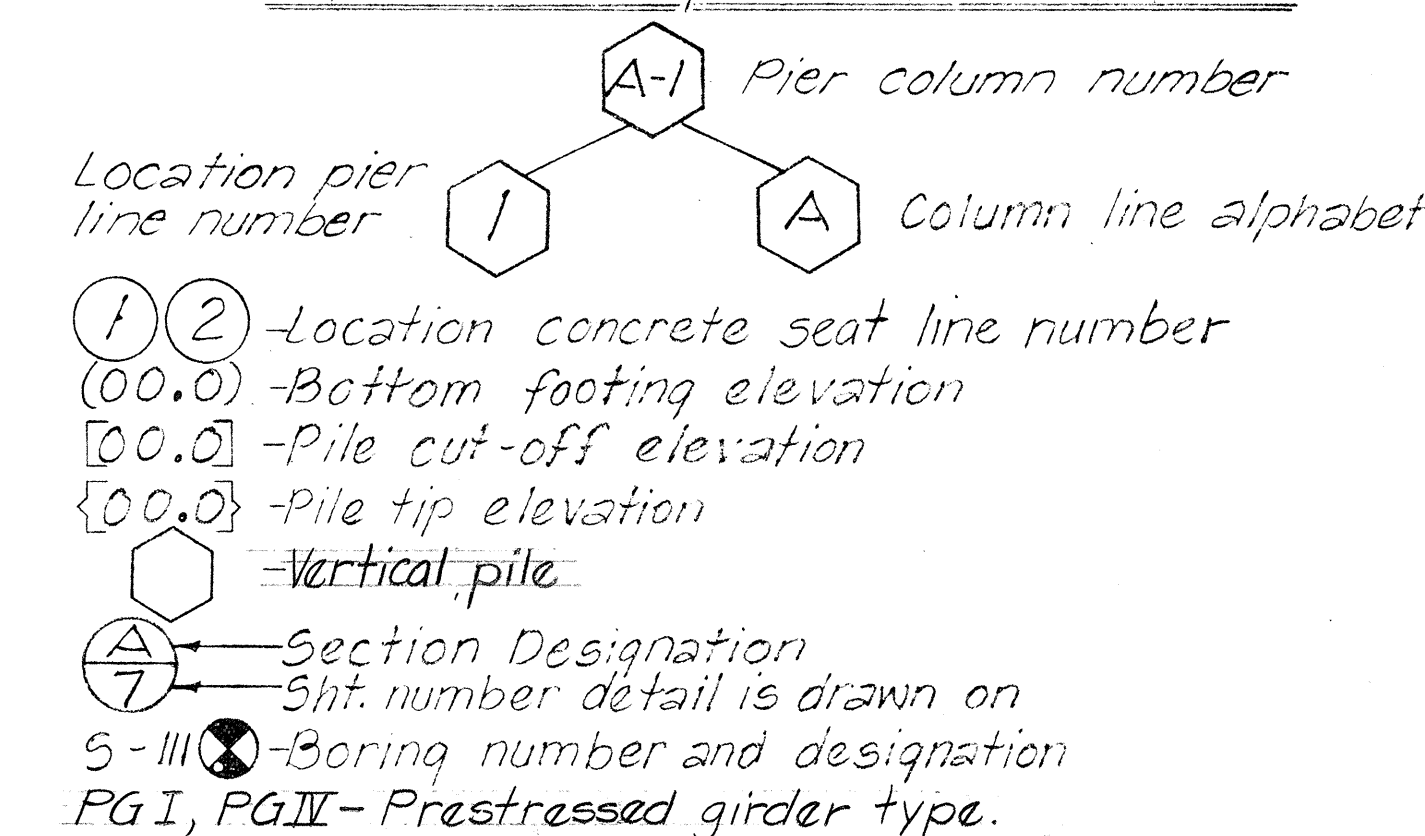
1. Typical Details drawing sheet Nos. TD-1 thru TD-7 inclusive refers to all bridge structures except for modification as may be required by special conditions. For such modifications see corresponding detailed plans.
2. Refer to Standard Detailed Drawings for additional details not covered by detailed plans.

GENERAL:

1. Additional structure fill where indicated on detailed drawings shall be incidental to structure excavation, roadway excavation or imported borrow.
2. Drains & metal door D-I at pier walls shall be incidental to concrete & will not be paid for separately.
3. All items noted incidental will not be paid for separately.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-HI-1(90):13	1972	134	202

SYMBOLS & ABBREVIATION



CPF - Continuous Footing type

SE - Superelevation
 G-1, G-2 - Girder numbers.

C.J. - Construction Joint.

Bl - Baseline
 Pt - Point
 Exp. - Expansion
 No. - Number
 Cont. - Continuous
 E.F. - Each Face
 B.F. - Both Face
 N.F. - Near Face
 F.F. - Far Face
 W.P. - Working Point
 ea. - each
 Bal. - Balance
 Bot, Bott - Bottom
 T - Top
 Ext. - Exterior
 Int. - Interior
 oc. - on center
 Typ. - Typical
 G.R.P. - Grouted Rubble Paving
 C.R.M. - Cement Rubble Masonry
 W.W.F. - Welded Wire Fabric
 Str. - Straight
 Stirr. - Stirrup
 N.B. - North Bound
 S.B. - South Bound
 H.H.R. - Halawa Heights Road

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
TYPICAL DETAILS
NOTES AND ABBREVIATIONS

HALAWA INTERCHANGE
 STRUCTURE NOS. 11, 14, 15

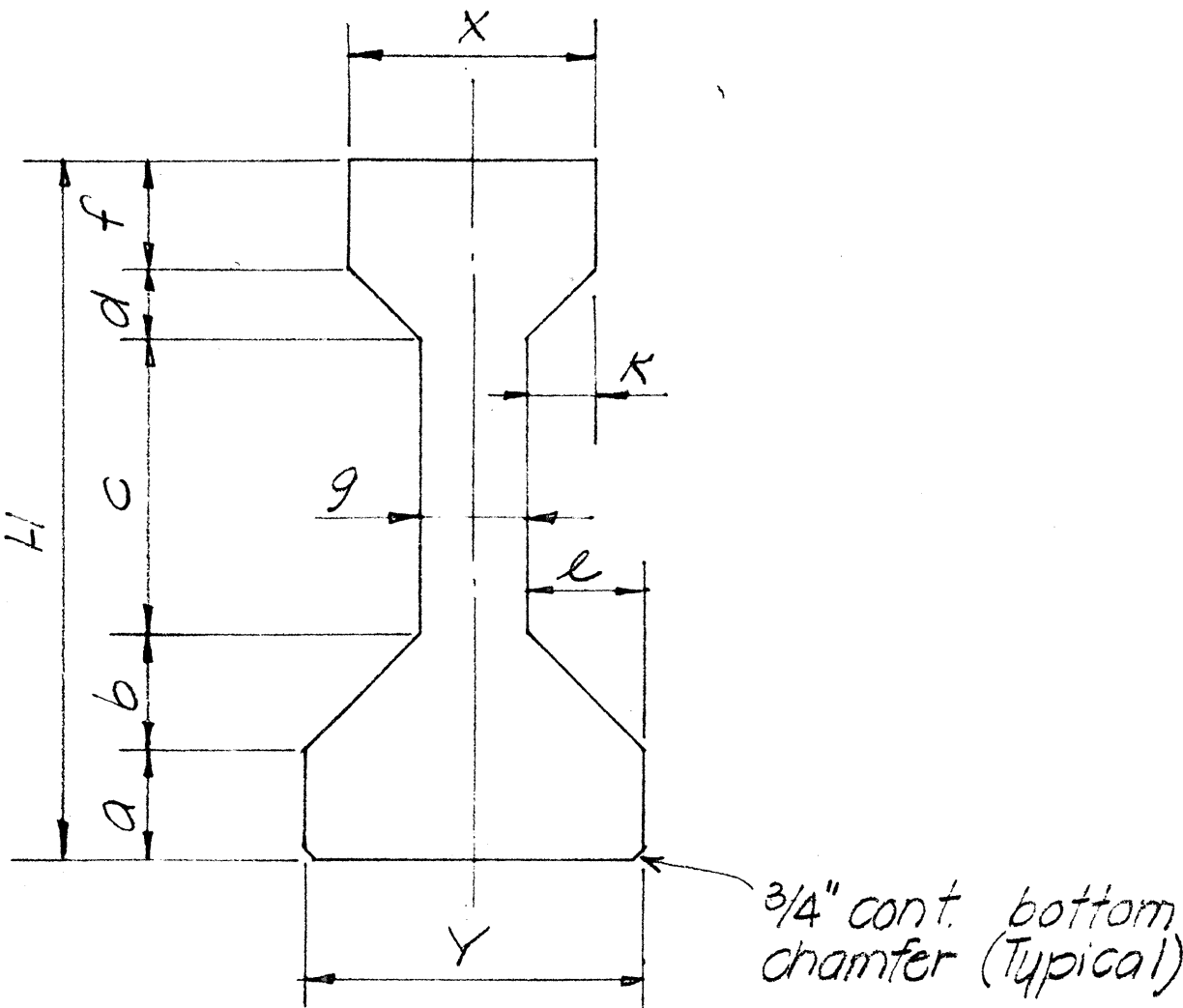
Proj. No.: I-HI-1(90):13 May 1971

SHEET No. TD-10F 7 SHEETS

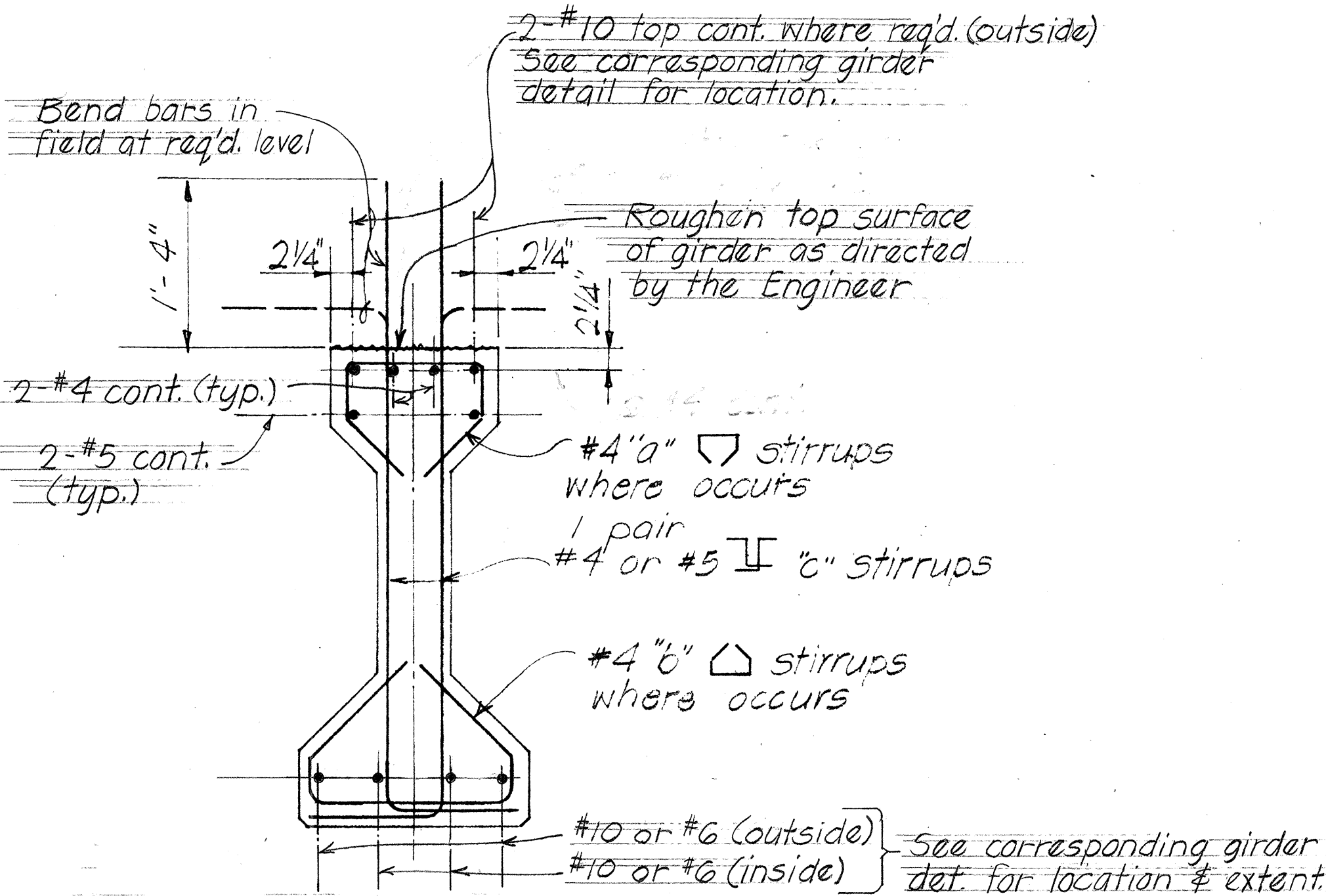
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HAWAII	HAW.	I-HH(90):13	1972	135	202

AASHTO-PCI STANDARD BRIDGE GIRDER DIMENSION															
GIRDER TYPE	H	X	Y	a	b	c	d	e	f	g	J	K	L	m	n
PG I	2'-4"	1'-0"	1'-4"	5"	5"	11"	3"	—	4"	6"	—	3"	5"		
PG II	3'-0"	1'-0"	1'-6"	6"	6"	1'-3"	3"	—	6"	6"	—	3"	6"		
PG III	3'-9"	1'-4"	1'-10"	7"	7 1/2"	1'-7"	4 1/2"	—	7"	7"	—	4 1/2"	7 1/2"		
PG IV	4'-6"	1'-8"	2'-2"	8"	9"	1'-11"	6"	—	8"	8"	—	6"	9"		



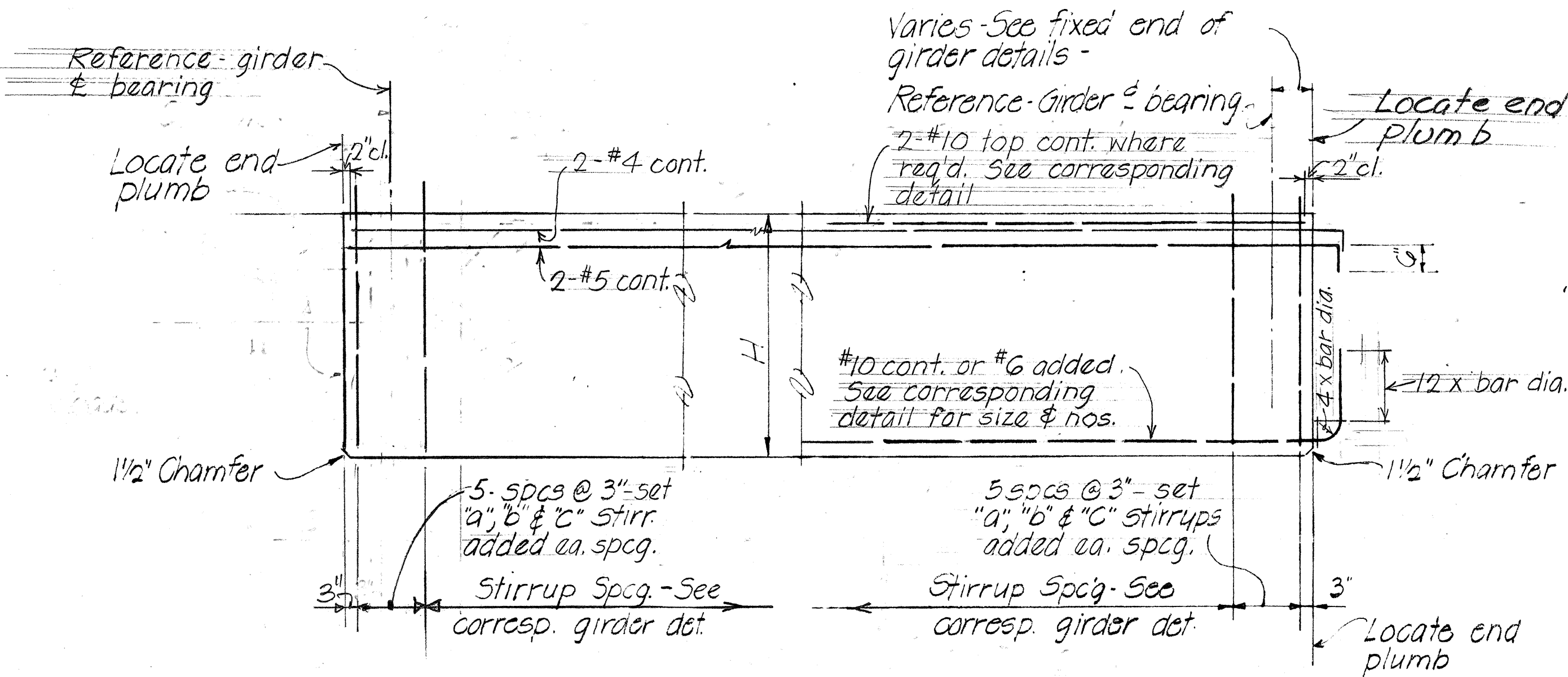
TYPE PG I THRU PG IV



TYPE PG I THRU PG IV

TYPICAL SECTION PRESTRESSED CONC. GIRDERS

BUNDLING OF PRESTRESSING REINFORCEMENT	
ARRANGEMENT AND CLEARANCE FOR POST TENSIONED UNITS	ARRANGEMENT AND CLEARANCE FOR PRETENSIONED STRANDS
- Horizontal clearance between units equals 2" min. - Units may be bundled vertically in groups of 3 maximum. - Vertical clearance between bundled units equal 3" minimum. - Approval of the Engineer is required for deviation.	- Strands may be bundled in groups as shown. - The minimum distance "S" between groups or individual strands is 2" for 1/2" strands. "S" is measured between centers of adjacent strands.
	Small space permitted within group 2-#3 @ 18" between #6-0 ea. side of harp pts. at top of ea. bundle. max. of 6 vertically stacked strands in any one group.



EXPANSION END FIXED END
TYPICAL DETAILS - AT ENDS OF GIRDER

GENERAL NOTES

For additional holes and inserts in prestressed girders for beam connections, refer to corresponding beam details.
For design stresses refer to shfs # TD-1 & corresponding girder detail drawings.
Exact location of protruding reinf. bars shall be approved by the Engineer.

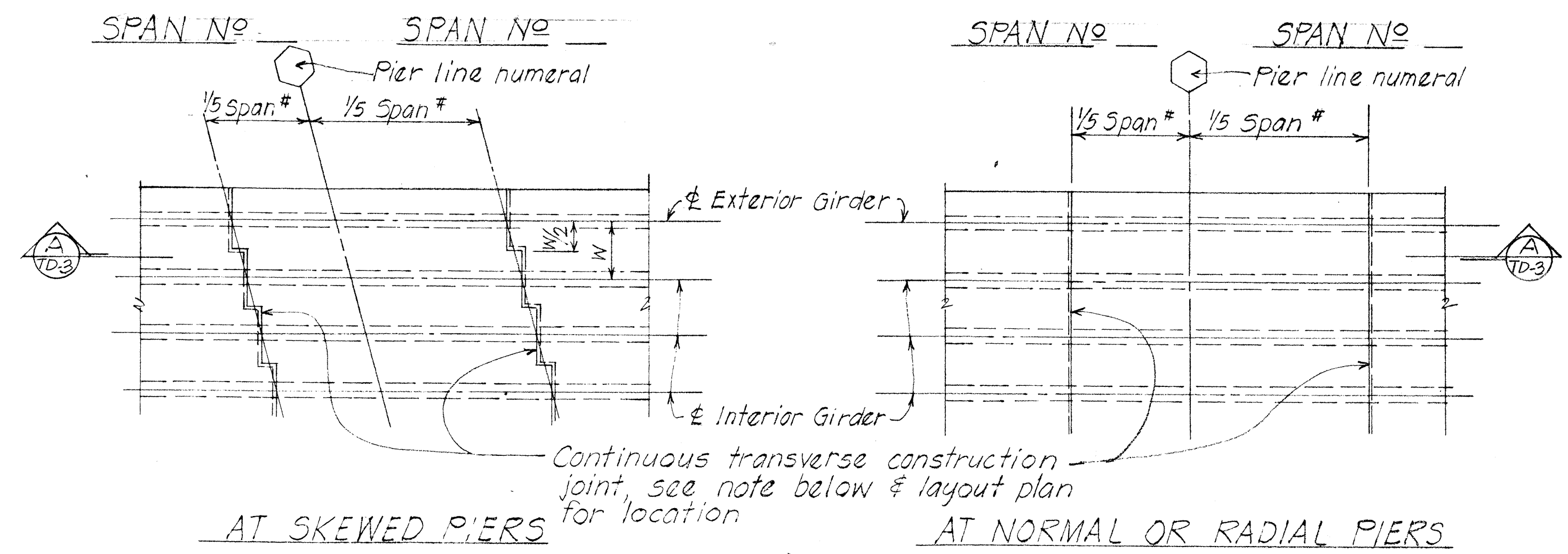
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HIGHWAYS DIVISION

TYPICAL DETAILS
PRESTRESSED GIRDER
HALAWA INTERCHANGE
STRUCTURE NOS. 11, 14, 15

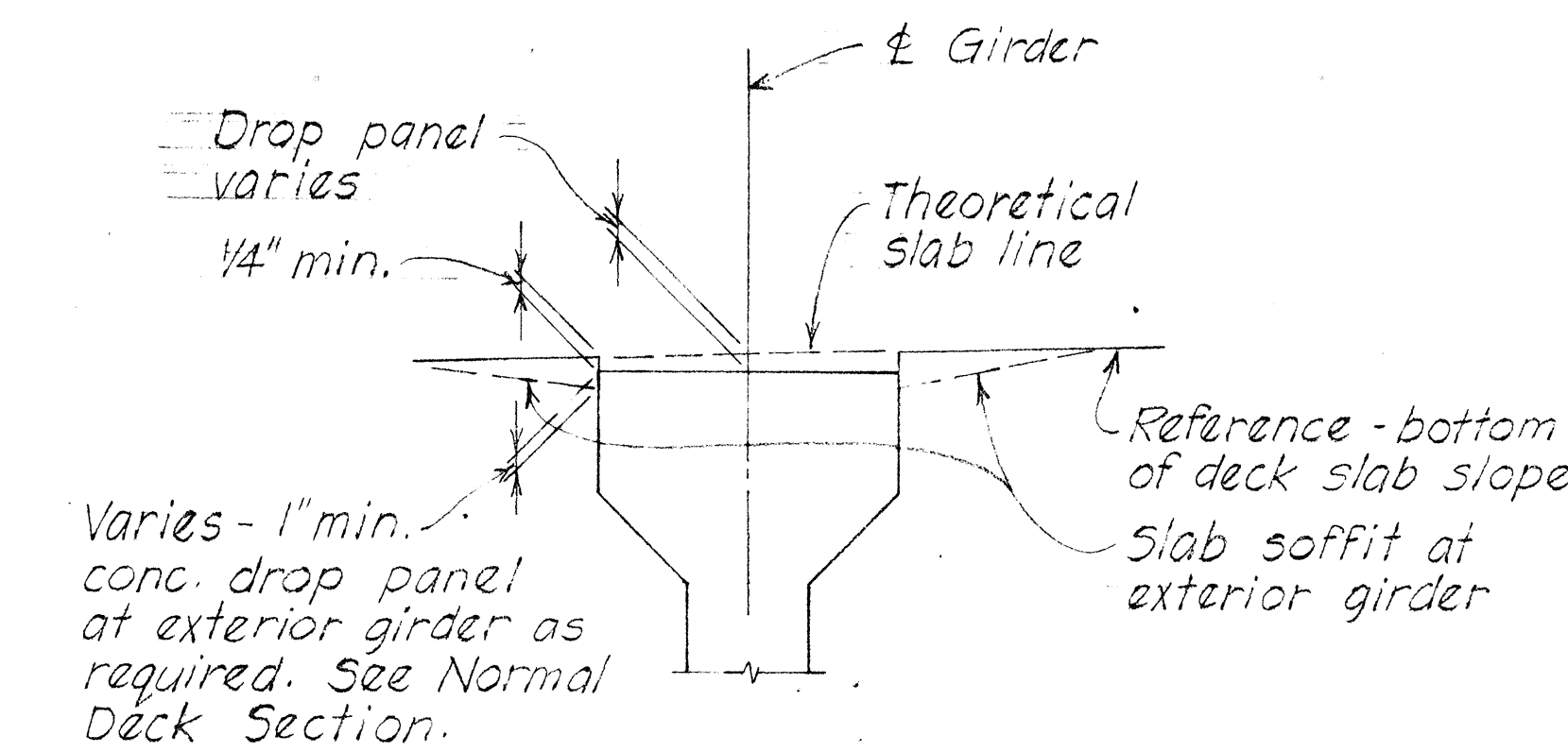
Proj. No: I-HI-1(90):13 May 1971
SHEET No. TD-2 OF 7 SHEETS

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTED BY	_____
ORIGINAL PLAN	_____
NOTE BOOK	_____
No.	_____

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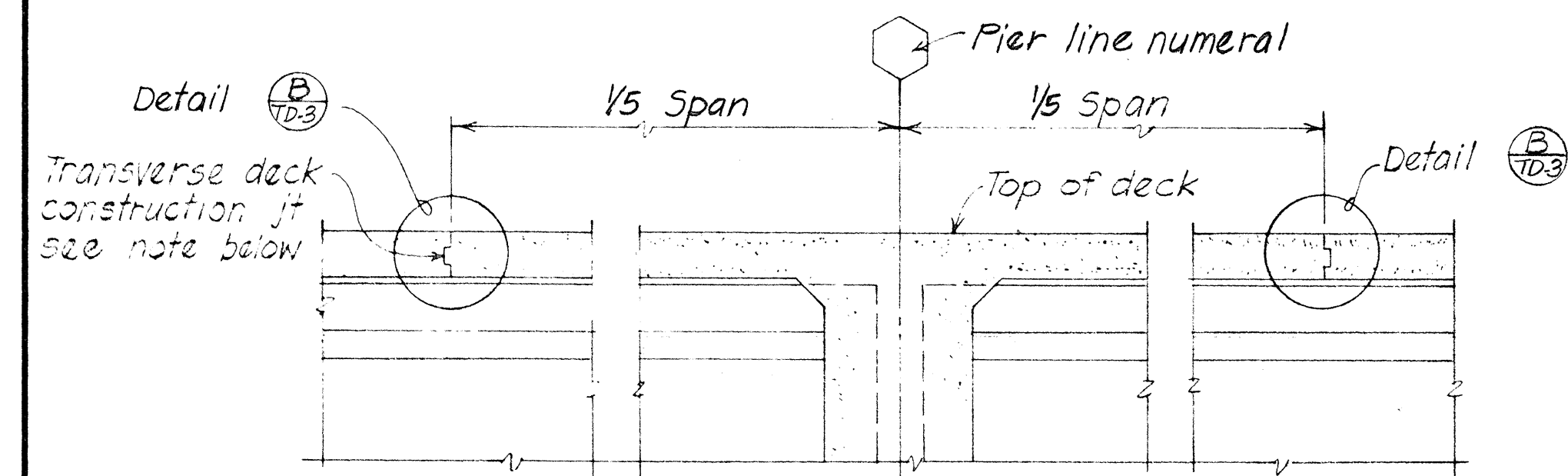


PLAN-TYPICAL TRANSVERSE DECK CONSTRUCTION JOINT LOCATION

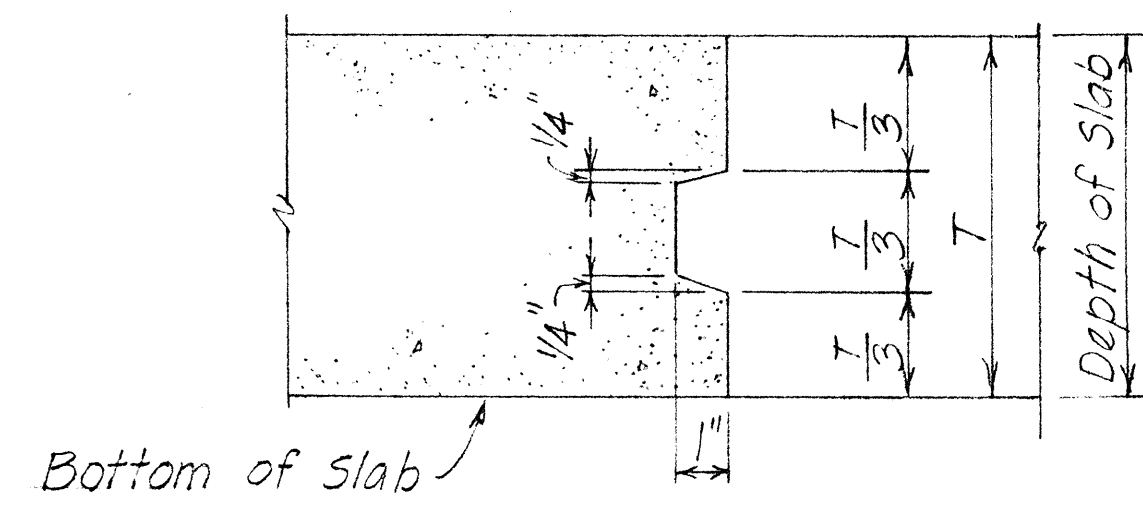


TYPICAL SLAB DROP PANEL DETAIL AT PRESTRESSED GIRDER

No scale



DETAIL OF CONTINUOUS SLAB OVER PIER



TYPICAL SLAB CONSTRUCTION JOINT DETAIL

NOTE: Transverse deck construction joint shall be used at these locations. The portion of the pour indicated between construction joints over the pier shall not be poured until the pours for the adjacent positive moment areas have been completed.

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HIGHWAYS DIVISION

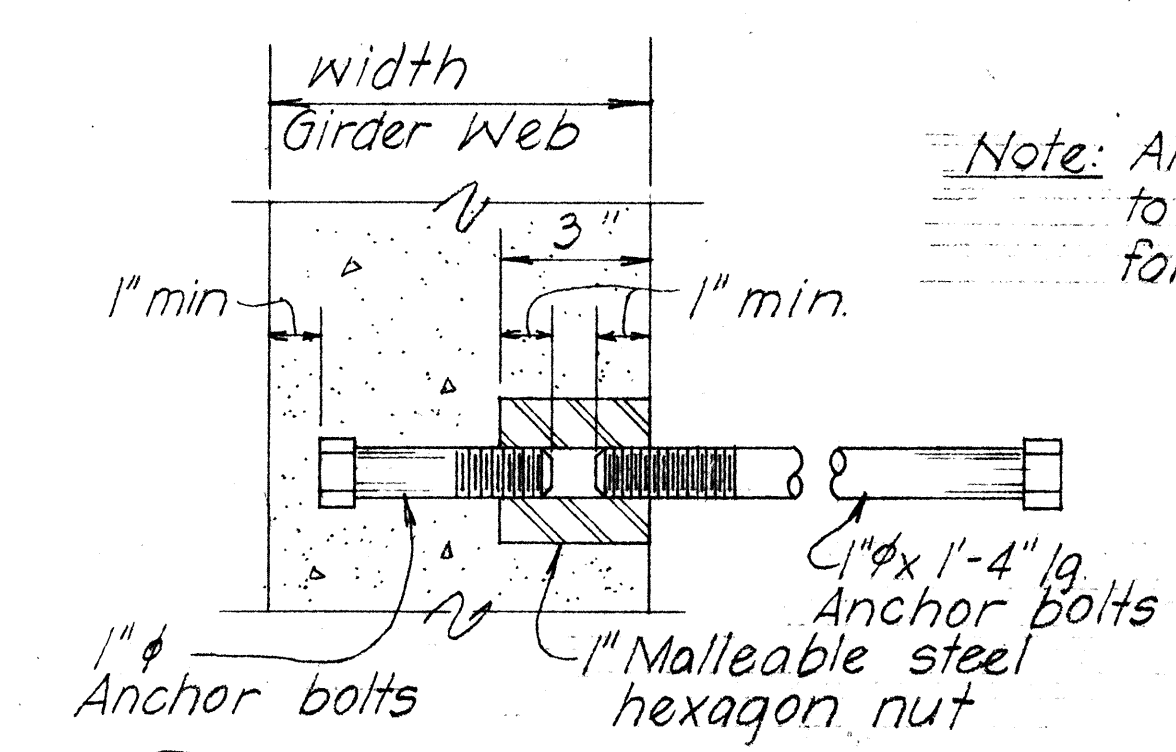
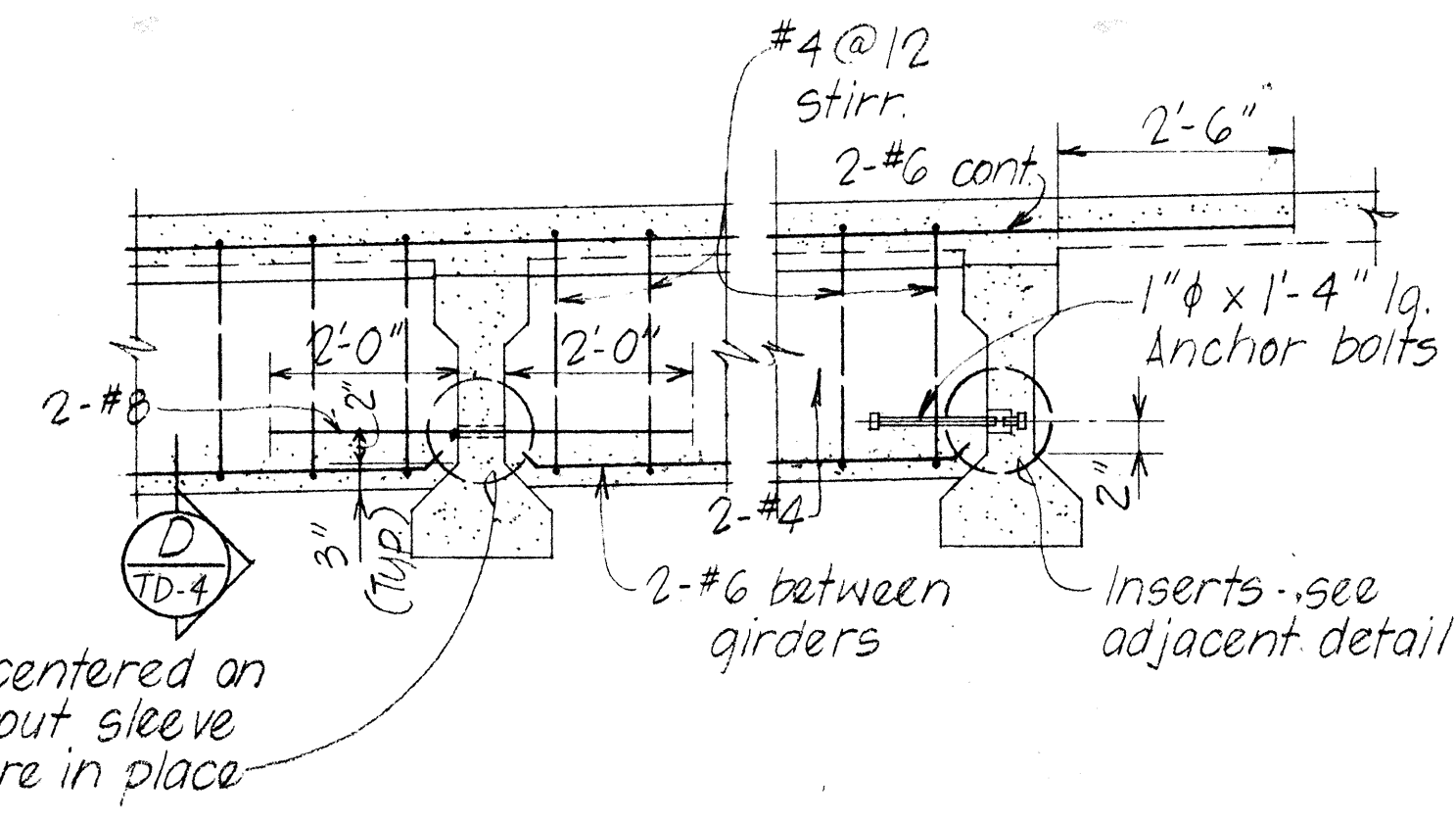
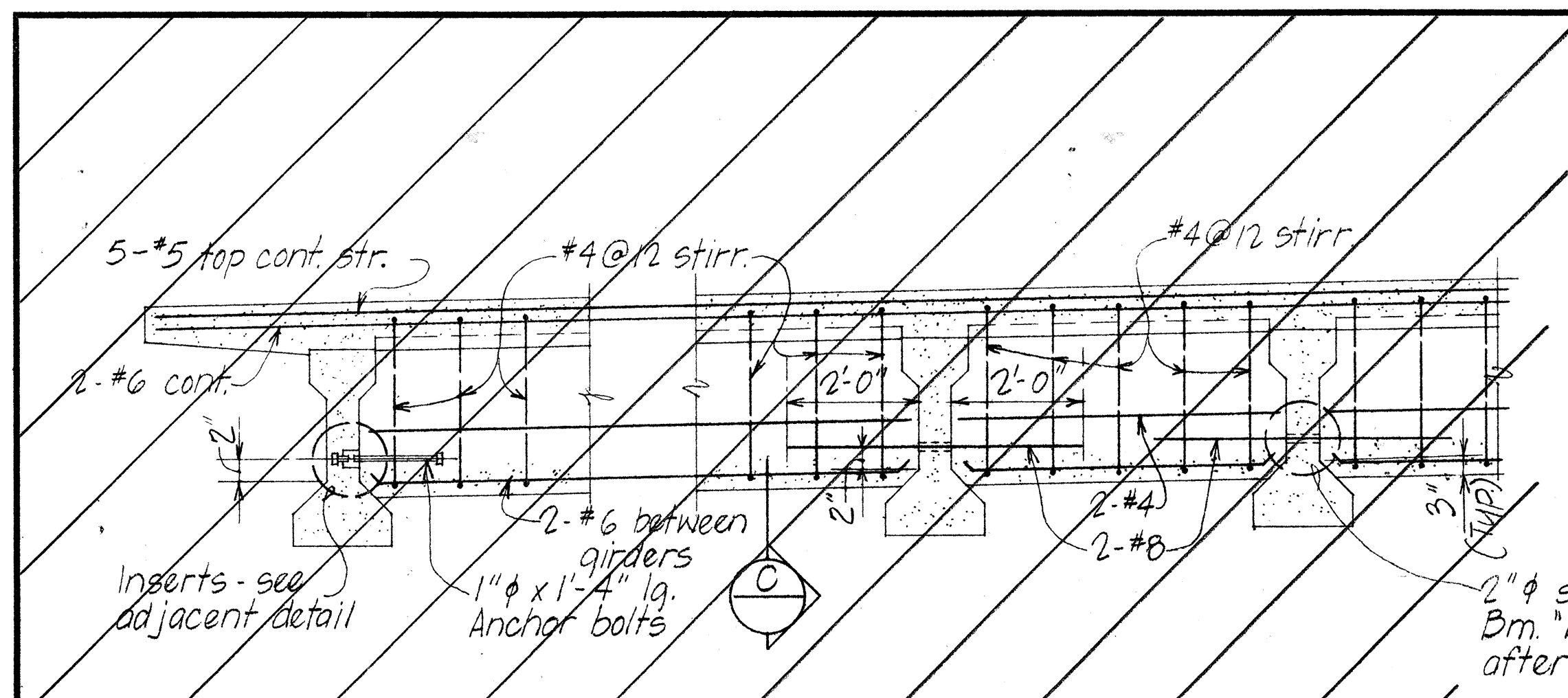
TYPICAL DETAILS

PRESTRESSED GIRDER SUPERSTRUCTURE
HALAWA INTERCHANGE
STRUCTURE NOS. 11, 14, 15

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SHEET No. TD-3 OF 7 SHEETS

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TYPICAL INSERT DETAIL
Scale: 3" = 1'-0"

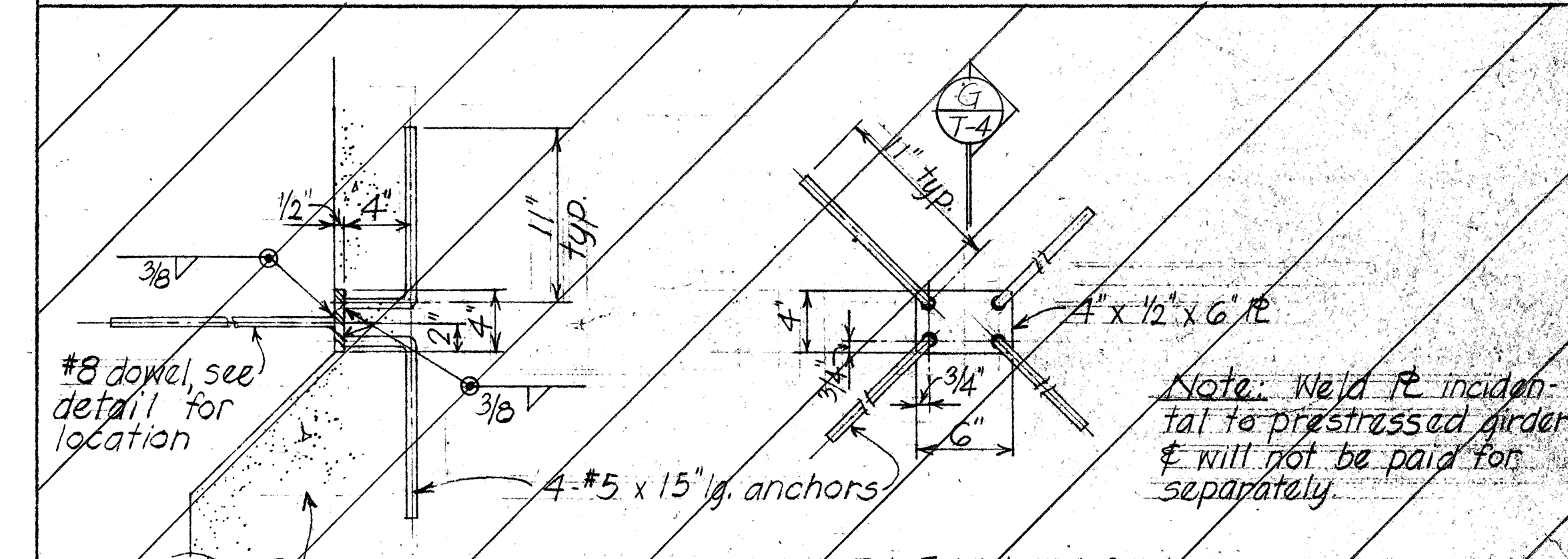
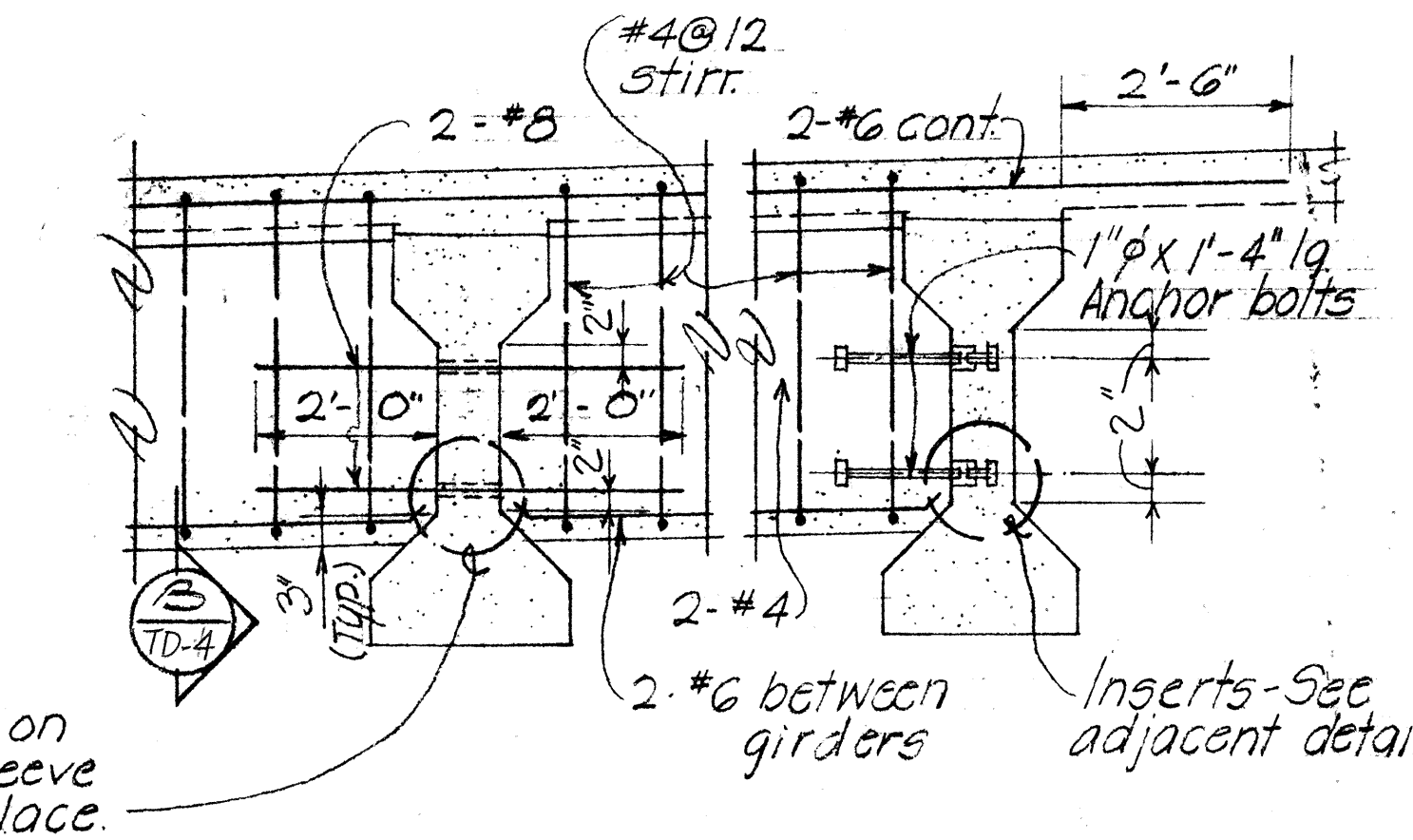
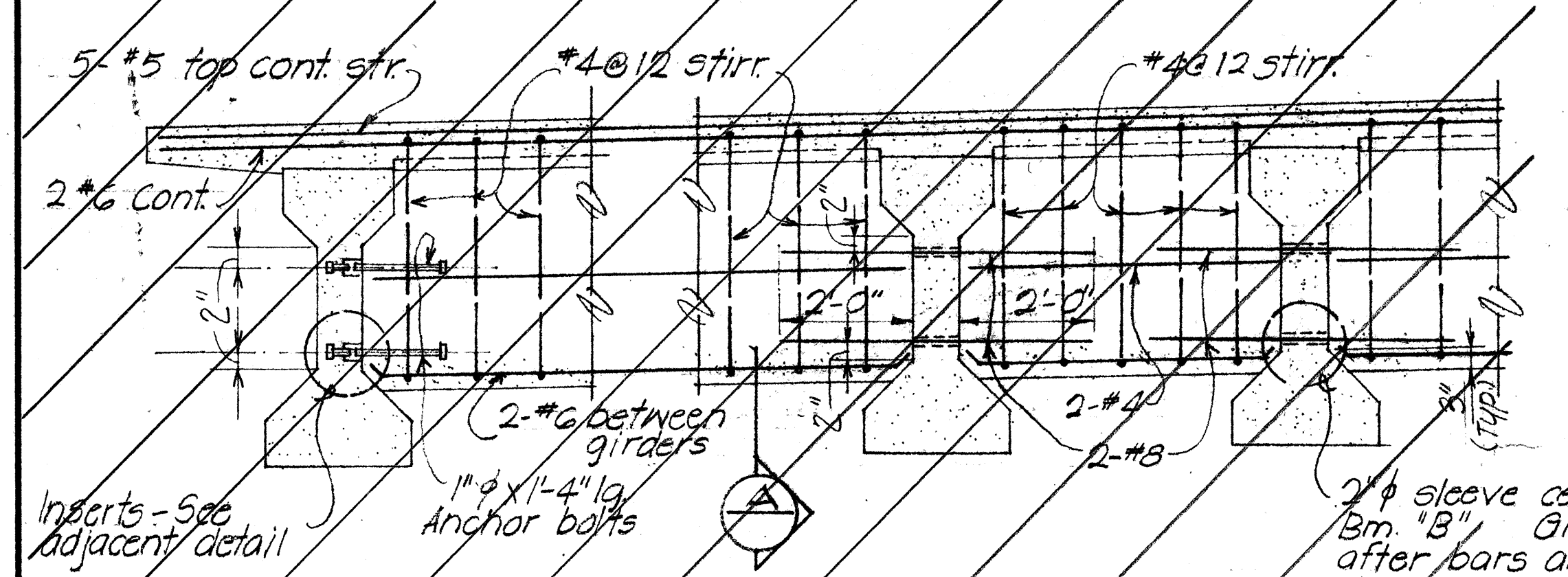
AT EXTERIOR GIRDERS BETWEEN INTERIOR GIRDERS

BETWEEN INTERIOR GIRDERS AT NON-CONT. END

AT TYPE I or II GIRDERS

AT TYPE I or II GIRDERS

NOT APPLICABLE



TYPICAL WELD DETAIL
Scale: 1 1/2" = 1'-0"

AT EXTERIOR GIRDERS BETWEEN INTERIOR GIRDERS

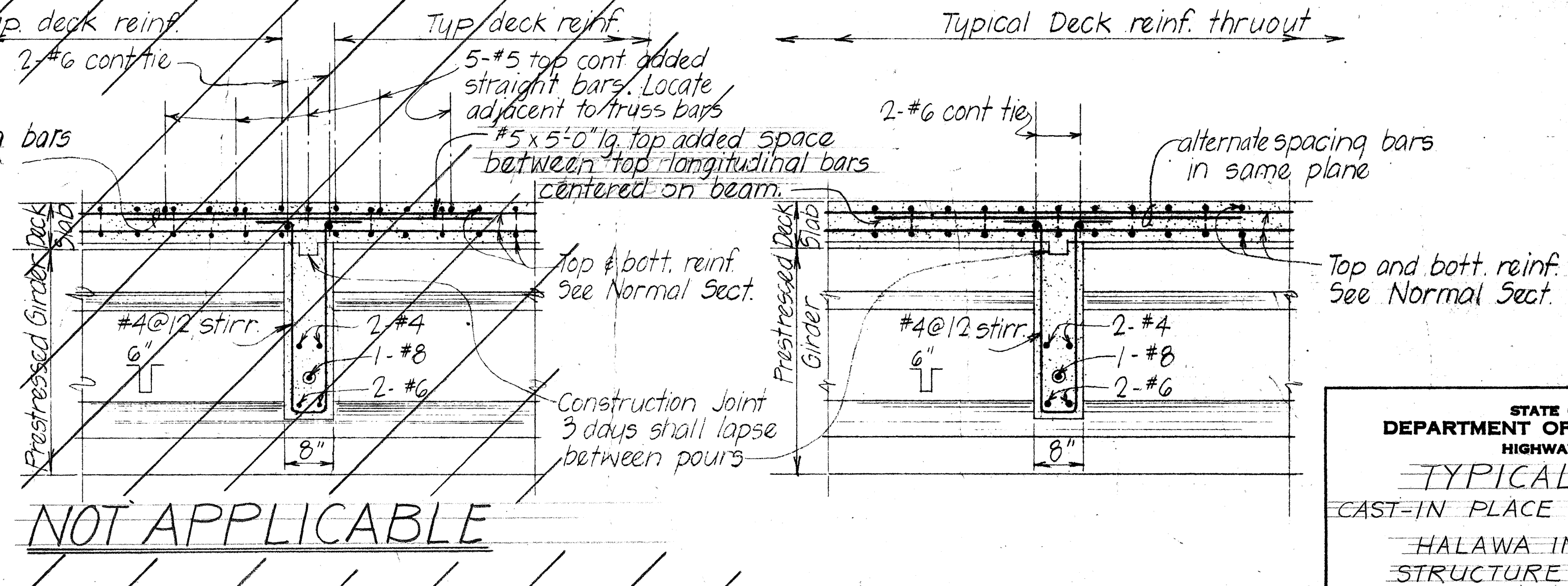
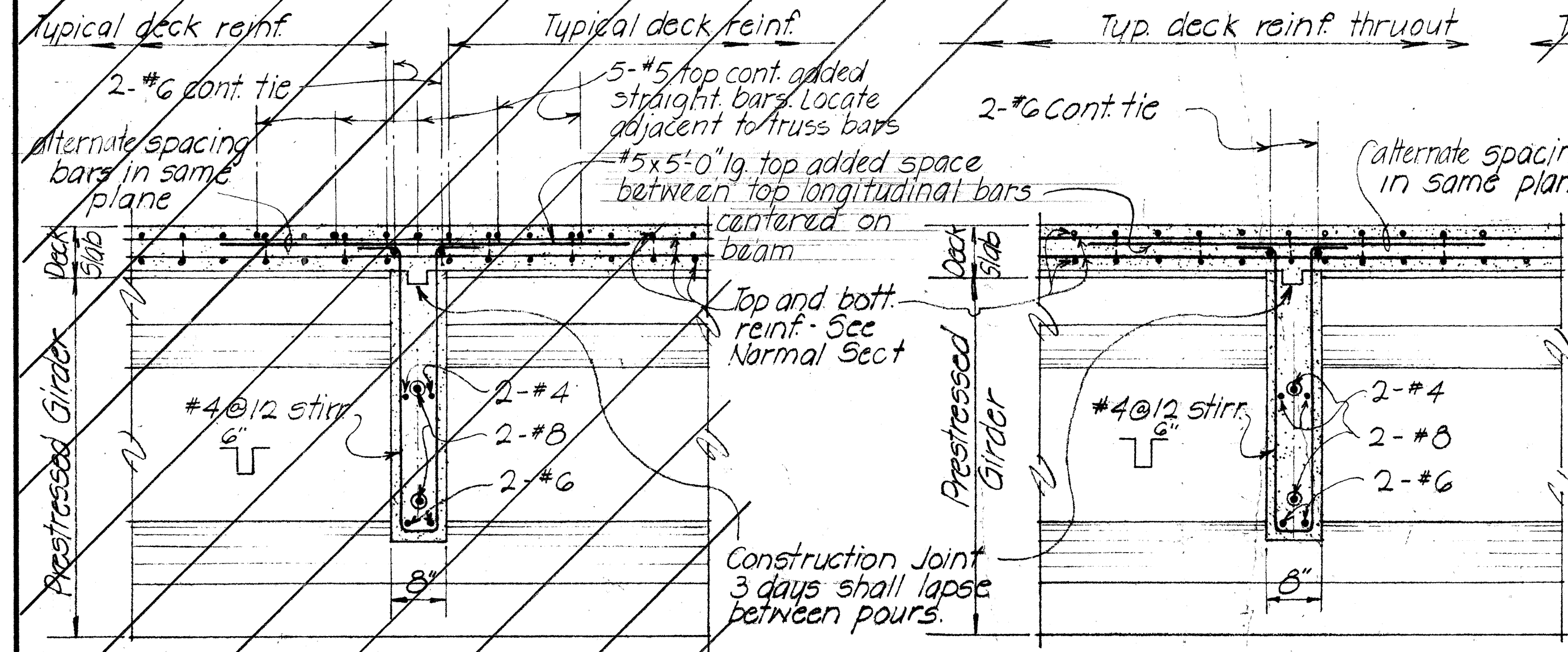
BETWEEN INTERIOR GIRDERS AT NON-CONT. ENDS

AT TYPE III or IV GIRDERS

AT TYPE III or IV GIRDERS

TYPICAL BEAM "B" DETAIL
Scale: 1/2" = 1'-0"

TYPICAL BEAM "B" DETAIL
Scale: 1/2" = 1'-0"



TYPICAL SECTION
Scale: 3/4" = 1'-0"

SECTION
Scale: 3/4" = 1'-0"

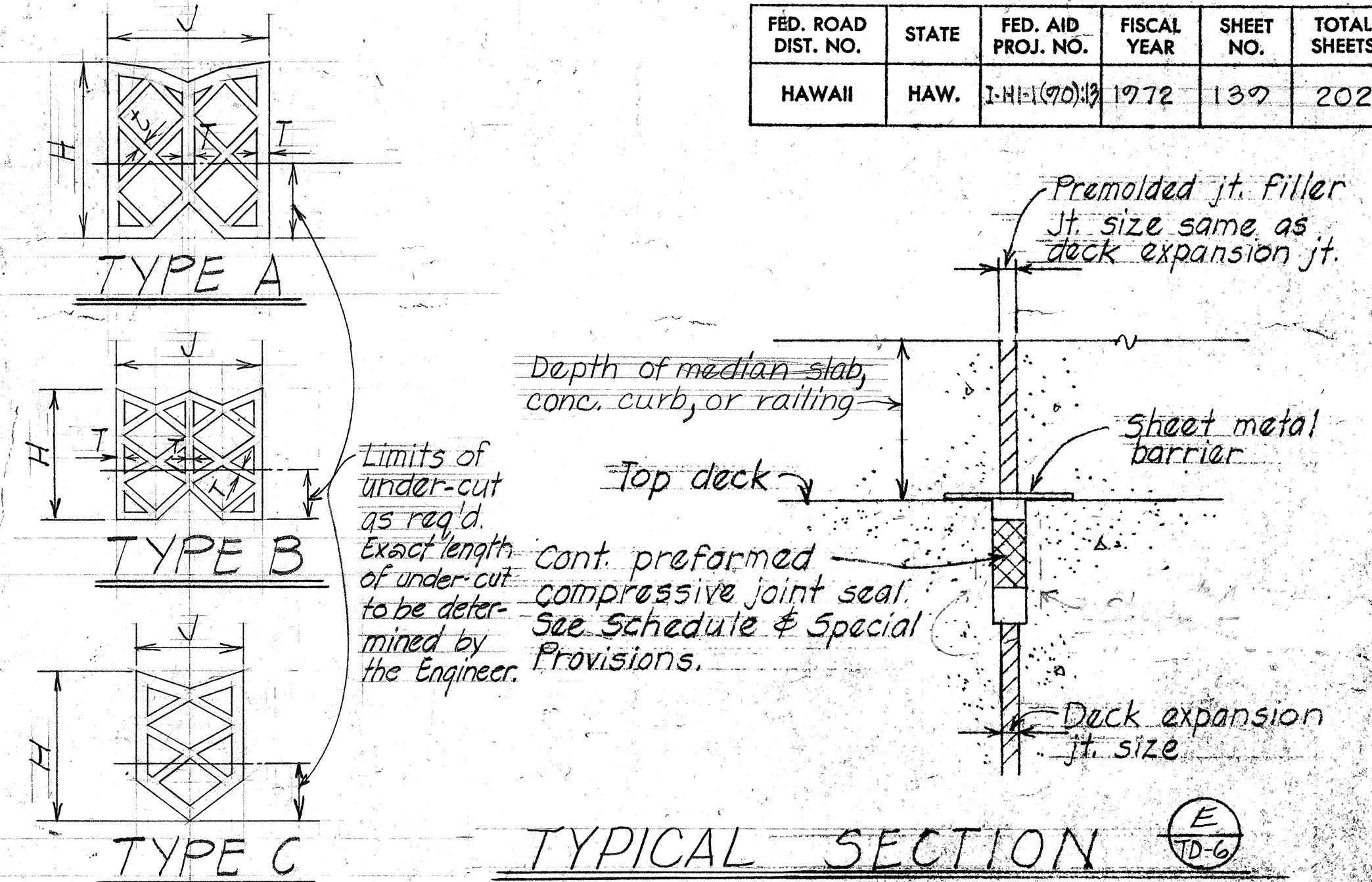
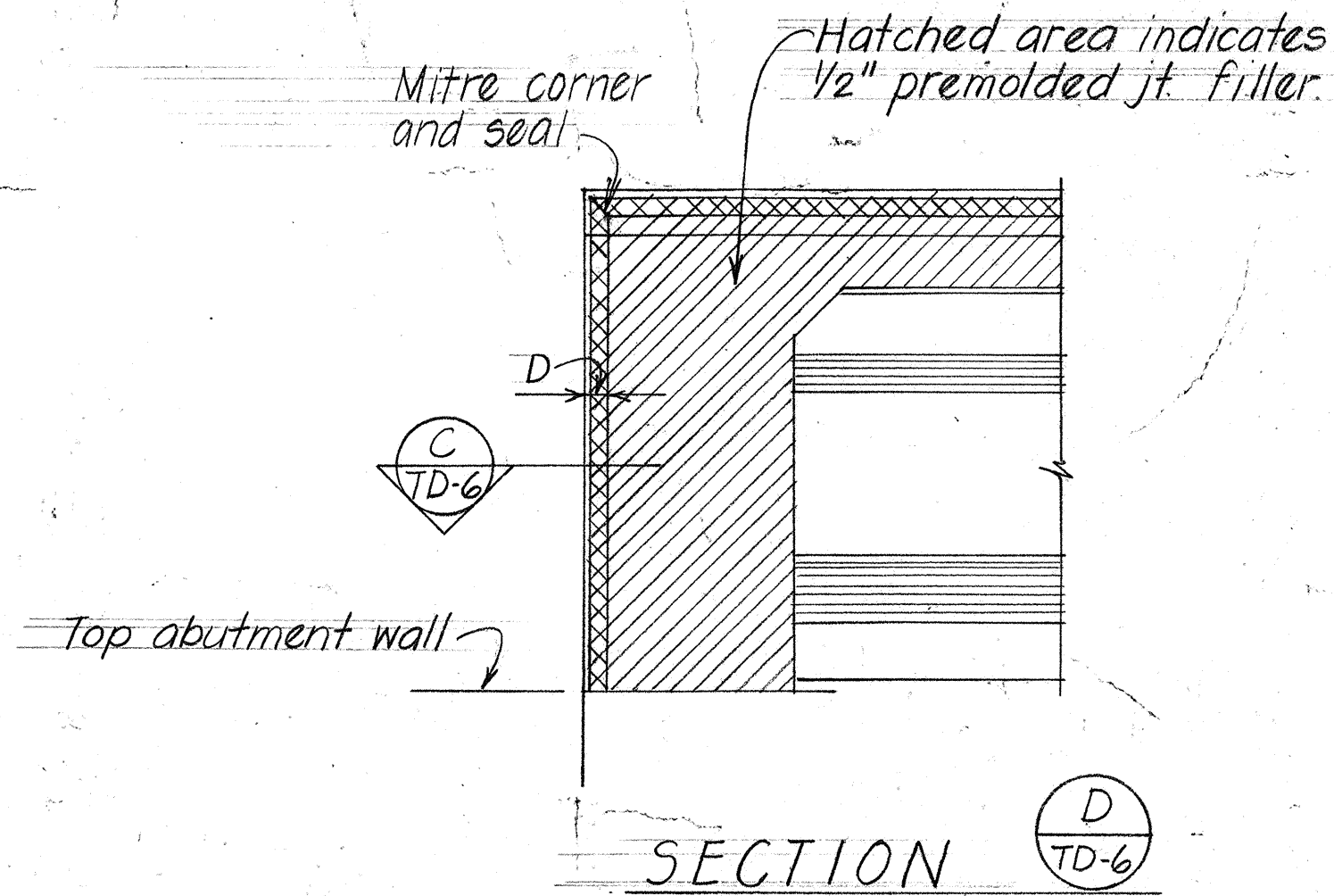
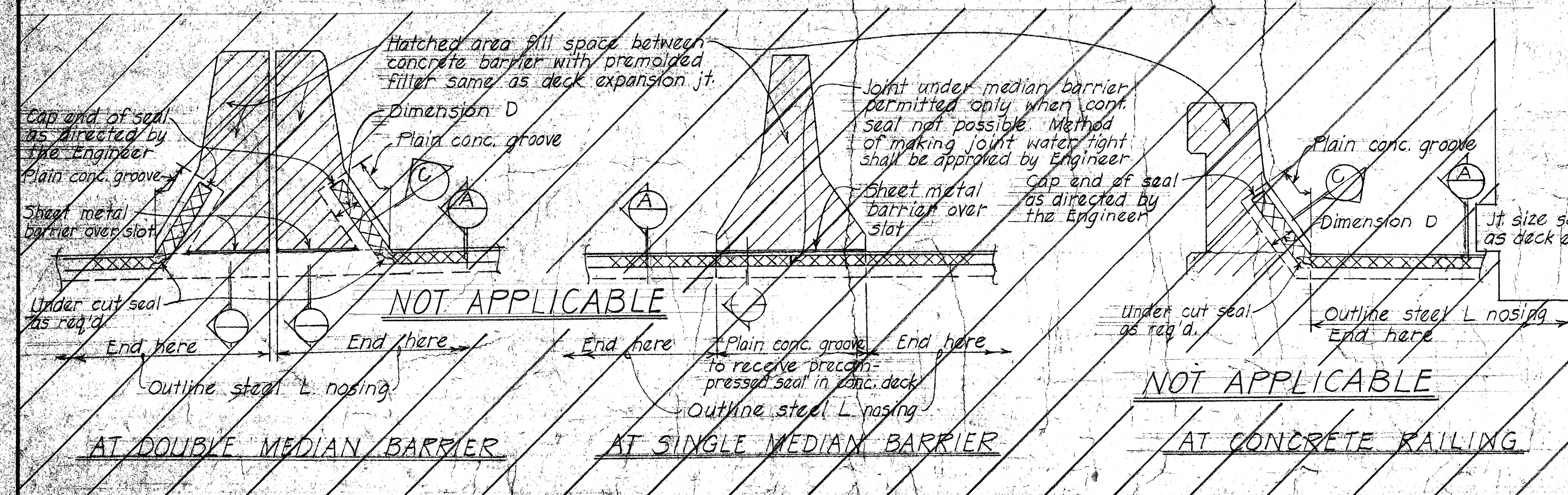
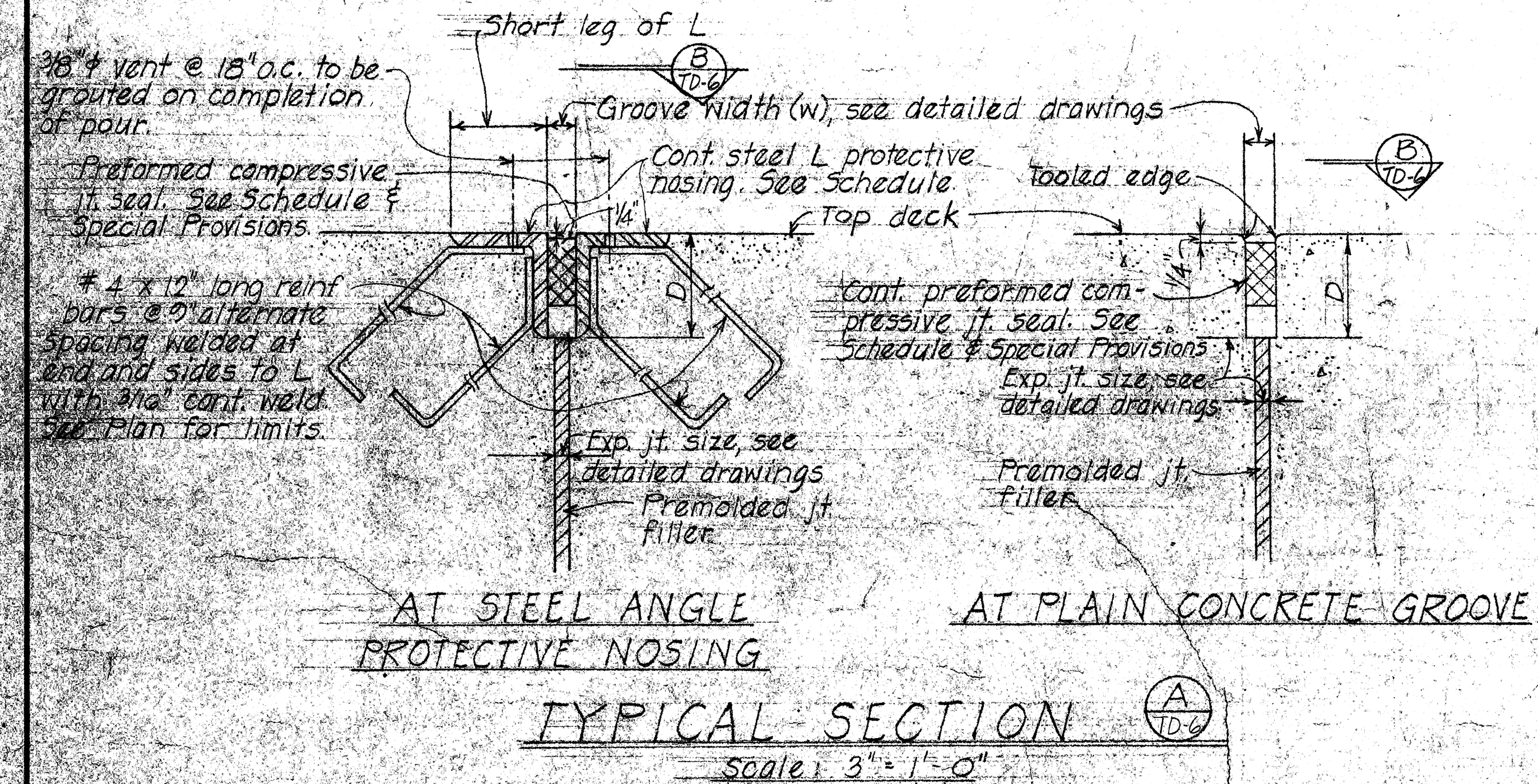
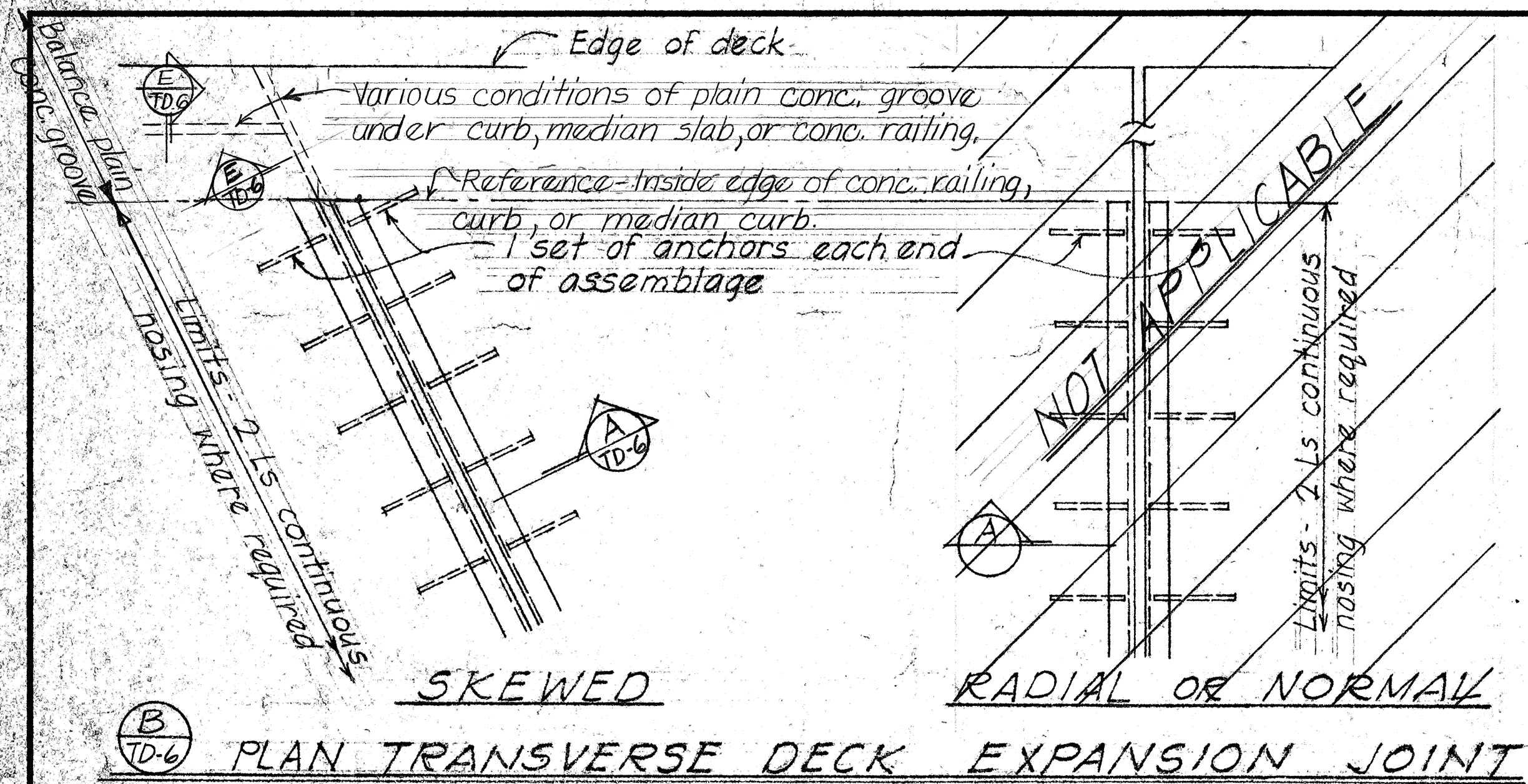
TYPICAL SECTION
Scale: 3/4" = 1'-0"

SECTION
Scale: 3/4" = 1'-0"

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
TYPICAL DETAILS
CAST-IN PLACE BEAM B, Ba DETAILS
HALAWA INTERCHANGE
STRUCTURE NOS. 11, 14, 15
Proj. No. I-HI-1(90)13 May 1971
SHEET No. 137 OF 7 SHEETS

DATE	
DESIGNED BY	
CHECKED BY	
QUANTITIES BY	
NOTE BOOK	
ORIGINAL PLAN	
SURVEY PLOTTED BY	

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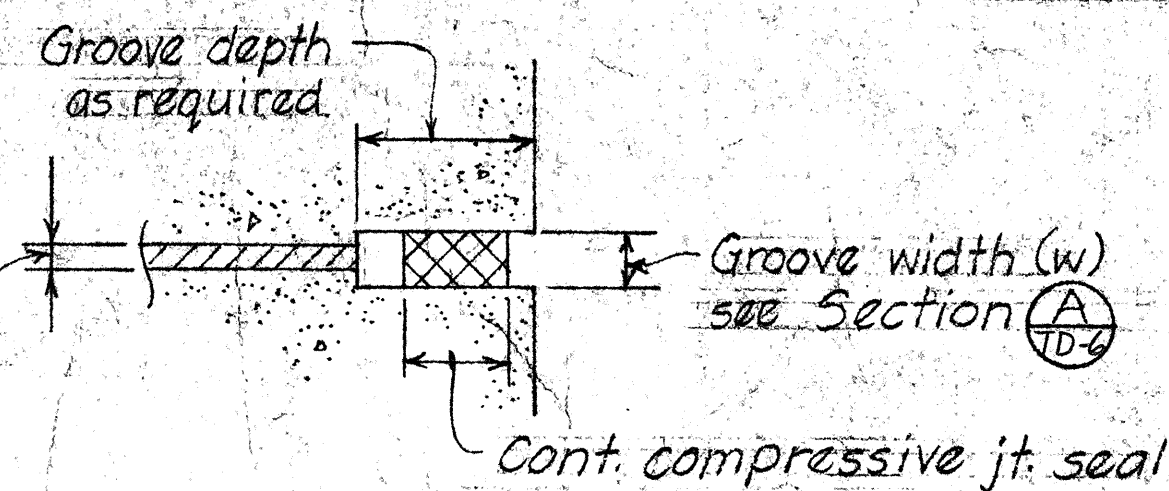


EXPANSION JOINT SEALER SCHEDULE																	
Joint Seal Size	Type A - Joint Sealer (Dimensions and Tolerances)				Steel Angle Protective Nosing	Groove Dim. D	Type B - Joint sealer (Dimensions and Tolerances)				Type C - Joint Sealer (Dimensions and Tolerances)						
	J		H	Thickness			J		H	Thickness		J		H	Thickness		
				T						t	T				t	T	t
①												13/16	19/32				
②	3/4 +3/16 -0	2 ± 1/8	1/8 +1/32 -1/64	3/32 +1/64 -1/32	3 1/2" x 3 1/2" x 1/2"	3 1/2"	3/4 +3/16 -0	3/4 ± 3/16	5/64 +1/32 -1/64	-							
③	2 +3/16 -0	2 1/16 ± 1/8	1/8 +1/32 -1/64	3/32 +1/32 -1/64	4" x 3 1/2" x 1/2"	4"	2 +5/32 -0	2 ± 1/8 -0	1/64 +1/32 -0	-							
④	2 1/2 +1/4 -0	2 3/4 ± 1/8	3/16 +3/64 -1/64	3/32 +1/32 -1/64	5" x 3 1/2" x 1/2"	5"											
⑤	3 +1/4 -0	3 13/32 ± 3/16	3/16 +3/64 -1/64	1/8 +3/64 -1/64	6" x 3 1/2" x 1/2"	6"											
⑥	4 +5/16 -0	4 23/32 ± 1/4	1/4 +3/64 -1/32	3/16 +3/64 -1/64	7" x 4" x 1/2"	7"											
														NOTE: At miter corner and			

NOTE: At miter corner and cap ends of preformed concrete compressive joint sealer use ARON Alpha Adhesive or equal.

Steel angle protective nosing assembly to be hot dipped galvanized after fabrication.

Steel angle protective nosing assembly and joint sealer incidental to concrete and will not be paid for separately.



STRUCTURE NO. 11

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

TYPICAL DETAILS

EXPANSION JOINT PREFORMED
COMPRESSIVE JOINT SEALER
WATERPROOFING DETAILS
HALAWA INTERCHANGE
Proj. No. I-HI-1(70)13 Sept 1970
SHEET No. 139 OF 7 SHEETS

