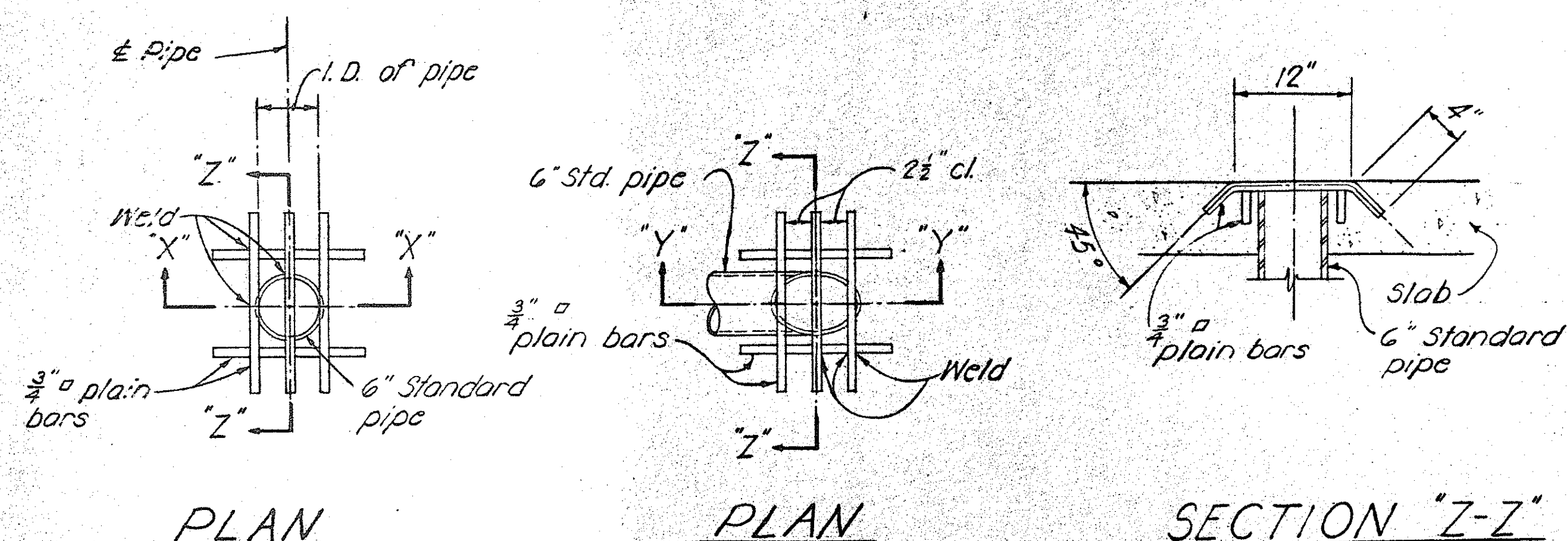
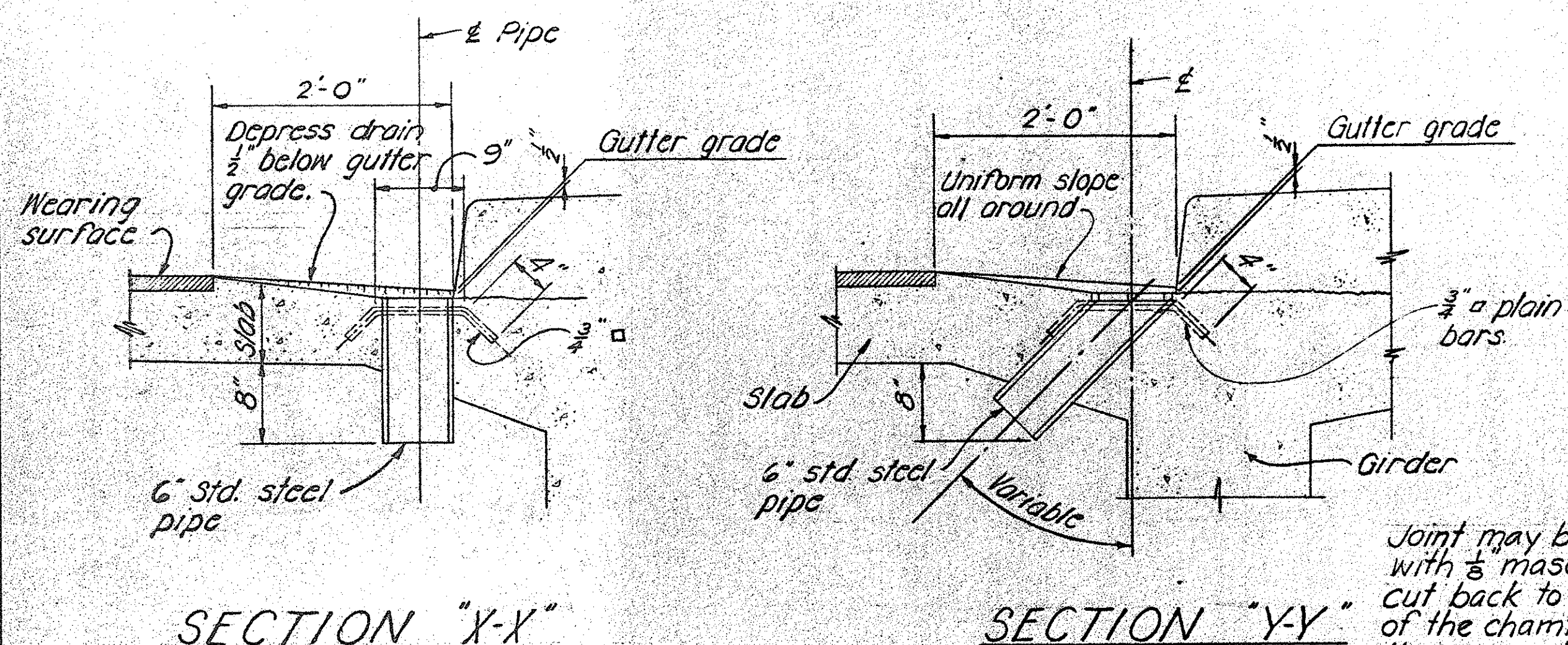
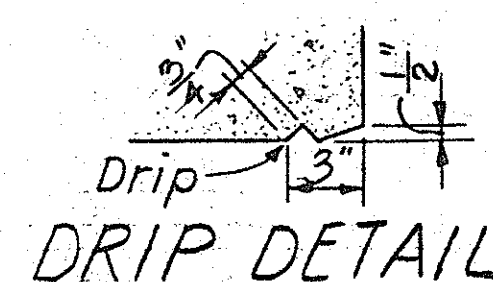


GENERAL NOTES

- All concrete shall be Class A unless otherwise noted.
- Reinforcing shall be detailed in accordance with A.C.I. Manual of Standard Practice for Detailing Reinforced Concrete Highway Structures unless otherwise noted.
- Clearance for reinforcing bars shall be as follows, unless otherwise noted:
 - $1\frac{1}{2}$ " For stirrups of beams & pier caps.
 - 2" For ties of columns.
 - 2" For formed walls.
 - 3" For footings.
- Minimum spacing between parallel bars shall be $2\frac{1}{2}$ times the diameter of bars, but in no case shall the clear distance between the bars be less than $1\frac{1}{2}$ times the maximum size of the coarse aggregate.
- All dimensions relating to reinforcing are to centers of bars unless otherwise noted.
- Reinforcing bars shall be securely tied at all intersections & lap splices & shall be held in place during pouring to maintain their proper locations as shown on plans.
- Vertical column bars shall be arranged in such a manner as to miss pier cap bars above as directed by the Engineer.
- Except as otherwise noted on drawings, all exterior corners & re-entrant angles in concrete work shall be chamfered $\frac{3}{4}" \times \frac{3}{4}"$.
- Concrete seats receiving steel plates or neoprene pads shall be poured monolithically with supporting structures & top of concrete seats shall be finished with a steel trowel to a smooth level surface at the elevation shown on the plans.
- Elastomeric Pads: Bottom of bridge bearing pads shall be secured against displacement with adhesives approved by the Engineer. Pads shall be incidental to concrete and will not be paid for separately.
- Forms for all exposed surfaces of separation structures and surfaces of retaining walls visible from a traveled way or from a populated area shall be plywood except that metal forms may be permitted provided a surface finish satisfactory to the Engineer can be obtained and the use of such forms is approved in writing by the Engineer. Forms for round columns shall be made of materials that will give a smooth finish and true dimensions as given in the plans. Forms for prestressed concrete members shall be either metal or plywood.
- Gothic letters and figures approximating dimensions shown will be acceptable if approved by the Engineer.
- The contractor shall verify the location of all existing utility lines and notify the respective owners before commencing work of excavation or driving of piles.
- Standard Detail Drawings refer to all structures in general, except for modifications as may be required for special conditions. For such modifications refer to the corresponding detailed drawings.

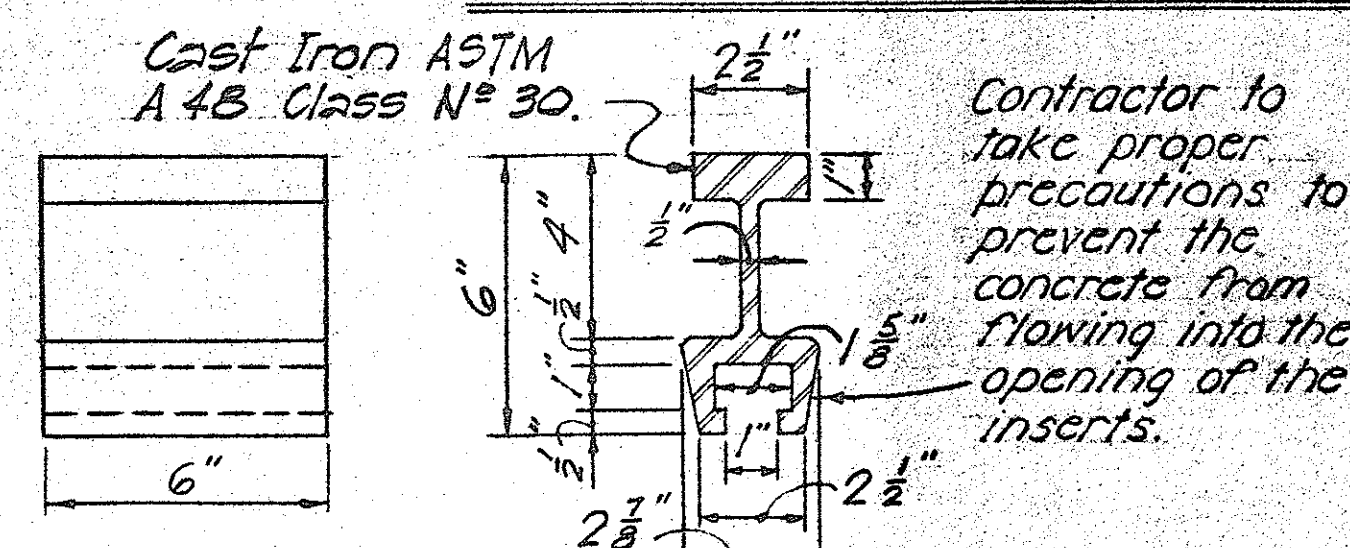


TYPICAL CONCRETE GROOVE DETAIL



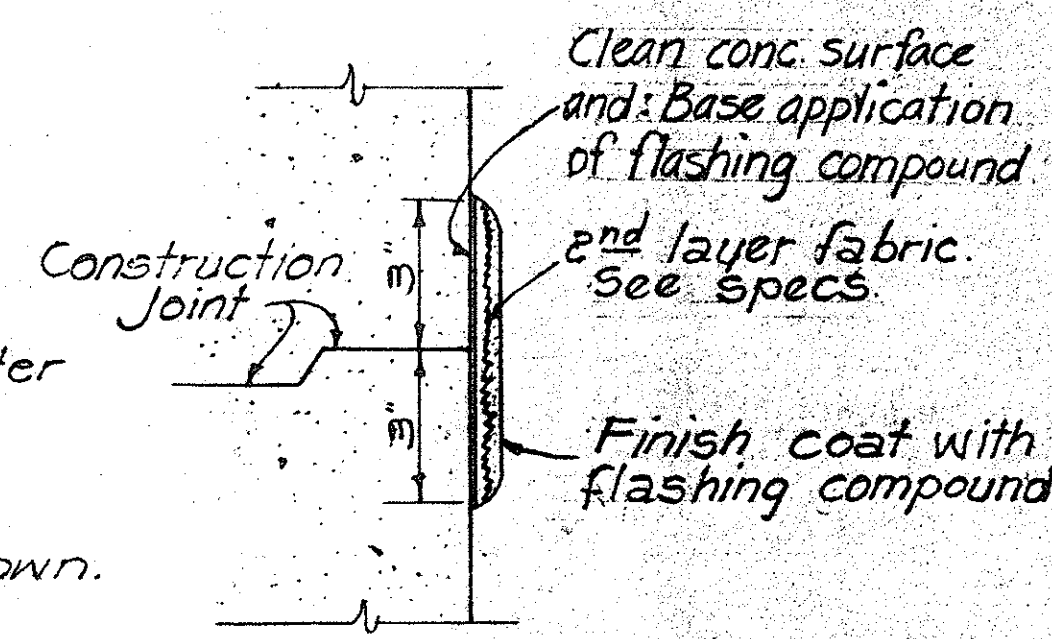
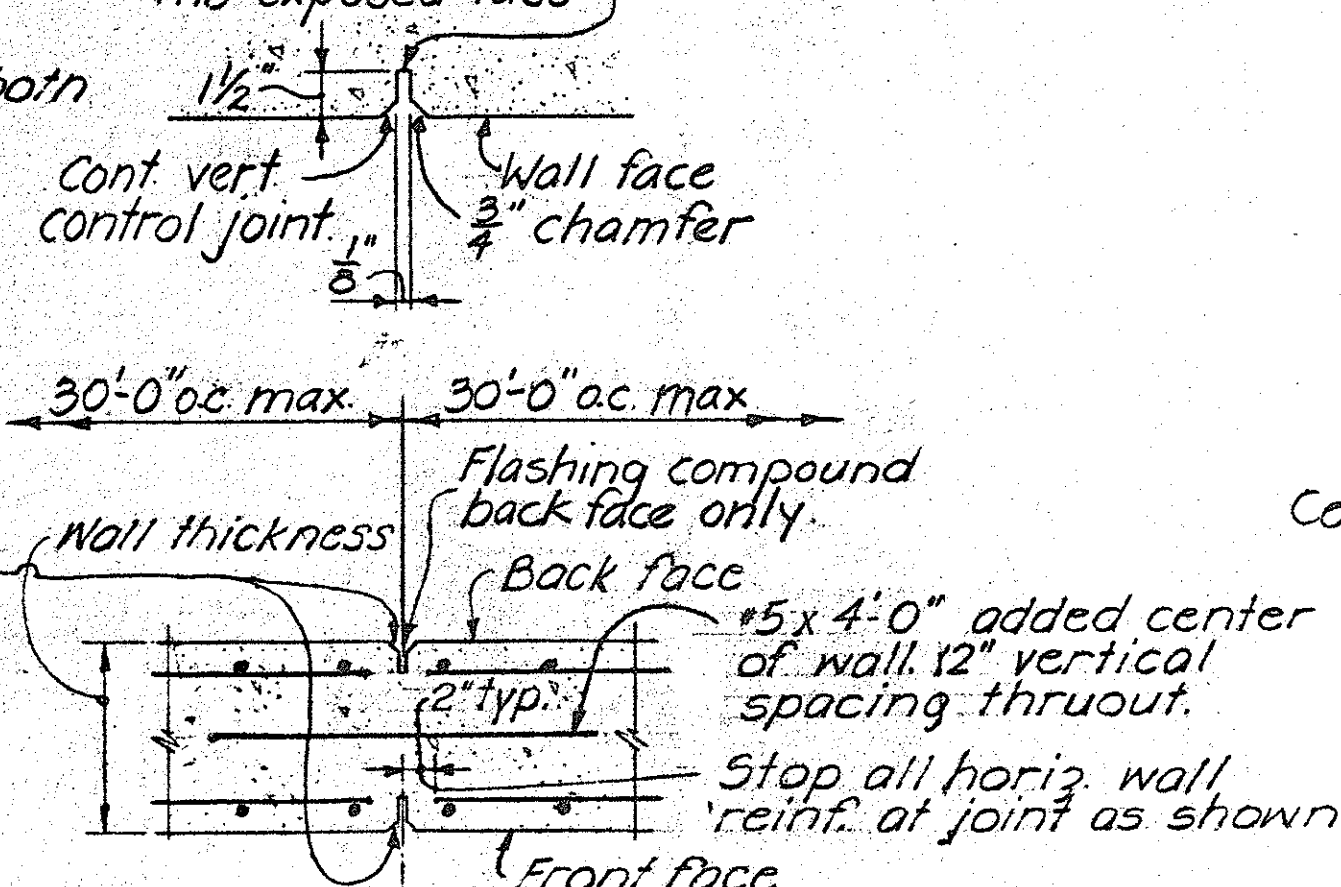
NOTE: Metal drains shall be considered incidental to Class A Concrete in both concrete and steel bridges and will not be paid for separately. Assemblage of grillage and pipe shall be hot-dip galvanized after all welding is completed.

TYPICAL DRAINAGE DETAILS

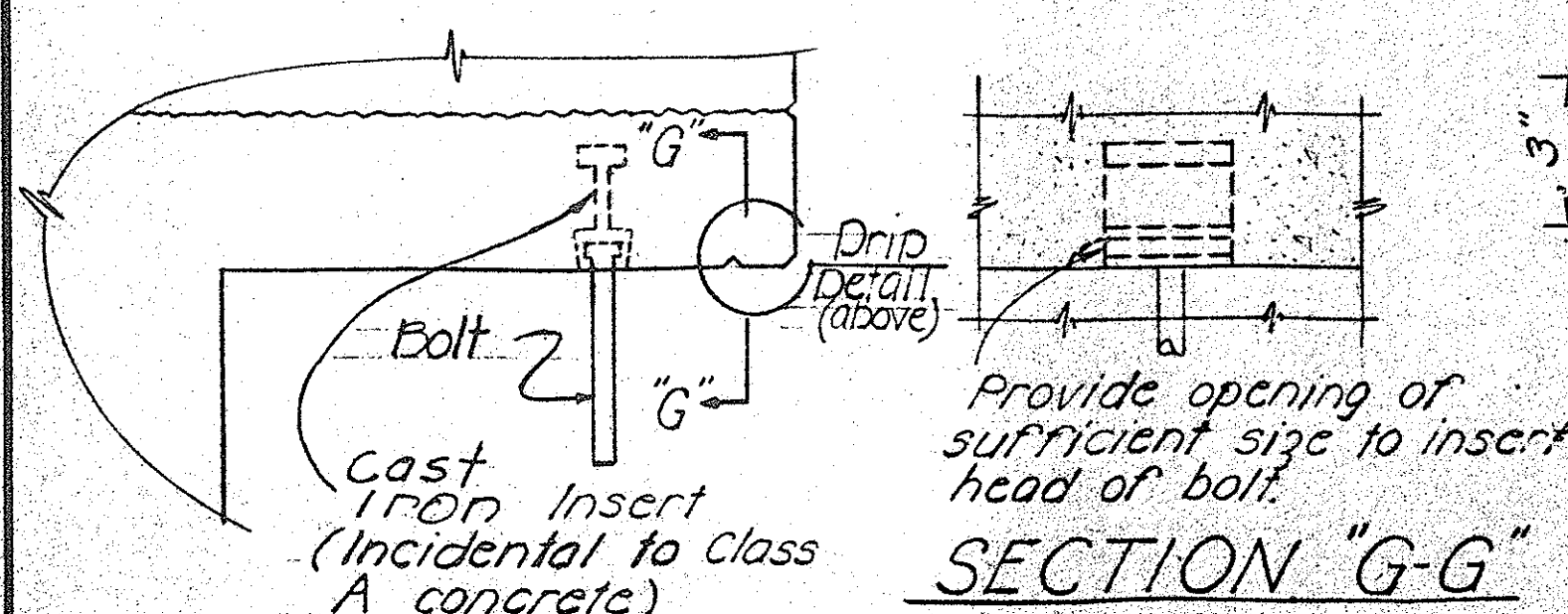


Contractor to take proper precautions to prevent the concrete from flowing into the opening of the inserts.

Vert. control joint on each face of wall to top of footing. See above detail and as directed by the Engineer.



TYP. FLASHING COMPOUND WATERPROOFING DETAIL



SECTION "G-G"

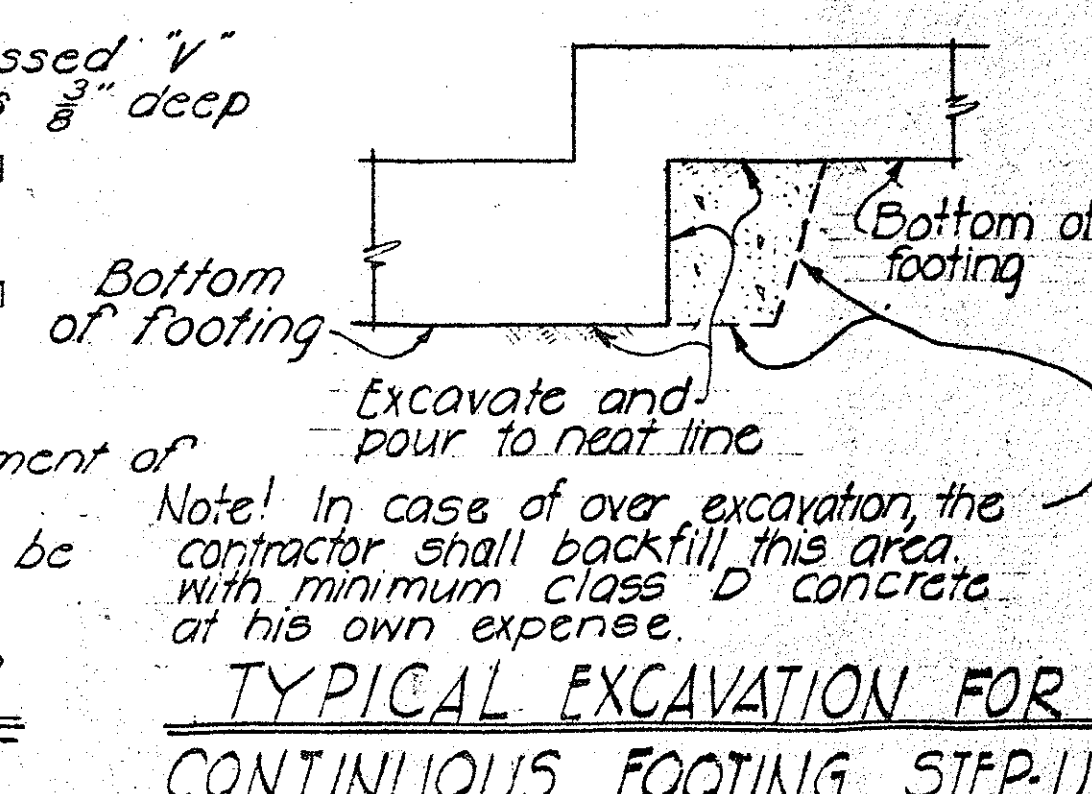
Provide opening of sufficient size to insert head of bolt.

NAME **DATE**

Use correct name of bridge Date of Year built

NOTE: Refer to corresponding detail drawings for placement of such names & dates at end post. Exact details & spacing of letters & figures shall be as directed by the Engineer. See Note #12.

TYPICAL DETAIL OF LETTERS & FIGURES AT CONCRETE END POST



Note! In case of over excavation, the contractor shall backfill this area with minimum class D concrete at his own expense.

APPROVAL RECOMMENDED:
 Paul T. Yamashita
 BRIDGE DESIGN ENGINEER 1-23-70
 DATE

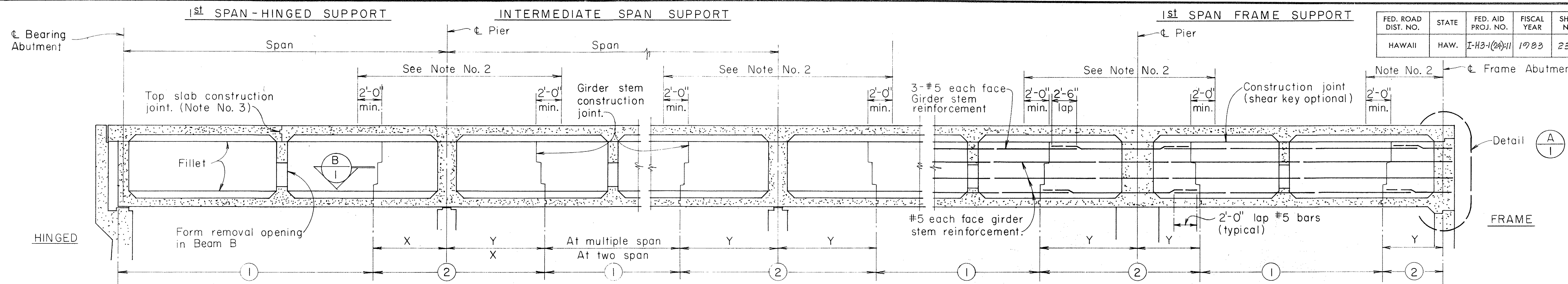
APPROVED:
 Paul T. Yamashita
 ASSISTANT CHIEF, ENGINEERING 1-28-70
 DATE

NO.	REVISION	APPROVED BY	DATE

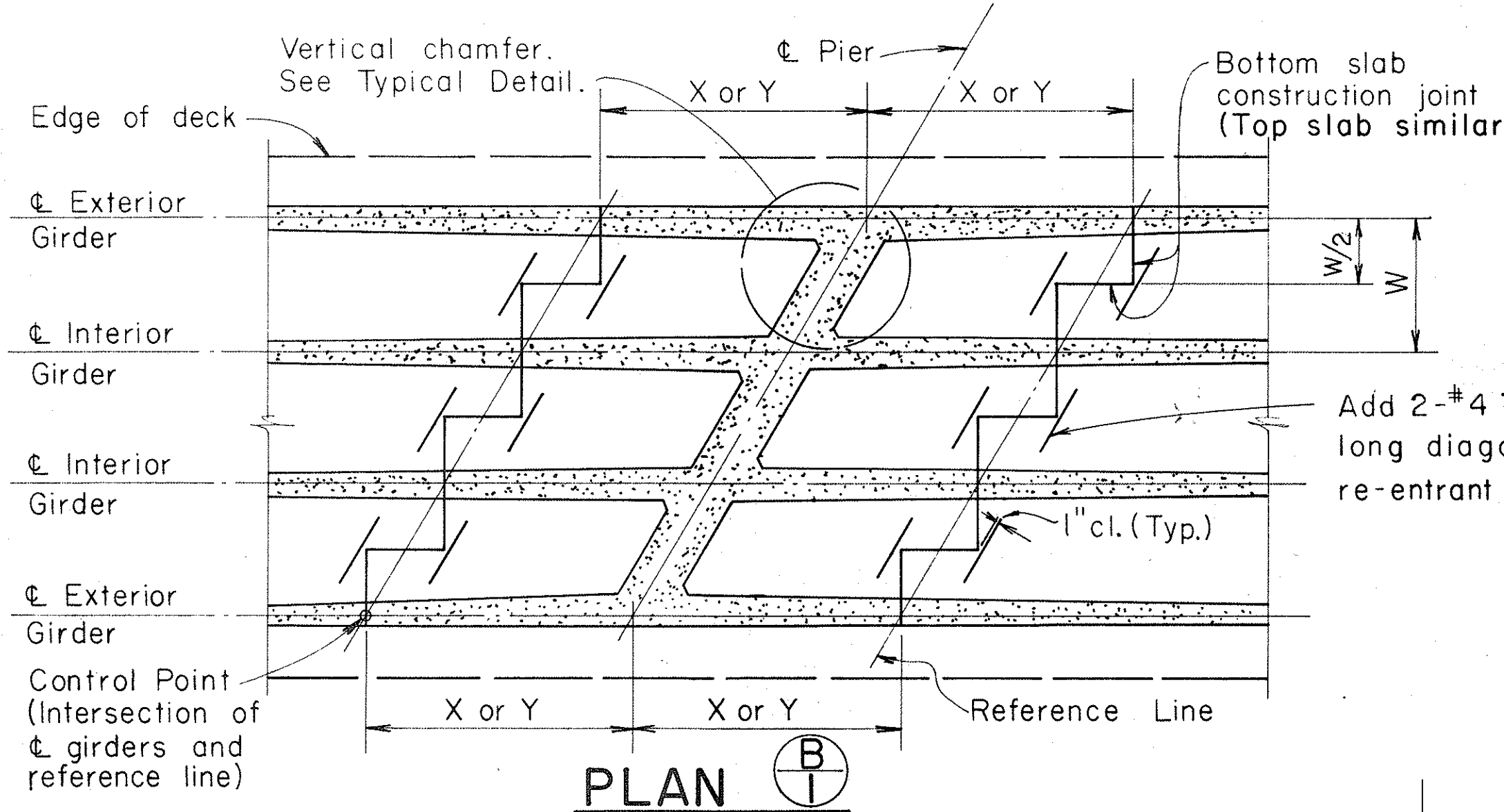
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
STANDARD DETAILS
 NOTES AND MISCELLANEOUS
 DETAILS

Date: October 1989
 SHEET No. 51 OF 56 SHEETS DB-100

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-1(24)11	1983	236	328

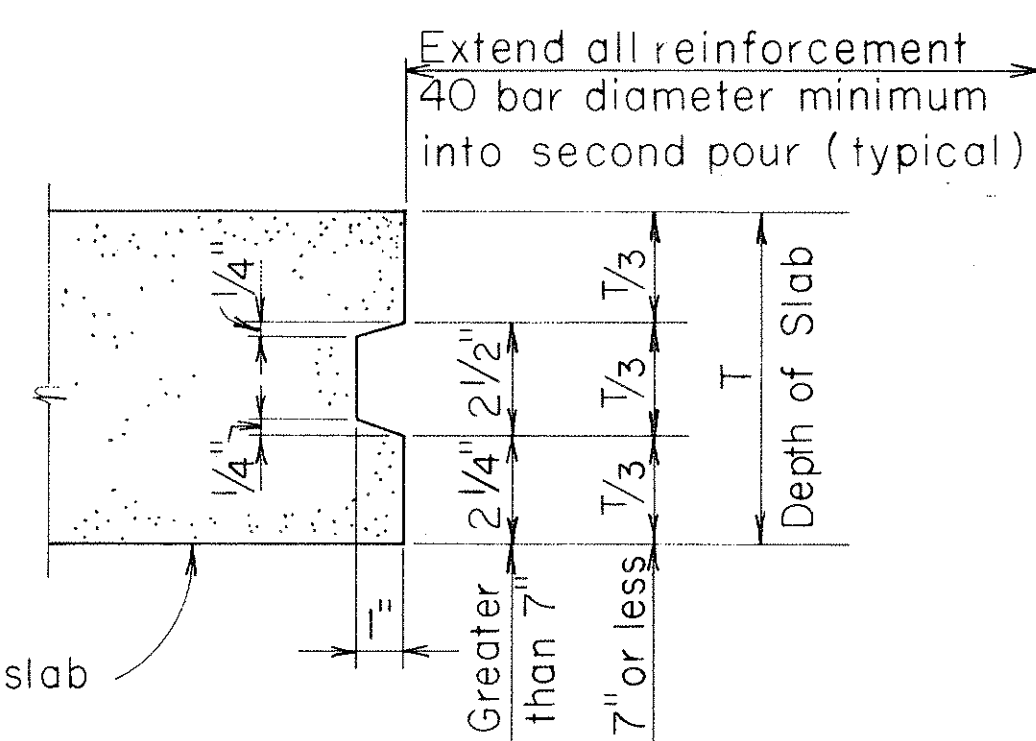


PLACING DIAGRAM

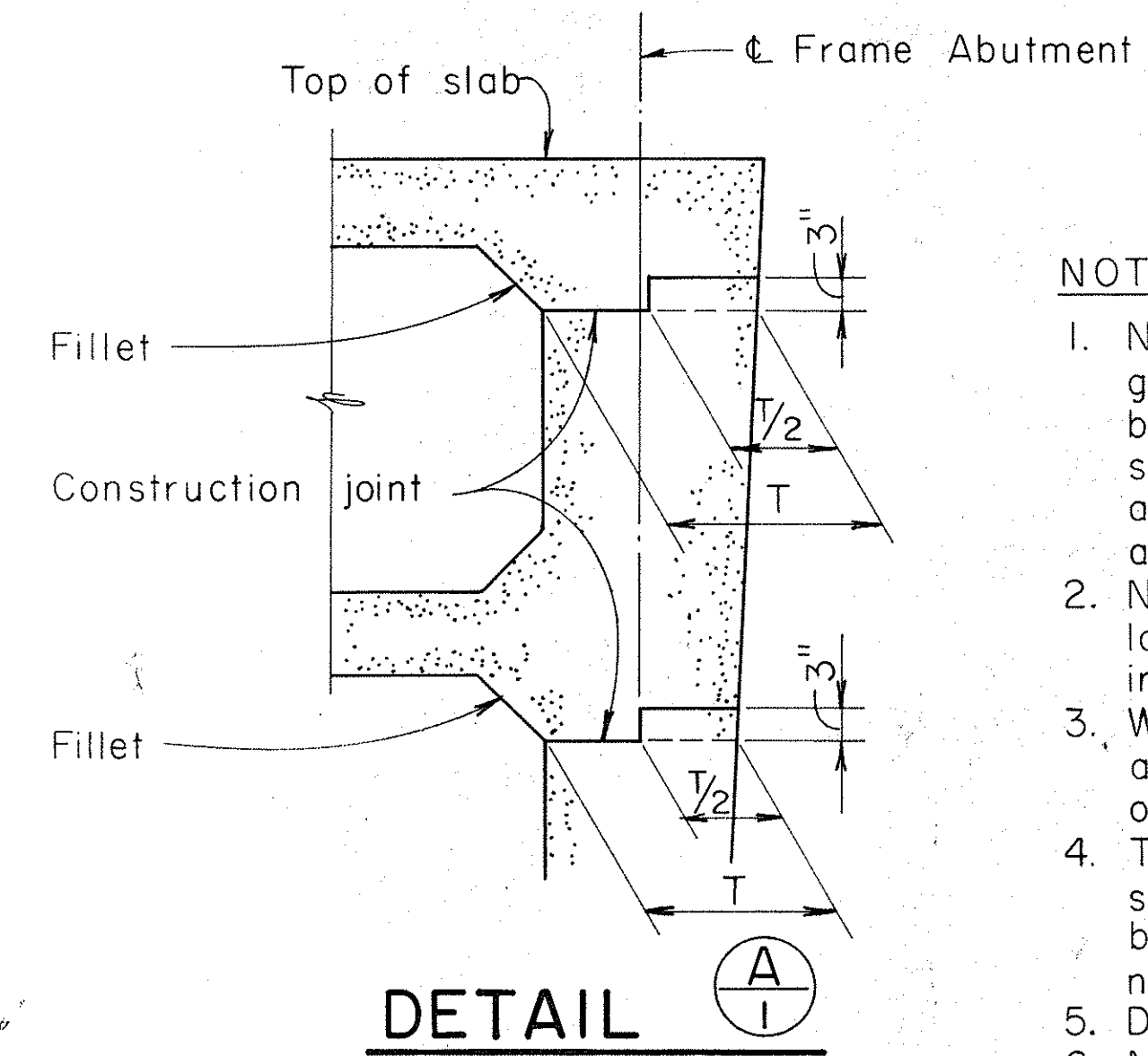


PLAN

CONSTRUCTION JOINT - BRIDGES ON SKEW



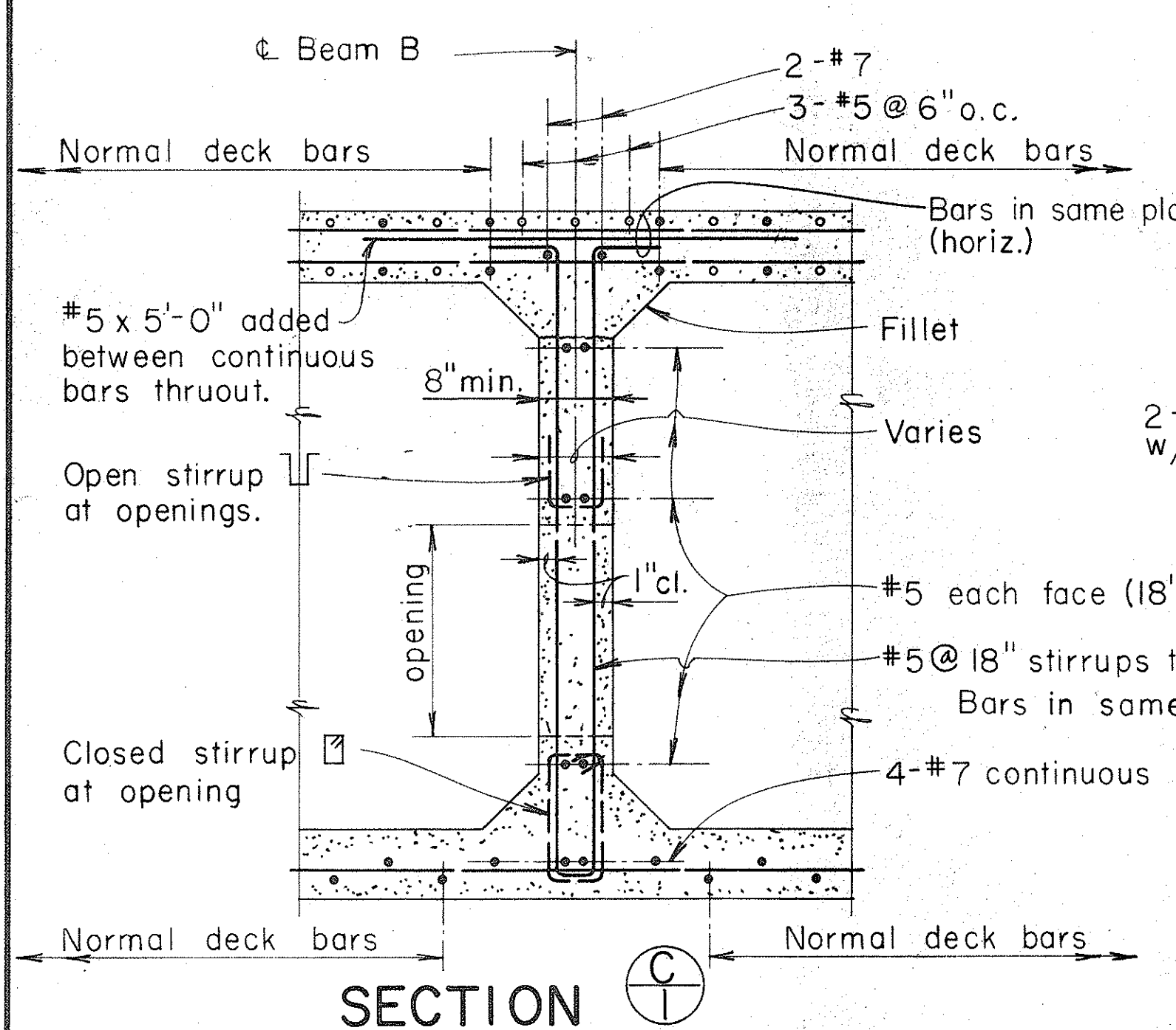
TYPICAL SLAB CONSTRUCTION JOINT DETAIL



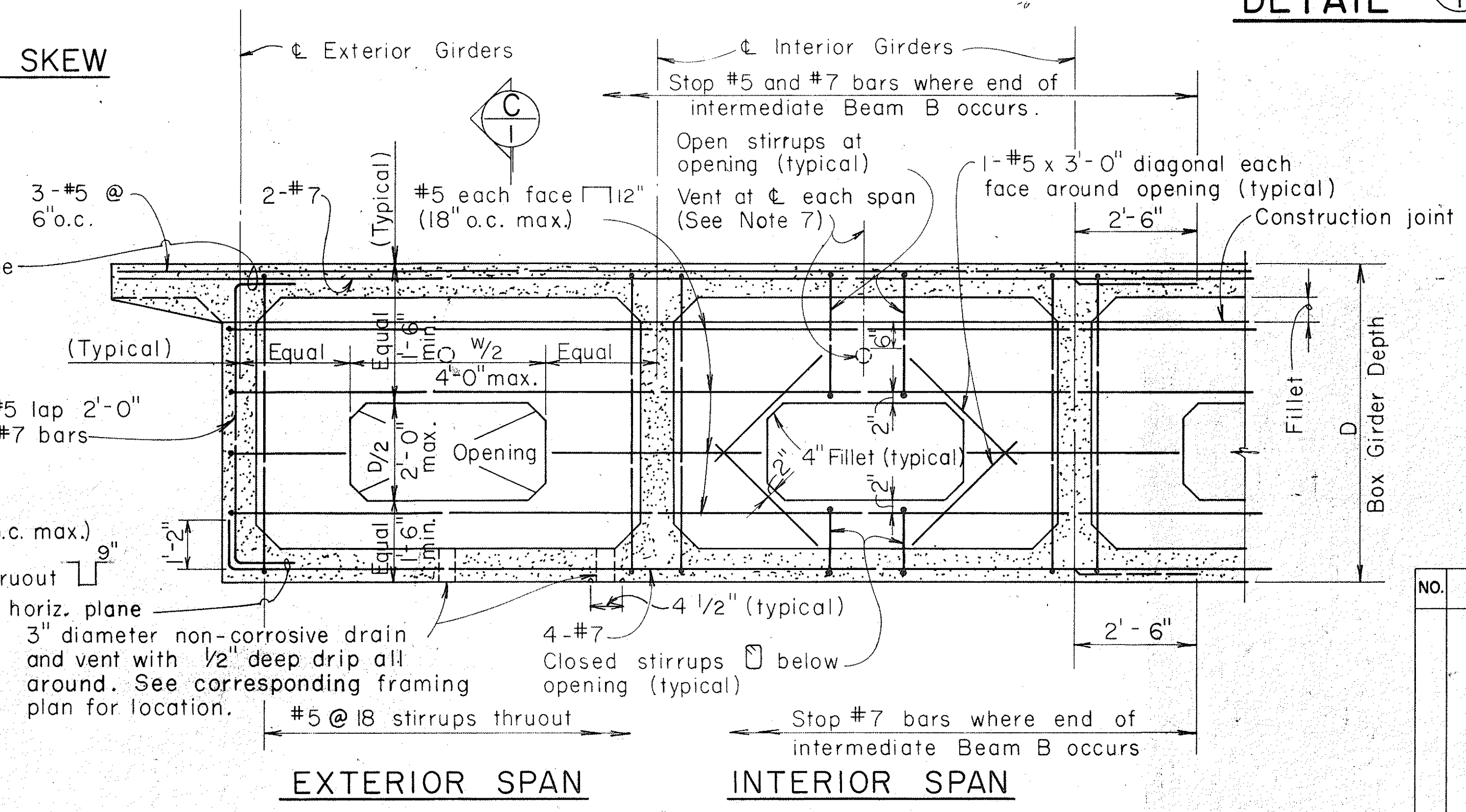
DETAIL A

NOTES:

- Numbers ① and ② indicate sequence of placing bottom slab and girder stem concrete. ② may be placed with ① when approved by the Engineer provided that the ① sections adjoining the ② sections are placed in this pour. For any deviation from the above, the contractor shall submit a diagram to the Engineer for approval.
- No top slab construction joint or form removal opening shall be located in the region over the piers as noted, nor in the supporting section of a hinged span.
- When top slab is not poured continuously, and top slab forms are not removed, construction joint in top slab shall be located over an intermediate diaphragm.
- Top slab concrete shall be placed separately from the stem. Top slab concrete may be placed continuously or in parts as approved by the Engineer, providing pour is not in conflict with the above notes.
- Dimension $X = 1/4$ span. $Y = 1/5$ span.
- No lapping of main bars shall be permitted at construction joints.
- If the Contractor elects to leave top slab forms in place, form removal opening shall be omitted and replaced by 3" vent. Vertical shorings left in place for the top slab formwork, shall not be located within the center half of each top slab span.



SECTION C-C



EXTERIOR SPAN INTERIOR SPAN TYPICAL BEAM B DETAILS

APPROVAL RECOMMENDED:
James K. Imanaka
 BRIDGE DESIGN ENGINEER
 DATE: 6-1-76

APPROVED
Harold S. Salsbery
 ASSISTANT CHIEF, ENGINEERING
 DATE: 6-2-76

NO.	REVISION	APPROVED BY	DATE

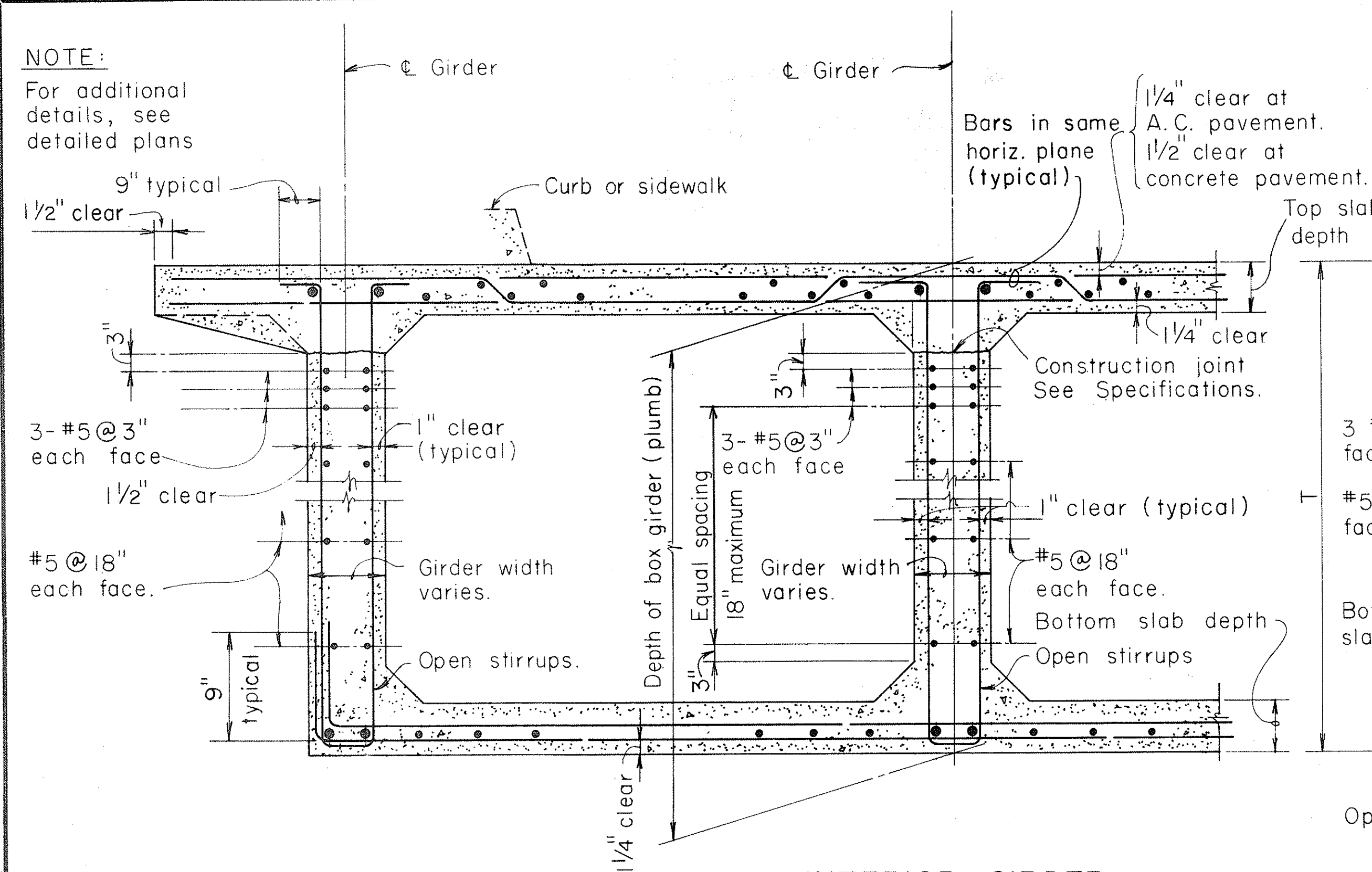
STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAILS
CONCRETE BOX GIRDER

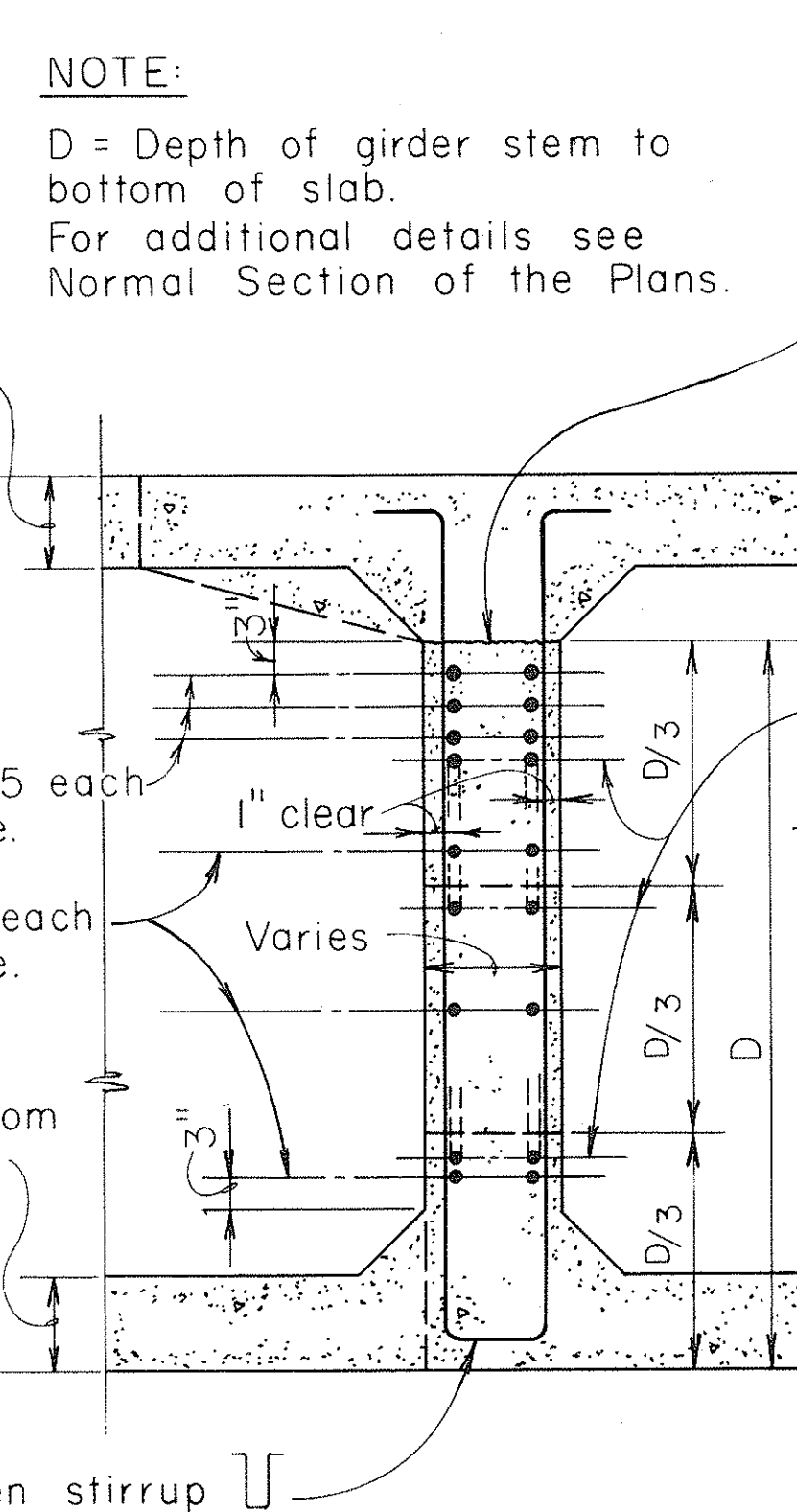
Not To Scale Date: May 1976

SHEET No. 52 OF 96 SHEETS DB-101-1

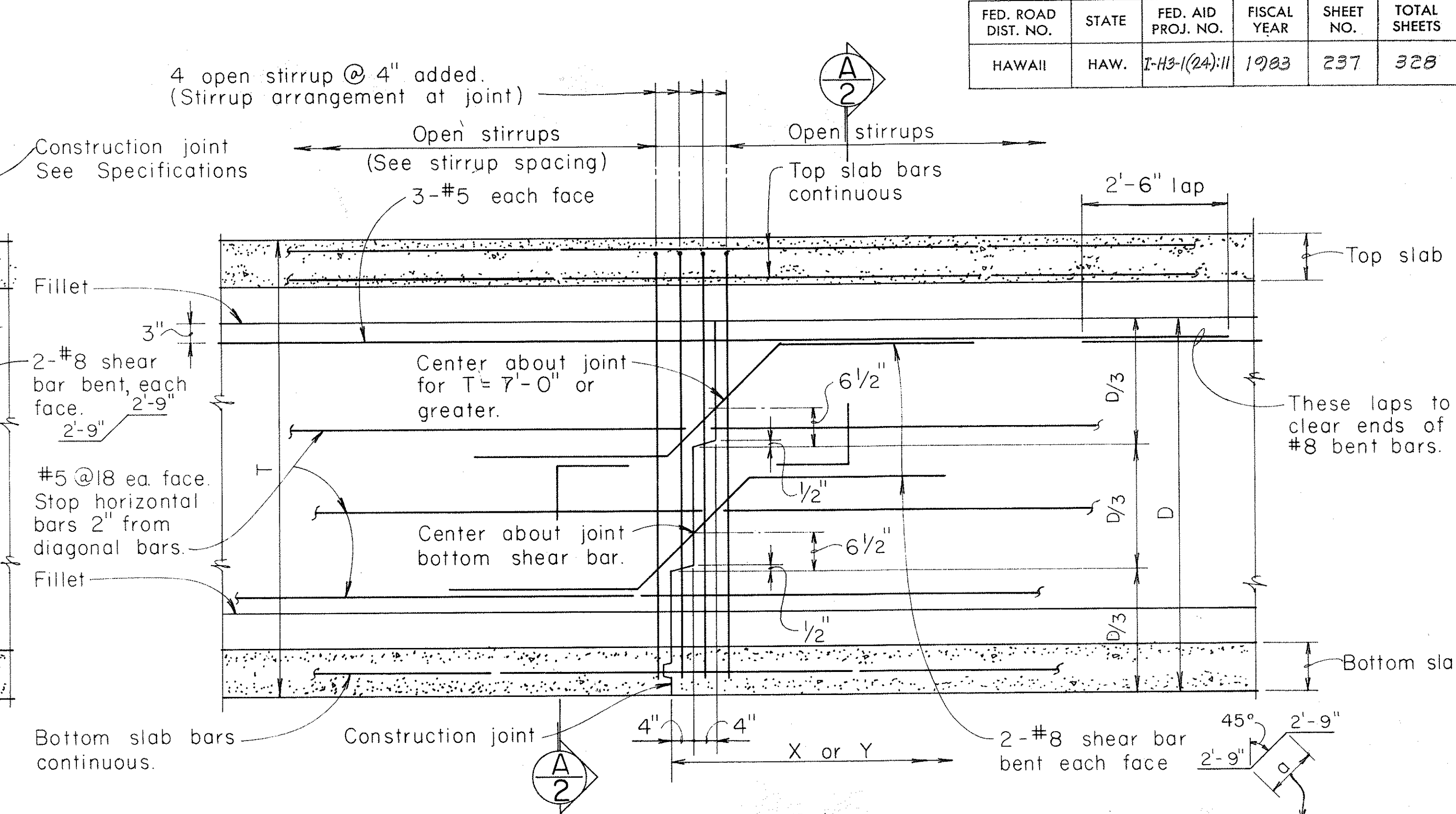
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-43-1(24)-11	1983	237	328



EXTERIOR GIRDER
TYPICAL NORMAL BOX GIRDER SECTION

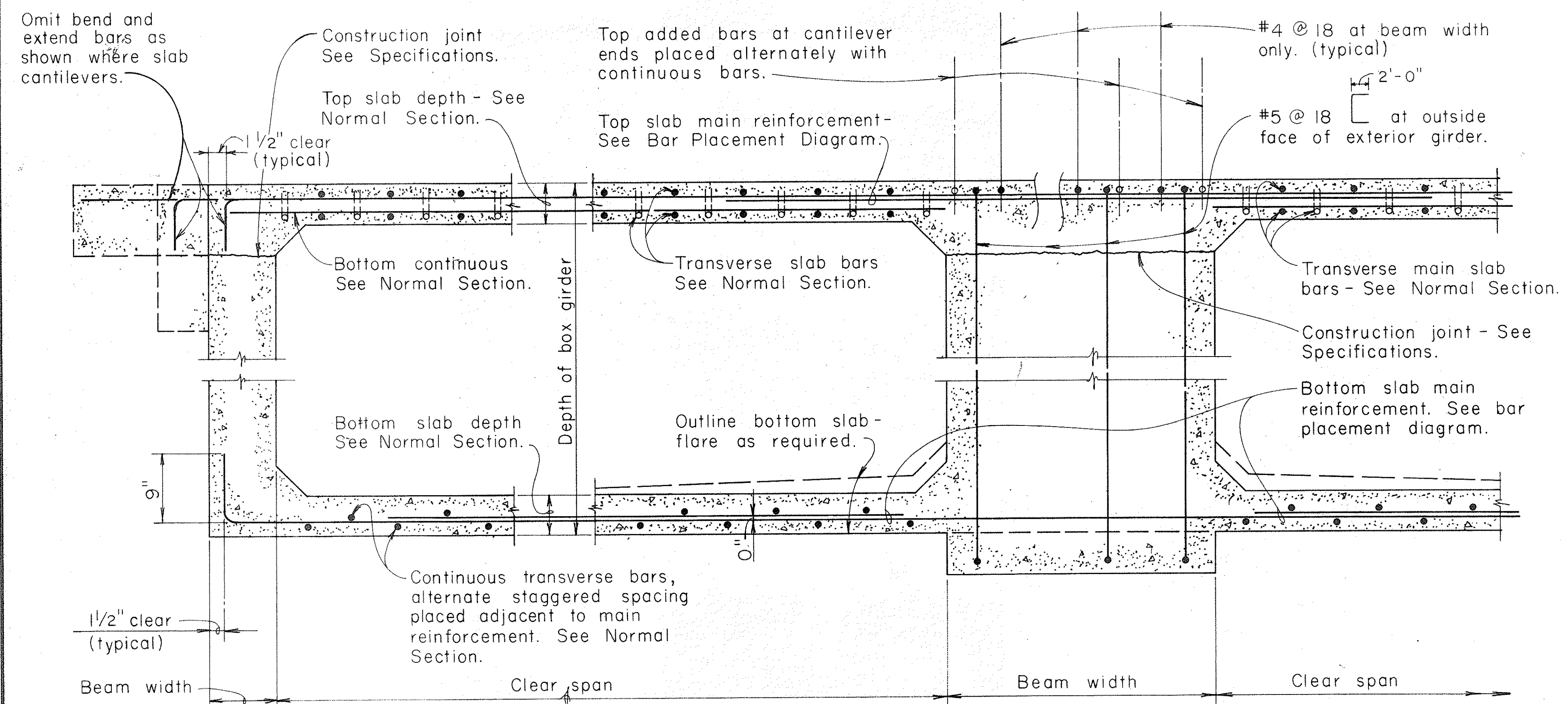


SECTION A/2



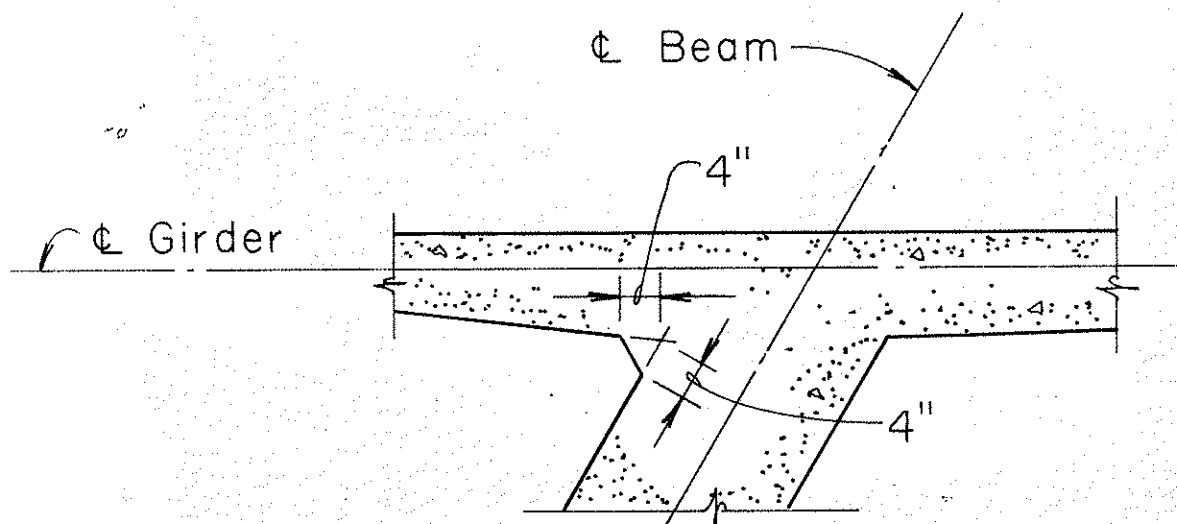
GIRDER STEM CONSTRUCTION JOINT

Depth T	a
4'-11" and smaller	1'-9"
5'-0" to 5'-11"	2'-0"
6'-0" to 6'-11"	2'-3"
7'-0" and greater	3'-0"



AT NON-CONTINUOUS END
AT CONTINUOUS SUPPORT

TYPICAL LONGITUDINAL DECK SECTION
ALONG GIRDER AT NORMAL OR RADIAL SUPPORTS



TYPICAL DETAIL OF VERTICAL CHAMFER AT ACUTE INTERSECTION OF SKEWED CONCRETE MEMBER

APPROVAL RECOMMENDED:
Clarence R. Hammett 6-1-76
BRIDGE DESIGN ENGINEER. DATE

APPROVED
Harold Salsali 6-2-76
ASSISTANT CHIEF, ENGINEERING DATE

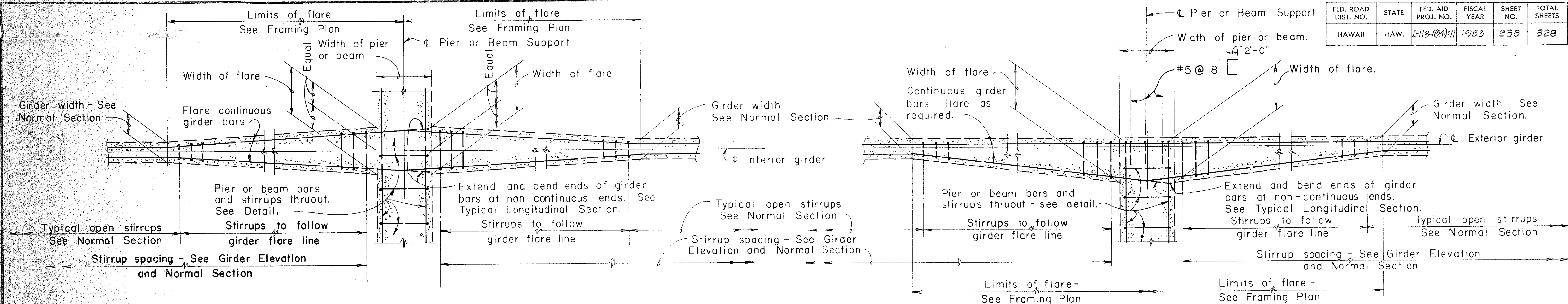
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
CONCRETE BOX GIRDER

Not To Scale Date: May 1976

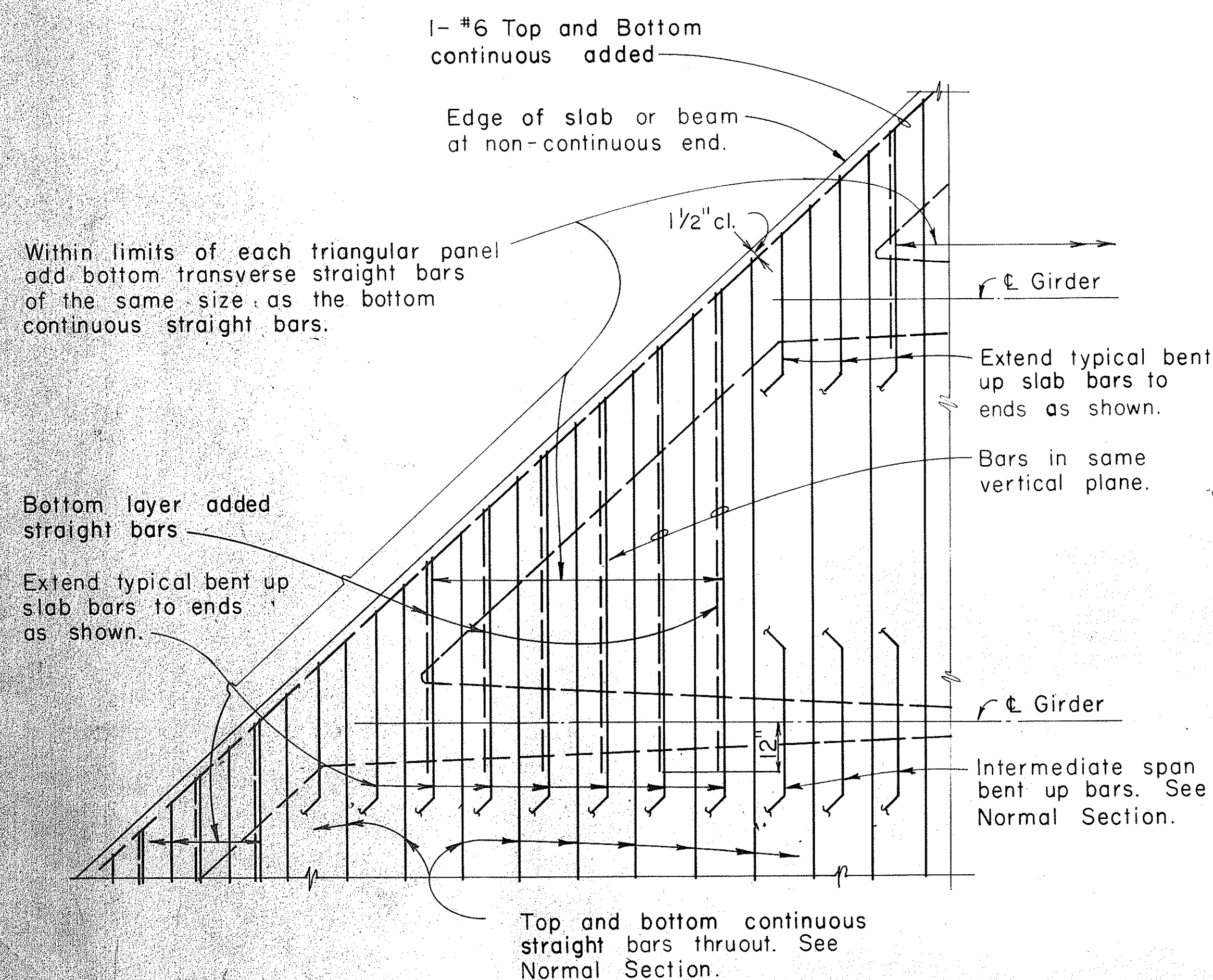
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-H3-(24)11	1983	238	328



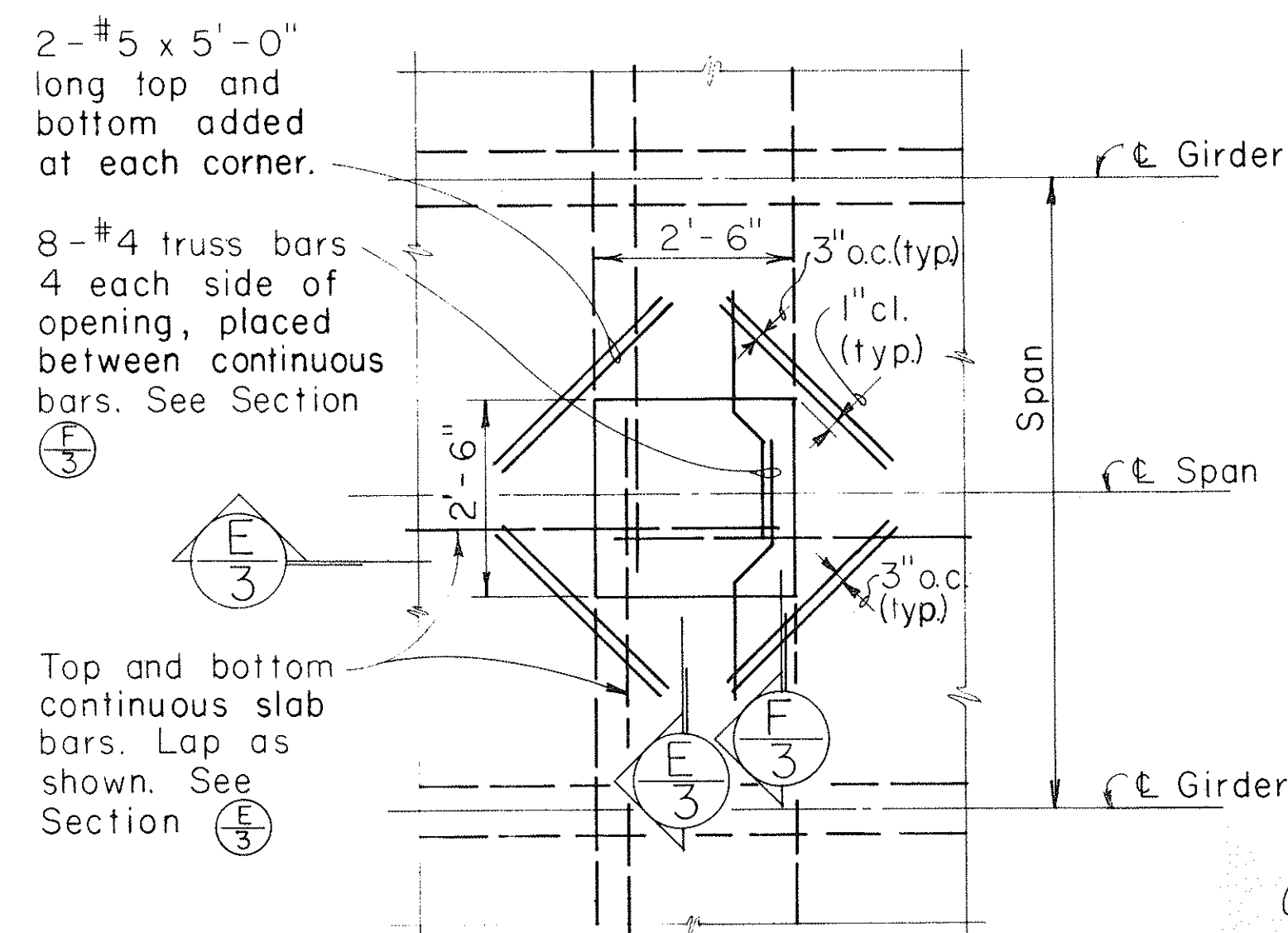
INTERIOR GIRDER

EXTERIOR GIRDER

TYPICAL DETAILS OF GIRDER FLARE AT NORMAL OR RADIAL SUPPORTS - CONTINUOUS ENDS AS SHOWN
(NON-CONTINUOUS ENDS SIMILAR EXCEPT AS OTHERWISE NOTED)



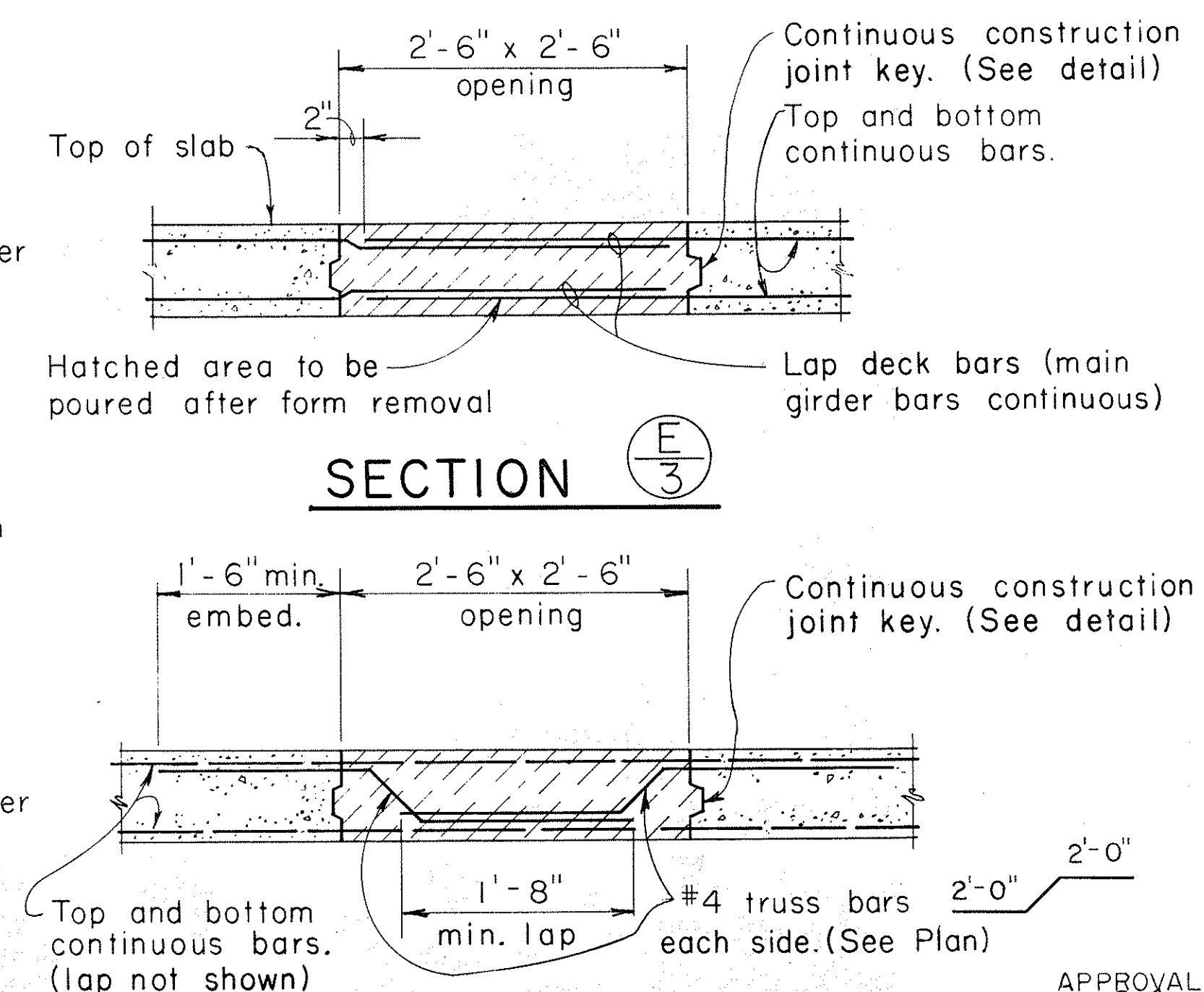
PART PLAN - TYPICAL ARRANGEMENT OF TOP SLAB REINFORCEMENT AT SKEWED ENDS



NOTES

1. Final location of opening shall be determined by the Engineer.
2. Form removal opening at top slab shall not be located where main girder bars occur.
3. Form removal opening may extend from edge of deck.

PART PLAN - DECK SHOWING FORM REMOVAL OPENING



SECTION E/3

SECTION F/3

APPROVAL RECOMMENDED
Colanene R. Yamamoto
BRIDGE DESIGN ENGINEER
C-1-76
DATE

APPROVED
Shirley S. S. S.
ASSISTANT CHIEF, ENGINEERING
C-2-76
DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
CONCRETE BOX GIRDER

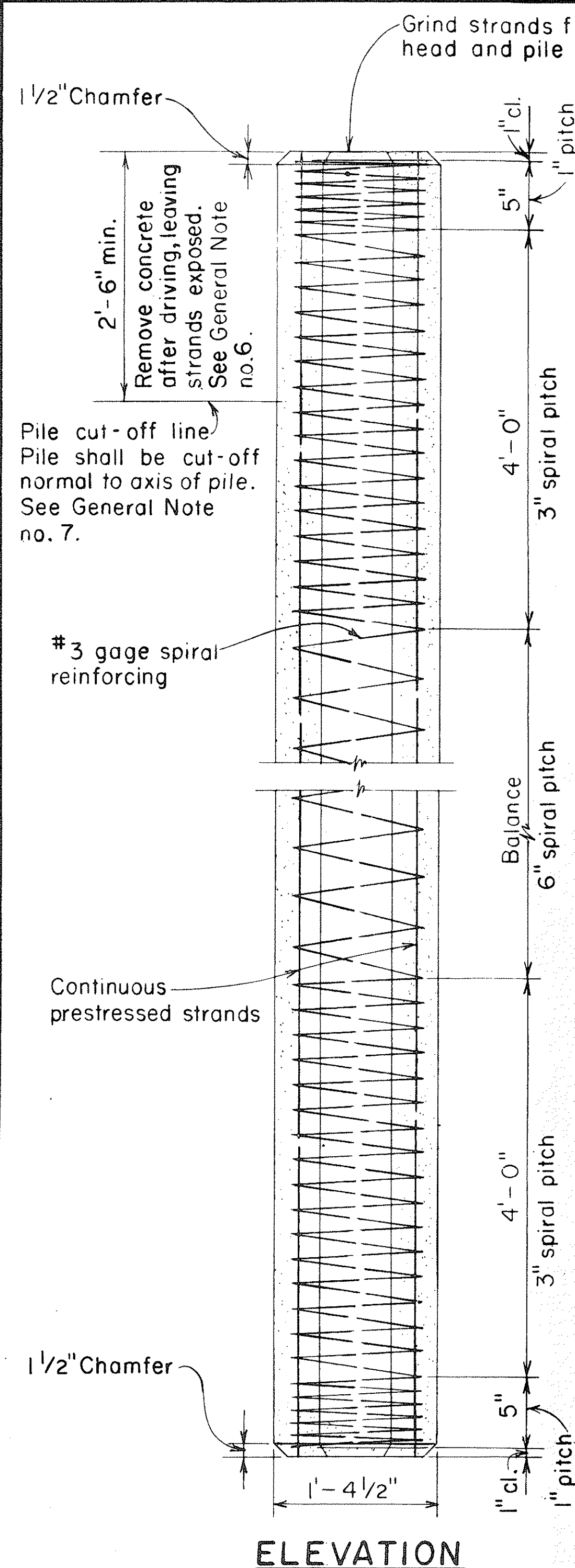
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SHEET No. 54 OF 56 SHEETS DB-101-3

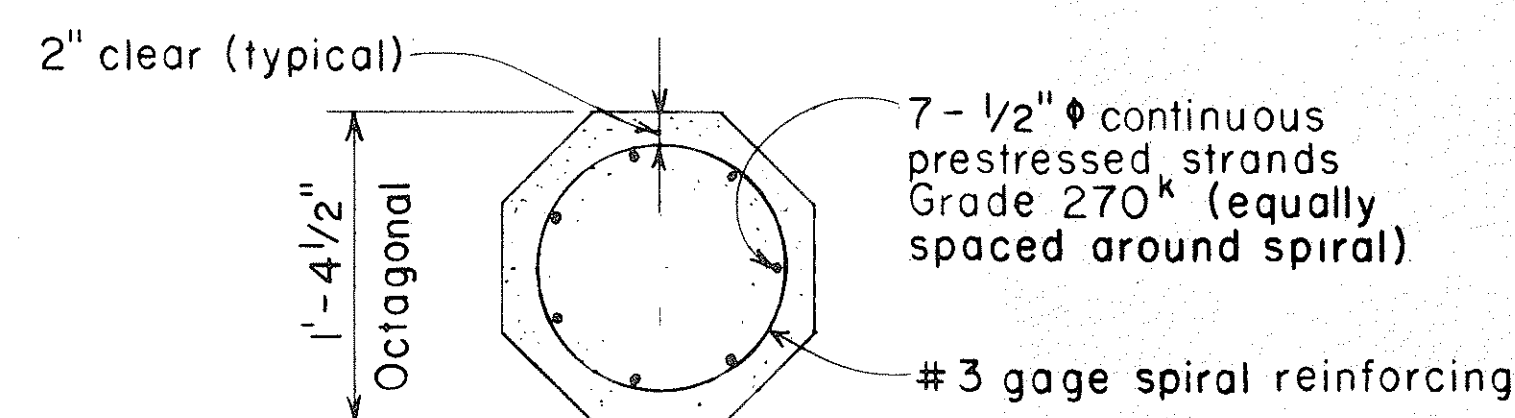
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	I-43-1(24):11	1983	239	328

GENERAL NOTES

1. Concrete strengths:
 - a. Typical pile: 28 day compressive strength $f'_c = 5000$ psi.
 - b. Pile build-up with driving: 28 day compressive strength $f'_c = 5000$ psi.
 - c. Pile build-up without driving: Identical 28 day f'_c as footing or pile cap.
2. Reinforcing steel shall conform to the following ASTM specifications:
 - a. Bar reinforcement: ASTM A615 Grade 40
 - b. Spiral reinforcement: ASTM A82
 - c. Prestressing strand: ASTM A416 Grade 270
3. Splice can:
 - a. Structural steel shall conform to ASTM A36
 - b. All welding shall meet the requirements of Section 501 of the Standard Specification.
 - c. No measurement for payment shall be made for the splice can as it shall be considered incidental to the driving of the pile.
4. The minimum working force in the prestressing steel shall be 165 kips.
5. Piles accepted by the Engineer shall be of sound concrete. Damaged piles shall be replaced or repaired by the Contractor at his expense as directed by the Engineer.
6. Work of cutting off prestress concrete piles or concrete pile build-ups shall be performed in such a manner as to avoid spalling or damaging the pile below cut-off. Damaged portions shall be removed and pile cut-off elevation lowered as required by the Engineer.
7. Top of pile at cut-off line shall be prepared as required for construction joints in Section 503 of the Standard Specifications.
8. Pile splice shall not be permitted except for pile length in excess of 100 feet unless otherwise approved by Engineer.
9. The in-place length of pile above the splice shall be approximately 50% of the total length of pile driven, unless location of splice is indicated in the plans or specifications.
10. Build-ups may be driven after the concrete attains a compressive strength of 4000 psi., but not earlier than 7 days after the concrete is poured.

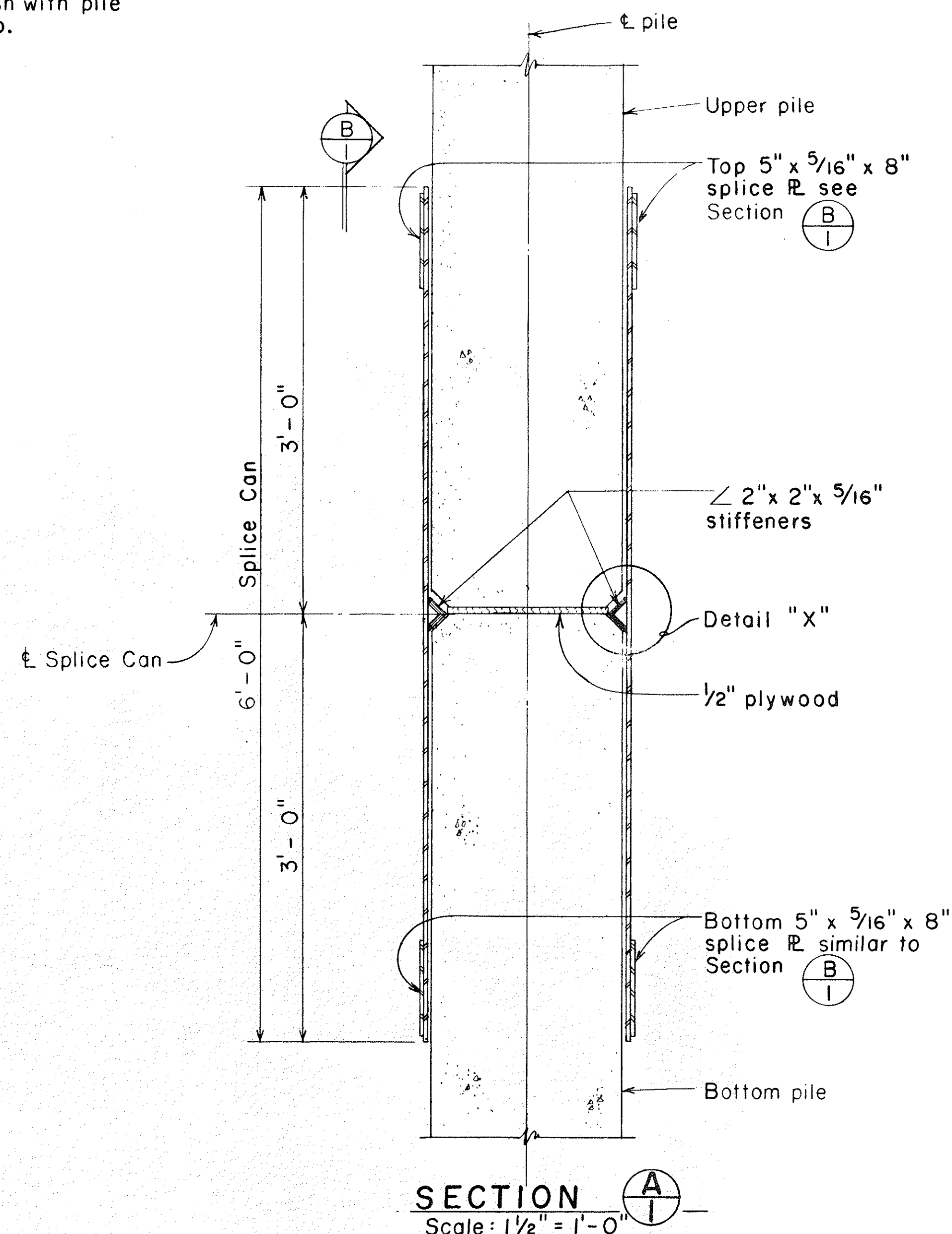


ELEVATION

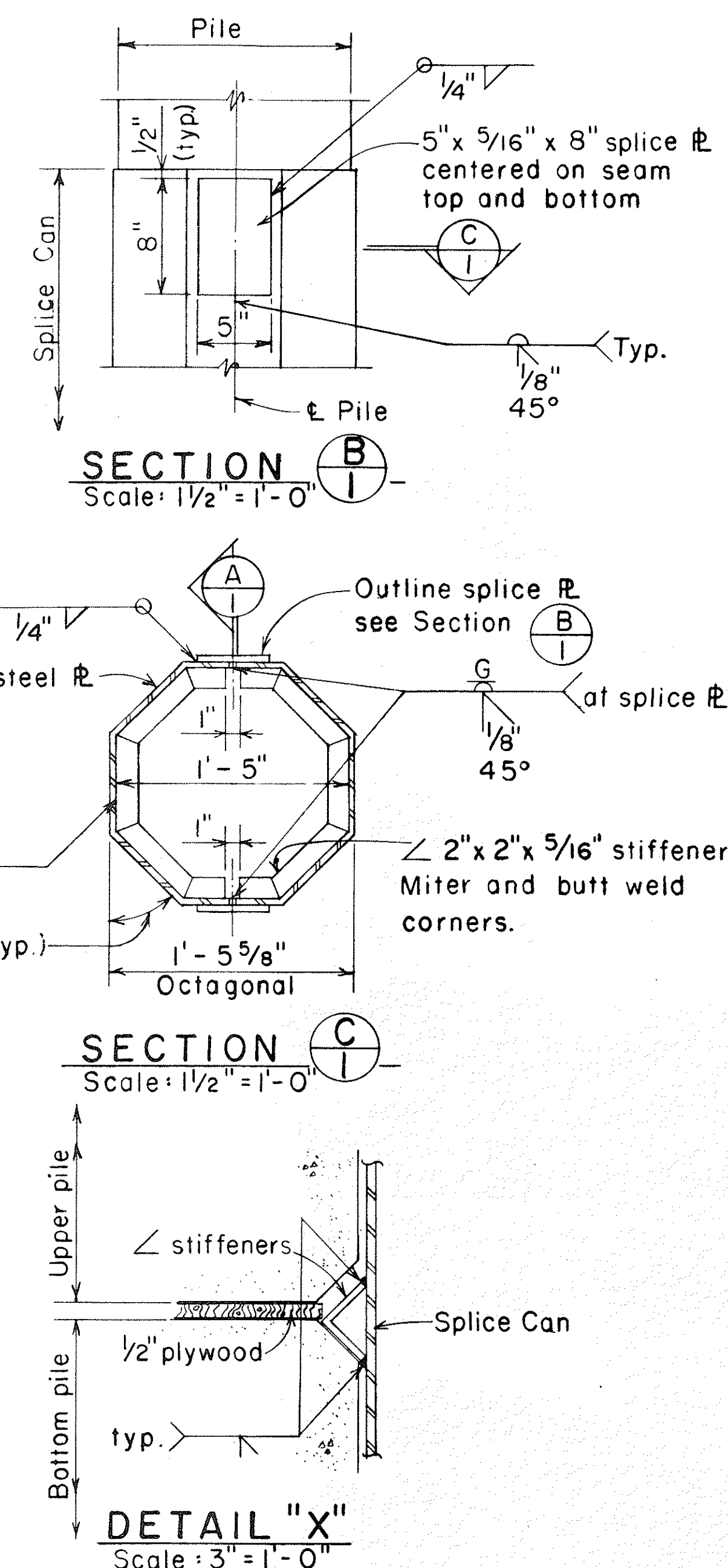


SECTION

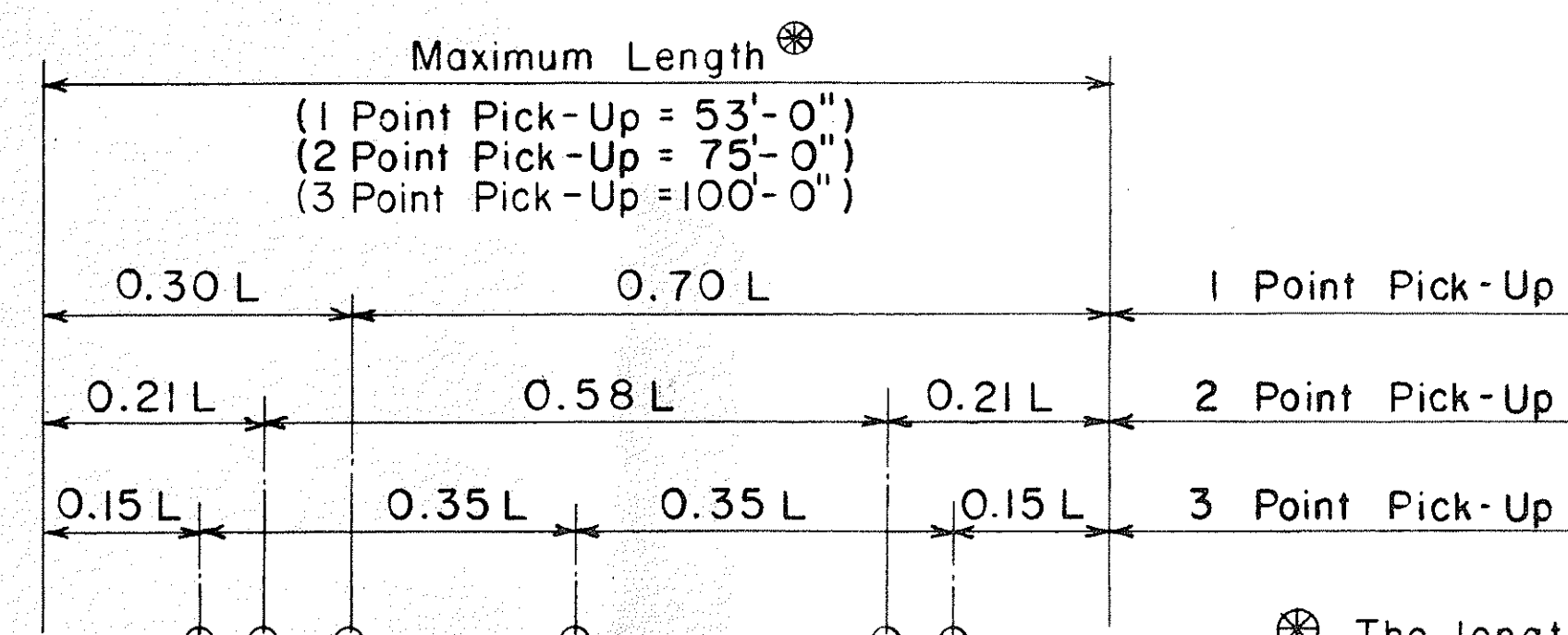
TYPICAL PILE DETAILS
(Not to scale)



TYPICAL PILE SPLICE DETAILS



DETAIL "X"
Scale: 3" = 1'-0"



PILE PICK-UP POINTS

⊗ The length "L" is the distance end to end of pile.

APPROVAL RECOMMENDED:

James R. Yamamoto 8-13-80

BRIDGE DESIGN ENGINEER DATE

APPROVED:

ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
PRESTRESSED CONCRETE
PILES

Scale: As Noted Date: August 1980

SHEET No. 55 OF 56 SHEETS DB-300-

Diagram illustrating the cross-section of a pile cap. The overall dimensions are 3' - 0" wide and 3' - 0" high. The cap is symmetric about the centerline of the pile. The reinforcement details include:

- 6" typical (width of the outer concrete layer)
- 1' - 6" (width of the inner concrete layer)
- Symm. about ϵ pile (symmetry about the centerline of the pile)
- #4@6" closed ties (reinforcement ties)
- 2" clear (clearance from the pile)
- 8 - #8 continuous vertical (vertical reinforcement bars)

8-#8 continuous vertical

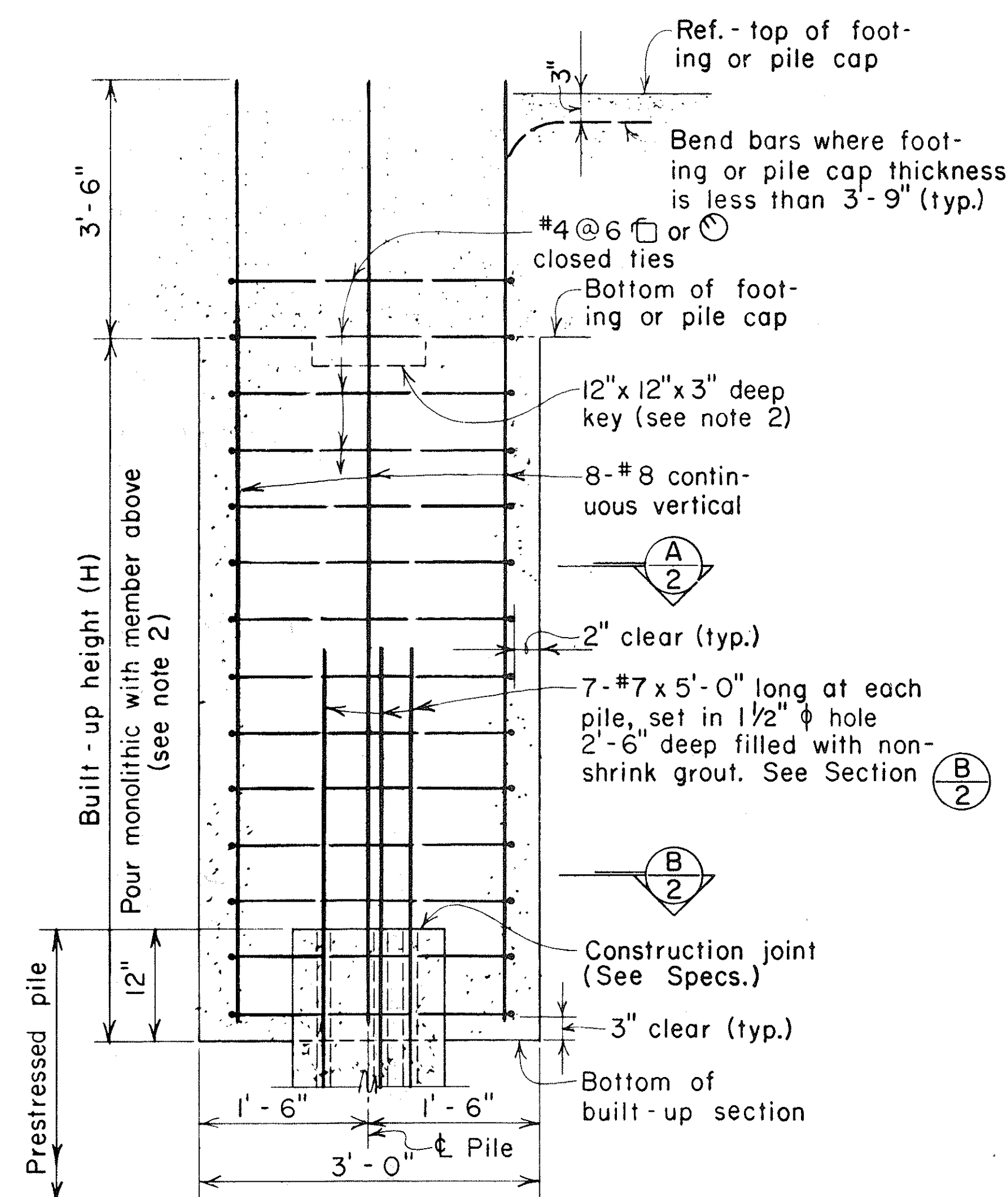
#4 @ 6" closed ties

6" typical

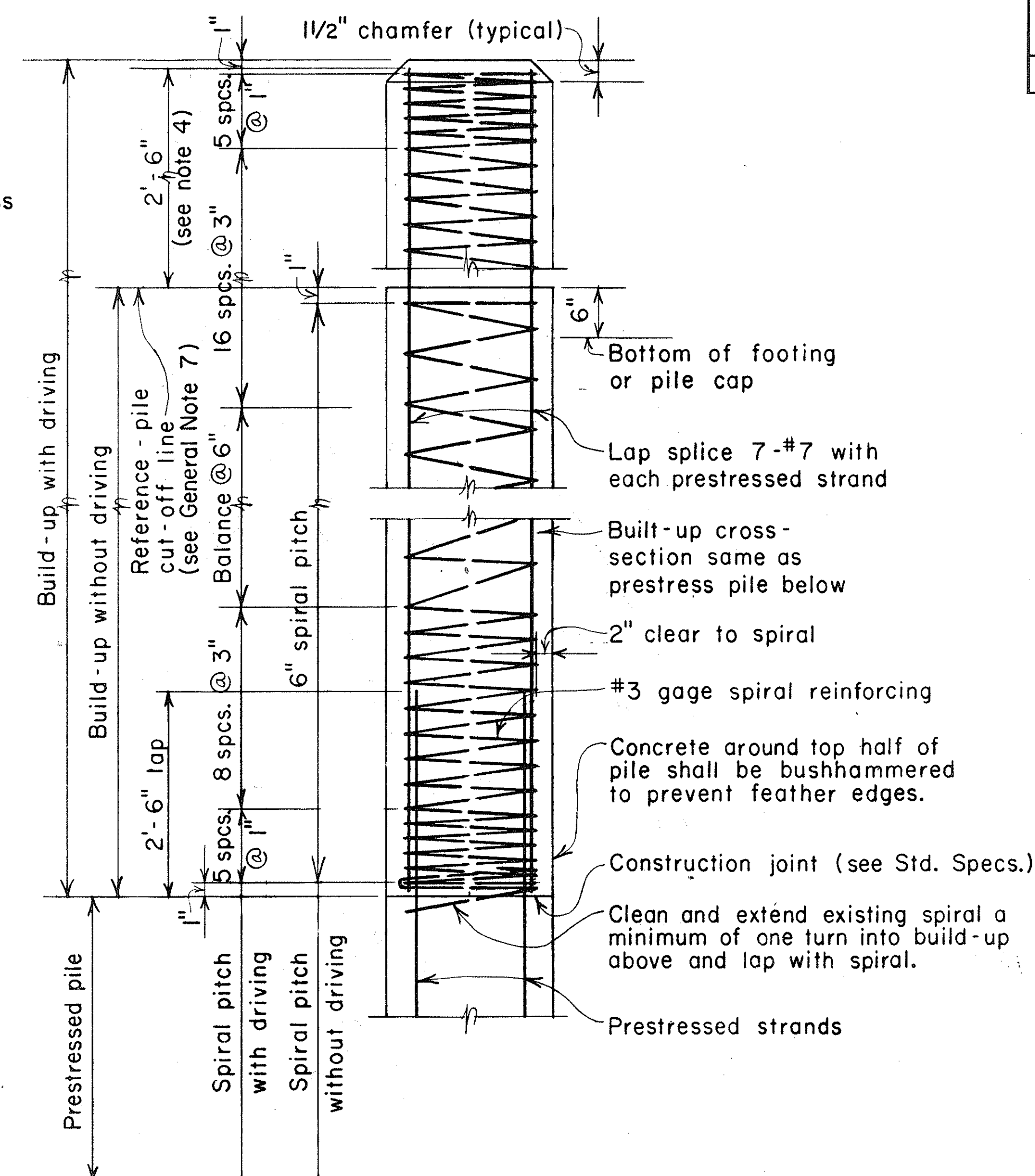
36" diameter

2" clear

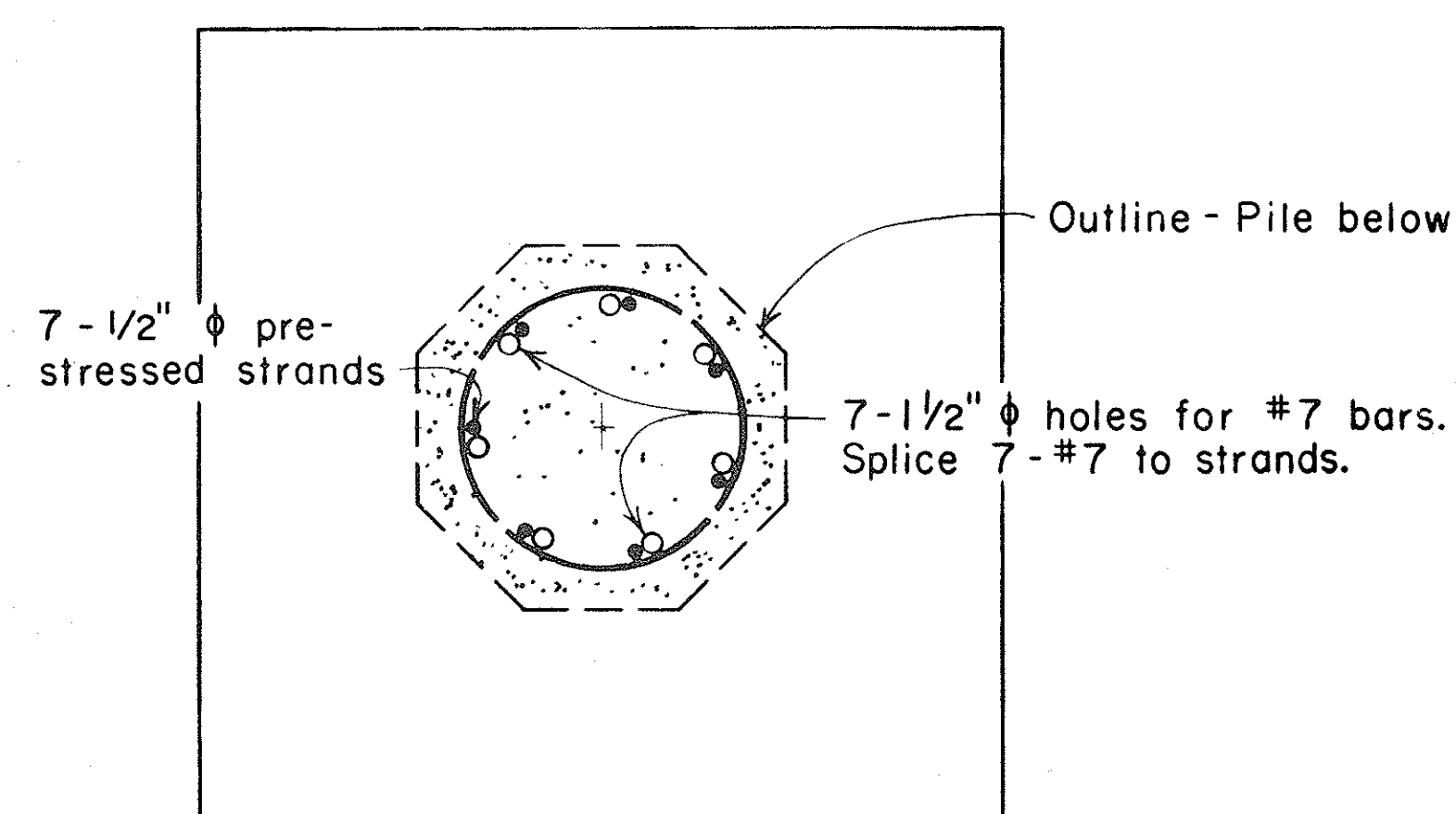
Scale : $3/4" = 1' - 0"$



Not to scale



Not to scale



Scale : $1\frac{1}{2}'' = 1' - 0''$

1. Selection of pile build-up type without driving to be determined by the Engineer.
2. When the built-up height (H) exceeds 4'-0", the built-up section shall be poured separately from the main body of the footing or pile cap.
3. Pile build-ups may be omitted for pile heads embedded at least 4" into footing, provided at least 90% of the pile in each footing have the minimum embedment into footing as shown in contract plans and #7 bars are spliced to strands as shown in Section $\frac{B}{2}$.
4. For built-up pile with driving, remove concrete after driving, leaving reinforcement exposed. See General Note no. 6.
5. Circular build-up section may be used only when approved by the Engineer.
6. Alternate pile build-up detail shall apply only to pile build-up without driving.

DATE _____

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
PRESTRESSED CONCRETE
PILES

Scale : As Noted Date : August 1980

SHEET No. 56 OF 56 SHEETS DB-300-2

ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
	DRAWN BY _____	" _____
	TRACED BY _____	" _____
NOTE BOOK	DESIGNED BY _____	" _____
	QUANTITIES BY _____	" _____
No. _____	CHECKED BY _____	" _____