

SHEET NO.	TOTAL SHEETS
1	9

CITY OF WICHITA, KANSAS  
MICHAEL E. LINDEBAK, P.E., CITY ENGINEER

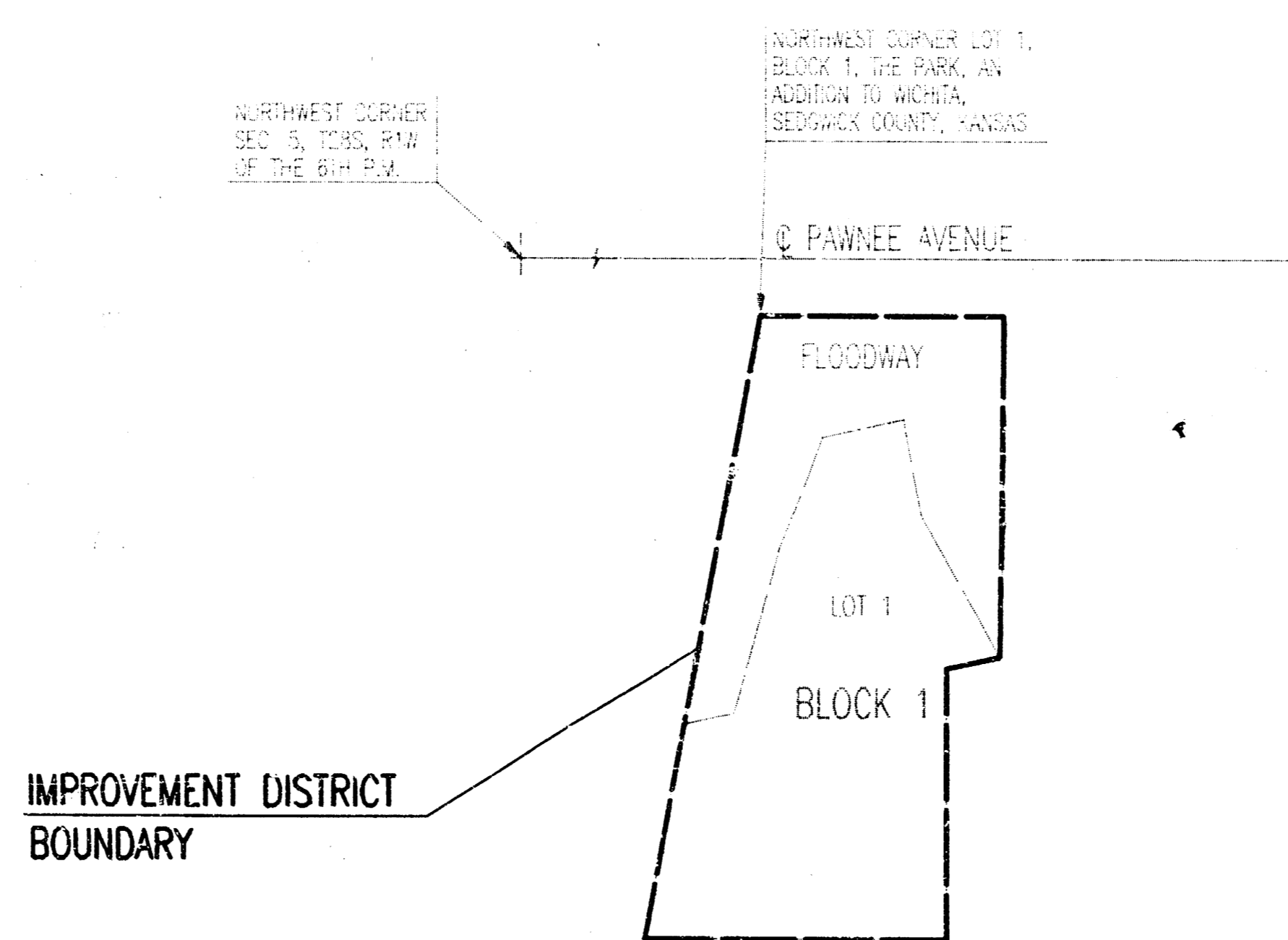
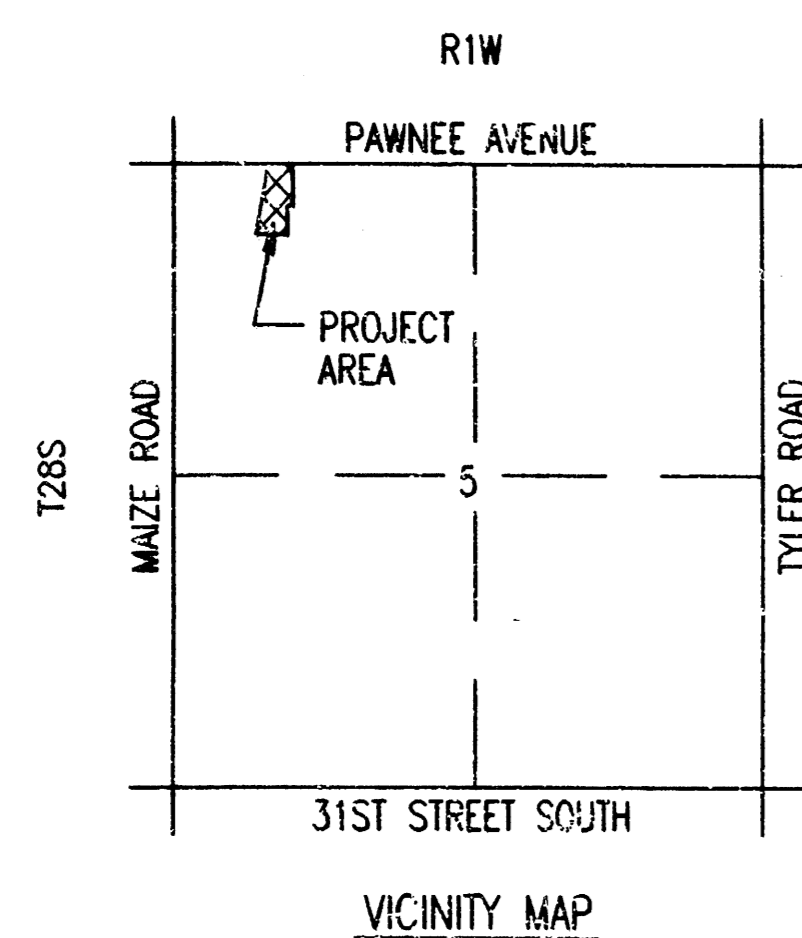
# STORM WATER ~~SEWER~~ NO. 124 DRAIN

IN  
PARK CHATEAU

INDEX OF SHEETS

1.	TITLE SHEET
2.	PAVING DETAILS
3.	3'-6"x4' RCB GENERAL NOTES
4.	3'-6"x4' RCB LAYOUT
5-9.	3'-6"x4' RCB DETAILS

CITY OF WICHITA PROJECT NO. 468-76-245-82636-000-000-001  
INDEX NO. 750927



*Booked  
2-11-98  
D-380  
MCG*

GENERAL NOTES

UNDERGROUND UTILITY SERVICE LINES AND OVERHEAD UTILITY POLE LINES ARE TO BE ADJUSTED AS NECESSARY BY OTHERS PRIOR TO CONSTRUCTION UNLESS THE PLANS SPECIFICALLY CALL FOR THEIR ADJUSTMENT BY THE CONTRACTOR. EXISTING UTILITIES NEW LOCATION, AS SHOWN ON THE PLANS, REPRESENT THE BEST INFORMATION AVAILABLE FOR DESIGN. LOCATION INFORMATION HAS BEEN OBTAINED FROM VARIOUS UTILITY COMPANIES AND IS EITHER FROM COMPANY RECORD DRAWINGS OR COMPANY PROVIDED FIELD LOCATIONS. THE CONTRACTOR WILL BE REQUIRED TO WORK AROUND EXISTING UTILITIES WITHIN THE RIGHT-OF-WAY WHICH DO NOT CONFLICT WITH PROPOSED CONSTRUCTION. CONTRACTOR SHALL SATISFY HIMSELF OF SUBSURFACE CONDITIONS PRIOR TO BIDDING.

TREES AND SHRUBS IN PUBLIC RIGHT-OF-WAY WHICH ARE IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE REMOVED BY THE CONTRACTOR WITH THE ENGINEER'S APPROVAL. TREES AND SHRUBS WHICH ARE NOT IN DIRECT CONFLICT WITH PROPOSED NEW CONSTRUCTION SHALL BE SAVED AND PROTECTED FROM DAMAGE.

RUBBLE FROM THE REMOVAL OF MISCELLANEOUS STRUCTURES SHALL BE DISPOSED OF ON SITES TO BE PROVIDED BY THE CONTRACTOR AND APPROVED AS NOTED.

ALL DISPOSAL SITES MUST BE APPROVED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT. MATERIAL EITHER STOCKPILED OR DISPOSED OF IN A FLOOD PLAIN WOULD REQUIRE A KANSAS STATE BOARD OF AGRICULTURE PERMIT. ANY MATERIAL DUMPED IN WATERS OF THE UNITED STATES OR WETLANDS IS SUBJECT TO U.S. CORPS OF ENGINEERS PERMITTING REGULATIONS. ANY MATERIAL BURIED OR STOCKPILED BEYOND APPROVED CONSTRUCTION LIMITS WOULD REQUIRE ADDITIONAL ARCHEOLOGICAL INVESTIGATIONS UNLESS BURIED IN A PREVIOUSLY APPROVED BORROW LOCATION.

EXCESS EXCAVATED MATERIAL AND EXCESS TOPSOIL SHALL BE STOCKPILED OR WASTED WITHIN THE PLAT LIMITS. THE CONTRACTOR SHALL CONTACT THE OWNER'S ENGINEER AT 262-2691 FOR INFORMATION PERTAINING TO THE ACCEPTABLE LOCATIONS FOR THE DISPOSITION OF EXCESS MATERIAL. WASTE MATERIAL SHALL BE GRADED SMOOTH AND SLOPED TO DRAIN. THIS WORK SHALL BE CONSIDERED SUBSIDIARY TO OTHER BID ITEMS.

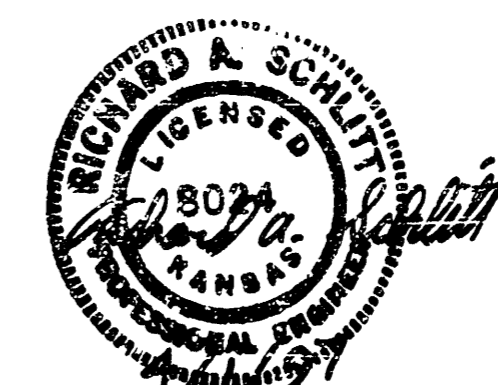
CONTRACTOR SHALL PROVIDE A MINIMUM FORTY-EIGHT (48) HOUR ADVANCE NOTICE (EXCLUDING WEEKENDS AND HOLIDAYS) PRIOR TO BEGINNING ANY EXCAVATION, TO KANSAS ONE-CALL SYSTEM, A UTILITY LOCATION SERVICE, AT (316) 687-2470, TO REQUEST THE FOLLOWING UTILITY COMPANIES TO LOCATE ALL EXISTING LINES WITHIN THE PROJECT AREA: K.G.&E. GAS, PEOPLES NATURAL GAS, K.G.&E. ELECTRIC, SOUTHWESTERN BELL TELEPHONE, MULTIMEDIA CABLEVISION, CITY OF WICHITA SEWER MAINTENANCE AND CITY OF WICHITA WATER DEPARTMENT.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR PRESERVING PROPERTY IRONS. THE CONTRACTOR WILL BE REQUIRED TO RE-ESTABLISH ANY PROPERTY IRONS WHICH ARE DAMAGED OR DESTROYED BY HIS CONSTRUCTION OPERATIONS. SUCH IRONS SHALL BE RE-ESTABLISHED BY A LICENSED LAND SURVEYOR IN ACCORDANCE WITH STATE LAWS.

THE WATER DEPARTMENT SHALL FIELD LOCATE WATER VALVES ONE (1) TIME DURING CONSTRUCTION WHEN REQUESTED BY THE CONTRACTOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PRESERVE SUCH FIELD LOCATIONS DURING THE CONSTRUCTION PROCESS. WATER VALVES, WATER VALVE BOXES OR FIRE HYDRANTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED BY THE CONTRACTOR AT HIS OWN EXPENSE.

THE CONTRACTOR SHALL ADJUST WATER VALVE BOXES AS DIRECTED BY THE ENGINEER. THIS WORK TO BE SUBSIDIARY TO OTHER BID ITEMS.

ALL AREAS DISTURBED DURING CONSTRUCTION SHALL BE SEEDED, FERTILIZED, AND MULCHED ACCORDING TO CITY OF WICHITA STANDARDS AND SPECIFICATIONS.



APRIL, 1997

PLANS PREPARED BY  
PROFESSIONAL ENGINEERING CONSULTANTS, P.A.  
ENGINEERS  
WICHITA, KANSAS

DRAWN BY: JAMES R. COPELAND, SCALE: 1"=150.00  
CHECKED BY: MICHAEL E. LINDEBAK, DATE: 04-01-1997 11:36:05 AM



SHEET NO.	TOTAL SHEETS
3	9

**GENERAL NOTES**

**LOADING:**  
HS20-44

AASHTO Specifications  
1992 Edition and latest  
Interim Specifications.

**UNIT STRESSES:**

Class AAA Concrete  $f_c = 4,000$  psi  $f_c = 1,600$  psi  
Reinforcing Steel (Grade 60)  $f_y = 60,000$  psi  $f_s = 24,000$  psi

**CONSTRUCTION:** The Contractor has the option of constructing either the Precast option (see Detail B, this sheet) or the Cast-in-Place option (see Detail A, this sheet.) Payment for the structure will be the same regardless of which option is used for construction.

**CONCRETE:** Class AAA Concrete shall be used throughout for the Cast-in-Place and shall comply to Section 402 of the 1990 Kansas State Department of Transportation Standard Specifications for State Road and Bridge Construction. Bevel all exposed edges with a 3/4 inch triangular mauling, unless otherwise noted.

**PRECAST CONCRETE:** Precast Box Sections shall meet the appropriate design and inspection requirements of AASHTO M 273, and A.S.T.M. Designation C-850, Table 2 and the loading specifications. (Depth of fill is less than 2 ft.)

The intermediate joints shall be sealed with a mastic compound which shall be provided for approval with the shop detail submittal. The Contractor shall furnish, to the Engineer, detail plans and shop drawings showing the proposed Precast layout and all other details for manufacture and delivery of any Precast items to be incorporated in the work.

**SEAL COURSE:** A Seal Course shall be constructed below the R.C.B. as shown in the plans. The seal course shall consist of 3" of Class A Concrete below all Cast-in-Place Concrete. The seal course below Precast sections shall consist of either 3" of Class A Concrete or a 6" Granular Base (Type BD-1 or UD-1) at the Contractor's option. No reinforcing shall be placed until the seal course has gained sufficient strength to permit working upon it without injury.

**REINFORCING STEEL:** All dimensions relative to reinforcing steel placement are to the centerline of bars unless otherwise noted. Bar bending and dimensions shall be as shown and noted on the bending diagrams. All reinforcing steel shall conform to the requirements of ASTM A615, Grade 60.

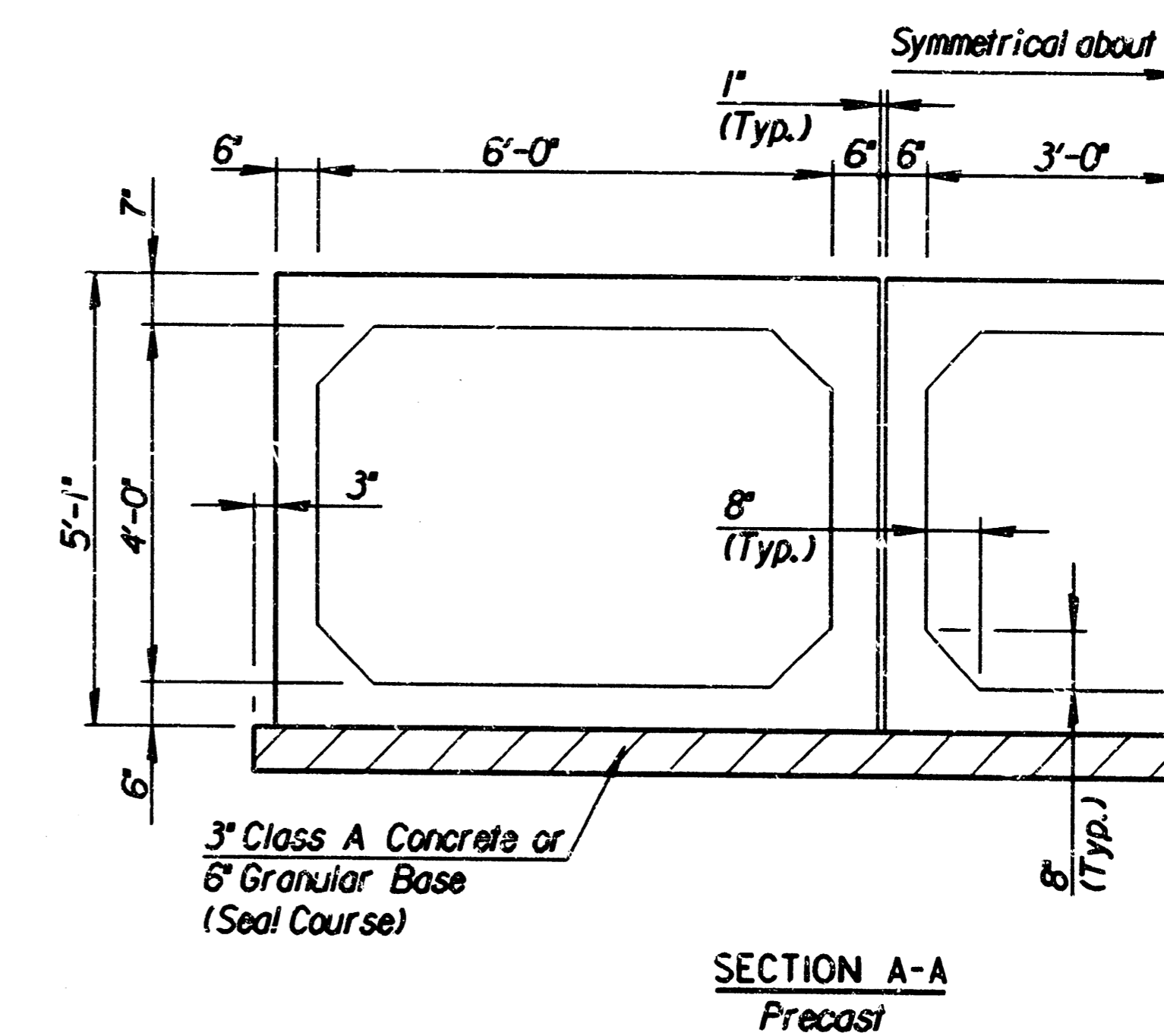
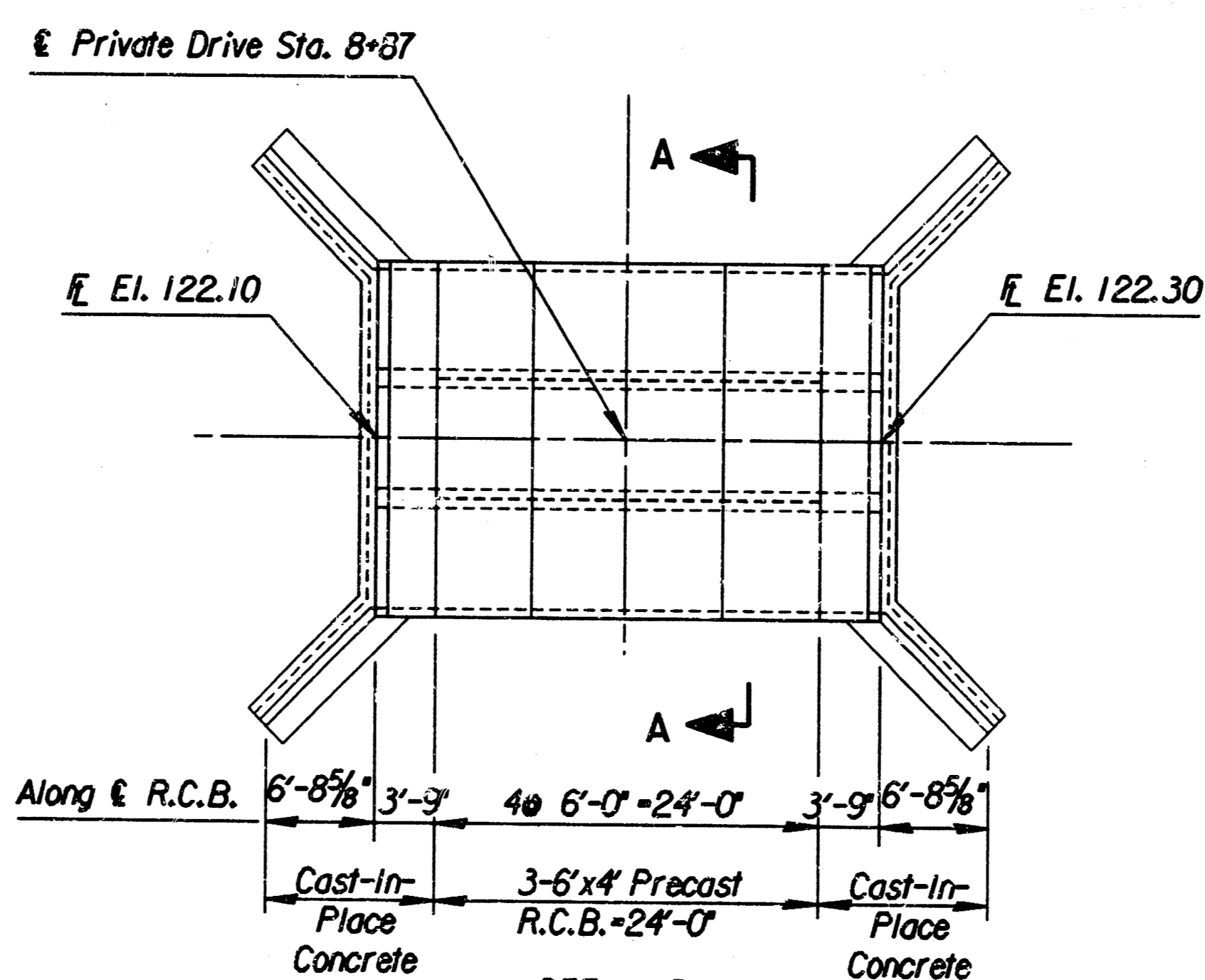
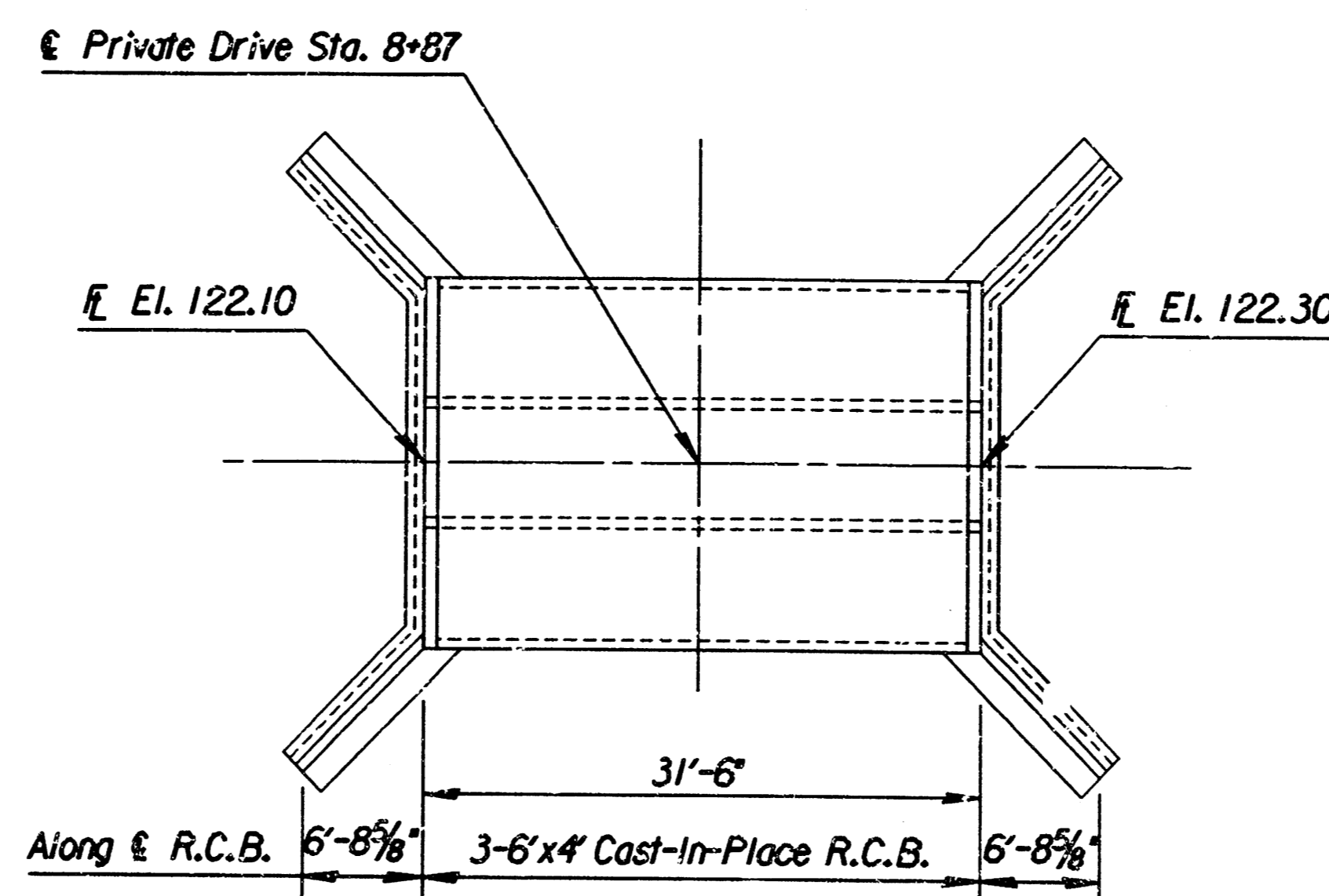
**JOINTS:** Construction Joints shall only be formed at locations shown or as approved by the Engineer.

**EXCAVATION:** All excavation and backfill shall extend to two (2) feet beyond sides of box and wingwall.

**PROJECT SCOPE:** City of Wichita Project No. 468-82636 will be limited to the construction of the 3'-6"x4' R.C. Box, limited channel shaping and fill plus compaction (90% Standard Density) in a band 40' along E Park Chateau (Sta. 8+67 to 9+07) to the contractor's grading limits, 26' plus in width, as denoted in the typical sections. Paving, curb and gutter and slope drains are by others.

**BASIS OF PAYMENT**

The 3'-6"x4' R.C.Box shall be bid as a lump sum which shall include all labor, material, excavation, compaction, concrete, reinforcing steel, seal course, and all other incidentals necessary to complete the work. Quantities shown are for information only.



*3'-6"x4' R.C. BOX*	
* BILL OF MATERIALS (CAST-IN-PLACE)	
Class AAA Concrete	54.5 C.Y.
Reinforced Steel (Grade 60)	8560 Lbs.
Seal Course (Class A Concrete)	7.2 C.Y.
* BILL OF MATERIALS (PRECAST OPTION)	
Class AAA Concrete	22.6 C.Y.
Reinforced Steel (Grade 60)	2700 Lbs.
Precast Box (6"x4')	72 L.F.
† Seal Course (Class A Concrete)	7.2 C.Y.
† Seal Course (Granular Base)	14.4 C.Y.

\* For Information Only  
† Choose only one option

No.	Revisions	By	Date
PARK CHATEAU			
<b>3'-6"x4'x31'-6" R.C.B.</b>			
<b>GENERAL NOTES</b>			
PROJECT NO. 468-82636		SEDGWICK COUNTY	
<b>PROFESSIONAL ENGINEERING CONSULTANTS, P.A.</b>			
<small>INCORPORATED</small> <b>WICHITA, KANSAS</b>			
Designed by	RWA	Checked by	RAS
Drawn by	MAF	Date	Mar. 1997
		Job No.	96266-1

SHEET NO.	TOTAL SHEETS
4	9

**DRAINAGE DATA**

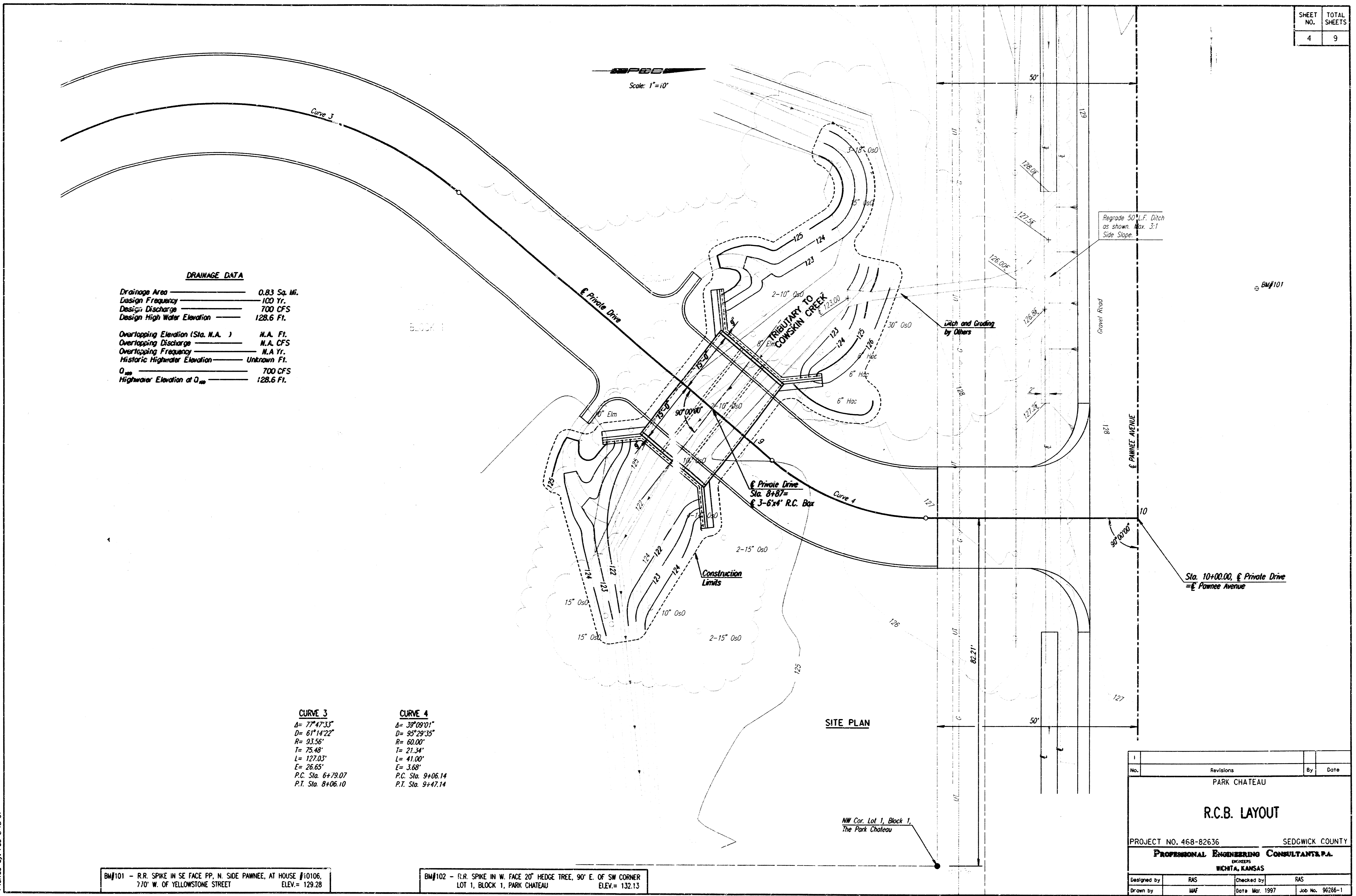
Drainage Area	0.83 Sq. Mi.
Design Frequency	100 Yr.
Design Discharge	700 CFS
Design High Water Elevation	128.6 Ft.
Overlapping Elevation (Sta. N.A.)	N.A. Ft.
Overlapping Discharge	N.A. CFS
Overlapping Frequency	N.A. Yr.
Historic Highwater Elevation	Unknown Ft.
$Q_{100}$	700 CFS
Highwater Elevation at $Q_{100}$	128.6 Ft.

<b>CURVE 3</b>	<b>CURVE 4</b>
$\Delta = 77^{\circ}47'33"$	$\Delta = 39^{\circ}09'01"$
$D = 61^{\circ}14'22"$	$D = 95^{\circ}29'35"$
$R = 93.56'$	$R = 60.00'$
$T = 75.48'$	$T = 21.34'$
$L = 127.03'$	$L = 41.00'$
$E = 26.65'$	$E = 3.68'$
P.C. Sta. 6+79.07	P.C. Sta. 9+06.14
P.T. Sta. 8+06.10	P.T. Sta. 9+47.14

BM#101 - R.R. SPIKE IN SE FACE PP. N. SIDE PANNEE, AT HOUSE #10106  
770' W. OF YELLOWSTONE STREET  
ELEV. = 129.28

BM#102 - R.R. SPIKE IN W. FACE 20' HEDGE TREE, 90' E. OF SW CORNER  
LOT 1, BLOCK 1, PARK CHATEAU  
ELEV. = 132.13

1/1996/962355/001/gradplan.dgn  
Drawn by: dsb/mef  
Plotted by: ras 3-15-97



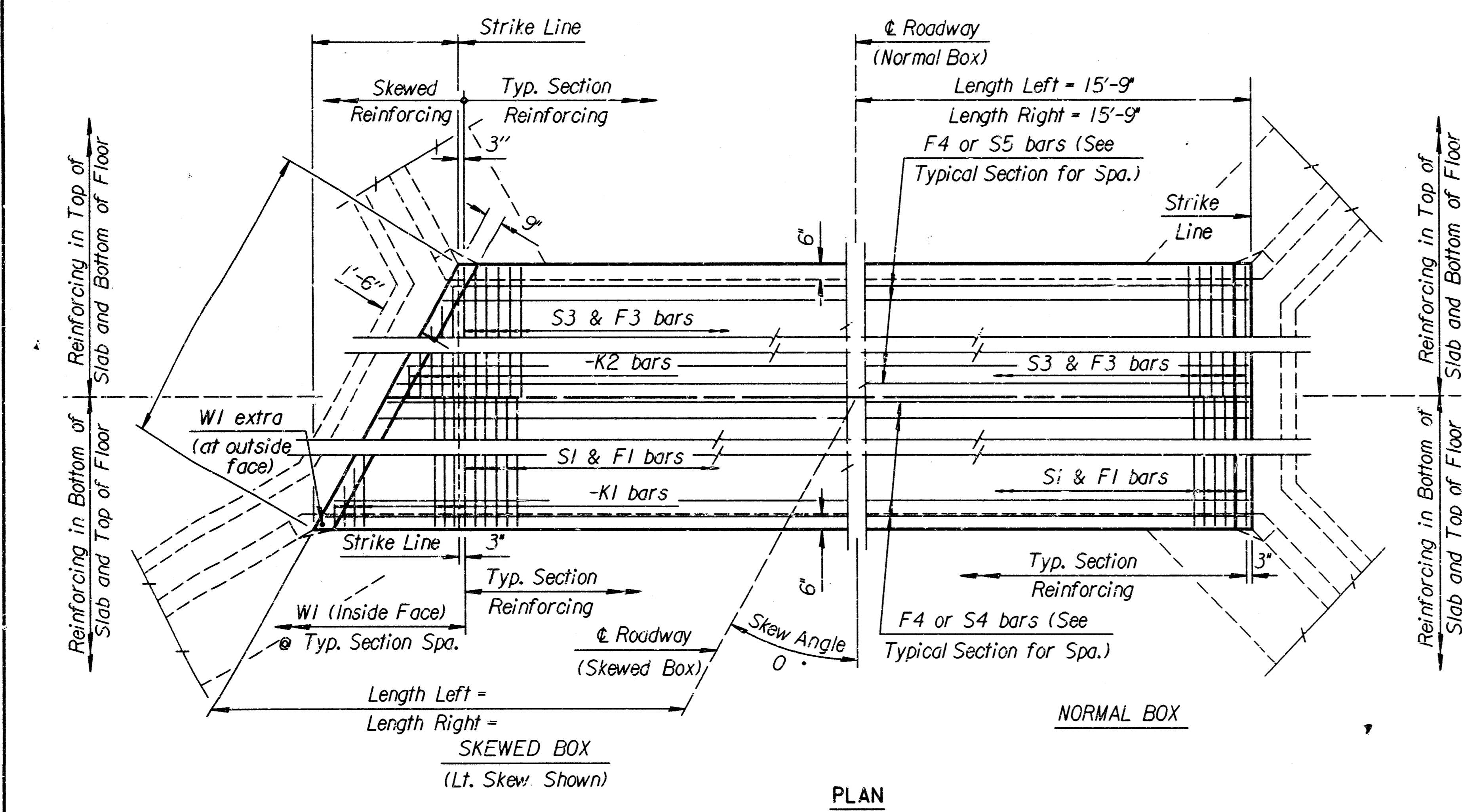
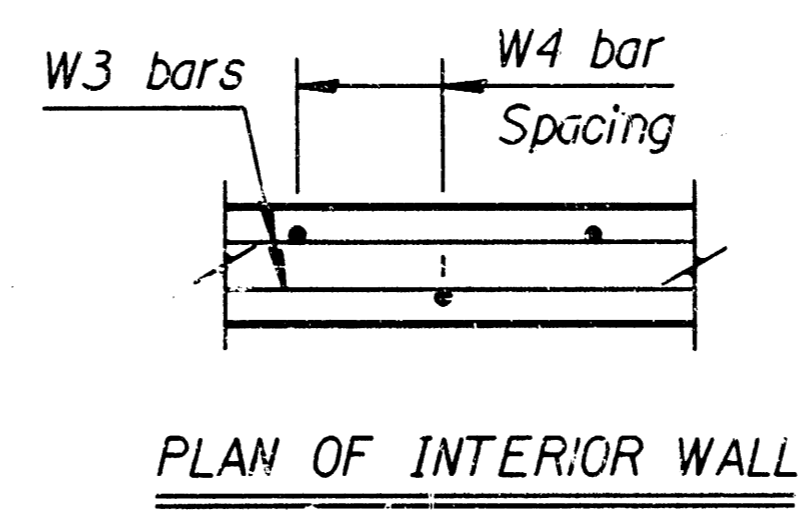
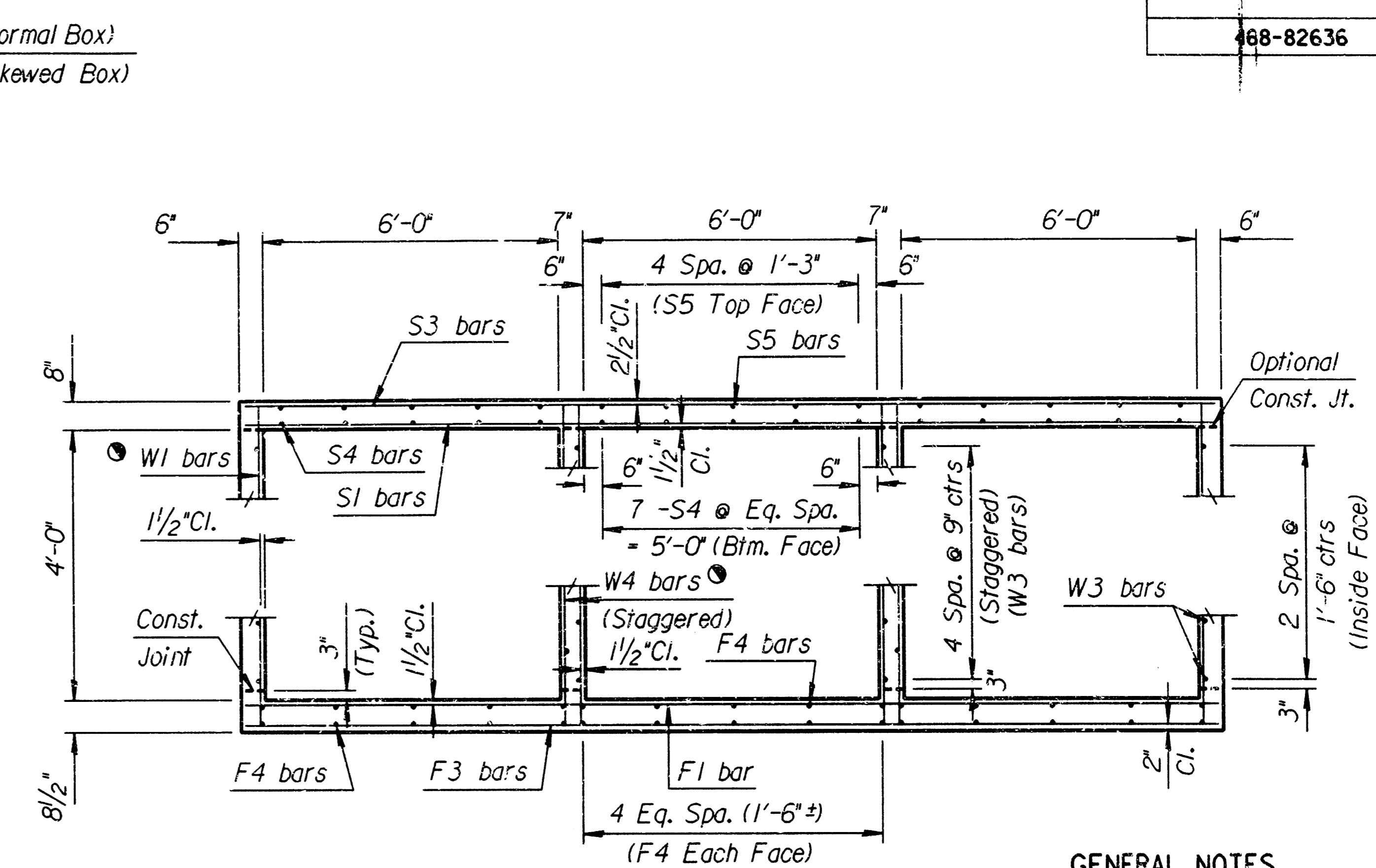
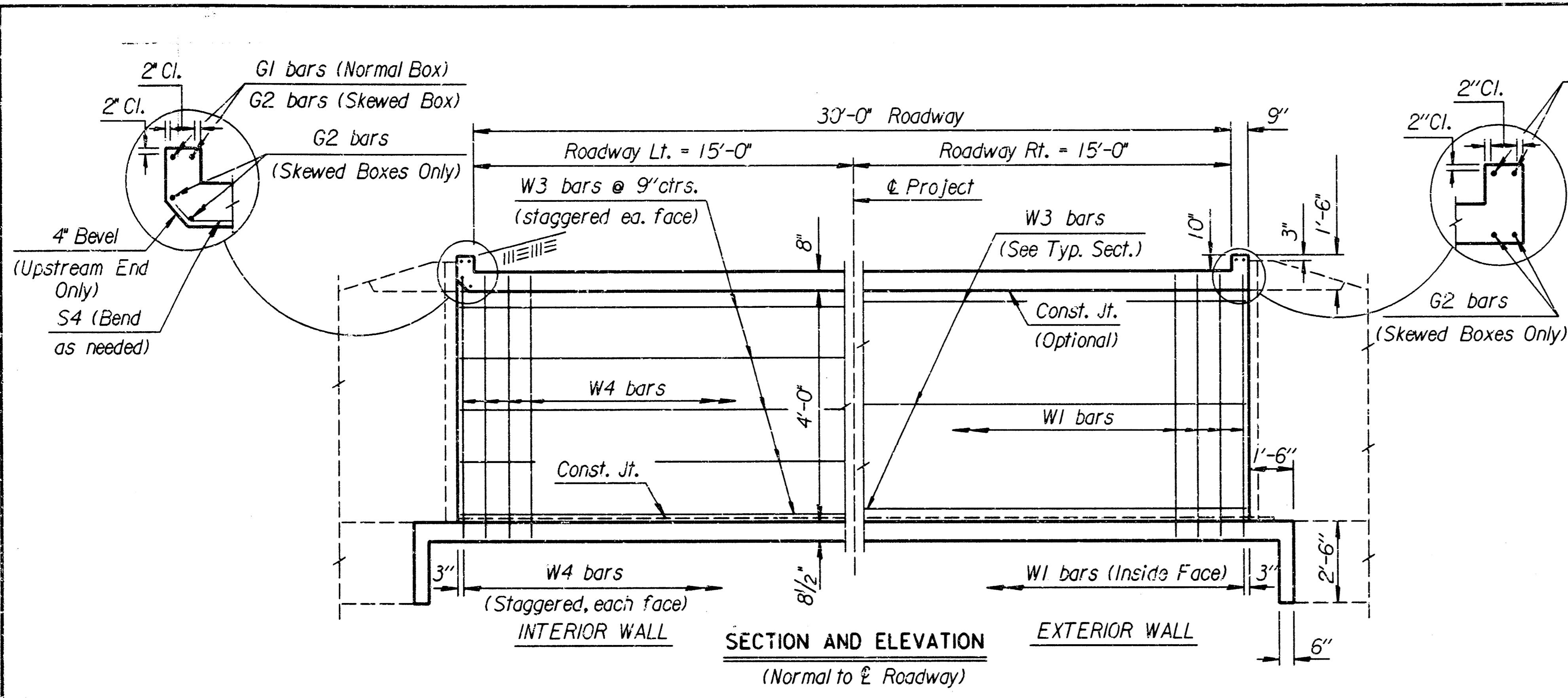
No.	Revisions	By	Date
PARK CHATEAU			
<b>R.C.B. LAYOUT</b>			
PROJECT NO. 468-82636		SEDGWICK COUNTY	
<b>PROFESSIONAL ENGINEERING CONSULTANTS, P.A.</b>			
WICHITA, KANSAS			
Designed by	RAS	Checked by	RAS
Drawn by	MAF	Date	Mar. 1997
		Job No.	96266-1

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
488-82636	1997	5	9

VERSION: 5.1.0 COMPILED: 03/01/95

DESIGN	CHECK	DATE	DESIGN	CHECK	DATE

Drawing File: i:\96266\001\RCB3-6x4.DGN  
Plotted by: ras 3-15-97



**GENERAL NOTES**

**LOADING:** HS20-44 AASHTO Specifications, 1983 Edition.  
**UNIT STRESSES:** Class AAA Concrete;  $f'c = 4,000$  p.s.i.  
 Reinforcing Steel;  $f_y = 60,000$  p.s.i.  
**FILL HEIGHT:** Unless otherwise noted, the Design Fill Height is measured from the riding surface at the culvert and shall include the surfacing.  
**CONCRETE:** Class AAA Concrete shall be used throughout. Bevel all exposed edges with a  $\frac{3}{4}$  inch triangular moulding. Where Class AAA Concrete (AE) is specified, it shall be placed in the top slab above the Construction Joint.  
**REINFORCING:** All reinforcing shall conform to ASTM A615, Grade 60. All dimensions relative to reinforcing steel shall be to centerline of bar unless otherwise noted.  
**EXCAVATION:** Excavation for culverts less than bridge length shall not be paid for directly but shall be subsidiary to Class AAA Concrete. Excavation for RCB Bridges shall be paid for as Class III Excavation.  
**STRIKE LINE:** Wingwalls and that portion of the RCB outside the Strike Line shall be constructed level. Footing for wingwalls shall be constructed with the culvert floor. See wingwall detail sheet.  
**BASIS OF PAYMENT:** The "3'-6" x 4' R.C. Box" shall be bid as a lump sum which shall include all labor, materials, excavation, concrete, reinforcing steel and all other incidentals necessary to complete the work. Quantities are shown for information only.

See RCB Auxiliary Details for Optional Splice.

**CULVERT SUMMARY**

Flow Line Elev. Lt.	Flow Line Elev. Rt.	Crown Gr. Elev.	Design Fill Ht.	Skew	Left Wings	Right Wings	Scour Apron	Soil Saver	Granular Backfill	Concrete			Reinf. Steel (Gr. 60)		
										Barrel (Cu.Yds.)	Wings (Cu.Yds.)	Total (Cu.Yds.)	Barrel (Lbs.)	Wings (Lbs.)	Total (Lbs.)
122.30	122.10	128.41	2	0	FLARED	FLARED	NO	NO	NO	43.36	11.12	54.48	7694.51	865.95	8560.47

**BAR SCHEDULE**

F1				F3				F4				S1				S3				S4				S5												
Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length	Size	Spa.	No.	Length					
5	5/2"	69	19'-10"	-	-	-	-	5	7"	54	19'-10"	4	30	31'-2"	5	5/2"	69	19'-10"	-	-	-	-	5	7"	54	19'-10"	5	21	31'-2"	4	15	31'-2"	-	-	-	-
K1				K2				W1				W3				W4				G1				G2												
-	-	-	-	-	-	-	-	4	9"	84	5'-1"	-	-	-	-	4	16	31'-2"	4	9"	84	5'-1"	5	4	19'-10"	-	-	-	-	-	-	-	-			

Minimum Splice Lengths	
#4	1'-4"
#5	1'-8"
#6	2'-0"

SUMMARY OF QUANTITIES	
Class AAA Concrete	54.5 C.Y.
Class AAA Concrete (AE)	0.0 C.Y.
Reinforcing Steel (Gr. 60)	8560 Lbs.
Reinforcing Steel (Epoxy Coat'ed)	0 Lbs.
Class III Excavation	0 C.Y.
Foundation Stabilization (Set)	0 C.Y.
Concrete for Seal Course (Set)	0 C.Y.
Granular Backfill (Wingwalls) (Set)	0 C.Y.

NO.	DATE	REVISIONS	BY	APP'D
<b>KANSAS DEPARTMENT OF TRANSPORTATION</b> Sta. 8+87 <b>TRIPLE 6' x 4' RCB</b>				
BR 3-06-04		SEDGWICK CO.		
DESIGNED	DRAWN	QUANTITIES	TRACED	
CHECKED	DETAILS	QUANTITIES	TRACE	

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
168-82636	1997	6	9

**GENERAL NOTES**

**UNIT STRESSES:** Class AAA Concrete;  $f'c = 4,000$  p.s.i.  
Reinforcing Steel;  $f_y = 60,000$  p.s.i.

**CONCRETE:** Class AAA Concrete shall be used throughout. Bevel all exposed edges with a  $\frac{3}{4}$  inch triangular moulding.

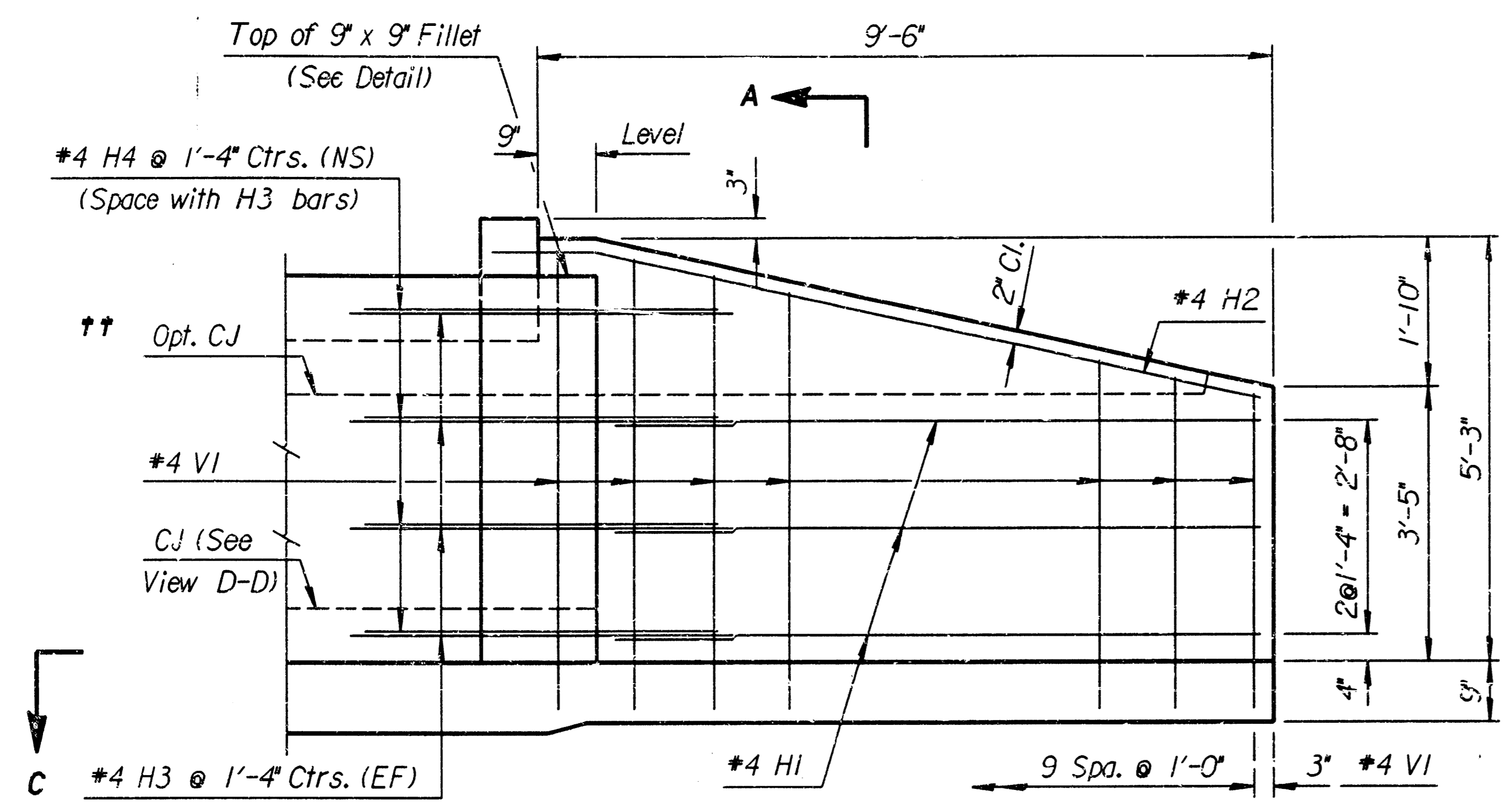
**REINFORCING:** All reinforcing shall conform to ASTM A615, Grade 60. Welded Wire Fabric shall conform to ASTM A185. All dimensions relative to reinforcing steel shall be to center-line of bar unless otherwise noted.

**QUANTITIES:** Wingwall Quantities include all quantities outside the neat lines of the box, excluding the hubguard.

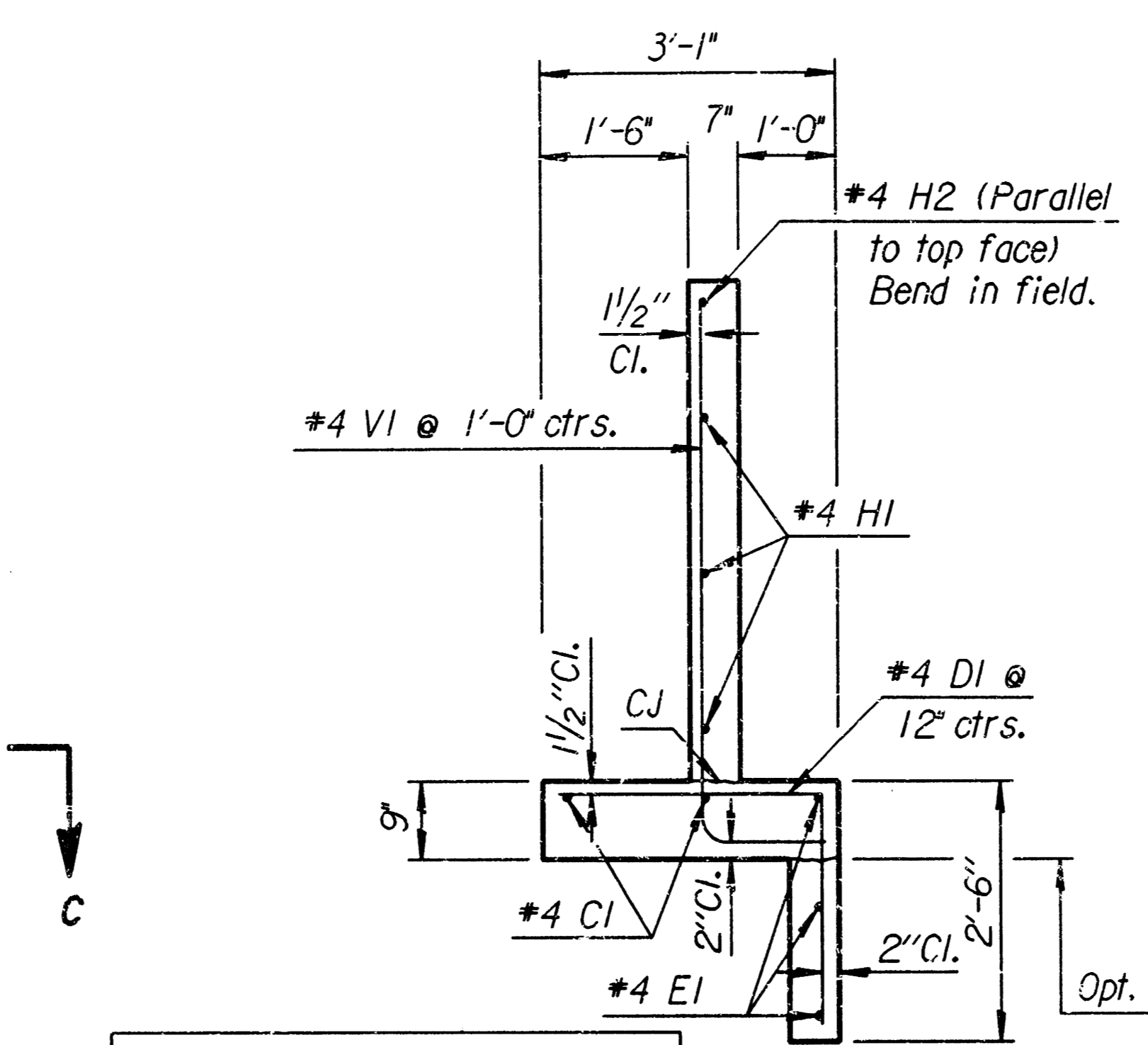
VERSION: 5.1.0 COMPILED: 03/01/95

DESIGN	DATE	DATE	DATE	DATE
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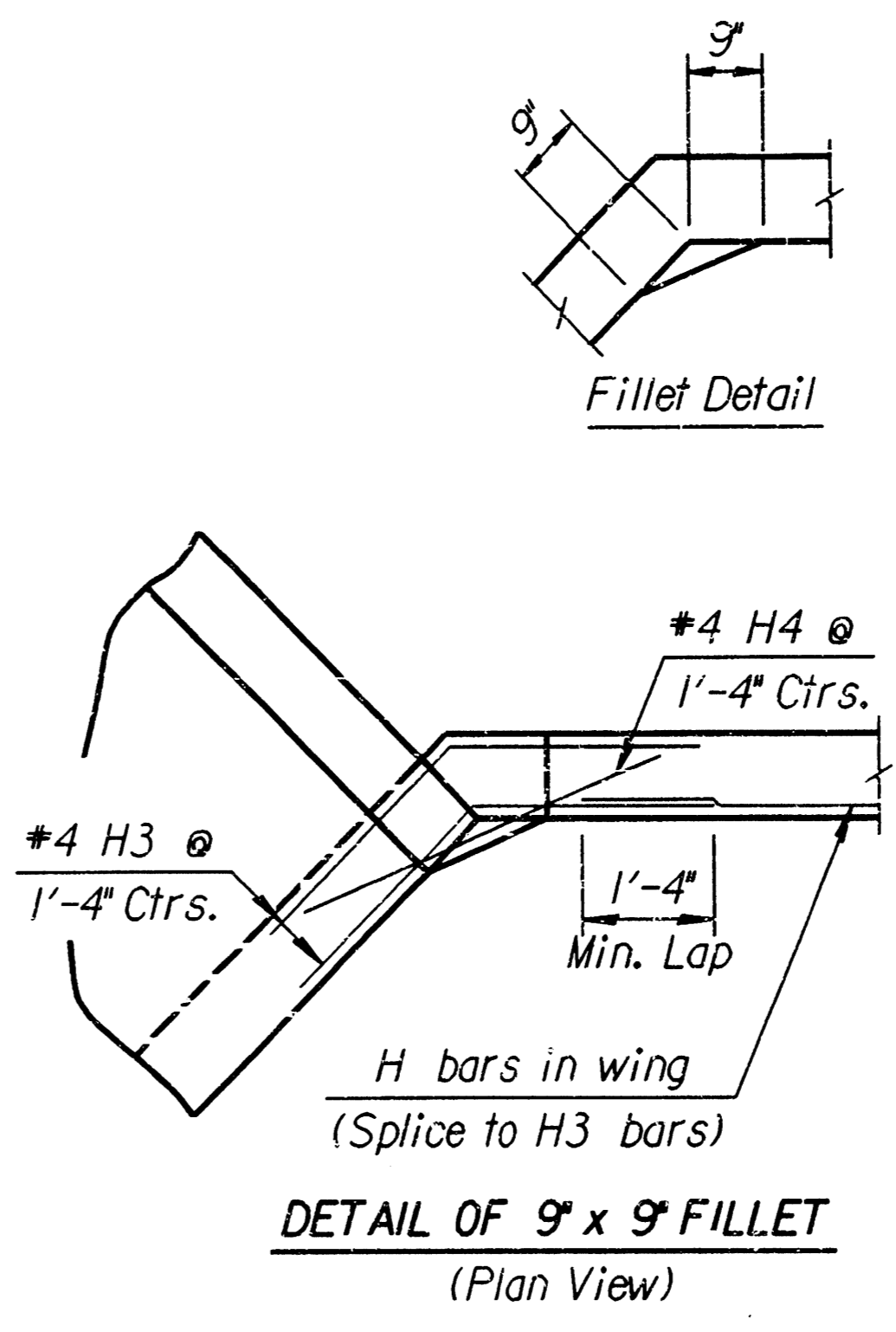
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Plotted by: ras 3-15-97



**ELEVATION OF WINGWALL**  
(Backface Shown)

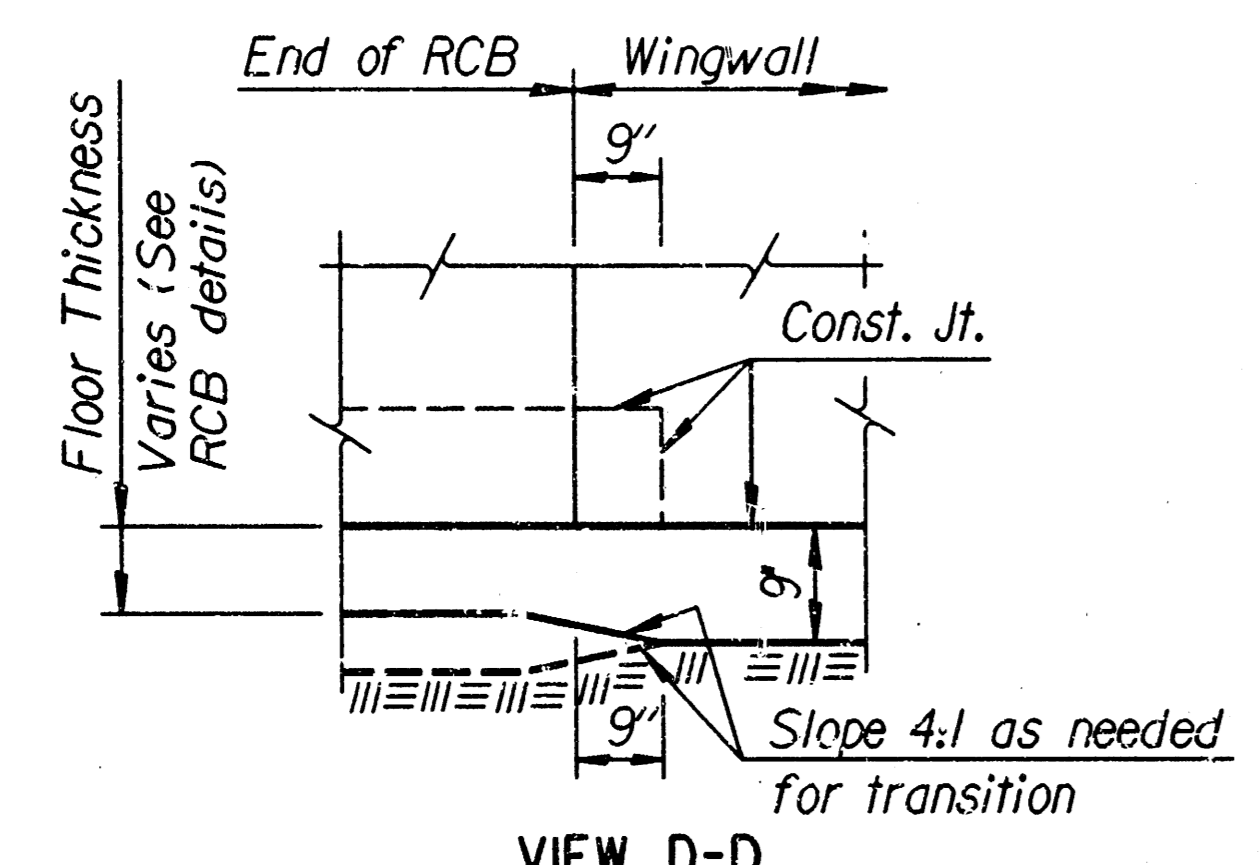


**SECTION A-A**

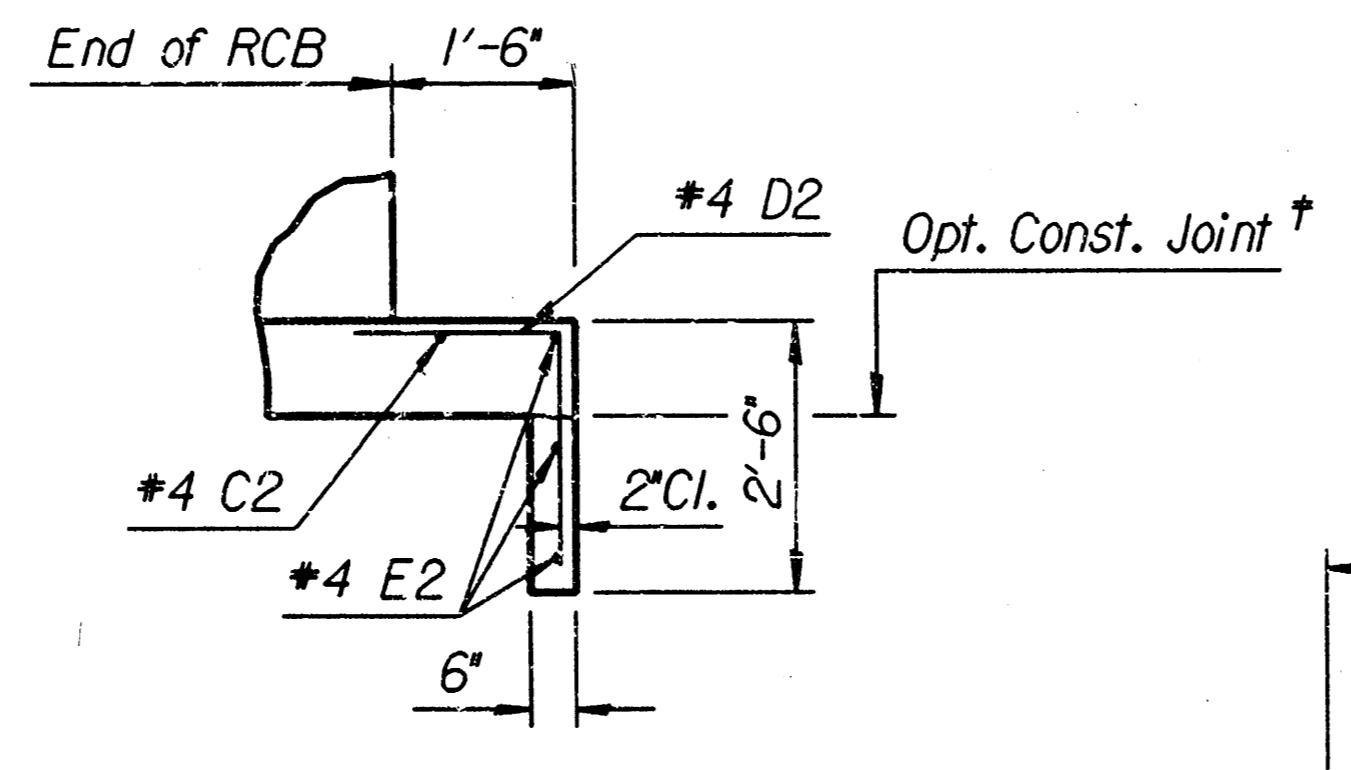


**DETAIL OF 9' x 9' FILLET**  
(Plan View)

†† See RCB Details for location of construction joint.

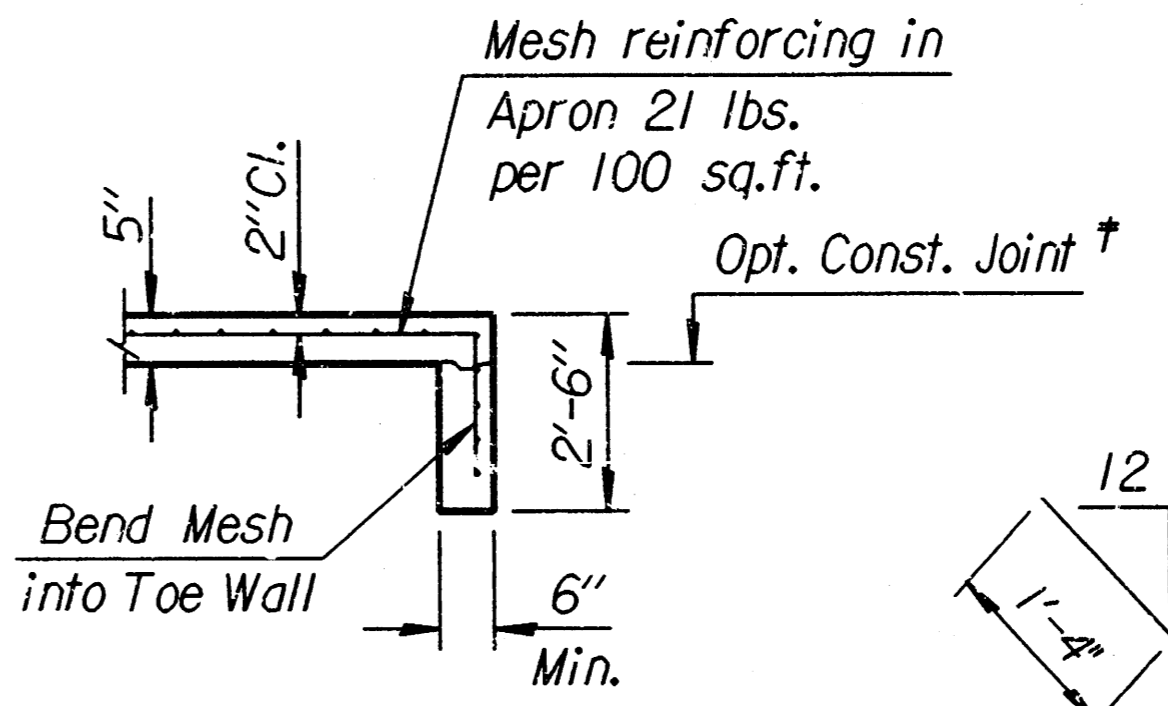


**VIEW D-D**

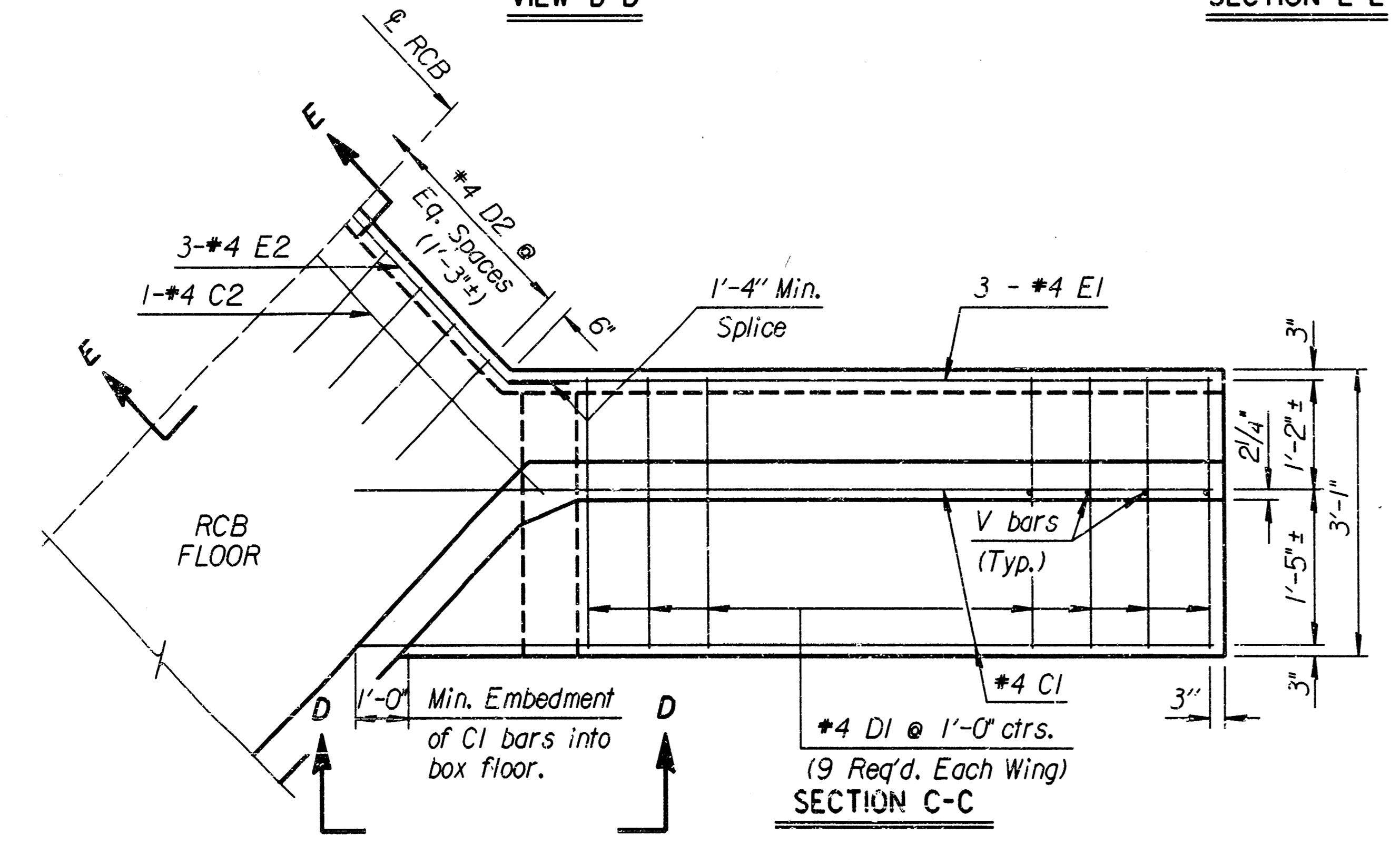


**SECTION E-E**

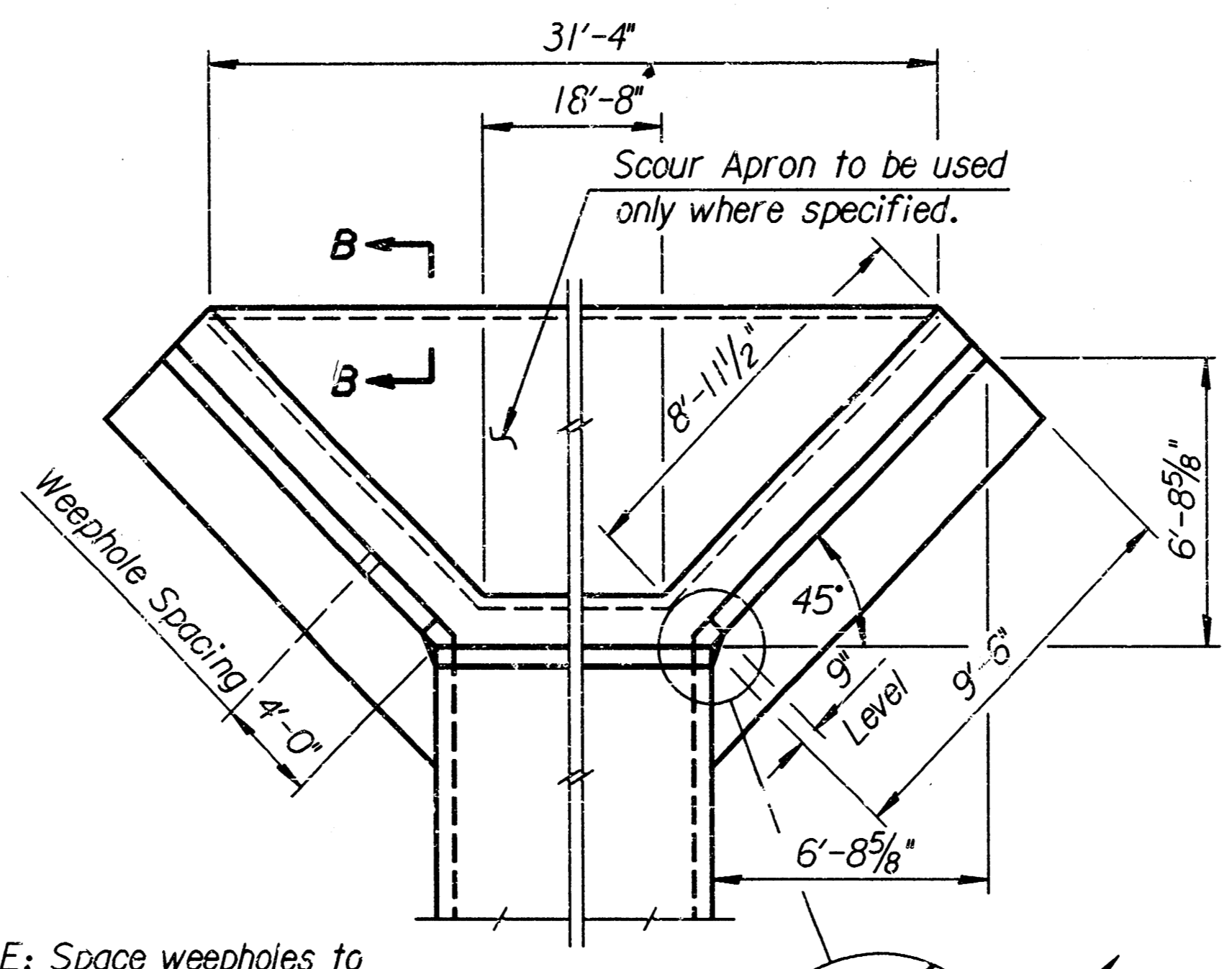
**NOTE:**  
EF = Each Face  
NS = Near Side  
FS = Far Side  
CJ = Const. Joint



**SECTION B-B**



**SECTION C-C**

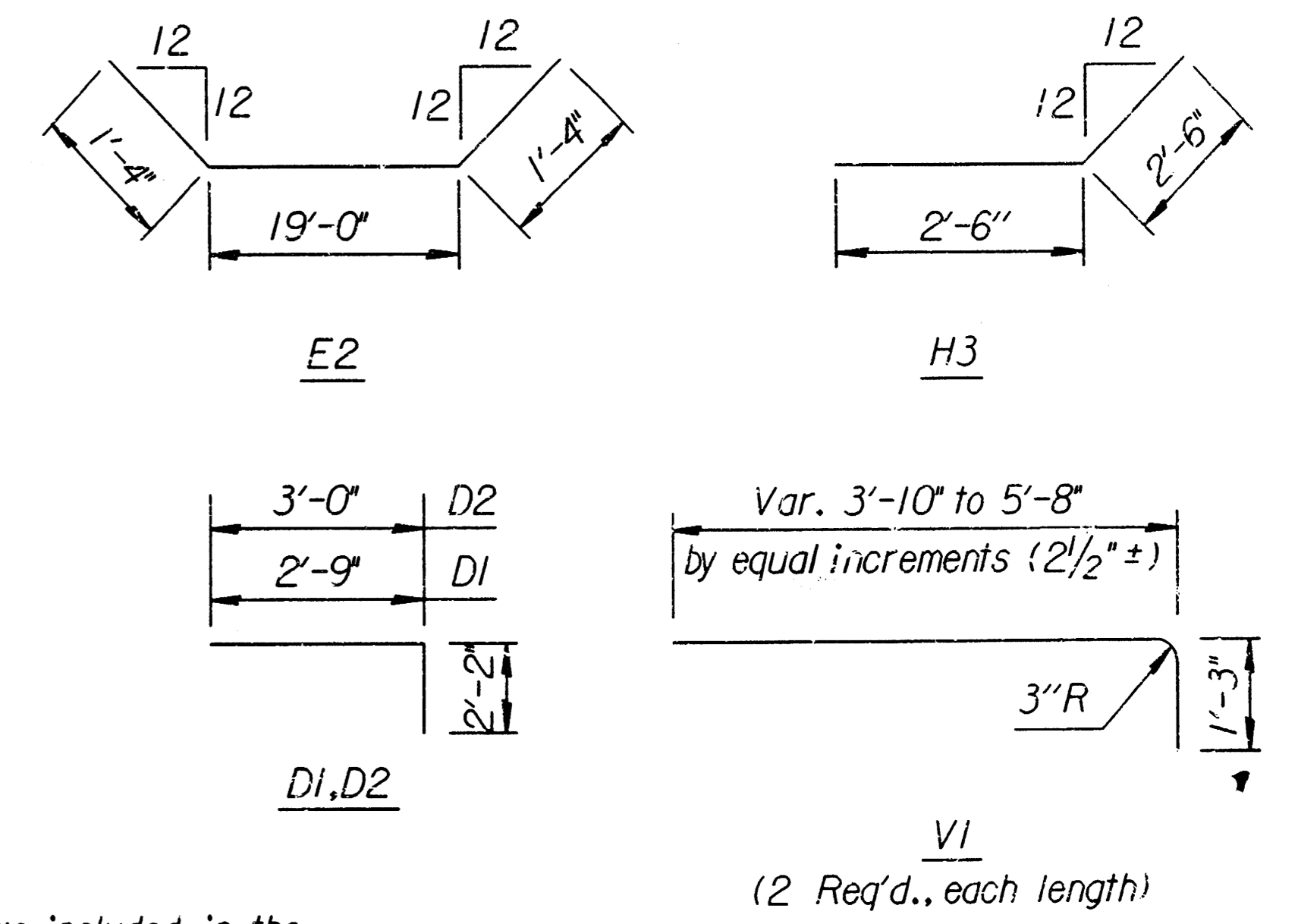


**WING DIMENSIONS FOR NORMAL BOX**  
(3/2:1 Embankment Slope)

**NOTE:** Space weepholes to clear reinforcing steel. See "RCB Aux. Details" sheet for additional weephole details.

Quantities listed below are included in the Summary of Quantities shown on the RCB details.

WINGWALL QUANTITIES (One End Only)	
Class AAA Concrete:	
Wingwalls	5.56 CY.
Apron	0.00 CY.
Soil Saver	0.00 CY.
Reinforcing Steel 432.98 Lbs.	
Welded Wire Fabric 0.00 Lbs.	



**BENDING DIAGRAM**

(All dimensions are out to out of bars.)

**NOTE:** Reinforcing Bar List is for both wings at one end of box only.

\* See Bending Diagram

0' Skew	Reinforcing Bar List											
	No.	*4C1	*4D1	*4E1	*4C2	*4D2	*4E2	*4V1	*4H1	*4H2	*4H3	*4H4
	4	18*	6	1	15*	3*	20	6	2	16*	8	
Length	11'-7"	4'-11"	8'-9"	19'-10"	5'-2"	21'-8"	*	8'-4"	10'-3"	5'-0"	3'-6"	

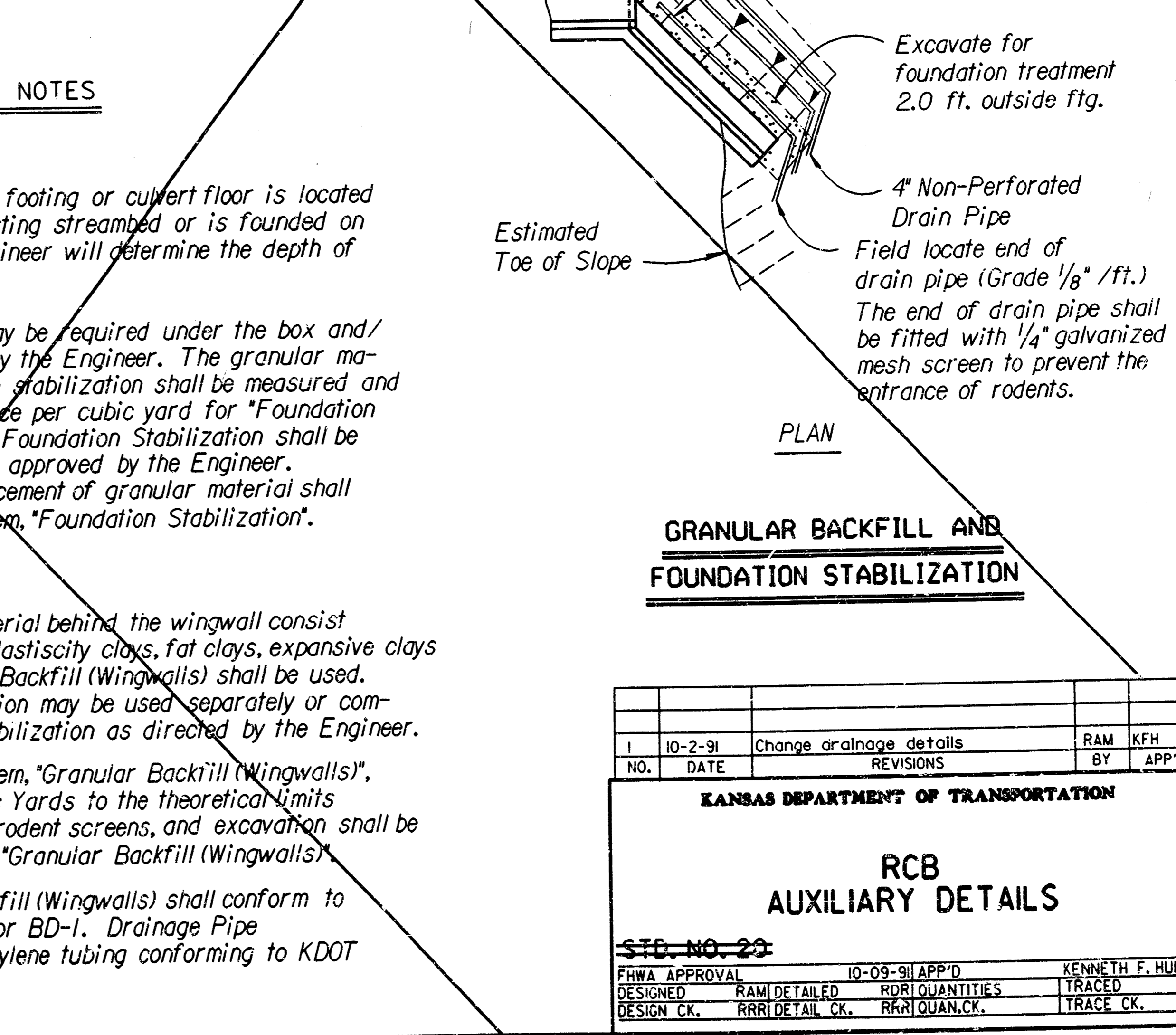
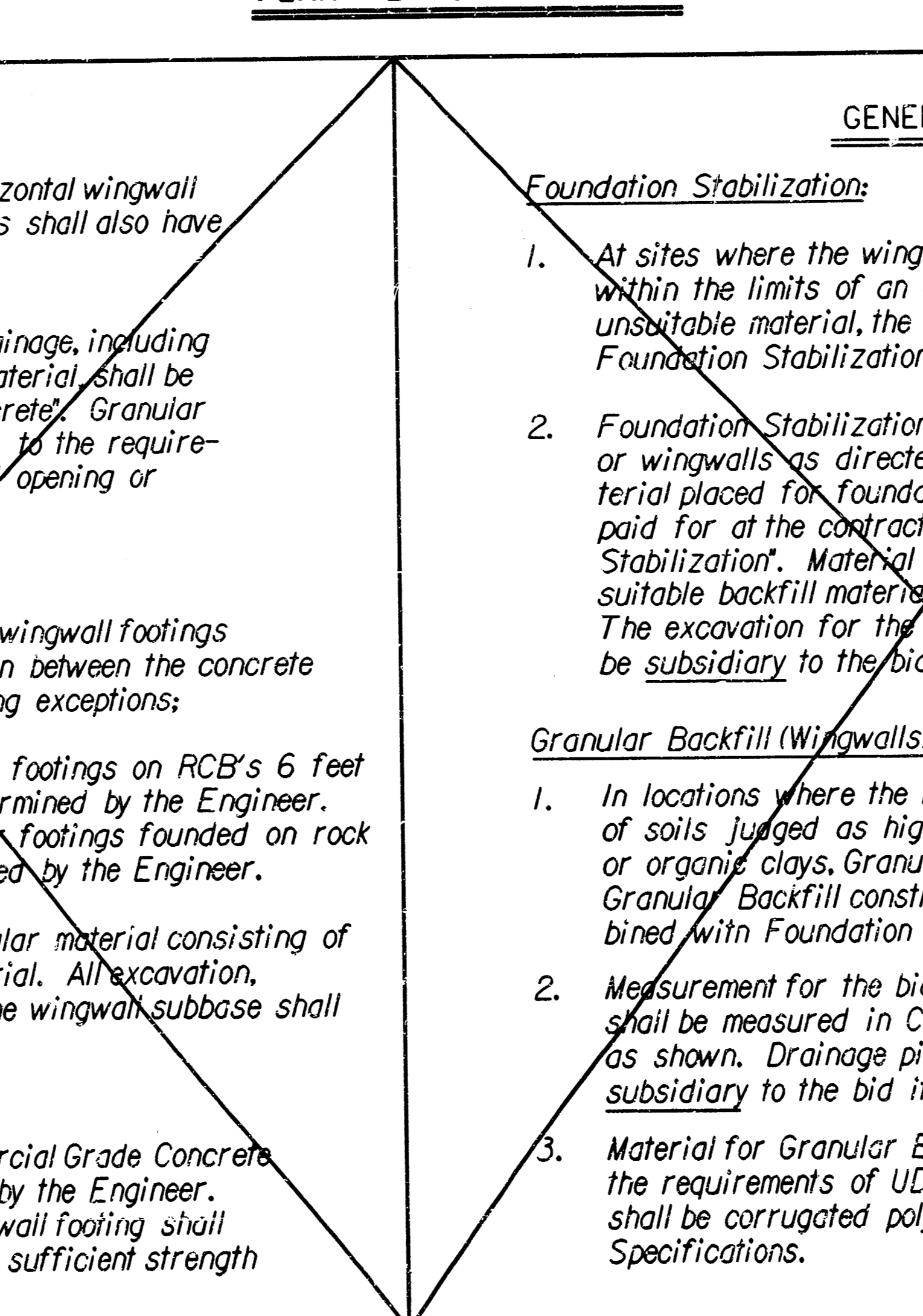
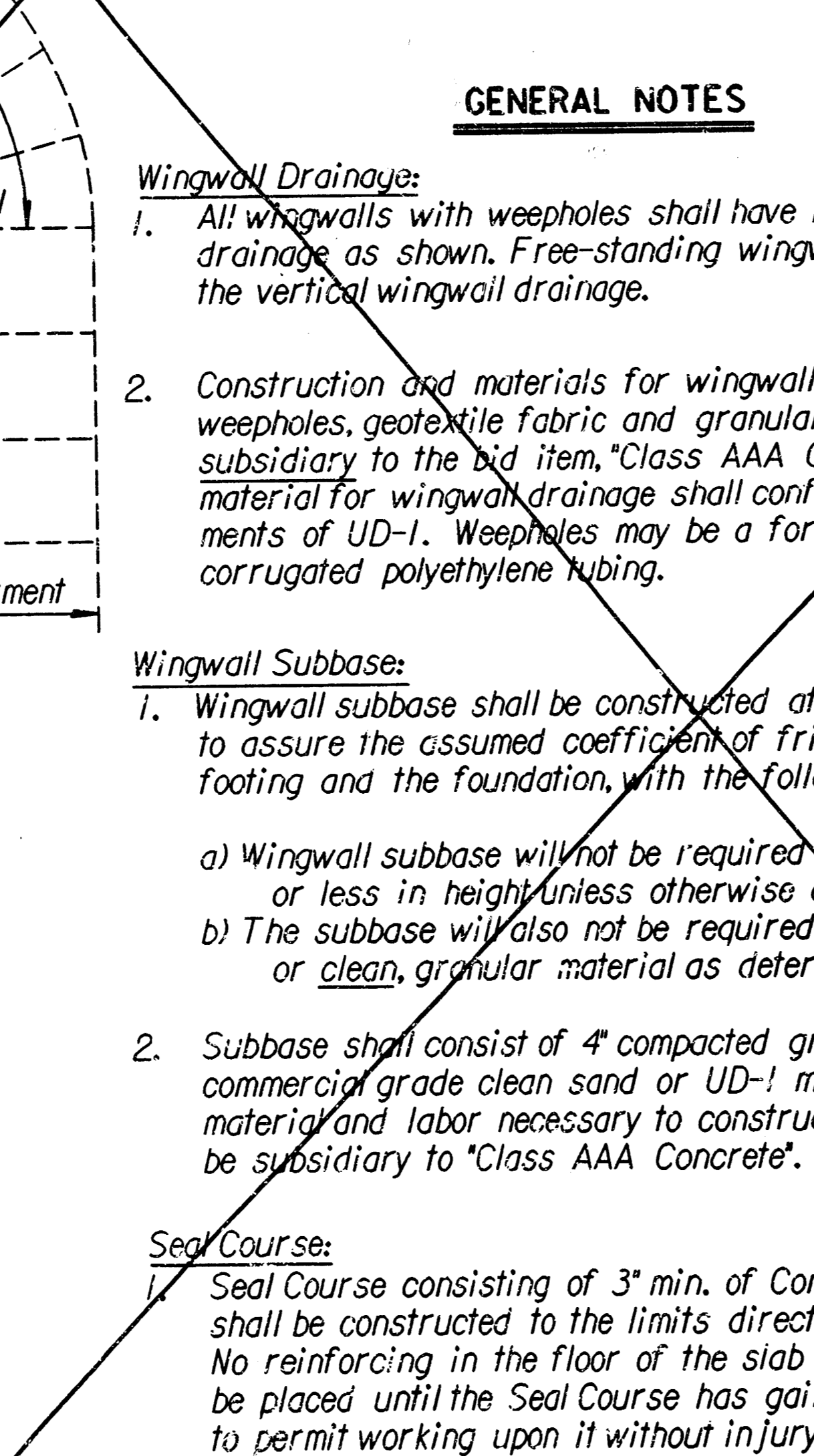
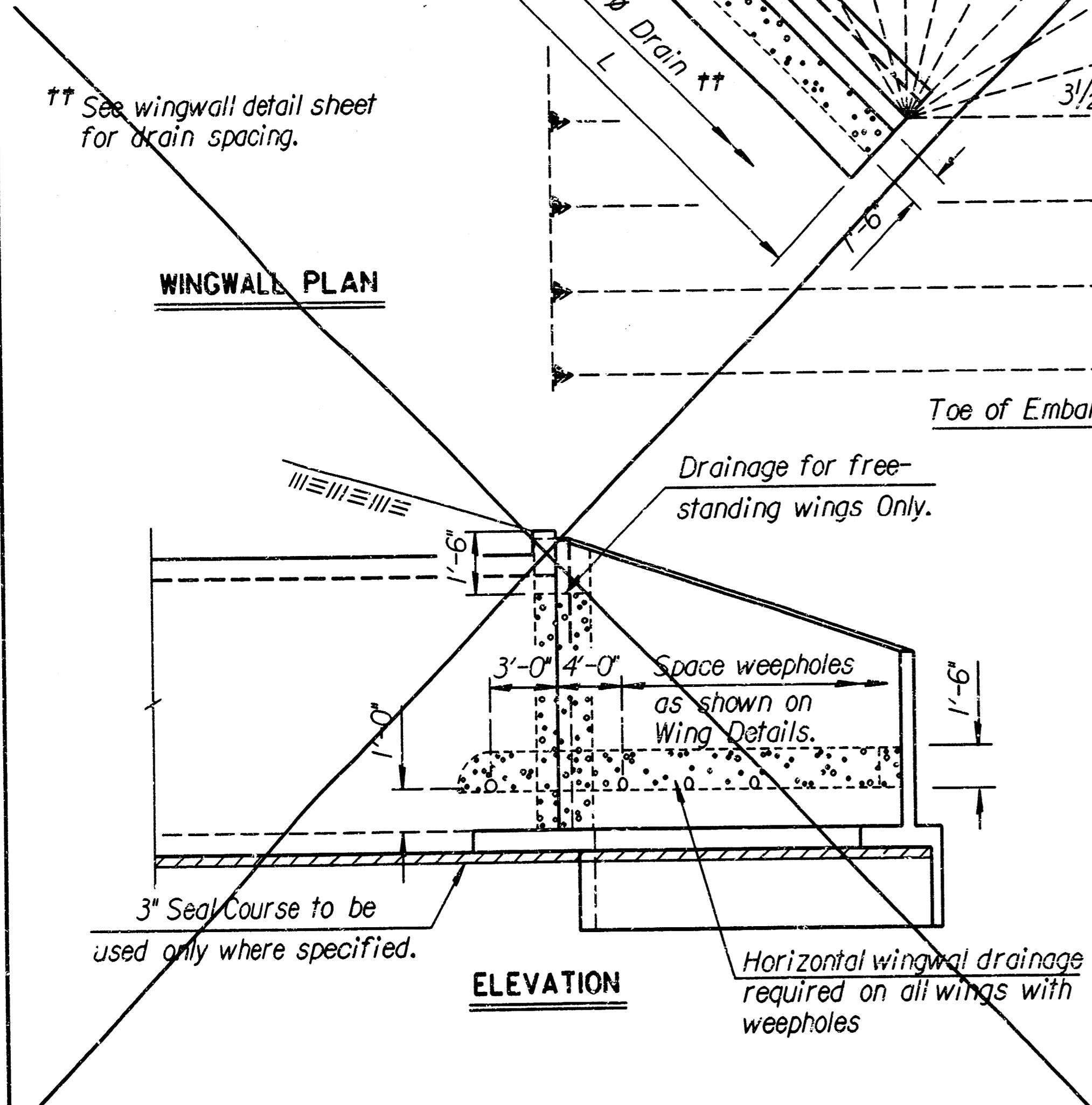
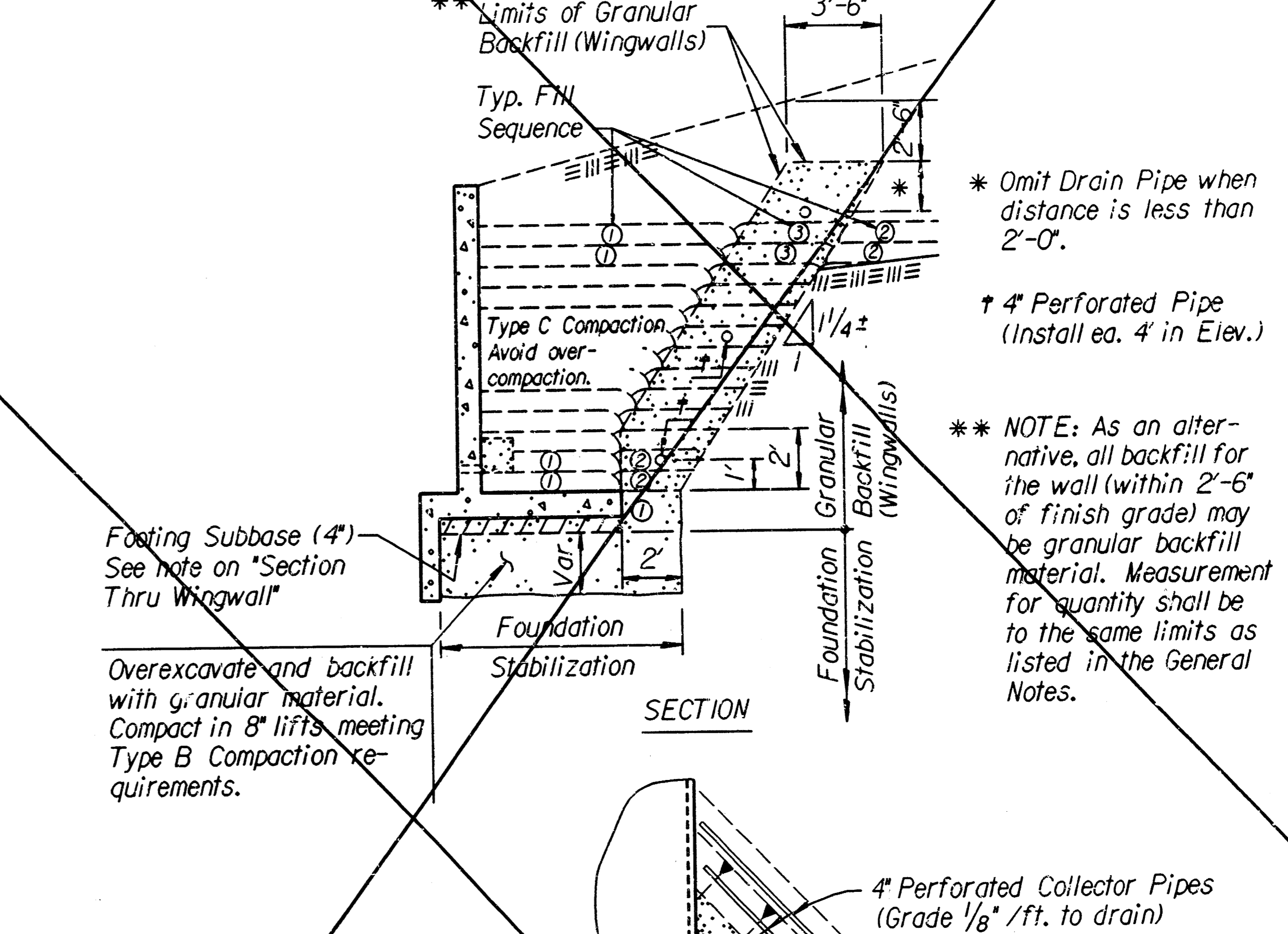
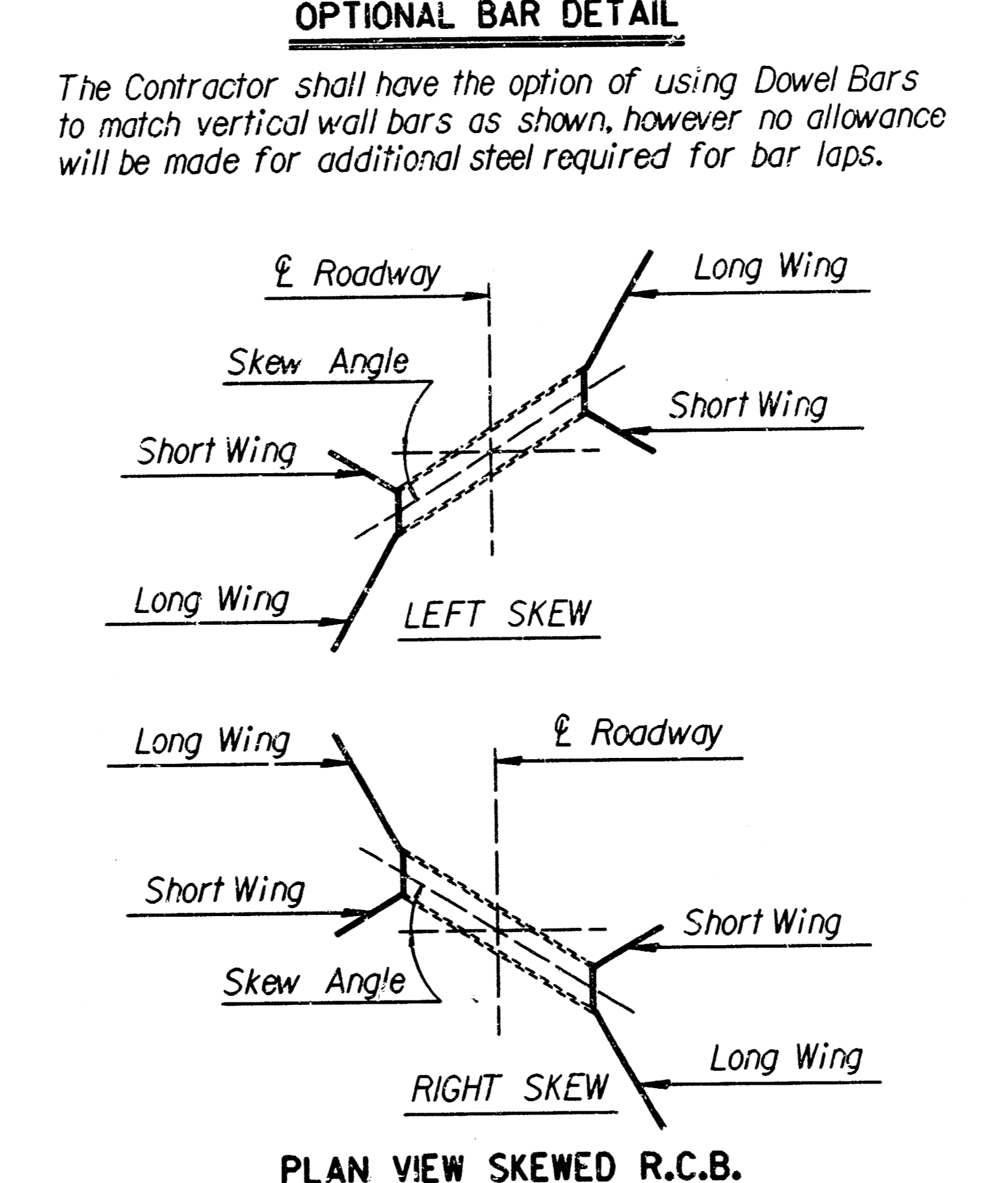
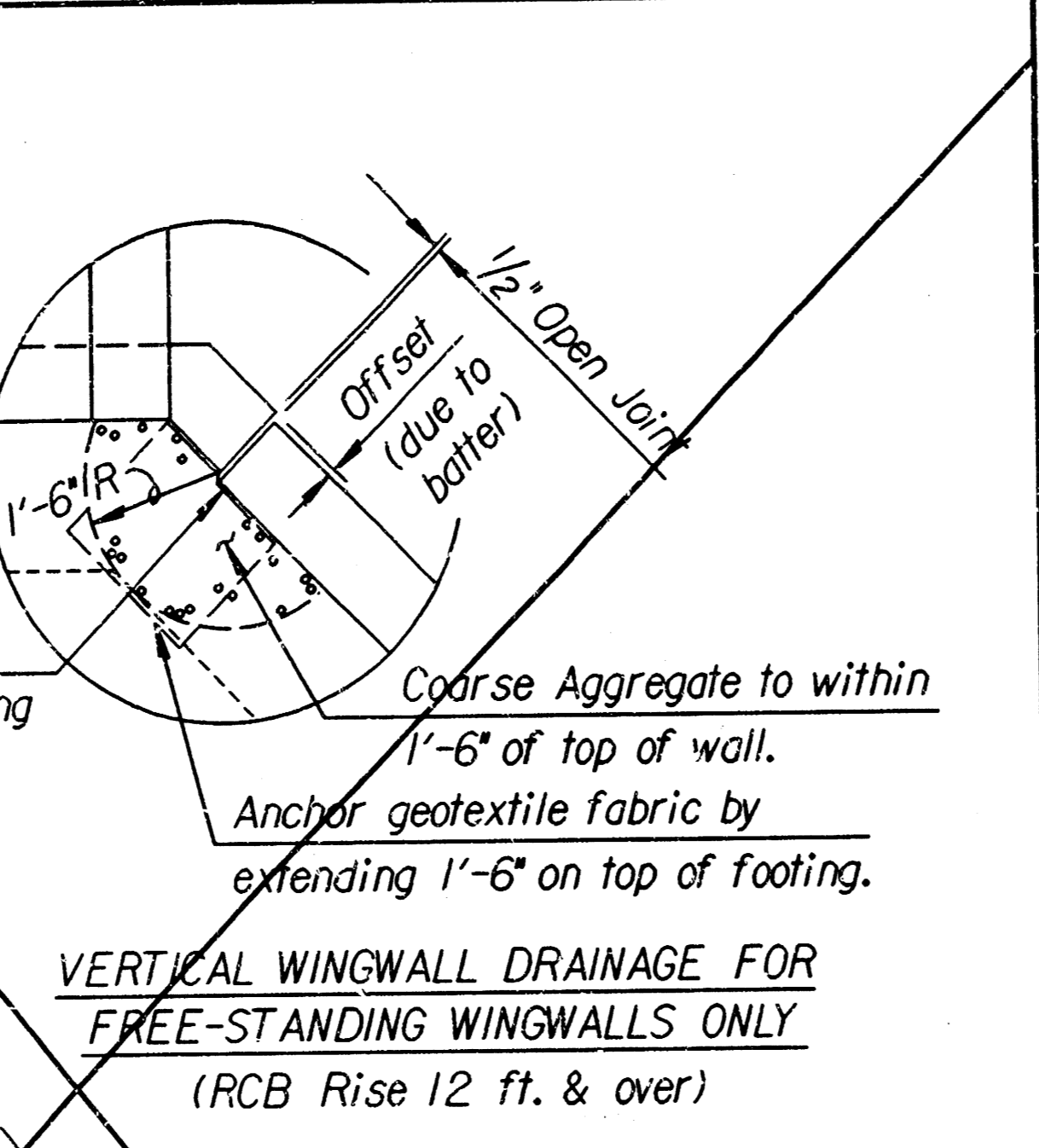
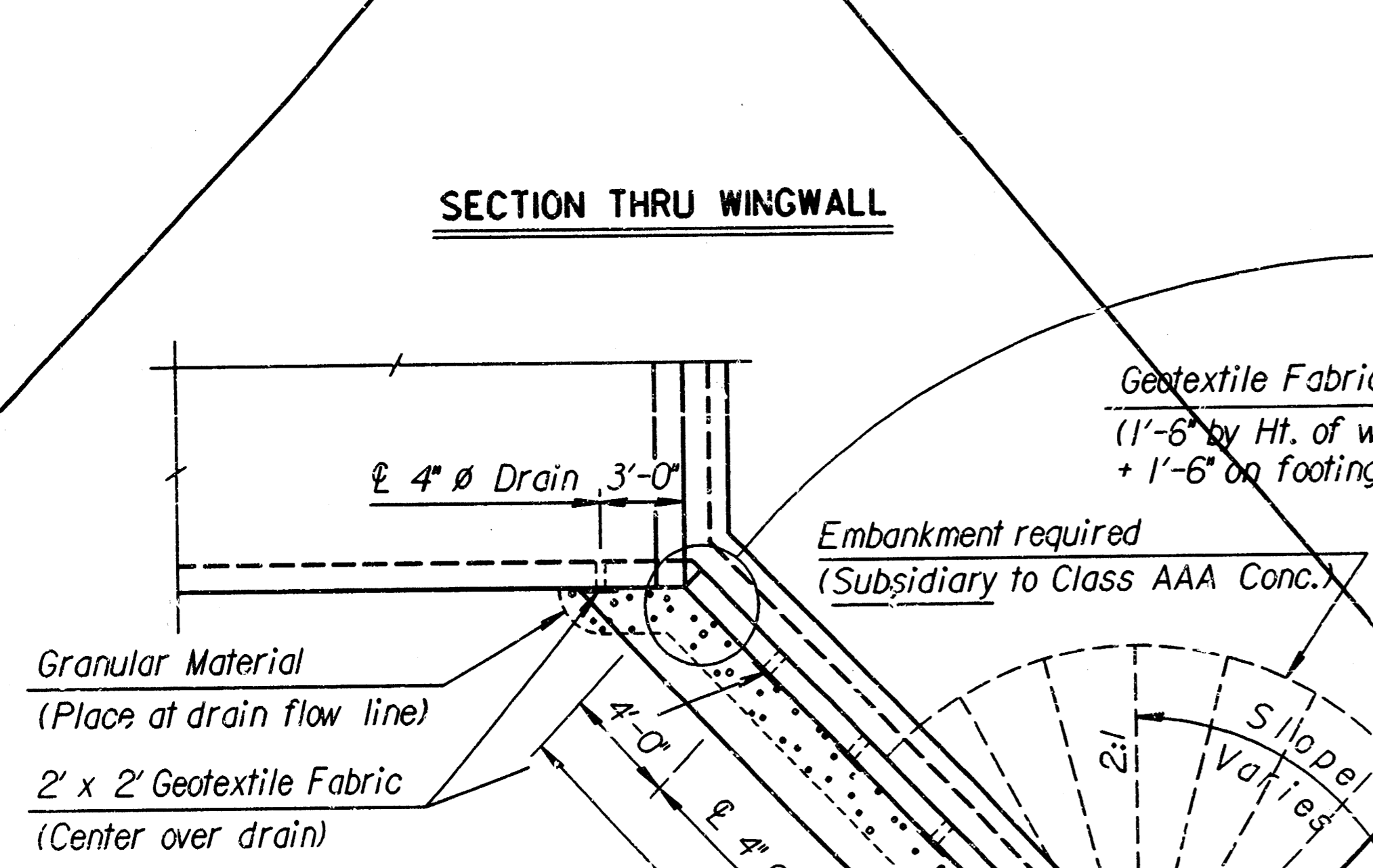
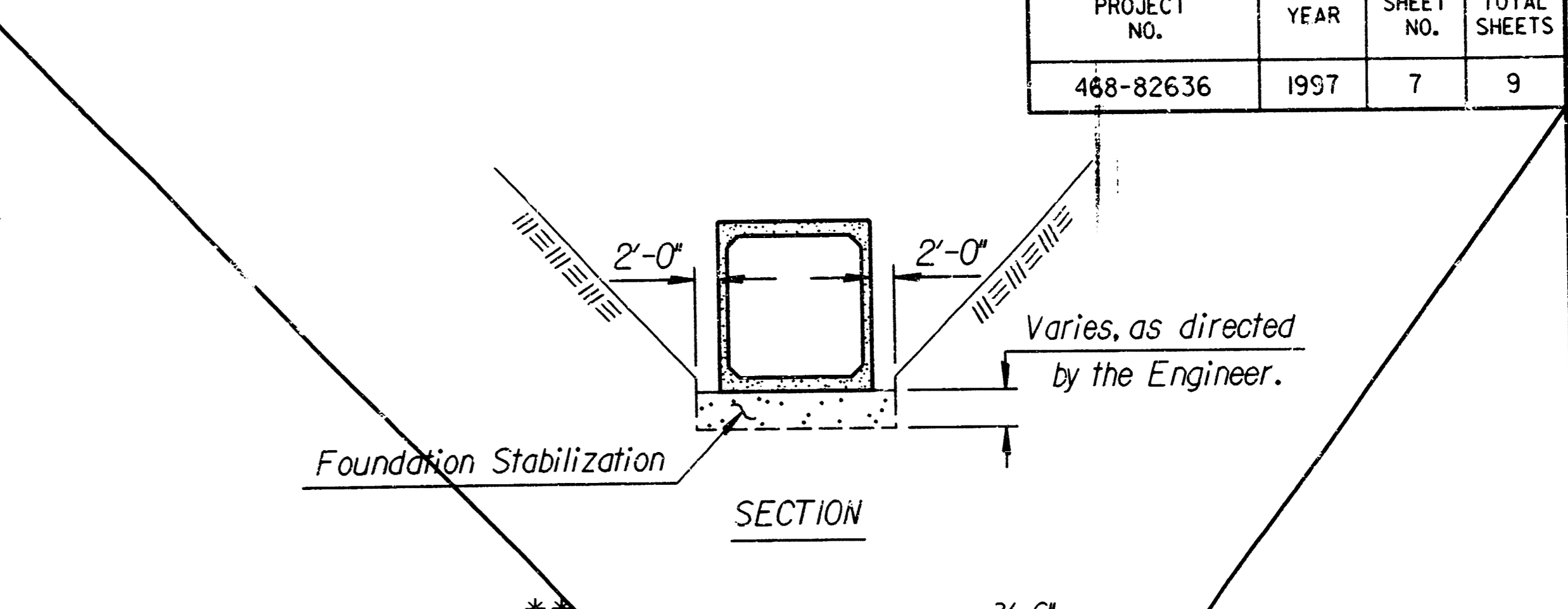
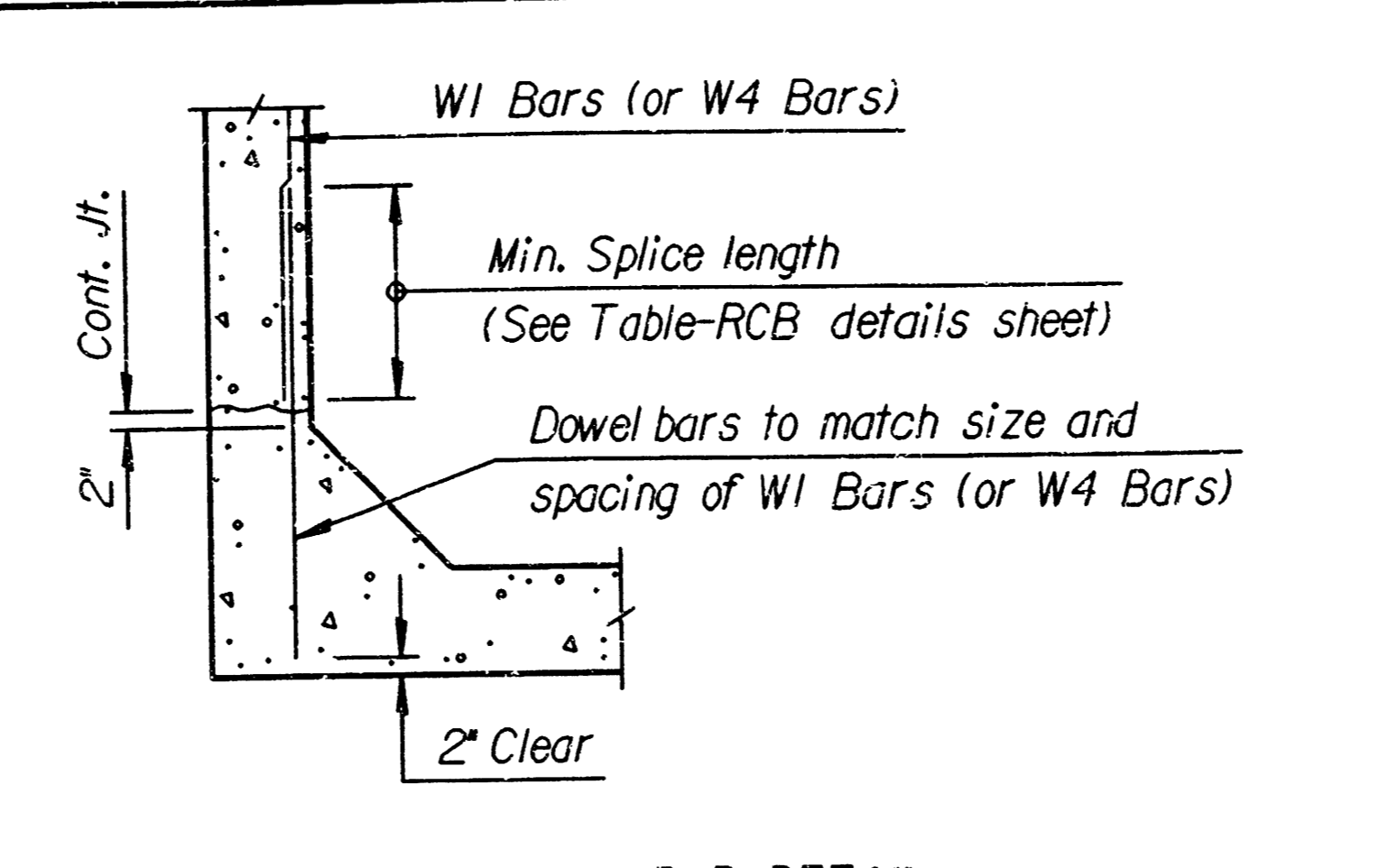
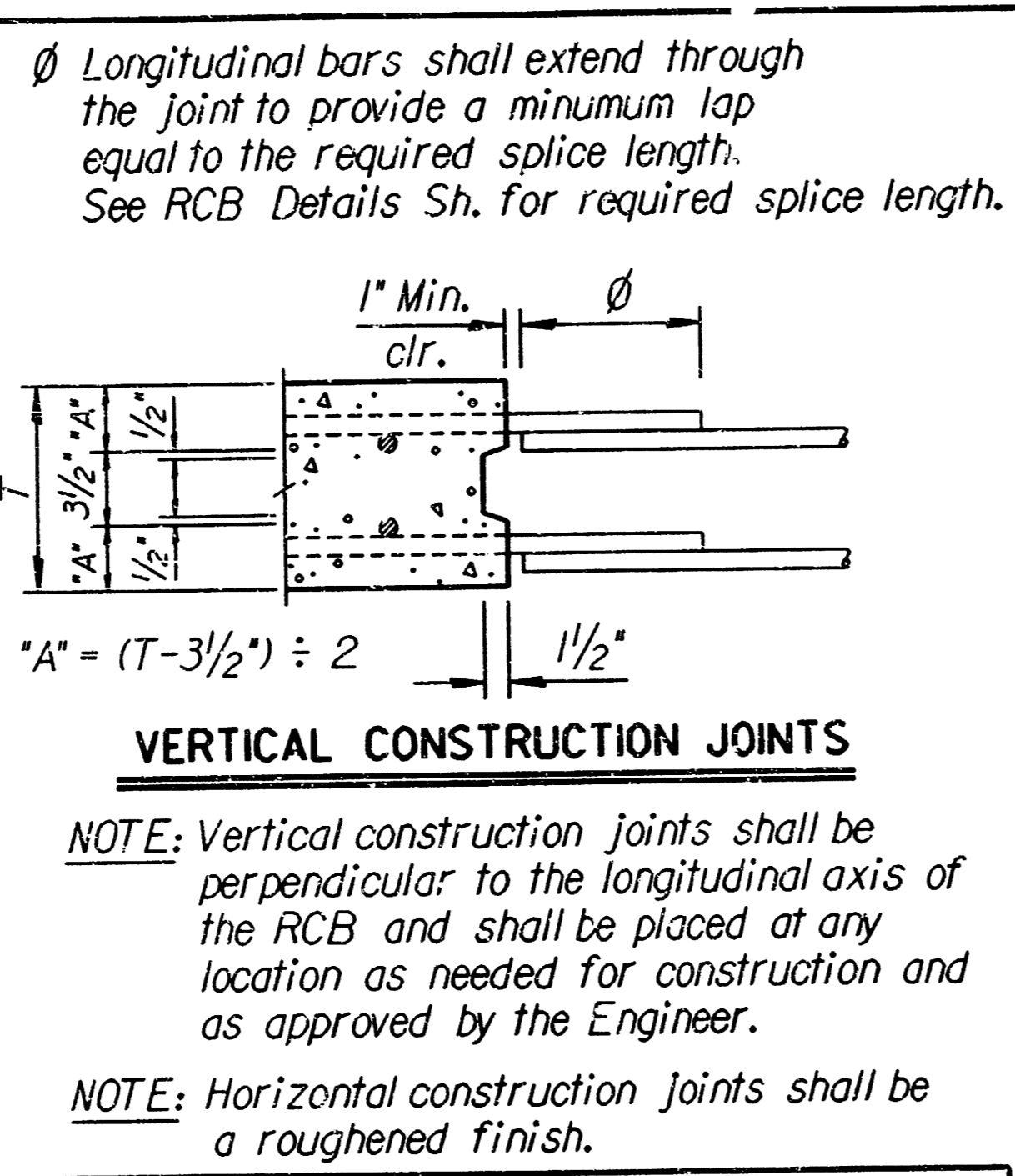
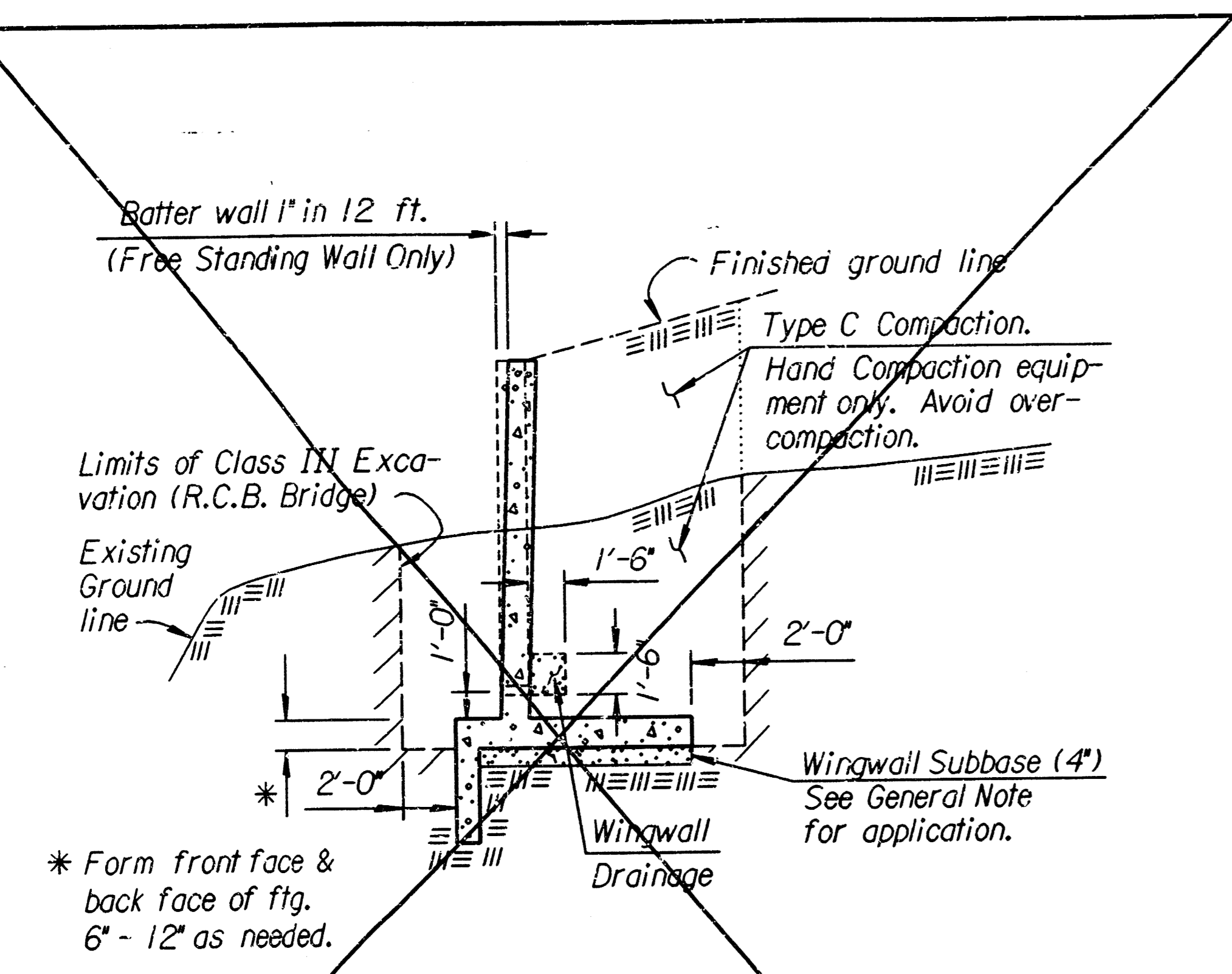
KANSAS DEPARTMENT OF TRANSPORTATION  
Stg. 8+87

FLARED WINGWALLS  
4 FT. RISE (0'SKEW)

BR 10-00-04 SEDGWICK CO.

DESIGNED	DATE	REVISIONS	BY	APP'D
DESIGN CK.	DETAIL CK.	QUANTITY	TRACK CK.	

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
468-82636	1997	7	9



Drawn By: K2007/PEC  
 DGN File: i:/1996/96266/auxilli.dgn  
 Plotted by: ras 3-15-97  
 View: \*

NO.	DATE	REVISIONS	BY	APP'D
1	10-2-91	Change drainage details	RAM	KFH

KANSAS DEPARTMENT OF TRANSPORTATION

RCB  
 AUXILIARY DETAILS

DESIGNED: RAM  
 CHECKED: RRR  
 QUANTITIES: RRR  
 TRACED: RRR

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
468-82636	1997	8	9

**GENERAL NOTES**

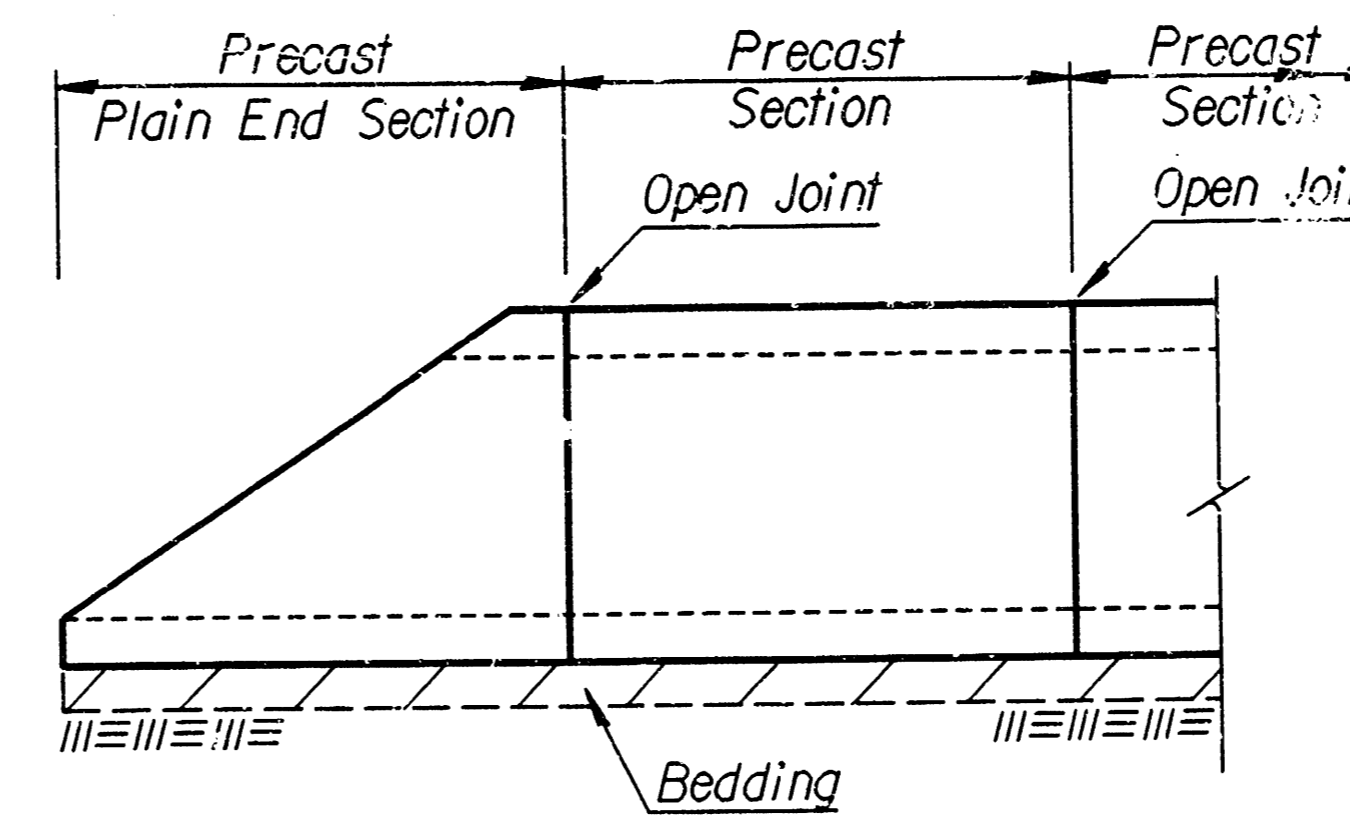
~~PRECAST BOX CULVERTS: If precast boxes are specified, construct them at the locations shown in the plans and according to the requirement shown on this sheet. When approved by the Engineer, precast box culverts may be used in lieu of cast-in-place box culverts. If the Contractor chooses the precast option, use the cast-in-place quantities as the cost basis. This cost includes all labor, equipment, material and incidentals necessary to complete the installation.~~

~~Unless otherwise approved by the Engineer, use cast-in-place collars at horizontal and vertical changes in RCB alignment. Use cast-in-place end sections and wingwalls except as noted on this sheet. The Engineer may require cast-in-place sections at junctions of drainage structures.~~

~~Cast-in-place concrete work shall conform to the requirements of the KDOT Specifications and KDOT's "Guidelines for Structural Design and Detail of Reinforced Concrete Box Culverts". Use Class AAA concrete and Grade 60 reinforcing steel conforming to ASTM A615M for cast-in-place construction.~~

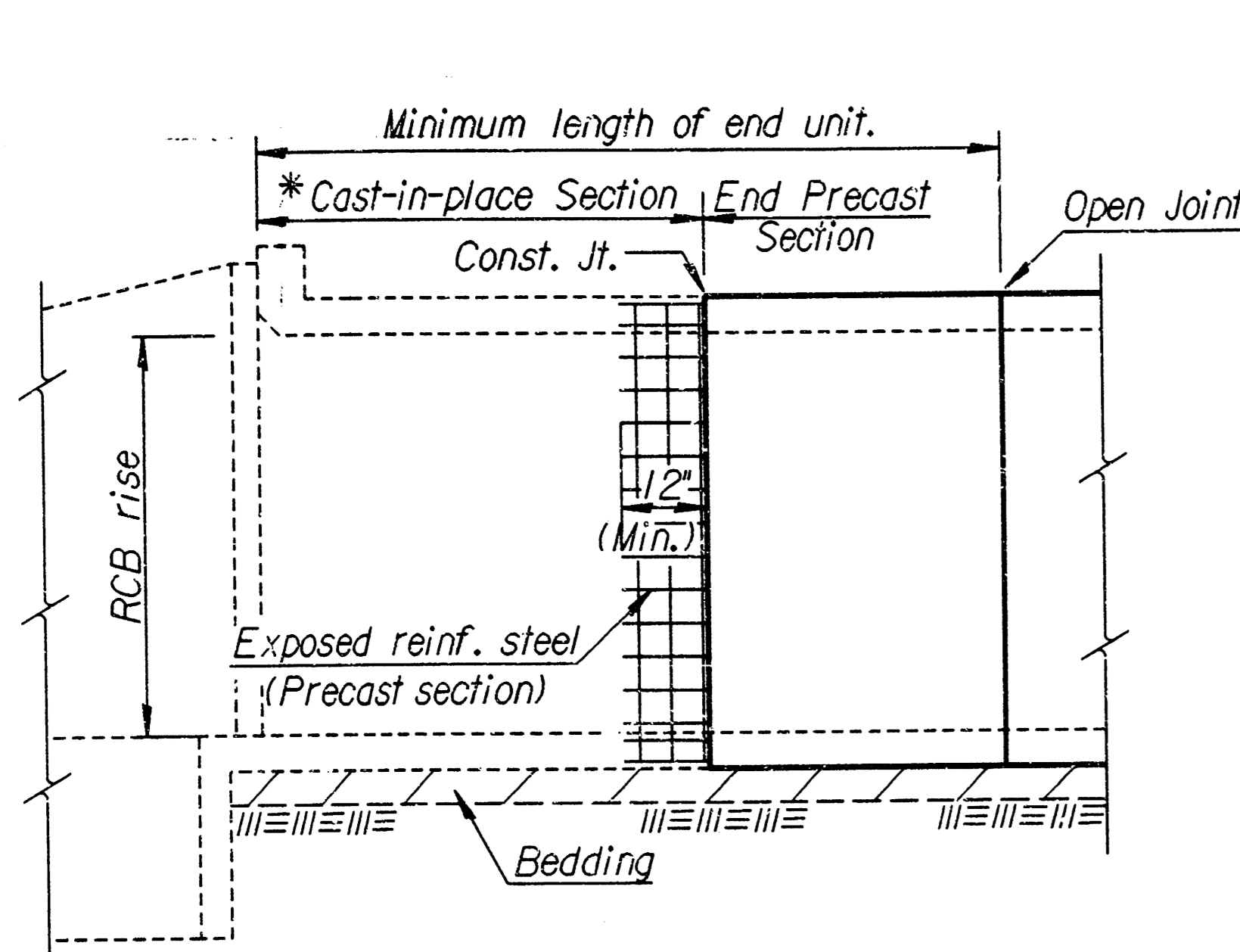
SPECIFICATIONS: Single-cell Precast Concrete Box Culverts shall conform to the requirements of the following specifications except as noted in the KDOT Specifications. Design multiple-cell precast boxes in accordance with the criteria used to develop the single-cell precast boxes. (See Appendices of ASTM Specification C789M and C850M and the latest AASHTO Specifications.)

Condition	Min. Fill	AASHTO	Equiv. ASTM
> 2'-0" fill	2'-0"	M259, Table 2	C789, Table 2
< 2'-0" fill	0	M273, Table 2	C850, Table 2



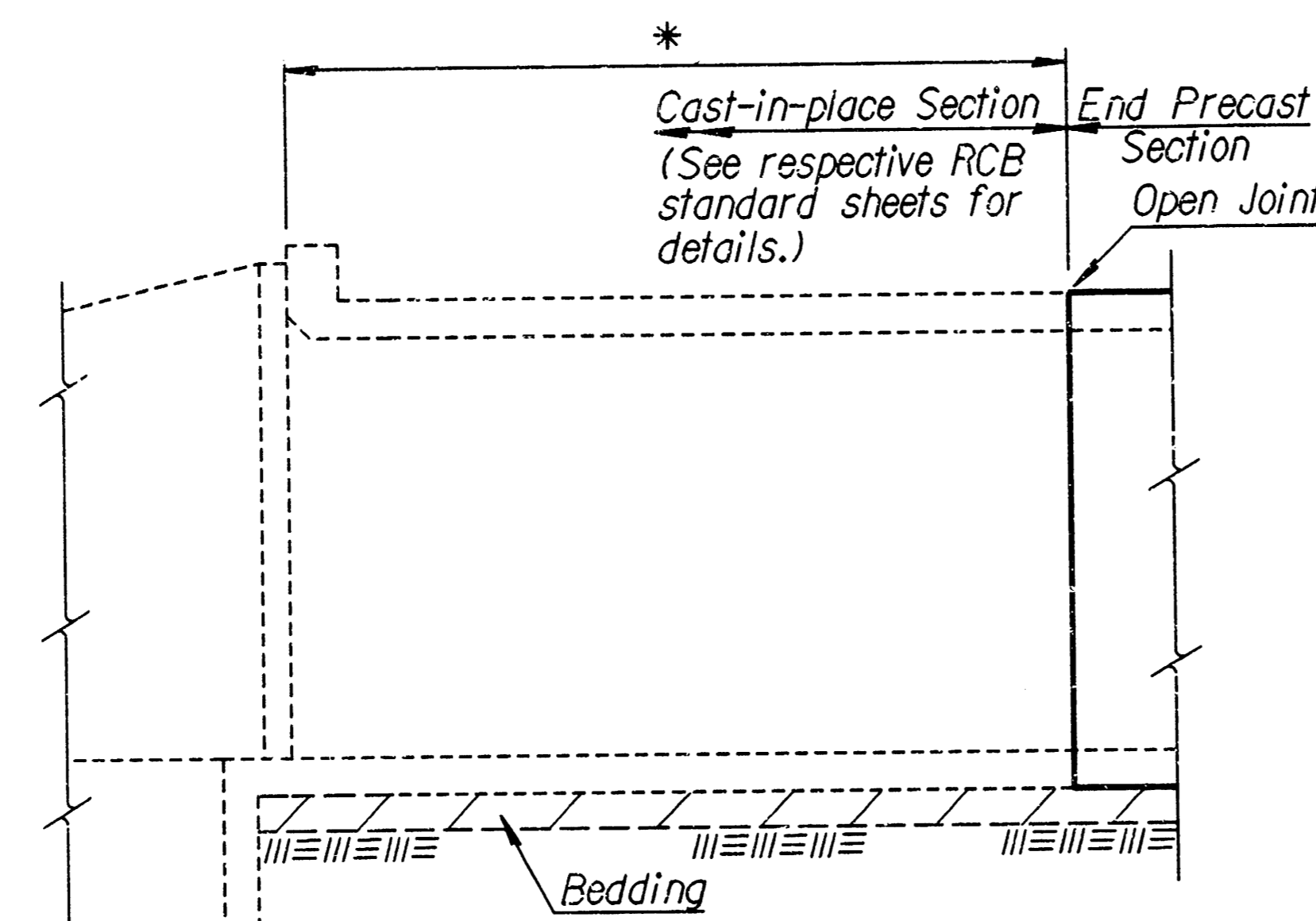
**ELEVATION AT PRECAST END SECTION**

(Precast End Sections are permitted where straight wings are shown in the plans or at the downstream end for single cell RCB with a rise of six feet or less.)



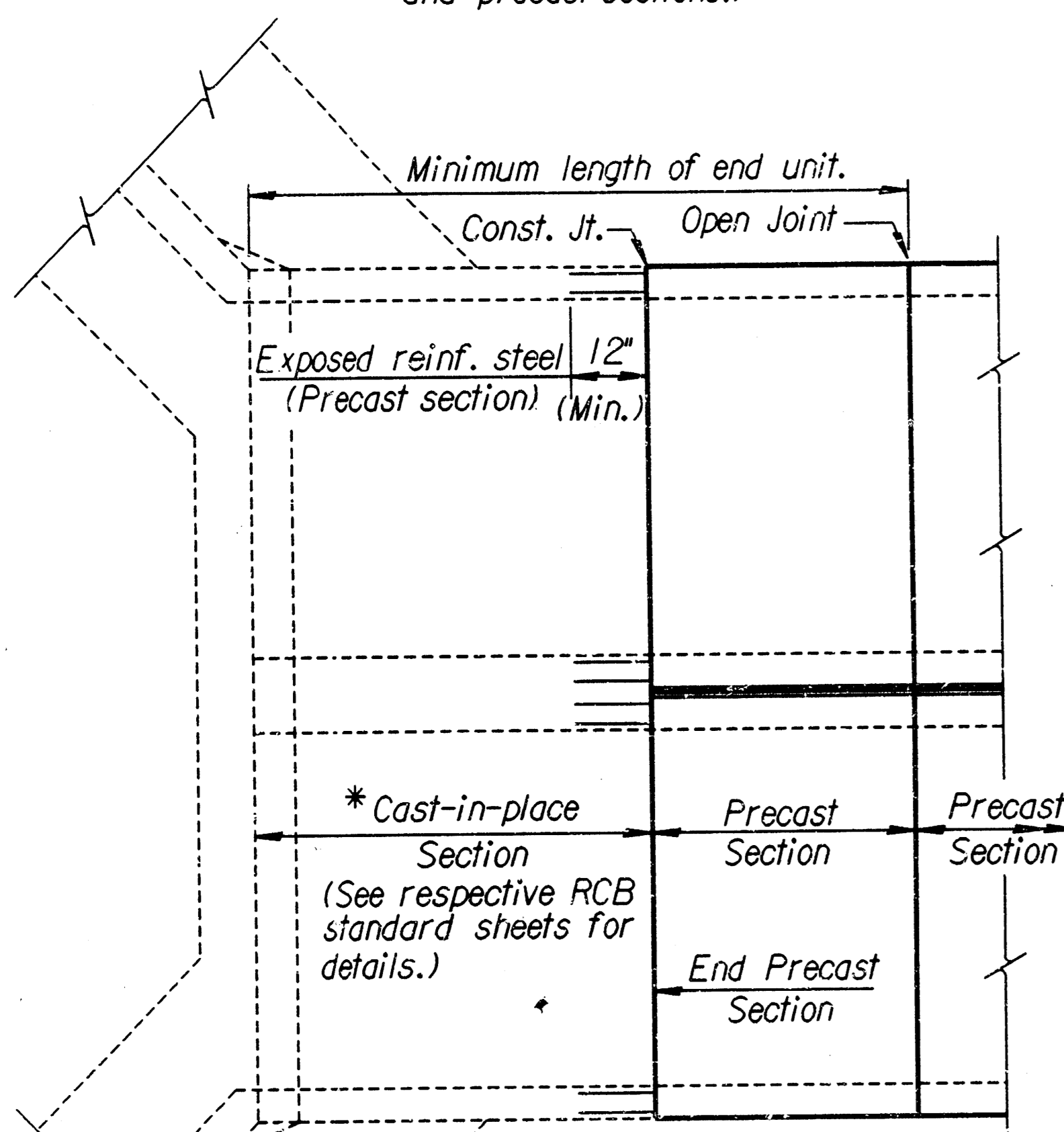
**ELEVATION AT HEADWALL**

(End unit using combination of cast-in-place and precast sections.)



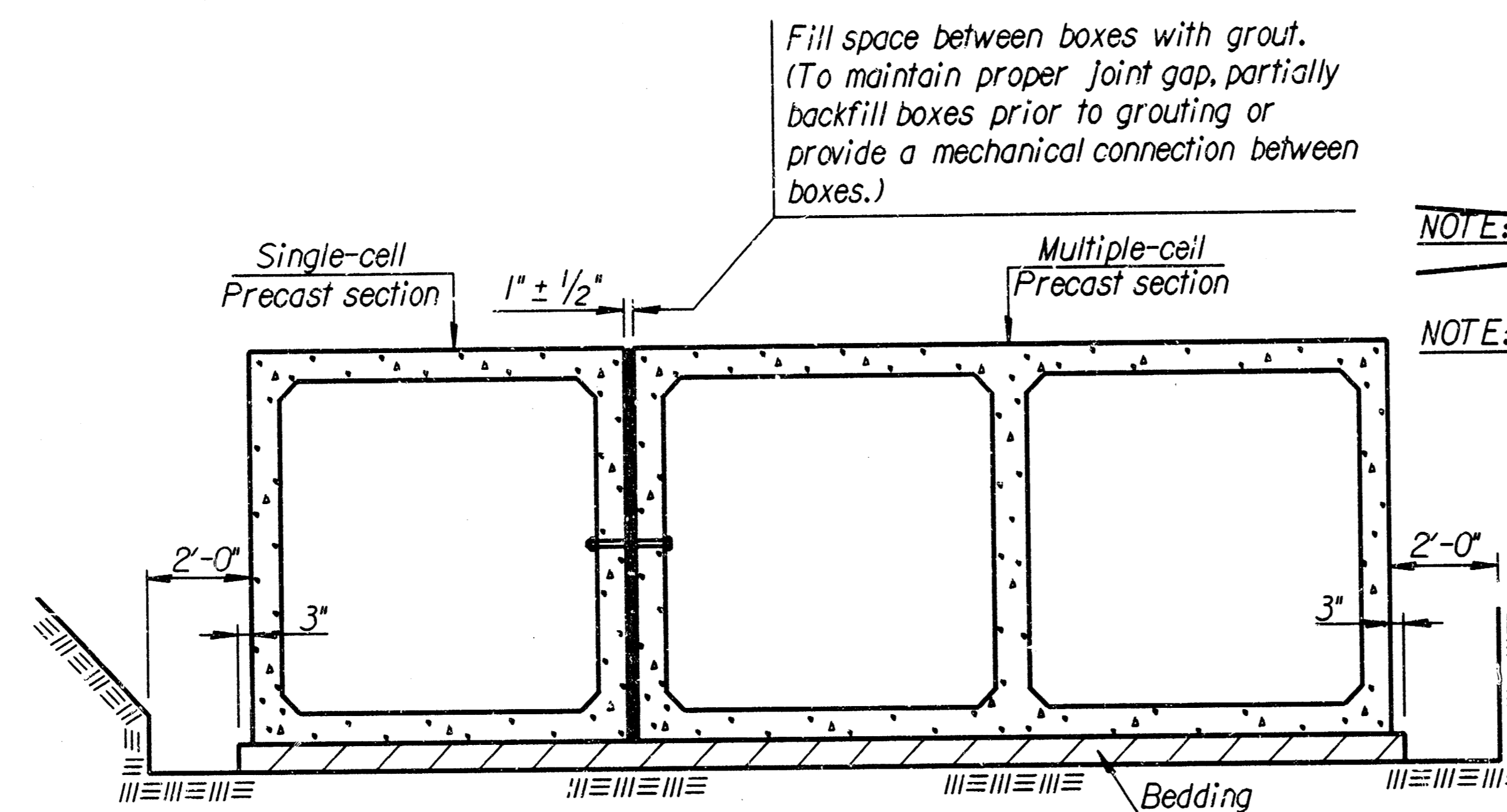
**ELEVATION AT HEADWALL**

(End unit using cast-in-place construction.)



**PLAN DOUBLE CULVERT INSTALLATION**

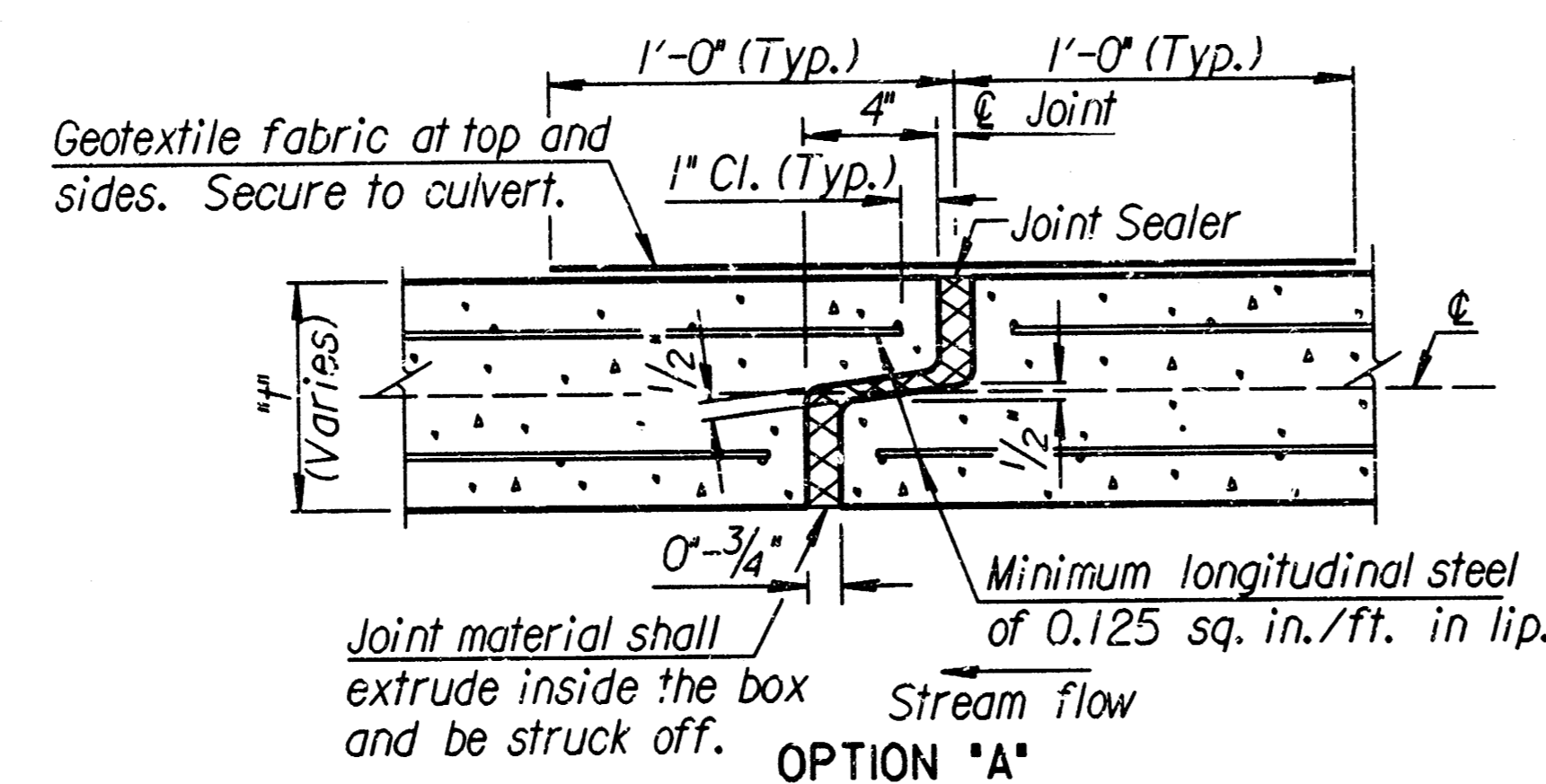
(End unit using combination of cast-in-place and precast sections.)



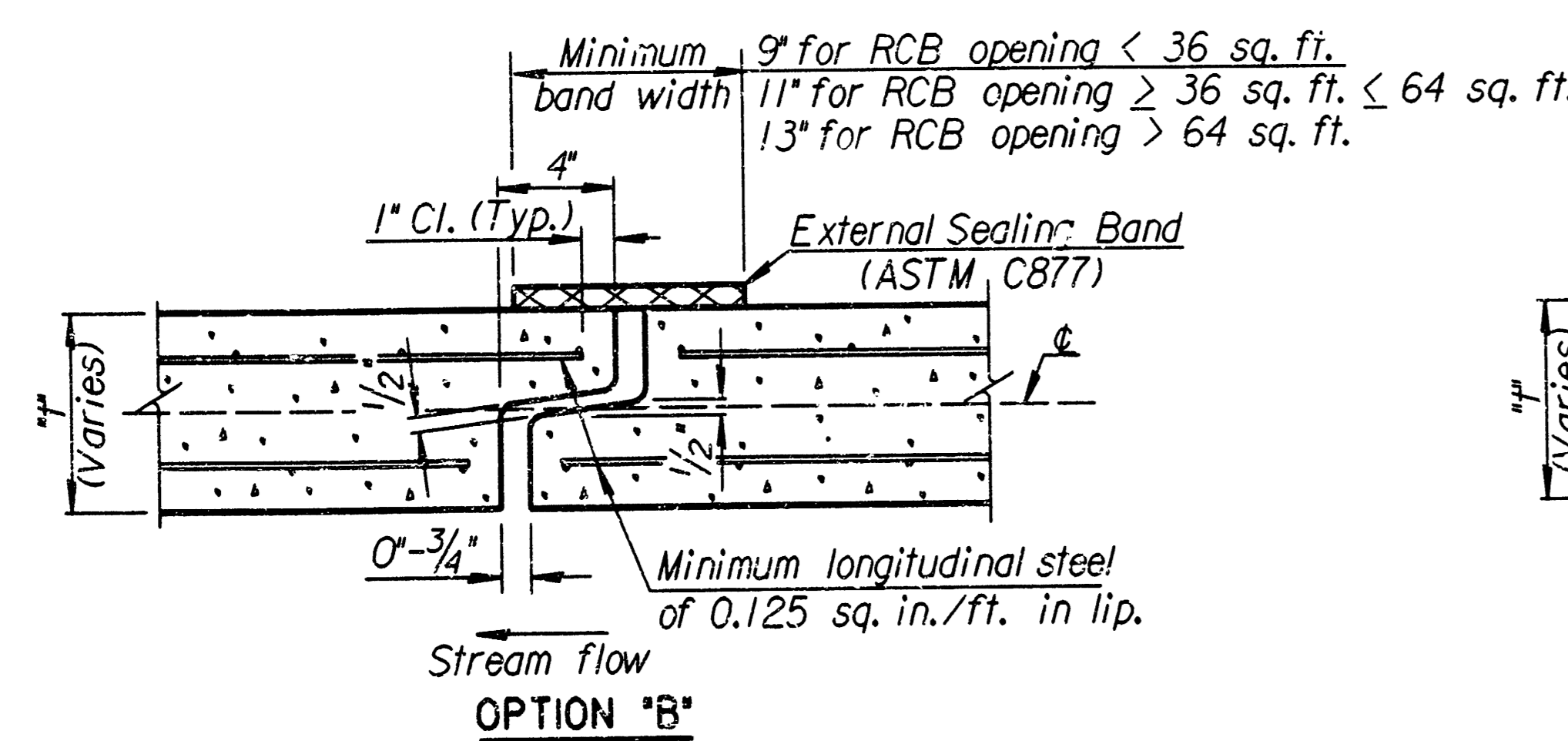
**TYPICAL INSTALLATION DETAILS**

NOTE: See "Bridge Excavation" sheet, (Std. No. 100), for excavation details and basis of payment.

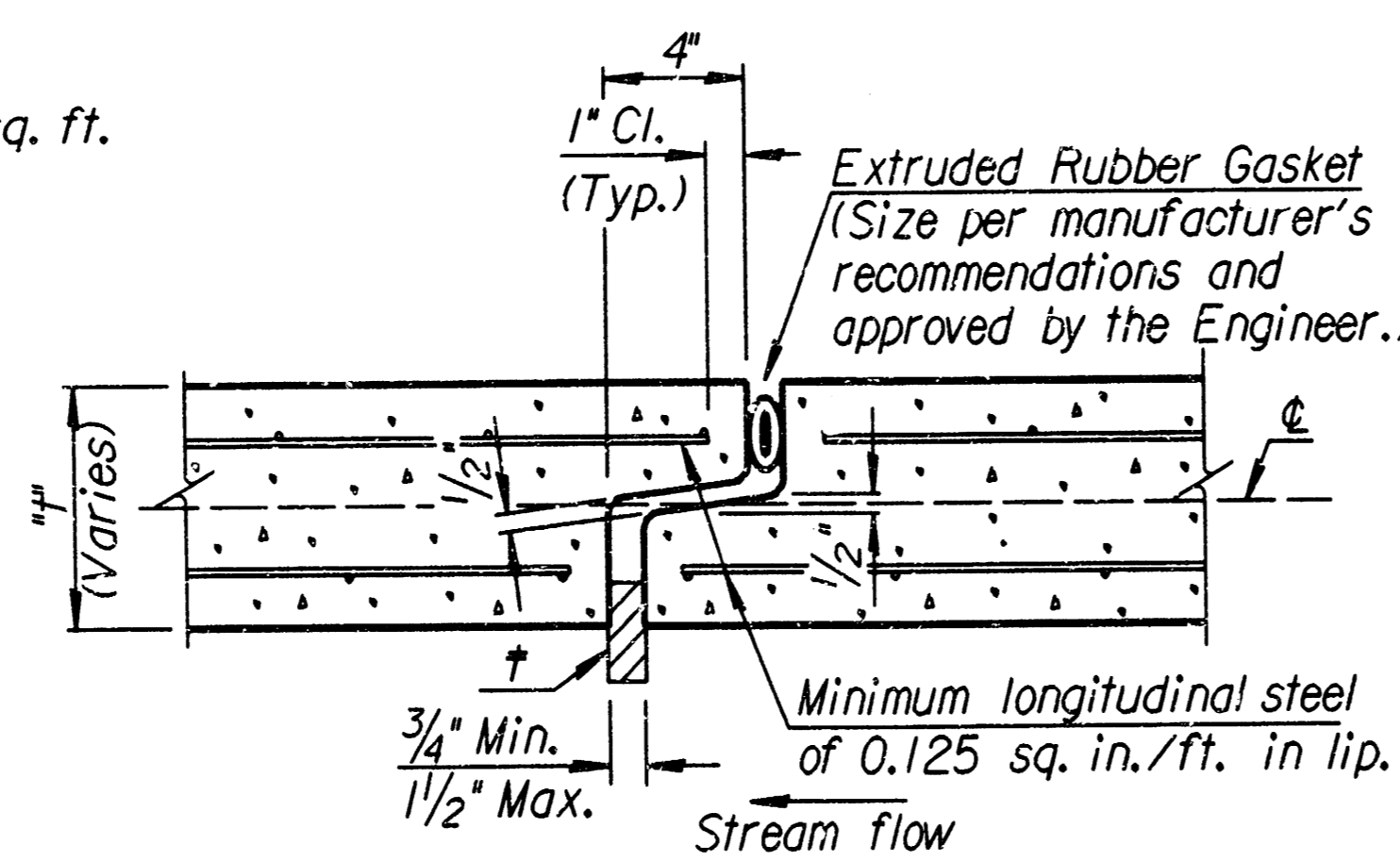
NOTE: Minimum length of precast section shall be 4'-0".



**OPTION "A"**



**OPTION "B"**



**OPTION "C"**

**OPEN JOINT DETAIL**

† Insert temporary, 3/4"-1" wide, hardwood wedges to prevent over-compressing gasket.

NO.	DATE	REVISIONS	BY	APP'D
4	1-17-95	Revised general notes	LRR	KFH
3	6-22-94	Added option 'C' & revised notes	RAM	KFH
2	3-1-93	Revised general notes	RAM	KFH
1	9-1-92	Revised general notes & detail notes	RAM	KFH

**KANSAS DEPARTMENT OF TRANSPORTATION**

**PRECAST CONCRETE BOX CULVERT DETAILS**

DESIGNED	DETAILED	PP QUANTITIES	CAUD
RAM	RAM	RAM	RAM
CHKD	CHKD	CHKD	CHKD

Plotted By : MAF  
 Plot File : i:/1995/96266/001/br031.dgn  
 Plot Date : 3-15-97  
 Std. Base File : /usr2/stand/us/br031.dgn  
 Server File : /usr  
 Server : wjch  
 View : PLOT1

PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
468-82636	1997	9	9

**TYPICAL SECTION**

Reference is made to the latest edition of the CRSI "Manual of Standard Practice" for recommended industry practices concerning reinforcing steel.

Use only the following types of bar supports:

- 1) Wire Bar Supports:
  - a) Non-epoxy coated reinforcing: Class 1, 2, or 3 Protection
- 2) Plastic Bar Supports
- 3) Supplementary bars

Do not weld reinforcing steel to bar supports or to other reinforcing steel.

Tie bars at all intersections around the perimeter of each mat and at not less than 2'-0" centers or at every intersection, whichever is greater.

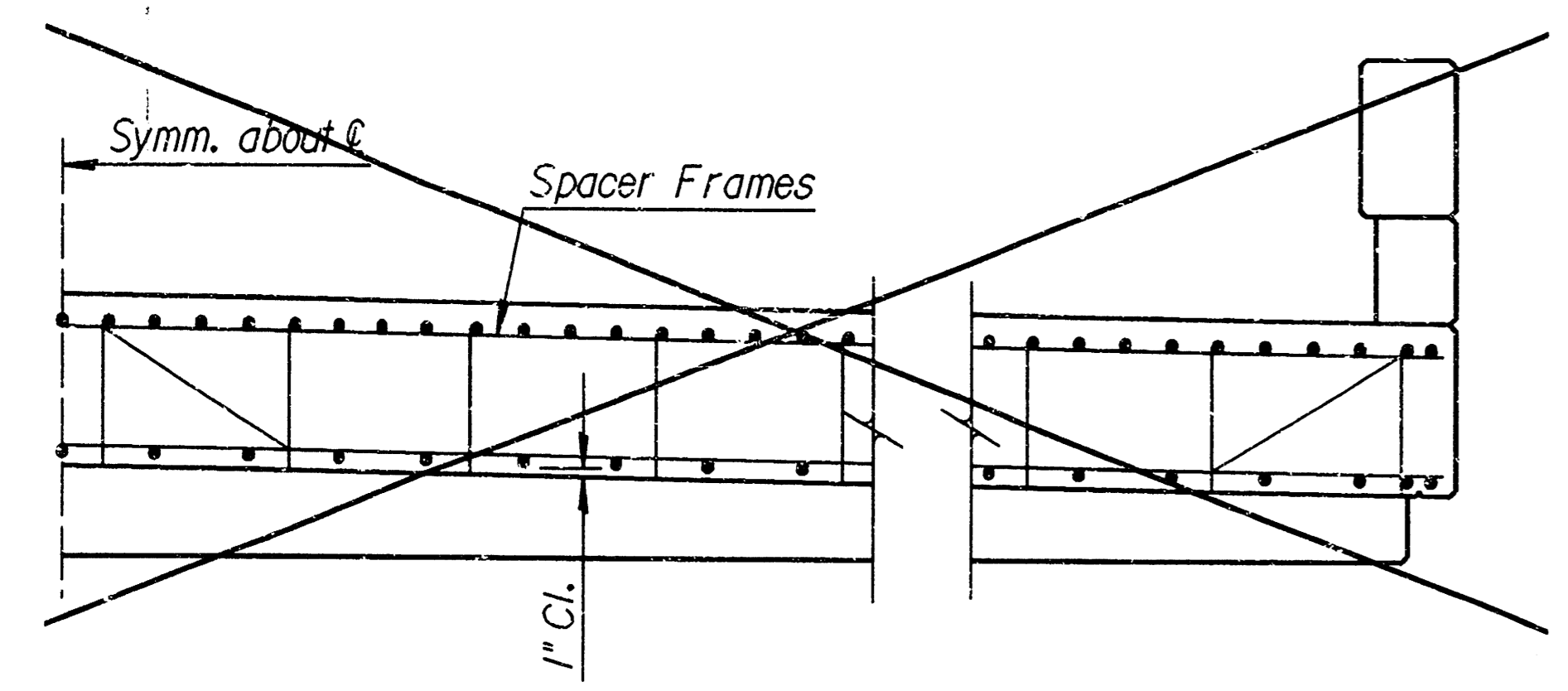
Where more than one length of bar support is required, lap the end legs so they are locked or tied together.

Use proper height supports to maintain the distance between the reinforcing and the formed surface or the top surface of deck slabs within 1/4" of that indicated on the plans.

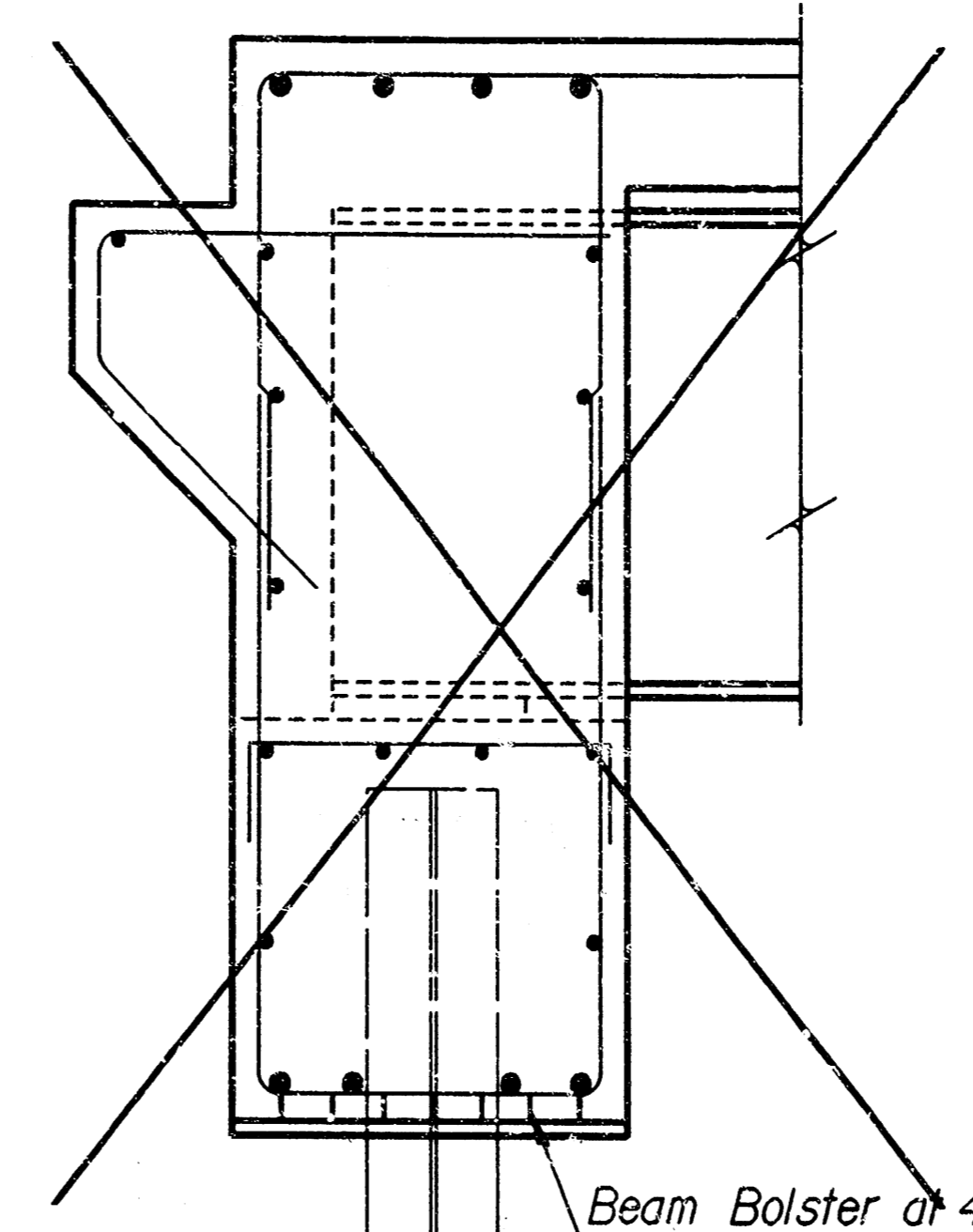
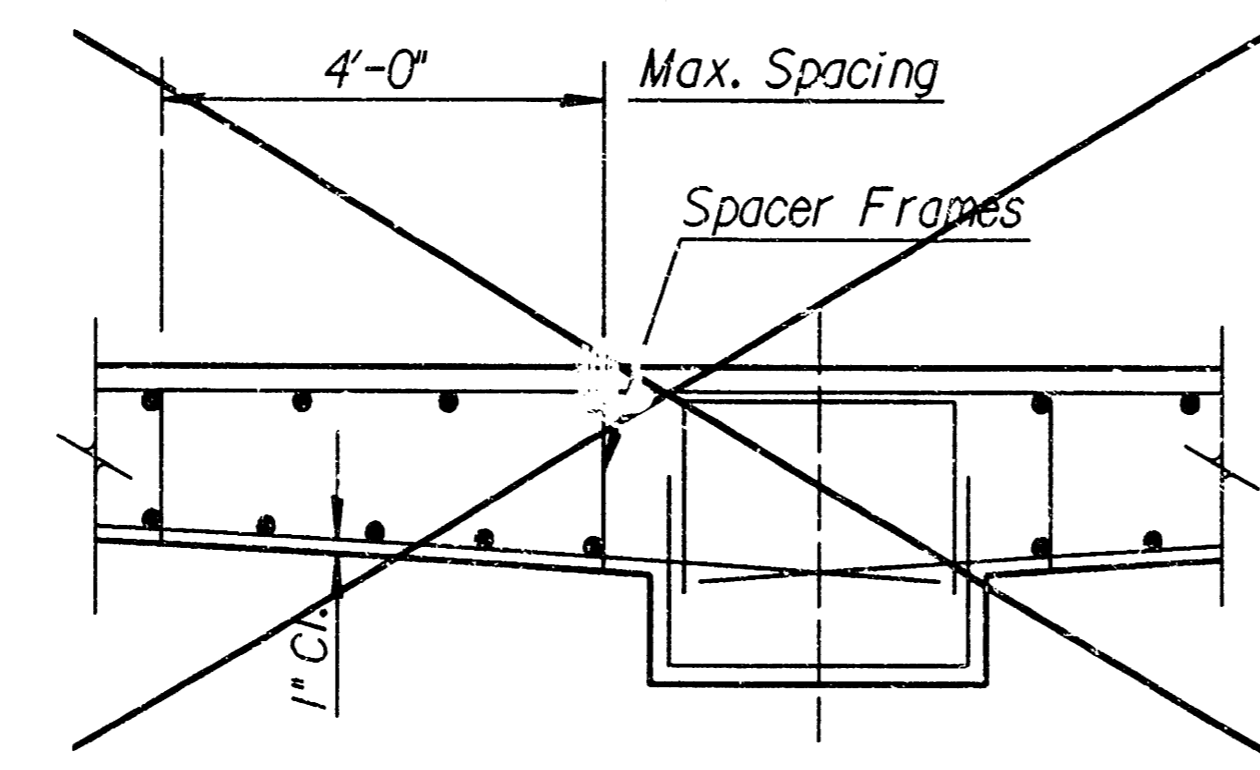
Spacings shown are maximums. Use sufficient supports, as determined by the Engineer, to retain the reinforcing steel in position.

Construct any platforms, required for the support of workers and/or equipment during concrete placement, directly on the forms and not on the reinforcing steel.

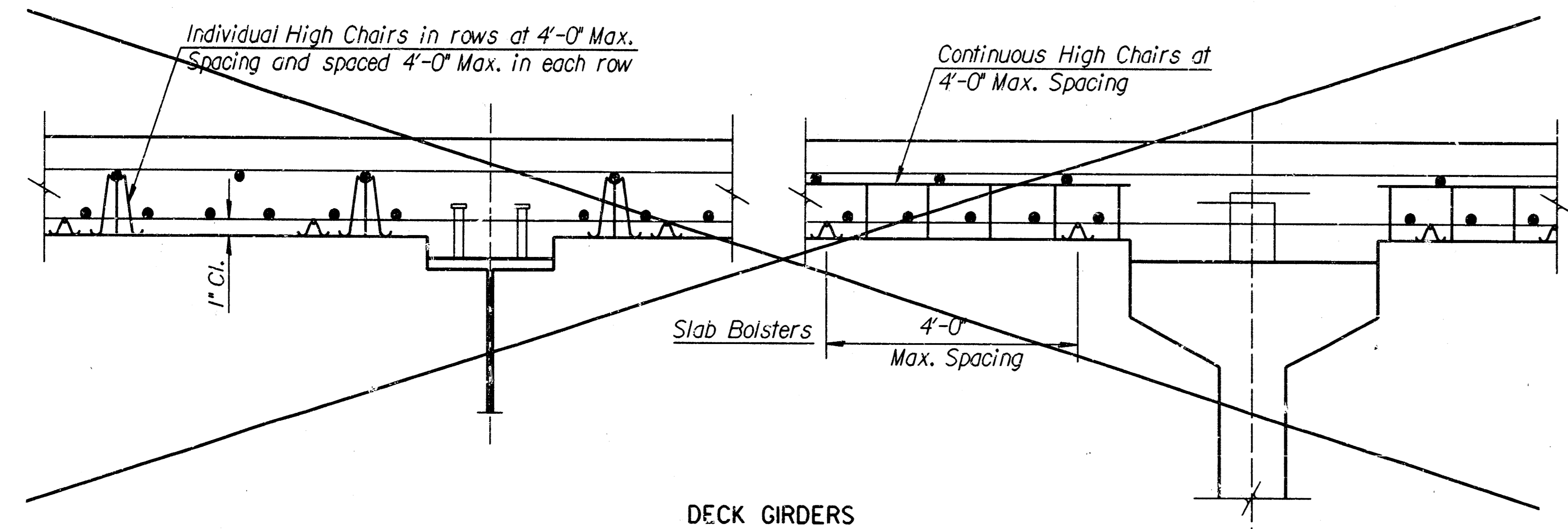
Designs and arrangements of Supports or Spacers other than as shown on this sheet, may be used with the permission of the Engineer.



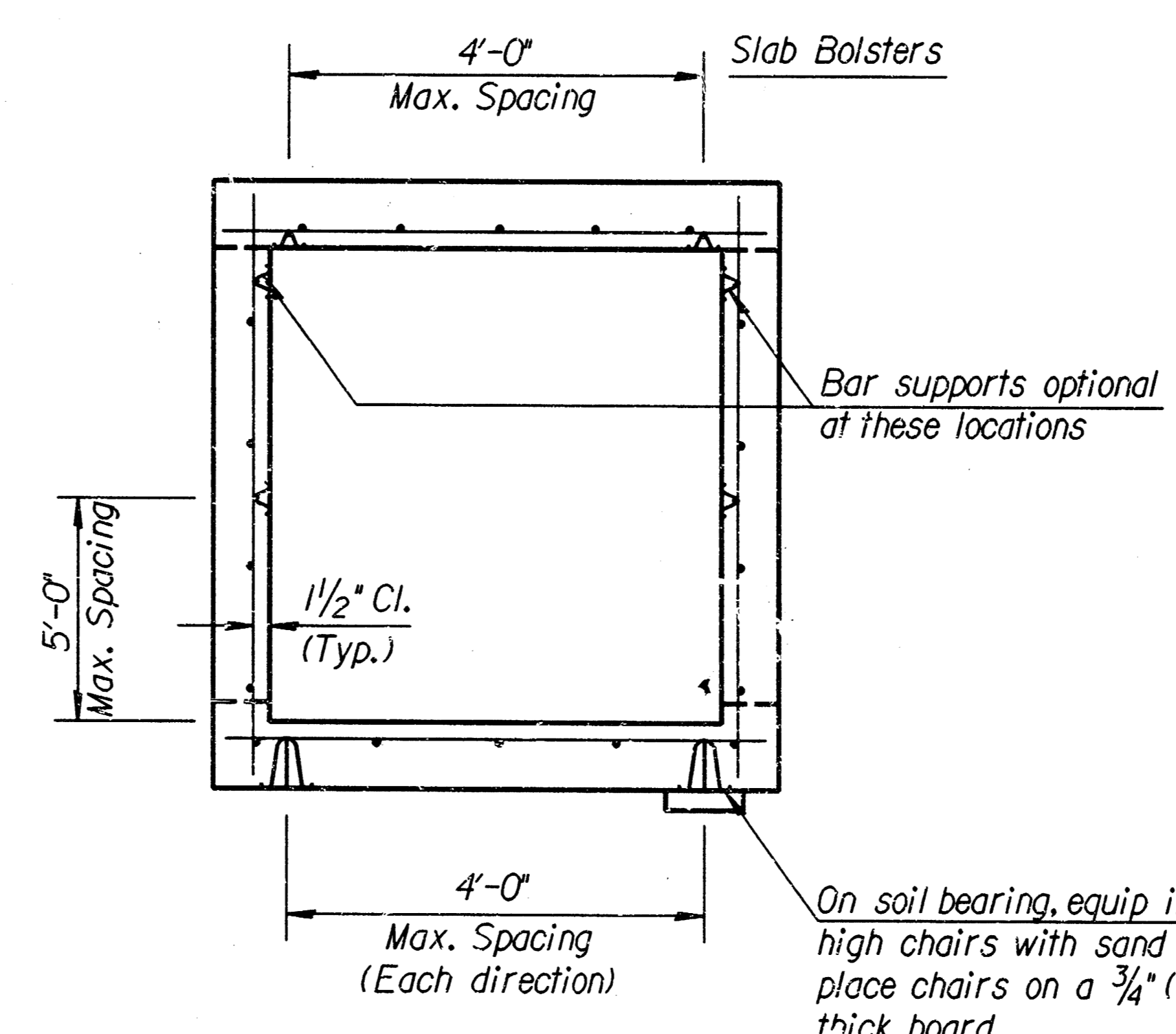
**CONTINUOUS HAUNCHED SLAB**



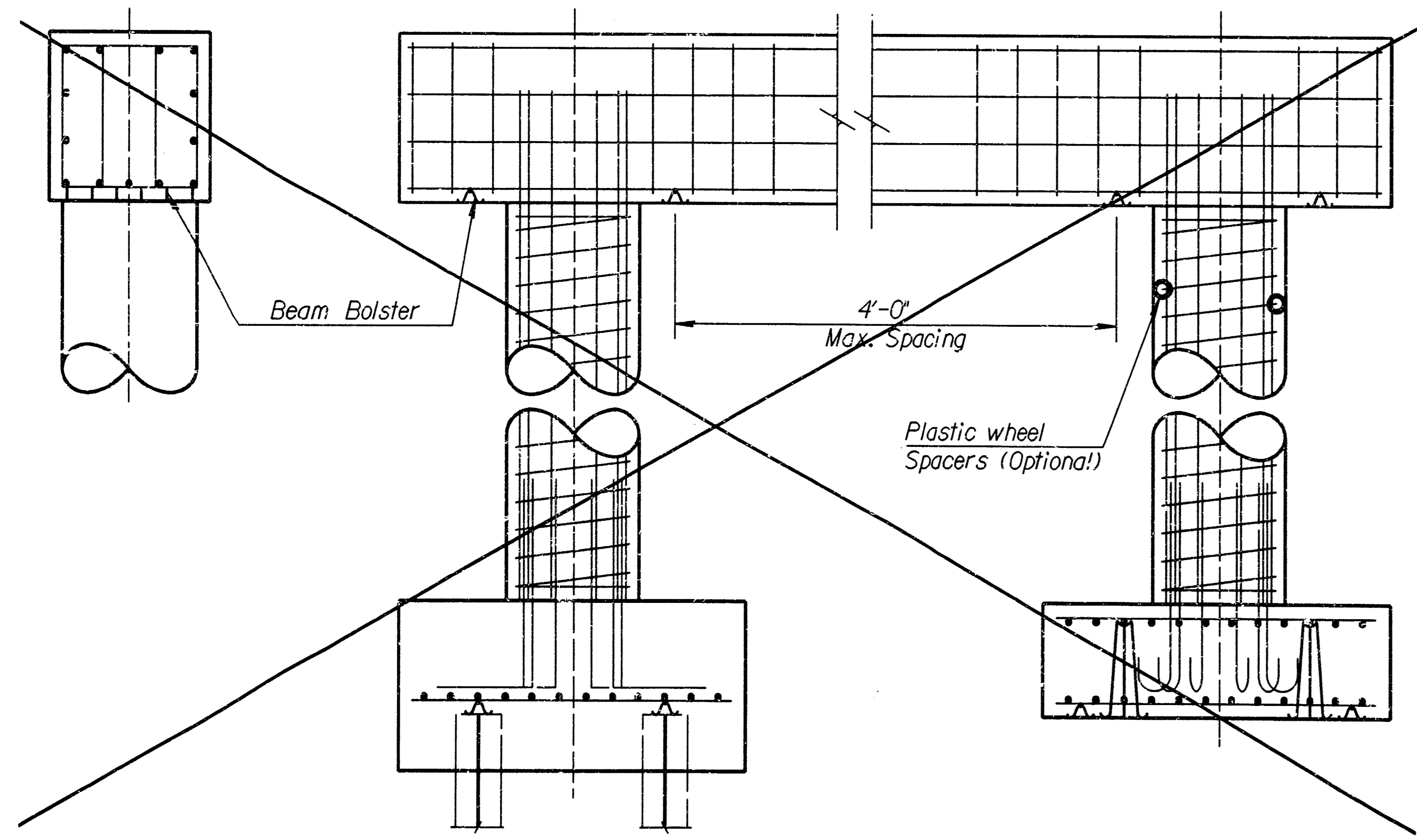
**ABUTMENT**



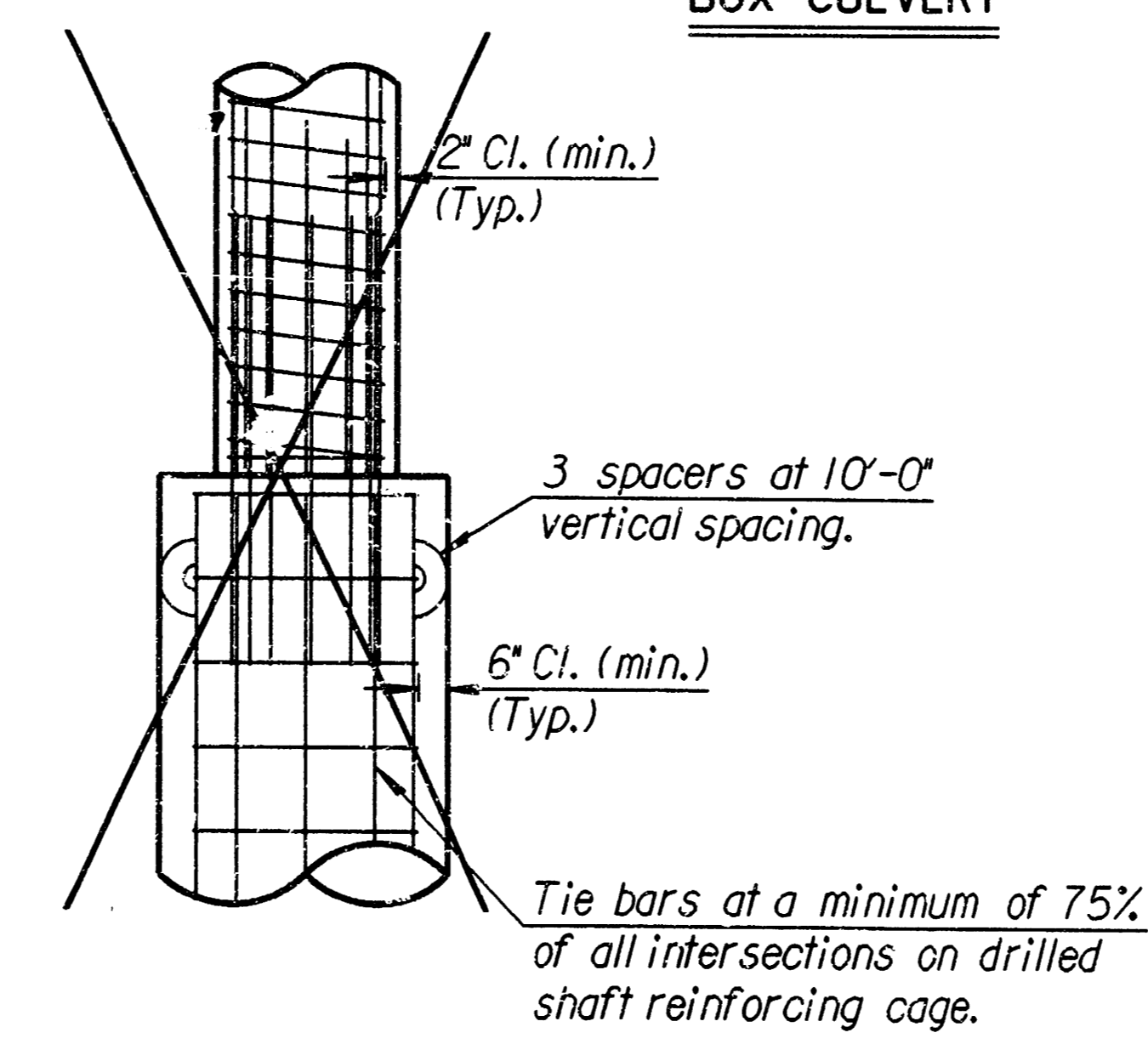
**DECK GIRDERS**



**BOX CULVERT**



**PIER**



**DRILLED SHAFT**

Plotted By : maf  
 Plot File : i:\1996\96266\001\br120.dgn  
 Plot Date : 3-15-97  
 Std. Base File : i:\usr2\stand\us\br120.dgn  
 Working File : i:\usr2\  
 Back Up File : witch  
 View: PLOT

NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1				

**KANSAS DEPARTMENT OF TRANSPORTATION**

**SUPPORTS AND SPACERS FOR REINFORCING STEEL**

DESIGNED: RAMI DETAILED: CFK QUANTITIES: CAZD  
 DESIGN CK: LRR DETAIL CK: RAMI QUANT CK: CAZD CK: RAMI