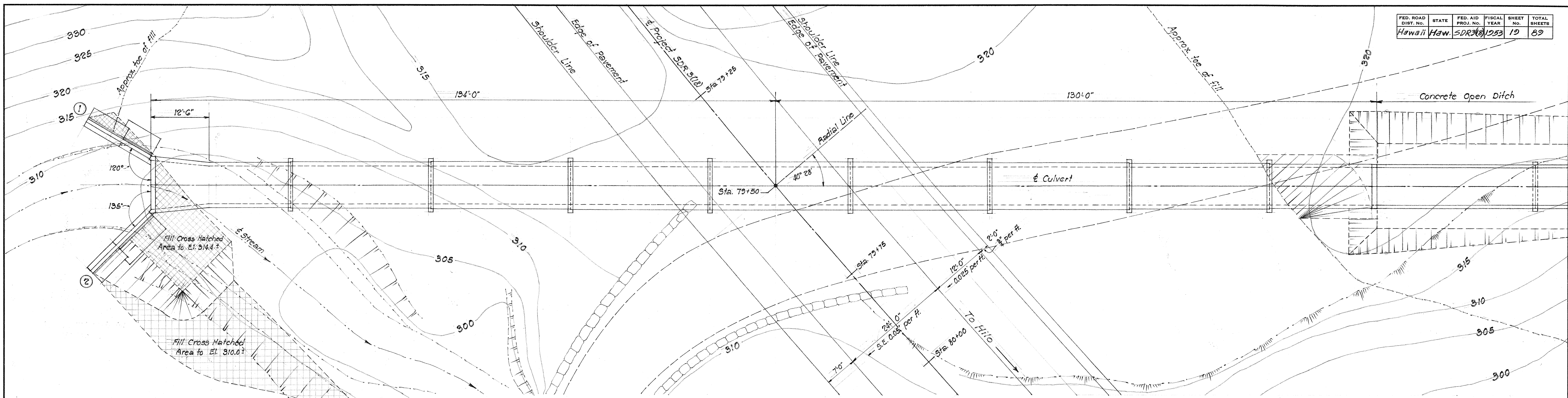
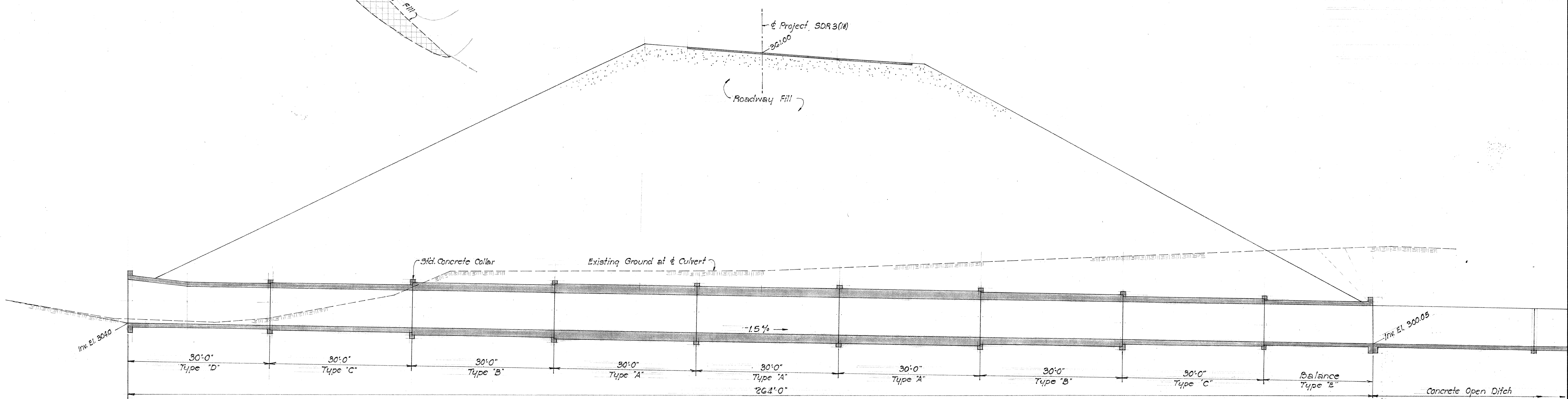


FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
Hawaii	Haw.	SDR 3(18)	1953	19	69



LAYOUT PLAN
Scale 1"=10'-0"



LONGITUDINAL SECTION ALONG & CULVERT
Scale 1"=10'-0"

ESTIMATED QUANTITIES

Class 'A-1' Concrete	547.2 c.y.
Reinf. Steel	59385 lbs.
Struct. Exc.	2,280.0 c.y.
Channel Exc.	1,011.0 c.y.
Dampproofing	1,300.0 sq.
Concrete Rubble Masonry	51.0 c.y.
Grouted Rubble Paving	26.0 c.y.

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

8'x8' CONC. BOX CULVERT

Sta 79+50

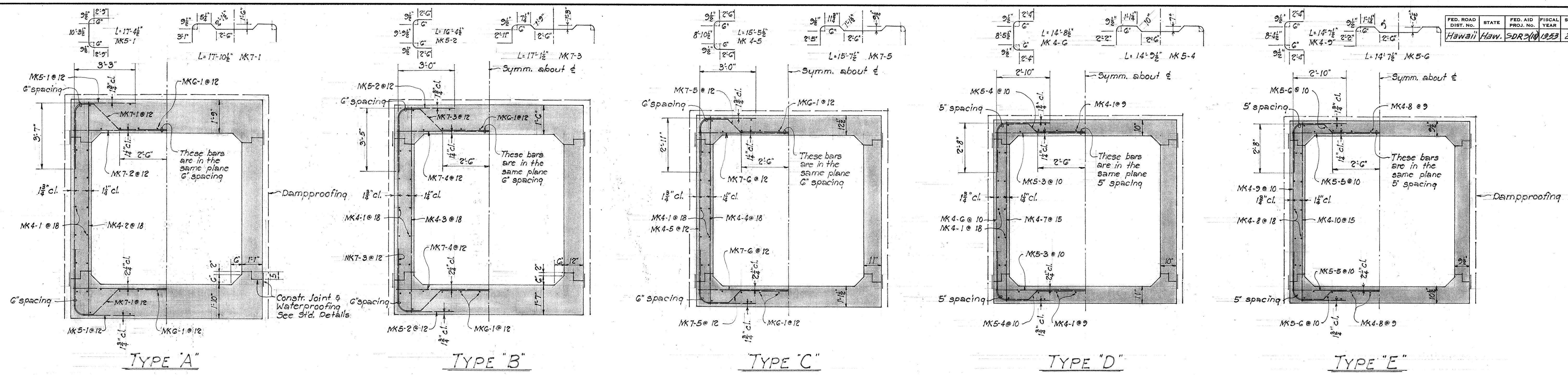
HAWAII BELT ROAD SDR 3(18)

Sept. 1953

SHEET No. 1 OF 3 SHEETS

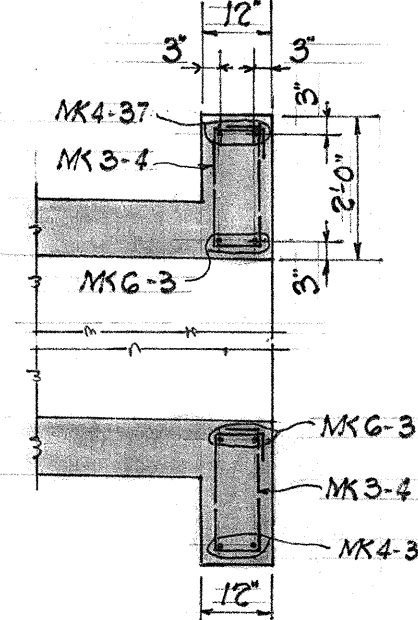
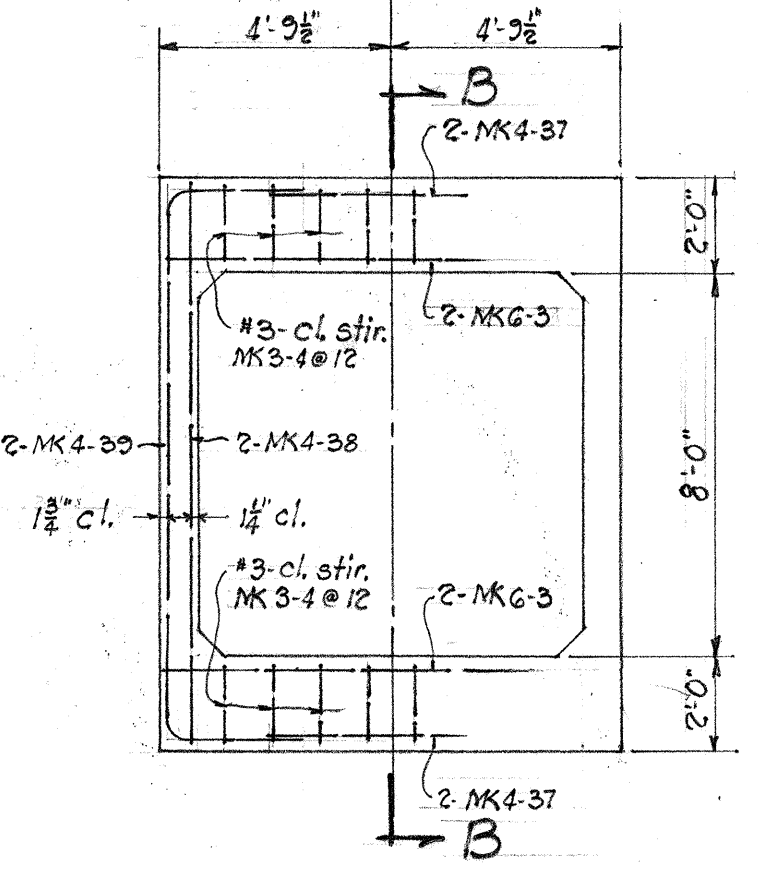
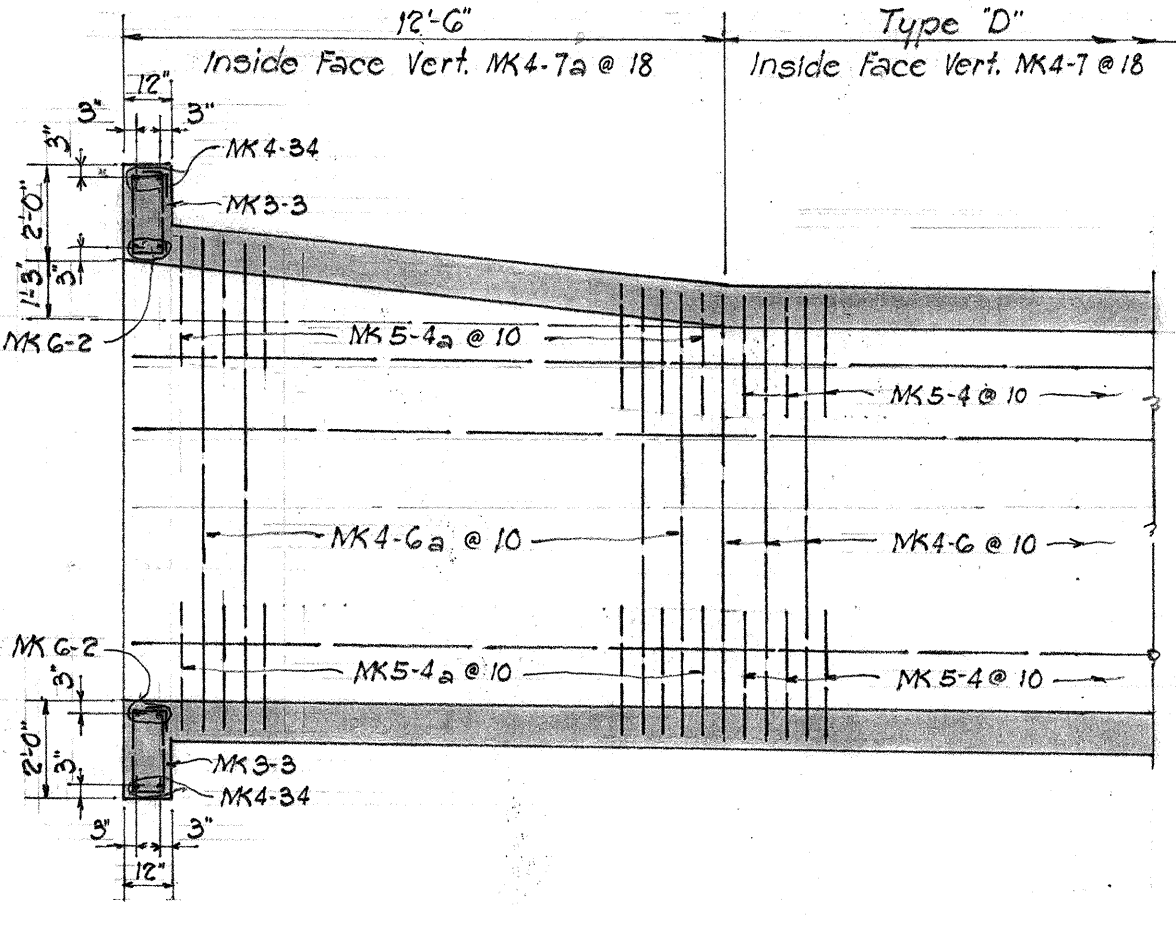
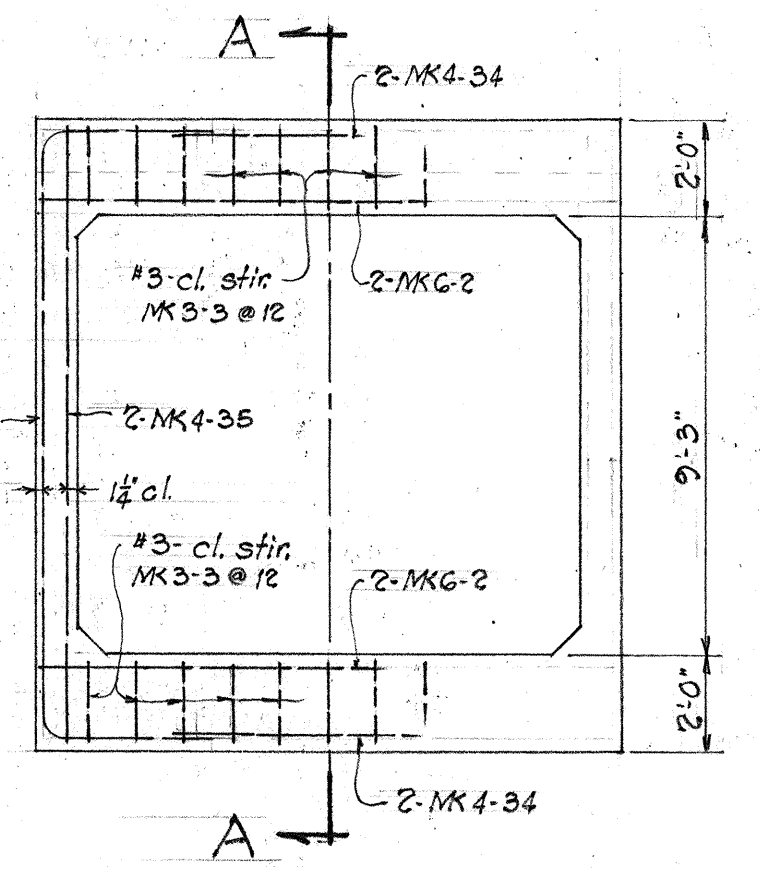
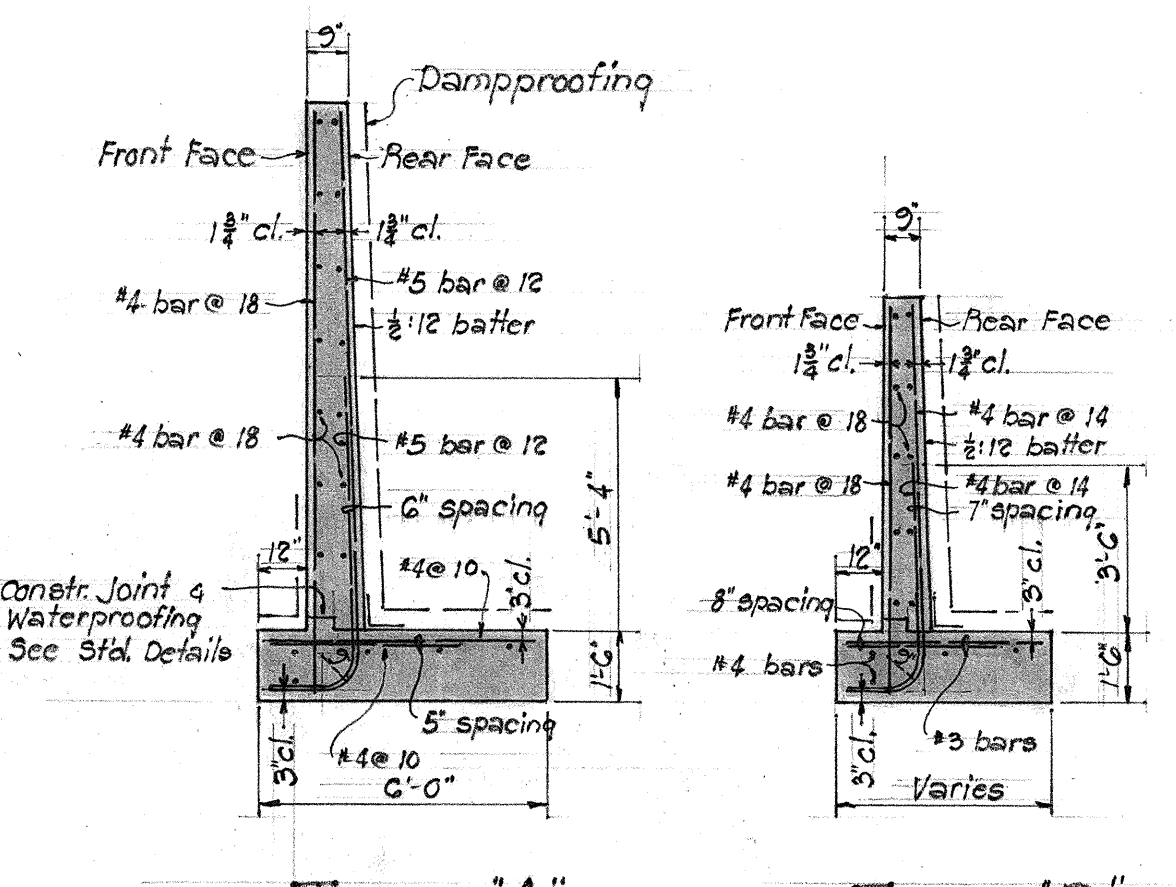
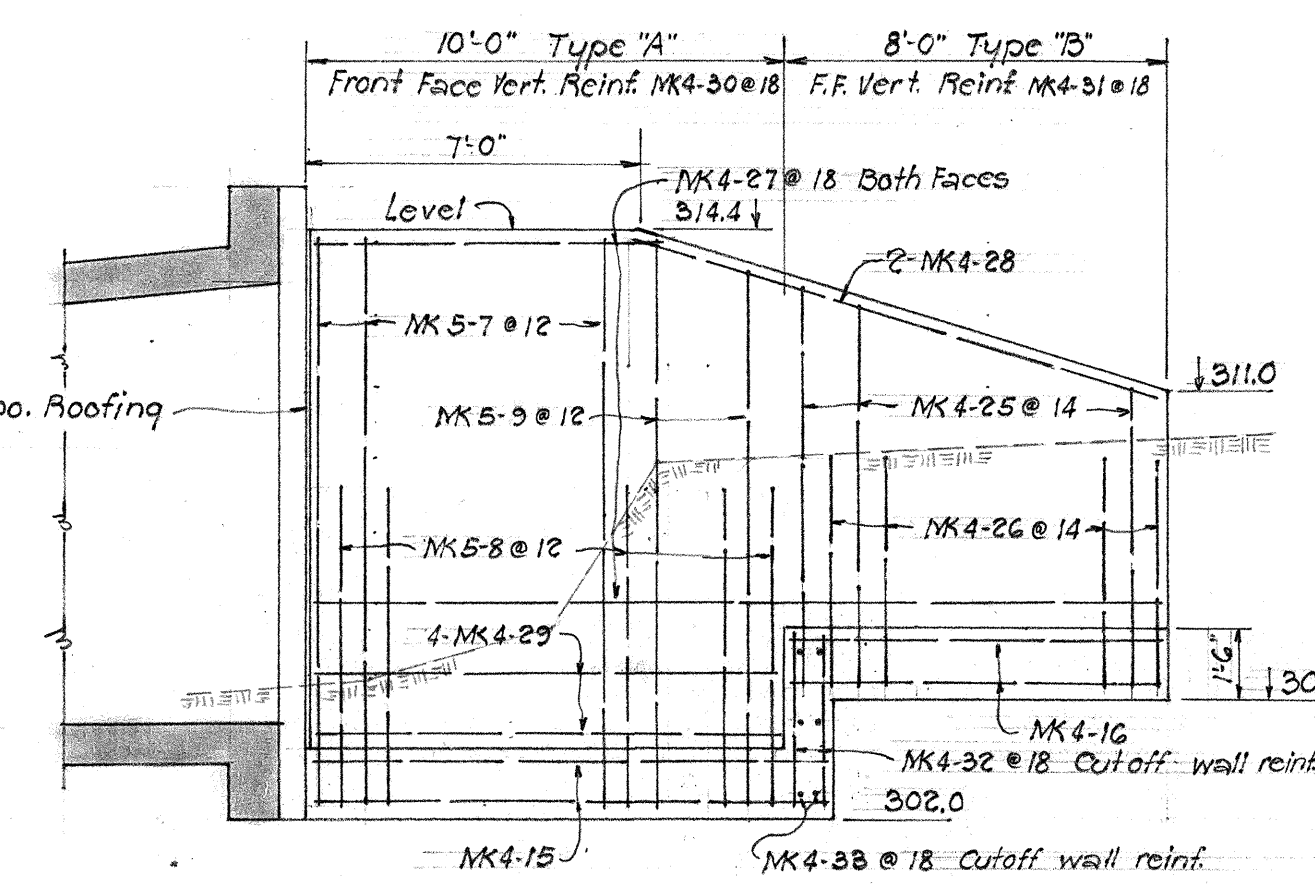
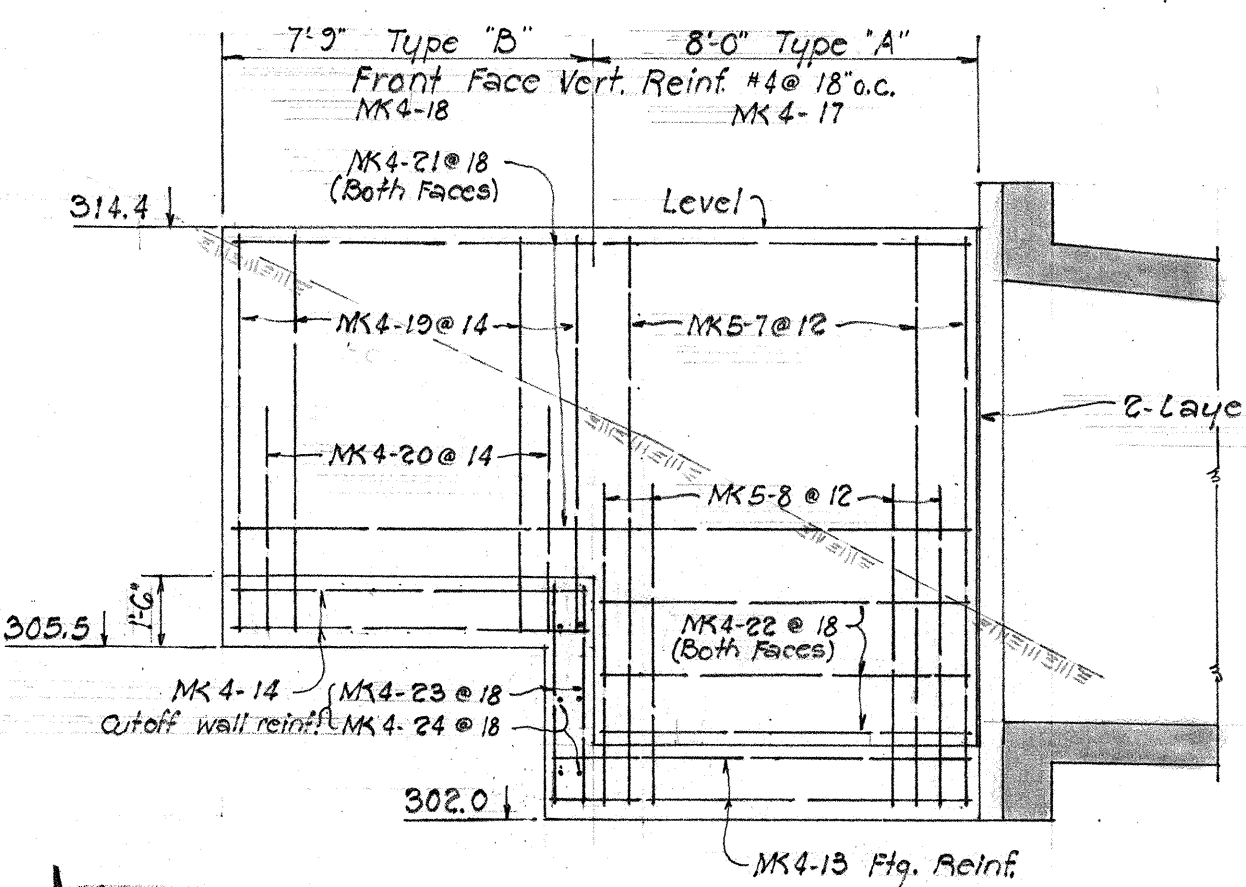
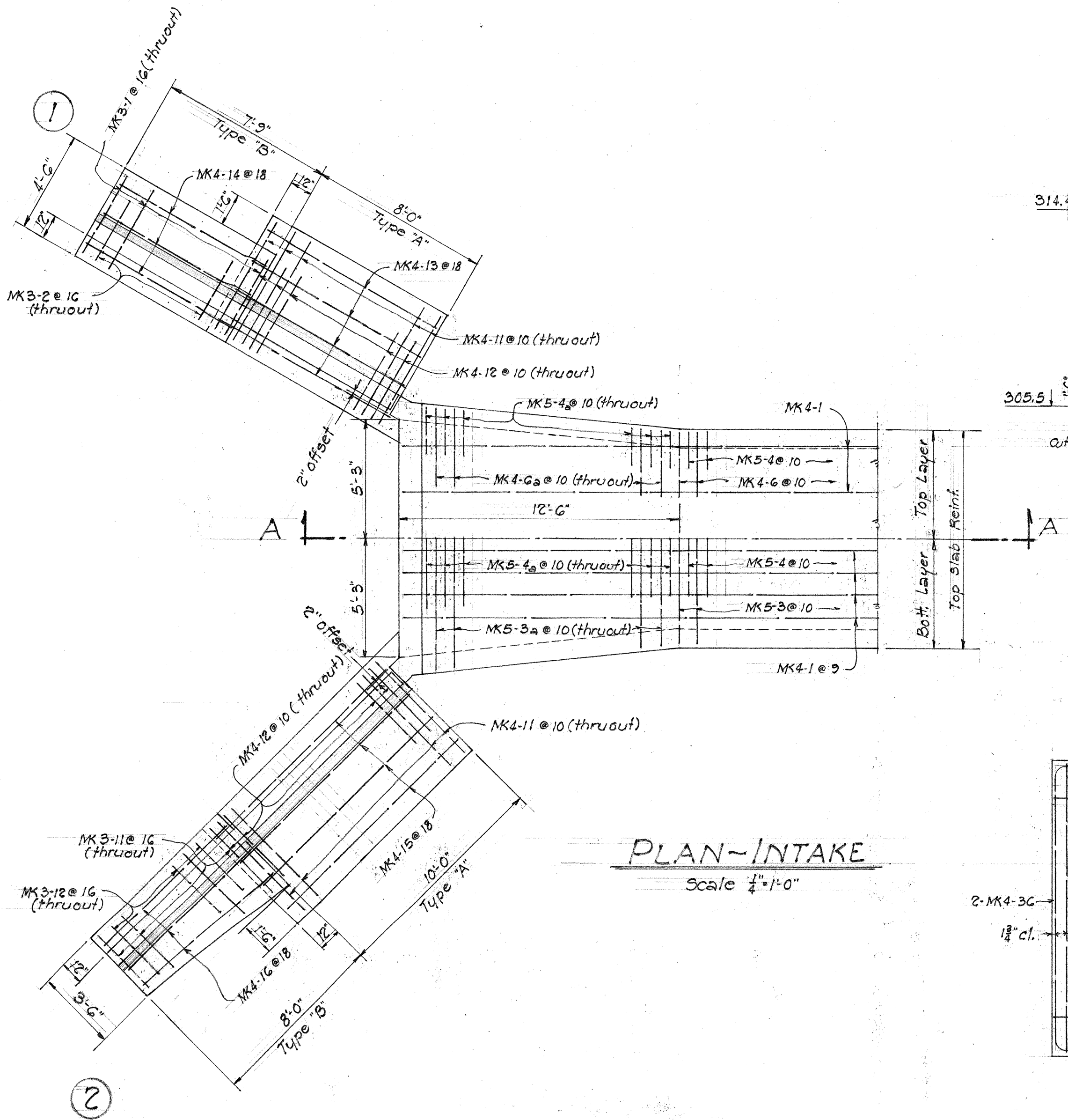
5624.19

SURVEY PLOTTED BY: DATE: Sept. 1953
DESIGNED BY: J. J. O'Keefe
DRAWN BY: J. J. O'Keefe
CHECKED BY: J. J. O'Keefe
NOTE BOOK No. 1



CULVERT SECTIONS

Scale $\frac{3}{8}" = 1'-0"$
 Note: Air-entraining admixture shall be added to concrete in culvert floor. See Special Provisions.



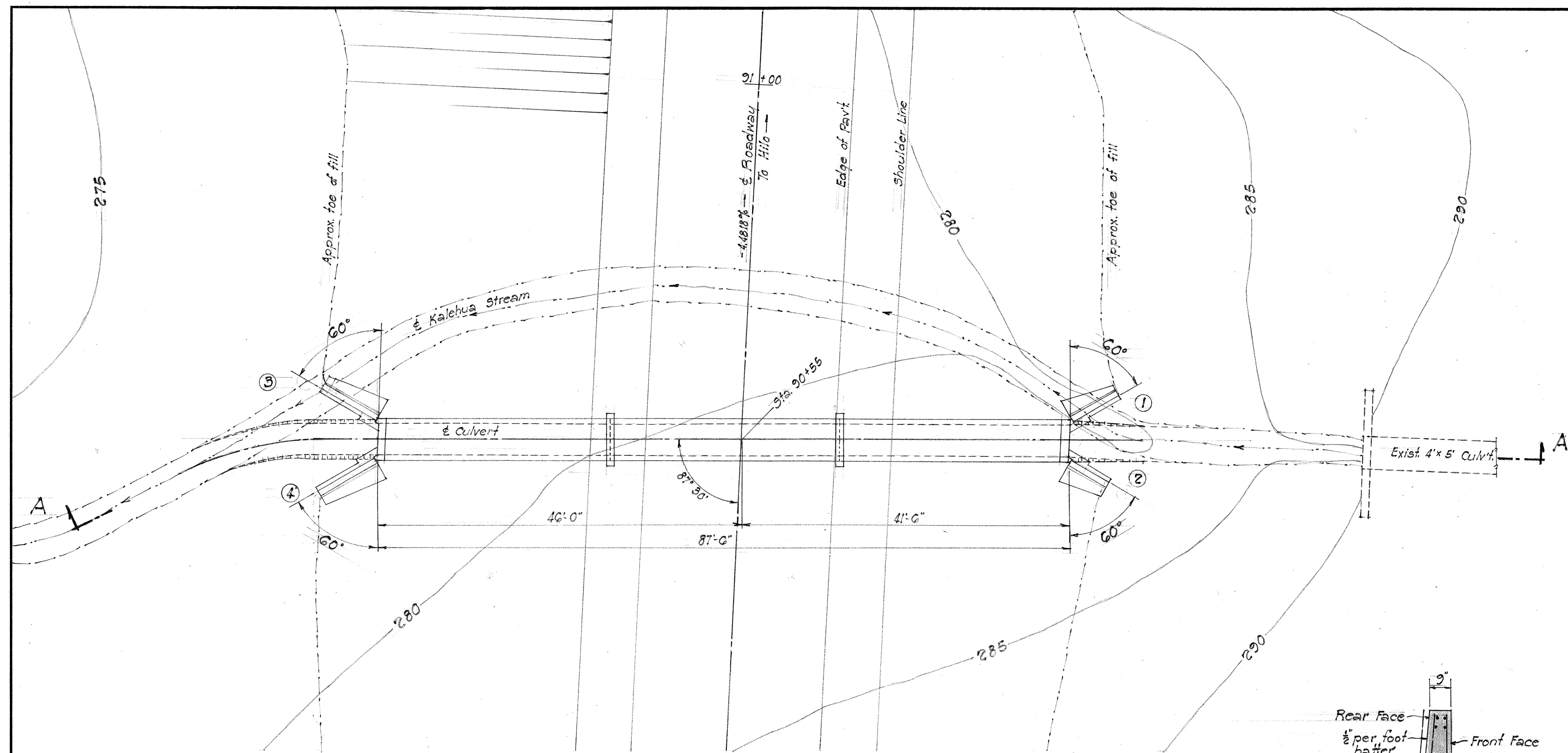
TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
8'x8' CONC. BOX CULVERT
 Sta. 79+50
 HAWAII BELT ROAD SDR 3(18)
 Sept. 1953

DESIGNED BY: *[Signature]*
 DRAWN BY: *[Signature]*
 CHECKED BY: *[Signature]*
 DATE: Sept. 1953

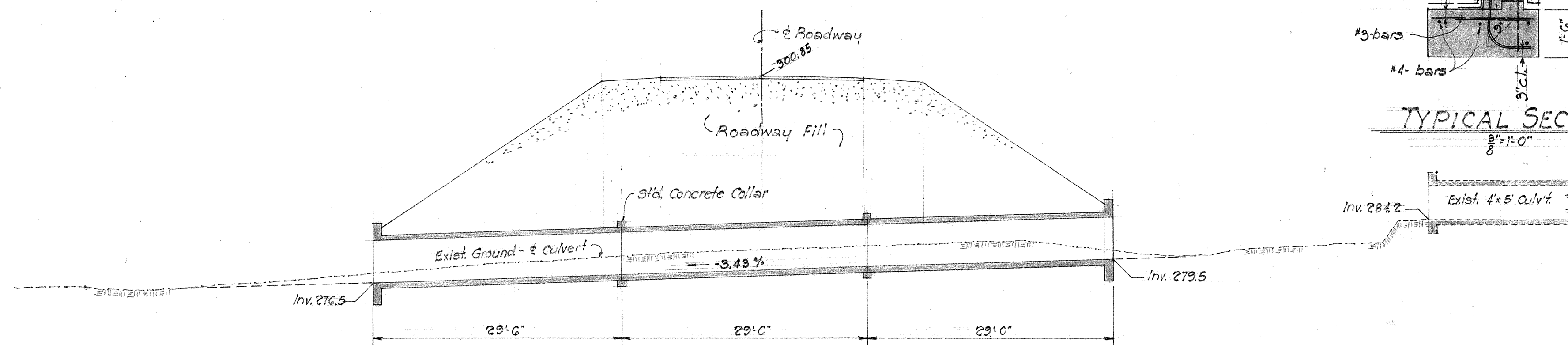
ORIGINAL PLAN	SURVEY PLOTTED BY	DATE
	DESIGNED BY	
	DRAWN BY <i>T. Umehara</i>	<i>Sept 1953</i>
	TRACED BY	
NOTE BOOK	QUANTITIES BY <i>R. Kawamura, T. Umehara</i>	
	QUANTITIES CHECKED BY	
No.	CHECKED BY <i>J. Okamoto</i>	



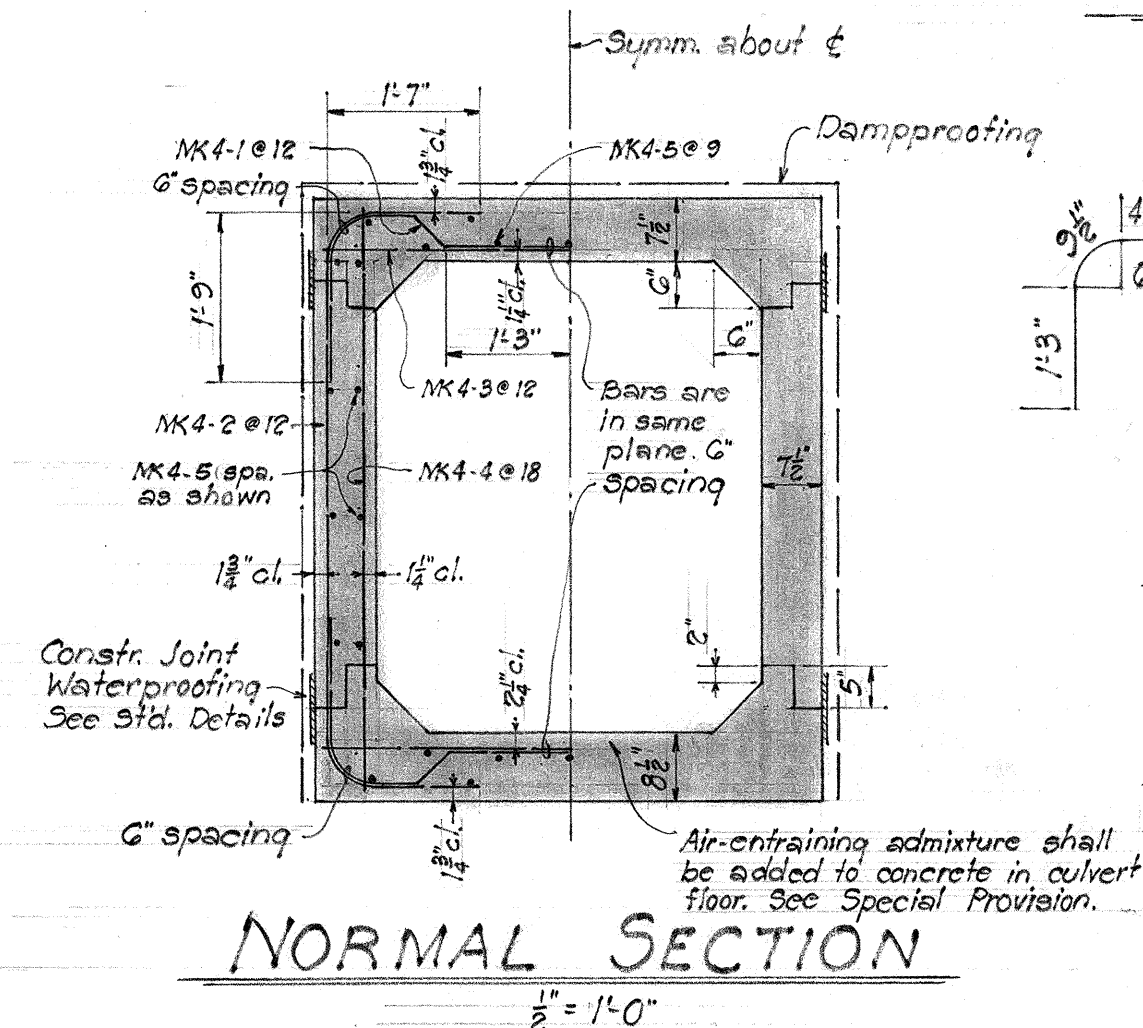
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW	SDR 308	1953	22	59



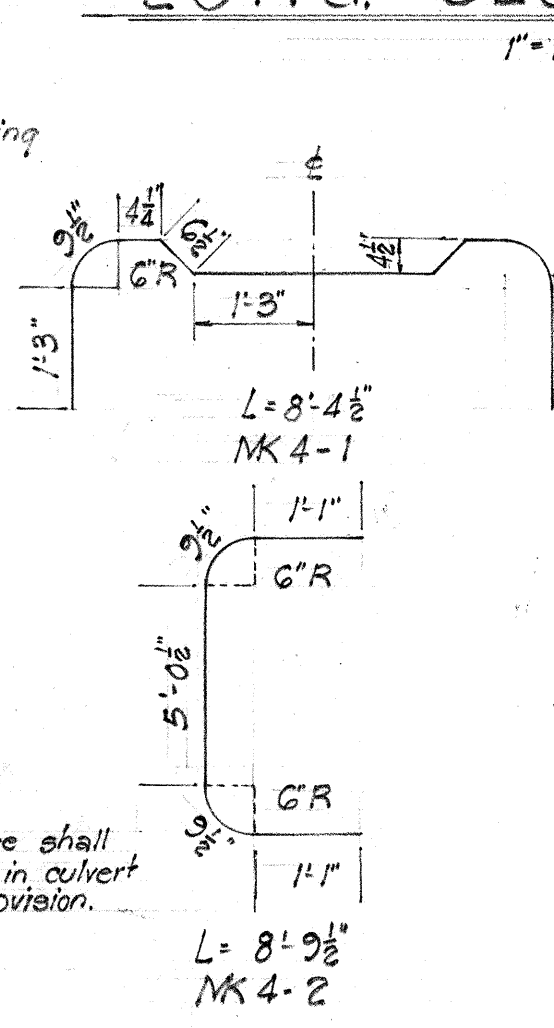
LAYOUT PLAN
1"=10'-0"



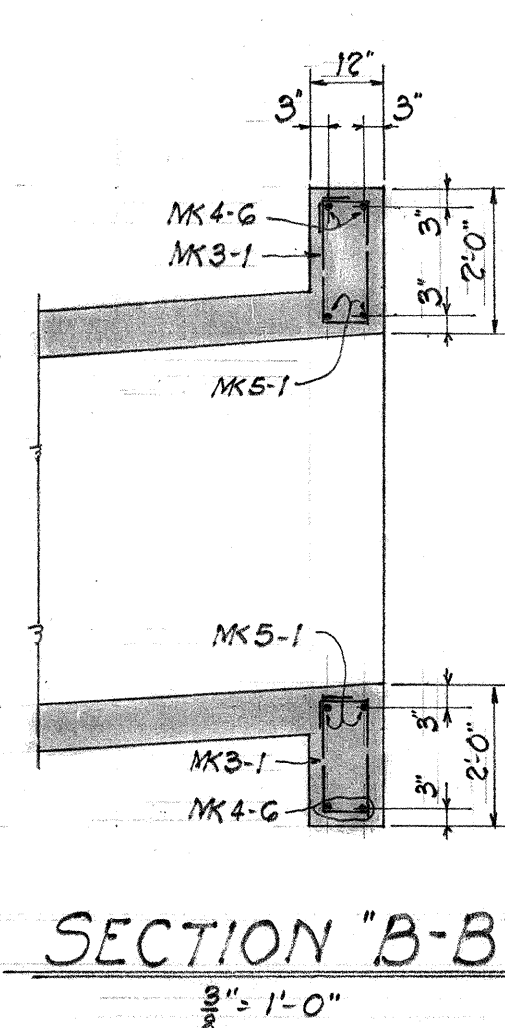
LONG. SECTION "A-A"
1"=10'-0"



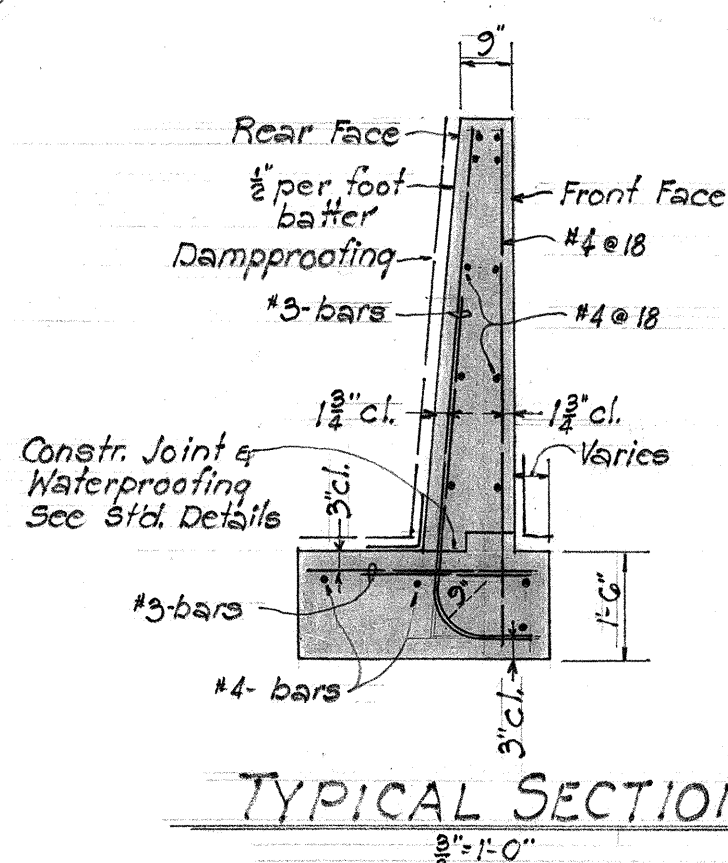
NORMAL SECTION
1/2"=1'-0"



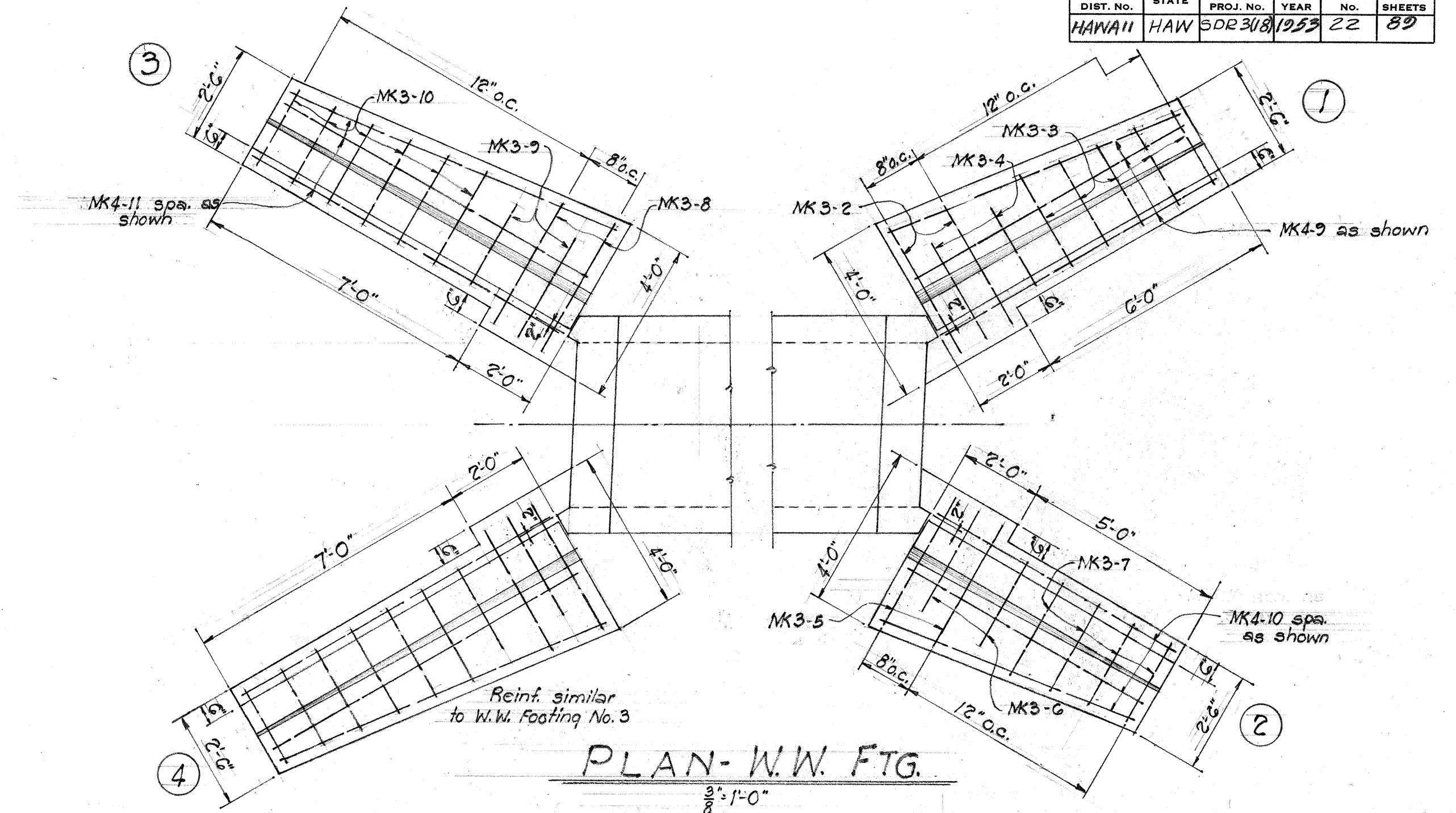
INTAKE HEADWALL
(Note: Outlet H.W. Similar) 3/8"=1'-0"



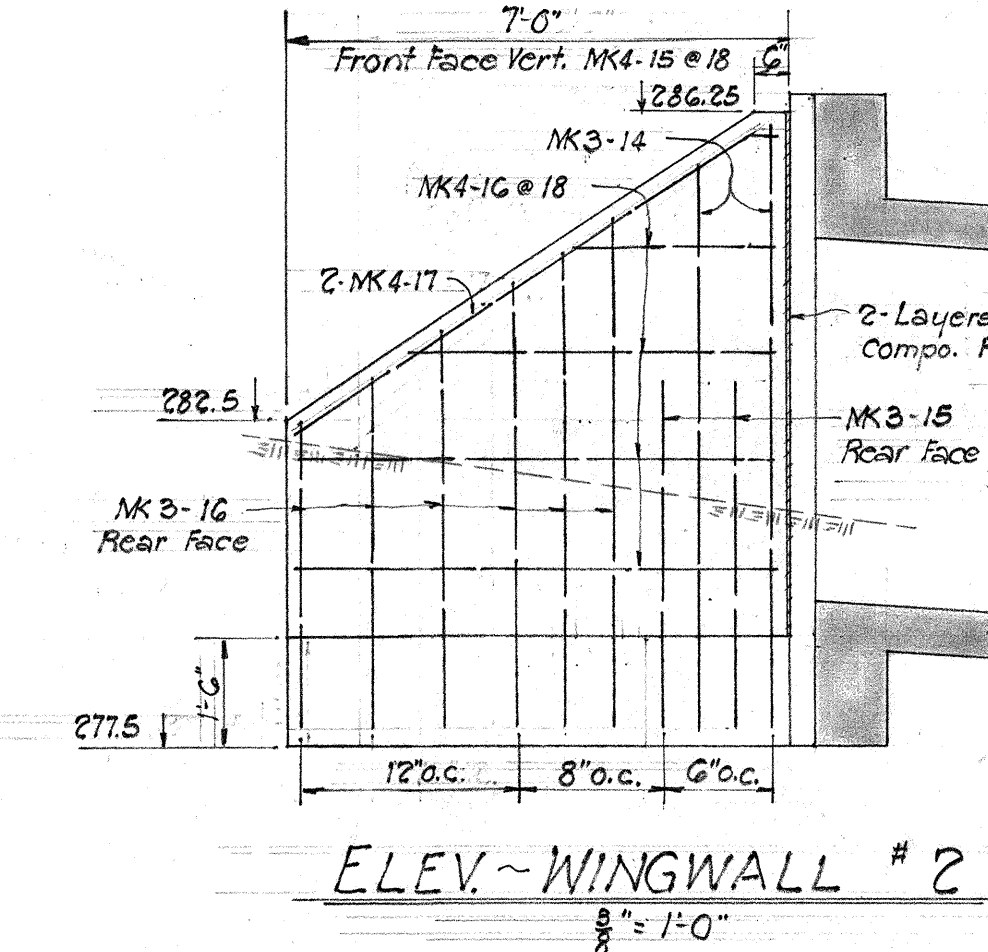
SECTION "B-B"
3/8"=1'-0"



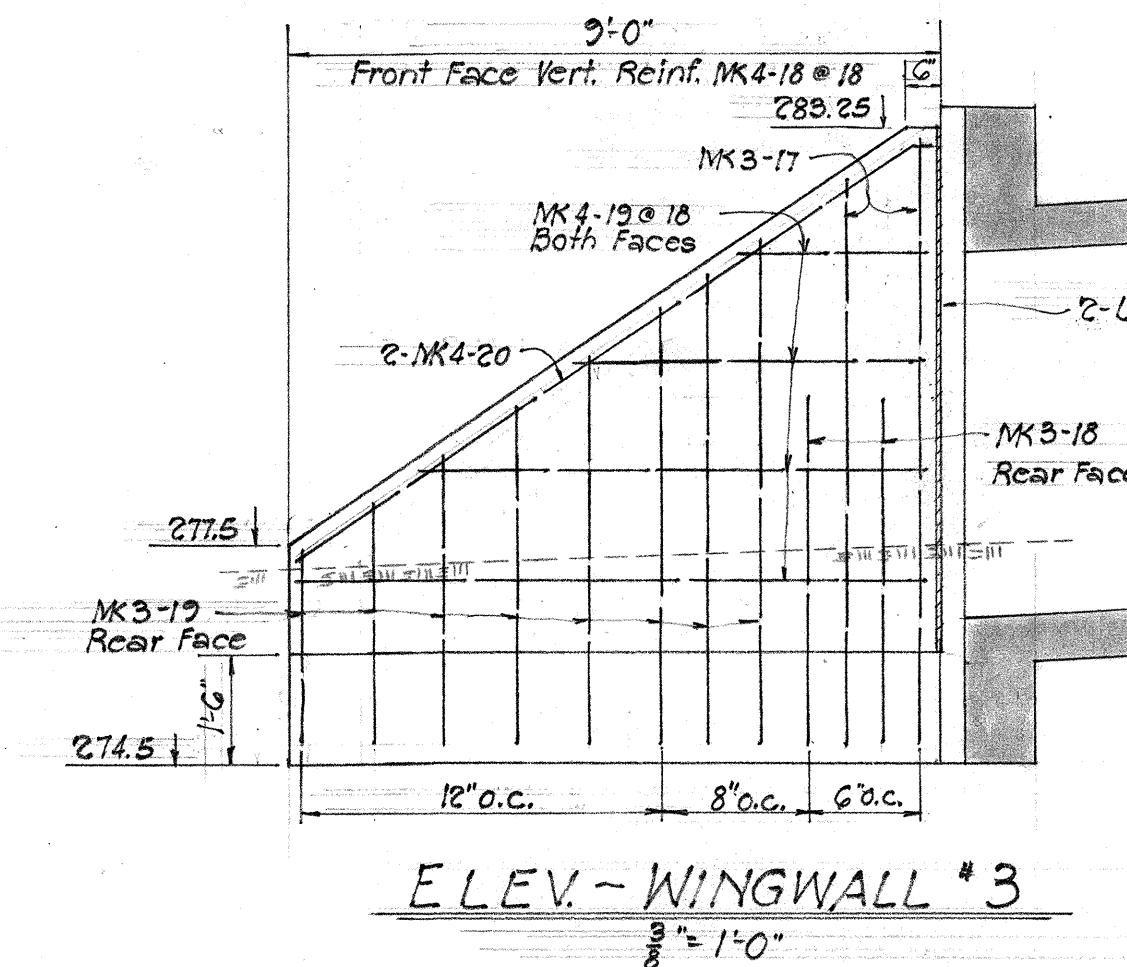
TYPICAL SECTION
3/8"=1'-0"



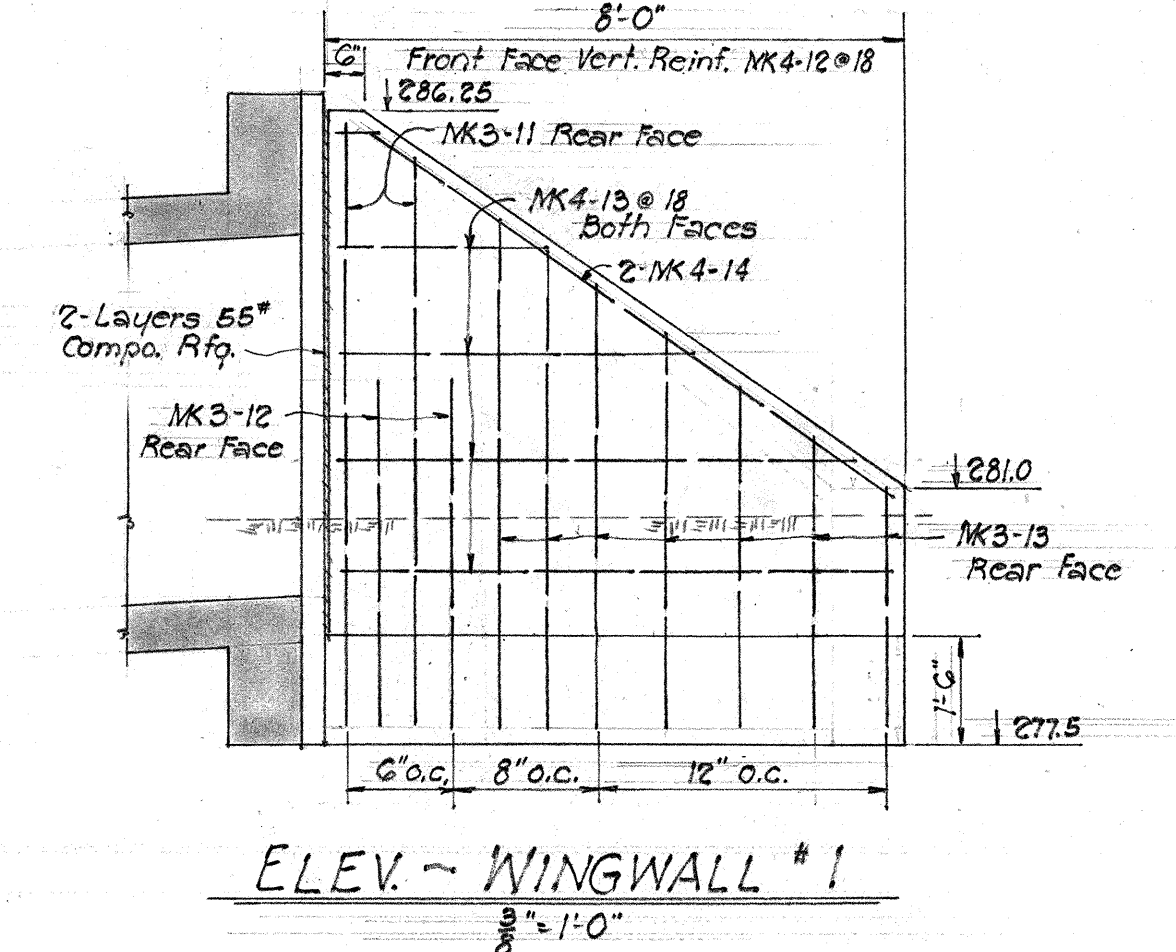
PLAN-W.W. FTG.
3/8"=1'-0"



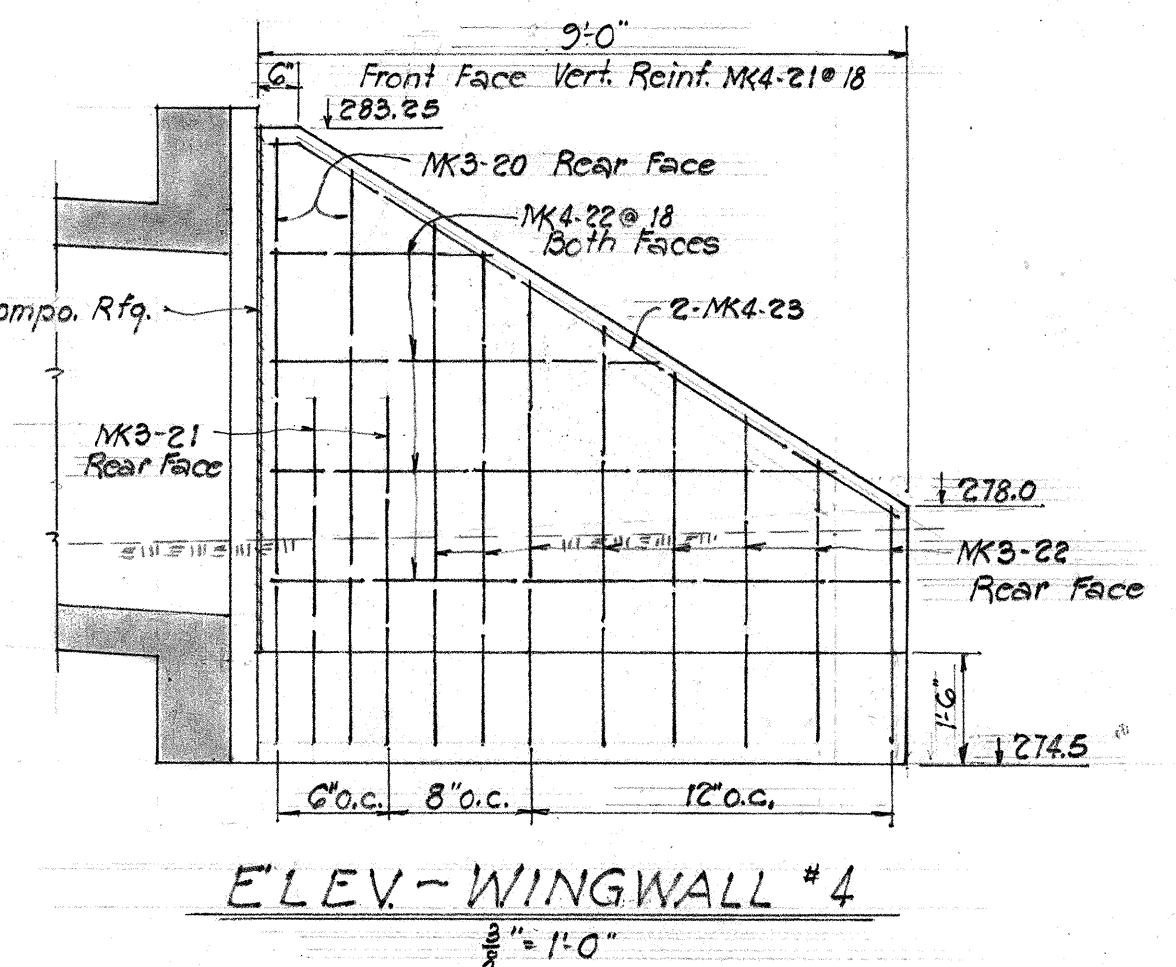
ELEV-WINGWALL #2
3/8"=1'-0"



ELEV-WINGWALL #3
3/8"=1'-0"



ELEV-WINGWALL #1
3/8"=1'-0"



ELEV-WINGWALL #4
3/8"=1'-0"

ESTIMATED QUANTITIES

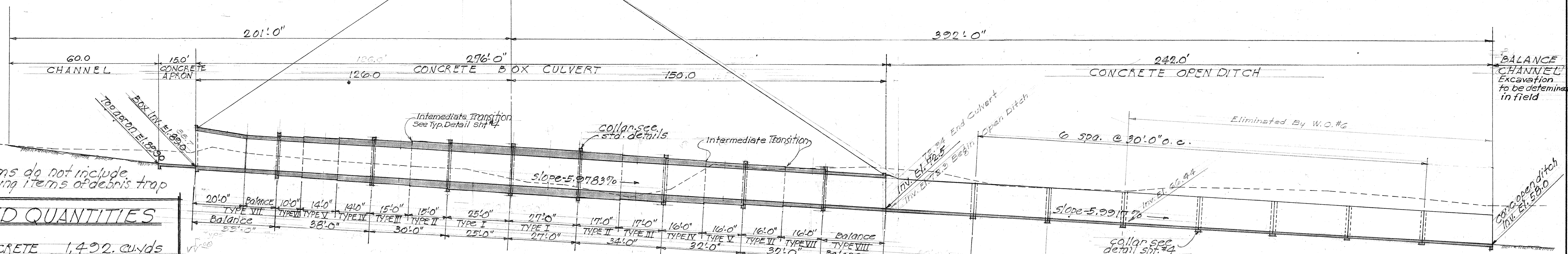
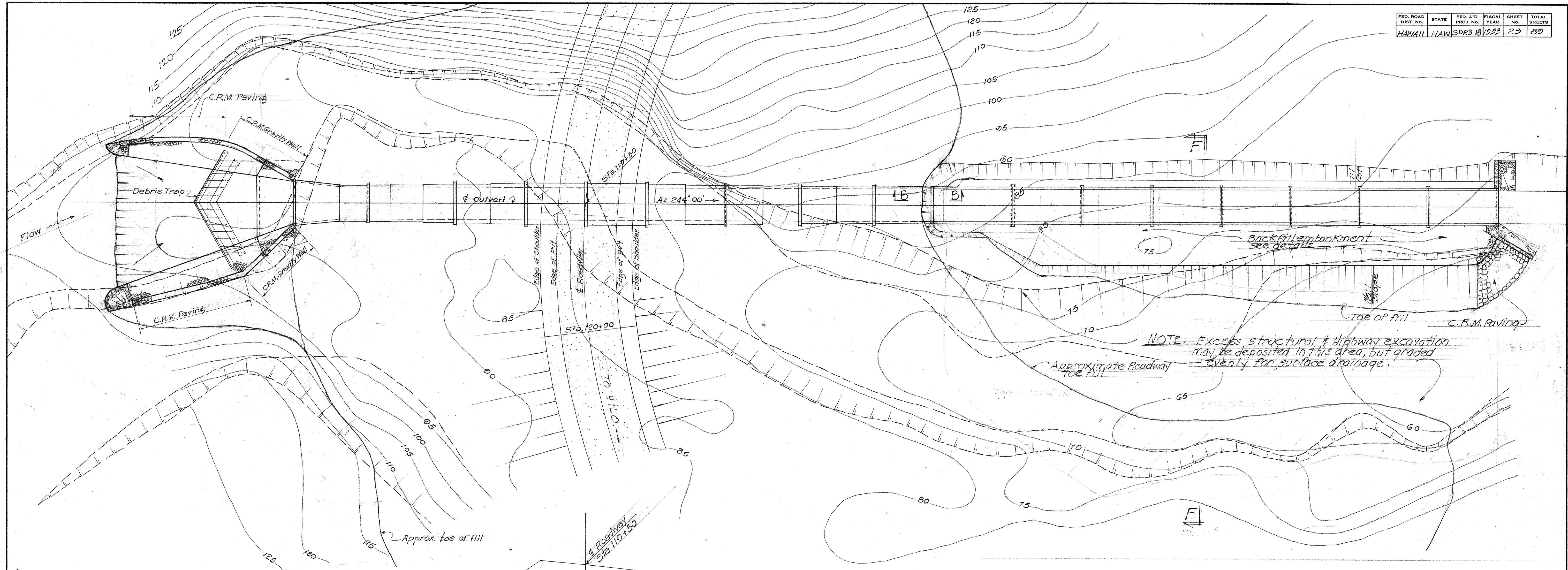
Class "A-1" Concrete	58.0 c.y.
Reinf. Steel	5770.0 lb.
Struct. Excavation	95.0 c.y.
Dampproofing	210.0 s.y.
Channel Excavation	5.0 c.y.

TERRITORIAL HIGHWAY DEPARTMENT	
TERRITORY OF HAWAII	
4'x5' CONC. BOX CULVERT	
Sta. 30+55	
HAWAII BELT ROAD	SDR 3(18)
Sept. 1953	

SHEET No. 1 OF 1 SHEETS

5624.22

DESIGNED BY	DATE
DRAWN BY	
CHECKED BY	
NOTED BY	
ORIGINAL	
PLAN	
NOTE	
QUANTITIES	
CHECKED BY	
NO.	



ESTIMATED QUANTITIES

* CLASS A-1 CONCRETE 1,492 cu.yds.
 * REINFORCING STEEL 265,270 lbs.
 STRUCTURAL EXC. 4,907 cu.yds.
 * CHANNEL EXC. 560 cu.yds.
 DAMPROOFING 2,340 sq.yds.
 GROUTED RUBBLE PAVING 79 cu.yds.
 CEMENT RUBBLE MASONRY 355 cu.yds.
 DEBRIS TRAP 1 UNIT

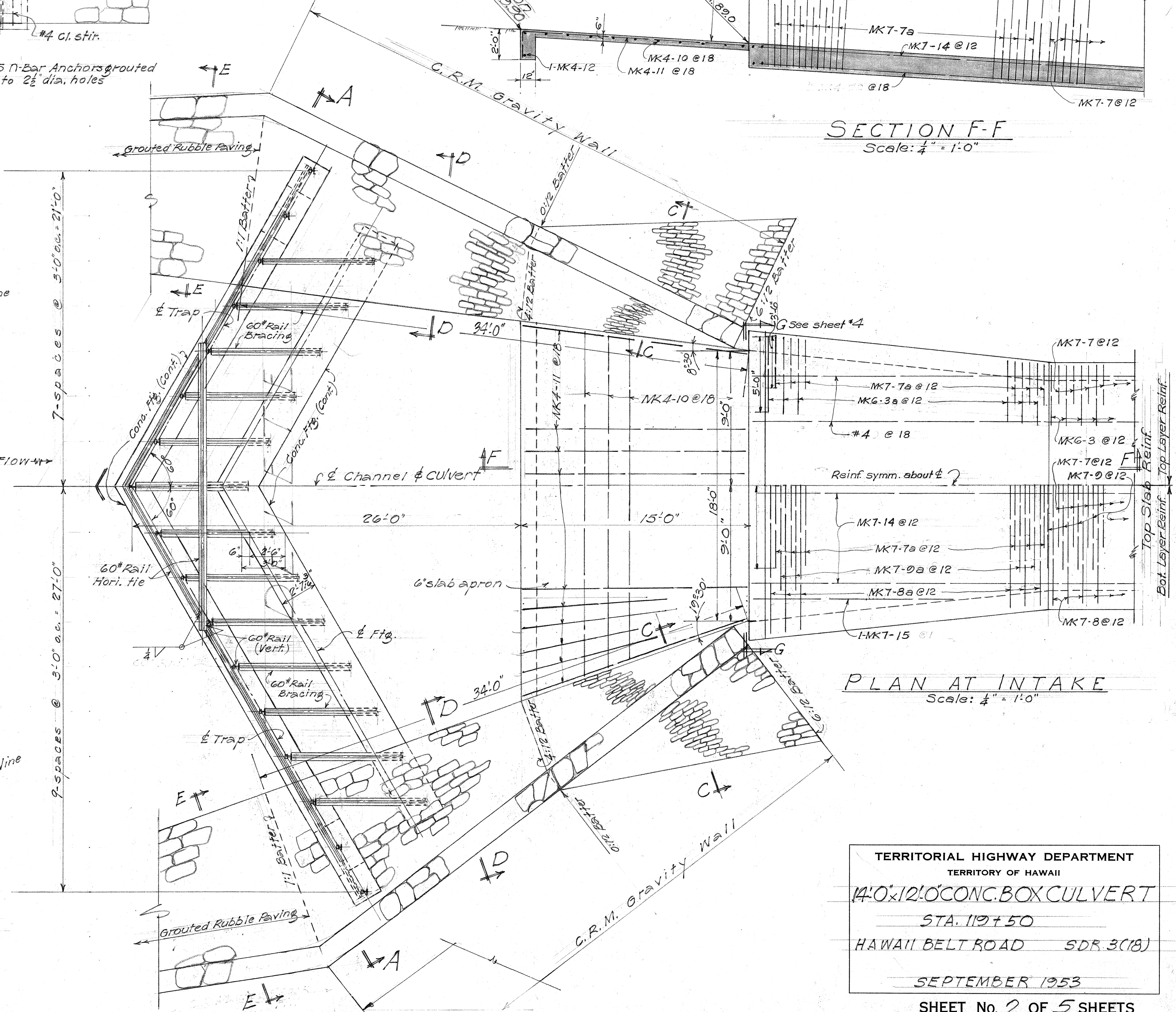
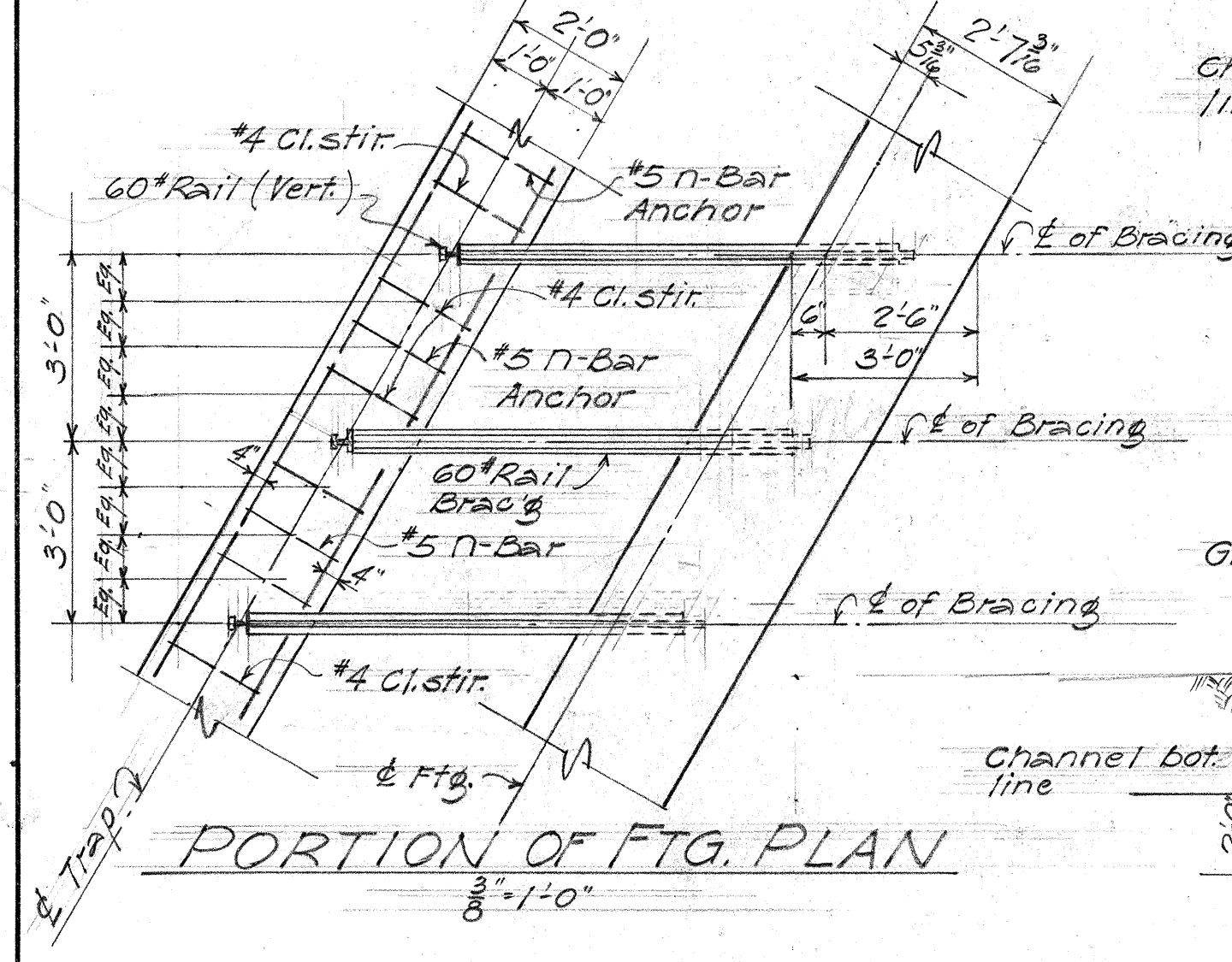
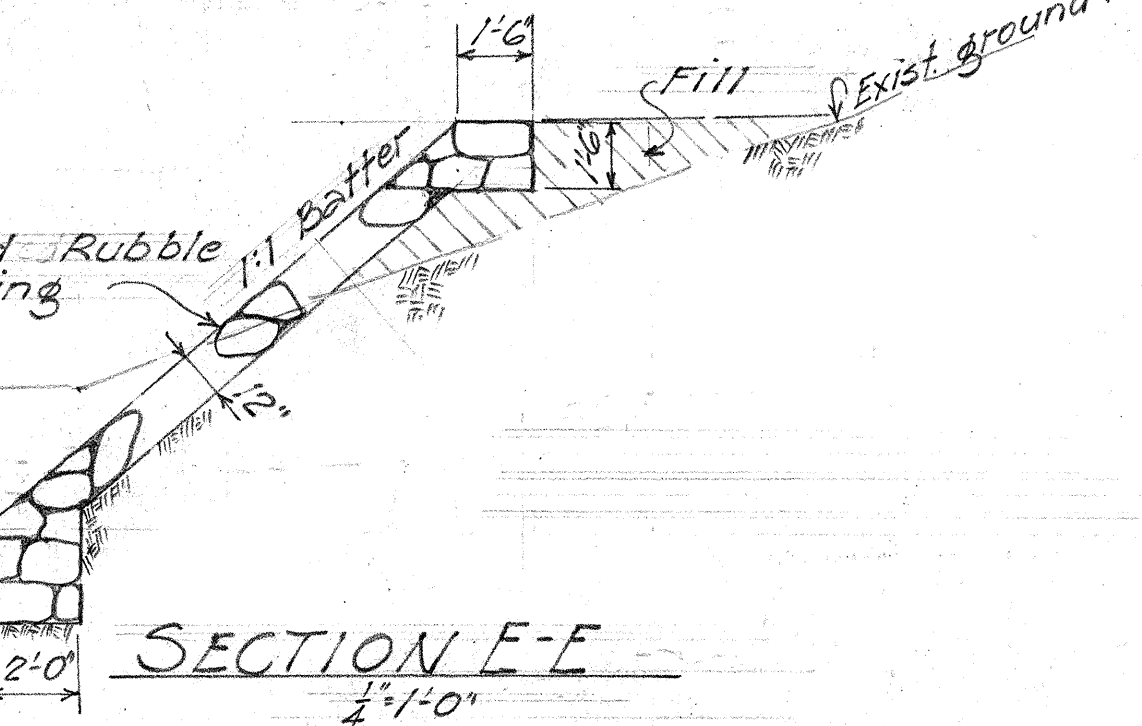
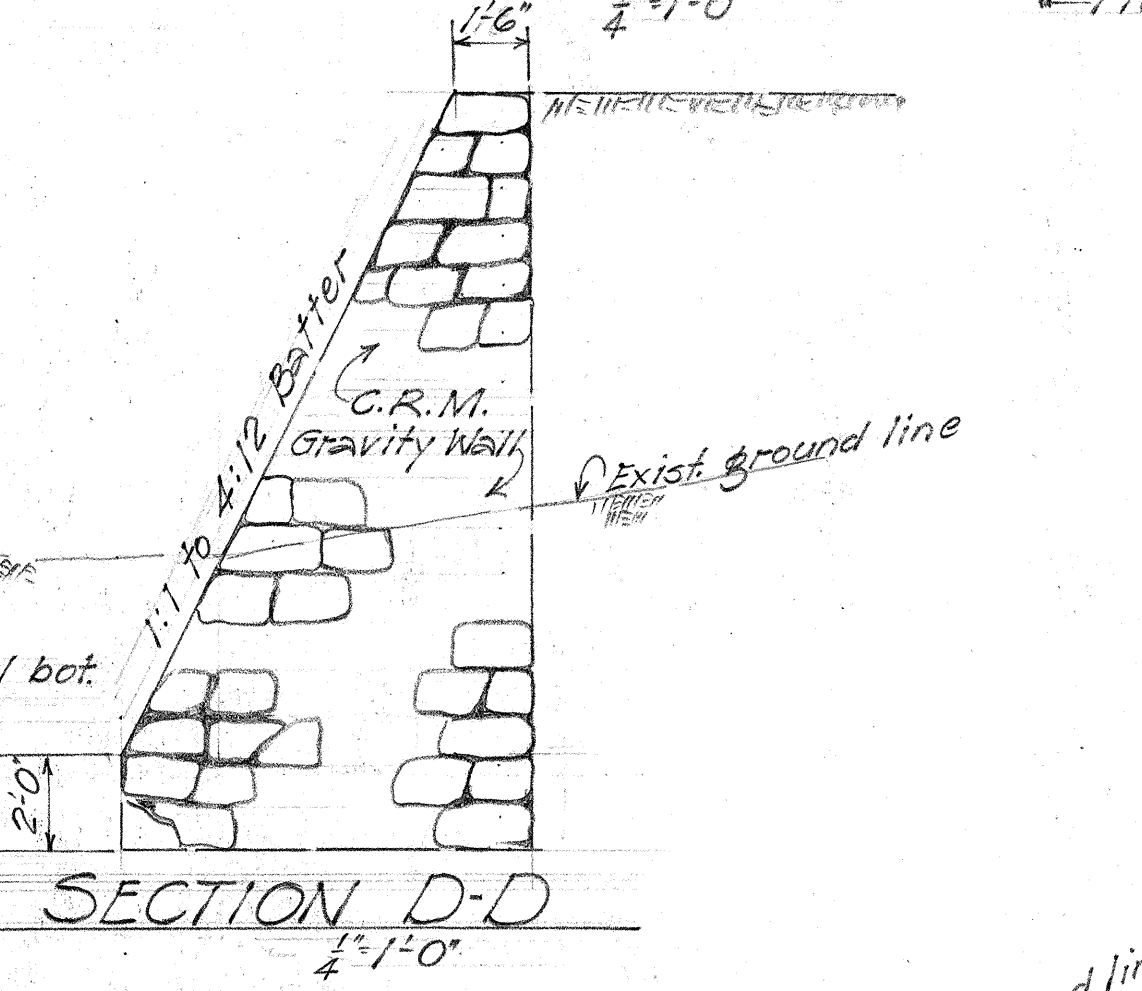
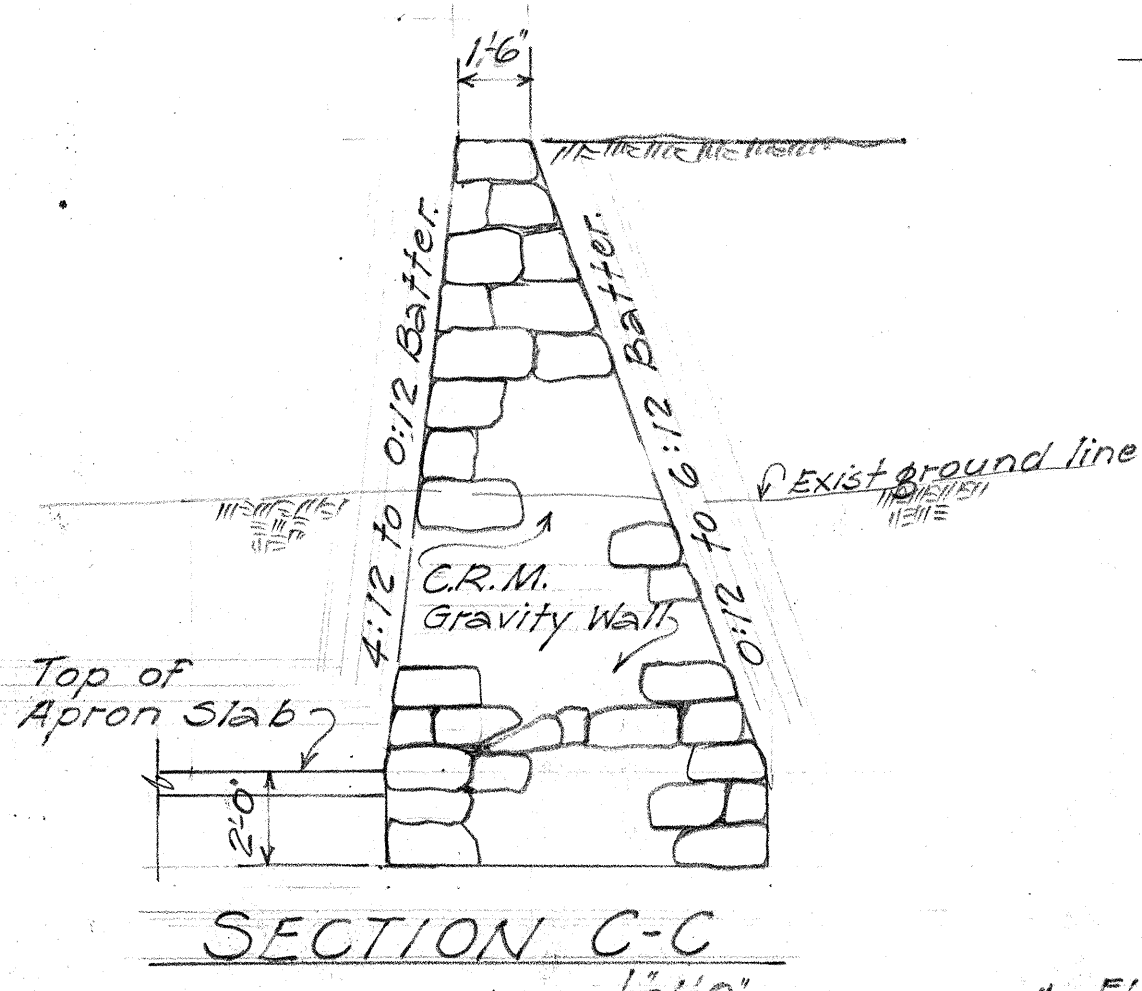
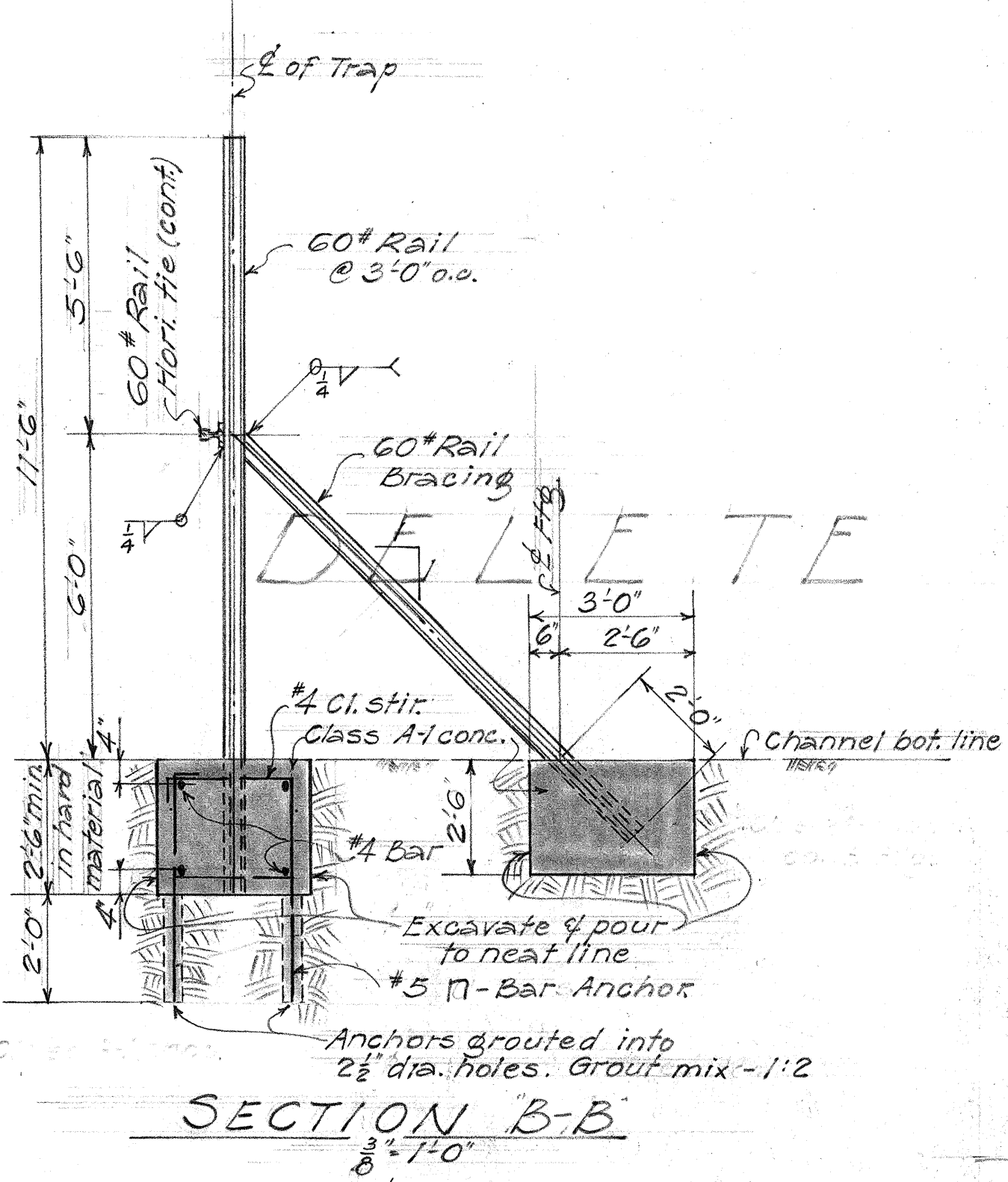
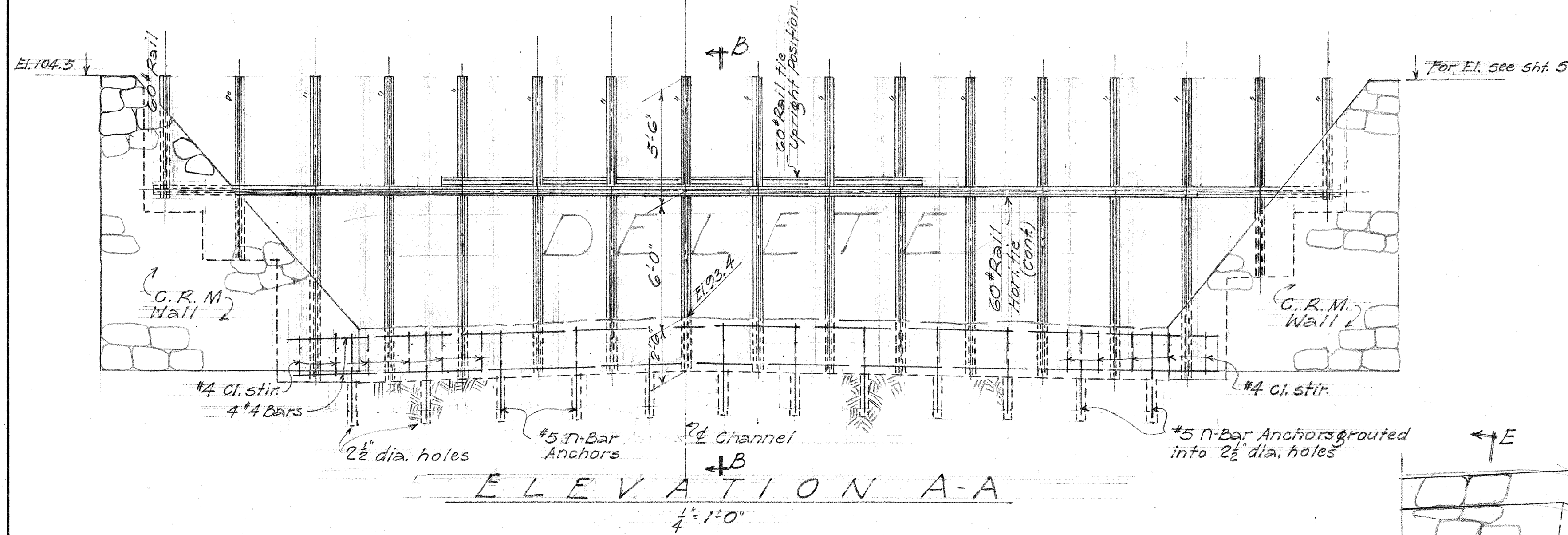
NOTES

REFERENCE :-
 For details of section "B-B" see sheet #4.
 For details of section "F-F" see sheet #5.

TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
 14'-0" x 12'-0" CONC. BOX CULVERT
 STA. 119+50
 HAWAII BELT ROAD SDR 3(18)
 SEPTEMBER 1953
 SHEET No. 1 OF 5 SHEETS

5624.23

DATE: Sept 1953
 SURVEY PLOTTED BY: J. O. H. S.
 DRAWN BY: J. O. H. S.
 CHECKED BY: J. O. H. S.
 NOTE BOOK NO. 1

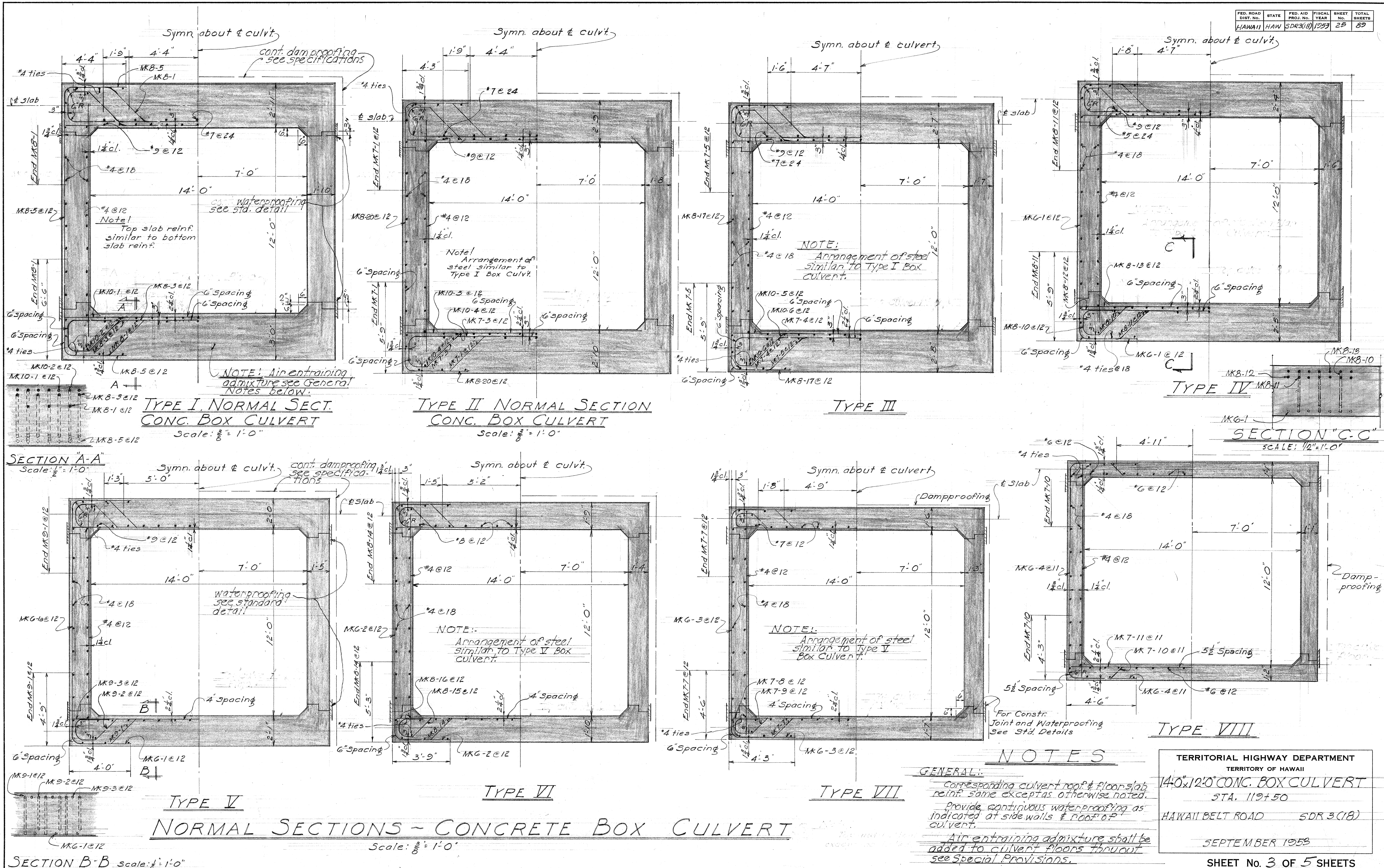


TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
14'-0" x 12'-0" CONC. BOX CULVERT
STA. 119+50
HAWAII BELT ROAD SDR 3(18)
SEPTEMBER 1953
SHEET No. 2 OF 5 SHEETS

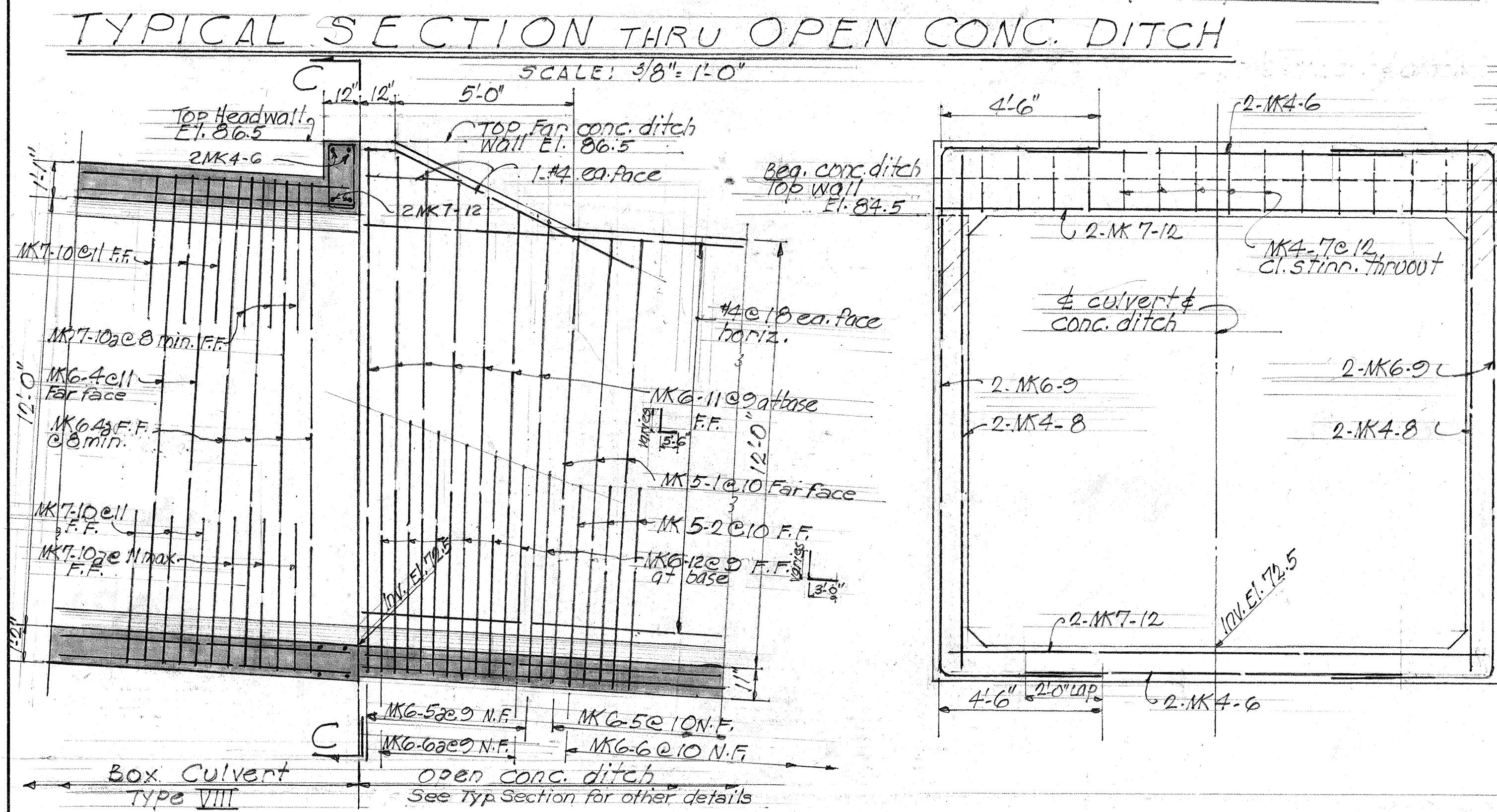
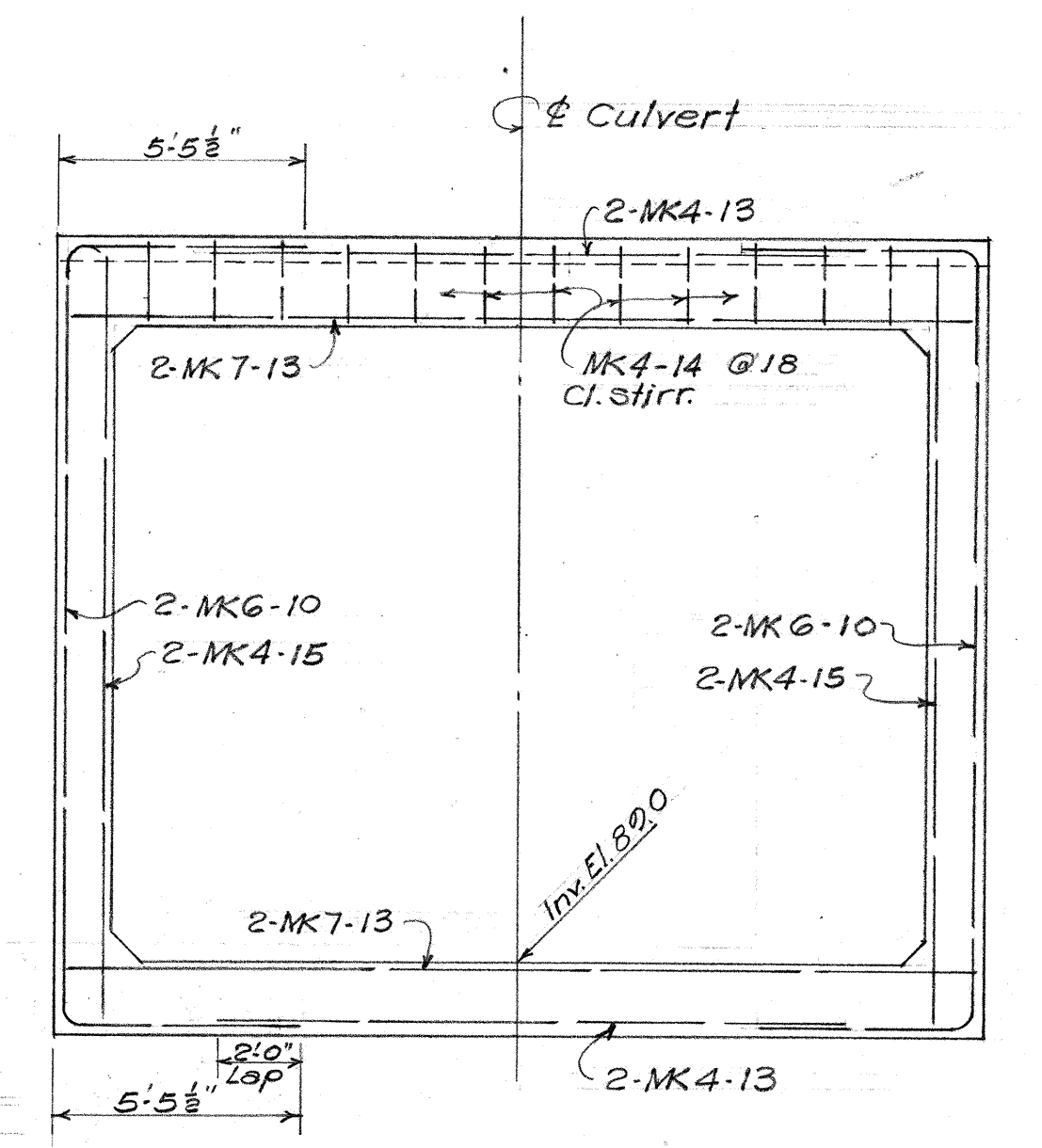
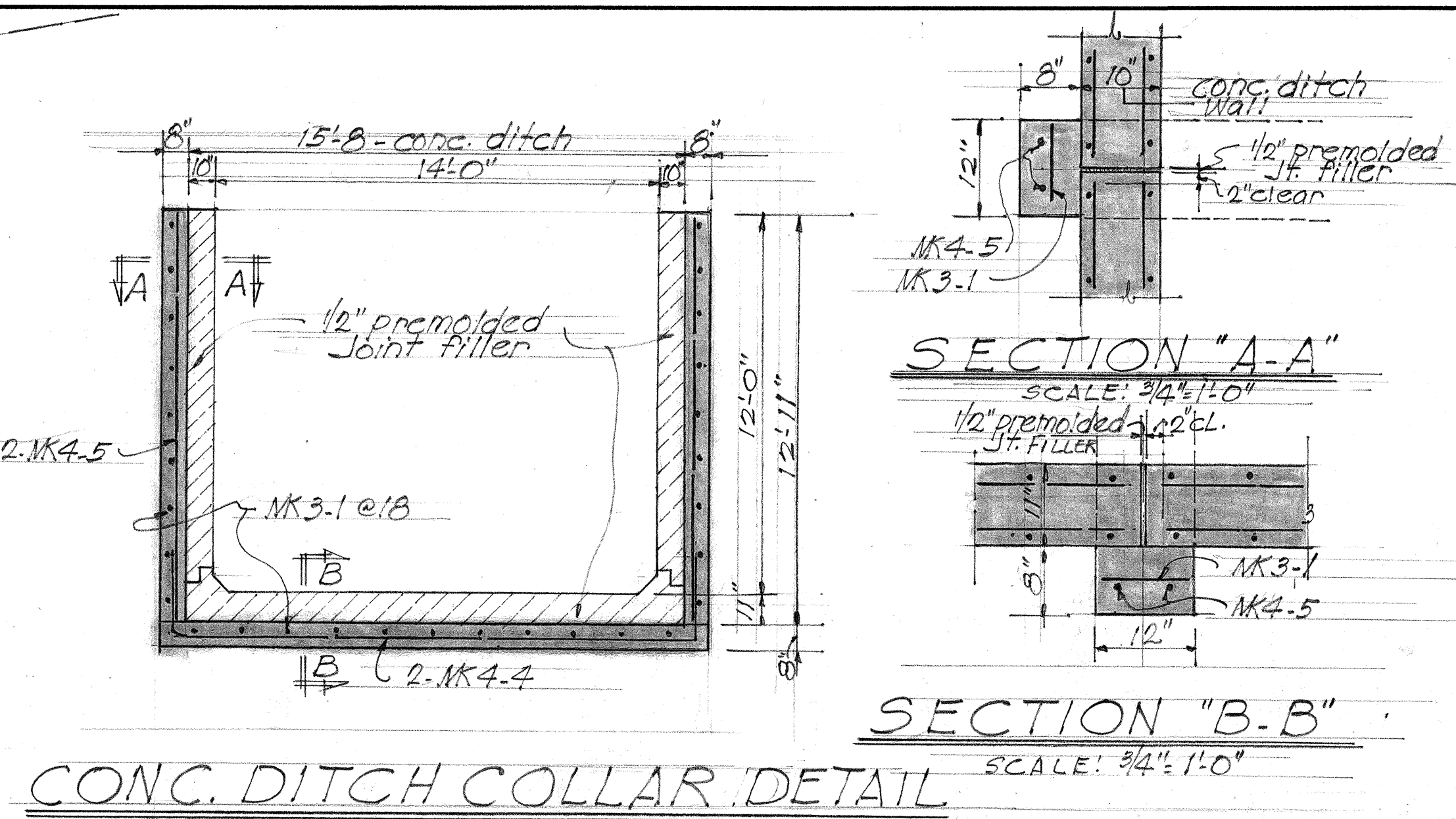
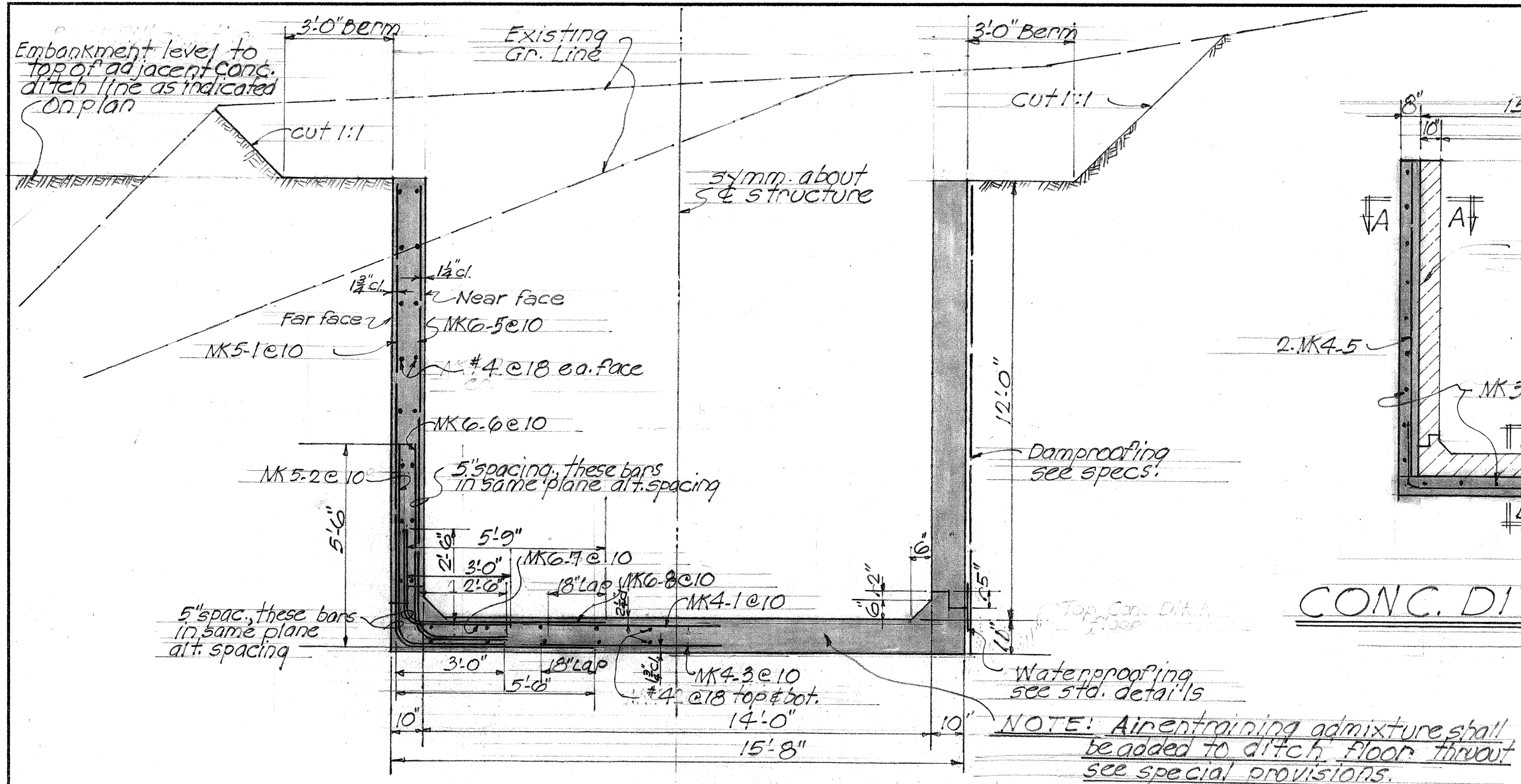
5624.24

ORIGINAL
PLAN
NOTE BOOK
No.

SURVEY PLOTTED BY
DESIGNED BY
DRAWN BY
CHECKED BY
DATE



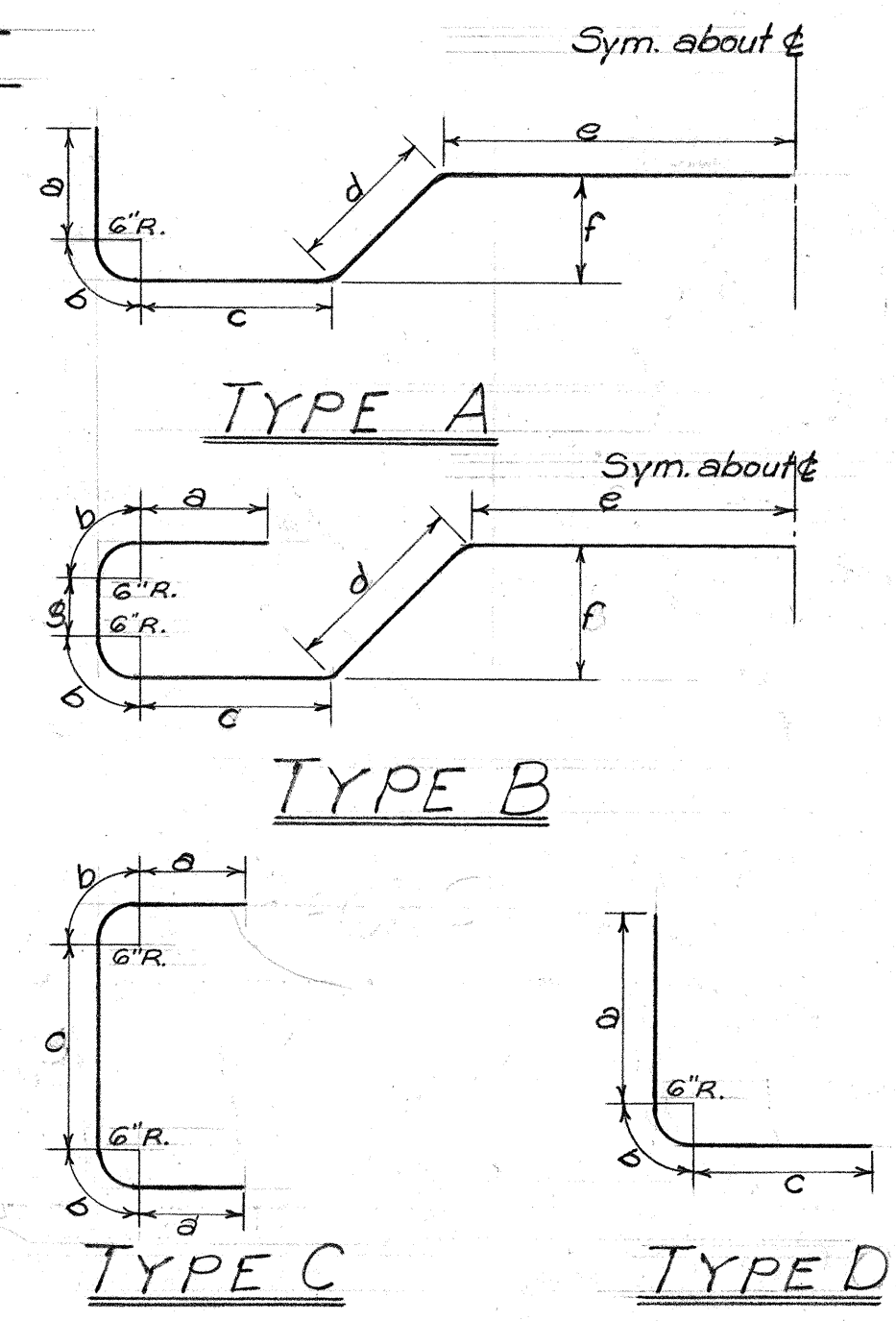
DATE: Sept. 1953
DESIGNED BY: J. C. Bartsch
DRAWN BY: L. Fujimura
CHECKED BY: J. C. Bartsch
QUANTITIES CHECKED BY: J. C. Bartsch
ORIGINAL PLAN NO. 11
NOTE BOOK NO. 11



TYPICAL INTERMEDIATE TRANSITION OF CULVERT TYPES SHOWING ARRANGEMENT OF SIDE WALLS, ROOF & FLOOR SLABS REINF.

REINF STEEL BENDING SCHEDULE

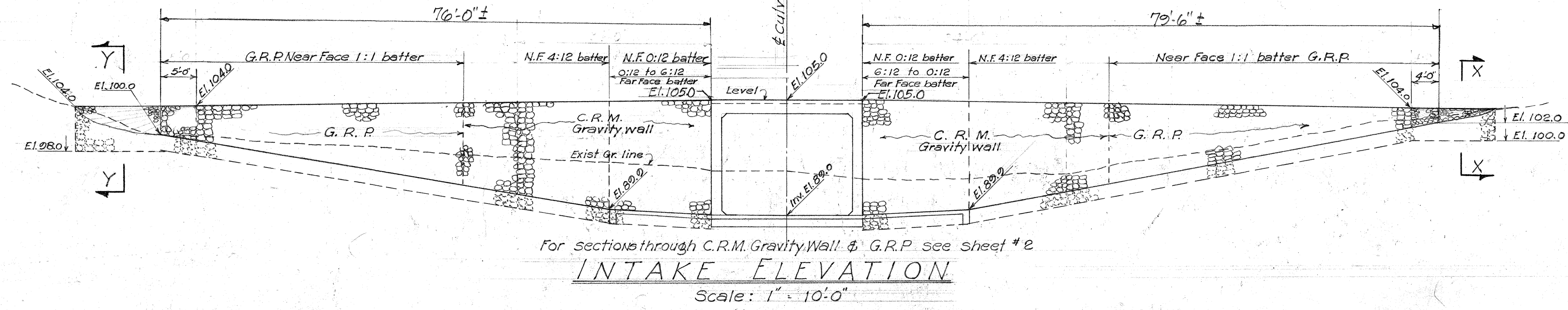
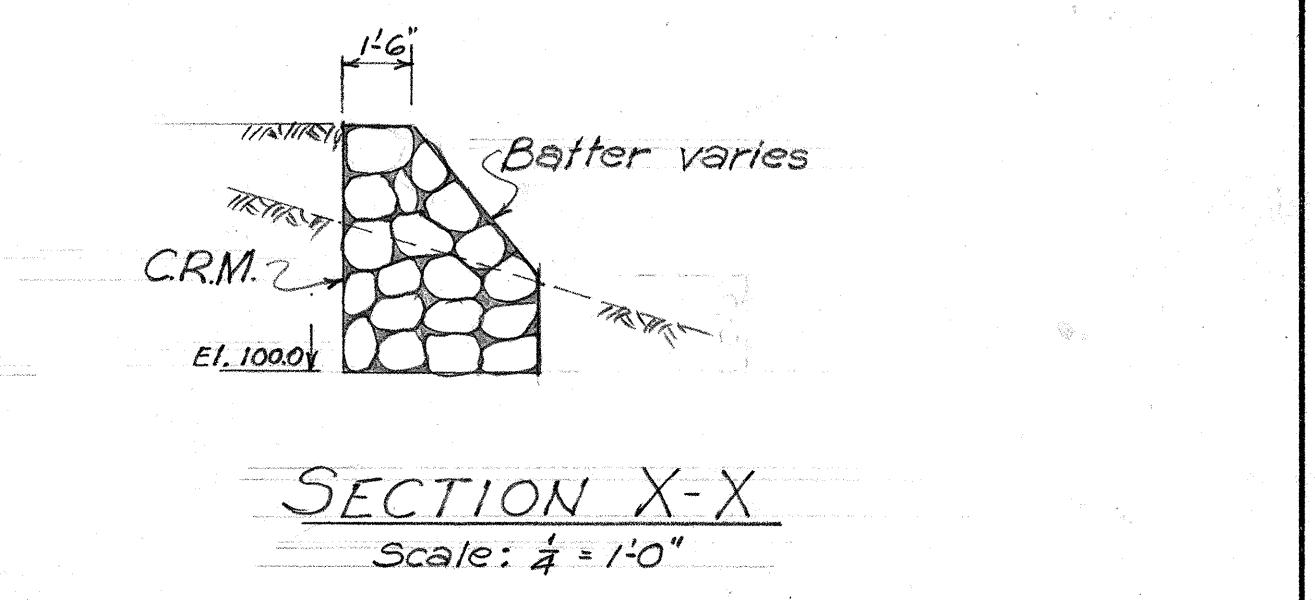
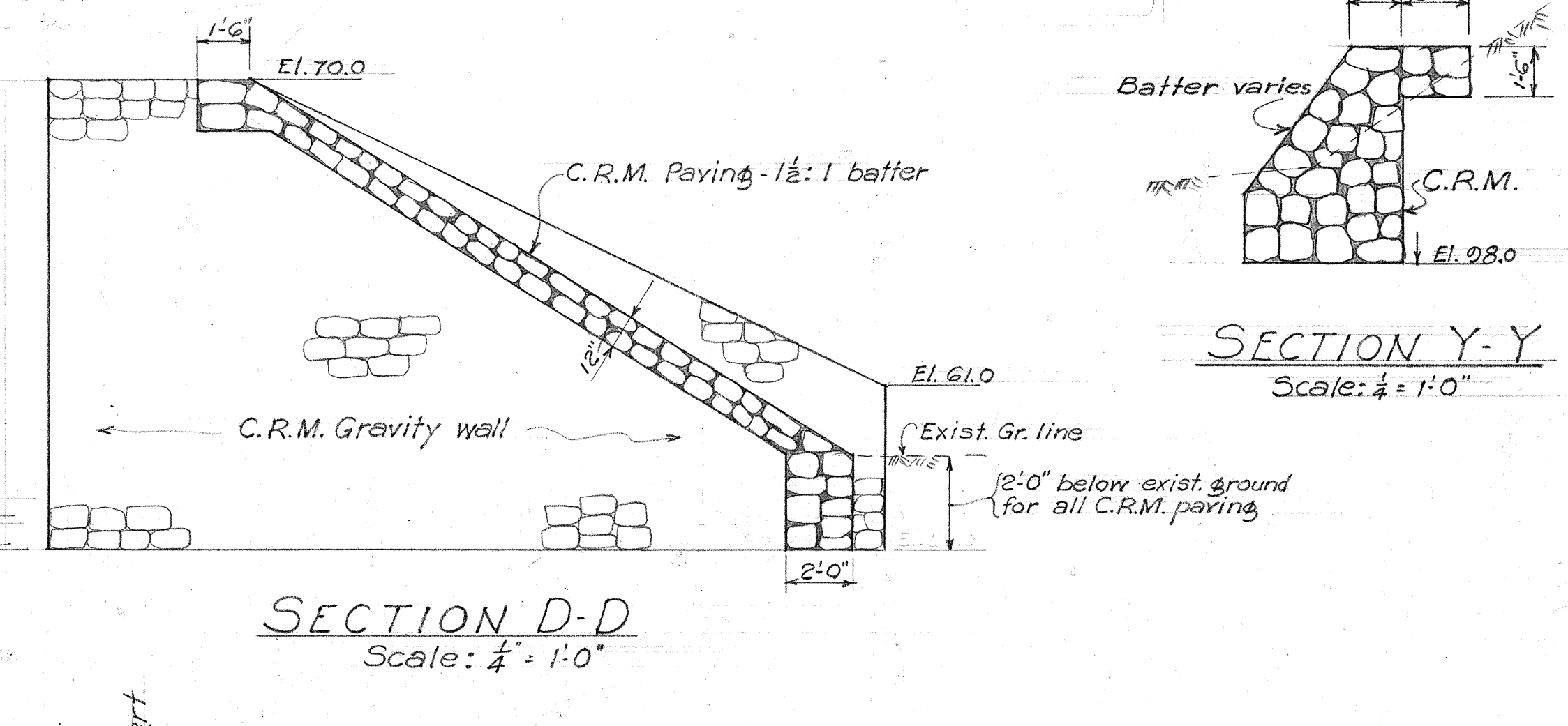
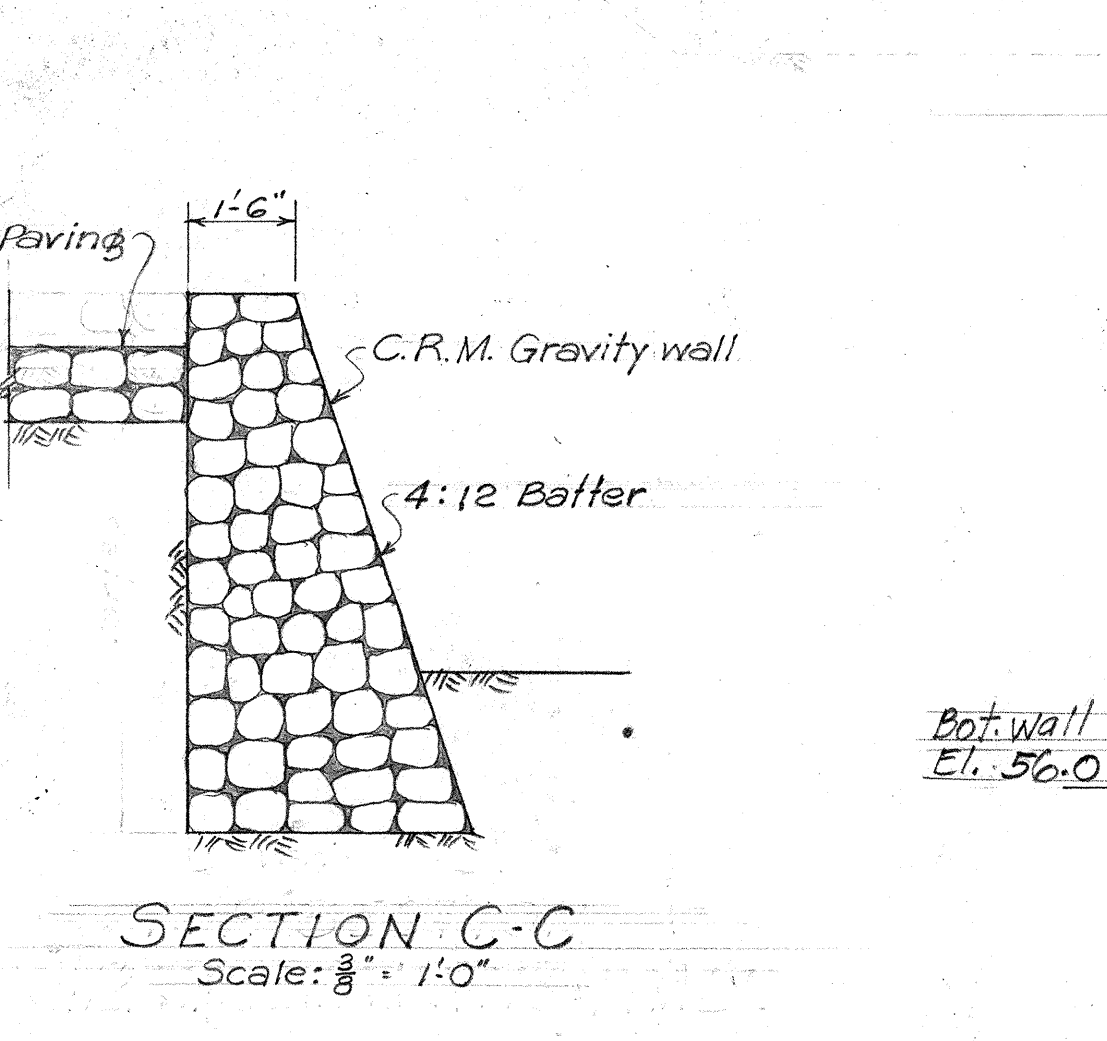
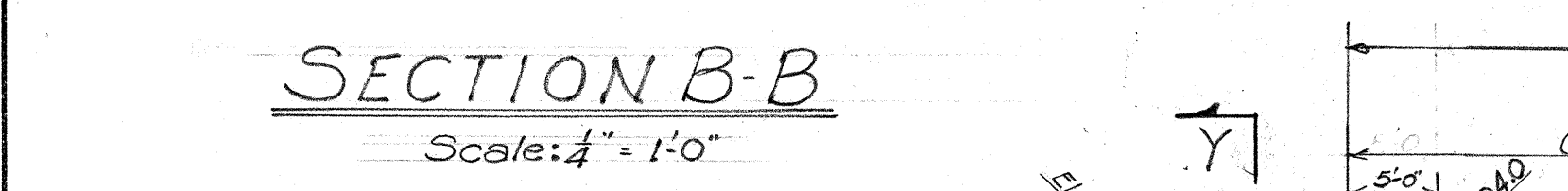
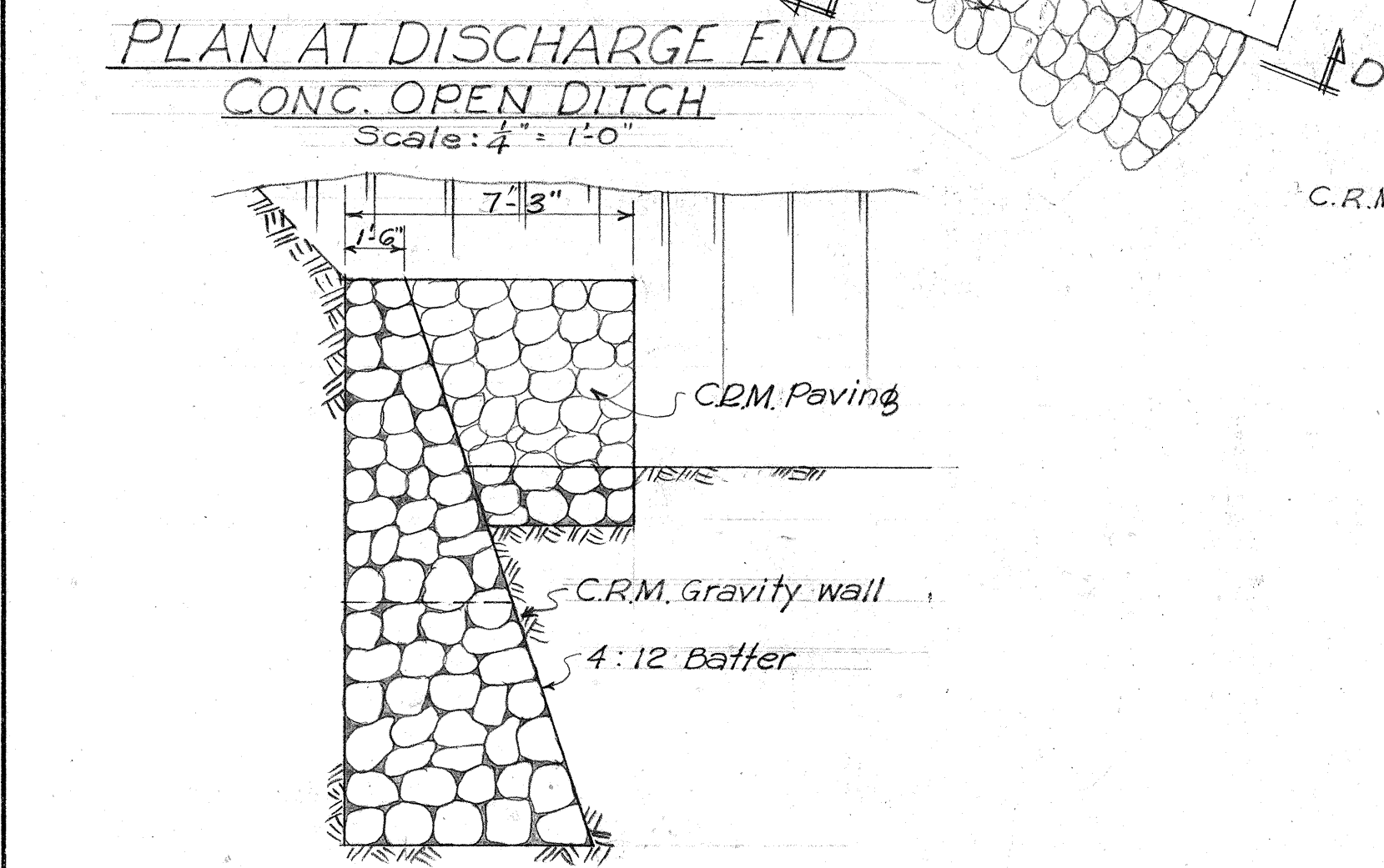
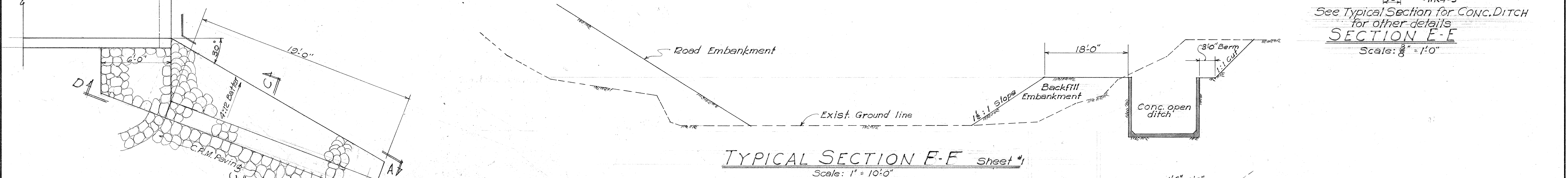
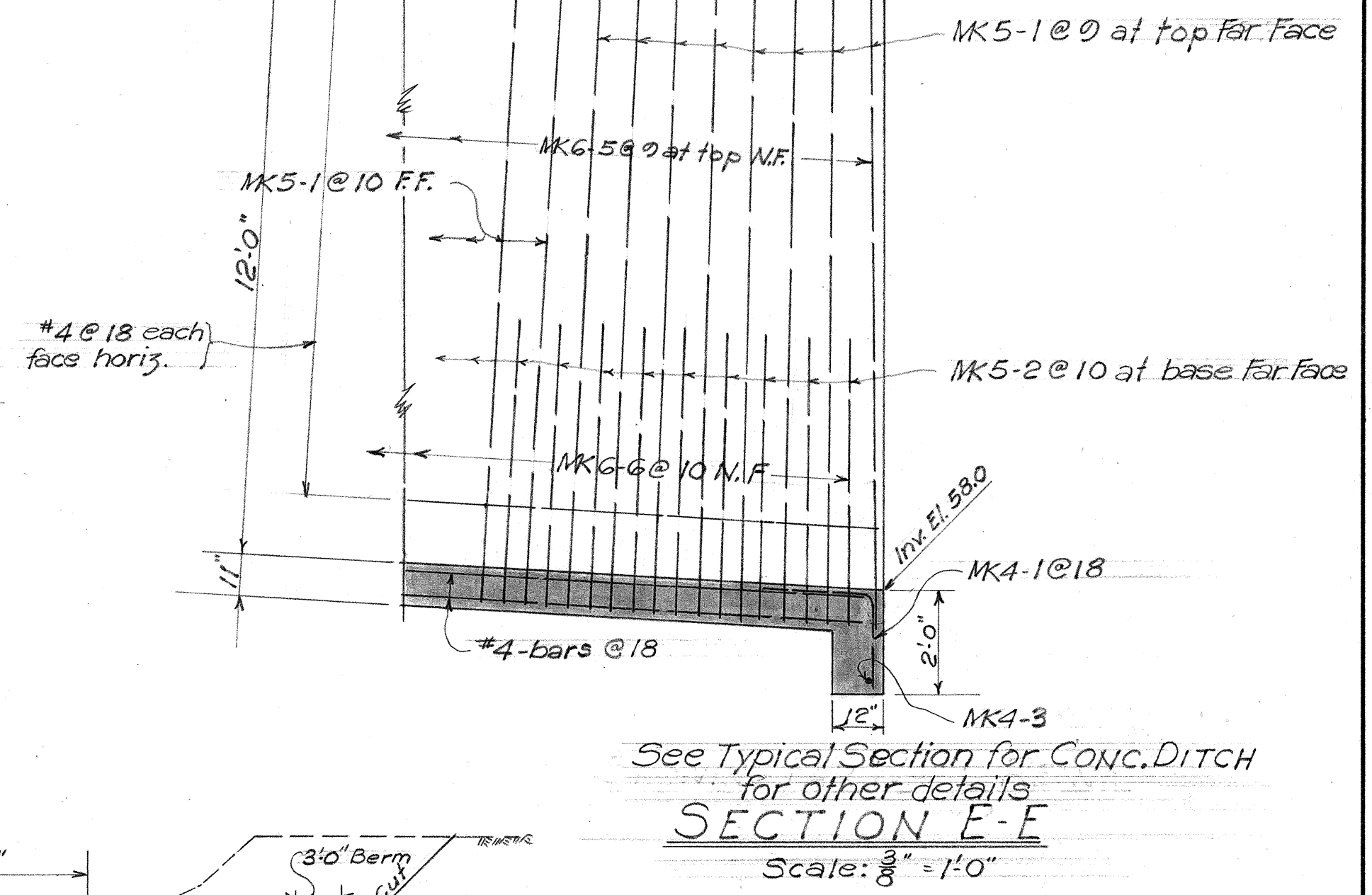
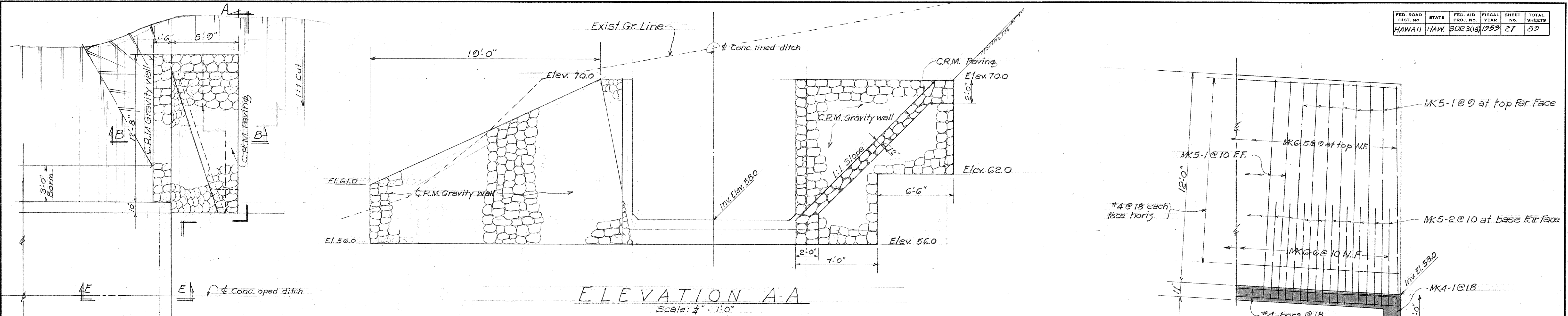
MARK	TYPE	a	b	c	d	e	f	g	TOTAL LENGTH
MK 10-2	B	2'6"	0 1/2"	0 1/2"	3'5"	4'5 1/2"	2'5"	1'2"	28'4 1/2"
MK 10-4	B	2'6"	do	0 1/2"	3'2"	4'0 1/2"	2'3"	1'0"	27'6 1/2"
MK 10-6	B	2'0"	do	0 1/2"	2'11 1/2"	4'10 1/2"	2'1"	1'0"	25'11 1/2"
MK 9-1	A	4'1 1/2"	do	1'11"	2'5 1/2"	4'1 1/2"	1'0"		26'0"
MK 8-2	B	1'6"	do	8"	2'1 1/2"	5'4 1/2"	1'6"	6"	23'5 1/2"
MK 8-1	A	5'10 1/2"	do	2'6 1/2"	3'5"	3'2 1/2"	2'5"		31'8"
MK 8-3	B	2'6"	do	0 1/2"	3'1"	4'11 1/2"	2'2"	1'2"	28'2 1/2"
MK 8-5	C	3'8 1/2"	do	16'7 1/2"					25'7"
MK 8-10	B	1'6"	do	7"	2'7"	5'2 1/2"	1'10"	7"	24'0 1/2"
MK 8-11	A	5'1 1/2"	do	2'3"	2'7"	3'0 1/2"	1'10"		20'0"
MK 8-14	A	4'7 1/2"	do	1'0 1/2"	2'1 1/2"	4'4 1/2"	1'6"		27'5"
MK 8-15	B	1'0"	do	4 1/2"	1'0"	5'0 1/2"	1'3"	3"	21'6 1/2"
MK 8-17	C	3'4 1/2"	do	15'11 1/2"					24'3"
MK 8-20	C	3'1 1/2"	do	16'3 1/2"					25'1"
MK 7-1	A	5'1 1/2"	do	2'6 1/2"	3'2"	3'3 1/2"	2'3"		20'10"
MK 7-3	B	2'6"	do	8 1/2"	2'10"	5'0 1/2"	2'0"	1'0"	27'4 1/2"
MK 7-4	B	2'0"	do	8 1/2"	2'7"	5'1 1/2"	1'10"	10"	25'9 1/2"
MK 7-5	A	5'1 1/2"	do	2'2 1/2"	2'11 1/2"	3'7 1/2"	2'1"		20'5"
MK 7-7	A	3'10 1/2"	do	2'3"	1'0"	4'1 1/2"	1'3"		25'6"
MK 7-7a	A	3'10 1/2"	do	2'7 1/2" Av.	1'0"	4'0 1/2" Av.	1'3"		27'6 1/2" Av.
MK 7-9	B	1'0"	do	7"	1'5"	5'0 1/2"	1'0"	0'0"	20'8 1/2"
MK 7-9a	B	1'0"	do	1'0" Av.	1'5"	6'4 1/2" Av.	1'0"	0'0"	22'0" Av.
MK 7-10	A	3'7 1/2"	do	2'1 1/2"	1'2"	4'5 1/2"	1'0"		24'4"
MK 6-1	C	3'4 1/2"	do	15'5 1/2"					23'0"
MK 6-1a	C	3'4 1/2"	do	14'0 1/2"					23'1"
MK 6-2	C	3'1 1/2"	do	14'5 1/2"					22'1"
MK 6-3	C	3'7 1/2"	do	13'0 1/2"					22'7"
MK 6-3a	C	4'0" Av.	do	14'0 1/2" Av.					25'10 1/2" Av.
MK 6-4	C	3'10 1/2"	do	12'11 1/2"					22'3"
MK 6-5	D	12'0 1/2"	do	2'10"					14'0 1/2"
MK 6-5a	D	13'0 1/2" Av.	do	2'10"					15'0 1/2" Av.
MK 6-6	D	4'11"	do	2'10"					7'8 1/2"
MK 6-6a	D	5'11" Av.	do	2'10"					8'8 1/2" Av.
MK 6-7	D	2'0"	do	2'6"					5'3 1/2"
MK 6-8	D	2'0"	do	5'3"					8'0 1/2"
MK 6-9	C	4'0"	do	13'10 1/2"					23'5 1/2"
MK 6-10	C	4'0 1/2"	do	16'3 1/2"					27'6"
MK 6-11	D	13'1 1/2" Av.	do	5'0"					18'10 1/2" Av.
MK 6-12	D	6'0" Av.	do	2'6"					9'3 1/2" Av.
MK 5-1	D	12'1 1/2"	do	5'0"					17'10 1/2"
MK 5-2	D	5'0"	do	2'6"					8'3 1/2"



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
14'0"x12'0" CONC. BOX CULVERT
STA. 119+50
HAWAII BELT ROAD SDR 3(18)
5 SEPTEMBER 1953
SHEET No. 4 OF 5 SHEETS

DATE: Sept. 1953
DRAWN BY: F. Ching
CHECKED BY: J. Okamoto
NOTE: SEE SHEET 3 FOR DETAILS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	SDR 3(18)	1953	27	32



TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

14'-0"x12'-0" CONC. BOX CULVERT
STA. 119+50
HAWAII BELT ROAD SDR 3(18)

SEPTEMBER 1953
SHEET No. 5 OF 5 SHEETS

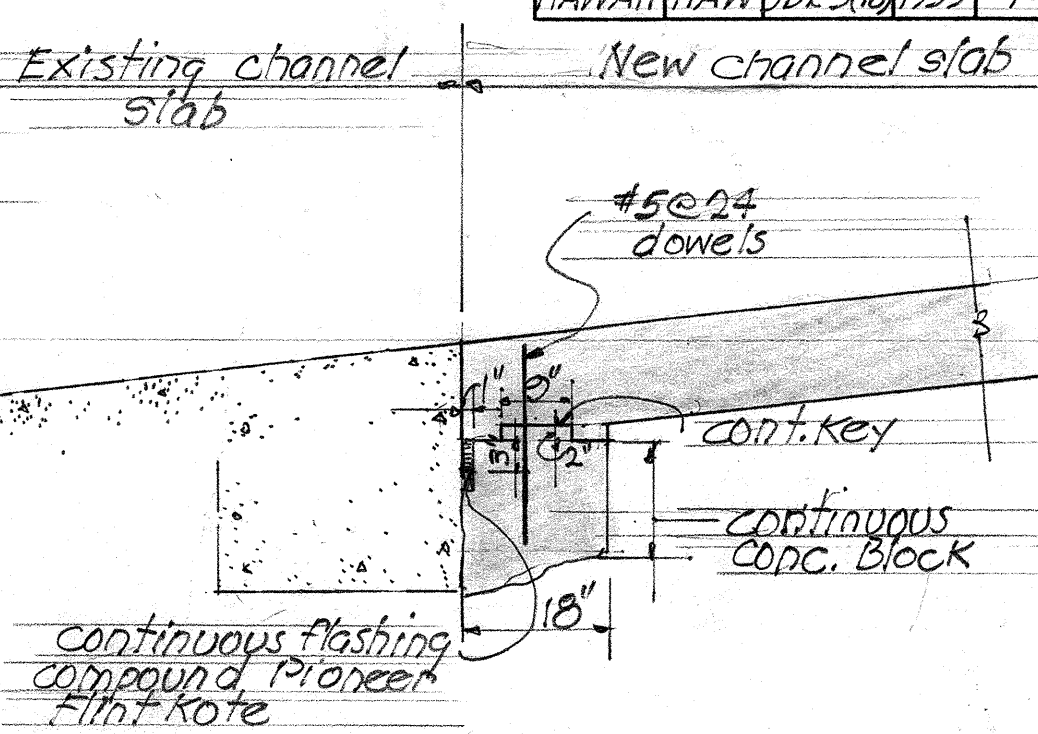
5624.27

DESIGNED BY: *W. E. Bartels*
DRAWN BY: *G. A. Kaki*
CHECKED BY: *J. Okamoto*
DATE: *Sept 1953*

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAWAII	DP-316	1955	1	1

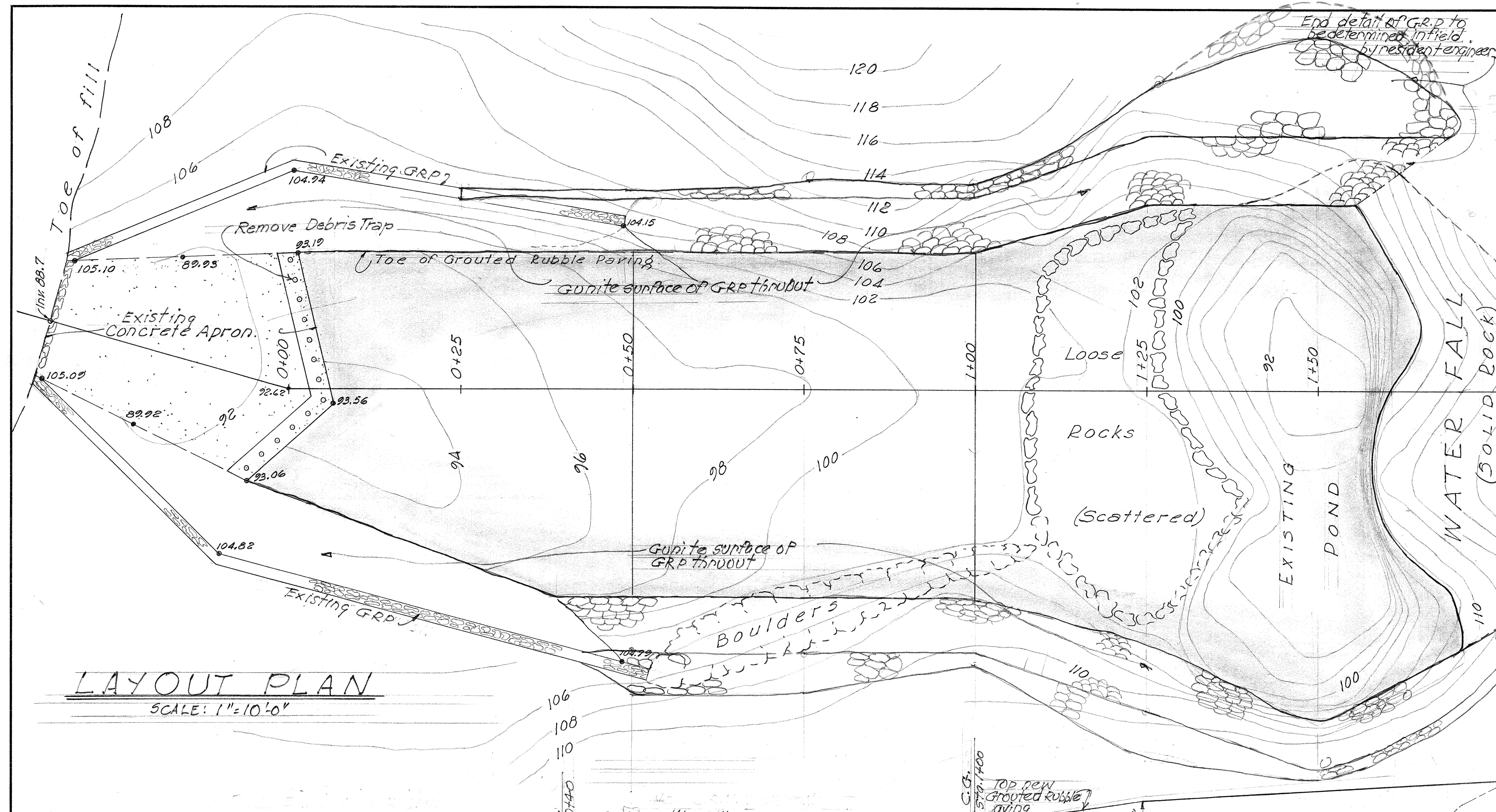
ESTIMATED QUANTITIES

CLASS A-1 CONCRETE	450 c.y.
REINF. STEEL	20,000 lbs.
GROUTED RUBBLE PAVING	170 c.y.
ROCK FILL	300 c.y.
GUNITES	5,000 sq.ft.
COPPER WATERSTOP	100 lin.ft.
2x2 #14 #14 WIRE MESH (Galv.)	5,000 sq.ft.

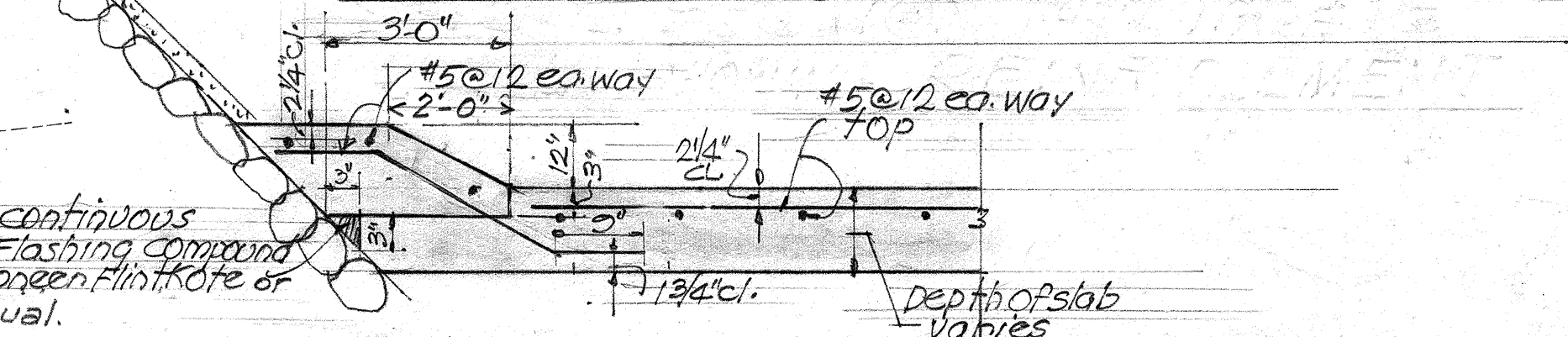


LAYOUT PLAN

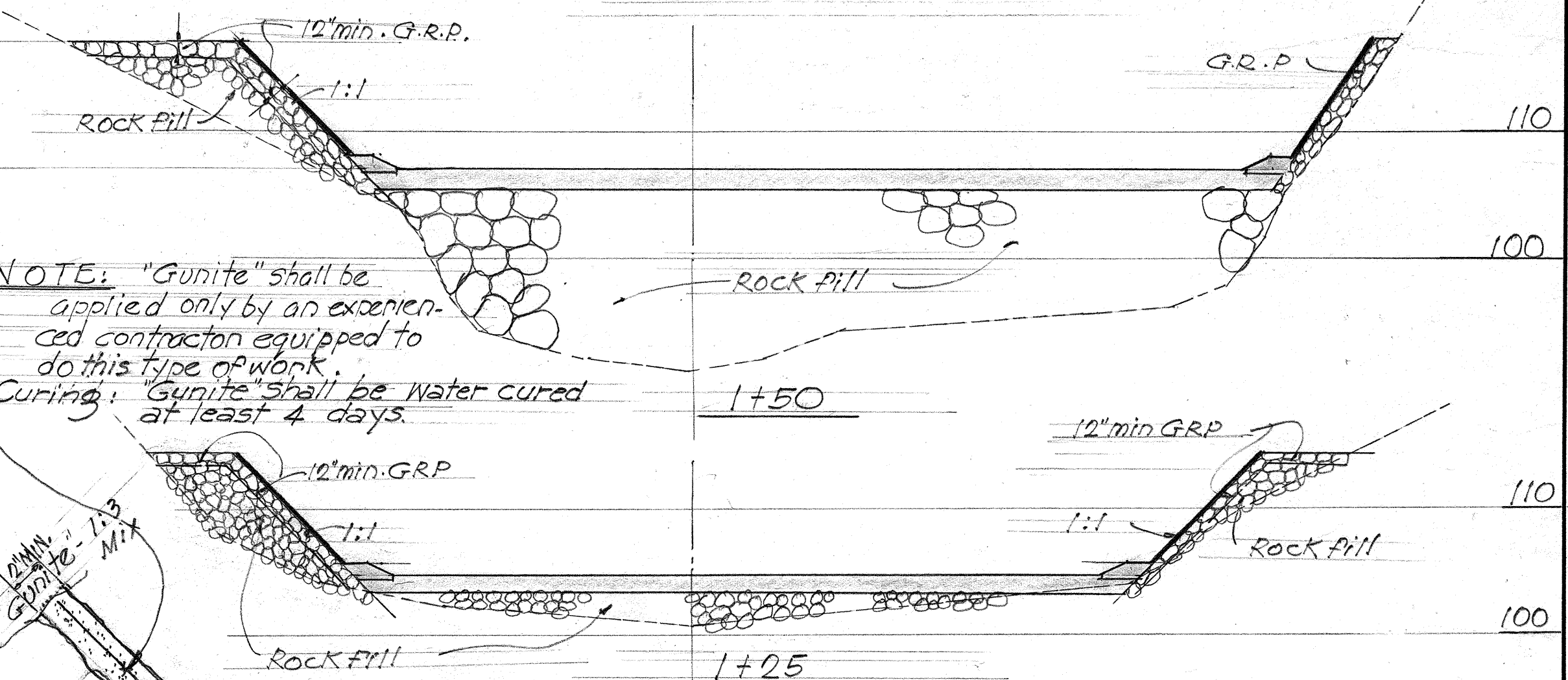
SCALE: 1"=10'-0"



TYPICAL EXPANSION JOINT DETAIL



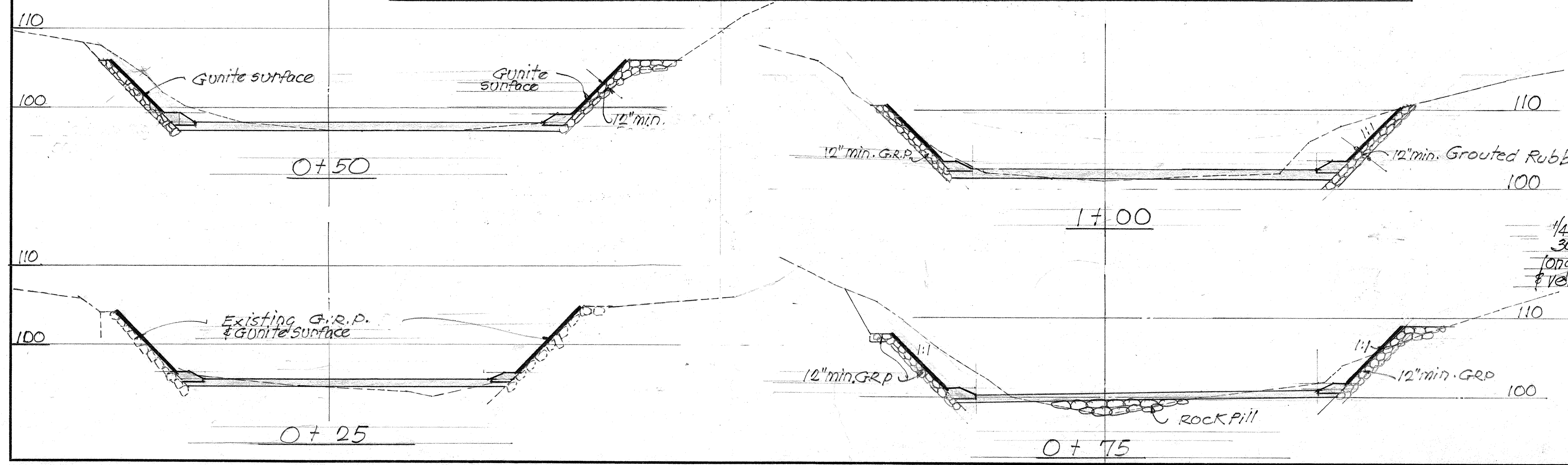
TYPICAL SECTION THRU INTAKE CHANNEL SHOWING REINFORCEMENT



NOTE: "Gunite" shall be applied only by an experienced contractor equipped to do this type of work. Curing: "Gunite" shall be water cured at least 4 days.

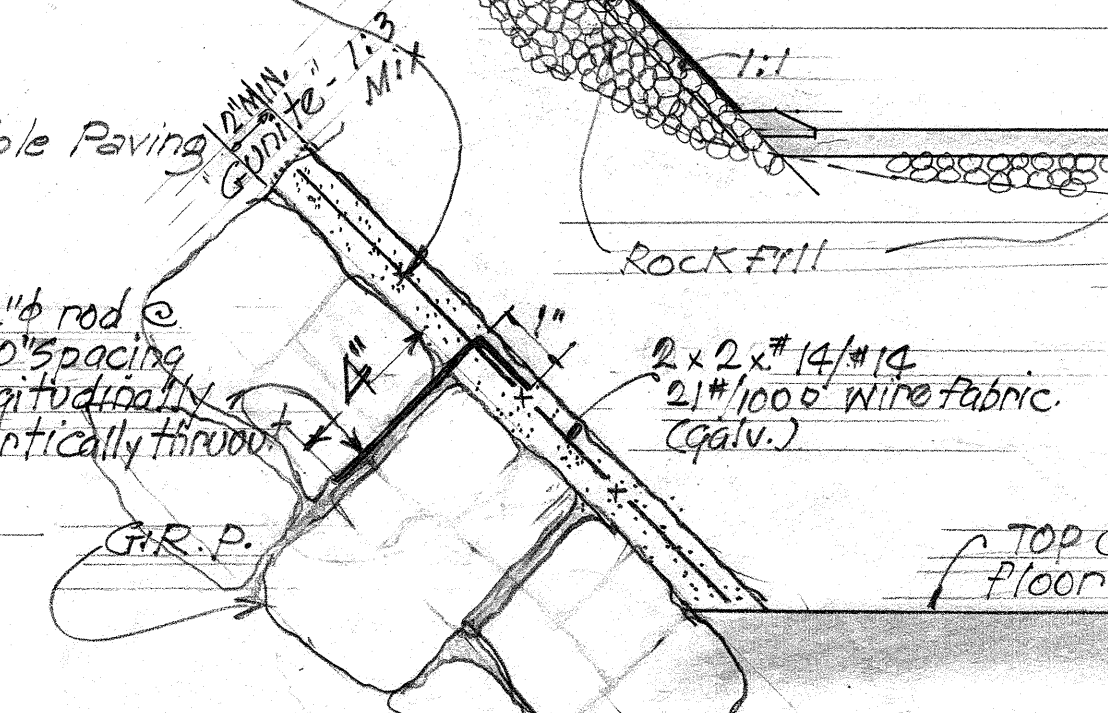
PROFILE ON BASE LINE

SCALE: 1"=10'-0"



TYPICAL GUNITES SURFACE DETAIL

SCALE: 1 1/2"=1'-0"

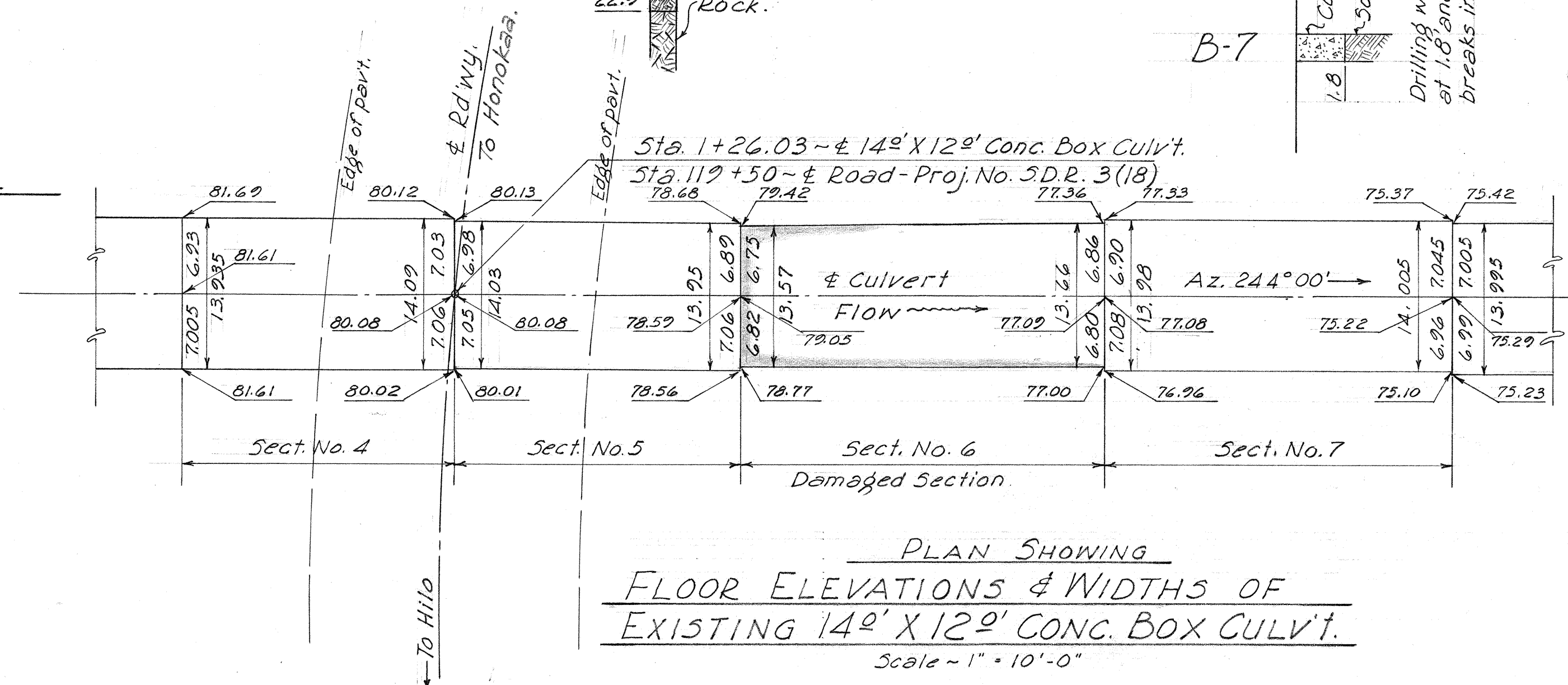
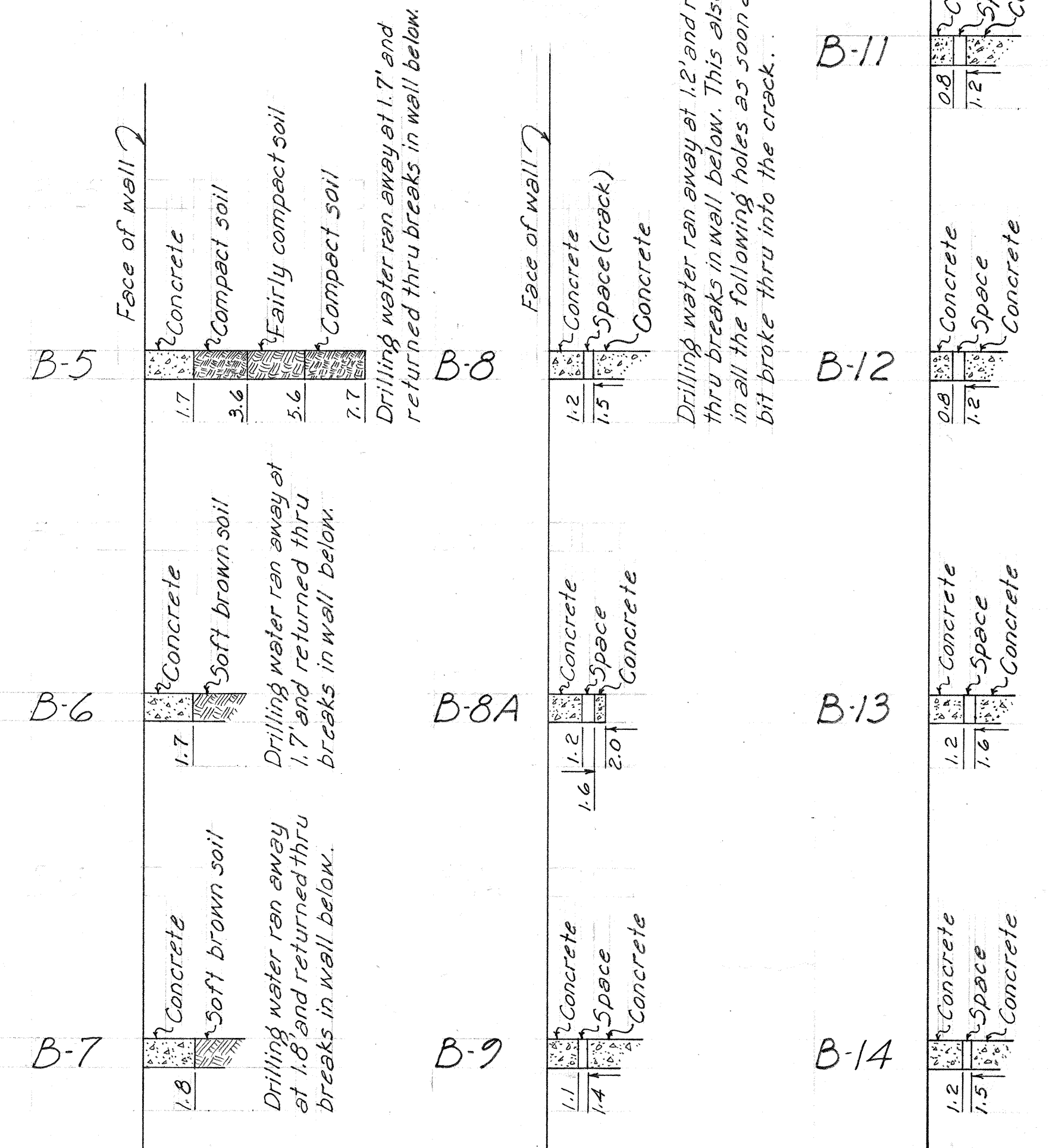
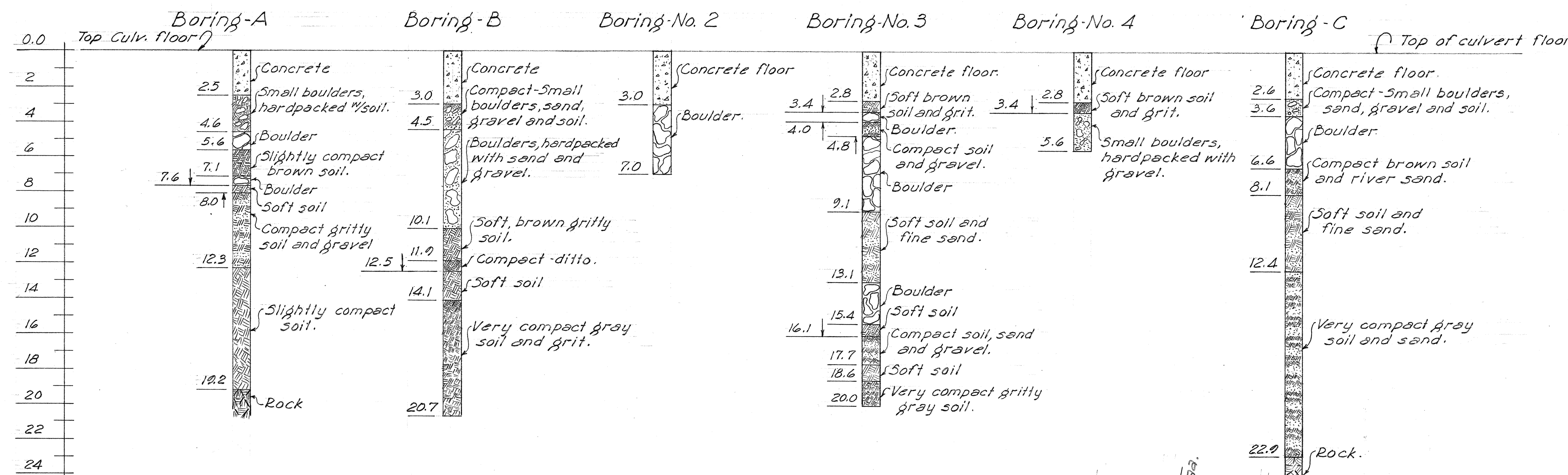
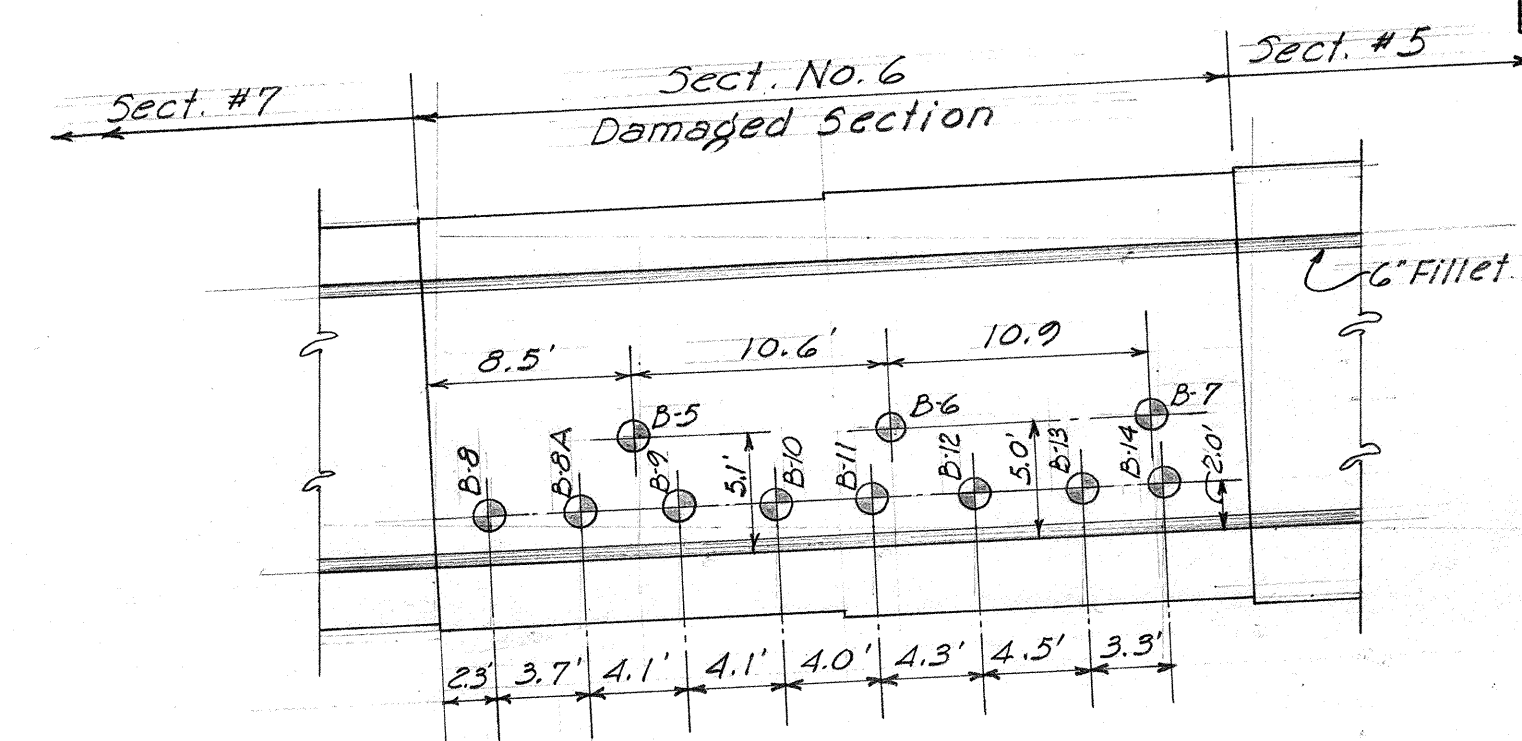
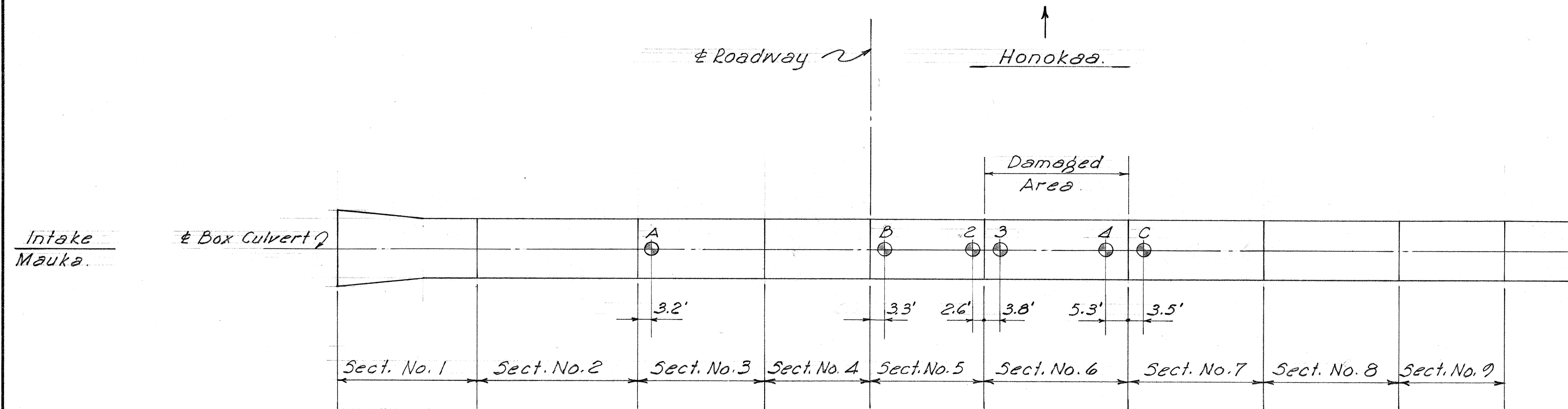


TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
INTAKE CHANNEL FOR
140 x 120 CONC. BOX CULVERT
STA. 118 +50
HAWAII BELT ROAD SDR 3(18)
JULY 1955

SHEET NO. 1 OF 1 SHEETS

5624-27 A

DATE	7-1-55
SURVEY PLOTTED BY	F. J. B.
DESIGNED BY	F. J. B.
TRACED BY	F. J. B.
QUANTITIES BY	F. J. B.
CHECKED BY	F. J. B.
NOTE BOOK	No.



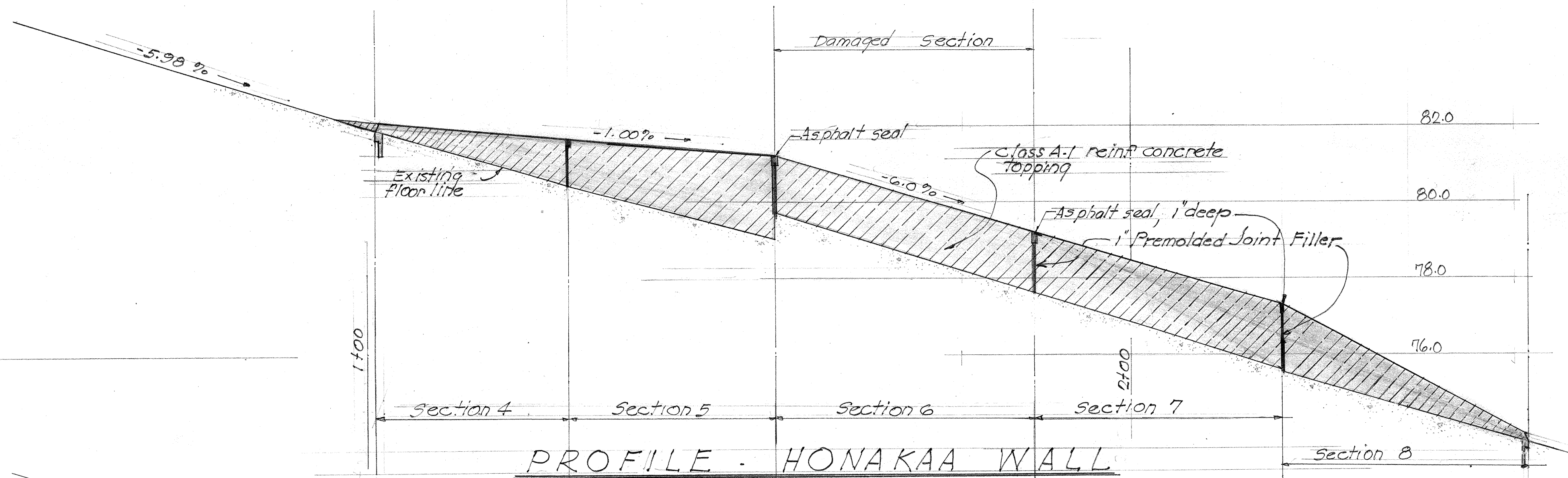
BORING DATA

Horizontal Scale - 1" = 4'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
14' x 12' CONC. BOX CULV'T.
Sta. 119 + 50
HAWAII BELT ROAD PROJ. SDR-3(18)
July 1955

DESIGNED BY: J. J. J. J.
DRAWN BY: J. J. J. J.
CHECKED BY: J. J. J. J.
DATE: July 31, 1955

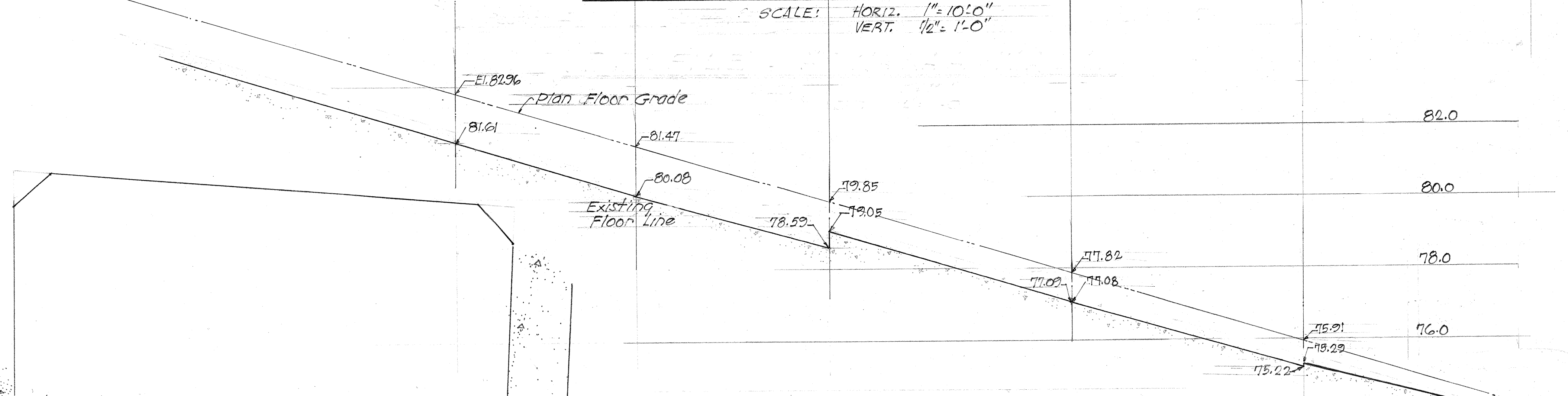
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HI	SDR 3(18)	1955	1	1



TOPPING SLAB STEEL SCHEDULE

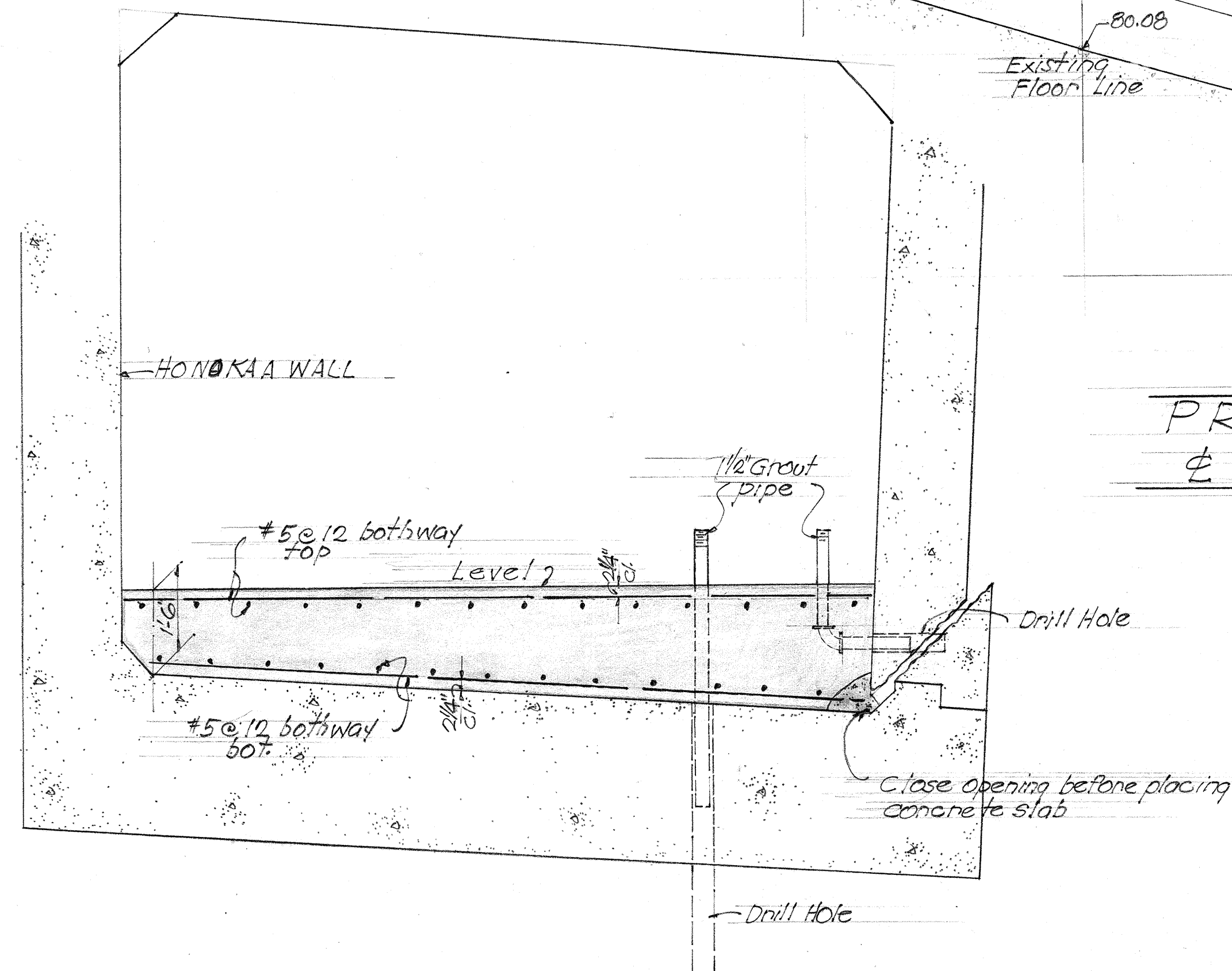
IN SECTIONS 6, 7. #5 @ 12 both ways top & bottom.

IN SECTIONS 4, 5, 8. #5 @ 12 both ways top only.



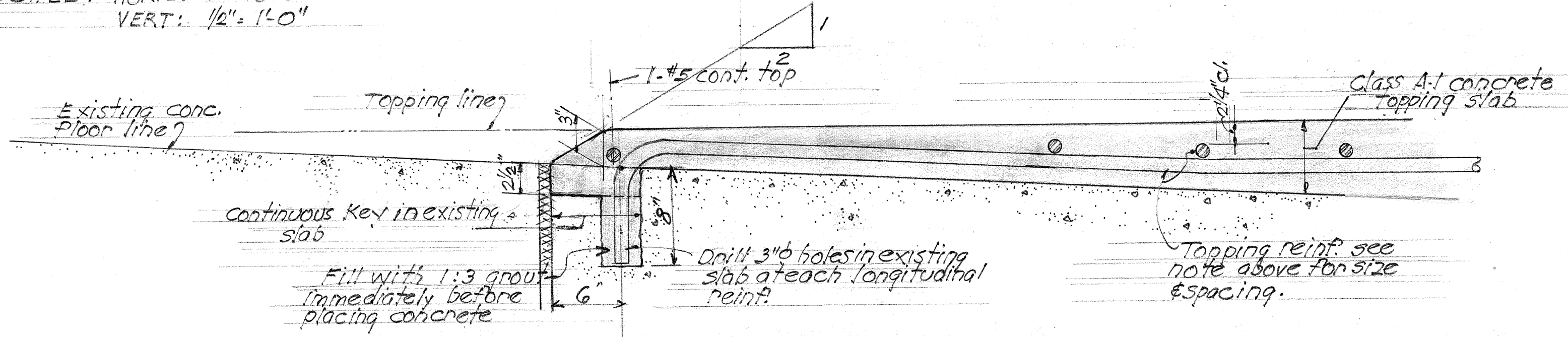
PROFILE - PLAN AND EXISTING & CULVERT FLOOR LINES

SCALE: HORIZ: 1" = 10'-0"
VERT: 1/2" = 1'-0"



TYPICAL SECTION THRU SECTION 6

SCALE: 1/2" = 1'-0"



TYPICAL DETAIL - END OF TOPPING SLAB

SCALE: 1/2" = 1'-0"

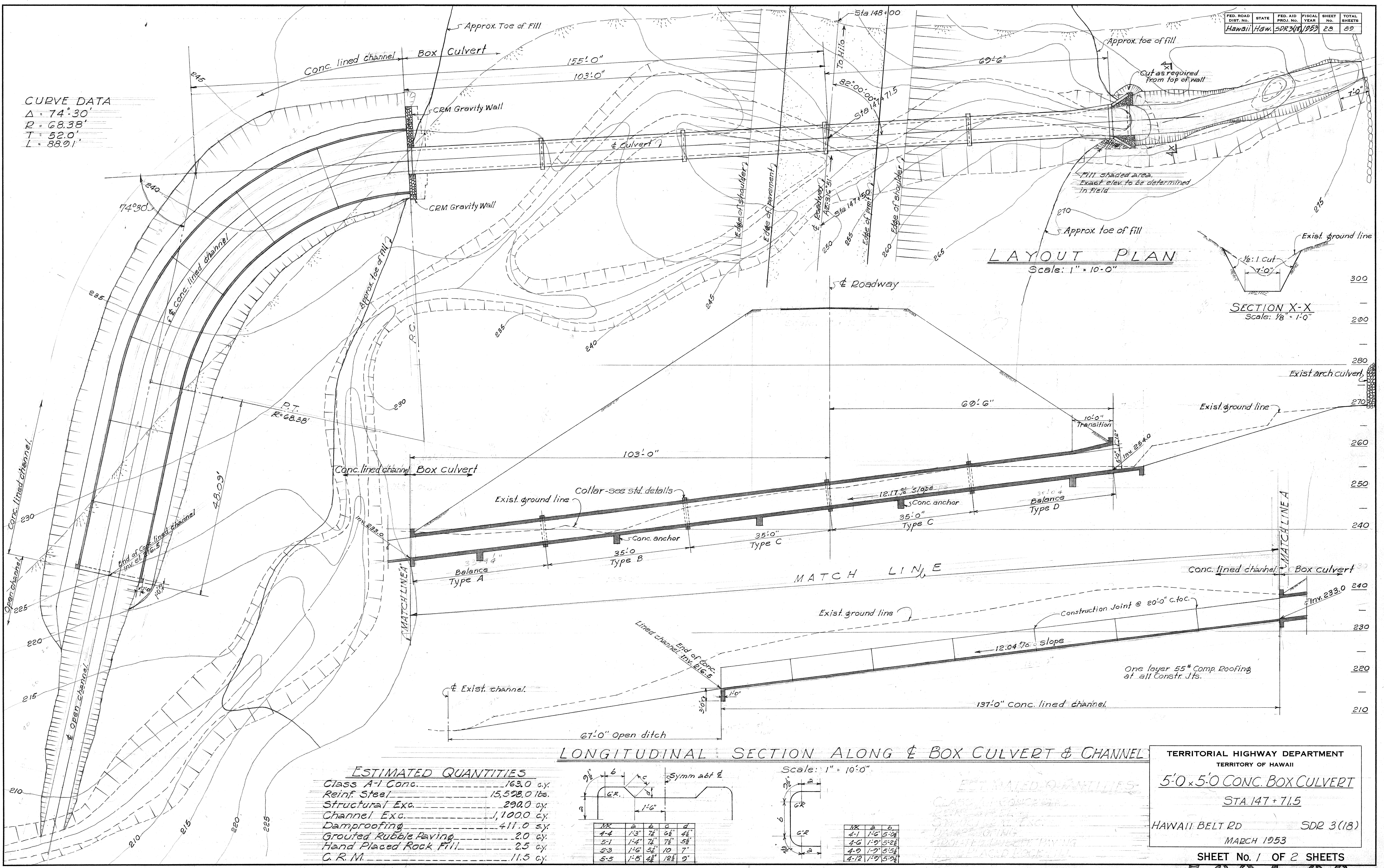
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
PROPOSED REPAIR WORK
FOR 14'x12' BOX CULVERT
HAWAII BELT ROAD SDR 3(18)
JULY 7, 1955

SHEET NO. 1 OF 1 SHEETS

5624-27 C

DATE: 7-1-55
DESIGNED BY: H. B. King
CHECKED BY: H. B. King
QUANTITIES BY: H. B. King
NOTE BOOK NO. 1

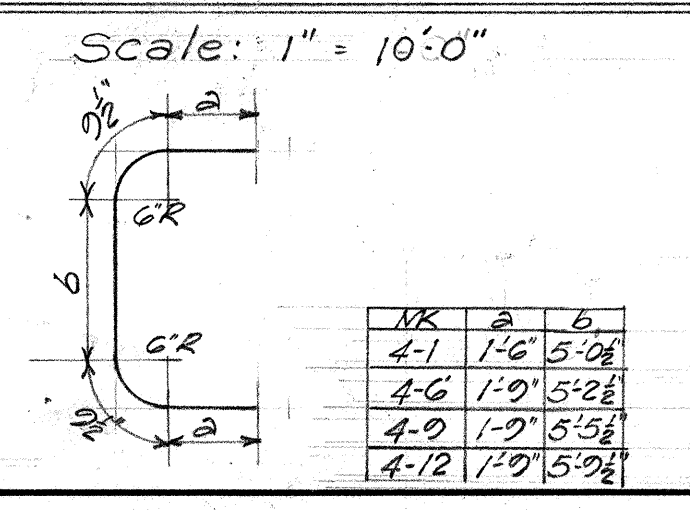
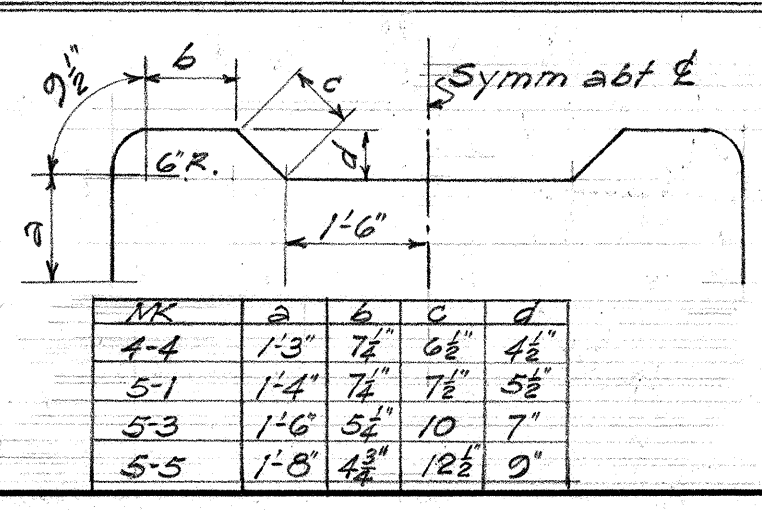
CURVE DATA
 $\Delta = 74^\circ 30'$
 $R = 68.38'$
 $T = 52.0'$
 $L = 88.91'$



SURVEY PLOTTED BY: *Barthels* DATE: *Mar 1953*
 TRACED BY: *G. A. Nakaki*
 QUANTITIES CHECKED BY: *F. Ching*
 CHECKED BY: *J. Okamoto*

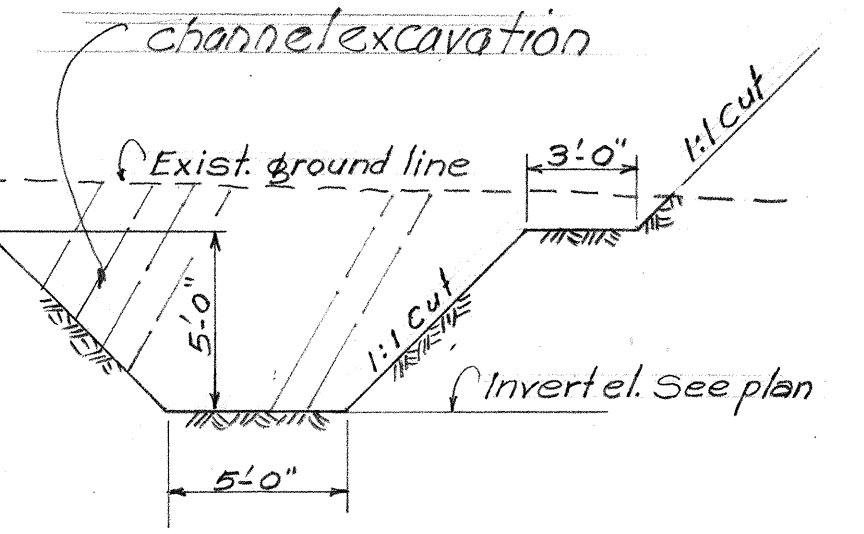
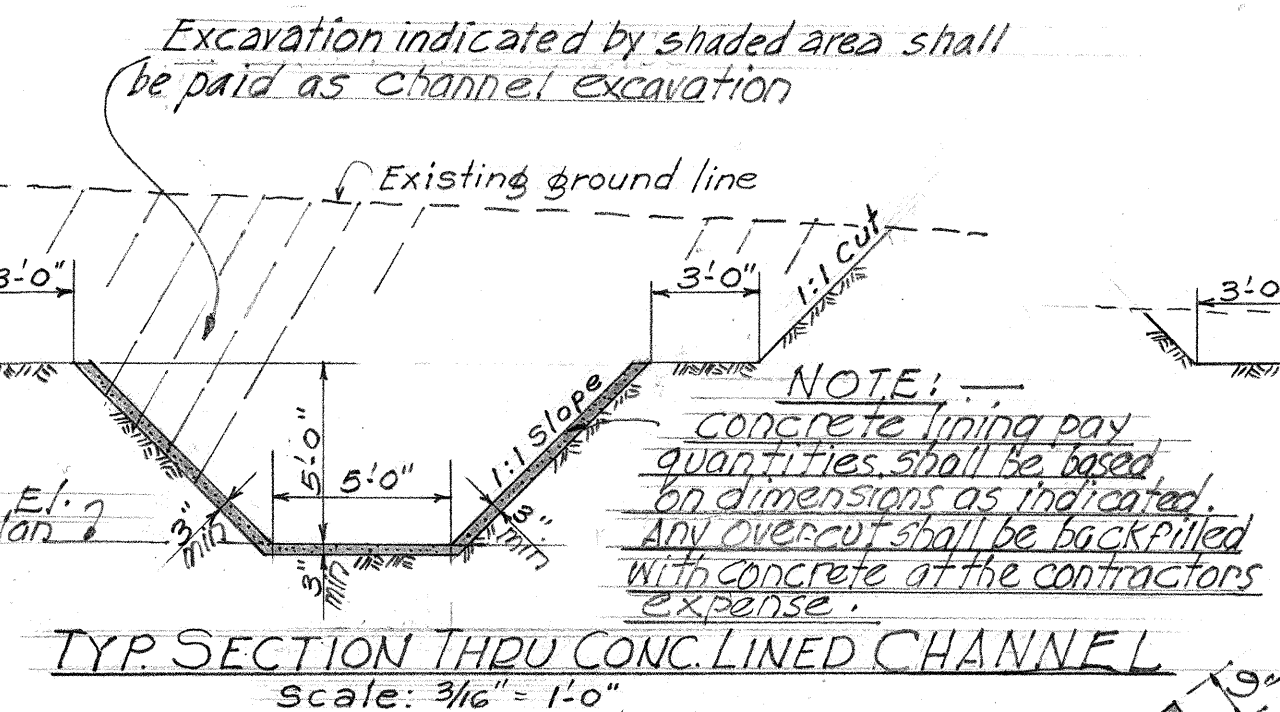
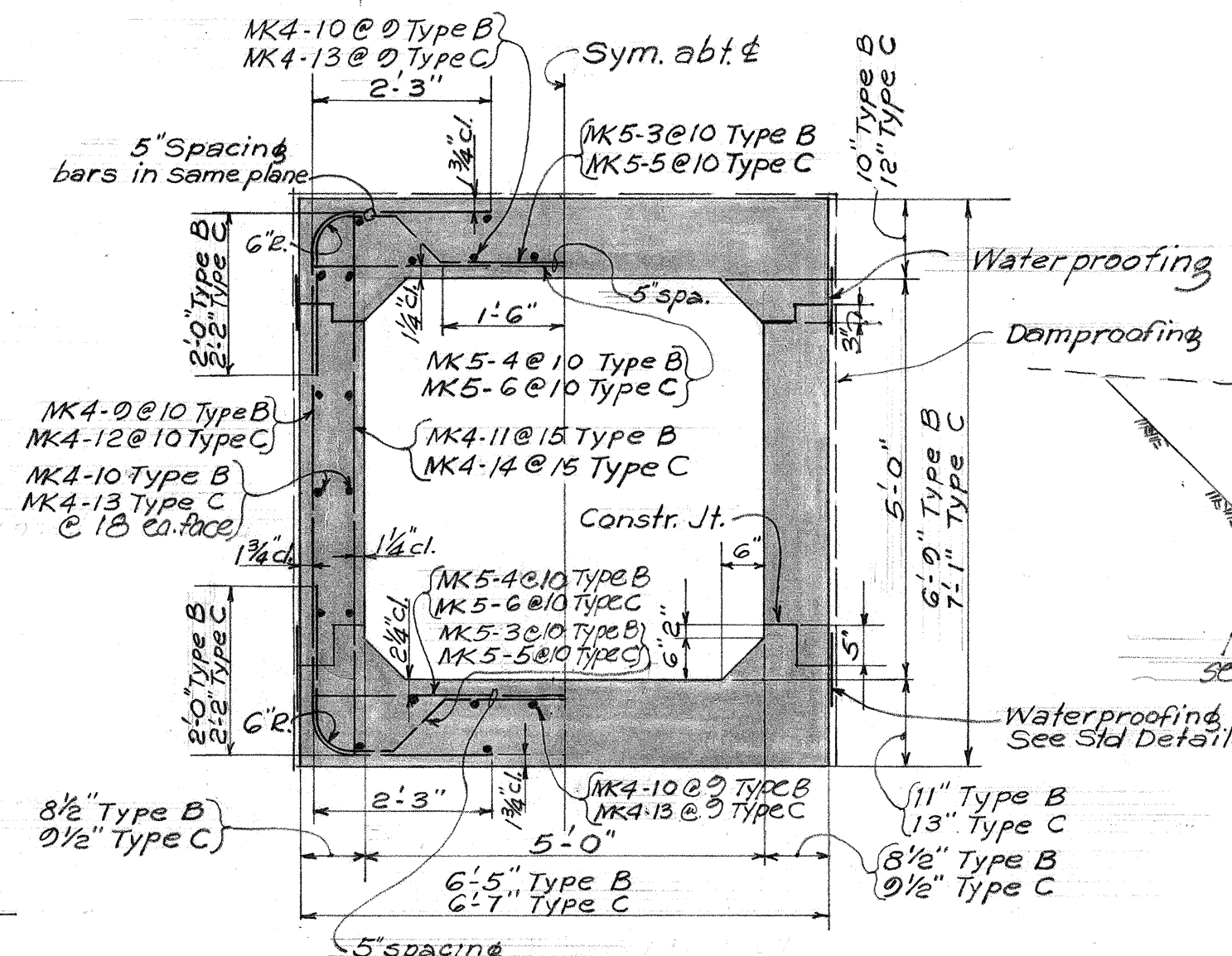
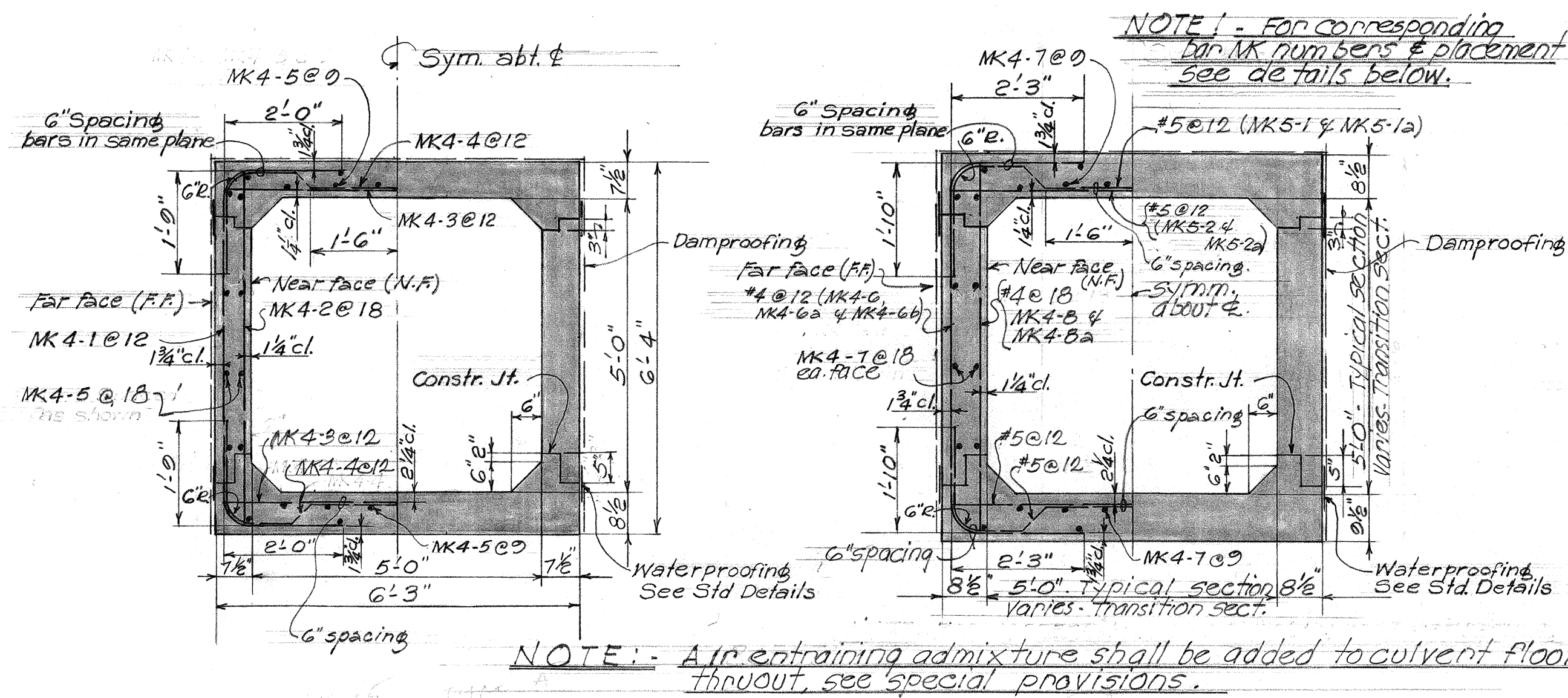
ESTIMATED QUANTITIES

Class A-1 Conc.	163.0 c.y.
Reinf. Steel	15,528.0 lbs.
Structural Exc.	290.0 c.y.
Channel Exc.	1,100.0 c.y.
Damproofing	411.0 sq.
Grouted Rubble Paving	2.0 c.y.
Hand Placed Rock Fill	2.5 c.y.
C. R. M.	11.5 c.y.



TERRITORIAL HIGHWAY DEPARTMENT
 TERRITORY OF HAWAII
5'0x5'0 CONC. BOX CULVERT
 STA. 147+71.5
 HAWAII BELT RD SDR 3(18)
 MARCH 1953
 SHEET No. 1 OF 2 SHEETS

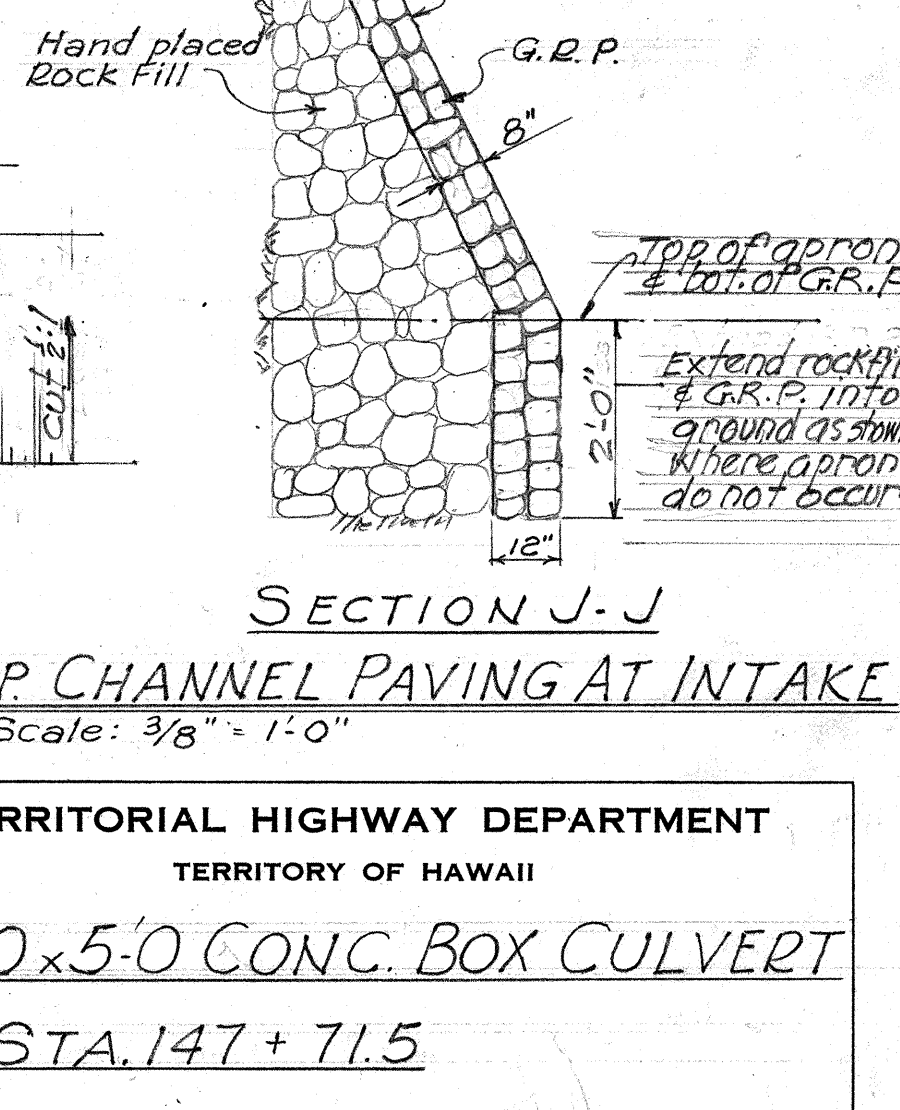
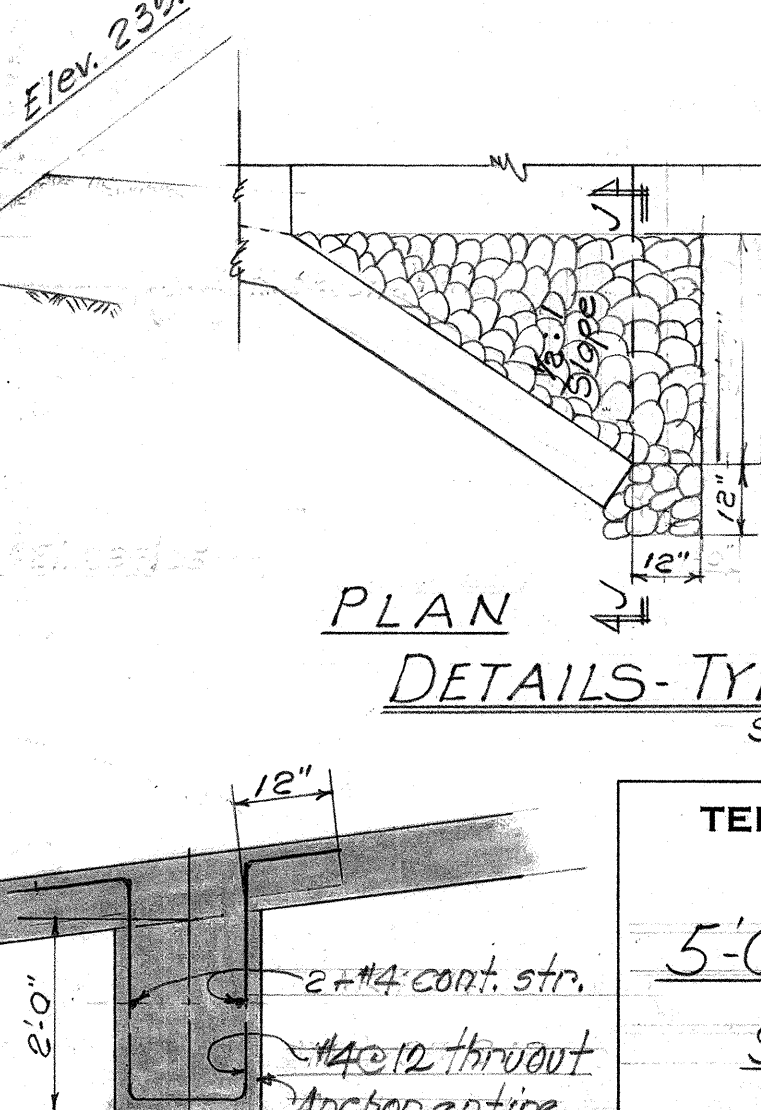
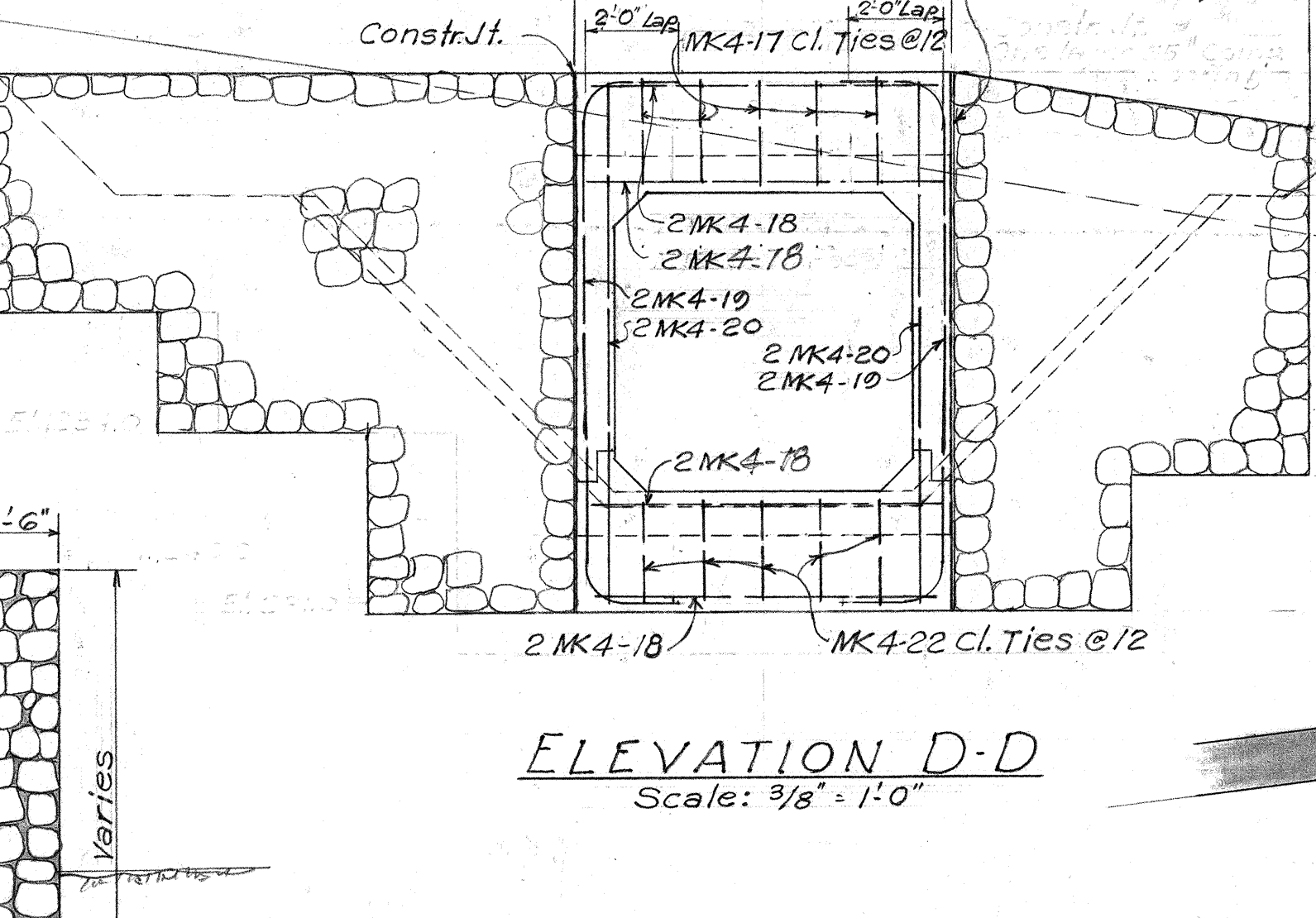
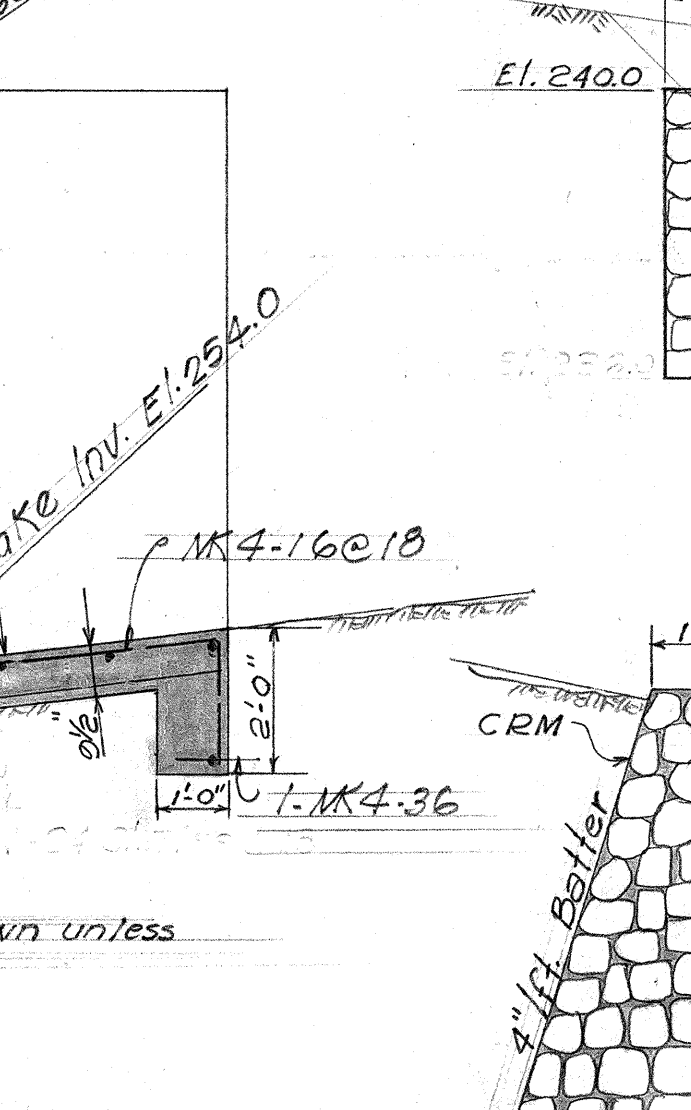
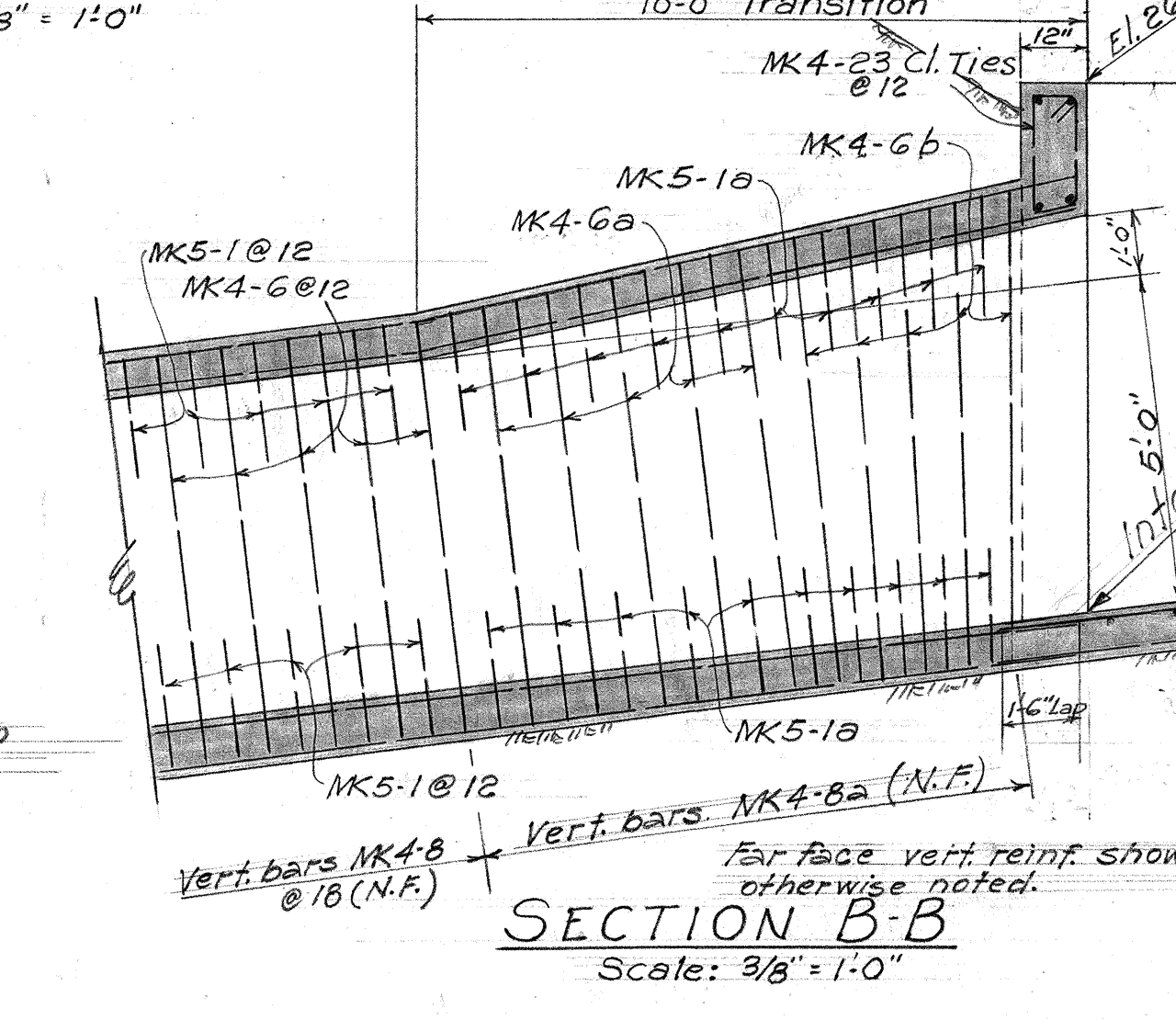
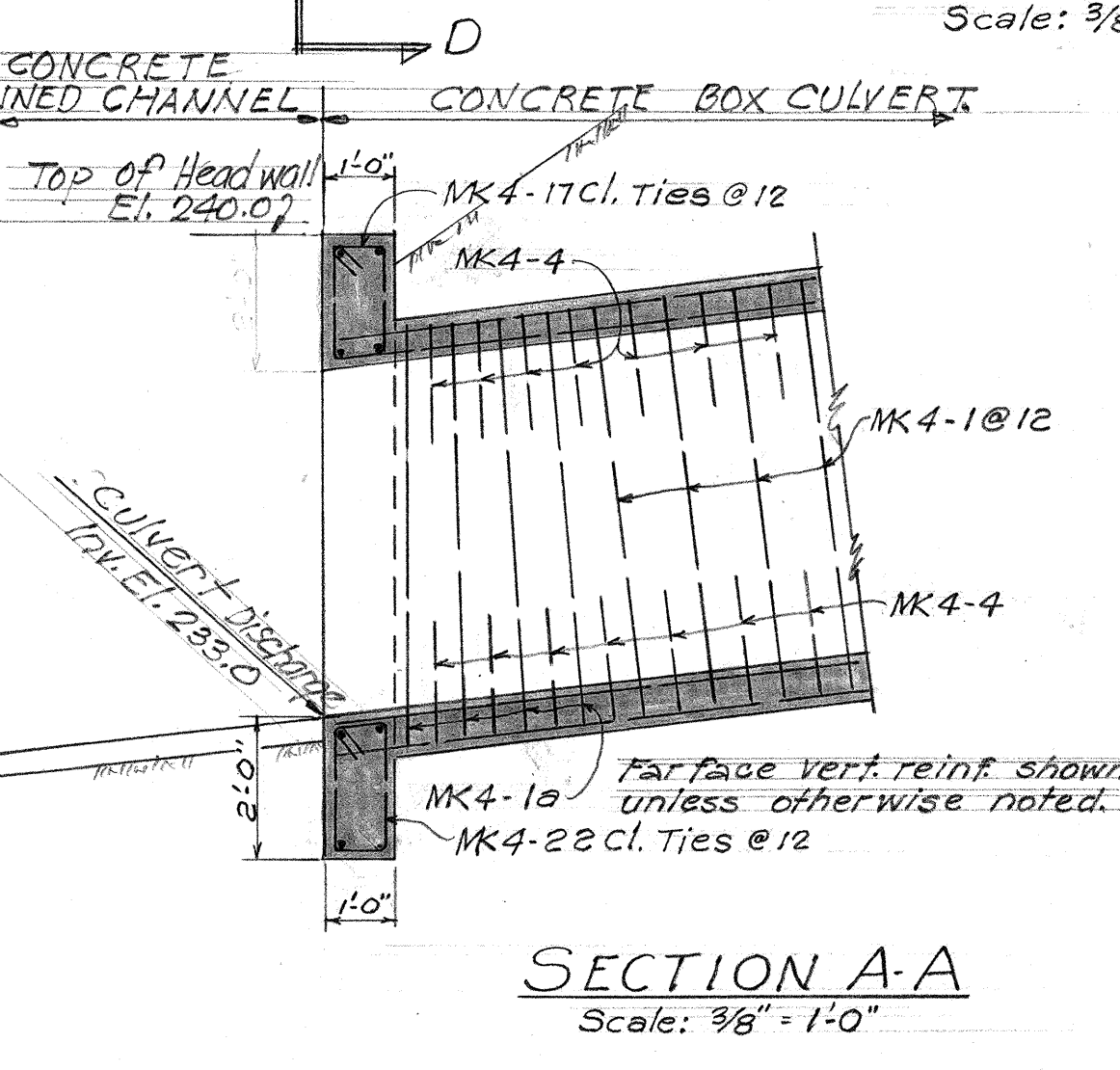
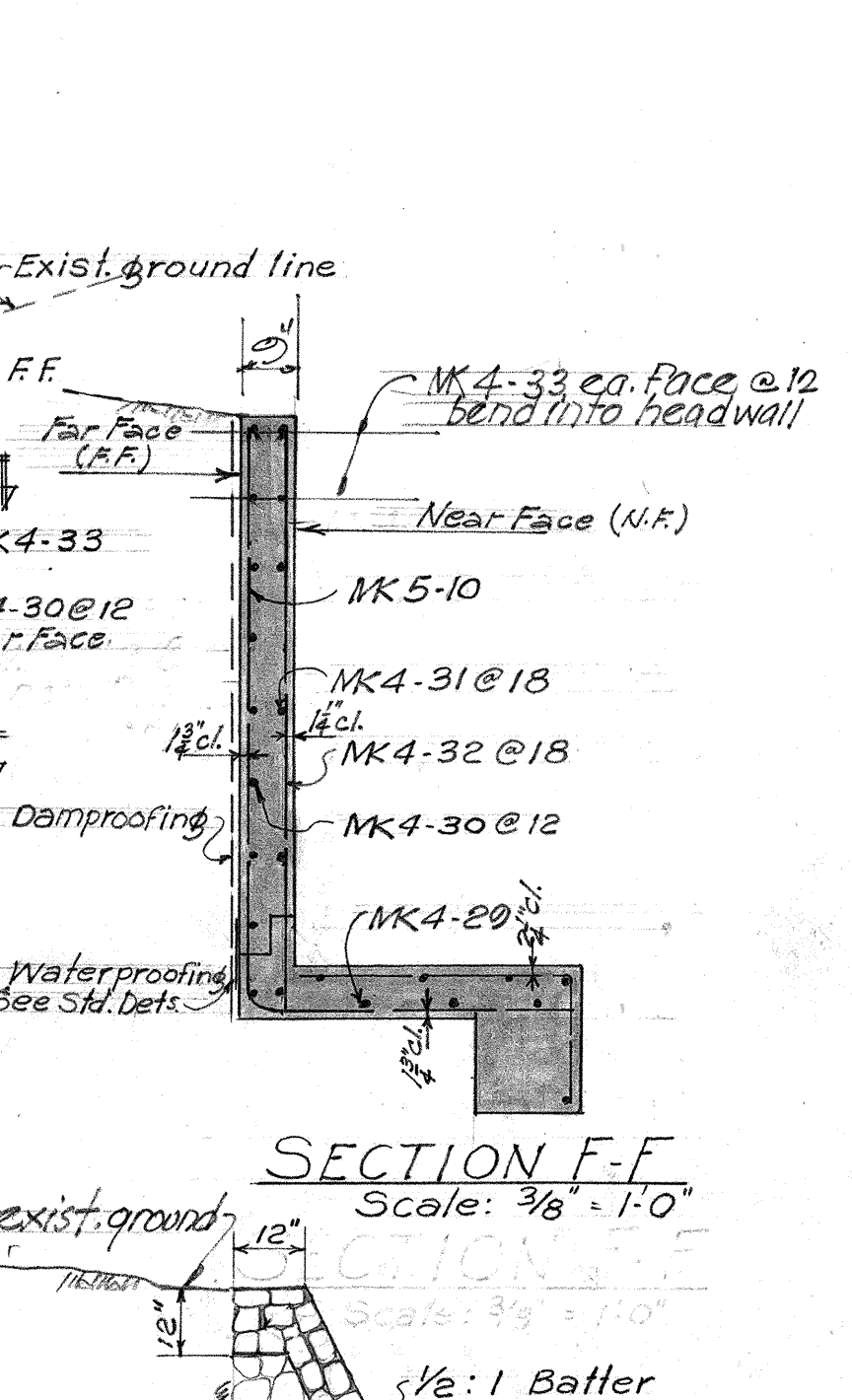
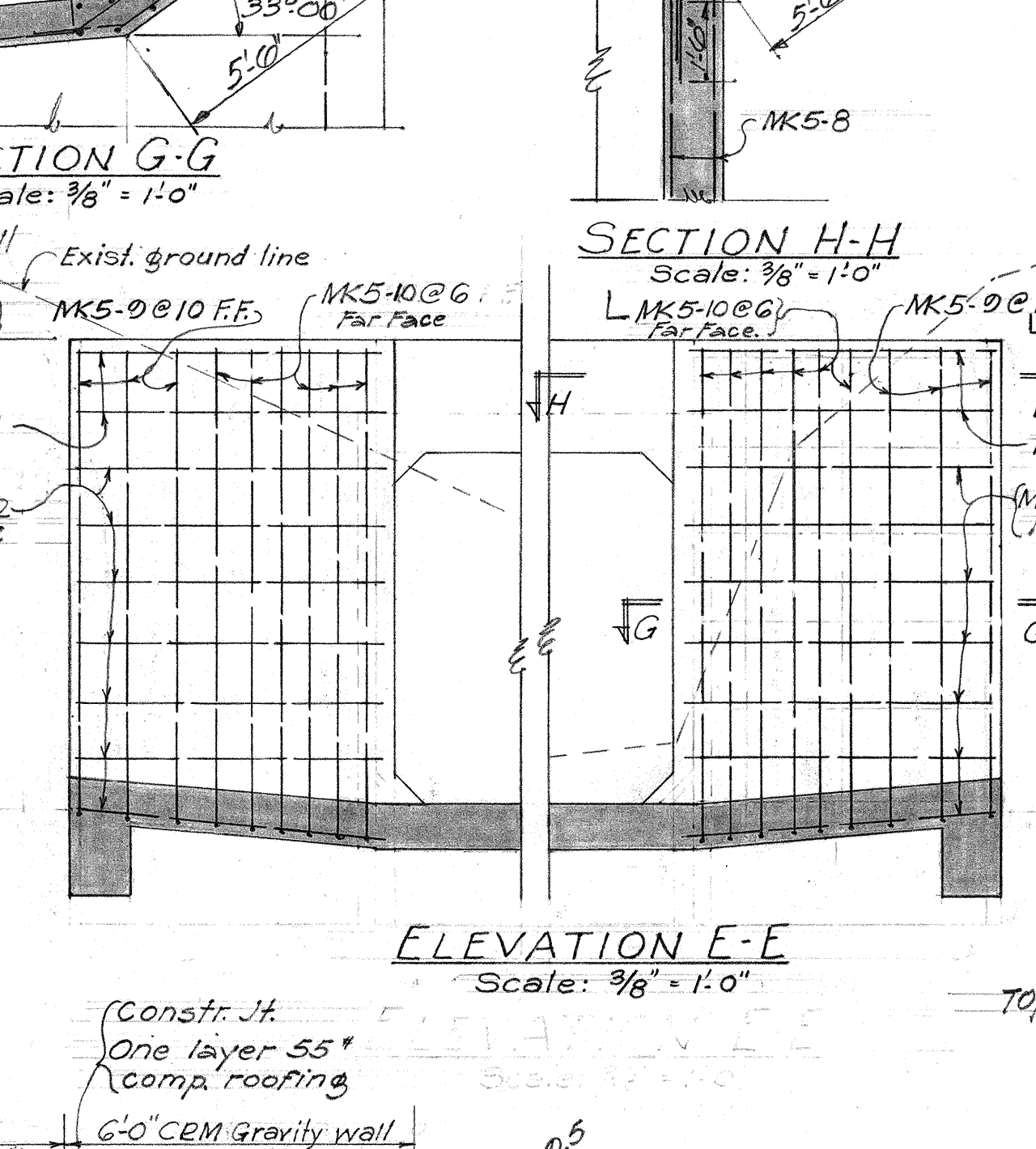
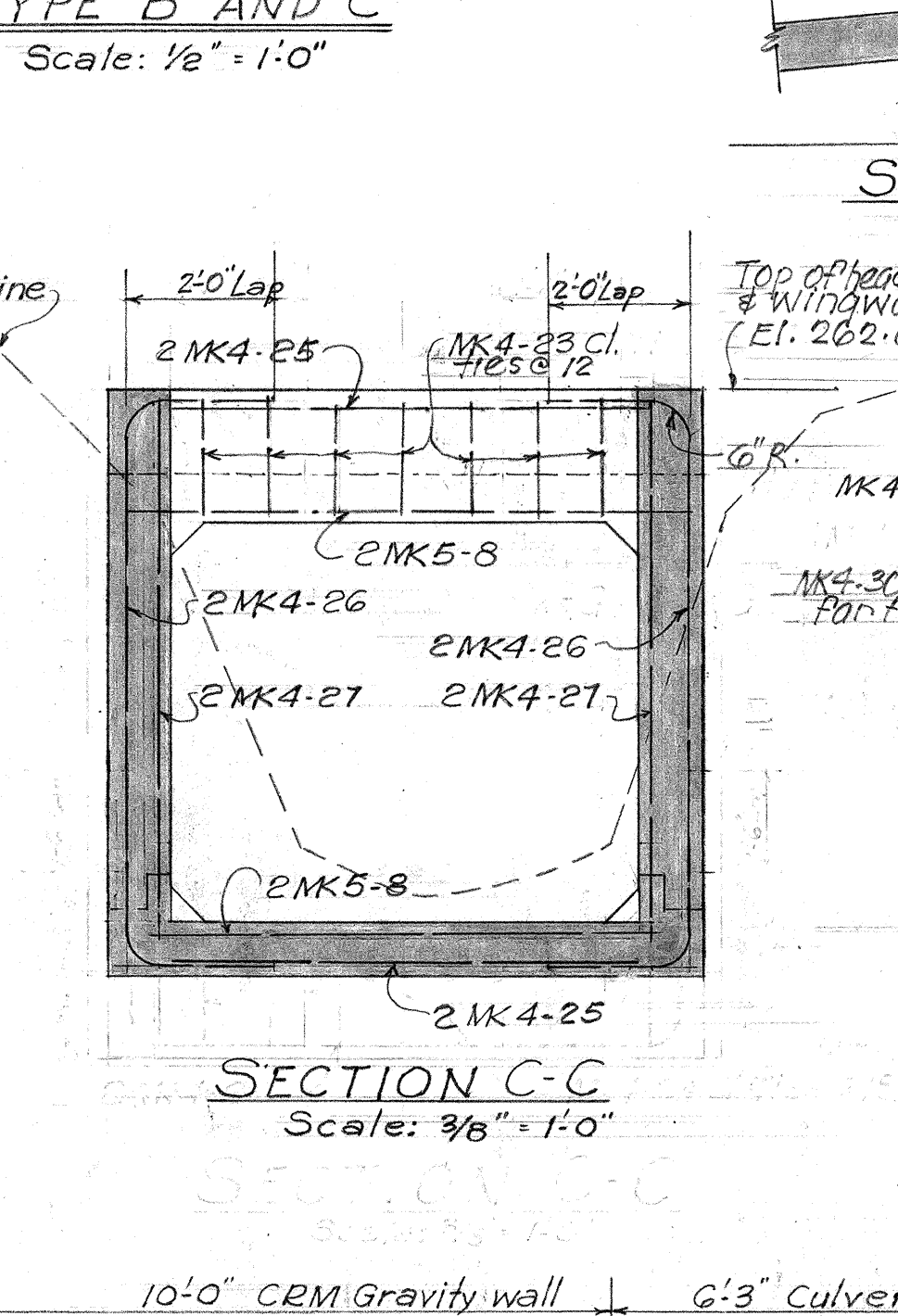
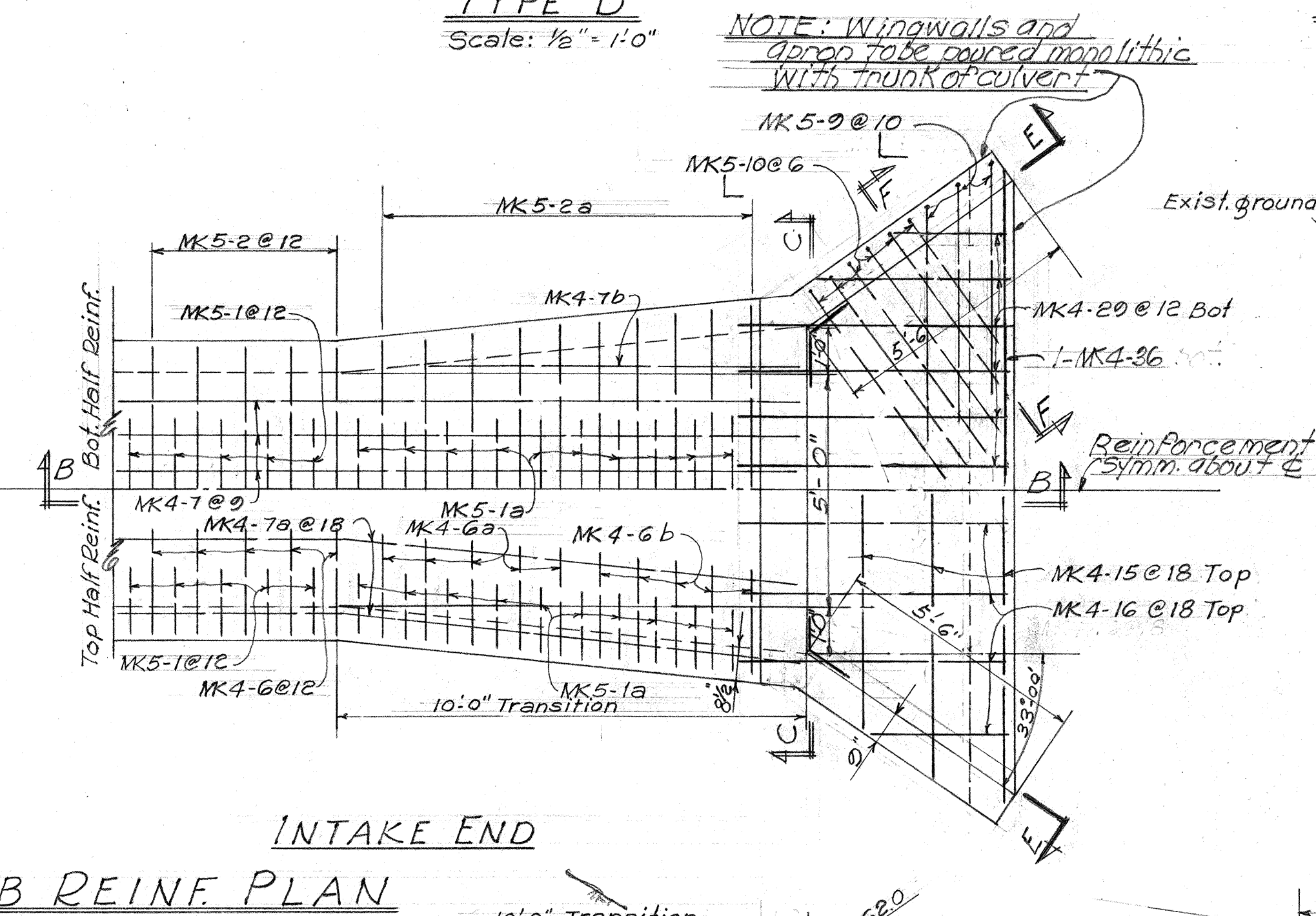
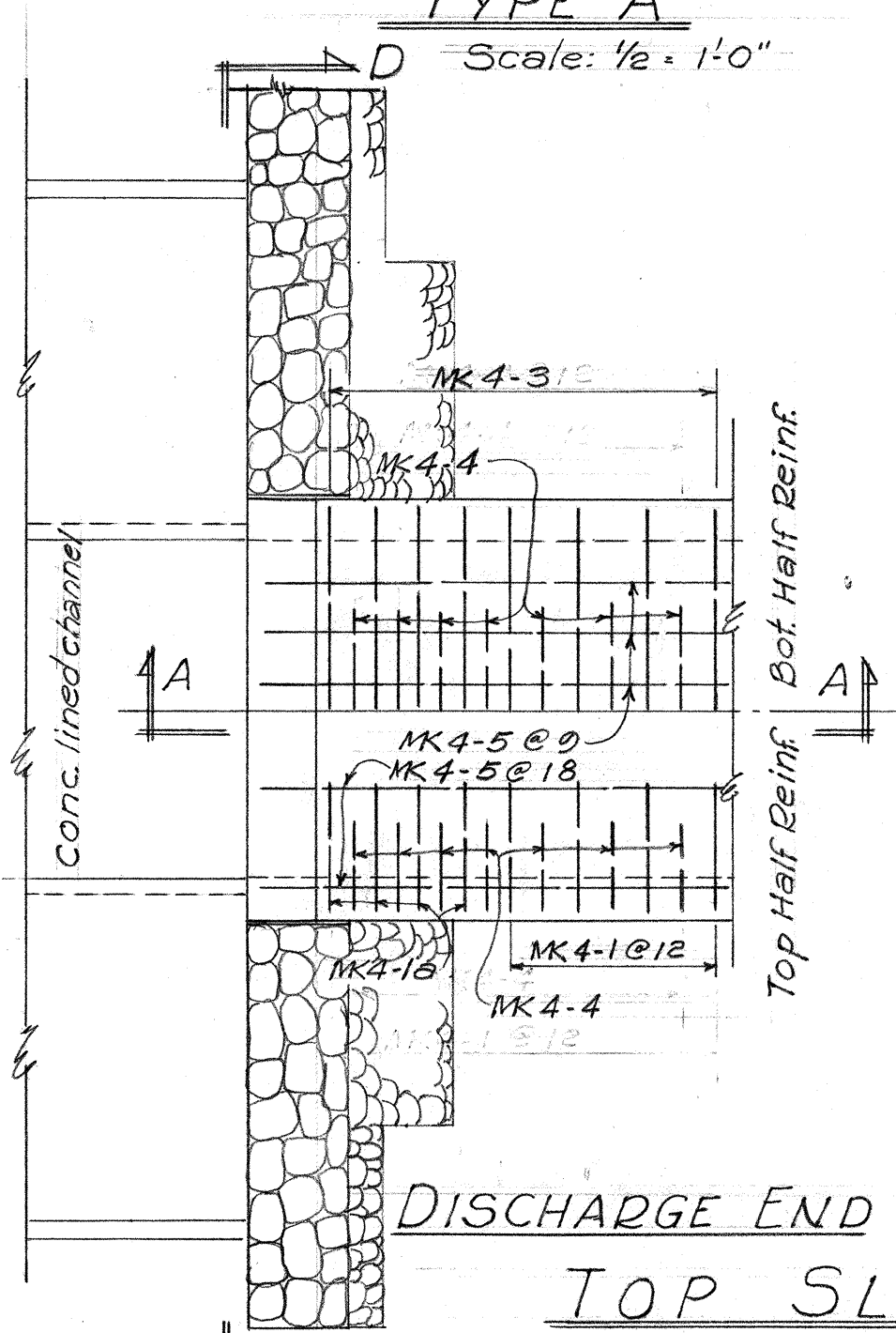
5624.28



NORMAL SECTION THRU CULVERT TYPE A
Scale: 1/2" = 1'-0"

NORMAL SECTION THRU CULVERT TYPE D
Scale: 1/2" = 1'-0"

NORMAL SECTION THRU CULVERT TYPE B AND C
Scale: 1/2" = 1'-0"



TYP. SECTION - GRAVITY WALL
Scale: 3/8" = 1'-0"

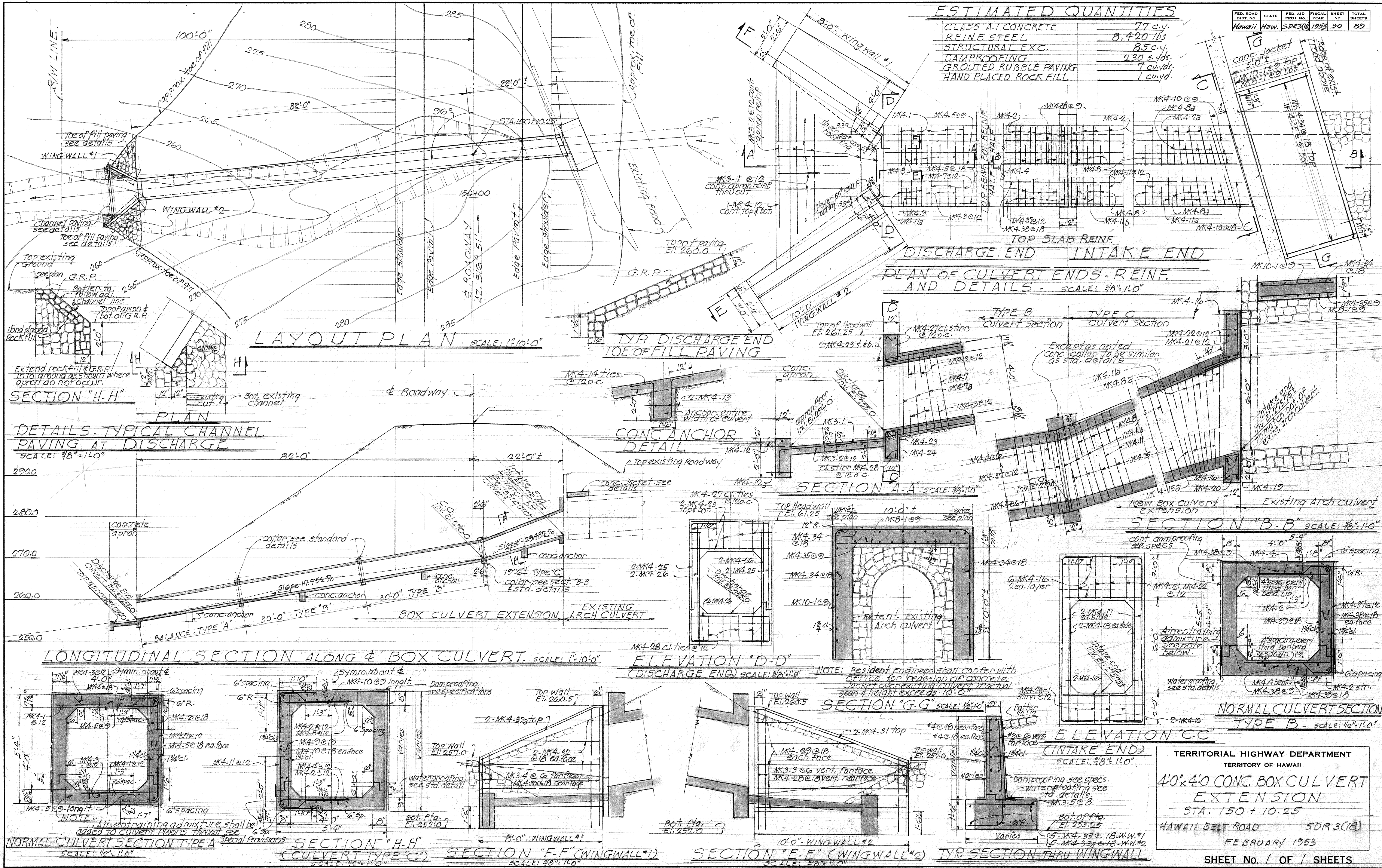
CONC. ANCHOR DETAIL
Scale: 1/2" = 1'-0"

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

5'-0" x 5'-0" CONC. BOX CULVERT
STA. 147 + 71.5

HAWAII BELT RD SDR 3(18)
MARCH 1953

SHEET No. 2 OF 2 SHEETS



ESTIMATED QUANTITIES

CLASS A CONCRETE	77 c.y.
REINF. STEEL	8,420 lbs
STRUCTURAL EXC.	85 c.y.
DAMP-PROOFING	230 s.yds.
GRAVEL RUBBLE PAVING	7 cu.yds.
HAND PLACED ROCK FILL	1 cu.yd.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. YEAR	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
Hawaii	HAW.	SDR 3(18)	1953	30	89

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
40'x40' CONG. BOX CULVERT
EXTENSION
STA. 150 + 10.25
HAWAII BELT ROAD SDR 3(18)
FEBRUARY 1953

SHEET No. 1 OF 1 SHEETS

5624.30