

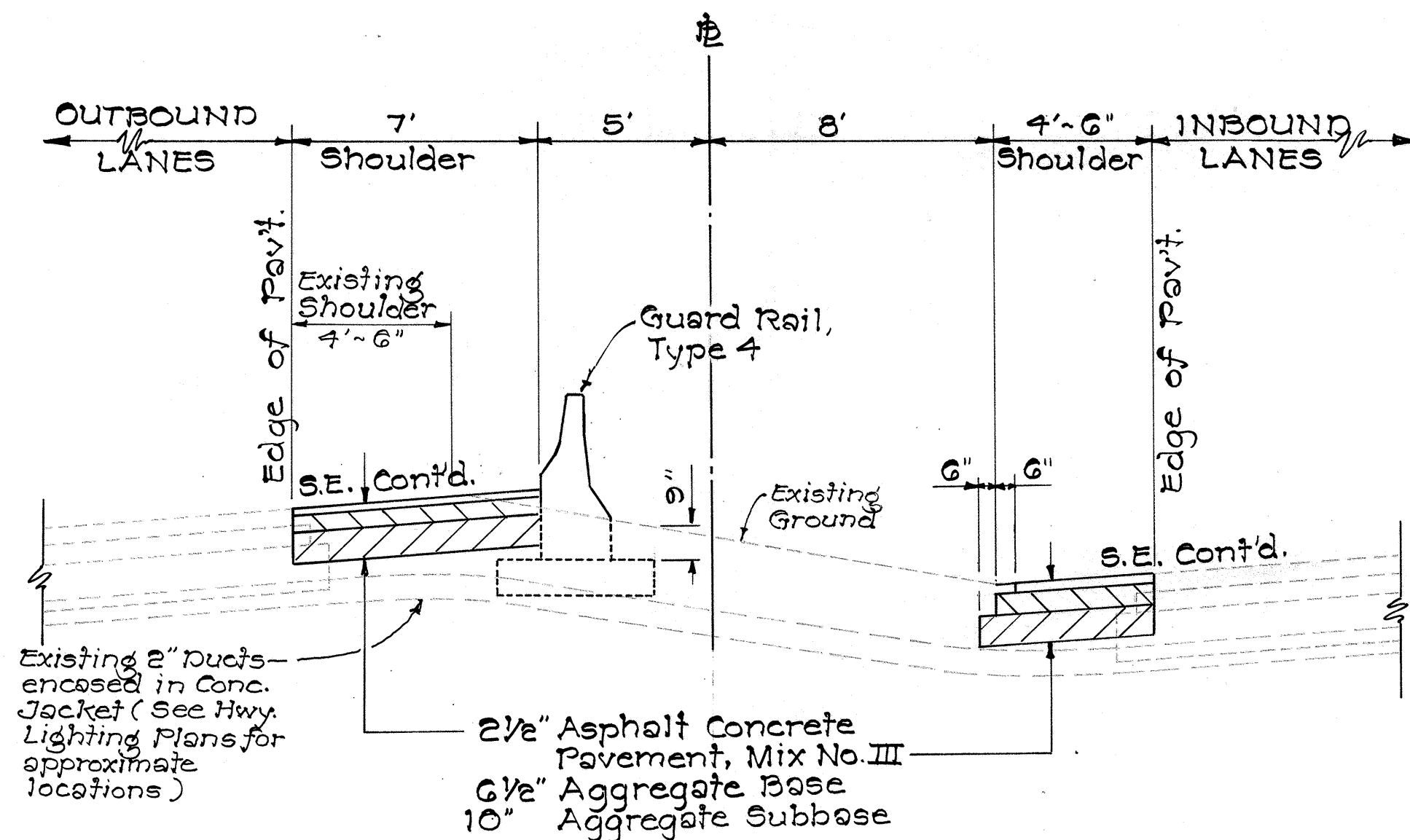
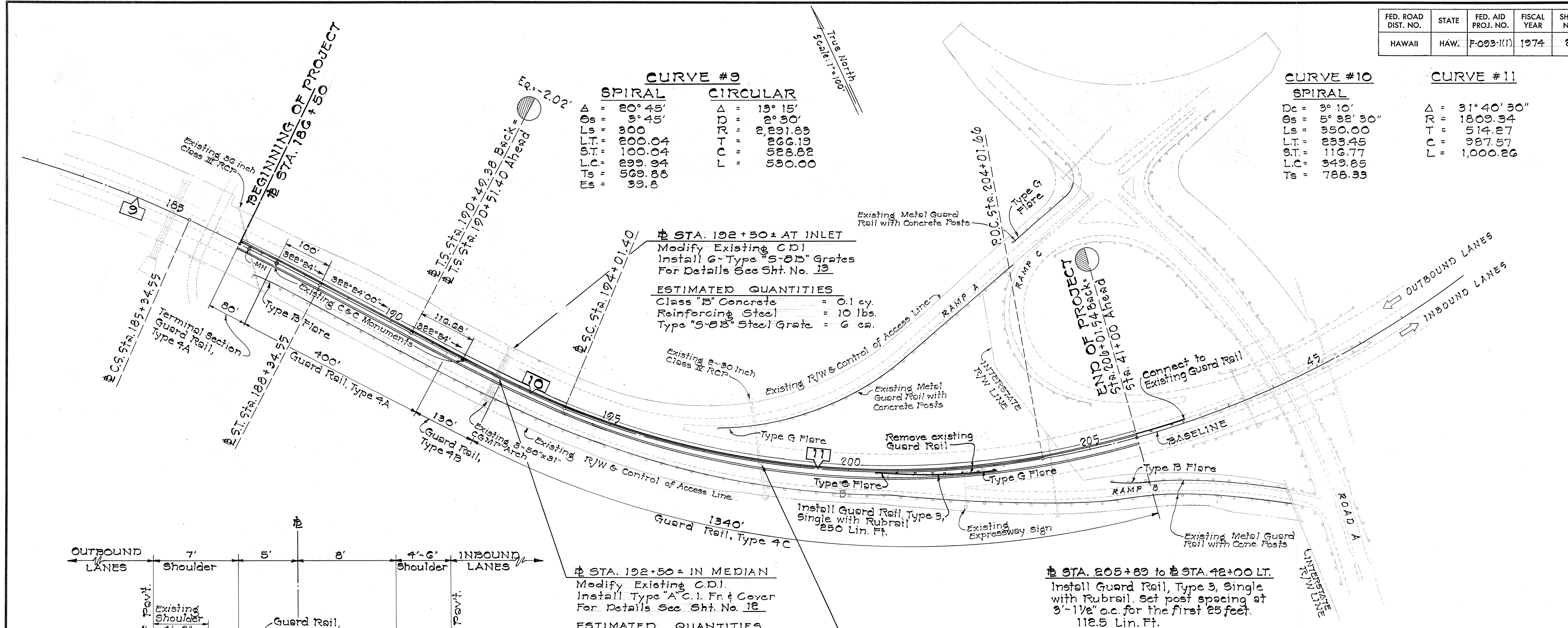
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-093-1(1)	1974	2	27

CURVE #9

SPIRAL	CIRCULAR
Δ = 20° 45'	Δ = 13° 15'
Os = 9° 45'	D = 2° 30'
Ls = 300	R = 2,291.83
L.T. = 200.04	T = 266.19
S.T. = 100.04	C = 528.82
L.C. = 299.94	L = 530.00
Es = 569.88	
Ts = 39.8	

CURVE #10

SPIRAL	CURVE #11
Dc = 3° 10'	Δ = 31° 40' 30"
Os = 5° 32' 30"	R = 1809.34
Ls = 350.00	T = 514.27
L.T. = 233.45	C = 387.57
S.T. = 116.77	L = 1,000.26
L.C. = 349.65	
Ts = 788.33	



STA. 192+50 ± IN MEDIAN
 Modify Existing C.D.I.
 Install Type "A" C.I. Fr. & Cover
 For Details See Sht. No. 12

ESTIMATED QUANTITIES
 Struc. Exc. = 2 cy.
 Class "B" Concrete = 22 cy.
 Reinforcing Steel = 420 lbs.
 Type "A" C.I. Fr. & Cover = 1 ea.

STA. 198+20 ± IN MEDIAN
 Demolish Existing S.D.M.H.
 Extend Existing 2-30" RCP's
 Construct New S.D.M.H.
 Remove & Reinstall Type "A" C.I. Fr. & Cover
 For Details See Sht. No. 13

ESTIMATED QUANTITIES
 Struc. Exc. = 12 cy.
 Class "B" Concrete = 8.7 cy.
 Reinforcing Steel = 250 lbs.
 30" RCP, Class III = 6 lf.
 Removing, Cleaning, Painting & Reinstalling Type "A" C.I. Fr. & Cover = 1 ea.

STA. 205+89 to STA. 42+00 LT.
 Install Guard Rail, Type 3, Single with Rubrail. Set post spacing at 3'-1 1/2" o.c. for the first 25 feet.
 112.5 Lin. Ft.

- GENERAL NOTES:**
- The Contractor shall exercise every precaution to preserve and protect all existing facilities above and below ground which are to remain and which may be affected by his operations.
 - Origin of Azimuth: Haw'N Plane Coordinate. Coordinates referred to Grid System Zone III. Kapua New Azimuth to Zone III Grid Azimuth = +0° 01' 40".

DATE	_____
DESIGNED BY	_____
CHECKED BY	_____
NOTED BY	_____
NO.	_____

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

PLAN

FARRINGTON HIGHWAY
 Safety Improvements,
 Vicinity of Palailai Interchange
 FED. AID PROJ. NO. F-093-1(1)

SHEET No. 1 OF 10 SHEETS

[illegible][illegible]

PLAN
Scale: $\frac{1}{8}'' = 1'-0''$

The plan view shows a concrete barrier wall with three segments. The first and third segments are 30' max. long and separated from the middle segment by Expansion Joints. The middle segment is 90' max. long and contains two Control Joints. The wall is shown in cross-section with a concrete barrier, reinforcement bars (#5 at 12" o.c. 4'-0" long), and approved bond breaking material. The wall is shown in cross-section with a concrete barrier, reinforcement bars (#5 at 12" o.c. 4'-0" long), and approved bond breaking material.

SECTION "A-A"

The section view shows the wall in cross-section. The wall is 18" thick. The reinforcement consists of #5 bars at 12" o.c. 4'-0" long, centered on the barrier. The wall is shown in cross-section with a concrete barrier, reinforcement bars (#5 at 12" o.c. 4'-0" long), and approved bond breaking material. The wall is shown in cross-section with a concrete barrier, reinforcement bars (#5 at 12" o.c. 4'-0" long), and approved bond breaking material.

[illegible]

Symm.

#4 at 15" o.c. x 2'-0" long

1" min.

Fin. Grade

8"

2'-0"

Top of footing or bottom of rigid barrier

2" x 4" Key

Roughen Surface

2 1/2"

6"

1/2" ϕ Anchor Bolts at 5'-0" o.c. ea. side

A cross-sectional diagram of a premolded joint filler. The filler is shown as a hatched shape with a total height of 5 inches. The top edge is 1/2 inch thick. The filler has a central vertical channel that is 1/2 inch wide at the top and bottom, and 3 inches wide in the middle. The side walls of the filler are 1/2 inch thick. The filler is shown being applied to a joint between two surfaces, with the label "Varies" indicating the joint width. The text "1/2\" Premolded Joint Filler" is written next to the filler.

TYPE	DIFFERENCE IN FIN. GRADE	FOOTING	
	X	Y	Z
4 C	1'-0" min., 2'-4" max.	1'-0"	4'-0"
4 D	Greater than 2'-4", 4'-4" max.	1'-3"	4'-6"

Rigid Barrier see Standard

6"

36"

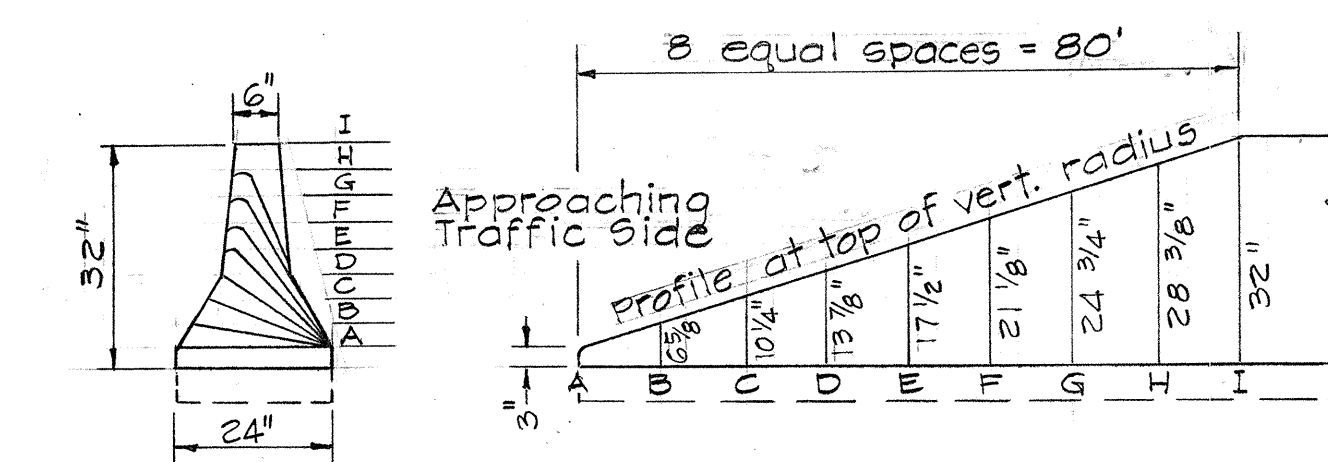
10"

3"

1:1

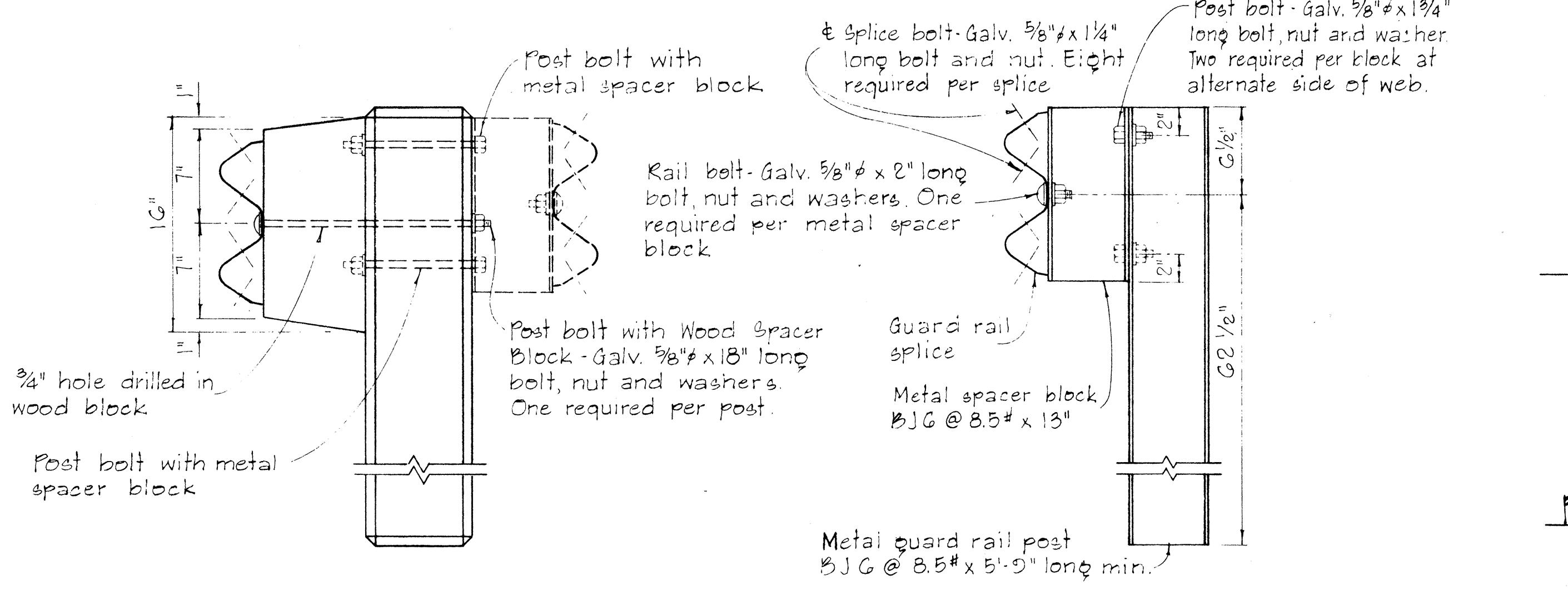
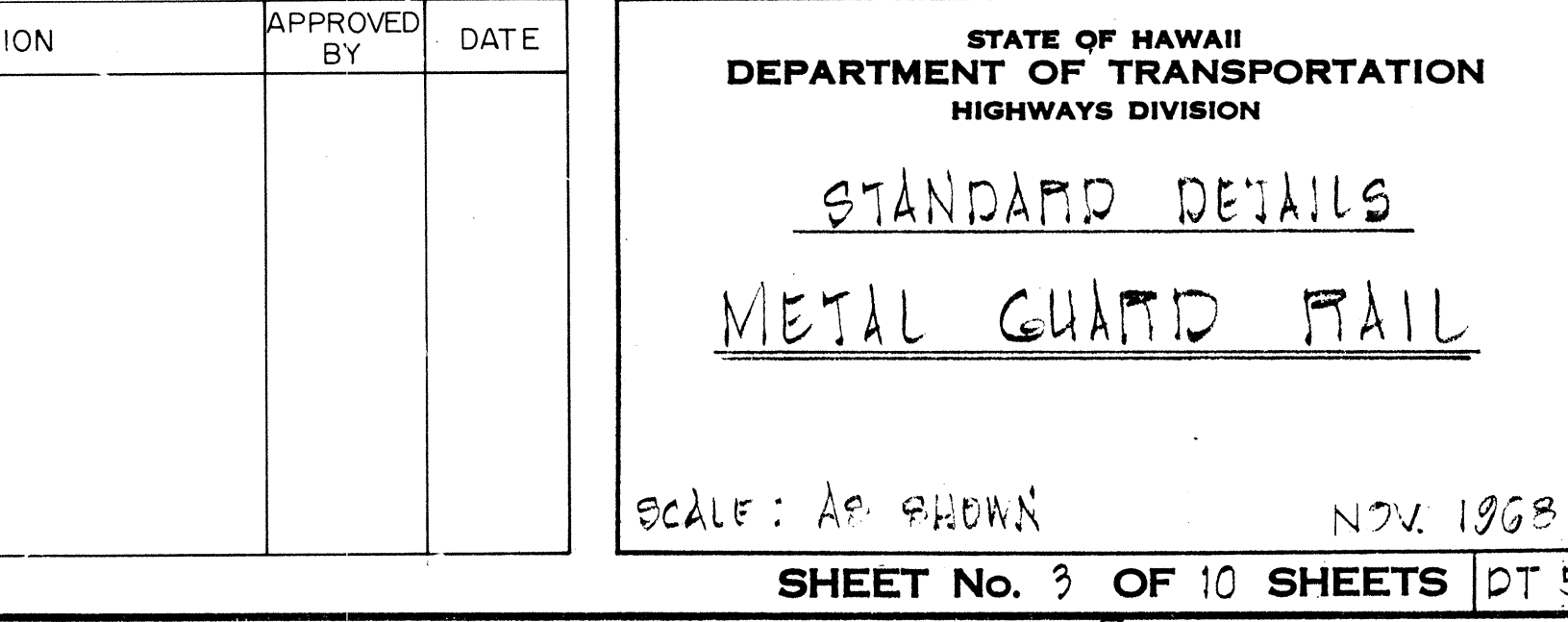
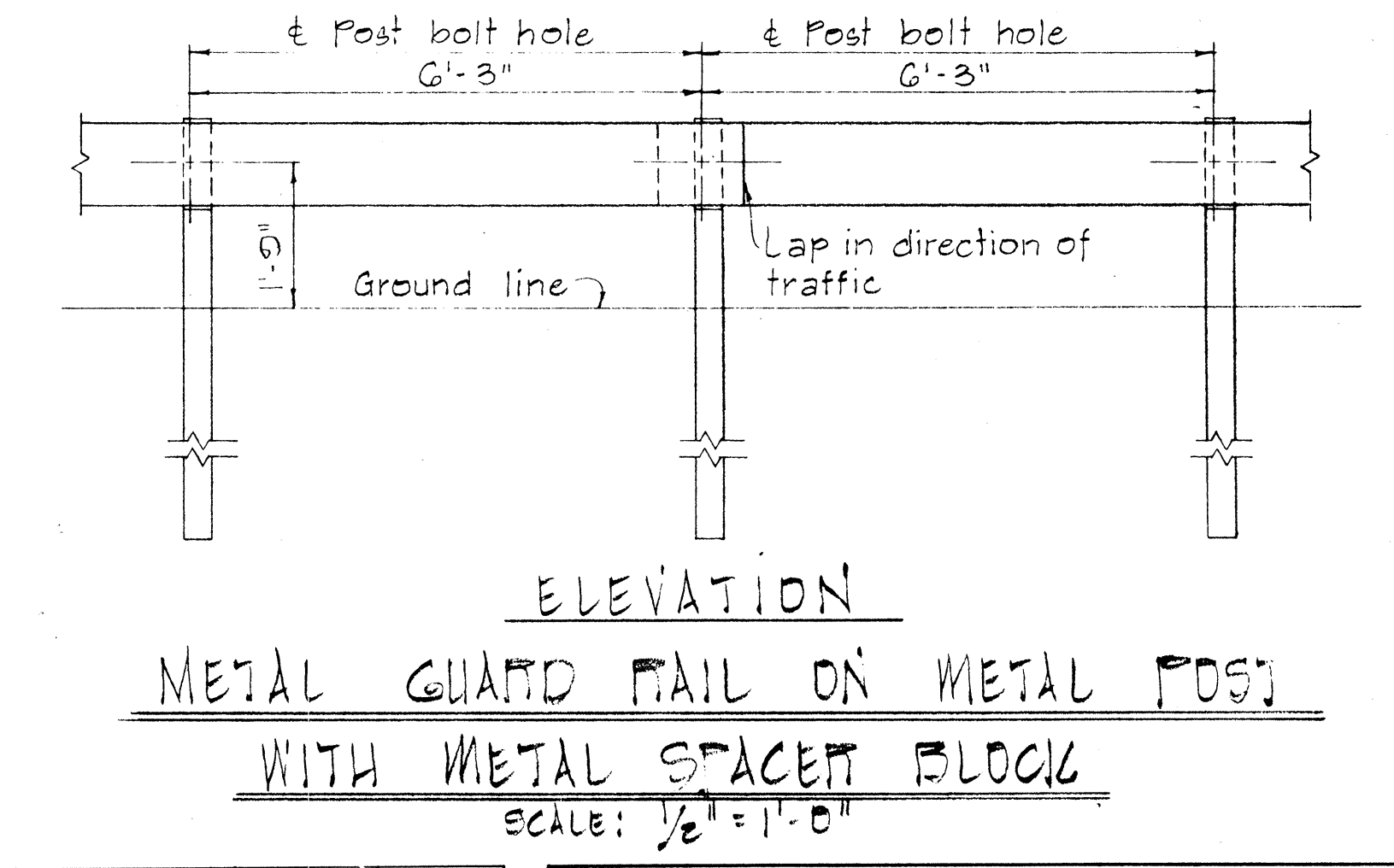
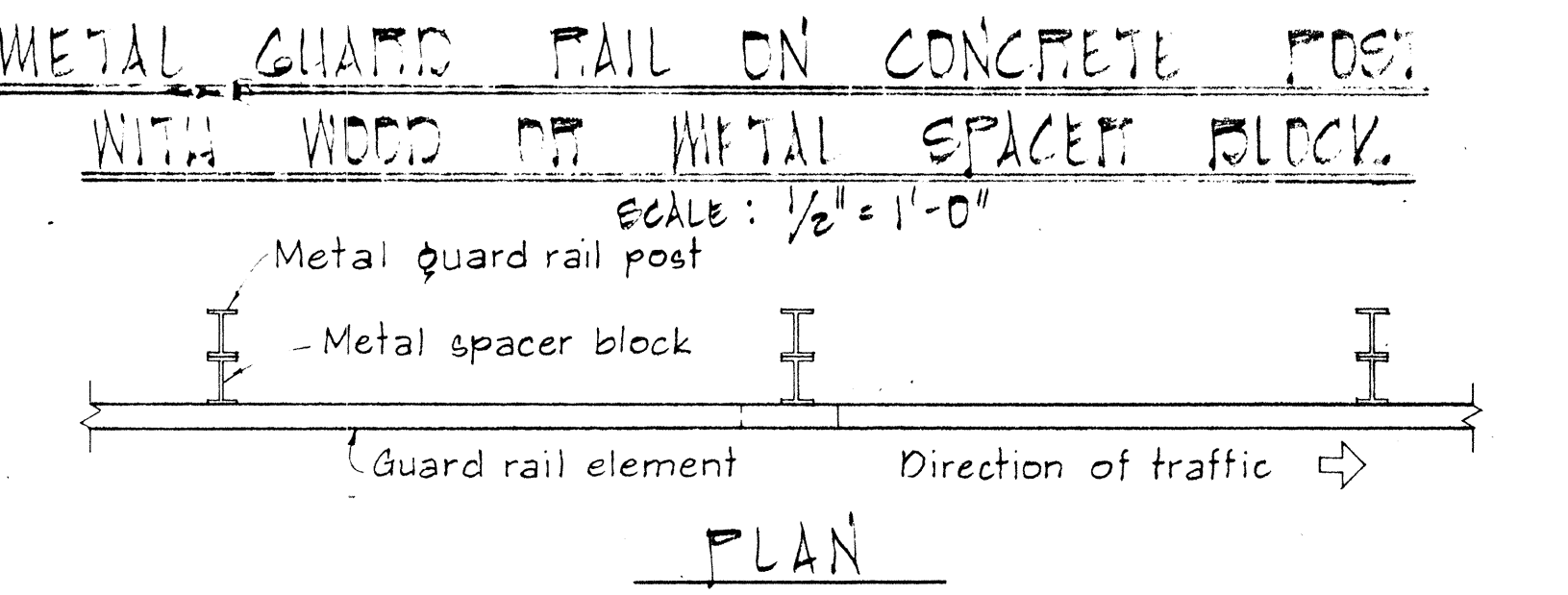
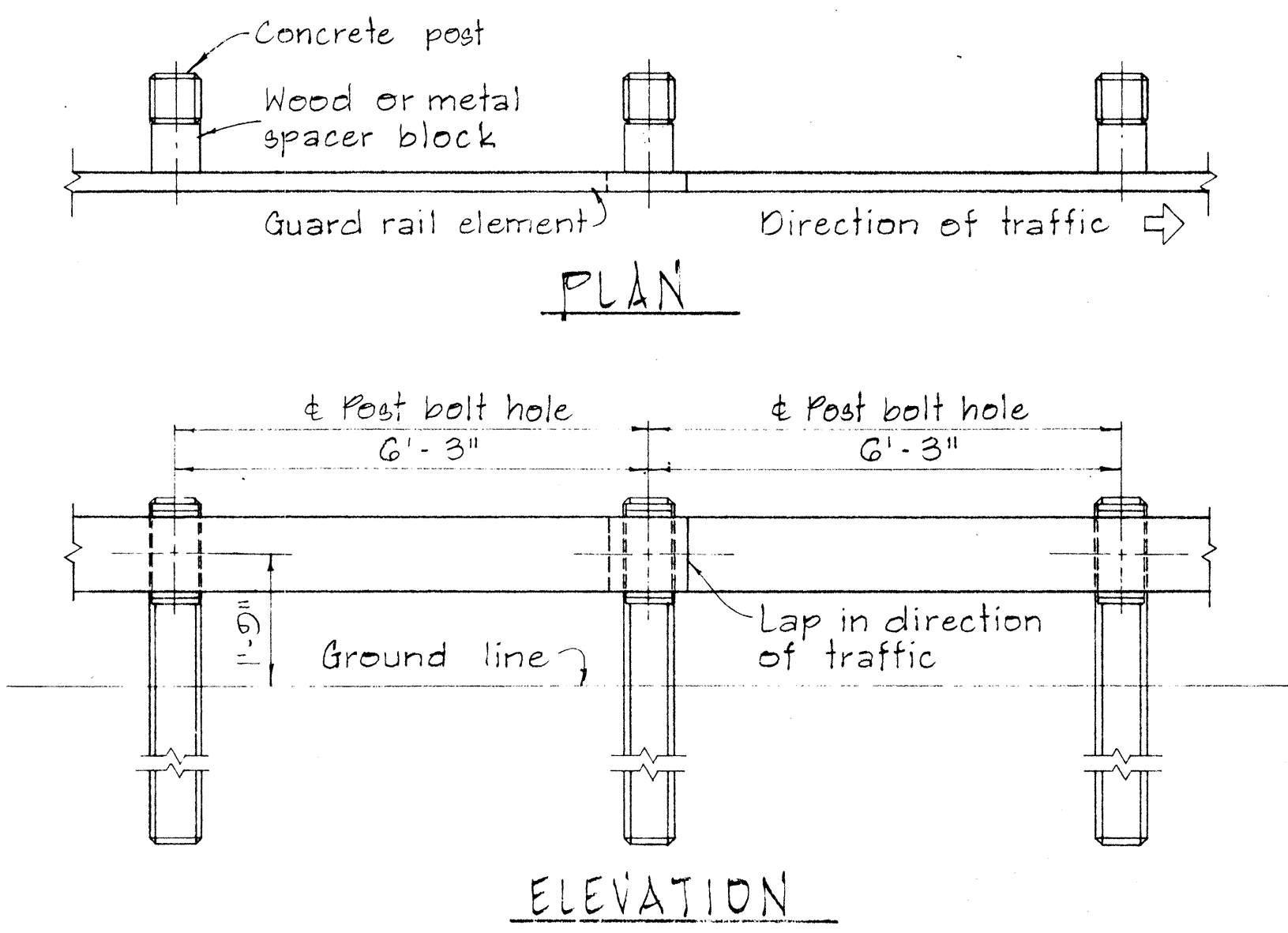
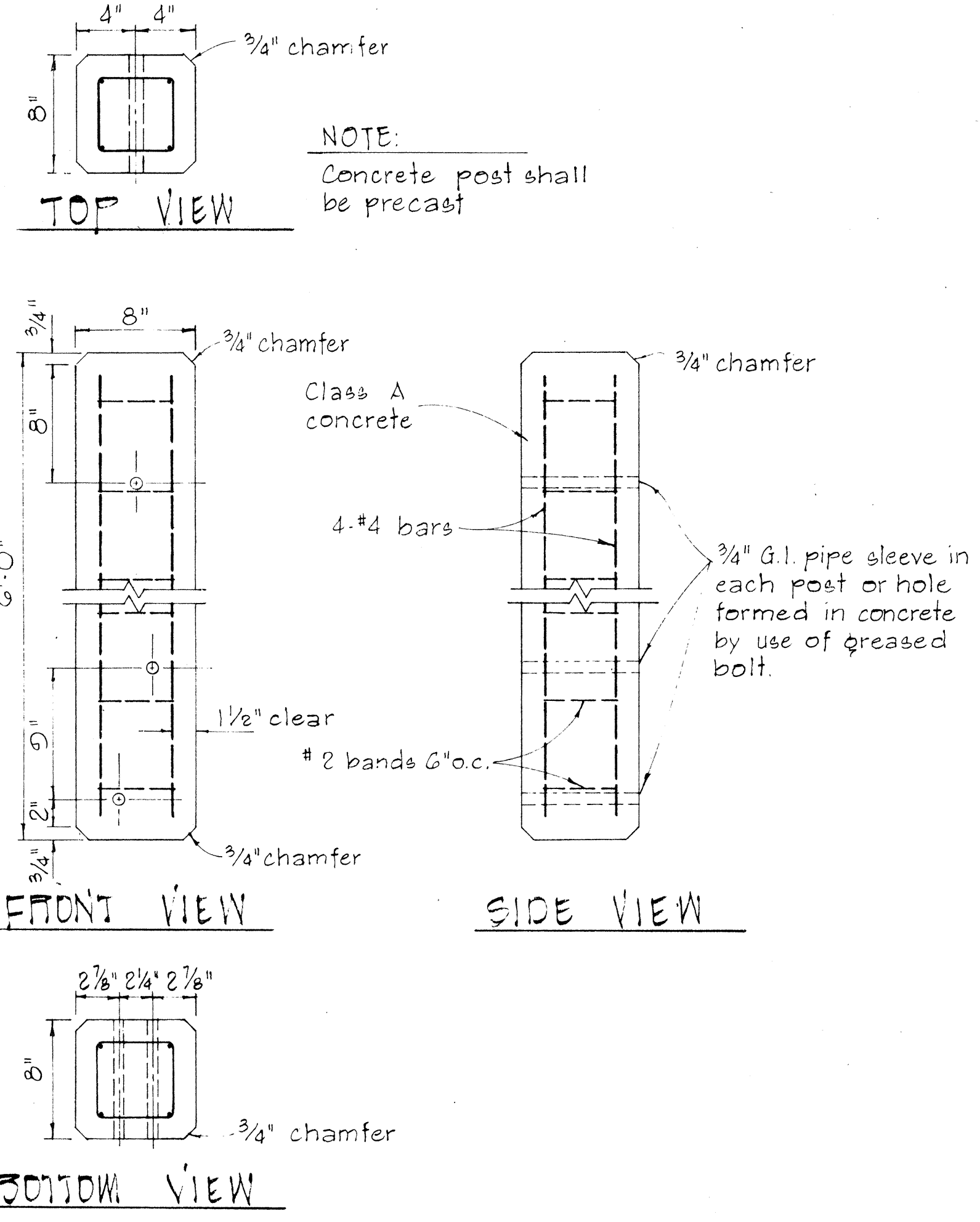
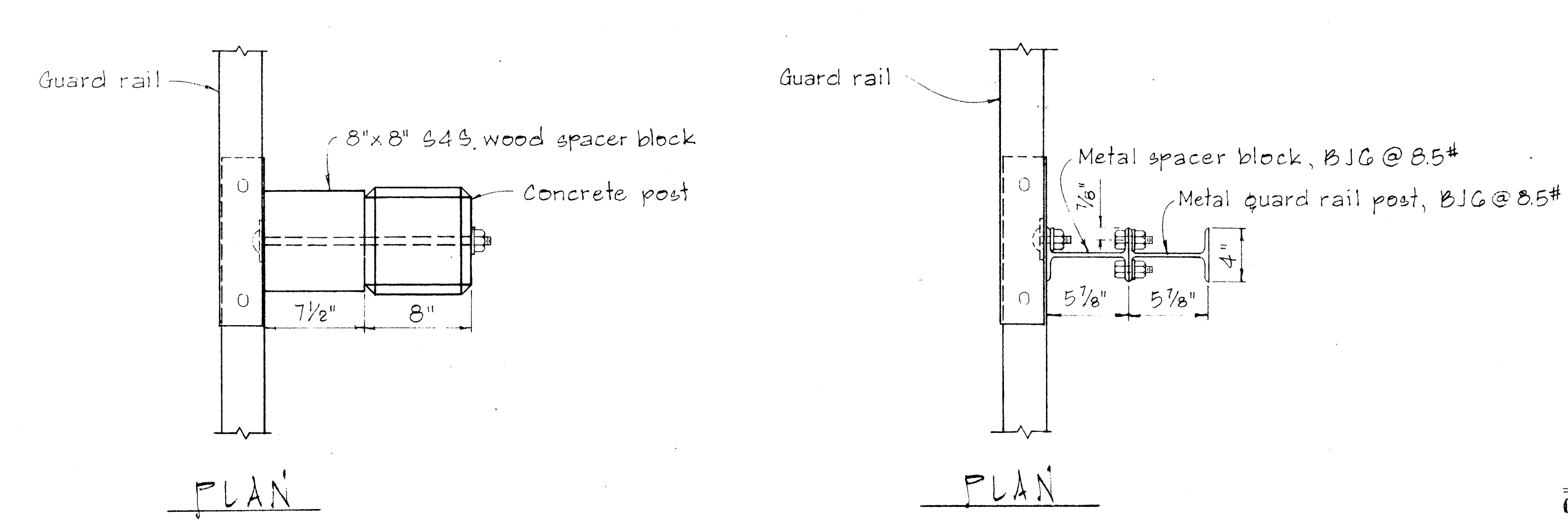
24"

16"

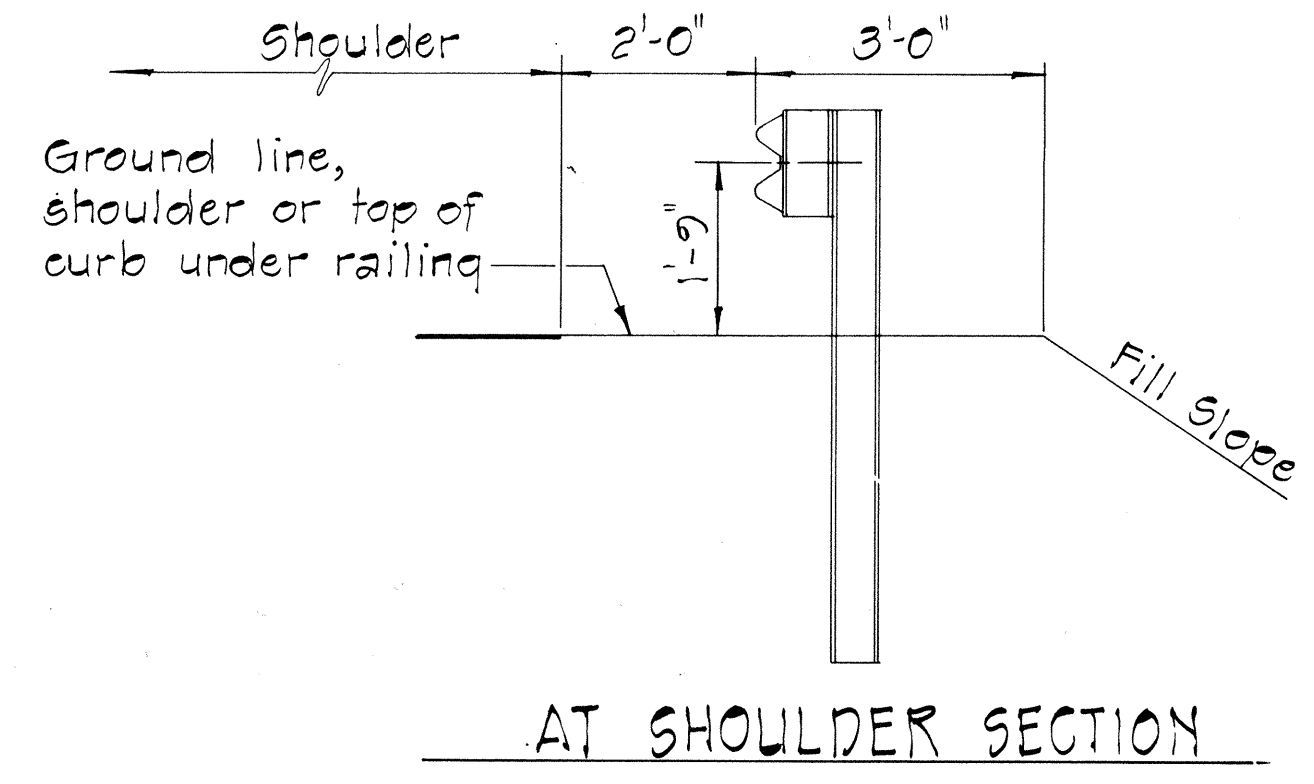


SHEET No. 2 OF 10 SHEETS

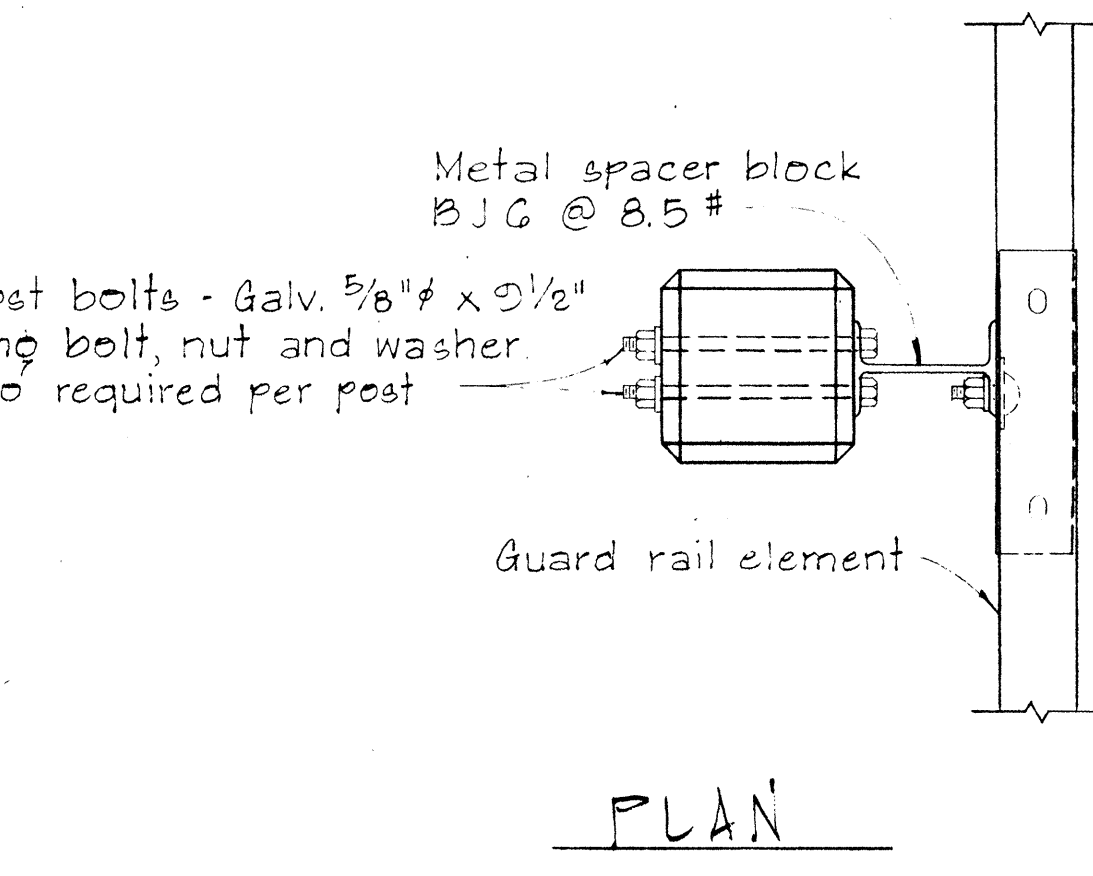
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-093-1(1)	1974	4	27



SINGLE METAL GUARD RAIL ON METAL POST WITH METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"



TYPICAL METAL GUARD RAIL DETAIL
SCALE: 1/2" = 1'-0"



SINGLE METAL GUARD RAIL ON PRECAST CONCRETE POST WITH WOOD OR METAL SPACER BLOCK
SCALE: 1 1/2" = 1'-0"

APPROVAL RECOMMENDED:
Charles Tanaka
TRAFFIC ENGINEER
DATE: 12/29/62

APPROVED:
Hubert J. Deland
ASSISTANT CHIEF, ENGINEERING
DATE: 12-30-69

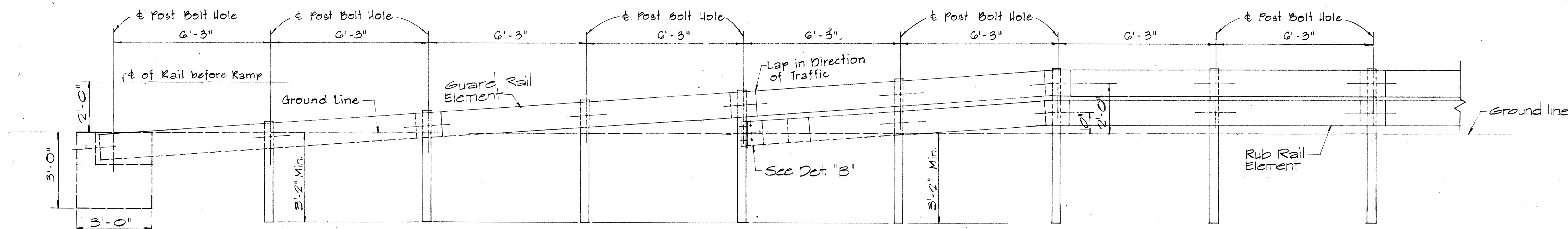
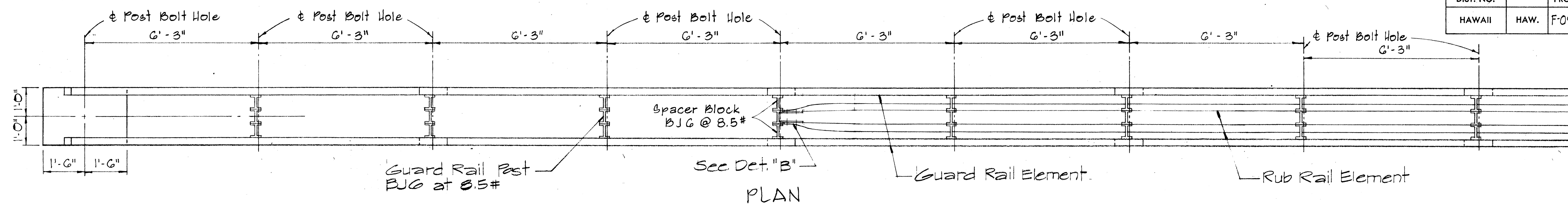
NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAILS
METAL GUARD RAIL

SCALE: AS SHOWN NOV. 1968

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-093-1(1)	1974	6	27

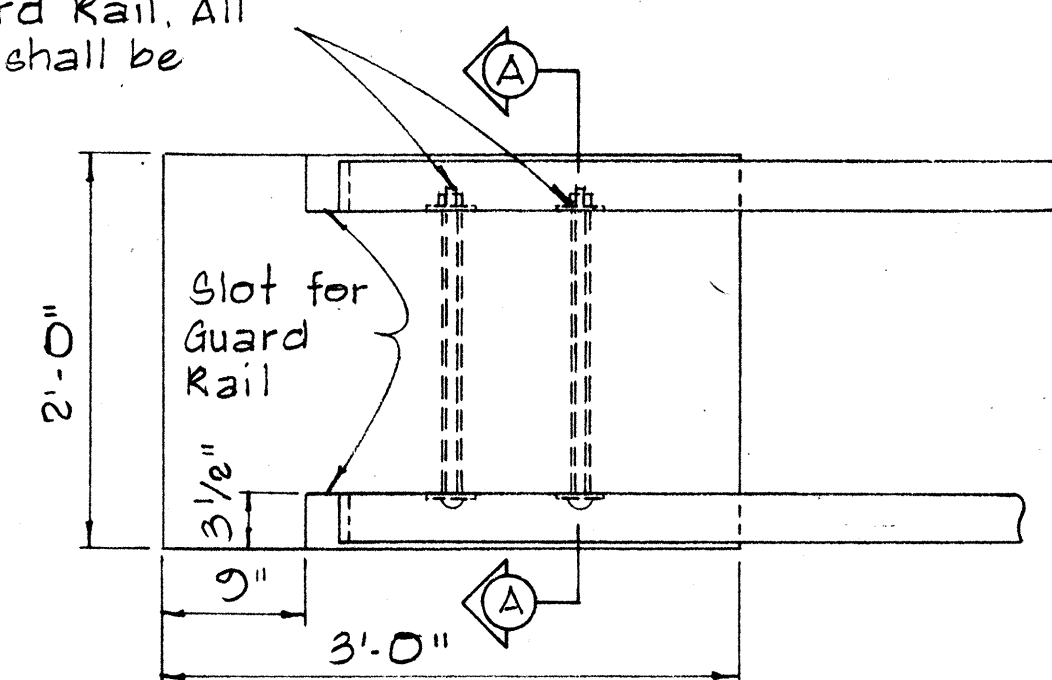


ELEVATION

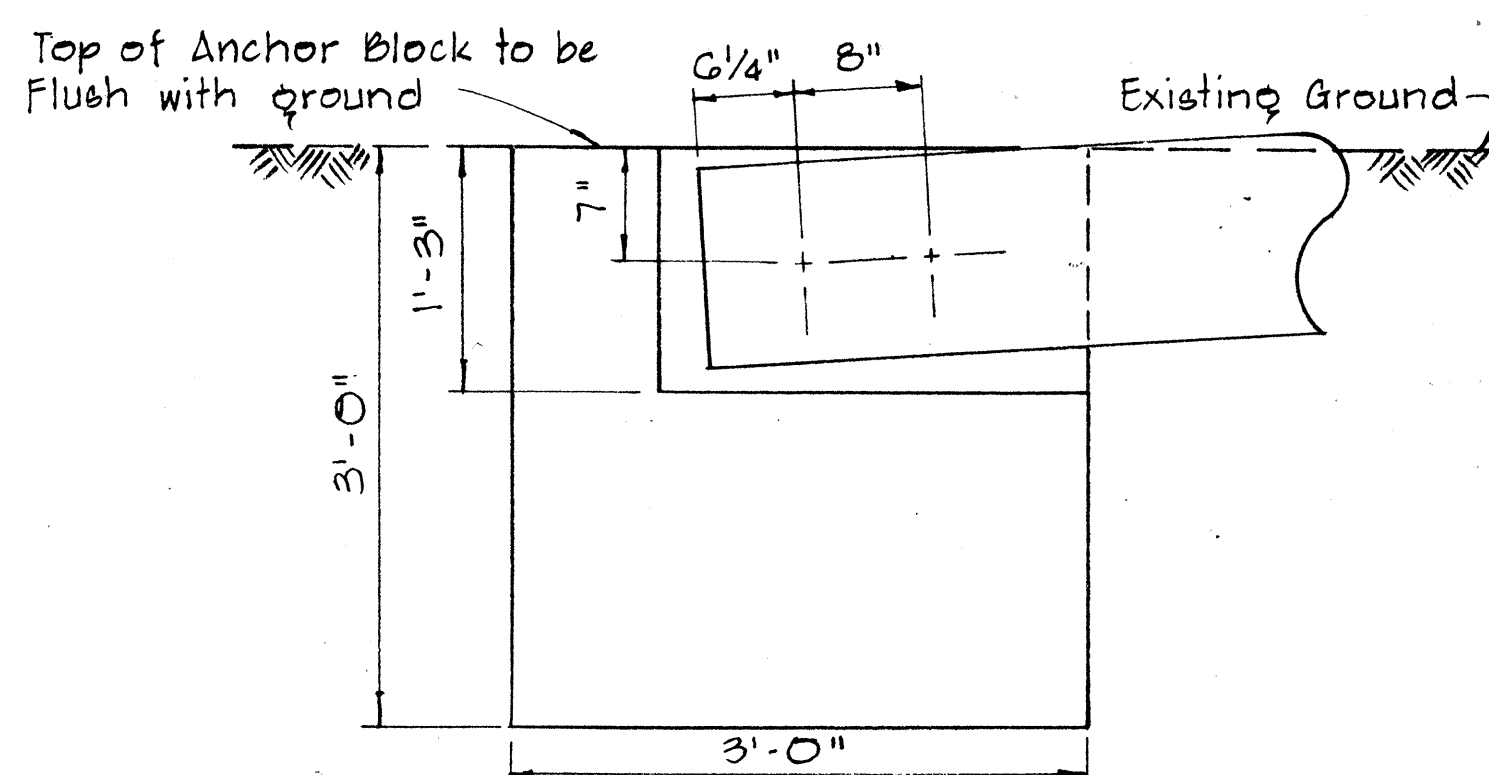
STRAIGHT APPROACH - RAMP END ANCHORAGE (MEDIAN)

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

5/8" Bolts with 3/4" G.I. Pipe Sleeve in each hole. Incidental to Metal Guard Rail. All Metal Pieces shall be Galvanized.



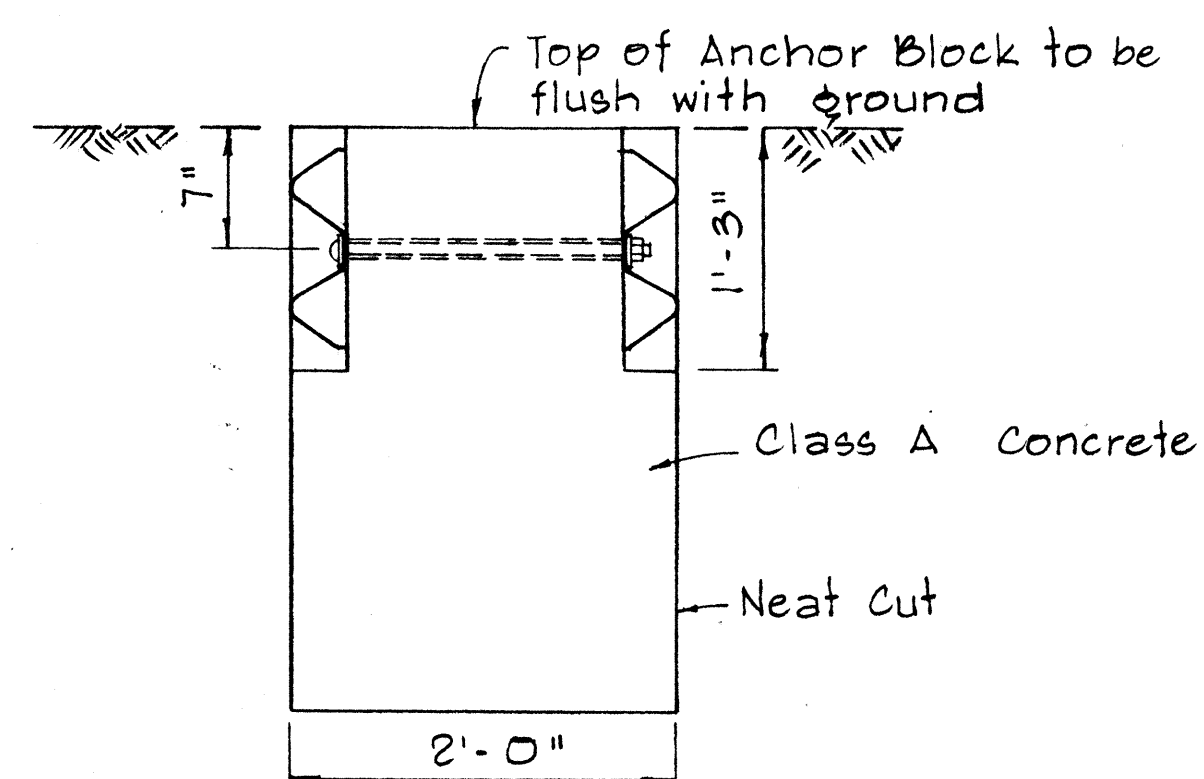
PLAN



ELEVATION

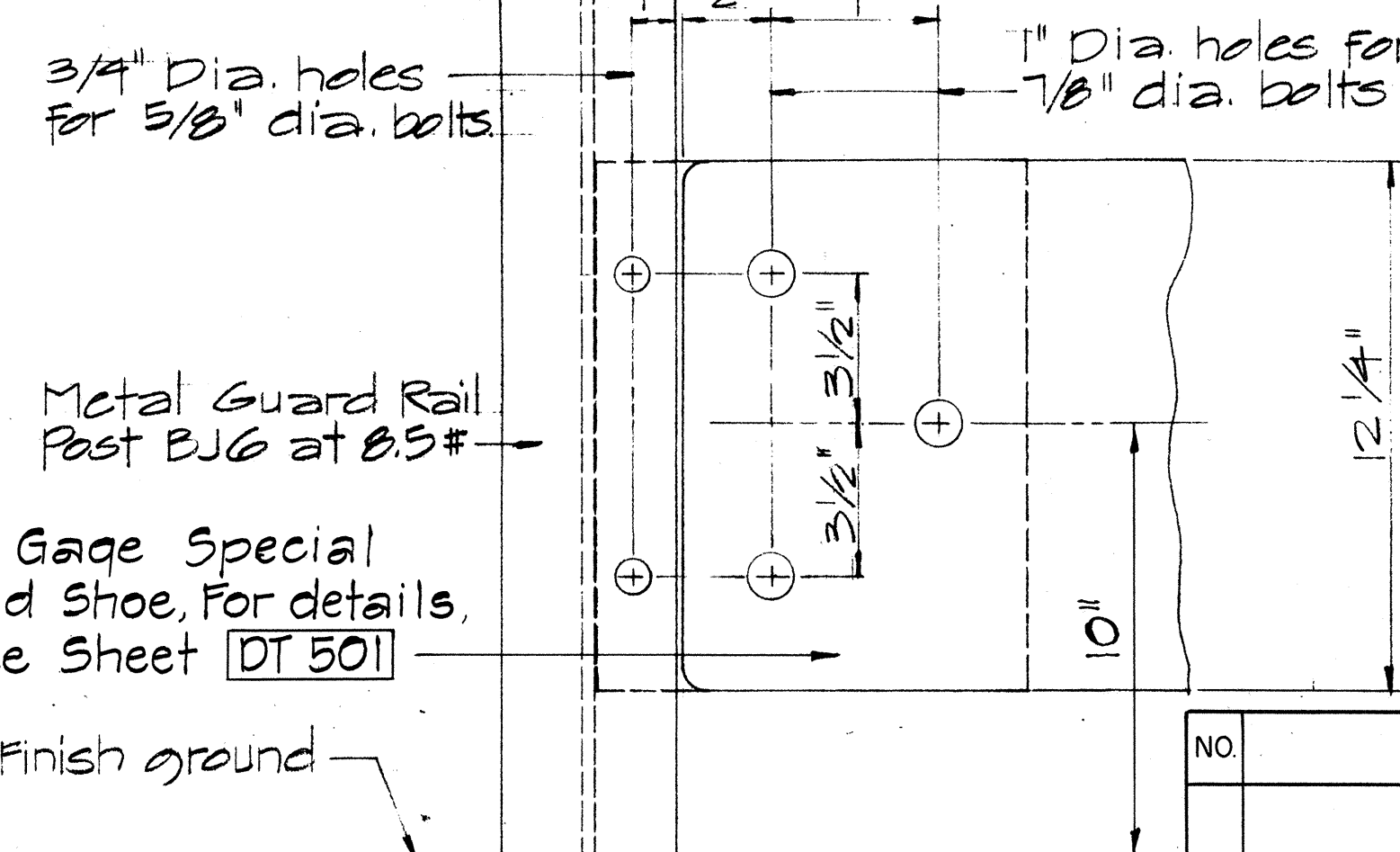
CONCRETE ANCHOR BLOCK FOR RAMP END

Scale: 1"=1'-0"



SECTION A-A

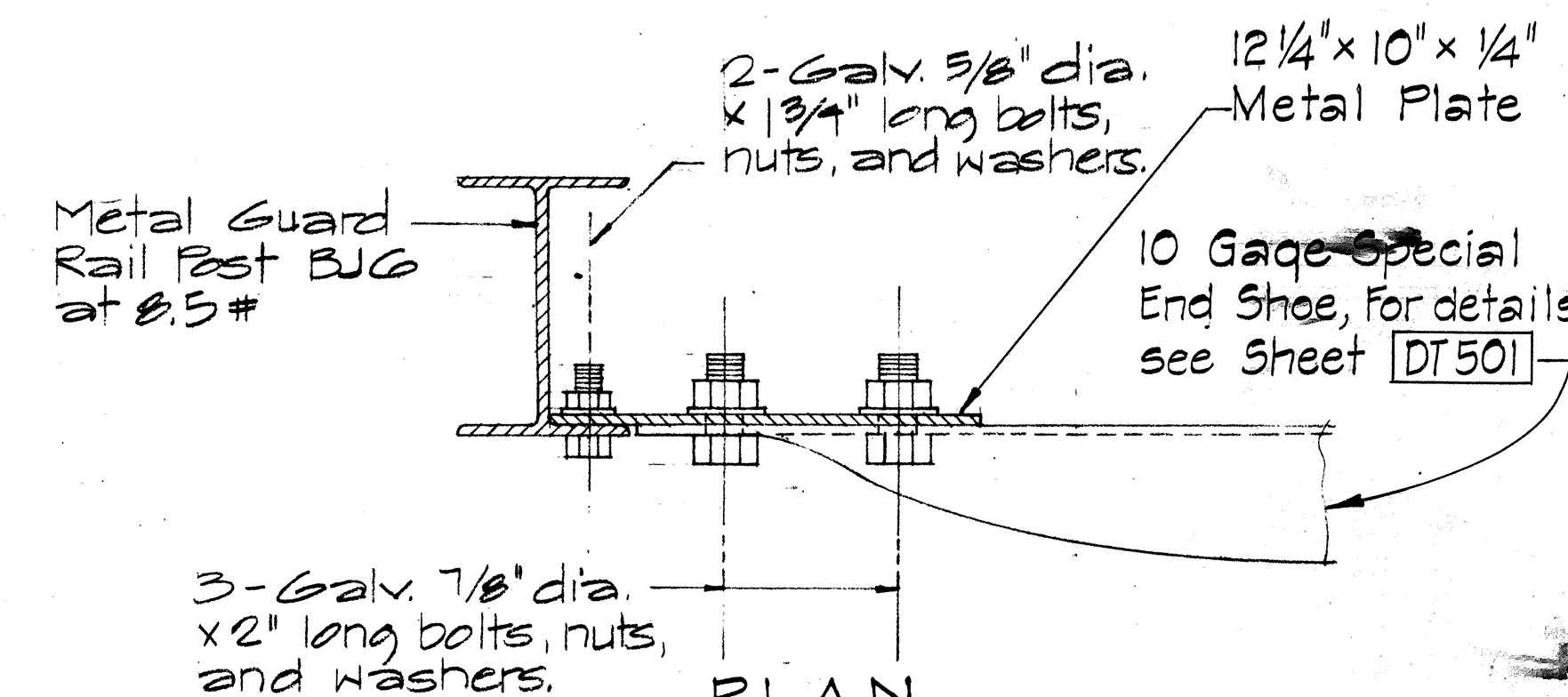
NOTE: Concrete, Excavation, and Miscellaneous Appurtenances necessary to anchor the Guard Rail Ends, shall be incidental to the Metal Guard Rail.



ELEVATION

DETAIL "B"

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



PLAN

APPROVAL RECOMMENDED:
TRAFFIC ENGINEER

APPROVED:
ASSISTANT CHIEF, ENGINEERING

DATE

DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

STANDARD DETAIL GUARD RAIL RAMP END ANCHORAGE

Scale: as Noted

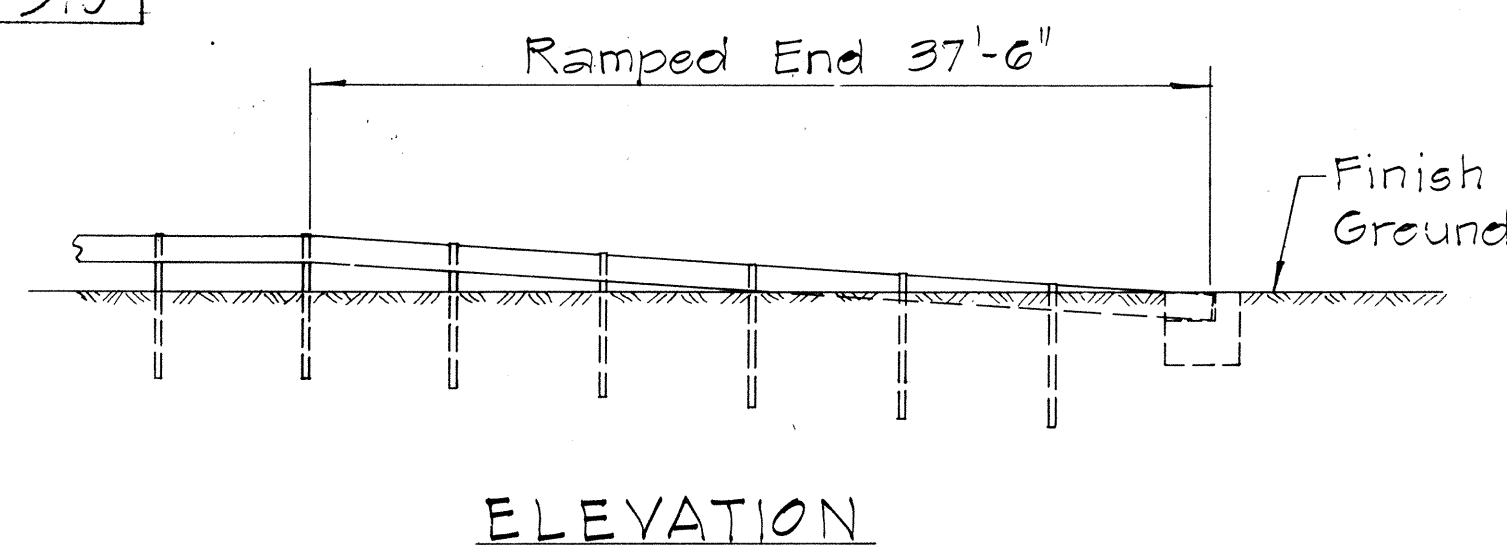
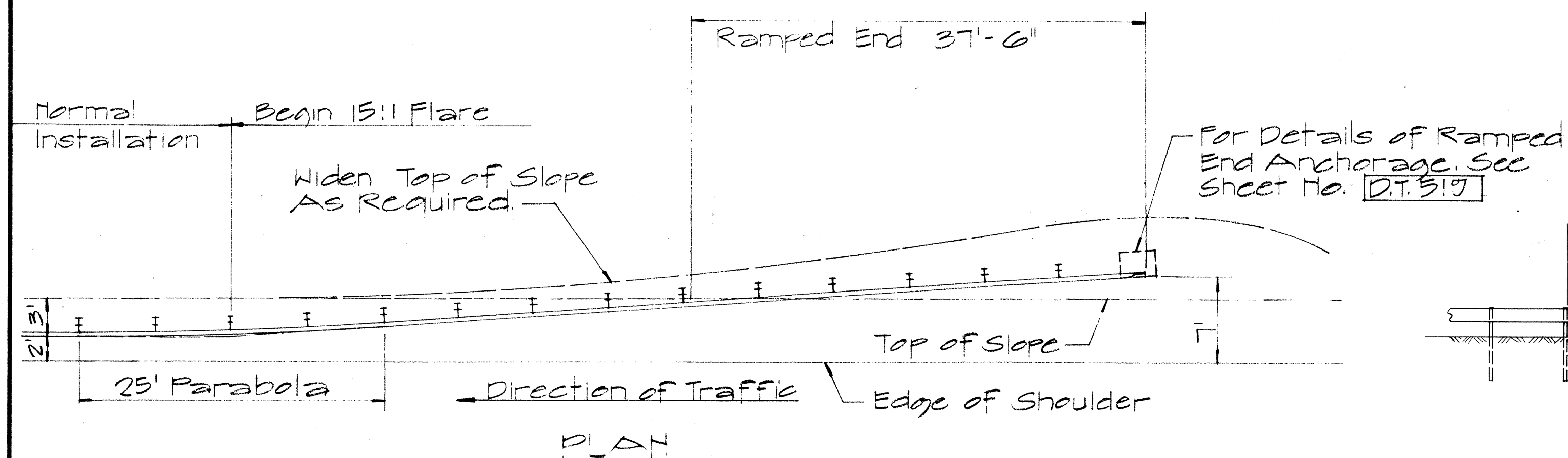
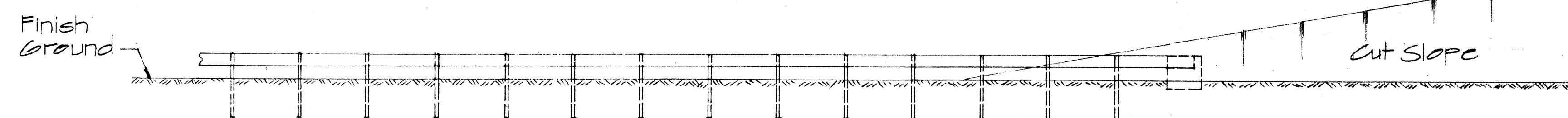
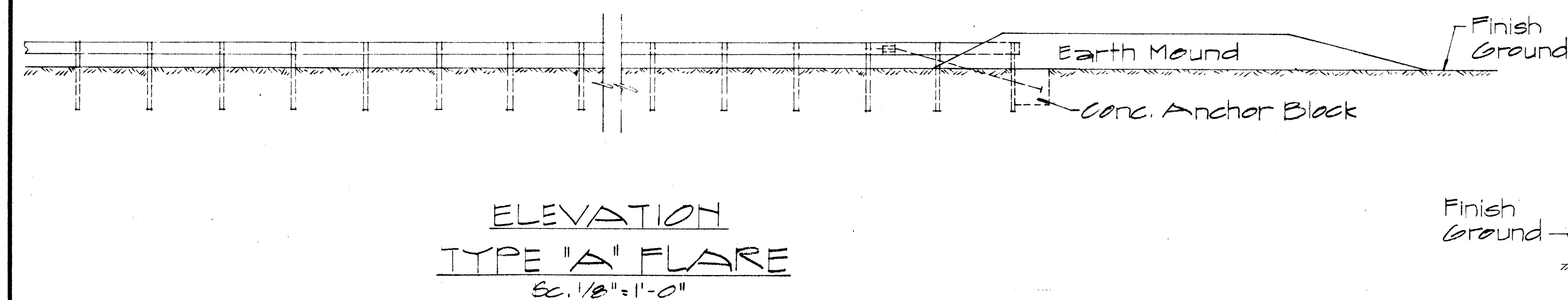
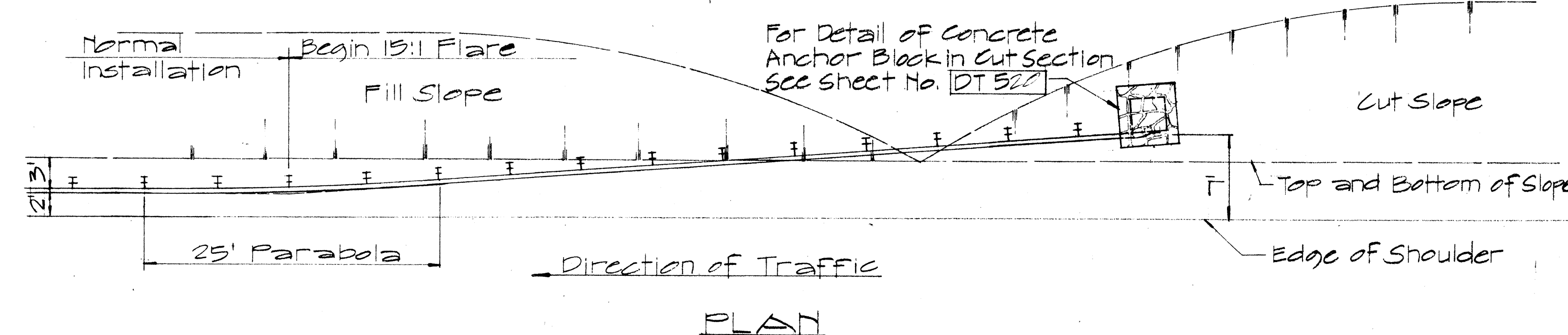
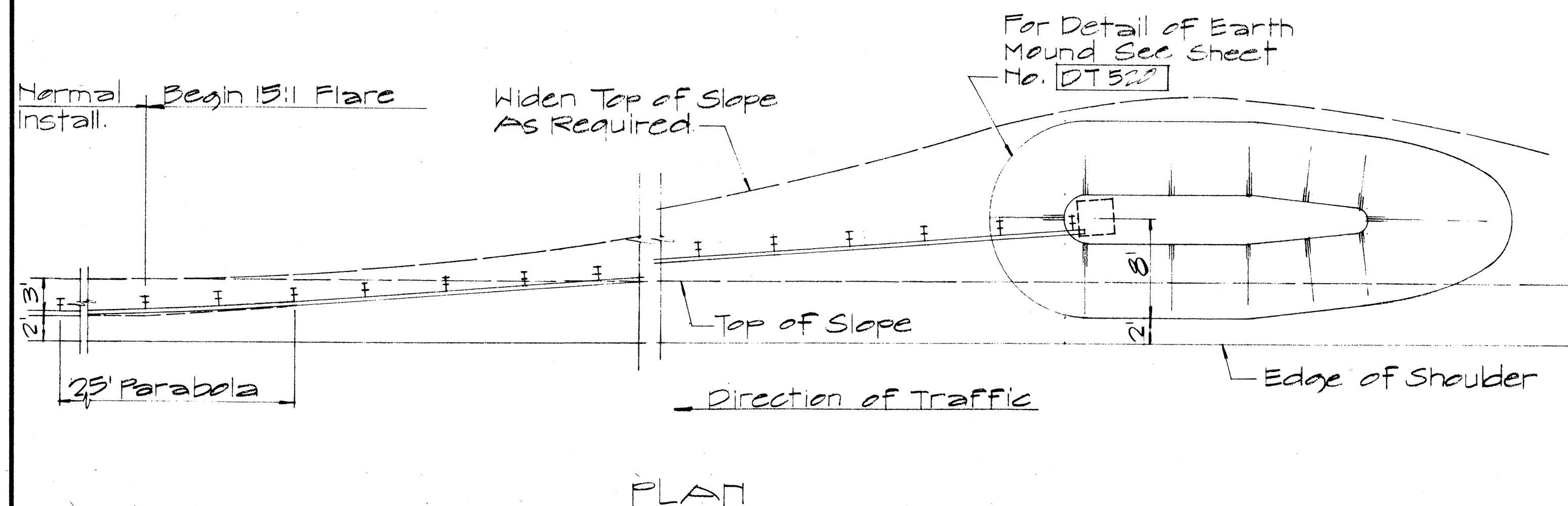
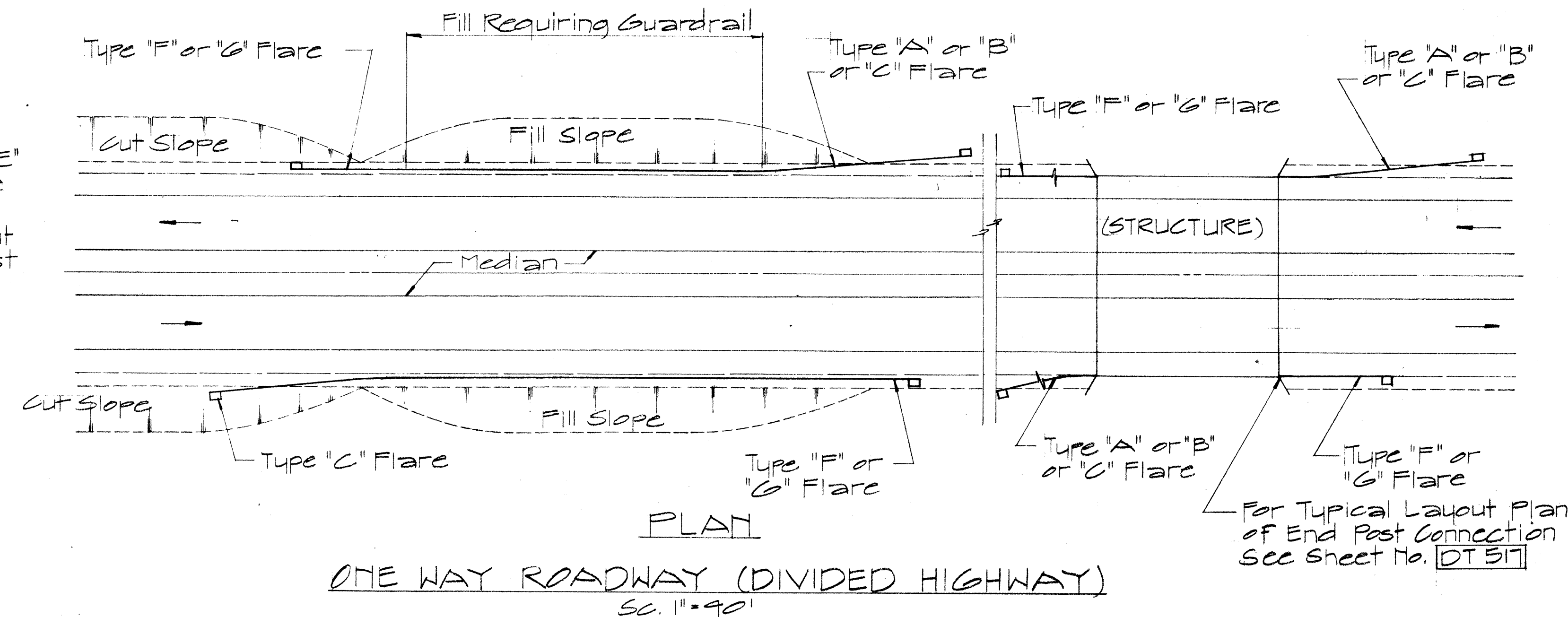
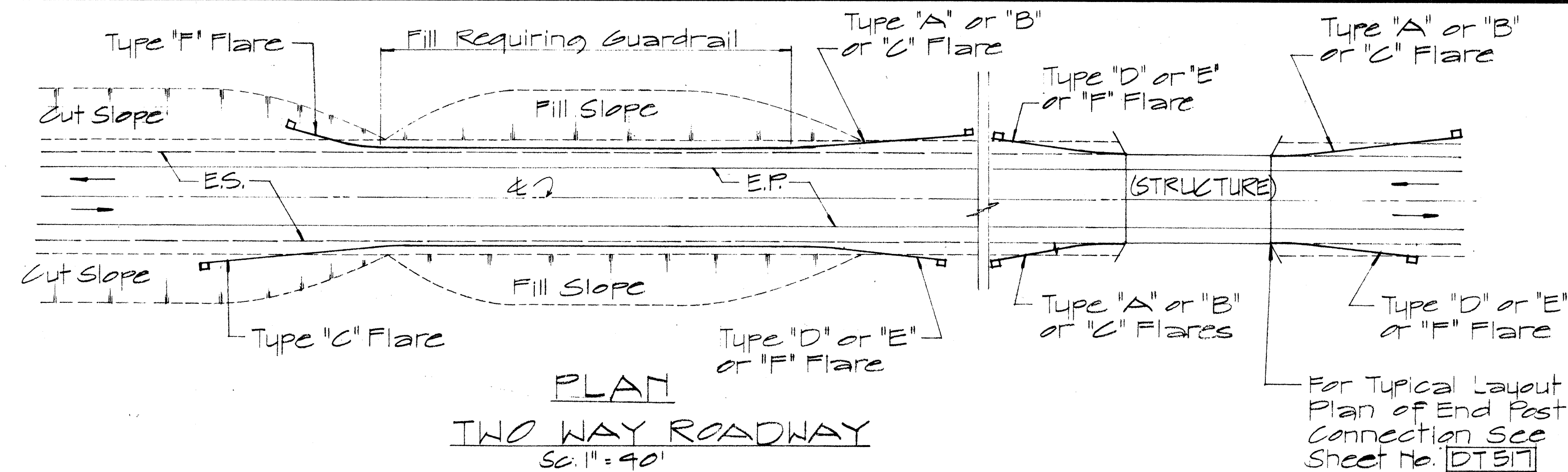
August, 1968

SHEET No. 5 OF 10 SHEETS DT 502

DATE	
SURVEY PLOTTED BY	
DESIGNED BY	
NOTE BOOK	
CHECKED BY	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-093-1(1)	1974	7	27

NOTE:
Metal guard rail connection to structures requires End Post Connection. See structure plans.



TYPE "B" FLARE
Sc. 1/8" = 1'-0"

ELEVATION
TYPE "C" FLARE
Sc. 1/8" = 1'-0"

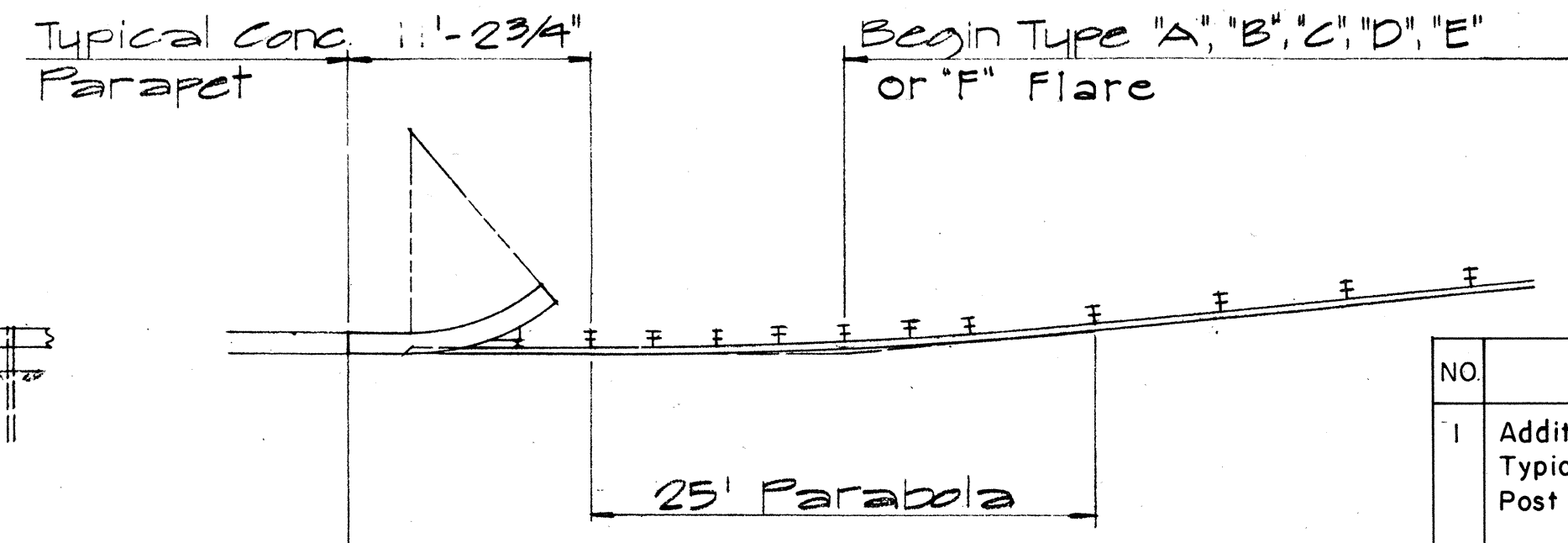
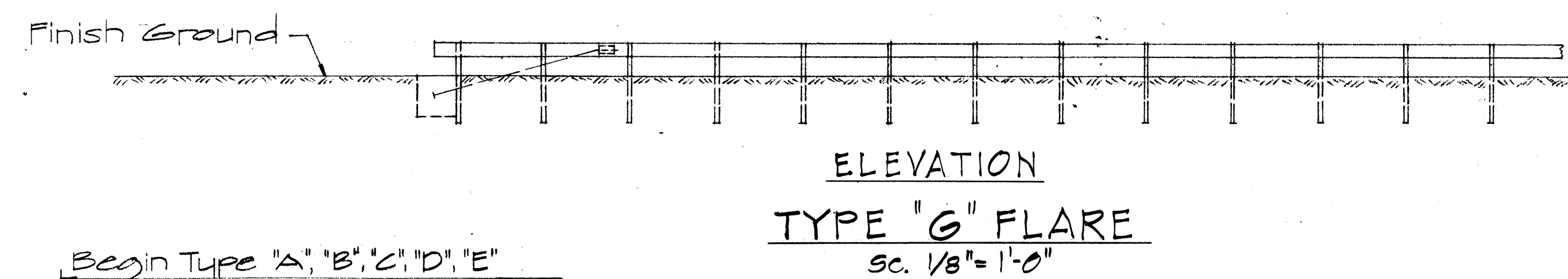
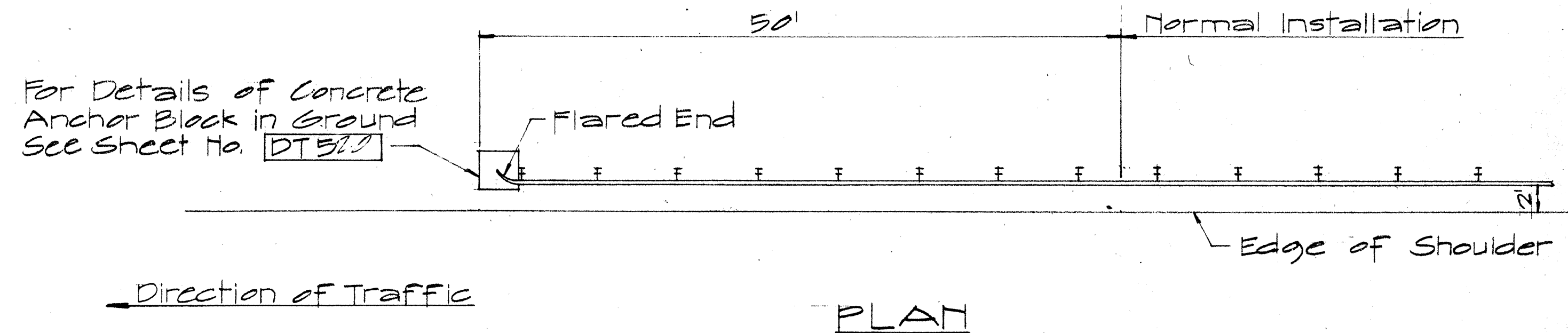
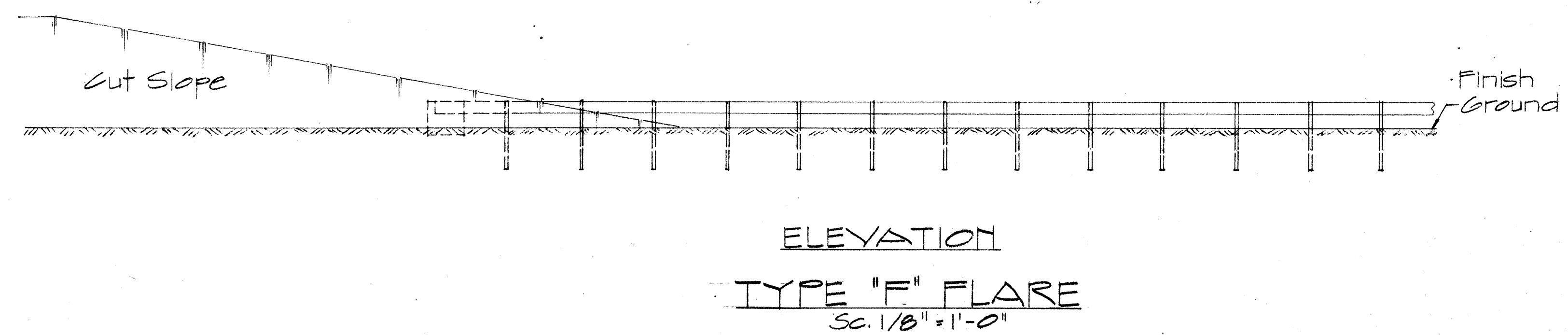
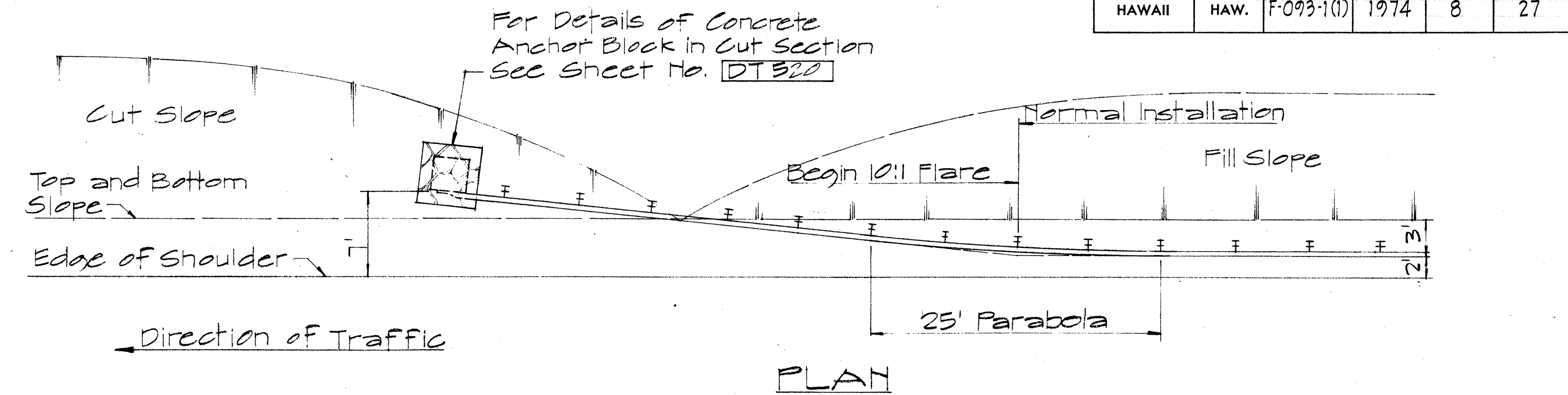
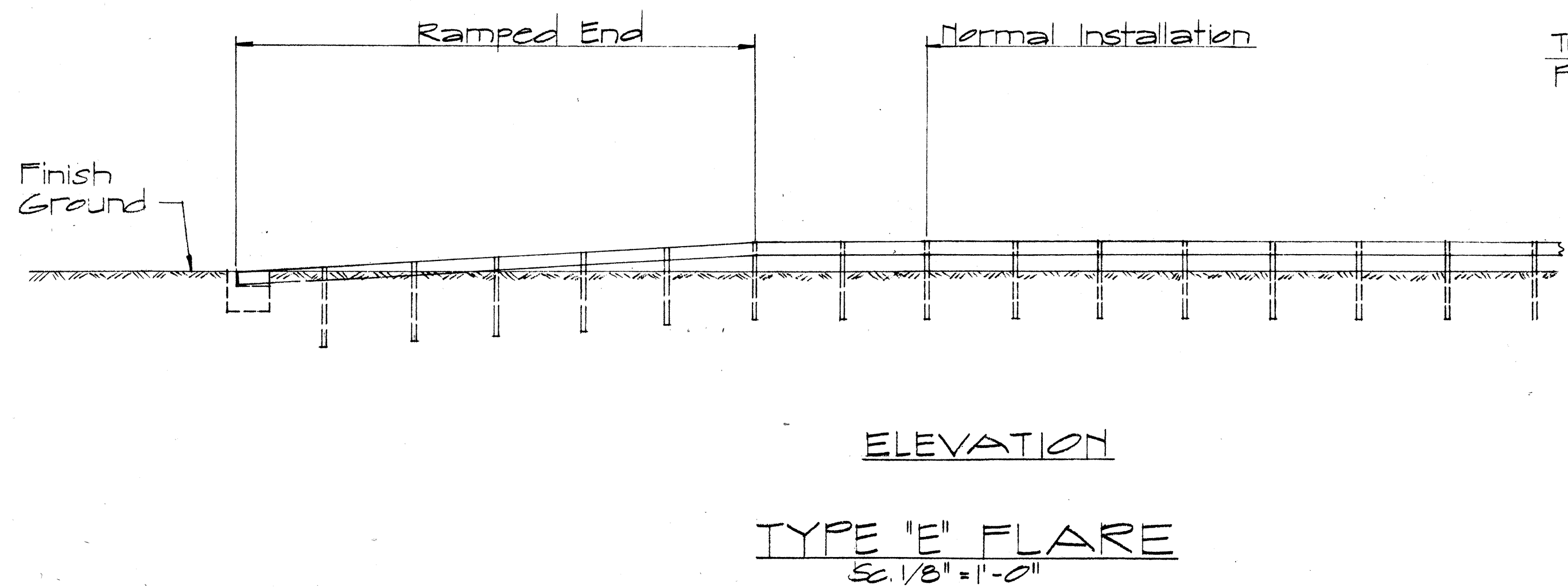
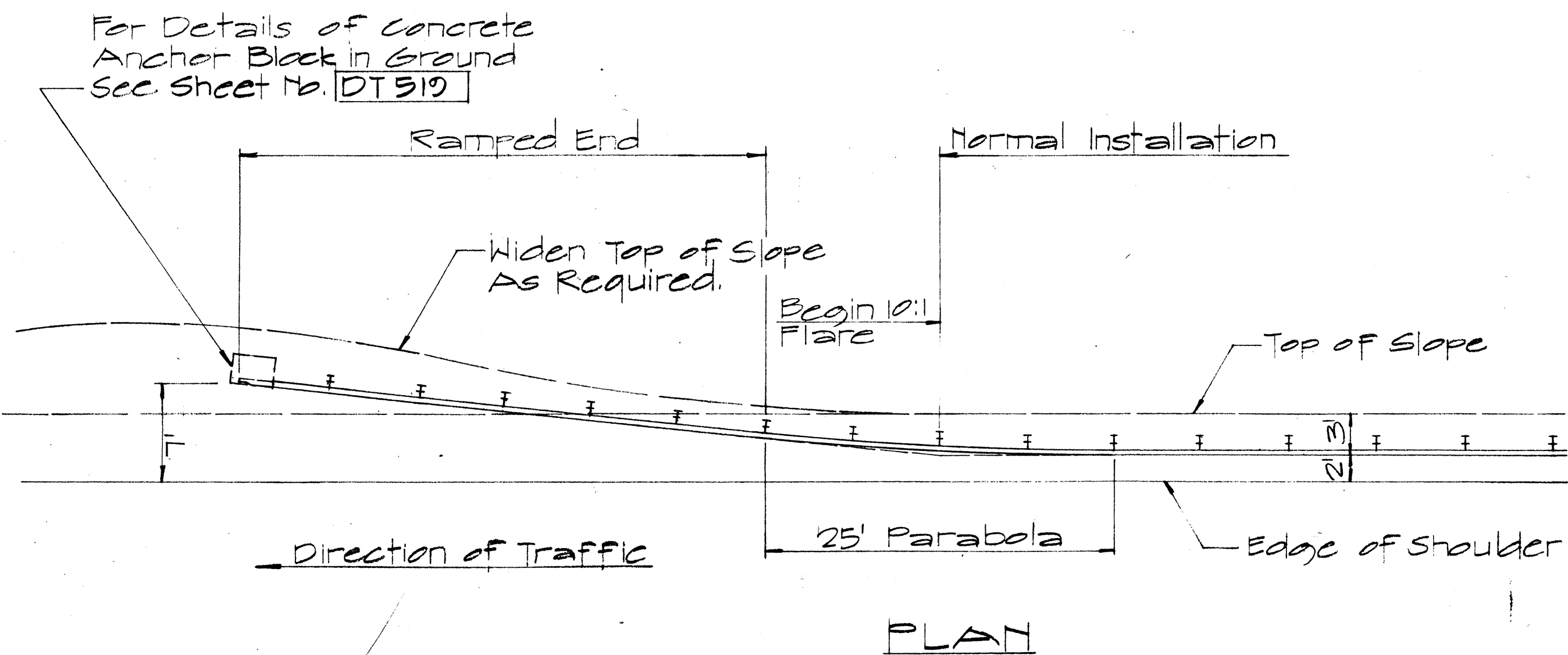
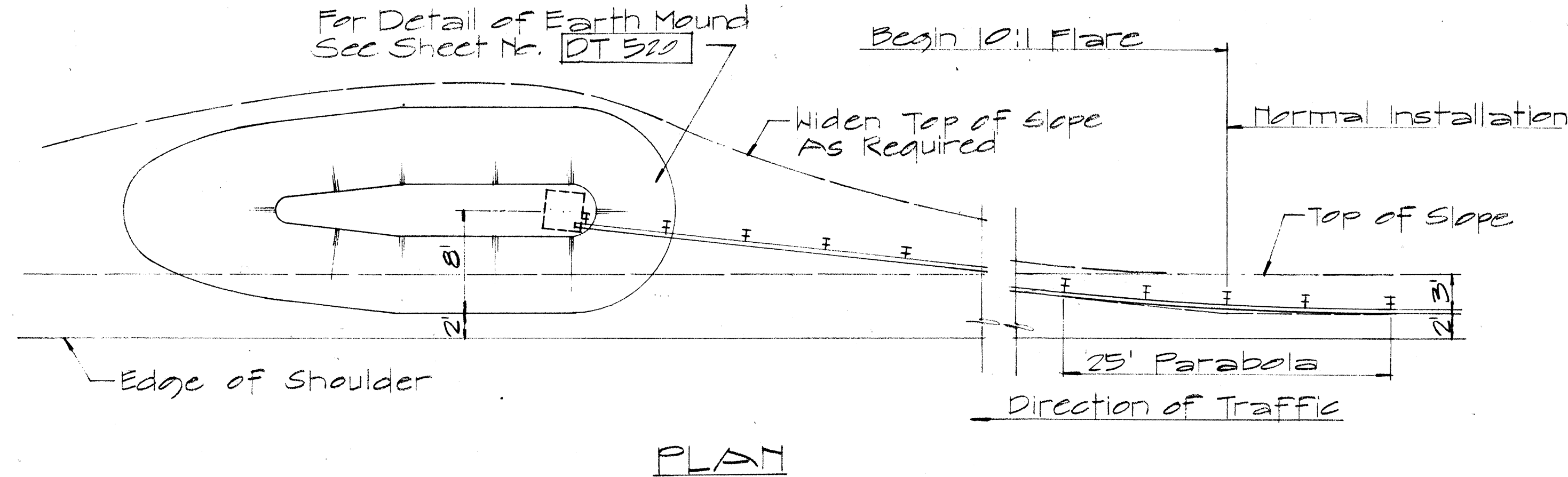
APPROVAL RECOMMENDED:
Erich Tanaka
TRAFFIC ENGINEER
12/29/69
DATE

APPROVED:
W. B. B. B.
ASSISTANT CHIEF, ENGINEERING
12-20-69
DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
STANDARD DETAILS
OF APPROACH END
FLARE - ONE & TWO
WAY ROADWAY
Sc. As Noted April 1969
SHEET No. 6 OF 10 SHEETS DT 516

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-093-1(1)	1974	8	27



APPROVAL RECOMMENDED: Eishi Tanaka 12/29/69
TRAFFIC ENGINEER DATE

APPROVED: W. J. Sal 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

NO.	REVISION	APPROVED BY	DATE
1	Additional Posts Added to Typical Layout Plan Of End Post Connection	H.T.	4-12-72

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

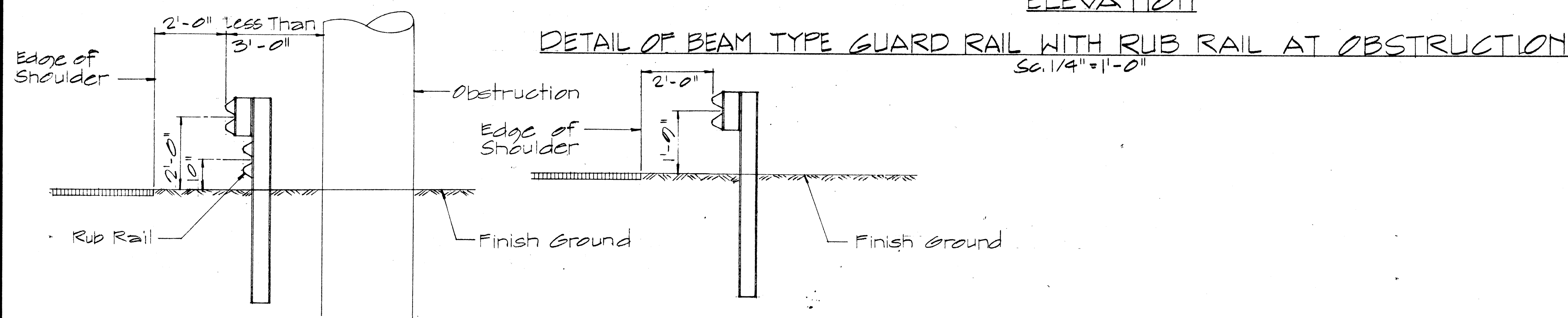
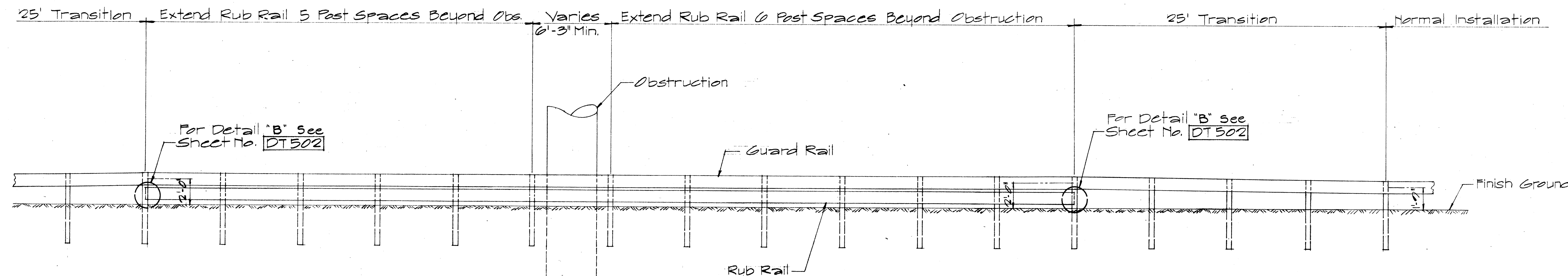
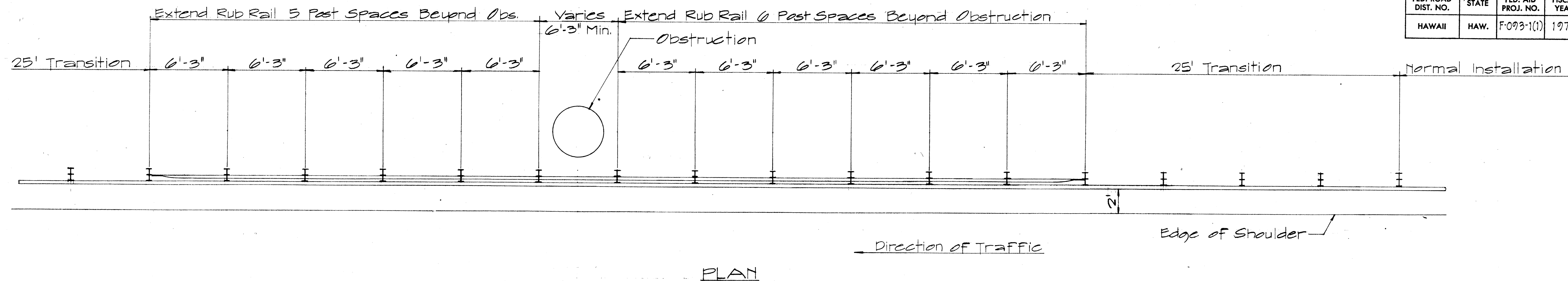
STANDARD DETAILS
TRAILING END
FLARE - ONE & TWO
WAY ROADWAY

Scale: As Noted April 1969

SHEET No. 7 OF 10 SHEETS DT 517

DATE	
SURVEY PLOTTED BY	
PLAN	
DESIGNED BY	
NOTE BOOK	
QUANTITIES BY	
CHECKED BY	
No.	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	F-093-1(1)	1974	9	27



TYP. SEC. AT OBSTRUCTION

TYP. SEC. AT NORMAL INSTALLATION

TYP. GUARD RAIL SECTIONS

Sc. 1/2" = 1'-0"

APPROVAL RECOMMENDED:
Eishi Tanaka
 TRAFFIC ENGINEER 12/29/69
 DATE

APPROVED:
John S. S. S.
 ASSISTANT CHIEF, ENGINEERING 12-30-69
 DATE

NO.	REVISION	APPROVED BY	DATE

STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION

STANDARD DETAIL
 BEAM TYPE GUARD RAIL
 WITH RUB RAIL AT OB-
 STRUCTION (SHOULDER INSTALL)

SC. AS SHOWN DATE: JUNE 1969

SHEET No. 8 OF 10 SHEETS DT 518

Hand-drawn plan view of a guard rail assembly. The diagram shows a series of vertical posts connected by a top rail and a bottom rail. The top rail is labeled "6'-3"

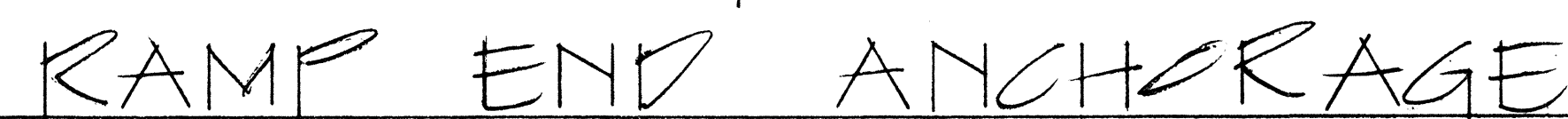
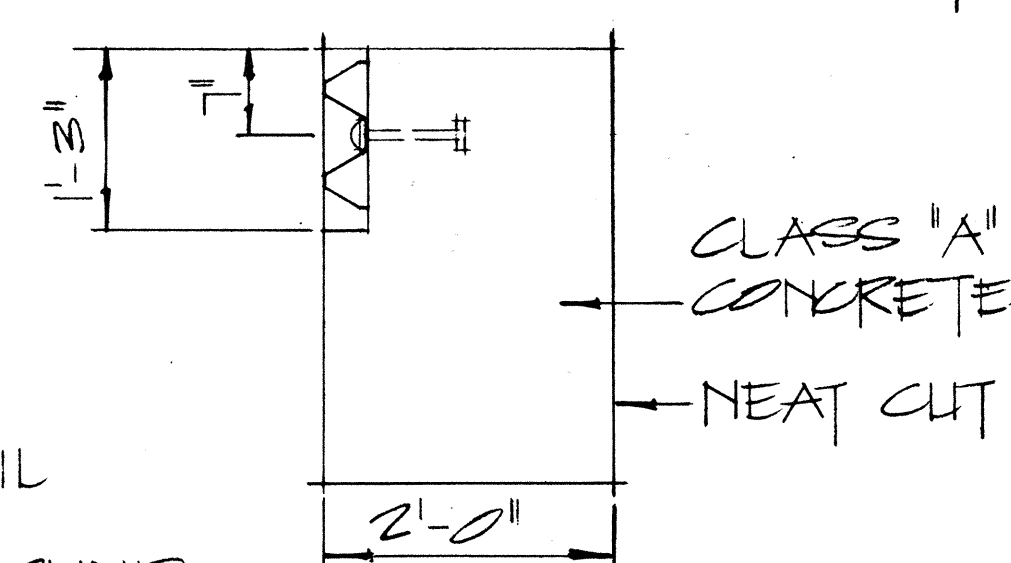
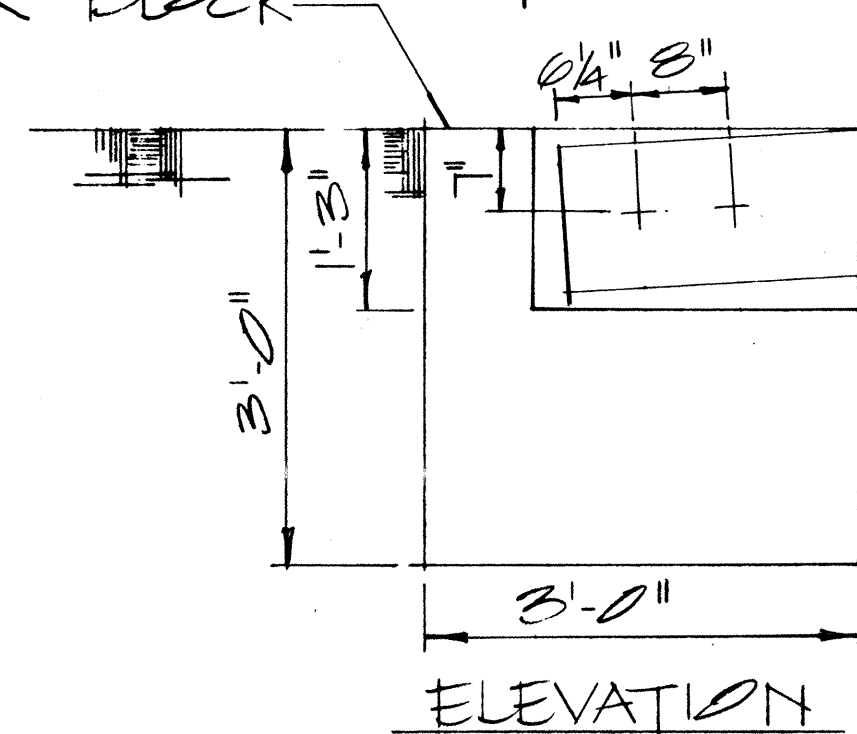


Diagram showing the Plan view of the bracket. Dimensions include a total width of 3'-0" and a total height of 2'-0". A vertical dimension of 3 1/2" is shown on the left, and a horizontal dimension of 9" is shown at the bottom left. A slot for a guard rail is indicated on the right side. The word "PLAN" is written at the bottom.



SECTION "A-A"

TOP OF ANCHOR BLOCK
TO BE FLUSH
W/ GROUND.



GROUND
-LINE

NOTE:
CONCRETE, EXCAVATION AND
MISCELLANEOUS APPURTENANCES
NECESSARY TO ANCHOR THE GUARD
RAIL ENDS, SHALL BE INCIDENTAL
TO THE METAL GUARD RAIL.

CONCRETE ANCHOR BLOCK

SCALE: $3/4'' = 1' - 0''$

APPROVAL RECOMMENDED:
Eishi Tanaka 12/29/69
TRAFFIC ENGINEER DATE

APPROVED: 21 Feb 22 12-30-69
ASSISTANT CHIEF, ENGINEERING DATE

**STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION**

STANDARD DETAILS
GUARD RAIL, TYPE 3
RAMP END ANCHORAGE

SCALE: AS SHOWN

SHEET No. 9 OF 10 SHEETS DT 512

KO CRYSTALEND® LA 2920