

INDEX OF SHEETS

1. TITLE SHEET
2. QUANTITY SHEET
3. PLAN
4. PROFILE
5. BORING LOGS
6. DETAIL PLAN AND ELEVATION BR. 24
7. TYPICAL SECTION AND SUPERSTRUCTURE DETAILS
8. GENERAL NOTES AND BRIDGE MARKER
9. GENERAL DETAILS
10. FRAMING PLAN AND STEEL DETAILS
11. BEARING DETAILS
12. ASUTMENT DETAILS
13. WINGWALL DETAILS
14. DETAIL PLAN AND ELEVATION BR. 25
15. DETAILS OF FISH HABITAT PROVISIONS
- 16.-19. RIGHT-OF-WAY SHEETS
- 20.-23. ROADWAY SECTIONS
- 24.-33. CHANNEL SECTIONS

Dated: NOV 16 1990

A.H. St Onge Contractor, Inc
Contractor

Arthur L. St Onge
Signature

President
Title

Paul B. Philbrook
Transportation Secretary's Signature

STATE OF VERMONT AGENCY OF TRANSPORTATION



CONTRACT PLANS

THESE PLANS DO NOT REFLECT
CHANGES MADE ON THE PROJECT.

PROPOSED IMPROVEMENT BRIDGE PROJECT

TOWN OF CHARLESTON
COUNTY OF ORLEANS

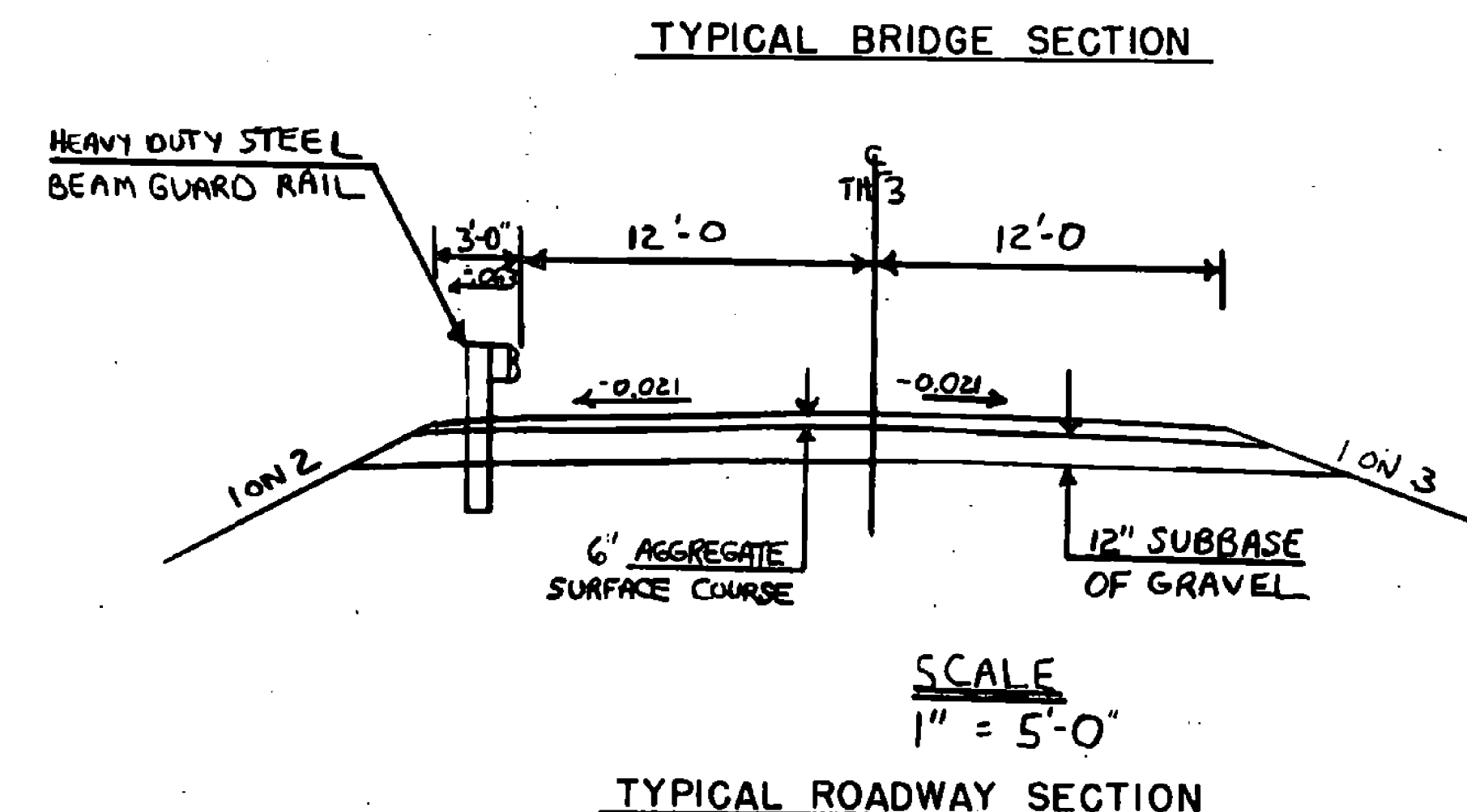
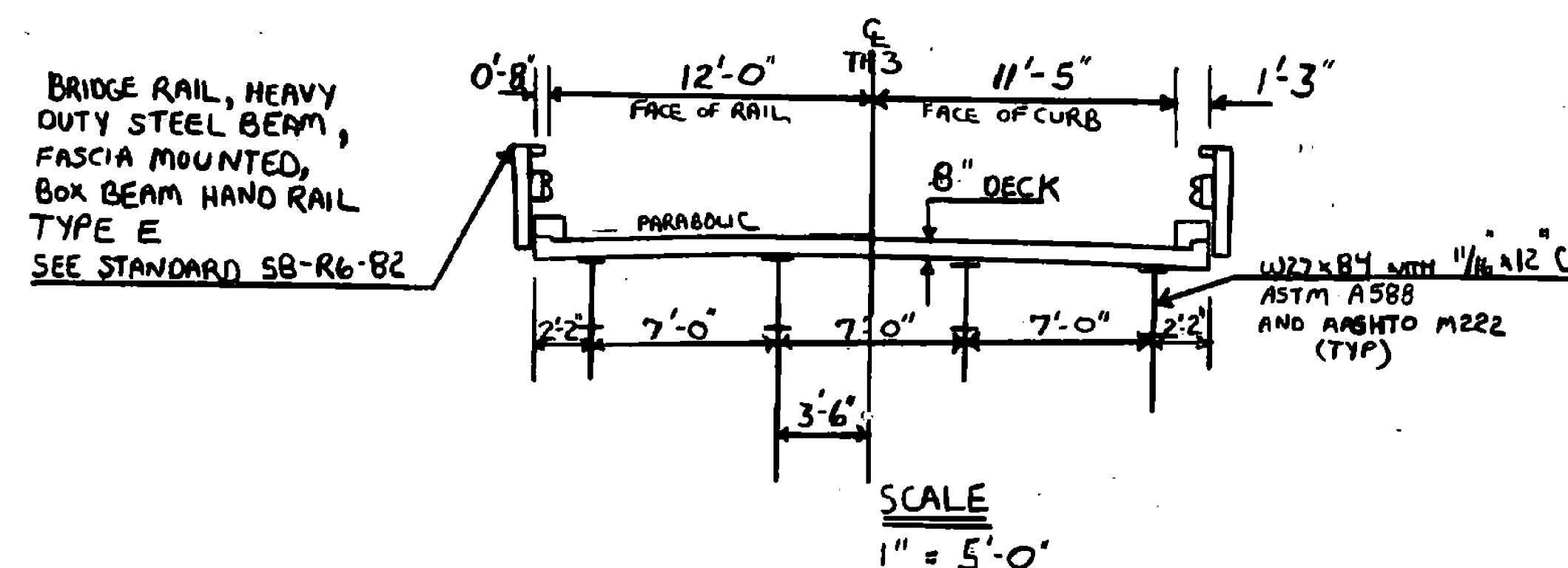
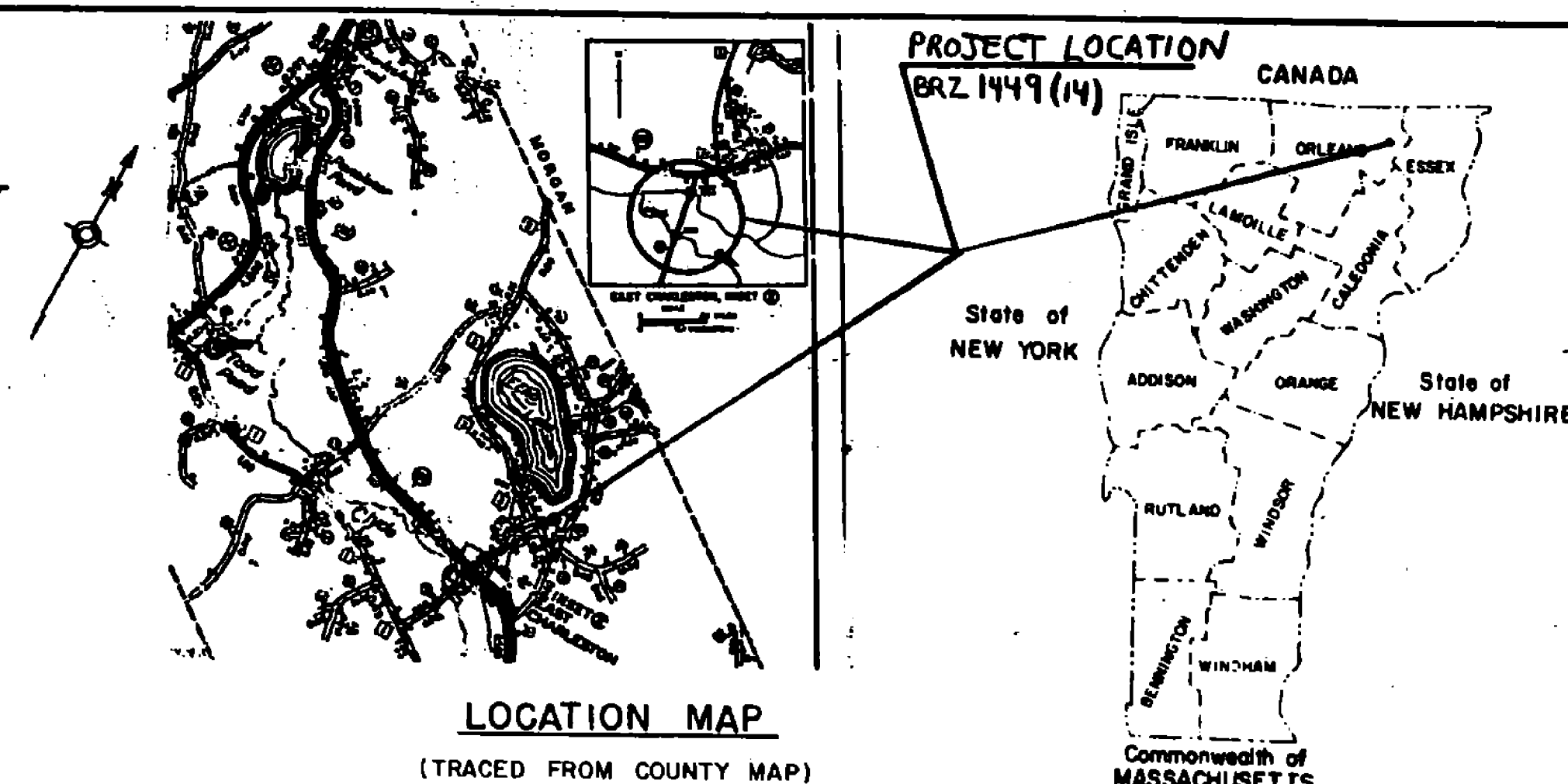
ROUTE NO: TH.3 BRIDGE NO: 24 & 25

PROJECT LOCATION: BEGINNING AT JUNCTION OF TH3 AND VT 105
AND EXTENDING SOUTHWEST 595 FT

PROJECT DESCRIPTION: CONSTRUCT NEW SIMPLE SPAN ROLLED BEAM
BRIDGE WITH NECESSARY ROADWAY APPROACH AND CHANNEL
WORK

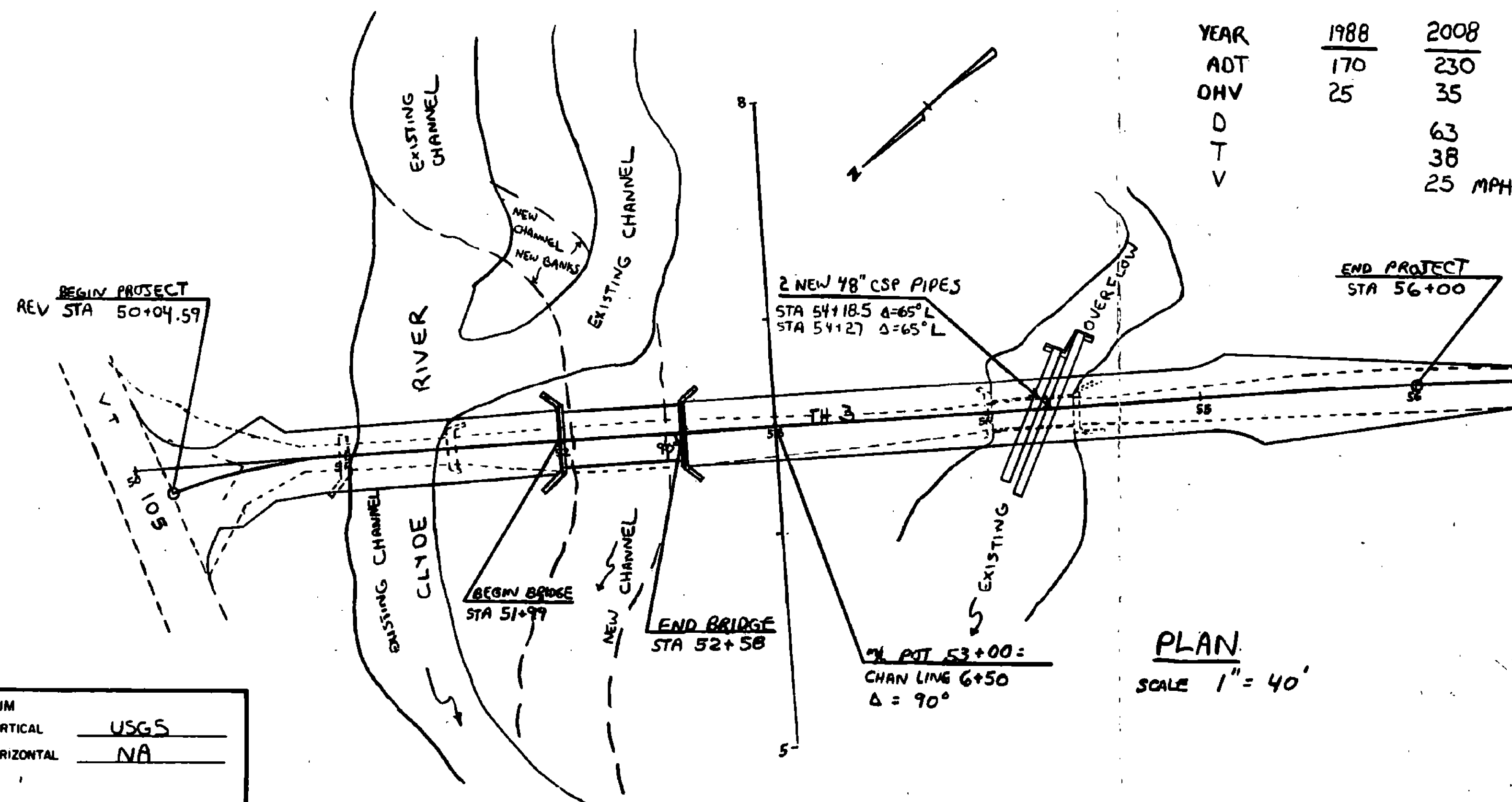
LENGTH OF STRUCTURE: 59.0 FEET
LENGTH OF PARTICIPATION ROADWAY: 536.41 FEET
LENGTH OF NON-PARTICIPATION ROADWAY: 0.0 FEET
LENGTH OF PROJECT: 595.41 FEET

STRESS LEVELS	LOAD RATING (TONS)							
	H	HS	352	400	450	500	550	600
INVENTORY	35	44						
POSTED	50	63	86		55	56	73	
OPERATING		75	102	111				



TRAFFIC DATA

YEAR	1988	2008
ADT	170	230
OHV	25	35
D		63
T		38
V		25 MPH



- CONVENTIONAL SIGNS
- COUNTY LINE
 - TOWN LINE
 - LIMITS OF ACCESS
 - POINT OF ACCESS
 - FENCE LINE
 - STONE WALL
 - TRAVELED WAY
 - GUARD RAIL
 - RAILROAD
 - SURVEY LINE
 - CULVERT
 - POWER POLE
 - TELEPHONE POLE
 - TREES
 - CONTROL OF ACCESS
 - PROPERTY LINE
 - R.O.W. TAKING LINE
 - SLOPE RIGHTS
 - TOP OF CUT
 - TOE OF SLOPE

DATUM
VERTICAL USGS
HORIZONTAL NA

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING
CHANGES AS MAY BE REQUIRED BY THE FEDERAL
HIGHWAY ADMINISTRATION OR THE CHIEF ENGINEER.
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE
WITH THESE PLANS AND THE STANDARD SPECIFICATIONS
FOR CONSTRUCTION DATED 1986, FOR USE ON THESE
PROJECTS, INCLUDING ALL SUBSEQUENT PROVISIONS AS
ARE INCORPORATED IN THESE PLANS.

SUBMITTED BY ORDER OF THE STATE TRANSPORTATION BOARD

APPROVED David M. Kelly DATE 3/16/89
CHIEF ENGINEER

TITLE SHEET
TH3, BR24*BR25 OVER CLYDE RIVER

PROJECT CHARLESTON PROJECT NO. BRZ 1449 (14)

SHEET 1 OF 33 SHEETS

0-10 SJB 7/21/81

EARTHWORK														
V.C.	% GRD	STATION	GRADES		CORR. V.C.	DIST.	COMMON EXCAVATION		FILL		SUBBASE OF GRAVEL		AGGREGATE SURFACE COURSE	
			ON TAN.	ON V.C.			AREA	CU. YDS.	AREA	CU. YDS.	AREA	CU. YDS.	AREA	CU. YDS.
L=40 K=9	0.0%	50+00	1169.20				0							
		50+04	1169.20			4		25		32		14		
		50+20	1169.20	1169.20		16	68			32	14		8	
		50+25	1169.20	1169.19	- .01	14.5	18			32	17		8	
		50+34.5	1169.20	1169.09	- .11		0			32	14			
		50+40	1169.20	1168.97	- .23	15.5			64	18	32	18		8
		50+50	1168.78	1168.73	- .05				149	32	43		14	19
		50+60	1168.36	1168.36		36			160	32		14		
		50+80	1167.27			13			546	183	32	17		7
		50+99	1160.72			2			340		32		14	
L=160 K=46	-4.2045%	51+00	1166.68							32		58		25
		51+01	1166.64						1062	32	59		14	26
		51+49	1164.58			48			780	32		14		
		51+50	1164.62			50				32		14		
		51+99	1162.52	BEGIN BRIDGE		01				32		14		
		52+00	1162.47			58						14		
		52+50	1160.37	END BRIDGE		42				32	50		14	22
		52+90	1158.69	1158.69	+ .01	08				32	10		14	4
		53+00	1158.27	1158.28	+ .01	35			103	32	41		14	18
		53+08	1157.93	1157.97	+ .04	07				96	32	8		4
L=160 K=46	-0.75%	53+43	1156.46	1156.76	+ .30					32		14		
		53+50	1156.17	1156.56	+ .39	50			80	94	32	59		26
		53+70	1155.33	1156.02	+ .69	40			82	119	32	47		21
		54+00	1155.10	1155.37	+ .27	10	0	15	78	32	32	14		5
		54+40	1154.80	1154.81	+ .01	4	80	13	94	15	32	5		2
		54+50	1154.73	1154.73		46	92	124	106	90	32	55		24
		55+00	1154.35			50	53	82	0	5	32	59		26
		55+50	1153.98			50	35	32	5	5	32	59		26
		56+00	1153.60				0		0	32		14		
				NEW DRIVE				309		1868		636		279
		COUNTRY STORE PARKING LOT						57				33		
		ROUNDING								4		10		
		TOTAL (CY)				310		2260		640		325		
L=160 K=46	UNCLASSIFIED CHANNEL EXCAVATION FROM ROADWAY SECTION	4+50				50	27	142						
		5+0				50	126	323						
		5+50				25	223	201						
		5+75		</										

BRIDGE QUANTITY SHEET										STATE OF VERMONT AGENCY OF TRANSPORTATION STRUCTURES DIVISION				
NO.	ITEM	UNIT	QUANTITY BREAKDOWN										TOTAL	FINAL
			SUPER- STRUCTURE	ABUTMENT NO. 1	ABUTMENT NO. 2	CHANNEL	ROADWAY	UPSTREAM BERMS						
203.15	COMMON EXCAVATION	CY					310					310		
203.27	UNCLASSIFIED CHANNEL EXCAVATION	CY				2500	610					3110		
203.30	EARTH BORROW	CY					590					590		
203.32	GRANULAR BORROW	CY		985	195		300					1480		
204.25	STRUCTURE EXCAVATION	CY		350	300							650		
204.30	GRANULAR BACKFILL FOR STRUCTURES	CY		300	230							530		
301.15	SUBBASE OF GRAVEL	CY					640					640		
401.10	AGGREGATE SURFACE COURSE	CY					325					325		
501.22	CONCRETE, CLASS A	CY	50									50		
501.25	CONCRETE, CLASS B	CY		115	95		10					220		
506.50	STRUCTURAL STEEL, ROLLED BEAM	LBS	27,500									27,500		
507.15	REINFORCING STEEL	LBS		11500	9500		200					21200		
507.17	EPOXY COATED REINFORCING STEEL	LBS	10750									10750		
508.15	SHEAR CONNECTORS (616-7/8 x 6")	LS	1									1		
514.10	WATER REPELLENT	GAL	16	5	5							26		
525.43	BRIDGE RAILING - HD38 / FASCIA MOUNTED / HMD RM	LF	125									125		
529.15	REMOVAL OF STRUCTURE	EA	1				1					2		
531.10	BEARING DEVICE ASSEMBLY	EA		4	4							8		
601.0057	48" CSP 0.109 (2 2/3 x 1/2)	LF					147					147		
608.25	ALL PURPOSE EXCAVATOR RENTAL, TYPE I (NABE)	HR					1					1		
608.37	TRUCK RENTAL (NABE)	HR					1					1		
613.11	STONE FILL, TYPE II	CY					1740					1740		
613.13	STONE FILL, TYPE IV	CY					1220			160		1380		
620.70	SNOW FENCE (MODIFIED)	LF					1200					1200		
621.21	HEAVY DUTY STEEL BEAM GUARD RAIL	LF						823				823		
621.60	ANCHOR FOR STEEL BEAM RAIL	EA					6					6		
631.10	FIELD OFFICE ENGINEER'S	LS										1		
631.16	TESTING EQUIPMENT - CONCRETE	LS										1		
635.10	MOBILIZATION	LS										1		
649.10	GEOTEXTILE FABRICS FOR FILTERS	SY					1280					1280		
651.15	SEED	LB						30				30		
651.18	FERTILIZER	LB						250				250		
651.20	AGRICULTURAL LIMESTONE	TON						1				1		
651.25	HAY MULCH	TON												
651.40	GRUBBING MATERIAL	SY					1250					1250		

BRIDGE (S) AT STATION (S) 52+28
 LOCATION (S) TH3 OVER CLYDE RIVER

Prepared by: A. CHURCH Checked by: R.P. GENORON
 SUPERVISOR: R.P. GENORON

PROJECT NO. BR2 1449(14)
 SHEET NO. 2 OF 33

SHEET 4 OF 33

SOIL CLASSIFICATION

AASHTO	
A1	Gravel and Sand
A2	Fine Sand
A3	Silty or Clayey Gravel and Sand
A4	Silty Soil - Low Compressibility
A5	Silty Soil - Highly Compressible
A6	Clayey Soil - Low Compressibility
A7	Clayey Soil - Highly Compressible

UNIFIED SOIL SYSTEM

GW/GP	Clean Gravels (Few Fines)
GM/GC	Gravels (Appreciable Fines)
SW/SP	Clean Sands (Few Fines)
SM/SC	Sand (Appreciable Fines)
ML/CL	Low Plastic Silts & Clays
OL	Low Plastic Organic Silt
MH/CH	High Plastic Silts & Clays
OH	High Plastic Organic Silt
PT	Highly Organic Soils

MOISTURE

DESCRIPTIVE TERM	OBSERVED IN FIELD	% ± BY ANALYSIS
Dry	No Visible Water	<10
Moist	Damp	10-20
Moist to Wet	Moist to Wet	21-50
Wet	Visible Water	51-70
Saturated		>70

ROCK QUALITY DESIGNATION

R.Q.D.	ROCK DESCRIPTION
<.25	Very Poor
.25 to .50	Poor
.51 to .75	Fair
.76 to .90	Good
>.90	Excellent

SHEAR STRENGTH

UNDRAINED SHEAR STRENGTH IN P.S.F.	CONSISTENCY
<250	Very Soft
250-500	Soft
500-1000	Med. Stiff
1000-2000	Stiff
2000-4000	Very Stiff
>4000	Hard

CORRELATION GUIDE OF 'N' TO DENSITY/CONSISTENCY

DENSITY (GRANULAR SOILS)	CONSISTENCY (COHESIVE SOILS)
DESCRIPTIVE TERM	DESCRIPTIVE TERM
N <5	Very Loose
5-10	Loose
11-24	Med. Dense
25-50	Dense
>50	Very Dense
N <2	Very Soft
2-4	Soft
5-8	Med. Stiff
9-15	Stiff
16-30	Very Stiff
31-60	Hard
>60	Very Hard

DEFINITIONS (AASHTO)

BEDROCK (LEDGE) - Rock in its native location of indefinite thickness.

BOULDER - A rock fragment with an average dimension > 12 inches.

COBBLE - Rock fragments with an average dimension between 3 and 12 inches.

GRAVEL - Rounded particles of rock < 3" and > 0.075" (#20 sieve).

SAND - Particles of rock < 0.075" (#20 sieve) and > 0.0025" (#75 sieve).

SILT - Soil < 0.0025" (#75 sieve), non or slightly plastic and exhibits no strength when air-dried.

CLAY - Fine grained soil, exhibits plasticity when moist and considerable strength when air-dried.

VARVED - Alternate layers of silt and clay.

HARDPAN - Extremely dense soil, cemented layer, not softened when wet.

MUCK - Soft organic soil (containing > 10% organic material).

MOISTURE CONTENT - Weight of water divided by dry weight of soil.

FLOWING SAND - Granular soil so saturated (loose) that it flows into drill casing during extraction of wash rod.

STRIKE - Angle from magnetic north to line of intersection of bed with a horizontal plane.

DIP - Inclination of bed with a horizontal plane.

COMMONLY USED SYMBOLS

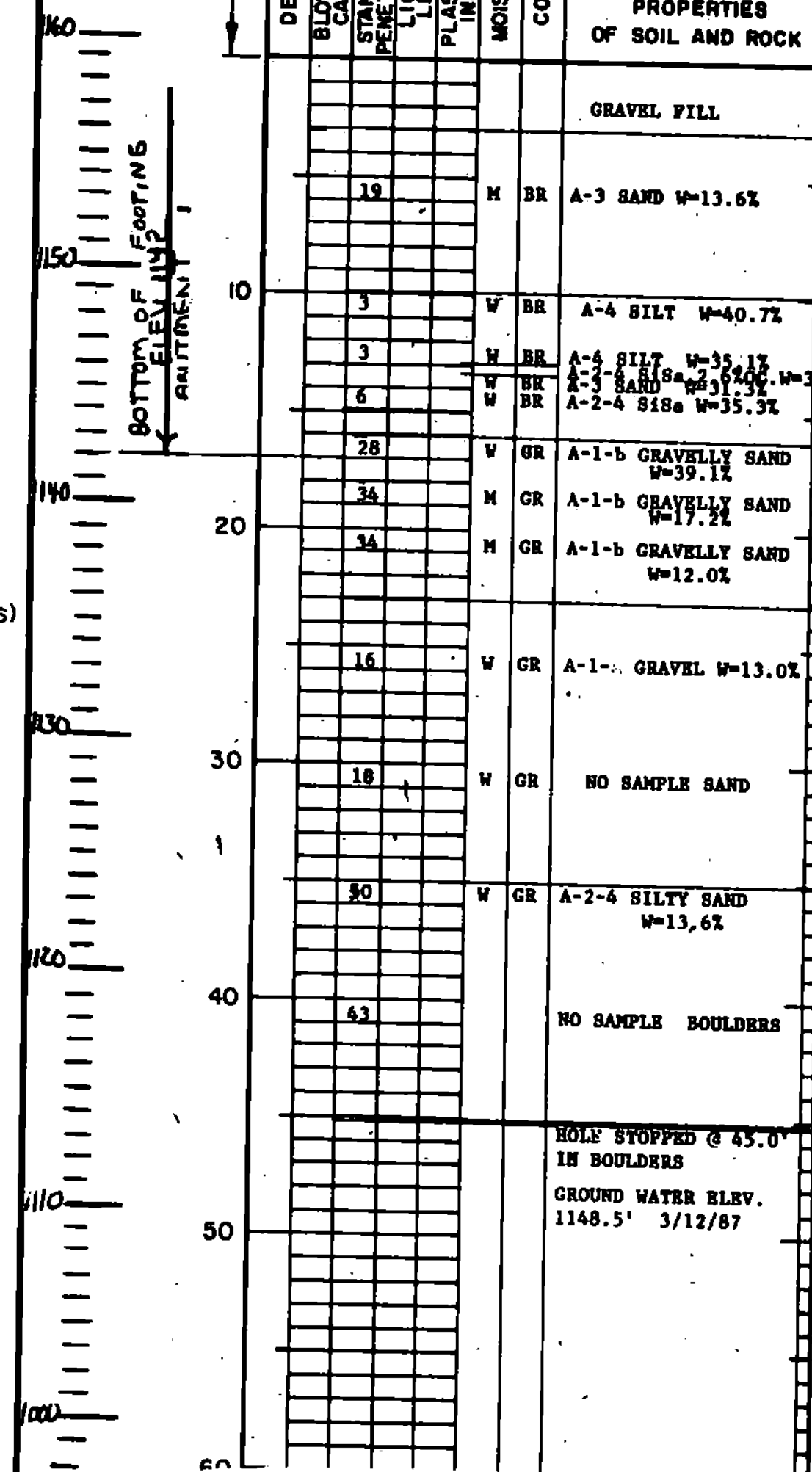
▼	Water Elevation
●	Standard Penetration Boring
○	Auger Boring
⊙	Rod Sounding
S	Sample
N	Standard Penetration Test
	Blow Count Per Foot For:
	2" O.D. Sampler
	1 3/8" I.D. Sampler
	Hammer Weight Of 140 Lbs.
	Hammer Fall Of 30"
VS	Field Vane Shear Test
US	Undisturbed Soil Sample
B	Blast
DC	Diamond Core
MD	Mud Drill
WA	Wash Ahead
HSA	Hollow Stem Auger
AX	Core Size 1 1/8"
BX	Core Size 1 3/8"
NX	Core Size 2 1/8"
M	Double Tube Core Barrel Used
LL	Liquid Limit
PL	Plastic Limit
PI	Plasticity Index
NP	Non Plastic
w	Moisture Content (Dry Wgt. Basis)
D	Dry
M	Moist
MTW	Moist To Wet
W	Wet
Sat	Saturated
Bo	Boulder
Gr	Gravel
Sa	Sand
Sl	Silt
Cl	Clay
HP	Hardpan
Le	Ledge
NLTD	No Ledge To Depth
CNPF	Can Not Penetrate Further
TLOB	To Ledge Or Boulder
NR	No Recovery
Rec.	Recovery
%Rec.	Percent Recovery
ROD	Rock Quality Designation
CBR	California Bearing Ratio
<	Less Than
>	Greater Than

COLOR

blk	Black	pnk	Pink
bl	Blue	pu	Purple
brn	Brown	rd	Red
dk	Dark	tn	Tan
gr	Gray	wh	White
gn	Green	yel	Yellow
lt	Light	mtc	Multicolored
or	Orange		

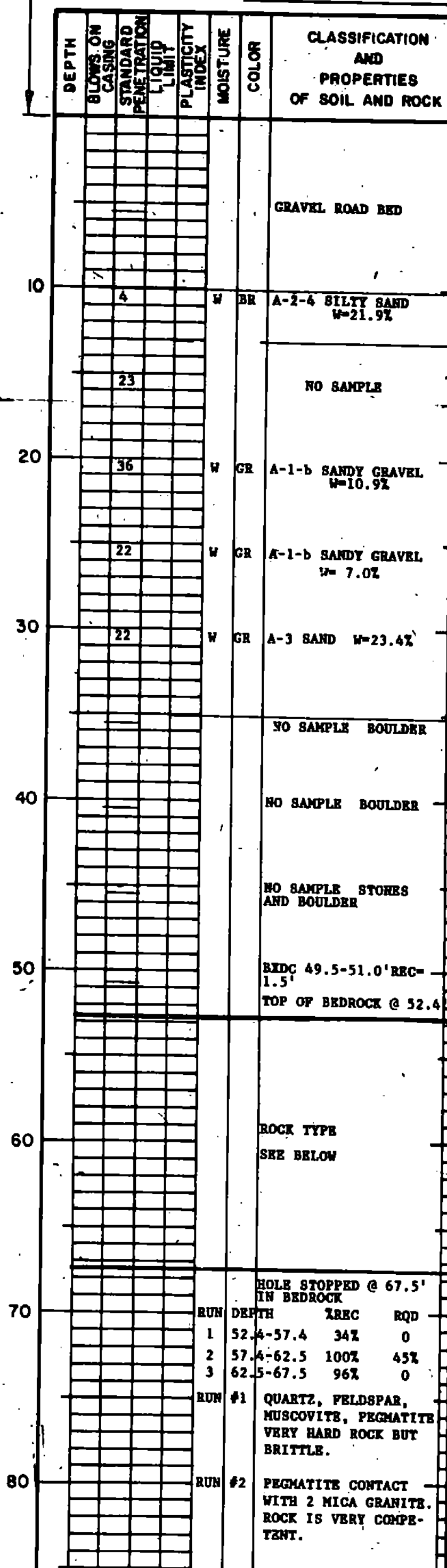
CHARLESTON BRZ 1449(14)

HOLE NO. B-1 STA. 51+90 OFFSET LT 5'
 DRILLER: McGLYNN
 LOG APPROVED BY: GREGG BACHELDER-ADAMS
 DATE: START 3/12/87 FINISH 3/12/87
 SURFACE ELEVATION: 1159.0 FT

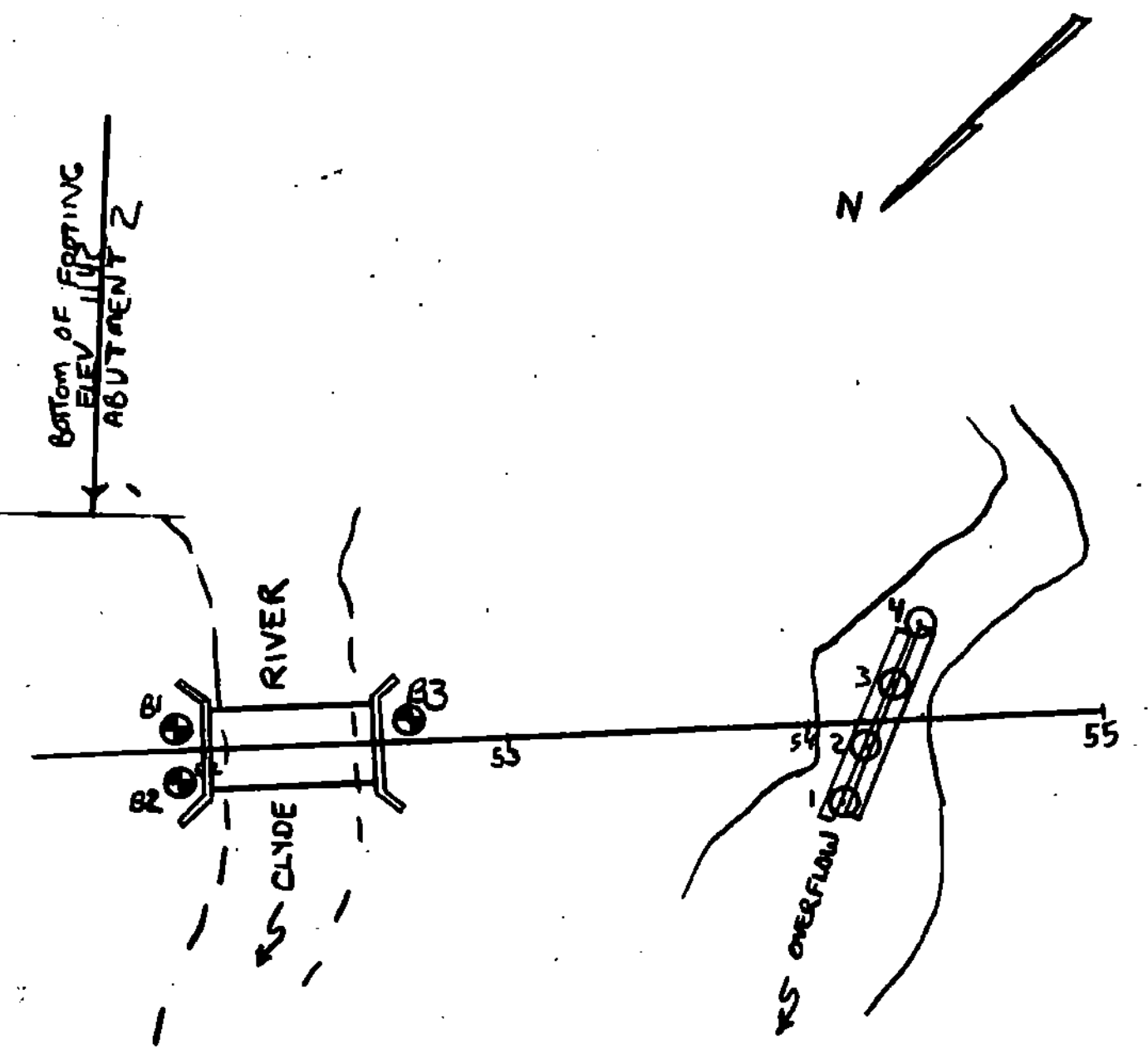
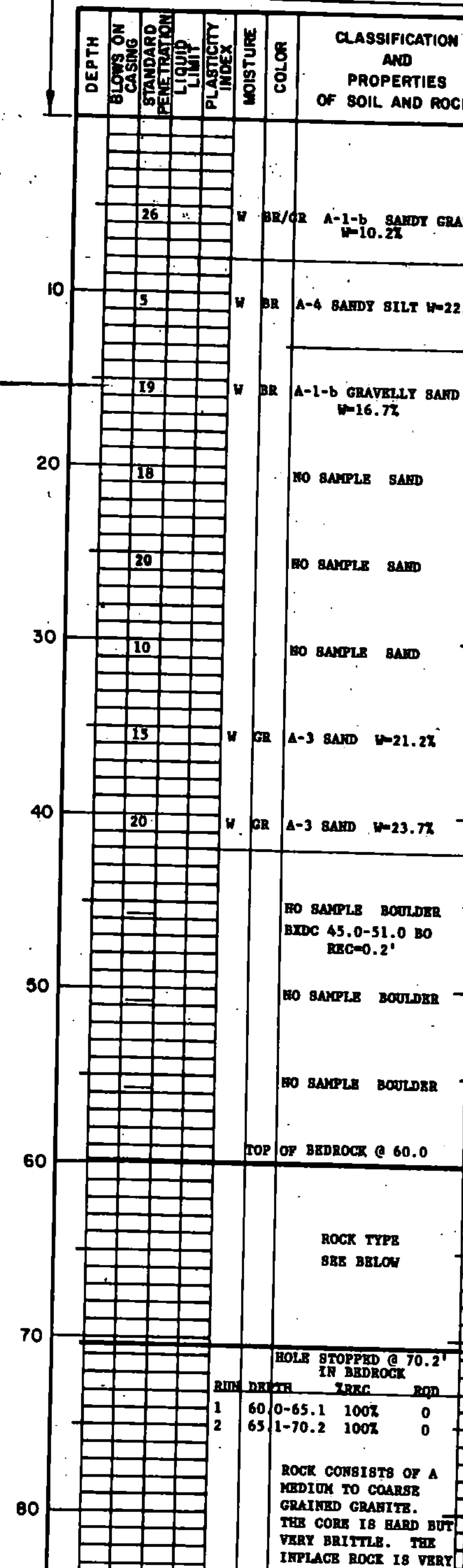


CHARLESTON BRZ 1449(14)

HOLE NO. B-2 STA. 51+90 OFFSET RT 11'
 DRILLER: McGLYNN
 LOG APPROVED BY: GREGG BACHELDER-ADAMS
 DATE: START 3/12/87 FINISH 3/12/87
 SURFACE ELEVATION: 1158.9'



HOLE NO. B-3 STA. 52+65 OFFSET LT 7'
 DRILLER: McGLYNN
 LOG APPROVED BY: GREGG BACHELDER-ADAMS
 DATE: START 3-8-87 FINISH 3-8-87
 SURFACE ELEVATION: 1157.6'



HOLE	STATION	OFFSET
B-1	51+90	5' LT
B-2	51+90	11' RT
B-3	52+65	7' LT

HAND SOUNDING DATA

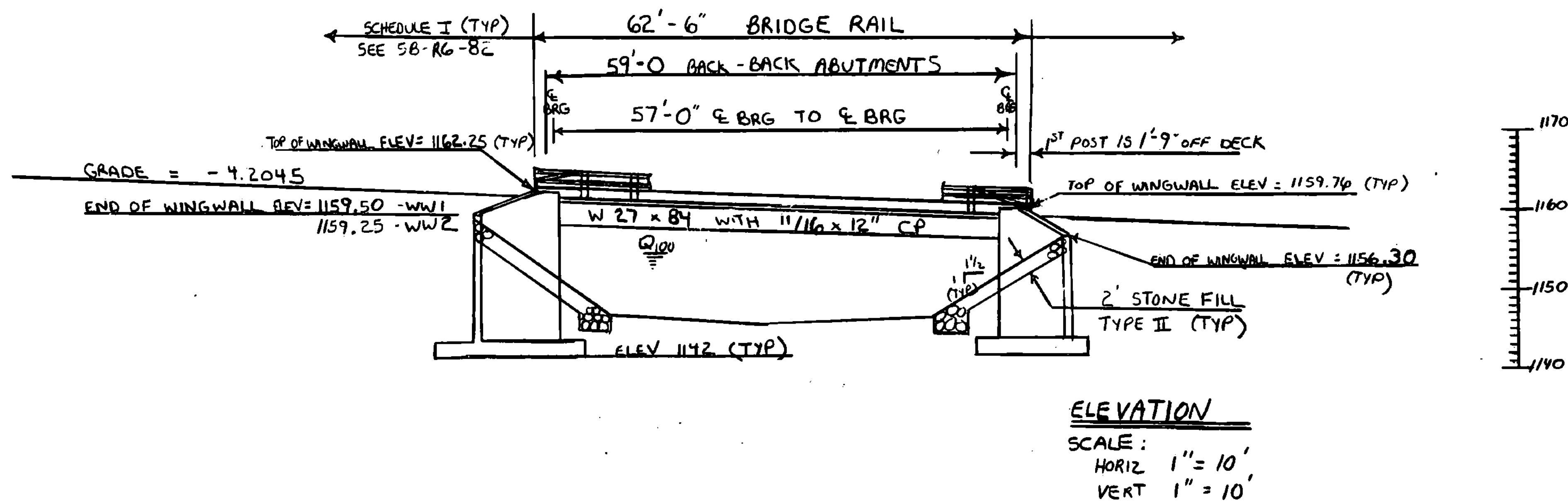
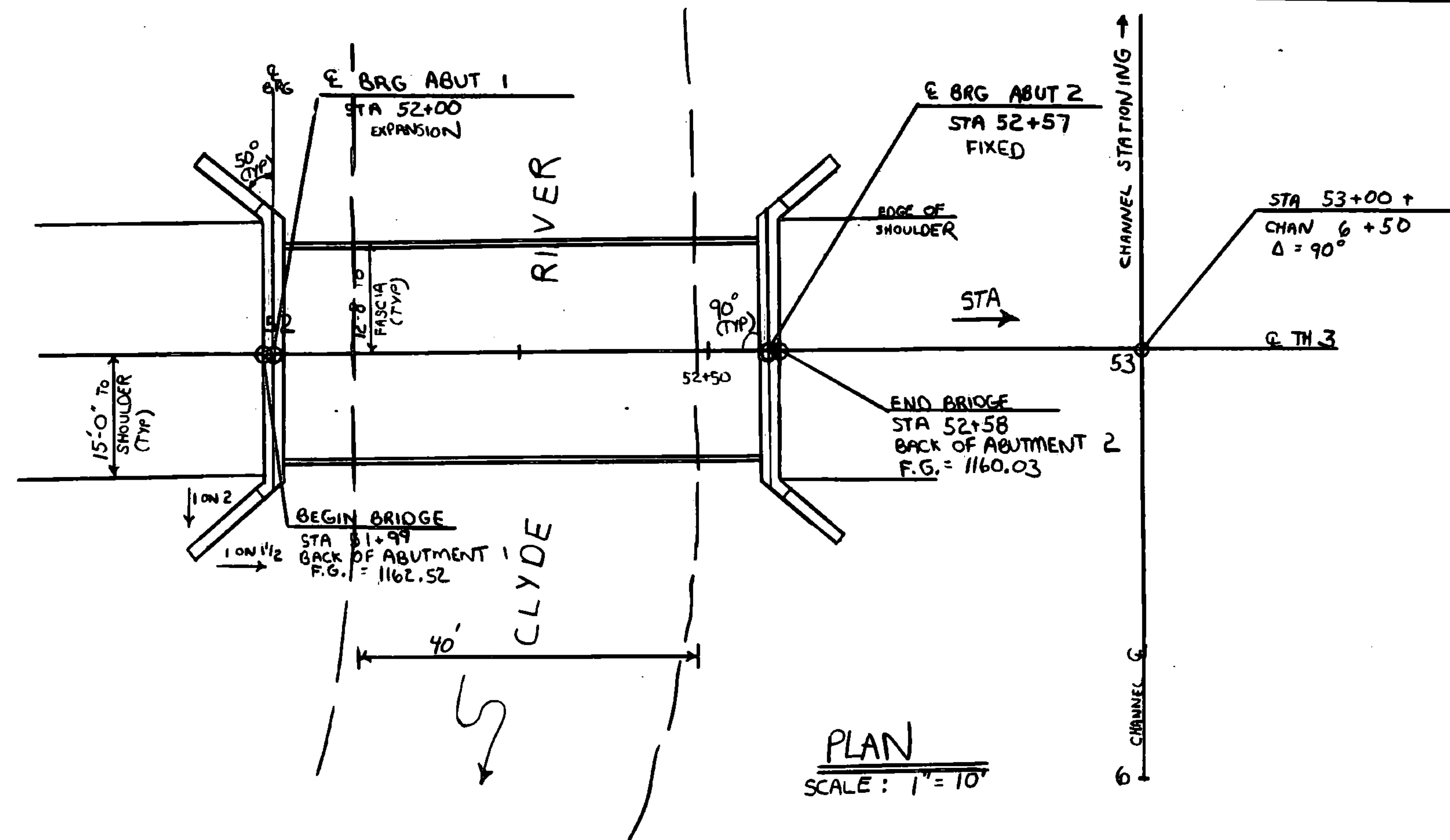
BORING #	STATION	OFFSET	DEPTH	MATERIAL DESCRIPTION
1	54+18	27' RT	0.0-7.0 7.0-15.0 ✓	ICE AND WATER Si NLTD
2	54+19	10' RT	0.0-8.0 8.0-15.0 ✓	ICE AND WATER Si NLTD
3	54+28	11' LT	0.0-6.0 6.0-15.0 ✓	ICE AND WATER SiSa NLTD
4	54+37	30' LT	0.0-11.5 11.5-15 ✓	ICE AND WATER SiSa NLTD

GENERAL NOTES

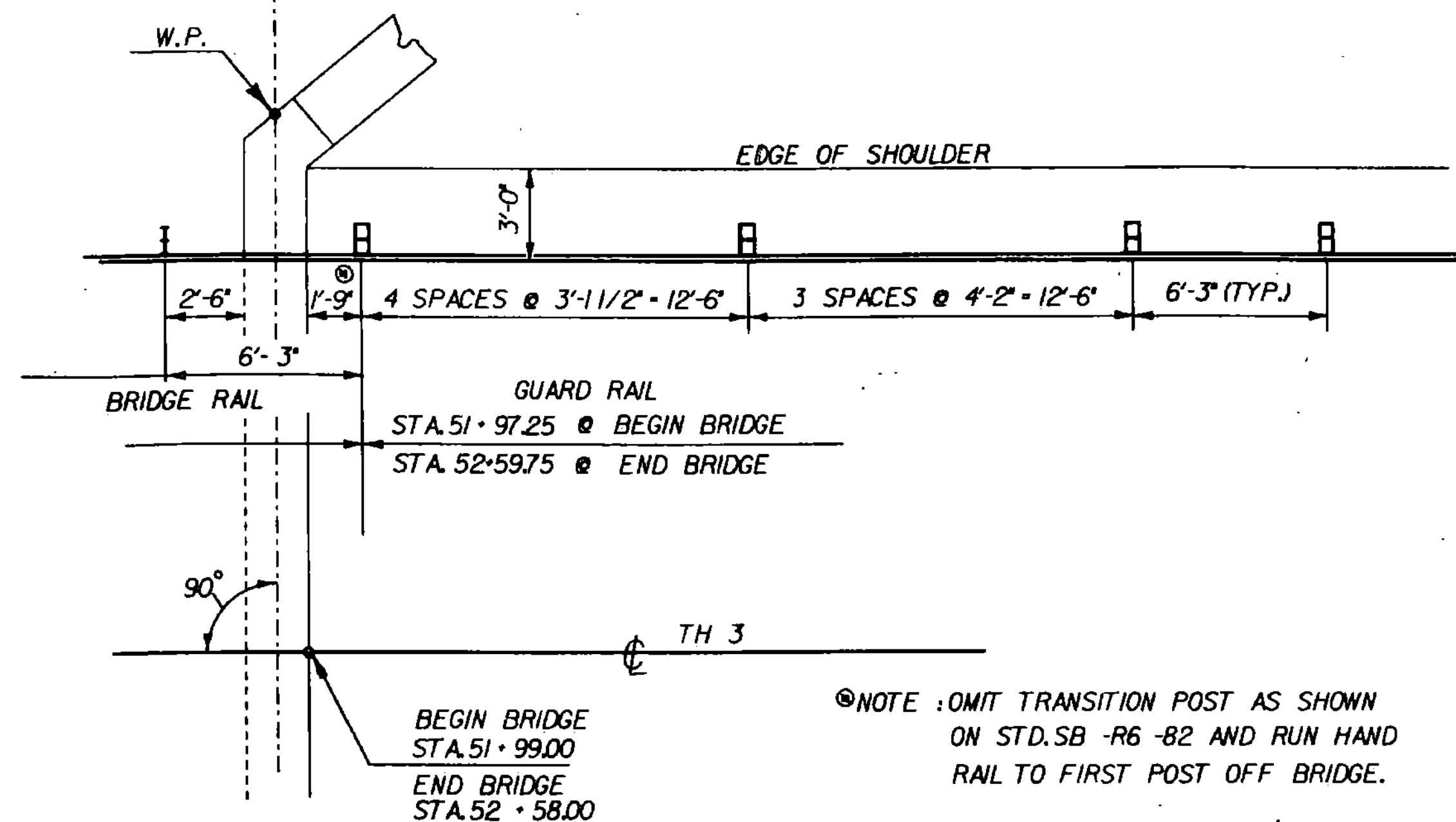
- The subsurface explorations shown herein were made between 2-88 and 2-88 by the Agency.
- Soil and rock classifications, properties and descriptions are based on engineering interpretation from available subsurface information by the Agency and may not necessarily reflect actual variations in subsurface conditions that may be encountered between individual boring or sample locations.
- Observed water levels and/or conditions indicated are as recorded at the time of exploration and may vary according to the prevailing rainfall, methods of exploration and other factors.
- Engineering judgement was exercised in preparing the subsurface information presented herein. Analysis and interpretation of subsurface data was performed and interpreted for Agency design and estimating purposes. Presentation of the information in the Contract is intended to provide the Contractor access to the same data available to the Agency. The subsurface information is presented in good faith and is not intended as a substitute for personal investigation, independent interpretation, independent analysis or judgement by the Contractor.
- Pictorial structure details shown on the boring plan layout or soils profile are for illustrative purposes only and may not accurately portray final contract details.

STATE OF VERMONT AGENCY OF TRANSPORTATION

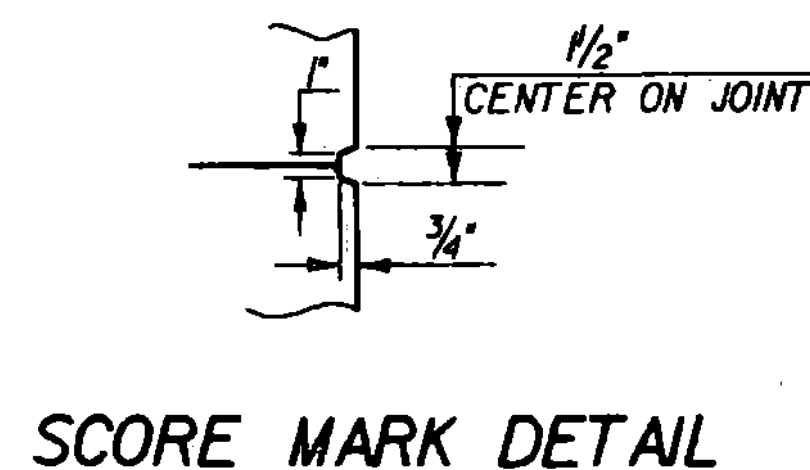
Town Of CHARLESTON	Bridge No. 24 & 25
Highway No. TH 3	Log Sta. 52+28
BORING INFORMATION SHEET	
Designed By A. CHURCH	Drawn By A. CHURCH
Checked By C. WILLIAMS	Bridge Design Supervisor R. GENOIA
PROJECT CHARLESTON	PROJECT NO. ARZ 1449 (14)
L.C. Info. OSAK30,25BORINGSTD.DGN	R. S. HAUP 2-85
Bridge Sheet No.	Sheet 5 of 33



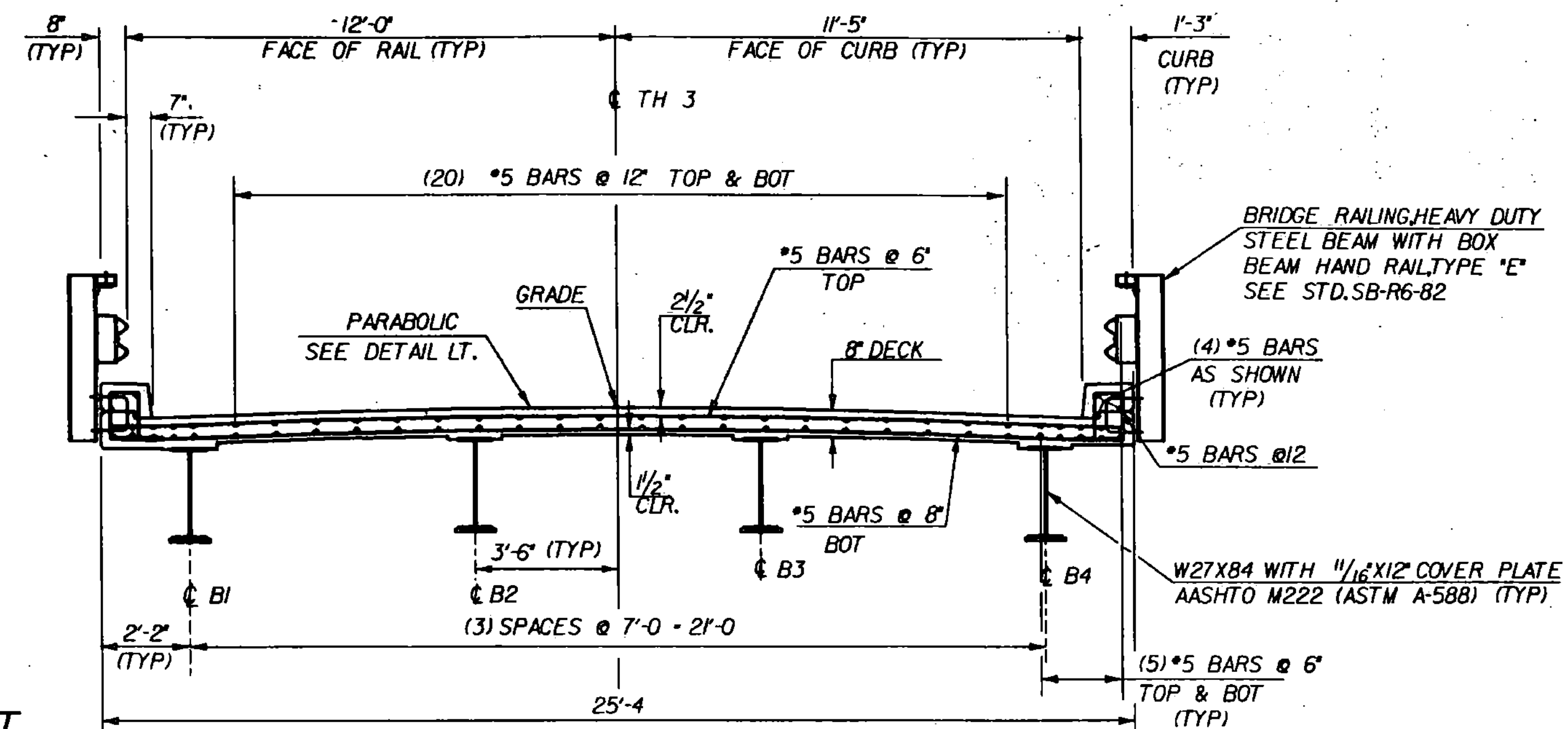
STATE OF VERMONT AGENCY OF TRANSPORTATION			
Town Of	CHARLESTON	Bridge No.	24
Highway No.	TH3	Loc Sta.	
		Surv. Sta.	52+29
TH3 OVER CLYDE RIVER			
DETAIL PLAN AND ELEVATION BR 24			
Designed By	A CHURCH	Drawn By	A CHURCH
Checked By	C WILLIAMS	Bridge Design Supervisor	R GENDRON
Date	12-88	Date	1-89
PROJECT	CHARLESTON	PROJECT NO.	BR2 1449 (14)
L&C Info.			
Bridge Sheet No.		Sheet	6 of 33



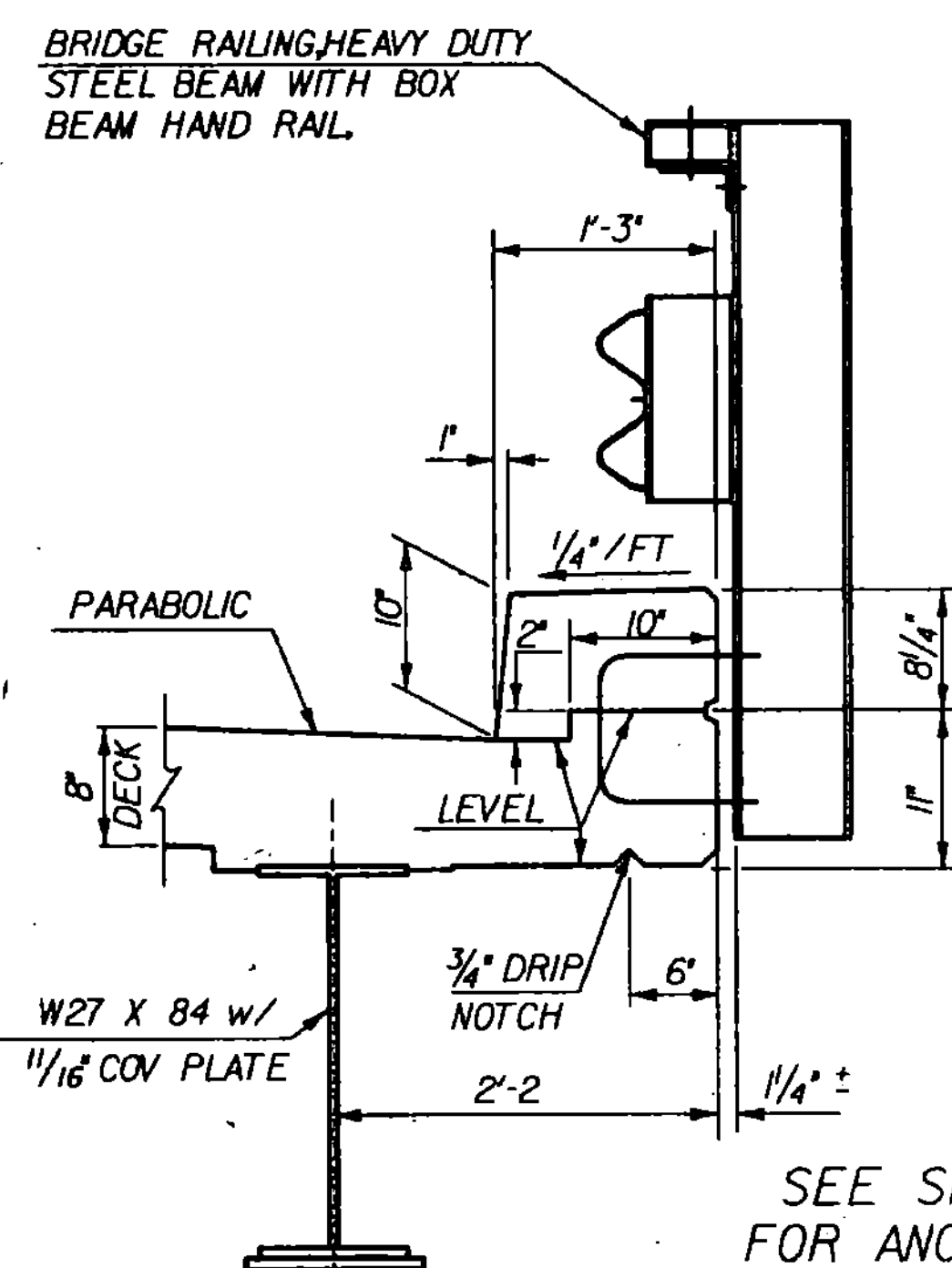
RAILING PLAN
TYPICAL ALL CORNERS
SCALE 1/4" = 1'-0"



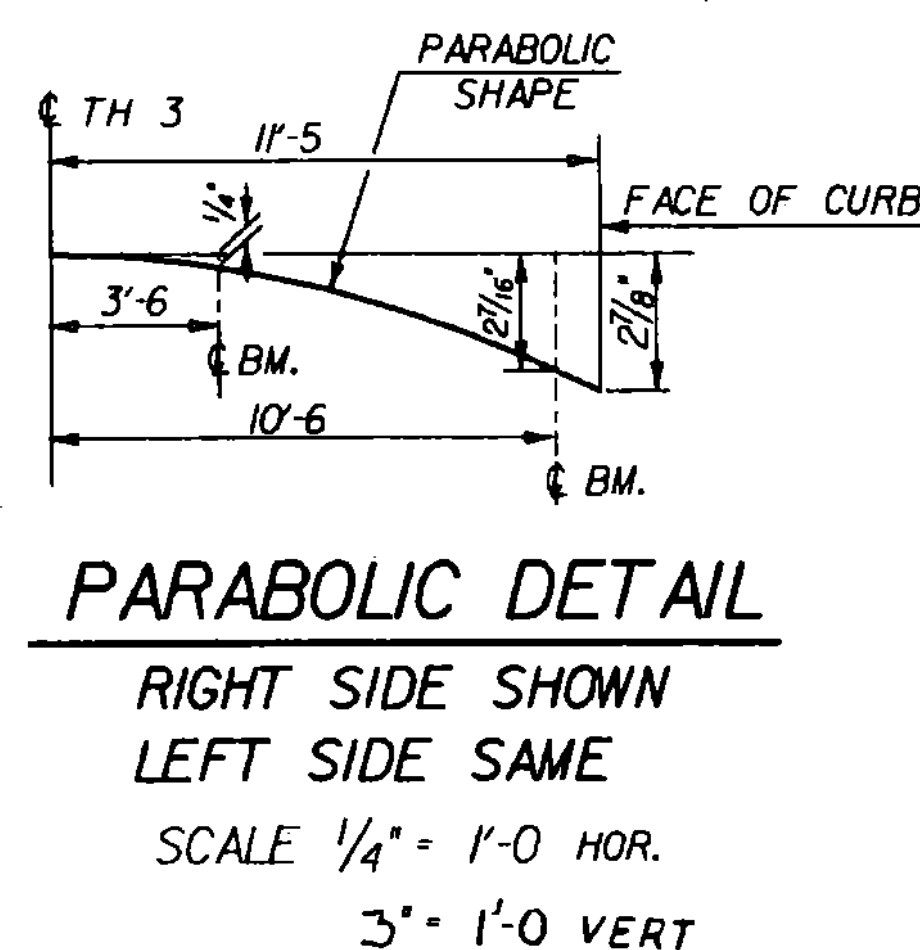
TYPICAL CONCRETE CONSTRUCTION JOINT



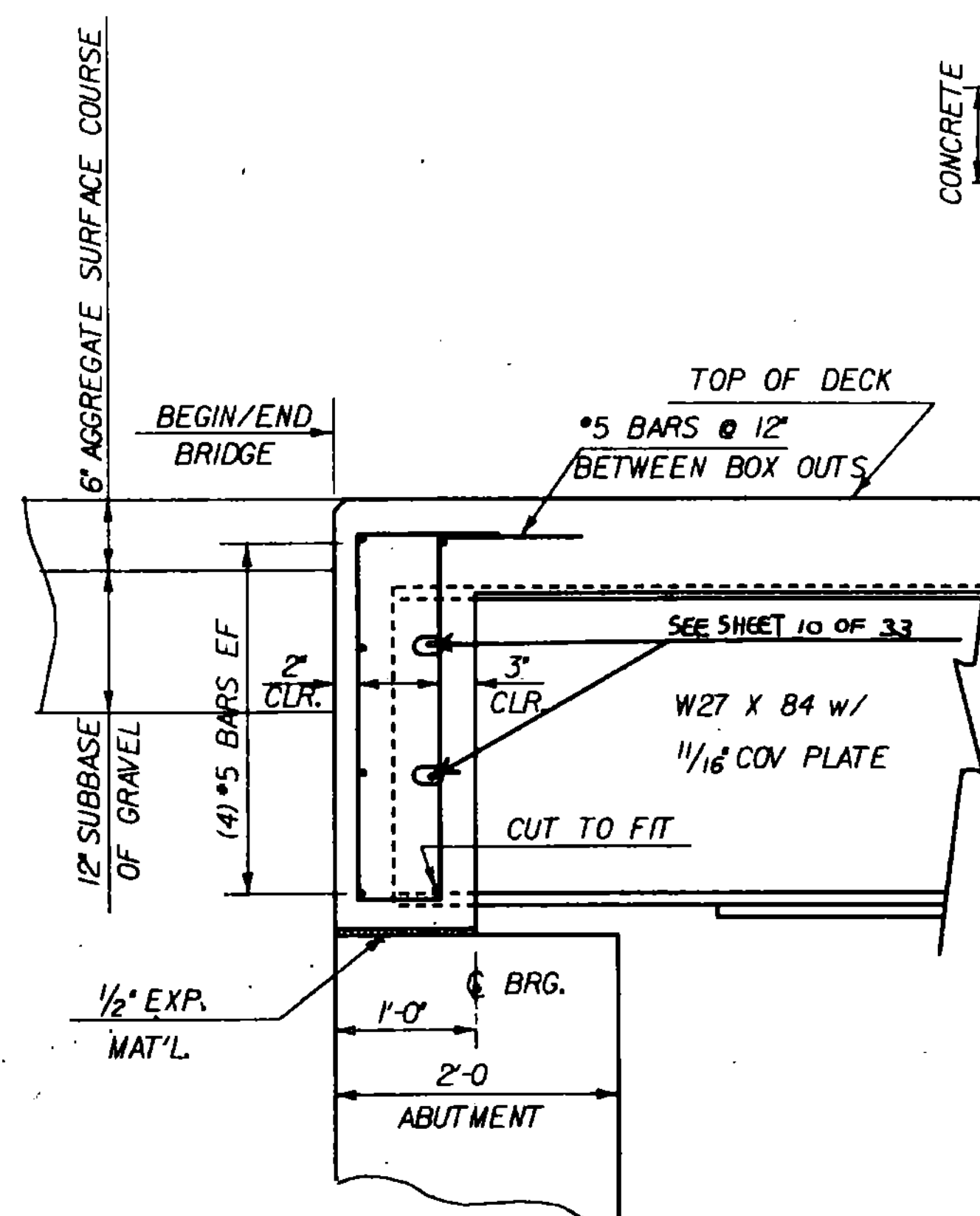
TYPICAL BRIDGE SECTION
SCALE 3/8" = 1'-0"



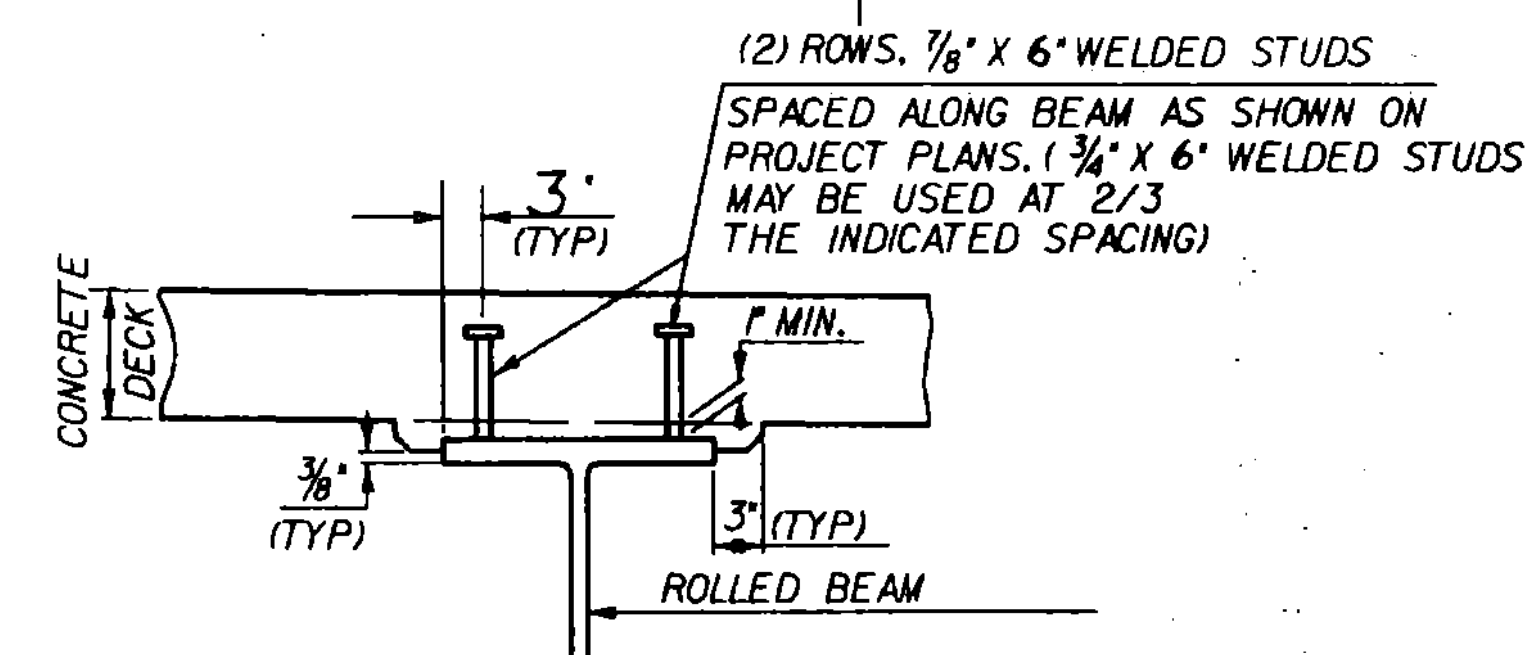
CURB DETAIL
SCALE 1" = 1'-0"



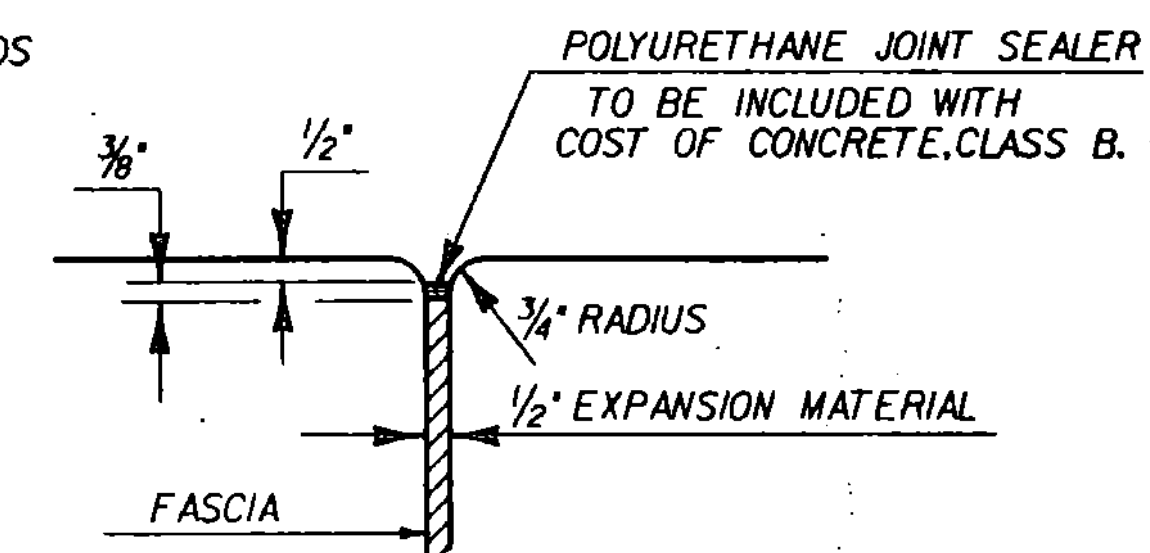
PARABOLIC DETAIL
RIGHT SIDE SHOWN
LEFT SIDE SAME
SCALE 1/4" = 1'-0 HOR.
3" = 1'-0 VERT



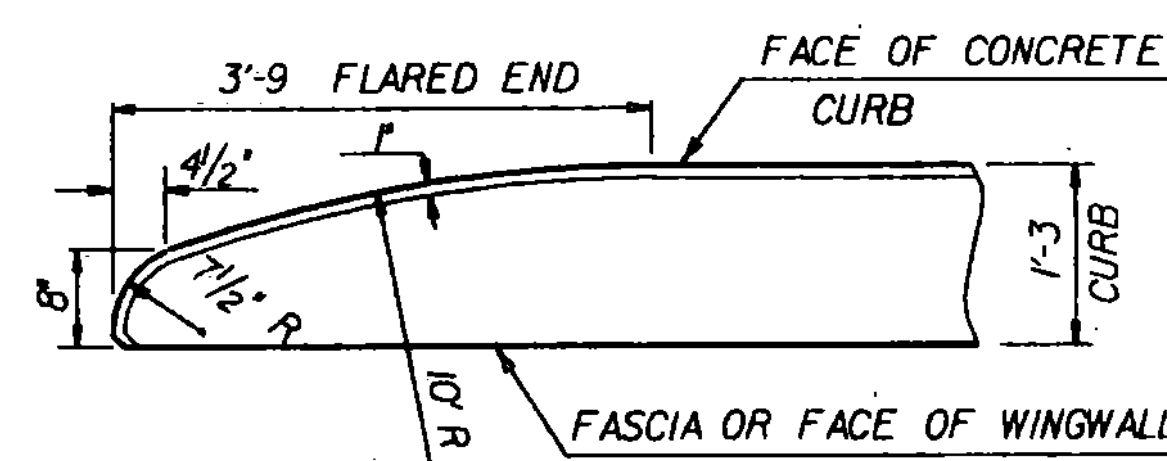
END OF BRIDGE
SCALE 1" = 1'-0"



**BEAM HAUNCH AND
SHEAR CONNECTOR DETAILS**



**JOINT BETWEEN FASCIA
AND ABUTMENT**
SCALE: 3" = 1'

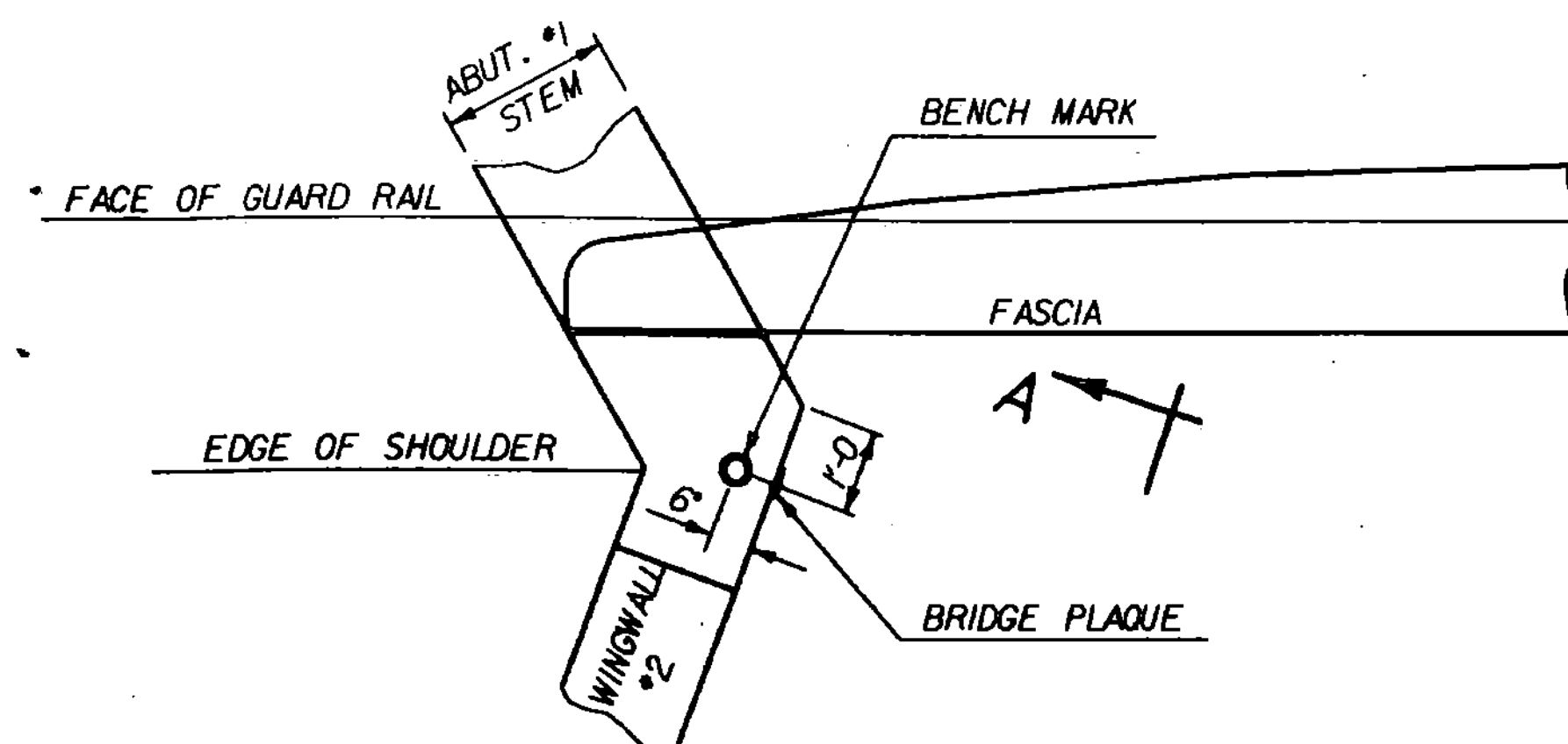


FLARED END DETAIL FOR 1'-3" CURB
CURB REINFORCING STIRRUP BARS SHALL BE TURNED OR CUT AS REQUIRED TO FIT FLARED ENDS.

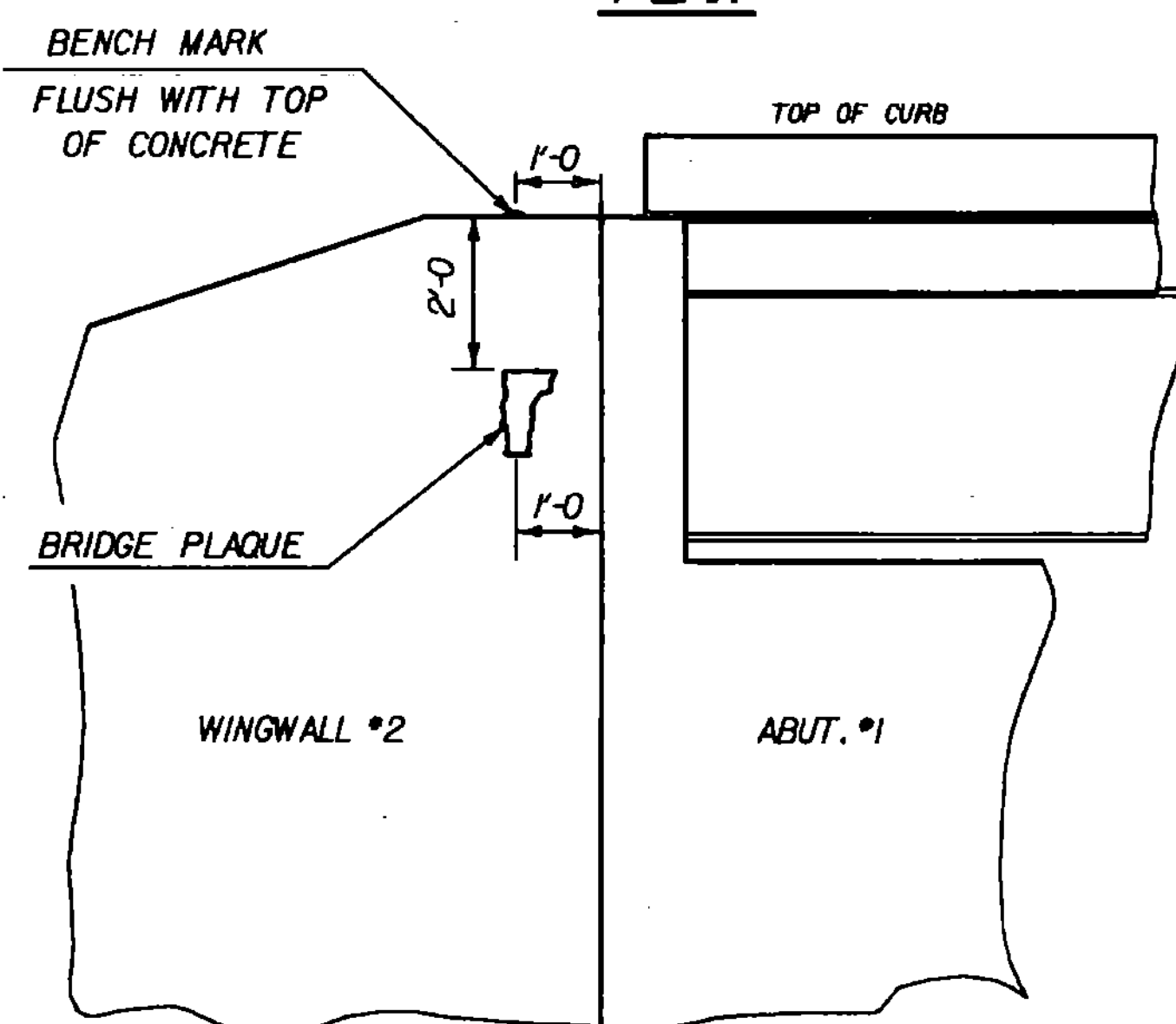
STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	CHARLESTON	Bridge No.	B24
Highway No.	TH3	Log Sta.	
		Surv. Sta.	52+28
TH3 OVER CLYDE RIVER			
TYPICAL SECTION AND SUPERSTRUCTURE DETAILS			
Designed By	ACHURCH	Drawn By	SINCLAIR
Checked By	Date	Bridge Design Supervisor	
	CWILLIAMS	12-88	R.GENDRON Date 1-89
PROJECT	CHARLESTON	PROJECT NO.	BRZ 1449(14)
L&C. Info.	ZFA13056763C560SUP.DGN		CHARLSUP2
Bridge Sheet No.		Sheet	7 of 33

PLOTTED 6-JAN-1989



PLAN



VIEW "A - A"

BENCH MARK AND BRIDGE PLAQUE LOCATION

THE BRIDGE PLAQUE AND BENCH MARK WILL BE SUPPLIED BY THE AGENCY OF TRANSPORTATION AND SHALL BE INSTALLED BY THE CONTRACTOR AT ABUTMENT #1 ON THE RIGHT SIDE AS SHOWN OR AS DIRECTED BY THE ENGINEER.

1. ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO STATE OF VERMONT, AGENCY OF TRANSPORTATION, 1986 STANDARD SPECIFICATIONS FOR CONSTRUCTION, AND ITS LATEST REVISIONS, AND THE 1983 AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, AND ITS LATEST REVISIONS.

2. DESIGN IS FOR HS-20 LIVE LOADING WITH ALLOWANCE FOR FUTURE PAVING.

3. ALL STRUCTURAL STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC).

4. BEAMS SHALL BE CAMBERED FOR THE DEAD LOAD DEFLECTION PLUS THE PERMANENT CAMBER. THE CAMBER SHALL APPROXIMATE A SIMPLE CIRCULAR CURVE FROM SUPPORT TO SUPPORT.

5. FOR ALL FIELD CONNECTION DETAILS, SEE THE SPECIAL PROVISIONS.

6. FOR ALL WELDING DETAILS, SEE THE SPECIAL PROVISIONS.

7. AFTER SUPERSTRUCTURE STEEL HAS BEEN ERECTED, ELEVATIONS ALONG THE TOP OF BEAMS SHALL BE TAKEN AS DIRECTED BY THE ENGINEER FOR USE IN DETERMINING FINAL GRADE.

8. FLEMING BRACKETS OR SIMILAR FALSEWORK SHALL BE SPACED AT A MAXIMUM OF FOUR FEET.

9. ANY HOLES IN FASCIA BEAMS OR FASCIA GIRDER WEBS NOT OTHERWISE FILLED SHALL BE FILLED WITH BUTTON HEAD OR HEX HEAD BOLTS.

10. ALL REINFORCING STEEL SHALL BE DETAILED AND FABRICATED USING PROCEDURES AND TOLERANCES IN ACCORDANCE WITH APPLICABLE PUBLICATIONS OF THE 'CONCRETE REINFORCING STEEL INSTITUTE'.

11. ALL DECK REINFORCING SHALL BE EPOXY COATED.

12. THE REINFORCING STEEL SCHEDULE SHALL BE COMPLETED BY THE REINFORCING STEEL FABRICATOR. QUANTITIES SHOWN ARE ESTIMATED FOR BID PURPOSES. THE CONTRACTOR SHALL BE PAID FOR REINFORCING STEEL BASED ON THE ACTUAL SUPPLIERS INVOICES FOR REINFORCING STEEL USED ON THE PROJECT.

13. MINIMUM COVER FOR REINFORCING STEEL (EXCEPT IN DECKS) SHALL BE TWO (2) INCHES ALONG BACK FACES OF WALLS AGAINST EARTH, AND THREE (3) INCHES ELSEWHERE.

14. REINFORCING PLACEMENT TOLERANCES SHALL BE:
SPACING $\pm$ 1"
CLEARANCE $\pm$ 1/4"

15. DECK CONCRETE SHALL BE 'CONCRETE, CLASS A'. ALL OTHER CONCRETE SHALL BE 'CONCRETE, CLASS B'.

16. ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1" BY 1".

17. PROVISIONS FOR FISH GRAVEL ARE TO BE MADE AS FOLLOWS: 15 CY OF 3/4" STONE IS TO BE GRADATED IN ACCORDANCE WITH SPECIFICATION 704.02B AND 60 CY OF 1 1/2" STONE IS TO BE GRADATED IN ACCORDANCE WITH SPECIFICATION 704.02C. ALL STONE MATERIAL MUST BE IN ACCORDANCE WITH SPECIFICATION 704.02. PAYMENT SHALL BE INCLUDED UNDER ITEM 613.13 - 'STONE FILL, TYPE IV.'

18. DOWNSTREAM OF BRIDGE THERE SHALL BE ABSOLUTELY NO REMOVAL OF VEGETATION OUTSIDE THE 10' STRIP BEYOND THE LIMITS OF CONSTRUCTION.

GENERAL NOTES

19. SURFACES OF BRIDGE SEATS UNDER BEARING DEVICES SHALL BE LEVEL. OTHER BRIDGE SEAT AREAS SHALL BE SLOPED 1/2" PER FOOT. ABUTMENT SEATS SHALL BE SLOPED FULL WIDTH TOWARD THE CENTER SPAN. THE ENTIRE BRIDGE SEAT SURFACE IS TO BE SMOOTH STEEL TROWEL FINISHED.

20. FOR BRIDGE DECK POURS, THE MAXIMUM TIME LIMIT FOR ANY COMBINATION OF POURS DONE IN ONE DAY SHALL BE EIGHT HOURS. THERE SHALL BE A MINIMUM DELAY OF NINETY SIX HOURS BETWEEN THE COMPLETION OF ONE DAY'S POUR AND THE BEGINNING OF ANY OTHER POUR.

21. WATER REPELLENT SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES EXCEPT THE UNDERSIDE OF DECK BETWEEN DRIP BEADS.

22. NOT USED

23. THE FOLLOWING TABLE OF ALLOWABLE STRESSES AND WEIGHTS APPLY TO THESE PLANS FOR DESIGN PURPOSES:

	A-588	A-36
STRUCTURAL STEEL: f_w (working stress) =	27,000 PSI	20,000 PSI
	f_w (working stress) =	17,000 PSI

	Grade 60
REINFORCING STEEL: f_t =	24,000 PSI
	f_c = 20,000 PSI

SOIL: UNIT WEIGHT	140 PCF
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24. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL, AND ARE GIVEN AT 68 DEGREES F.

25. TRAFFIC SHALL NOT BE ALLOWED ON THE NEW BRIDGE UNTIL AT LEAST 14 DAYS AFTER PLACEMENT OF THE CONCRETE CURBS, AND DESIGN STRENGTH OF CONCRETE HAS BEEN ATTAINED AS EVIDENCED BY TEST CYLINDER BREAKS.

26. JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.

27. THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT.

28. THE EXISTING BRIDGE SHALL BE CLOSED TO TRAFFIC.

29. ITEM 529.15 'REMOVAL OF STRUCTURE' SHALL INCLUDE REMOVAL OF ALL THE EXISTING SUPERSTRUCTURE AND THE EXISTING ABUTMENTS TO THE CUT LINES AS INDICATED ON THE SECTIONS.

30. THE BAILEY BRIDGES PRESENTLY BEING USED AT THIS SITE ARE TO REMAIN THE PROPERTY OF THE TOWN OF CHARLESTON. THE CONTRACTOR IS TO CAREFULLY DISMANTLE AND STOCKPILE THE BAILEY BRIDGES, LEAVING THE PIECES TO BE REMOVED BY THE TOWN. LABOR IS TO BE INCLUDED UNDER ITEM 529.15 'REMOVAL OF STRUCTURE.'

31. THE CONTRACTOR SHALL ERECT AND MAINTAIN ALL ON-PROJECT SIGNS AND BARRICADES AS DIRECTED BY THE ENGINEER. COST FOR THESE SIGNS AND BARRICADES SHALL BE CONSIDERED SUBSIDIARY TO ALL OTHER CONTRACT ITEMS.

32. THE TOWN SHALL ERECT AND MAINTAIN ALL OFF-PROJECT SIGNS AND SHALL MAINTAIN A DETOUR.

43. THE WORK AREA SHALL BE DESIGNATED WITH SNOW FENCE AS INDICATED IN THE CORPS OF ENGINEERS PERMIT IN THE SPECIAL PROVISIONS OR AS MODIFIED AT THE PRECONSTRUCTION CONFERENCE, TO BE PAID FOR UNDER THE UNIT PRICE BID FOR ITEM 620.70 SNOW FENCE (MODIFIED).

33. ANY IN STREAM CONSTRUCTION IS TO BE ACCOMPLISHED DURING THE PERIOD FROM JUNE 1ST TO OCTOBER 1ST. ANY DEVIATION FROM THIS PERIOD MUST BE APPROVED BY THE AGENCY OF NATURAL RESOURCES.

34. ANY 'GRANULAR BACKFILL FOR STRUCTURES' USED UNDER FOOTINGS SHALL BE COMPACTED TO 95% DRY DENSITY AS PER AASHTO T-99.

35. 'GRANULAR BACKFILL FOR STRUCTURES' HAS BEEN ALLOWED FOR A DEPTH OF 6' BELOW ALL CULVERTS. INSTALLATION IS TO BE CONDUCTED AS DIRECTED BY THE ENGINEER.

36. TEMPORARY STEEL SHEET PILING IS TO BE USED ON THREE SIDES OF THE NORTHEASTERLY WINGWALL AT ABUT. 1 TO PREVENT UNNECESSARY ENCROACHMENT ON THE STREAM BOTTOM. PAYMENT FOR TEMPORARY STEEL SHEET PILING IS TO BE INCLUDED UNDER THE UNIT PRICE BID FOR ITEM 204.25 'STRUCTURE EXCAVATION.' EARTH COFFERDAMS IN THE STREAM ARE NOT TO BE USED ON THIS PROJECT.

37. THE BYPASSED SECTION OF EXISTING CHANNEL DOWNSTREAM OF BR24 IS TO BE RETAINED AS WETLAND.

38. THE NEW RELOCATED CHANNEL MUST BE COMPLETED WITH STONE FILL AND FISH HABITAT ESTABLISHED PRIOR TO DIVERTING THE STREAM INTO THE NEW CHANNEL.

39. THE DIKE TYPICAL SECTIONS AND ALL OTHER STONE FILL TREATED STREAMBANK SECTIONS ON THE PROJECT MUST PROVIDE FOR REVEGETATION BY CALLING FOR PLACEMENT OF A TWELVE (2) INCH DEEP LAYER OF NATIVE TURF CONTAINING ROOTS OF NATIVE STREAMBANK VEGETATION. THIS MATERIAL MUST COVER THE ROCK FROM NORMAL WATER LEVEL UP TO THE LIMIT OF STONE FILL, 10 FEET ON TOP OF THE BANK AND AS SHOWN ON SECTIONS.

40. THE RELOCATED CHANNEL DOWNSTREAM OF THE NEW BRIDGE IS TO HAVE A FORTY FOOT MAXIMUM BOTTOM WIDTH NORMAL TO FLOW. THE UPSTREAM CHANNEL IS TO BE THIRTY FEET MAXIMUM ACROSS THE EXISTING ISLAND.

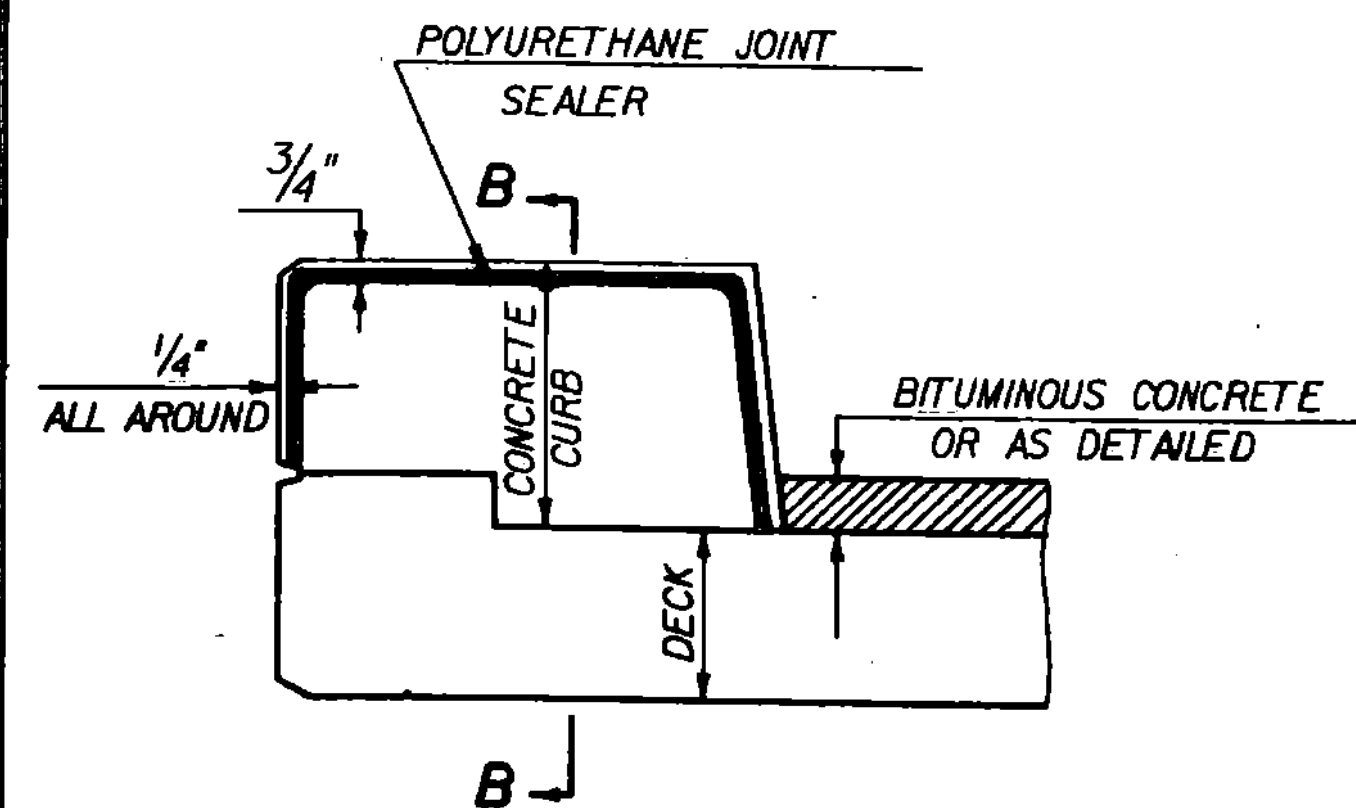
41. THE CONTRACTOR SHALL STOCKPILE ALL SHRUBBERY SUCH AS BUSHES AND SMALL TREES AND VEGETATION REMOVED FOR CONSTRUCTION OF THE PROJECT. THE CONTRACTOR SHALL PLACE THIS STOCKPILED MATERIAL ON THE STONE FILL AND NEWLY CONSTRUCTED BERM AS DIRECTED BY THE ENGINEER AND THE AGENCY OF NATURAL RESOURCES. IF THE QUANTITY OF STOCKPILED MATERIAL AT THE SITE IS INSUFFICIENT FOR REVEGETATION REQUIREMENTS, THE CONTRACTOR SHALL OBTAIN SUPPLEMENTARY OFF-SITE MATERIAL. PAYMENT SHALL BE INCLUDED UNDER ITEM 651.40, 'GRUBBING MATERIAL.'

42. ALL CUT AND FILL SLOPES AND ANY OTHER DISTURBED AREAS SHALL BE TREATED IN ACCORDANCE WITH THE SPECIFICATION, SECTION 651 'TURF ESTABLISHMENT', AND AS DIRECTED BY THE ENGINEER. ALL MATERIALS USED FOR TURF ESTABLISHMENT MUST BE APPROVED BY THE ENGINEER.

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	CHARLESTON	Bridge No.	BR24
Highway No.	TH3	Log Sta.	
		Surv. Sta.	52+28
TH 3 OVER CLYDE RIVER			
GENERAL NOTES AND BRIDGE MARKER			
Designed By	ACHURCH	Drawn By	SINCLAIR
Checked By	CWILLIAMS	Bridge Design Supervisor	R.GENDRON
	12-88	Date	1-89
PROJECT	CHARLESTON	PROJECT NO.	BR2 (44914)
L.O.C. Info.	ZFAH305616305605UP.DGN		CHARLSUP1
Bridge Sheet No.		Sheet	8 of 33

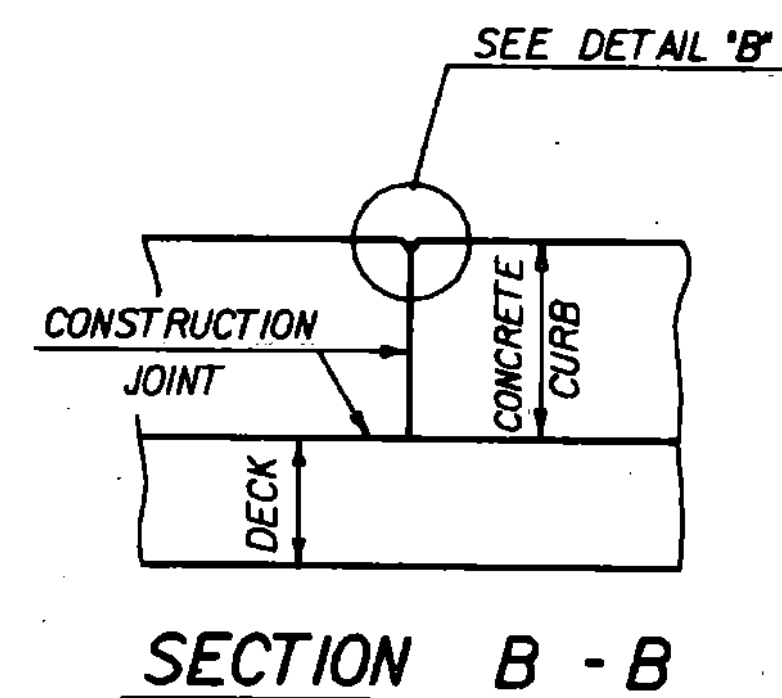
PLOTTED 22-MAR-89
REV. 6-15-90.



TYPICAL SECTION THROUGH
CONCRETE CURB CONSTRUCTION JOINT

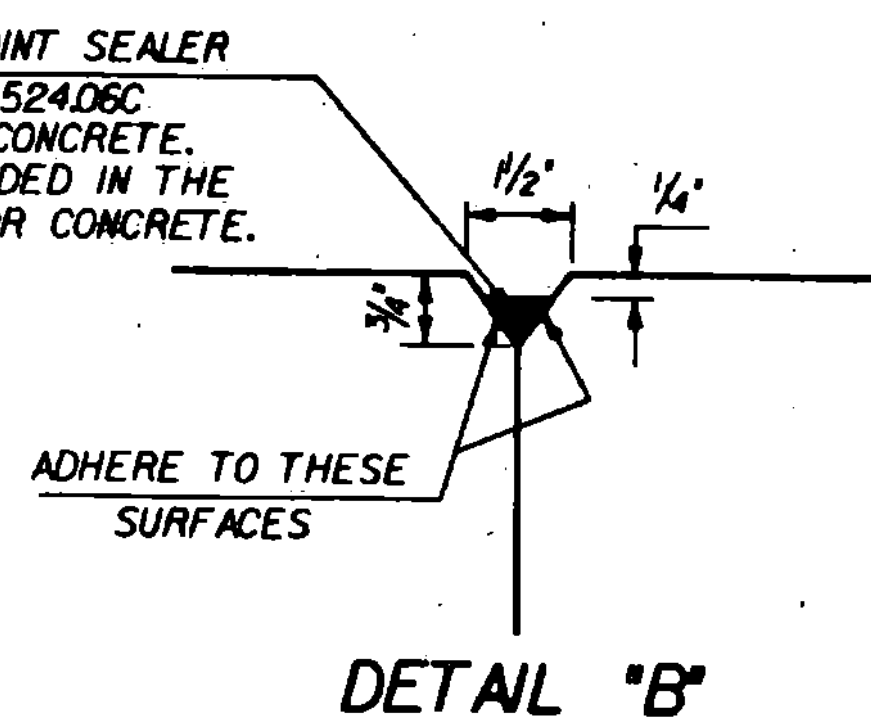
NOTES:

1. CONSTRUCTION JOINTS THROUGH CONCRETE CURBS SHALL BE SPACED MAXIMUM 20'-0" CENTER TO CENTER AND SHALL BE 1'-6" MINIMUM FROM THE CENTER OF THE NEAREST BRIDGE RAIL POST. CONCRETE SHALL BE PLACED IN ALTERNATING SECTIONS WITH A MINIMUM OF 48 HOURS DELAY BETWEEN ADJACENT POURS.
2. LONGITUDINAL REINFORCING SHALL PASS THROUGH CONCRETE CURB CONSTRUCTION JOINTS.
3. CONSTRUCTION JOINTS THROUGH SIDEWALKS SHALL BE SIMILAR TO CURB CONSTRUCTION JOINTS.

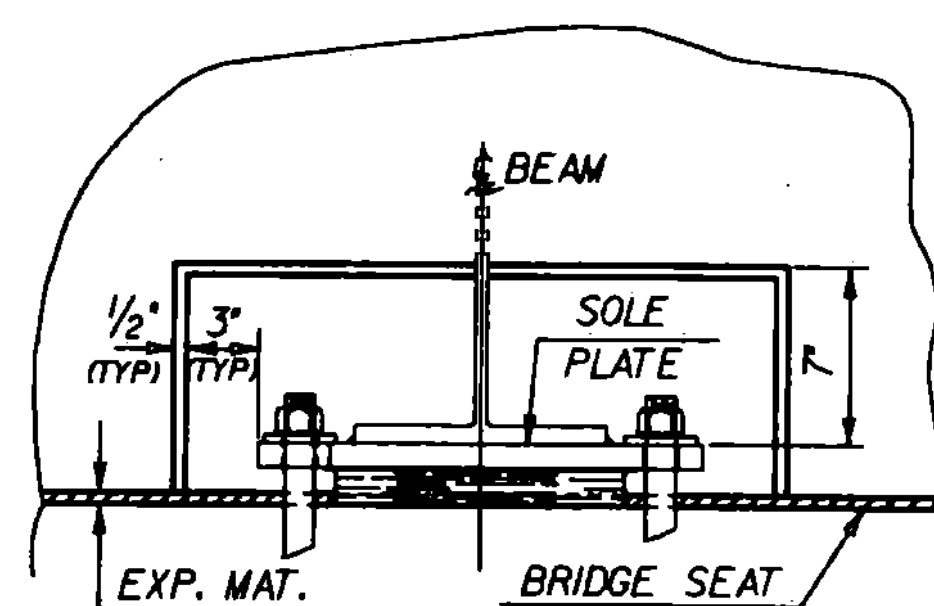


SECTION B - B

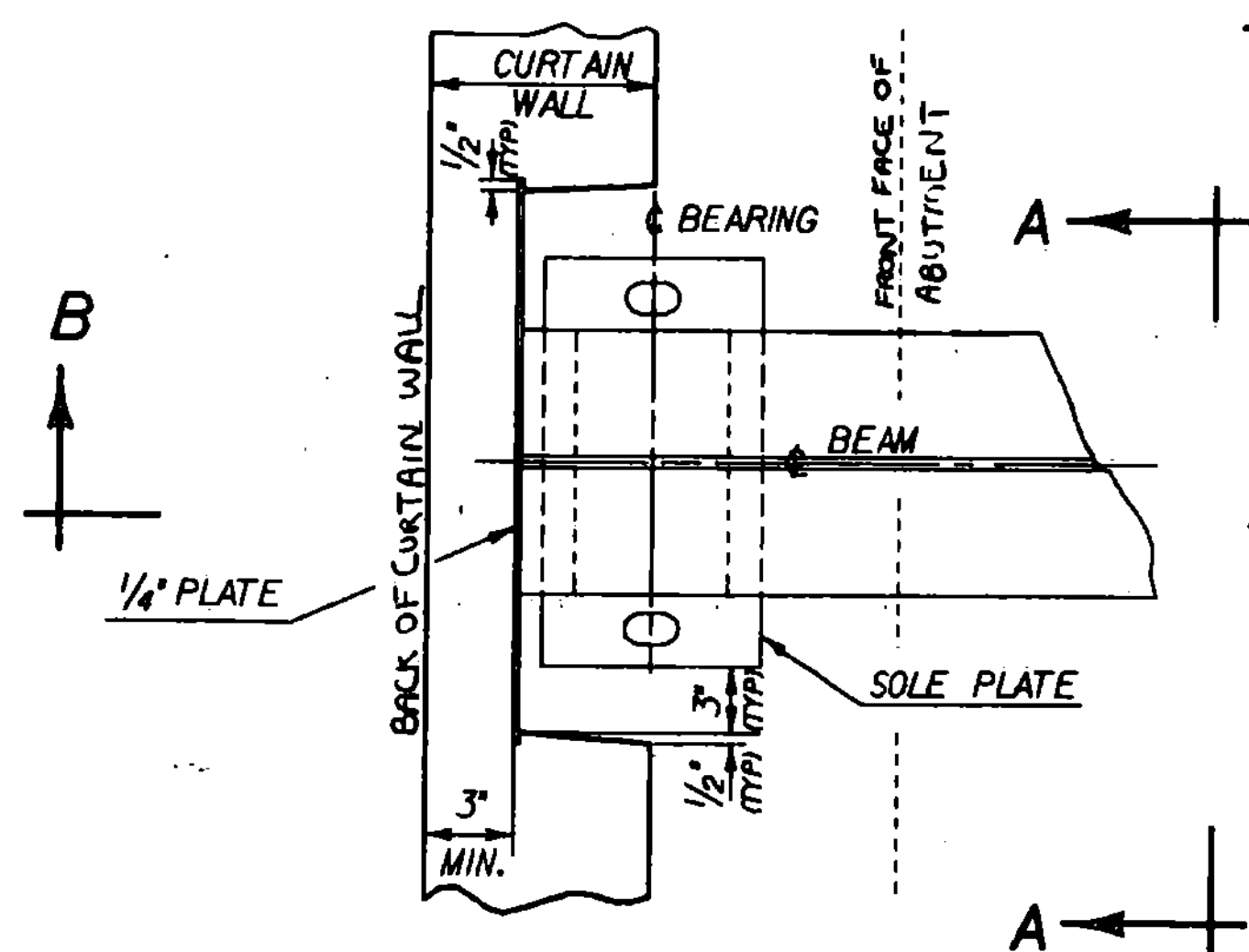
POLYURETHANE JOINT SEALER
PER SUBSECTION 524.06C
COLOR TO MATCH CONCRETE.
COST TO BE INCLUDED IN THE
UNIT PRICE BID FOR CONCRETE.



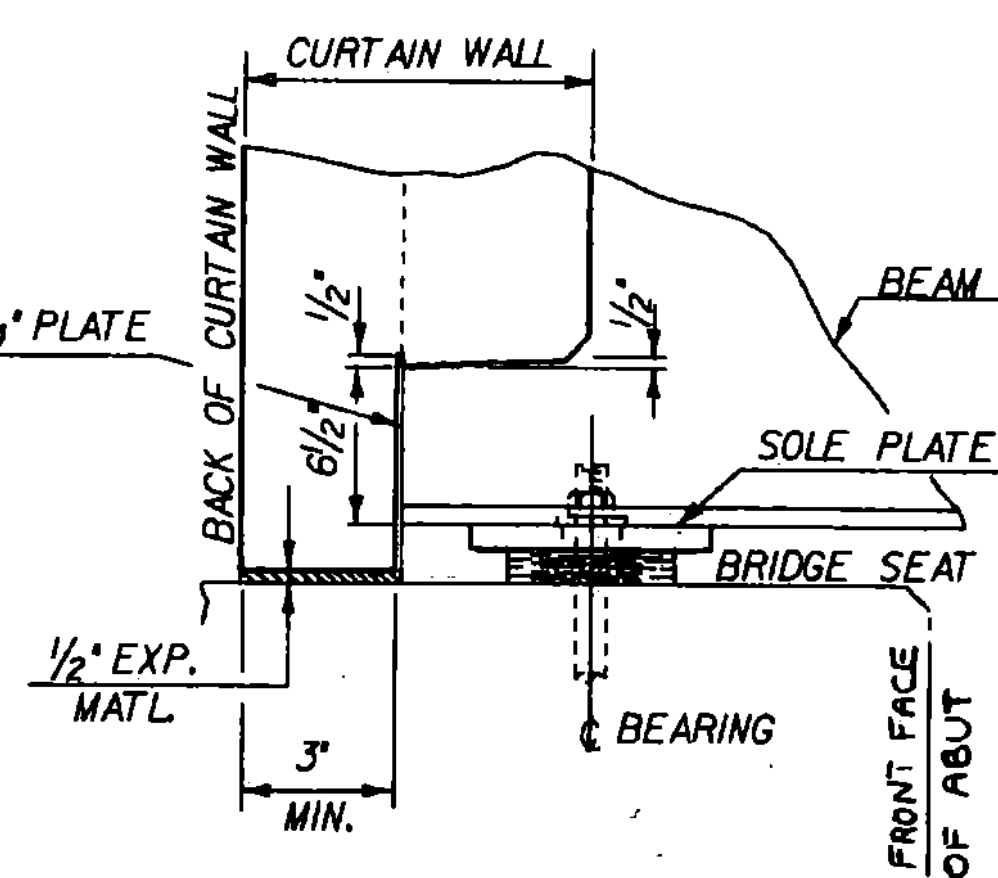
DETAIL 'B'



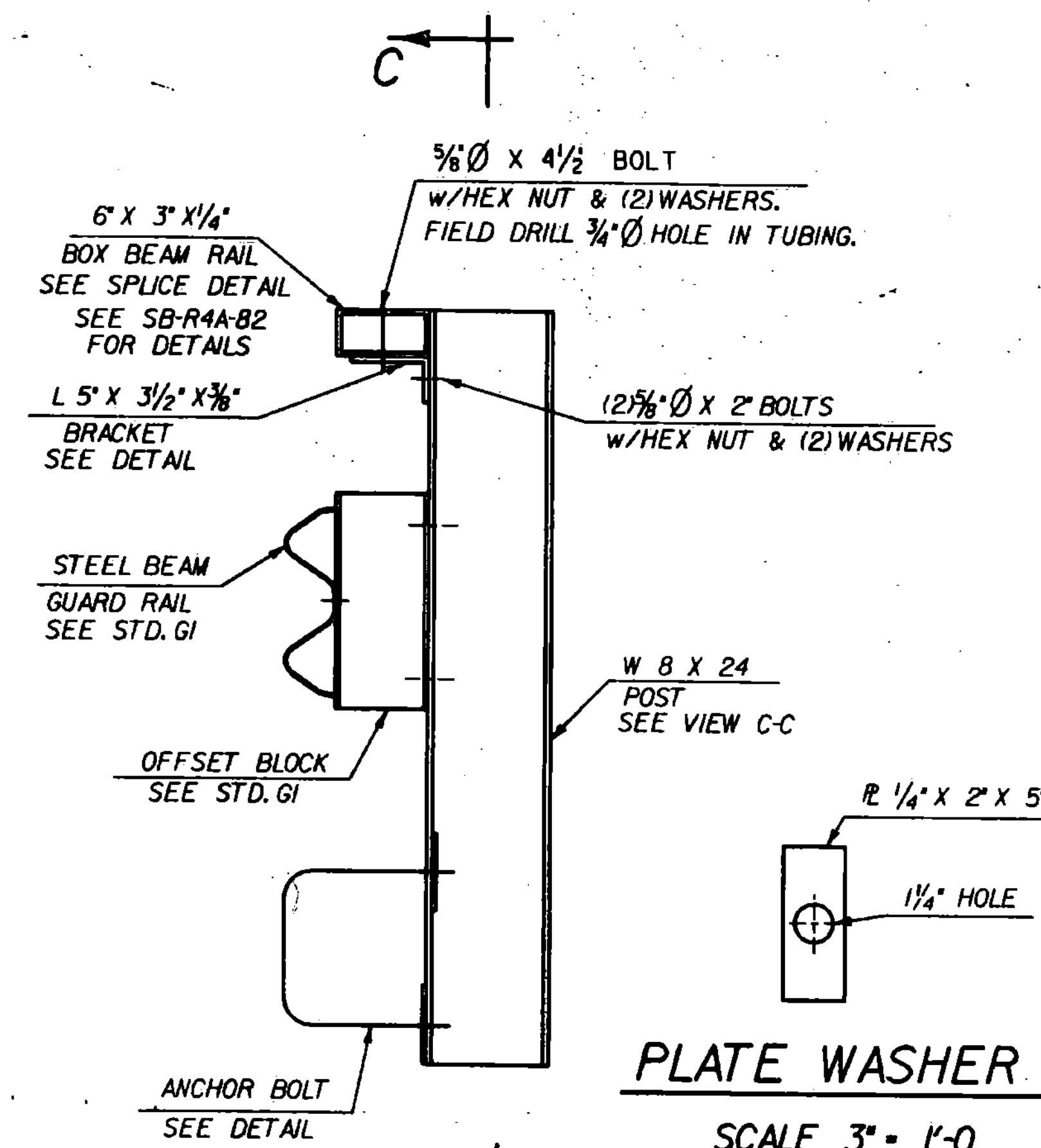
VIEW A - A



PLAN CONCRETE CURTAIN WALL AROUND
BEARING DEVICE

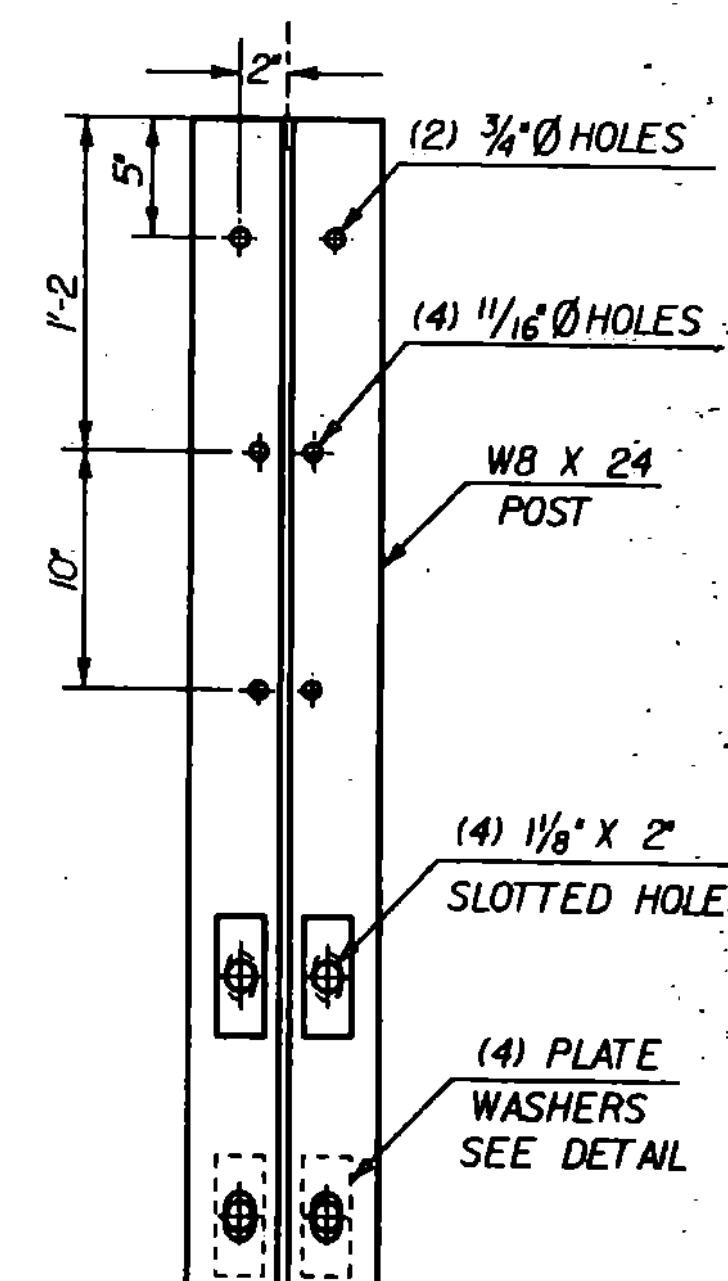


VIEW B - B



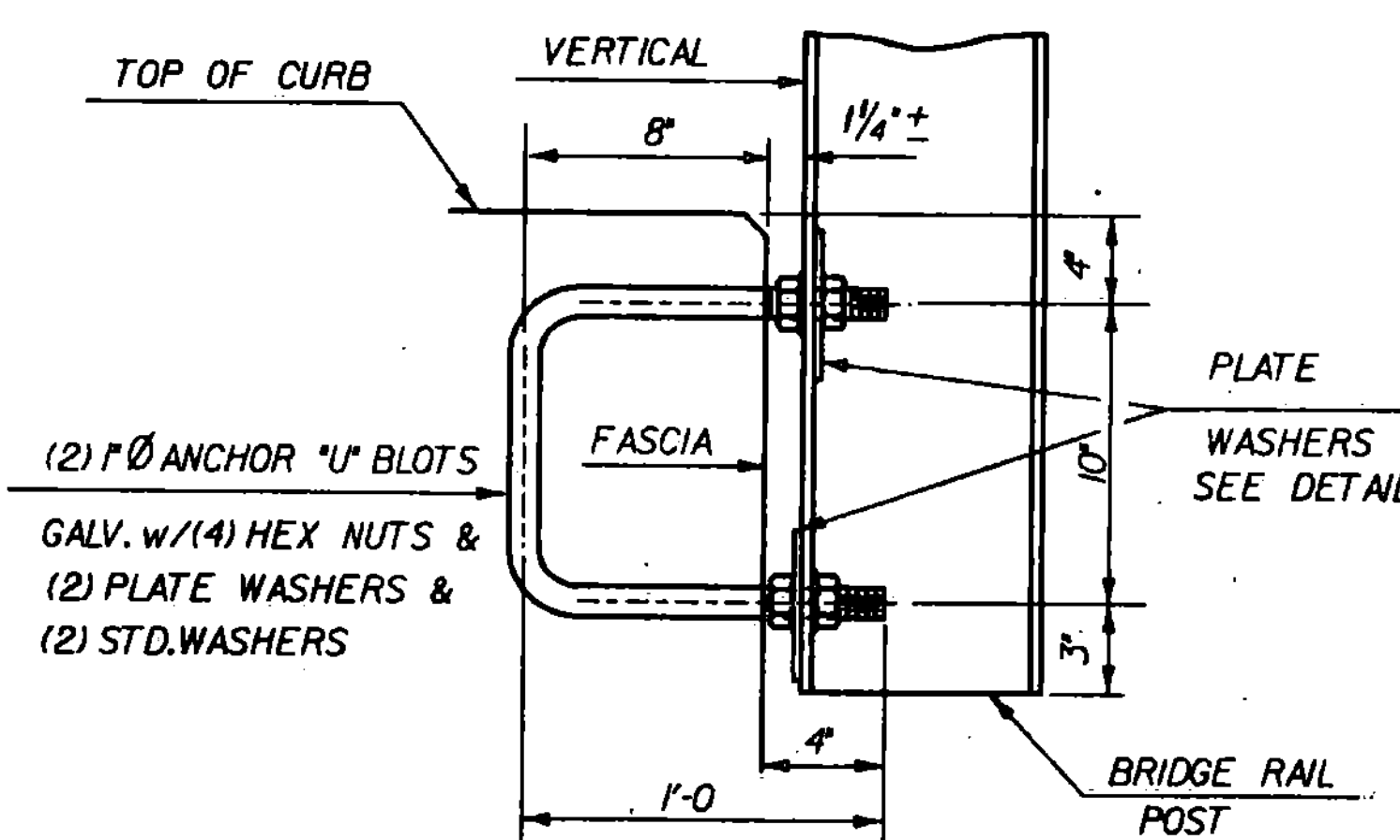
FASCIA MOUNTED STEEL POSTS
WITH BOX BEAM HAND RAIL

SCALE 1/2" = 1'-0"



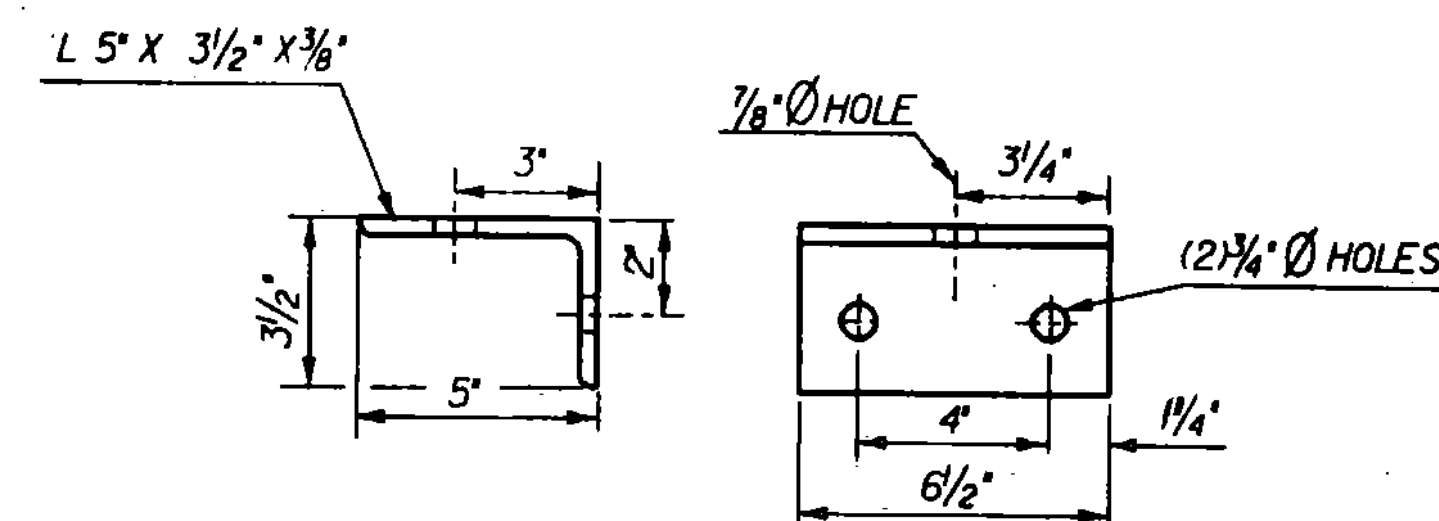
VIEW C-C

SCALE 1/2" = 1'-0"



ANCHORAGE DETAIL

SCALE 2" = 1'-0"



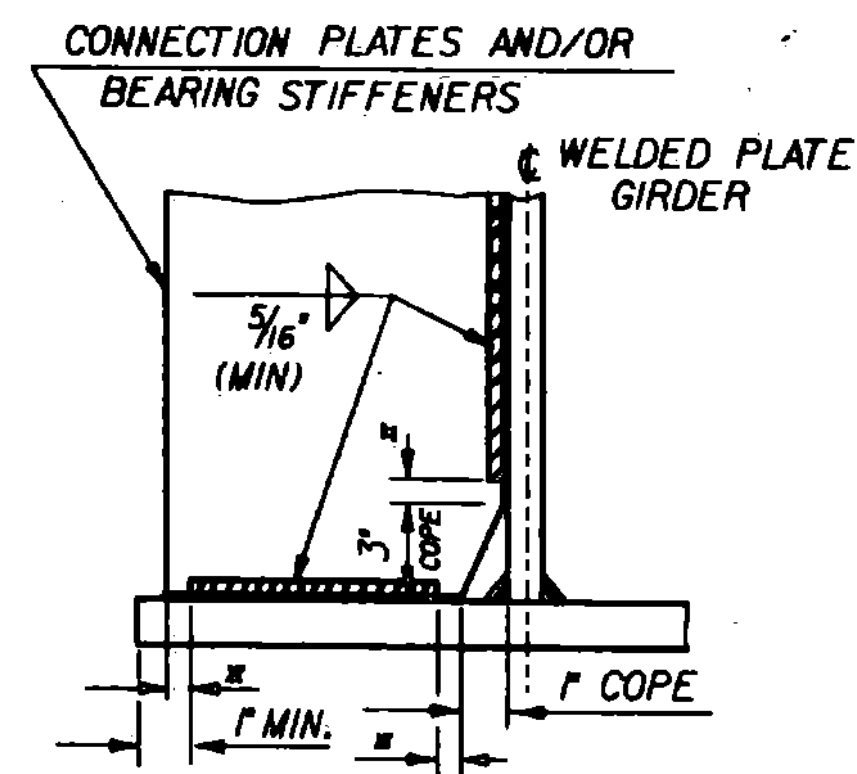
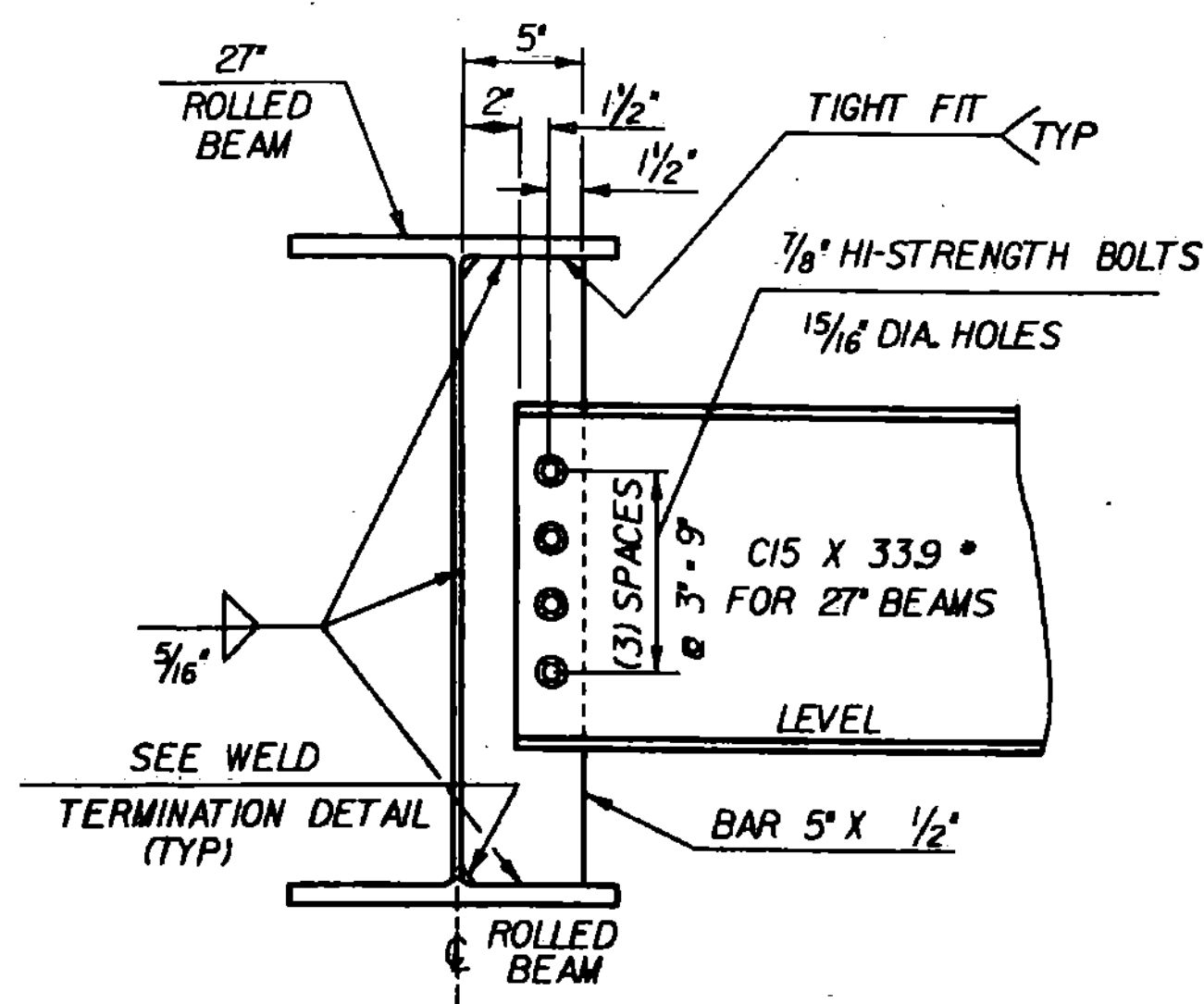
BRACKET FOR BOX BEAM RAIL

SCALE 3" = 1'-0"

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	CHARLESTON	Bridge No.	B24
Highway No.	TH3	Log Sta.	
		Surv. Sta.	52-28
TH3 OVER CLYDE RIVER			
GENERAL DETAILS			
Designed By	ACHURCH	Drawn By	SINCLAIR
Checked By	Date	Bridge Design Supervisor	
C.WILLIAMS	12-88	R.GENDRON	Date 1-89
PROJECT	CHARLESTON	PROJECT NO.	
		BRZ 1449(14)	
L&C Info.	ZFAH30,56763C560SUPDGN	CHARLSUP3	
Bridge Sheet No.		Sheet	9 of 33

PLUTED 6-JAN-90

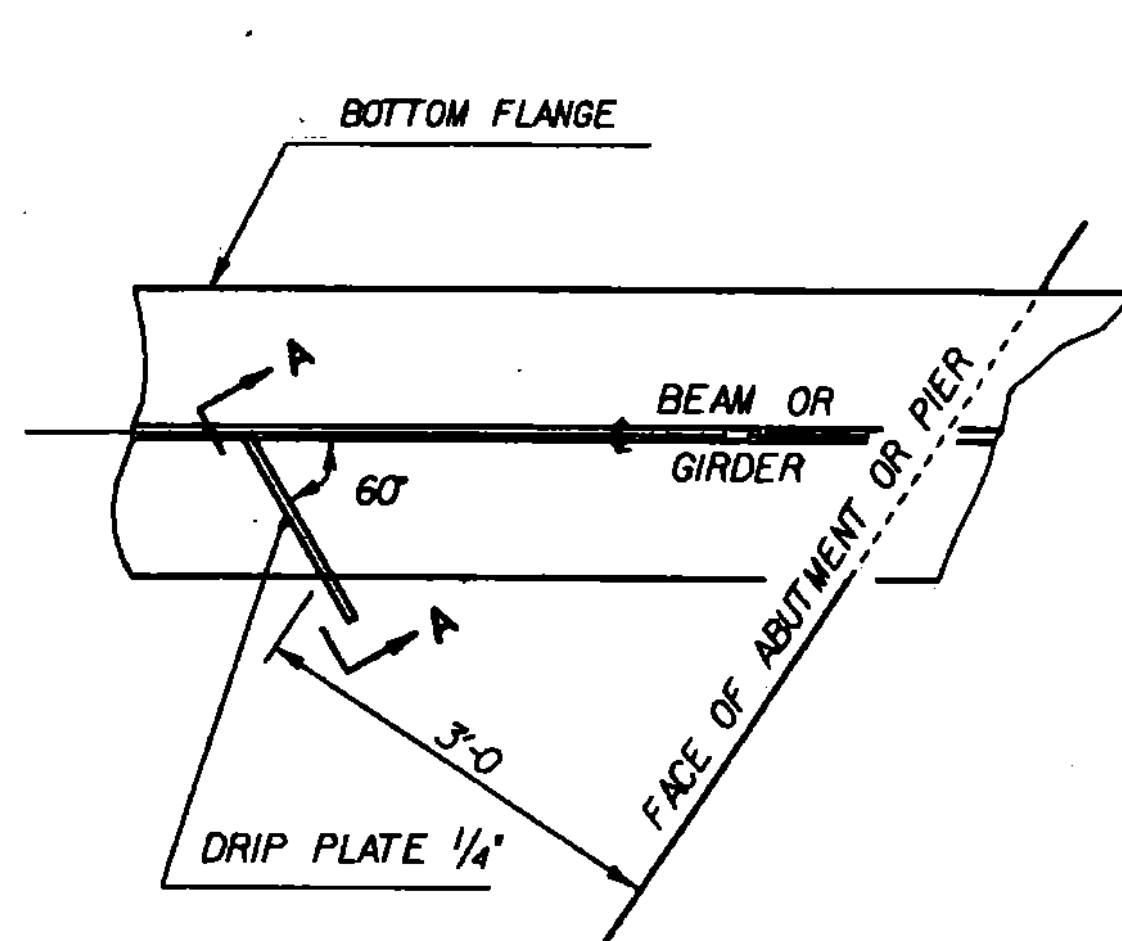


WELD TERMINATION AND COPING DETAILS FOR WELDED PLATE GIRDERS AND ROLLED BEAMS

* NO WELD FOR 1/4" MIN., 1/2" MAX.
(EXCEPT MUST MAINTAIN 1" MINIMUM FROM
EDGE OF FLANGE)

INTERMEDIATE DIAPHRAGMS FOR 27 INCH ROLLED BEAMS

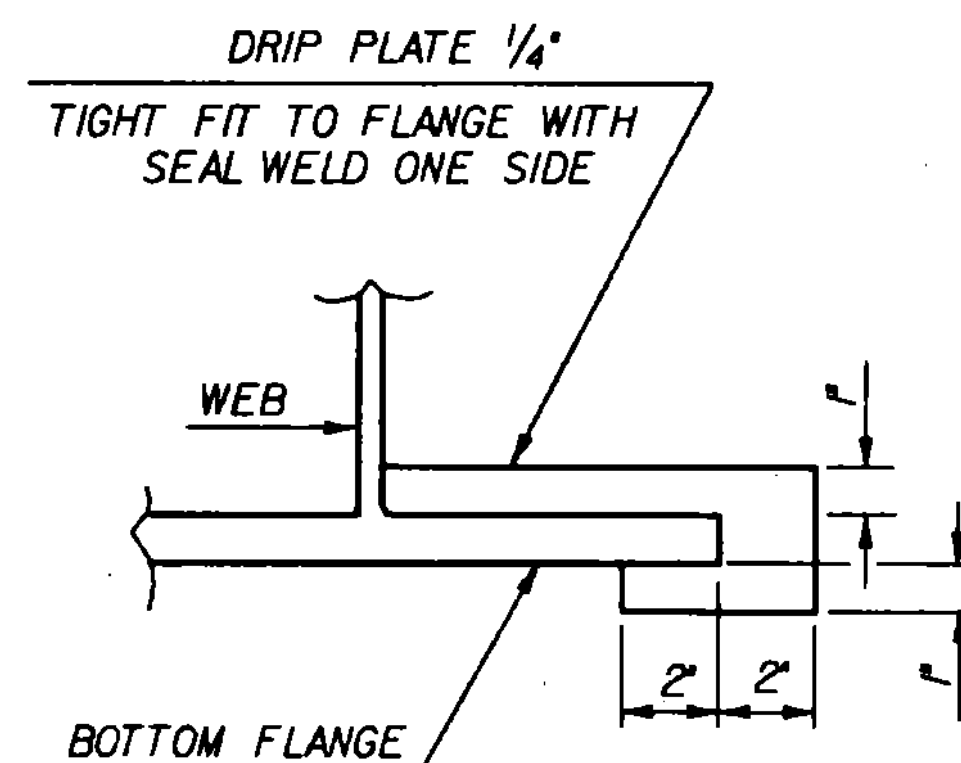
NOTE: HI-STRENGTH BOLTS, NUTS AND WASHERS SHALL CONFORM
TO AASHTO DESIGNATION M 164



PLAN DRIP PLATE

NTS

NOTE: DRIP PLATES SHALL BE PLACED ON OUTSIDE EDGE
OF FASCIA GIRDERS ON THE HIGH SIDE OF ALL PIERS AND
ABUTMENTS OR AS INDICATED ON PROJECT PLANS.

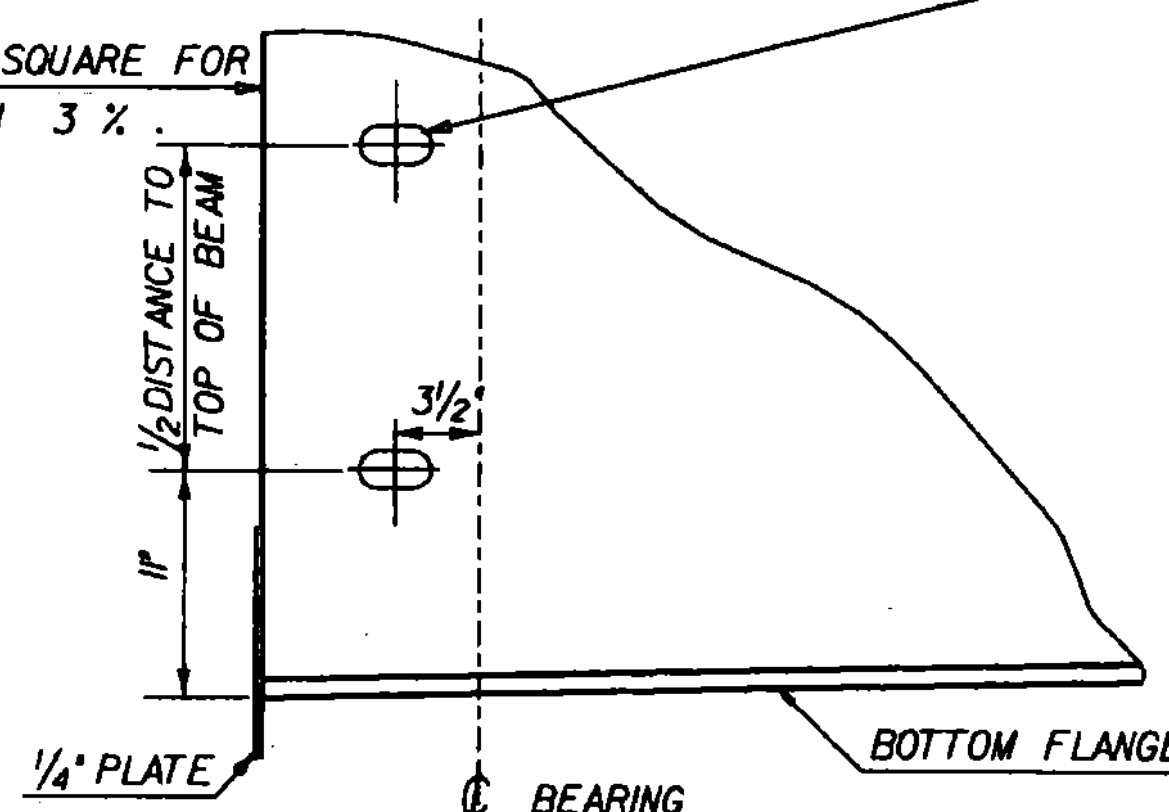


SECTION A - A

NTS

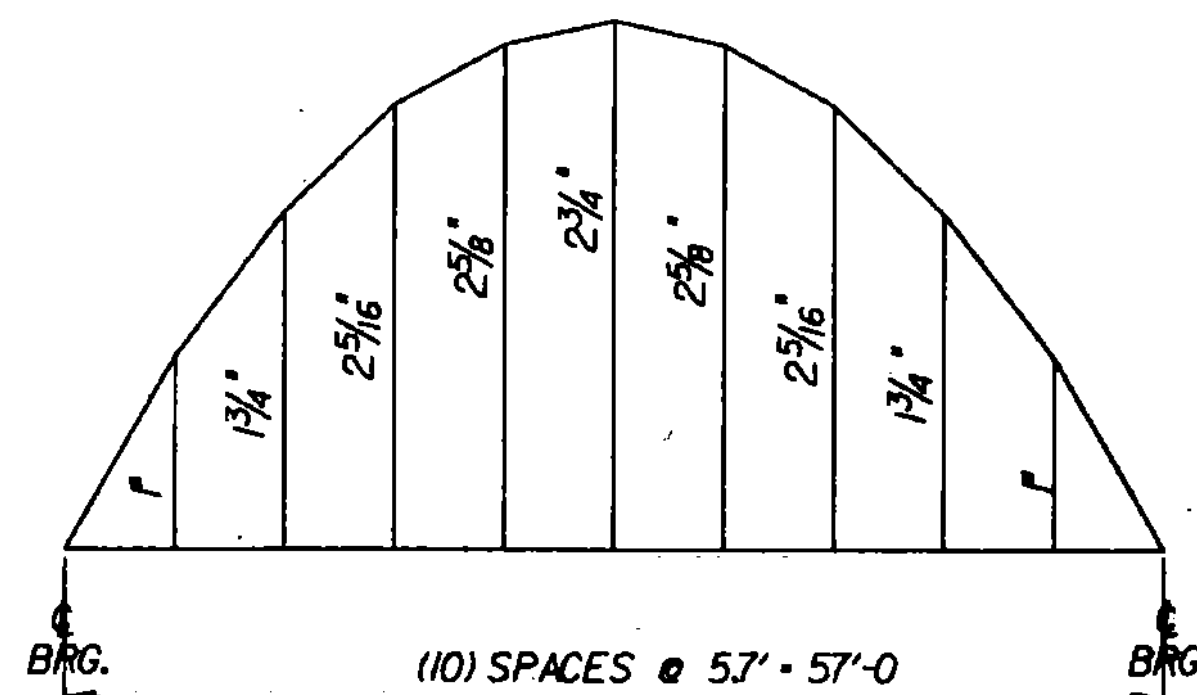
1 9/16" X 2 1/2" SLOTTED HOLES - SQUARE ABUTMENTS.
SLOTTED HOLES ARE FOR HORIZONTAL REINFORCING BARS
IN FRONT FACE OF CURTAIN WALL

BEAM MAY BE CUT SQUARE FOR
GRADES LESS THAN 3 %



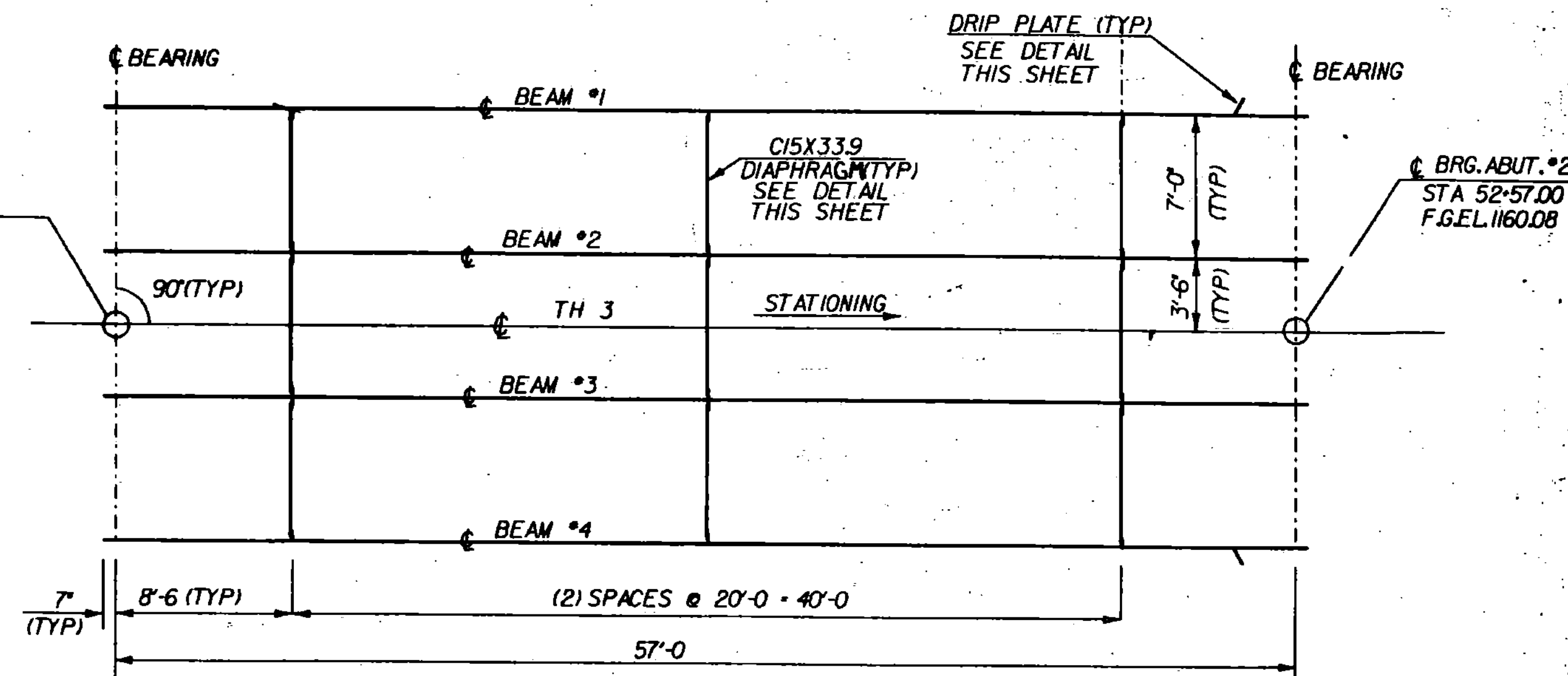
ELEVATION VIEW END OF STEEL BEAM AT ABUTMENT

NTS



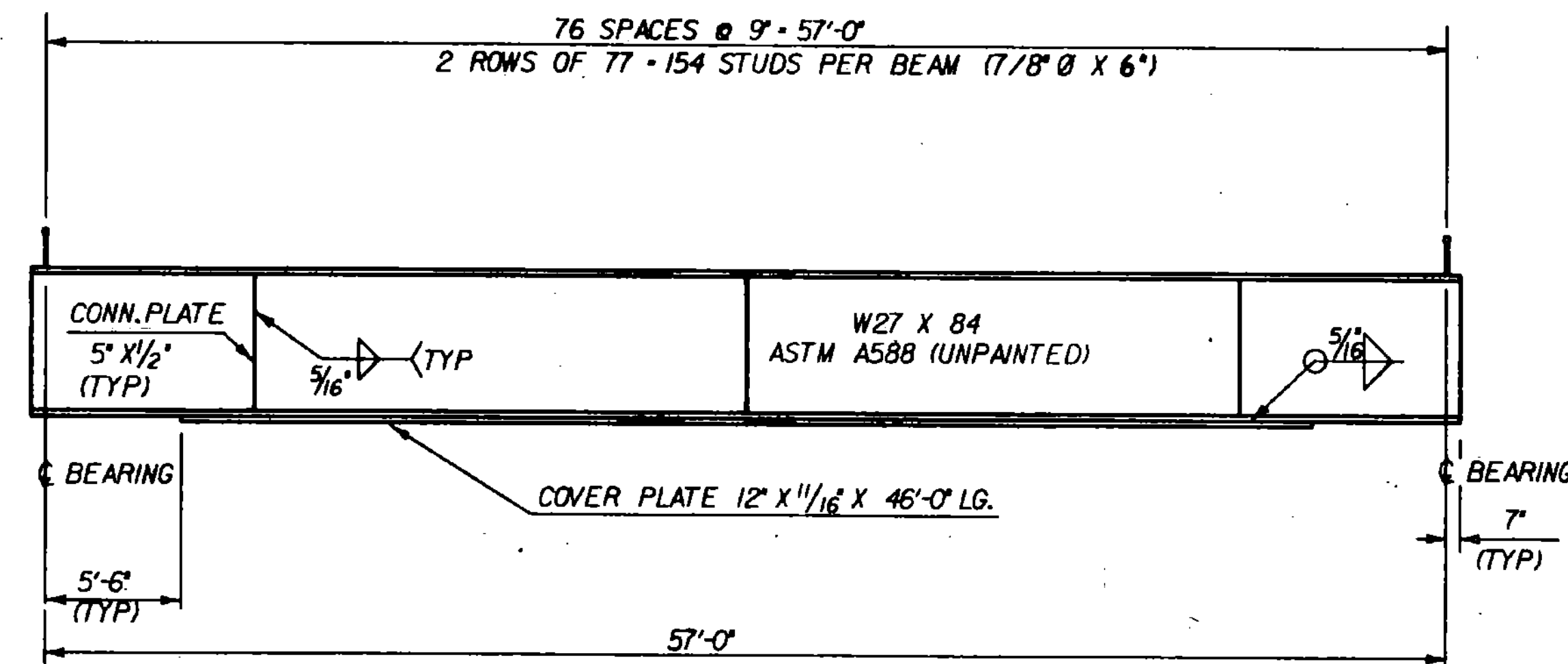
CAMBER DIAGRAM

SCALE: 1" = 10'-0" HOR.
1" = 1" VERT



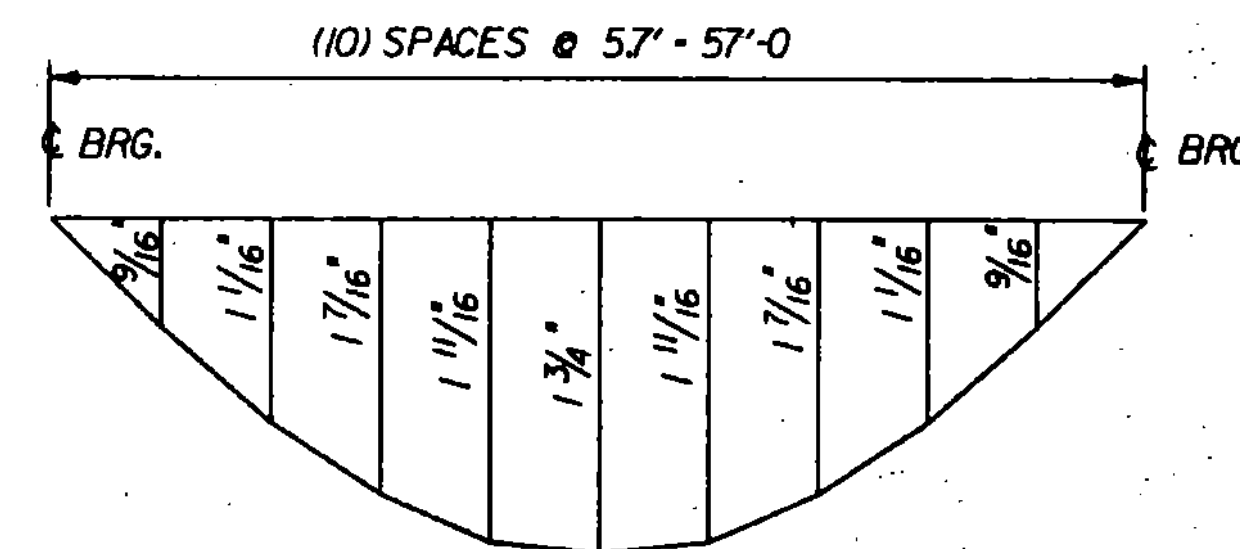
FRAMING PLAN

SCALE 3/16" = 1'-0"



TYPICAL BEAM ELEVATION

HORZ. SCALE 3/16" = 1'-0"
VERT. SCALE 1/2" = 1'-0"



DEAD LOAD DEFLECTION DIAGRAM

SCALE: 1" = 10'-0" HOR.
1" = 1" VERT

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	CHARLESTON	Bridge No.	B24
Highway No.	TH 3	Log Sta.	52+28
TH 3 OVER CLYDE RIVER			
FRAMING PLAN AND STEEL DETAILS			
Designed By	ACHURCH	Drawn By	SINCLAIR
Checked By	C.WILLIAMS	Bridge Design Supervisor	R. GENDRON
PROJECT	CHARLESTON	PROJECT NO.	BRZ 1449(14)
L.O.C. Info. ZFAH3056163C560FRM.DGN		CHARLFRM/PRF	
Bridge Sheet No.		Sheet	10 of 33

PLOTTED 6-JAN-1989

TEMPERATURE TABLE

TEMP	'A' DIST	'B' DIST
0°F	2 1/16	2 3/16
15°F	2 3/8	2 1/8
30°F	2 3/16	2 1/16
45°F	2 1/4	2
60°F	2 3/16	1 15/16
75°F	2 1/8	1 7/8
90°F	2 1/16	1 13/16

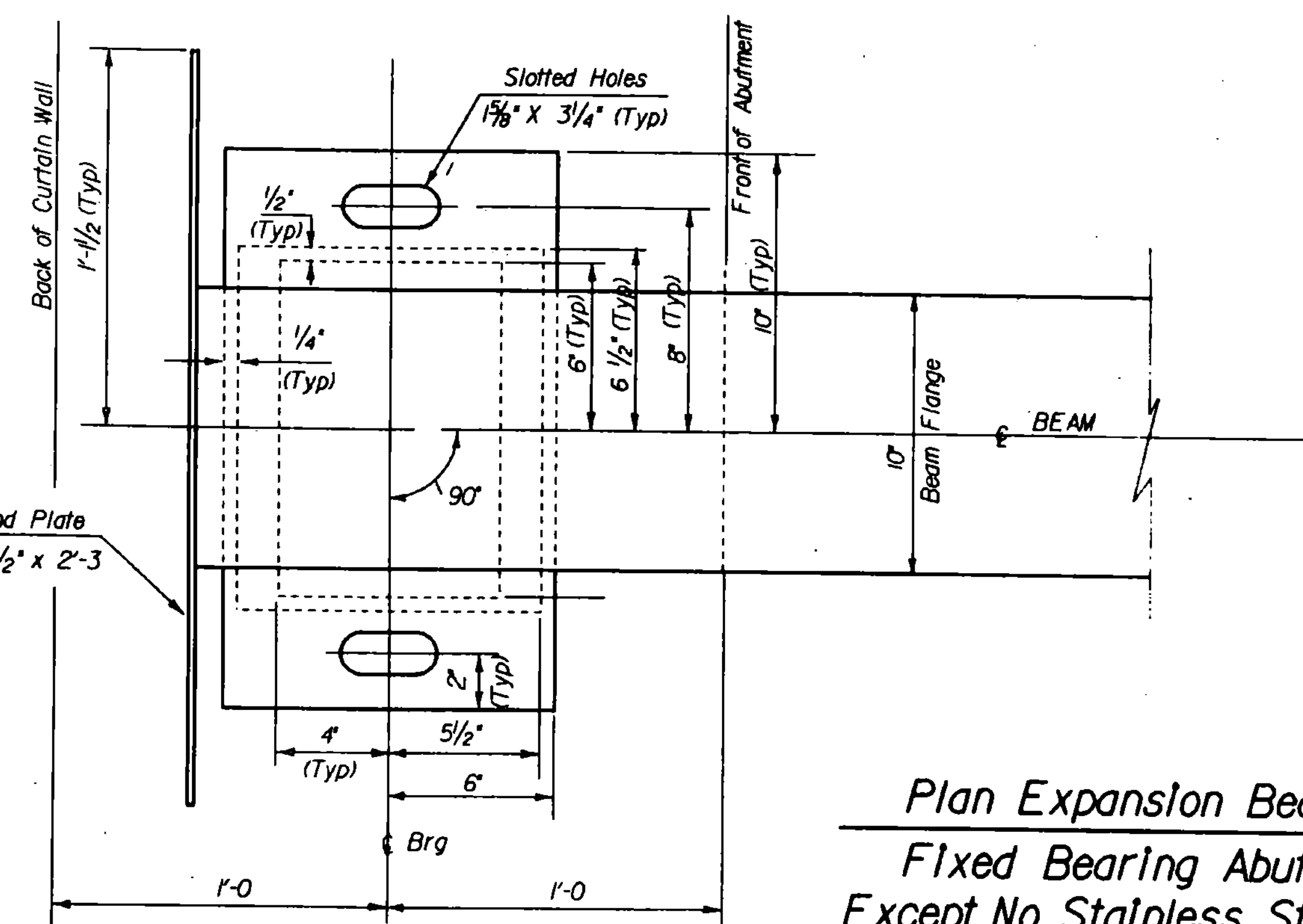
SOLE PLATE & BEARING DETAIL NOTES

1. BEARINGS SHALL CONFORM TO APPLICABLE SUBSECTIONS OF SECTION 731.
2. BEARINGS SHALL BE PAID FOR UNDER THE ITEM 53103 BEARING DEVICE ASSEMBLY.
3. SHOP DRAWINGS CONFORMING TO SUBSECTION 53103 SHALL BE SUBMITTED TO INCLUDE WELDING AND BONDING PROCEDURES.
4. THE CONCRETE SURFACE UNDER THE BEARINGS SHALL BE LEVEL.
5. THE FIELD WELD CONNECTING THE BOTTOM FLANGE WITH THE SOLE PLATE SHALL BE MADE WITH 8018-C3 RODS. AREAS OF GALVANIZING DAMAGED BY WELDING SHALL BE PAINTED WITH A ZINC RICH PAINT.
6. ALTERNATE CONFIGURATIONS FOR BEARINGS MAY BE SUBMITTED FOR APPROVAL. ANY ALTERNATE SUBMITTED SHALL BE DESIGNED AND CERTIFIED TO MEET THE DESIGN LOADS AND CRITERIA SHOWN ON THIS SHEET AND SHALL MAINTAIN THE ANCHORAGE SYSTEM SHOWN.
7. BRIDGE SEAT ELEVATIONS MAY BE REVISED TO ACCOMMODATE AN ALTERNATE CONFIGURATION.
8. THE 'A' DISTANCE IS THE SOLE PLATE ADJUSTMENT TO BE USED BEFORE DEAD LOAD IS ADDED TO THE BEAMS. THE 'B' DISTANCE IS THE SOLE PLATE ADJUSTMENT TO BE USED AFTER THE DECK AND CURBS HAVE BEEN POURED. 'B' DISTANCE SETTING SHOWN SHALL BE REACHED WITHIN 1/16".
9. DESIGN CRITERIA:
 - A. BASE PLATE TO CONCRETE DESIGN PRESSURE - 1000PSI MAXIMUM
 - B. MINIMUM ALLOWABLE DESIGN ROTATION - 0.015 RADIANS.
 - C. HORIZONTAL CAPACITY SHALL BE MINIMUM 10% OF VERTICAL LOAD.
10. ALL STEEL IN SOLE PLATES SHALL BE ASTM A-588 GALVANIZED OR ASTM A36 GALVANIZED.
11. ANCHOR BOLTS SHALL HAVE A MINIMUM OF 15" EMBEDMENT INTO CONCRETE.
12. SEE SHEET 8 FOR DETAILS OF BOX OUT IN BACKWALL FOR BEARINGS.
13. IN LIEU OF BEVELED WASHERS, THE CONTRACTOR HAS THE OPTION OF MILLING THE SOLE PLATE SUCH THAT IT IS BEVELED FOR THE WIDTH OF THE FLANGE PLUS 1" ON EACH SIDE WITH THE REMAINDER BEING FULL THICKNESS UNDER FLAT WASHERS AND NUTS.

STATE OF VERMONT AGENCY OF TRANSPORTATION

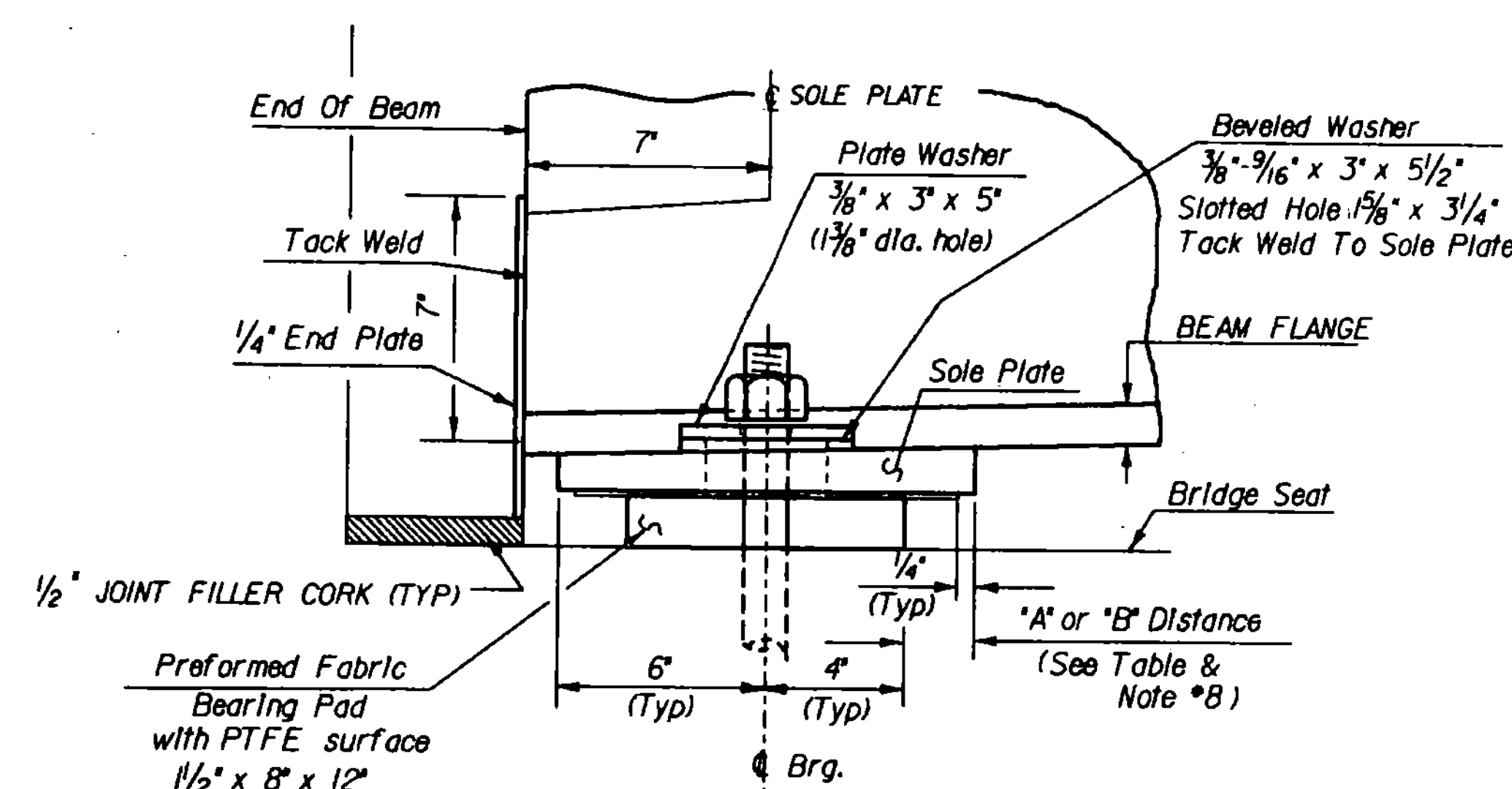
Town Of	CHARLESTON	Bridge No.	B24
Highway No.	TH 3	Loc. Sta.	52+0
TH 3 OVER CLYDE RIVER			
BEARING DETAILS			
Designed By	ACHURCH	Drawn By	SINCLAIR
Checked By	DATE	Bridge Design Supervisor	
	C. WILLIAMS	R. GENDRON	DATE 1-89
PROJECT	CHARLESTON	PROJECT NO.	BRZ 1449(14)
Loc. Info.	ZFAH3056763C560FRW.DGN	CHARLBROG.PRF	
Bridge Sheet No.		Sheet	11 of 33

PLOTTED 25-JAN-1989



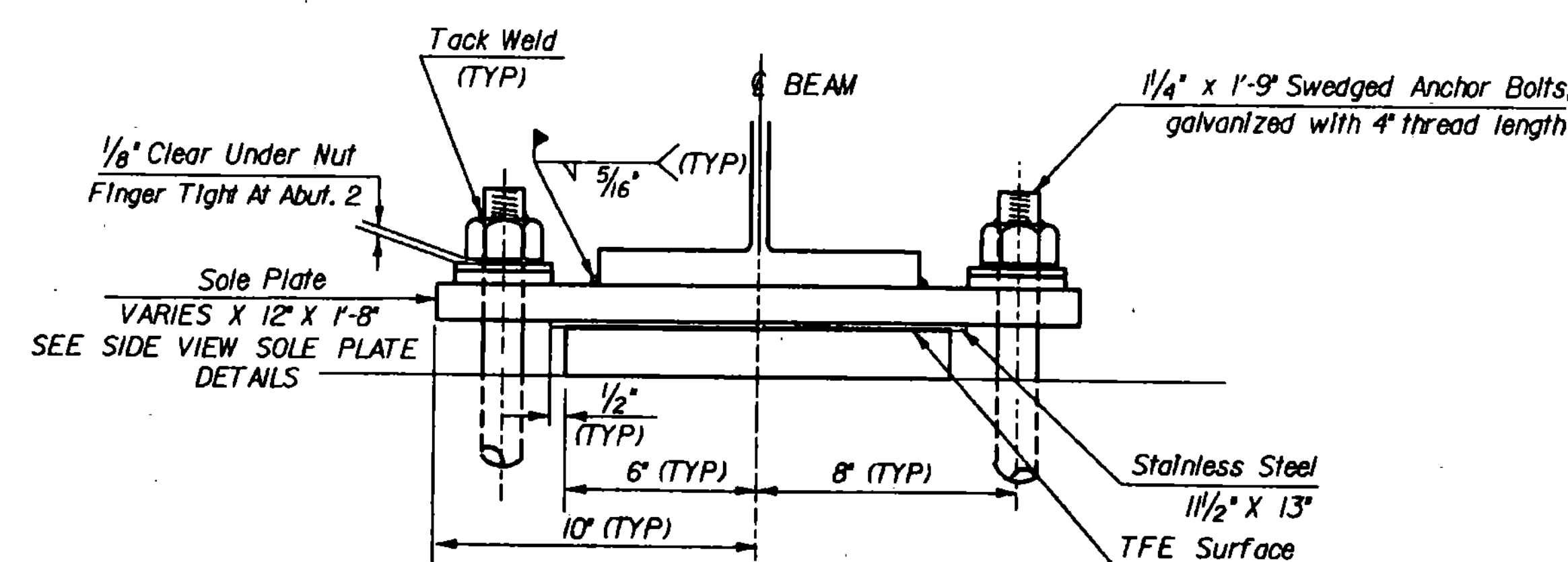
Plan Expansion Bearing Abut. 1
Fixed Bearing Abut. 2 Same
Except No Stainless Steel Or PTFE
And No Slotted Holes
(1 5/8" Ø Hole)

Scale 3" = 1'-0"



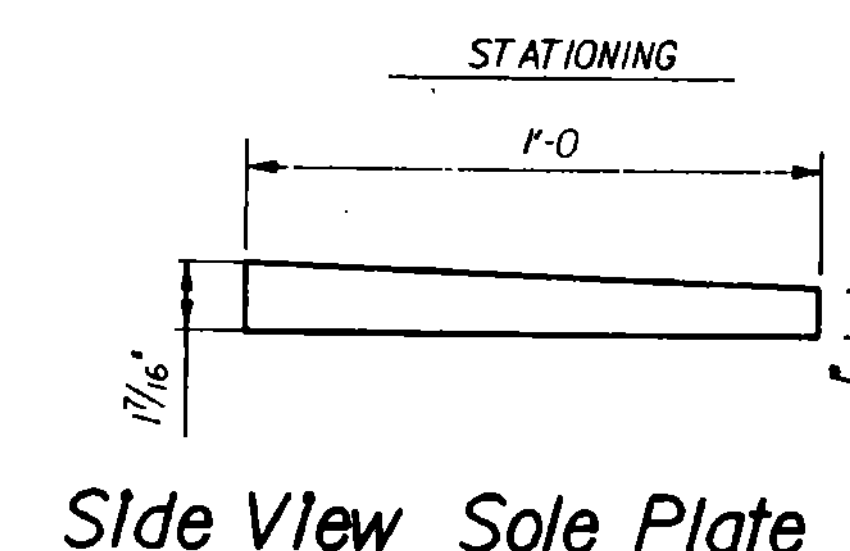
Side Elevation

Scale 3" = 1'-0"



Front View

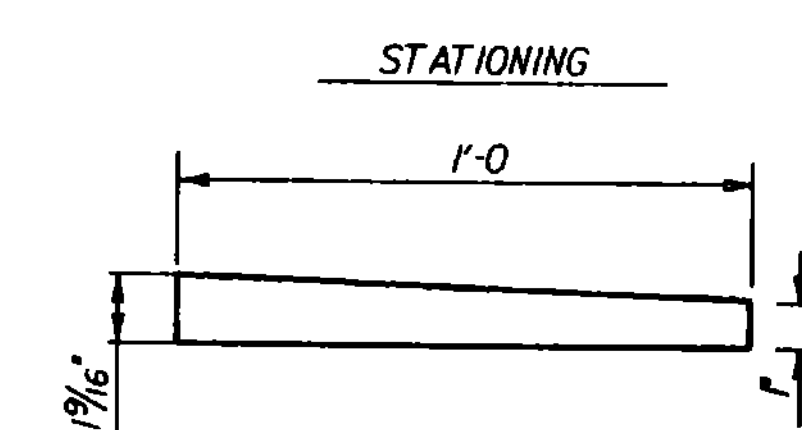
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Side View Sole Plate

Abutment #1

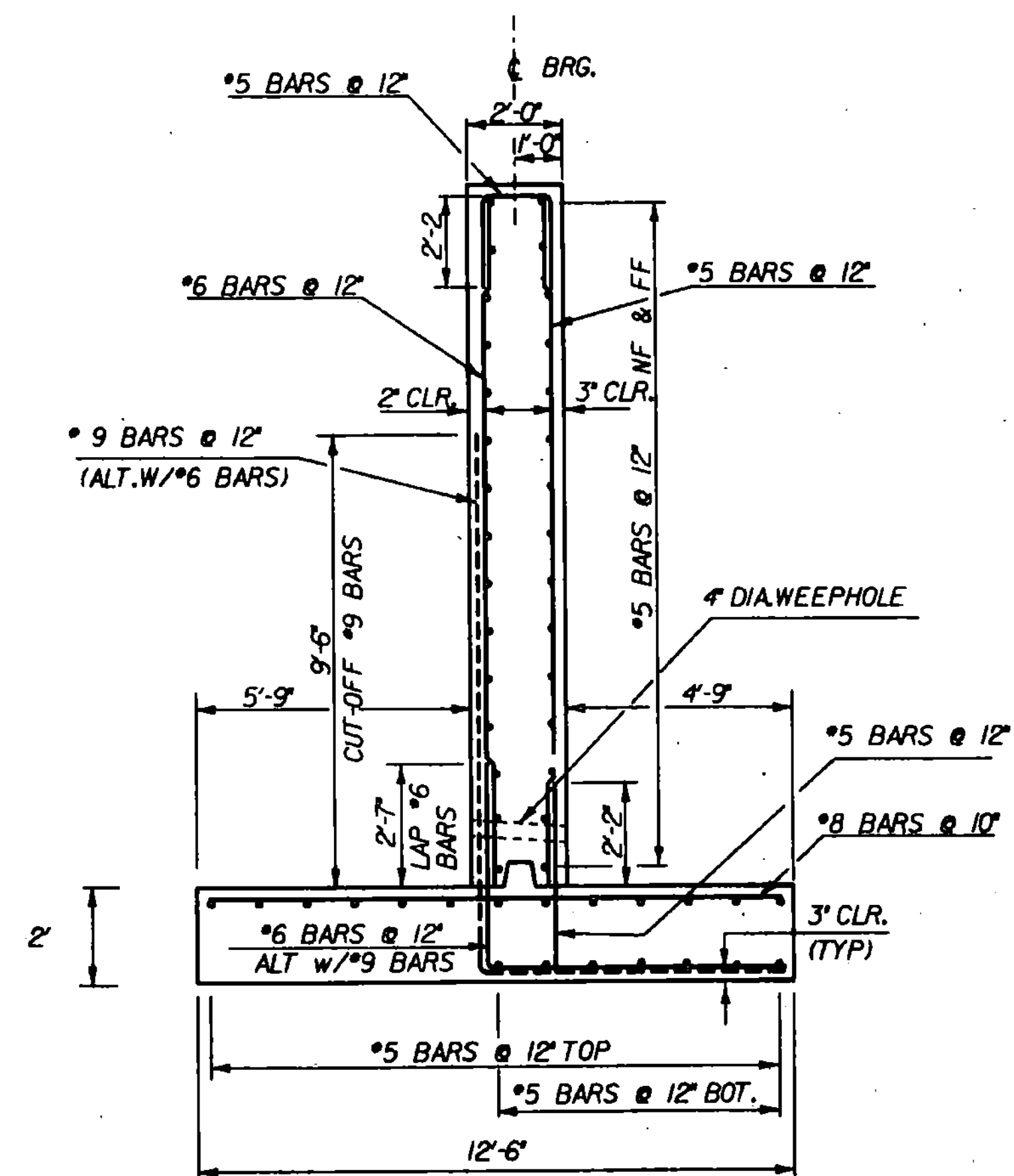
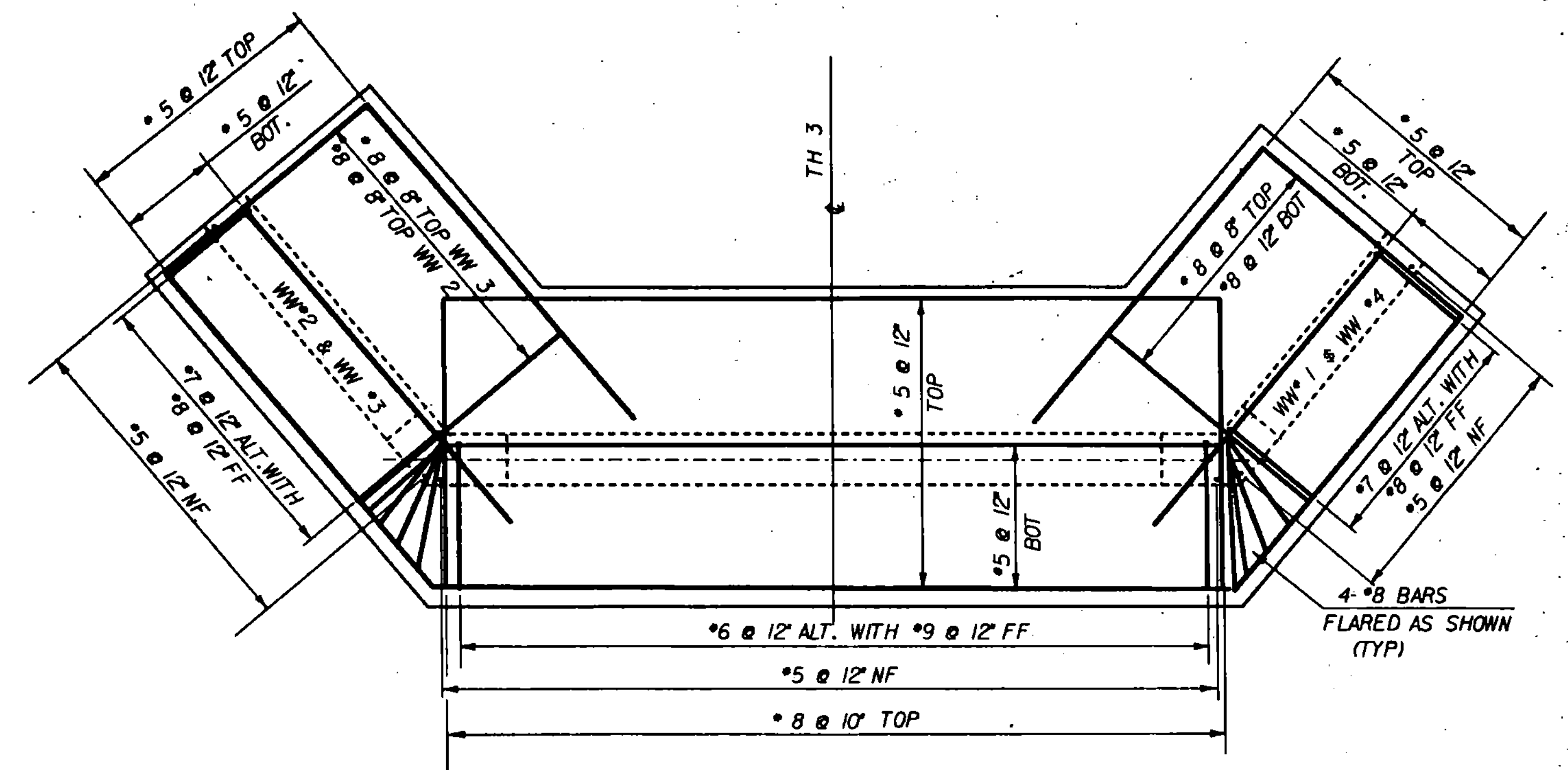
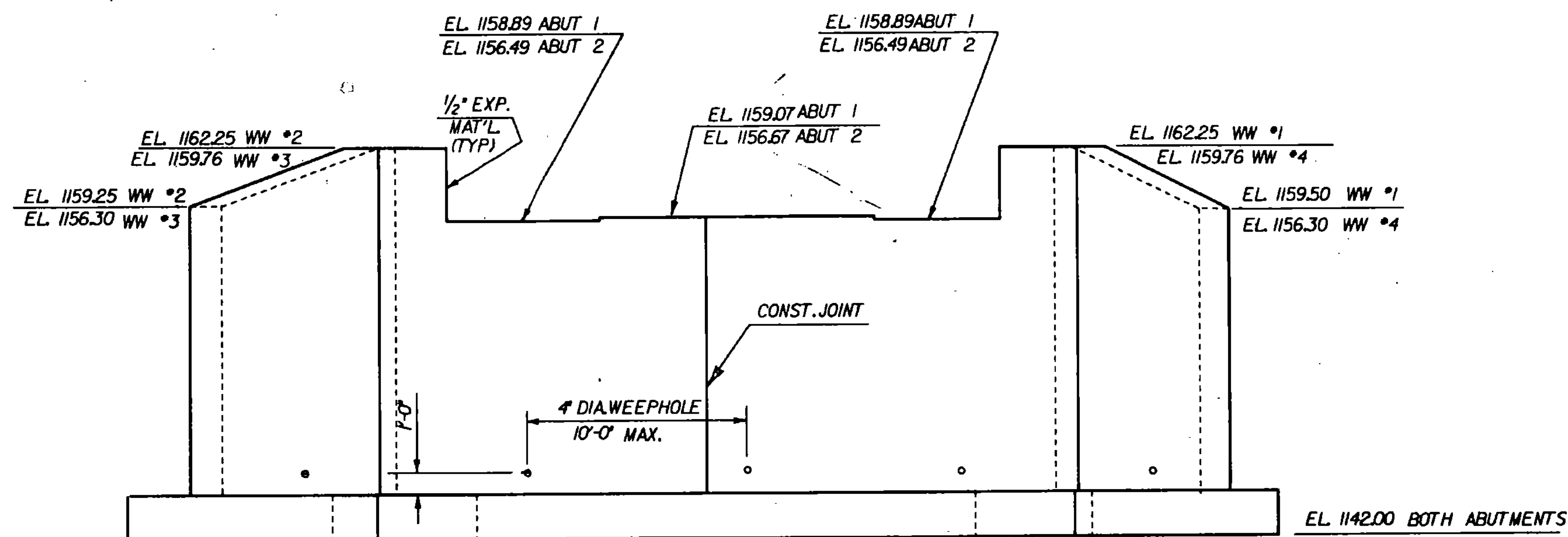
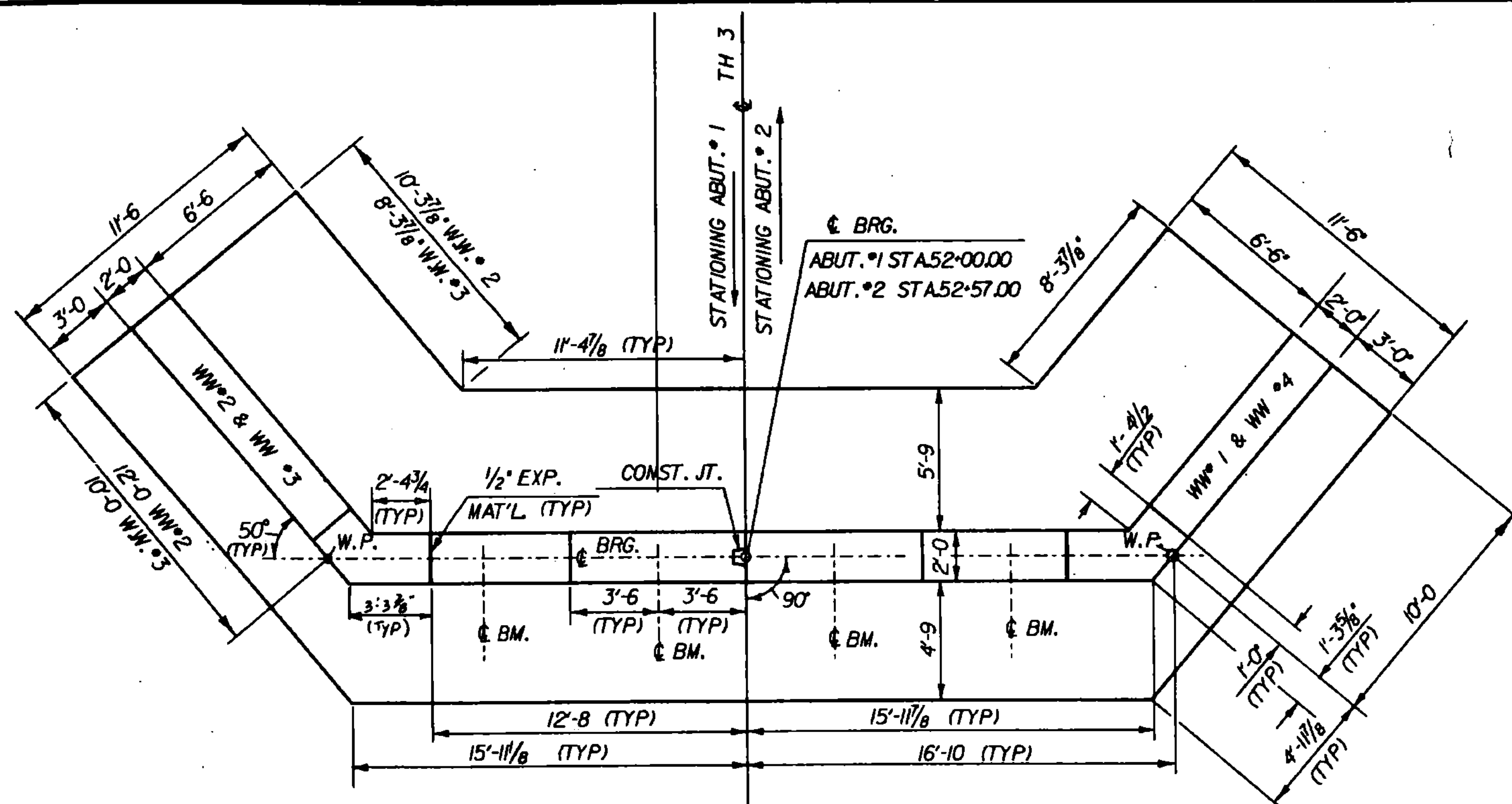
Scale 3" = 1'-0"



Side View Sole Plate

Abutment #2

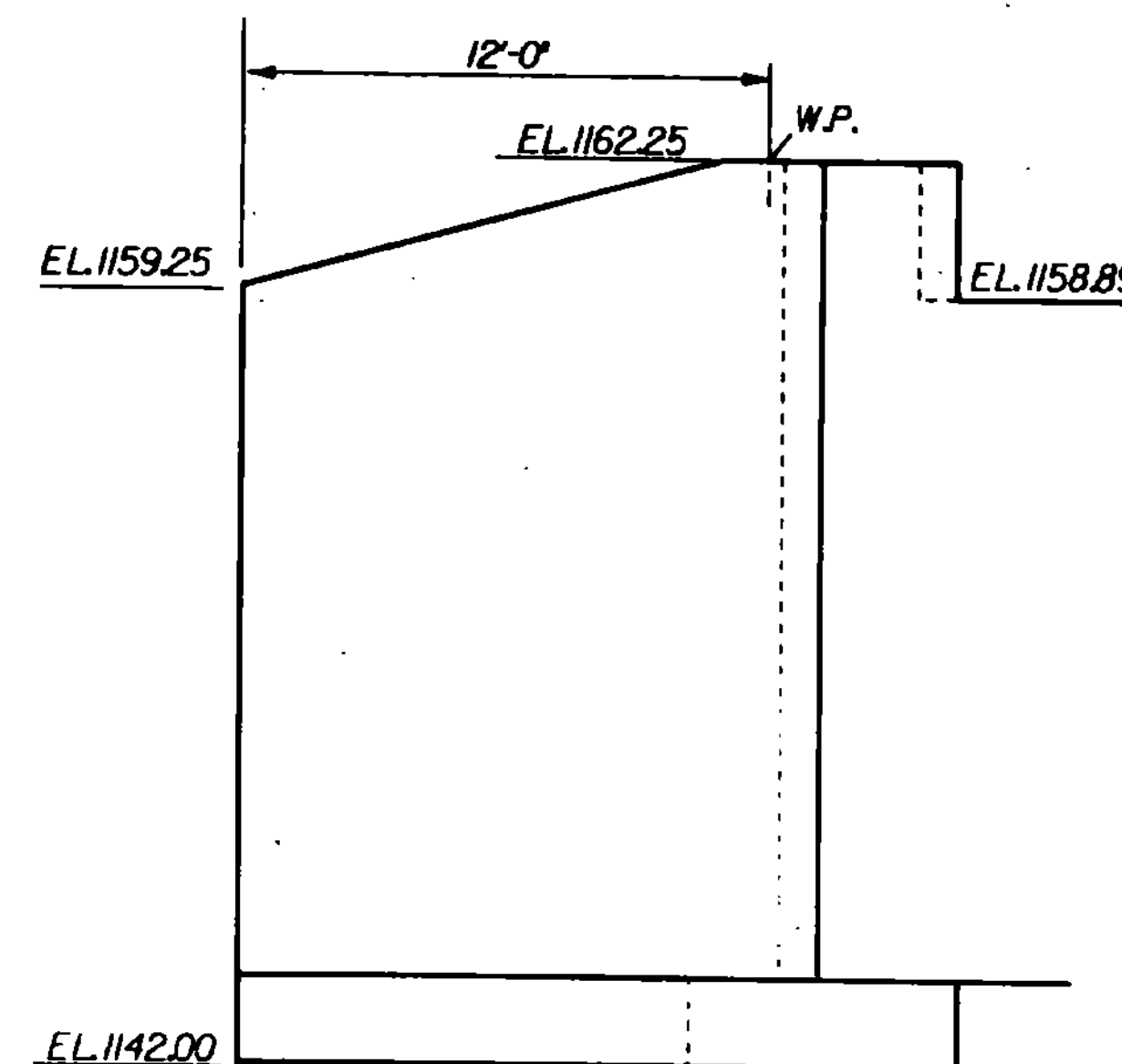
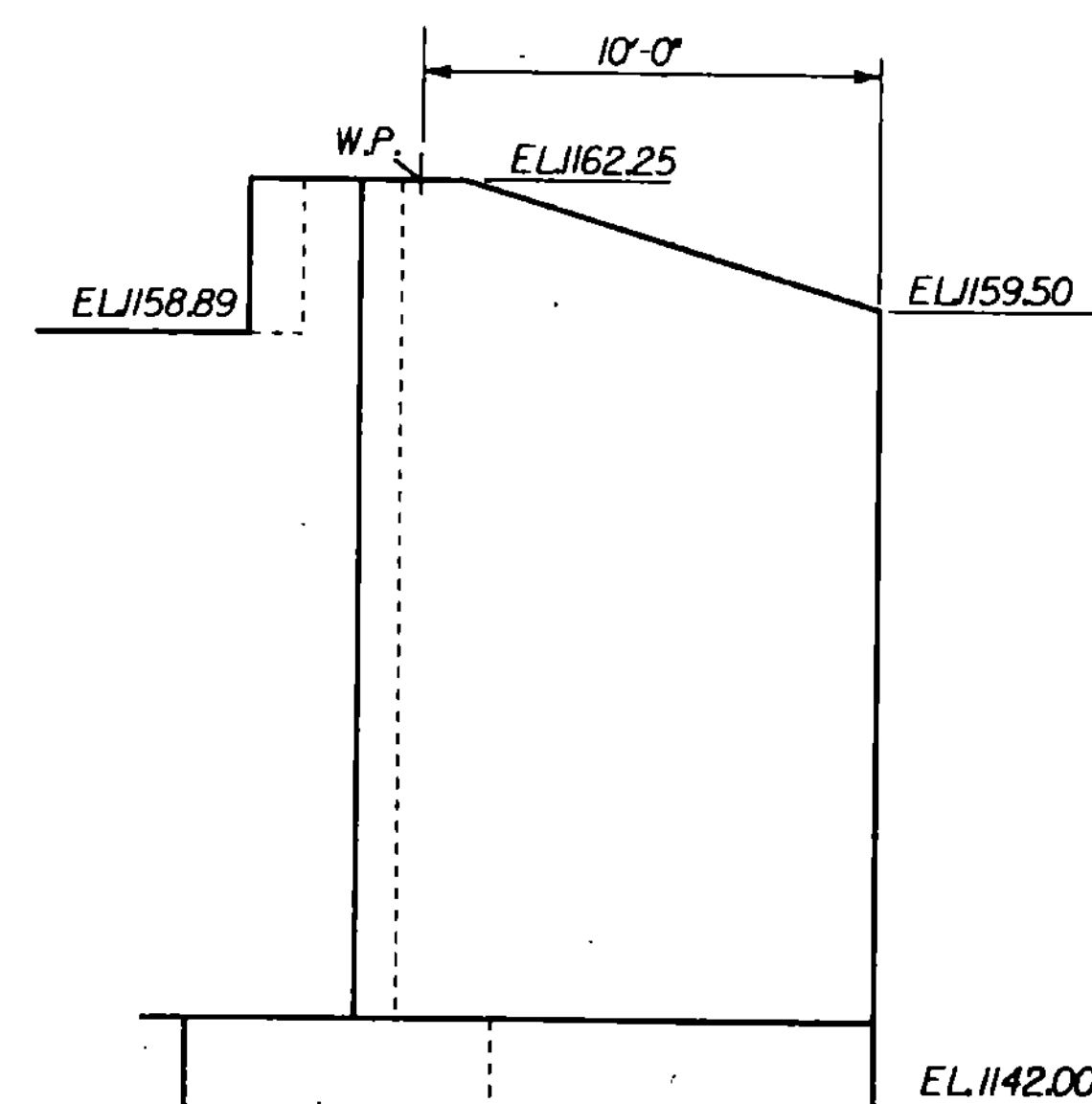
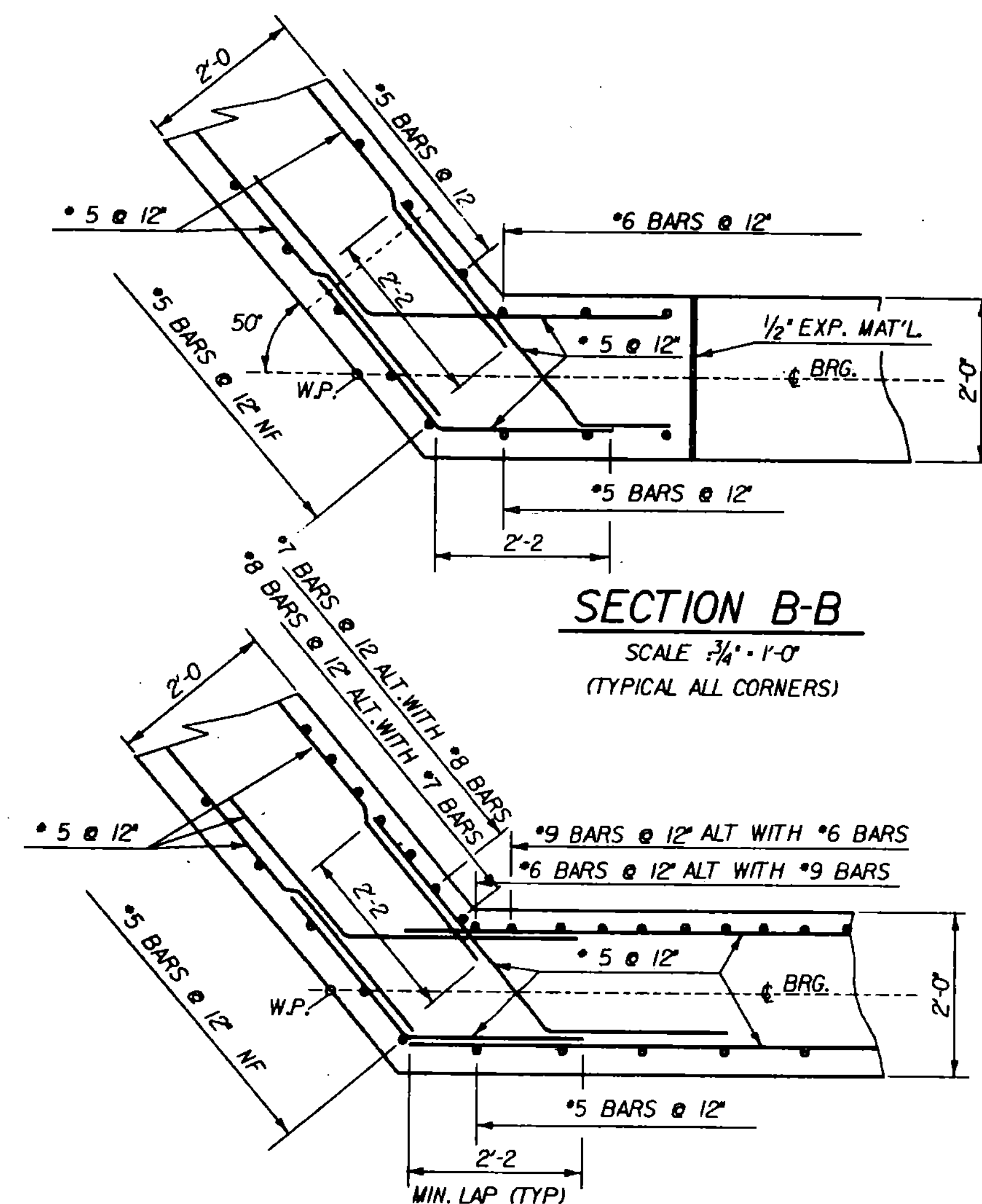
Scale 3" = 1'-0"



ABUTMENT 1 IS SHOWN

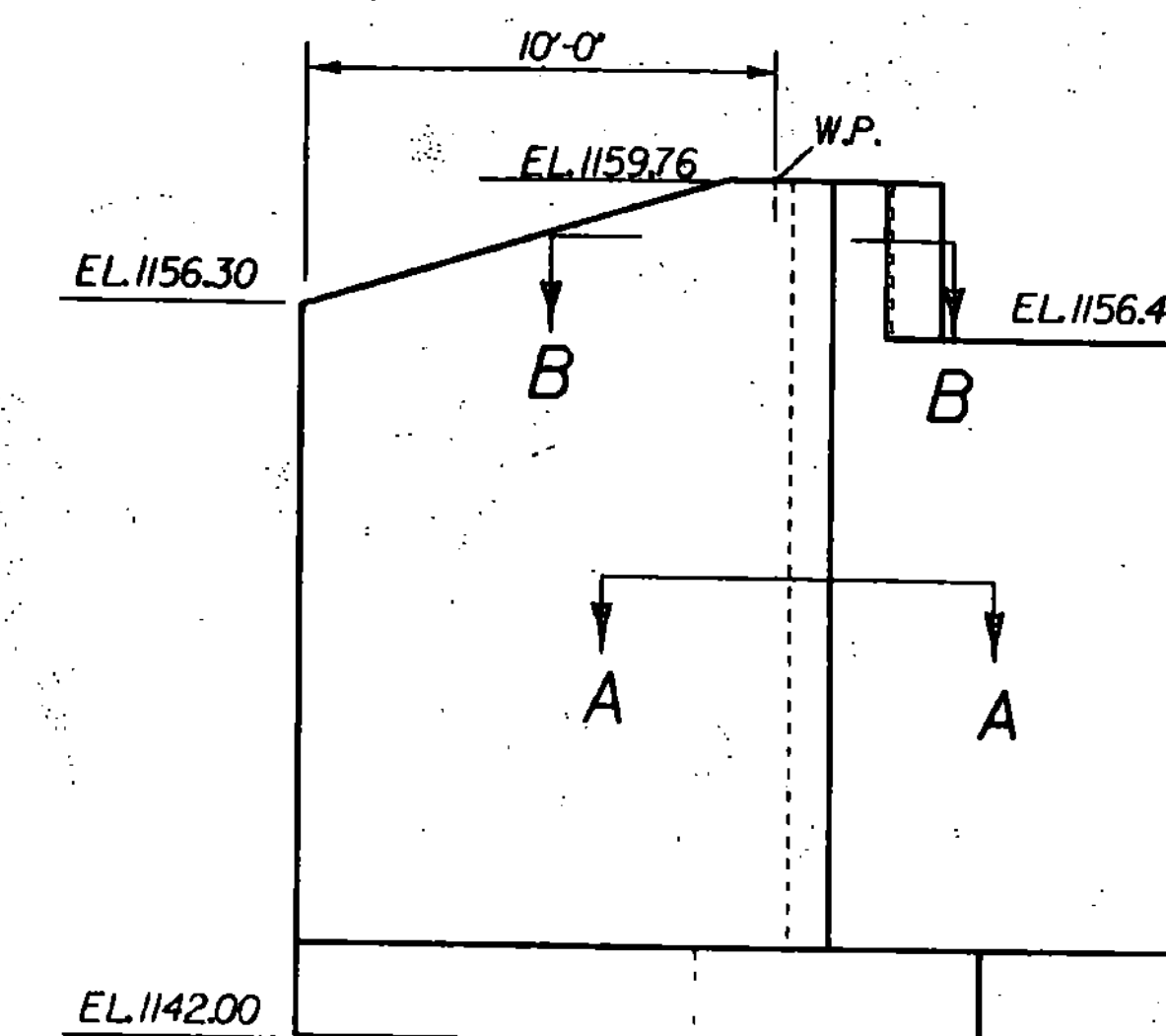
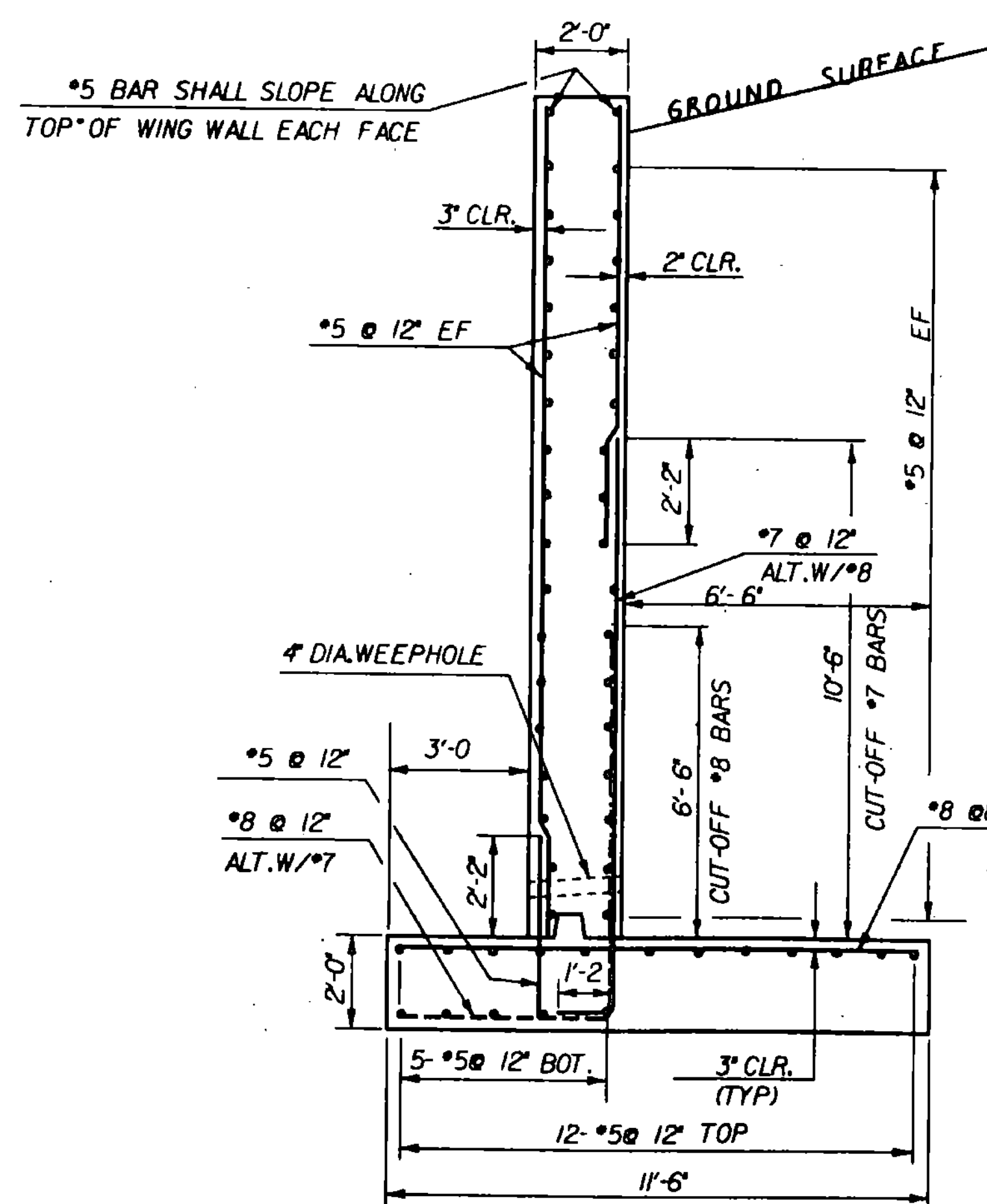
ABUTMENT 2 IS OPPOSITE HAND

STATE OF VERMONT AGENCY OF TRANSPORTATION	
Town Of CHARLESTON	Bridge No. <i>B24</i> Log Sta. Surv. Sta. <i>52+28</i>
Highway No. <i>TH3</i> <i>TH 3 OVER CLYDE RIVER</i>	
ABUTMENT DETAILS	
Designed By ACHURCH	Drawn By <i>SINCLAIR</i>
Checked By Date	Bridge Design Supervisor Date
<i>C. WILLIAMS</i> <i>12-88</i>	<i>R. GENDRON</i> <i>1-89</i>
PROJECT CHARLESTON	PROJECT NO. BRZ 1449(14)
L&C. Info. <i>ZFALE30,56763C560ABT.DGN</i>	
CHARLAJ	
Bridge Sheet No.	Sheet <i>12</i> of <i>33</i>

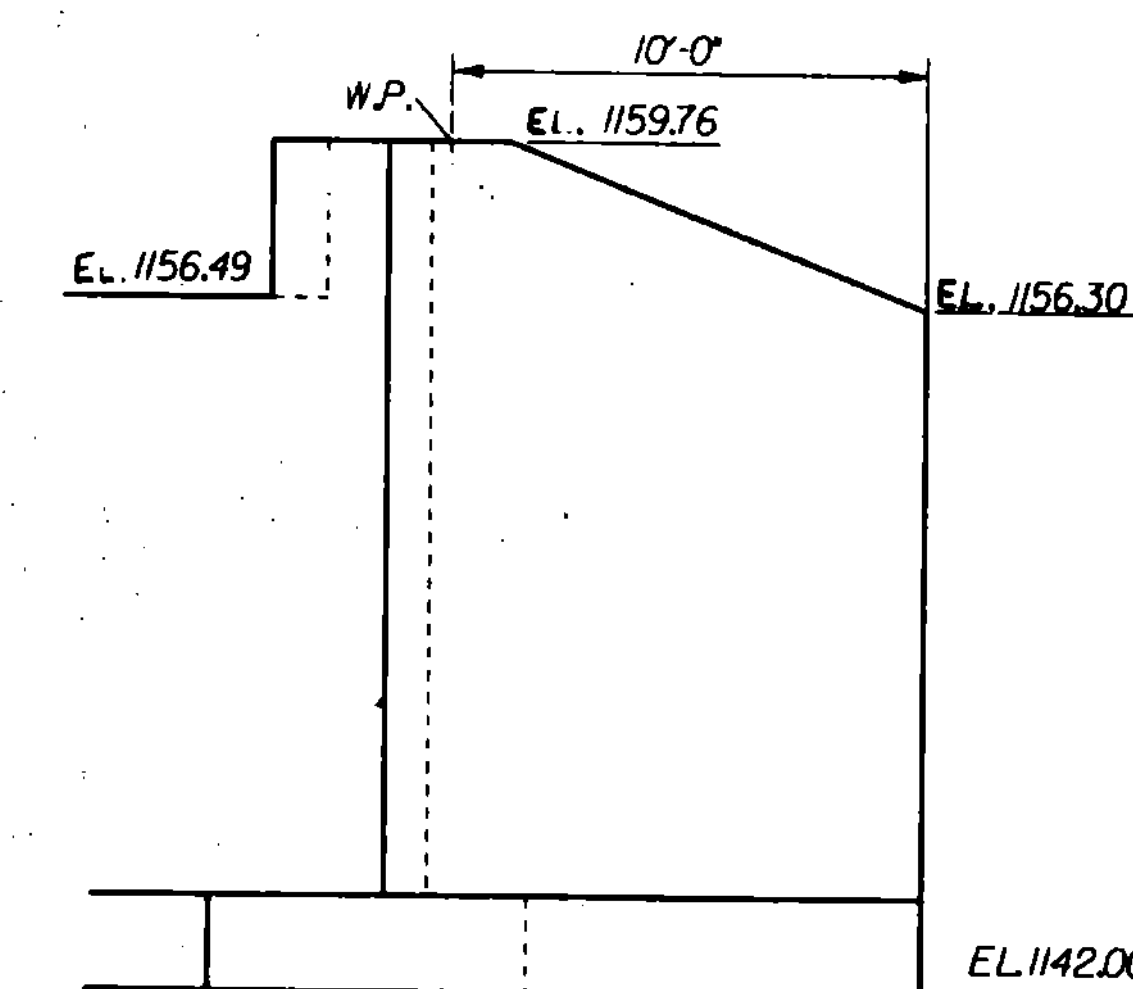


SCALE 1/4" = 1'-0"

ELEVATION WINGWALL 2



ELEVATION WINGWALL 3



ELEVATION WINGWALL 4

**STATE OF VERMONT
AGENCY OF TRANSPORTATION**

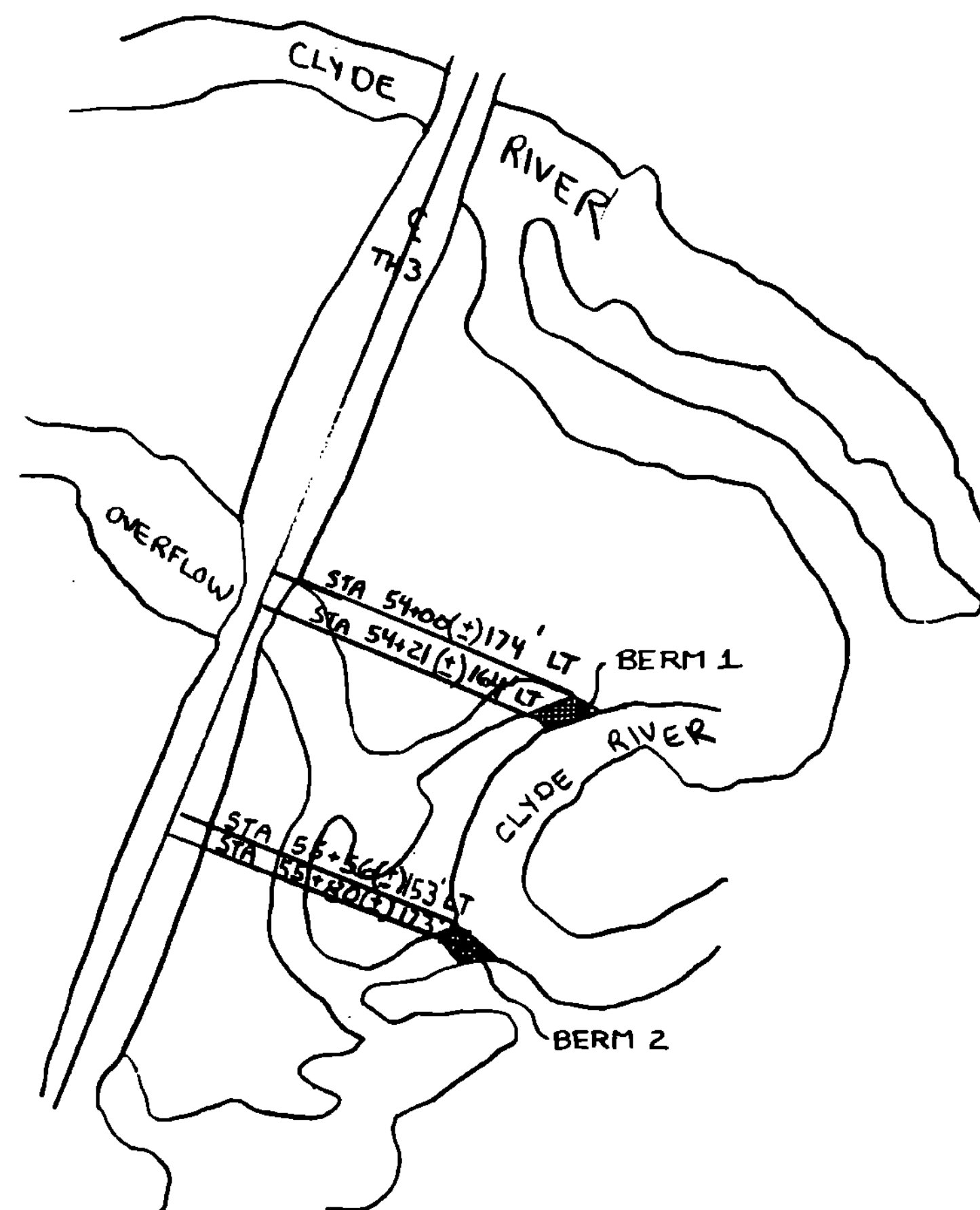
Town Of	CHARLESTON	Bridge No.	B24
Highway No.	TH3	Log Sta.	52+28
TH 3 OVER CLYDE RIVER			
WINGWALL DETAILS			
Designed By	ACHURCH	Drawn By	SINCLAIR
Checked By	DATE	Bridge Design Supervisor	R. GENDRON
C. WILLIAMS	12-88	Date	1-89
PROJECT	CHARLESTON	PROJECT NO.	BRZ 1449(14)
L&C Info.	ZFA/L30,56/163C560ABT.DGN	CHARLA2	
Bridge Sheet No.		Sheet	13 of 33

PLOTTED 6-JUN-1989

NOTE: Cost of Reinforcing Steel in Headwall will be Subsidiary to the cost of the Concrete.

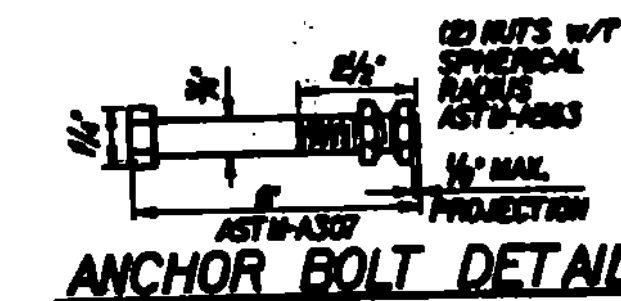
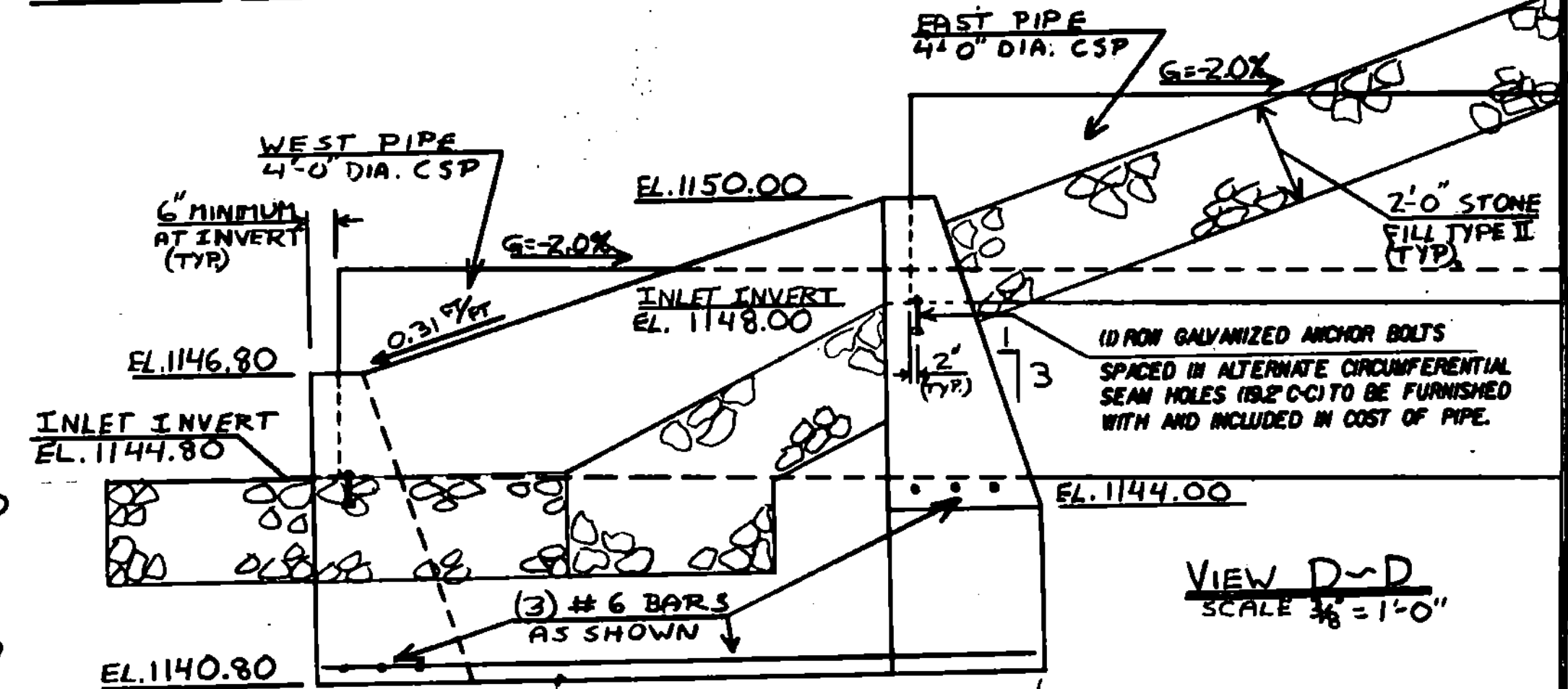
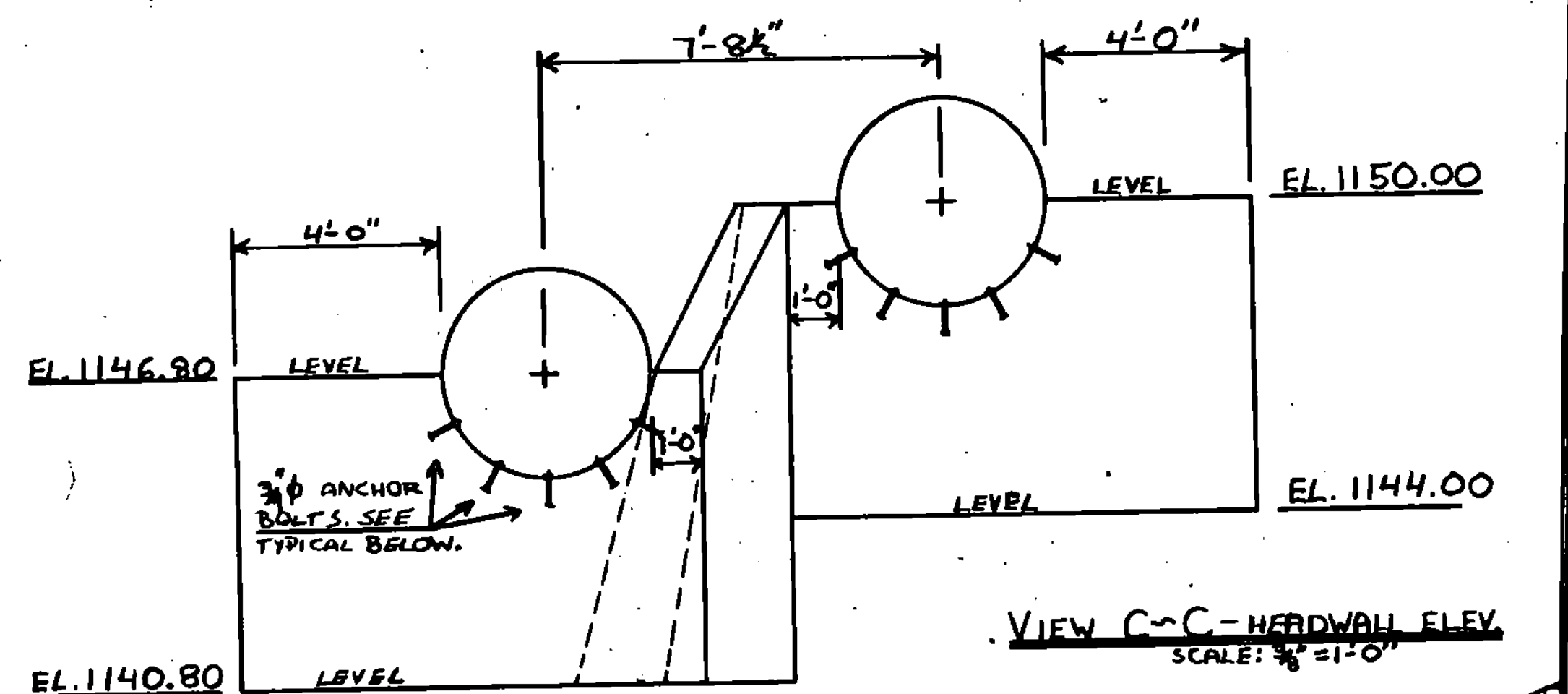
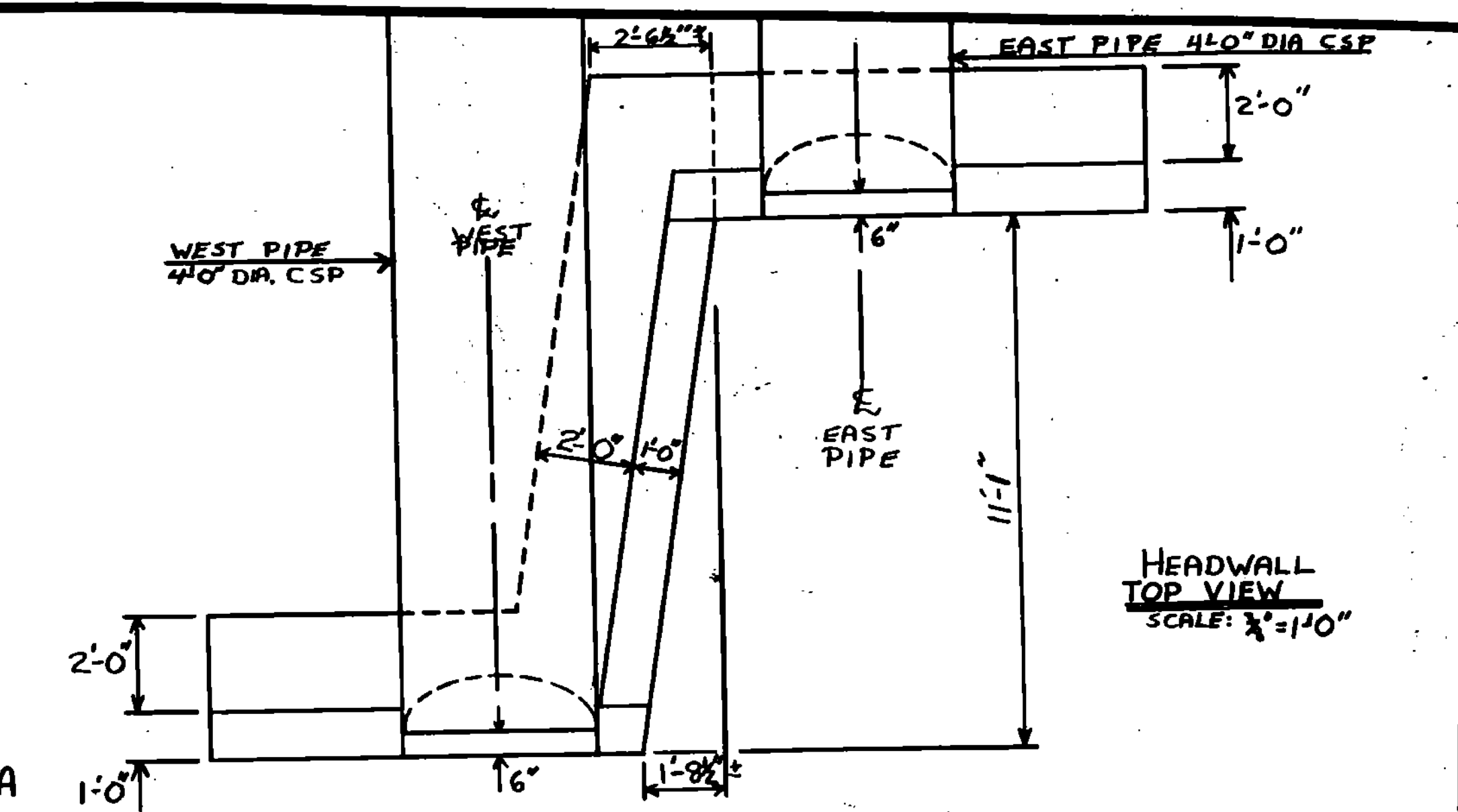
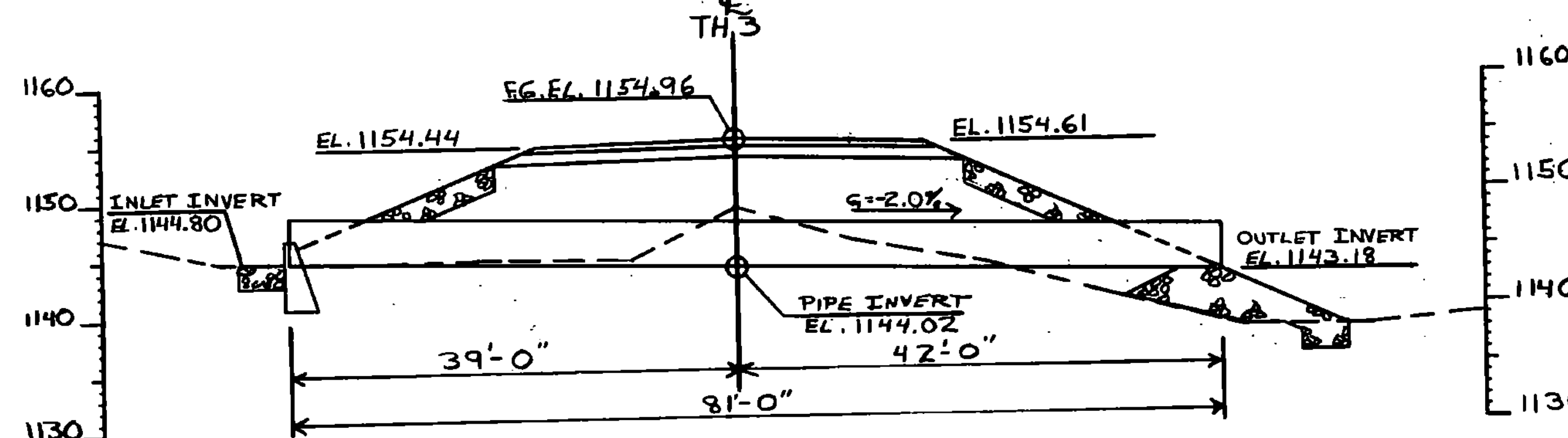
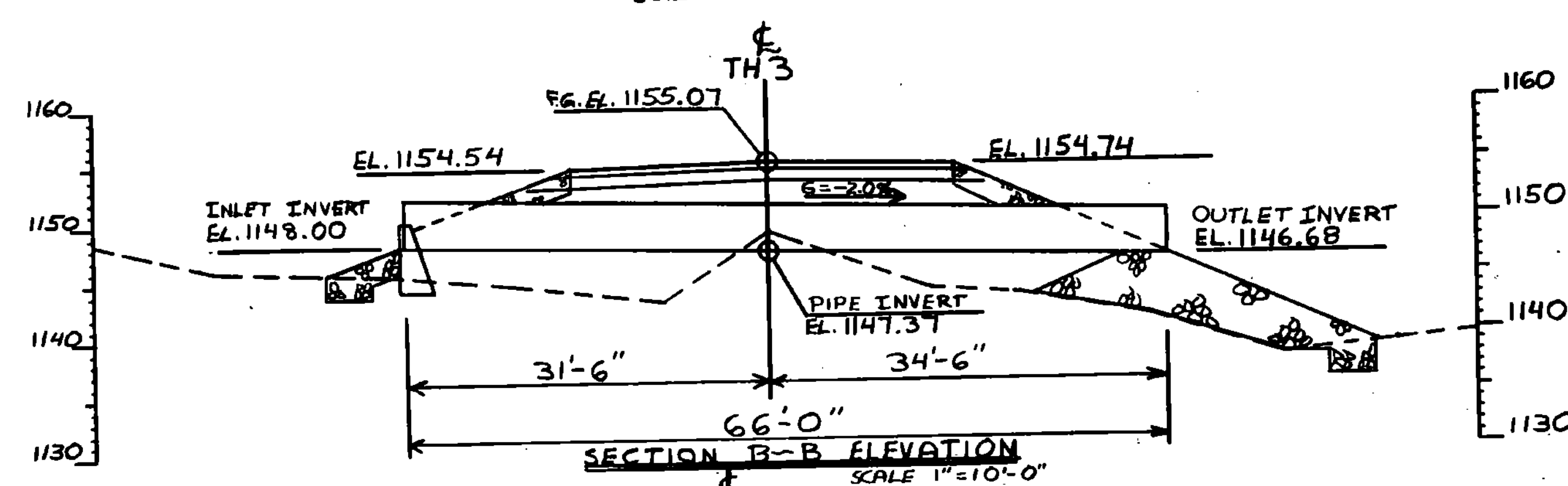
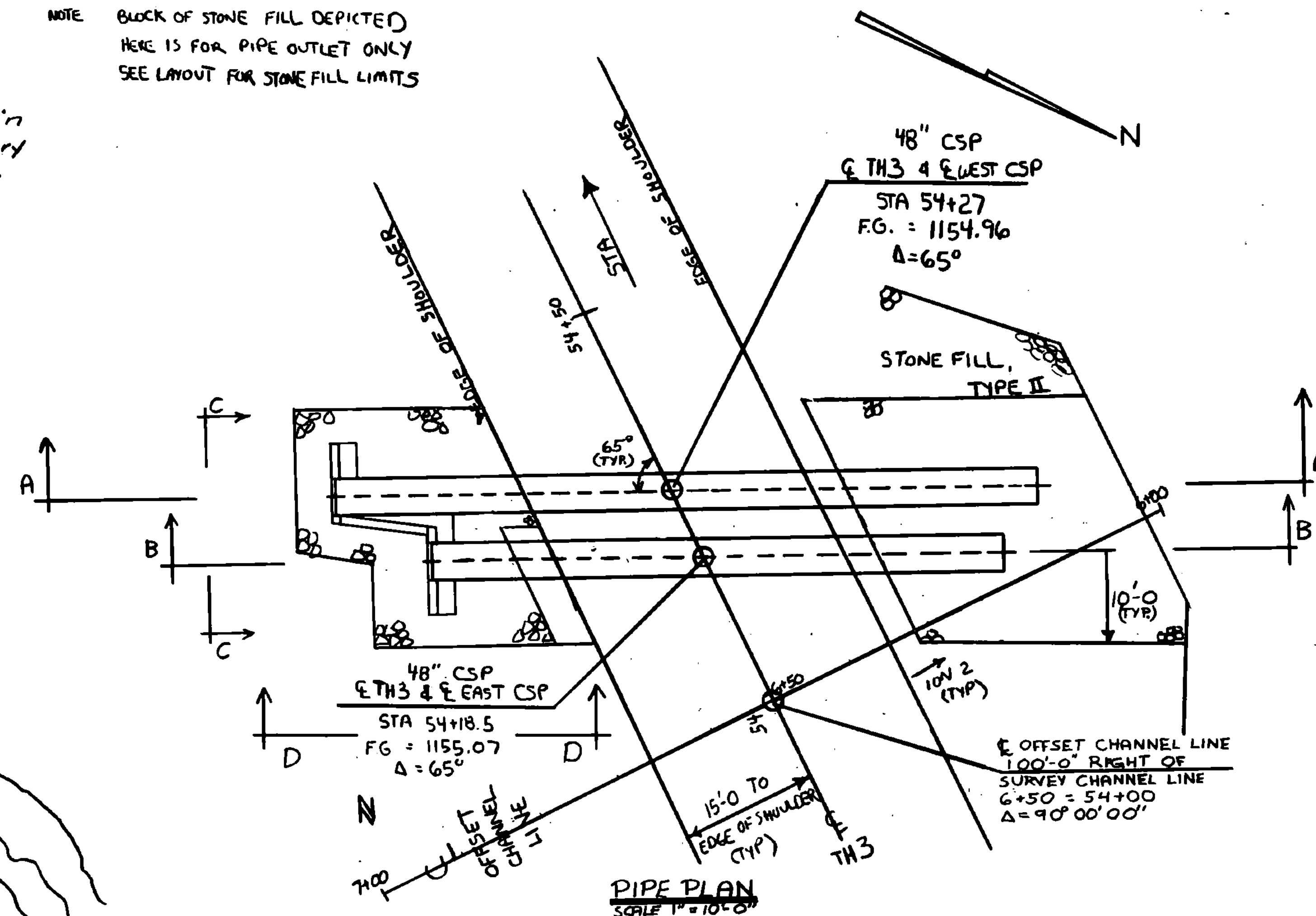
NOTE: COST OF ROAD USED TO PROVIDE ACCESS TO BERMS IS TO BE SUBSIDIARY TO ALL OTHER ITEMS IN THE PROJECT

NOTE: BLOCK OF STONE FILL DEPICTED HERE IS FOR PIPE OUTLET ONLY SEE LAYOUT FOR STONE FILL LIMITS



UPSTREAM BERM LOCATIONS
NO SCALE

NOTE: CONTRACTOR SHALL TAKE CARE THAT GUARD RAIL POSTS DO NOT DAMAGE PIPES.



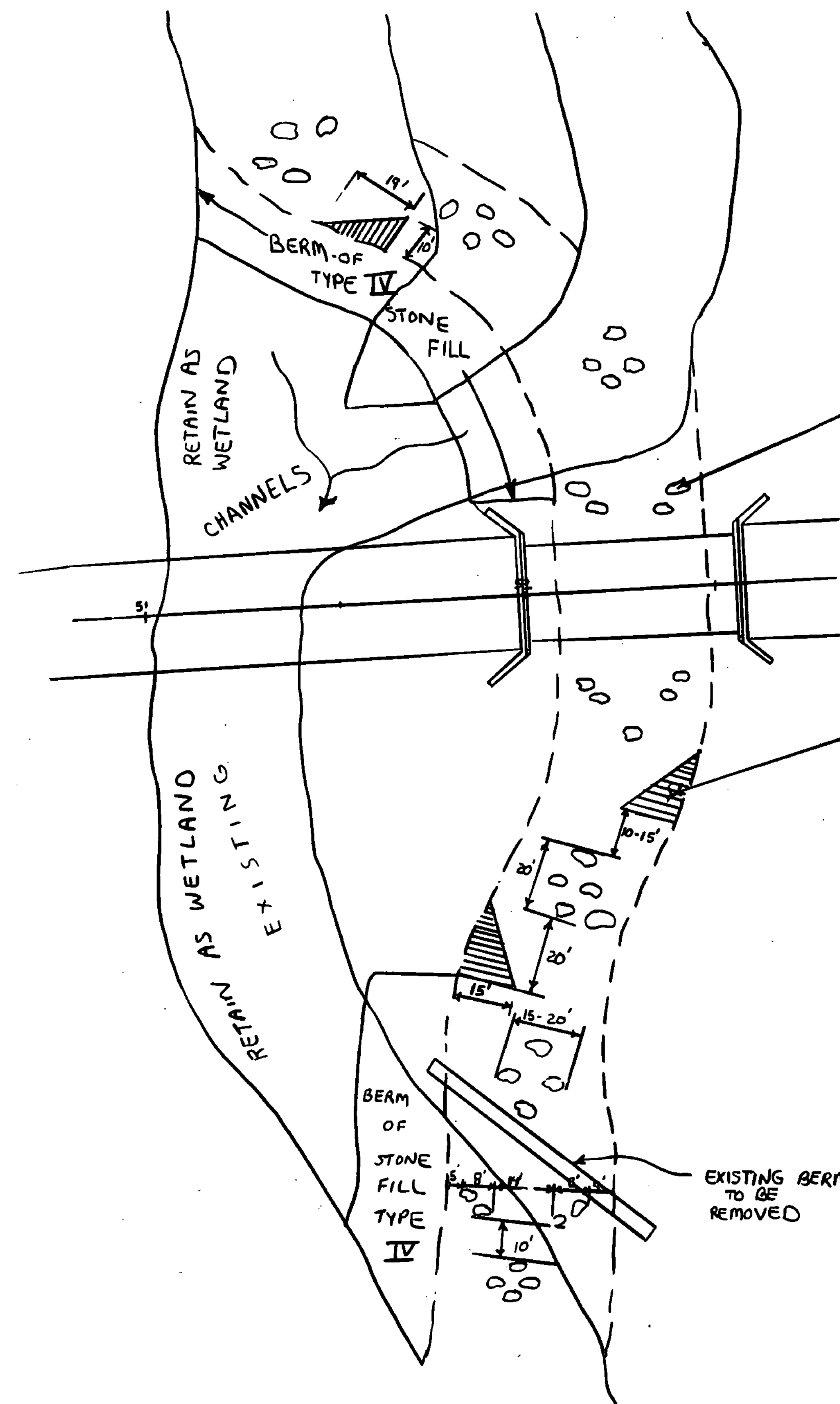
-ALL CONCRETE FOR HEADWALL IS CLASS B.
-ALL SIDE SLOPES ARE 1 ON 2 PERPENDICULAR TO THE ROADWAY CENTERLINE.

STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	CHARLESTON	Bridge No.	25
Highway No.	TH3	Log Sta.	
		Surv. Sta.	54+23
TH3 OVER CLYDE RIVER			
DETAIL PLAN AND ELEVATION BR 25			
Designed By	A. CHURCH	Drawn By	P.E. PROVOST
Checked By	C. WILLIAMS	Bridge Design Supervisor	
	12-88	R.P. GENDRON	Date 7/90
PROJECT	CHARLESTON	PROJECT NO.	BRZ 1449 (14)
L.C.C. Info.			
Bridge Sheet No.		Sheet	14 of 33

NOTE:

AT LEAST 75 CY OF WASHED STONE IS TO BE PLACED ON THE NEW STREAM BED AS SPAWNING GRAVEL. MATERIAL IS TO BE PLACED 6 INCHES TO 1 FOOT THICK IN LOCATION DESIGNATED BY THE RESIDENT ENGINEER UNDER ADVISEMENT BY DISTRICT FISHERIES MANAGER



PROVIDE 40 - 4' TO 8' DIA. BOULDERS TO PROMOTE FISH LIFE. SET BOULDERS IN RIVER, TO BE PAID FOR AS ITEM 613.13 - STONE FILL, TYPE IV

PROVIDE 3-DEFLECTORS TO BE CONSTRUCTED WITH TYPE IV STONE. DEFLECTOR HEIGHT IS TO BE 3'-4'

TOTAL OF 180 CY STONE FILL, TYPE IV TO BE USED FOR FISH HABITAT AND PAID AS ITEM 613.13

SCALE
1" = 20'

STATE OF VERMONT
AGENCY OF TRANSPORTATION

Town Of	CHARLESTON	Bridge No.	24
Highway No.	TH 3	Log Sta.	
		Surv. Sta.	54+27
TH 3 OVER CLYDE RIVER			
DETAILS OF FISH HABITAT PROVISIONS			
Designed By	A. CHURCH	Drawn By	A. CHURCH
Checked By	C. WILLIAMS	Bridge Design Supervisor	R. GENDRON
Date	12-88	Date	1-89
PROJECT	CHARLESTON	PROJECT NO.	BR 2 1449(14)
L&C. Info.			
Bridge Sheet No.		Sheet	15 of 33

STATE OF VERMONT AGENCY OF TRANSPORTATION

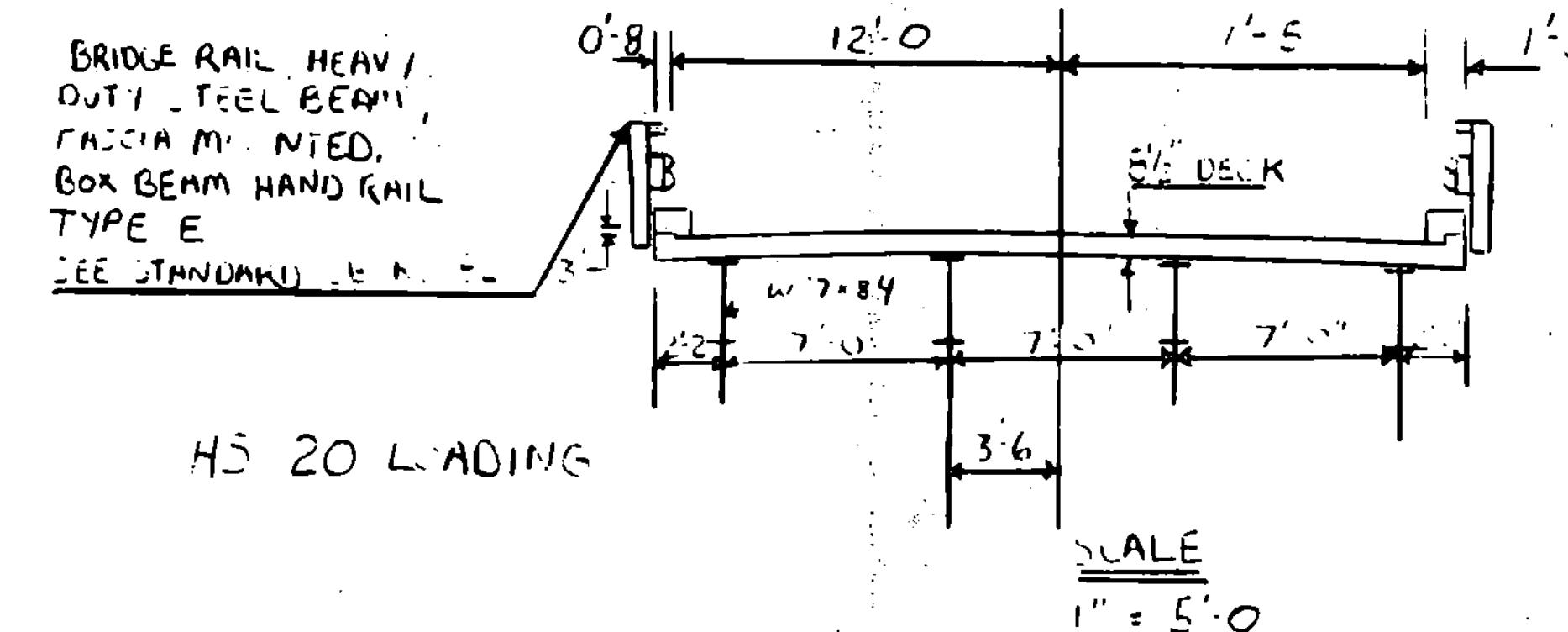
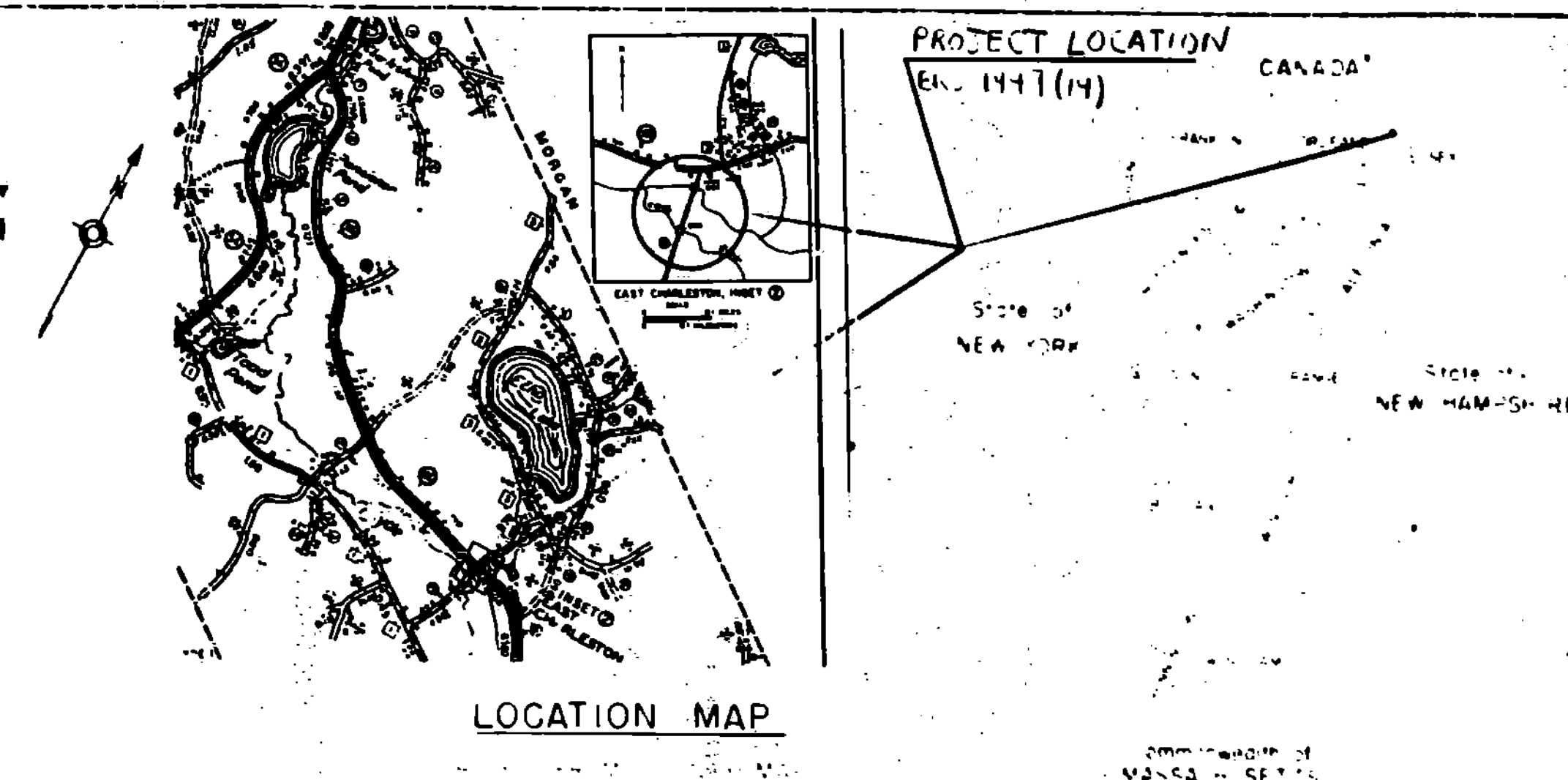


PROPOSED IMPROVEMENT BRIDGE PROJECT

TOWN OF CHARLESTON
COUNTY OF ORLEANS

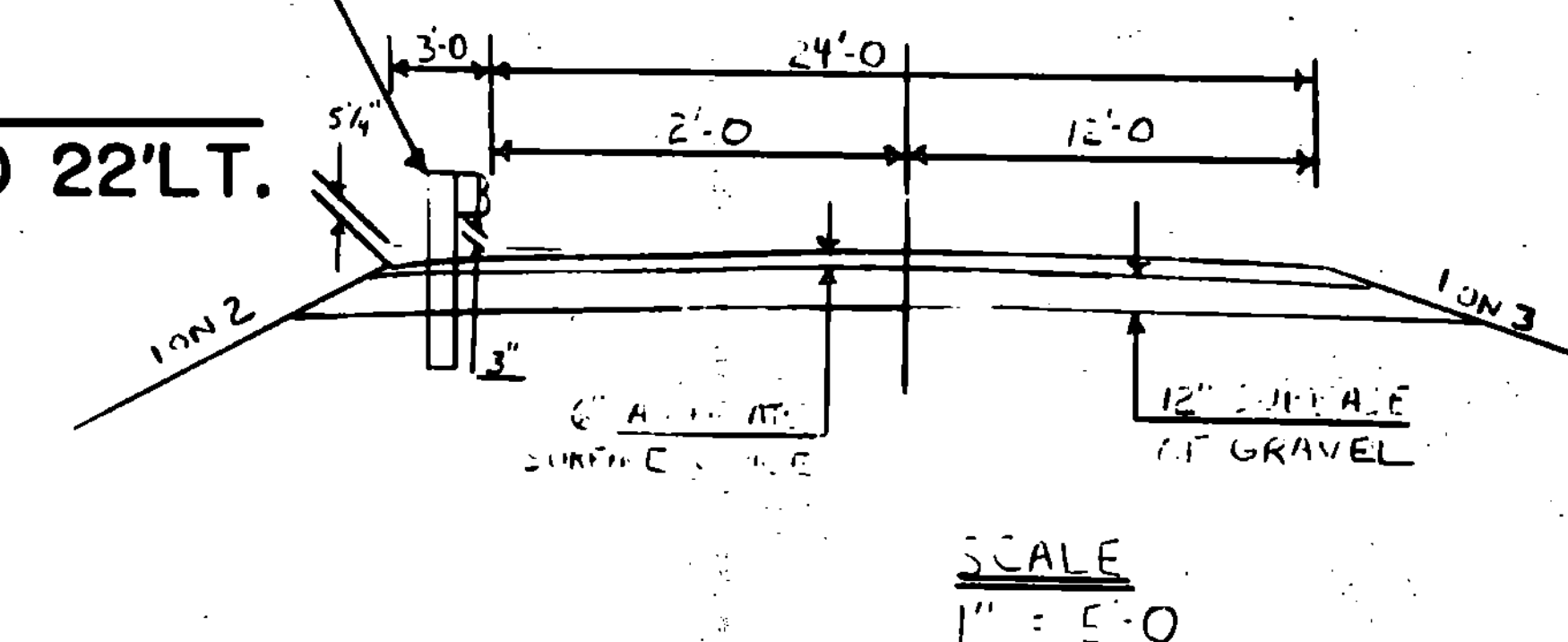
ROUTE NO. TH. 3 BRIDGE NO. 24 & 25
PROJECT LOCATION BEGINNING AT JUNCTION OF TH. 3 AND VT 102
AND EXTENDING SOUTHWEST 536 FT
PROJECT DESCRIPTION: CONSTRUCT NEW SINGLE SPAN (16'5" BEAM)
BRIDGE WITH NEW LANE / FLOOR / ALUMINUM AND WOOD
WORK
LENGTH OF STRUCTURE 59.0 FEET
LENGTH OF PARTICIPATION ROADWAY 536.41 FEET
LENGTH OF NON-PARTICIPATION ROADWAY 0.0 FEET
LENGTH OF PROJECT 595.41 FEET
LENGTH OF R.O.W. PROJECT 566.00 FEET

R.O.W. PLANS



H.S. 20 LOADING

GUARD RAIL HEAVY DUTY
STEEL BEAM W/ WOOD
POSTS, TYPE II



NOTE
THIS SHEET IS FOR R.O.W. LIMIT
DETAILS ONLY. REFER TO THE
REMAINING PLAN SHEETS FOR
ALL OTHER CONTRACT DETAILS.

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING
CHANGES AS MAY BE REQUIRED BY THE FEDERAL
HIGHWAY ADMINISTRATION OR THE CHIEF ENGINEER.
CONSTRUCTION IS TO BE CARRIED ON IN ACCORDANCE
WITH THESE PLANS AND THE STANDARD SPECIFICATIONS
FOR CONSTRUCTION DATED 1986, FOR USE ON THESE
PROJECTS, INCLUDING ALL SUBSEQUENT PROVISIONS AS
ARE INCORPORATED IN THESE PLANS.

APPROVED *David D. Kelly* DATE 1/26/88
CHIEF ENGINEER

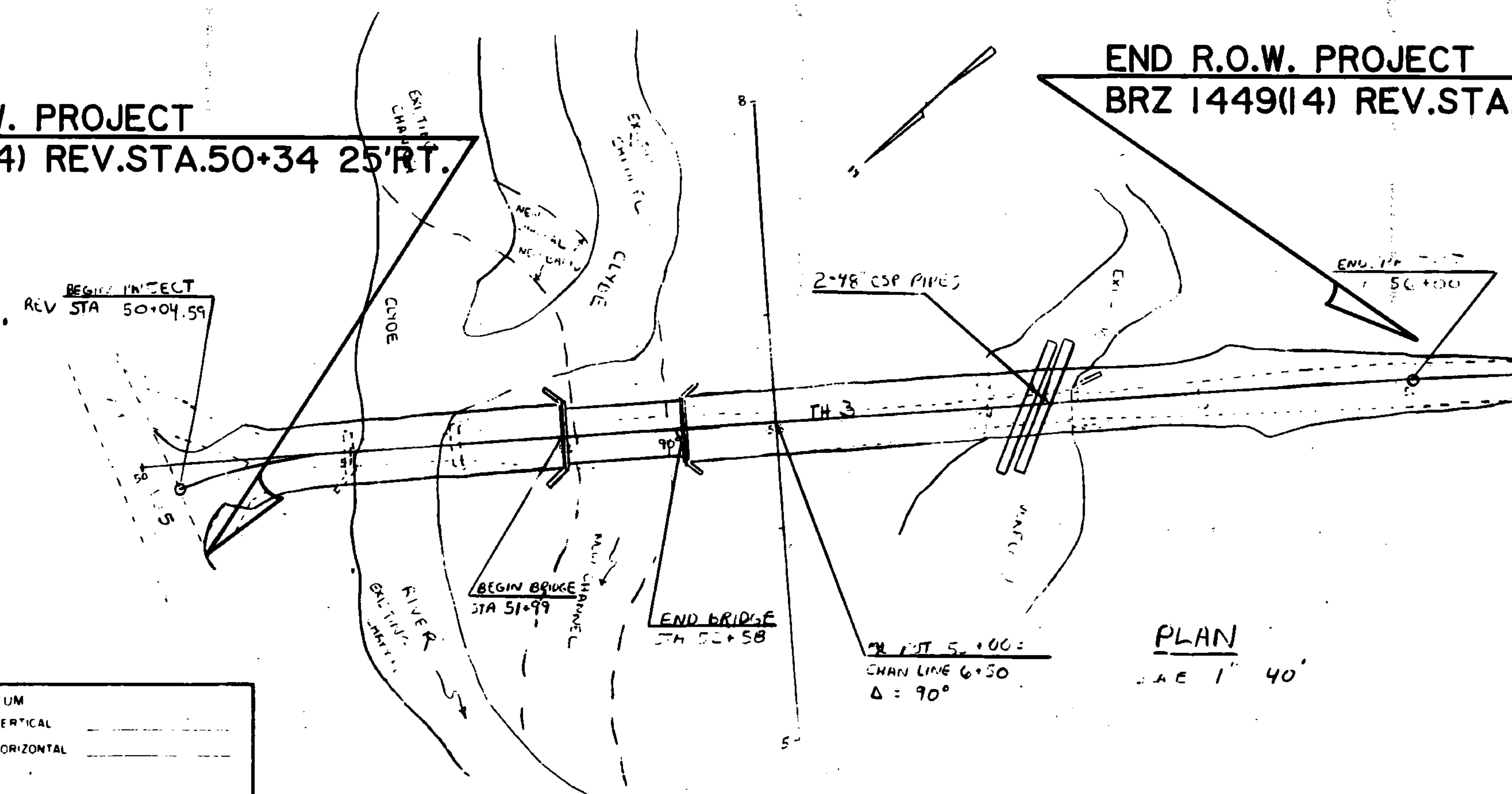
APPROVED *William N. Blinn* DATE 1/26/88
Chief, Property Administration

CHARLESTON
BRZ 1449(14)
R.O.W. SHEET 1 OF 6

SHEET 16 OF 33

BEGIN R.O.W. PROJECT
BRZ 1449(14) REV. STA. 50+34 25' RT.

END R.O.W. PROJECT
BRZ 1449(14) REV. STA. 56+00 22' LT.



- CONVENTIONAL SIGNS
- COUNTY LINE
 - TOWN LINE
 - POINTS OF ACCESS
 - POINT OF ACCESS
 - FENCE LINE
 - STONE WALL
 - TRAVELED A
 - GUARD RAIL
 - RAILROAD
 - SURVEY LINE
 - CULVERT
 - POWER POLE
 - TELEPHONE POLE
 - TREES
 - CONTROL OF ACCESS
 - PROPERTY LINE
 - ROW TAKING LINE
 - SLOPE RIGHTS
 - TOP OF CUT
 - TOE OF SLOPE

CATUM
VERTICAL
HORIZONTAL

PLAN
SCALE 1" = 40'

STATE OF VERMONT AGENCY OF TRANSPORTATION RIGHT OF WAY PLANS DETAIL SHEET

PARCEL NO.	GRANTOR	SHEET NO.	BEGINNING STATION	ENDING STATION	TAKEN	RIGHTS	FILE TAKEN	DATE	TOWN OR CITY	AK	FS	REMARKS	REVISION NO.	REVISION DATE	REVISION DESCRIPTION
1	HAUCK, RICHARD F. & JANET	5	50 + 86 LT. REV. 50 + 44 LT. 50 + 69 LT.	51 + 20 LT. 50 + 89 LT. 50 + 87 LT.	0.03 A±	CONST. EASE. (T) (100 SF±) SLOPE (P) (45 SF±)	WDOE	9-23-88	CHARLESTON	39	304	(1225 SF±)	1	4,5	PARCEL NO. 2 TITLE CHANGE FROM THE CHURCH OF THE NAZARENE, INC. - HAZEL D. (MORSE) LOCKE- LIFE ESTATE TO THE CHURCH OF THE NAZARENE, INC. PER. CO. 7349 <i>Myland to Bridge 2-8-87</i>
2	THE CHURCH OF THE NAZARENE INC.	5	REV. 50 + 34 RT. REV. 50 + 34 RT. 51 + 42 RT. 51 + 47 RT.	51 + 20 RT. 51 + 20 RT. 51 + 90 RT. 51 + 83 RT.	0.03 A±	CONST. EASE. (T) (310 SF±) CONST. EASE. (T) (002 A±) CHANNEL (P) (003 A±)	WDOE		CHARLESTON			(1090 SF±) (950 SF±) (1195 SF±)			
3A	CROWN, LYNWOOD L. & MARLENE M	5	51 + 20 RT. 51 + 20 RT. 51 + 51 RT. 51 + 84 RT.	54 + 46 RT. 51 + 51 RT. 52 + 55 RT. 55 + 87 RT.	0.08 A±	CONST. EASE. (T) (003 A±) CHANNEL (P) (022 A±) CONST. EASE. (T) (008 A±)	WDOE	1-6-89	CHARLESTON	40	73	(1250 SF±) (3435 SF±)			
3B		5	51 + 06 LT. 51 + 73 LT. 53 + 93 LT.	56 + 00 LT. 52 + 20 LT.	0.40 A±	LANDSCAPE (T) DRIVE (T)						18' GRAVEL			
4	CITIZENS UTILITIES											UTILITY			
5	NEW ENGLAND TELE. CO.											UTILITY			

MADE BY: A JONES DATE: 1/9/88

CHECKED BY: F.J. MALNATI DATE: 1/9/88

OP. RT. - DRAINAGE RIGHT
BIT. RT. - DITCHING RIGHT
CH. RT. - CHANNEL RIGHT
DRIVE RT. - DRIVE RIGHT
CUL. RT. - CULVERT RIGHT
(D) - DEMOLITION OR REMOVAL
(W) - WATER SOURCES

PRESENT ROW
TAKING WITHOUT ACCESS
TAKING WITHOUT ACCESS ALONG PROPERTY LINES
TAKING WITH ACCESS
PERMANENT EASEMENT
TEMPORARY EASEMENT

LEGEND

CON. EASE.
CONSTRUCTION EASEMENT
CUT & FILL
CUT & FILL
CUT & FILL
CUT & FILL
CUT & FILL

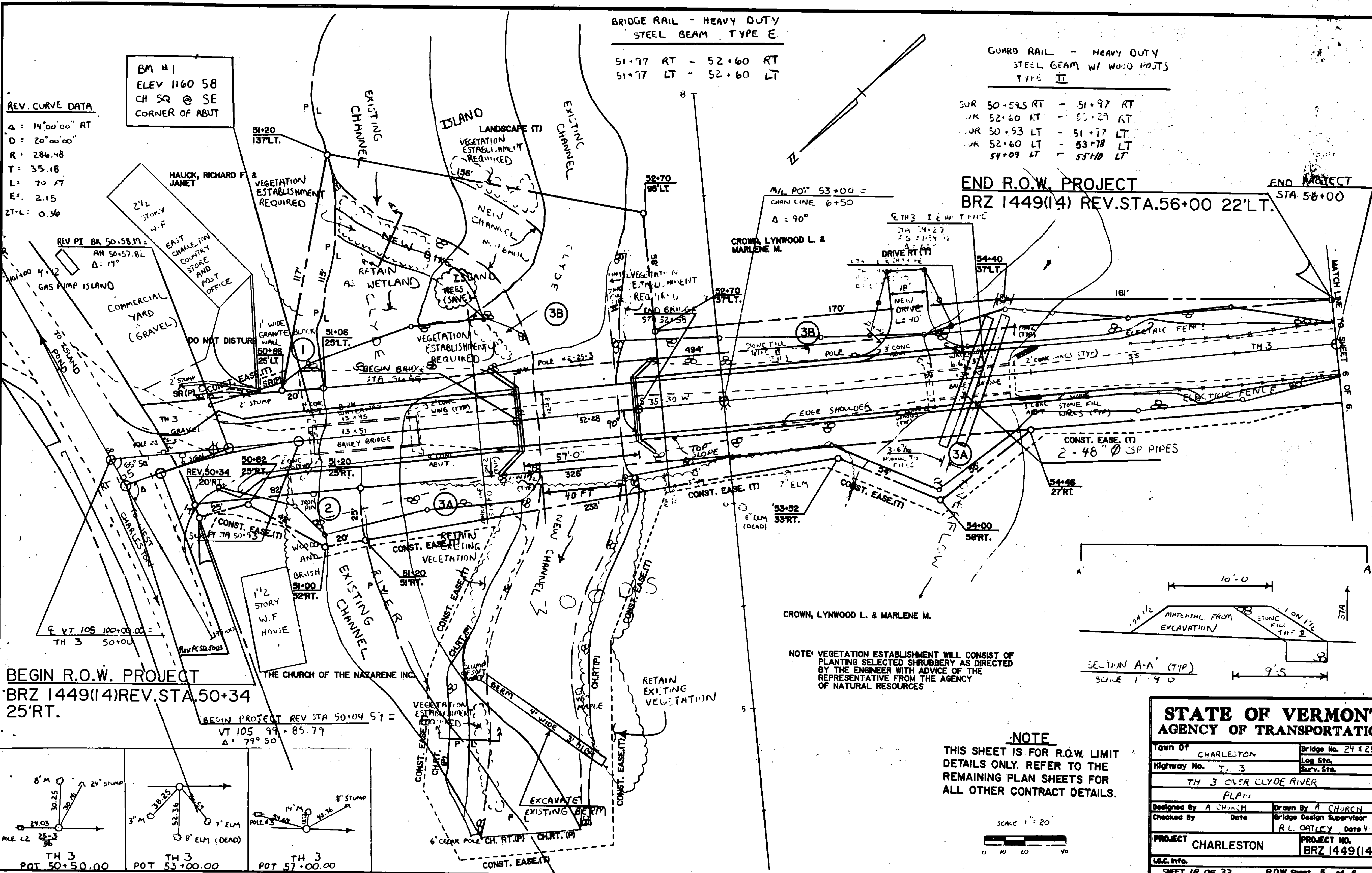
Handwritten signature 1-25-88
AGENT FOR A&S & SONS

CHARLESTON
BRZ 1449(14)
R.O.W. SHEET 4 OF 6
SHEET 17 OF 33

REV. CURVE DATA

Δ = 14°00'00" RT
D = 20°00'00"
R = 286.48
T = 35.18
L = 70 FT
E = 2.15
2T-L = 0.36

BM #1
ELEV 1160.58
CH. SQ @ SE
CORNER OF ABUT



BRIDGE RAIL - HEAVY DUTY
STEEL BEAM TYPE E

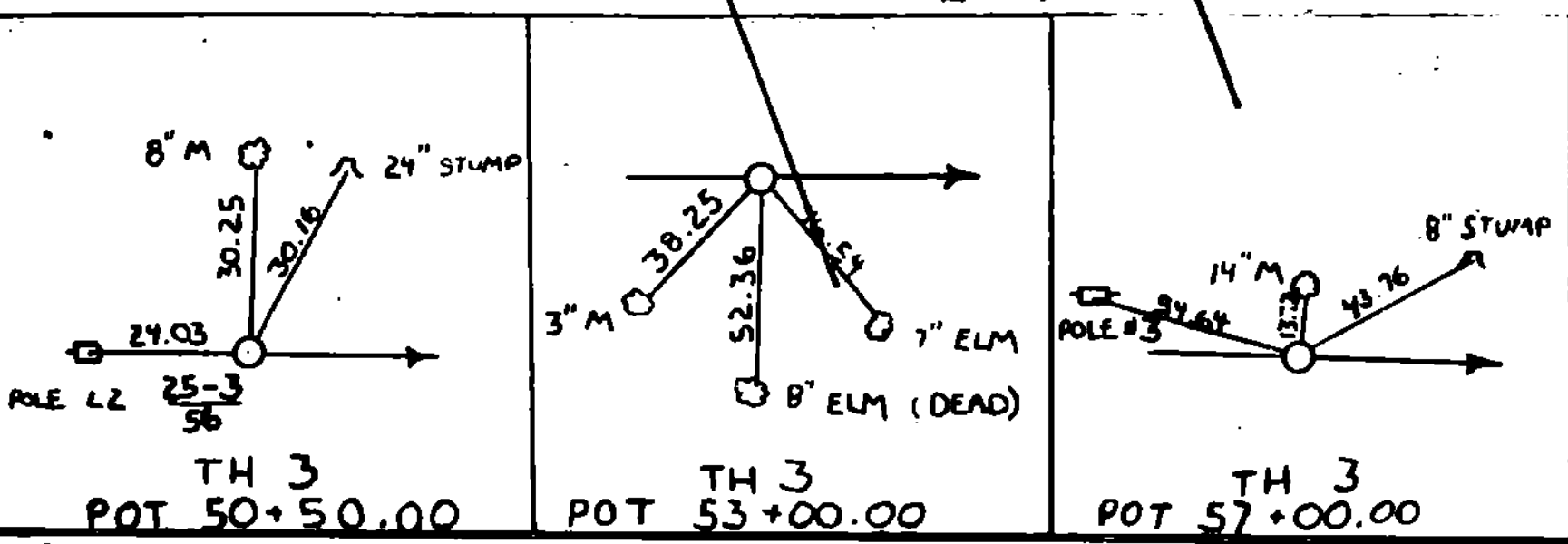
51+77 RT - 52+60 RT
51+77 LT - 52+60 LT

GUARD RAIL - HEAVY DUTY
STEEL BEAM W/ WOOD POSTS
TYPE II

SUR 50+59.5 RT - 51+97 RT
LK 52+60 RT - 53+29 RT
SUR 50+53 LT - 51+77 LT
LK 52+60 LT - 53+78 LT
54+09 LT - 55+10 LT

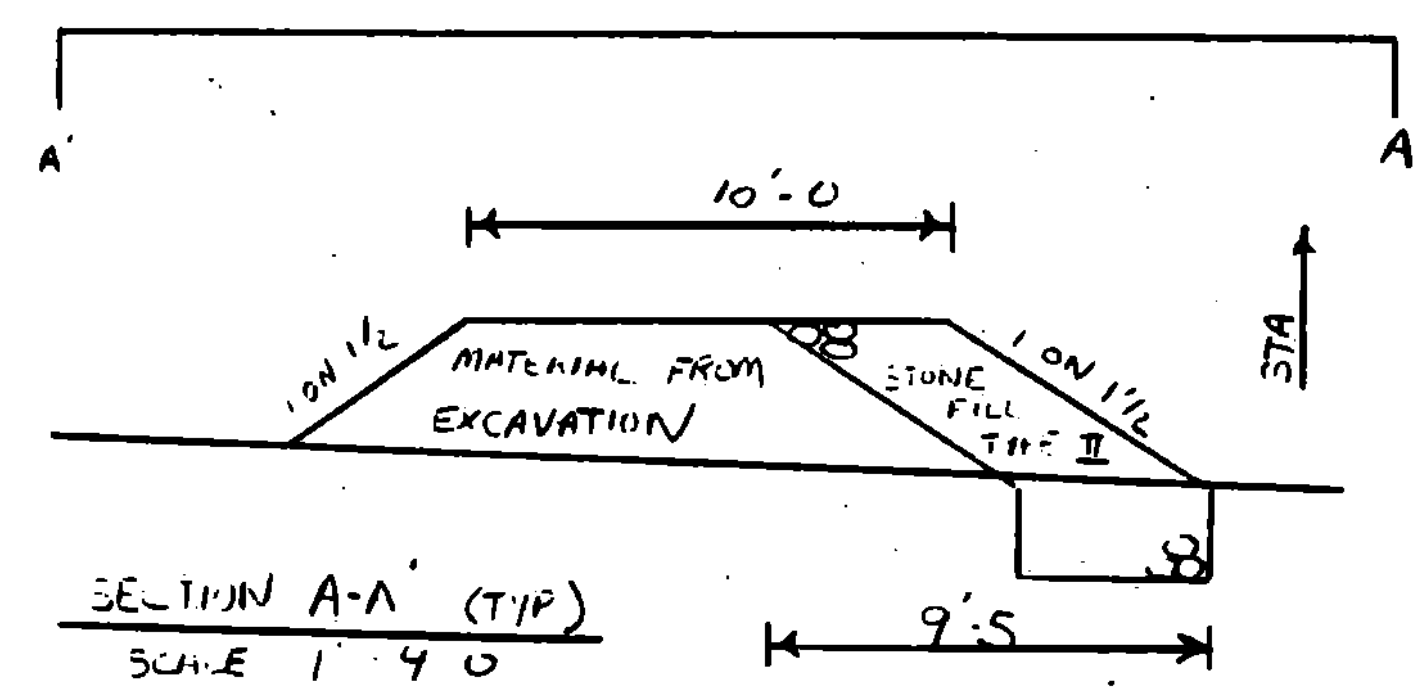
END R.O.W. PROJECT
BRZ 1449(14) REV. STA. 56+00 22' LT.
END PROJECT STA 58+00

BEGIN R.O.W. PROJECT
BRZ 1449(14) REV. STA. 50+34
25' RT.



M/L POT 53+00 =
CHAN LINE 6+50
Δ = 90°

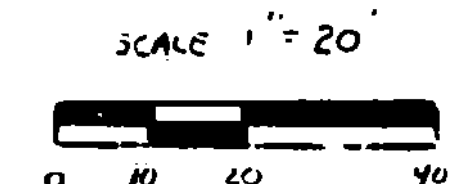
CROWN, LYNWOOD L. & MARLENE M.



NOTE: VEGETATION ESTABLISHMENT WILL CONSIST OF
PLANTING SELECTED SHRUBBERY AS DIRECTED
BY THE ENGINEER WITH ADVICE OF THE
REPRESENTATIVE FROM THE AGENCY
OF NATURAL RESOURCES

NOTE

THIS SHEET IS FOR R.O.W. LIMIT
DETAILS ONLY. REFER TO THE
REMAINING PLAN SHEETS FOR
ALL OTHER CONTRACT DETAILS.



STATE OF VERMONT AGENCY OF TRANSPORTATION

Town Of	CHARLESTON	Bridge No.	24 & 25
Highway No.	T. 3	Log Sta.	
		Surv. Sta.	
TH 3 OVER CLYDE RIVER			
PLAN			
Designed By	A. CHURCH	Drawn By	A. CHURCH
Checked By	Date	Bridge Design Supervisor	R. L. OATLEY Date 4-2-81
PROJECT	CHARLESTON	PROJECT NO.	BRZ 1449(14)
LOC. info.			
SHEET 18 OF 33		R.O.W. Sheet 5 of 6	

E.M. #2
ELEV 1152.24
SPIKE IN POLE #3

CROWN, LYNNWOOD L. & MARLENE M.

HYDRAULIC DATA

TH 3 B 24

33' Steel Beam Bridge
Drainage Area = 90.0 Sq. Mi. (233.1 Sq. Km.)

Q 2.33	= 1400 cfs (40 cms)	Headwater Elevation	= 1151.8
Q 10	= 2800 " (80 ")	"	= 1153.8
Q 25	= 3400 " (100 ")	"	= 1154.4
Q 50	= 4050 " (110 ")	"	= 1155.0
Q 100	= 4700 " (135 ")	"	= 1155.4

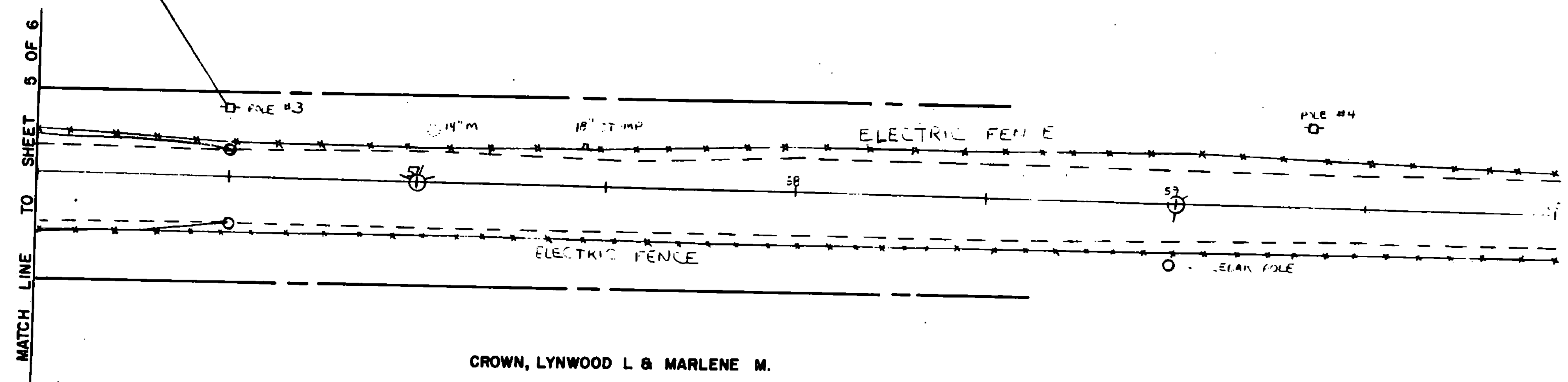
Tailwater Elevation @ Q25 = 1154.4; depth = 8.4' (2.6 m)
Outlet Velocity @ Q 25 = 8.1 fps (2.5 mps)
Roadway overflow occurs at approximately Q5.
Use Stone Fill, Type II where deemed necessary.

TH 3 B 25

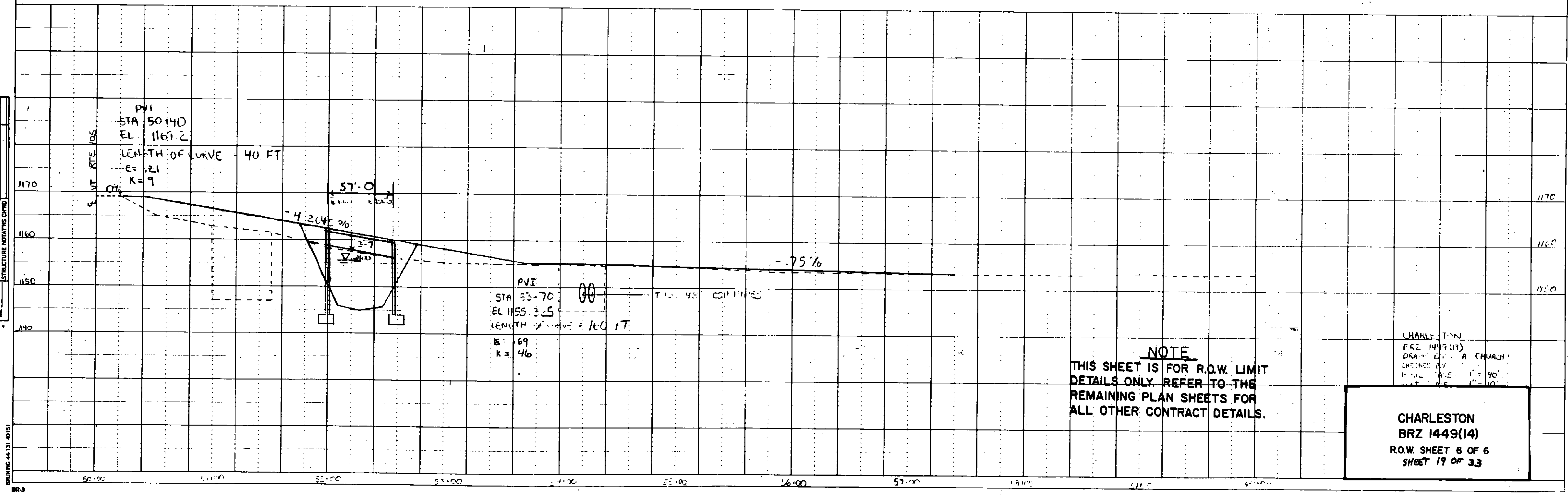
2- 48" pipes
Drainage Area = 90.0 Sq. Mi. (Overflow to B 24)

Q2.33	= 1400 cfs (40 cms)	Headwater Elevation	= 1151.8
Q10	= 2800 " (80 ")	"	= 1153.8
Q25	= 3400 " (100 ")	"	= 1154.4
Q50	= 4050 " (110 ")	"	= 1155.0
Q100	= 4700 " (135 ")	"	= 1155.4

Tailwater Elevation @ Q25 = 1154.4; depth = 9.4' (2.8 m)
Outlet Velocity @ Q25 = 8.7 fps (2.5 mps)
Roadway overflow occurs at approximately Q5.
Use Stone Fill, Type II where deemed necessary.



CROWN, LYNNWOOD L. & MARLENE M.



NOTE
THIS SHEET IS FOR R.O.W. LIMIT
DETAILS ONLY. REFER TO THE
REMAINING PLAN SHEETS FOR
ALL OTHER CONTRACT DETAILS.

CHARLESTON
BRZ 1449(14)
DRAWN BY A. CHURCH
CHECKED BY
DATE
SCALE 1"=40'
1"=100'

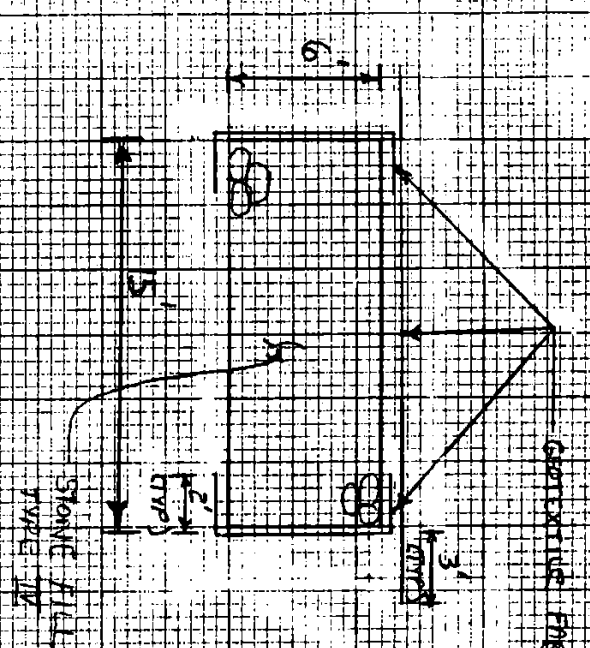
CHARLESTON
BRZ 1449(14)
R.O.W. SHEET 6 OF 6
SHEET 19 OF 33

NOTES:
1. GRADES CHECKED.
2. AS NOTED.
3. STRUCTURE NOTATIONS OK'D.

NOTES:
1. GRADES CHECKED.
2. AS NOTED.
3. STRUCTURE NOTATIONS OK'D.

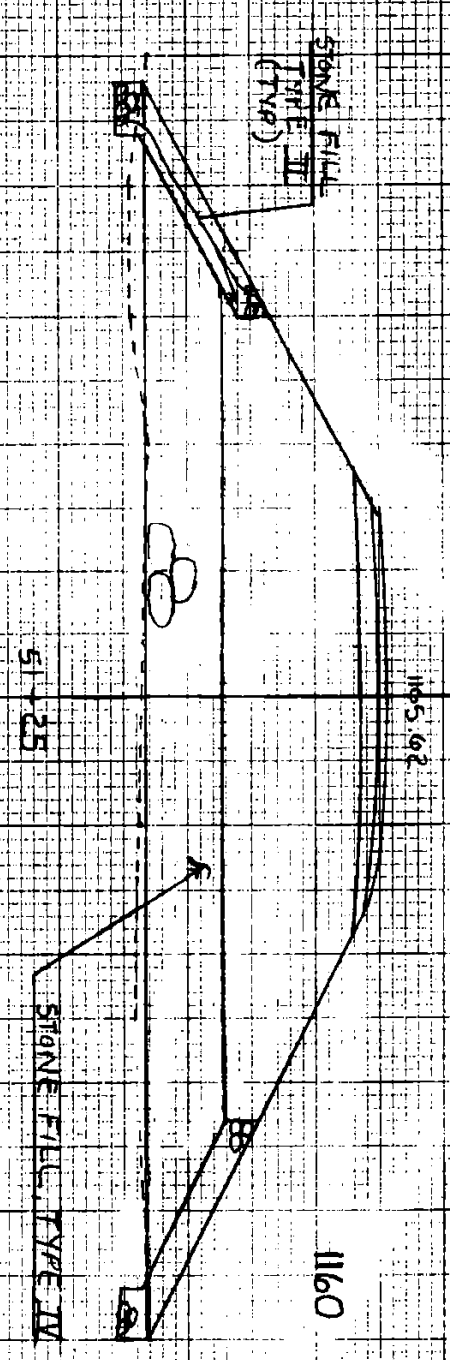
BRUNING 44-131-40151

TRANS SECTION
OF STONE FILL DAM
CONSTRUCTED FROM LOG STRUCT

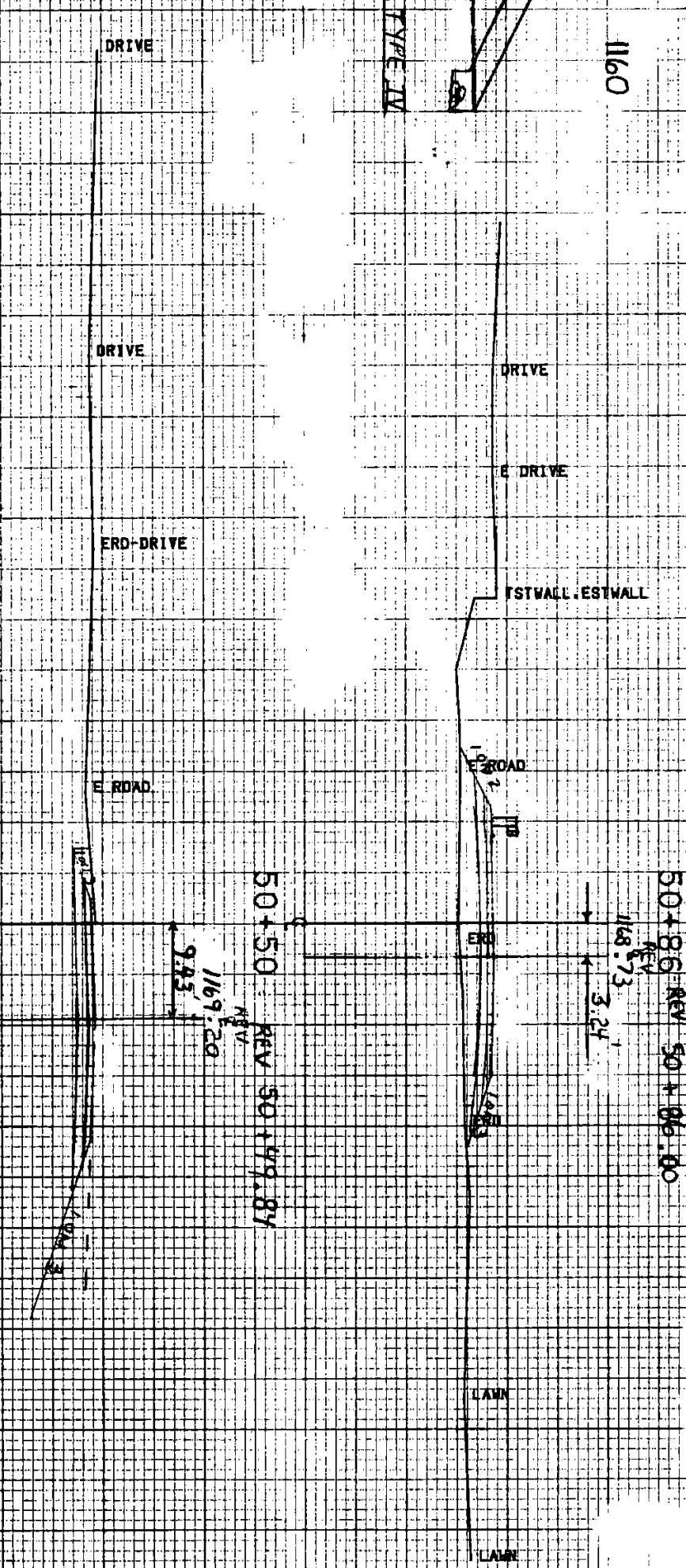
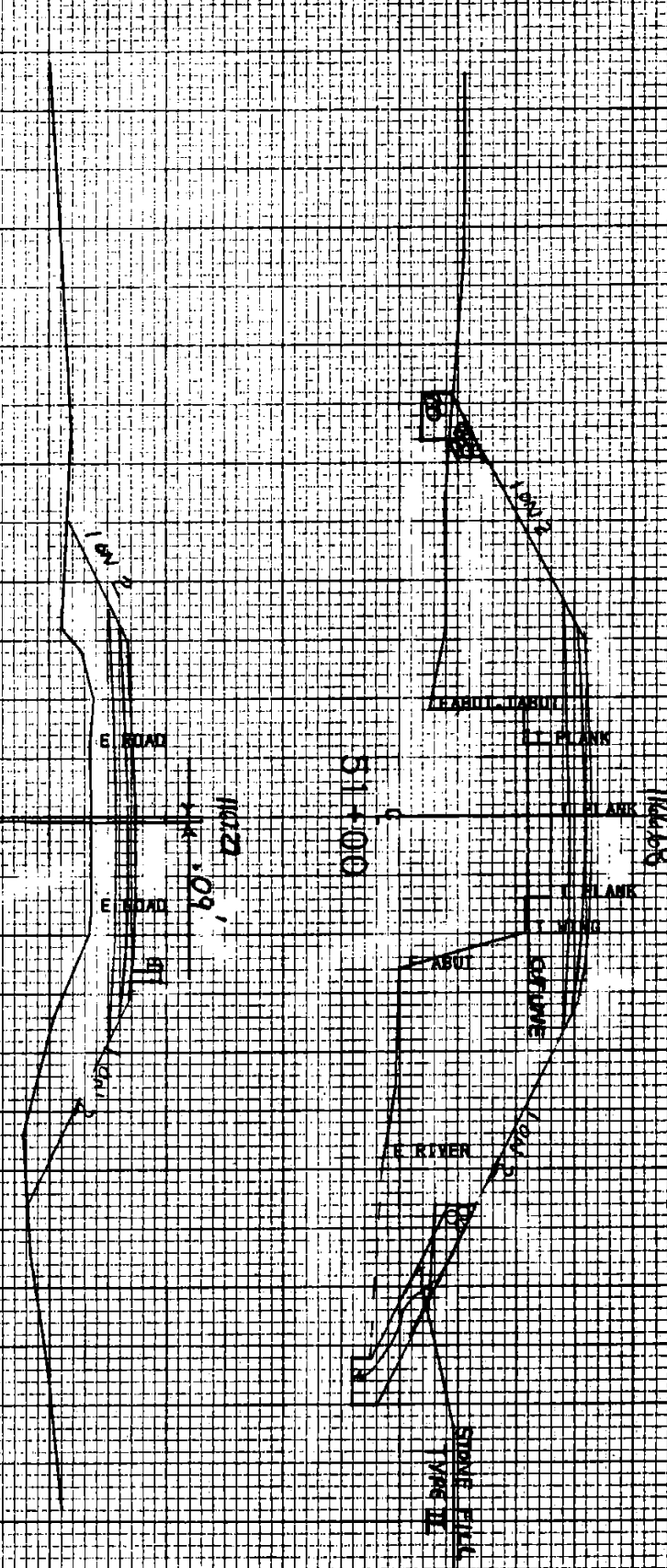


NOTE:
TOP 1' OF
STONE FILL SHALL
BE GRAVEL

INTERGRADED SECTION



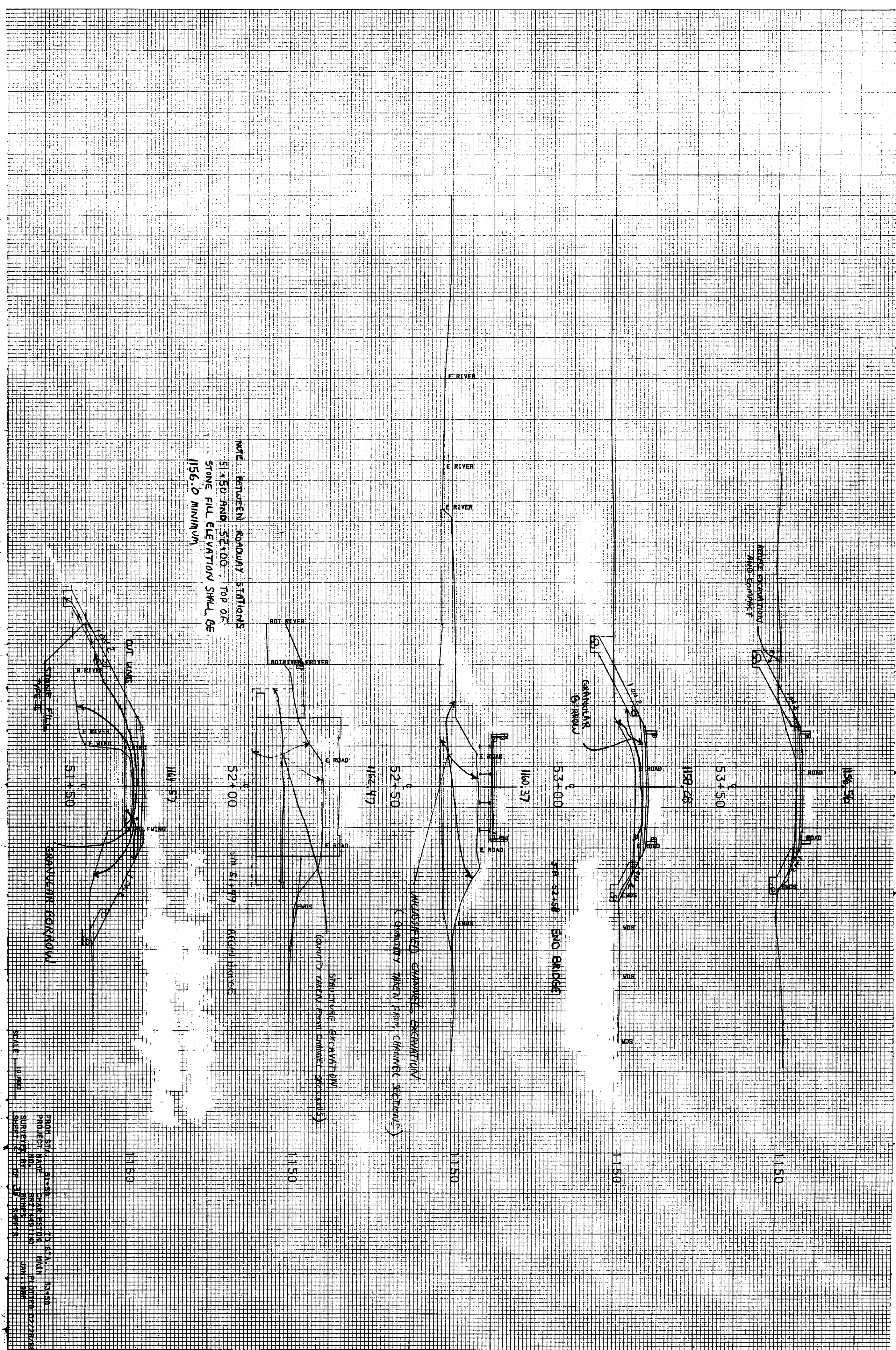
ENDS STONE FILL DAM (STONE FILL TYPE II)
ENDS STONE FILL DAM (STONE FILL TYPE II)
ENDS STONE FILL DAM (STONE FILL TYPE II)

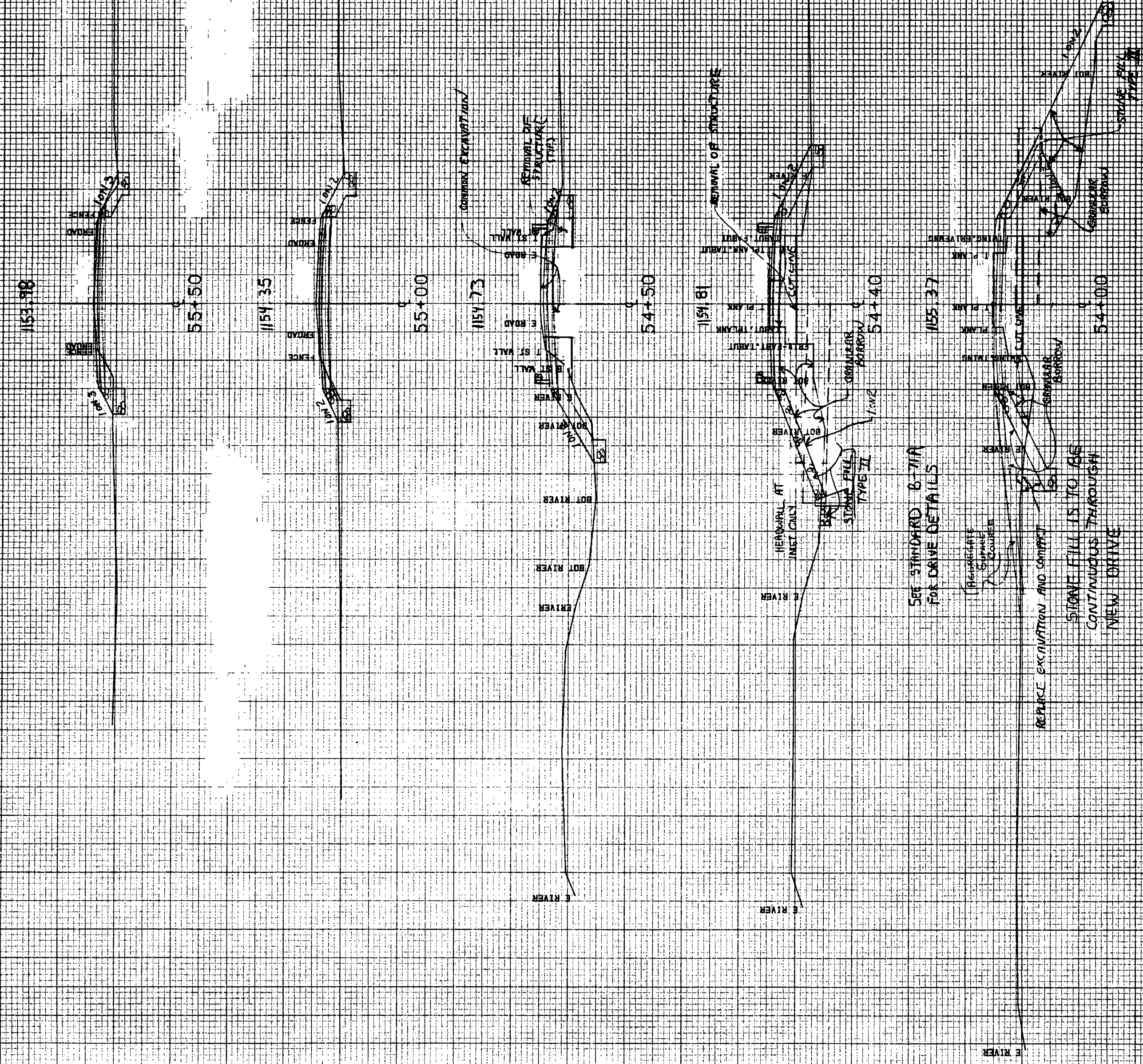


BEGIN PROJECT

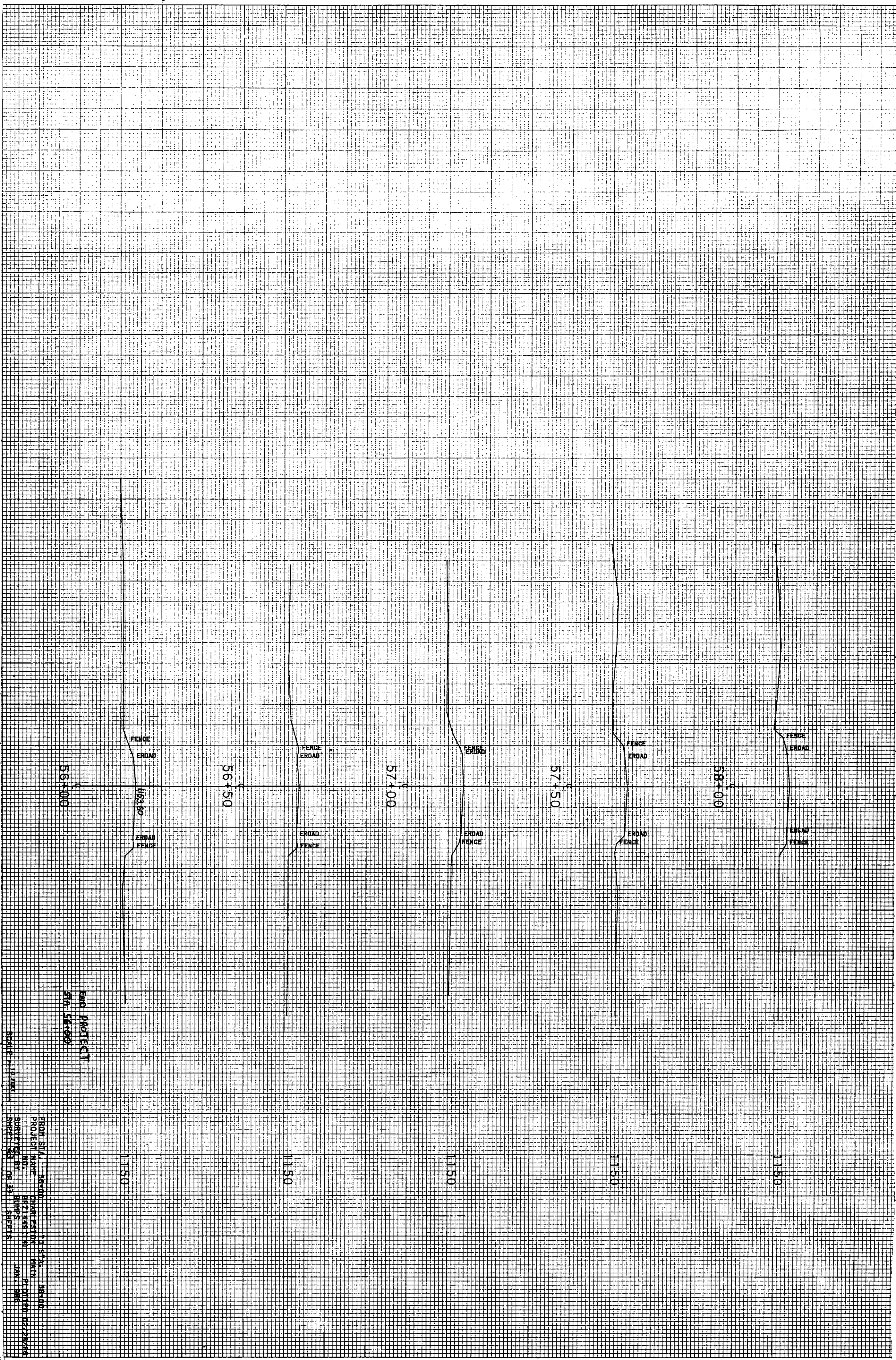
50+20 = REV 50+19.20 REV 571 50+44.59

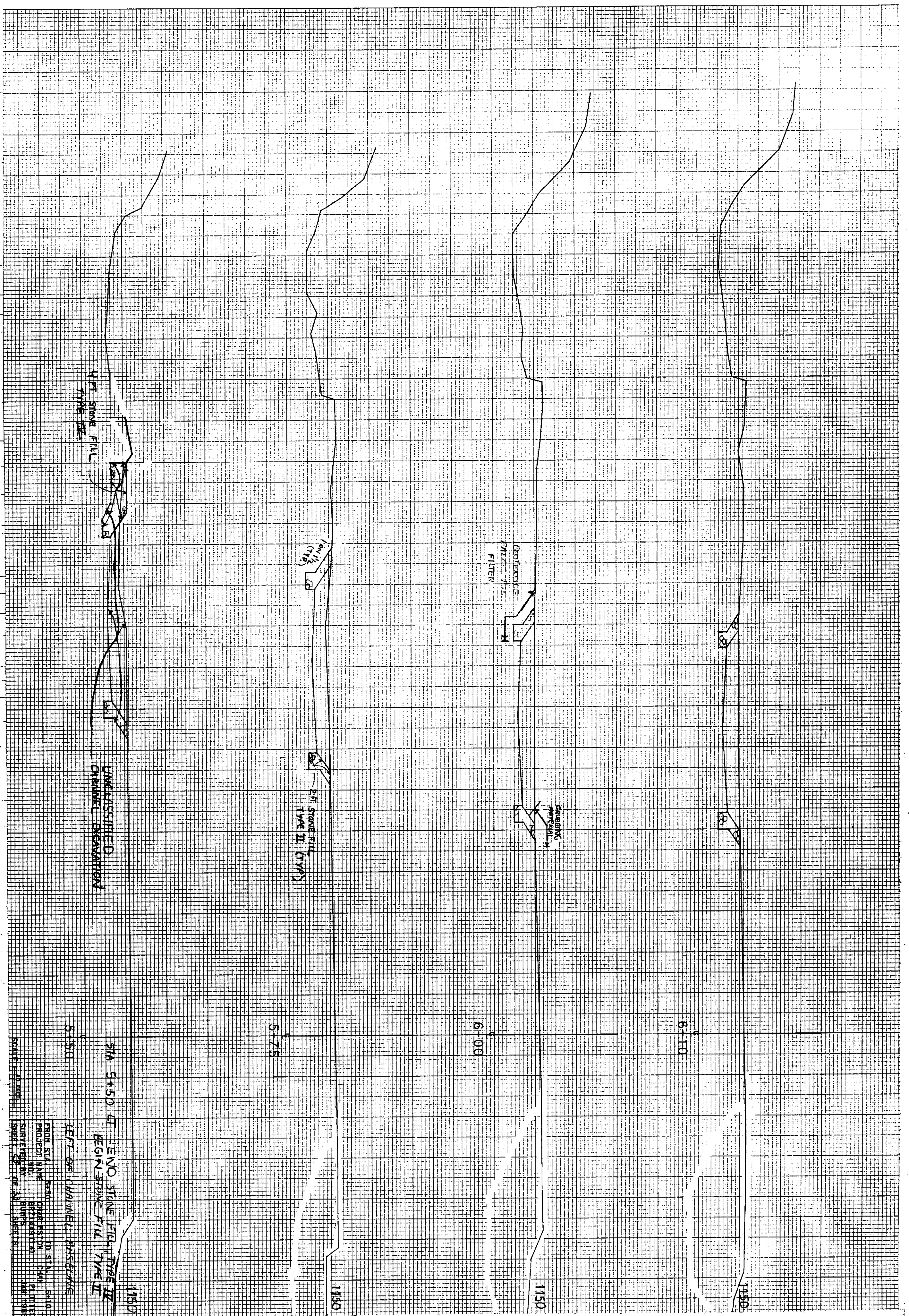
PROJECT NO. 50+00 TO 50+100
NO. 50+100 TO 50+200
NO. 50+200 TO 50+300
NO. 50+300 TO 50+400
NO. 50+400 TO 50+500
NO. 50+500 TO 50+600
NO. 50+600 TO 50+700
NO. 50+700 TO 50+800
NO. 50+800 TO 50+900
NO. 50+900 TO 50+1000





FROM STA. 153+36 TO STA. 155+00
PROJECT NO. 153+36
SHEET NO. 153+36
DATE 10/15/10
BY J. L. H. 10/15/10
CHECKED BY J. L. H. 10/15/10
APPROVED BY J. L. H. 10/15/10





GROUND BARRIER
RESTRICTIONS

6-40

11-50

STRUCTURE
RESTRICTIONS

UNCLASSIFIED
CHANNEL EXCAVATION

CONCRETE
FIBRIC FOR
FILTER ATTACHMENT

6-30

11-50

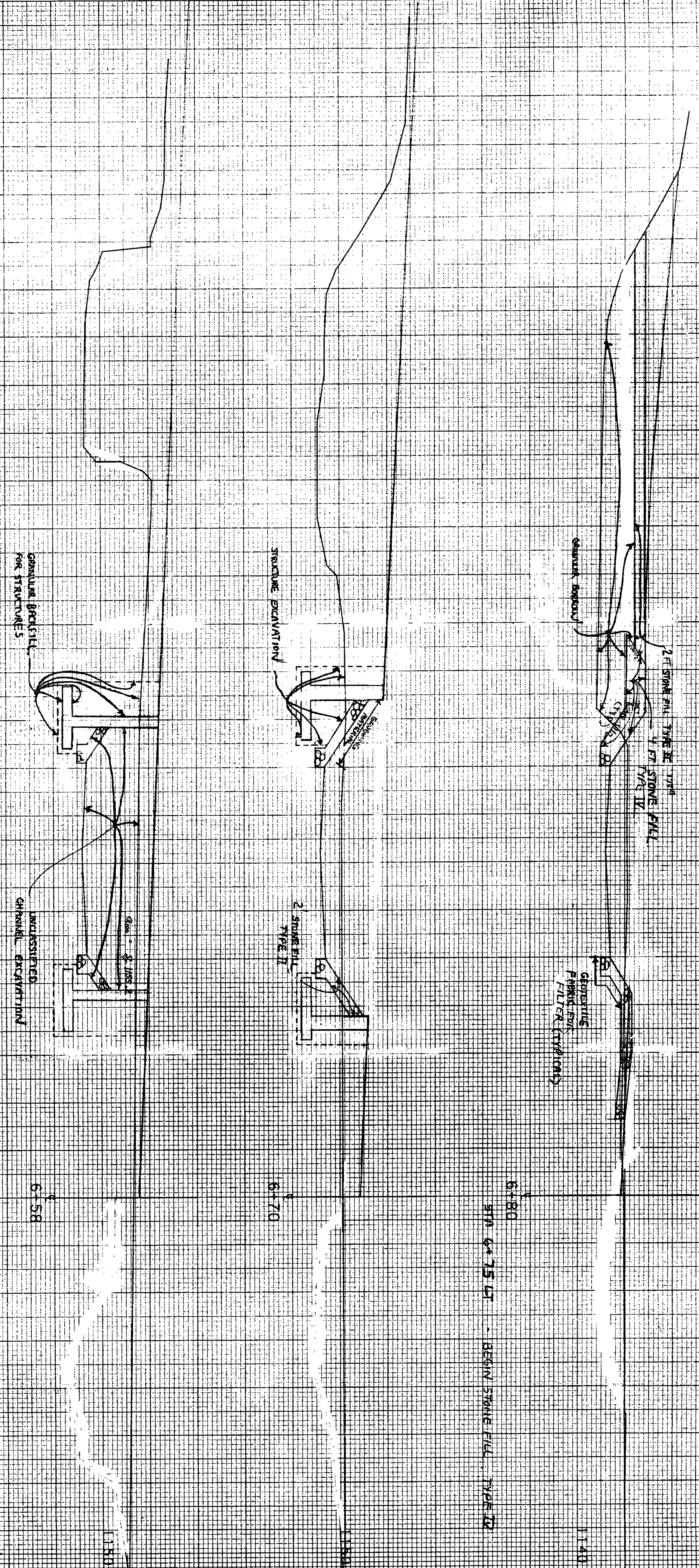
2-DOOR
TYPE E

GROUND
BARRIER
RESTRICTIONS

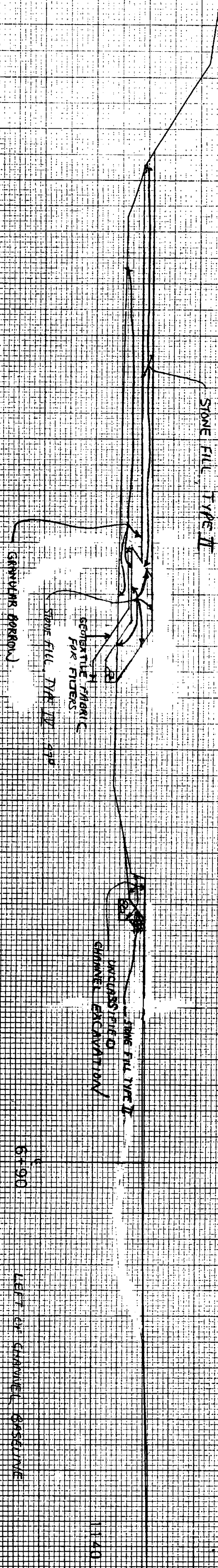
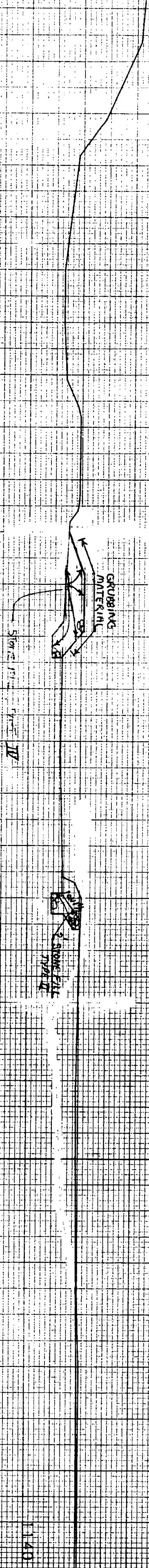
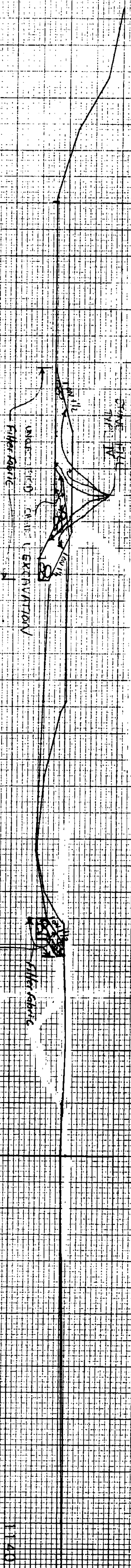
6-20

11-50

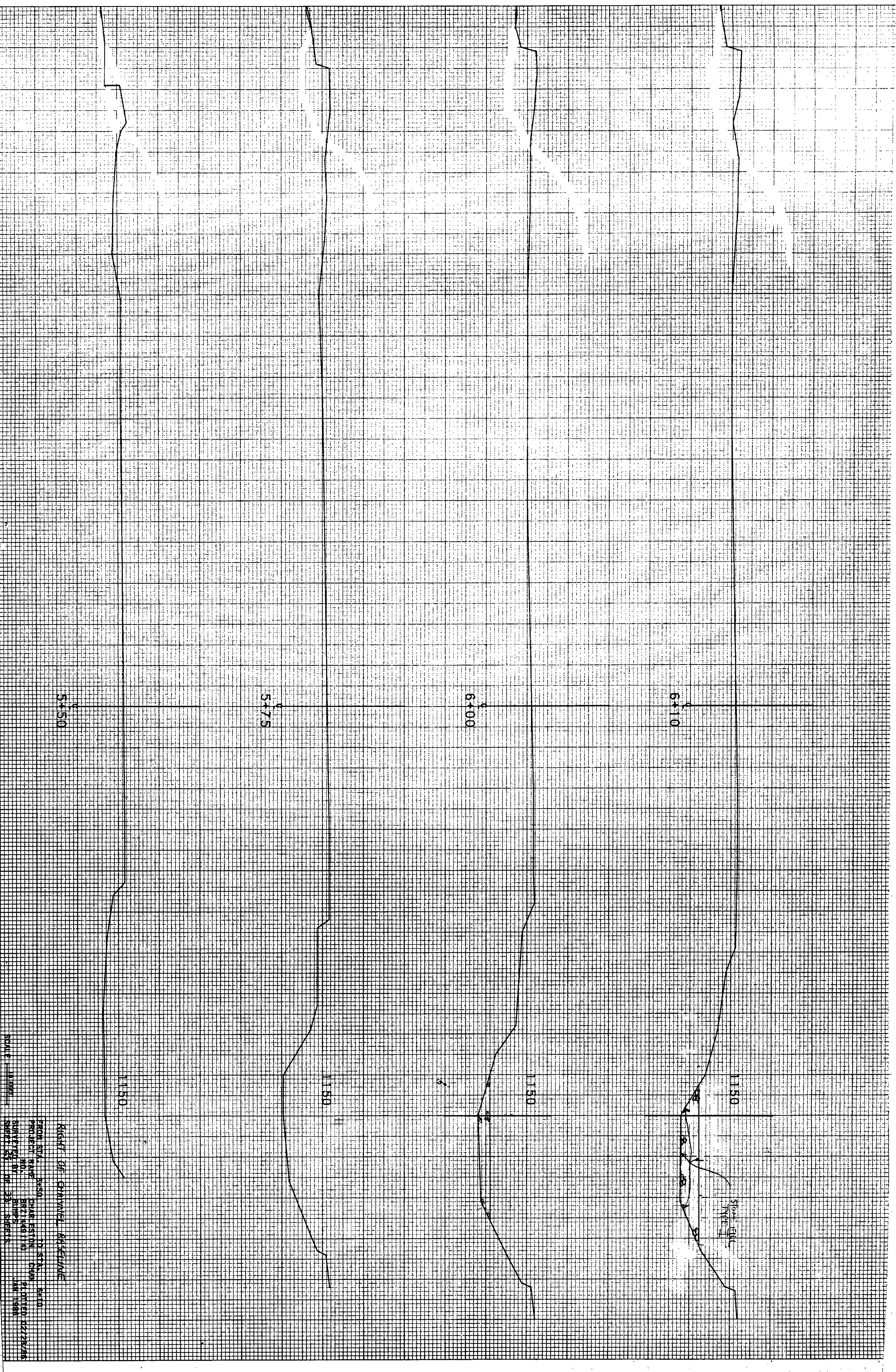
LEFT OF CHANNEL BASELINE
EARTH STATION
PROJECT NAME
SHEET NO. 10 OF 10
SCALE: 1"=100'



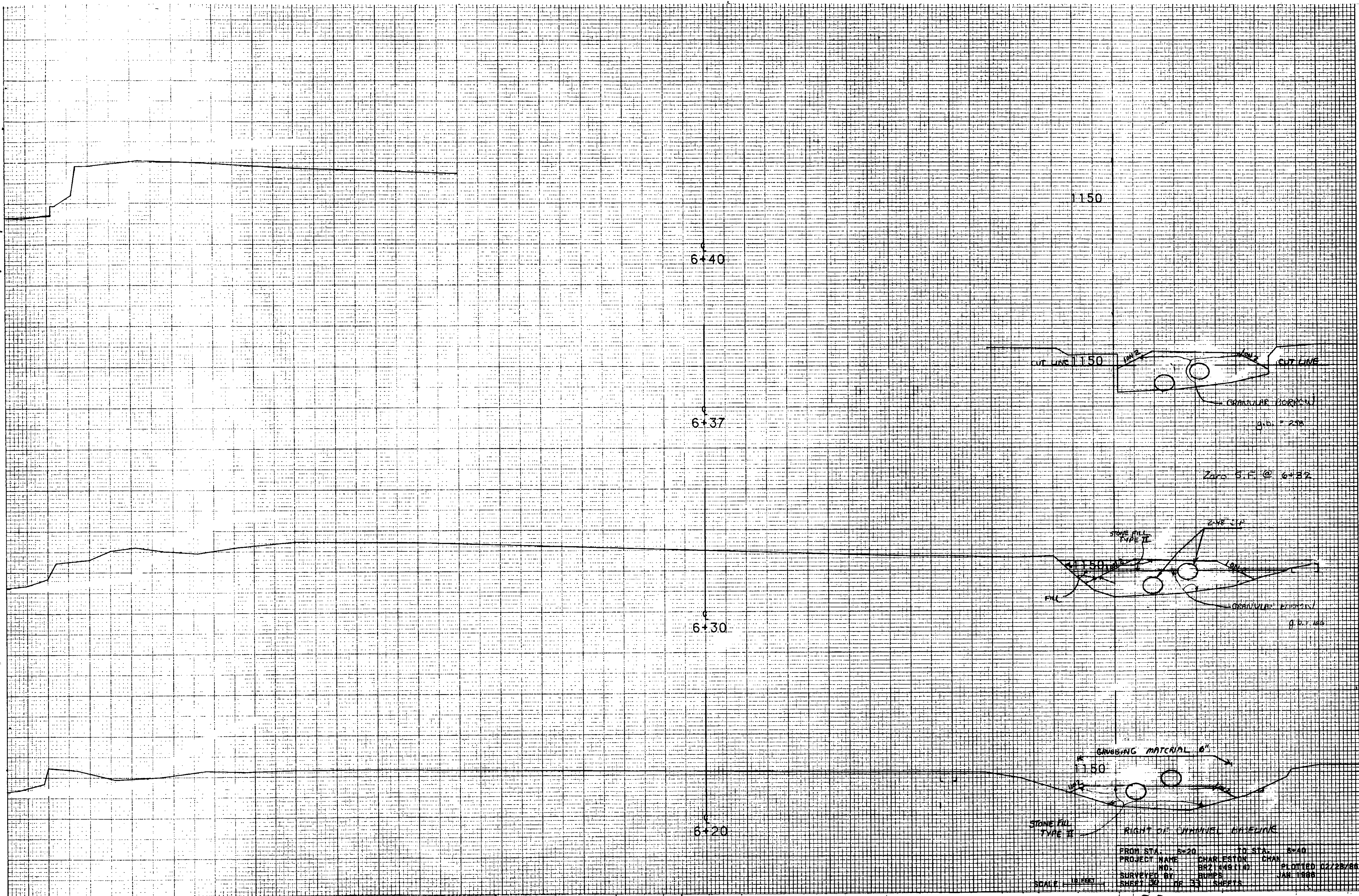
27.
 FROM STA. 100+00 TO STA. 100+50
 PROJECT NAME: CANAL
 DRAWN BY: J. L. BROWN
 CHECKED BY: J. L. BROWN
 DATE: 10/1/58



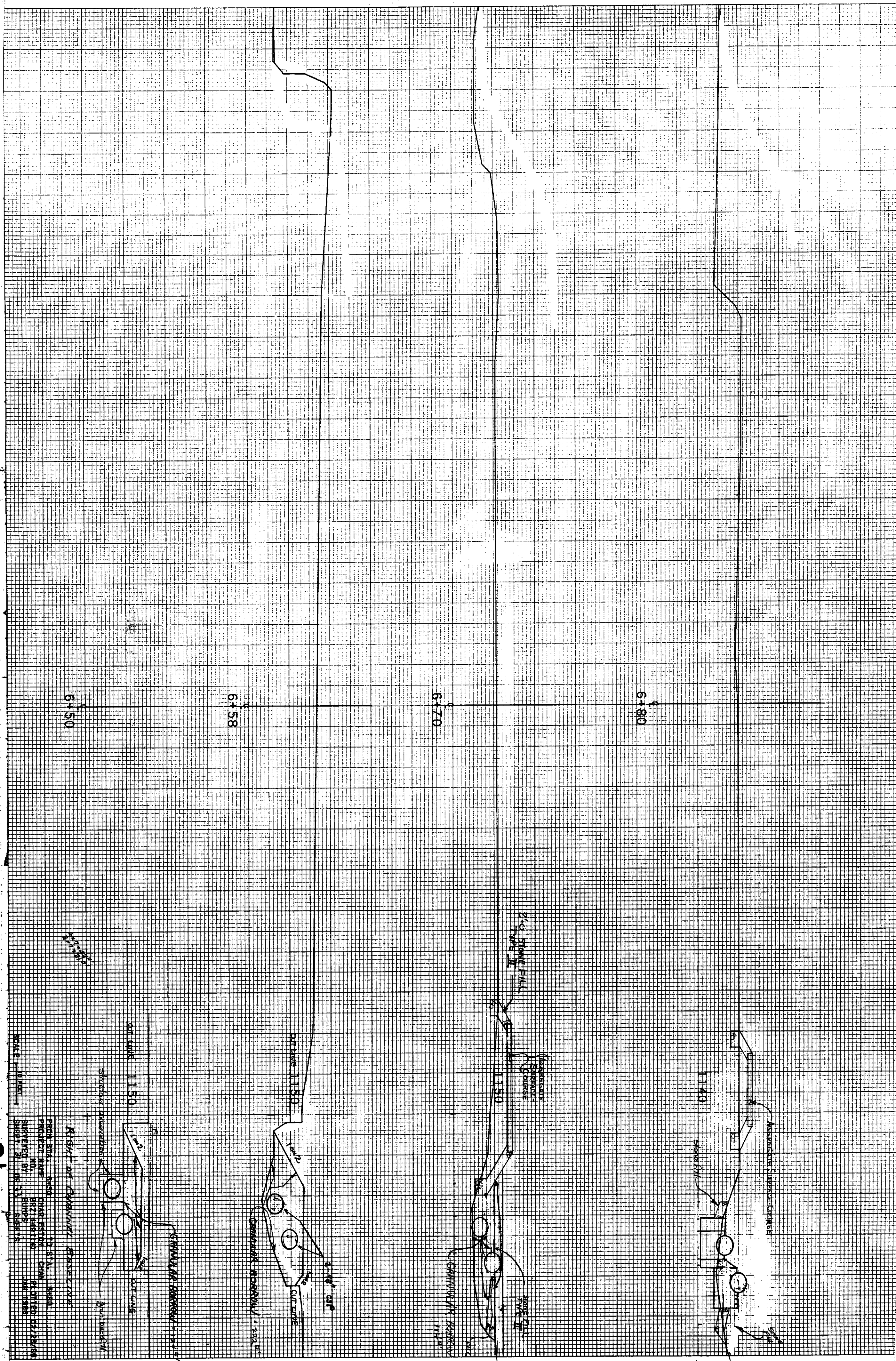
LEFT OF CHANNEL, CROSSLINE
FROM STA. 1000 TO STA. 1000
PROJECT NAME: COASTAL HIGHWAY
DRAWING NO.: 1000-1000
DATE: 10/10/10
SHEET 1 OF 1

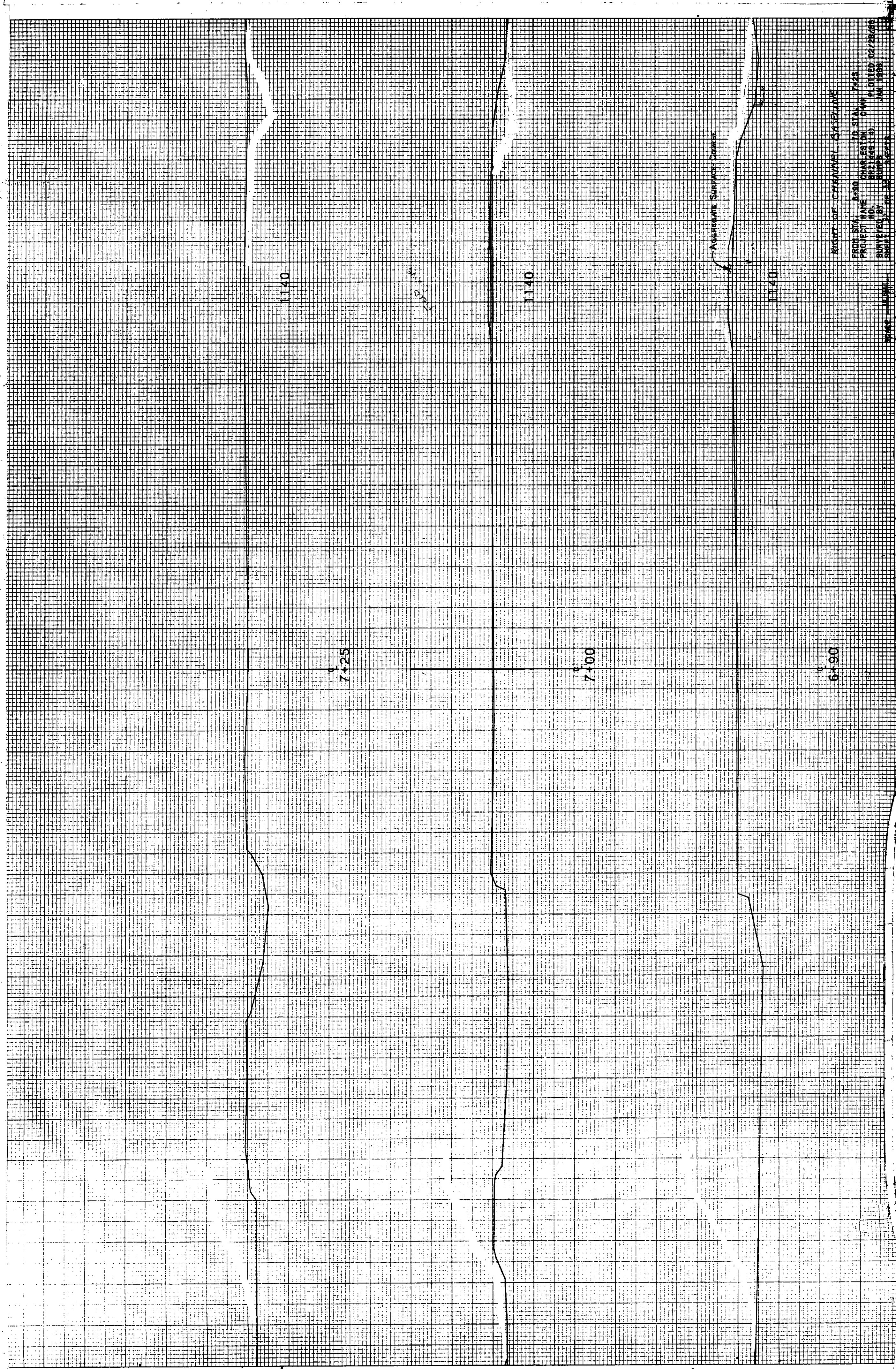


ROAD OF QUANTITY OF EARTH
FROM ST. 1000 TO ST. 1100
PROJECT NAME: ROAD
DRAWN BY: J. L. BROWN
CHECKED BY: J. L. BROWN
DATE: 10/10/10
SCALE: 1" = 10'



FROM STA. 5+20 TO STA. 5+40
PROJECT NAME CHARLESTON CHAN
NO. BRZ 149110
SURVEYED BY BUMPS
SHEET 30 OF 31 SHEETS
DATE 02/28/66
JAN 1966





DIRECTOR
BY 12-17-14

1/15

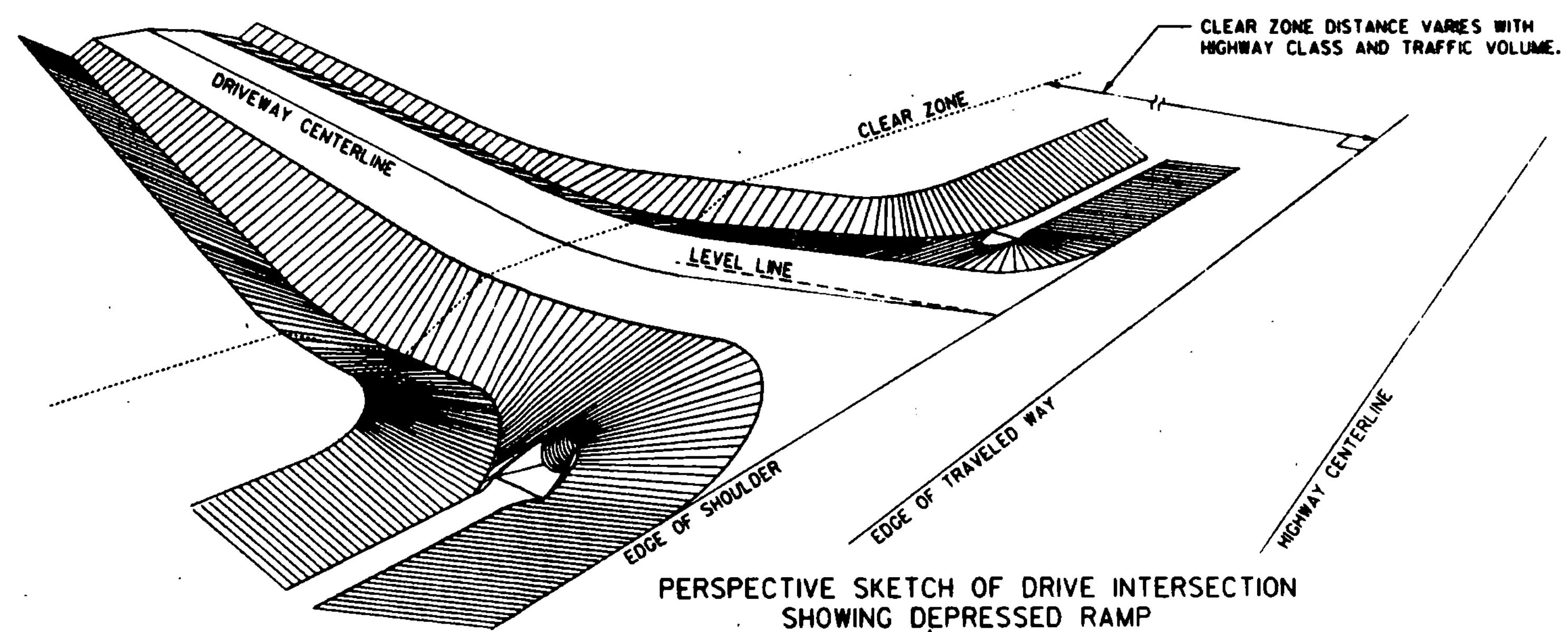
7.60

ACCT. OF CHARGE PAID TO

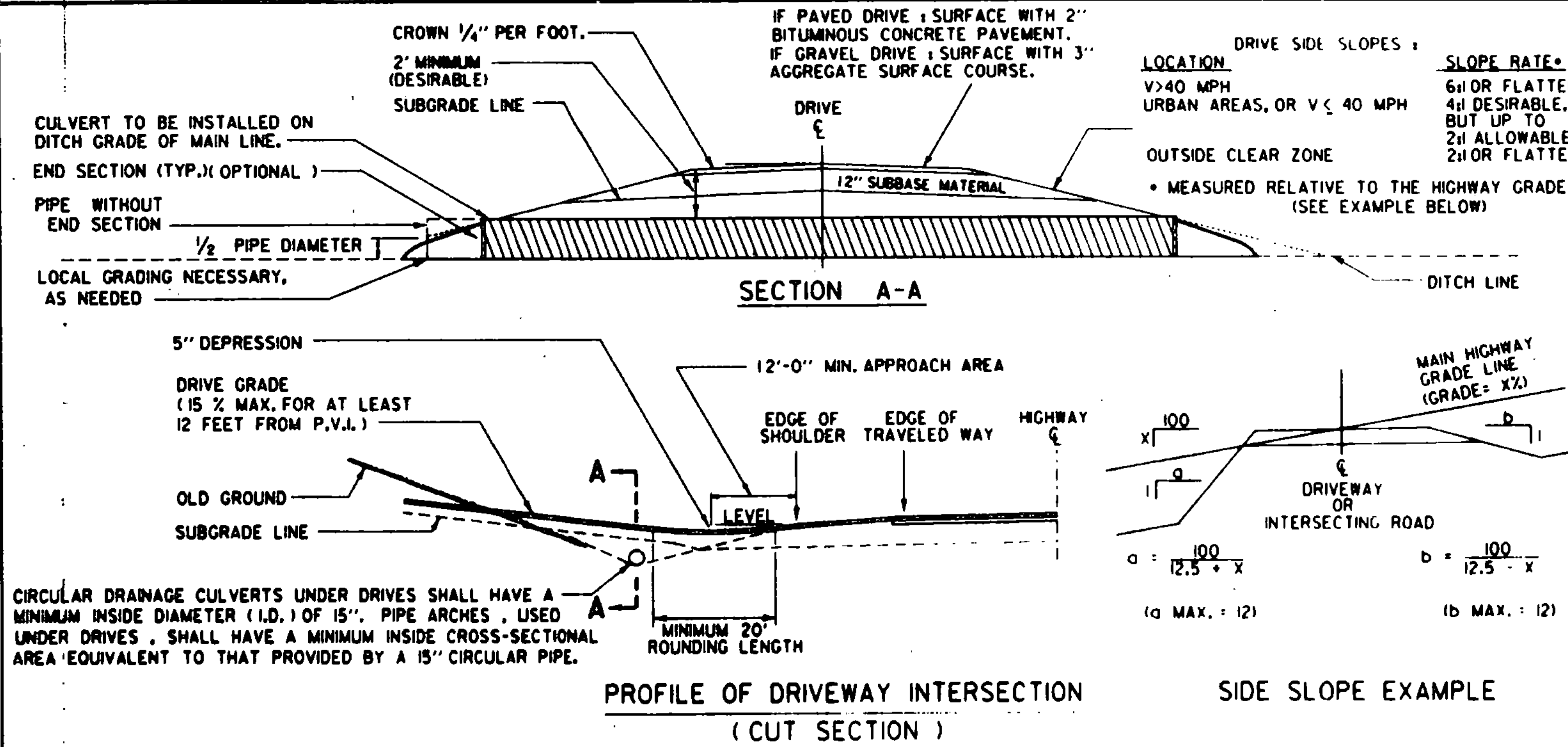
FROM STA.	7-10	TO STA.	7-10
PROJECT NO.	6048-15	DATE	7-10
SURVEYED BY	BRIT 48-15	PLOTTED BY	DAVID 48
DATE	7-10	DATE	7-10

PAID TO

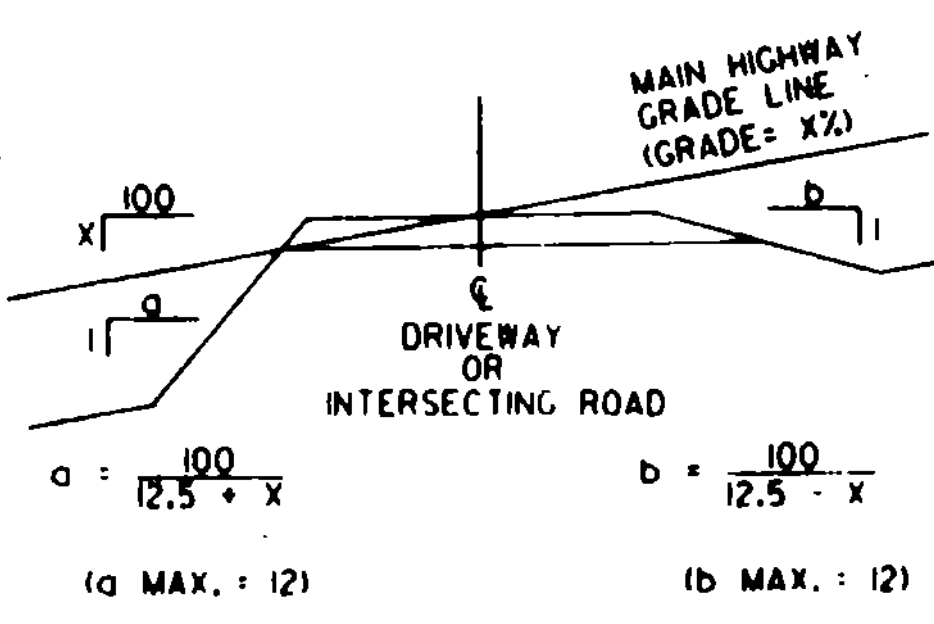
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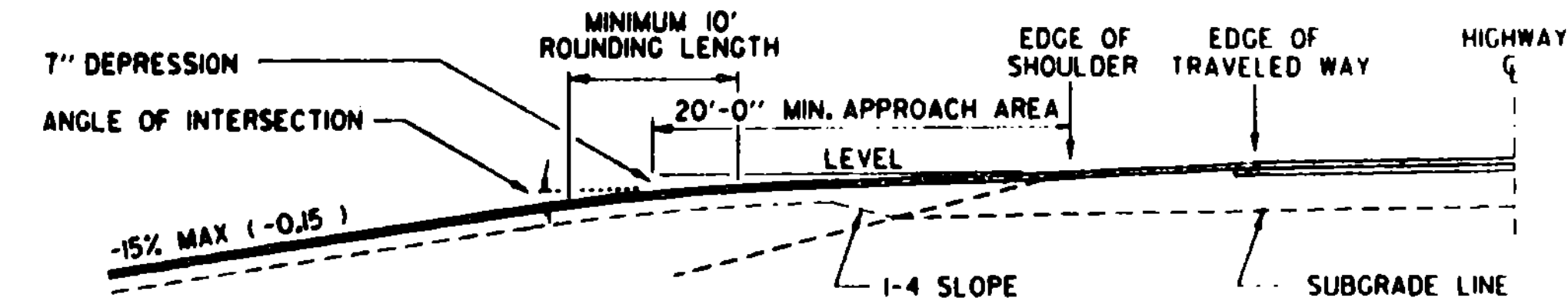
PERSPECTIVE SKETCH OF DRIVE INTERSECTION
SHOWING DEPRESSED RAMP



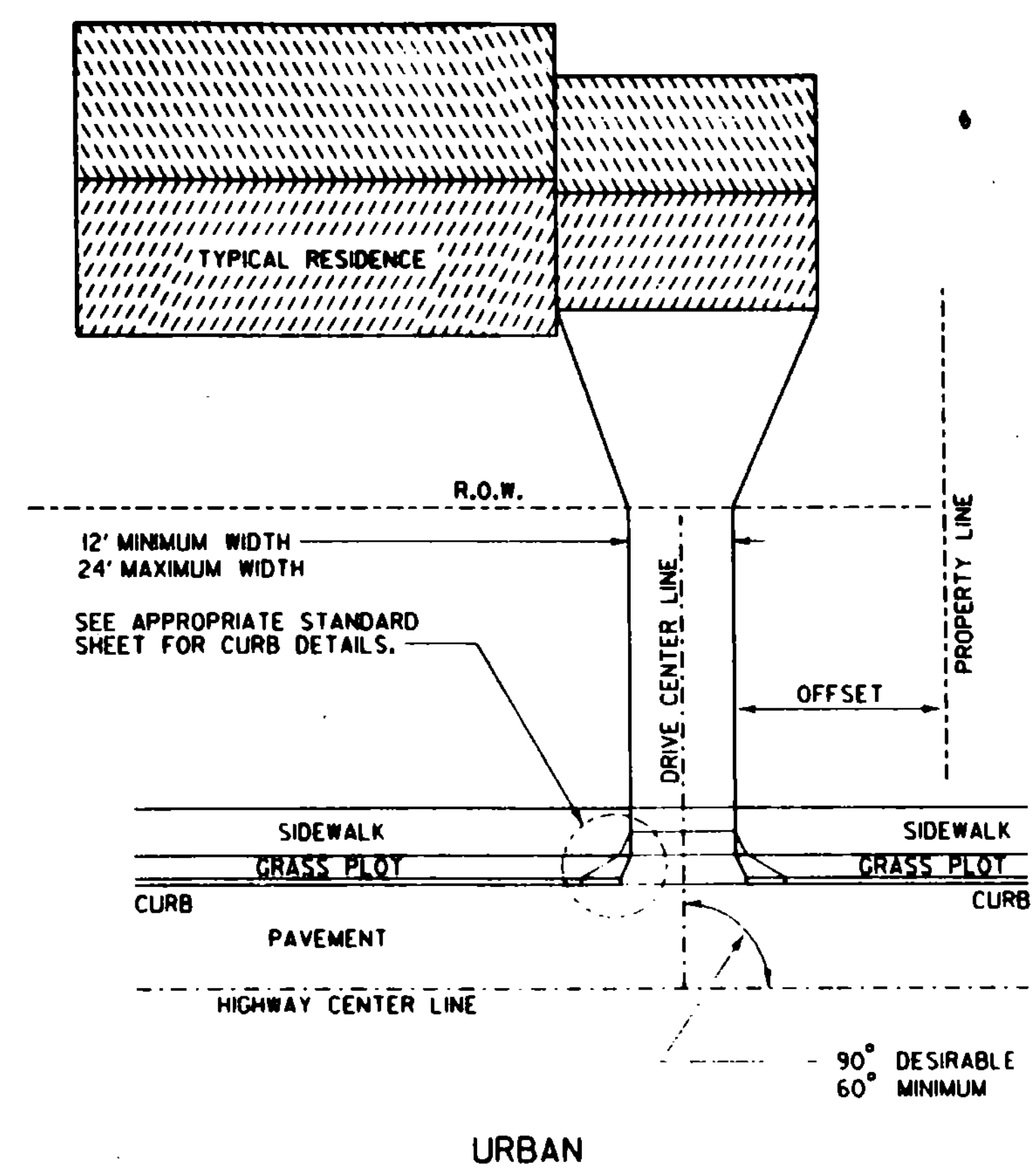
SECTION A-A
PROFILE OF DRIVEWAY INTERSECTION
(CUT SECTION)



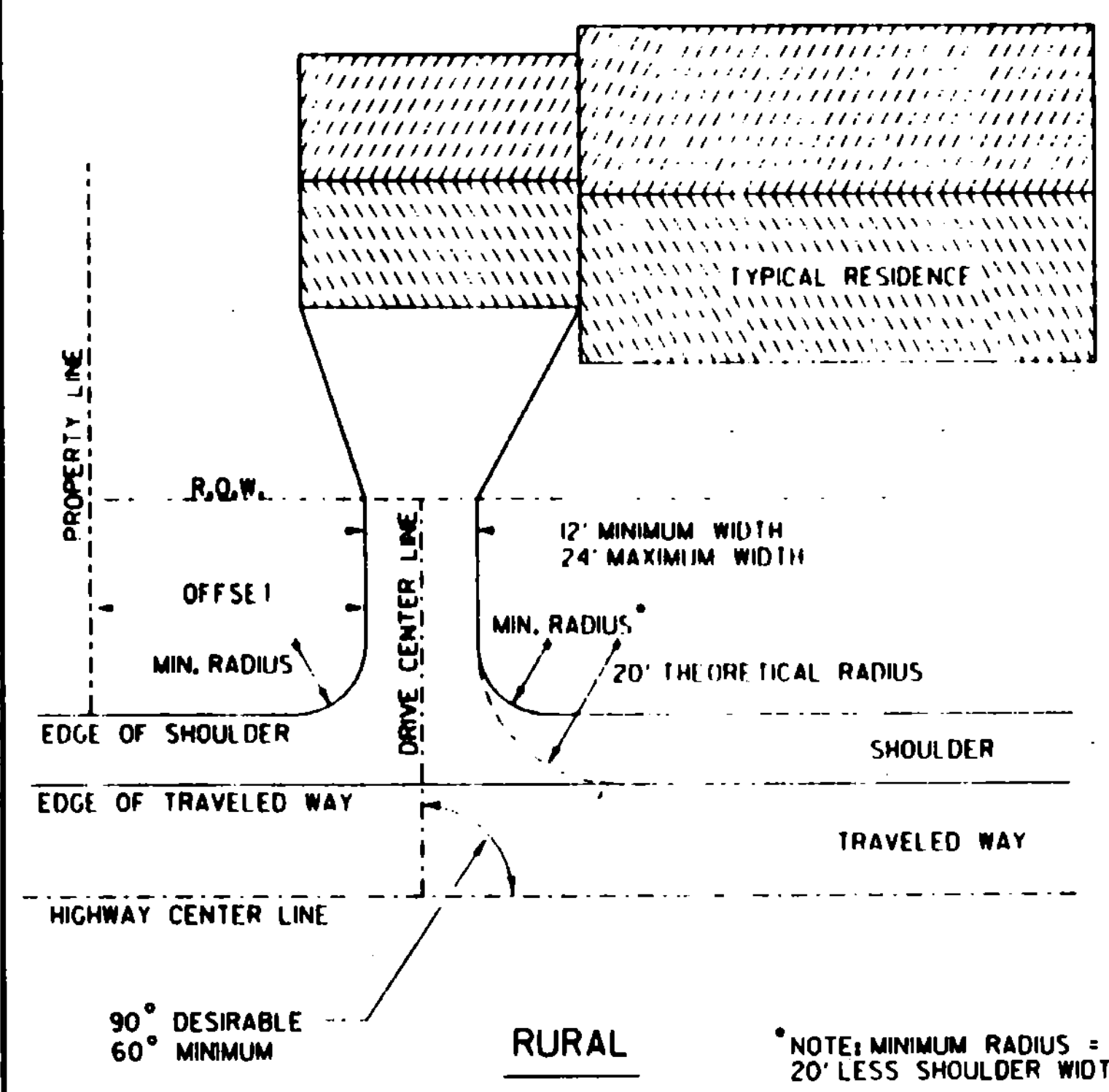
SIDE SLOPE EXAMPLE



PROFILE OF DRIVEWAY INTERSECTION
(FILL SECTION)



URBAN



RURAL

NOTES:

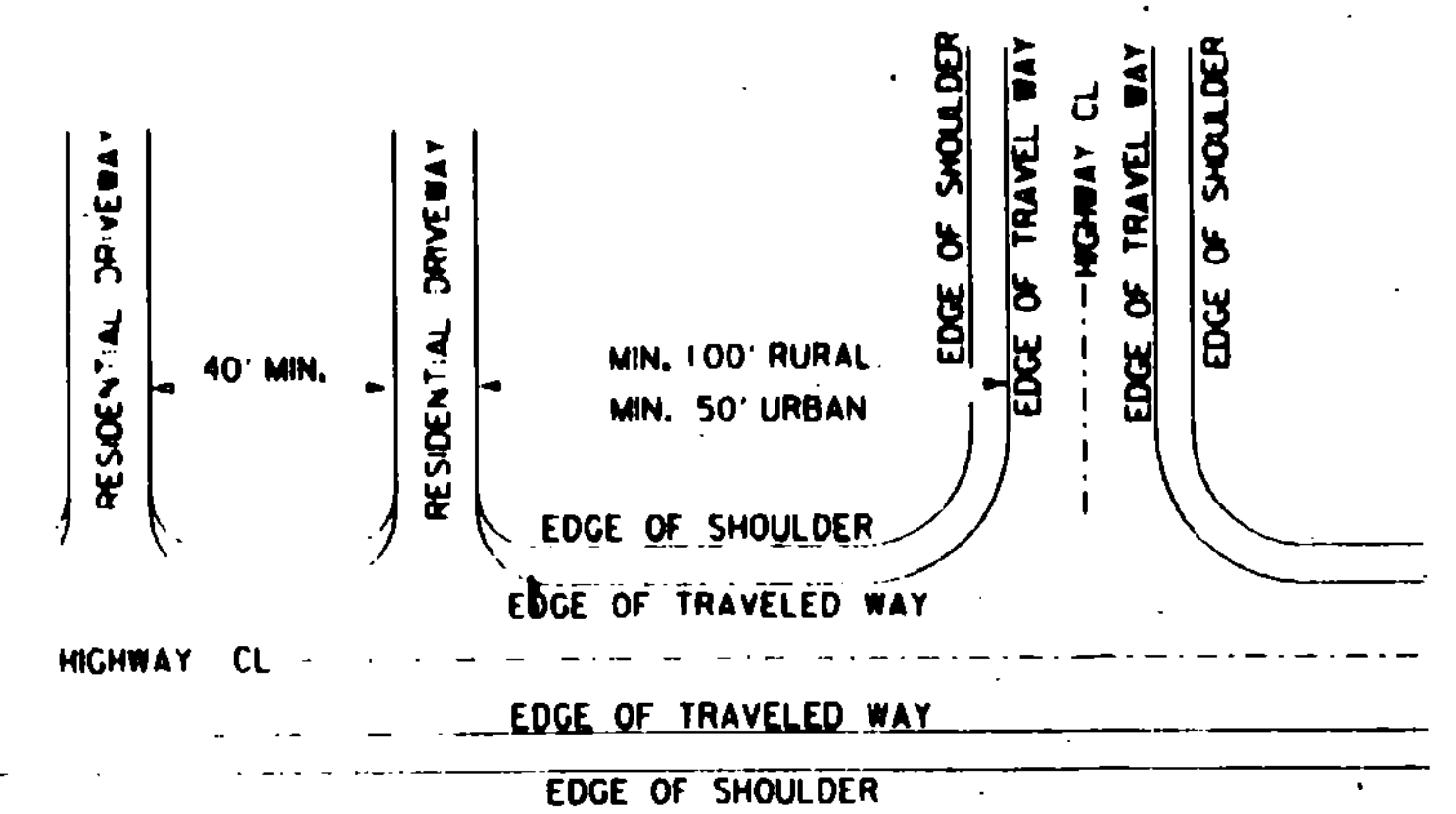
- ALL CONSTRUCTION REQUIRED BY THE PERMIT AND INDICATED ON THIS SHEET, SHALL BE THE RESPONSIBILITY OF THE APPLICANT, AND IS SUBJECT TO THE APPROVAL OF THE VT. AGENCY OF TRANSPORTATION DISTRICT TRANSPORTATION ADMINISTRATOR.
- CORNER SIGHT DISTANCES, EQUAL TO OR GREATER THAN THOSE SHOWN BELOW, SHALL BE PROVIDED IN BOTH DIRECTIONS FOR ALL DRIVES ENTERING ON PUBLIC HIGHWAYS, UNLESS OTHERWISE APPROVED BY THE AGENCY OF TRANSPORTATION. CORNER SIGHT DISTANCE IS MEASURED FROM A POINT ON THE DRIVE AT LEAST 15 FEET FROM THE EDGE OF TRAVELED WAY OF THE ADJACENT ROADWAY AND MEASURED FROM A HEIGHT OF EYE OF 3.5 FEET ON THE DRIVE TO A HEIGHT OF 4.25 FEET ON THE ROADWAY.

CORNER SIGHT DISTANCE CHART

DESIGN SPEED (M.P.H.)	MINIMUM (FT)	DESIRABLE (AASHTO) (FT)
25	150	350
30	200	450
35	250	580
40	325	750
45	400	950
50	475	1180

NOTE: ADVANCE WARNING SIGNS WILL BE REQUIRED IF CORNER SIGHT DISTANCES ARE BELOW MINIMUM VALUES.

- THE OFFSET BETWEEN THE PROPERTY LINE AND THE EDGE OF THE DRIVEWAY MAY BE GOVERNED BY LOCAL ZONING LAWS. DRIVEWAY WIDTH RESTRICTIONS SHOWN PERTAIN ONLY TO THE AREA WITHIN THE HIGHWAY R.O.W..
- DRIVEWAY GRADES STEEPER THAN THOSE SHOWN ARE ALLOWED AS LONG AS A 20' APPROACH AREA IS ACHIEVED FOR THE VEHICLE TO PAUSE BEFORE ENTERING THE HIGHWAY.
- NO PORTION OF ANY DRIVE SHALL BE LOCATED CLOSER THAN 100 FEET IN RURAL AREAS, AND 50 FEET IN URBAN AREAS, FROM THE CLOSEST EDGE OF THE TRAVELED WAY, AT THE INTERSECTION OF A HIGHWAY, UNLESS NO OTHER REASONABLE ACCESS IS AVAILABLE AND PRIOR APPROVAL IS GRANTED BY THE AGENCY OF TRANSPORTATION. OTHER CONSIDERATIONS, SUCH AS TRAFFIC SIGNALS, HIGH TRAFFIC VOLUMES OR FUNCTIONAL CLASS OF HIGHWAY SHOULD BE ADDRESSED WHEN DETERMINING THE APPROPRIATE OFFSET DISTANCE.



NOT TO SCALE

REVISIONS AND CORRECTIONS
3/07/90 ADDED DRIVE SIDE SLOPE RATES

APPROVED

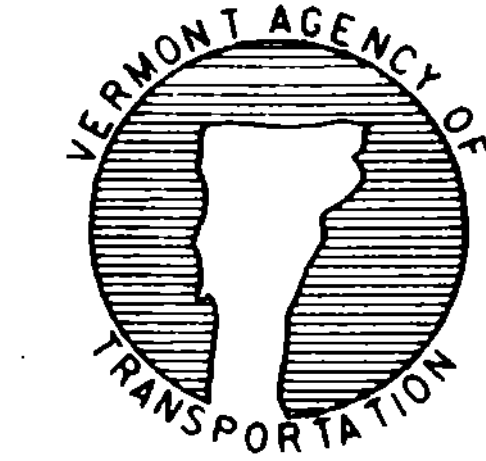
3/12/90
DATE

Residential
CHIEF ENGINEER

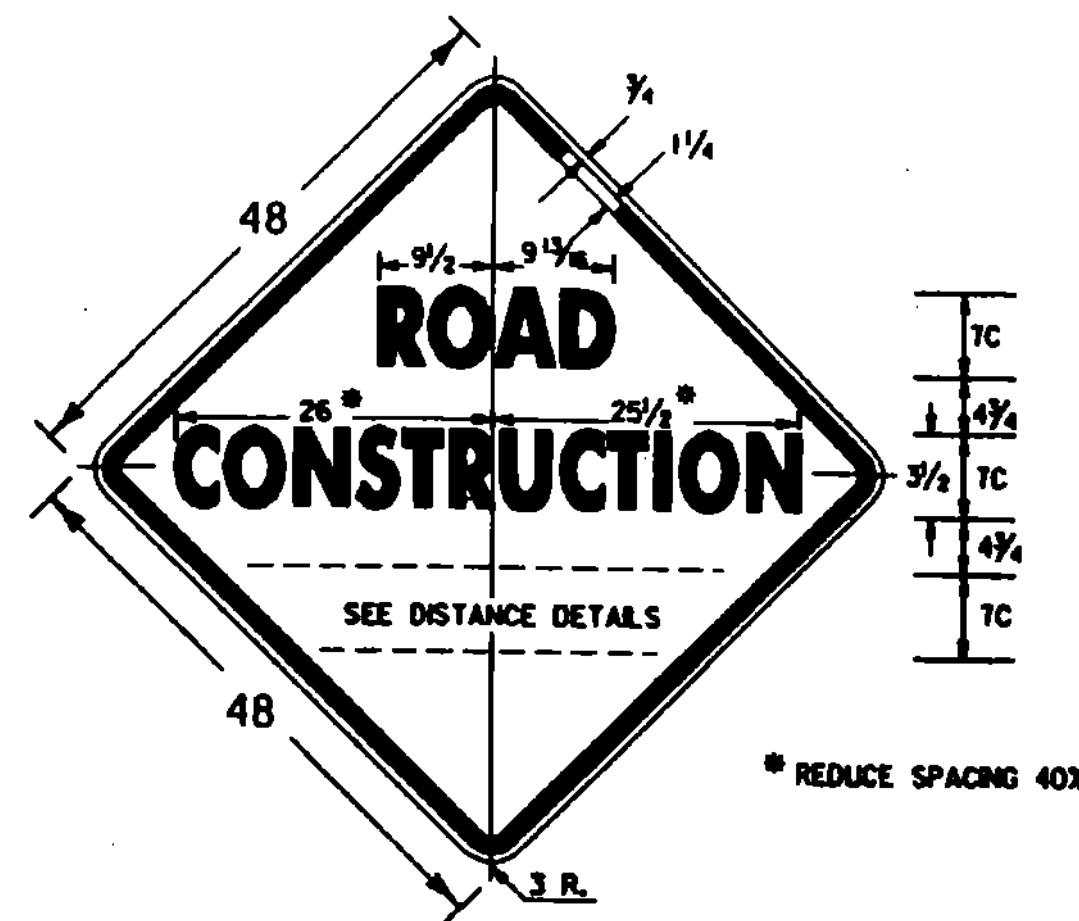
APPROVED FOR THIS PROJECT
AND/OR DESIGN IMPLEMENTATION
FHWA FINAL APPROVAL PENDING.

Stephen B. MacArthur
DIRECTOR OF PLANNING
AND PRECONSTRUCTION
Justin May
DESIGN ENGINEER

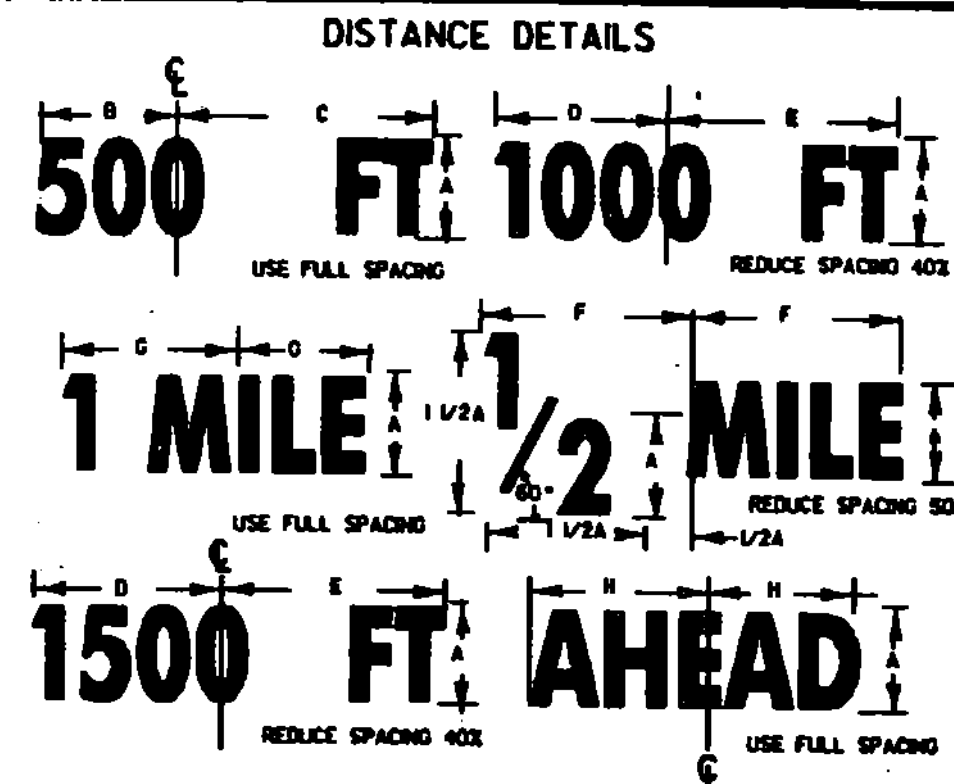
RESIDENTIAL DRIVEWAY



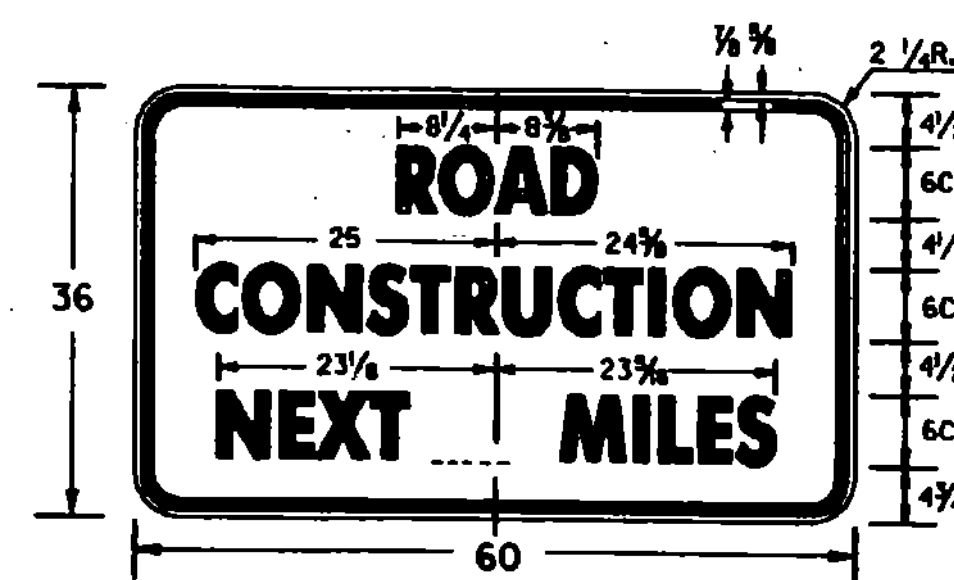
STANDARD B-71A



WHEN APPROPRIATE, EXISTING "BRIDGE CONSTRUCTION..." SIGNS MAY BE USED UNTIL THE EXISTING SIGNS NEED REPLACEMENT. NEW SIGNS SHALL SHOW REFERENCE TO "ROAD CONSTRUCTION". SIGN TEXT SHALL BE CONSISTENT THROUGHOUT THE PROJECT.

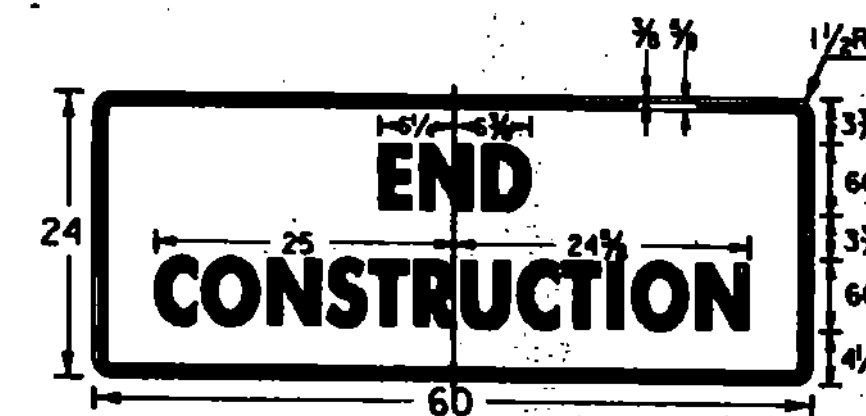


DIMENSIONS (INCHES)							
A	B	C	D	E	F	G	H
5D	10 3/4	10 3/4	1 1/4	11 1/4	11 1/4	9 1/2	10 3/4
6C	10 3/4	10 1/2	1 1/4	12	12 1/2	9 1/4	10 1/2
7C	12	12 3/4	1 3/8	14	14 3/4	10 3/4	12 1/4
8D	16 1/4	17 1/4	1 7/8	18	18	14 3/4	17 3/8



THIS SIGN TO BE USED WHEN PROJECT LENGTH EXCEEDS 2 MILES OR AS REQUESTED BY THE RESIDENT ENGINEER. SHOW MILEAGE TO NEAREST 1/4 MILE USING FRACTIONS, NOT DECIMALS. HAND LETTERING OF MILEAGE WILL NOT BE ALLOWED.

ALL DIMENSIONS SHOWN IN INCHES



NOTES

THE APPROACH CONSTRUCTION SIGNS SHOWN ON THIS SHEET ARE INTENDED FOR USE IN PROVIDING ADVANCE WARNING AND INFORMATION ON CONSTRUCTION PROJECTS OVER WHICH TRAFFIC WILL BE MAINTAINED. WHEN ADDITIONAL APPROACH SIGNS OR OTHER TYPES OF ADVANCE SIGNING OR CONTROL ARE NECESSARY, THE PLANS AND/OR THE SPECIFICATIONS FOR THAT PROJECT WILL GIVE THE DETAILS OF THE SIGNS AND DEVICES REQUIRED. FOR ON-PROJECT CONSTRUCTION SIGNS, REFER TO APPROPRIATE STANDARD SHEETS.

APPLICATION OF STANDARDS
SINCE IT IS NOT POSSIBLE TO PRESCRIBE DETAILED STANDARDS OF APPLICATION FOR ALL OF THE SITUATIONS THAT MAY CONCEIVABLY ARISE ON A CONSTRUCTION PROJECT, REFERENCE SHALL BE MADE TO THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" FOR THE PRINCIPLES, PROCEDURES, AND STANDARDS THAT WILL BE REQUIRED IN CONNECTION WITH ADVANCED WARNING AND ON-PROJECT CONSTRUCTION SIGNS AND BARRICADES. THE SIGNS SHOWN IN E-101 AND E-102 REPRESENT A SAMPLE OF THOSE MORE COMMONLY USED.

LOCATION
CONSTRUCTION APPROACH SIGNS SHALL BE LOCATED AS DETAILED ON THIS SHEET OR AS OTHERWISE SHOWN ON THE PLANS. THEY SHALL APPEAR AT EACH END OF THE HIGHWAY UNDER CONSTRUCTION AND ON ALL INTERSECTING PUBLIC HIGHWAYS. THE EXACT PLACEMENT OF ANY SIGN WILL DEPEND UPON THE ALIGNMENT INTENDED TO INDICATE THE SEQUENCE TO BE FOLLOWED, AND THE APPROXIMATE SPACING TO BE OBSERVED. THE ENGINEER SHALL DETERMINE THE EXACT LOCATIONS.

DESIGN
THE DESIGN OF THE SIGNS SHALL CONFORM WITH THE DETAILS SHOWN ON THIS SHEET AND WITH THE STANDARDS PRESCRIBED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

MATERIALS
THE SIGN BASE MATERIAL USED FOR THE WARNING SIGNS ON THIS SHEET MAY BE ANY OF THE FOLLOWING, WITH MINIMUM THICKNESS AS NOTED.
FLAT SHEET ALUMINUM 0.125 INCHES
HIGH DENSITY OVERLAYED PLYWOOD 3/4 INCHES
GALVANIZED SHEET STEEL 12 GAGE

REFLECTORIZATION
ALL REFLECTORIZED MATERIAL SHALL CONSIST OF ENCAPSULATED LENS REFLECTIVE SHEETING.

COLORS
THE COLORS SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION. COLORS SHOWN ON THIS SHEET CONSIST OF BLACK TEXT AND BORDER ON A REFLECTORIZED ORANGE BACKGROUND.

INSTALLATION
THE SIGNS SHALL BE ERECTED BEFORE THE START OF ANY WORK AND SHALL BE COVERED UNTIL WORK COMMENCES, DURING PERIODS OF INACTIVITY, OR UPON COMPLETION OF THE WORK. SIGNS MAY BE REMOVED UPON COMPLETION OF THE WORK AT THE DISCRETION OF THE ENGINEER.
EACH SIGN SHALL BE ERECTED IN A NEAT AND WORKMANLIKE MANNER ON POSTS SET SECURELY IN THE GROUND. THE BOTTOM OF A SIGN SHALL BE AT LEAST 6 FEET ABOVE ROAD LEVEL, AND THE NEAREST EDGE OF A SIGN SHALL BE AT LEAST 6 FEET OUTSIDE THE SHOULDER POINT OR 2 FEET OUTSIDE GUARD RAIL, CURBING, OR SIDEWALK. THE INSTALLATION OF SIGNS SHALL BE SUBJECT TO APPROVAL OF THE ENGINEER. IN URBAN AREAS, THE BOTTOM OF THE SIGN SHALL BE AT LEAST 7 FEET ABOVE THE SIDEWALK.

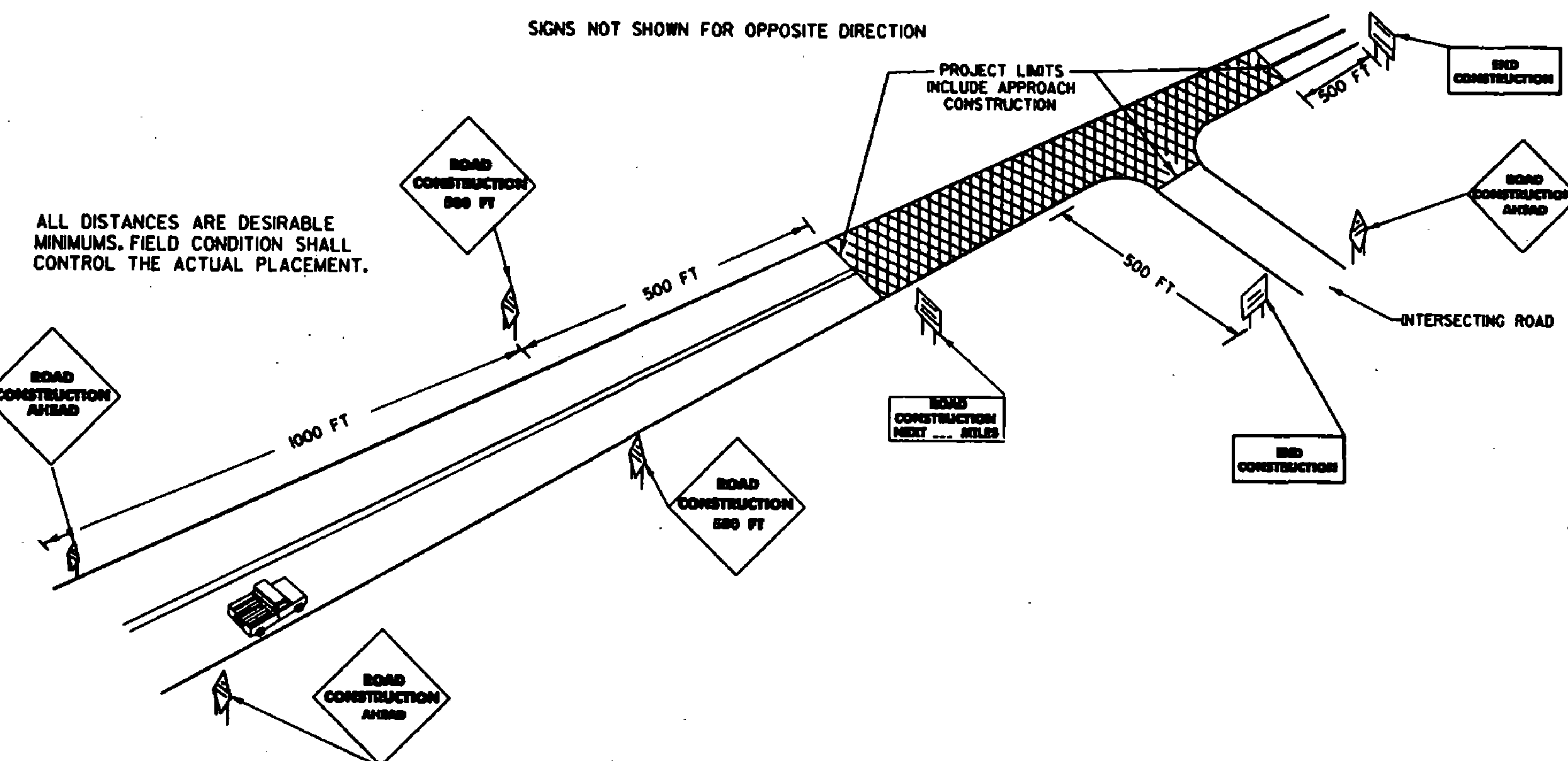
MAINTENANCE
SIGNS SHALL BE MAINTAINED IN A CLEAN AND LEGIBLE CONDITION SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. THEY SHALL BE KEPT PLUMB AND LEVEL, AND ALWAYS PRESENT A NEAT APPEARANCE. DAMAGED, DEFACED, OR DIRTY SIGNS SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER.

GENERAL
THE COST OF FURNISHING, ERECTING, MAINTAINING AND REMOVING ALL CONSTRUCTION APPROACH SIGNS WILL BE CONSIDERED SUBSIDIARY WORK PERTAINING TO THE PROJECT AS A WHOLE AND SHALL BE INCLUDED IN THE CONTRACT UNIT PRICE BID FOR VARIOUS ITEMS INVOLVED IN THE CONTRACT. DURING ALL PHASES OF CONSTRUCTION THE REQUIREMENTS SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE MET. WHEN THE PROJECT IS CLOSED DOWN FOR TEMPORARY PERIODS THE SIGNS SHALL BE COVERED IN A WORKMANLIKE MANNER.

SIGN COVERS
SIGN COVERS SHALL CONSIST OF A PANEL PAINTED FLAT BLACK, THE SAME SIZE AS THE SIGN IT COVERS. THE PANEL SHALL BE OF WOOD, PLYWOOD, HARDBOARD OR ANY MATERIAL SATISFACTORY TO THE ENGINEER. NO MATERIAL WILL BE APPROVED THAT WILL DETERIORATE BY EXPOSURE TO THE WEATHER DURING THE PROJECT. MOUNTING OF THE PANEL SHALL BE DONE IN SUCH A WAY AS NOT TO DAMAGE THE SIGN FACE MATERIAL.

CONTRACTORS SHALL COORDINATE THEIR SIGNING ACTIVITIES WITH OTHER CONTRACTORS WITHIN THE PROJECT LIMITS, AS DIRECTED BY THE REGIONAL CONSTRUCTION ENGINEER.

SIGNS NOT SHOWN FOR OPPOSITE DIRECTION



TYPICAL APPROACH SIGNING

SIGN POSTS

WHERE CONSTRUCTION SIGN INSTALLATIONS ARE NOT PROTECTED BY GUARD RAIL OR OTHER APPROVED TRAFFIC BARRIERS, THE POSTS ON WHICH THE SIGNS ARE MOUNTED SHALL BE YIELDING METAL POSTS AS DESIGNATED IN THE E SERIES OF STANDARD DRAWINGS OR YIELDING WOODEN POSTS IN ACCORDANCE WITH THE FOLLOWING REQUIREMENTS.

WOODEN POSTS ARE ACCEPTABLE FOR USE WITH CONSTRUCTION SIGNS PROVIDED THE POSTS HAVE A UNIFORM CROSS-SECTION AND IF, IN AN 8 FOOT WIDE VEHICULAR PATH, THERE IS OR ARE:

1. A SINGLE POST WITH AN ELASTIC SECTION MODULUS NO GREATER THAN 24 IN.⁴ (A FULL DIMENSION 4" X 6" POST).
2. TWO POSTS, EACH WITH AN ELASTIC SECTION MODULUS NO GREATER THAN 18 IN.⁴ (FULL DIMENSION 3" X 6" OR 4" X 5" POSTS).
3. THREE POSTS, EACH WITH AN ELASTIC SECTION MODULUS NO GREATER THAN 14 IN.⁴ (FULL DIMENSION 3" X 5" OR 4" X 4" POSTS).

THE FORMULA FOR DETERMINING THE ELASTIC SECTION MODULUS (S) IS:

$$S = \frac{B(D)^3}{6}$$

WHERE B = THE SMALLER DIMENSION IN INCHES IF THE TIMBER IS RECTANGULAR IN CROSS-SECTION

D = THE LARGER DIMENSION IN INCHES IF THE TIMBER IS RECTANGULAR IN CROSS-SECTION

OR B = D IN INCHES IF THE TIMBER IS SQUARE IN CROSS-SECTION AND THE RESULT IS EXPRESSED IN INCHES CUBED.

WOODEN POSTS MAY BE CONSTRUCTED UP TO THE MAXIMUM SIZES LISTED BY LAMINATING SMALLER SECTIONS. WEAKENED TIMBER POSTS WILL NOT BE PERMITTED. NO CROSS-BRACING OR BRACING TO KEEP THE POSTS PLUMB WILL BE PERMITTED. CONCRETE FOUNDATION COLLARS OR SOIL BEARING PLATES ARE NOT ACCEPTABLE FOR USE. POST EMBEDMENT DEPTH SHALL BE 3' - 6'.

REVISIONS AND CORRECTIONS

MAY 26, 1989 - SIGN POST NOTES ADDED

APPROVED

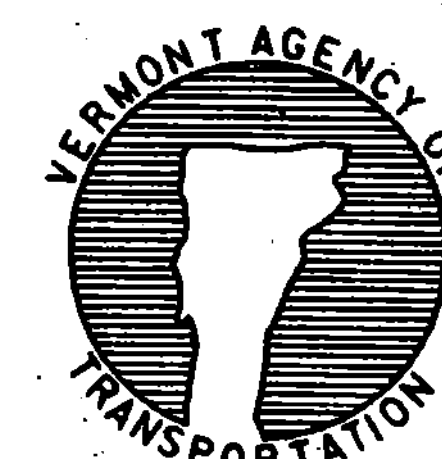
SEPT. 10, 1987
DATE

David J. Kelley
CHIEF ENGINEER

Gordon B. MacArthur
DIRECTOR OF PLANNING
AND PRE-CONSTRUCTION

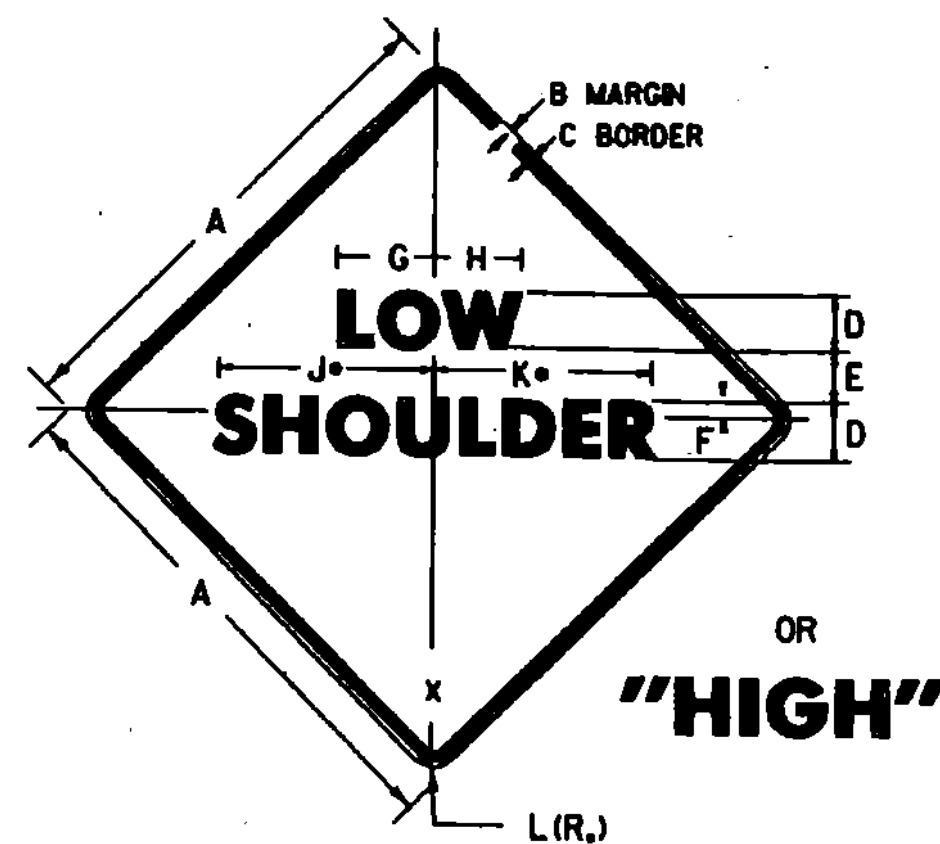
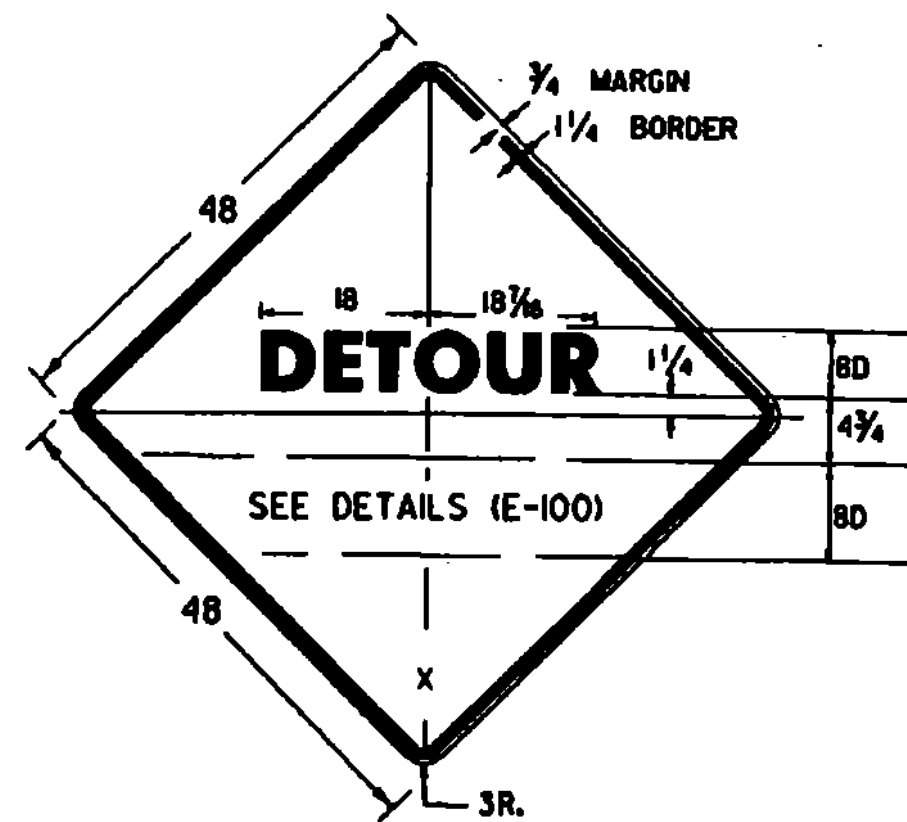
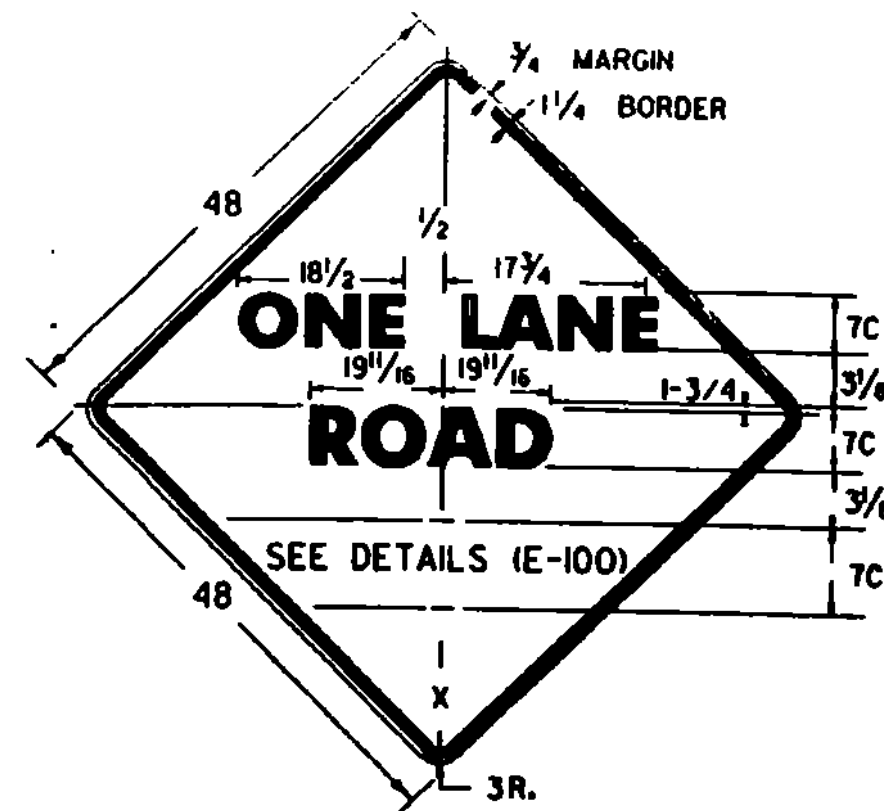
Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

CONSTRUCTION APPROACH SIGNS

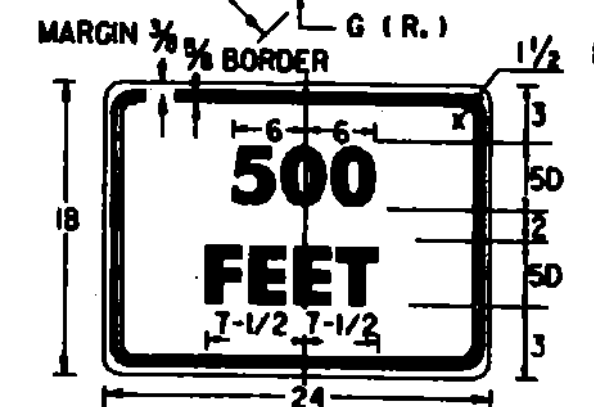
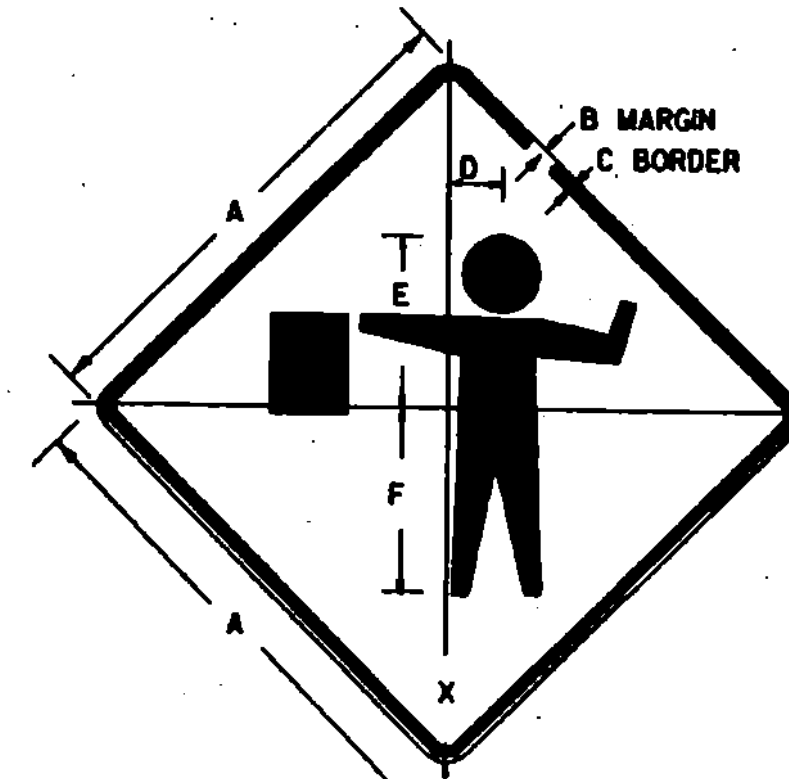


STANDARD
E-100

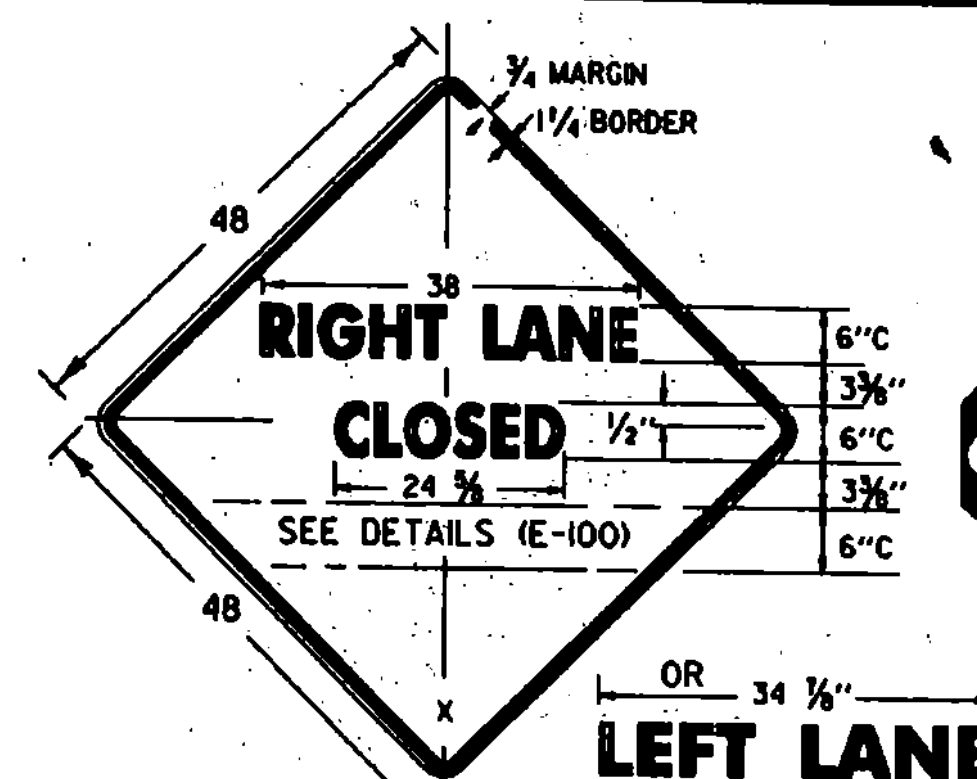
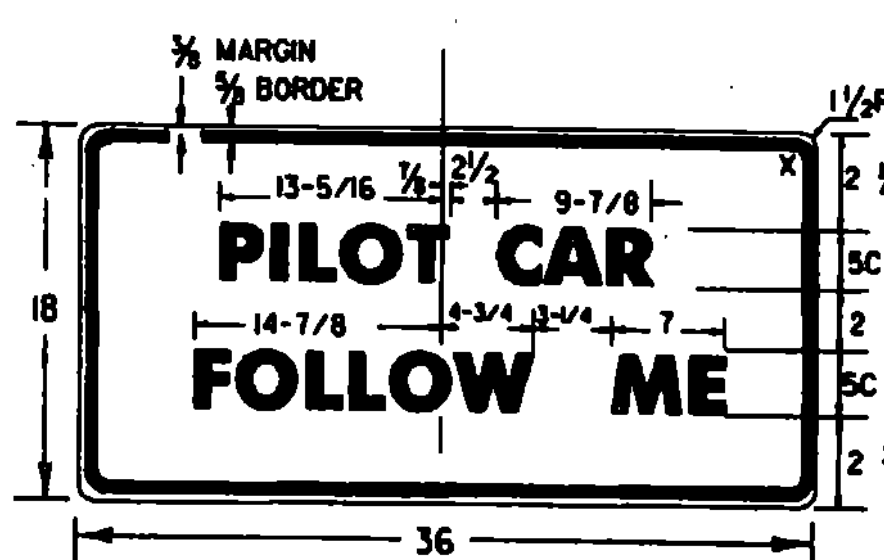
APPROVED FOR THE PROJECT
DESIGN AND IMPLEMENTATION
FINAL FINAL APPROVAL PENDING



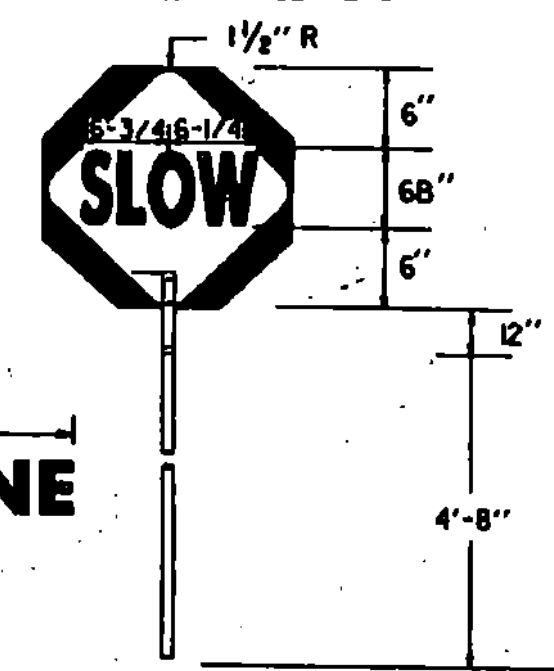
DIMENSIONS (INCHES)												
SIGN	A	B	C	D	E	F	G	H	J	K	L	M
STD.	30	1/2	1/4	5/8	3	1/4	5-3/16	5-5/8	13-1/16	13-1/16	1-7/8	
FWY.	48	1/2	1-1/4	5/8	5	1-1/4	8-1/4	9	21-7/8	20-7/8	3	



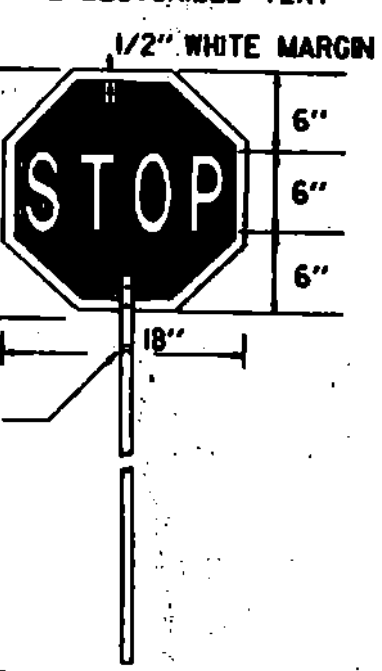
DIMENSIONS (INCHES)							
SIGN	A	B	C	D	E	F	G
STD.	36	1/2	1/4	2-3/4	13-1/2	14-5/8	2-1/4
FWY.	48	1/2	1-1/4	3-3/4	18	19-1/2	3



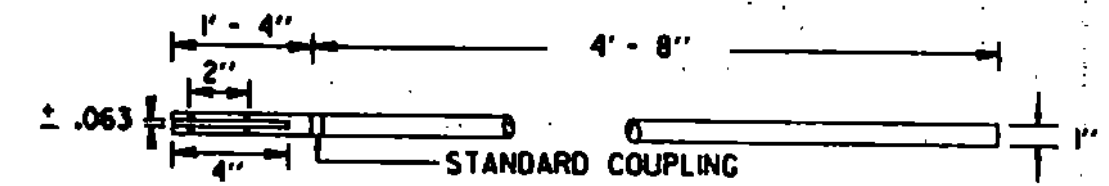
ORANGE REFLECTORIZED DIAMOND WITH BLACK TEXT AND BORDER SERIES "B" LETTERS



RED REFLECTORIZED OCTAGON WITH 6" SERIES "C" WHITE REFLECTORIZED TEXT



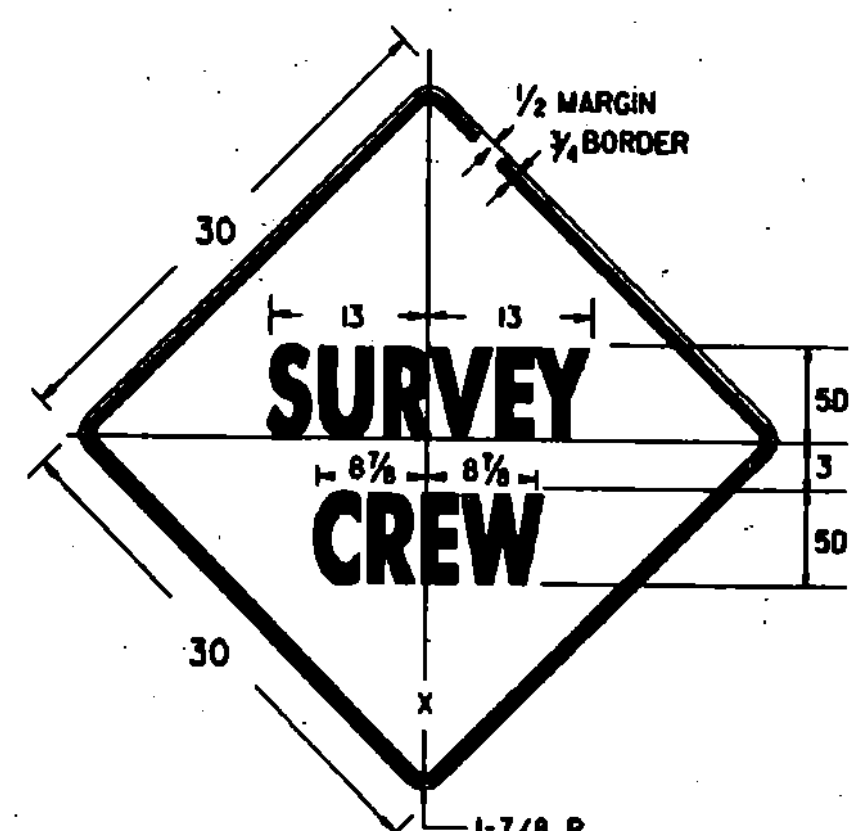
SIGN DETAIL



STAFF DETAIL

MATERIALS
THE SIGN MATERIALS SHALL BE 0.063" ALUMINUM WITH COLORS AS INDICATED ON DETAILS.
THE STAFF SHALL BE 1" RIGID ALUMINUM CONDUIT OR TUBING WITH A WALL THICKNESS OF 0.125".
MOUNTING
THE STAFF SHALL BE MOUNTED WITH EITHER TWO 1/4" DIAMETER ALUMINUM BOLTS OR TWO 1/4" DIAMETER ALUMINUM RIVETS.

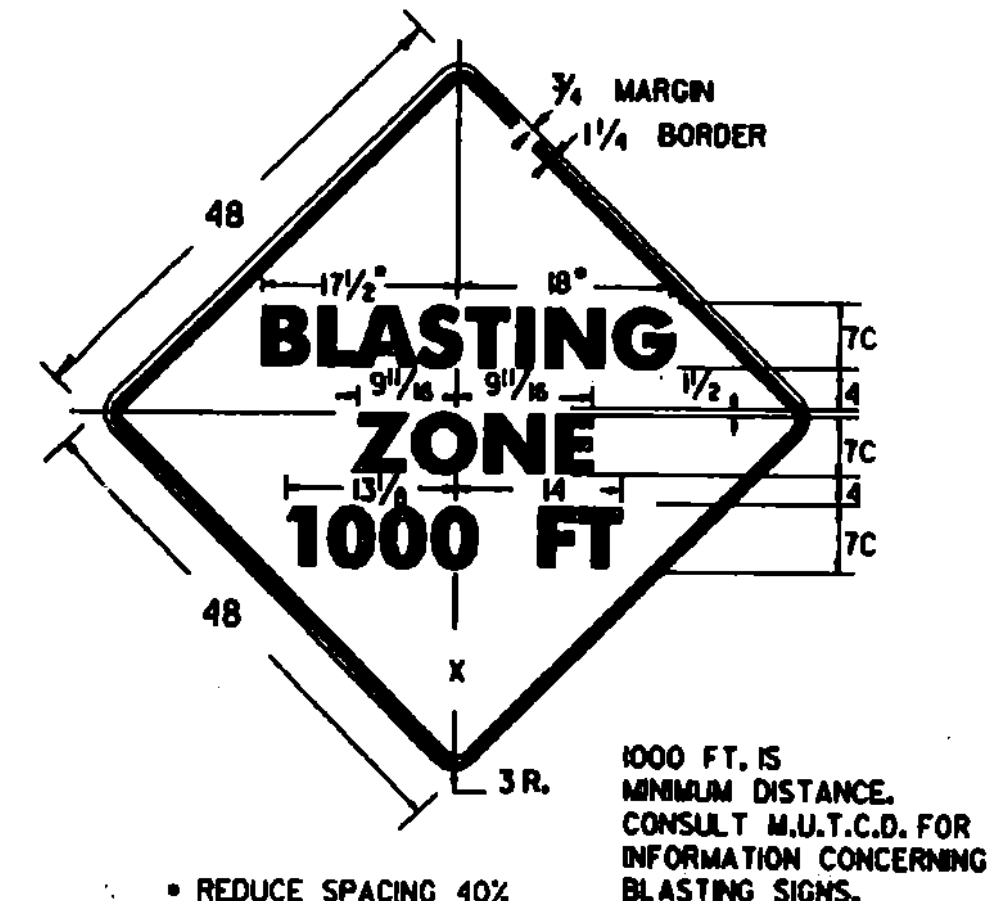
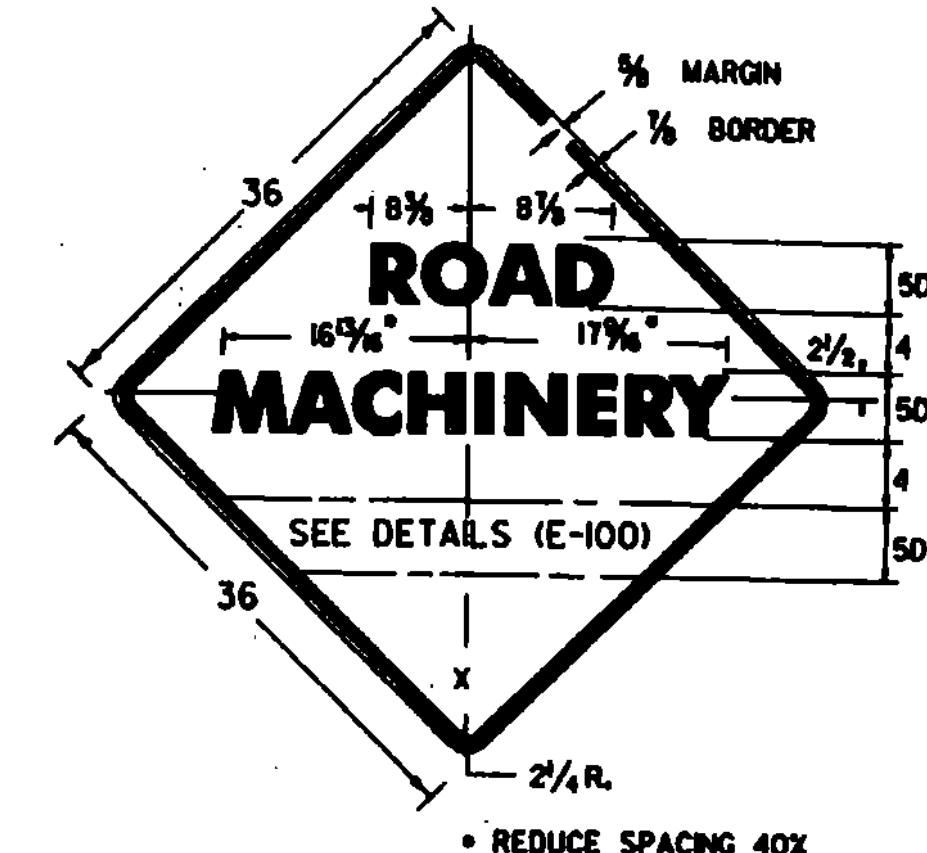
SIGN PADDLE FOR FLAGPERSON



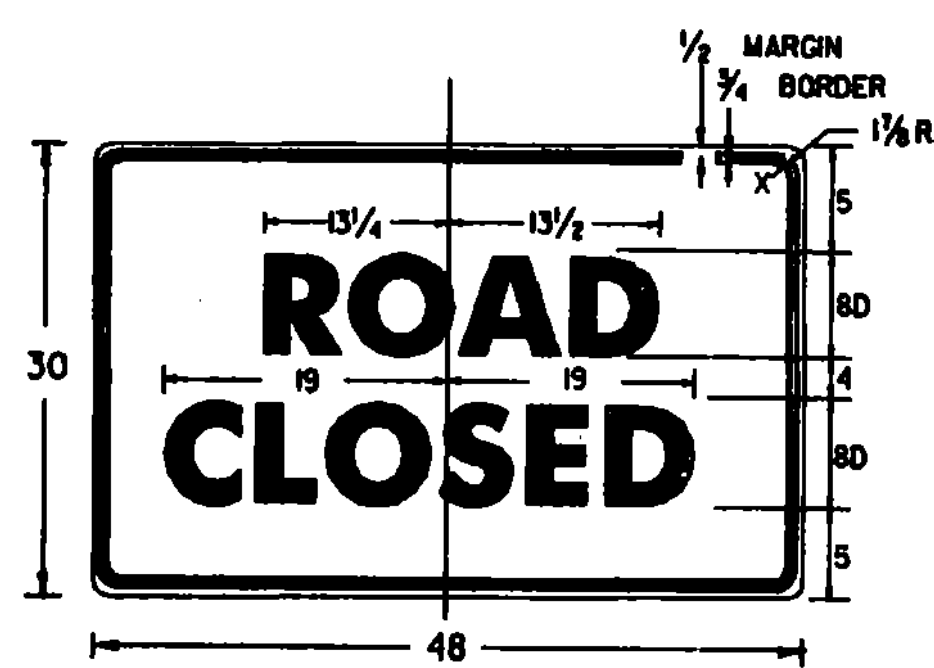
(ALL DIMENSIONS ARE IN INCHES)

NOTES

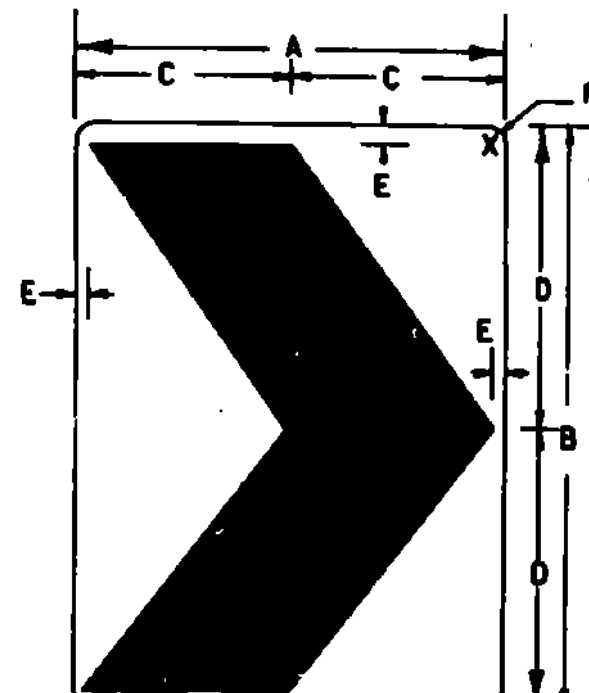
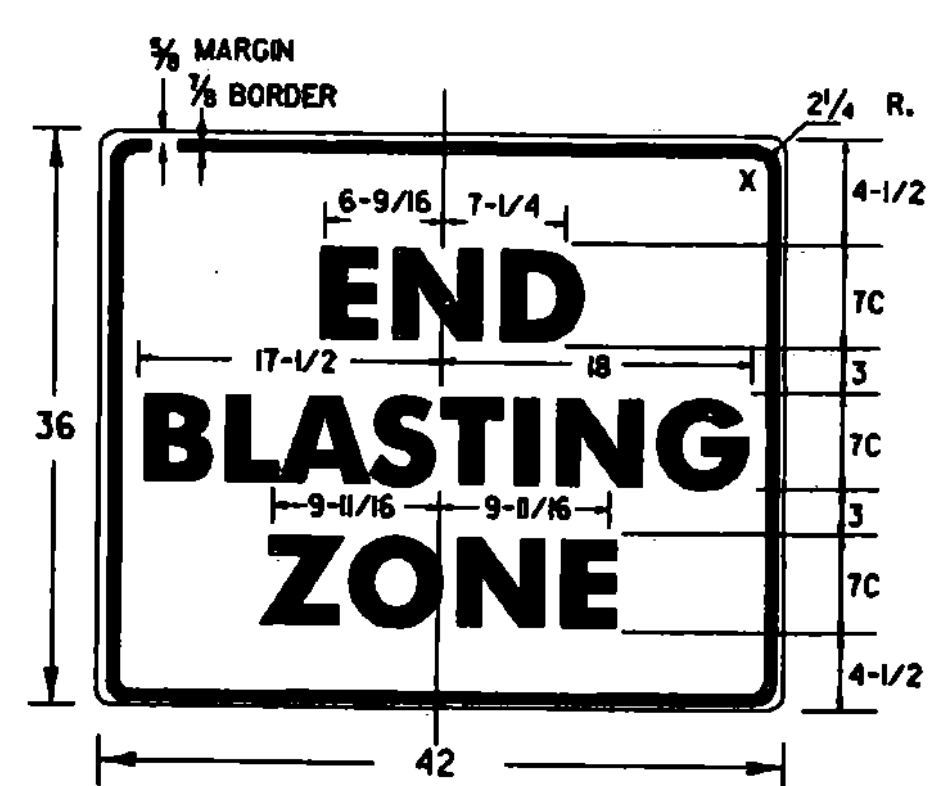
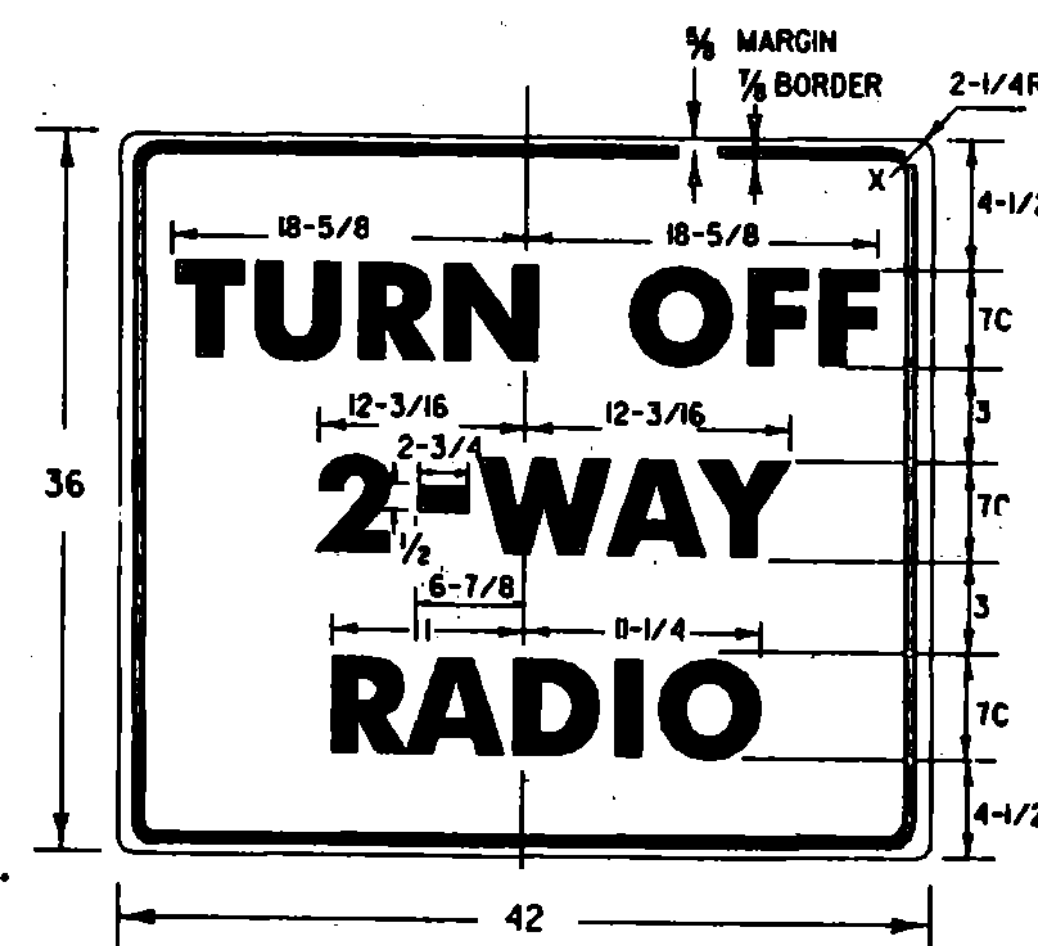
SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS.
COLORS FOR SIGNS SHOWN ON THIS SHEET SHALL BE BLACK TEXT, BORDER AND SYMBOLS ON A REFLECTORIZED (ENCAPSULATED LENS) ORANGE BACKGROUND, UNLESS OTHERWISE NOTED. THE EXCEPTIONS ARE THE CHEVRON, ROAD CLOSED, AND PADDLE SIGNS. SIGN DETAILS INDICATE THE APPROPRIATE COLOR.
EXISTING "BRIDGE" SIGNS MAY BE USED UNTIL THE SIGN NEEDS REPLACEMENT. NEW SIGNS SHALL SHOW REFERENCE TO "ROAD" CONSTRUCTION, HOWEVER, SIGN TEXT SHALL BE CONSISTENT THROUGHOUT THE PROJECT.
SIGNS USED ONLY FOR DAYTIME MAINTENANCE OPERATIONS DO NOT NEED TO BE REFLECTORIZED, HOWEVER, THESE SIGNS SHALL BE LABELED "DAYTIME USE ONLY" ON THE BACK OF THE SIGN PANEL WITH 3" SERIES C LETTERS.



1000 FT. IS MINIMUM DISTANCE. CONSULT M.U.T.C.D. FOR INFORMATION CONCERNING BLASTING SIGNS.

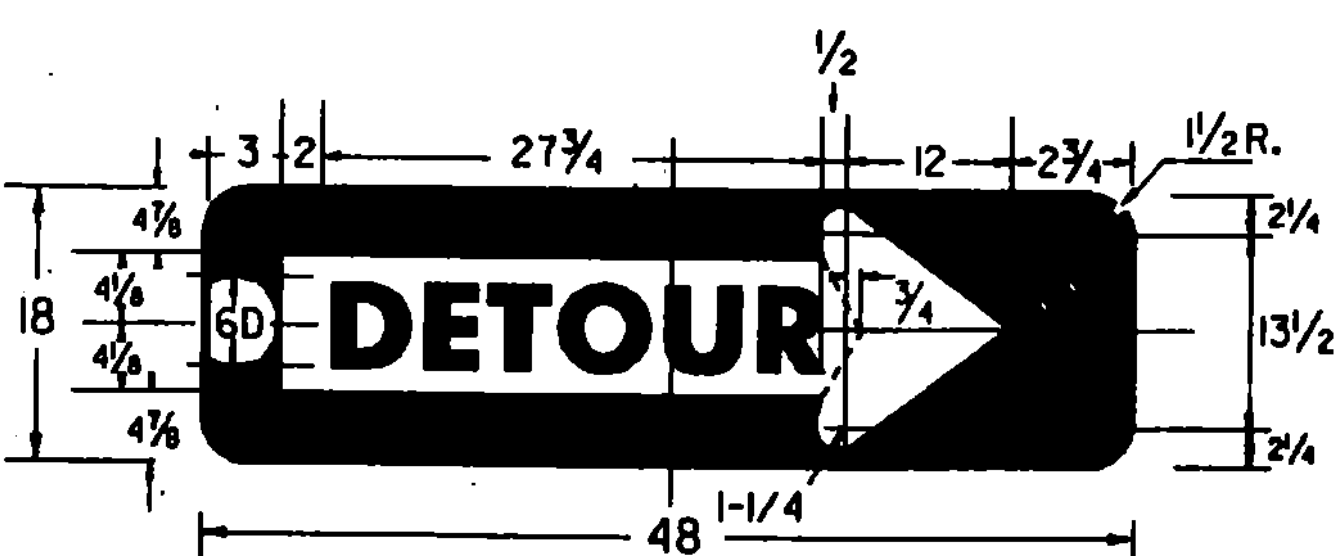
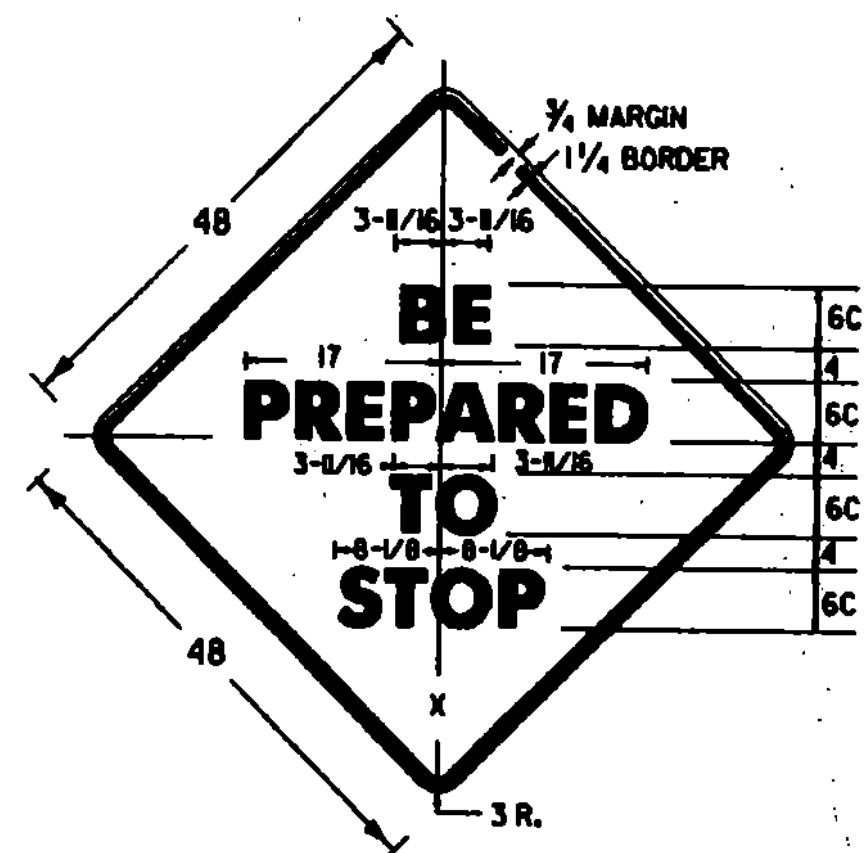


COLORS:
BLACK TEXT AND BORDER
WHITE REFLECTORIZED BACKGROUND



DIMENSIONS (INCHES)						
SIGN	A	B	C	D	E	F
STD.	18	24	9	12	1/4	1-1/2
SPECIAL	24	30	12	15	1/4	1-1/2
EXPWY.	30	36	15	18	1	1-7/8
FRWY.	36	48	18	24	1-1/8	2-1/4

COLORS
CHEVRON -BLACK
BACKGROUND-YELLOW(REFL.)



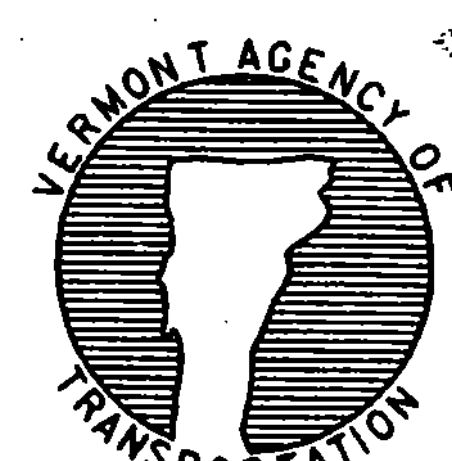
COLORS:
ORANGE ARROW

REVISIONS AND CORRECTIONS

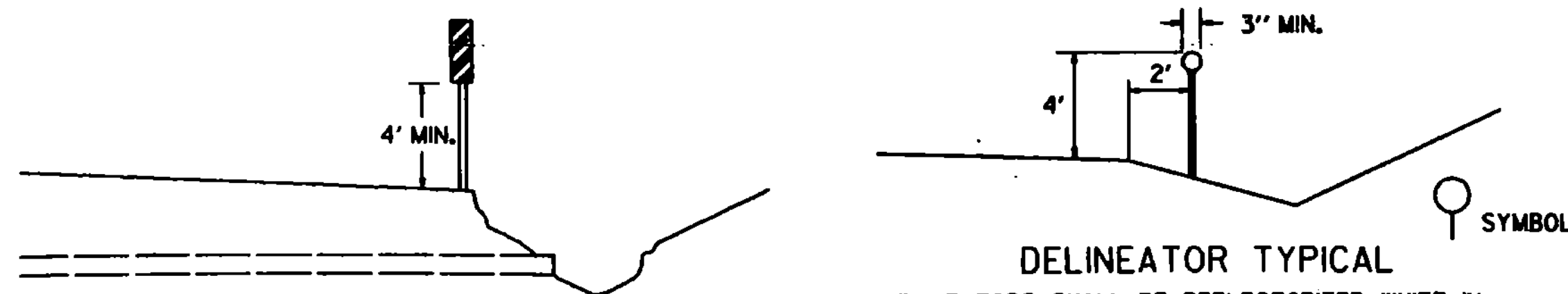
APPROVED

OCT. 30, 1987
DATE
David W. Kelley
CHIEF ENGINEER
Arthur J. Ross
DIRECTOR OF PLANNING
AND PRE-CONSTRUCTION
Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER

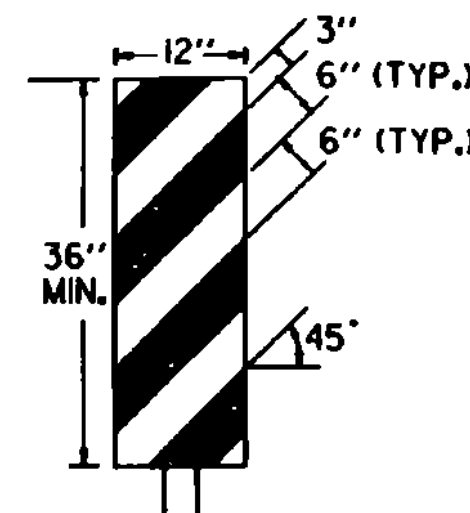
CONSTRUCTION SIGN DETAILS



STANDARD
E-101



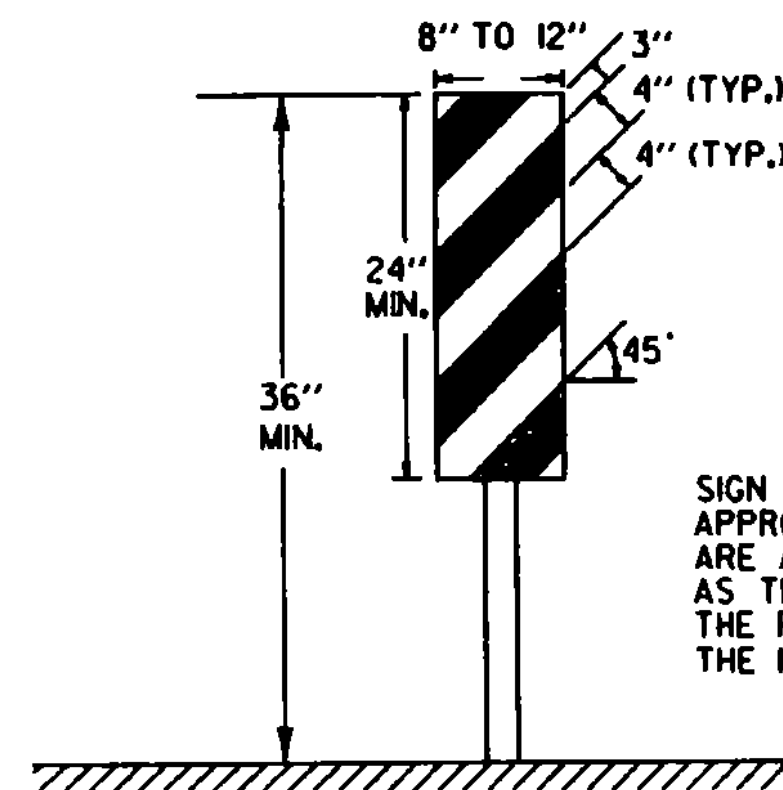
DELINEATOR TYPICAL
DELINEATORS SHALL BE REFLECTORIZED WHITE IN COLOR. THEY SHALL HAVE A MINIMUM OF 7 SQUARE INCHES. THEY MAY BE ROUND, SQUARE, OR OBLONG.



OBJECT MARKER TYPICAL

OBJECTS ADJACENT TO THE ROADWAY SHALL REQUIRE AN OBJECT MARKER TO MARK THE OBSTRUCTION. IN SOME CASES THERE MAY NOT BE A PHYSICAL OBJECT INVOLVED BUT OTHER ROADSIDE CONDITIONS SUCH AS NARROW SHOULDER DROP-OFFS, GORES, D.I. EXCAVATIONS, OR ABRUPT CHANGES IN THE ROADWAY ALIGNMENT MAY MAKE IT UNDESIRABLE FOR A DRIVER TO LEAVE THE ROADWAY. THE INSIDE EDGE OF THE OBJECT MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION, WHENEVER POSSIBLE.

OBJECT MARKERS SHALL HAVE ALTERNATING REFLECTORIZED BLACK STRIPES, (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS).

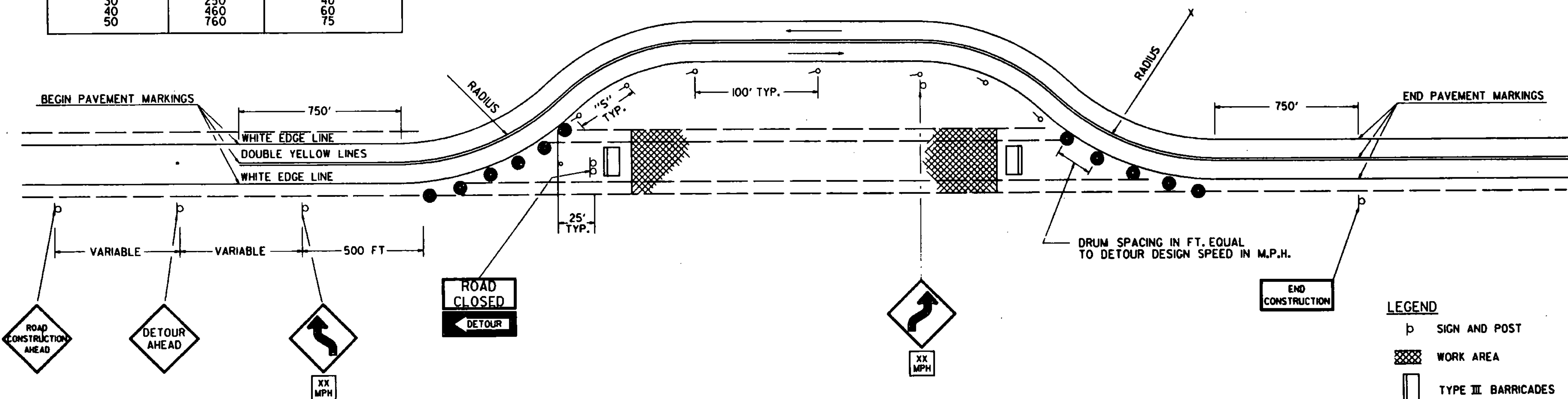


VERTICAL PANEL

VERTICAL PANELS SHALL HAVE ALTERNATING ORANGE AND WHITE REFLECTORIZED STRIPES (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS). THESE DEVICES MAY BE USED FOR TRAFFIC SEPARATION OR SHOULDER BARRICADING WHERE SPACE IS AT A MINIMUM.

DELINEATOR AND OBJECT MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED

DETOUR DESIGN SPEED MPH	RADIUS FT	DELINEATOR SPACING - "S" FT
25	150	30
30	250	40
40	460	60
50	760	75



ALL SIGN PLACEMENT DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT. PROJECT CONSTRUCTION APPROACH SIGNING PLACEMENT SHALL TAKE INTO CONSIDERATION SPACING FOR THE DETOUR SIGN LAYOUT REQUIREMENTS.

TRAFFIC CONTROL PLAN TWO LANE HIGHWAY PAVED DETOUR

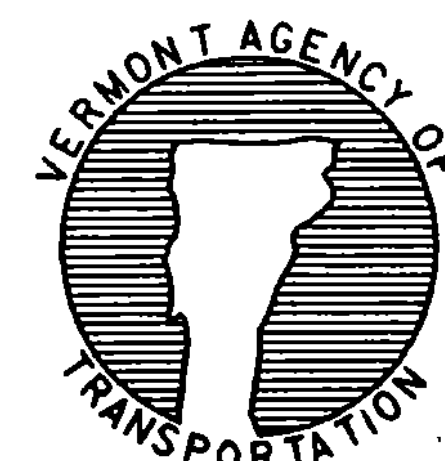
SEE VARIOUS STANDARD SHEETS FOR SIGN DETAIL AND MATERIAL REQUIREMENTS

- LEGEND**
- SIGN AND POST
 - ▨ WORK AREA
 - ▭ TYPE III BARRICADES
 - PLASTIC DRUMS (REFL)
 - DELINEATORS

DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS

REVISIONS AND CORRECTIONS
APRIL 29, 1988 - FHWA REVIEW COMMENTS

APPROVED
SEPT. 10, 1987
DATE
David B. Kelley
CHIEF ENGINEER
Arthur J. Jones
DIRECTOR OF PLANNING
AND PRE-CONSTRUCTION
Gordon B. MacArthur
TRAFFIC AND SAFETY ENGINEER



STANDARD
E-107

BARRICADES

APPLICATION NOTES

TYPE I BARRICADES ARE TO BE USED ON CONVENTIONAL ROADS OR URBAN STREETS AND ARTERIALS TO MARK A SPECIFIC HAZARD.

TYPE II BARRICADES ARE TO BE USED ON EXPRESSWAYS AND FREEWAYS, SERVING THE SAME FUNCTIONS AS THE TYPE I BARRICADES.

TYPE III BARRICADES (SEE STANDARD E-107A) SHALL ONLY BE USED WHEN A ROAD SECTION IS CLOSED TO TRAFFIC AND ARE TO BE ERECTED AT THE POINT OF CLOSURE.

MATERIALS

THE BARRICADES SHOWN ON THIS SHEET NORMALLY WILL BE OF LIGHTWEIGHT MATERIAL. IF WOOD IS USED THE FOLLOWING CONDITIONS SHALL APPLY:

I. WOODEN BARRICADES (TYPES I AND II)

A. SHALL NOT BE USED TO CHANNELIZE OR DELINEATE WORK AREAS WITHIN THE CLEAR ZONE OF ANY HIGHWAY WHERE OPERATING SPEEDS IN EXCESS OF 20 MILES PER HOUR ARE EXPECTED UNLESS INSTALLED FOR PEDESTRIAN CONTROL BEHIND APPROVED POSITIVE BARRIERS.

B. MAY BE USED IF OPERATING SPEEDS OF 20 M.P.H. OR LESS ARE EXPECTED.

2. TYPE III WOODEN BARRICADES SHALL NOT BE USED.

DESIGN

THE DESIGN OF THE BARRICADES SHALL CONFORM WITH THE DETAILS SHOWN ON THIS SHEET AND THE MARKINGS ON THE BARRICADES SHALL BE ALTERNATE ORANGE AND WHITE STRIPES, (SLOPING DOWNWARD AT AN ANGLE OF 45° IN THE DIRECTION TRAFFIC IS TO PASS)

COLORS

THE BARRICADE PANELS SHOWN ON THIS SHEET SHALL HAVE ALTERNATING REFLECTORIZED WHITE AND ORANGE STRIPES. THE ORANGE SHALL CONFORM WITH THE STANDARD COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL HIGHWAY ADMINISTRATION. THE BARRICADE COMPONENTS SHALL BE WHITE UNLESS UNPAINTED METAL OR ALUMINUM IS USED.

REFLECTORIZATION

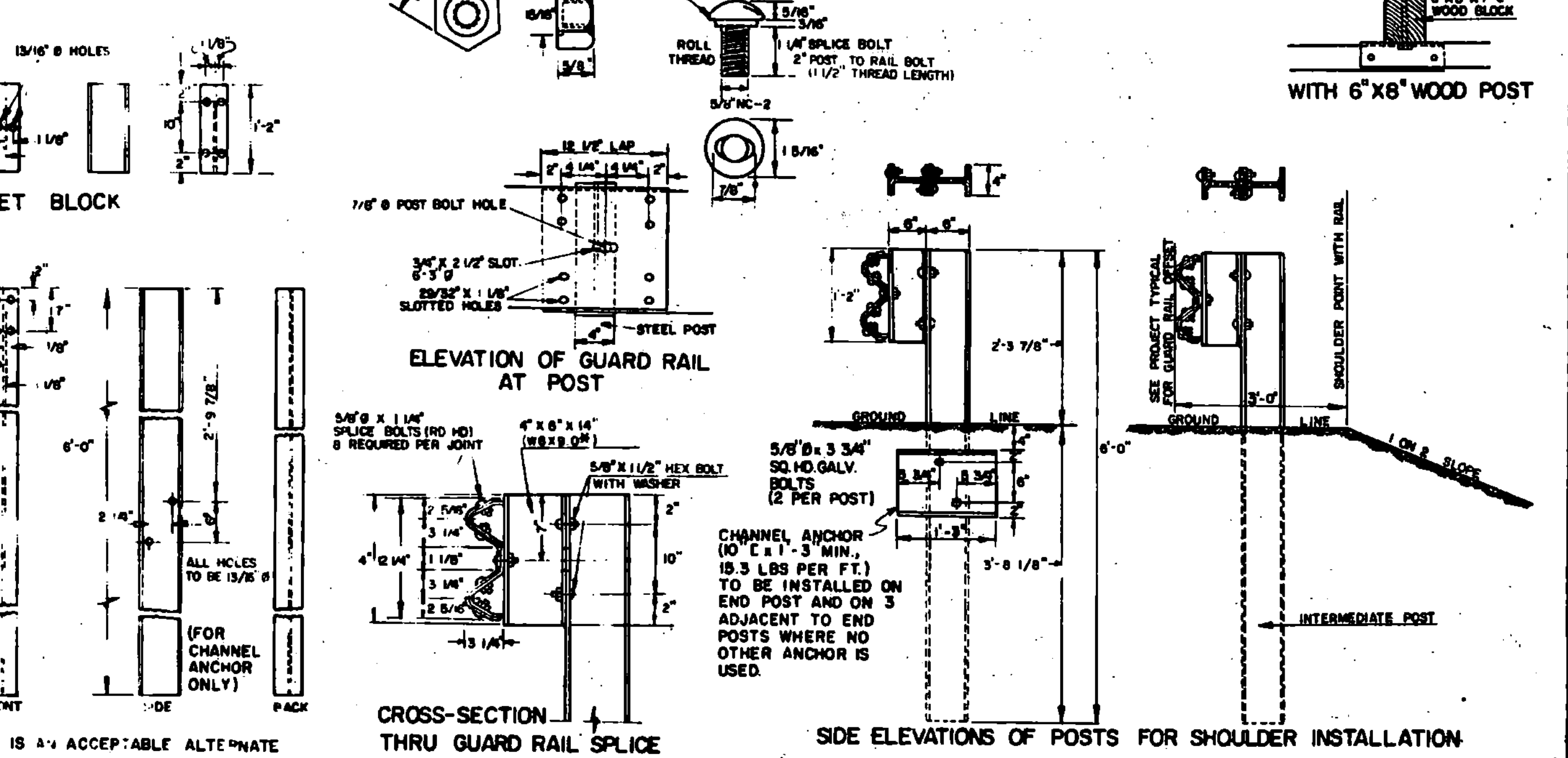
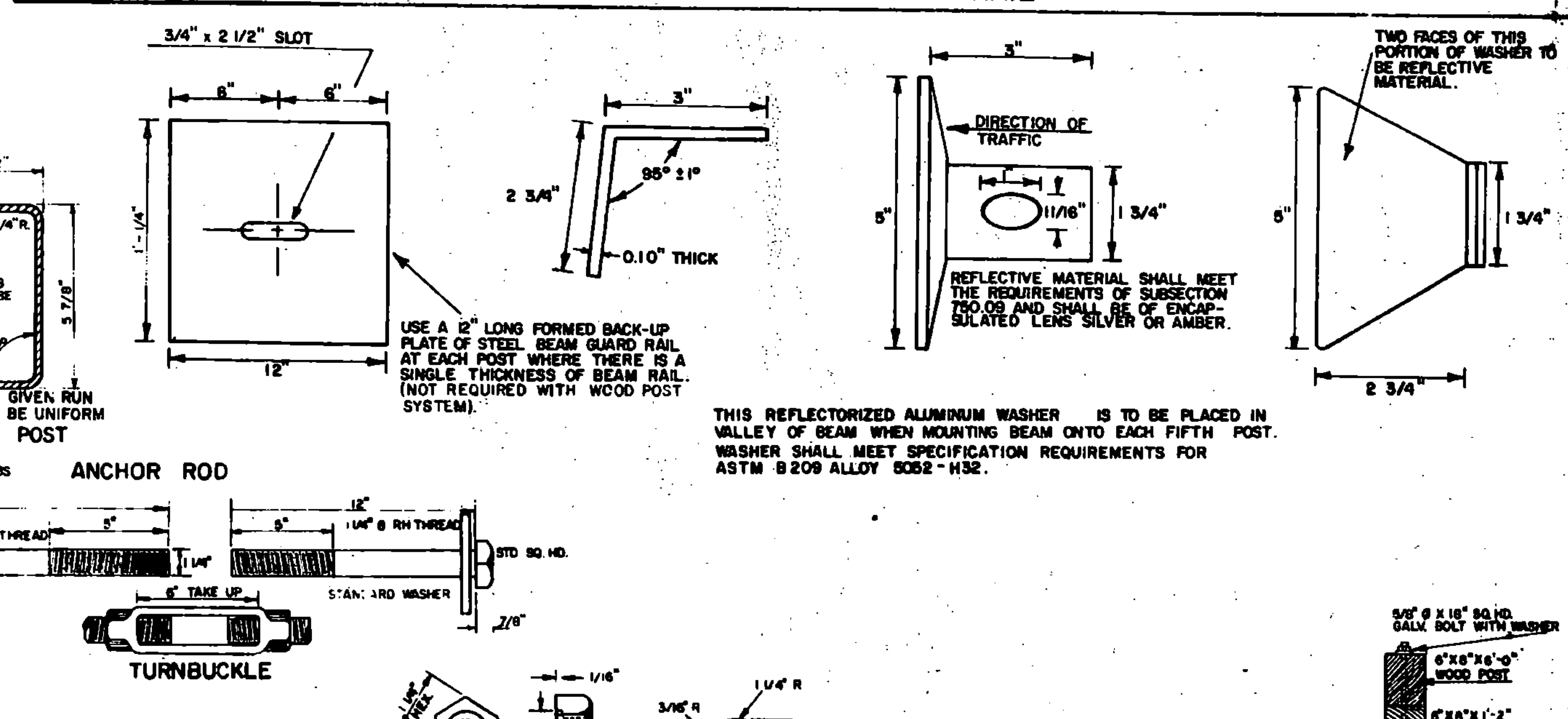
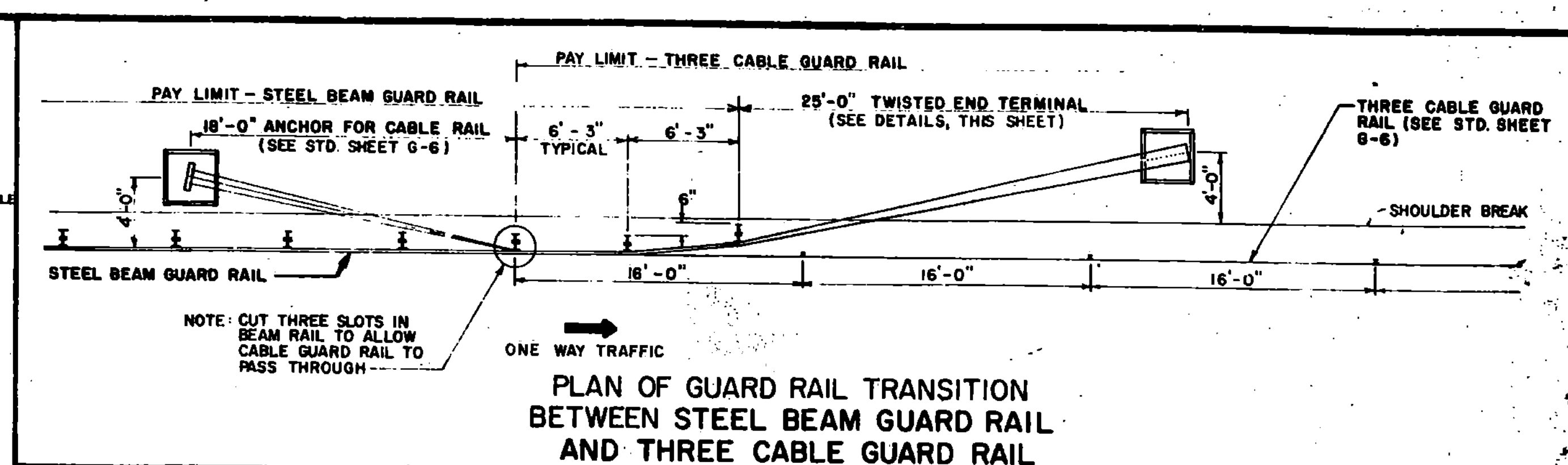
THE BARRICADE PANELS SHALL BE REFLECTORIZED WITH REFLECTIVE SHEETING.

LOCATION

THE BARRICADES SHOWN ON THIS SHEET WILL BE LOCATED BY THE ENGINEER IN THE FIELD OR AS SHOWN ON THE PLANS. THE LOCATION OF THE BARRICADES SHALL FOLLOW THE PROCEDURES SET FORTH IN "THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", OR AS OTHERWISE NOTED.

MAINTENANCE

BARRICADES SHALL BE MAINTAINED IN CLEAN CONDITION, SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROACHING TRAFFIC AT ALL TIMES. DAMAGED, DEFACED, OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED, OR REPLACED AS ORDERED BY THE ENGINEER.



BEAM	MAIN GAGE	RAIL OR JOINT					
		BEAM			STRENGTH		
		TRAFFIC FACE UP			TRAFFIC FACE DOWN		
	TENSILE STRENGTH (LBS)	LOAD (LBS)	MAXIMUM DEFLECTION(INCHES)	LOAD (LBS)	MAXIMUM DEFLECTION(INCHES)		
STANDARD	12	80,000	1500	2"	1200	2"	
		20,000	3000	3"	1600	3"	
HEAVY DUTY	10	100,000	2000	2"	1600	2"	
			3000	3"	2400	3"	

STRENGTH - THE RAIL ELEMENT SHALL BE DESIGNED TO MEET THE REQUIREMENTS OF THE ABOVE TABLE. THE JOINT CONNECTION SHALL HAVE A 4 X 8 X 1/2 POUND SIDE RAIL ON EITHER SIDE OF THE STANDARD STEEL BEAM TO BE 12 GAUGE. AND THE HEAVY DUTY TO BE 10 GAUGE.

REVISIONS AND CORRECTIONS

APR. 10, 1972	POST HEIGHT INCREASED
JULY 9, 1973	NEW TRANSITION DETAIL ADDED
JUNE 44, 1974	TRANSITION REVISED, ALTERNATE ANCHOR ROD CONNECTOR AND ALTERNATE POST ADDED.
NOV. 29, 1977	ANCHOR DETAIL FOR STEEL BEAM GUARD RAIL WITH STEEL OR WOOD POSTS REMOVED.
AN. 17, 1978	REVISED ANCHOR DETAIL.
JUNE 1, 1978	CHANNEL ANCHOR DETAILS CHANGED.
JAY 28, 1979	NOTE ON REFLECTIVE MATERIAL CHANGED
DEC. 18, 1980	INCREASED SHOULDER WIDENING FOR GUARD RAIL.
APR 12, 1984.	REVISED ANCHOR SPIDER DETAILS
JUNE 5, 1984	POST SIZE AND BACK UP PLATE NOTE CHANGED
DEC. 21, 1984	REMOVED POST WASHER
JCT. 31, 1985	REVISED TO CONFORM WITH 1986 SPECIFICATIONS

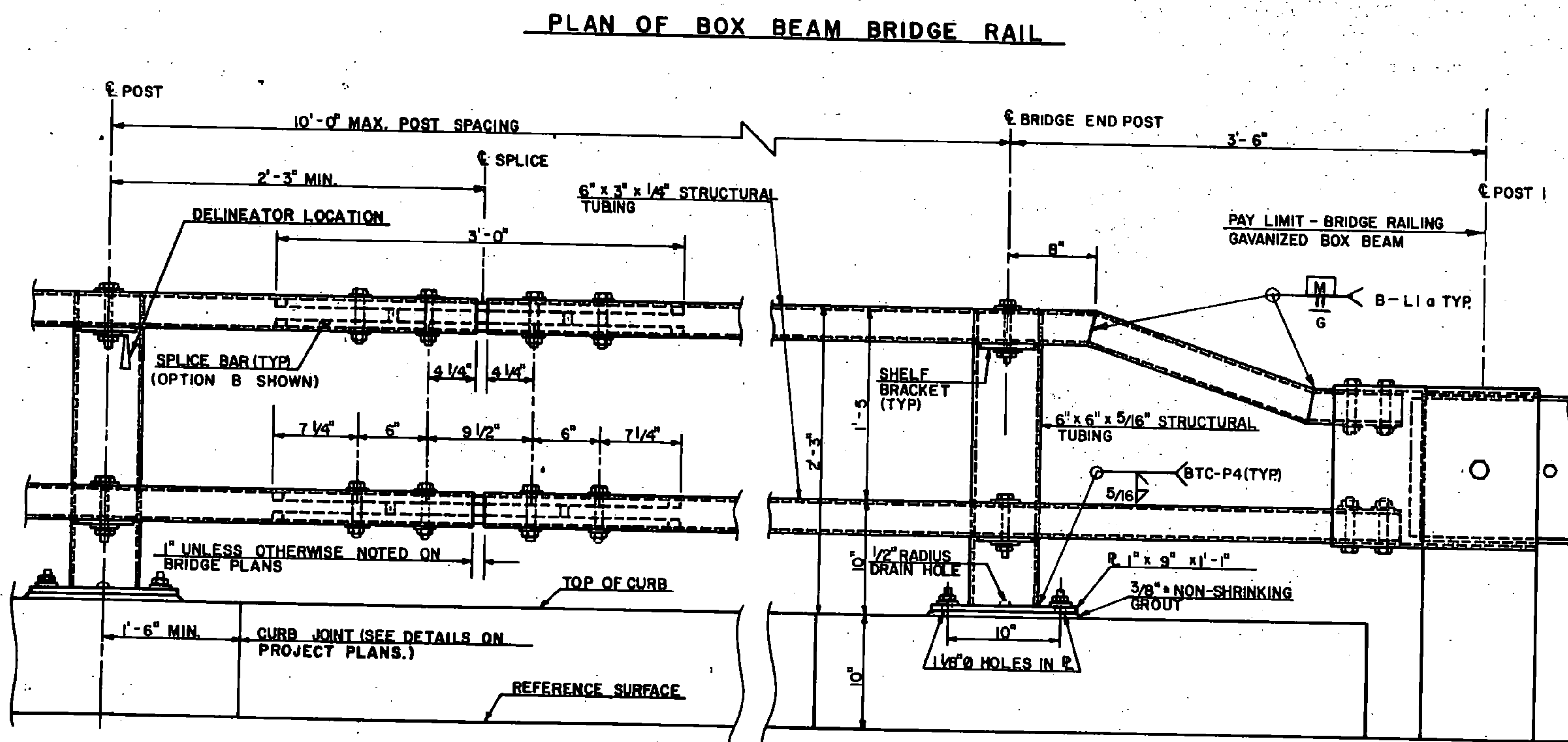
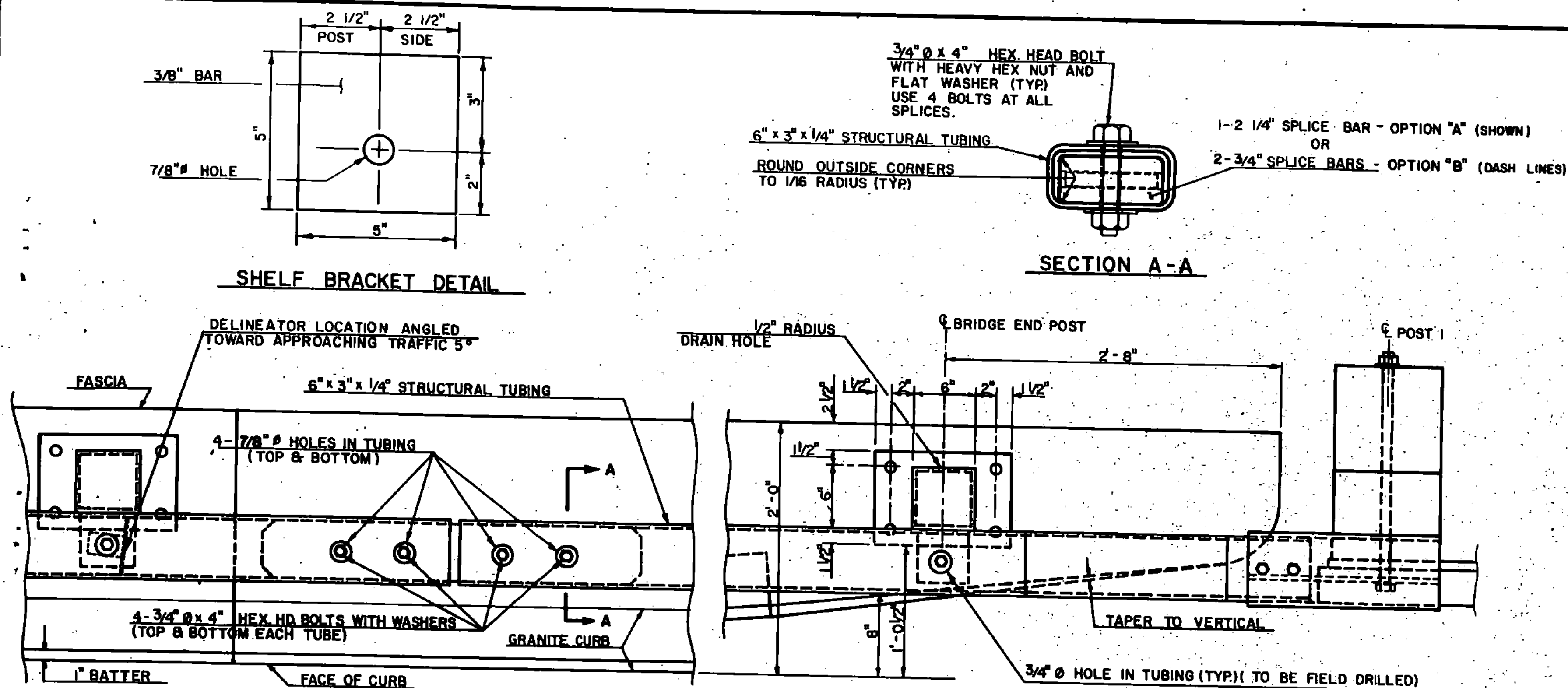
APPROVED: _____
 Dec 8 '37
R. H. Arnold
 CHIEF ENGINEER

E. H. Stickney
 ASST. CHIEF ENGINEER

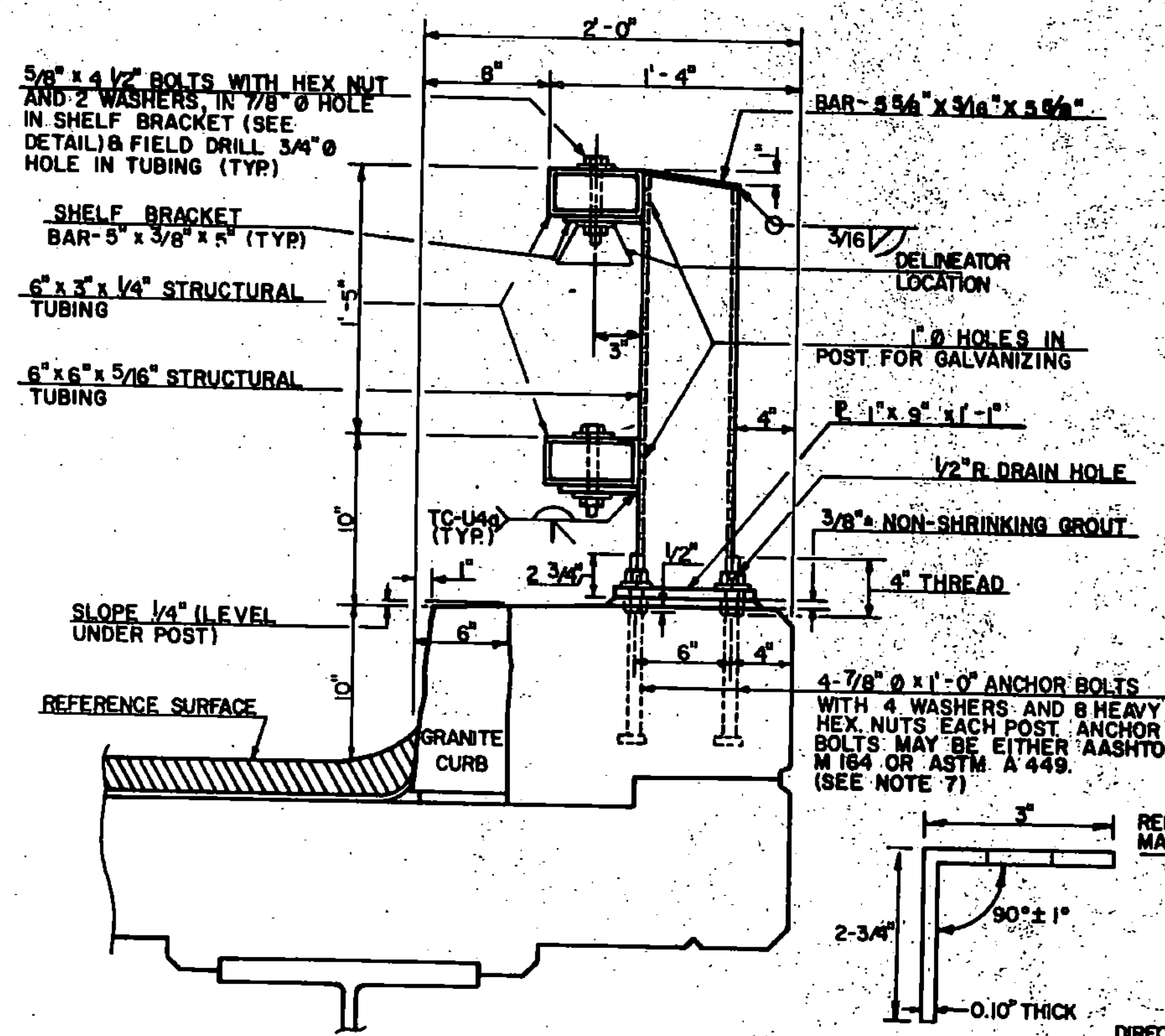
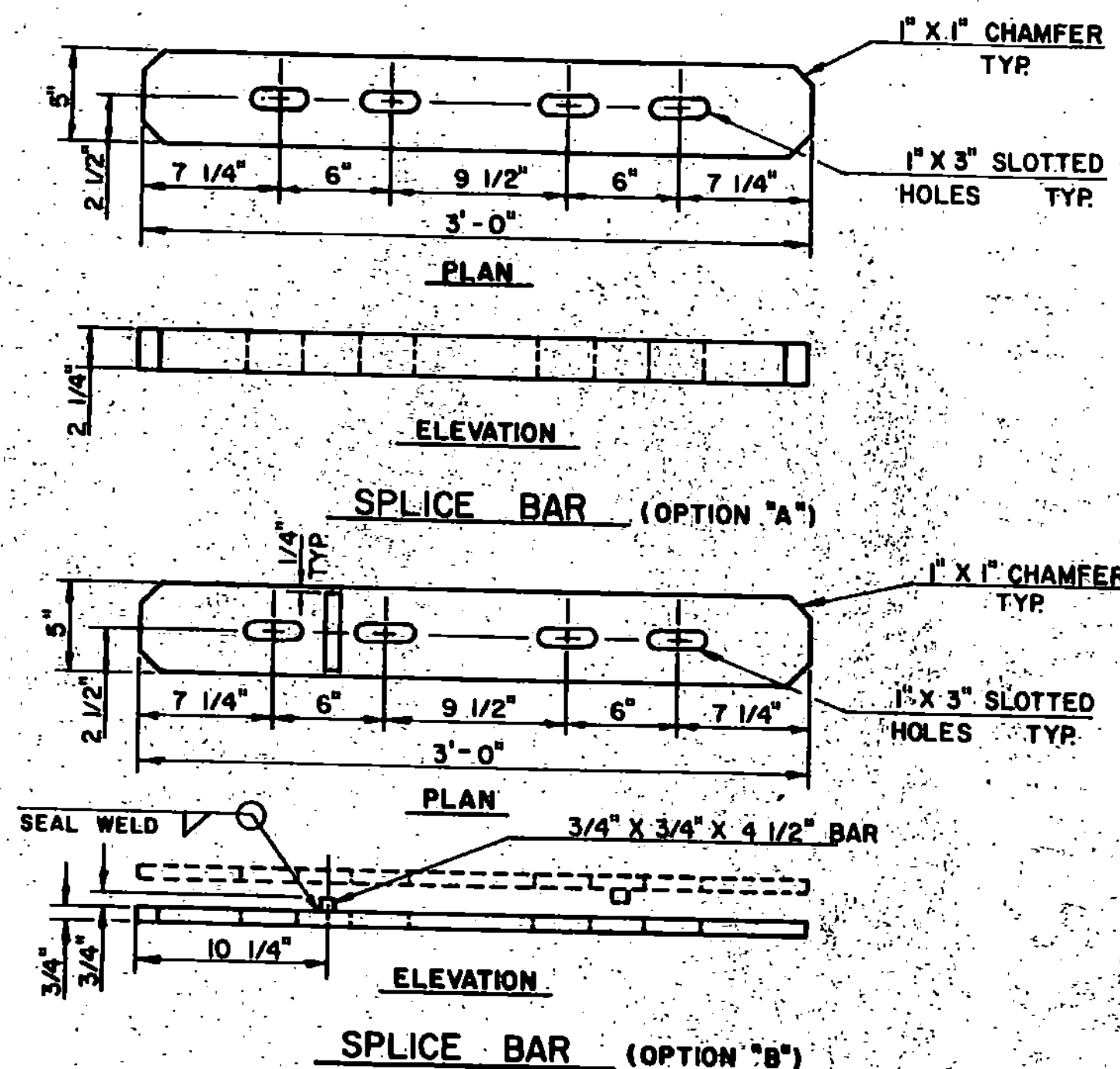
G. M. Lane
 HIGHWAY ENGINEER

STEEL BEAM GUARD RAIL
HEAVY DUTY STEEL BEAM GUARD RAIL
TWISTED END TERMINAL
ANCHOR FOR STEEL BEAM RAIL

G-1



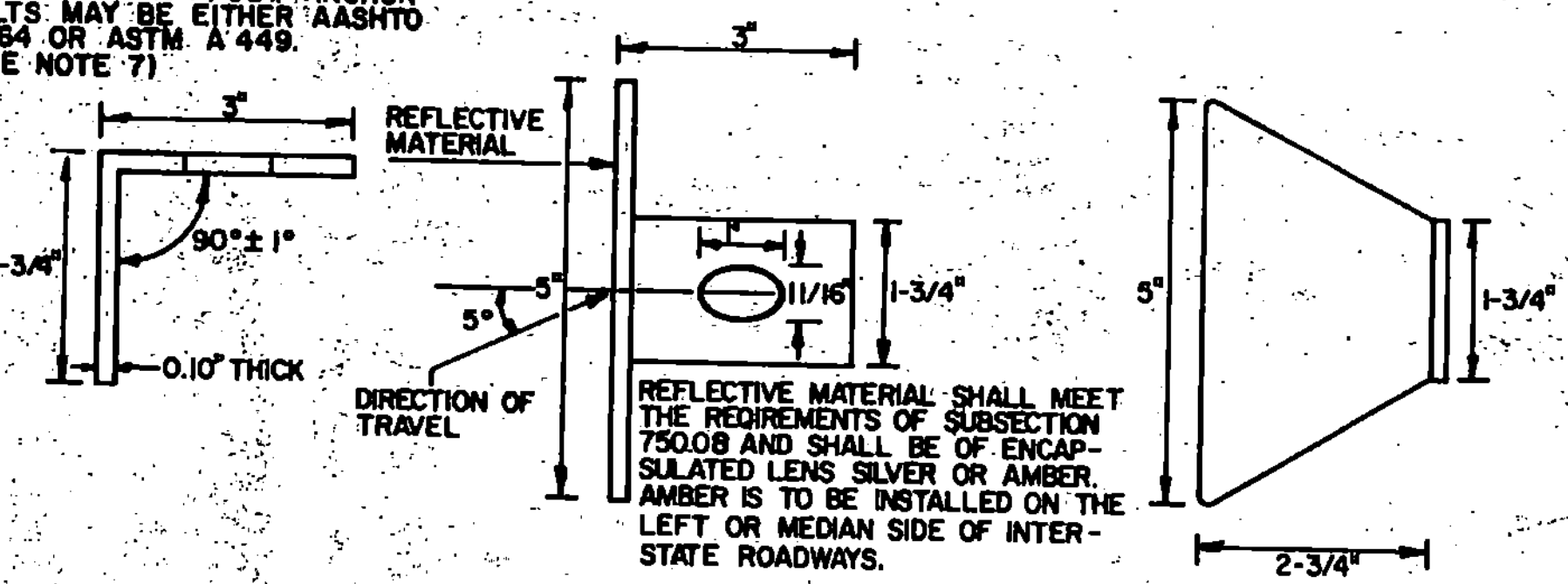
ELEVATION OF BOX BEAM BRIDGE RAIL



TYPICAL SECTION OF BOX BEAM BRIDGE RAIL

NOTES

1. RAILING IS DESIGNED IN ACCORDANCE WITH THE 1989 AASHTO SPECIFICATIONS.
2. ALL PLATES, BARS, AND ANGLES SHALL BE ASTM A 36 STEEL, UNLESS OTHERWISE SPECIFIED, ALL BOLTS SHALL BE ASTM A 307 STRUCTURAL STEEL TUBING SHALL BE ASTM A 500 COLD-FORMED GRADE B AS MODIFIED IN SECTION 732.03 (a).
3. ALL BOX BEAM BRIDGE RAILING, COMPONENTS, ANCHOR BOLTS AND ATTACHMENT HARDWARE SHALL BE GALVANIZED TO ASTM A 123 AFTER FABRICATION.
4. THE FABRICATOR SHALL SUBMIT SHOP DRAWINGS, INCLUDING WELDING PROCEDURES, TO THE STRUCTURES DIVISION FOR APPROVAL IN ACCORDANCE WITH THE PROVISIONS OF SECTION 506.04 - SHOP DRAWINGS. ALL WELDING SHALL CONFORM WITH SECTION 506.10.
5. PROCEDURE QUALIFICATION FOR ALL WELDS SHALL BE PERFORMED AND APPROVED PRIOR TO FABRICATION. WELDER QUALIFICATION WILL BE REQUIRED FOR EACH PROCEDURE. PROCEDURE AND WELDER QUALIFICATION ACCEPTANCE SHALL BE APPROVED BY RADIOGRAPHIC TESTING.
6. THE RAIL SYSTEM SHALL BE CONTINUOUS WITH EACH TUBE SECTION ATTACHED TO A MINIMUM OF TWO POSTS. ALL JOINTS SHALL BE SPLICED AS DETAILED, WITH ALL SPICE CONNECTIONS IN THE SAME PANEL LOCATED ONE DIRECTLY ABOVE THE OTHER.
7. ALL POSTS SHALL BE SET NORMAL TO GRADE. NUTS PLACED IN CONCRETE ARE TO BE ROTATED WITHIN 24 HOURS AFTER CONCRETE IS PLACED TO BREAK BOND BETWEEN NUT AND CONCRETE. NUTS SHALL THEN BE USED TO ALIGN THE POSTS BOTH HORIZONTALLY AND VERTICALLY. AFTER FINAL POSITION HAS BEEN APPROVED, ALL VOIDS BETWEEN THE BASE PLATE AND CONCRETE SURFACE SHALL BE GROUTED WITH NON SHRINK GROUT CONFORMING WITH SECTION 707.03, MORTAR, TYPE IV.
8. ANCHOR BOLTS SHALL BE PRECAST IN THE CURB SECTION, AND CONFORM WITH THE REQUIREMENTS OF SECTION 714.07.
9. FOR RADII LESS THAN 950 FEET, THE BEAM RAIL SHALL BE SHOP BENT TO FIT THE APPLICABLE CURVE.
10. RAILING JOINT SPLICES SHALL BE PROVIDED FOR ALL SUPERSTRUCTURE JOINTS. THE RAIL JOINT OPENING SHALL BE 1 INCH OR CAPABLE OF PROVIDING THE MOVEMENT SPECIFIED. SPICE PLATE DETAILS SHALL BE MODIFIED AS REQUIRED FOR JOINTS REQUIRING MORE THAN 2 INCHES OF TOTAL MOVEMENT.
11. REFER TO PROJECT PLANS FOR CURB DETAILS.
12. REFER TO STANDARD SB-R4B-82 FOR GUARD RAIL APPROACH SECTION TYPE I & TYPE II DETAILS.
13. DELINEATORS SHALL BE MOUNTED AS SHOWN ON DETAILS. PAYMENT SHALL BE SUBSIDIARY TO OTHER ITEMS.
14. WALL THICKNESS OF THE 6\"/>

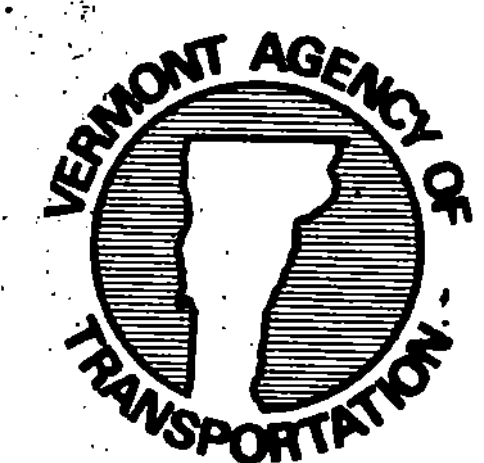


THIS REFLECTORIZED ALUMINUM DELINEATOR IS TO BE ERECTED EVERY 30 FEET OR "CLOSEST POST. DELINEATOR SHALL MEET SPECIFICATION REQUIREMENTS FOR ASTM B209 ALLOY 5052-H32.

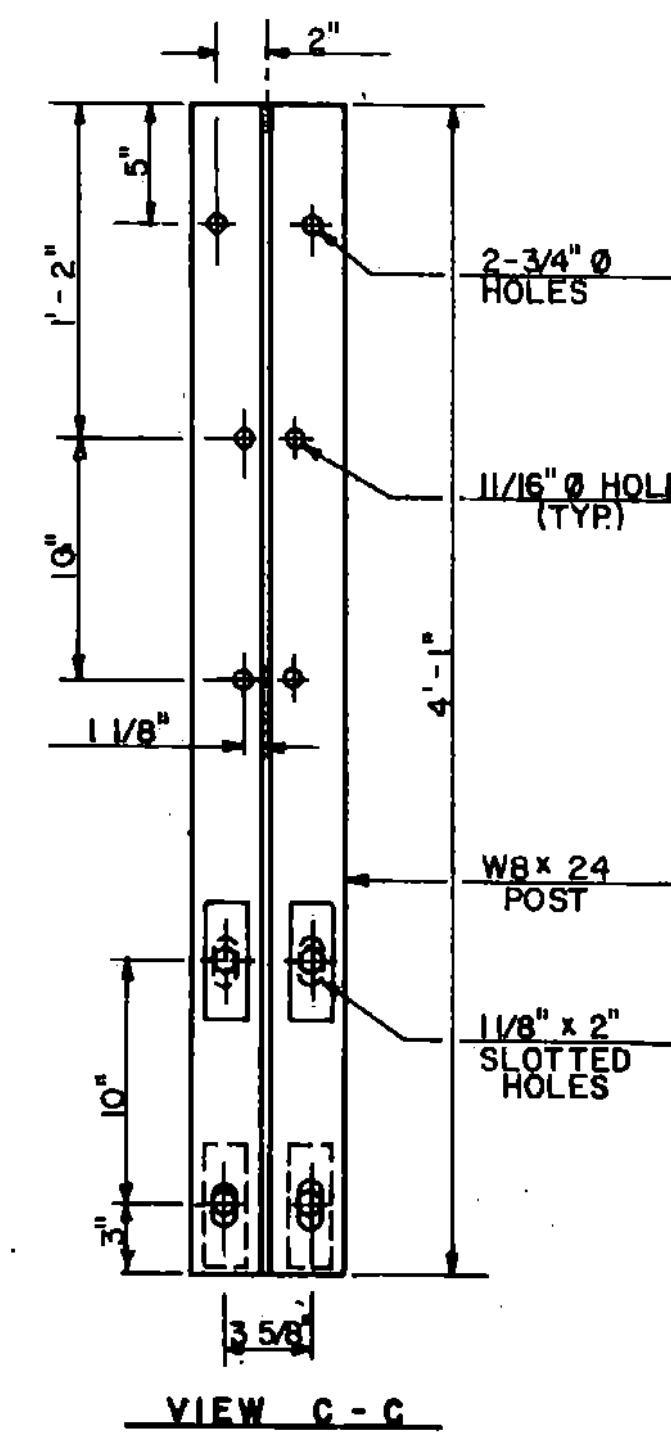
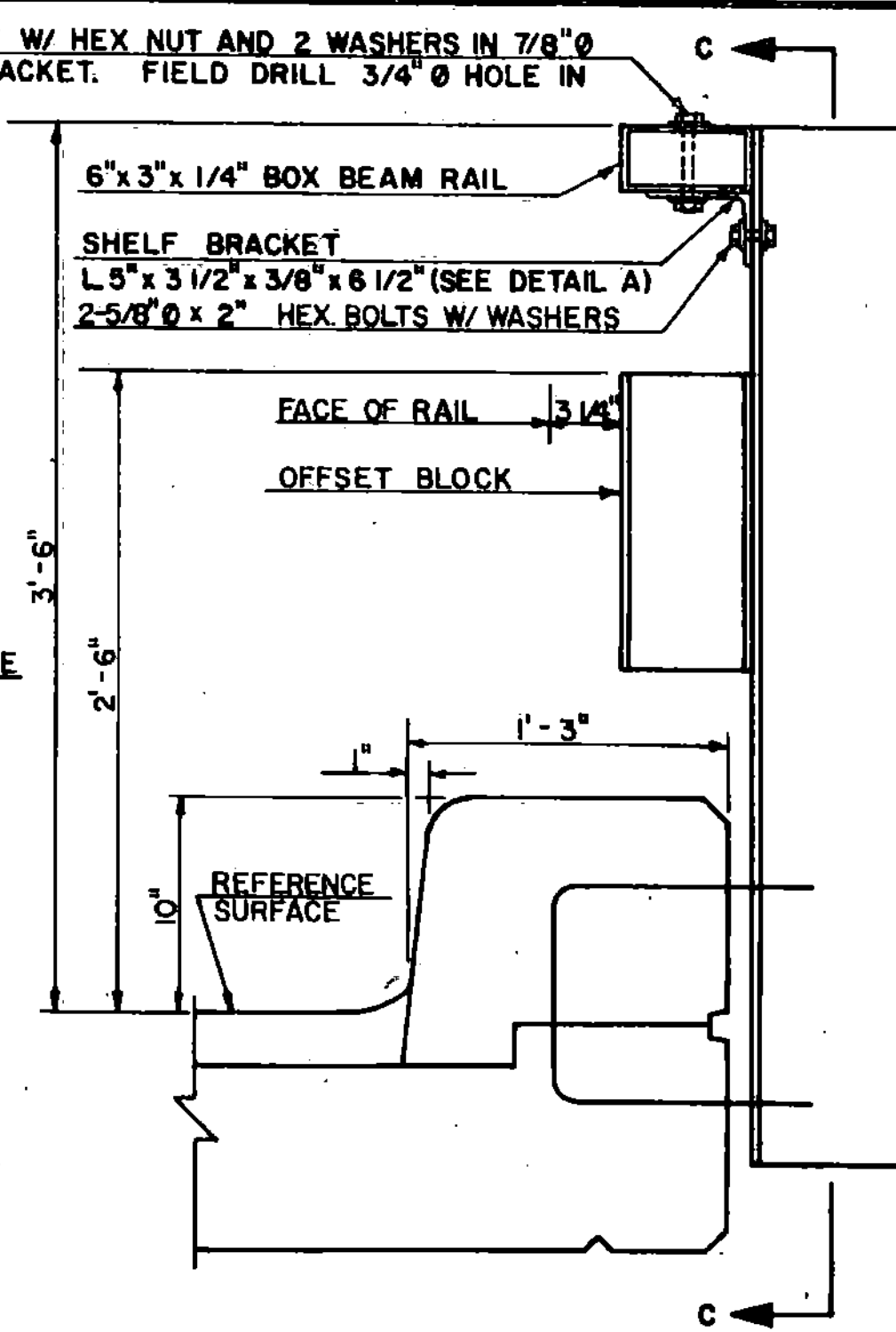
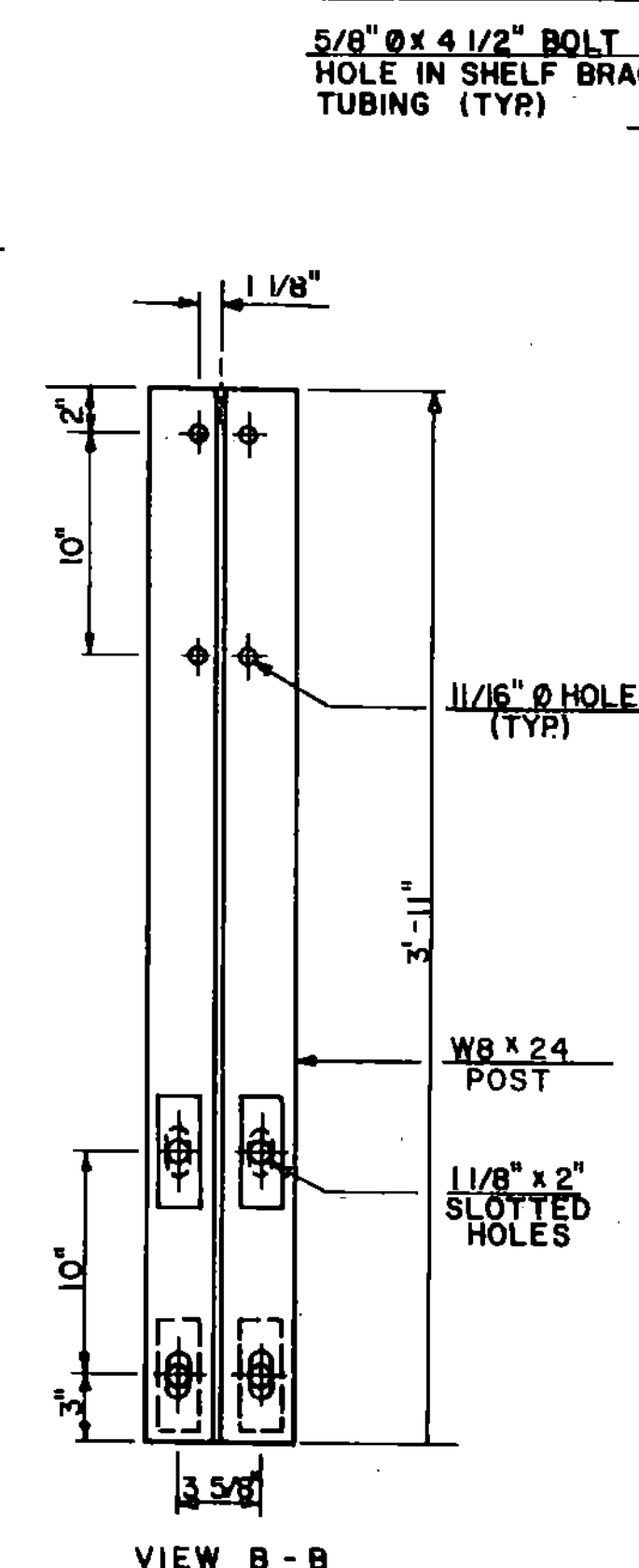
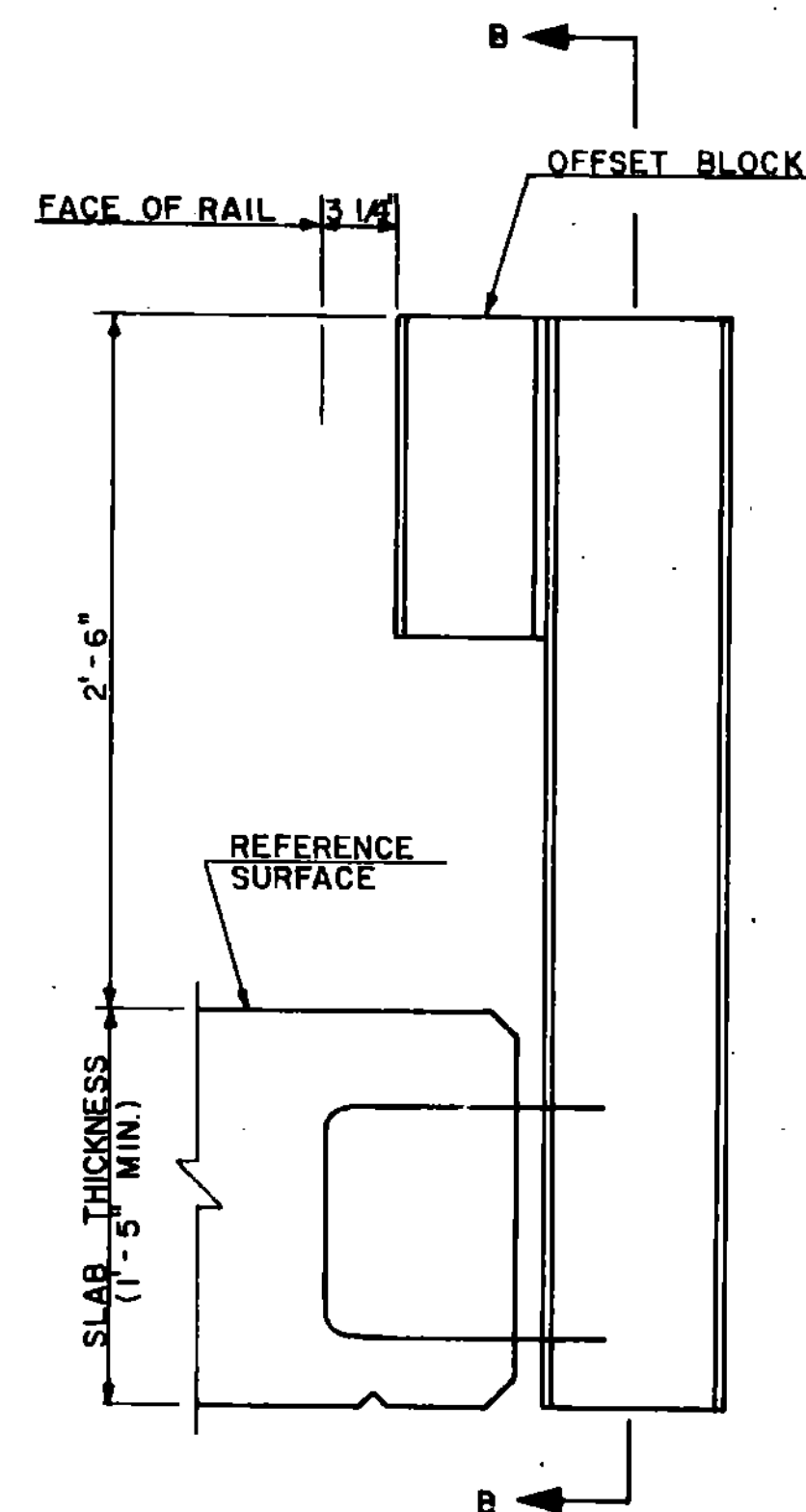
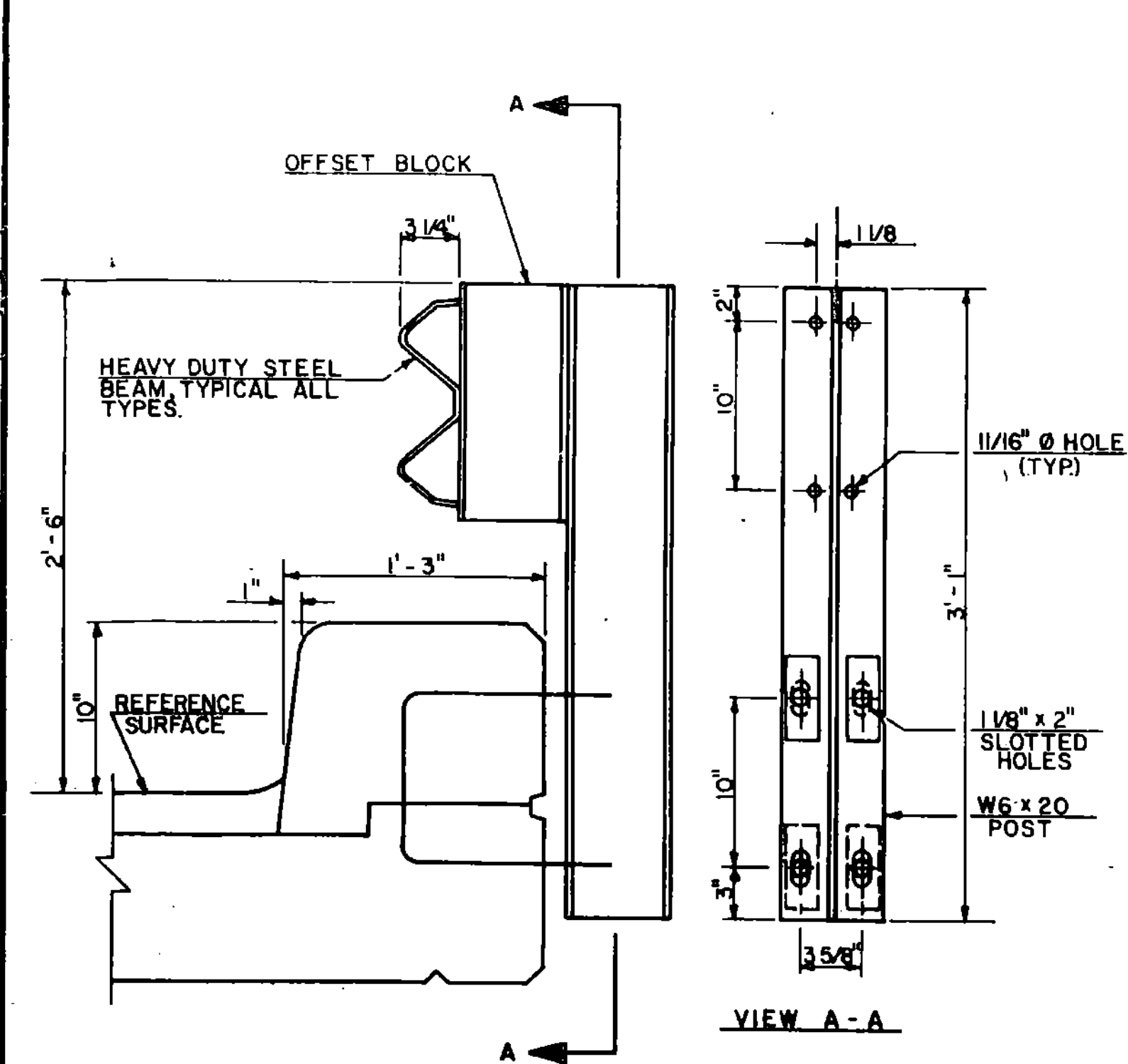
REVISIONS AND CORRECTIONS
 EVISION DELINEATORS ADDED D.A.R. 6-8-82
 EVISION CHANGED LOCATION OF DELINEATORS D.A.R. 8-22-83
 REVISED NOTE #12 TO INCLUDE TYPE II AND REVISED ANCHORAGE CONNECTOR AND SPICE BAR. R.HAUP 9/7/83
 REVISED HOLE DIMENSION IN SHELF BRACKET, ADD DIMENSION TO POST NO. 1, AND ADD NOTE NO. 14. R.S.H. 12-13-84
 REVISED WELD FOR TOP RAIL. 3-28-88. M.C.C.
 REVISED POST CAP. 12-13-88. R.P.G.
 REVISED FOR 1986 SPECIFICATIONS. 9-19-89.R.P.G.

APPROVED:
 DATE: DECEMBER 28, 1981
 CHIEF OF DESIGN: *W. M. Smith*
 STRUCTURES ENGINEER
 DIRECTOR OF ENGINEERING AND CONSTRUCTION: *J. C. [Signature]*

BRIDGE RAILING GALVANIZED BOX BEAM



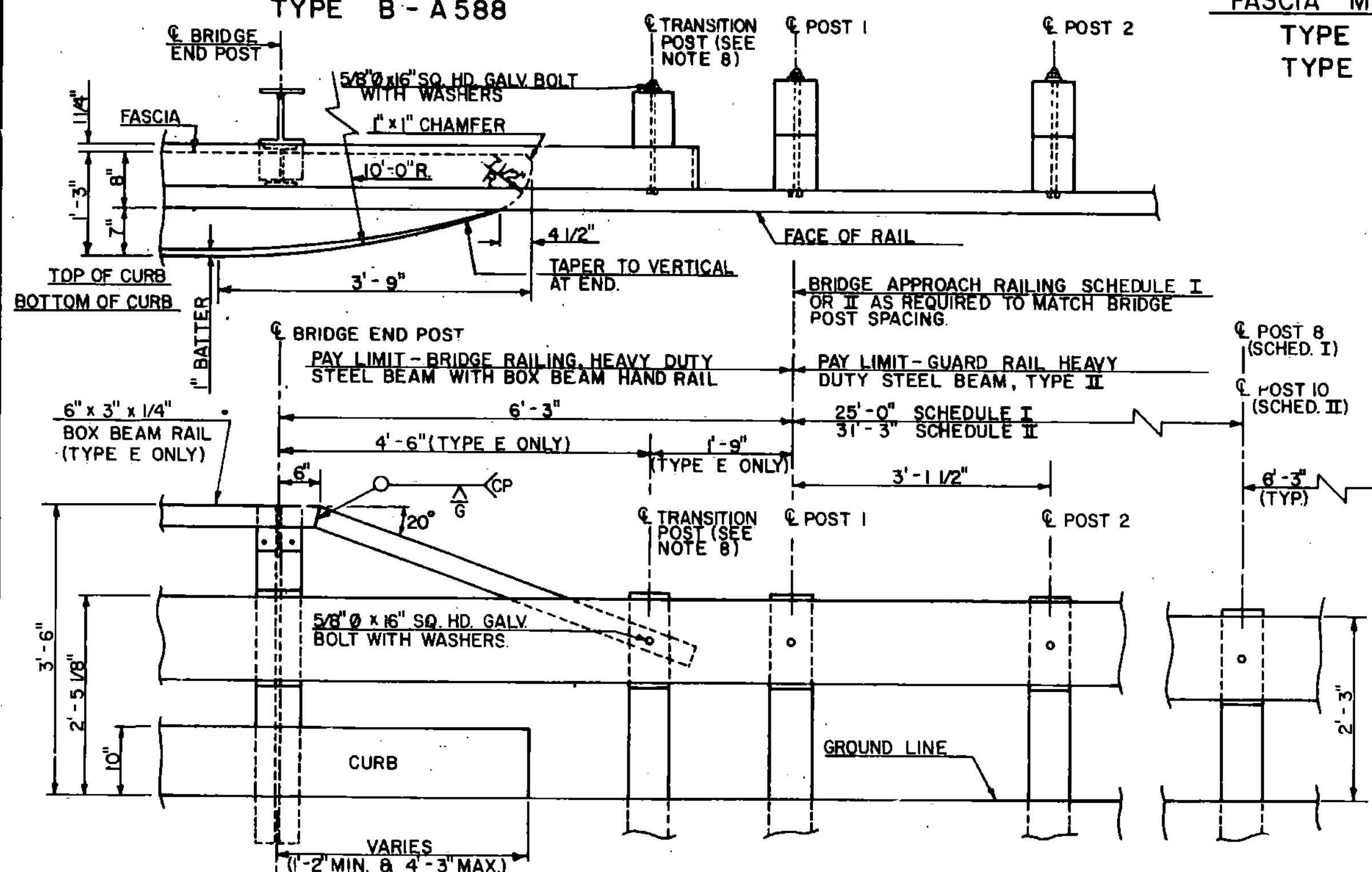
STANDARD
 SB-R4A-82



NOTES

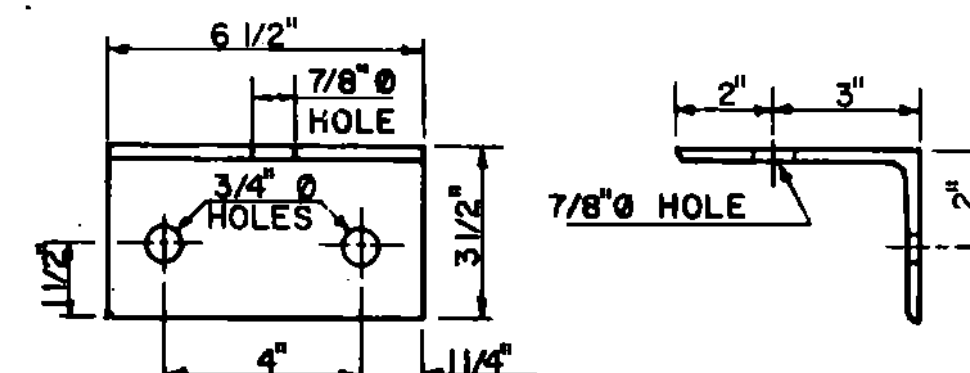
- SEE STANDARD DRAWING G-1 & G-1d FOR ADDITIONAL DETAILS OF STEEL BEAM GUARD RAIL AND STANDARD SB-R4a-82 FOR ADDITIONAL DETAILS OF BOX BEAM RAIL.
- ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED AND CONFORM WITH SECTION 714.16.
- BRIDGE RAIL TYPES A, C, & E: HEAVY DUTY STEEL BEAM RAIL SHALL BE AASHTO M 180, CLASS B - TYPE 2. POSTS, BRACKETS AND PLATE WASHER SHALL BE ASTM A 36 STEEL. BOLTS SHALL BE ASTM A 307. ALL MATERIAL SHALL BE GALVANIZED AFTER FABRICATION TO ASTM A 123.
- BRIDGE RAIL TYPE B & D: HEAVY DUTY STEEL BEAM RAIL SHALL BE AASHTO M 180, CLASS B - TYPE 4. POSTS, BRACKETS & PLATE WASHER SHALL BE ASTM A 588 STEEL. BOLTS SHALL BE ASTM A 325 TYPE III.
- ALL POSTS SHALL BE SET NORMAL TO GRADE.
- BRIDGE APPROACH RAIL HEIGHT SHALL BE TRANSITIONED TO NORMAL ROADWAY RAIL HEIGHT IN 25 FEET.
- APPROACH RAILING SHALL BE HEAVY DUTY STEEL BEAM FOR 50 FEET FROM THE END OF THE BRIDGE.
- FOR THE TYPE A, B, C, OR D BRIDGE RAILING, THE TRANSITION POST SHALL HAVE AN OFFSET BLOCK AND BE LOCATED AS CLOSE AS PRACTICAL TO THE MID-POINT BETWEEN THE BRIDGE END POST AND APPROACH RAIL POST I.
- SPLICES SHALL LAP IN DIRECTION OF TRAFFIC FLOW.
- SEE STANDARD SHEET G-1 FOR DELINEATOR DETAILS AND PLACEMENT.
- ERECT DELINEATOR ON EVERY FIFTH POST OR APPROXIMATELY 30 FEET APART. PAYMENT SHALL BE SUBSIDIARY TO OTHER ITEMS.

FASCIA MOUNTED STEEL POST TYPE A - GALVANIZED TYPE B - A588



FASCIA MOUNTED STEEL POST TYPE C - GALVANIZED TYPE D - A588

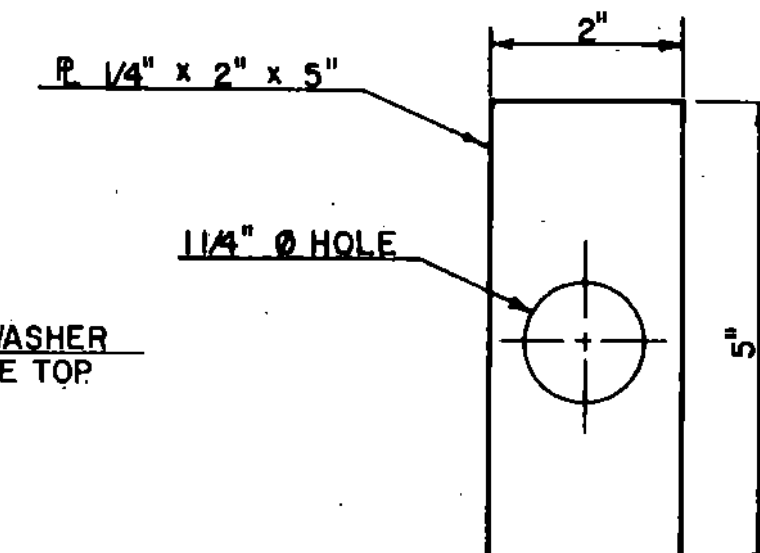
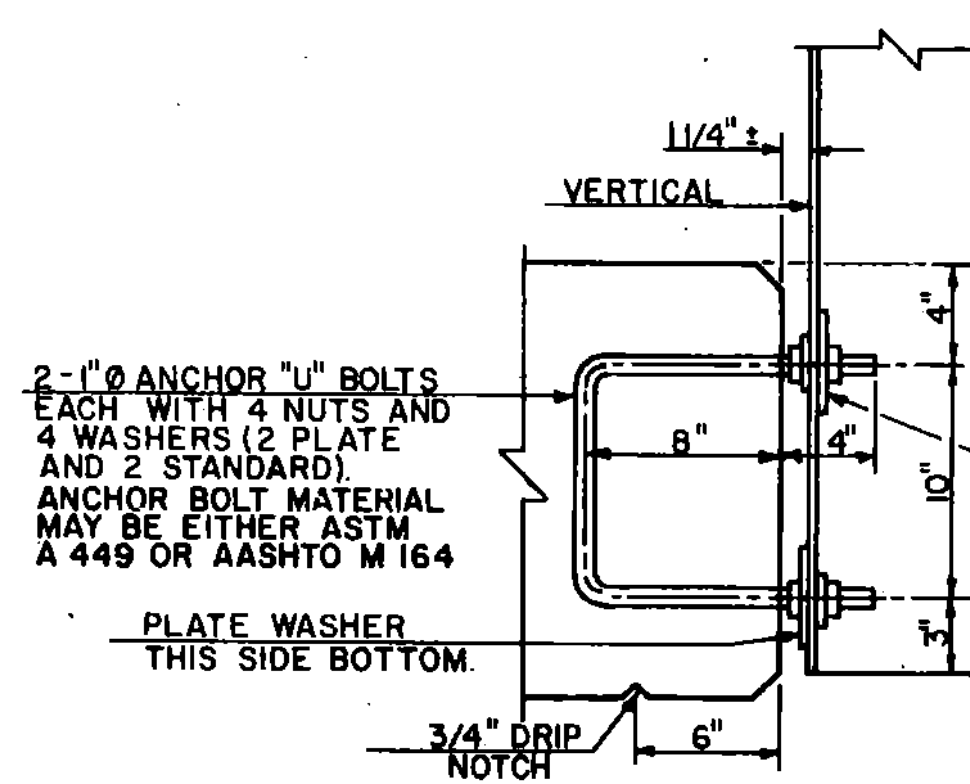
FASCIA MOUNTED STEEL POST WITH BOX BEAM HAND RAIL TYPE E - GALVANIZED



BRIDGE APPROACH RAILING WHEN A RAIL PANEL SPLICE OCCURS AT POST NO. 1 USE SCHEDULE I FOR APPROACH RAILING. WHEN A RAIL PANEL SPLICE OCCURS AT BRIDGE END POST USE SCHEDULE II FOR APPROACH RAILING.

POST NO.	SPACING	PAYMENT FACTOR
1	3'-1 1/2"	1.4 x 12'-6"
2	3'-1 1/2"	
3	3'-1 1/2"	
4	3'-1 1/2"	
5	3'-1 1/2"	
6	4'-2"	1.2 x 12'-6"
7	4'-2"	
8	4'-2"	
9	6'-3" (TYP)	1.0 (TYP)

POST NO.	SPACING	PAYMENT FACTOR
1	3'-1 1/2"	1.4 x 18'-9"
2	3'-1 1/2"	
3	3'-1 1/2"	
4	3'-1 1/2"	
5	3'-1 1/2"	
6	3'-1 1/2"	
7	4'-2"	1.2 x 12'-6"
8	4'-2"	
9	4'-2"	
10	4'-2"	
11	6'-3" (TYP)	1.0 (TYP)

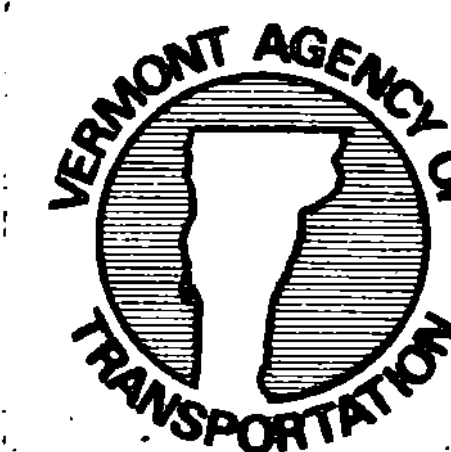


BRIDGE APPROACH DETAILS

REVISIONS AND CORRECTIONS
-REVISION DELINEATORS ADDED D.A.R. 6-18-82
REVISION, BOLTS THRU BOX BEAM RAIL R.S.H. 12-13-84
REVISION, CHANGED BOLT HOLE THROUGH SHELF
BRACKET R.S.H. 12-13-84

APPROVED: DECEMBER 28, 1981
DATE
CHIEF OF DESIGN
STRUCTURES ENGINEER
DIRECTOR OF ENGINEERING
AND CONSTRUCTION

BRIDGE RAILING HEAVY DUTY STEEL BEAM (TYPE A, TYPE B, TYPE C, AND TYPE D) BRIDGE RAILING HEAVY DUTY STEEL BEAM WITH BOX BEAM HAND RAIL (TYPE E)



STANDARD
SB-R6-82