

PUB. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	1-91-1(5)47	1959	80	256

GENERAL NOTES

DESIGN

According to the Standard Specifications of the American Association of State Highway Officials, 1957 and to the Standards of Massachusetts Department of Public Works for H20-44 loading.

FOUNDATIONS

Foundations may be altered, if necessary, to suit conditions encountered during construction.

REINFORCEMENT

Reinforcing steel bars shall conform to A.S.T.M. designation A-305 unless otherwise shown on the plans. Reinforcing bars shall be lapped 20 diameters to make a splice except that main reinforcing bars near top of slabs and beams having more than 12 inches of concrete under the bars shall be lapped 35 diameters to make a splice.

DATE & SEAL

To be placed on a steel plate on inside face of bridge railing at Northeastly and Southwestly corners of bridge as shown on Detail Sheet No. 5 of 6. A sheet showing size and character of numerals will be furnished. The Seal will be furnished by the Commonwealth and shall be placed by the Contractor.

STRUCTURAL STEEL

Unless otherwise noted, structural steel shall conform to A.S.T.M. Designation A7 and need not be copper-bearing.

BENCHMARK

B.M. Sta. 18+72, 40' L.T. Spike front 36" M., El. 356.706. Sea level datum of 1929.

ESTIMATED QUANTITIES

(NOT GUARANTEED)

CLASS A ROCK EXCAVATION	5 C.Y.
BRIDGE EXCAVATION	460 C.Y.
CHANNEL EXCAVATION	190 C.Y.
CLASS B ROCK EXCAVATION	240 C.Y.
GRAVEL BORROW	210 C.Y.
CLASS I BIT. CONC. PAVEMENT, TYPE I-1	123 TONS

REMOVAL OF EXISTING BRIDGE	1 L.S.
RIPRAP	200 C.Y.
STEEL PILES (10 BP42)	1300 L.F.
BRIDGE STRUCTURE (B-10-1)	1 L.S.

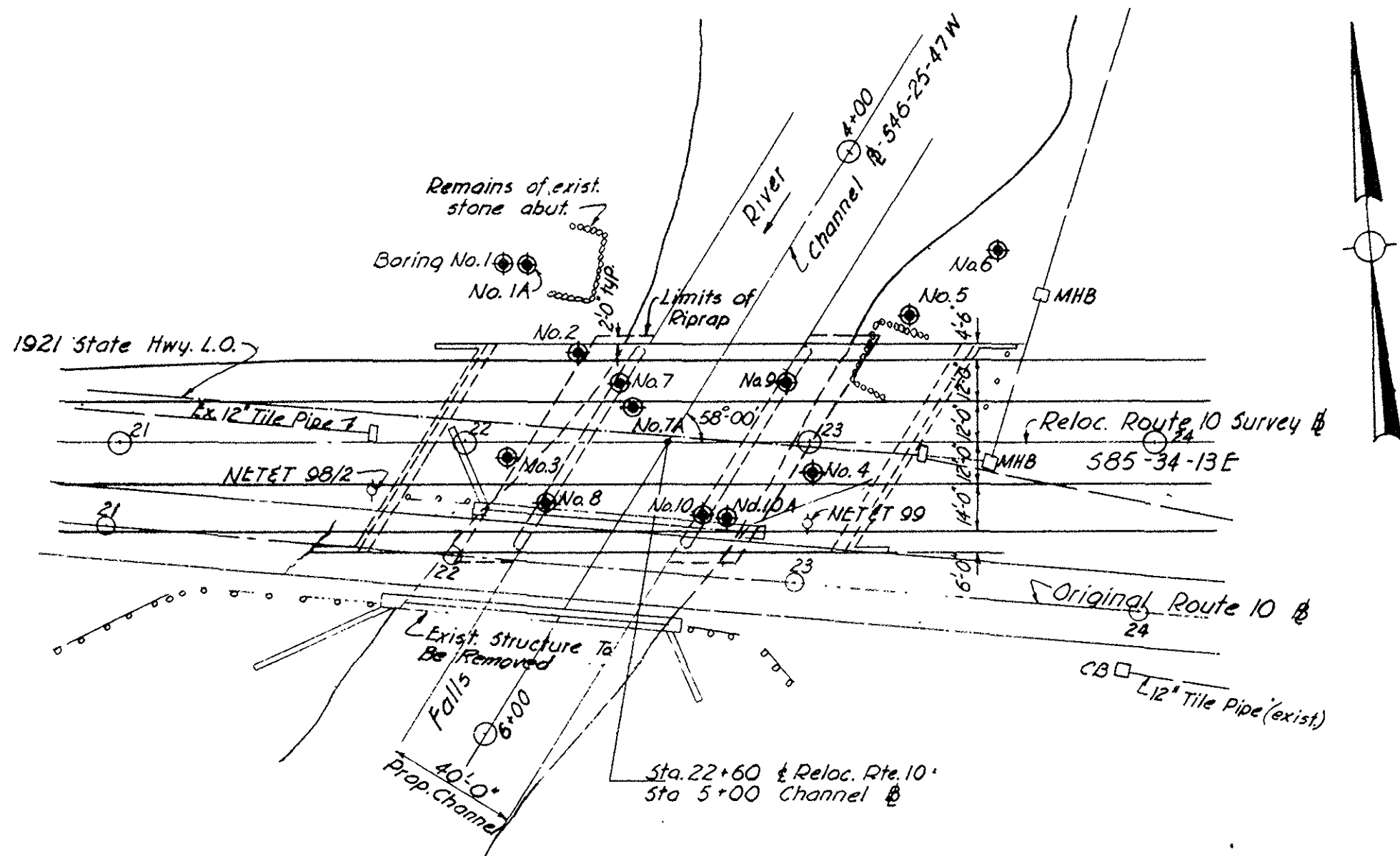
NOTE: THE FOLLOWING QUANTITIES ARE PART OF THE BRIDGE STRUCTURE LUMP SUM AND ARE NOT GUARANTEED.
ESTIMATED WT. OF STEEL REINFORCEMENT — 125,000 LBS.
ESTIMATED WT. OF STRUCTURAL STEEL — 275,000 LBS.

COMMONWEALTH ARCHITECTS	CORPORATION ENGINEERS
575 BOYLSTON ST.	BOSTON, MASS.

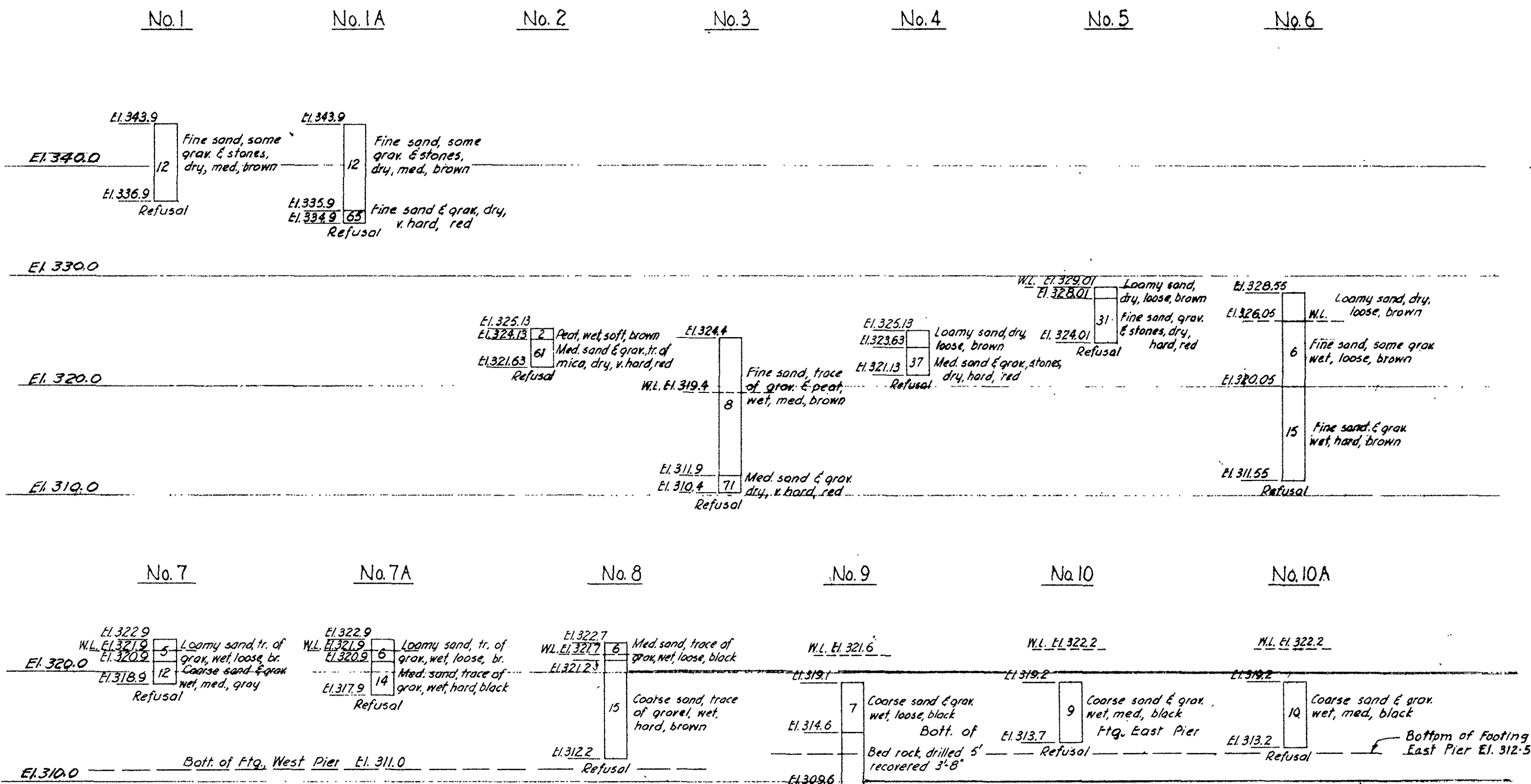
* THIS REVISION DOES NOT SHOW ON THE COMPLETED STRUCTURE. UTILITIES ARE IN THE POSITION SHOWN AS ORIGINALLY SHOWN.
RVC 12/6/73

JULY 23, 1959	AS SHEETS 2, 4, 66 - UTILITY, BAY, SOUTH SIDE - ADDED
FEB. 28, 1959	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	
THE COMMONWEALTH OF MASSACHUSETTS PROPOSED BRIDGE BERNARDSTON RELOCATED ROUTE NO. 10, STA. 22+60 OVER FALLS RIVER SCALES AS NOTED OFFICE OF DEPARTMENT OF PUBLIC WORKS 100 NASHUA ST. BOSTON, MASS. FEBRUARY 1959 DESIGNED BY TRACED BY CHECKED BY	

SHEET 1 OF 6 SHEETS BRIDGE NO. B-10-1



KEY PLAN
Scale 1"=40'0"



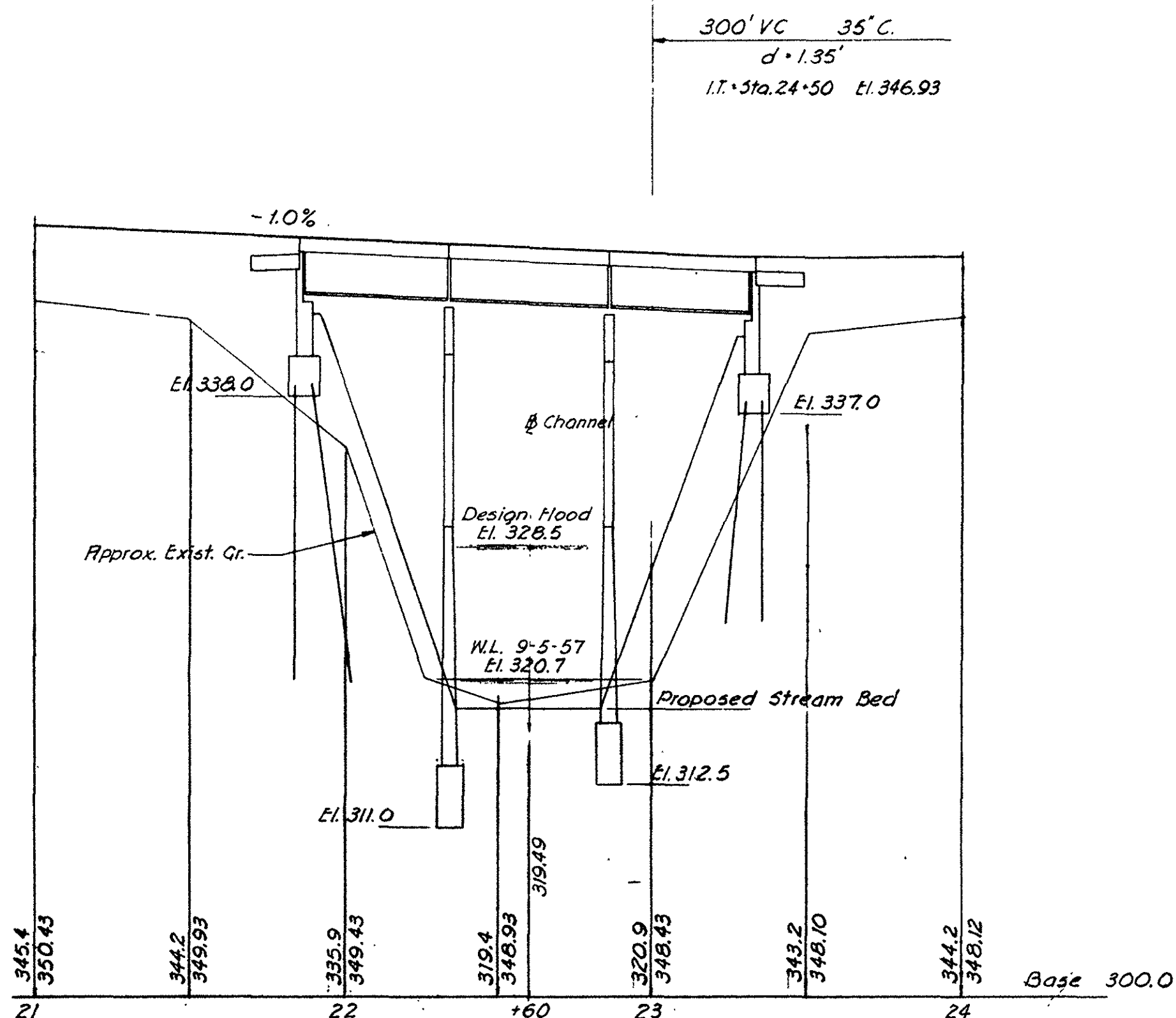
BORING LOG
Scale 1"=8'

BORING NOTES

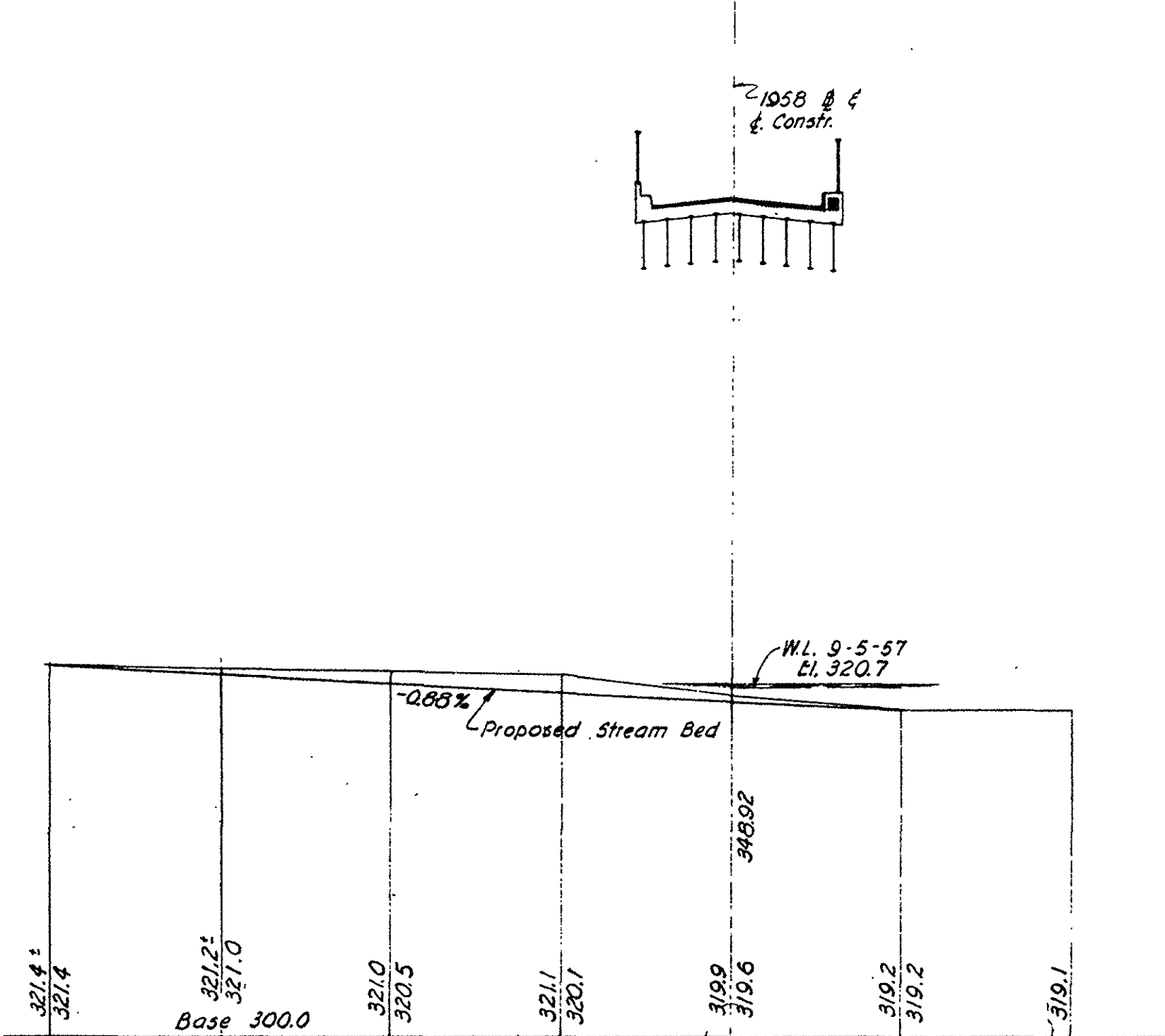
Figures in columns indicate blows per foot on a 1" pipe, produced by a 30' fall of a 140" hammer. Borings No. 1 thru 6 incl. taken Aug. 30, 1958, borings No. 7 thru 10A incl. taken Oct. 9, 1958. All borings taken by Carr-Dee Constr. Co. Borings shown on Key Plan thus: No. 1. Borings taken for purpose of design and show conditions at boring points only, but do not necessarily show nature of material to be encountered during construction. Boring samples may be seen at the Dept's. Lab. in the Maintenance Bldg., Rte. 9, Wellesley.

HYDRAULIC DATA

Drainage Area 29.3 Sq. Mi.
Design Flood Major
Estimated Discharge 4270 cu. ft./sec.
Velocity of Flood Flow 7.9 ft./sec.
Amount of Scour, Drift, or Ice Moderate

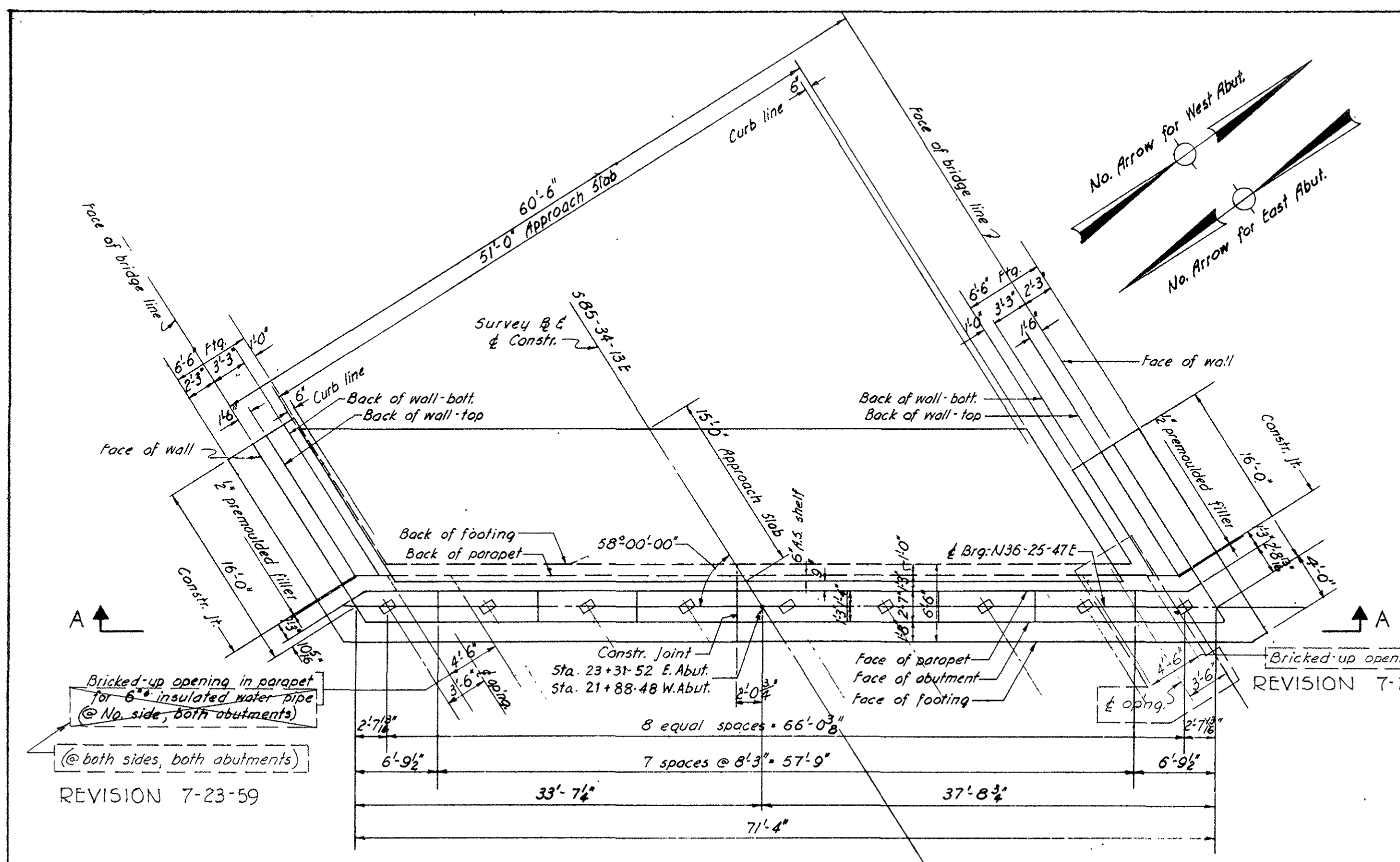


PROFILE RELOCATED ROUTE 10
Scale: Horiz. 1"=40' Vert. 1"=8'

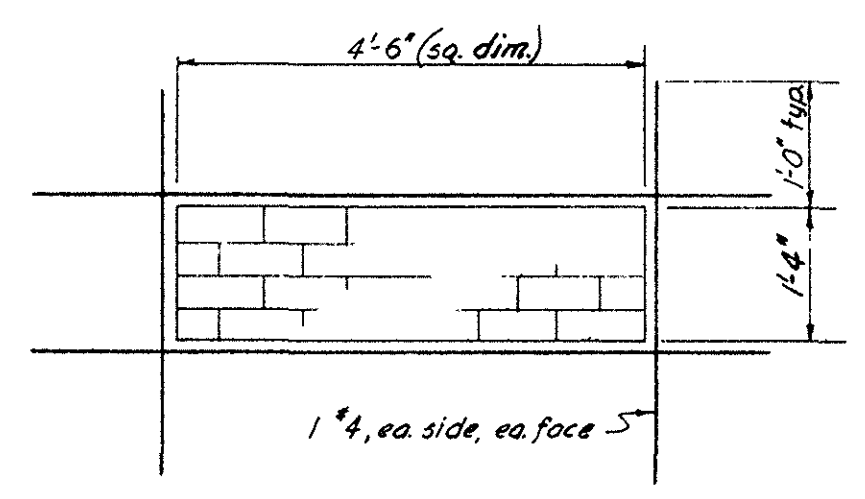


PROFILE FALLS RIVER (CHANNEL B)
Scale: Horiz. 1"=40' Vert. 1"=8'

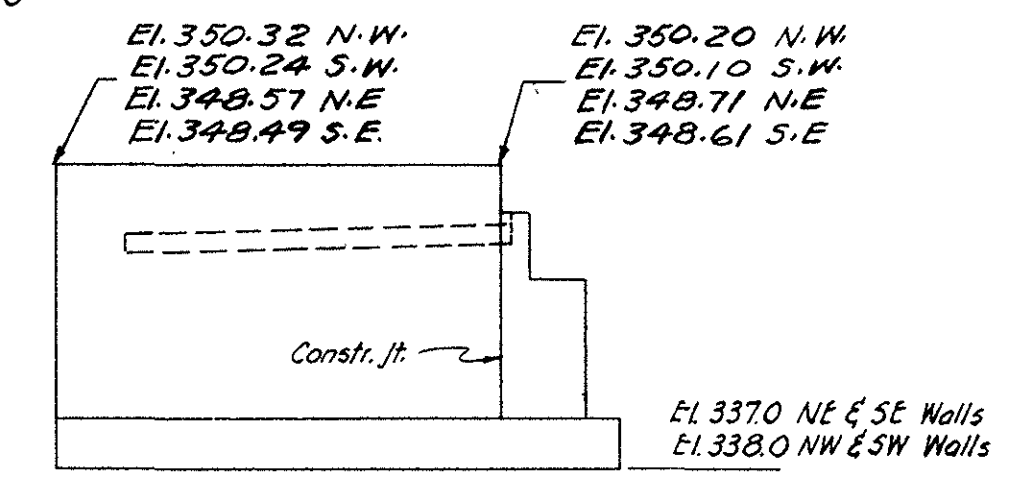
PUB. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	1-91-1(5)47	81	256	



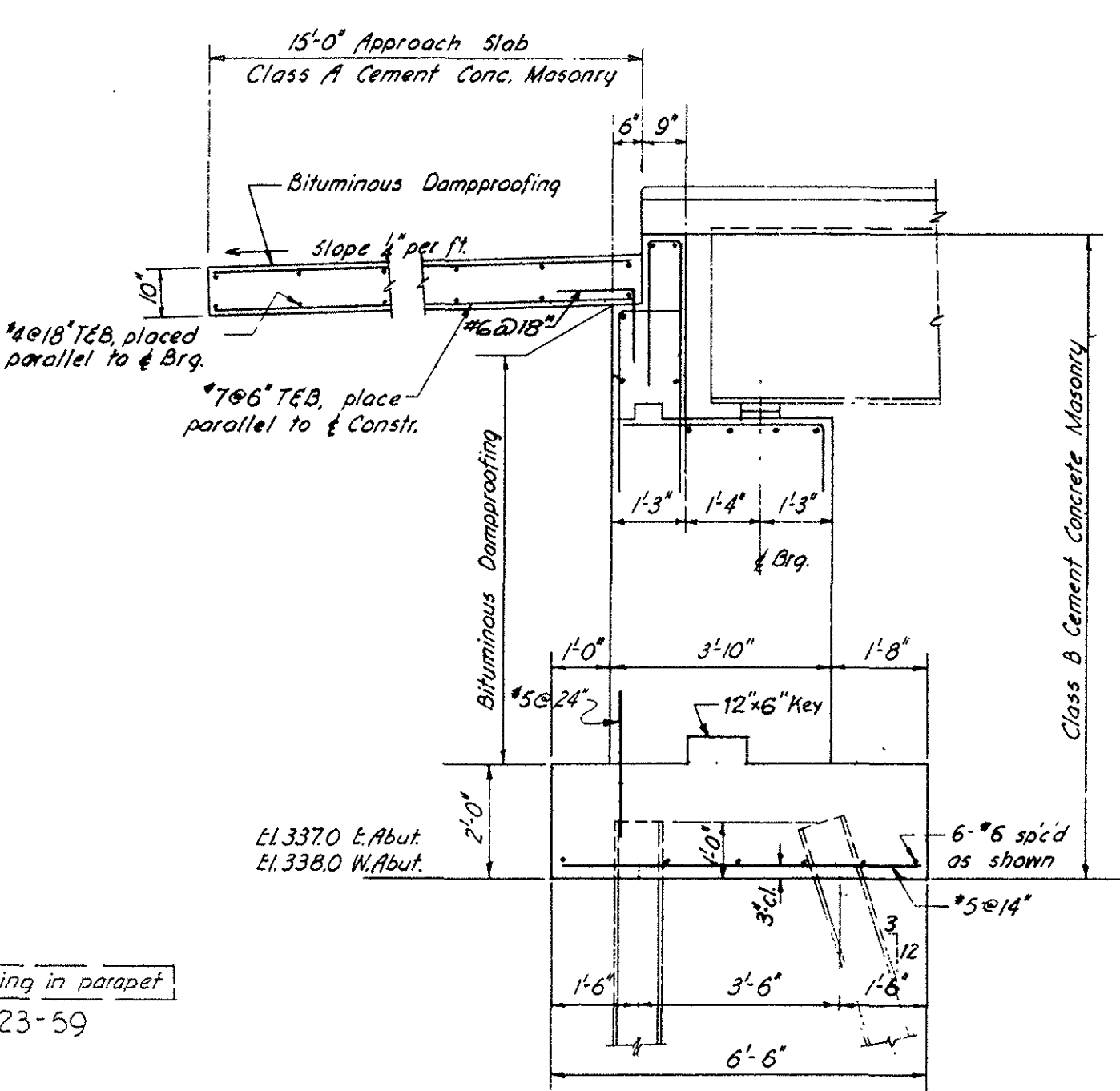
PLAN - EAST ABUT.
WEST ABUT. SIMILAR OPPOSITE HAND
Scale 1/8" = 1'-0"



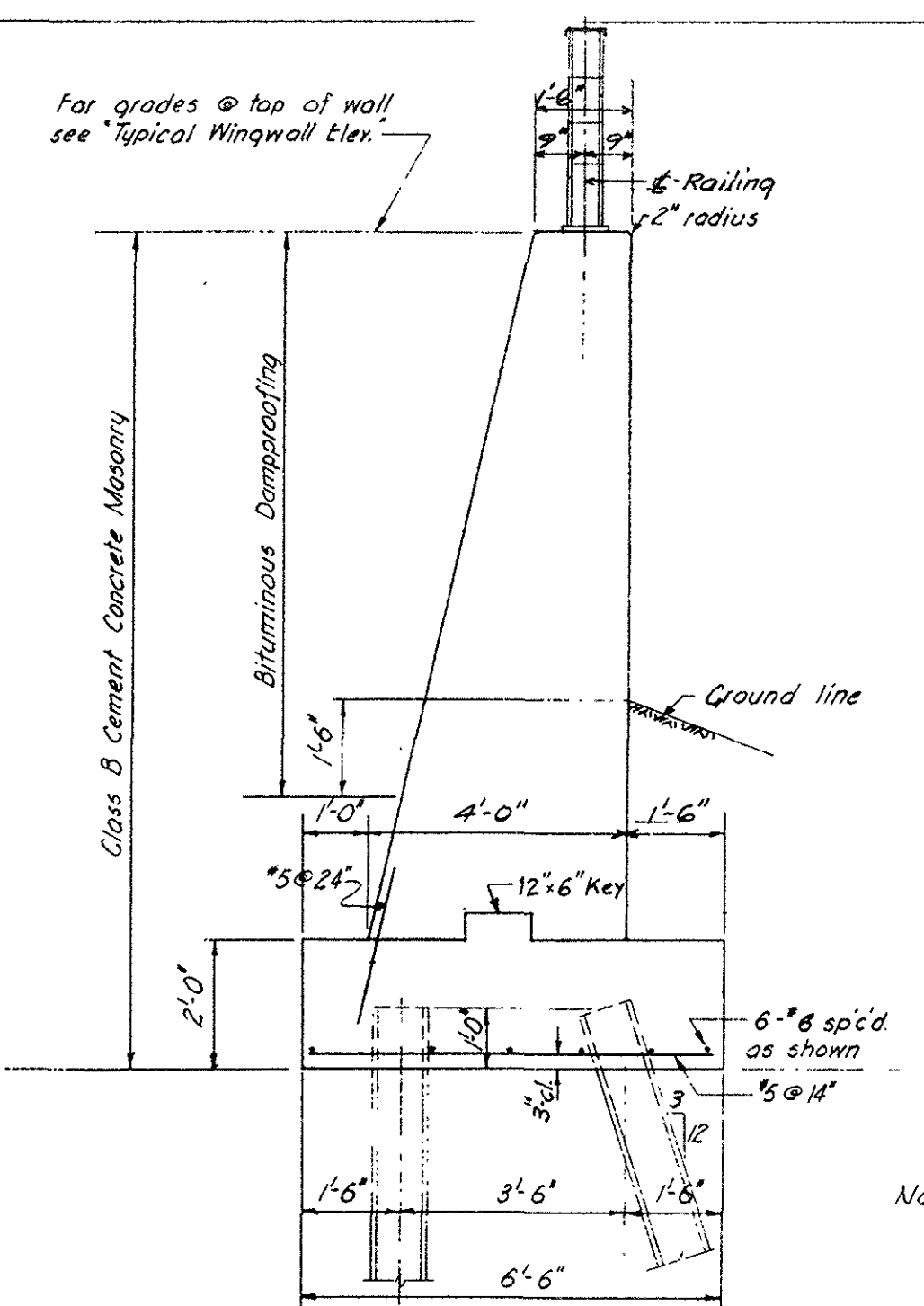
DETAIL A
Not to Scale



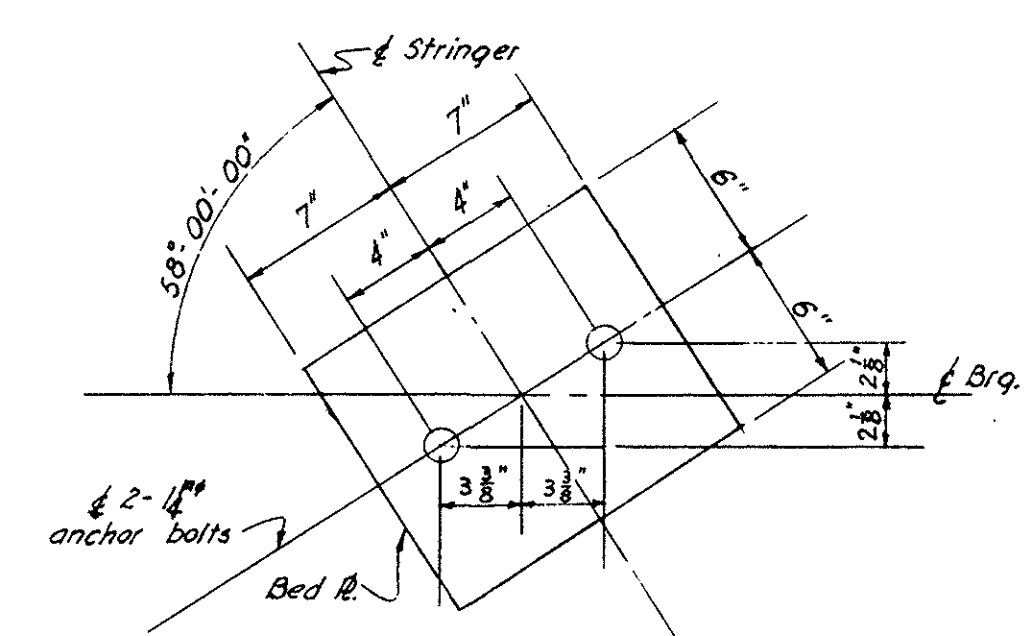
TYP. WINGWALL ELEV.
Not to Scale



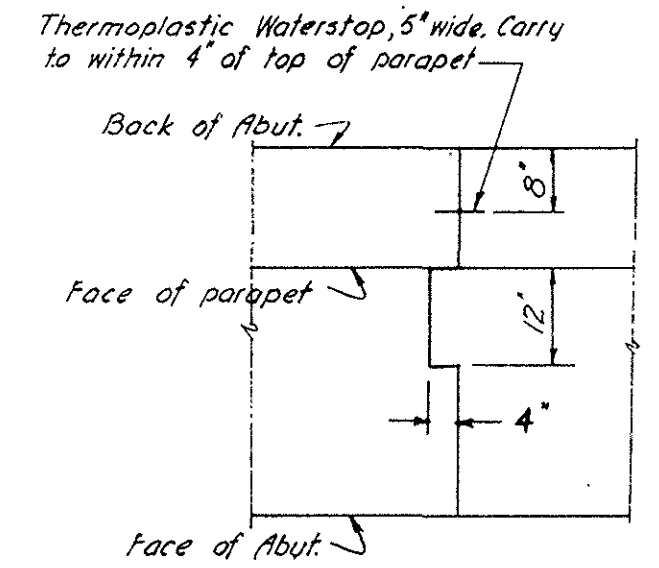
TYP. ABUT. SECTION
Scale 3/8" = 1'-0"



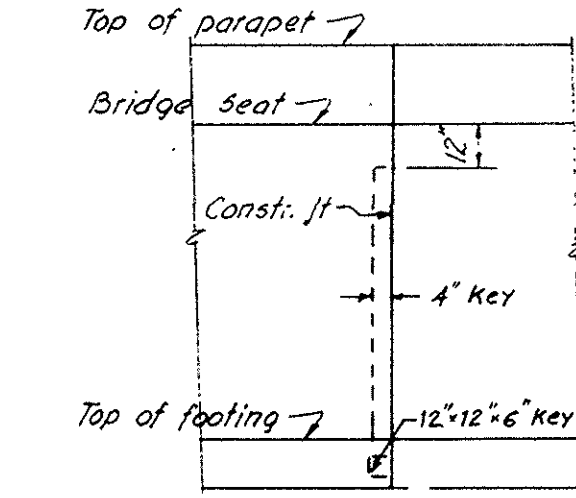
TYP. WINGWALL SECTION
Scale 3/8" = 1'-0"



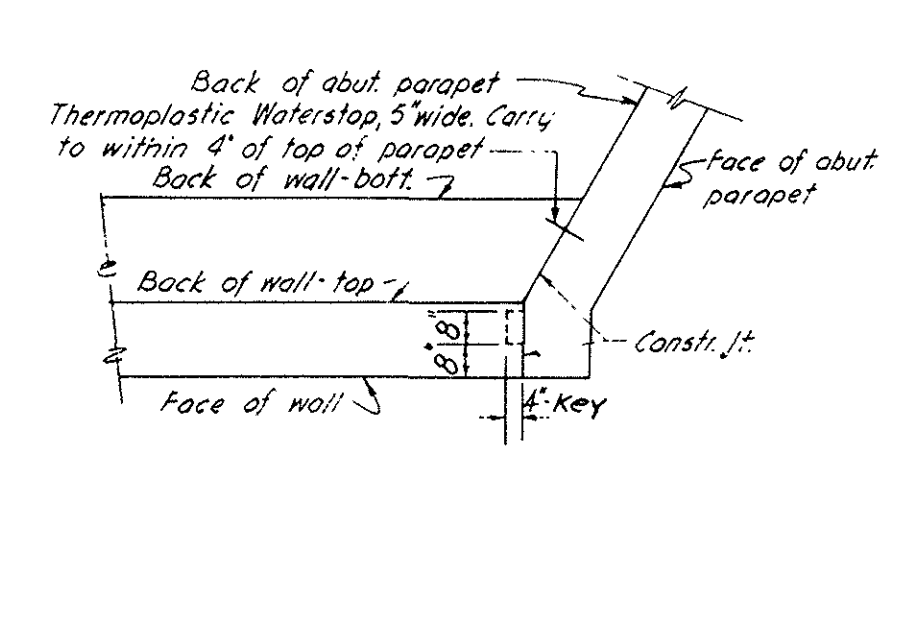
TYP. ANCHOR BOLT LOCATION PLAN
Scale 1/2" = 1'-0"



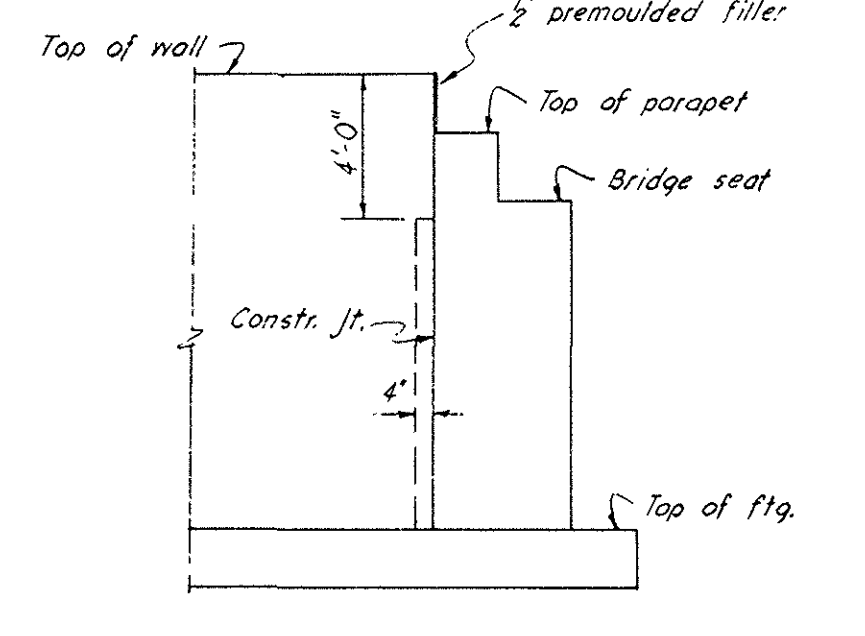
PLAN
AT ABUTMENT



ELEVATION

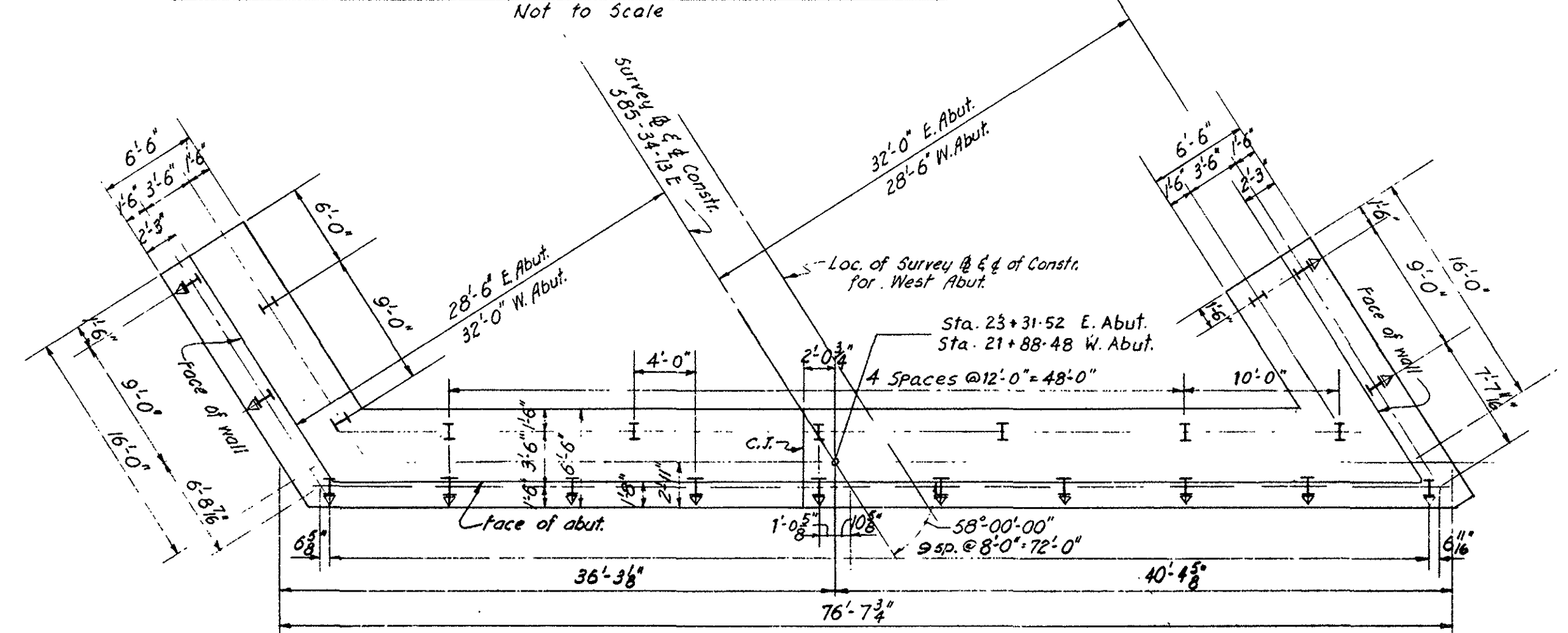


PLAN
AT WINGWALL



ELEVATION

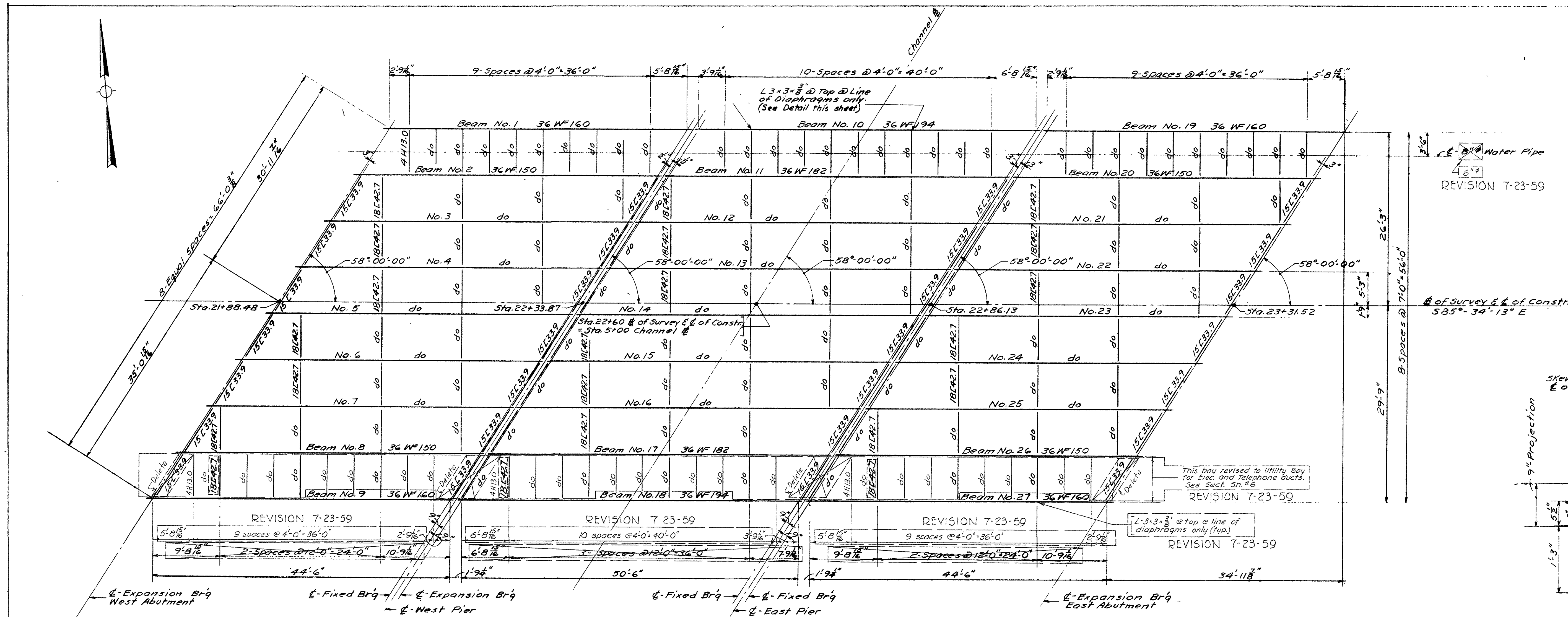
CONSTRUCTION JOINT DETAILS
Not to Scale



PILE PLAN - EAST ABUT.
PILE PLAN WEST ABUT. SIMILAR OPPOSITE HAND
Scale 1/8" = 1'-0"

- PILE NOTES
1. Indicates battered pile and direction of batter.
 2. All piles to be driven to practical refusal.
 3. All piles to be 10 BP42.
 4. 45 piles required (18 vertical, 28 battered).

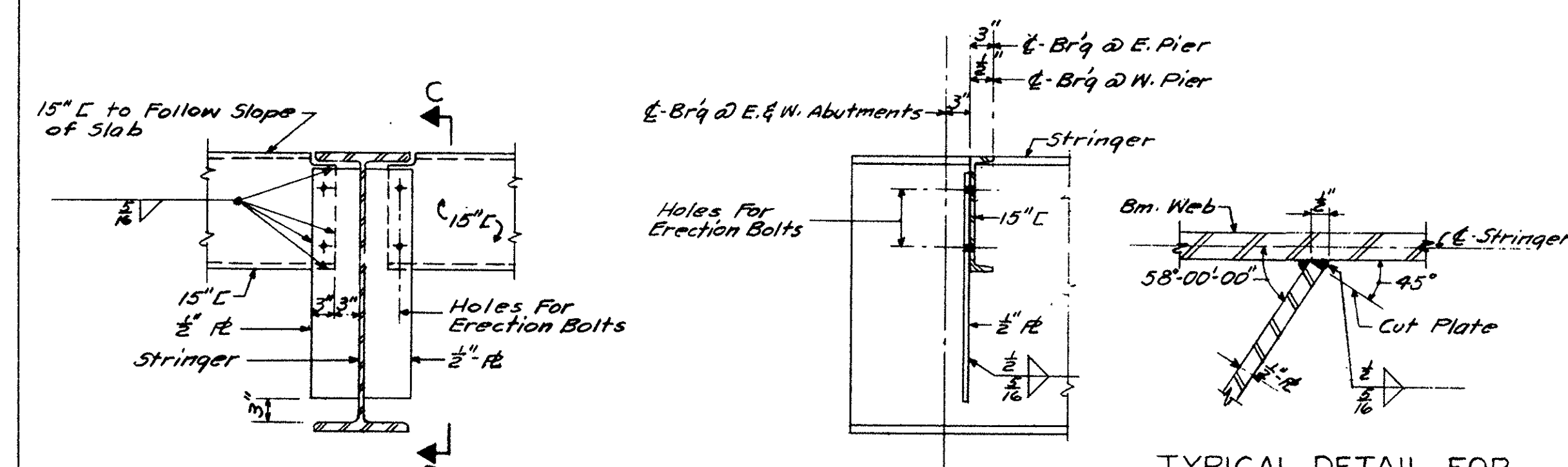
JULY 23, 1959	REVISION - BRICKED-UP OPENING IN PARAPET ADDED
FEB 28, 1959	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE



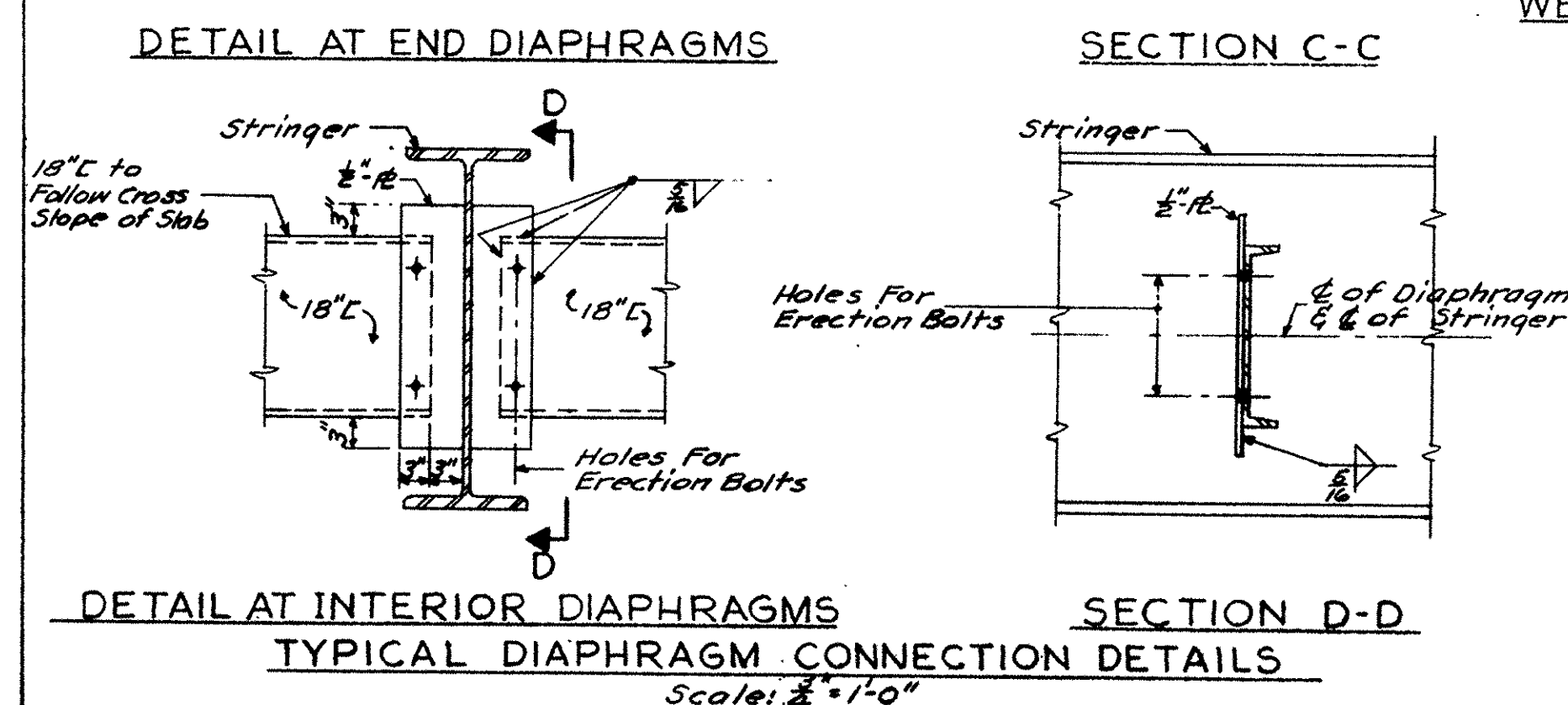
FRAMING PLAN
Scale: 1/4" = 1'-0"

Notes:
Beam Nos. 1, 9, 19 & 27 shall be Cambered Not Less Than 3/16" & Not More Than 1 1/16".
All Other Stringers shall be Cambered Not Less Than 5/8" & Not More Than 1 3/4".
"d" Indicates Deflection Due to Dead Load Only.
"d'" Indicates Deflection Due to Slab Dead Load Only.

BEAM NO.	DEFLECTION	d	d'
1	.251"	.179"	
2-8 Incl.	.295"	.210"	
9	.251"	.179"	
10	.229"	.163"	
11-17 Incl.	.268"	.191"	
18	.229"	.163"	
19	.251"	.179"	
20-26 Incl.	.295"	.210"	
27	.251"	.179"	



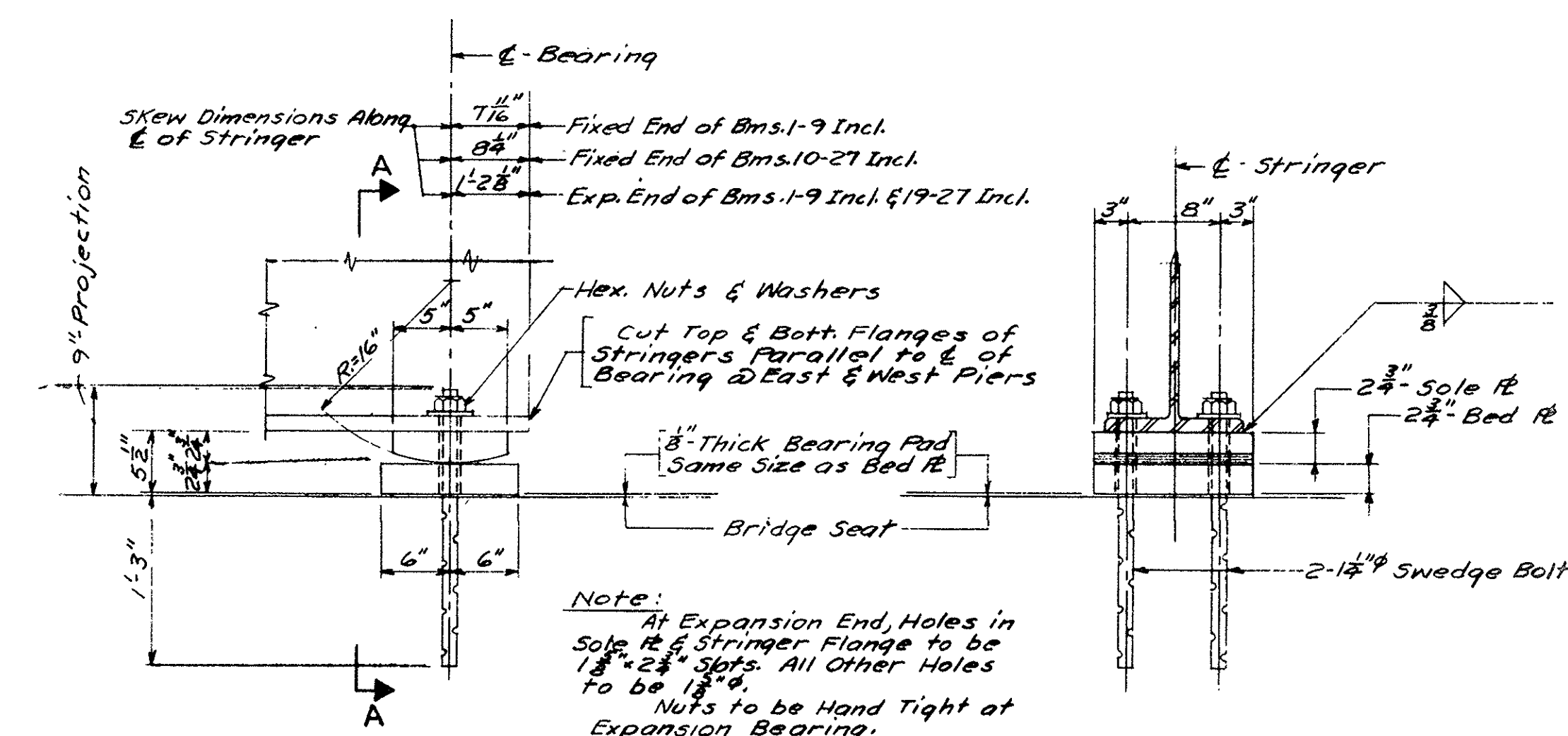
TYPICAL DETAIL FOR WELDING DIAPHRAGM CONNECTION
No Scale



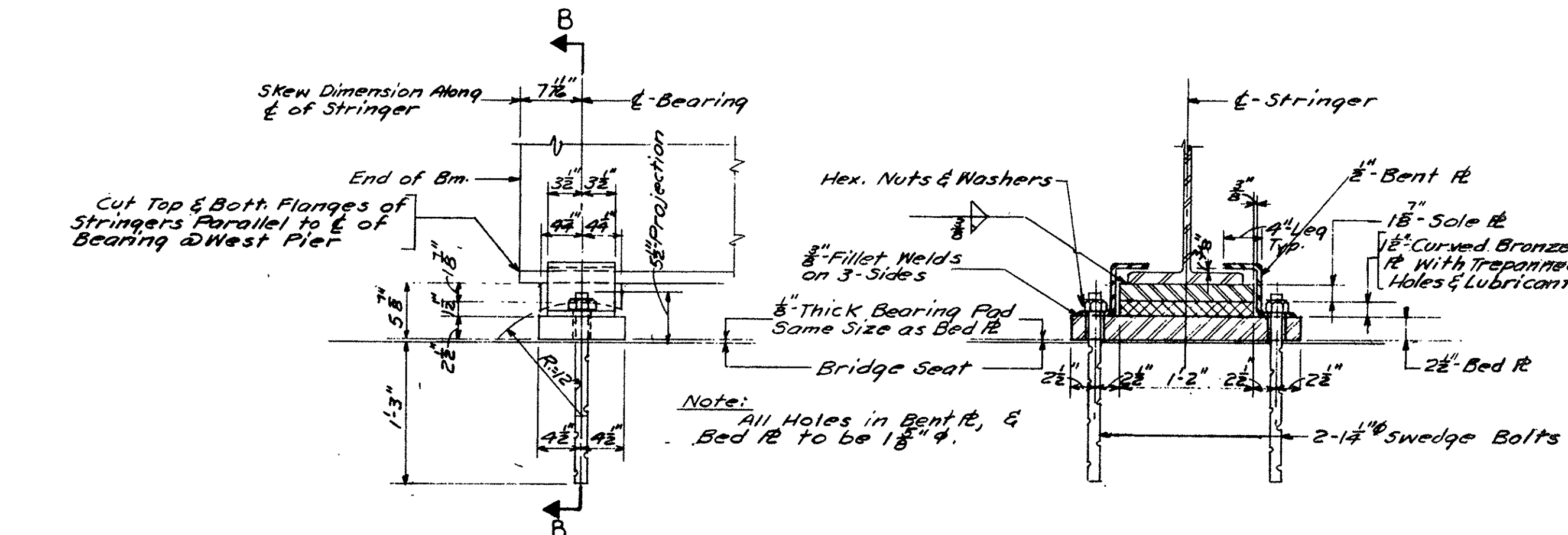
DETAIL AT INTERIOR DIAPHRAGMS
TYPICAL DIAPHRAGM CONNECTION DETAILS
Scale: 1/4" = 1'-0"

Water Pipe
REVISION 7-23-59

of Survey & # of Constr.
58°-34'-13" E



ELEVATION
FIXED END (BEAMS NO. 1-27 INCL.)
EXPANSION END (BEAMS NO. 1-9 INCL. & 19-27 INCL.)



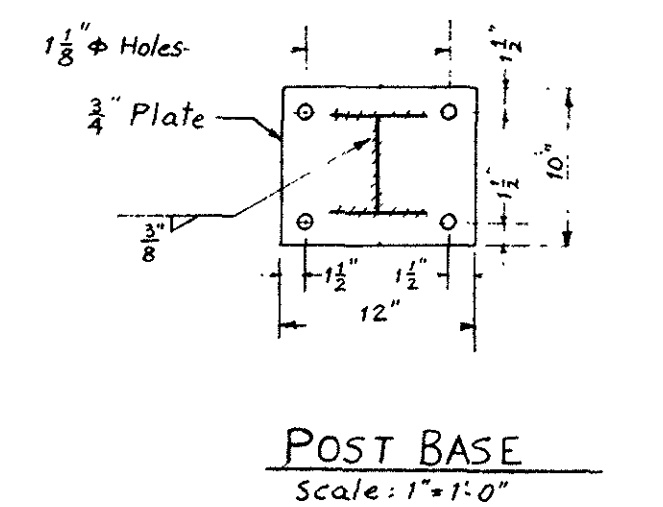
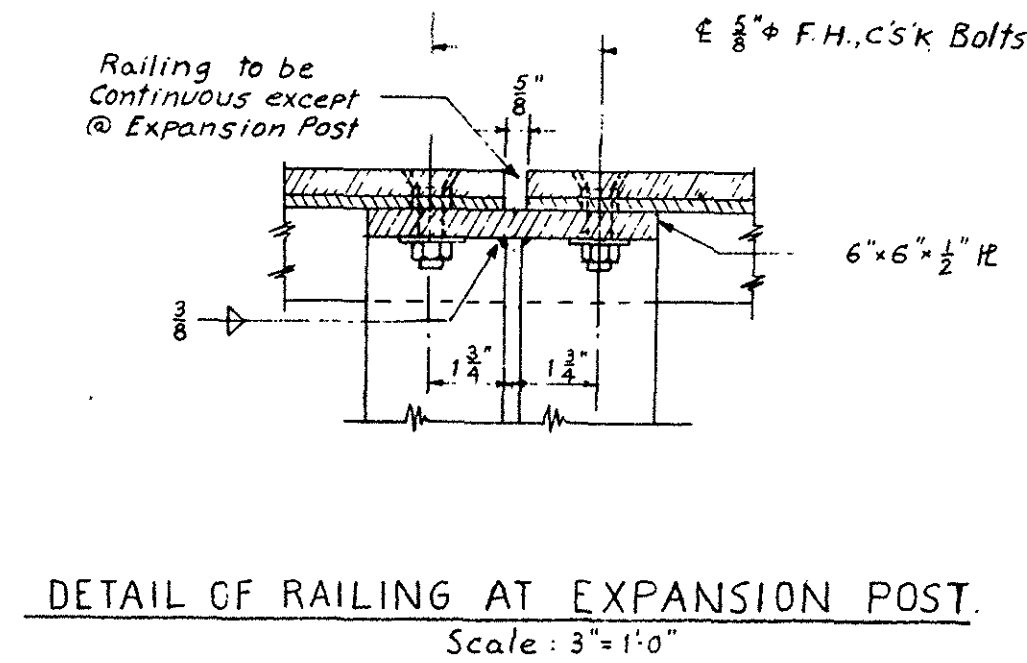
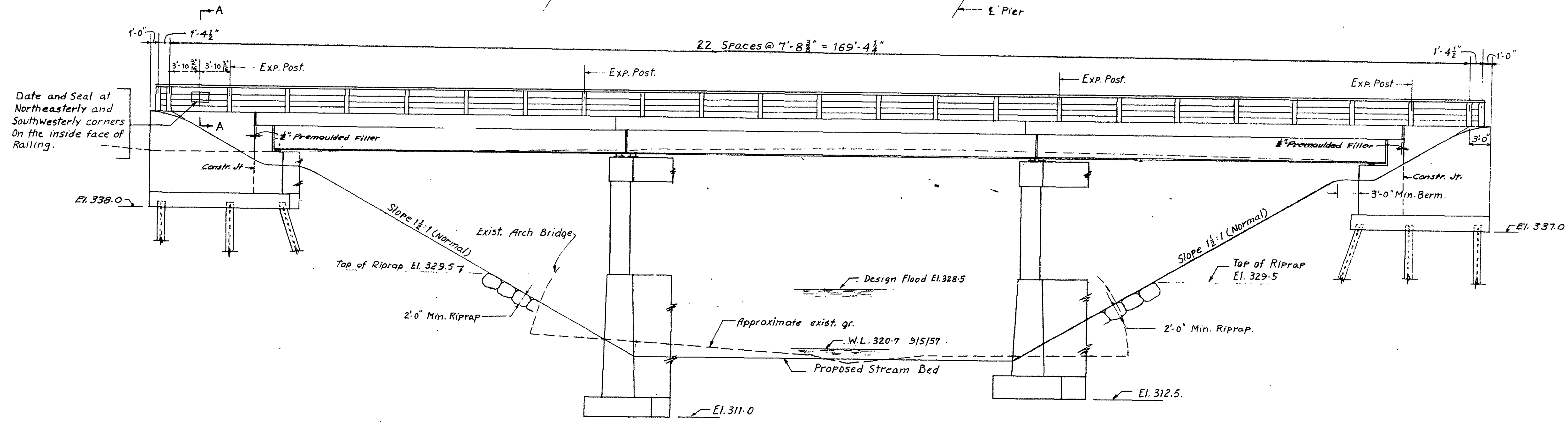
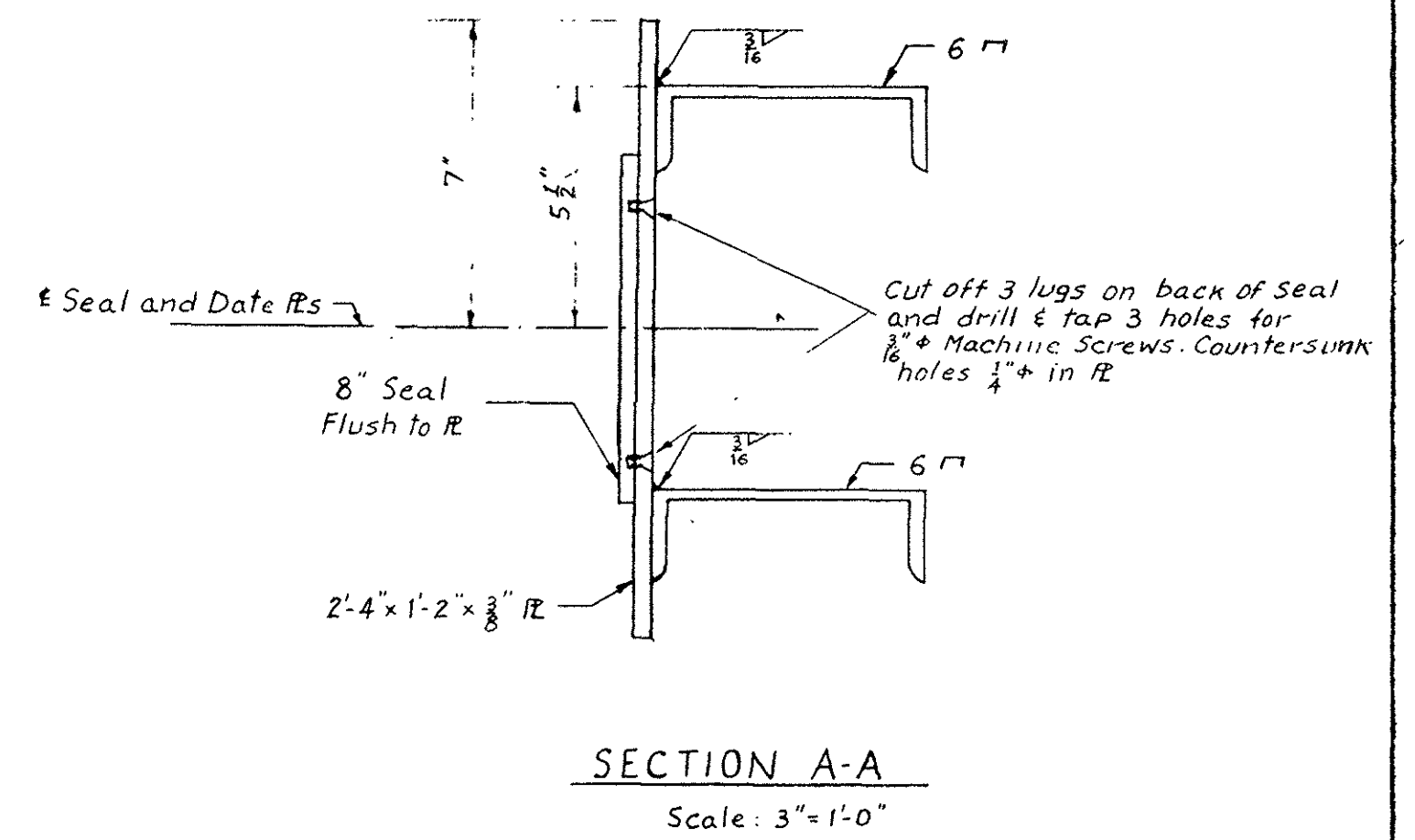
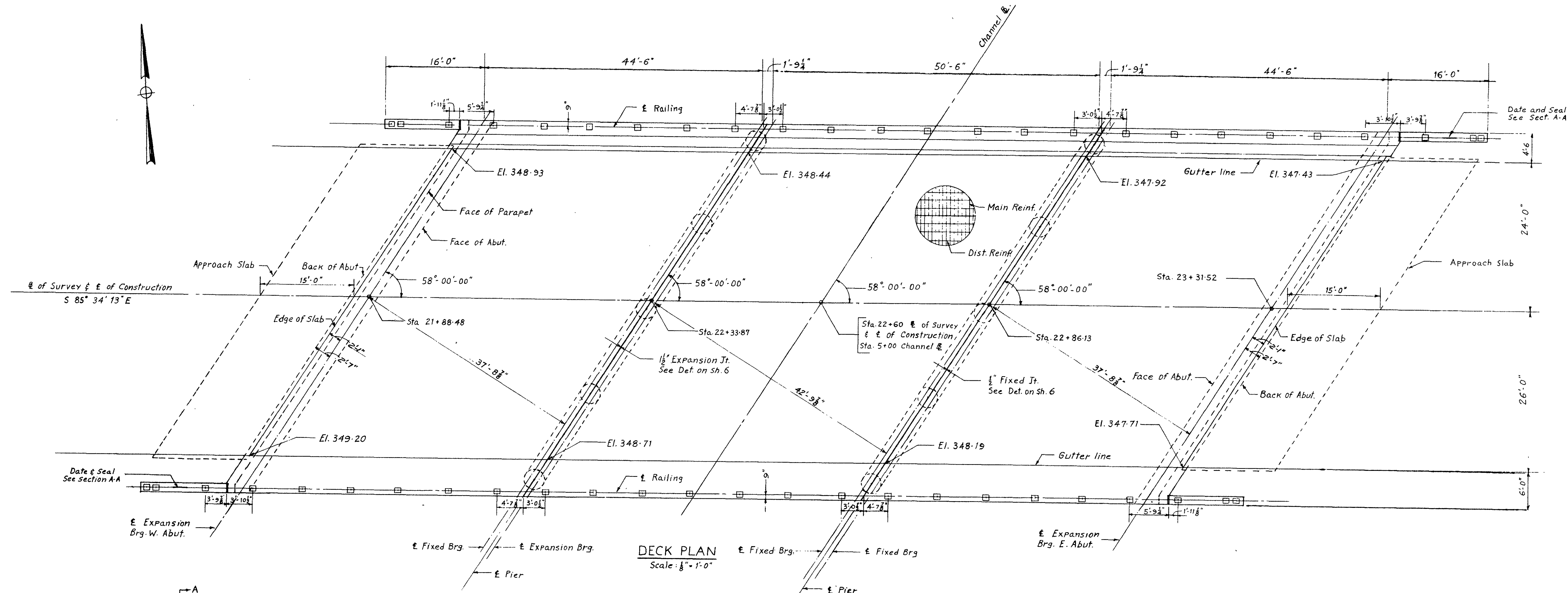
ELEVATION
EXPANSION END
BEAMS NO. 10-18 INCL.

BEARING DETAILS
Scale: 1/4" = 1'-0"

Notes:
All Dimensions Are Square Dimensions Except As Noted.

JULY 23, 1959	REVISION 50. EXTERIOR BAY REVISED TO UTILITY BAY
FEB. 28, 1959	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE

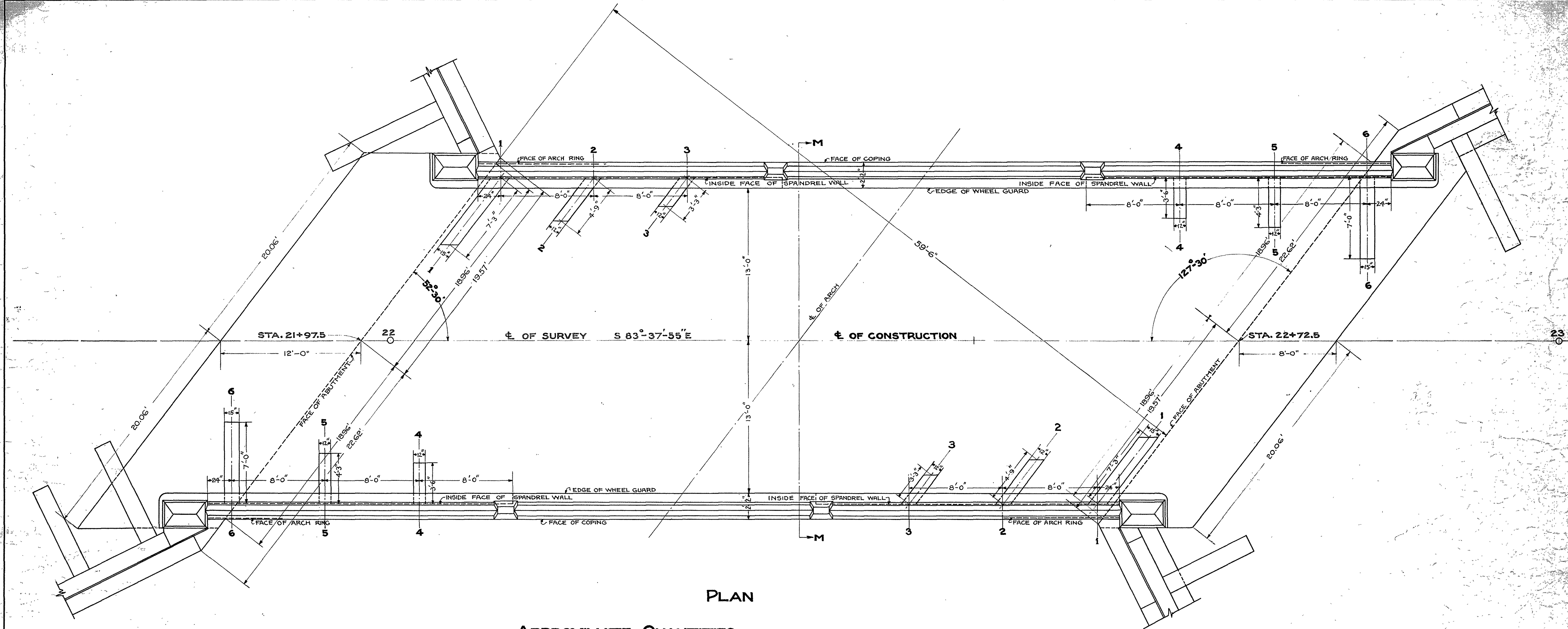
PUB. RD. DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	1-91-1(5)47		84	256



NOTES
 All material for railing to be structural grade steel.
 All posts to be plumb.
 Bottoms of Posts to be cut to follow grade.
 Holes in one end of rails at expansion side of Expansion Posts shall be slotted 1/8" x 1/8".
 Post spacing shown is given along centerline of Railing.
 For Railing Details See

Note: Extend Riprap 2'-0" on each side of bridge face.

DATE	ISSUED FOR CONSTRUCTION
DATE	DISCUSSION
DATE	USE ONLY PRINTS OF LATEST DATE



PLAN

APPROXIMATE QUANTITIES

EXCAVATION (BRIDGE)	140	CU. YDS.
EXCAVATION (LEDGE)	135	CU. YDS.
BORROW (SPANDREL FILL)	580	CU. YDS.
BORROW (GRAVEL)	175	CU. YDS.
CONCRETE 1 : 2 : 4 (WING WALLS, FOOTINGS, CFTS.)	291	CU. YDS.
CONCRETE 1 : 2 : 4 (FENCES & POSTS)	15.5	CU. YDS.
CONCRETE 1 : 2 : 4 (ARCH RING)	235	CU. YDS.
CONCRETE 1 : 2 : 4 (PLAIN - BACK OF WING WALLS)	10	CU. YDS.
CONCRETE (RUBBLE)	161	CU. YDS.
RIP-RAP	50	CU. YDS.
WATER-PROOFING	390	SQ. YDS.
STEEL	67,880	POUNDS
GALV. IRON CURB BAR	174'-0"	

APPROXIMATE FORM AREAS

LOCATION	SQ. FT.
FOUNDATIONS	930
WINGS & SPANDREL WALLS	9690
ARCH	5690
FENCES & POSTS	4575

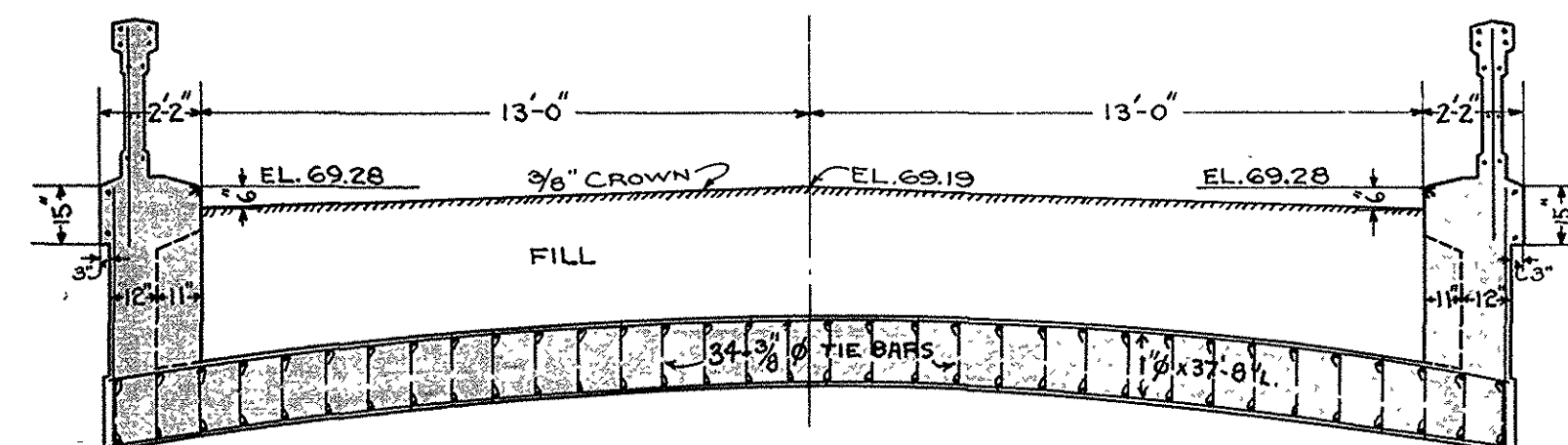
PROPOSED REINFORCED CONCRETE ARCH BRIDGE
OVER FALLS RIVER IN
TOWN OF BERNARDSTON
AT STATION 22+35

SCALE : FOUR FEET TO THE INCH UNLESS OTHERWISE NOTED

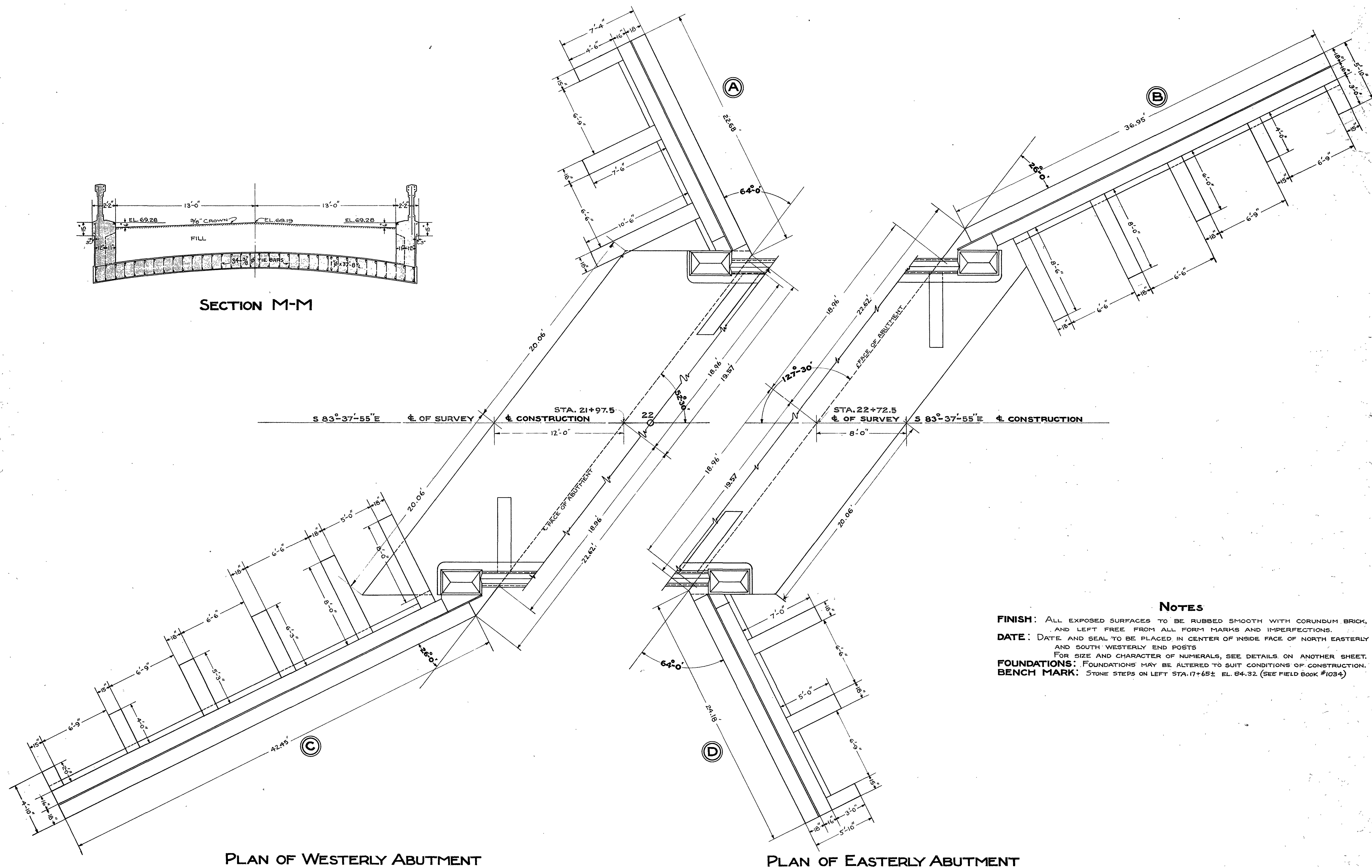
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
DIVISION OF HIGHWAYS
STATE HOUSE BOSTON, MASS.

OCTOBER 1923

A. W. Dean
CHIEF ENGINEER



SECTION M-M



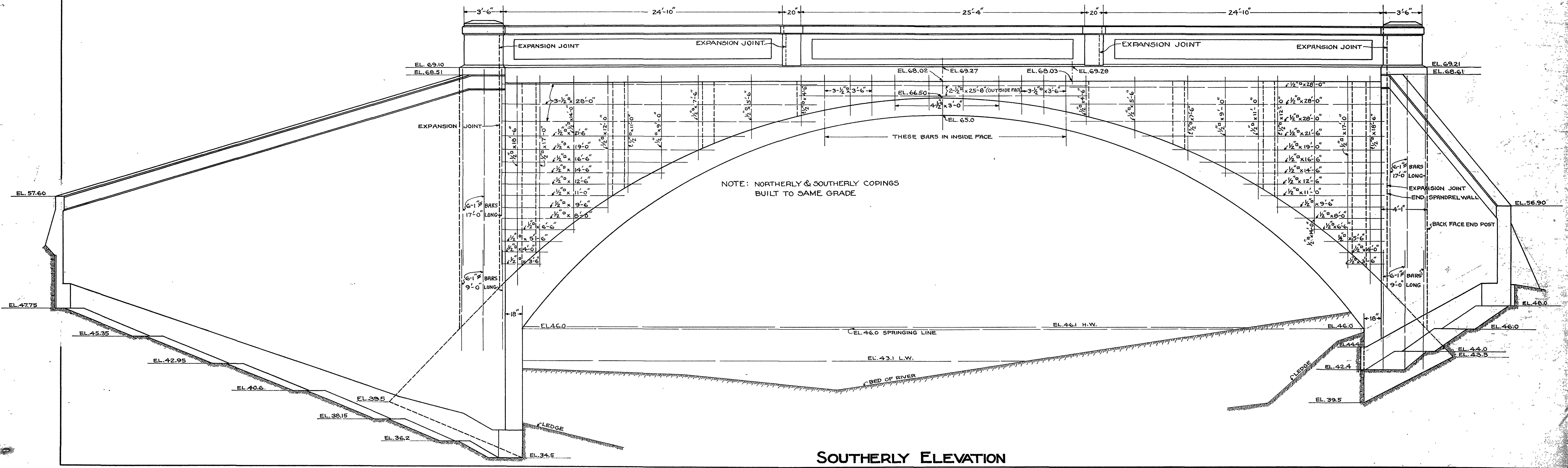
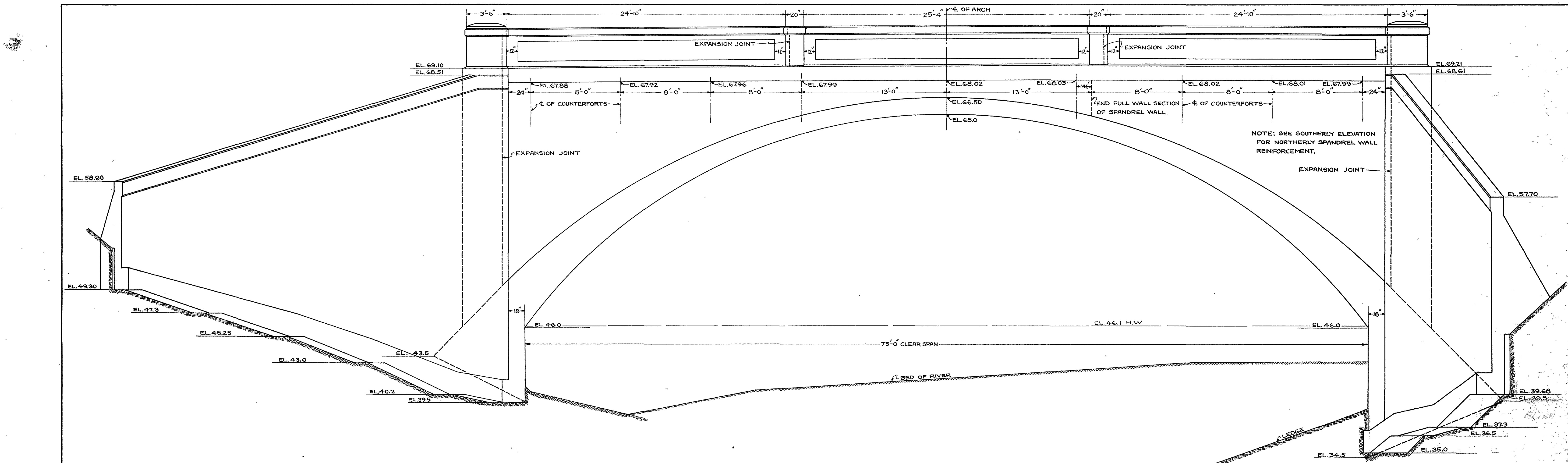
NOTES

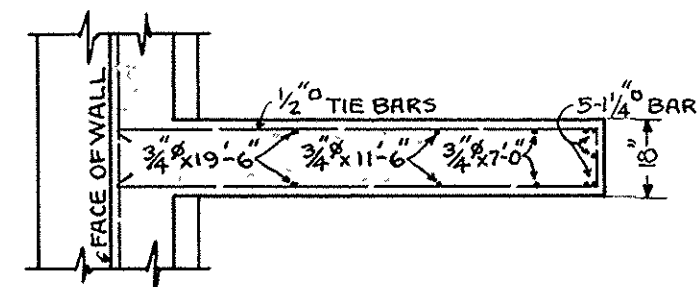
FINISH: ALL EXPOSED SURFACES TO BE RUBBED SMOOTH WITH CORUNDUM BRICK, AND LEFT FREE FROM ALL FORM MARKS AND IMPERFECTIONS.

DATE: DATE AND SEAL TO BE PLACED IN CENTER OF INSIDE FACE OF NORTH EASTERLY AND SOUTH WESTERLY END POSTS.

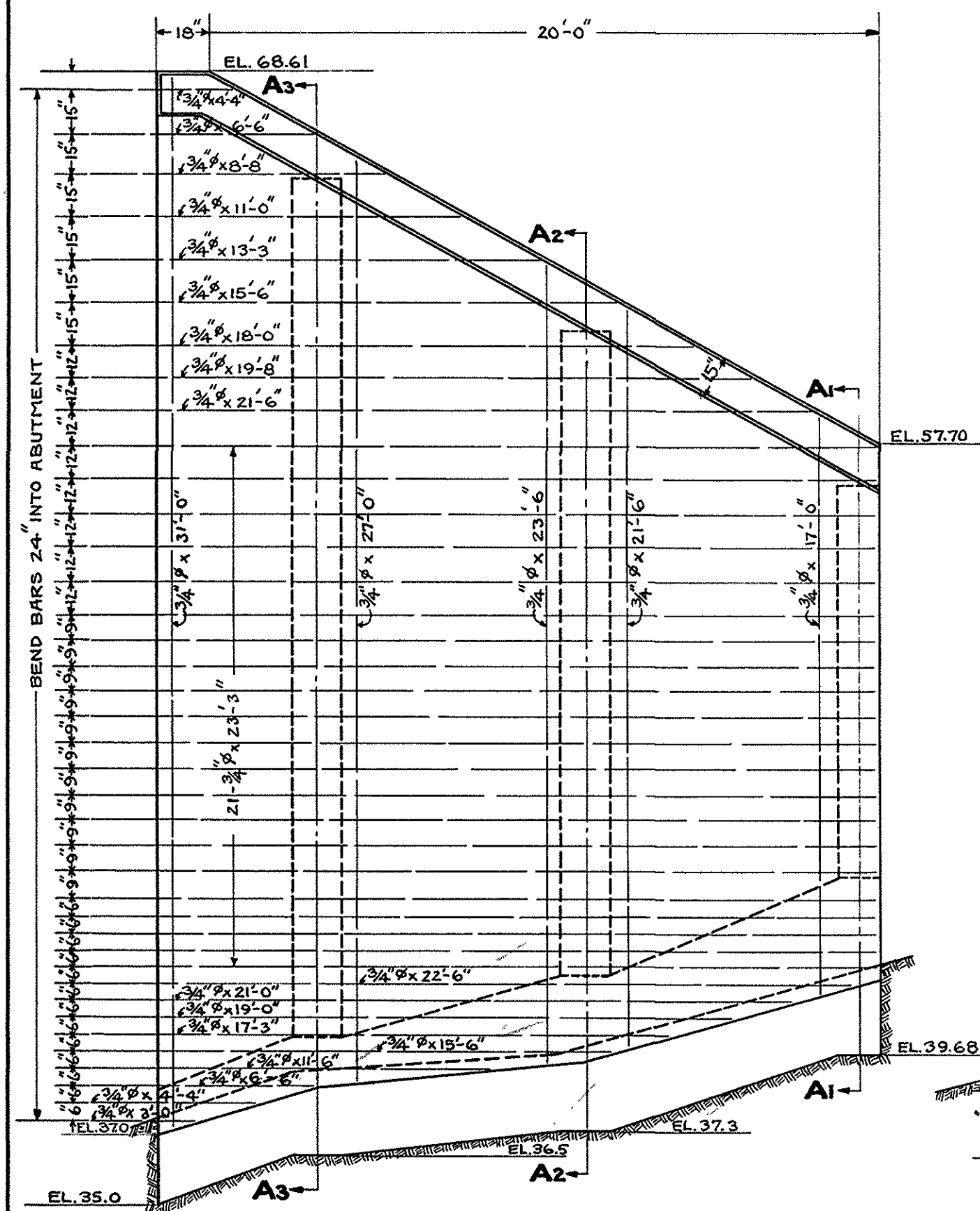
FOUNDATIONS: FOUNDATIONS MAY BE ALTERED TO SUIT CONDITIONS OF CONSTRUCTION.

BENCH MARK: STONE STEPS ON LEFT STA. 17+65± EL. 84.32 (SEE FIELD BOOK #1034)

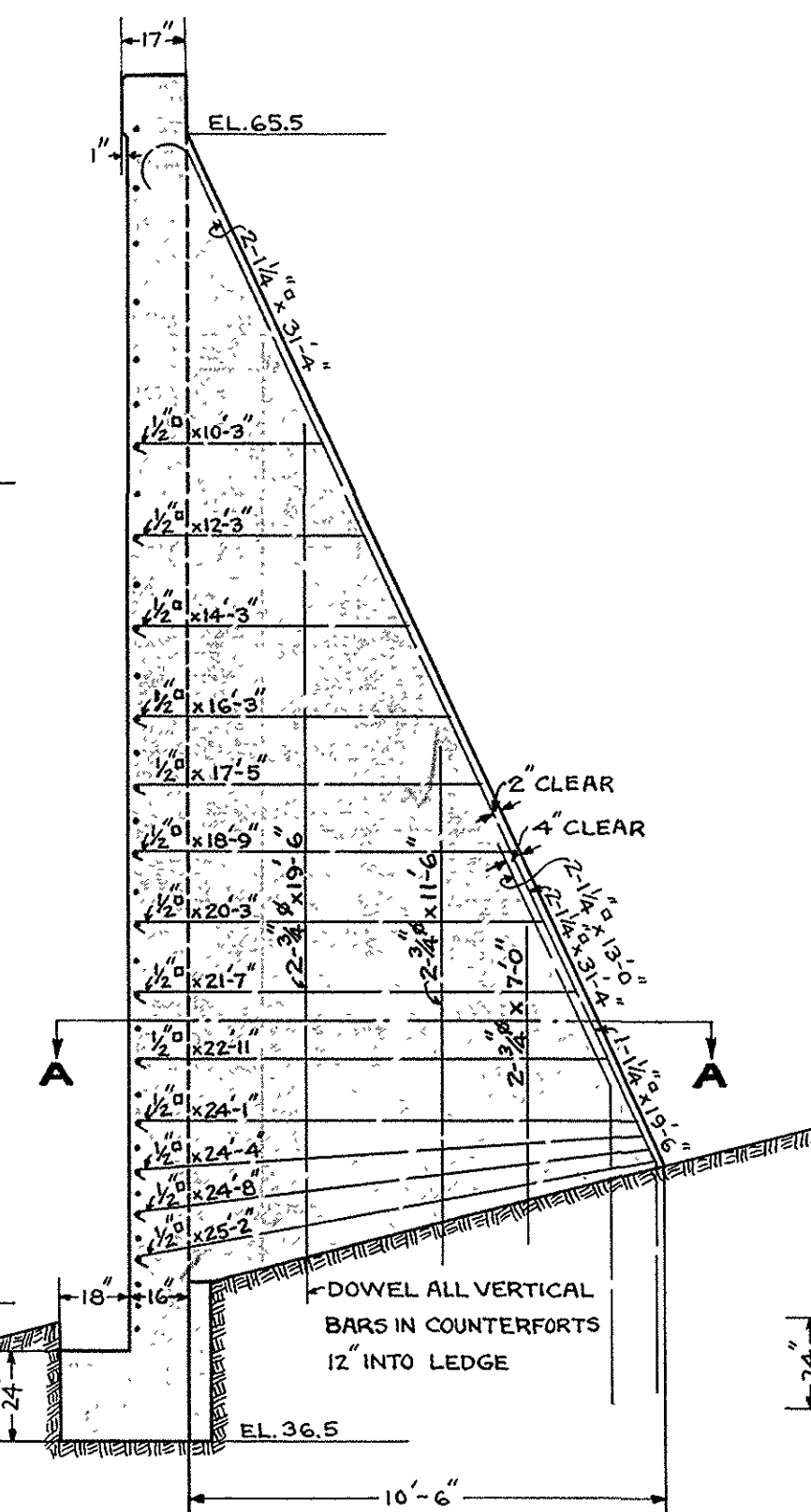




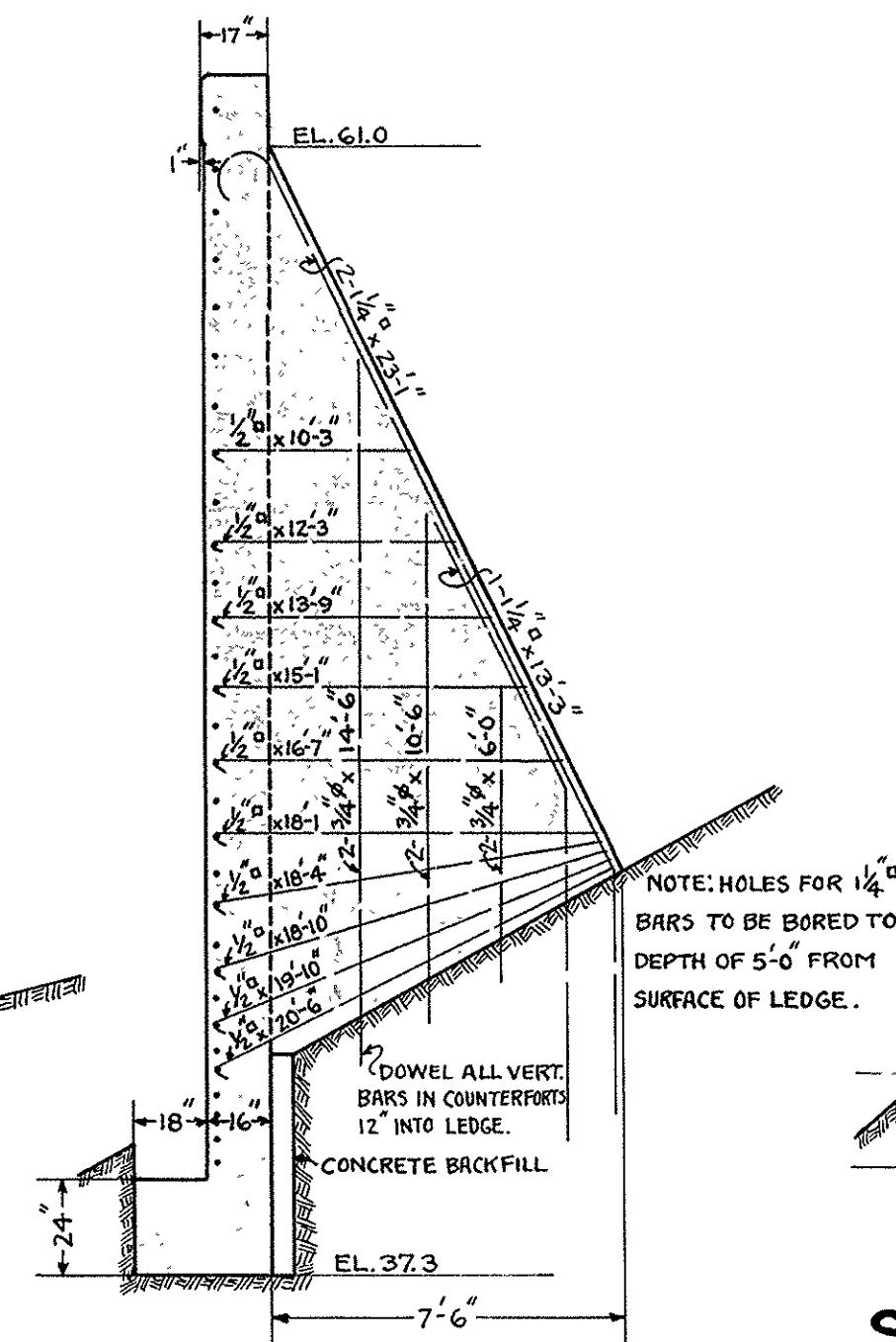
SECTION A-A



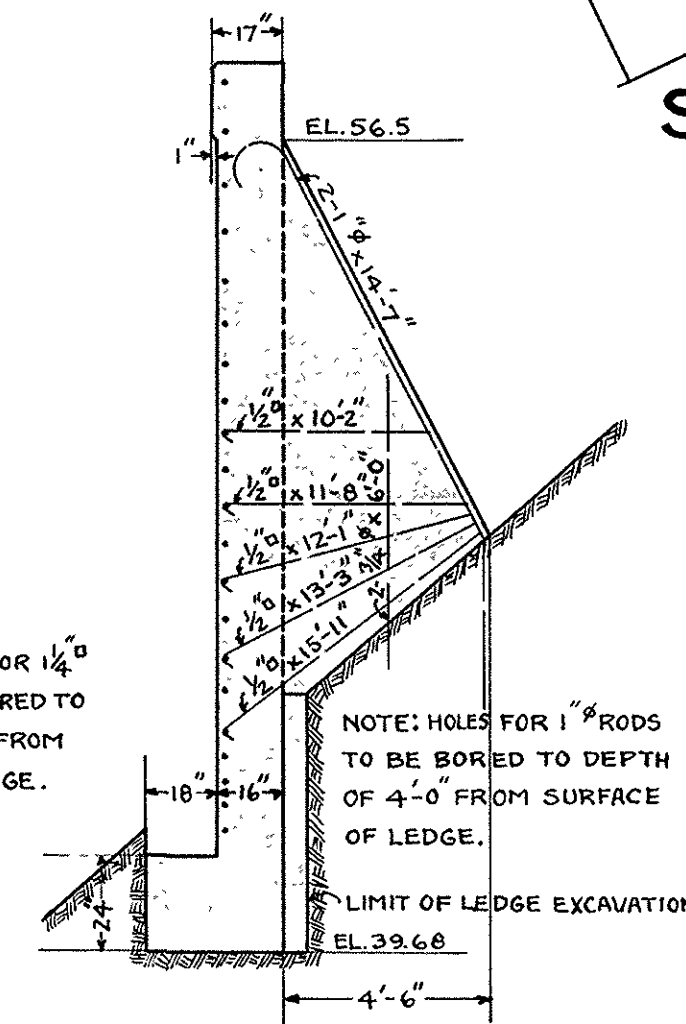
ELEVATION WING A



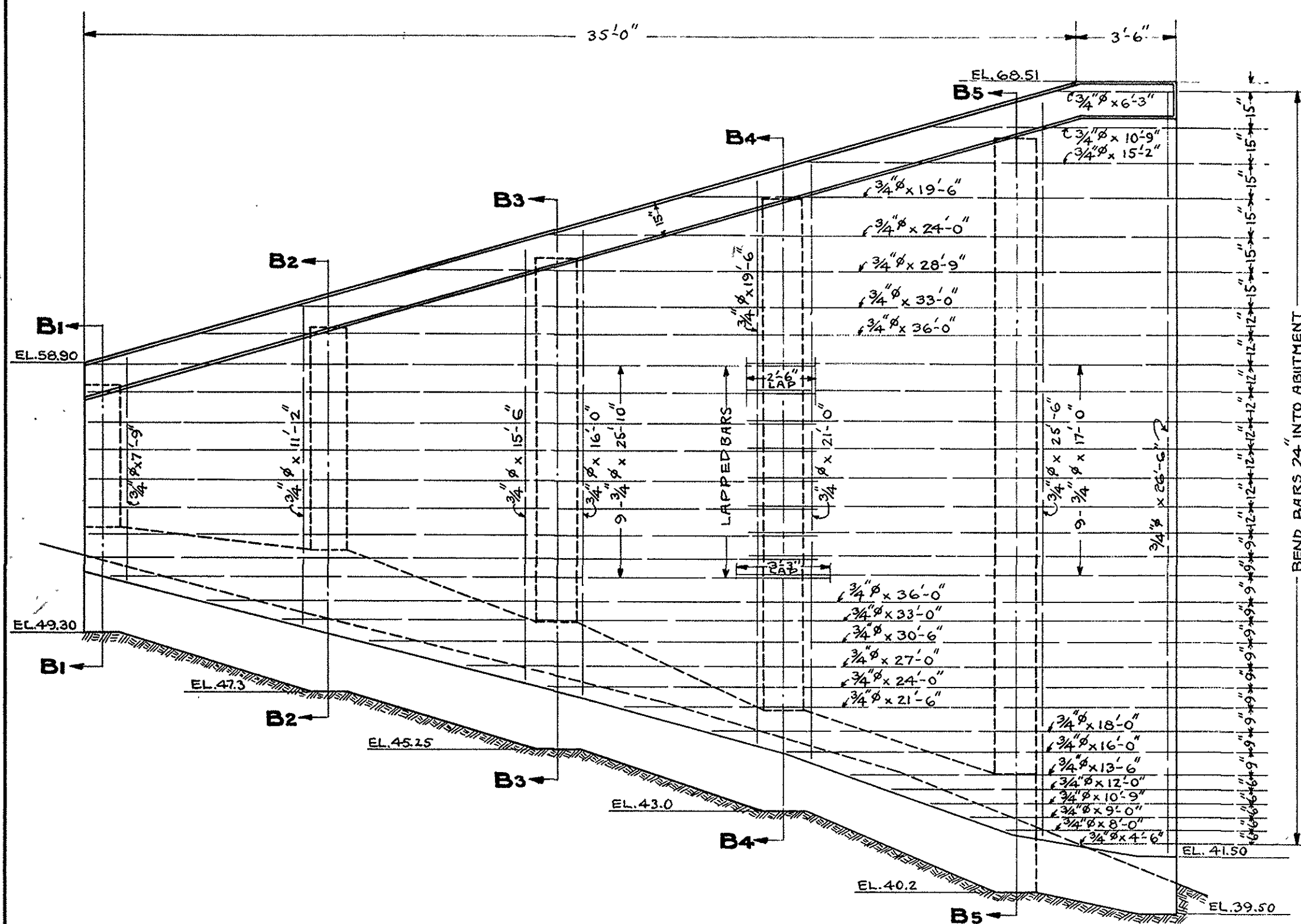
SECTION A₃-A₃



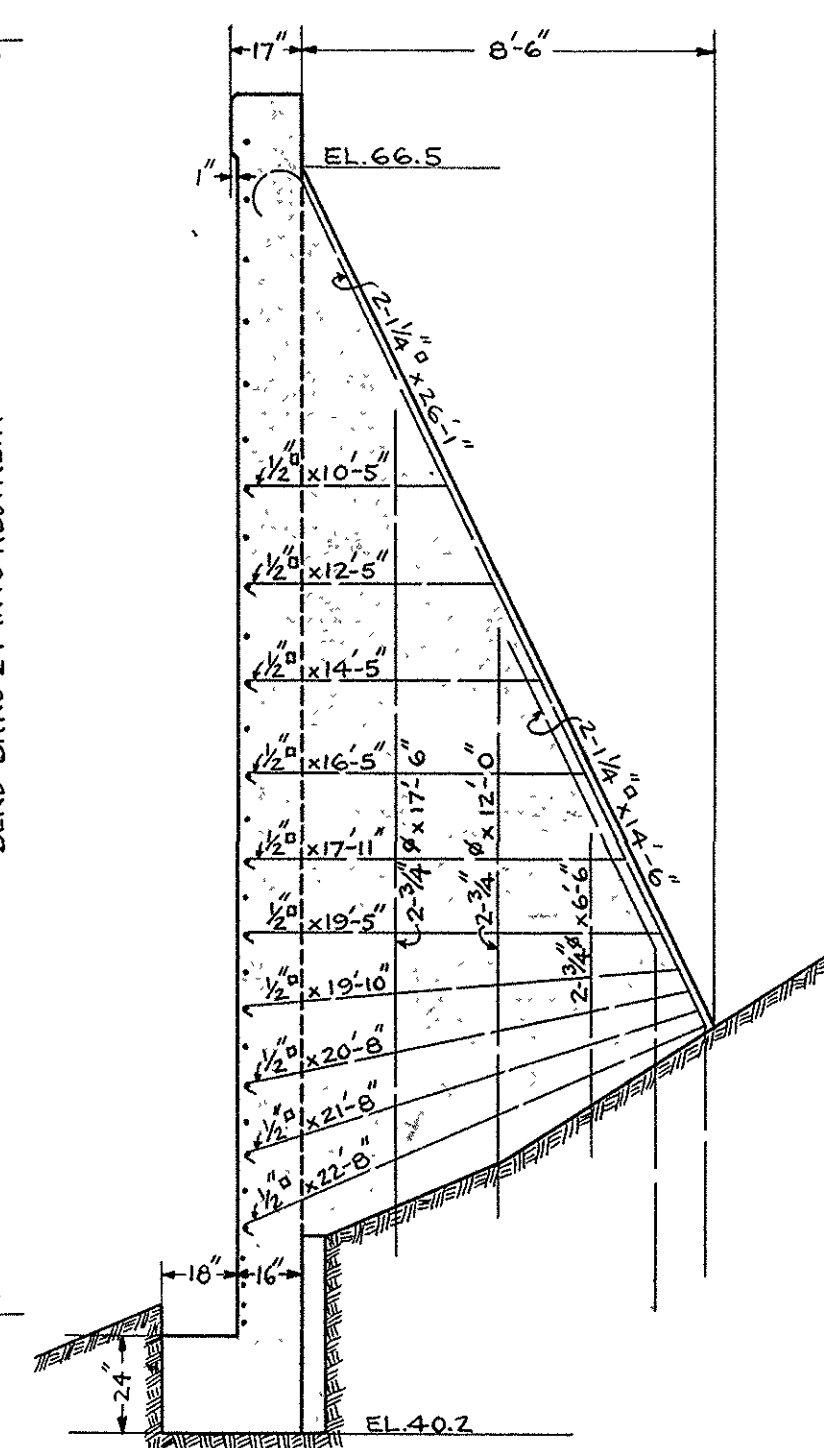
SECTION A₂-A₂



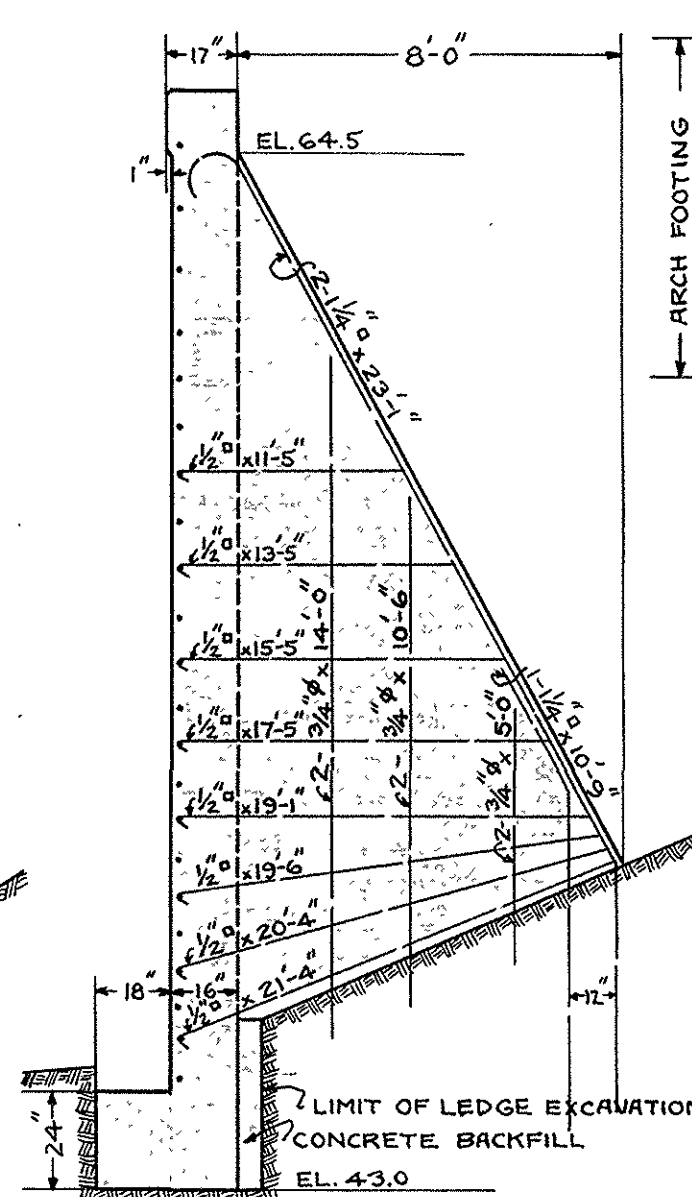
SECTION A₁-A₁



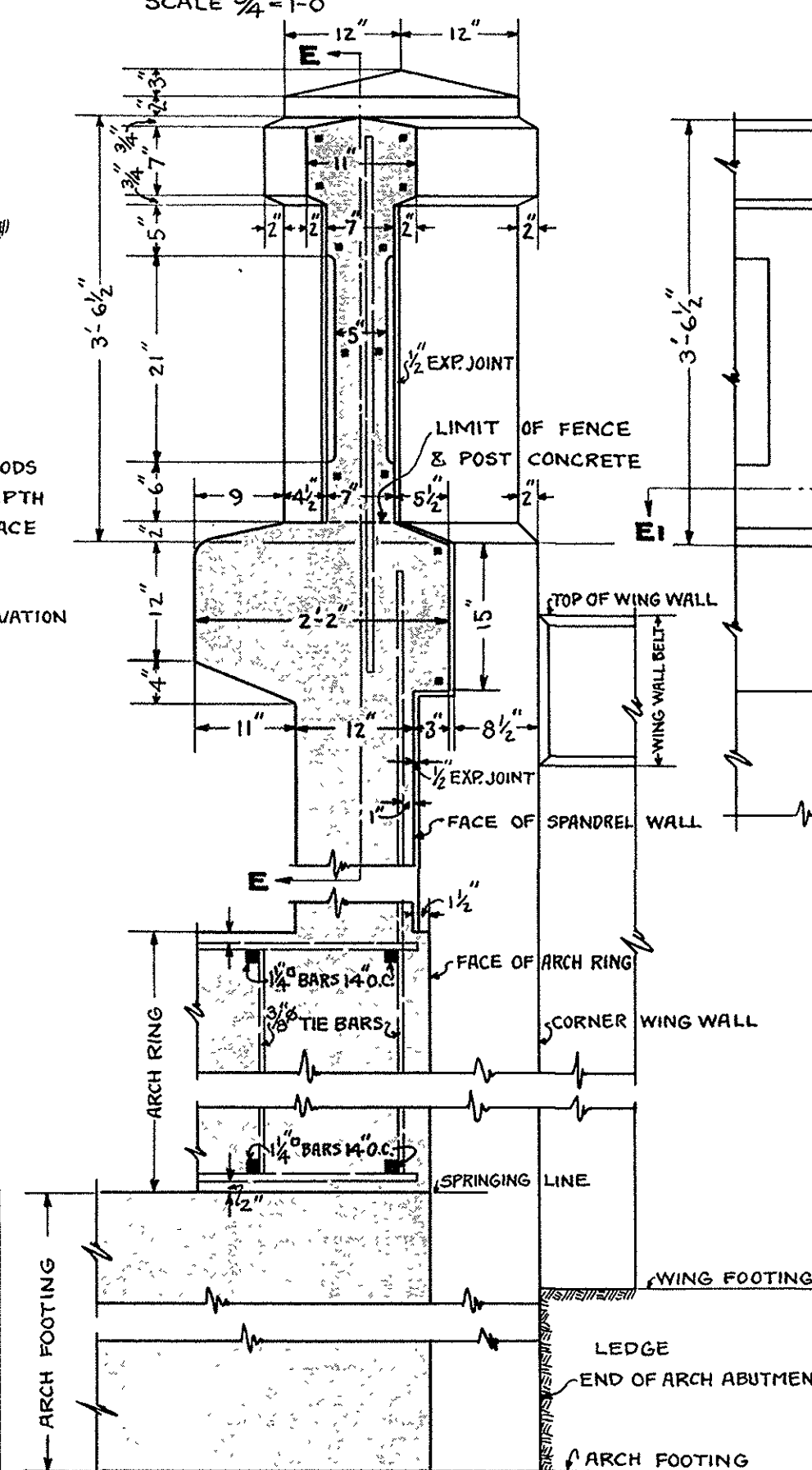
ELEVATION WING B



SECTION B5-B5

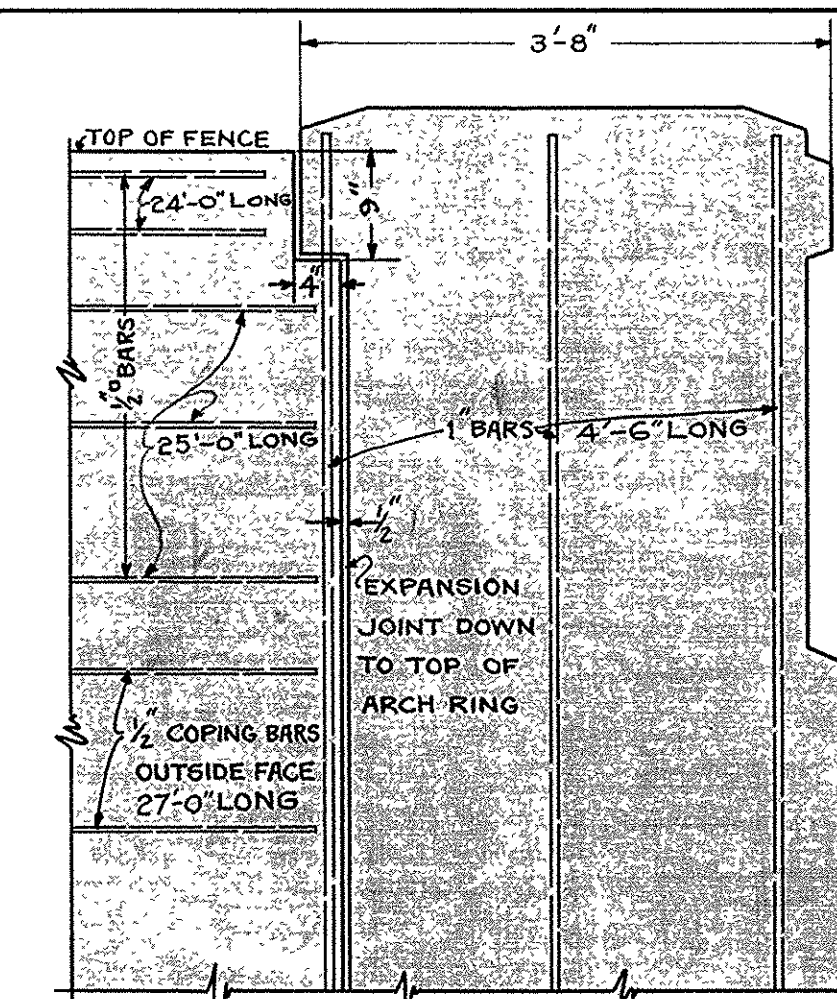


SECTION B4-B4

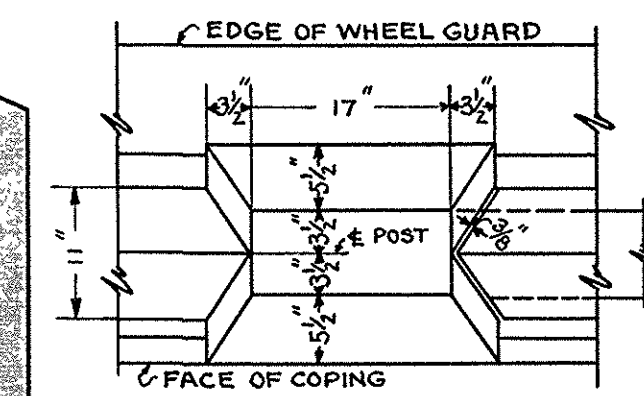


DETAIL OF FENCE AND END POST

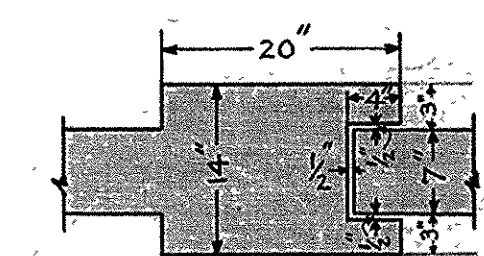
SCALE: $\frac{3}{4}" = 1'-0"$



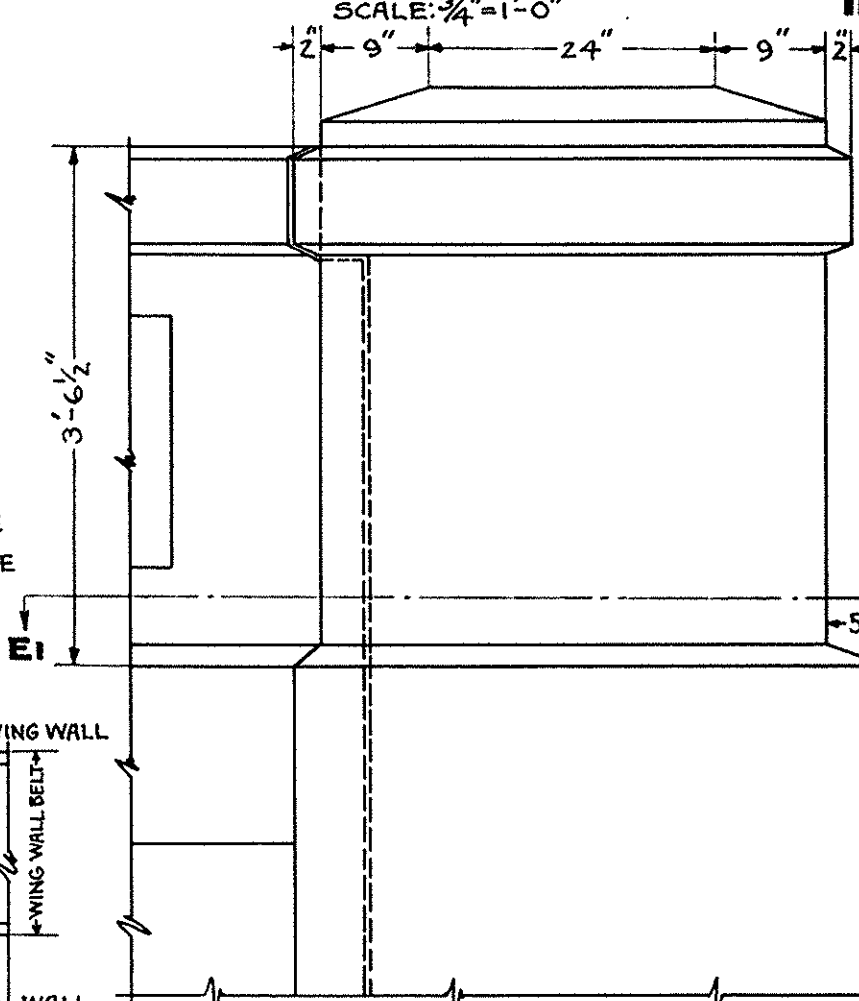
SECTION E-E



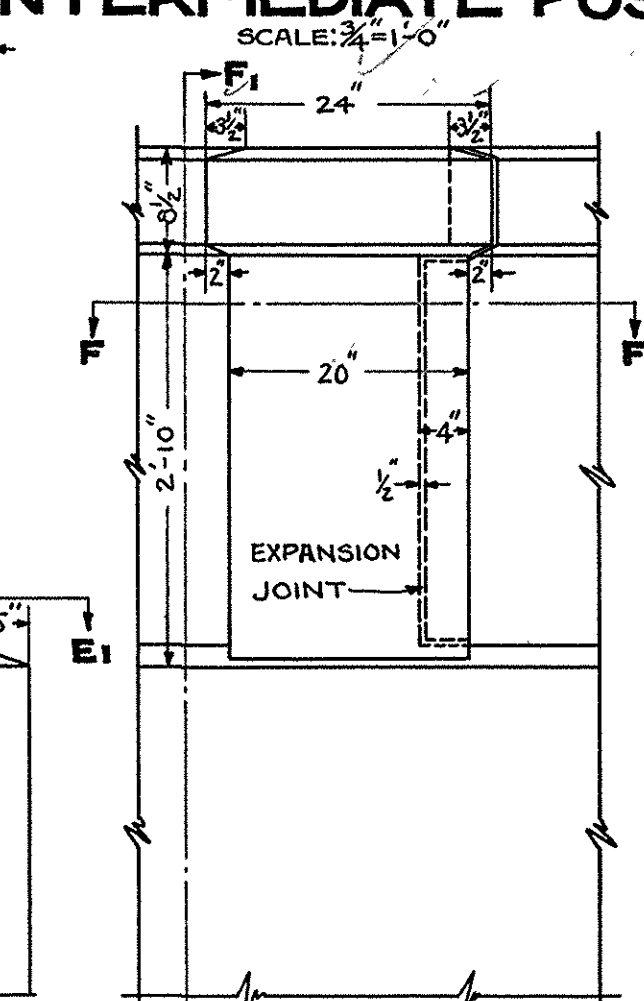
PLAN OF
INTERMEDIATE POST



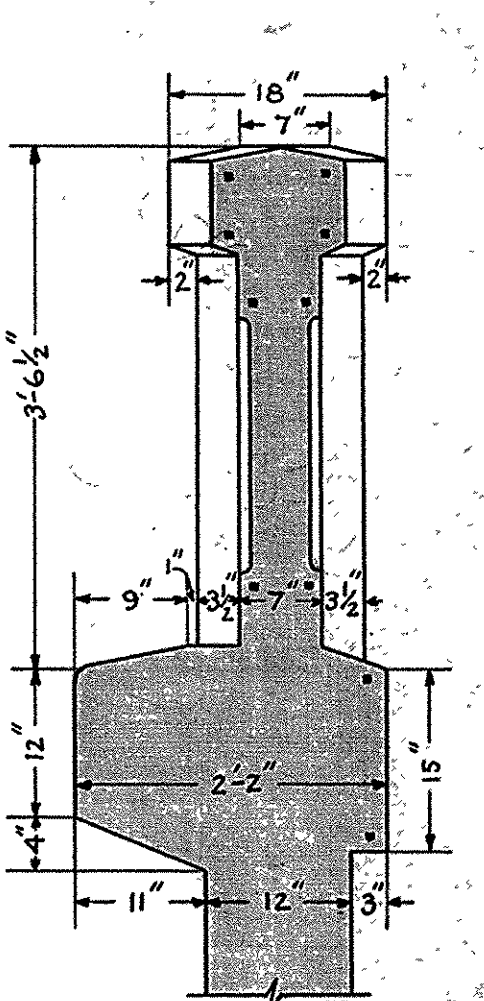
SECTION F-F
SCALE: $\frac{3}{4}"=1'-0"$



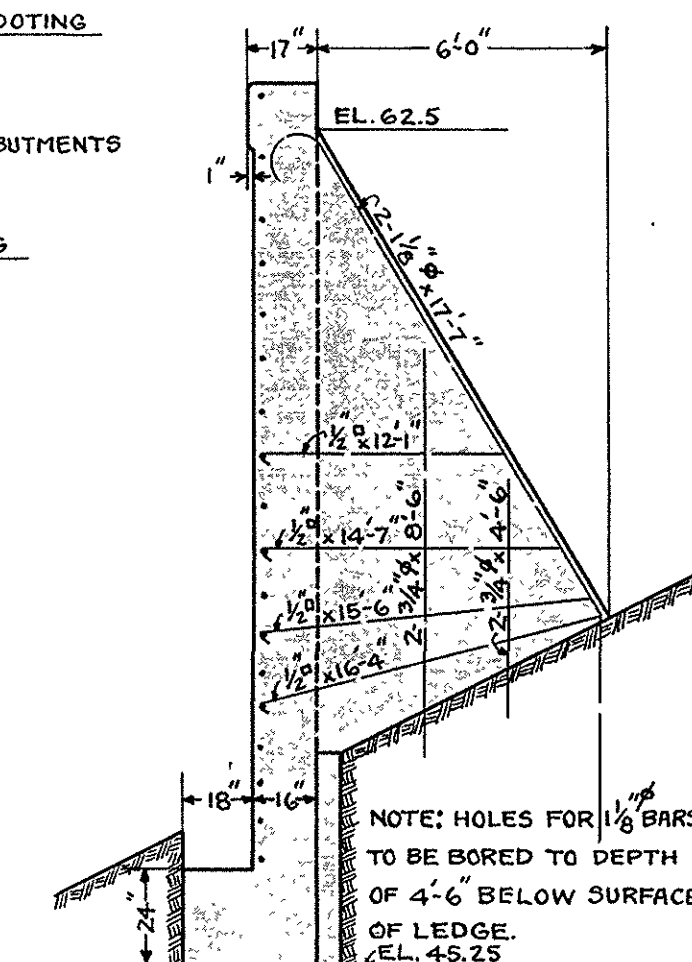
ELEVATION
OF END POST
SCALE: $\frac{3}{4}" = 1' - 0"$



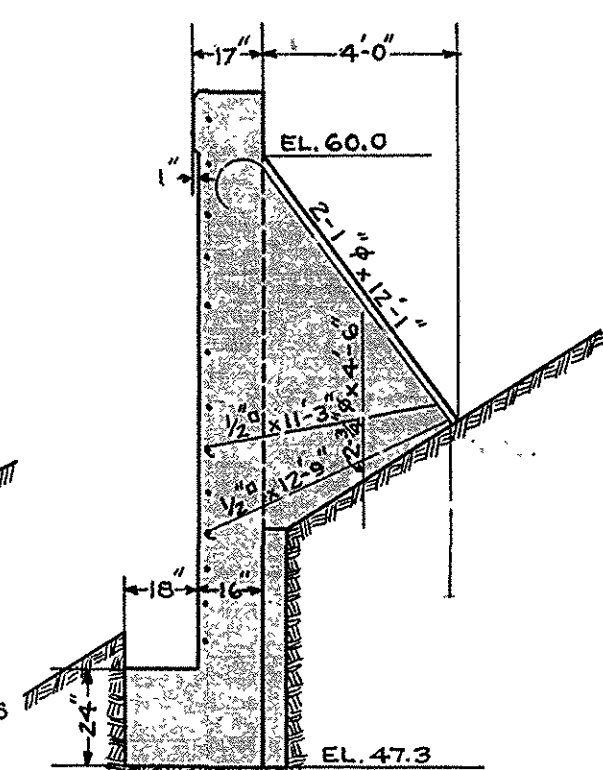
ELEVATION OF S
INTERMEDIATE POST
SCALE: $\frac{3}{4}'' = 1'-0''$



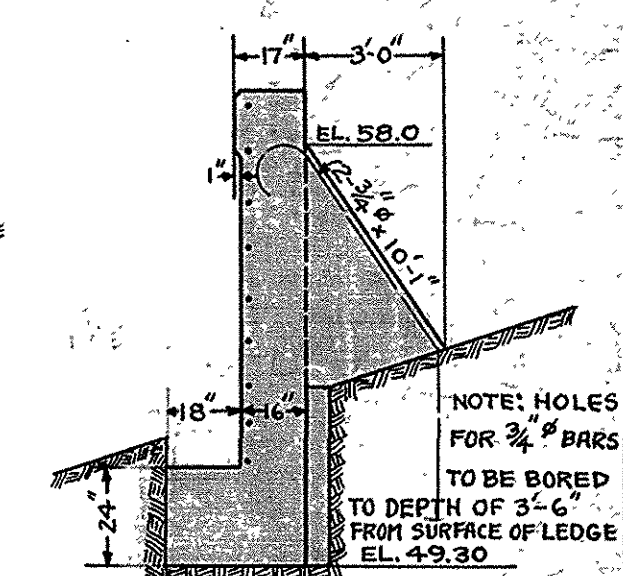
SECTION F-F
SCALE: $\frac{3}{4}'' = 1'-0''$



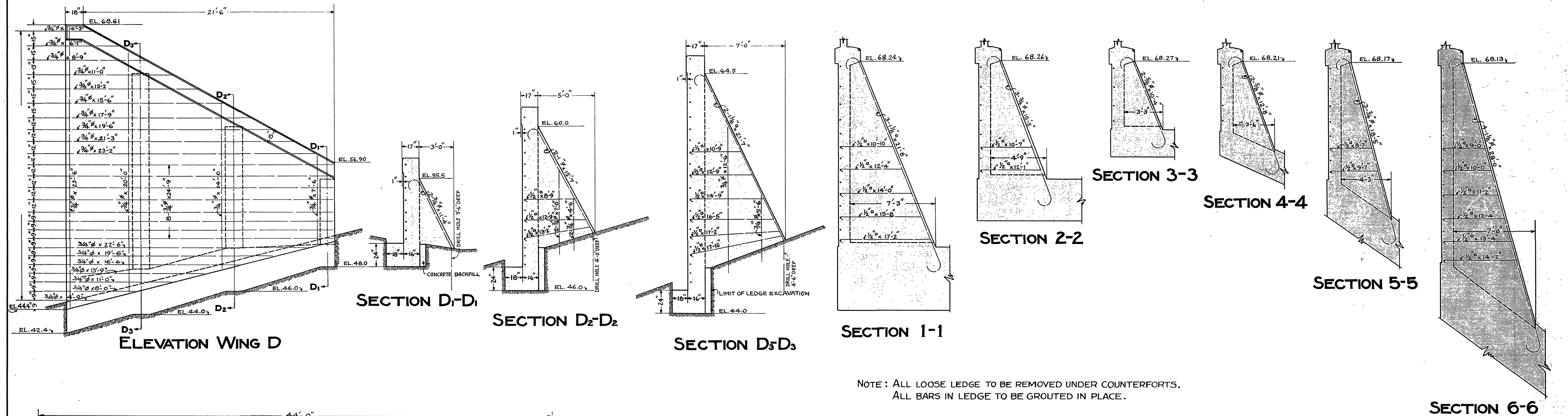
SECTION B₃-B₃



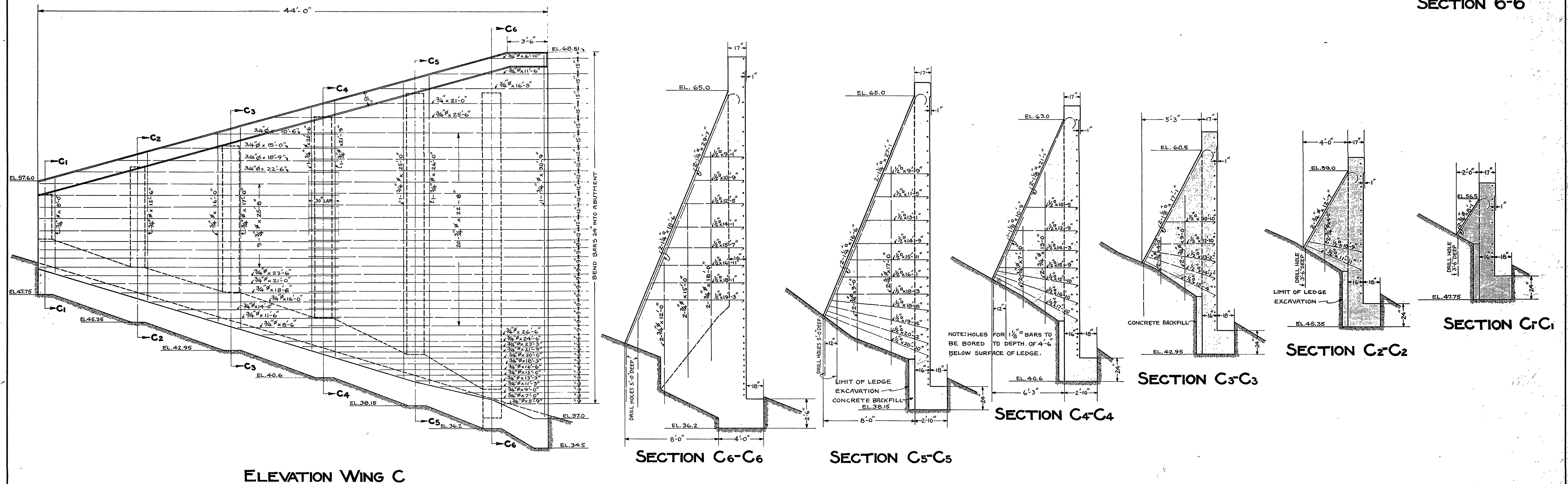
SECTION B₂-B₂

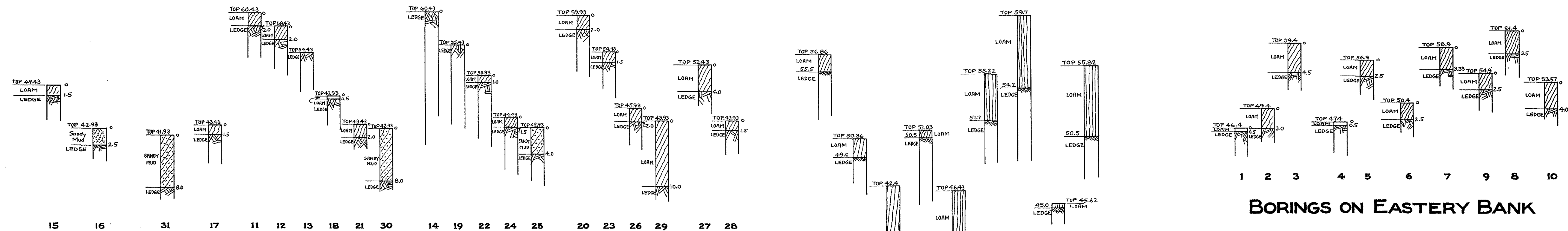


SECTION B₁-B₁



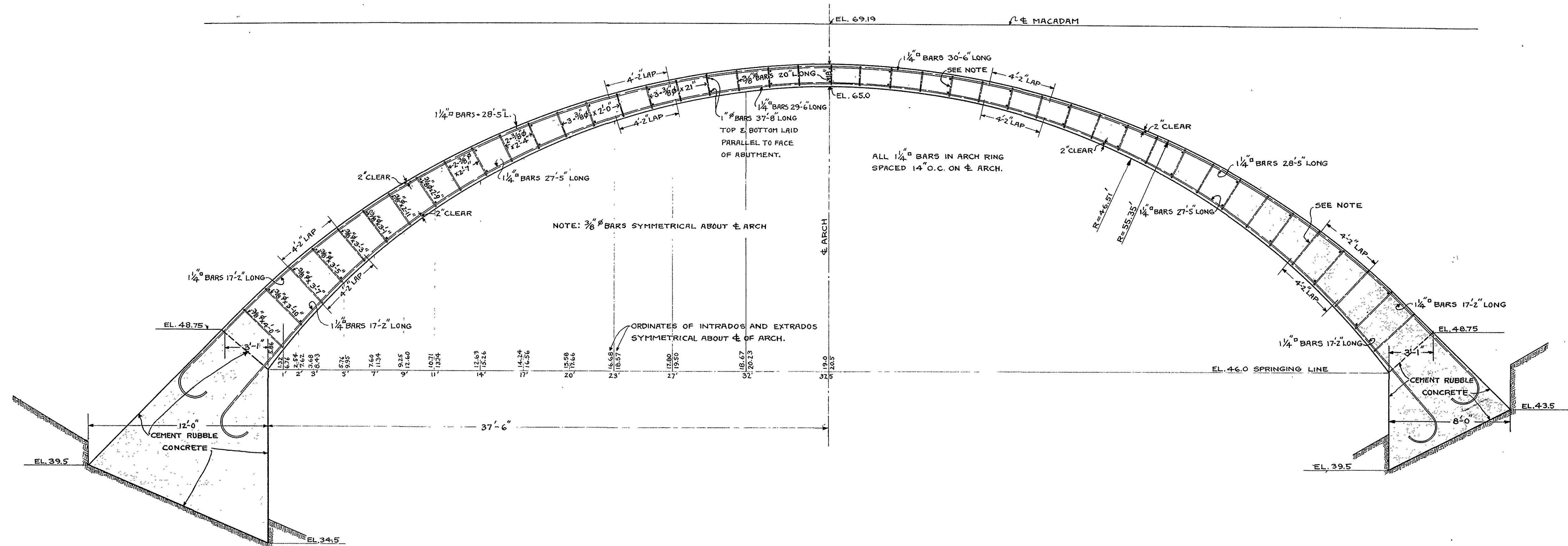
NOTE : ALL LOOSE LEDGE TO BE REMOVED UNDER COUNTERFORTS.
ALL BARS IN LEDGE TO BE GROUTED IN PLACE.





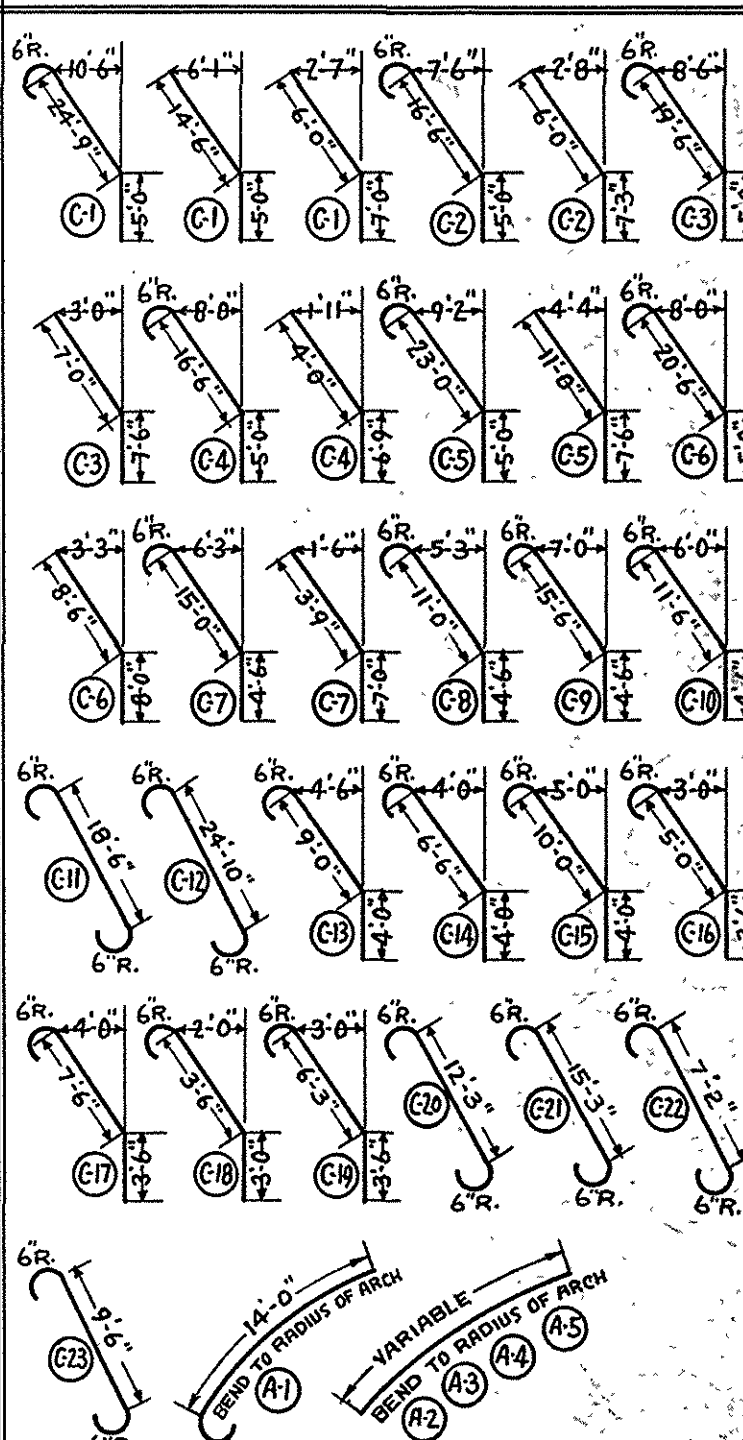
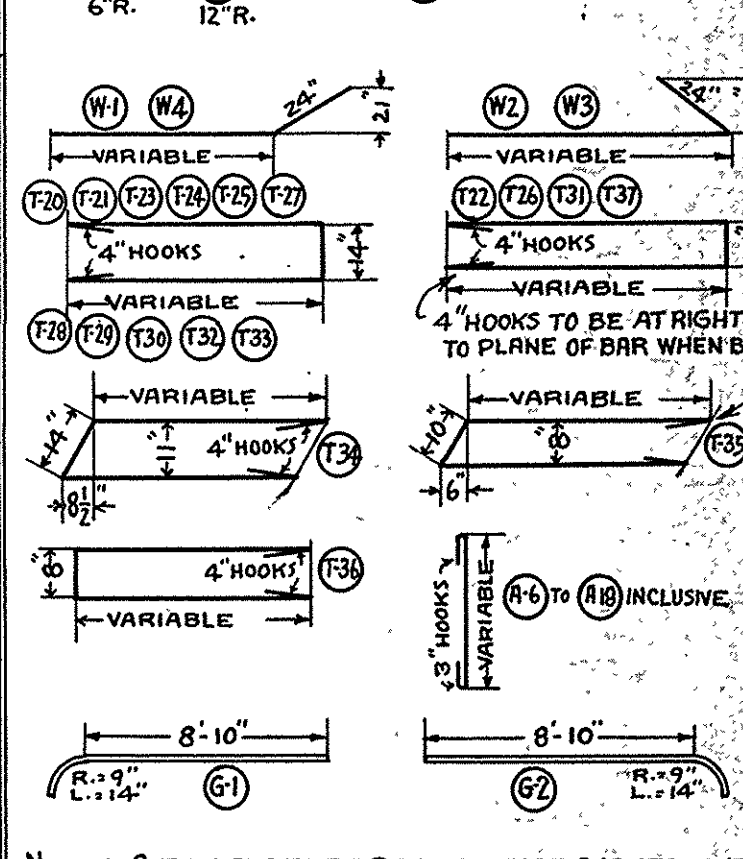
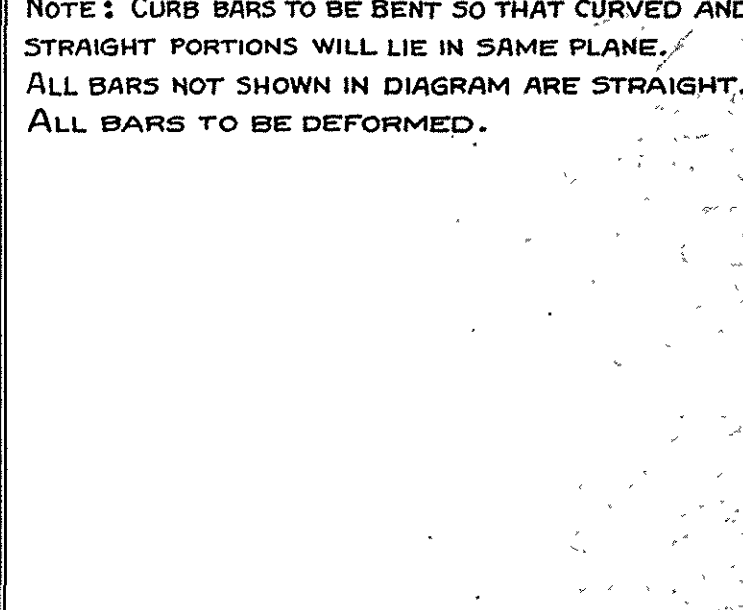
NOTE: ALL BORING DATA TAKEN FROM WASH BORINGS
AND IS NOT GUARANTEED.
LOCATION OF BORINGS SHOWN ON SHEET NO. 7

ADDITIONAL BORINGS



FED. ROAD DIST. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
	MASS.		192		

SCHEDULE OF STEEL BARS

SIZE	NO.	LENGTH	LOCATION	MARK	SIZE	NO.	LENGTH	LOCATION	MARK	BENDING DIAGRAMS					
1 1/4"	2	31'-4"	COUNTERFORT A3-A3 (BENT)	C-1	1 1/4"	8	24'-9"			1 1/4"	1	11'-5"			
	1	19'-6"				1	23'-6"				1	13'-5"			
	2	23'-1"	COUNTERFORT A2-A2 (BENT)	C-2		1	16'-6"	HORIZ. BARS IN WING WALL "D" (BENT)	W-4		1	19'-1"	TIE BARS IN COUNTERFORT B4-B4 (BENT)	T-24	
	1	13'-3"				1	19'-5"				1	20'-4"			
	2	26'-1"	COUNTERFORT B5-B5	C-3		1	4'-9"				1	21'-4"			
	2	14'-6"				1	31'-0"				1	12'-1"	TIE BARS IN COUNTERFORT B3-B3 (BENT)	T-25	
	2	23'-1"	COUNTERFORT B4-B4	C-4		1	27'-0"				1	14'-7"			
	1	10'-9"				1	23'-6"	VERT. TIE BARS IN WING WALL "A"	T-2		1	15'-6"			
	2	29'-7"	COUNTERFORT C6-C6	C-5		1	17'-0"				1	16'-4"			
	2	18'-6"				1	21'-6"				1	11'-3"	TIE BAR IN COUNTERFORT B2-B2 (BENT)	T-26	
1 1/8"	2	17'-2"	LONGITUDINAL BARS IN ARCH RING (BENT)	A-1	1 1/8"	2	27'-1"			1 1/8"	1	12'-9"			
	68	28'-5"				1	15'-6"				1	10'-9"			
	68	27'-5"				1	21'-0"				1	14'-1"	TIE BARS IN COUNTERFORT C6-C6 (BENT)	T-27	
	34	30'-6"				1	25'-0"				1	15'-6"			
	34	29'-6"				1	19'-6"	VERT. TIE BARS IN WING WALL "B"	T-3		1	12'-9"			
	1	10'-9"				1	16'-0"				1	9'-1"			
	2	21'-1"	COUNTERFORT C4-C4 (BENT)	C-7		1	11'-2"				1	10'-9"			
	2	10'-9"				1	7'-9"				1	11'-5"			
	2	17'-1"	COUNTERFORT C3-C3	C-8		1	30'-3"				1	12'-5"			
	2	21'-7"	COUNTERFORT D3-D3	C-9		1	26'-0"				1	14'-1"			
1 1/2"	2	17'-7"	COUNTERFORT B3-B3 (BENT)	C-10	1 1/2"	1	25'-0"			1 1/2"	1	18'-1"			
	6	21'-3"	ARCH COUNTERFORT 1-1	C-11		1	12'-6"				1	15'-6"			
	8	28'-0"		C-12		1	12'-6"				1	14'-9"			
	2	14'-7"	COUNTERFORT A1-A1 (BENT)	C-13		1	8'-0"	VERT. TIE BARS IN WING WALL "C"	T-4		1	10'-5"			
	2	12'-1"				1	23'-6"				1	11'-5"			
	2	15'-0"				1	14'-0"	VERT. TIE BARS IN WING WALL "D"	T-5		1	15'-11"	TIE BARS IN COUNTERFORT C5-C5 (BENT)	T-28	
	2	12'-0"				1	18'-3"				1	18'-8"			
	2	12'-0"	VERT. BARS IN END POSTS (STRAIGHT)	B-1		2	10'-6"	COUNTERFORT B1-B1 (BENT)	C-16		1	18'-8"			
	2	9'-0"				2	12'-7"				1	20'-2"			
	2	37'-8"	TRANSVERSE BARS IN ARCH RING	T-1		2	8'-1"				1	20'-10"			
7/8"	2	4'-6"	VERT. BARS IN MAIN POSTS	F-1	7/8"	2	19'-6"			7/8"	1	10'-5"			
	104	4'-6"	VERT. BARS IN FENCE AND COPING	F-1		2	11'-6"	VERT. TIE BARS IN COUNTERFORT A3-A3	T-6		1	12'-9"			
	2	4'-4"				2	14'-6"				1	14'-3"			
	2	6'-6"				2	10'-6"	VERT. TIE BARS IN COUNTERFORT A2-A2	T-7		1	15'-10"			
	1	8'-8"				2	6'-0"	VERT. TIE BARS IN COUNTERFORT A1-A1	T-8		1	16'-10"			
	1	11'-0"				2	17'-6"				1	17'-10"			
	1	13'-3"				2	12'-0"	VERT. TIE BARS IN COUNTERFORT B5-B5	T-9		1	10'-10"			
	2	15'-6"				2	13'-0"				1	15'-0"	TIE BARS IN COUNTERFORT C3-C3 (BENT)	T-30	
	1	18'-0"				2	14'-0"				1	14'-2"			
	1	19'-3"				2	10'-6"	VERT. TIE BARS IN COUNTERFORT B4-B4	T-10		1	10'-9"	TIE BARS IN COUNTERFORT C2-C2 (BENT)	T-31	
3/4"	1	21'-6"	HORIZ. BARS IN WING WALL "A" (BENT)	W-1	3/4"	2	15'-4"			3/4"	1	10'-9"			
	2	23'-3"				2	4'-6"				1	11'-11"			
	1	22'-6"				2	4'-6"	VERT. TIE BARS IN COUNTERFORT B2-B2	T-11		1	10'-9"			
	1	21'-0"				2	17'-0"	VERT. TIE BARS IN COUNTERFORT C5-C5	T-12		1	12'-9"			
	1	19'-0"				2	9'-0"				1	14'-9"	TIE BARS IN COUNTERFORT D3-D3 (BENT)	T-32	
	1	17'-3"				2	13'-0"				1	16'-5"			
	1	11'-6"				2	17'-2"				1	17'-10"			
	1	3'-0"				2	9'-0"				1	8'-9"	TIE BARS IN COUNTERFORT D2-D2 (BENT)	T-33	
	1	6'-3"				2	4'-0"				1	12'-9"			
	2	10'-9"				2	12'-6"				1	13'-2"			
5/8"	1	15'-2"			5/8"	2	5'-6"			5/8"	4	18'-6"			
	1	19'-5"				2	5'-6"				4	17'-0"			
	2	24'-0"				2	18'-0"	VERT. TIE BARS IN COUNTERFORT C6-C6	T-13		4	14'-0"			
	1	33'-0"				2	12'-0"				4	11'-0"			
	9	17'-0"				2	18'-0"				4	12'-0"			
	9	25'-10"				4	10'-4"				4	2'-6"			
	2	36'-0"	HORIZ. BARS IN WING WALL "B" (BENT)	W-2		4	10'-4"				4	2'-6"			
	1	30'-6"				4	12'-8"				4	4'-6"			
	1	27'-0"				16	24'-0"	HORIZ. IN END PANELS OF FENCE RAIL	F-2		4	3'-6"			
	1	21'-6"				12	28'-0"	HORIZ. IN FENCE END PANELS	F-4		4	19'-0"			
3/4"	1	18'-0"			3/4"	12	27'-8"			3/4"	4	21'-6"			
	1	12'-0"				4	26'-0"				4	14'-6"			
	1	9'-0"				1	10'-3"				4	14'-6"			
	1	8'-0"				1	12'-6"				4	12'-6"			
	1	4'-6"				1	14'-3"				4	11'-0"			
	1	6'-10"				1	16'-3"				4	9'-6"			
	2	11'-6"				1	17'-5"				4	17'-5"			
	1	16'-3"				1	18'-9"	TIE BARS IN COUNTERFORT A3-A3 (BENT)	T-20		4	9'-6"			
	2	21'-0"				1	20'-3"				4	9'-6"			
	2	28'-6"				1	21'-7"				4	4'-0"			
2"	20	22'-8"			2"	1	24'-11"			2"	4	25'-8"			
	1	10'-6"				1	24'-4"				2	10'-10"	TIE BARS IN ARCH COUNTERFORT 1-1 (BENT)	T-34	
	2	15'-0"				1	25'-2"				2	12'-4"			
	1	22'-6"				1	10'-3"				2	15'-8"			
	1	28'-6"				1	12'-2"				2	10'-7"	TIE BARS IN ARCH COUNTERFORT 2-2 (BENT)	T-35	
	1	24'-6"				1	15'-1"				2	12'-1"			
	1	23'-3"				1	16'-7"	TIE BARS IN COUNTERFORT A2-A2 (BENT)	T-21		2	8'-7"			
	1	21'-3"				1	18'-1"				2	9'-7"			
	1	18'-3"				1	18'-4"				2	9'-0"			
	1	16'-6"				1	10'-10"				2	10'-0"	SALV. IRON CURB BARS BEND LEFT	G-1	
1 1/2"	1	13'-3"			1 1/2"	1	12'-1"			1 1/2"	2	10'-0"			
	1	9'-0"				1	13'-3"				2	10'-0"			
	1	7'-0"				1	15'-11"				2	7'-0"			
	1	5'-9"				1	10'-5"				2	10'-0"			
	1	23'-6"				1	12'-1"	TIE BARS IN COUNTERFORT A1-A1 (BENT)	T-22		2	10'-0"			
	1	18'-6"				1	13'-7"				2	10'-0"			
	1	16'-6"				1	15'-11"				2	7'-0"			
	1	14'-0"				1	10'-5"				2	10'-0"			
	1	8'-6"				1	12'-5"				2	10'-0"			
	1	4'-3"				1	16'-5"				2	10'-0"			
1"	1	6'-7"			1"	1	17'-3"			1"	1	13'-5"			
	2	11'-0"				1	19'-5"				1	15'-5"			
	1	13'-2"				1	20'-8"				1	17'-5"			
	2	11'-0"				1	21'-8"				1	19'-5"			
	1	13'-2"				1	19'-10"				1	20'-8"			
	1	17'-9"				1	20'-8"				1	21'-8"			
	1	19'-6"				1	22'-8"				1	22'-8"			
	1	23'-2"				1	22'-8"				1	22'-8"			
	1	23'-2"				1	22'-8"				1	22'-8"			
	1	23'-2"				1	22'-8"				1	22'-8"			

PUB. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	1-91-K(54)		73	256

GENERAL NOTES

FOUNDATIONS:

MAY BE ALTERED, IF NECESSARY, TO SUIT CONDITIONS ENCOUNTERED IN CONSTRUCTION.

REINFORCEMENT:

ALL REINFORCING STEEL BARS SHALL CONFORM TO A.S.T.M. SPECIFICATION A-305, UNLESS OTHERWISE SHOWN ON THE PLANS. REINFORCING BARS SHALL BE LAPPED 20 DIAMETERS TO MAKE A SPLICE, EXCEPT THAT MAIN REINFORCING BARS NEAR THE TOP OF SLABS AND BEAMS HAVING MORE THAN 12 INCHES OF CONCRETE UNDER THE BARS SHALL BE LAPPED 35 DIAMETERS TO MAKE A SPLICE.

BORING NOTES:

LOCATION OF BORINGS SHOWN ON KEY PLAN THUS NO. 2 BORINGS TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW NATURE OF MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION. FIGURES IN COLUMNS INDICATE BLOWS PER FOOT ON 1" O.D. SAMPLER PRODUCED BY 30" FALL OF 140# HAMMER. BORING SAMPLES MAY BE SEEN AT THE DEPARTMENT OF PUBLIC WORKS LABORATORY IN THE MAINTENANCE BUILDING ON ROUTE 9 IN WELLESLEY.

DESIGN:

IN ACCORDANCE WITH THE CURRENT SPECIFICATIONS OF THE A.A.S.H.O. FOR H-20-516-44 LOADING, (MODIFIED FOR MILITARY LOADING)

BENCH MARK:

NAIL IN REAR POLE 7' LEFT STATION 31+42. ELEVATION 367.015. LEVEL DATUM: U.S.G.S. MEAN SEA LEVEL OF 1929.

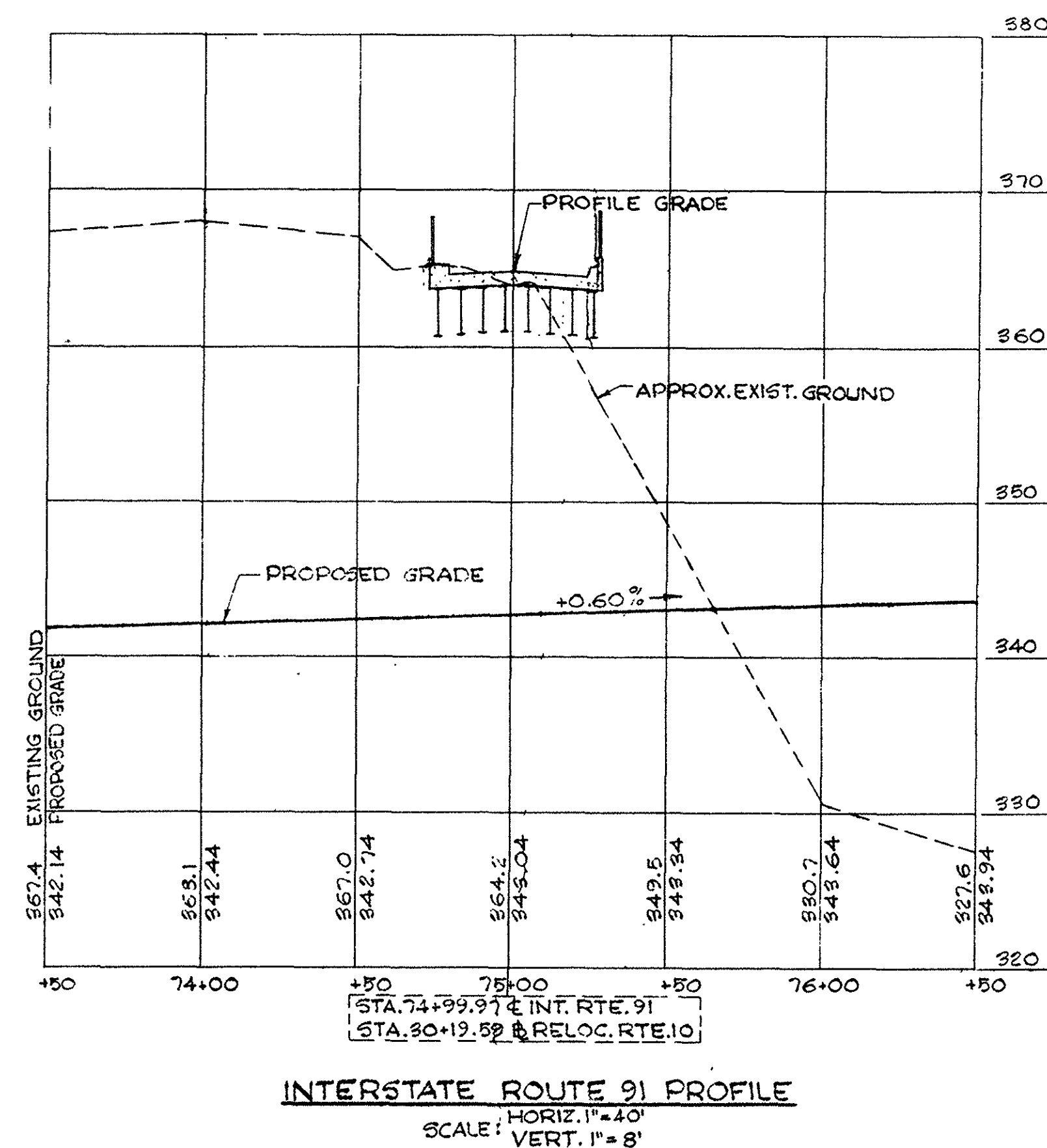
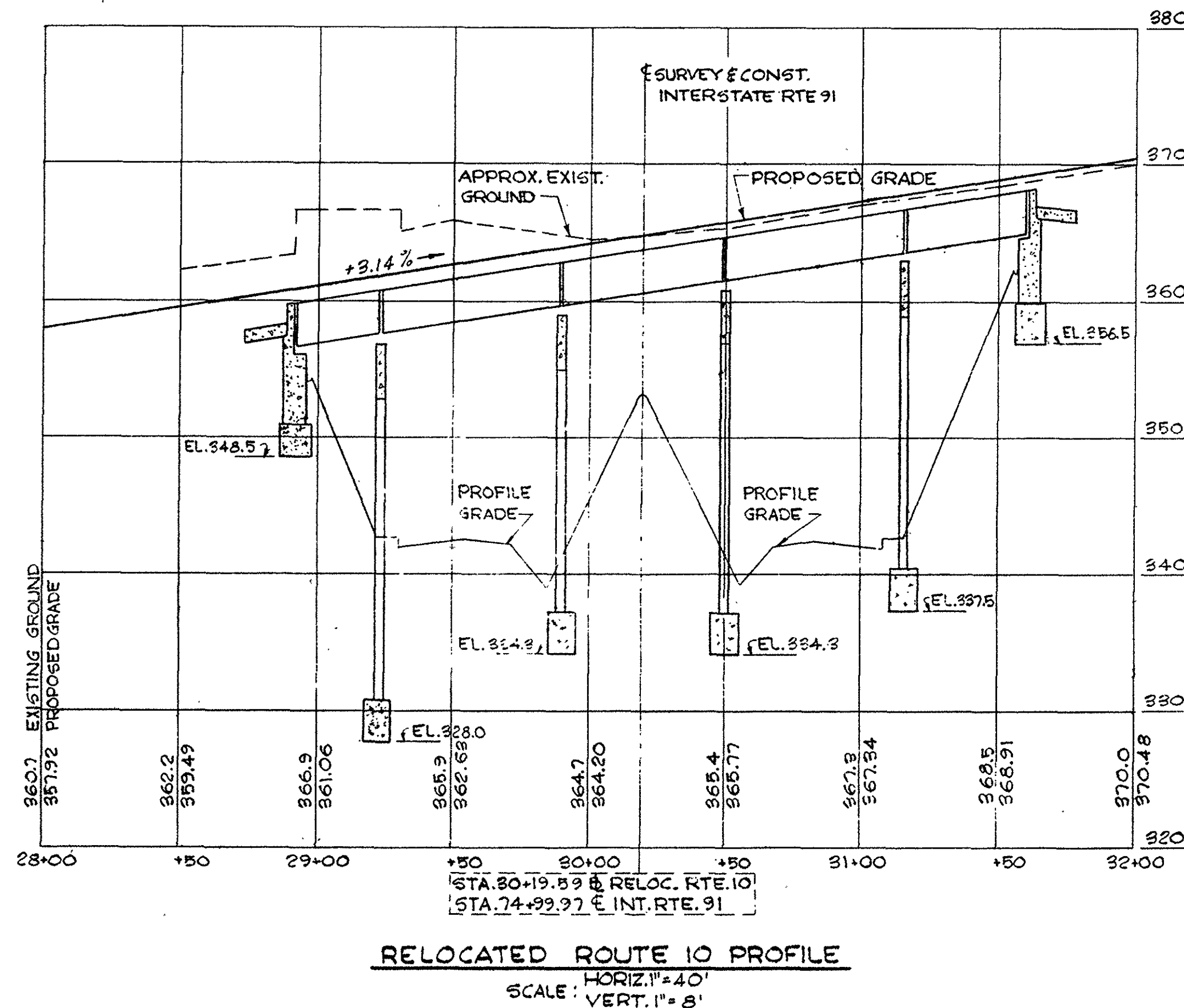
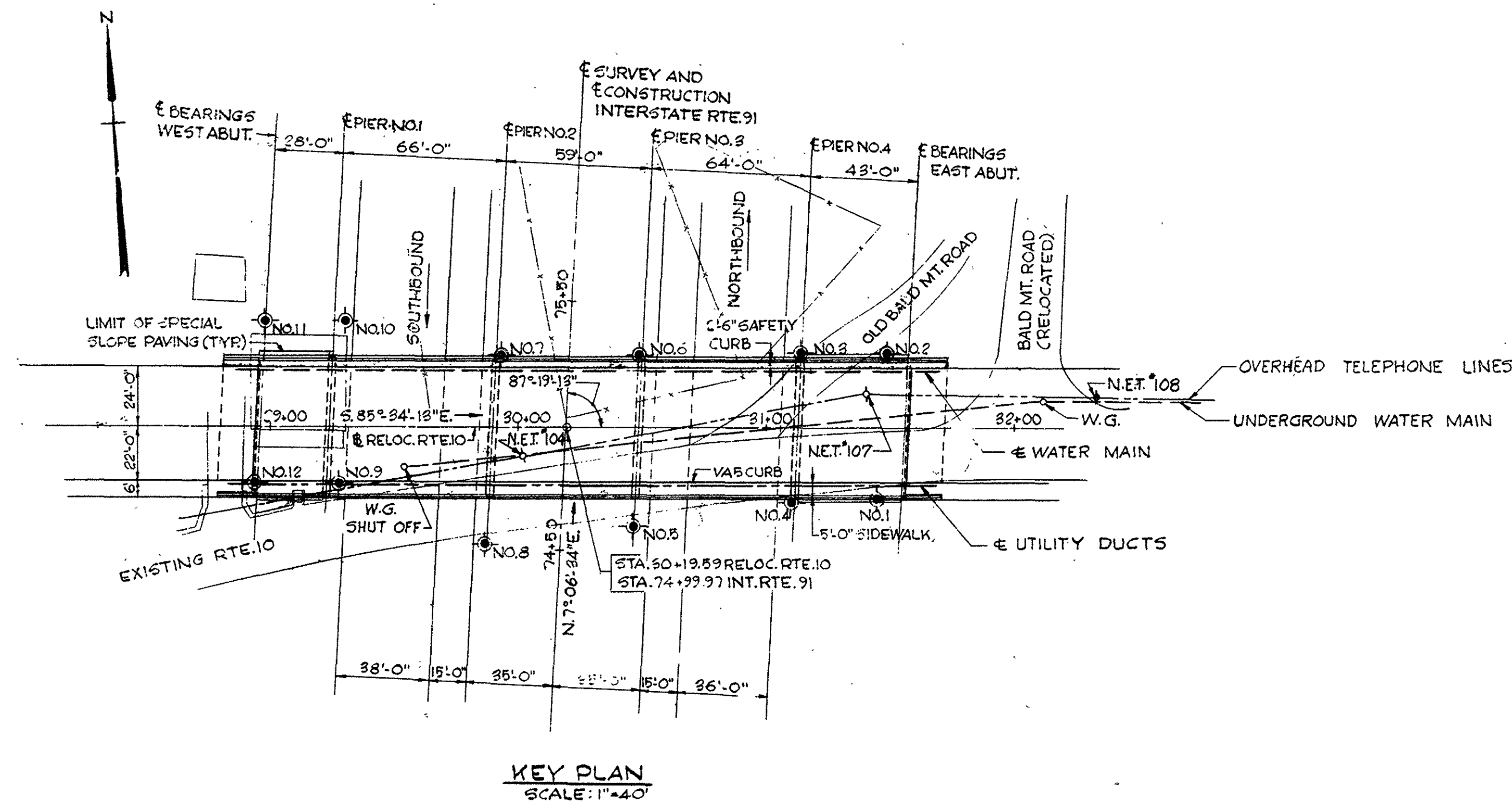
DATE & SEAL:

DATE TO BE CUT THRU STEEL PLATE, PLATE TO BE WELDED TO BRIDGE RAILS AT NORTHEASTERLY AND SOUTHWESTERLY CORNERS OF BRIDGE AS SHOWN IN DETAIL ON SHEET 7 OF 7. SEAL TO BE FURNISHED BY THE COMMONWEALTH.

ESTIMATED QUANTITIES (NOT GUARANTEED)

ITEM	QUANTITY	UNITS
BRIDGE EXCAVATION	4,700	C.Y.
CLASS B ROCK EXCAVATION	25	C.Y.
GRAVEL BORROW	150	C.Y.
CLASS I BIT. CONC. PAVEMENT		
TYPE 1-1	200	TONS
LUMBER SHEETING	4.7	MFBM
BRIDGE STRUCTURE (8-10-18)		LUMP SUM
ESTIMATED WEIGHT-STRUCTURAL STEEL	372,000	LBS.
ESTIMATED WEIGHT-REINFORCING STEEL	182,000	LBS.

INCLUDED IN ITEM 615-2
(NOT GUARANTEED)



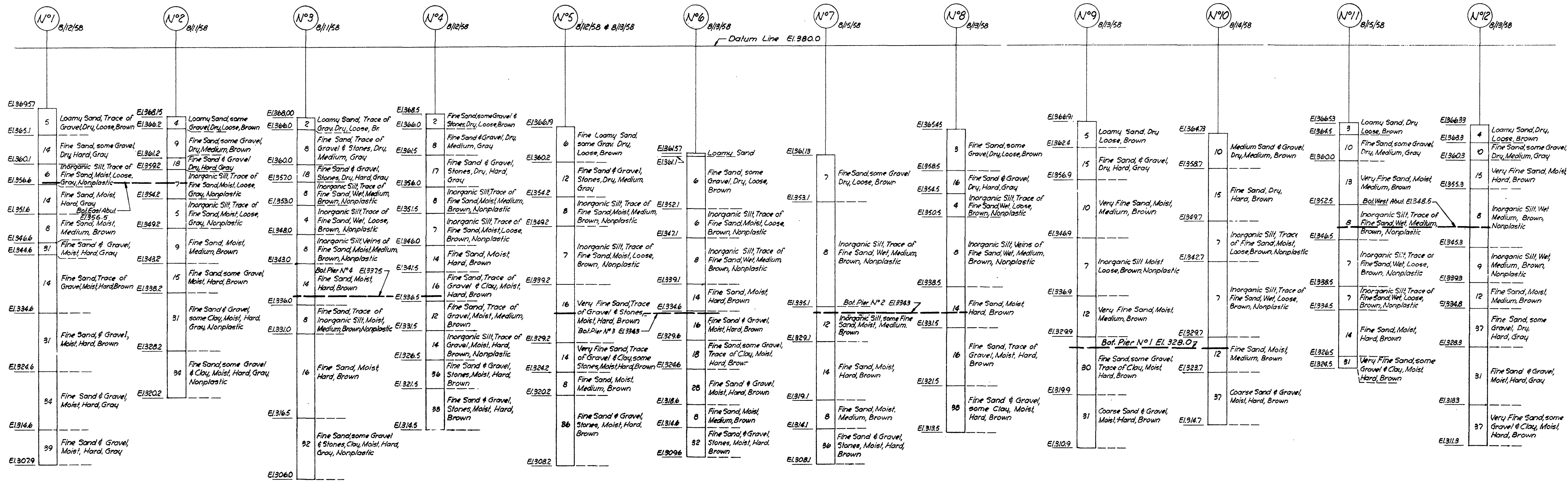
FAY, SPOFFORD & THORNDIKE, INC.
CONSULTING ENGINEERS BOSTON, MASS.

DESIGNED BY B.D.Z. & J.N.C.	JULY 28, 1959	4 SHEETS 345, 346, 347, 348	UTILITY CONDUIT LOCATION REVISED
DRAWN BY R.M.M.	FEB. 28, 1959	ISSUED FOR CONSTRUCTION	
CHECKED BY J.N.C. & B.D.Z.	THE COMMONWEALTH OF MASSACHUSETTS		
APPROVED FOR DESIGN	PROPOSED BRIDGE		
ARCHITECTURE	BERNARDSTON		
SPECS.	INTERSTATE ROUTE 91 UNDER RELOCATED ROUTE 10		
	SCALE: AS NOTED		
	OFFICE OF DEPARTMENT OF PUBLIC WORKS 100 NASHUA ST. BOSTON, MASS.		
	FEBRUARY 1959		
	BRIDGE ENGINEER		
	CHIEF ENGINEER		

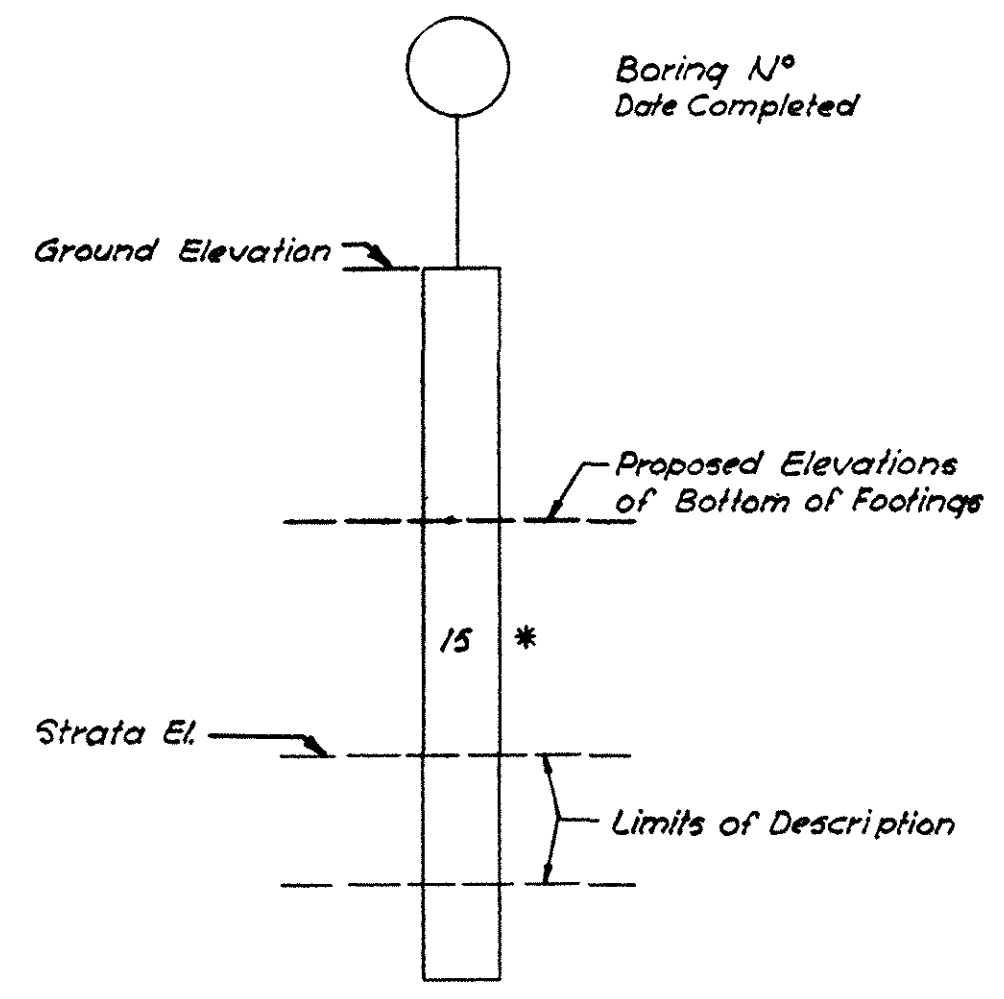
SHEET 1 OF 7 SHEETS BRIDGE NO. 8-10-18

DES.	—
DR.	W.R.M.
TR.	R.M.M.
CHK.	B.D.Z.
APP'D	R.M.M.

Vk.14
1



Note:
No Water Encountered In Any Boring.
All Borings Extended To Refusal.



LEGEND

BORING NOTES

Location of Borings Shown On Key Plan Thus - N°2. Borings Taken For Purpose Of Design Only, And Show Conditions At Boring Points Only, But Do Not Necessarily Show Nature Of Materials To Be Encountered During Construction.
* - Indicates Blows Per 1'-0" On 1" O.D. Sampler Produced By 30" Fall Of 140 # Hammer.
All Borings Were Made Between 8/1/58 & 8/15/58. By Carr-Dee Test Boring and Construction Corporation, Boston, Mass.
Boring Samples May Be Seen At The Department Of Public Works Laboratory In The Maintenance Building On Route 9 In Wellesley.

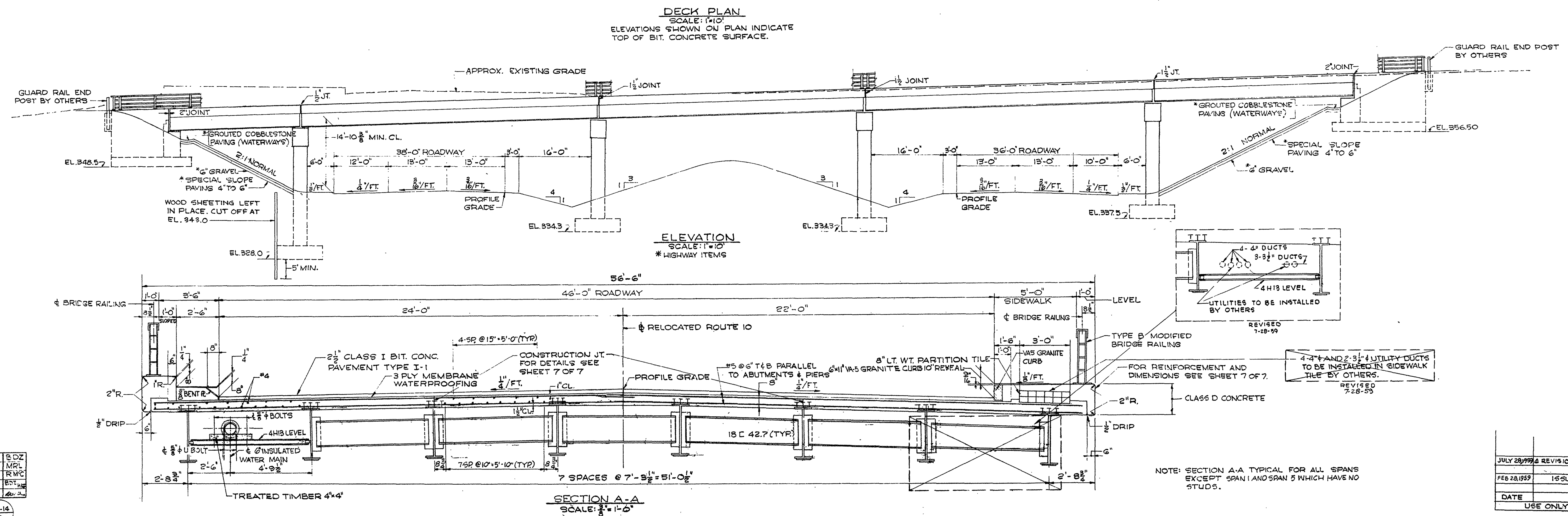
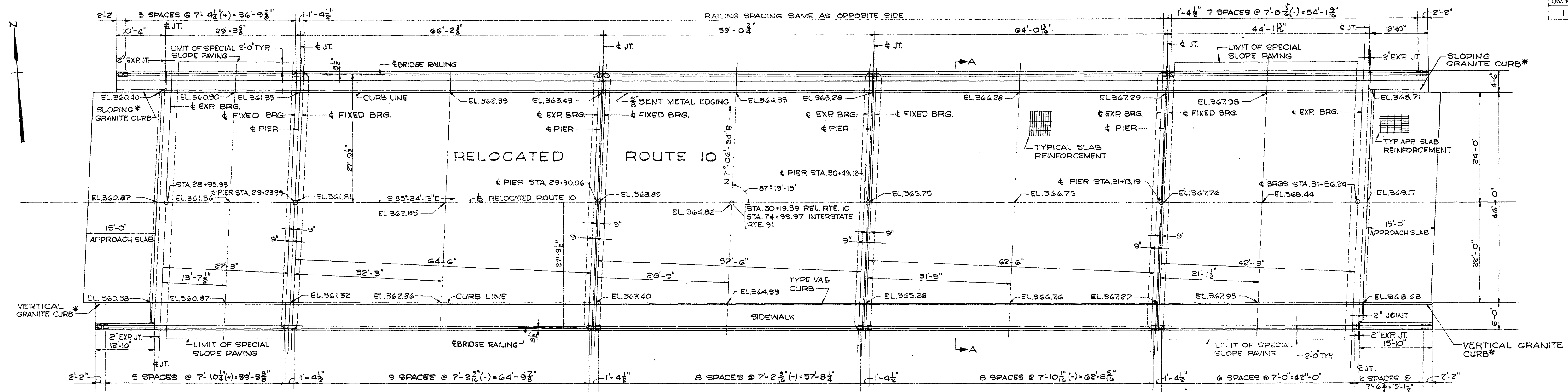
BORING DATA
SCALE 1/2" = 1'-0"

DES	---
DR	WJS
TR	---
CHK	MRL
APPD	aga

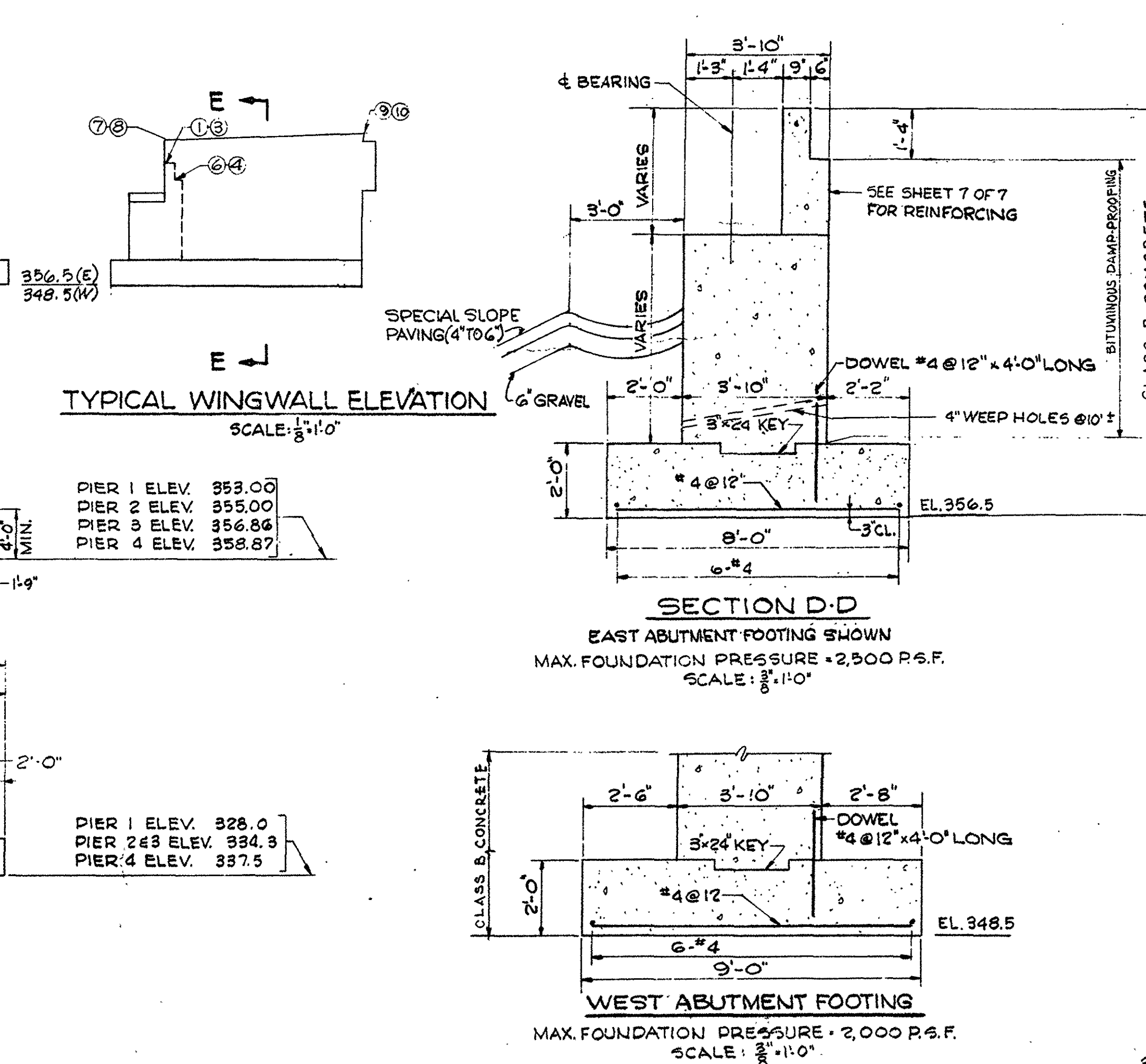
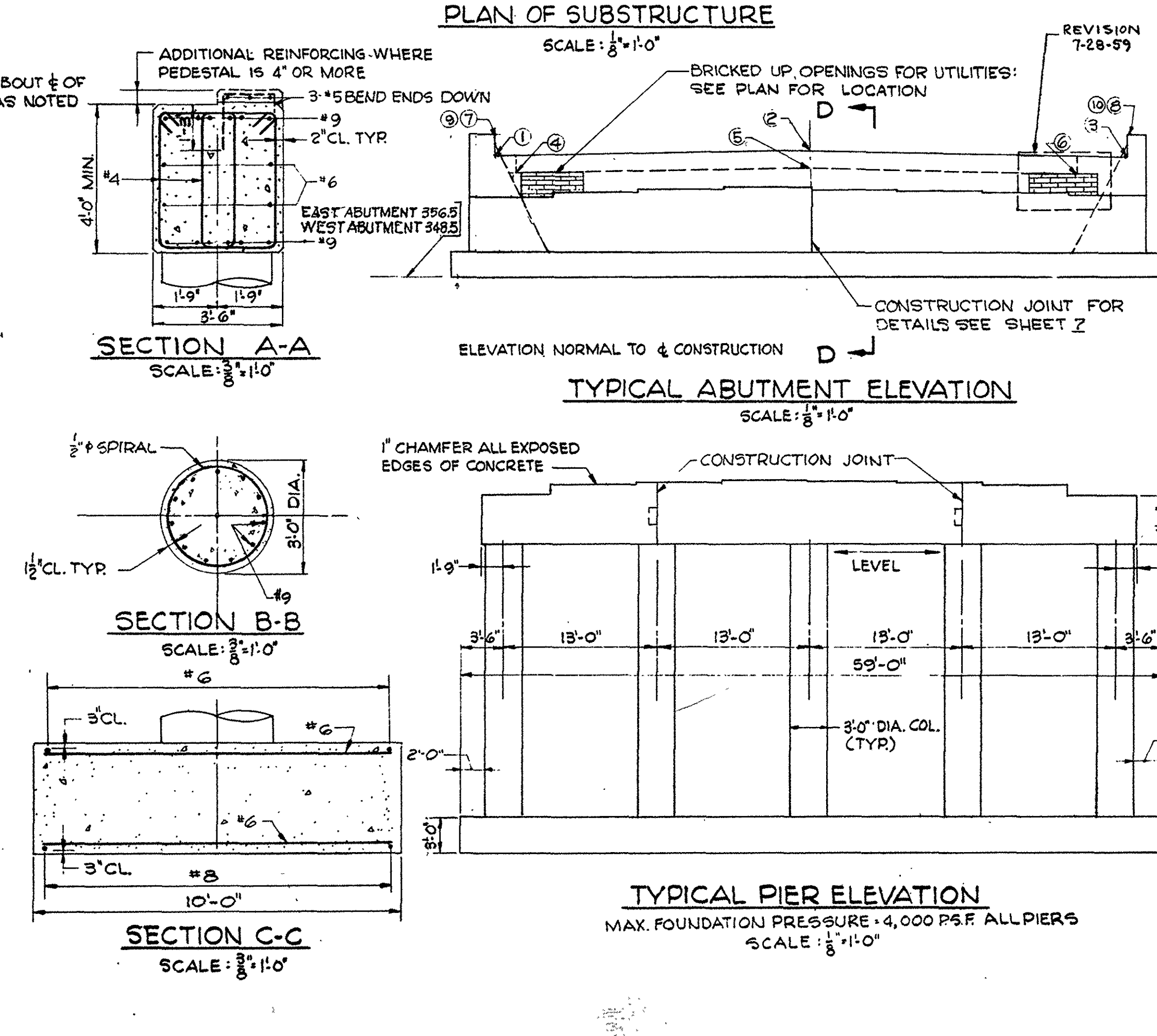
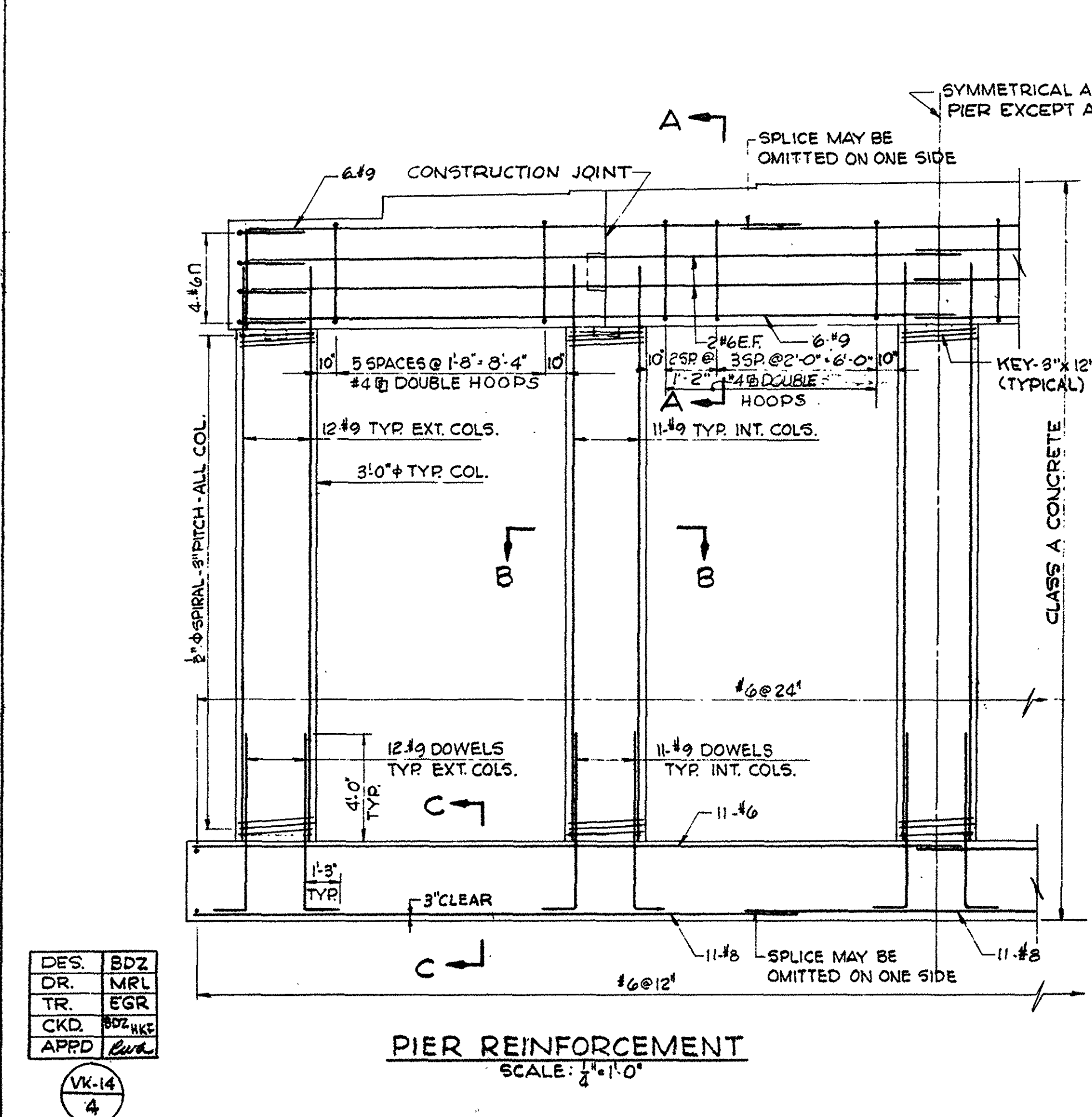
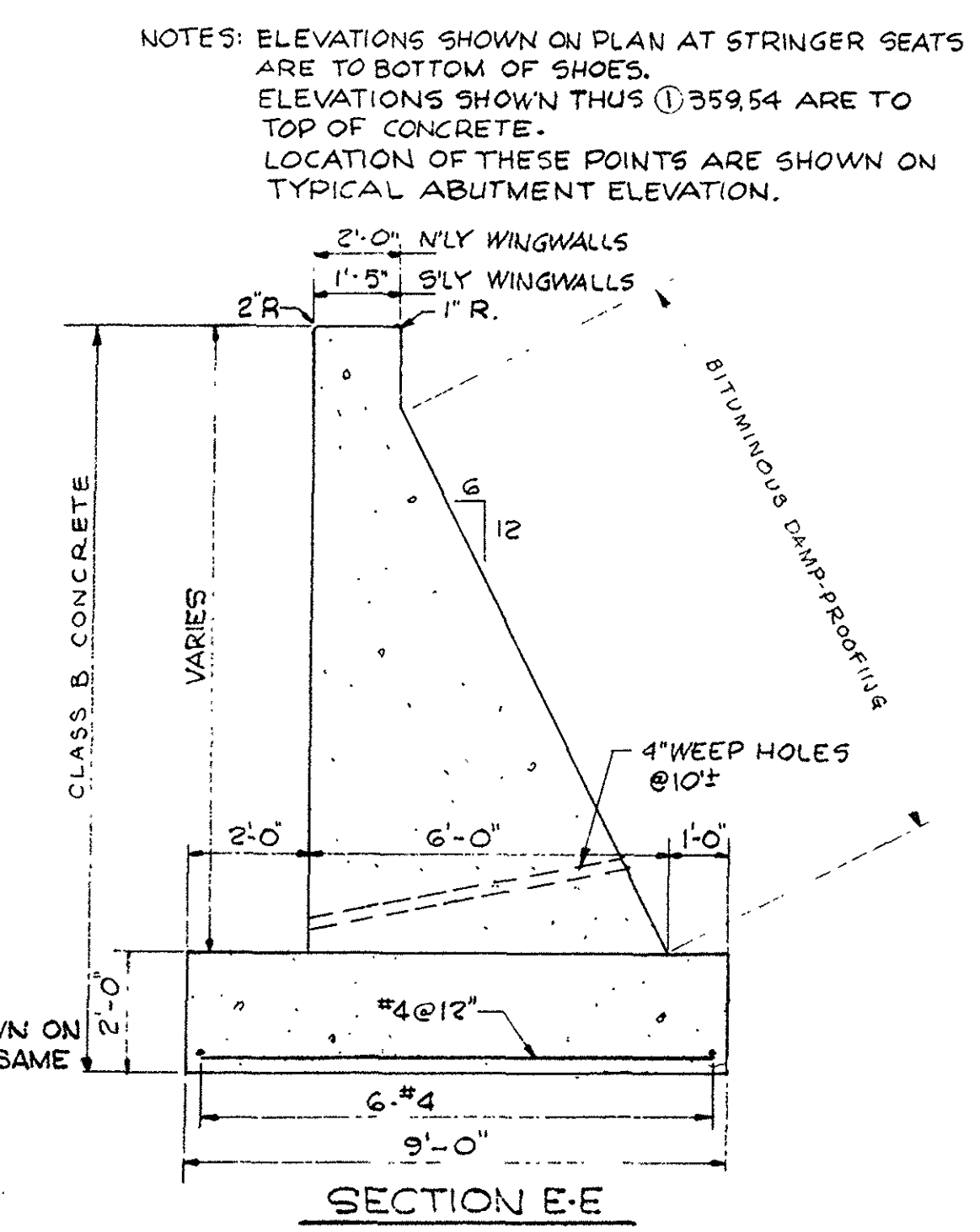
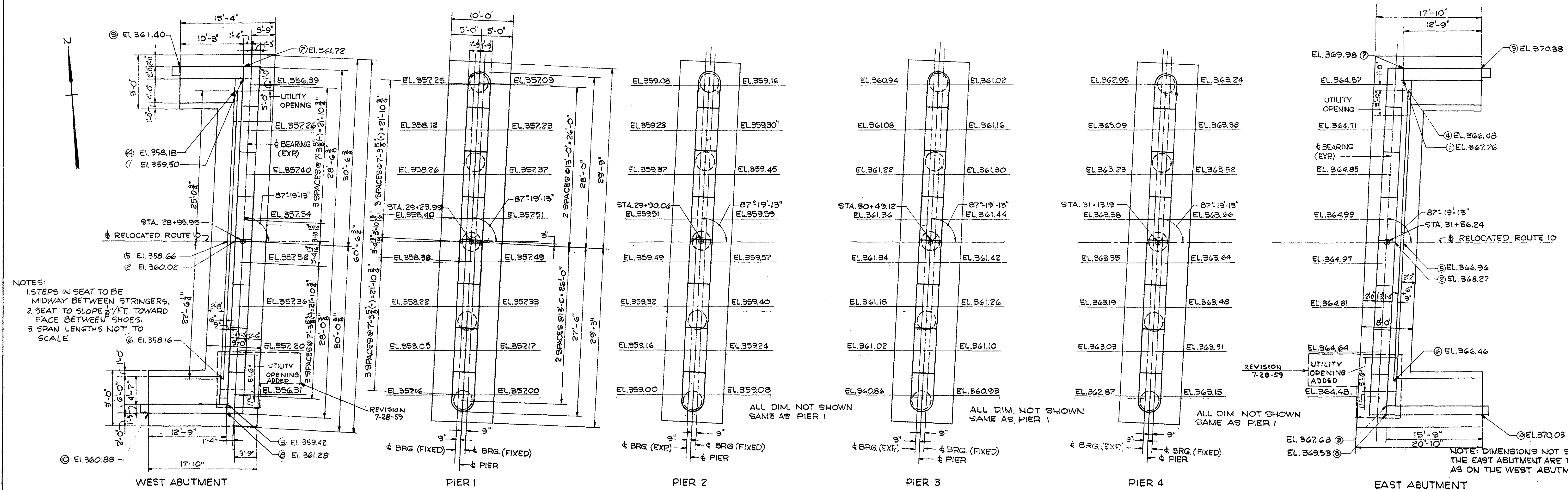
Vk-14
2

Feb. 28, 1959	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE

PUB. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	I-91(5)A		75	256

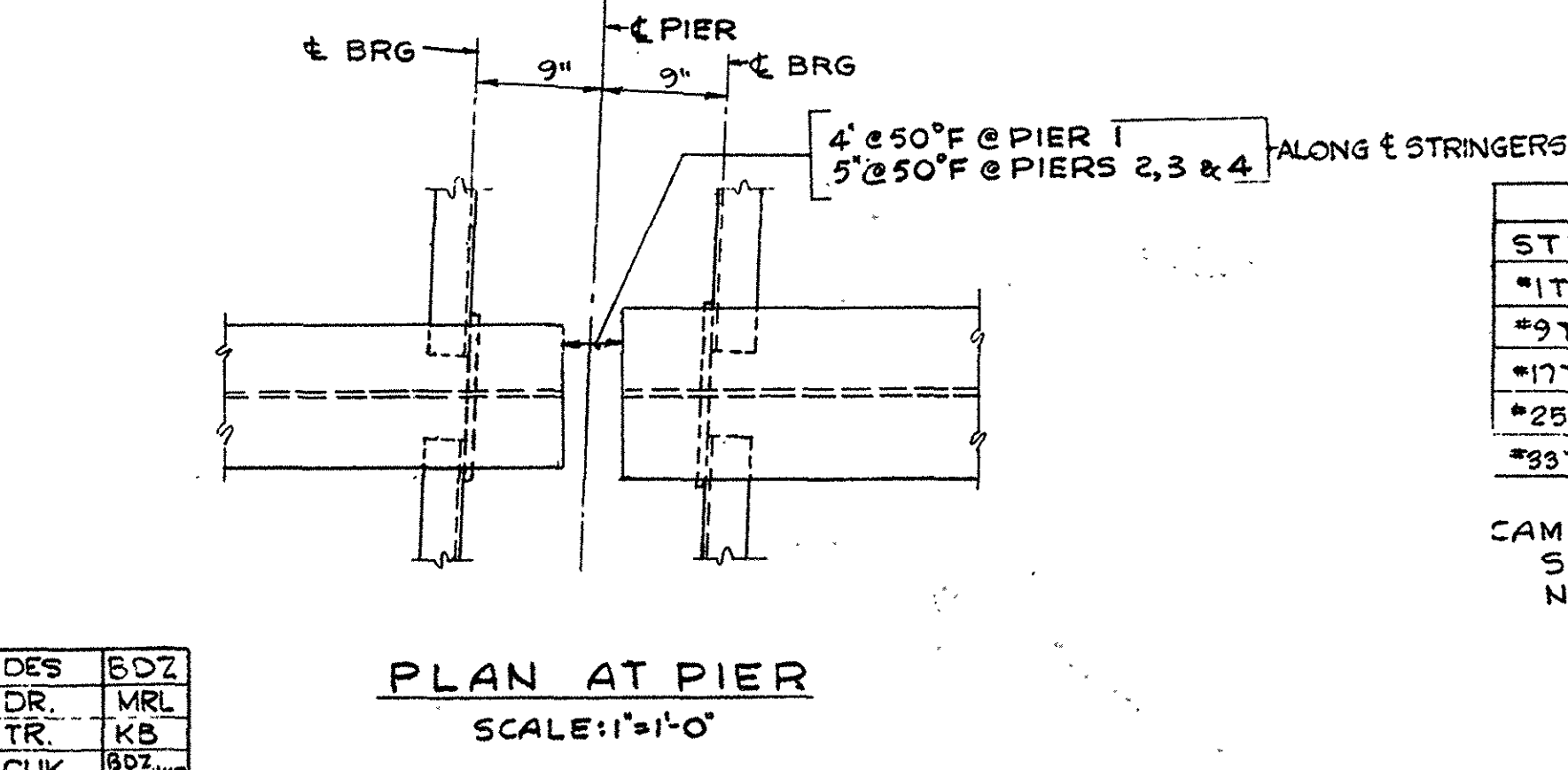
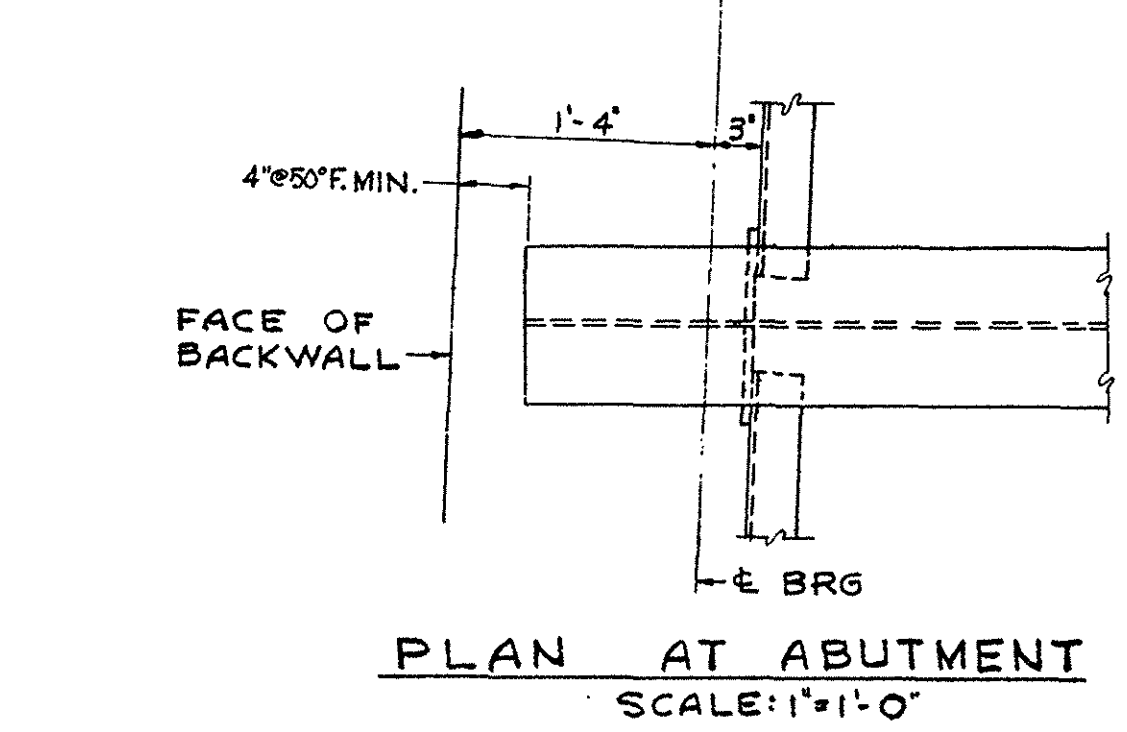
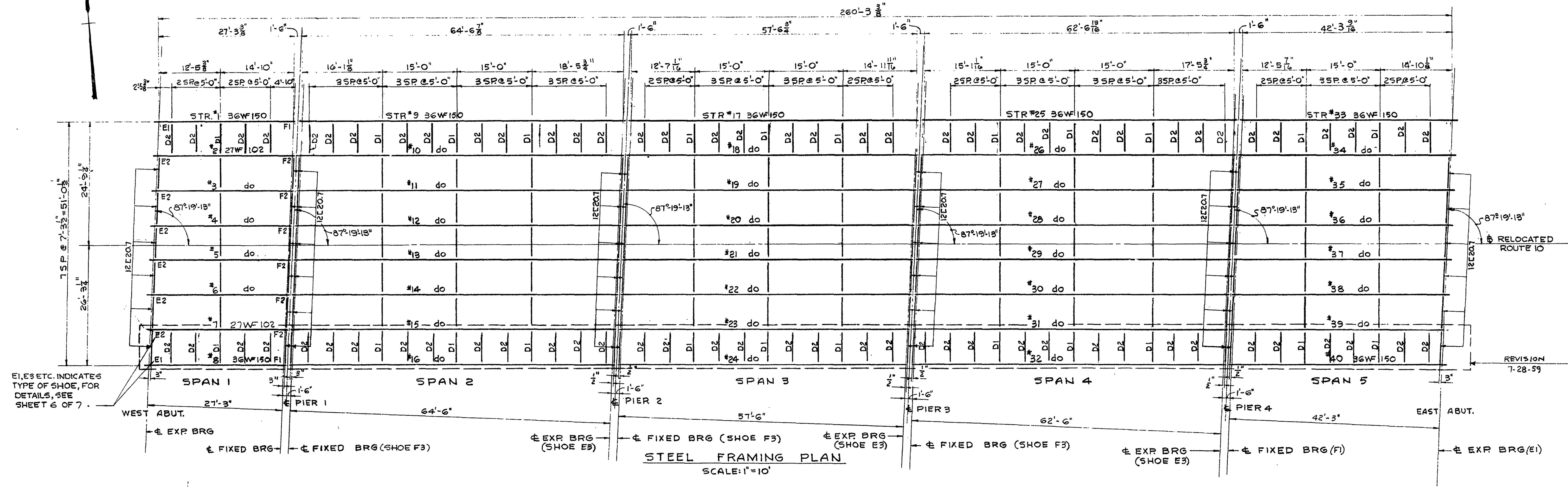


PUB. ROAD	STATE	FED. AID	FISCAL	SHEET	TOTAL
DIV. NO.	PROJ. NO.	YEAR	NO.	NO.	SHEETS
1	MASS. 191-104		76	256	



DES.	BDZ
DR.	MRL
TR.	EGR
CKD	WKC
APPD	WKC

JULY 28, 1959	REVISION - UTILITY CONDUIT LOCATION ADDED
FEB 28, 1959	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE



STRINGER NO.	SIZE	BOTTOM COVER PLATE	DEAD LOAD DEFLECTION
#1, #8	36WF150		1 1/8" 1 1/8" 1 1/8"
#2 THRU #7	27WF102		1 1/8" 1 1/8" 1 1/8"
#9, #16	36WF150	10 1/2" x 43'-0"	1 1/8" 1 1/8" 1 1/8"
#10 THRU #15	36WF150	10 1/2" x 45'-0"	1 1/8" 1 1/8" 1 1/8"
#17, #24	36WF150	9 1/2" x 33'-0"	1 1/8" 1 1/8" 1 1/8"
#18 THRU #23	36WF150	10 1/2" x 35'-0"	1 1/8" 1 1/8" 1 1/8"
#25, #32	36WF150	9 1/2" x 40'-0"	1 1/8" 1 1/8" 1 1/8"
#26 THRU #31	36WF150	10 1/2" x 41'-0"	1 1/8" 1 1/8" 1 1/8"
#33, #40	36WF150		1 1/8" 1 1/8" 1 1/8"
#34 THRU #39	36WF150		1 1/8" 1 1/8" 1 1/8"

STRINGER	"A"	"B"
#1 THRU #8	3/8"	7/8"
#9 THRU #16	2"	2 1/2"
#17 THRU #24	1 1/2"	1 7/8"
#25 THRU #32	1 7/8"	2 3/4"
#33 THRU #40	7/8"	1 1/8"

CAMBER: STRINGERS SHALL BE CAMBERED FOR NOT LESS THAN "A" AND NOT MORE THAN "B"

STRINGER NO.	STUD A	STUD B	STUD C
#9, #16	10'-0" 6"	10'-0" 7 1/2"	12'-6 1/2" 10"
#10 THRU #15	10'-0" 4 1/2"	10'-0" 6 1/2"	12'-6 1/2" 9"
#17, #24	10'-0" 6"	10'-0" 7 1/2"	9'-0 1/2" 11"
#18 THRU #23	10'-0" 5"	10'-0" 7"	9'-0 1/2" 10"
#25, #32	10'-0" 6"	10'-0" 7 1/2"	11'-6 1/2" 10 1/2"
#26 THRU #31	10'-0" 4 1/2"	10'-0" 7"	11'-6 1/2" 9 1/2"

NOTE: NO SHEAR CONNECTORS ON #1 THRU #8 AND #33 THRU #40
SHEAR CONNECTORS & COVER PLATES ARE SYMMETRICAL ABOUT C OF SPAN.

NOTE: FOR THE USE OF THE RESIDENT ENGINEER ONLY

STRINGER	DEFLECTION AT MIDSPAN DUE TO CONCRETE SLAB
S-1 & S-8	1/16"
S-2 THRU S-7	1/8"
S-9 & S-16	3/4"
S-10 THRU S-15	1 1/8"
S-17 & S-24	1 1/2"
S-18 THRU S-23	3/16"
S-25 & S-32	1 1/16"
S-26 THRU S-31	3/4"
S-33 & S-40	3/16"
S-32 THRU S-39	1/4"

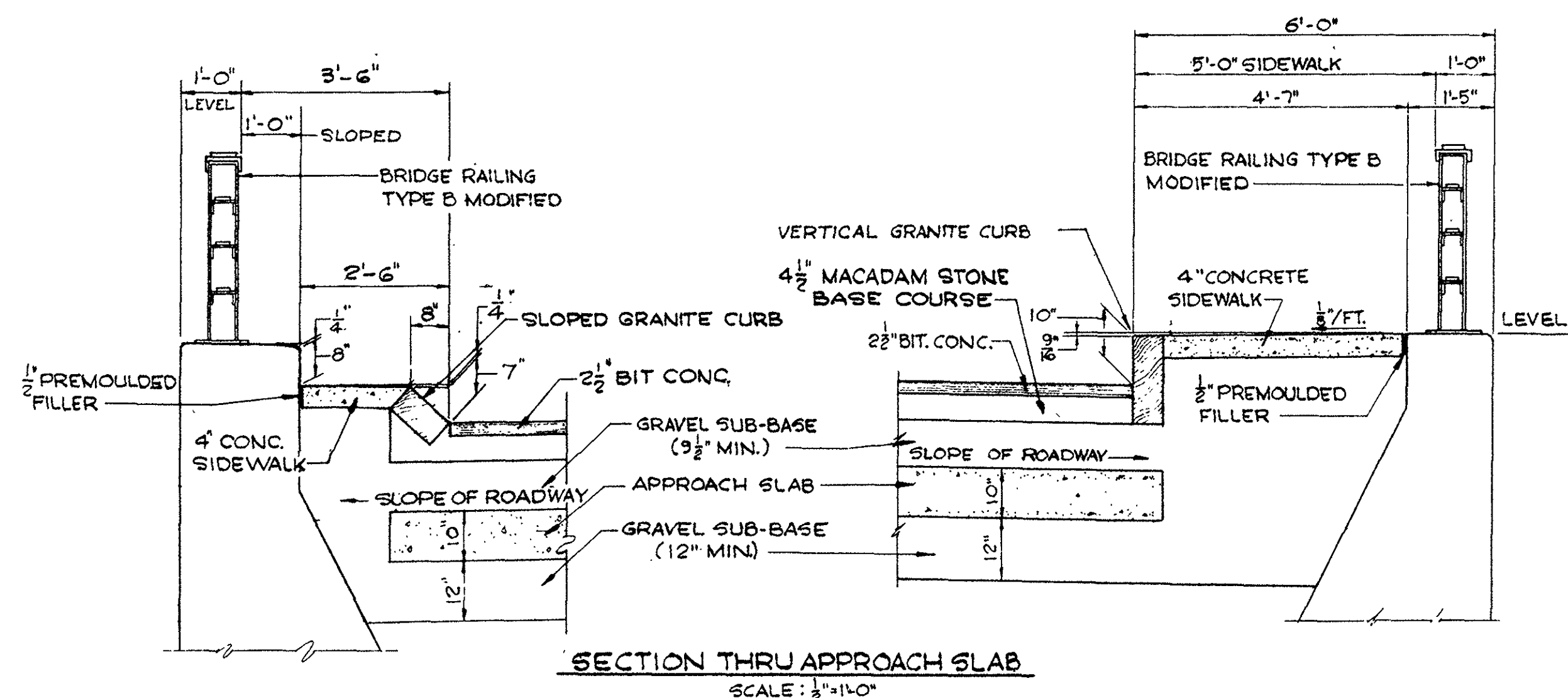
- NOTES:
- ALL DIAPHRAGMS TO BE 18C42.7 EXCEPT AS SHOWN
 - D1 = 3 x 3 x 3/8" L TOP & 4 H13 BOT.
D2 = 4 H13 BOT. ONLY
 - FOR DETAILS OF COVER PLATES & DIAPHRAGM CONNECTIONS SEE SHEET 6 OF 7
 - ALL PIERS AND ABUTMENTS PARALLEL.
 - ALL STRINGERS PARALLEL TO C RELOCATED ROUTE 10
 - DIAPHRAGM SPACING SYMMETRICAL WITHIN EACH SPAN
 - AN ALTERNATE DESIGN PROVIDING FOR SPIRALS MAY BE USED AT THE OPTION OF THE CONTRACTOR. IF SPIRALS ARE USED THE PITCH SHALL CONFORM TO THE FOLLOWING RATIOS:
#4 SPIRAL (3/8" TO 4" MD) 1 PITCH PER 1.40 - 3/4" DIAM. STUDS.
#5 SPIRAL (3/8" TO 4" MD) 1 PITCH PER 1.75 - 3/4" DIAM. STUDS.
#6 SPIRAL (3/8" TO 4" MD) 1 PITCH PER 2.10 - 3/4" DIAM. STUDS.
 - 3/8" DIAM. STUDS MAY BE SUBSTITUTED FOR 1/2" DIAM. STUDS BY PROVIDING AN EQUIVALENT CROSS-SECTIONAL AREA AND ADJUSTING THE PITCH ACCORDINGLY.
 - IF SPIRALS ARE USED, THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR DETAILS.

DES 602
DR VRL
TR KB
CHK 802
APP'D

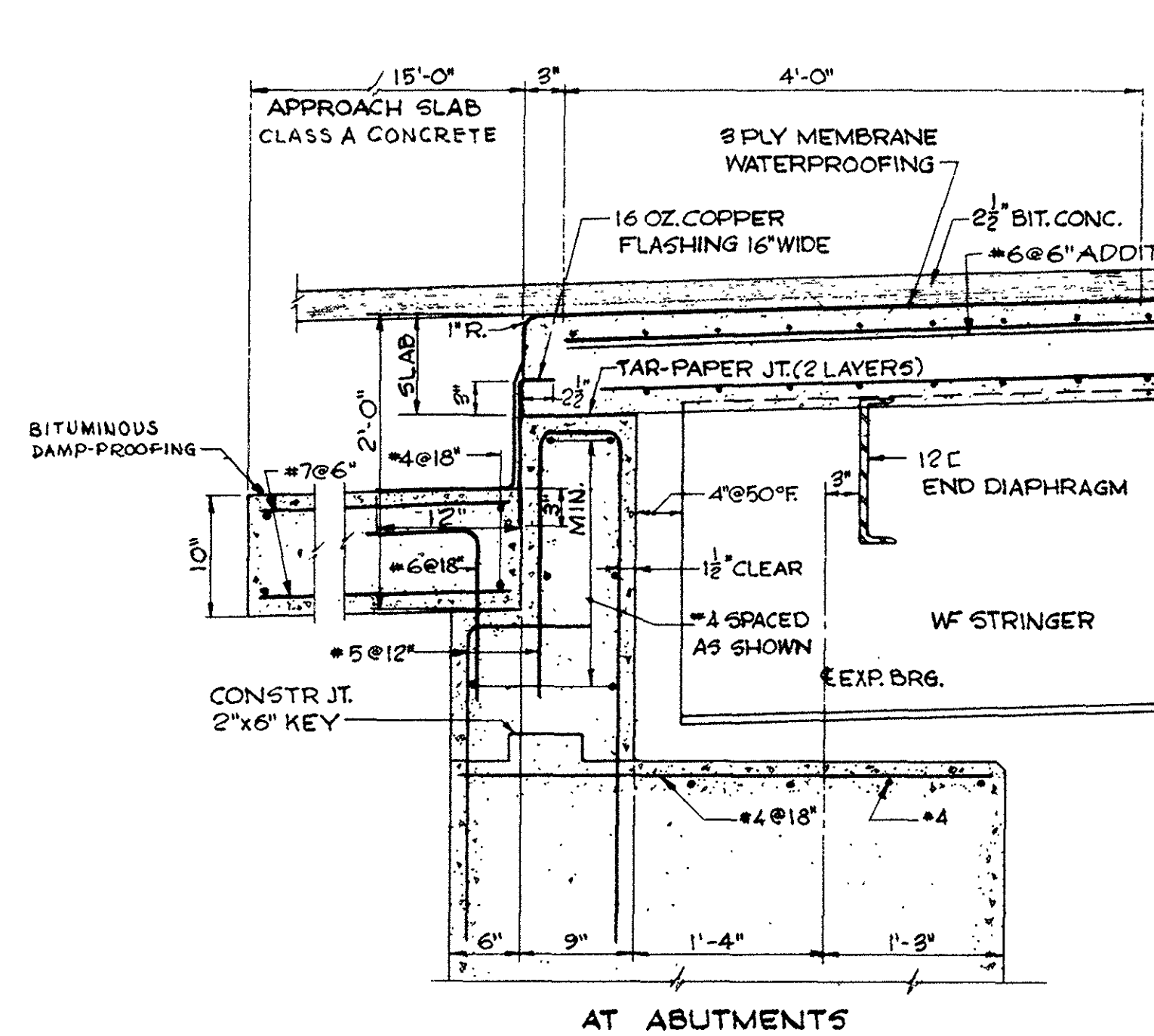
Vk-14
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JUL 28, 1959	REVISION UTILITY CONDUIT LOCATION	REVISED
FEB 28, 1957	ISSUED FOR CONSTRUCTION	
DATE	DESCRIPTION	
	USE ONLY PRINTS OF LATEST DATE	

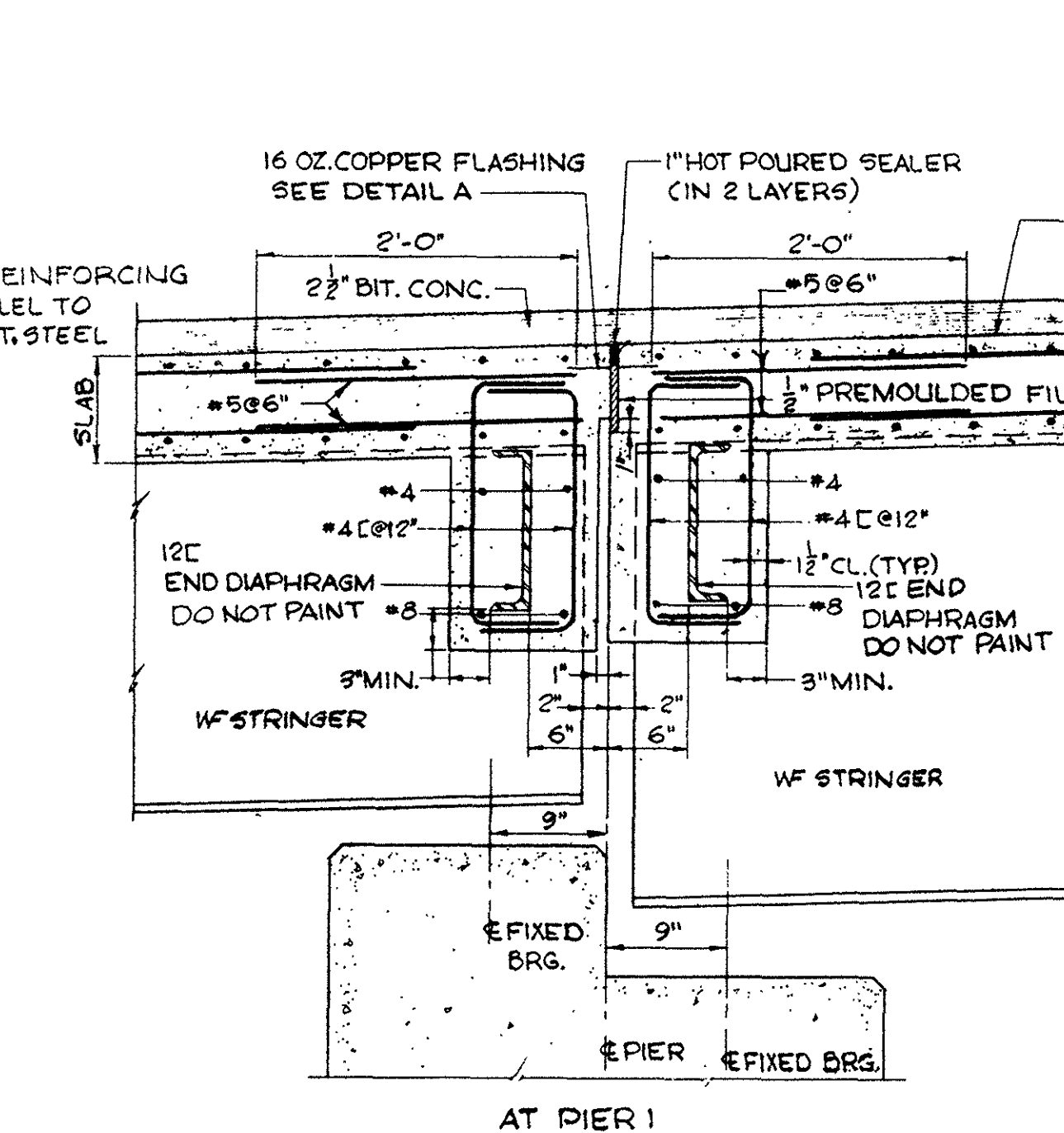
PUB. ROAD	STATE	FED. AID	FISCAL	SHEET TOTAL
DIV. NO.	PROJ. NO.	YEAR	NO. SHEETS	
1	MASS. 191104		79	236



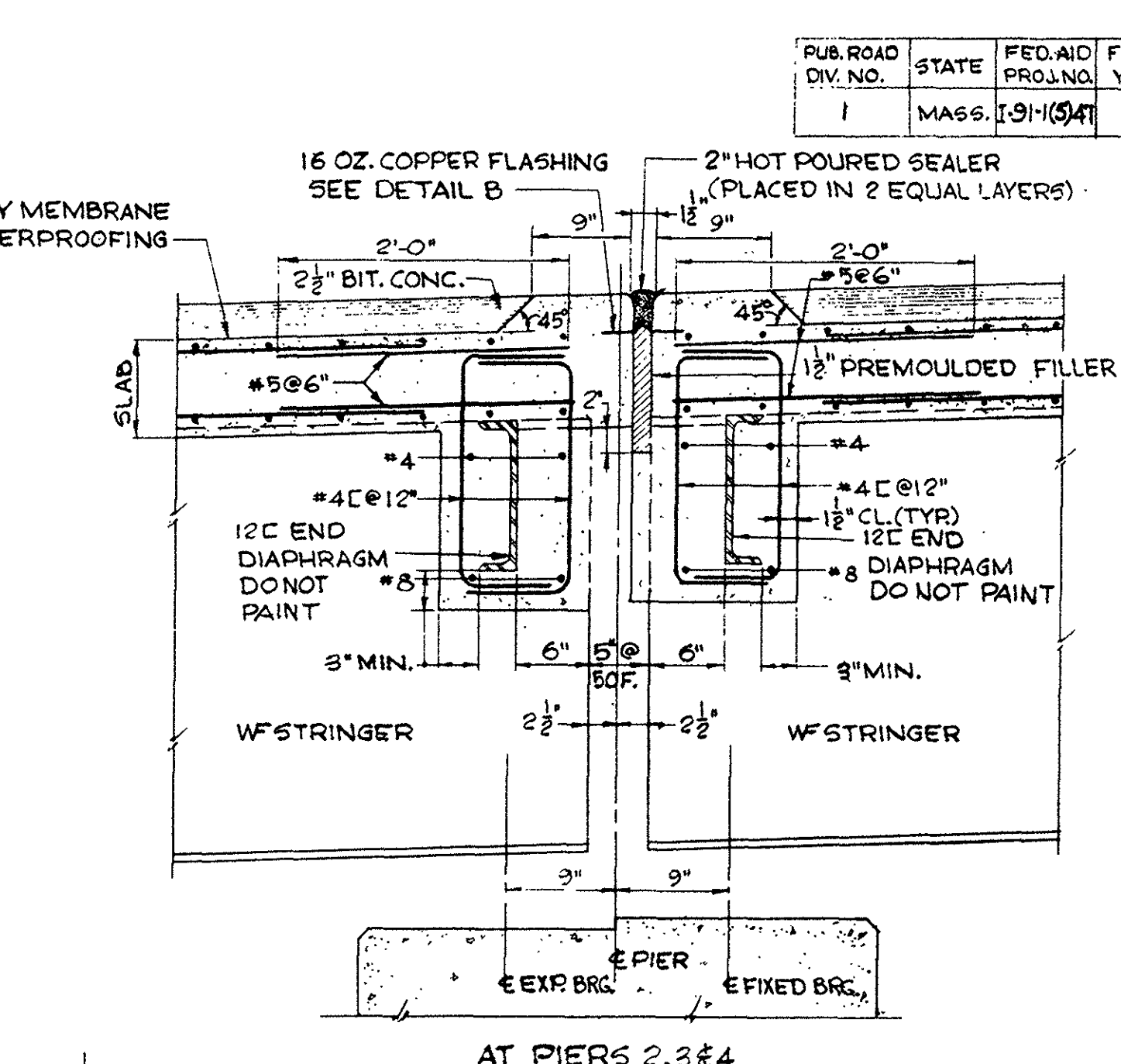
SECTION THRU APPROACH SLAB
SCALE: 1/2"=1'-0"



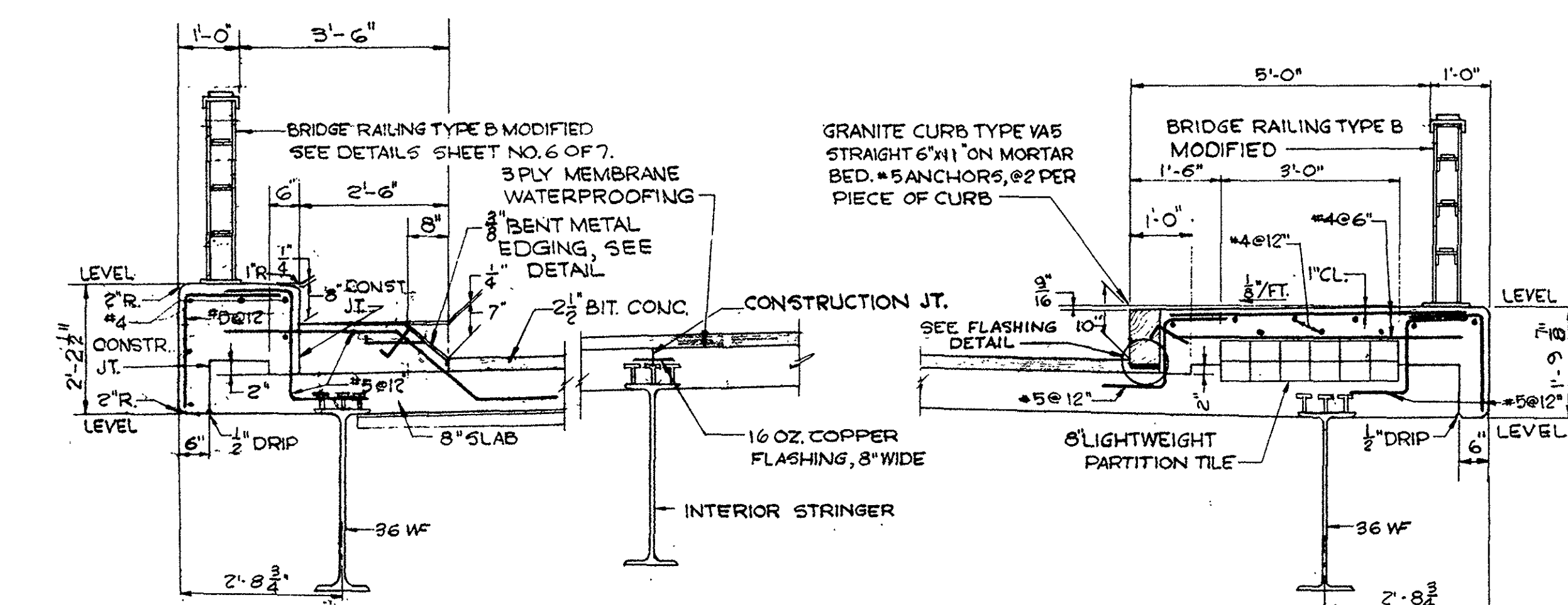
AT ABUTMENTS



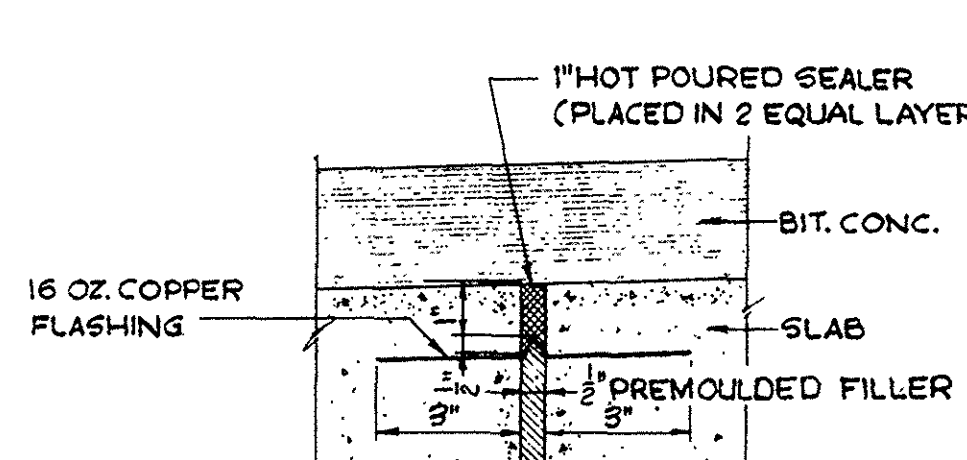
AT PIER 1



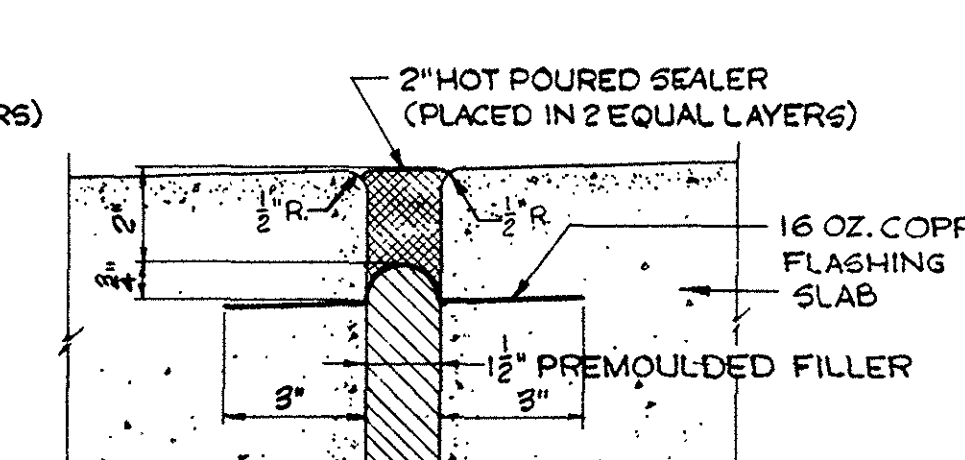
AT PIERS 2, 3 & 4



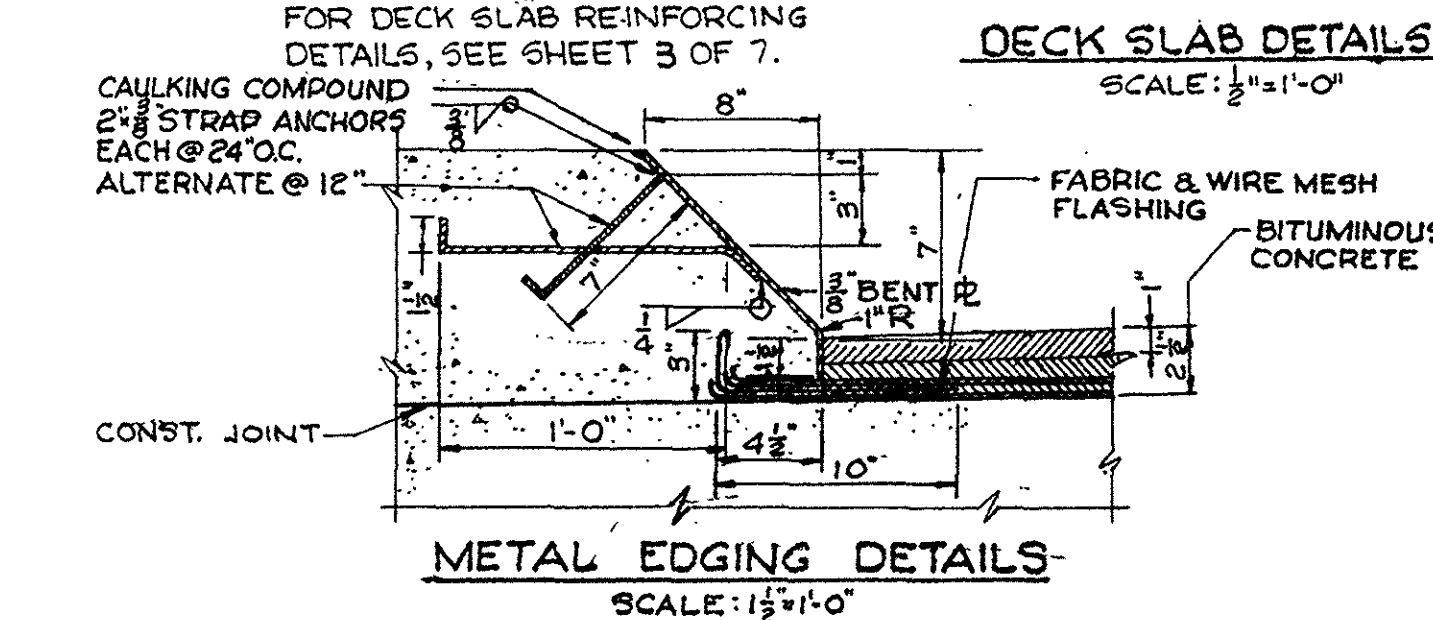
DECK SLAB DETAILS



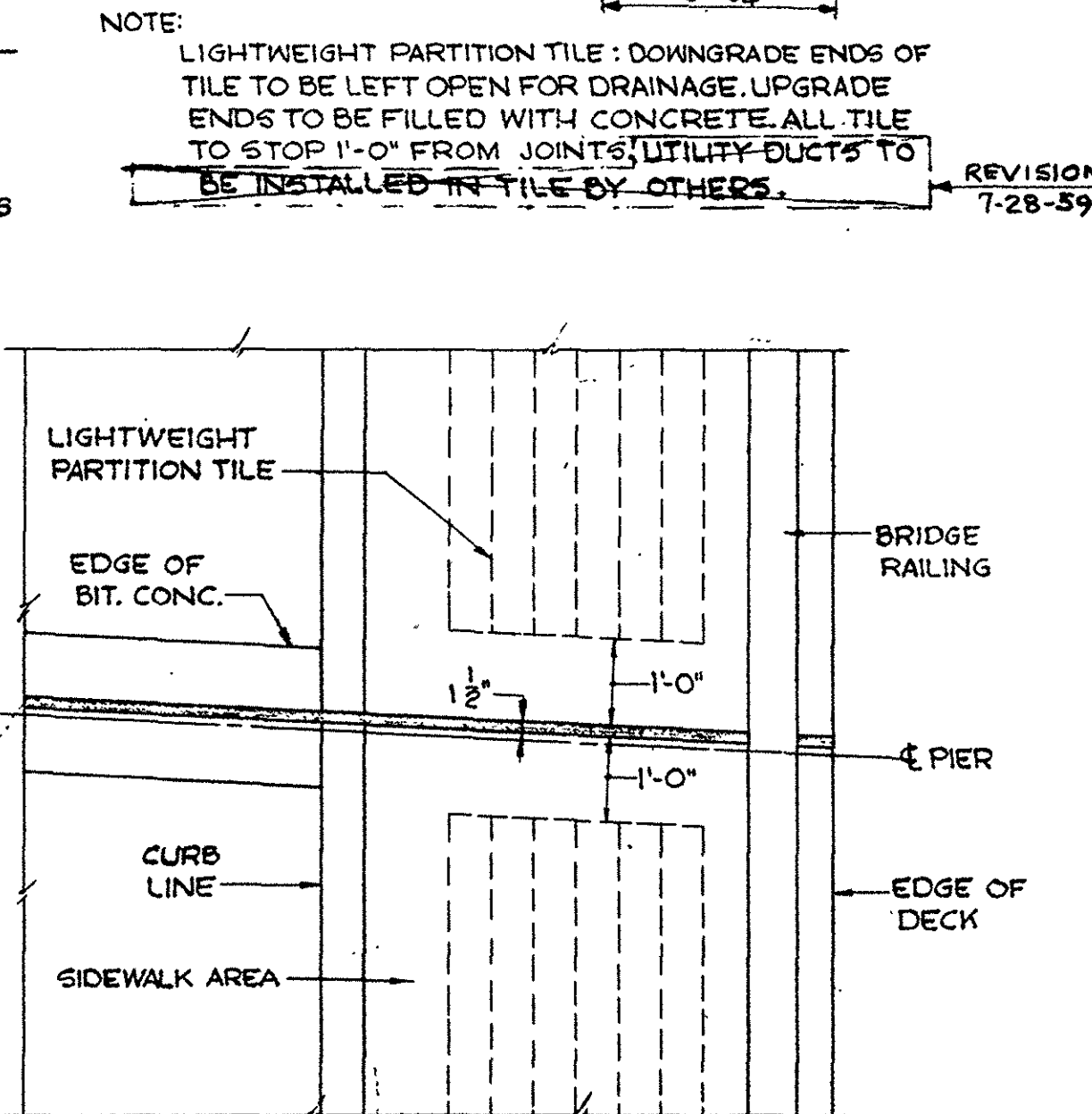
DETAIL A
SCALE: 3/4"=1'-0"



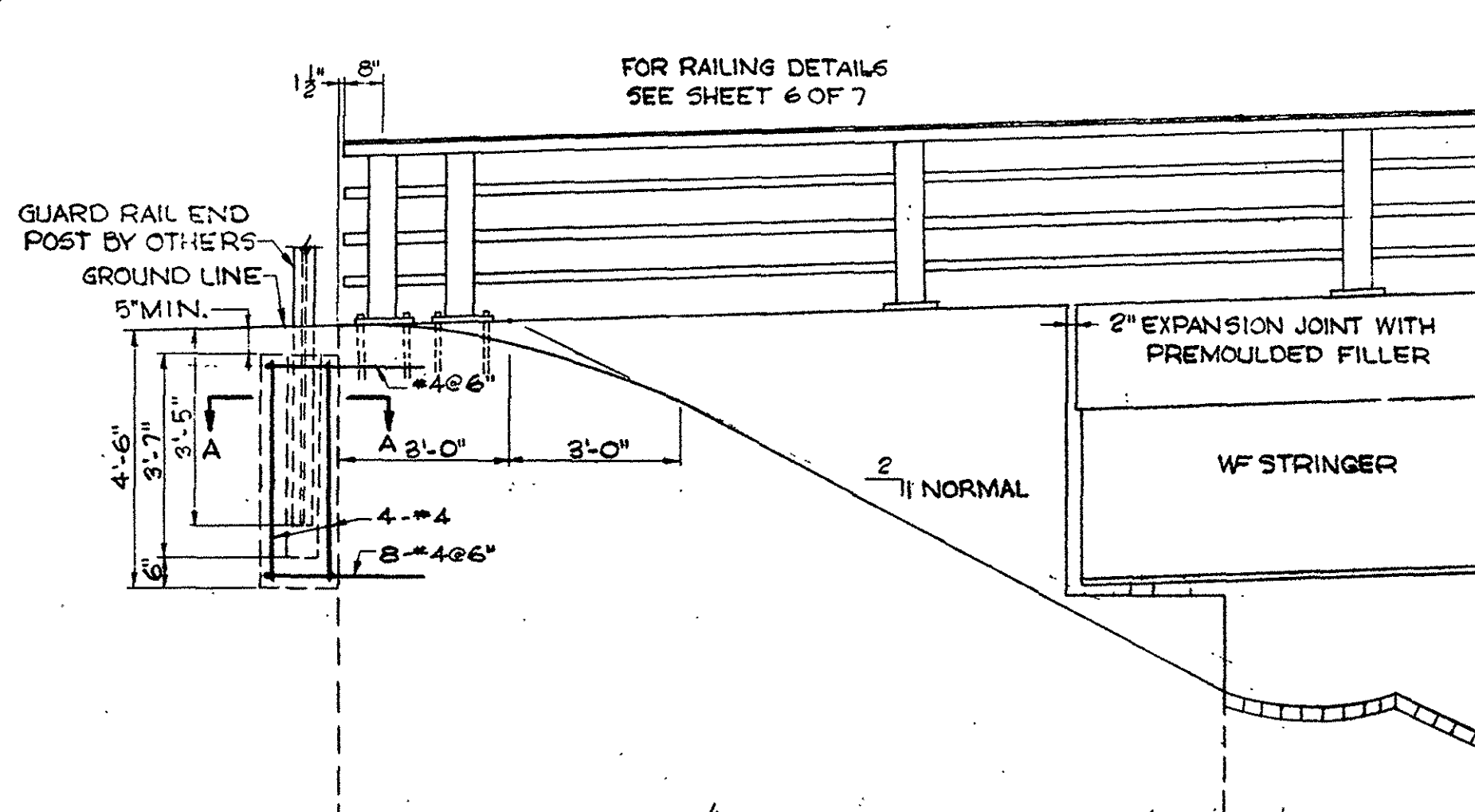
DETAIL B
SCALE: 3/4"=1'-0"



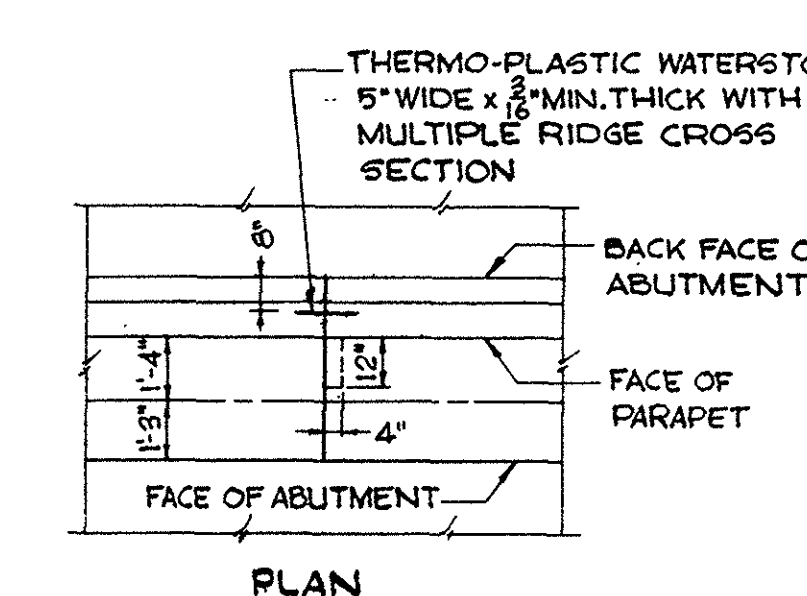
METAL EDGING DETAILS
SCALE: 1/2"=1'-0"



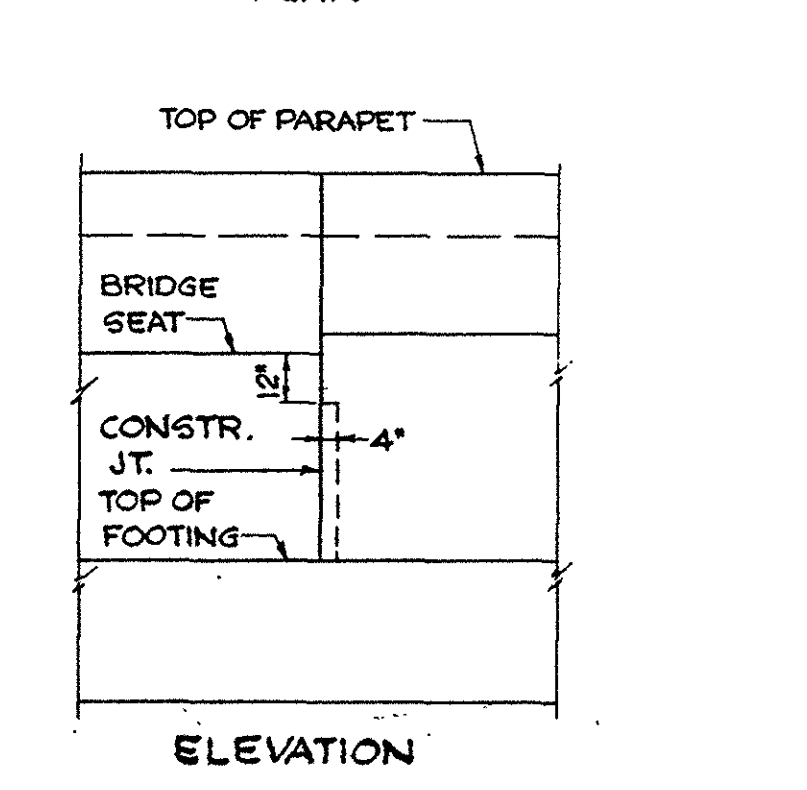
DECK PLAN AT PIERS 2, 3 & 4
SCALE: 1/2"=1'-0"



ELEVATION AT ABUTMENT END
SCALE: 3/4"=1'-0"

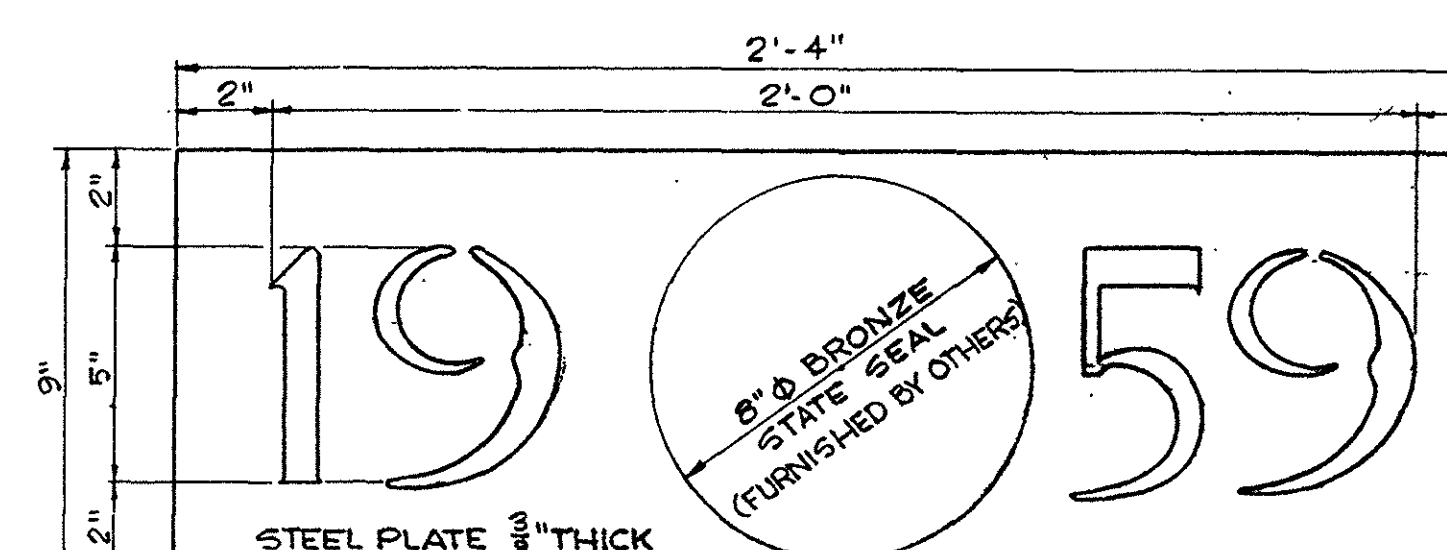


PLAN

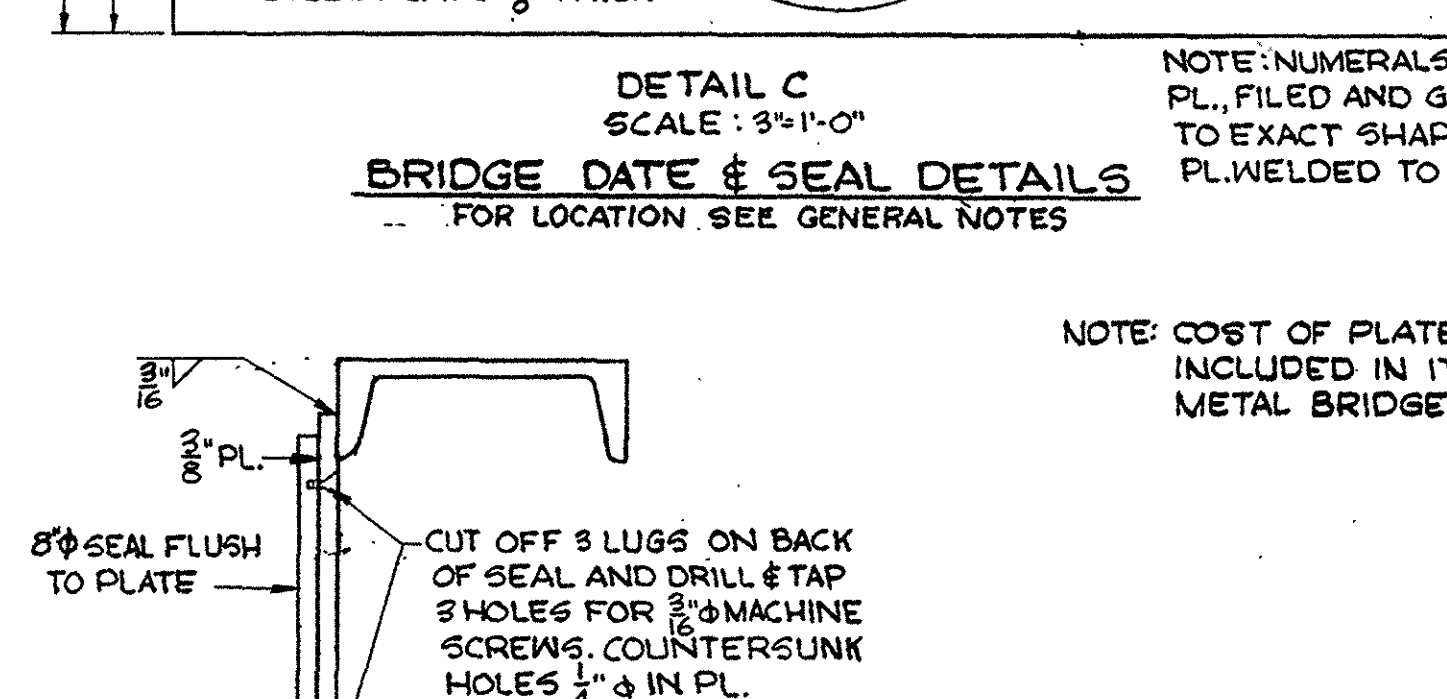


ELEVATION

CONSTRUCTION JOINT IN ABUTMENTS
SCALE: 1/2"=1'-0"



DETAIL C
SCALE: 3/4"=1'-0"



SECTION B-B
SCALE: 3/4"=1'-0"

DES.	BDZ
DR.	MRL
TR.	RMM
CHK.	BP
APPD.	BP

VK-14
7

JULY 28, 1959	REVISION - UTILITY CONDUIT LOCATION	REVISED
FEB 28, 1959	ISSUED FOR CONSTRUCTION	
DATE	DESCRIPTION	
	USE ONLY PRINTS OF LATEST DATE	

GENERAL NOTES:

1. GENERAL DESIGN IN ACCORDANCE WITH THE 17TH EDITION OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS WITH INTERIM SPECIFICATIONS THROUGH 2002, FOR HS20 LOADING.
2. ALL WORK SHALL BE IN ACCORDANCE WITH THE RELEVANT PROVISIONS OF THE 2020 MASSDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
3. THESE DRAWINGS WERE FORMATTED FOR 24"x36" PLAN SHEETS. SCALES NOTED ON THE DRAWINGS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS.
4. EXISTING STRUCTURE DIMENSIONS AND DETAILS ARE ACCORDING TO ORIGINAL CONSTRUCTION DRAWINGS, OBSERVATION, AND FIELD MEASUREMENTS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND EXISTING DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENT (I.E. BEARING LOCATIONS, EXISTING REPAIRS, ETC.). THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY AND ACCURACY THEREOF, AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL THEY HAVE MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.
5. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY NOT TO DAMAGE UTILITIES, EQUIPMENT, STRUCTURES, OR THOSE PORTIONS OF THE SUPERSTRUCTURE THAT ARE TO REMAIN IN PLACE, THAT ARE TO BE REUSED, OR THAT ARE TO REMAIN THE PROPERTY OF OTHERS. ANY PORTION OF THE SUPERSTRUCTURE TO REMAIN WHICH BECOMES DAMAGED AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER AND AT THE CONTRACTOR'S EXPENSE.
6. WELDING AND FABRICATION OF STEEL SHALL CONFORM TO THE RELEVANT PROVISIONS OF THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, THE ANSI/AASHTO/AWS D1.5 BRIDGE WELDING CODE, AND THE MASSACHUSETTS STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES. WELDING ELECTRODES SHALL CONFORM TO AWS E70XX.
7. TRAFFIC CONTROL, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN ACCORDANCE WITH THE APPROVED TRAFFIC MANAGEMENT PLAN DEVELOPED BY OTHERS.

MATERIAL NOTES:

1. ALL STRUCTURAL STEEL SHALL CONFORM TO AASHTO M270 GRADE 36 OR GRADE 50. THE STEEL SHALL BE CONSIDERED A MAIN MEMBER AND CONFORM TO THE CHARPY V-NOTCH REQUIREMENTS OF AASHTO M270 ZONE T2. ALL NEW STRUCTURAL STEEL SHALL BE SHOP PRIMED. PRIMER USED MUST BE NEPCOAT APPROVED, USED WITH A NEPCOAT APPROVED INTERMEDIATE AND TOPCOAT SYSTEM, AND HAVE A SLIP COEFFICIENT OF CLASS A OR CLASS B.
2. ALL BOLTS SHALL BE $\frac{7}{8}$ " HIGH STRENGTH BOLTS (H.S.) IN $\frac{1}{8}$ " HOLES. THE BOLTS SHALL CONFORM TO ASTM F3125, GRADE 325, TYPE 1 AND NUTS AND WASHERS SHALL CONFORM TO AASHTO M291 AND M293 RESPECTIVELY. ALL BOLTS SHALL BE MECHANICALLY GALVANIZED IN ACCORDANCE WITH AASHTO M298 (ASTM B695) CLASS 50. NUTS AND WASHERS SHALL BE MECHANICALLY GALVANIZED BY THE SAME PROCESS. NUTS SHALL BE LUBRICATED WITH A LUBRICANT CONTAINING A VISIBLE DYE. BOLTS, NUTS AND WASHERS SHALL BE FIELD PAINTED AFTER INSTALLATION.

REPAIR COMPOUND NOTES:

IN LOCATIONS WHERE HEAVY DETERIORATION HAS OCCURRED OR AS DIRECTED BY THE ENGINEER, EPOXY REPAIR FAIRING COMPOUND SHALL BE APPLIED OVER THE PRIME COAT AS FOLLOWS:

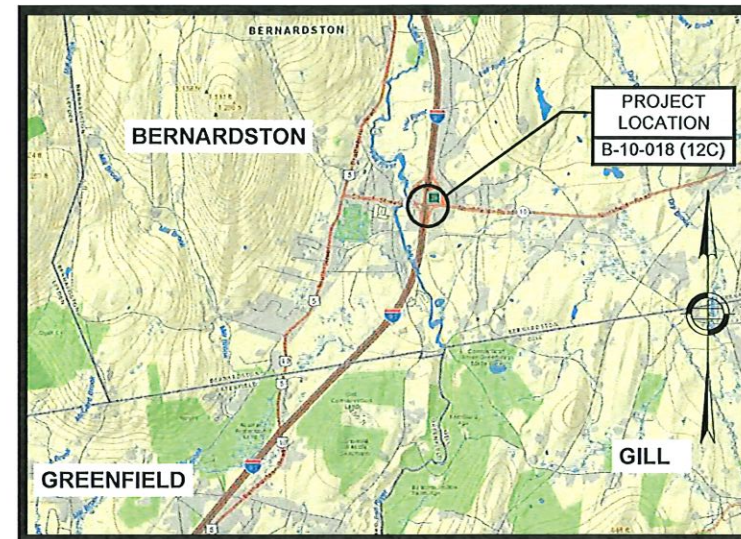
1. THE EPOXY REPAIR COMPOUND SHALL BE APPLIED TO THE DETERIORATED AREAS IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL THE METHODS, PROCEDURES, AND MATERIALS TO BE USED FOR THE WORK.
2. THE REPAIR COMPOUND SHALL ONLY BE APPLIED TO THOSE AREAS OF THE EXISTING STEEL THAT EXHIBIT SEVERE SECTION LOSS TO COMPLETELY FILL THE IRREGULARITIES IN THE EXISTING STEEL SURFACES SUCH THAT NO VOIDS REMAIN BETWEEN THE PLIES OF THE EXISTING STEEL AND THE PROPOSED STRENGTHENING STEEL IN THE FINAL REPAIRED CONDITION.
3. THE PROPOSED REPAIR STEEL SHALL BE PROPERLY POSITIONED AND BROUGHT INTO FIRM CONTACT WITHIN THE WORKING TIME LIMITS OF THE EPOXY REPAIR COMPOUND. THE REPAIR STEEL SHALL BE SECURED IN PLACE USING POSITIONING BOLTS TENSIONED TO A SNUG TIGHT CONDITION AND CLAMPS OR OTHER MECHANICAL MEANS TO BRING THE PLIES OF THE EXISTING STEEL AND NEW STEEL INTO FIRM CONTACT. WELDING IS NOT ALLOWED.
4. ONCE THE PROPOSED STEEL HAS BEEN SECURED INTO POSITION WITH THE POSITIONING BOLTS, AND THE EPOXY COMPOUND HAS CURED, THE REMAINING H.S. BOLTS SHALL BE INSTALLED FOLLOWING THE PROCEDURE OUTLINED IN THE GENERAL NOTES.
5. EPOXY COMPOUND FOR STRUCTURAL STEEL REPAIRS SHALL BE A SOLVENT FREE, MOISTURE TOLERANT, EPOXY PASTE ADHESIVE SYSTEM. THE EPOXY PASTE SHALL BE DEVELOPED SPECIFICALLY FOR FILLING, SMOOTHING, SEALING, OR FAIRING APPLICATIONS ON METALS. THE PASTE SHALL BE APPLIED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S LATEST WRITTEN INSTRUCTIONS. AN ACCEPTABLE PRODUCT SHALL BE ONE OF THE FOLLOWING OR AN APPROVED EQUAL.

ITW PHILADELPHIA RESINS REPAIR COMPOUND MANUFACTURED BY:
ITW PHILADELPHIA RESINS
130 COMMERCE DRIVE, MONTGOMERYVILLE, PA 18936
(215) 855-8450
(215) 855-4688
SALES@ITWPRC.COM
WEBSITE: WWW.PHILADELPHIARESINS.COM

SIKADUR 31, HI-MOD GEL MANUFACTURED BY:
SIKA CORPORATION
201 POLITO AVENUE, LYNHURST, NJ 07071
800-933-7452
201-933-6225
WEBSITE: WWW.SIKAUSA.COM

DEVCON PLASTIC STEEL PUTTY (A) MANUFACTURED BY:
ITW DEVCON
30 ENDICOTT STREET, DANVERS, MA 01923
800-933-8266
WEBSITE: WWW.DEVCON.COM

FX-738 METAL FILLED EPOXY MANUFACTURED BY:
SIMPSON STRONG-TIE
PLEASANTON, CA 94588
800-999-5099
WEBSITE: WWW.STRONGTIE.COM



Approved	Revise and resubmit
Approved as noted, Resubmission not required	Not Approved

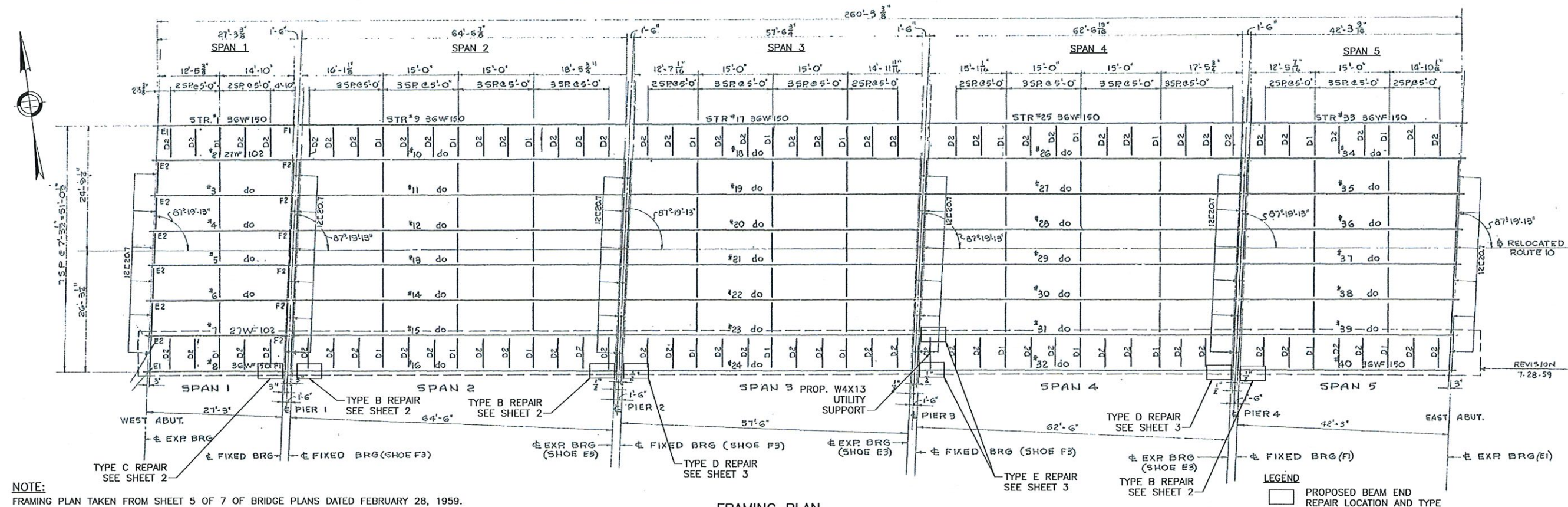
LOCUS PLAN
NOT TO SCALE

massDOT
Massachusetts Department of Transportation
Highways Division
District 2 NORTHAMPTON

Signed: [Signature] Date: 4/28/20

1. Approval of shop drawings indicates conformance with the concept of this project and general compliance with the contract documents. Contractor is responsible for all dimensions and quantities and for the details of fabrication, construction and coordination of all trades and subcontractors.

2. Approval does not authorize changes to contract requirements unless authorized by prior letter or change order.



FRAMING PLAN
SCALE: $\frac{3}{8}$ " = 1'-0"

63 KENDRICK STREET
NEEDHAM, MA 02464
781-355-7100
781-355-7101 (FAX)

GILL
ENGINEERING

DATE	DRW. BY	CALC. BY	APPR. BY	DESCRIPTION
04/27/2020	DOH	DOH	DOH	ISSUED FOR CONSTRUCTION
04/27/2020	DOH	DOH	DOH	REVISED PER SPS COMMENTS

REGISTERED PROFESSIONAL ENGINEER

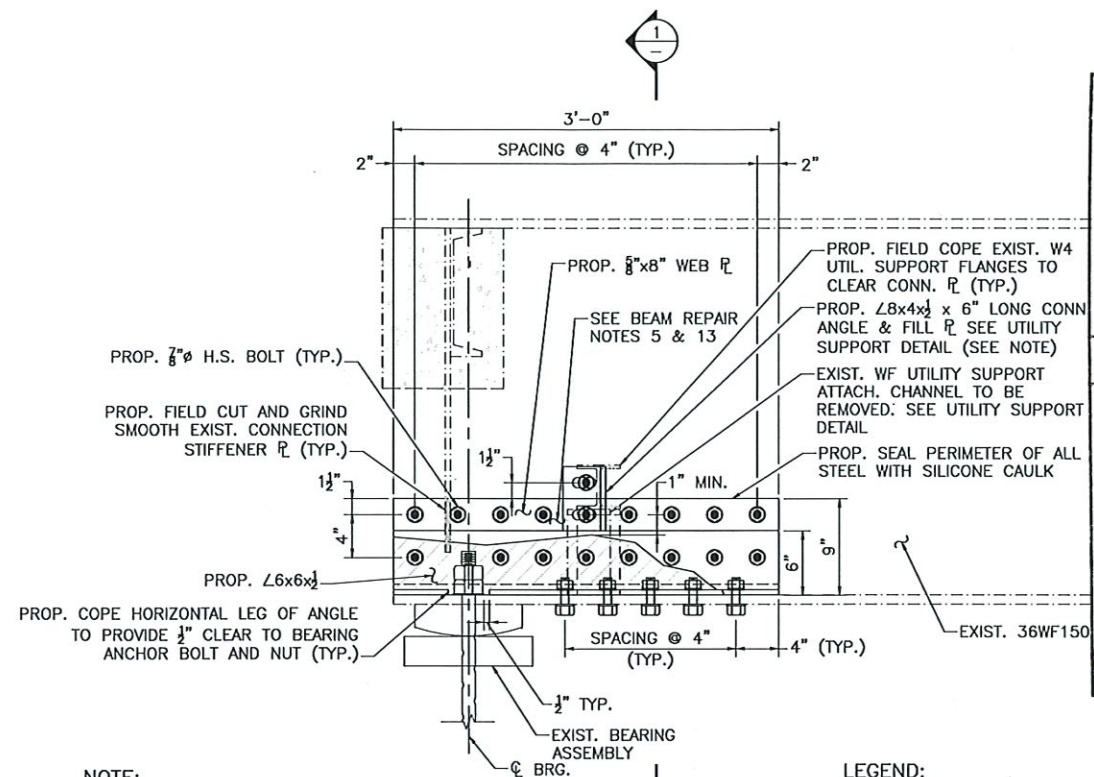
DATE



BEAM END REPAIR PLANS
SPS NEW ENGLAND INC.
BEAM END REPAIR PLANS
BERNARDSTON B-10-018 (12C)
ST 10 (NORTHFIELD RD) OVER I-91

GENERAL
NOTES AND
REPAIR PLAN

SHEET 01
OF 04



NOTE:
FIELD VERIFY UTILITY SUPPORT LOCATION BEFORE FABRICATION AND ADJUST BOLT SPACING TO PROVIDE CLEARANCE FOR UTILITY SUPPORT CONNECTION PLATE.

TYPE B REPAIR

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

LEGEND:
[Hatched Box] = AREA OF SECTION LOSS

Approved	Approved as noted. Resubmission not required	Revise and resubmit	Not Approved
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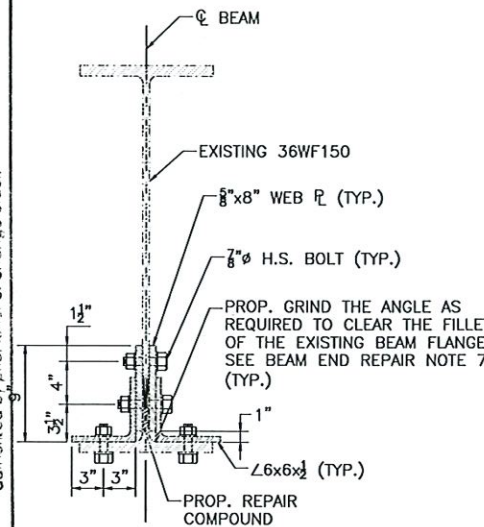
District 2 NORTHAMPTON

MassDOT

Signed: [Signature] Date: 4/19/20

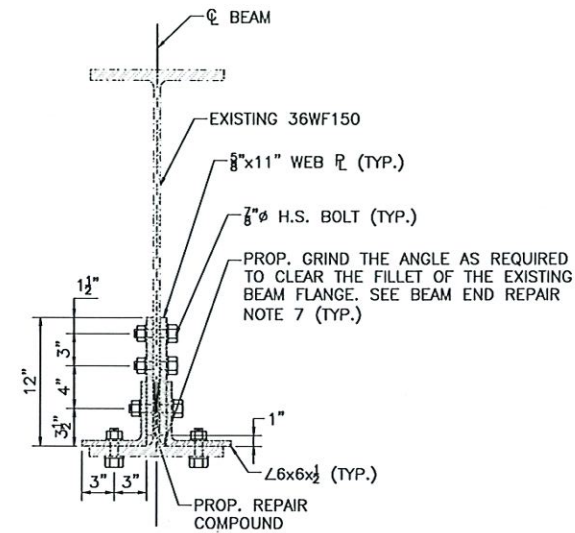
1. Approval of shop drawings indicates conformance with the contract documents. Contractor is responsible for all dimensions and quantities and for the details of fabrication, construction and coordination of all trades and subcontractors.

2. Approval does not authorize changes to contract requirements unless authorized by prior letter or change order.



SECTION 1

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

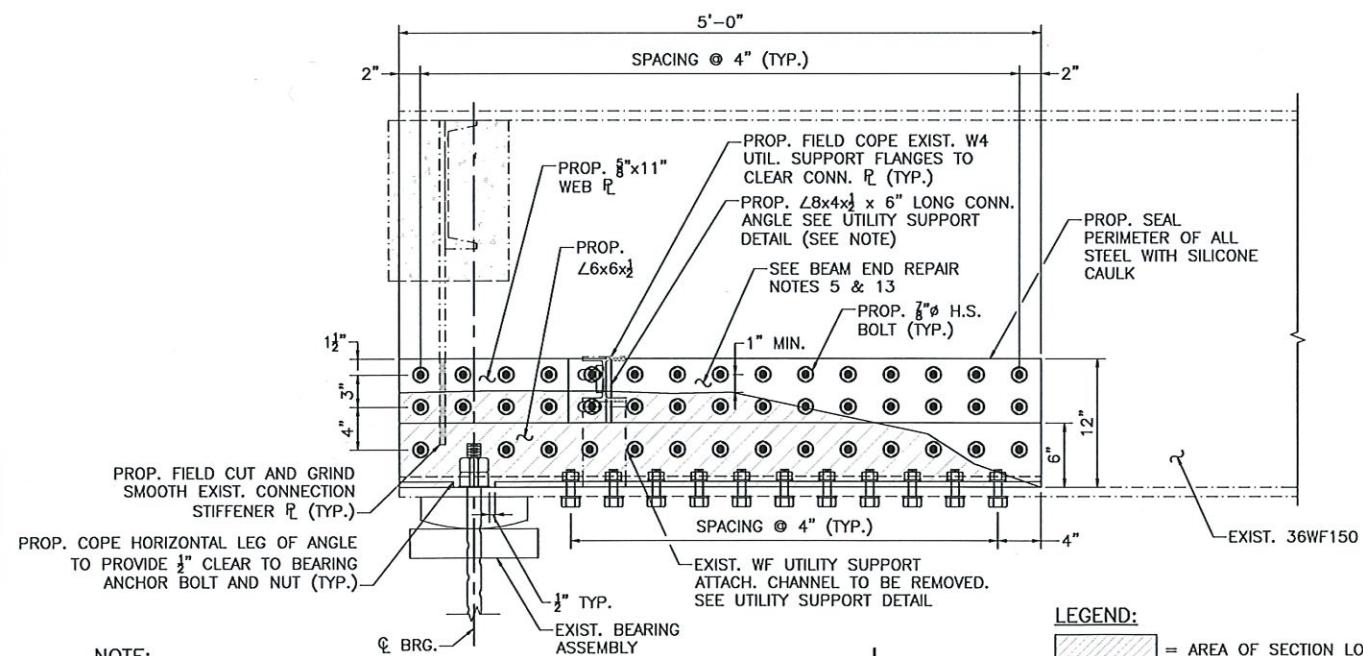


SECTION 2

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

BEAM END REPAIR NOTES:

- CONTRACTOR SHALL FIELD VERIFY ALL REPAIR PLATE AND ANGLE DIMENSIONS AFTER CLEANING AND PAINTING OPERATIONS AND PRIOR TO ORDERING REPAIR STEEL.
- NO REPAIRS SHALL COMMENCE UNTIL ALL MATERIALS ARE ON HAND FOR A REPAIR.
- THE CONTRACTOR SHALL ASSUME ALL EXISTING COATINGS CONTAIN LEAD UNLESS OTHERWISE DETERMINED BY TESTING. ALL DEBRIS CREATED BY CLEANING AND PAINTING OPERATIONS SHALL BE PROPERLY CONTAINED AND DISPOSED OF.
- REMOVE ANY END DIAPHRAGM CONCRETE AND REINFORCING THAT INTERFERES WITH STEEL REPAIRS.
- PAINT AND SURFACE PREPARATION SHALL CONFORM TO THE REQUIREMENTS OF CONTRACT SPECIAL PROVISIONS. THE CONTACT SURFACES SHALL BE FREE OF PAINT, OIL, AND GREASE. THE CONTACT SURFACES OF THE BOLTED PARTS WERE DESIGNED AS A CLASS B SLIP CRITICAL CONNECTION. PRIMER SHALL BE ON THE NEPCOAT QUALIFIED PRODUCTS LIST AND HAVE A SLIP COEFFICIENT OF CLASS B.
- ENGINEER TO INSPECT CLEANED REPAIR AREA AND VERIFY REPAIR LIMITS BASED ON CONDITIONS EXPOSED BY CLEANING. IF IT IS DETERMINED, AFTER CLEANING, THAT THE LIMITS OF REPAIRS NEED TO BE EXTENDED, THE CLEANING AND PAINTING MAY BE EXTENDED AT THE DISCRETION OF THE ENGINEER.
- CONTRACTOR SHALL GRIND ALL PLATES AND SHAPES AS REQUIRED TO CLEAR THE FILLET OF THE EXISTING BEAM FLANGES.
- EPOXY REPAIR COMPOUND SHALL BE APPLIED TO PRIOR TO STEEL INSTALLATION.
- IN THE CASE THAT ANY STEEL REPAIR ANGLE INTERFERES WITH THE EXISTING ANCHOR BOLT, A LEG OF THE ANGLE CAN BE COPED TO PROVIDE CLEARANCE AROUND THE EXISTING ANCHOR BOLT.
- THE CONTRACTOR SHALL MAKE TEMPLATES FROM THE PROPOSED STEEL LOCATING ALL HOLES FOR H.S. BOLTS. THE TEMPLATES SHALL BE LOCATED AND HELD SECURELY IN PLACE ON THE EXISTING STRUCTURE AND THE LOCATIONS OF ALL HOLES SUB DRILLED TO 1/8" Ø.
- THE PROPOSED STEEL REPAIR PLATES AND SHAPES SHALL BE SECURED IN PLACE WITH POSITIONING BOLTS, INSTALLED SNUG TIGHT TO ENSURE THAT THE PROPOSED STEEL MAINTAINS ITS ALIGNMENT WITH THE EXISTING STEEL.
- ALL HOLES SHALL BE REAMED TO FULL SIZE, 1/8" Ø, IN THE ASSEMBLED POSITION. ADJUST LOCATION OF POSITIONING BOLTS AS REQUIRED TO COMPLETE ALL HOLES.
- AFTER ALL HOLES HAVE BEEN REAMED TO FULL SIZE, REMOVE THE PROPOSED STEEL AND APPLY A COATING OF EPOXY REPAIR COMPOUND TO ALL PITTED/DETERIORATED STEEL FAYING SURFACES (PLUS 1") OF THE EXISTING STEEL.
- SECURE THE PROPOSED STEEL WITH POSITIONING BOLTS AND ALLOW THE EPOXY COMPOUND TO CURE PRIOR TO INSTALLING THE 7/8" H.S. BOLTS.
- FOR BOLTING OF REPAIR PLATES AND SHAPES, ALL BOLTS SHALL BE INSTALLED SNUG TIGHT. ONCE ALL BOLTS ARE INSTALLED THEY SHALL BE TIGHTENED TO THE PROPER PRETENSION LOAD FOLLOWING MASSDOT STANDARD PROCEDURE. FINAL TENSIONING SHALL BEGIN AT THE CENTER OF THE PLATES AND SHAPES AND THEN PROCEED OUTWARD FROM THE CENTER TO THE TWO ENDS.
- AFTER BOLTING IS COMPLETED, THE INTERMEDIATE AND TOP COATS OF PAINT SHALL BE APPLIED.
- PERIMETER OF ALL REPAIR PLATES AND ANGLES SHALL BE SEALED USING SILICONE CAULK UPON COMPLETION OF PAINTING OF REPAIRS.
- APPLY CEMENTITIOUS MORTAR TO ANY ROUGH CONCRETE FROM PARTIAL END DIAPHRAGM REMOVAL.
- THE CONTRACTOR MAY PROPOSE AN ALTERNATE METHOD OF BOLT AND REPAIR PLATE INSTALLATION TO THAT DESCRIBED HEREIN. THE CONTRACTOR SHALL SUBMIT A DETAILED PROCEDURE DESCRIBING ALL STEPS NECESSARY TO ACCOMPLISH THE WORK FOR REVIEW AND APPROVAL BY THE ENGINEER.
- IF THERE ARE REVISIONS TO THE APPROVED PLANS, THE CONTRACTOR SHALL SUBMIT THESE CHANGES TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION. ONCE THESE REVISIONS ARE APPROVED BY THE MASSDOT DESIGNER OF RECORD, THEY SHALL BE SUBMITTED TO MASSDOT FOR FILING.



NOTE:
FIELD VERIFY UTILITY SUPPORT LOCATION BEFORE FABRICATION AND ADJUST BOLT SPACING TO PROVIDE CLEARANCE FOR UTILITY SUPPORT CONNECTION PLATE.

TYPE C REPAIR

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

LEGEND:
[Hatched Box] = AREA OF SECTION LOSS

63 KENDRICK STREET
NEEDHAM, MA 02494
781-355-7100
781-355-7101 (FAX)

GILL
ENGINEERING

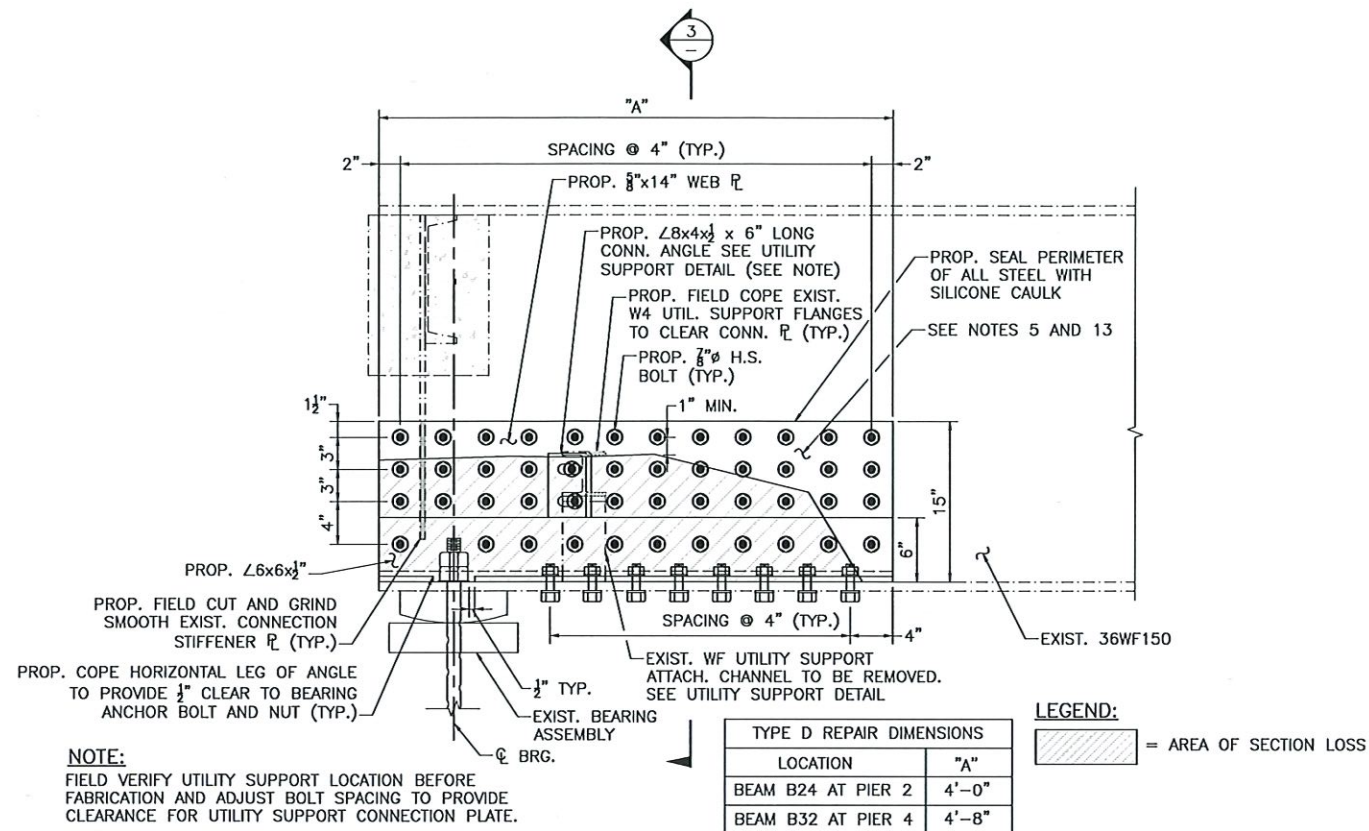
DATE	DRW. BY	CALC. BY	APPR. BY	DESCRIPTION
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4/24/2020	DOH	DOH	DOH	REVISED PER SPS COMMENTS



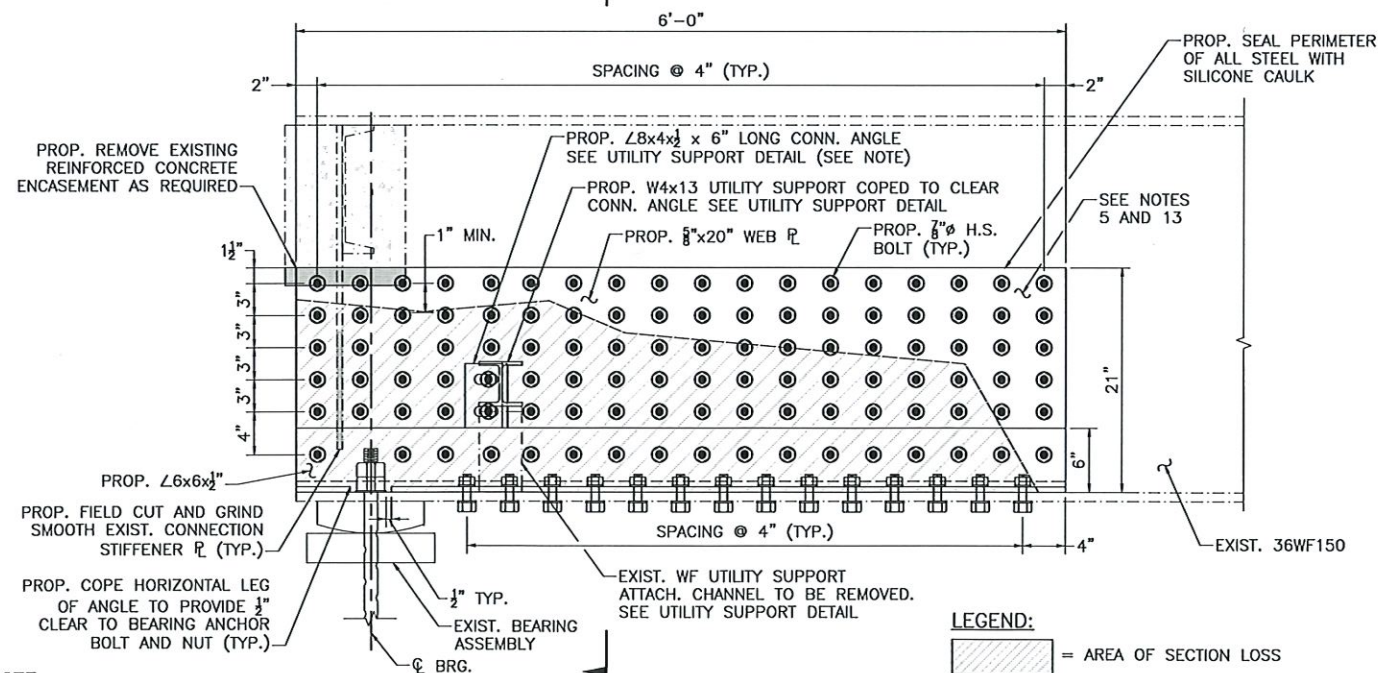
BEAM END REPAIR PLANS
SPS NEW ENGLAND INC.
BEAM END REPAIR PLANS
BERNARDSTON B-10-018 (12C)
ST 10 (NORTHFIELD RD) OVER I-91

REPAIR DETAILS
TYPE C & B

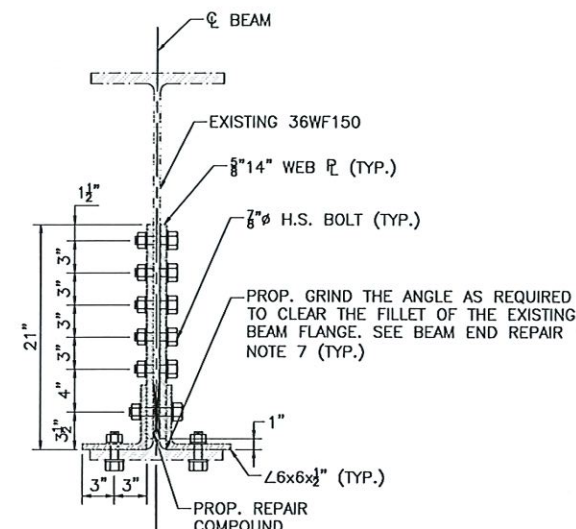
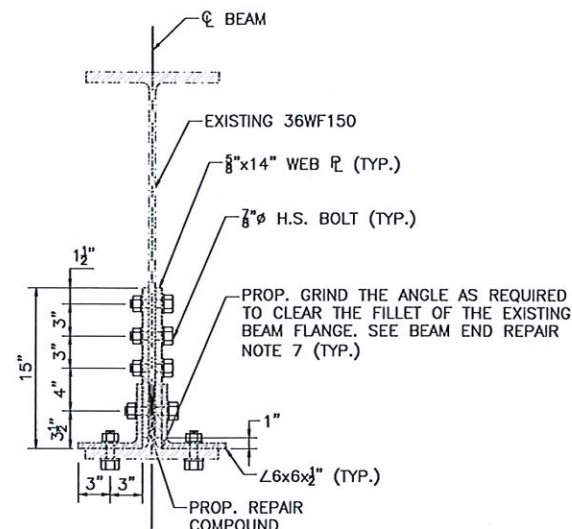
SHEET 02
OF 04



TYPE D REPAIR
 SCALE: 1 1/2" = 1'-0"



TYPE E REPAIR
 SCALE: 1 1/2" = 1'-0"

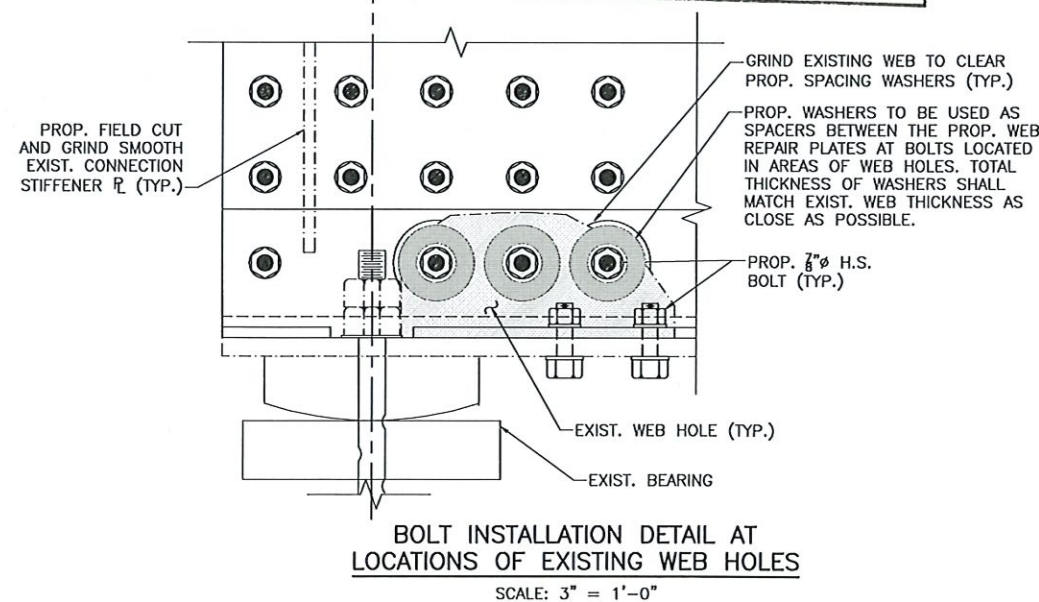


APPROVED	REVISIONS
Approved	Revise and Resubmit
Approved as noted, Resubmission not required	Not Approved

massDOT
 District 2 NORHAMPTON

Signed: Date: 4/28/20

- Approval of shop drawings indicates conformance with the concept of this project and general compliance with the contract documents. Contractor is responsible for all dimensions and quantities and for the details of fabrication, construction and coordination of all trades and subcontractors.
- Approval does not authorize changes to contract requirements unless authorized by prior letter or change order.





☒	Approved	Revise and resubmit
	Approved as noted, Resubmission not required	Not Approved



massDOT
Massachusetts Department of Transportation
Highway Division

District 2 NORTHAMPTON

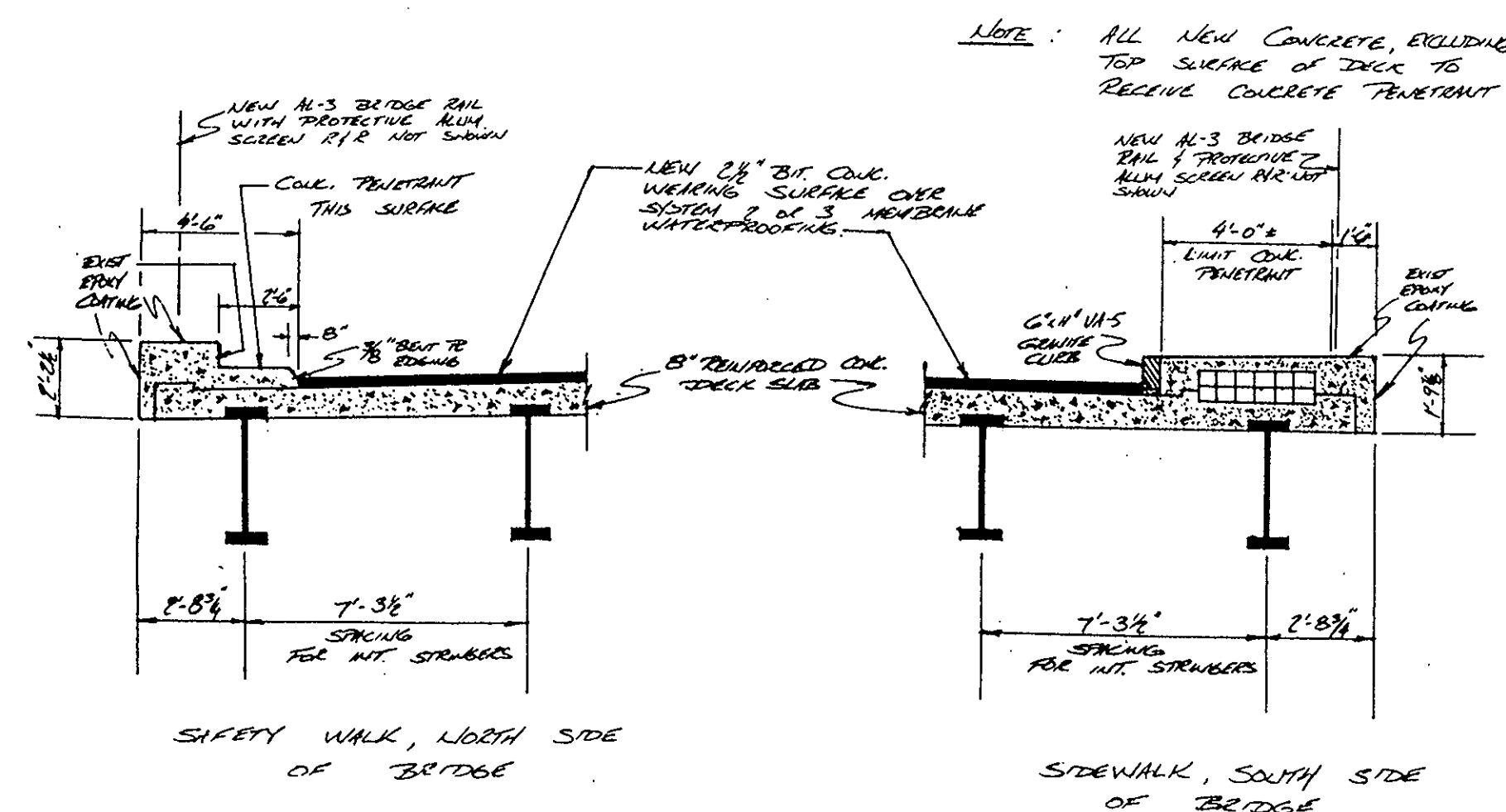
Signed: *[Signature]* Date: 4/29/20

1. Approval of show drawings indicates conformance with the concept of this project and general compliance with the contract documents.
2. Contractor is responsible for all dimensions and quantities and for the details of fabrication, construction and coordination of all trades and subcontractors
3. Approval does not authorize changes to contract requirements unless authorized by prior letter or change order.

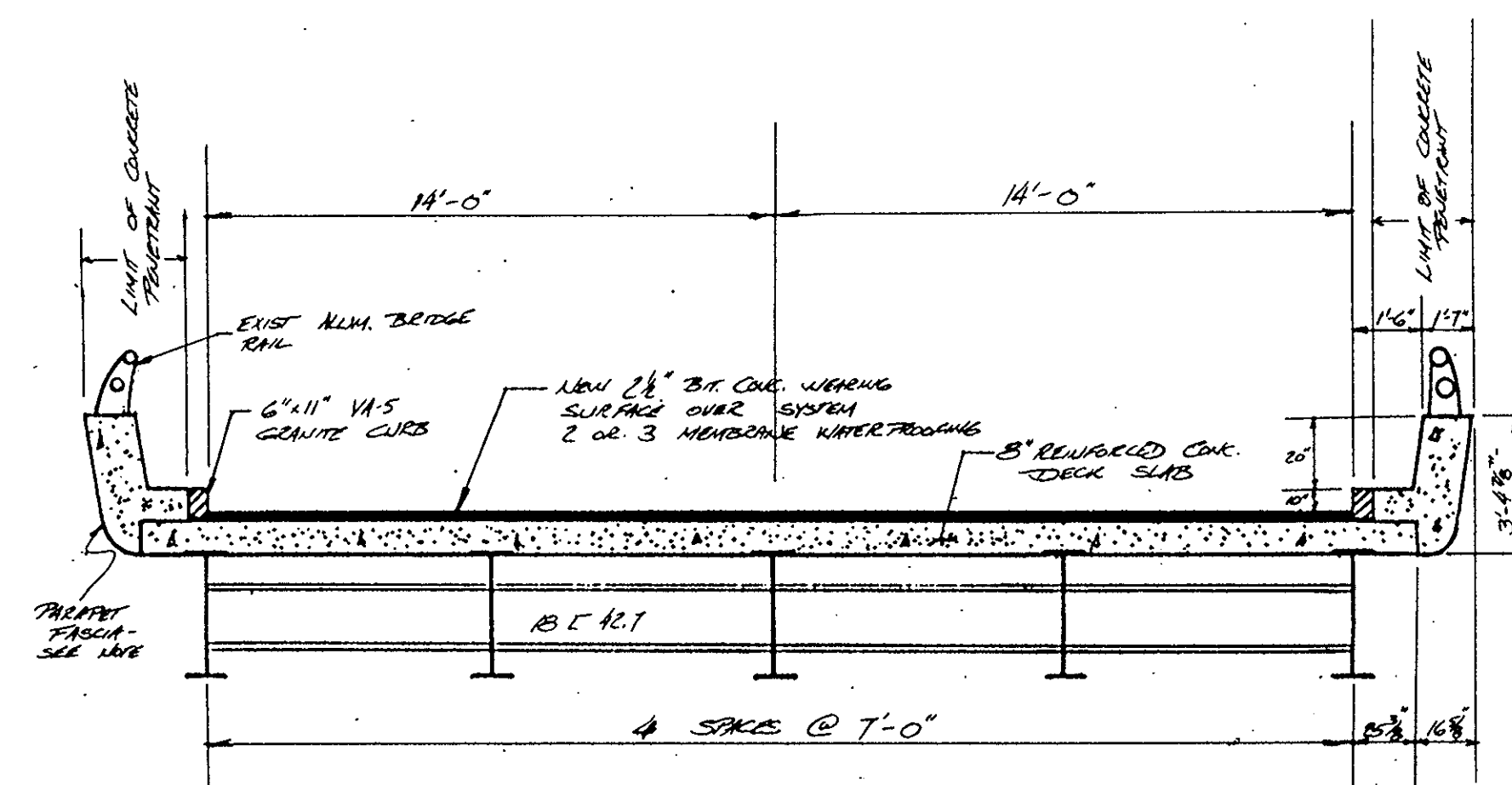
NOTE: TO INSTALL REPAIR PLATE, 1/2" FILL PLATE REQUIRED AT TYPE B REPAIR

SECTION 5

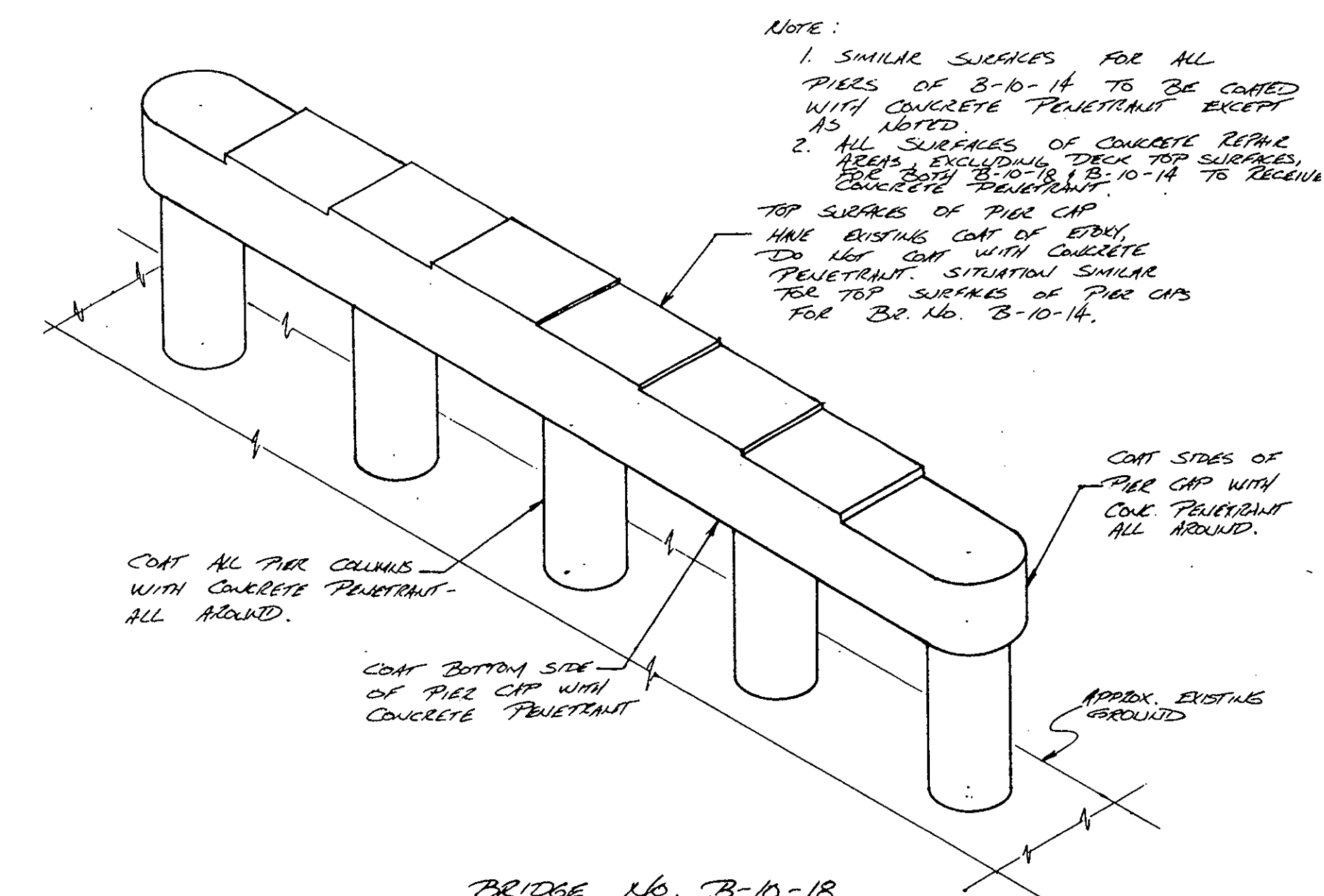
SCALE: $1\frac{1}{2}" = 1'-0"$



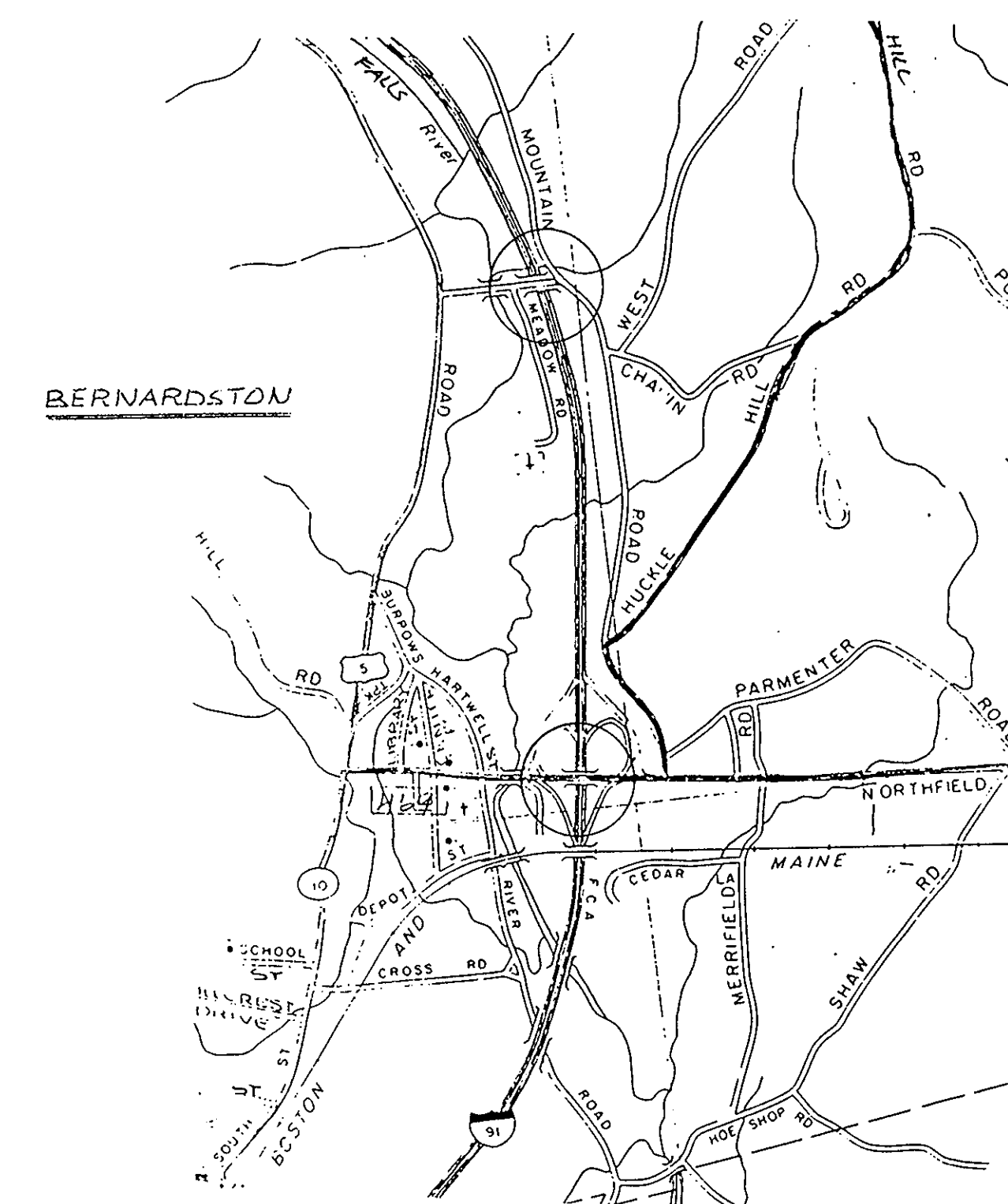
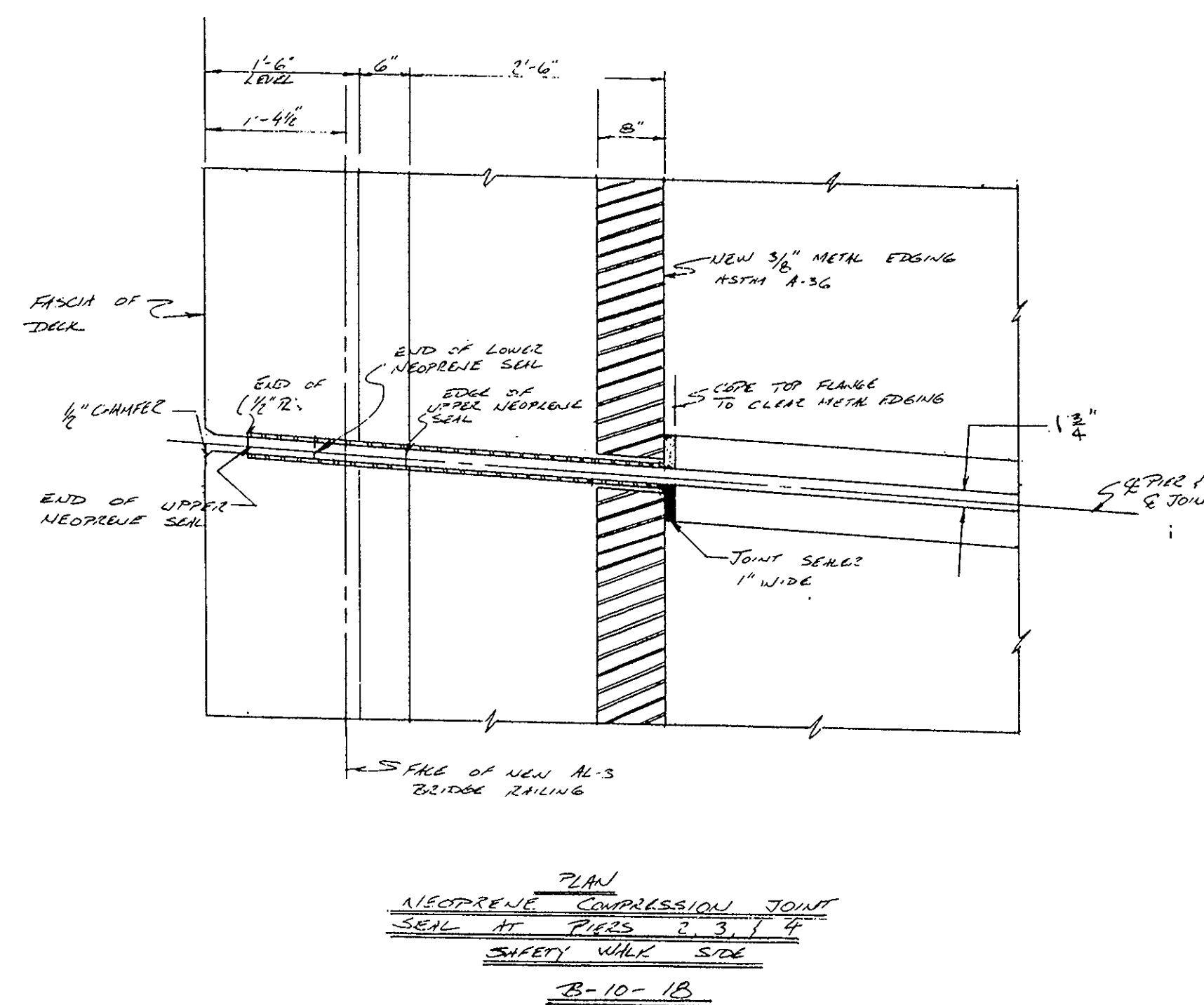
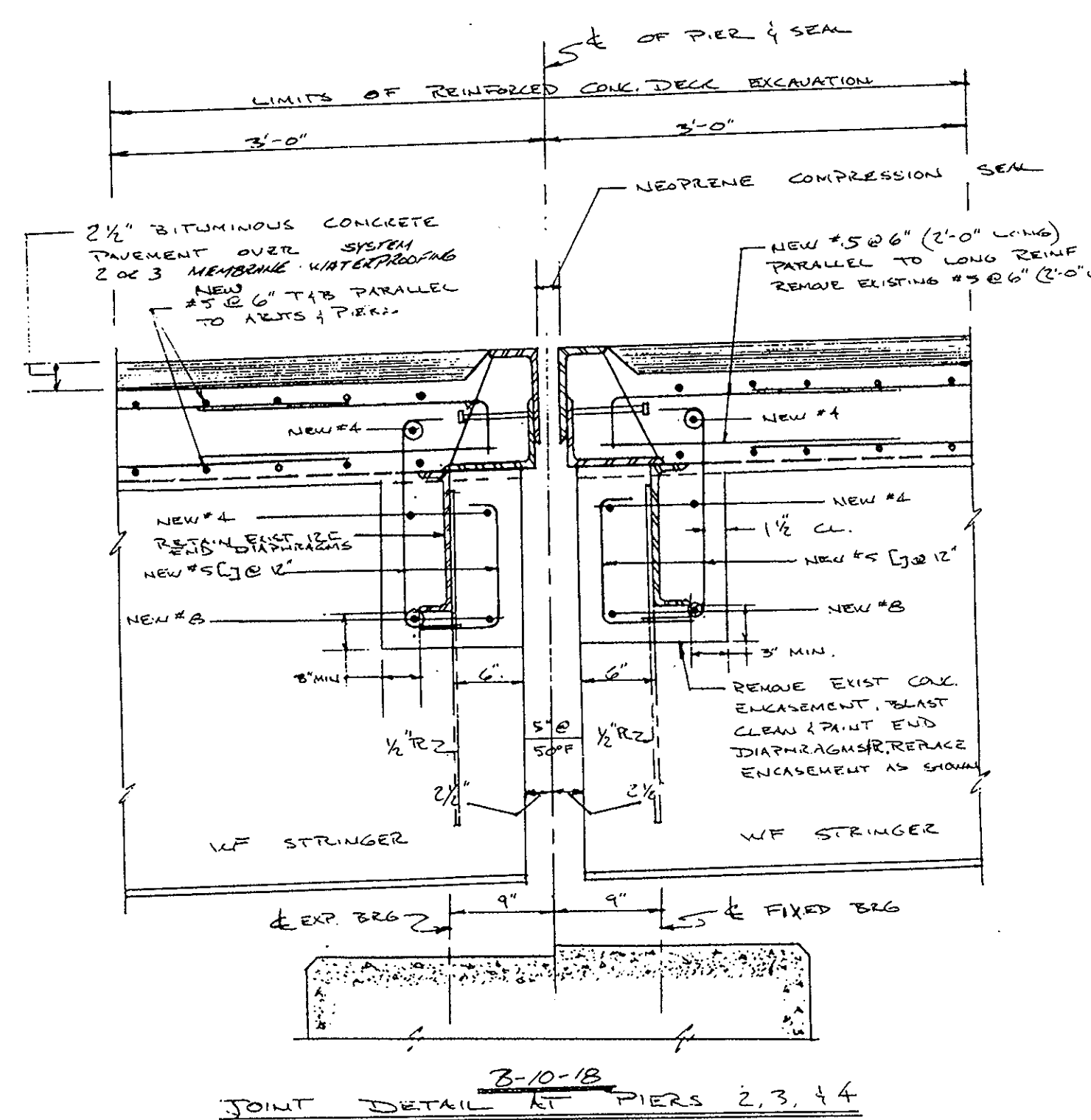
BR. 10-13
TYPICAL SECTIONS & LIMITS OF CONCRETE PENETRANT



BR. 10-14
TYPICAL DECK SECTION & LIMITS OF CONCRETE PENETRANT



BRIDGE NO. 8-10-13
TYPICAL PIER WITH LIMITS OF CONCRETE PENETRANT



COMMONWEALTH OF MASSACHUSETTS
BRIDGE BETTERMENT
BERNARDSTON

BURKE FLAT ROAD/I-91
ROUTE 10 (NORTHFIELD ROAD)/I-91

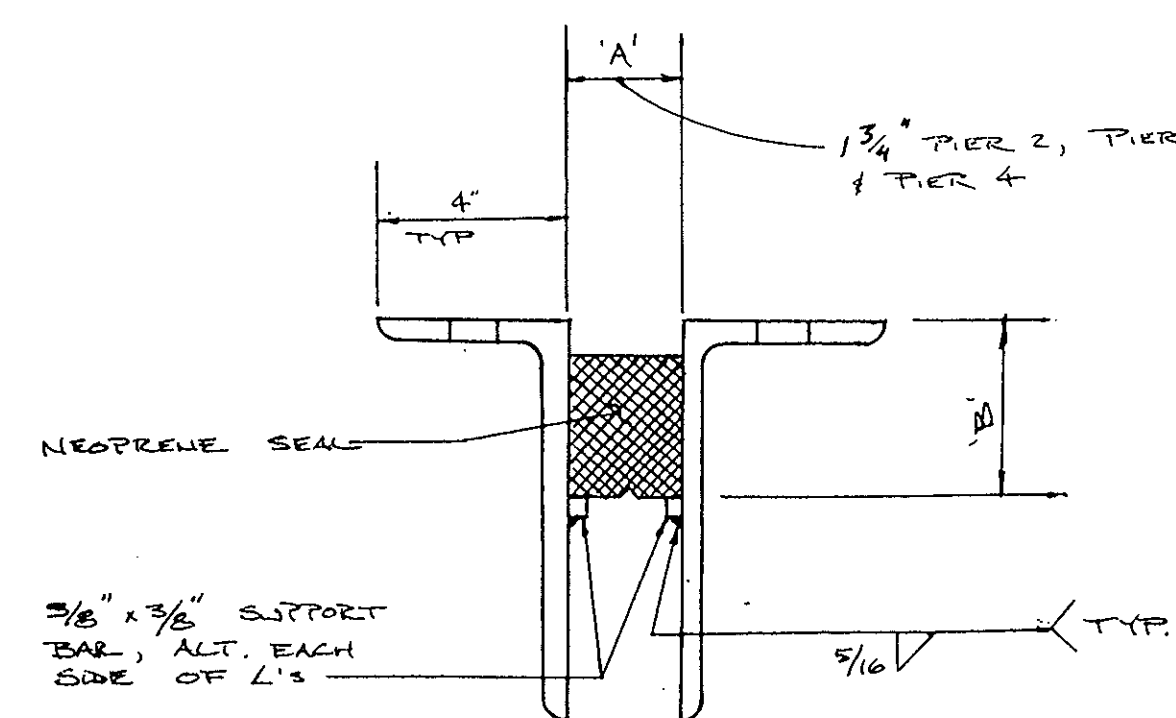
DEPARTMENT OF PUBLIC WORKS
MAINTENANCE DIVISION

BR. MAINT. NO. 892-205-001
157-205-026

BR. DIV. NO. B-10-14
B-10-18

DATE 6/4/90

MAINT. ENGINEER

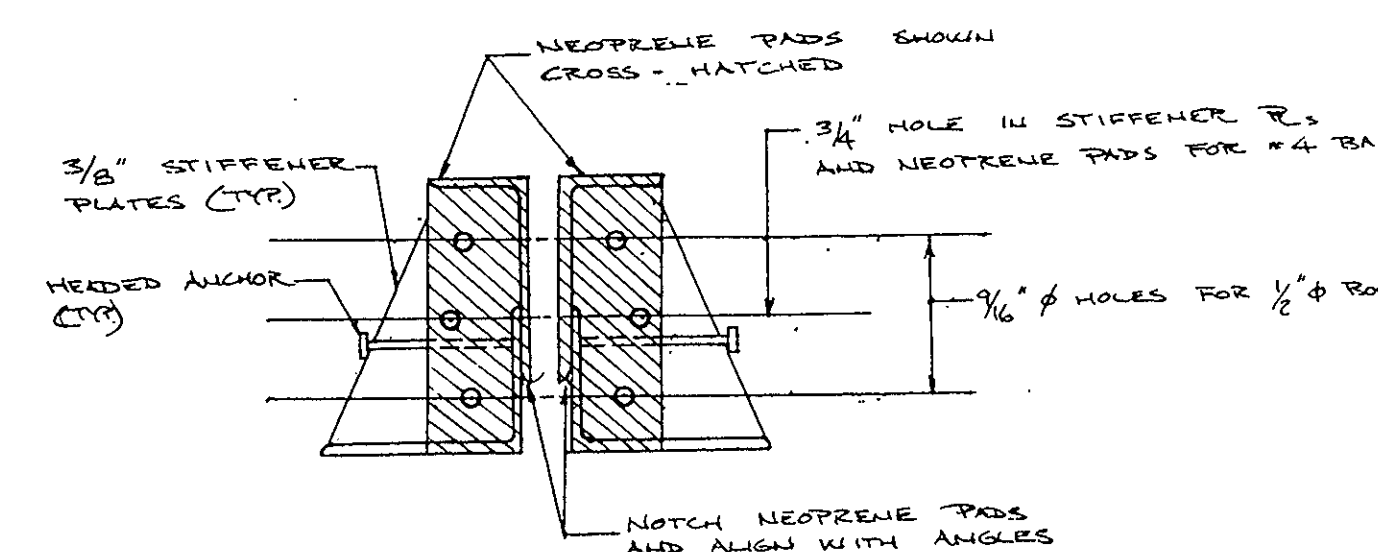


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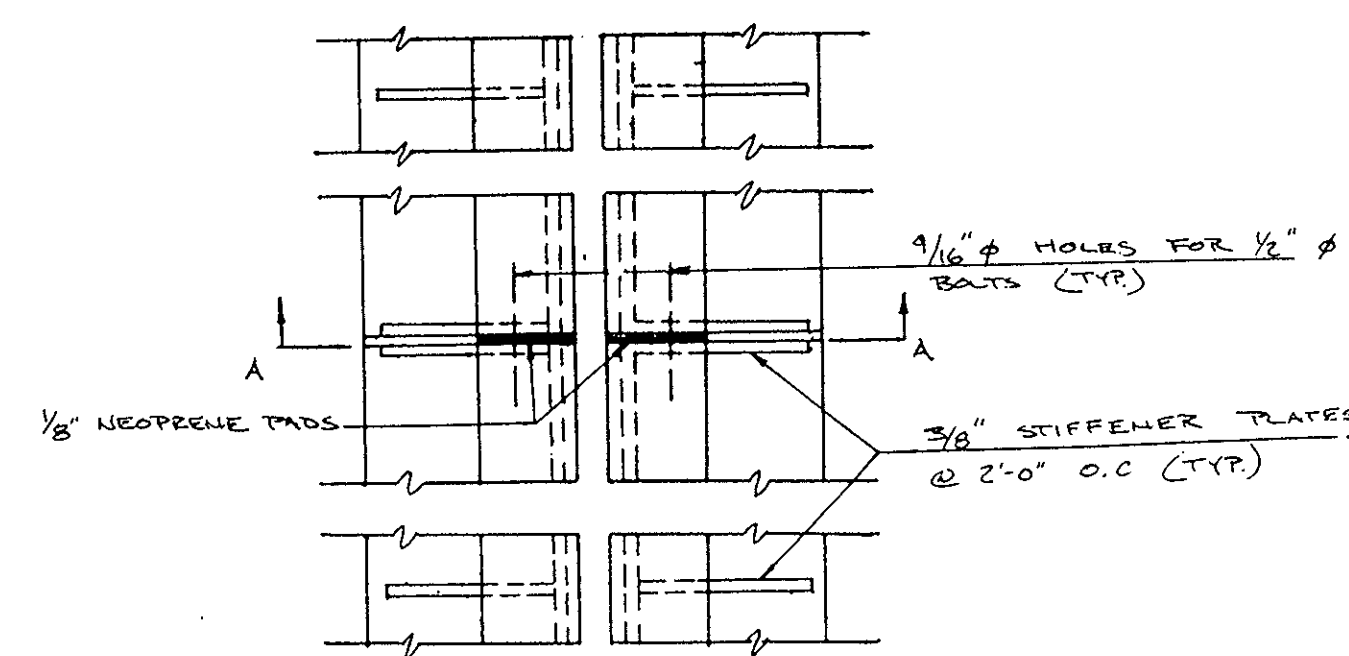
1. DIMENSION 'A' IS SET IN SHOP BY THE FABRICATOR
2. DIMENSION 'B' SHALL BE SET IN THE SHOP BY THE FABRICATOR
3. DIMENSION 'B' SHALL BE SET EQUAL TO THE COMPRESSED SEAL HEIGHT PLUS 3/8"
4. UNCOMPRESSED SEAL HEIGHT SHALL BE EQUAL TO OR GREATER THAN UNCOMPRESSED WIDTH OF SEAL.

B-10-13
NEOPRENE COMPRESSION SEAL DETAIL

NOT TO SCALE

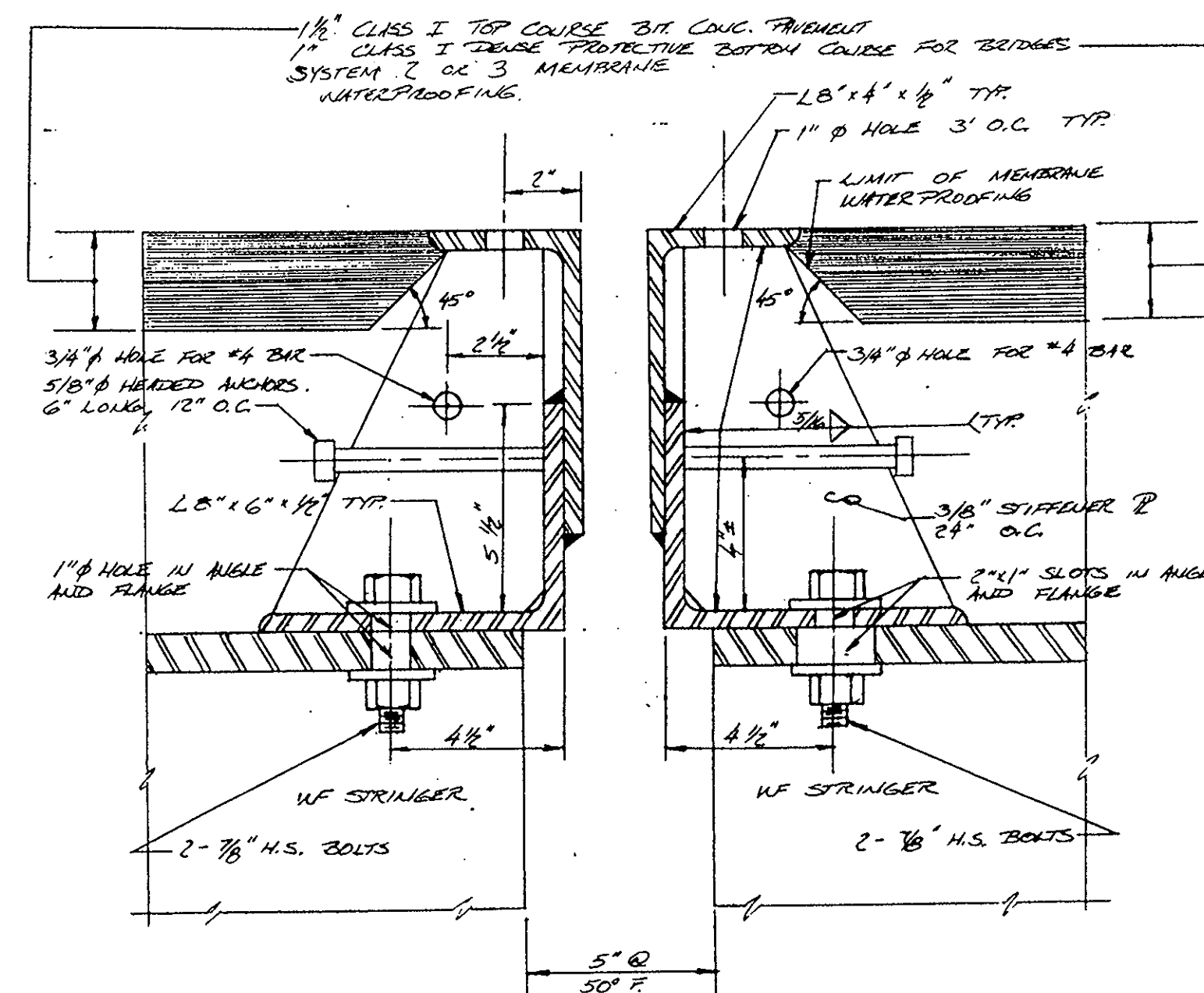


SECTION A-A



ARMORED JOINT SPLICE DETAIL

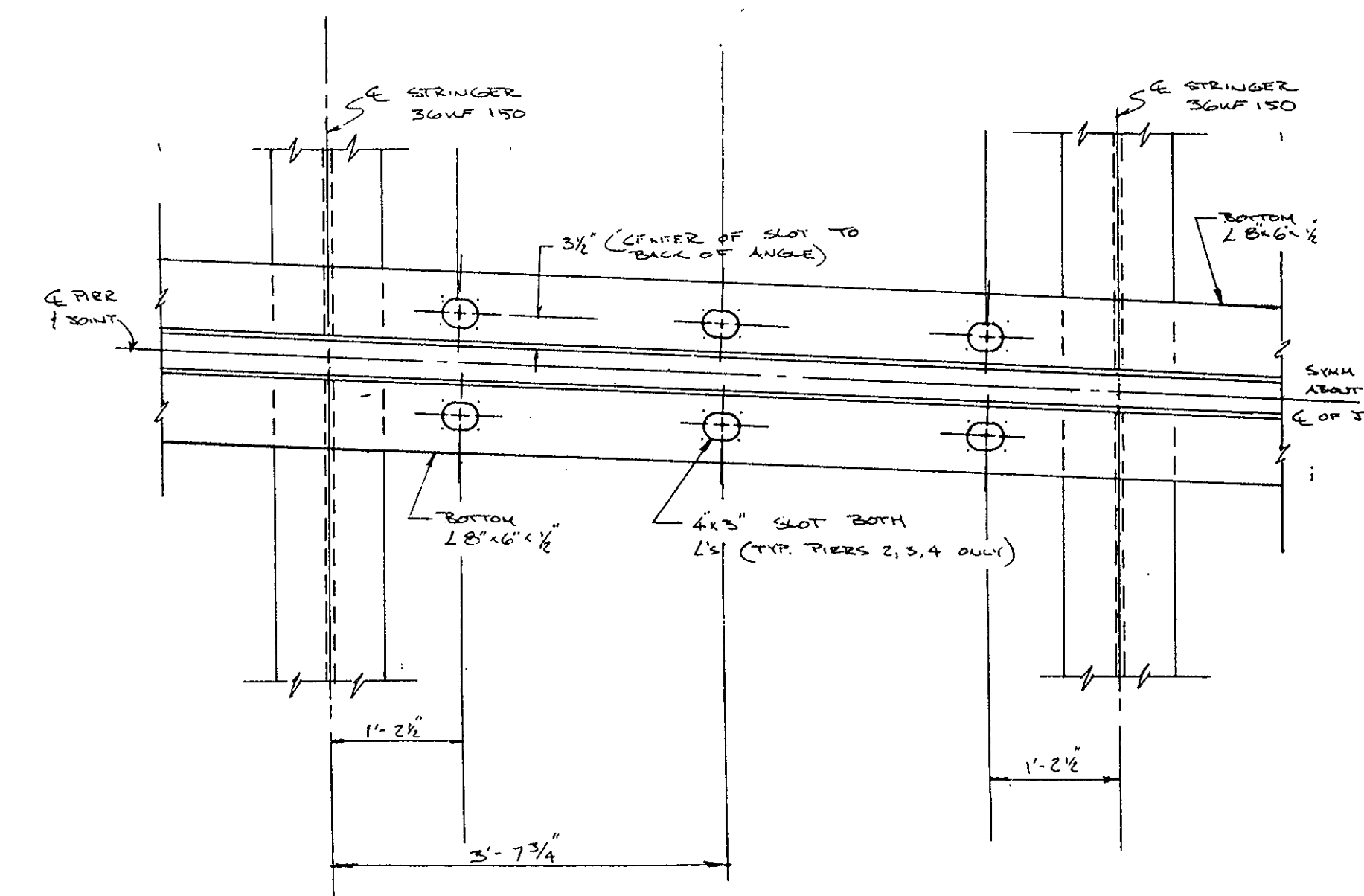
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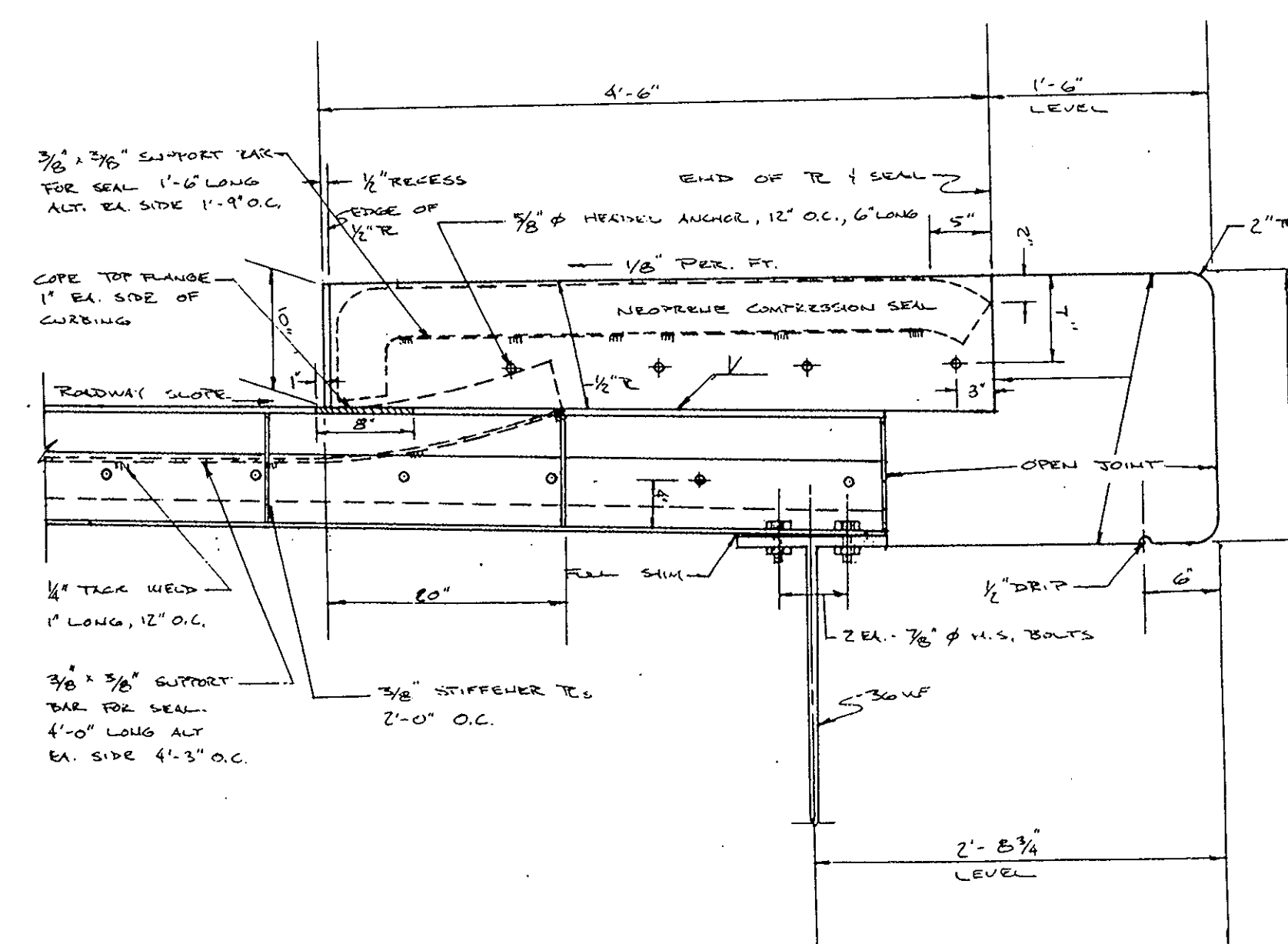
B-10-13
ROADWAY ARMORED JOINT DETAIL
OVER PIER 2, 3, 4

NOTE:

1. ALL ROADWAY JOINT ANGLES ARE CONTINUOUS.
2. ALL WEBS ARE 3/8" CONTINUOUS FILLETS EXCEPT AS NOTED.

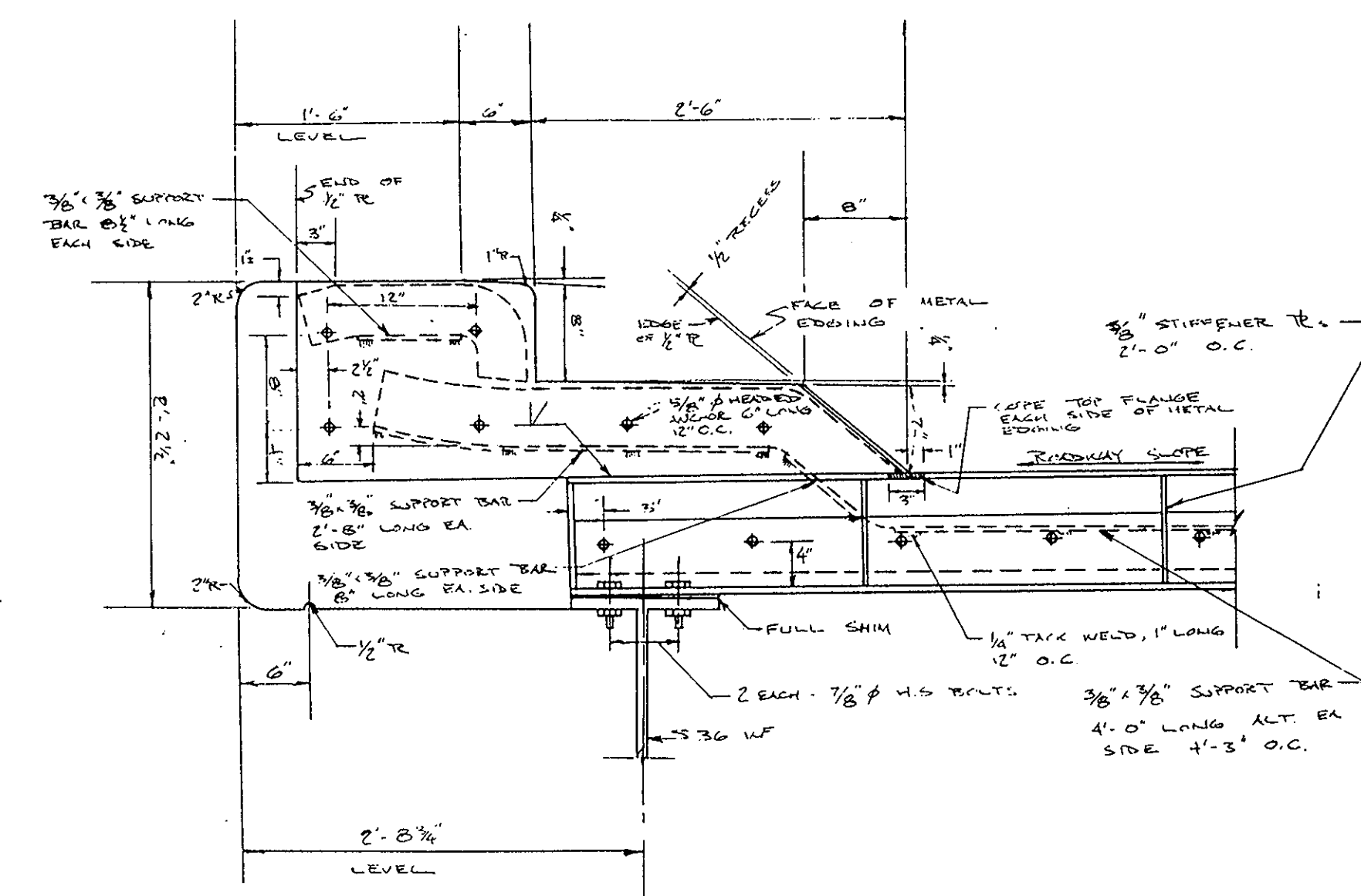


B-10-13
ROADWAY ARMORED JOINT
BOTTOM ANGLE DETAIL



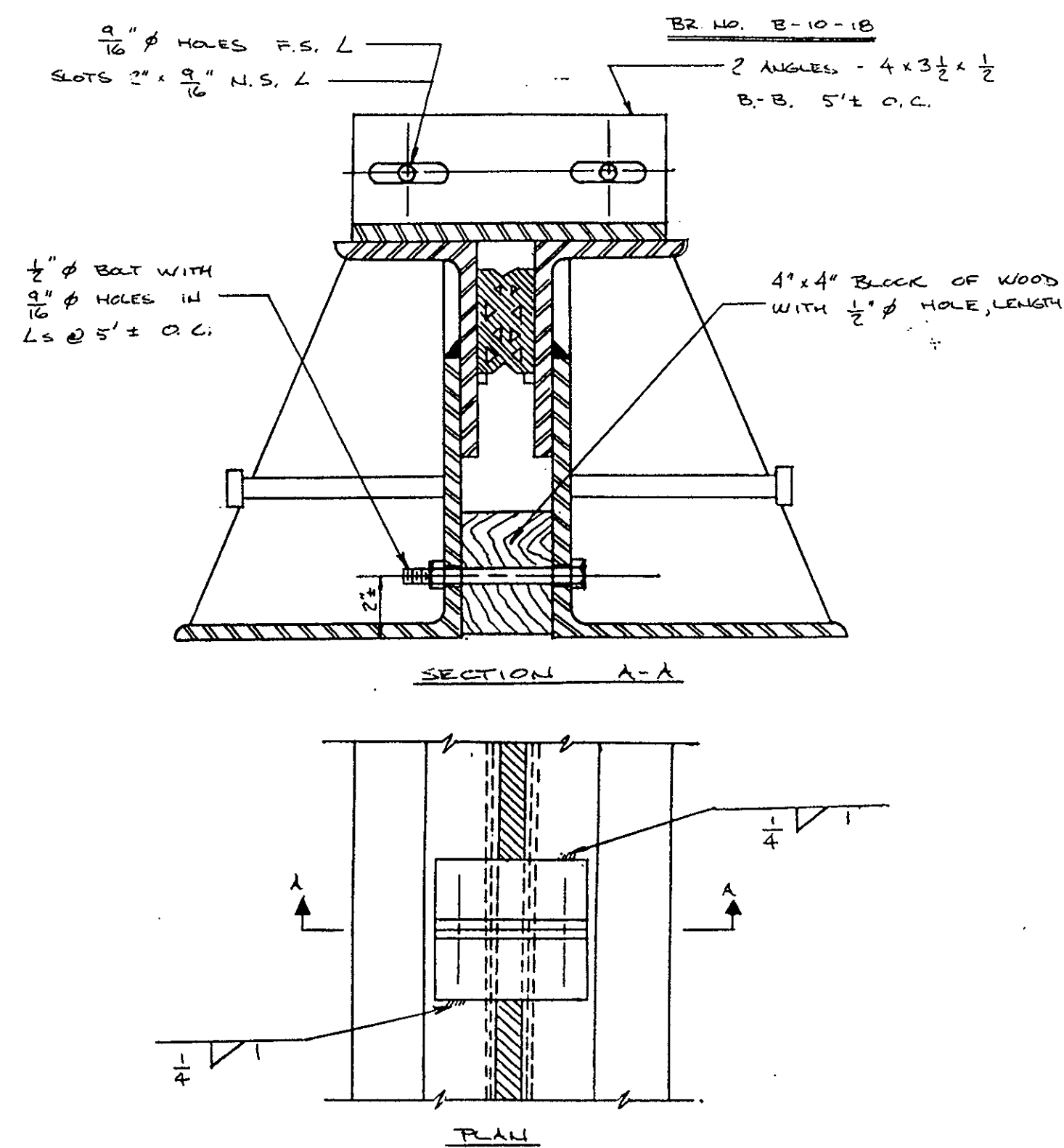
ARMORED JOINT DETAIL AT SIDEWALK

B-10-13



ARMORED JOINT DETAIL AT
SAFETY CURB

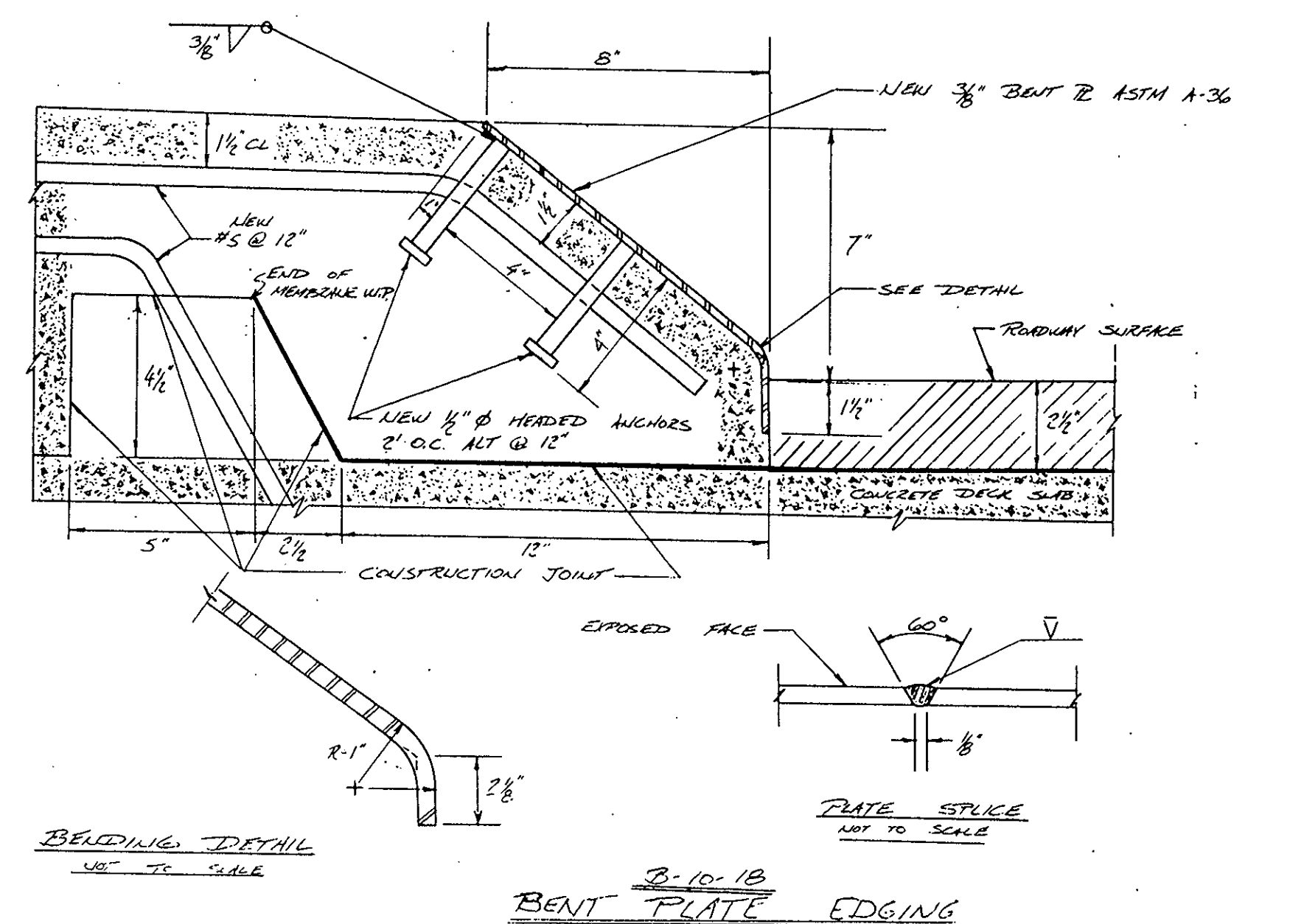
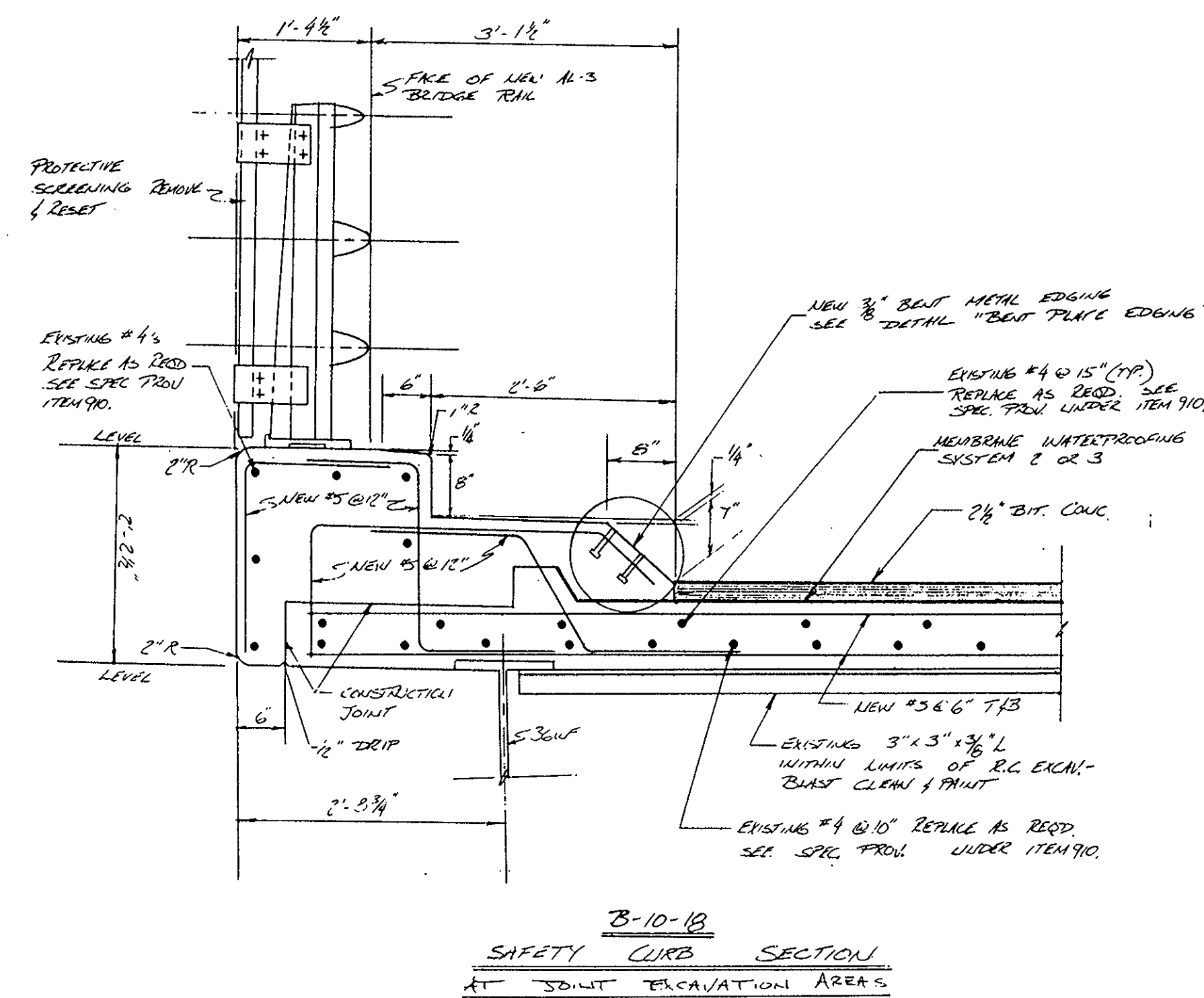
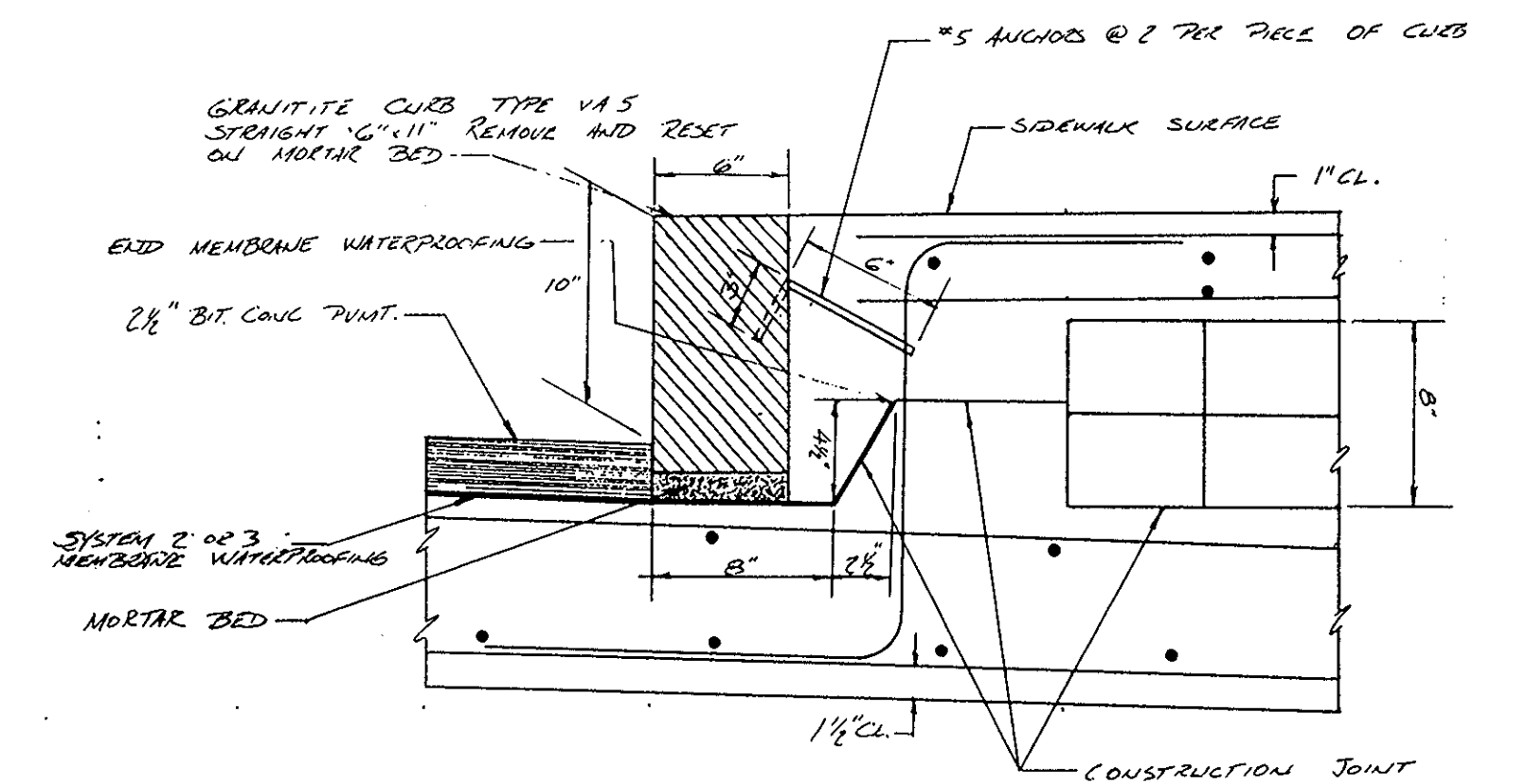
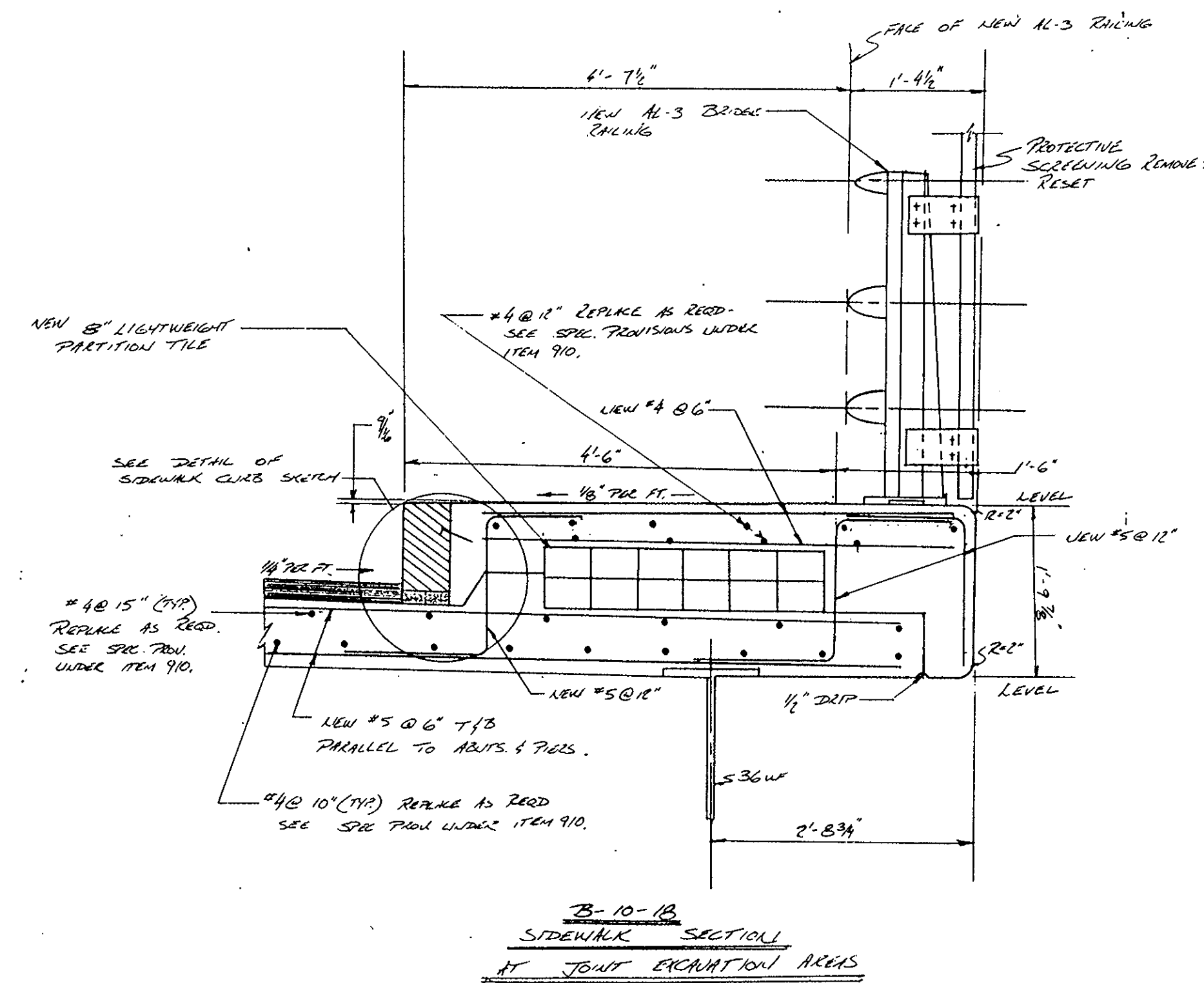
B-10-13

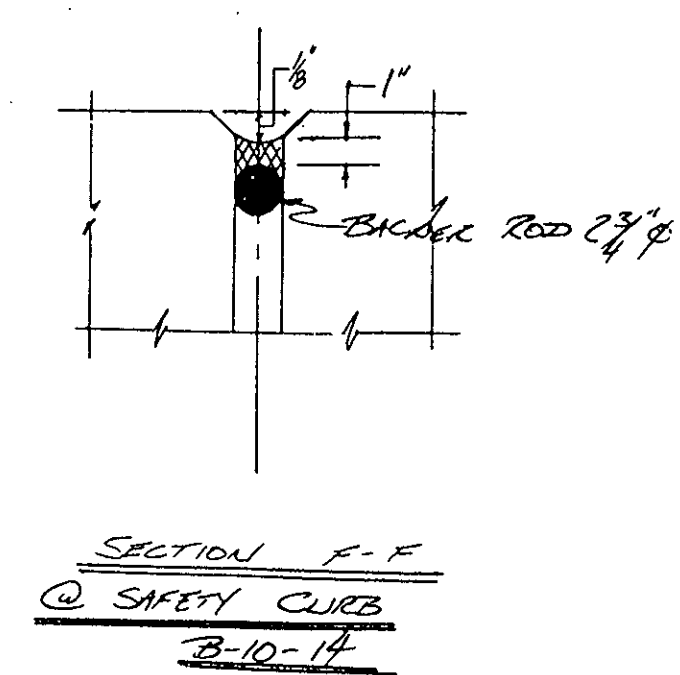
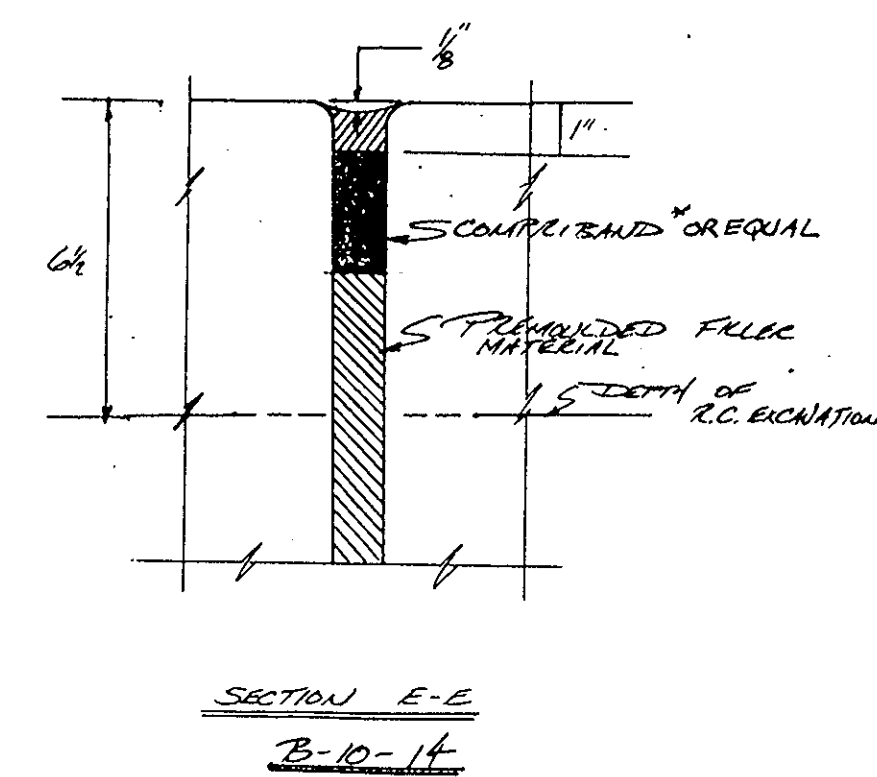
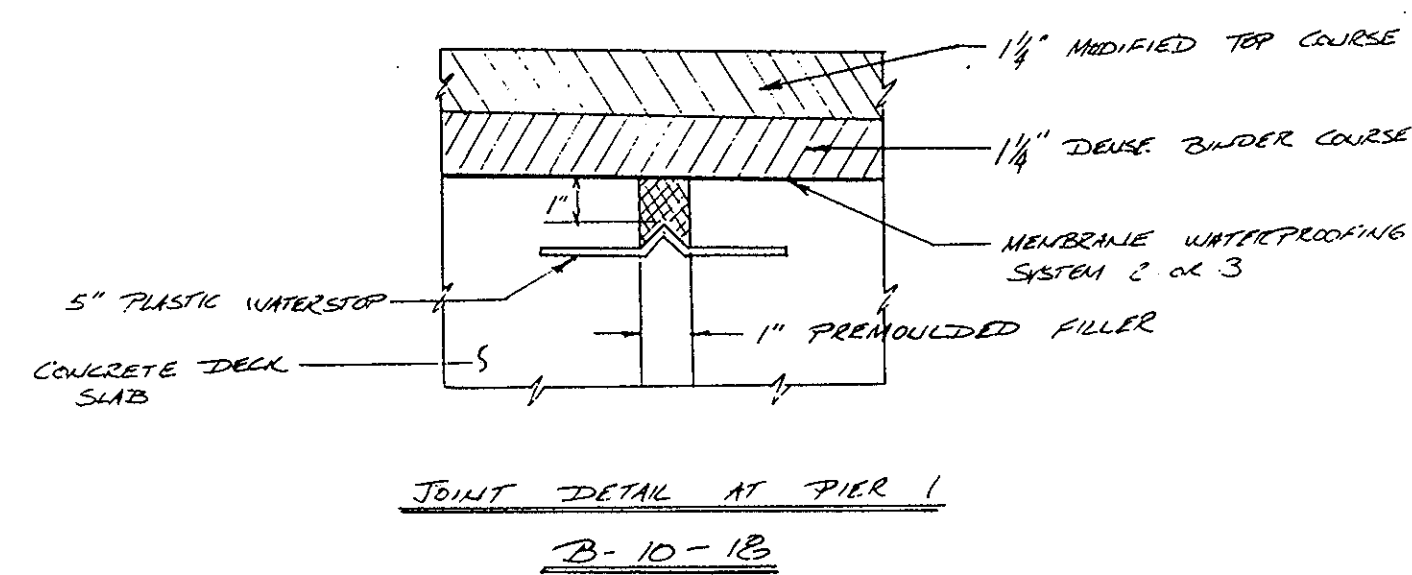
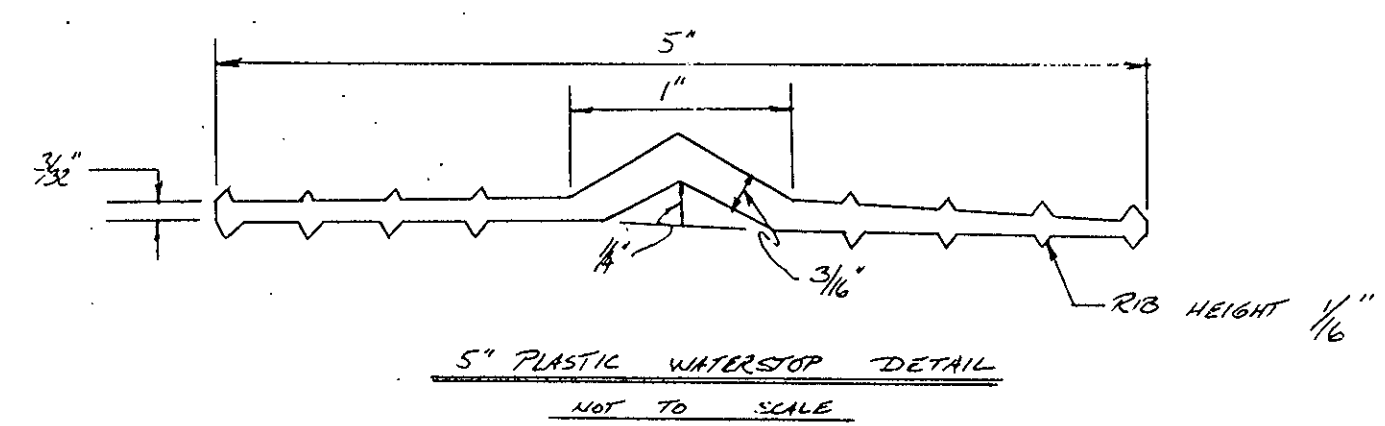
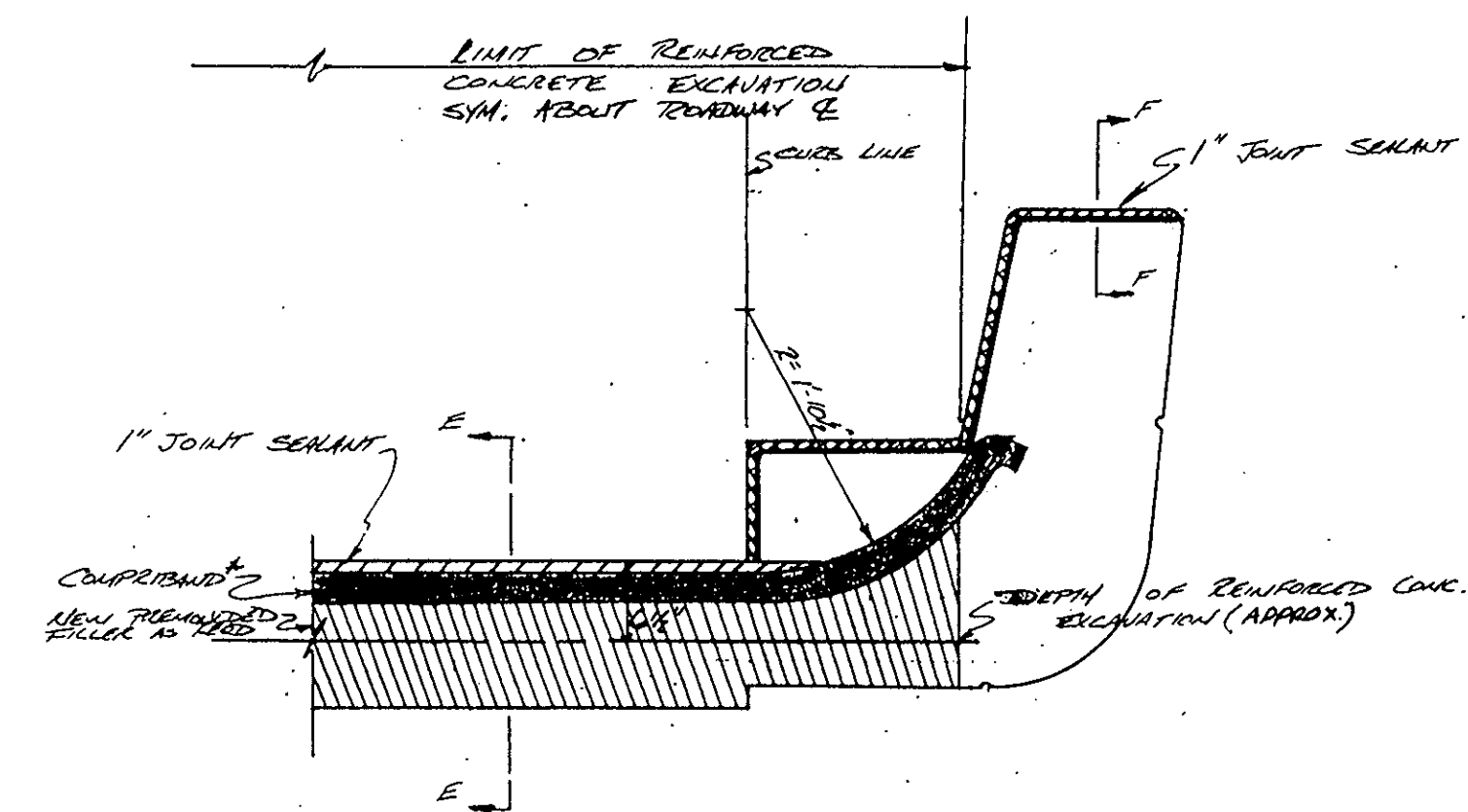
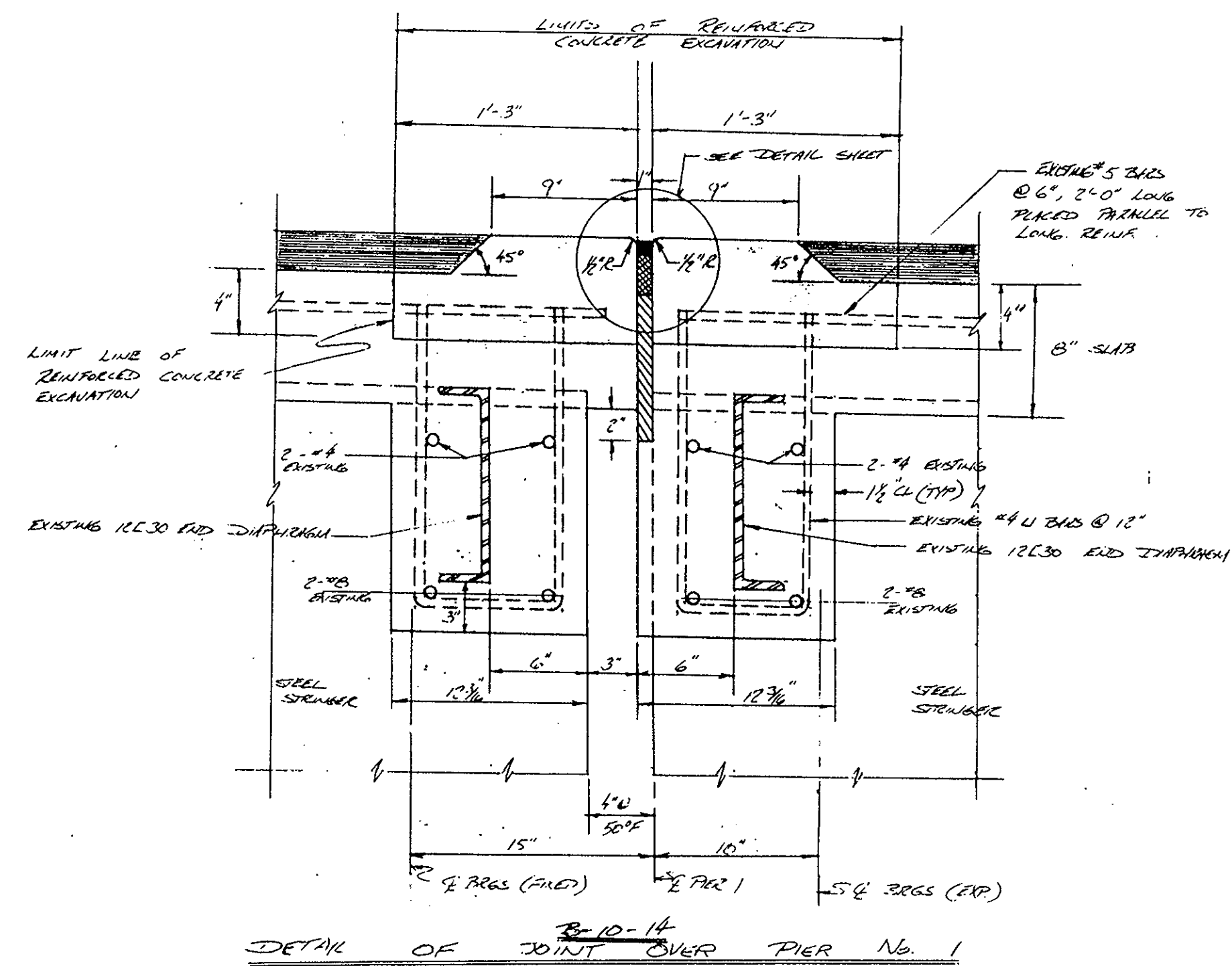
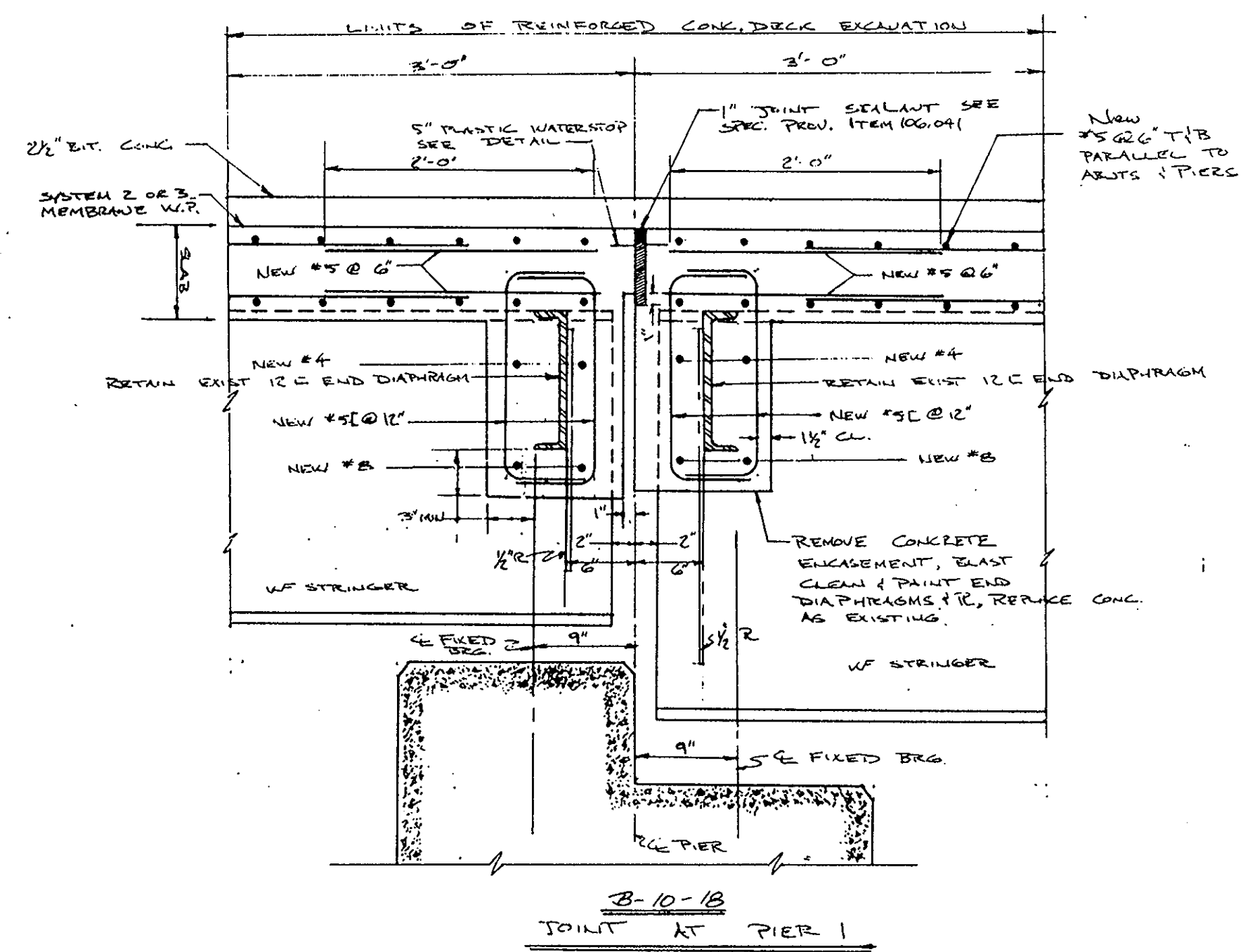


SHIPPING DEVICE FOR
ROADWAY ARMORED JOINT
B-10-18

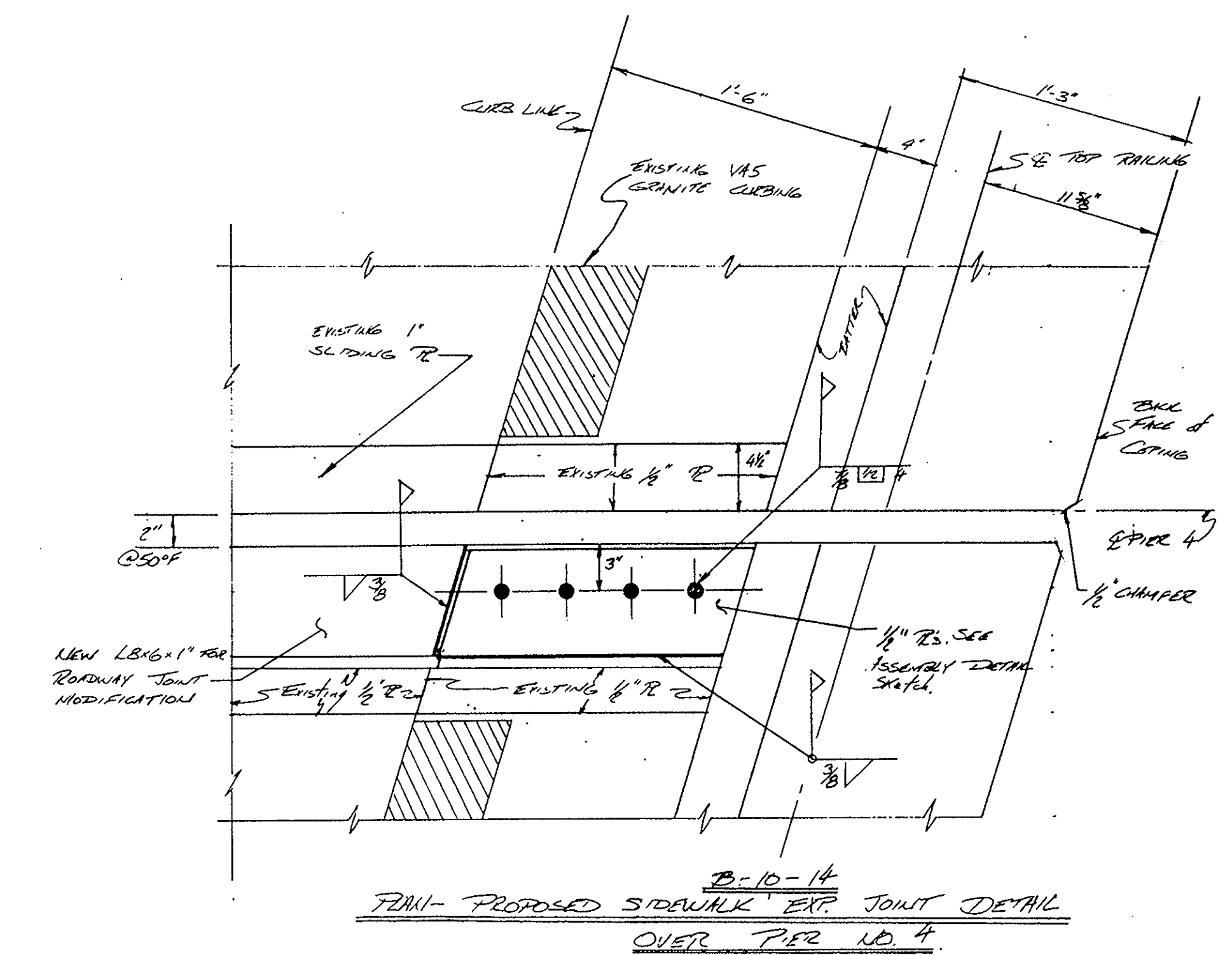
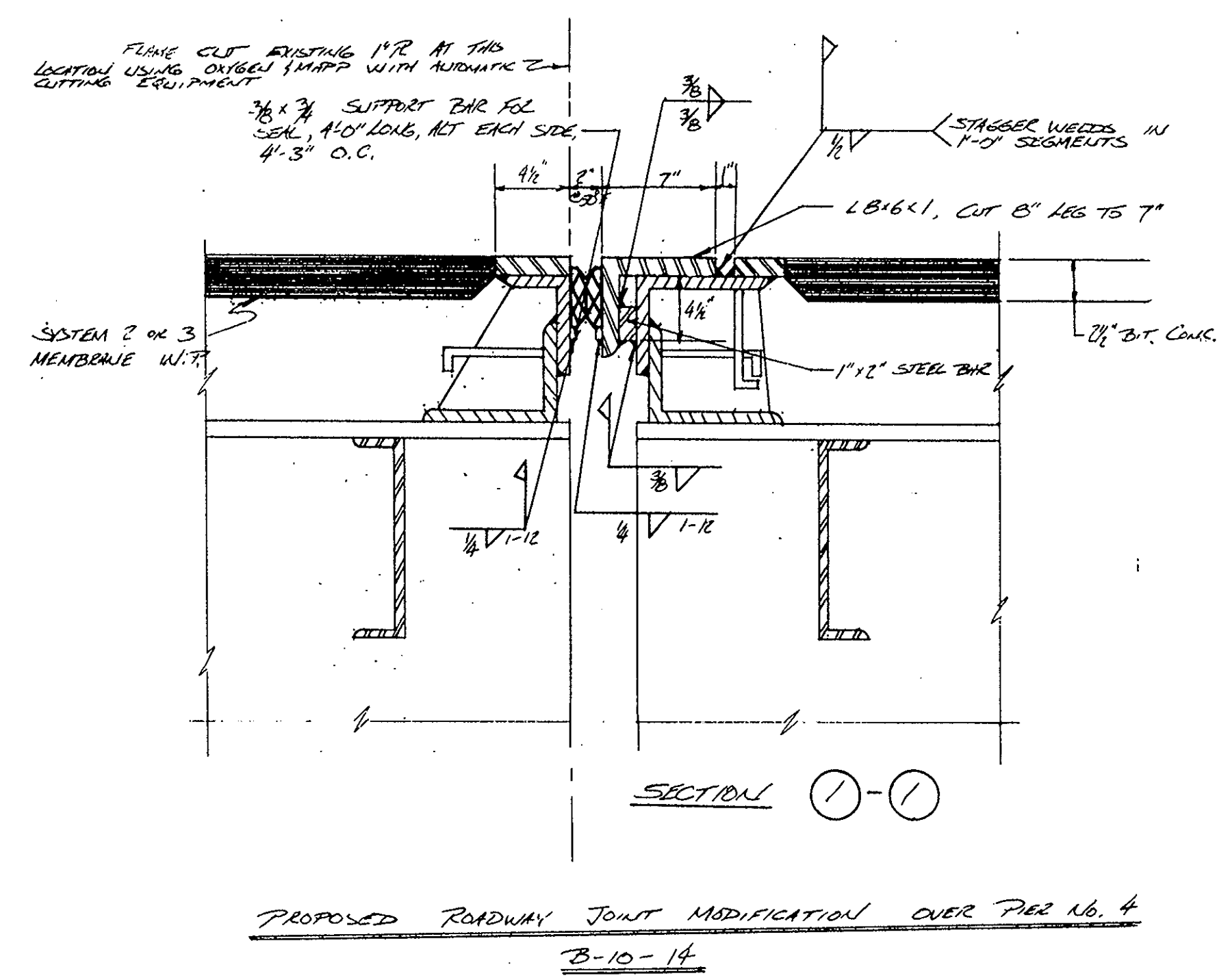
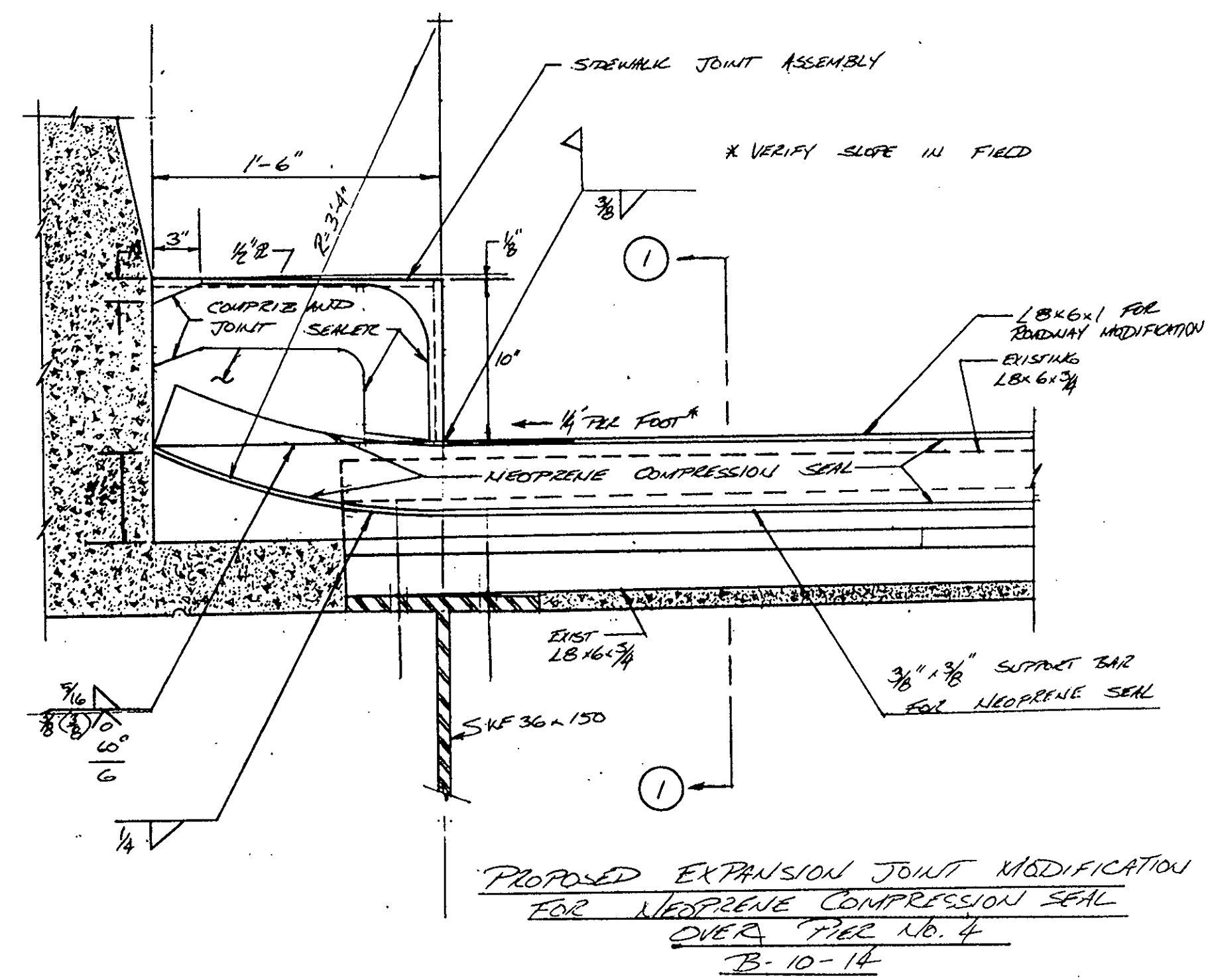
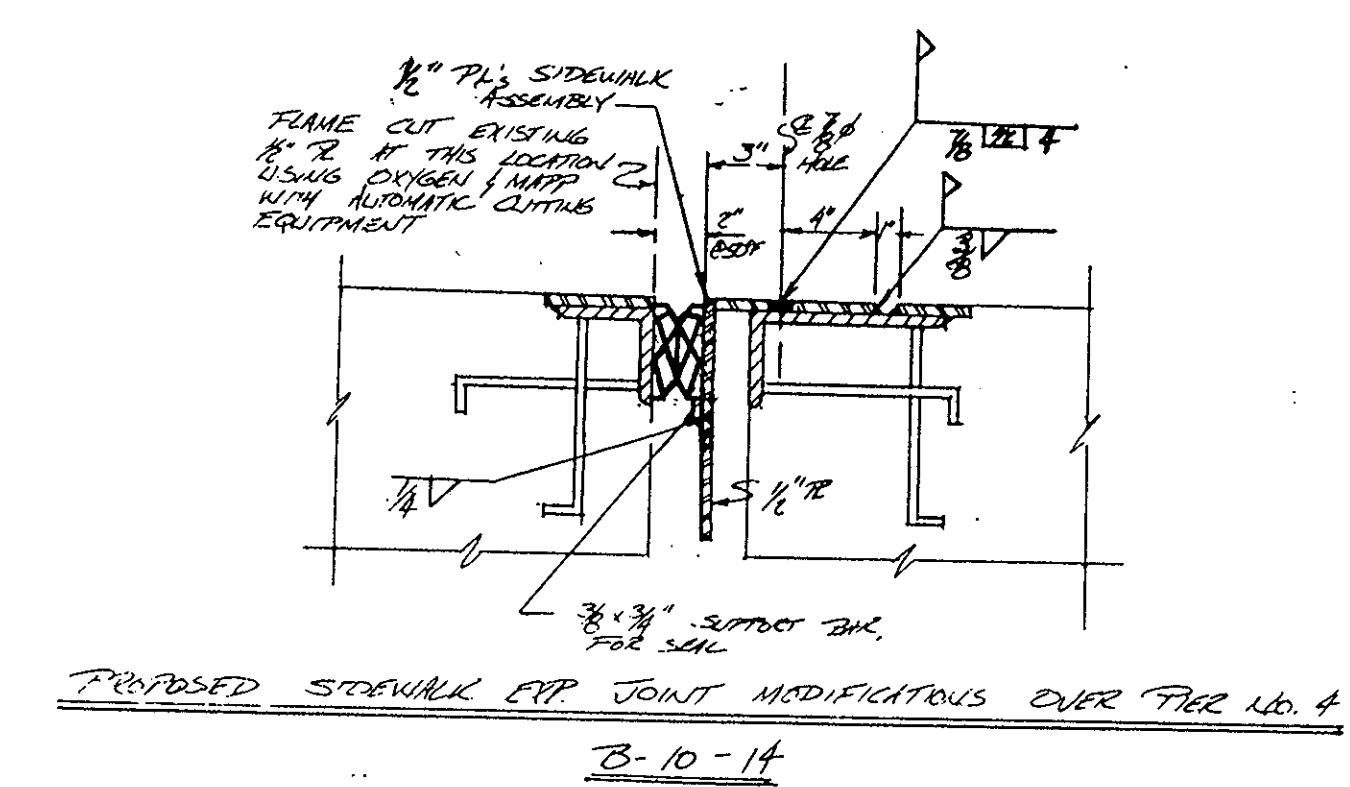
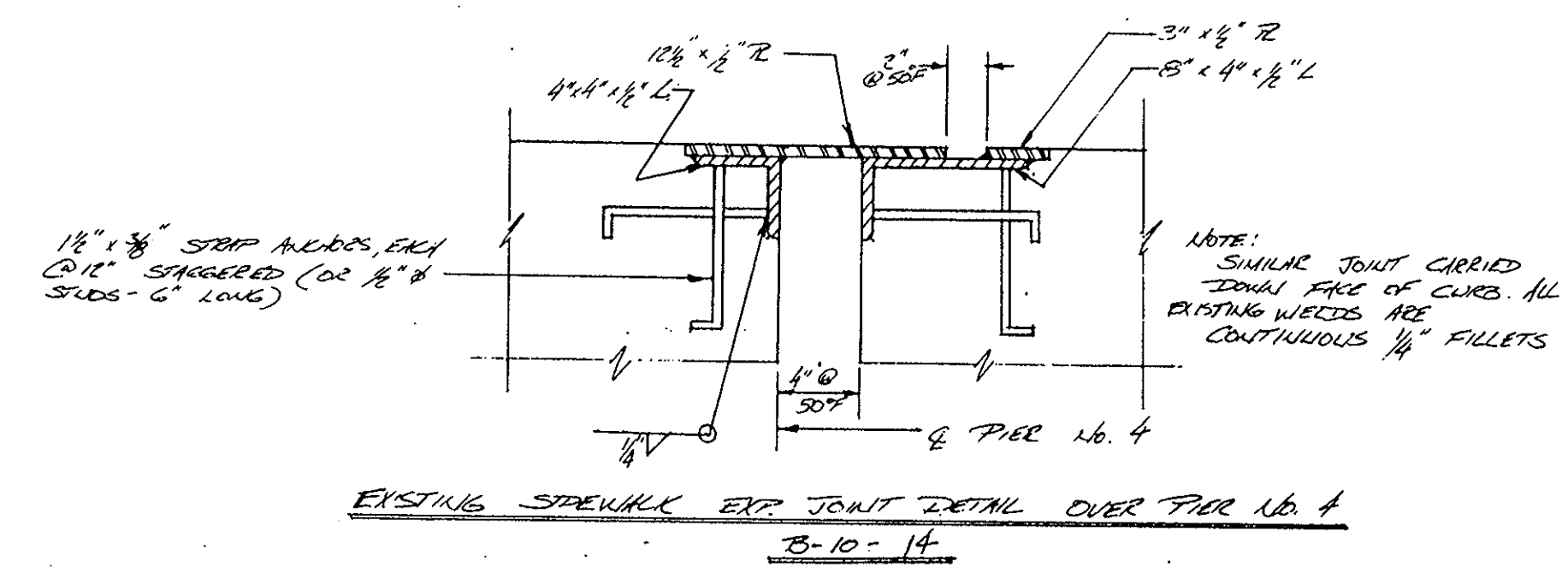
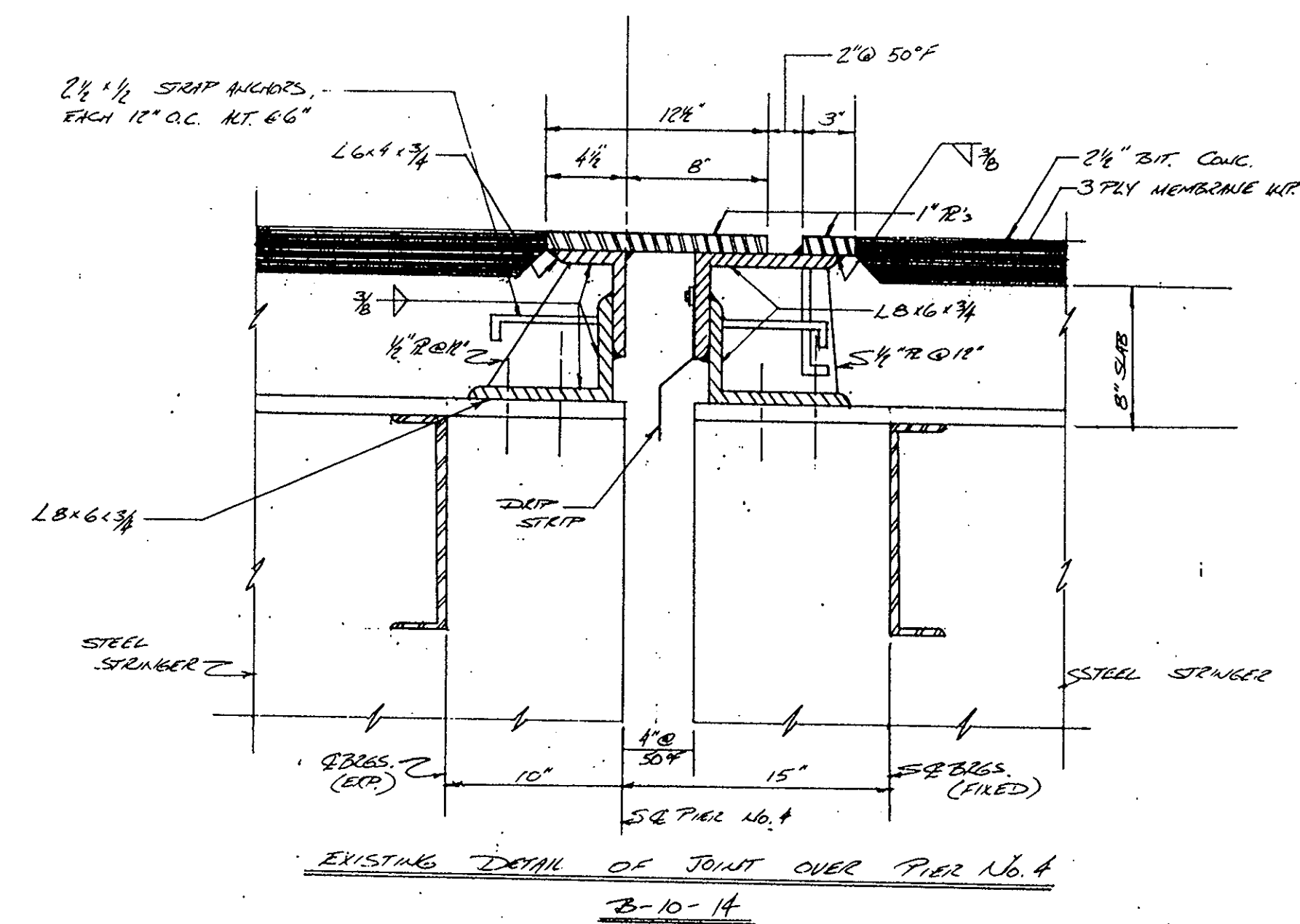
SHIPPING DEVICE FOR
ROADWAY ARMORED JOINT
CONSTRUCTION NOTES
B-10-18

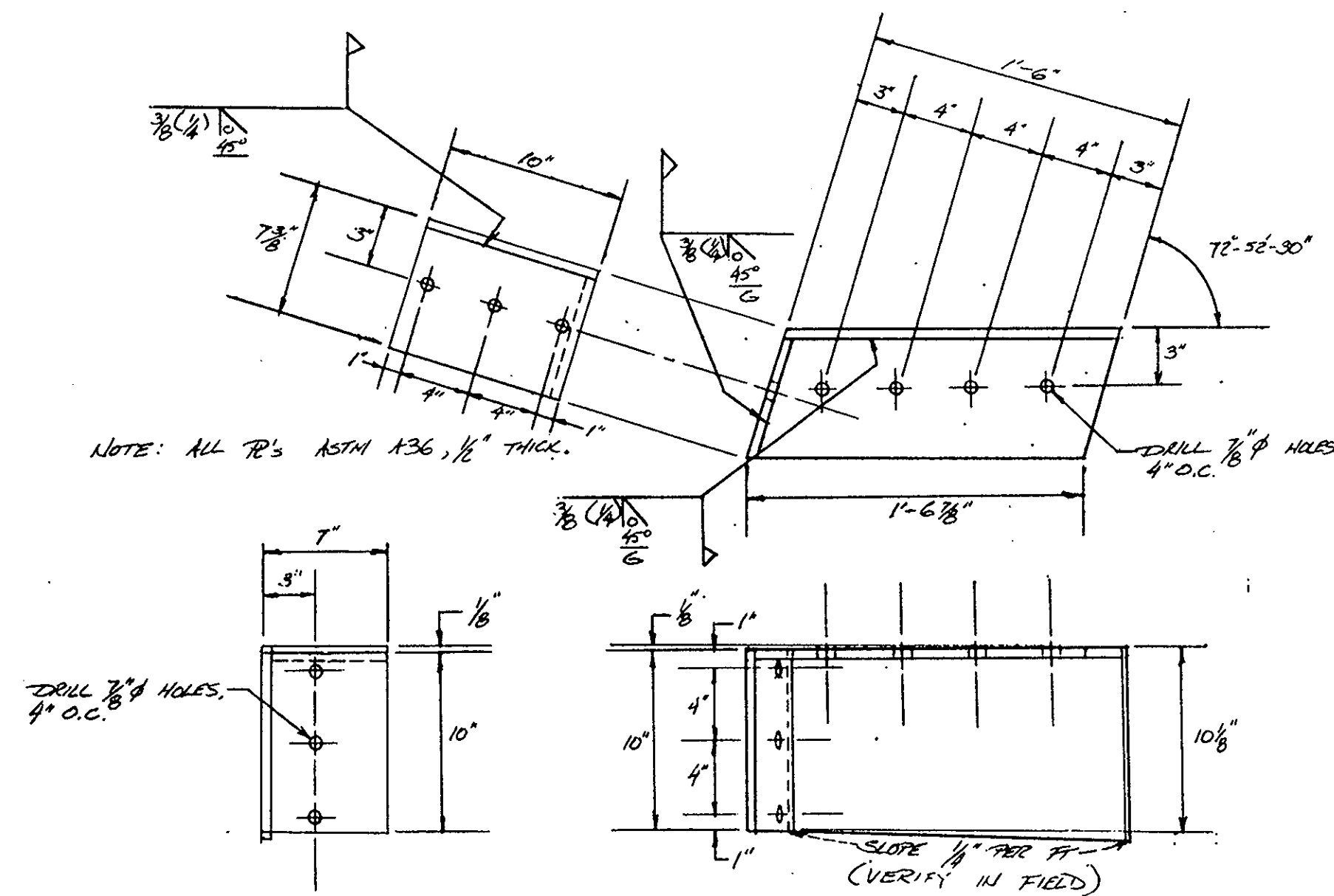
1. SHOP DRAWINGS SHALL BE SUBMITTED FOR THIS DEVICE.
2. ALL ARMORED JOINT ASSEMBLIES MUST BE PROPERLY FITTED IN THE SHOP AND SHIPPED WITH THE DEVICE FOR MAINTAINING PROPER SPACING AND FIT.
3. WITH ARMORED JOINT IN PLACE, REMOVE $\frac{1}{8}$ " BOLT AND WOOD BLOCK BEFORE ANCHORING TO BRIDGE.
4. ARMORED JOINT DEVICE SHALL BE SECURED TO THE BEAM AND/OR ANCHOR BOLTS WHEN THE AMBIENT TEMPERATURE IS BETWEEN 40°F AND 80°F. NO FIELD ADJUSTMENT OF OPENING 'A' IS PERMITTED. SHIPPING DEVICE MUST BE REMOVED AFTER ARMORED JOINT IS SECURELY BOLTED IN PLACE.
5. GRIND ARMORED JOINT SURFACE TO A SMOOTH FINISH AFTER REMOVAL OF BACK-TO-BACK ANGLES.
6. ALL EXPOSED SURFACES OF ANGLES SHALL BE FIELD PAINTED.





PROPOSED SECTION THRU JOINT OVER PIER No. 1





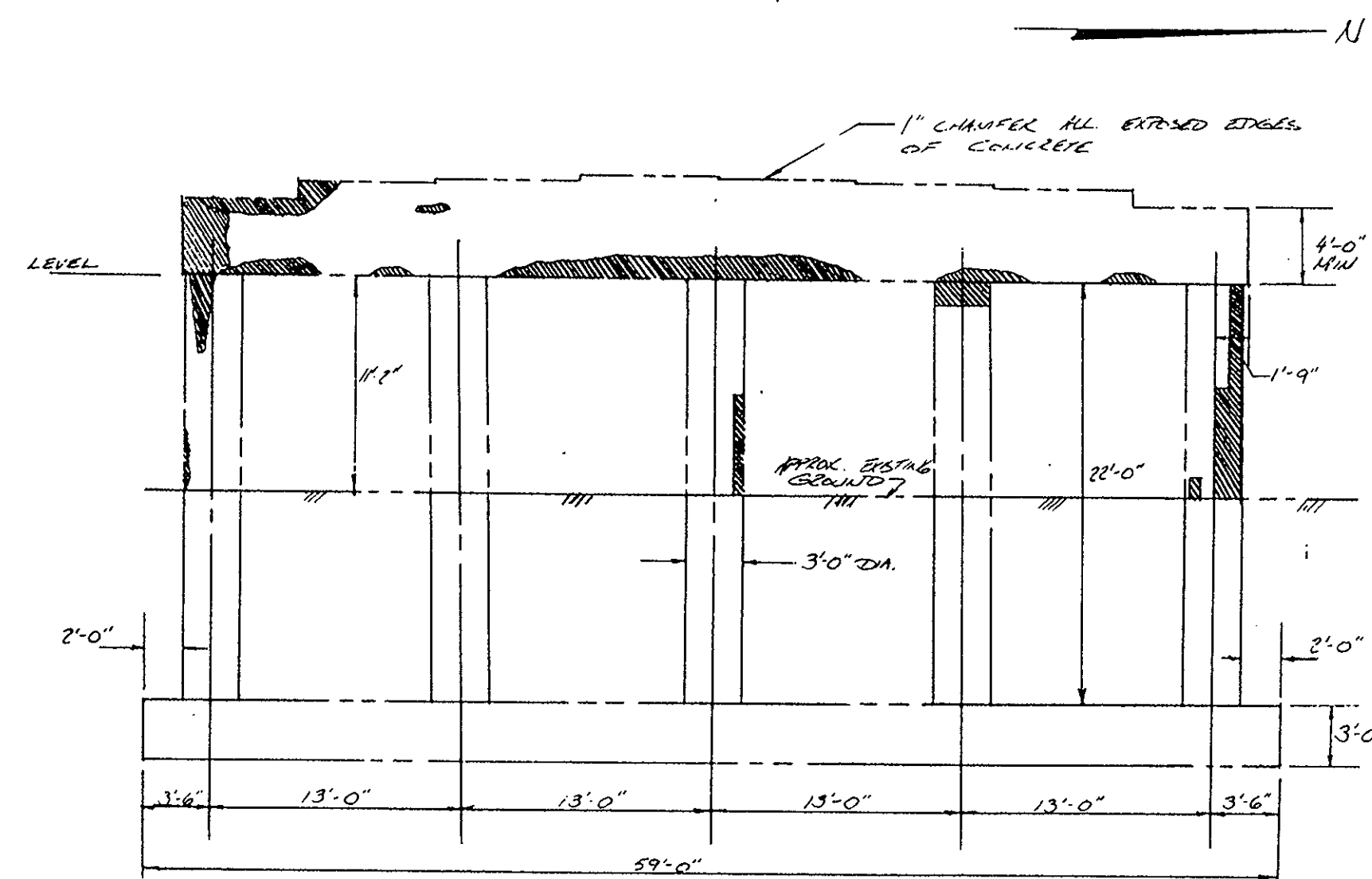
SIDEWALK EXPANSION JOINT ASSEMBLY MODIFICATION
OVER PIER NO. 4

EXPANSION JOINT MODIFICATION
OVER PIER NO. 4
B-10-14

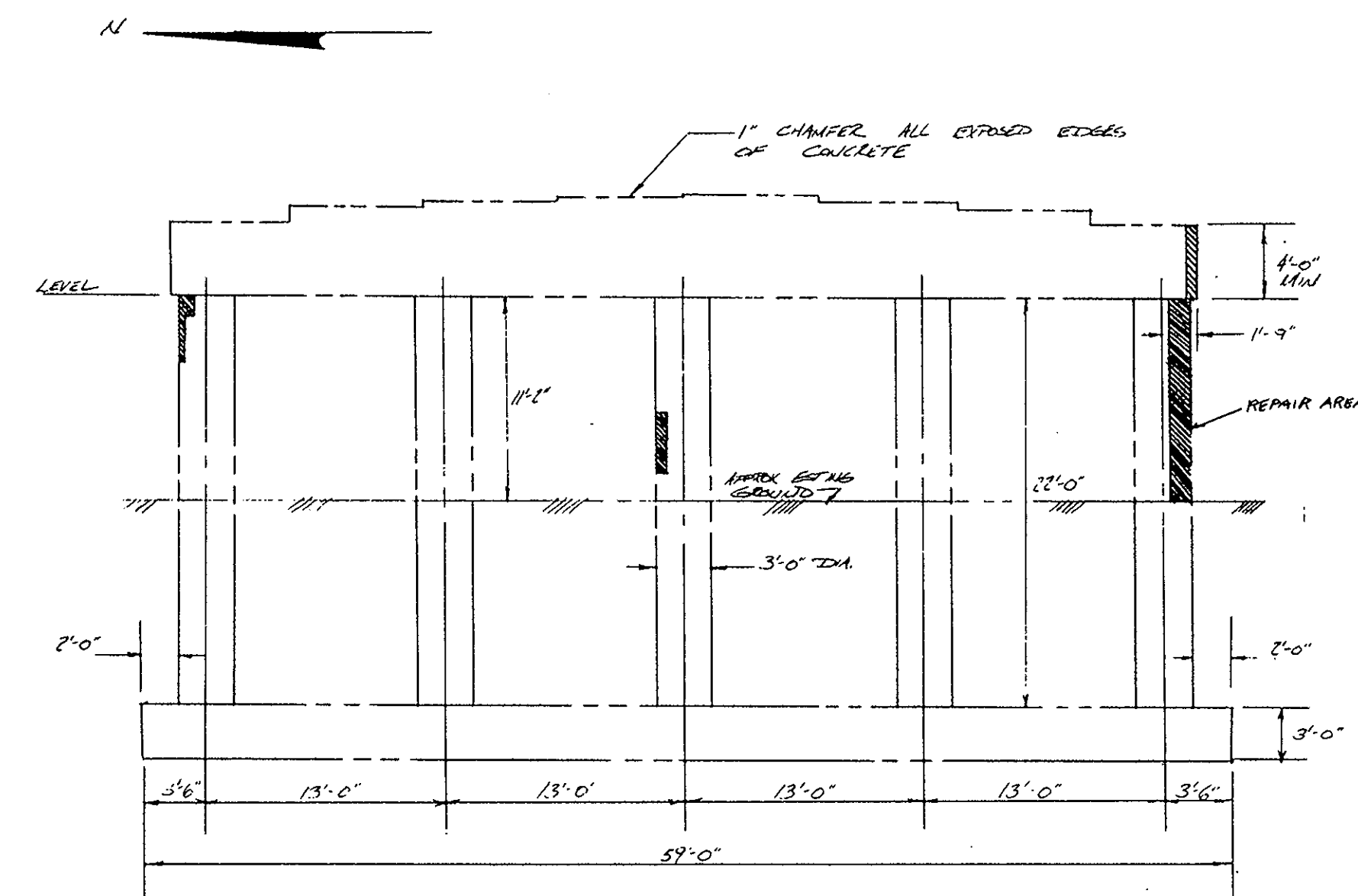
NOTES:

1. GROOVE DEPTH DIMENSION "B" SHALL BE SET IN THE SHOP BY THE FABRICATOR. (SEE SHEET OF)
2. DIMENSION "B" SHALL BE SET EQUAL TO THE COMPRESSED SEAL HEIGHT PLUS $\frac{3}{8}$ ".
3. UNCOMPRESSED SEAL HEIGHT SHALL BE EQUAL TO OR GREATER THAN THE UNCOMPRESSED WIDTH OF SEAL.
4. ALL WELDING SHALL BE DONE IN ACCORDANCE TO AWS/AWS. D.1.1-BB.
5. SHOP DRAWINGS SHALL BE SUBMITTED FOR THE EXPANSION JOINT MODIFICATION IN ACCORDANCE WITH SUBSECTION 900.80 AND THE CONTRACT SPECIAL PROVISIONS.
6. CUTTING OUT(S) SHALL BE SUBMITTED WITH THE SHOP DRAWINGS CLEARLY INDICATING THE SIZE AND PROPERTIES OF THE SEAL TO BE UTILIZED BY THE CONTRACTOR FOR APPROVAL BY THE ENGINEER.
7. NEOPRENE SEALS SHALL BE INSTALLED IN THE FIELD IN ONE PIECE. NO SPLICING OF THE SEALS SHALL BE PERMITTED.
8. ALL PAINTING SHALL BE DONE IN ACCORDANCE TO SUBSECTION 900.83.
9. THE FOLLOWING TABLE SHALL BE USED IN THE FIELD FOR SETTING DIMENSION "A" FOR THIS JOINT ONLY:

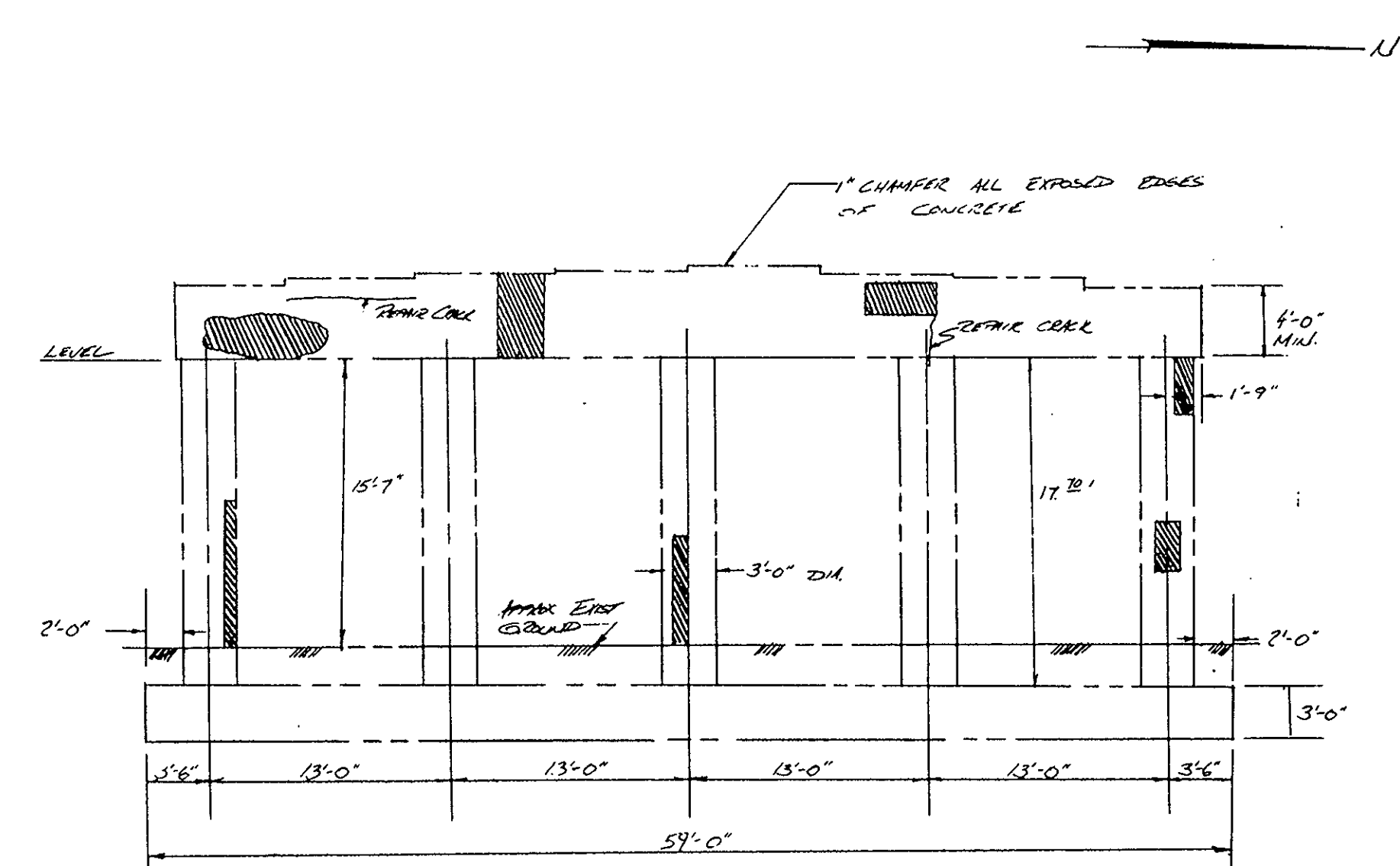
OF #	JOINT OPENING "A"	
	INCHES	MM
100	1 3/4	38.1
90	1 5/8	41.275
80	1 3/4	43.175
70	1 5/8	46.038
60	1 3/4	48.919
50	2 -	50.800
40	2 3/8	53.181
30	2 3/4	55.563



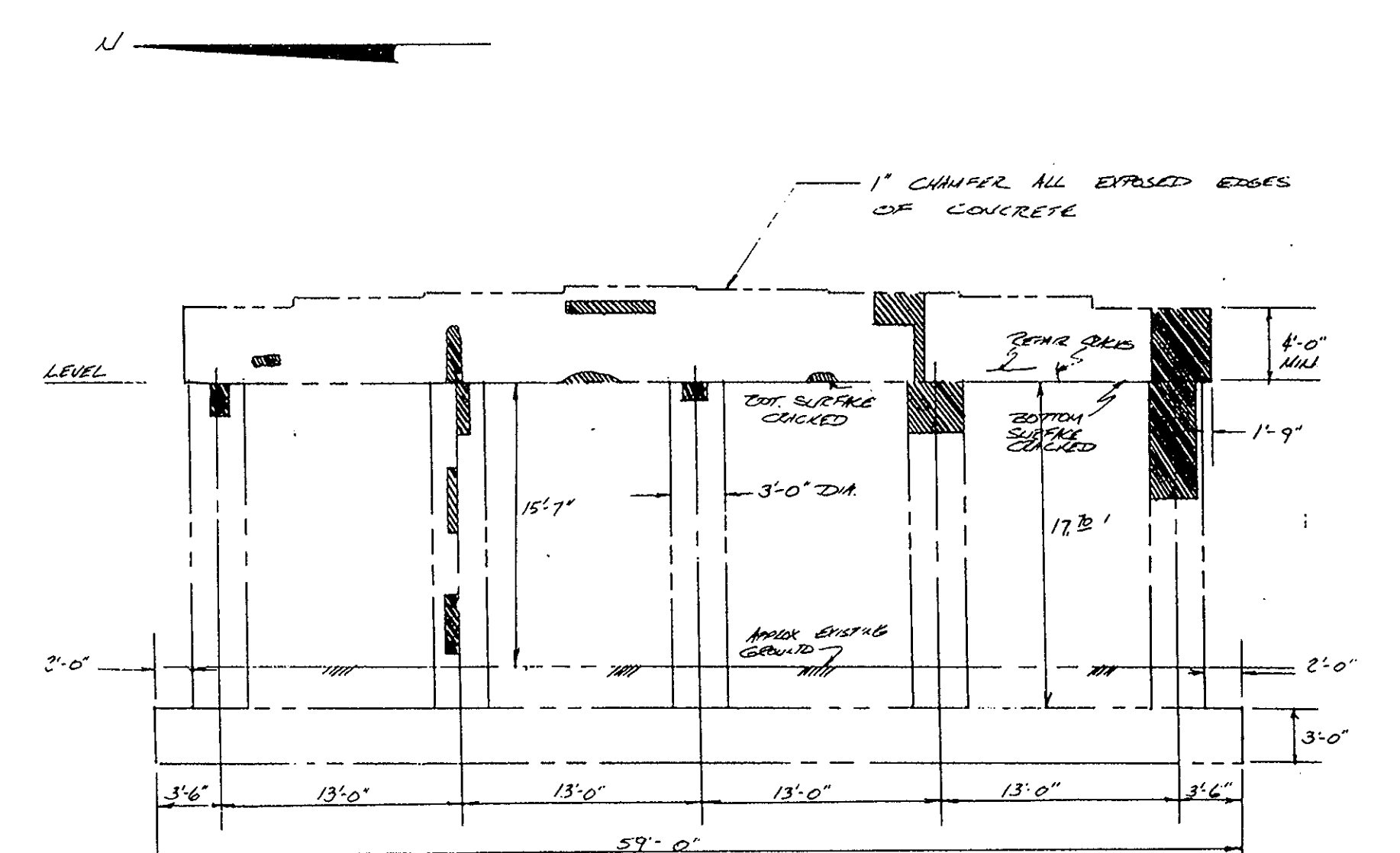
PIER 1
EAST ELEVATION
REPAIR AREAS
B-10-15



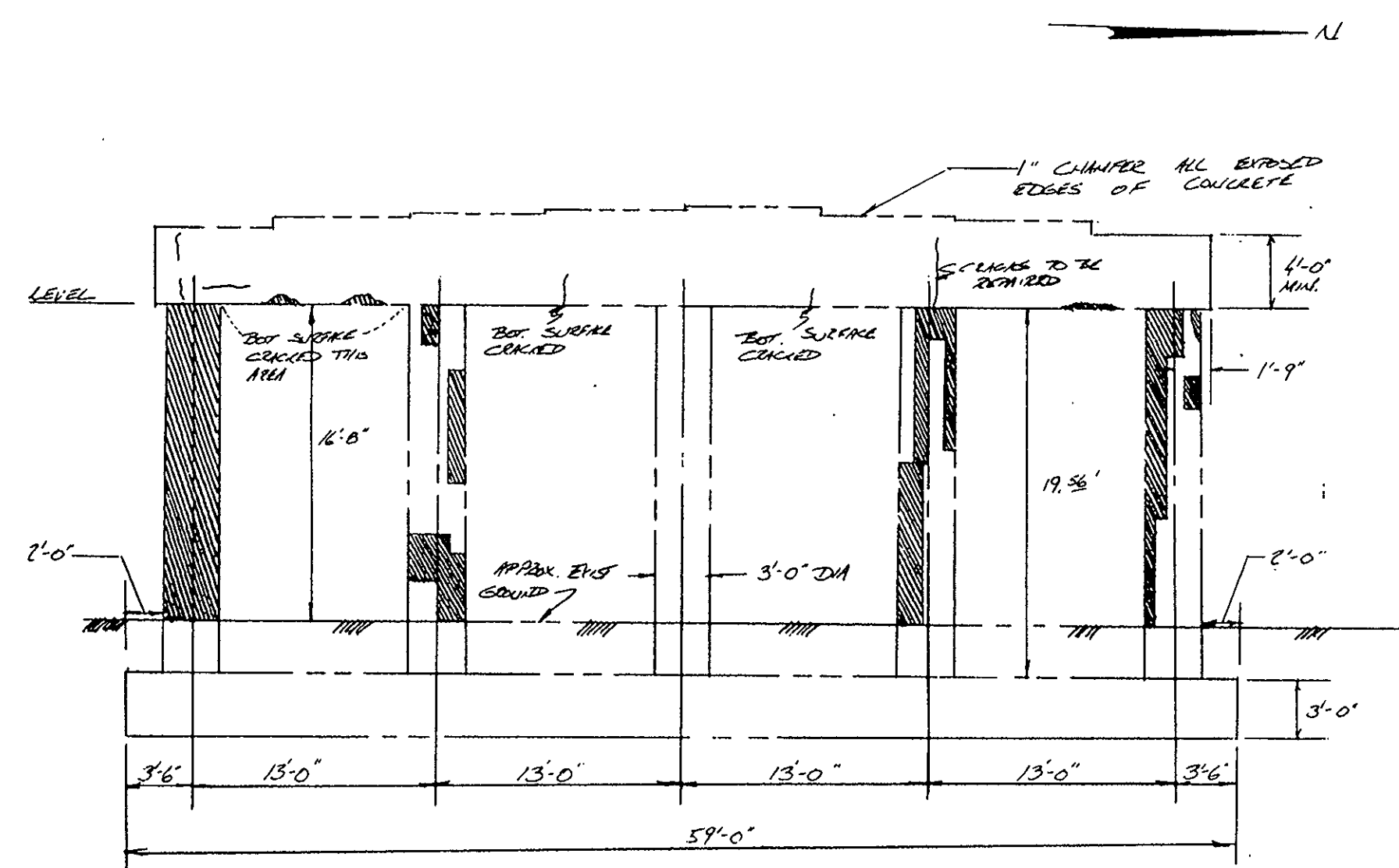
PIER 1
WEST ELEVATION
REPAIR AREAS
B-10-15



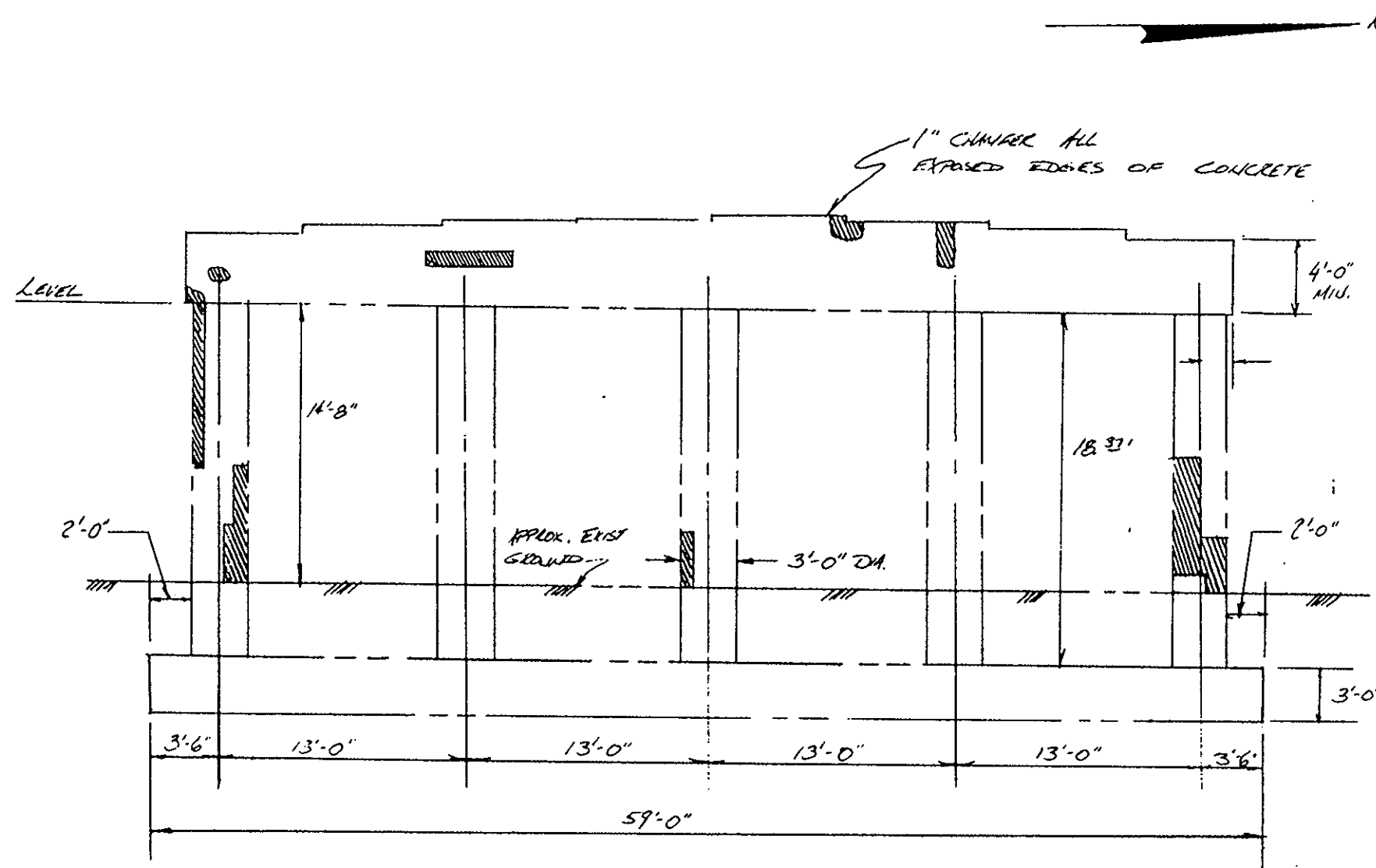
PIER 2
EAST ELEVATION
REPAIR AREAS
B-10-16



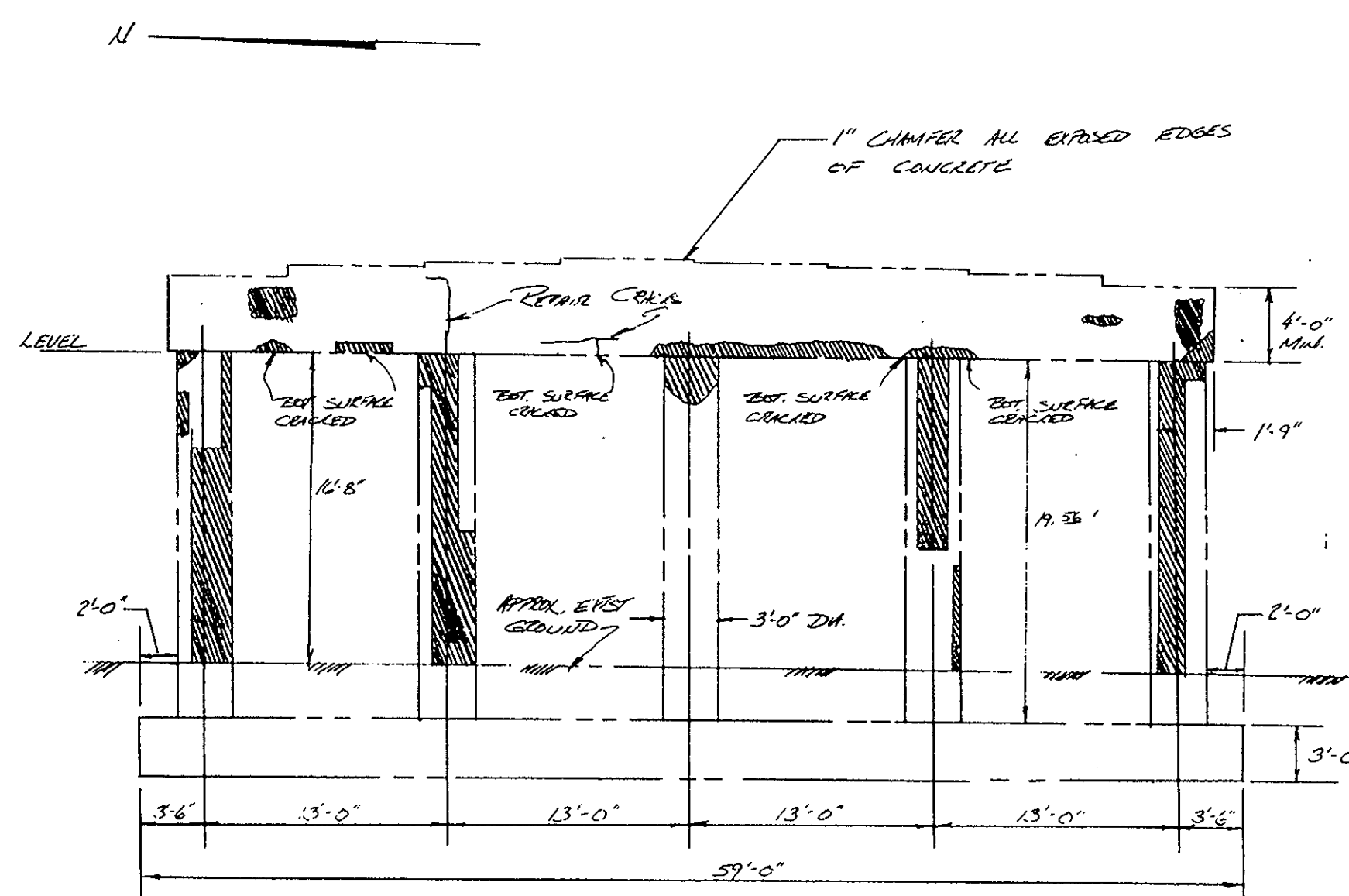
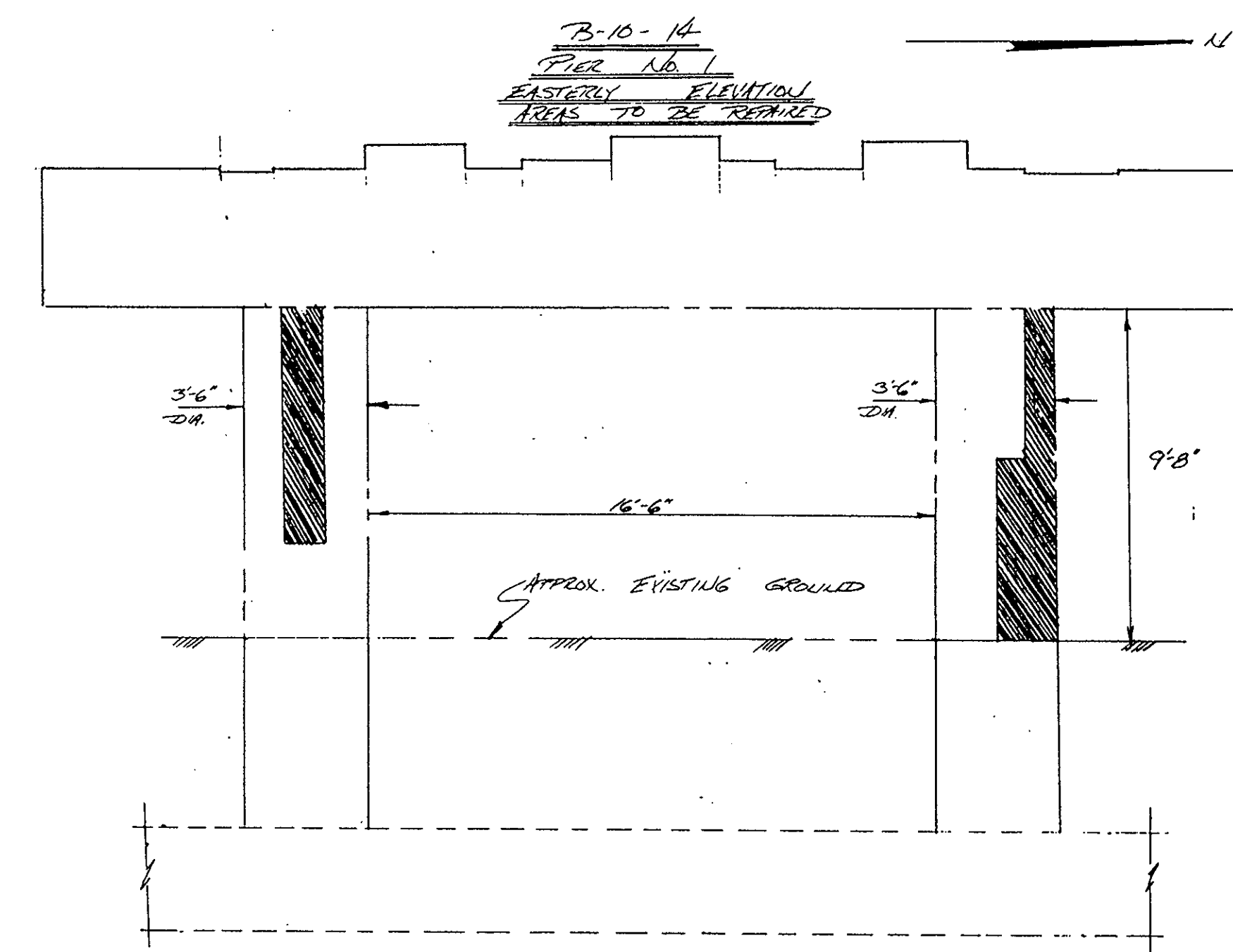
PIER 2
WEST ELEVATION
REPAIR AREAS
B-10-16



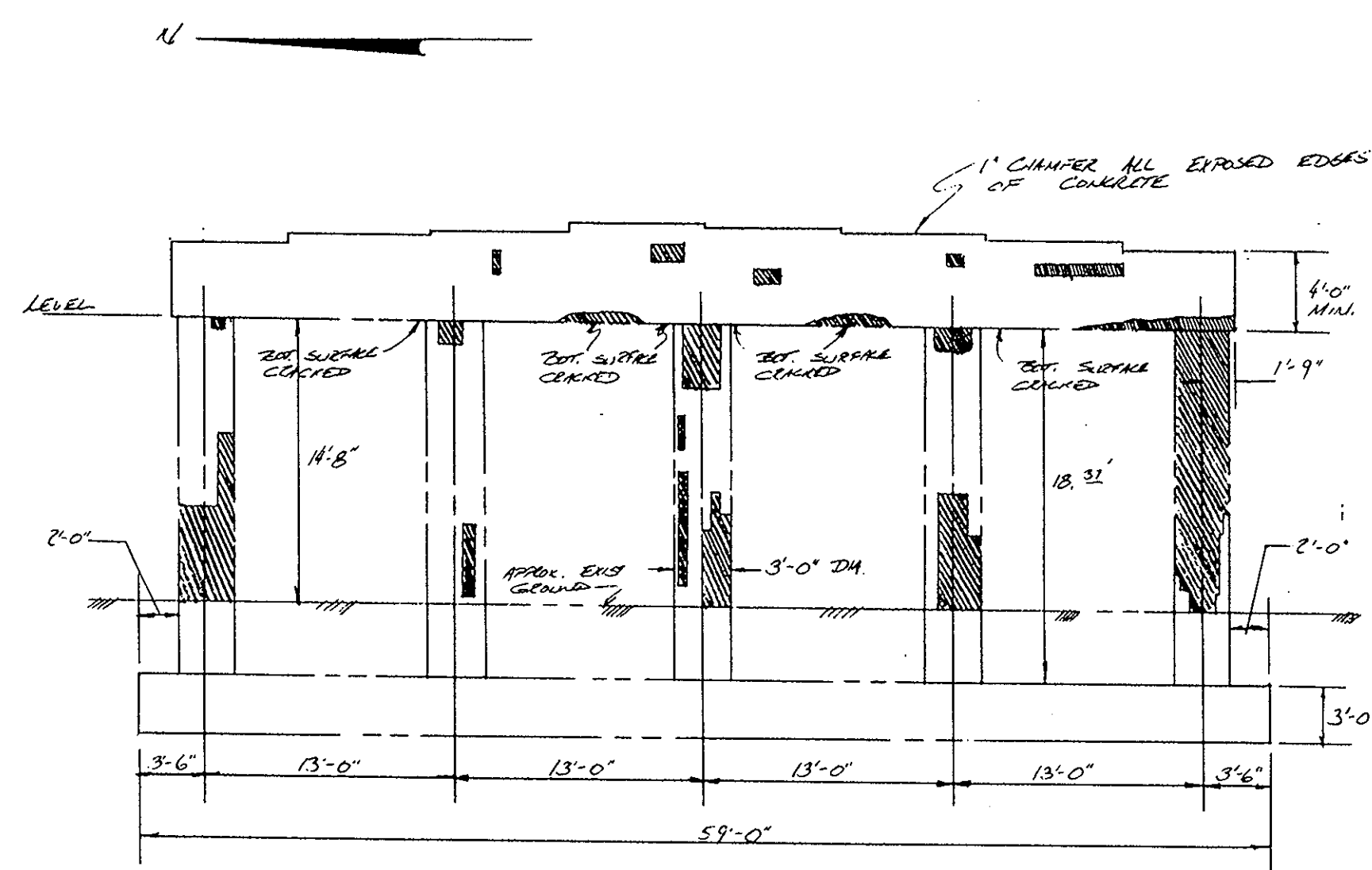
PIER 3
EAST ELEVATION
REPAIR AREAS
B-10-18



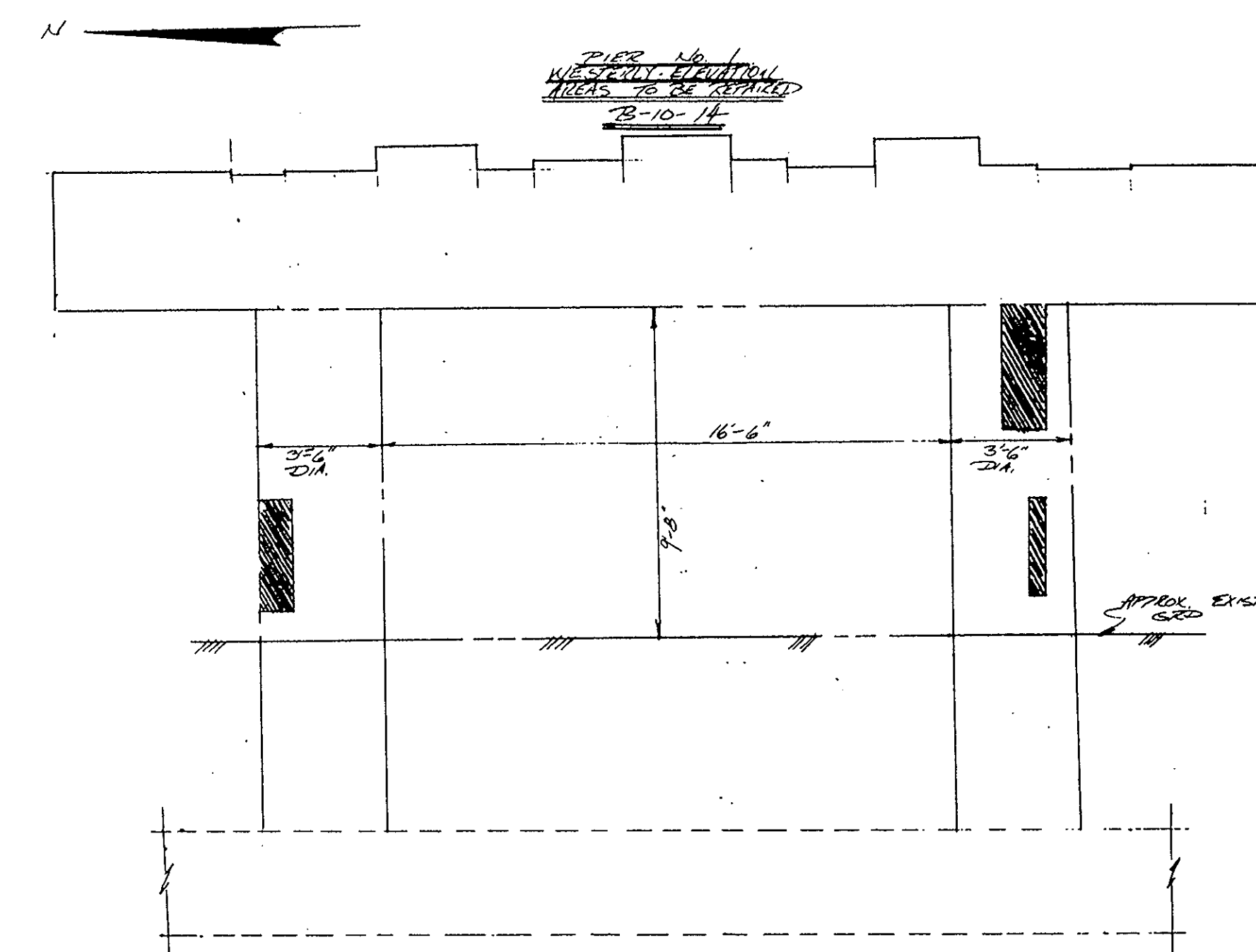
PIER 4
EAST ELEVATION
REPAIR AREAS
B-10-18

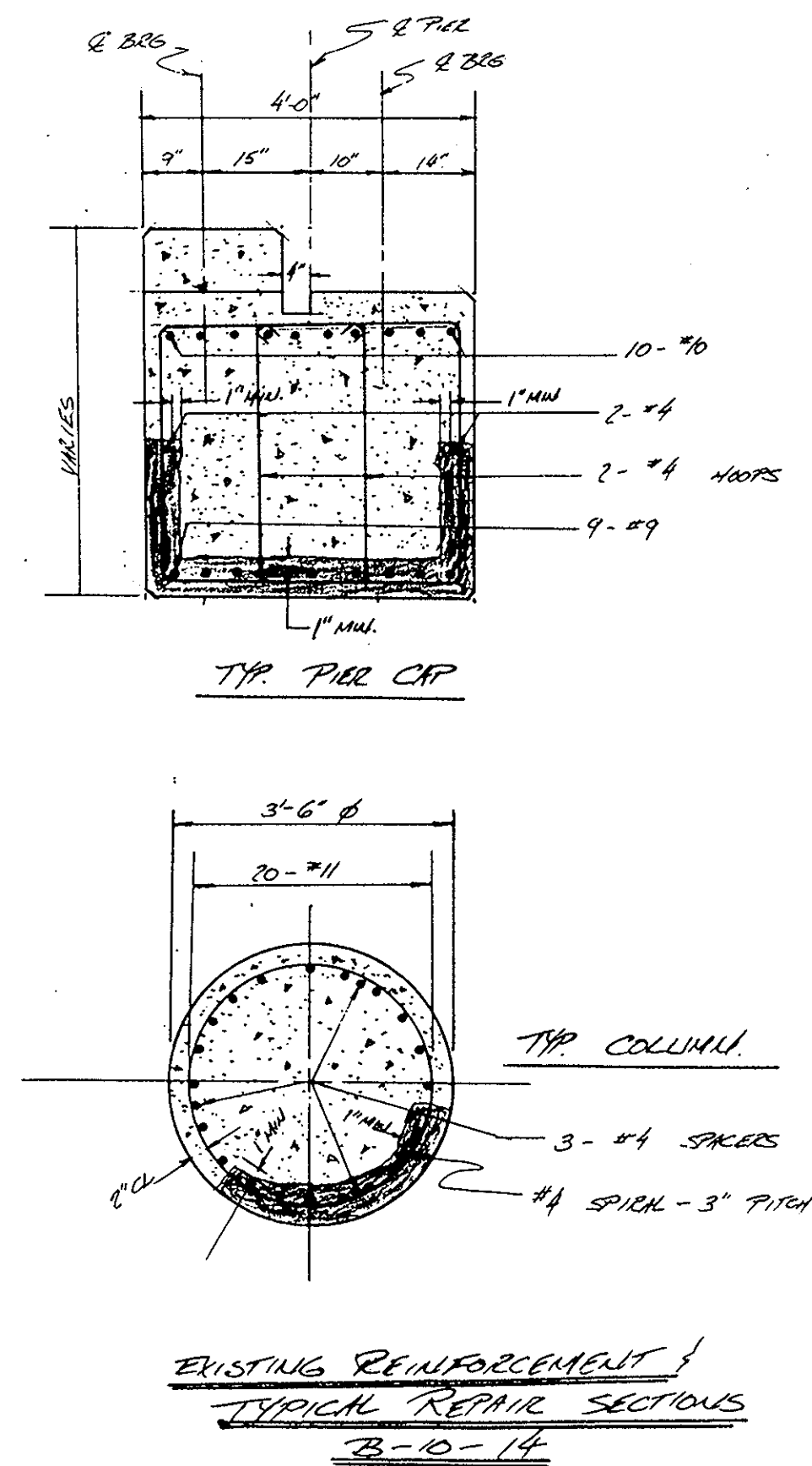
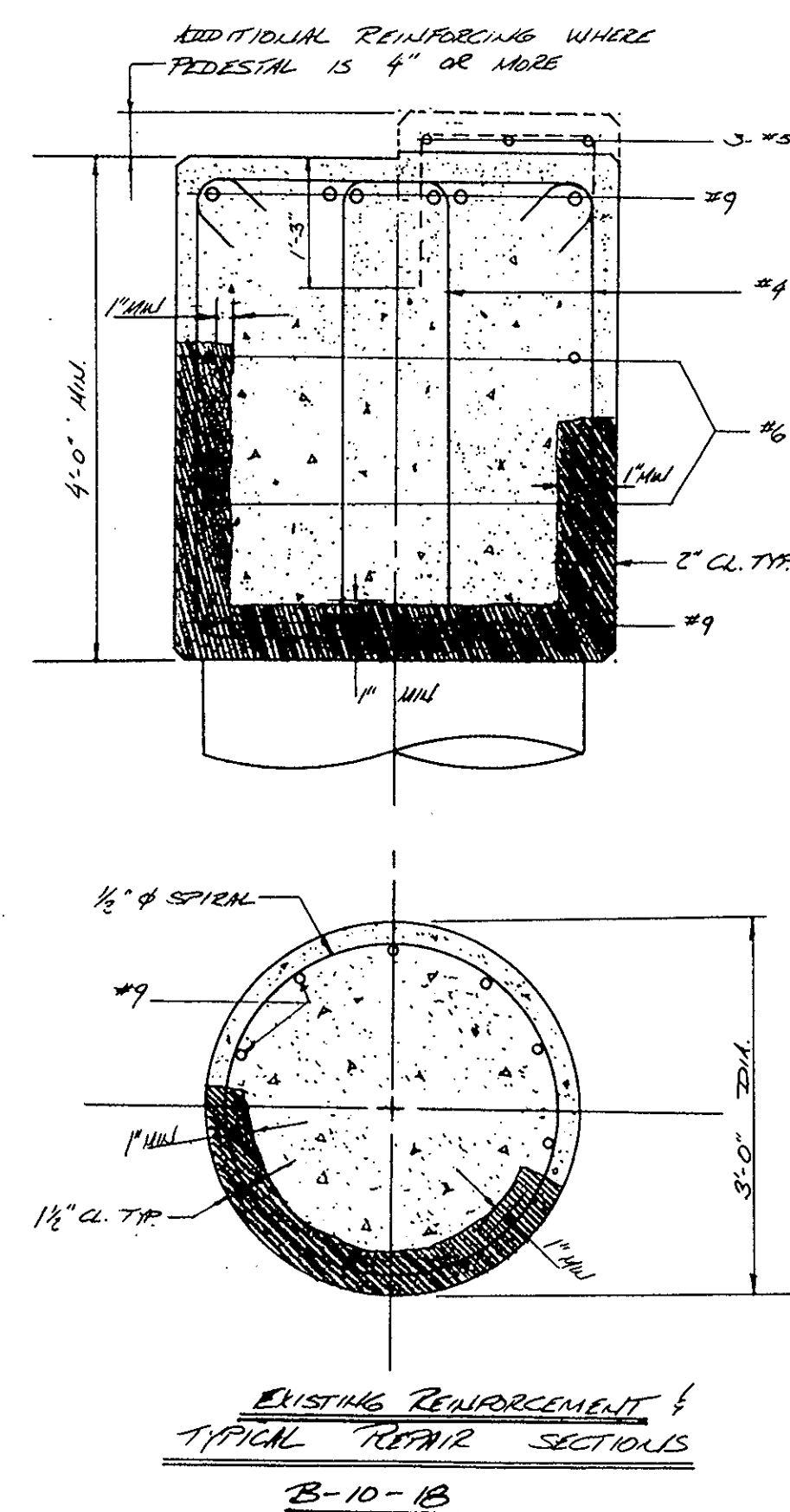


PIER 3
WEST ELEVATION
REPAIR AREAS
B-10-18

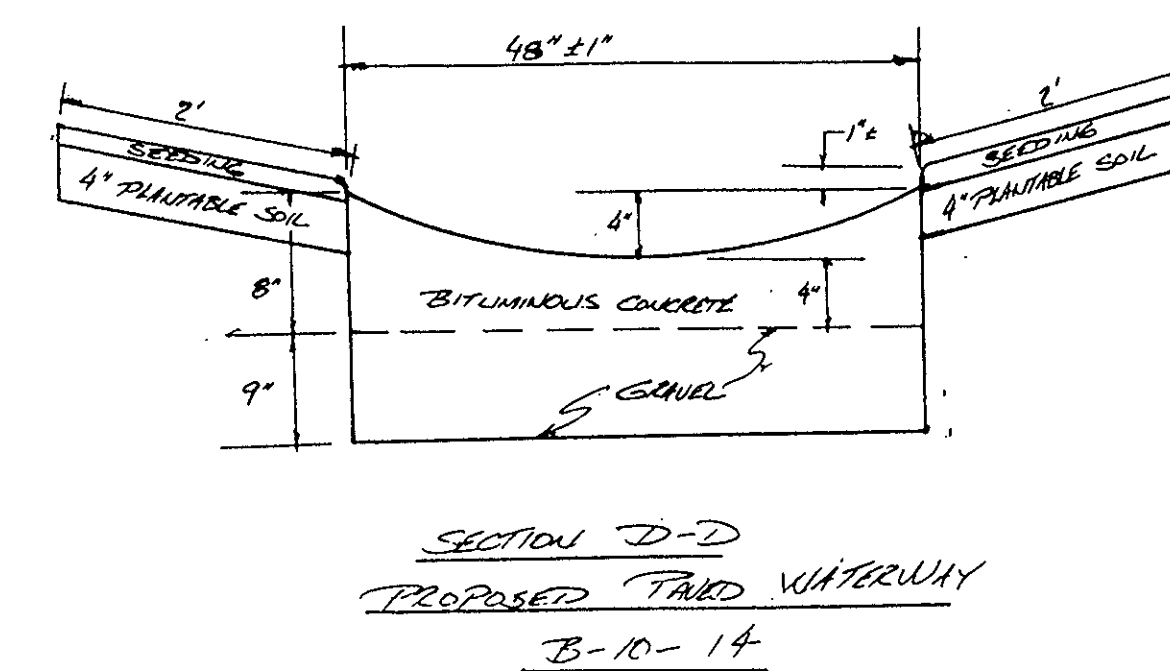
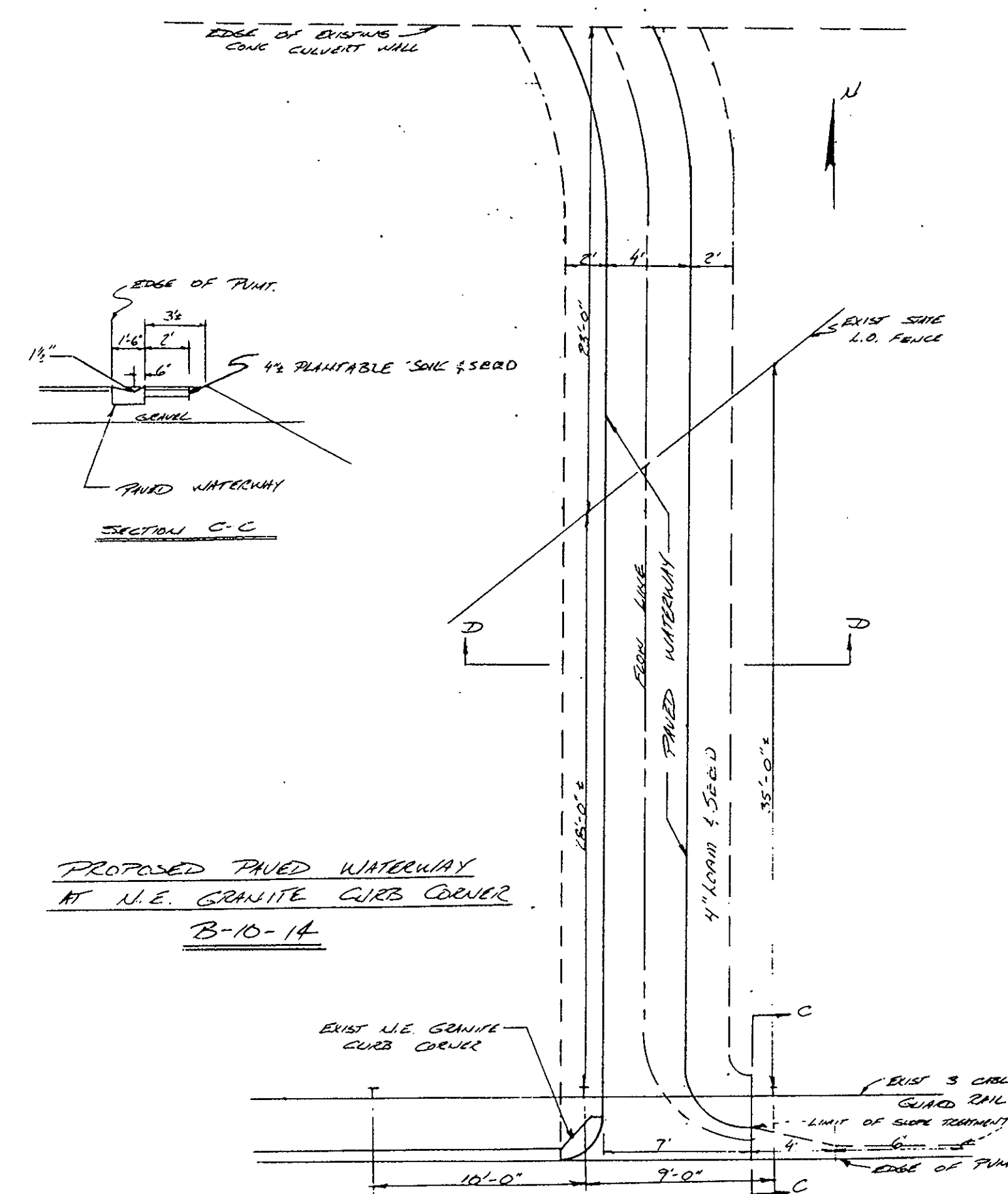
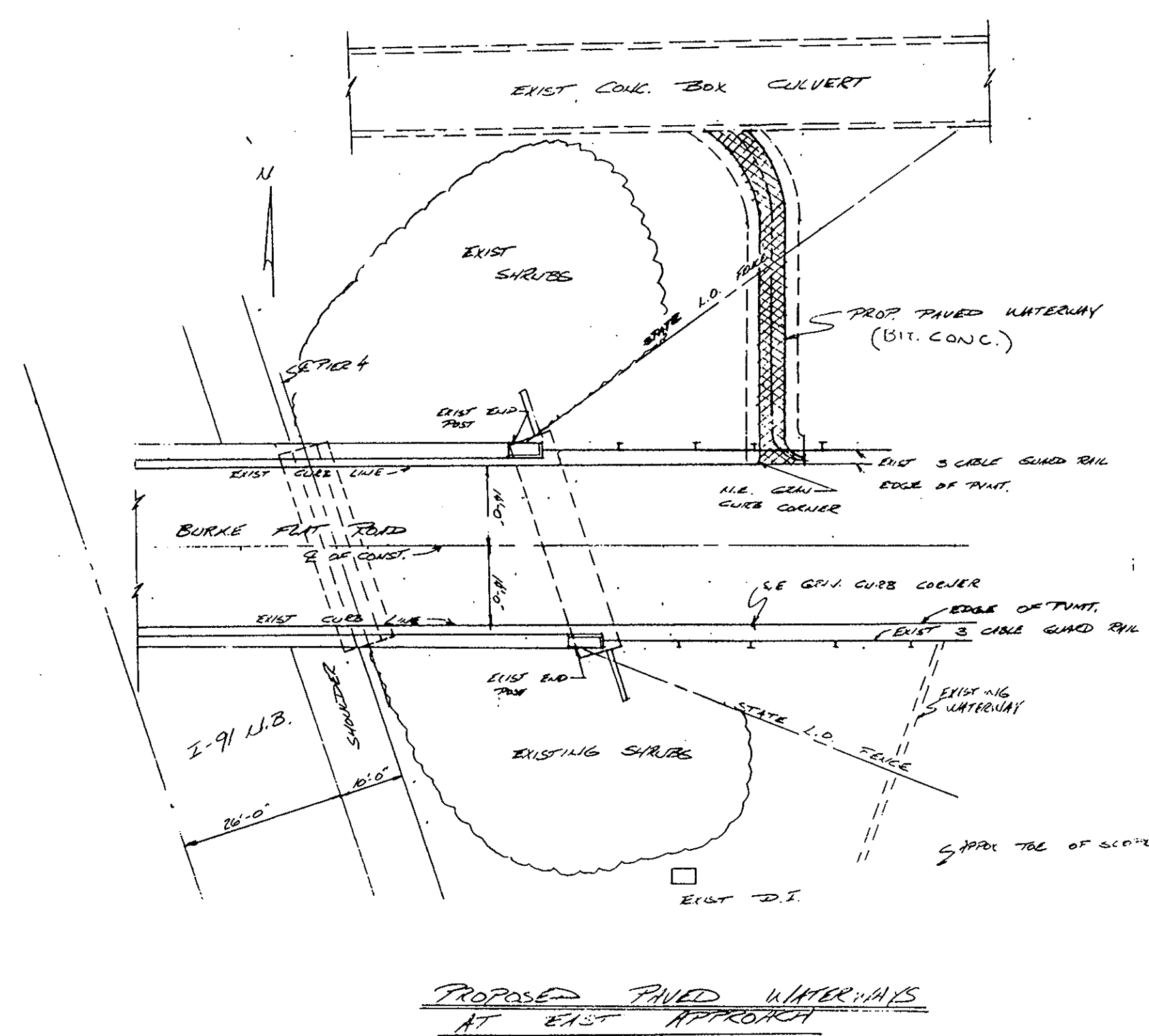


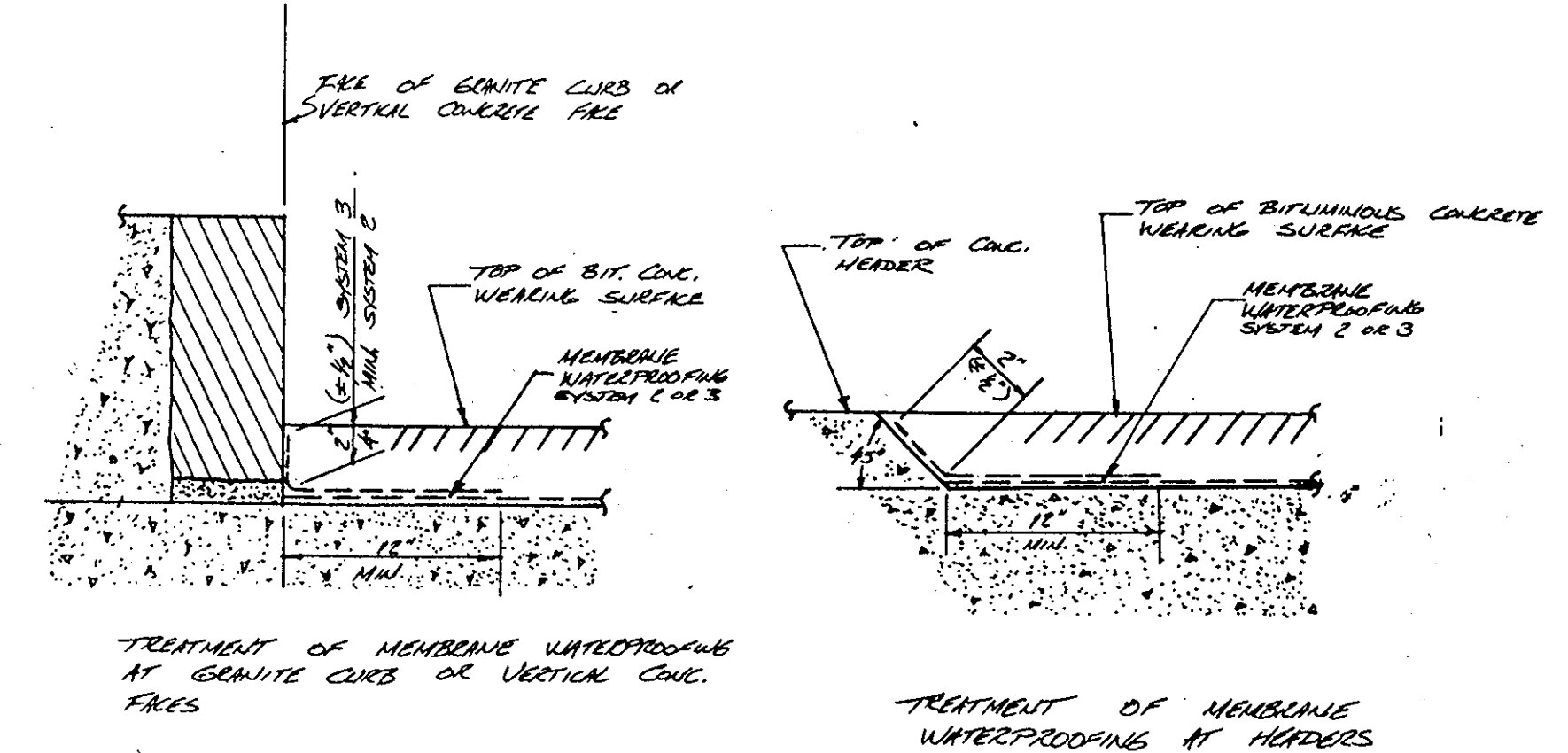
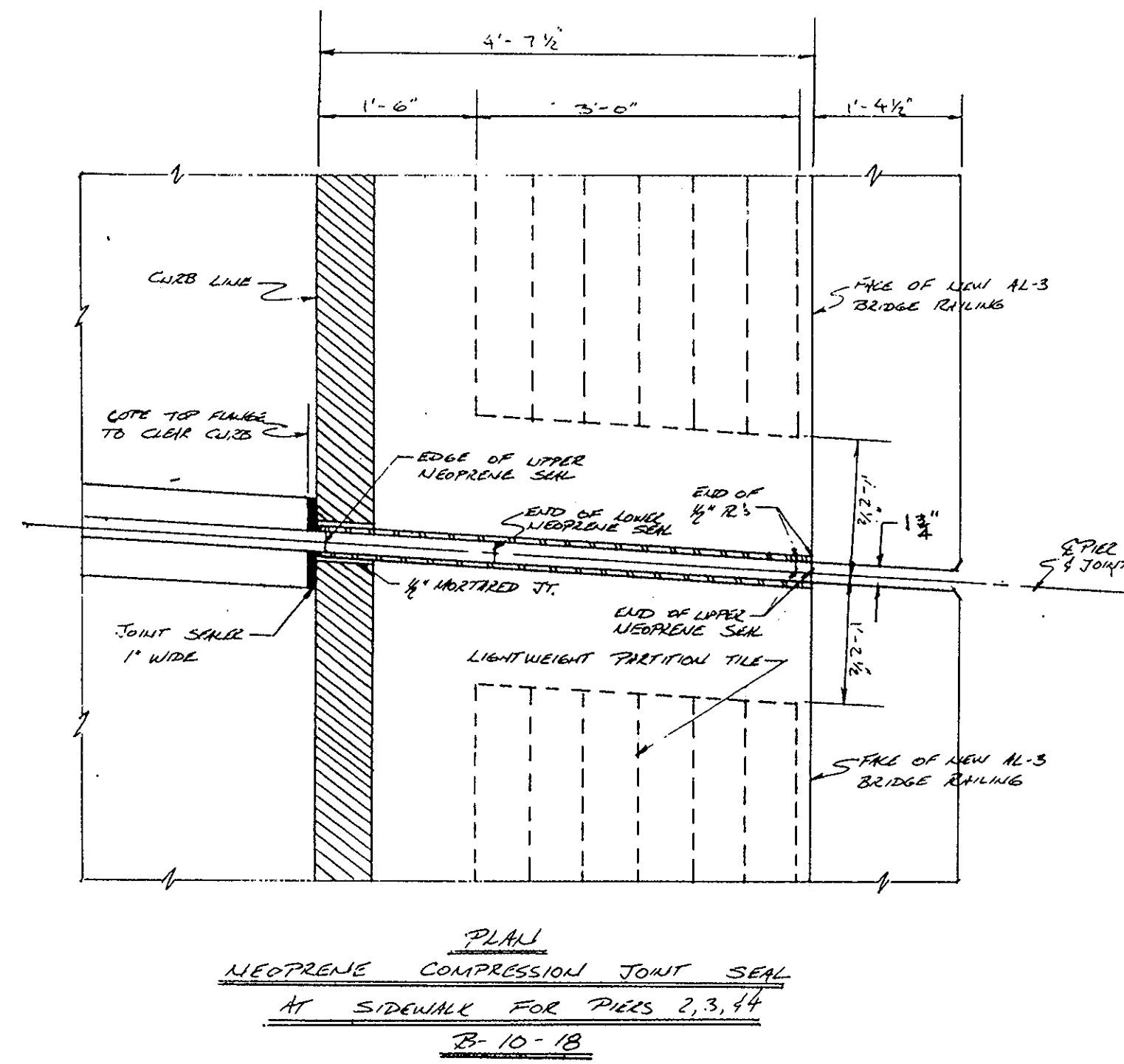
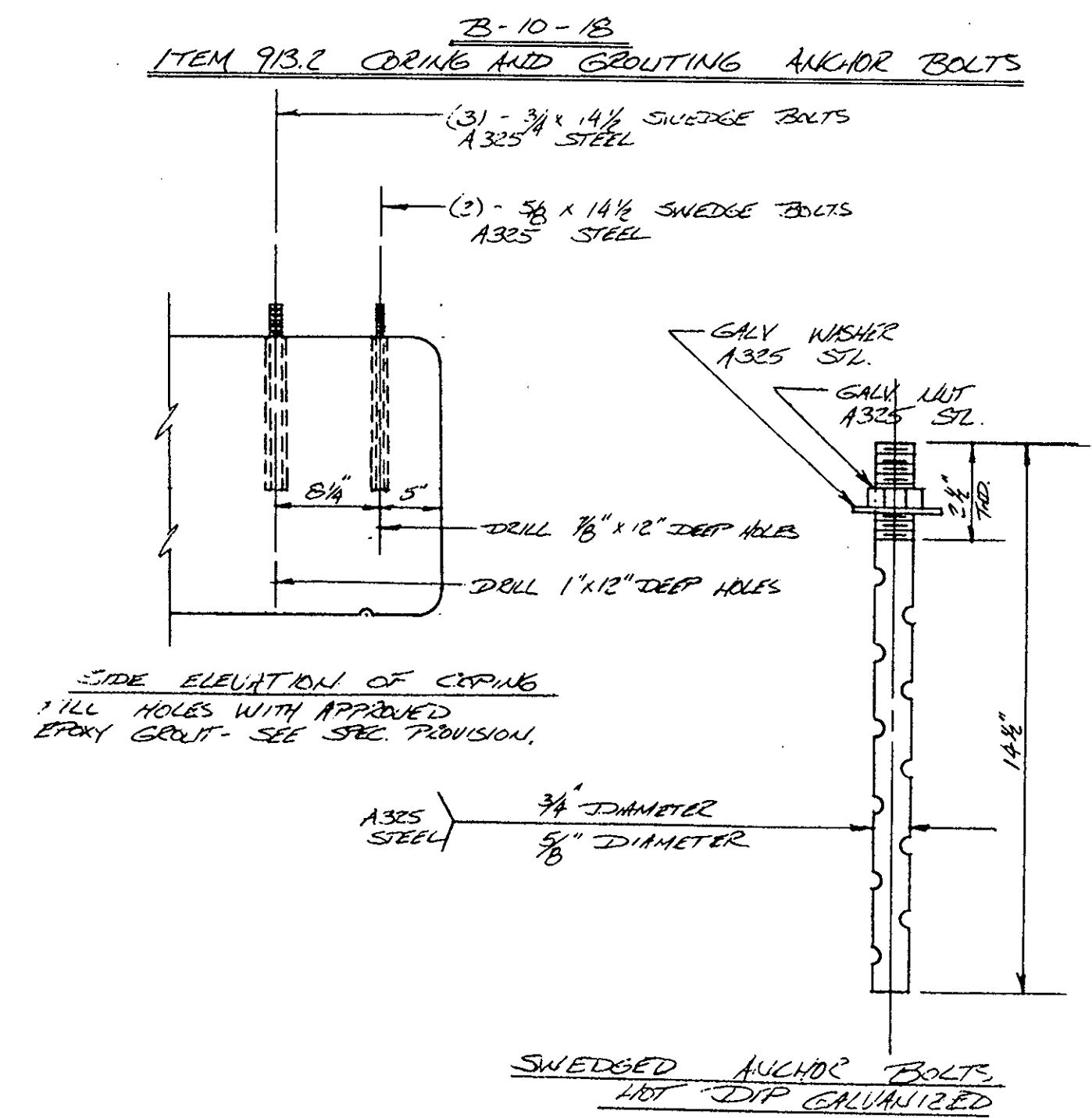
PIER 4
WEST ELEVATION
REPAIR AREAS
B-10-18



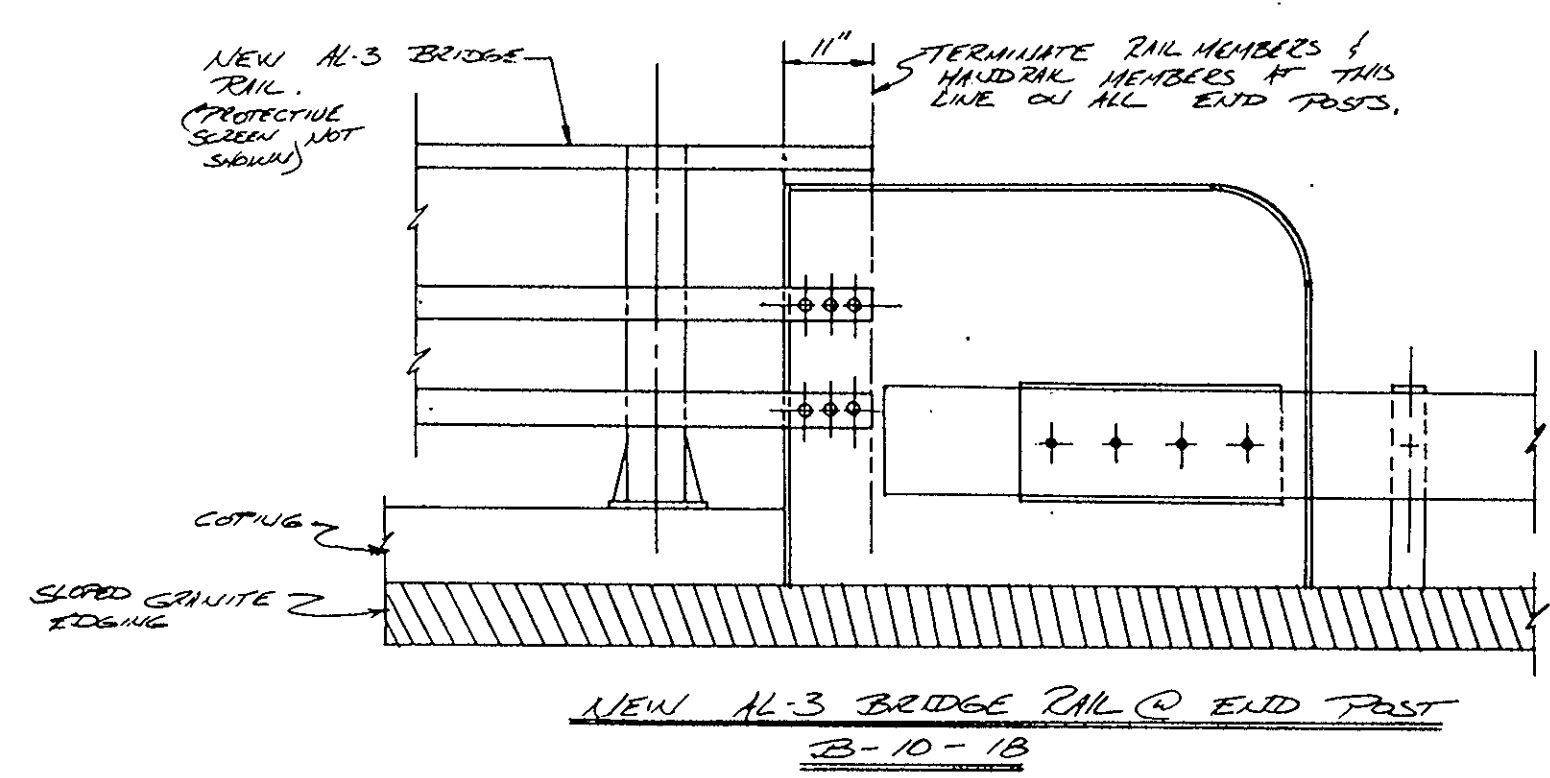
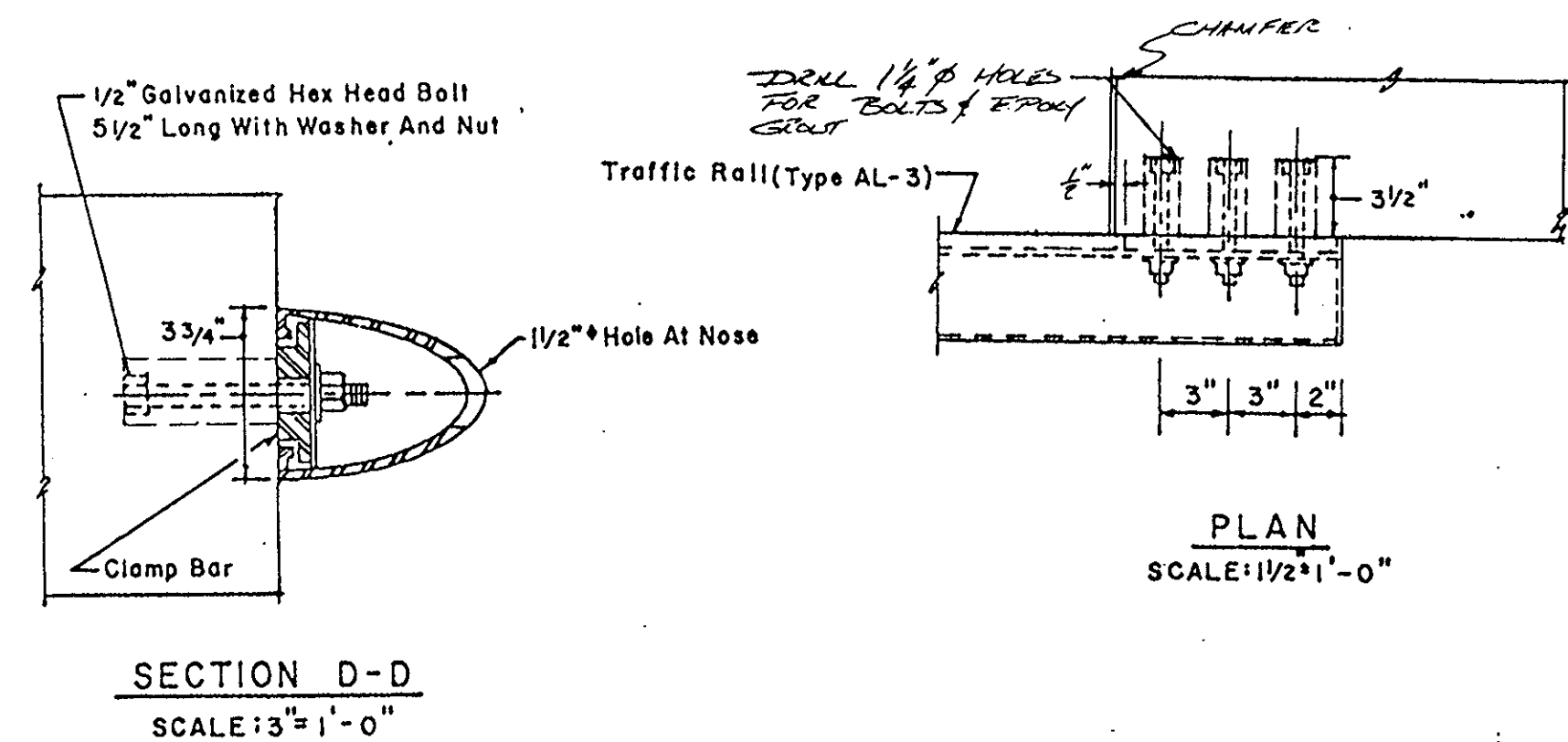
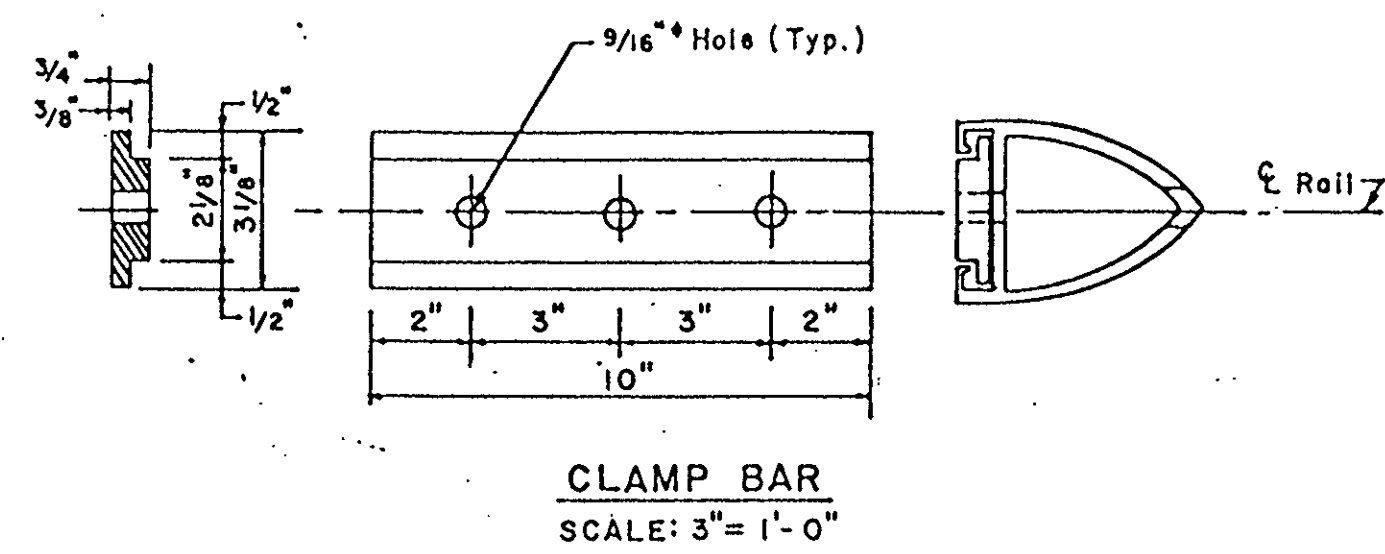


- 3-10-14 3-10-14
PROPOSED PIER REPAIRS
- NOTES:
1. REMOVE DETERIORATED CONCRETE AS OUTLINED BY CROSS HATCHED AREA ON SKETCHES. LIMITS SHOWN ARE APPROXIMATE, THE EXACT LIMITS TO BE REMOVED AND NEW AREAS OF DETERIORATED CONCRETE SHALL BE DETERMINED BY THE ENGINEER IN THE FIELD.
 2. THE DETERIORATED CONCRETE SHALL BE REMOVED TO SOUND CONCRETE, THE MINIMUM DEPTH SHALL BE 5" (1" MIN. ABOVE THE MAIN REINFORCING).
 3. THE EXPOSED REINFORCING STEEL SHALL BE THOROUGHLY CLEANED OF ALL RUST.
 4. IN AREAS OF REMOVED DETERIORATED CONCRETE THE REMAINING CONCRETE SURFACE SHALL BE THOROUGHLY CLEANED OF ALL UNBONDED PARTICLES AND DUST.
 5. NEW CONCRETE SHALL BE BOND TO EXISTING CONCRETE IN ACCORDANCE WITH SUBSECTION 901.66, PART C OF THE 1988 UDOT STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
 6. NEW CONCRETE SHALL BE 4000 - $\frac{3}{4}$ - 660, HIGH EARLY, HAVING A SLUMP OF 1" TO 3".
 7. A $\frac{1}{2}$ " DEPTH SLAGG SHALL BE USED AT ALL REMAINING LIMITS OF DETERIORATED CONCRETE.

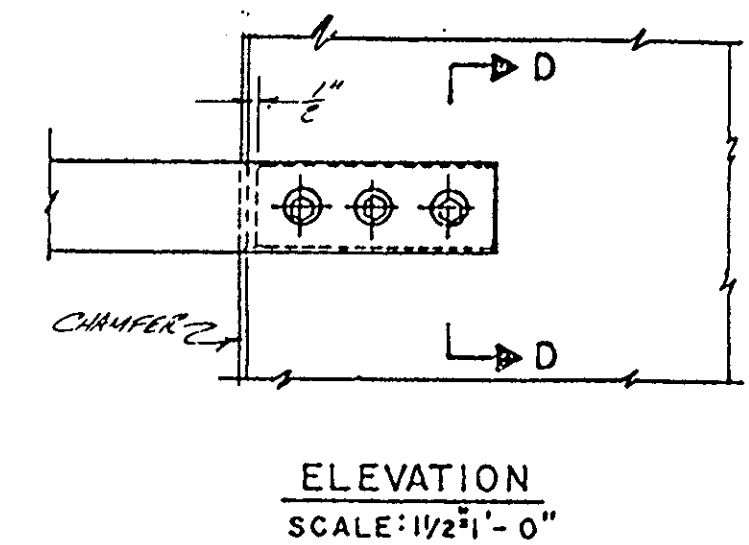


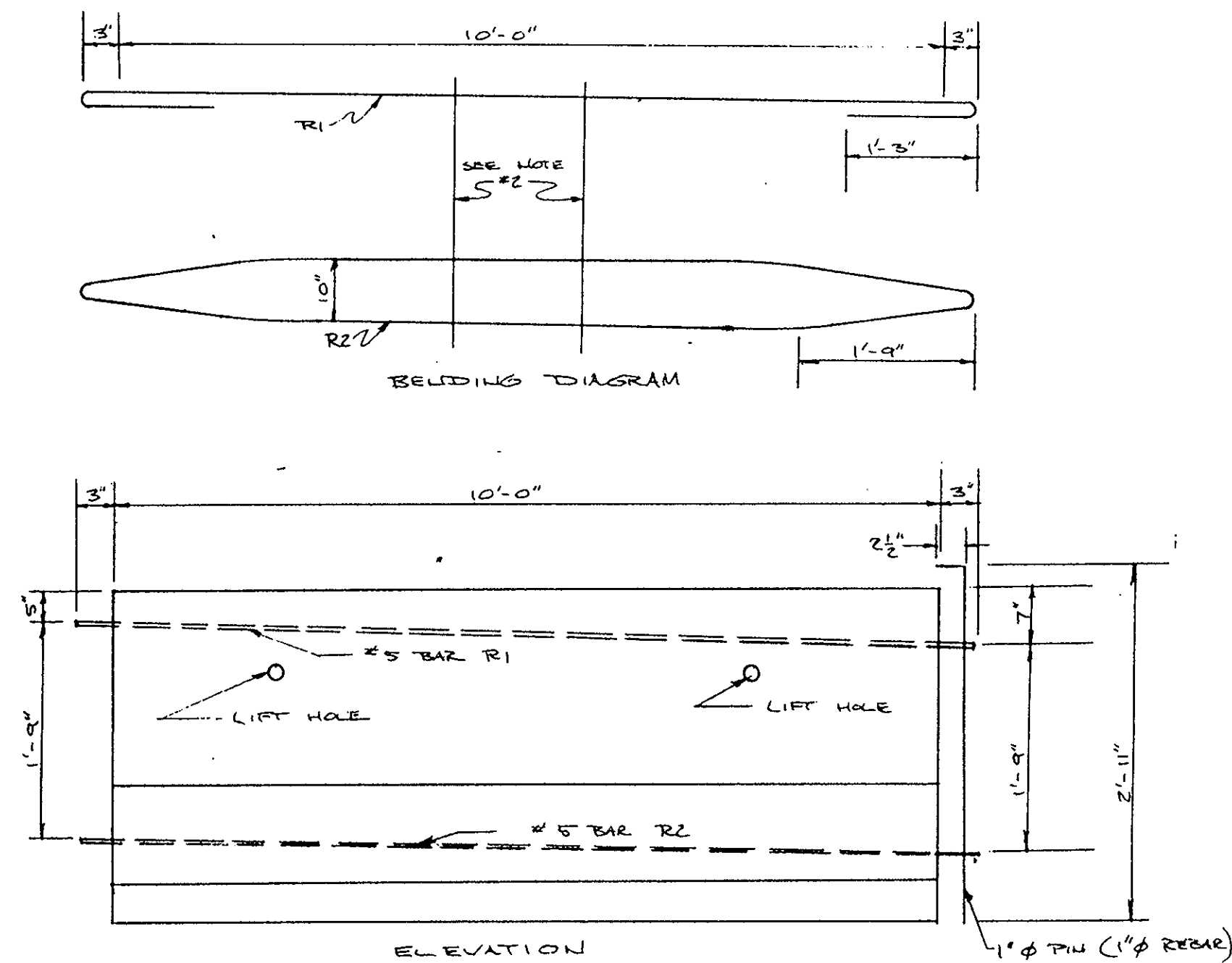


EDGE TREATMENT OF MEMBRANE
WATERPROOFING
SEE NO. B-10-12 & B-10-14

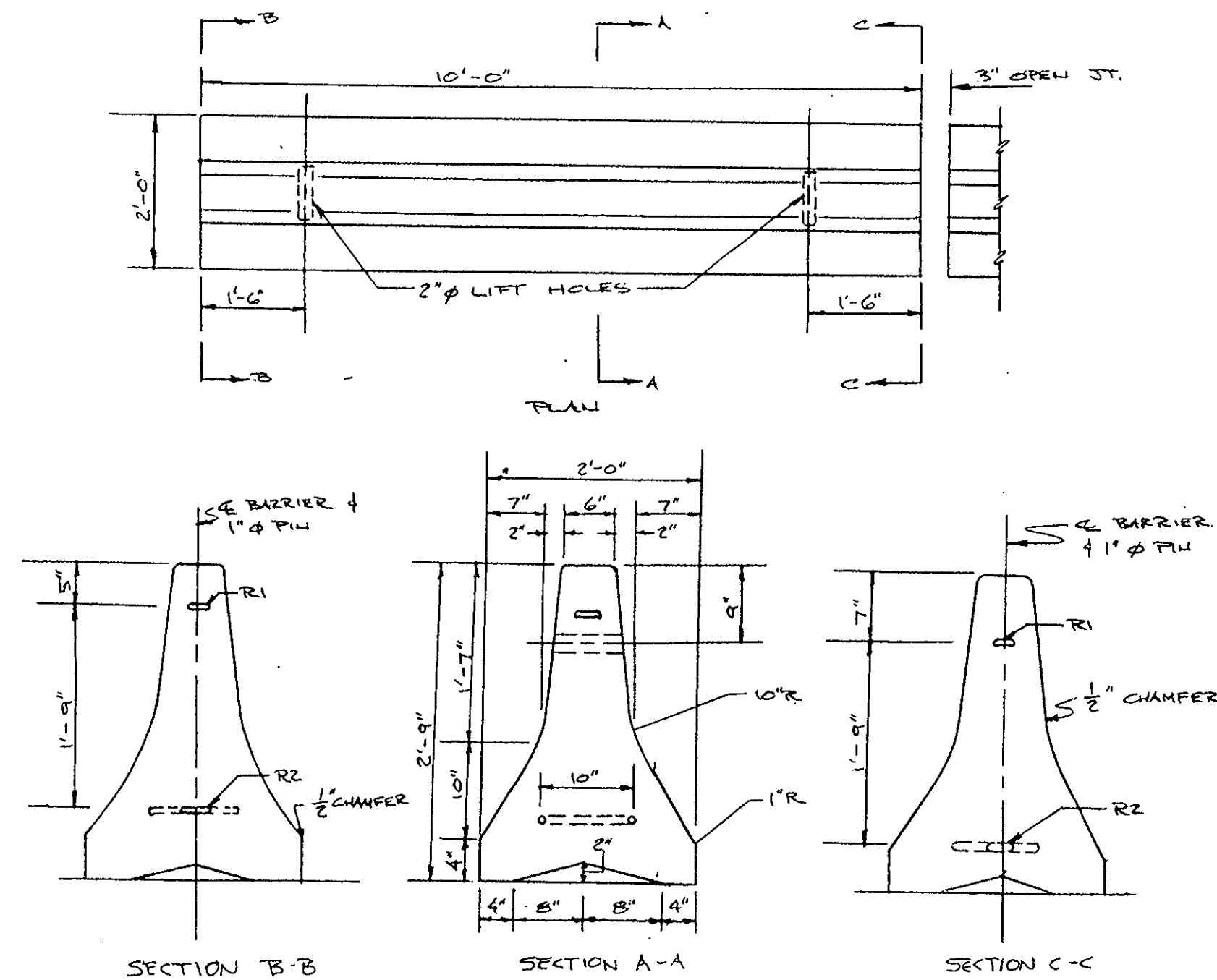


END POST RAIL ATTACHMENT
B-10-18



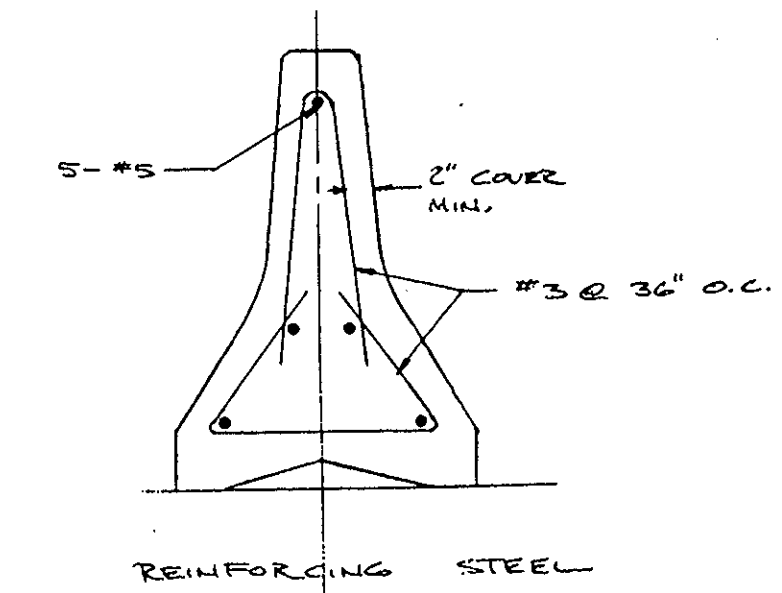


ITEM 853.2 TEMPORARY PRECAST CONCRETE MEDIAN BARRIER

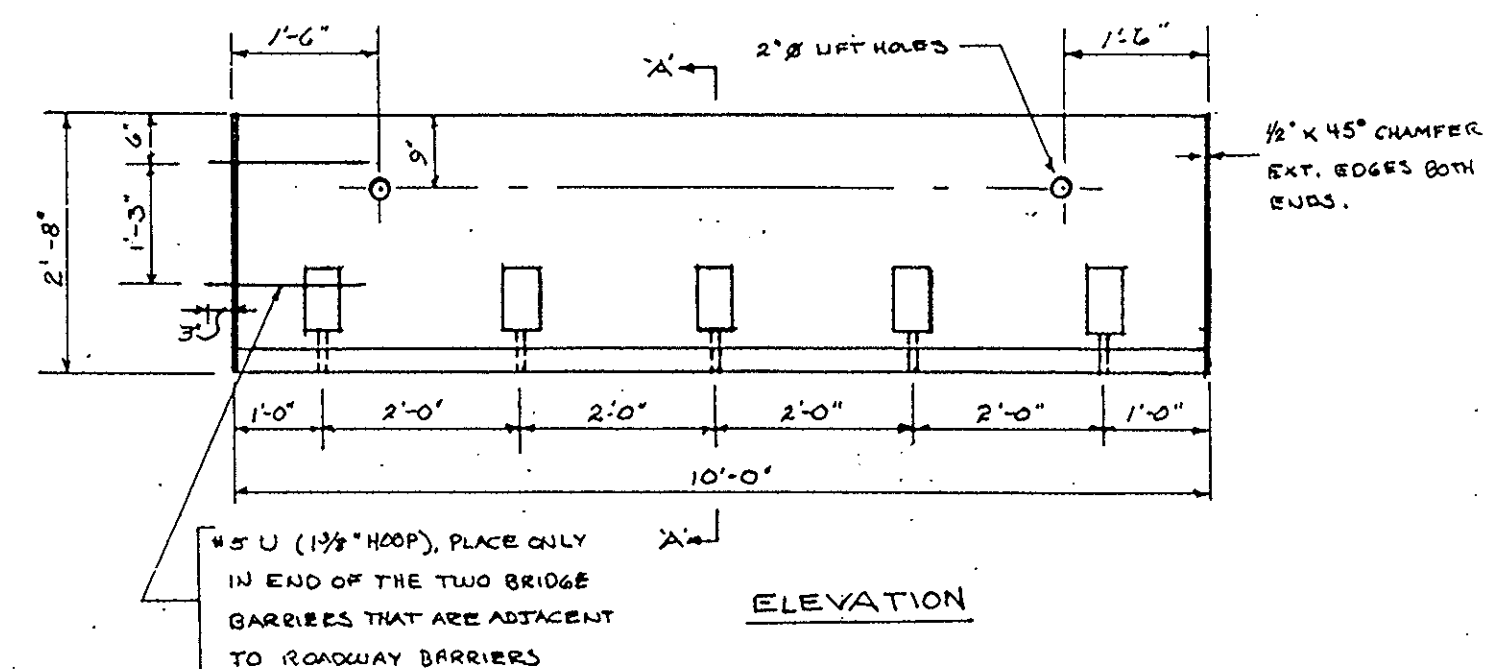


ITEM 853.2 TEMPORARY PRECAST CONCRETE MEDIAN BARRIER

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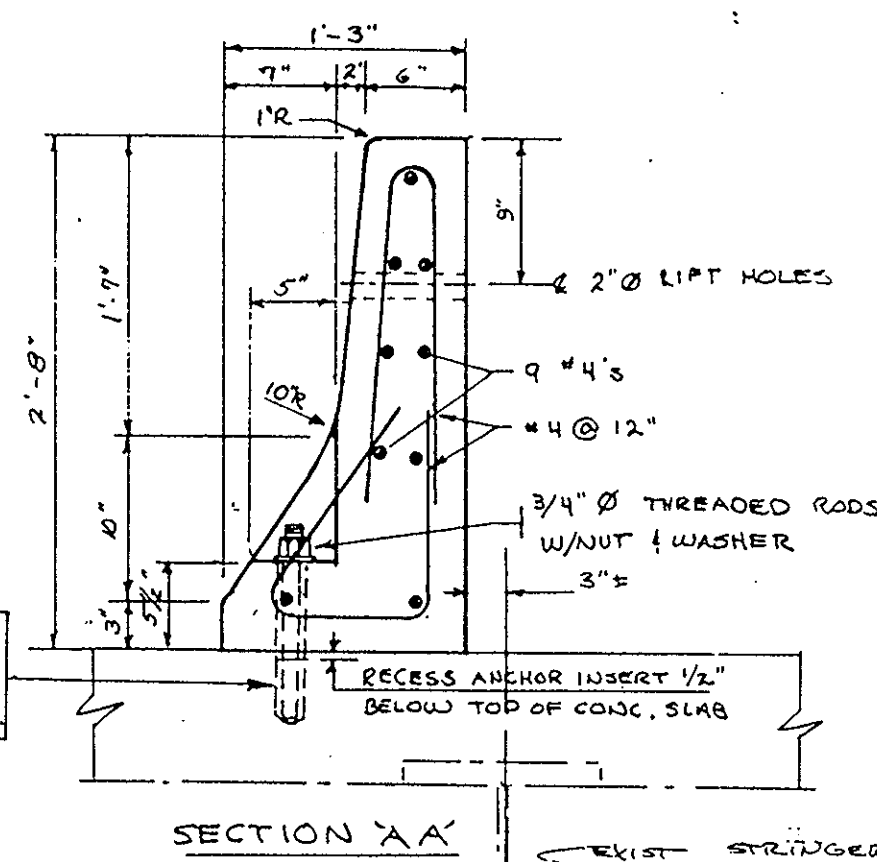


- NOTES:
1. BEND BARS AROUND A $1\frac{3}{8}$ " ϕ ROD.
 2. BARS R1 AND R2 SHALL BE FABRICATED CONTINUOUSLY, OR AT THE OPTION OF THE CONTRACTOR THE BARS MAY BE FABRICATED WITH 15" MIN. LAPS AT THE LOCATIONS SHOWN.



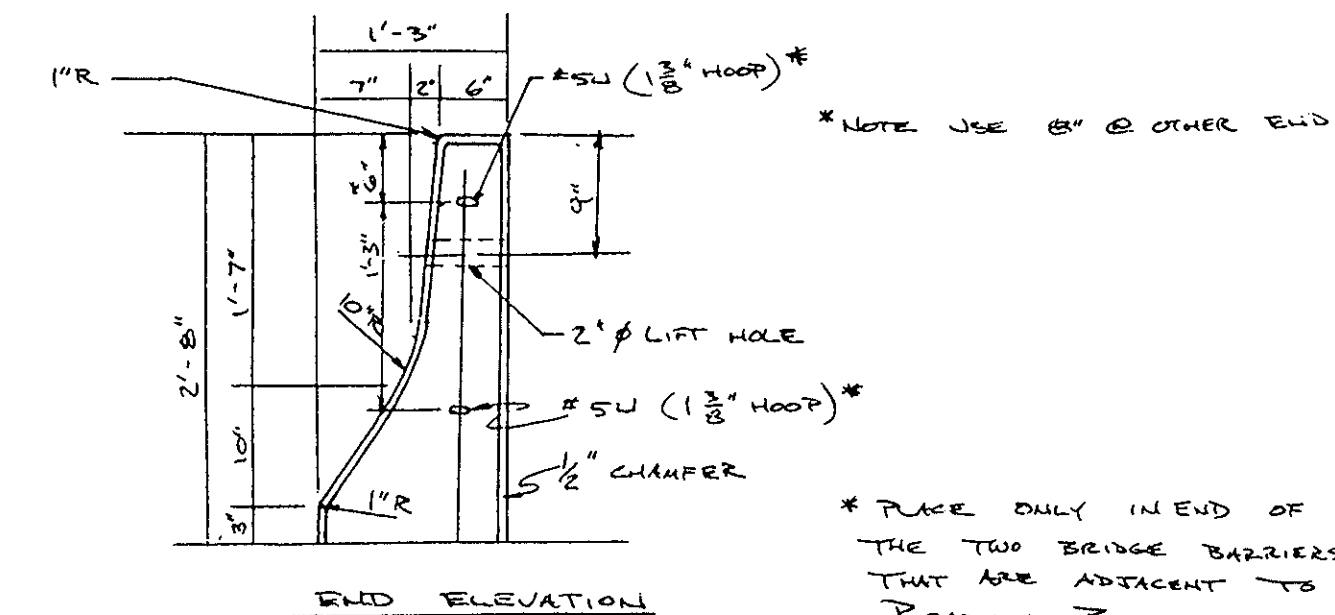
NOTE:
1. FILL ALL ANCHOR HOLES SOLID WITH EPOXY BEFORE PLACING MEMBRANE WATERPROOFING AND DERM. B.C. WEARING SURFACE.

DRILL 1" ϕ HOLE $3\frac{3}{4}$ " IN CONG. SLAB (SEE NOTE 1) FOR $3\frac{3}{4}$ " ANCHOR INSERTS

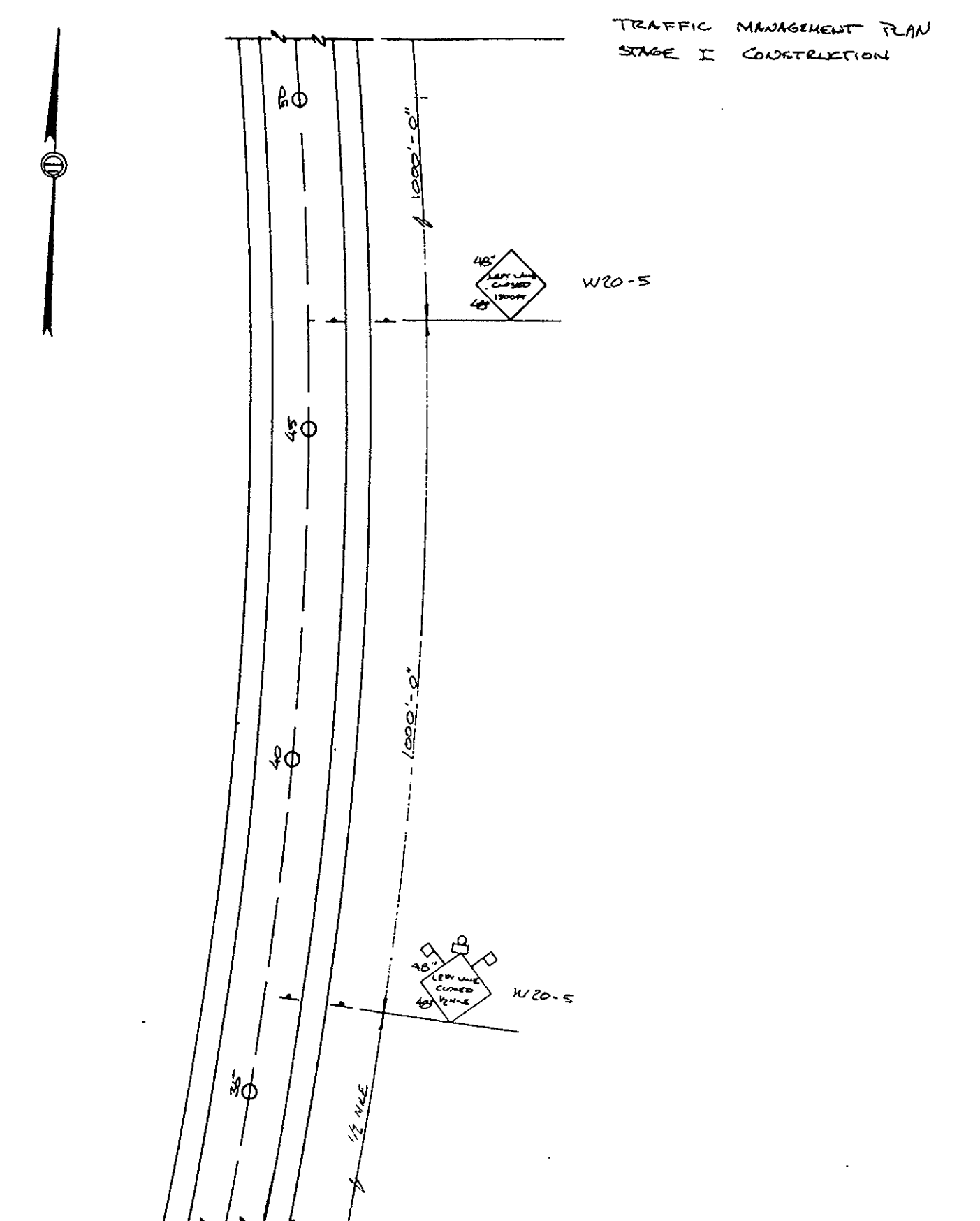
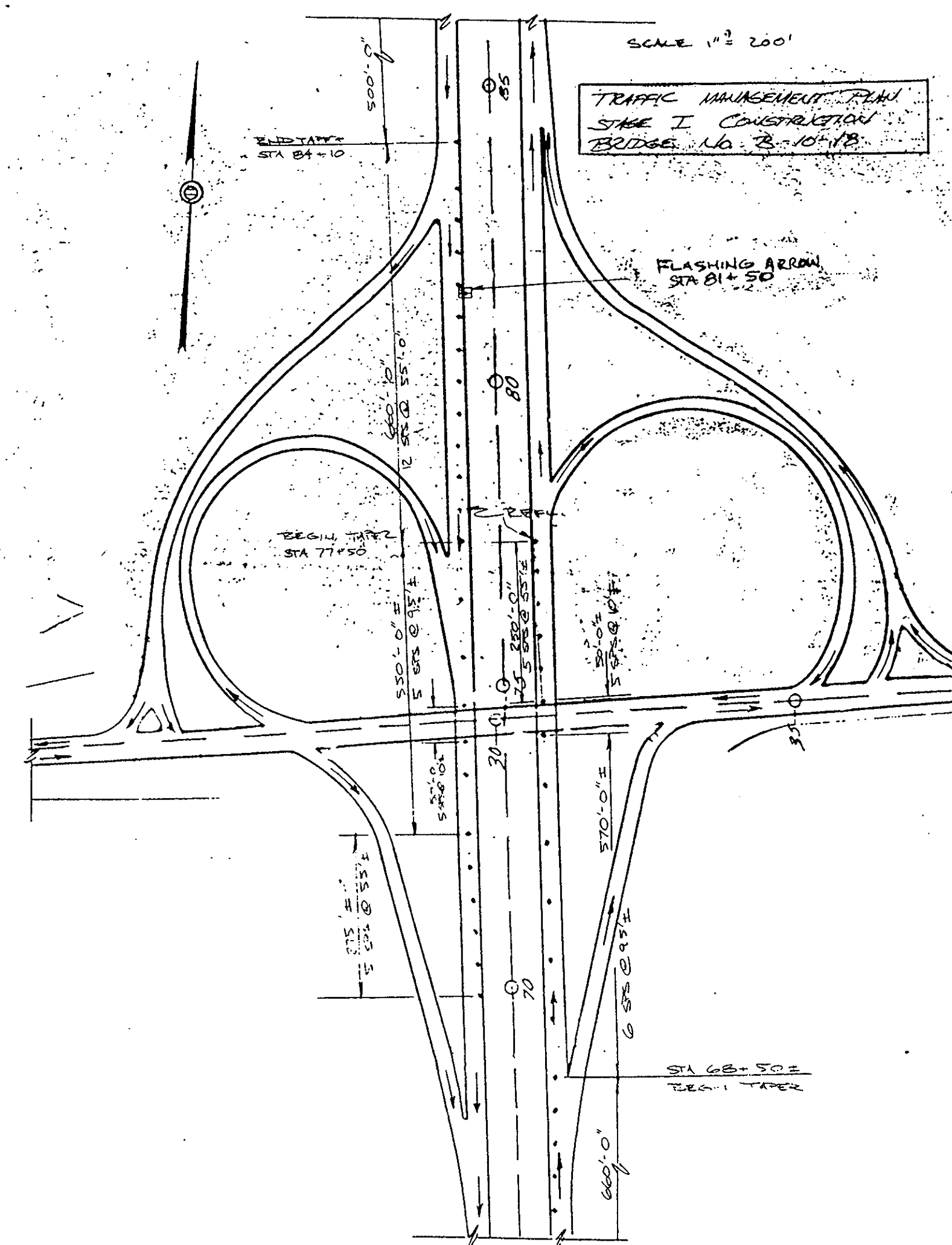
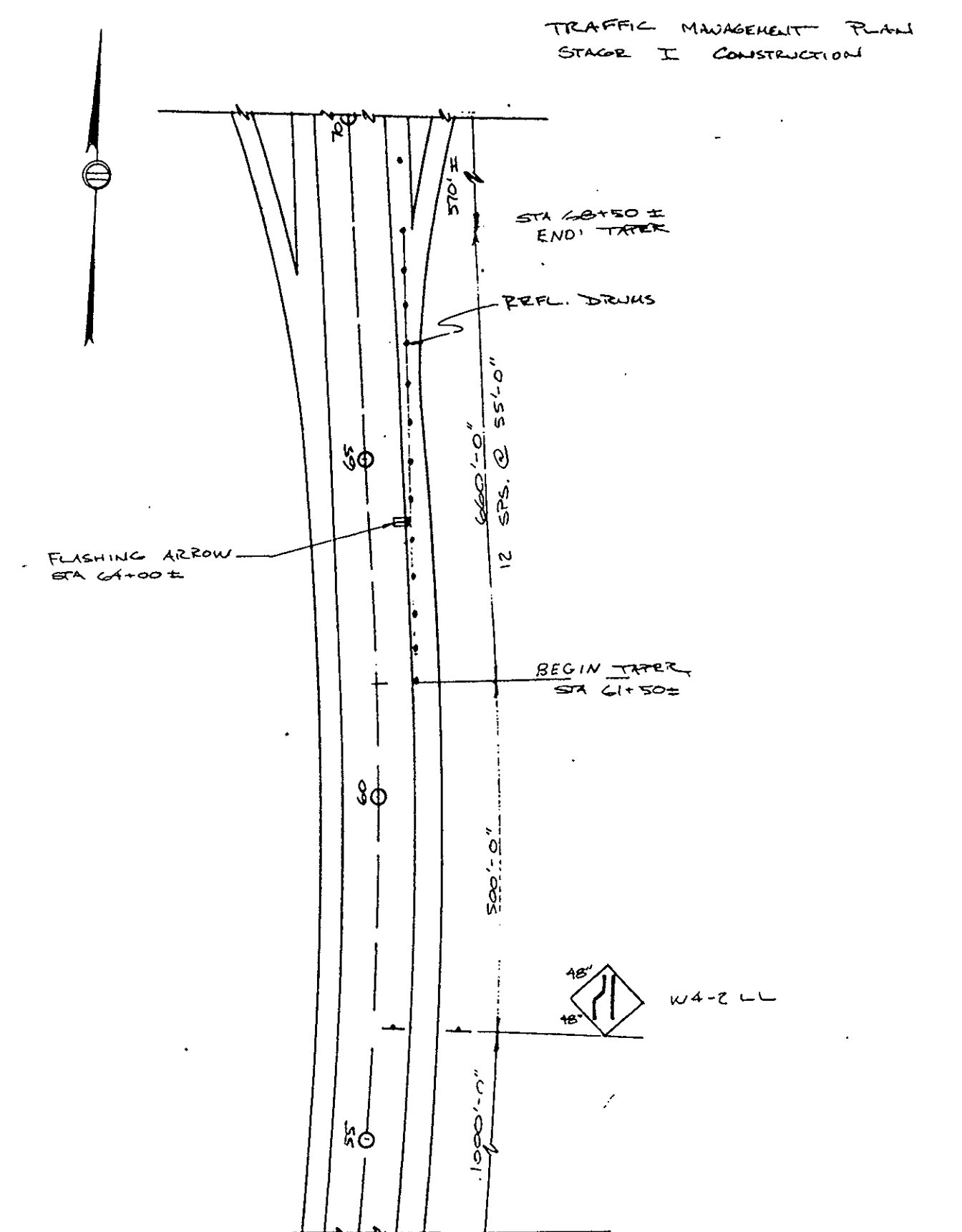
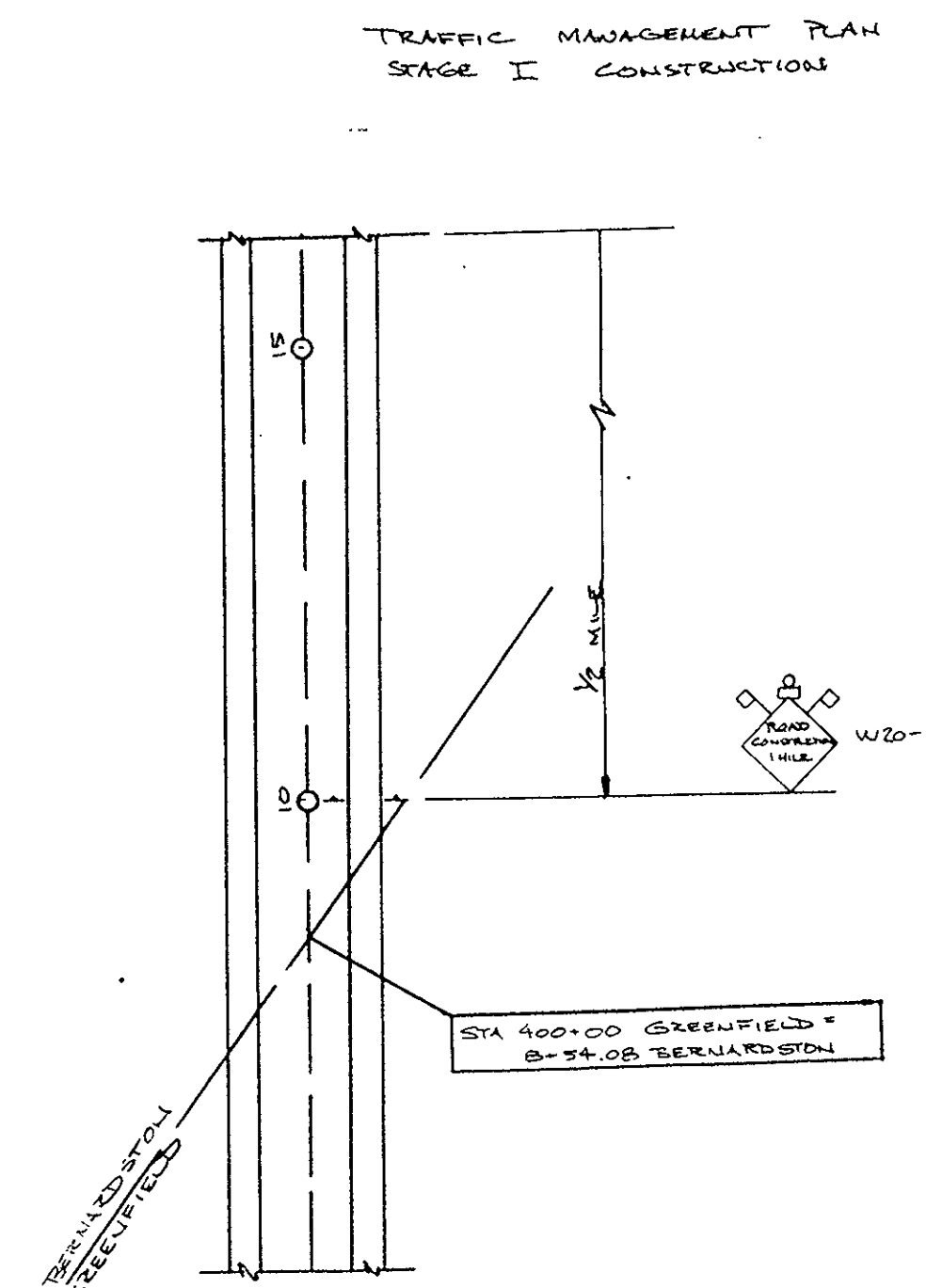
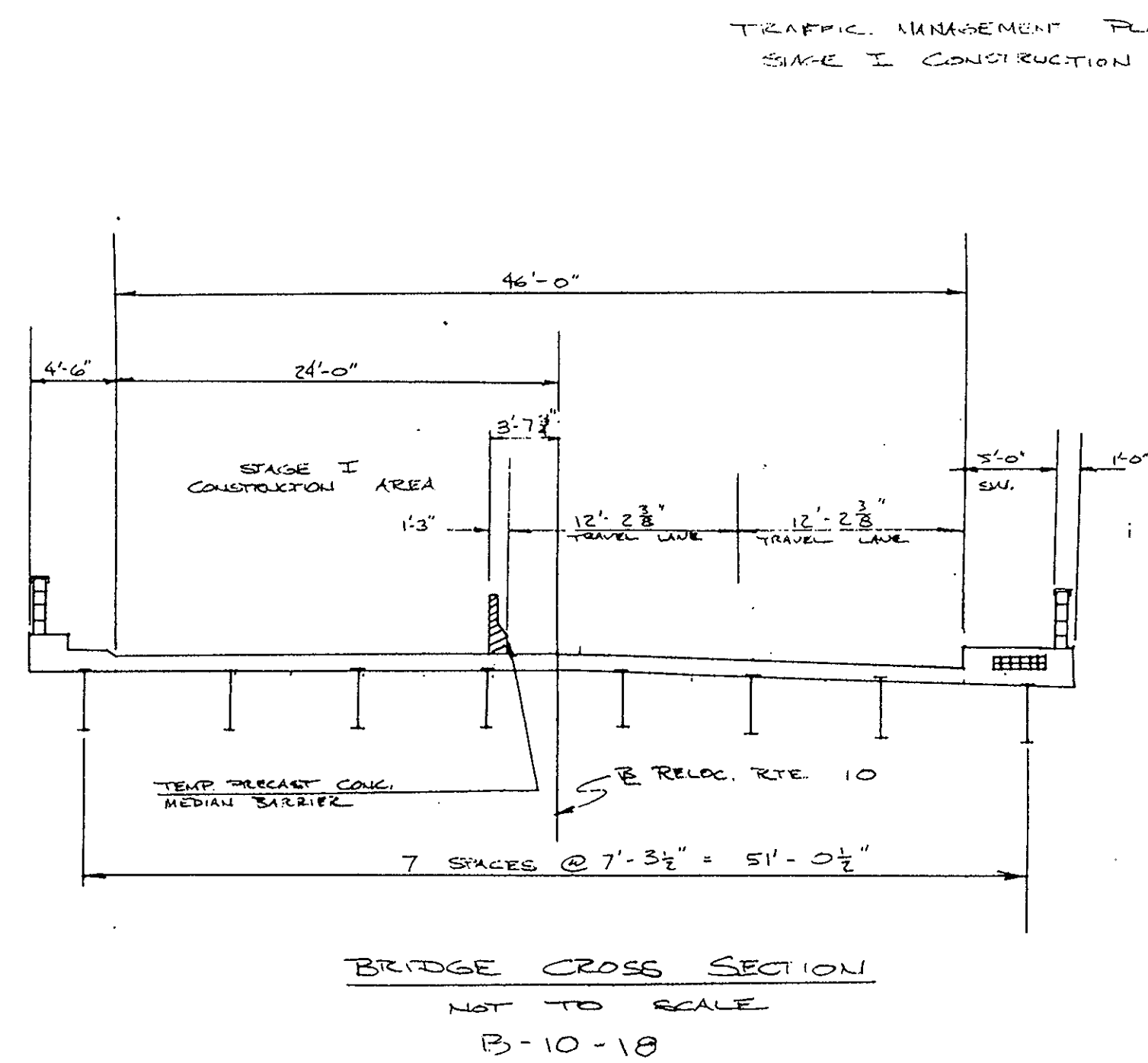


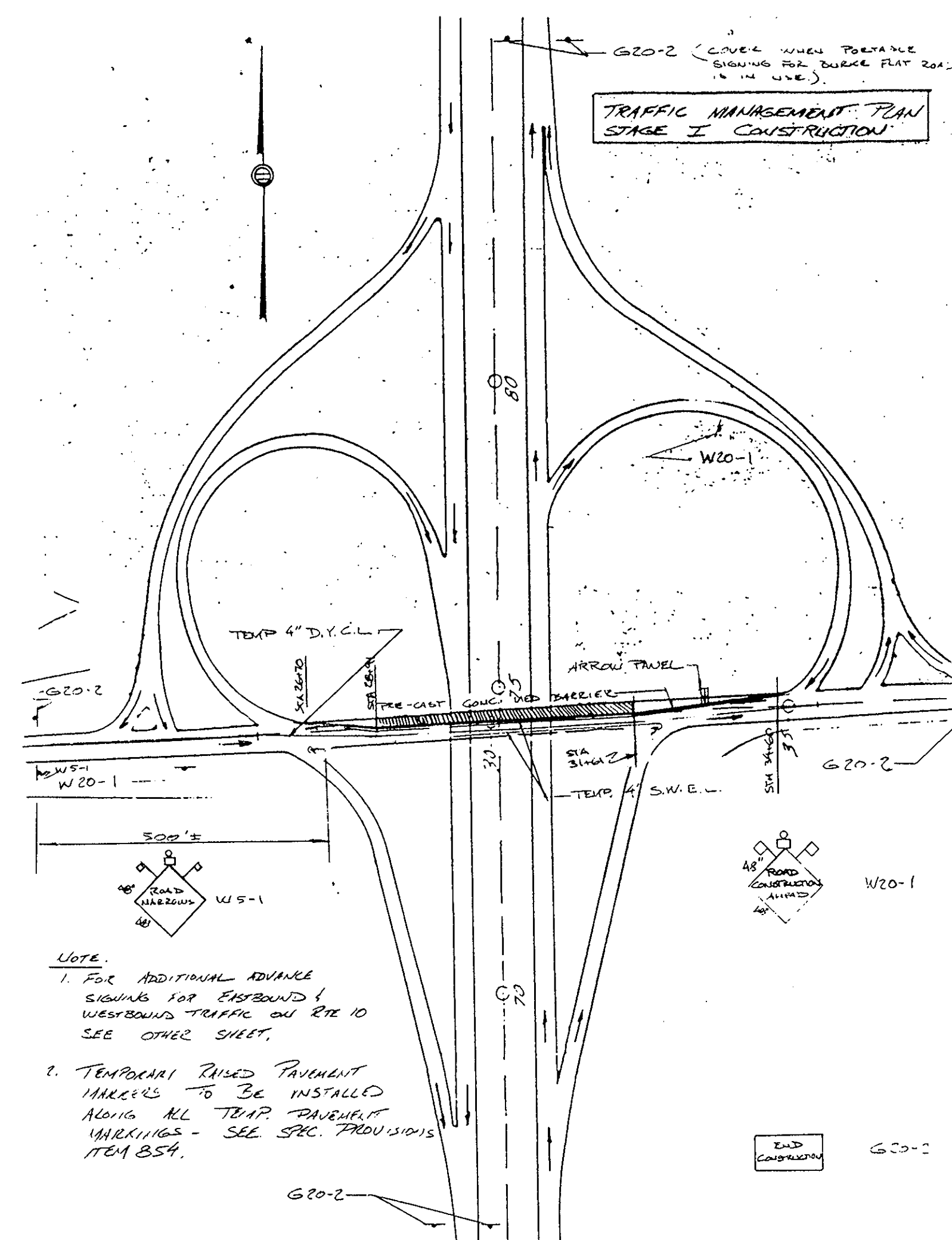
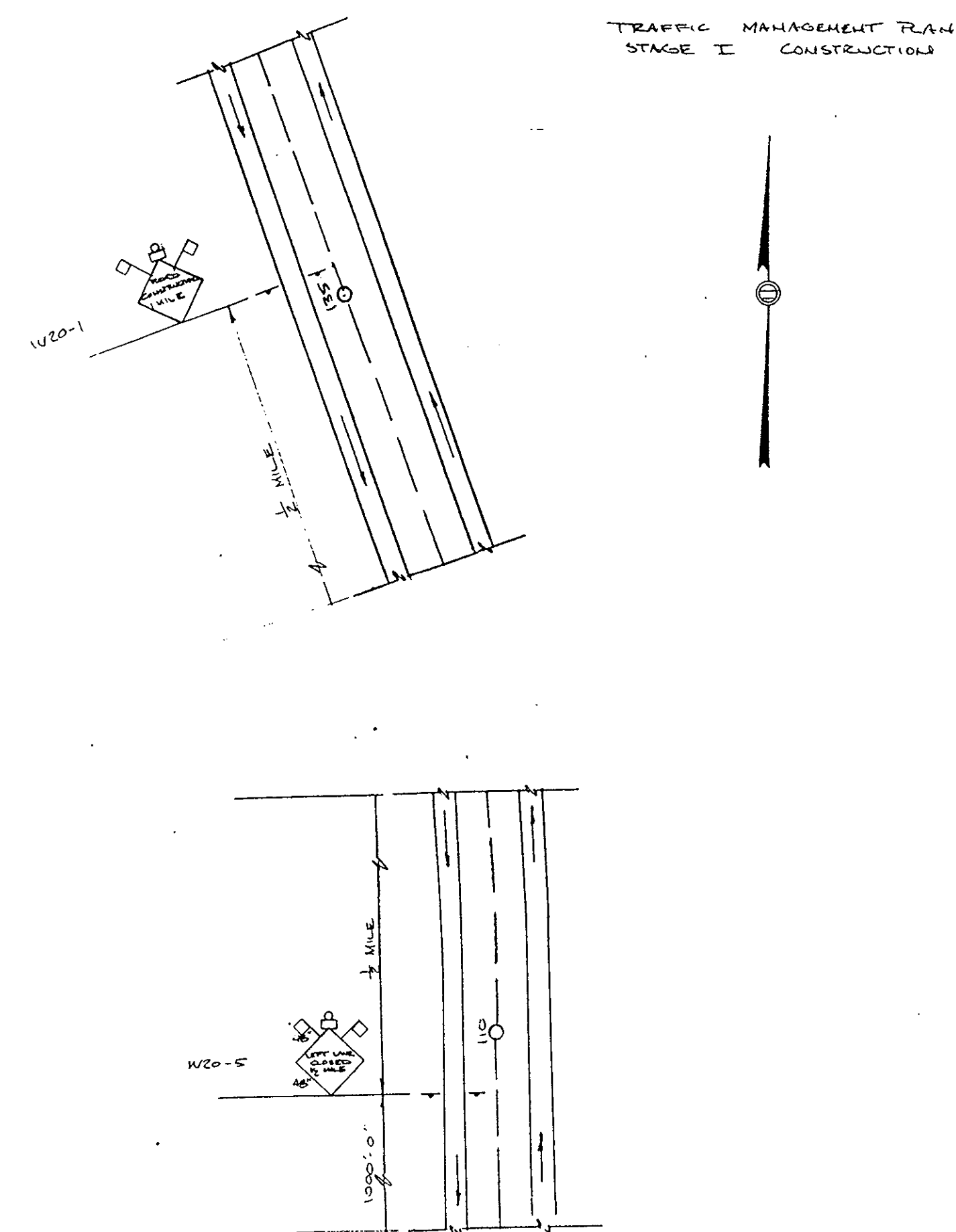
ITEM 980.34 TEMPORARY PRECAST CONG. MEDIAN BARRIER ON BRIDGE

ITEM 980.34 TEMPORARY PRECAST CONG. MEDIAN BARRIER ON BRIDGE



* PLACE ONLY IN END OF THE TWO BRIDGE BARRIERS THAT ARE ADJACENT TO ROADWAY BARRIERS.

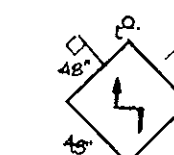




DR. NO. B-10-18

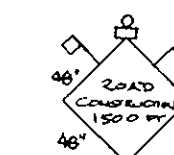
STAGE I

ADDITIONAL ADVANCE SIGNING ON ROUTE 10 FOR
WESTBOUND TRAFFIC -



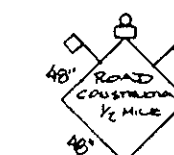
W1-3C

STA 40+00 LT Rte 10



W20-1

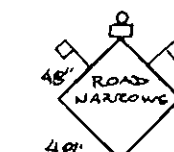
STA 50+00 LT $\frac{7}{8}$ RTE 10



W20-1

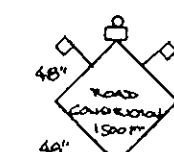
STA 61+50 LT 72 RTE 10

ADDITIONAL ADVANCE SIGNING ON ROUTE 10 FOR EASTBOUND TRAFFIC -



W 5-1

STA 21+50 RT E RTE 10



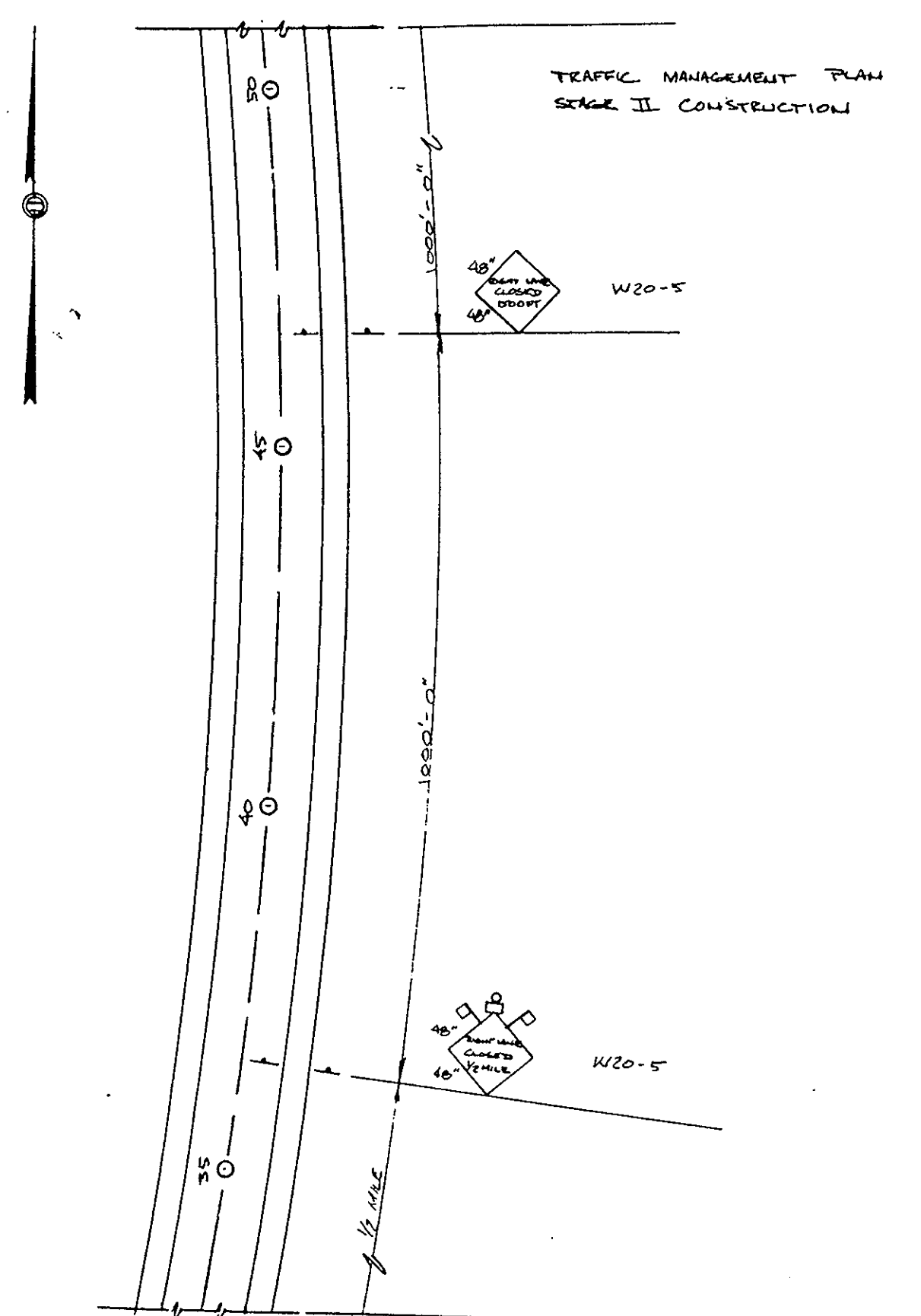
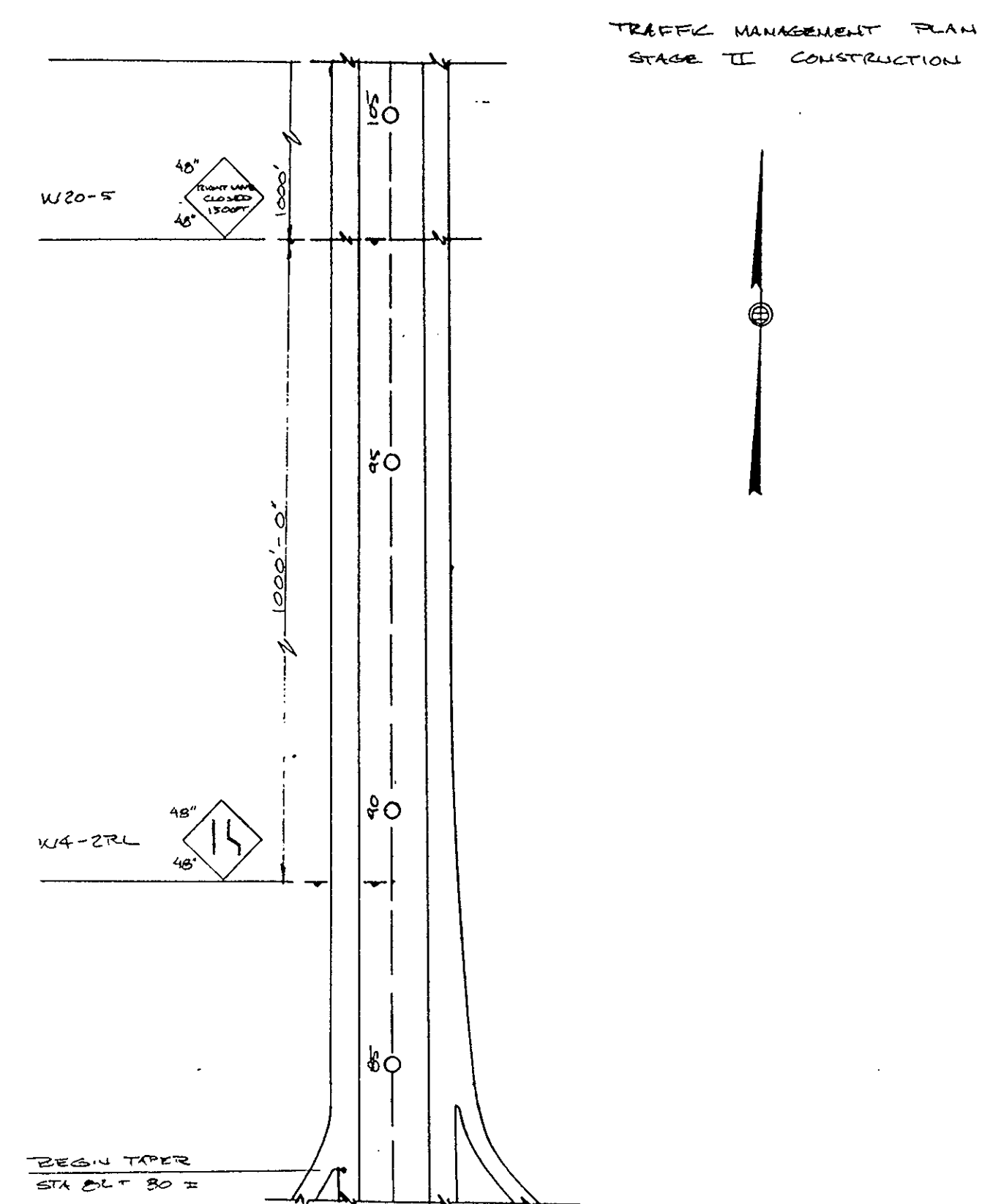
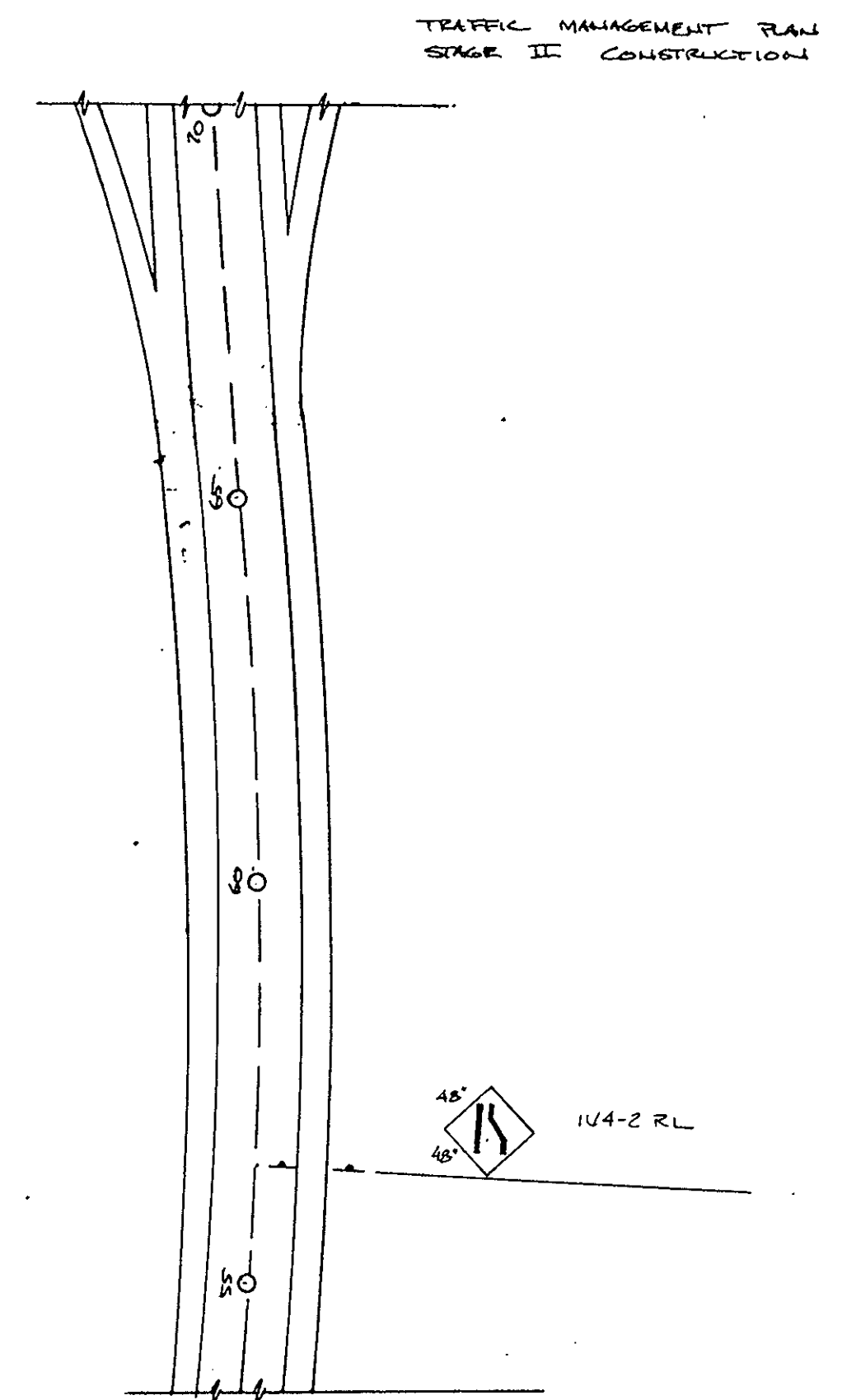
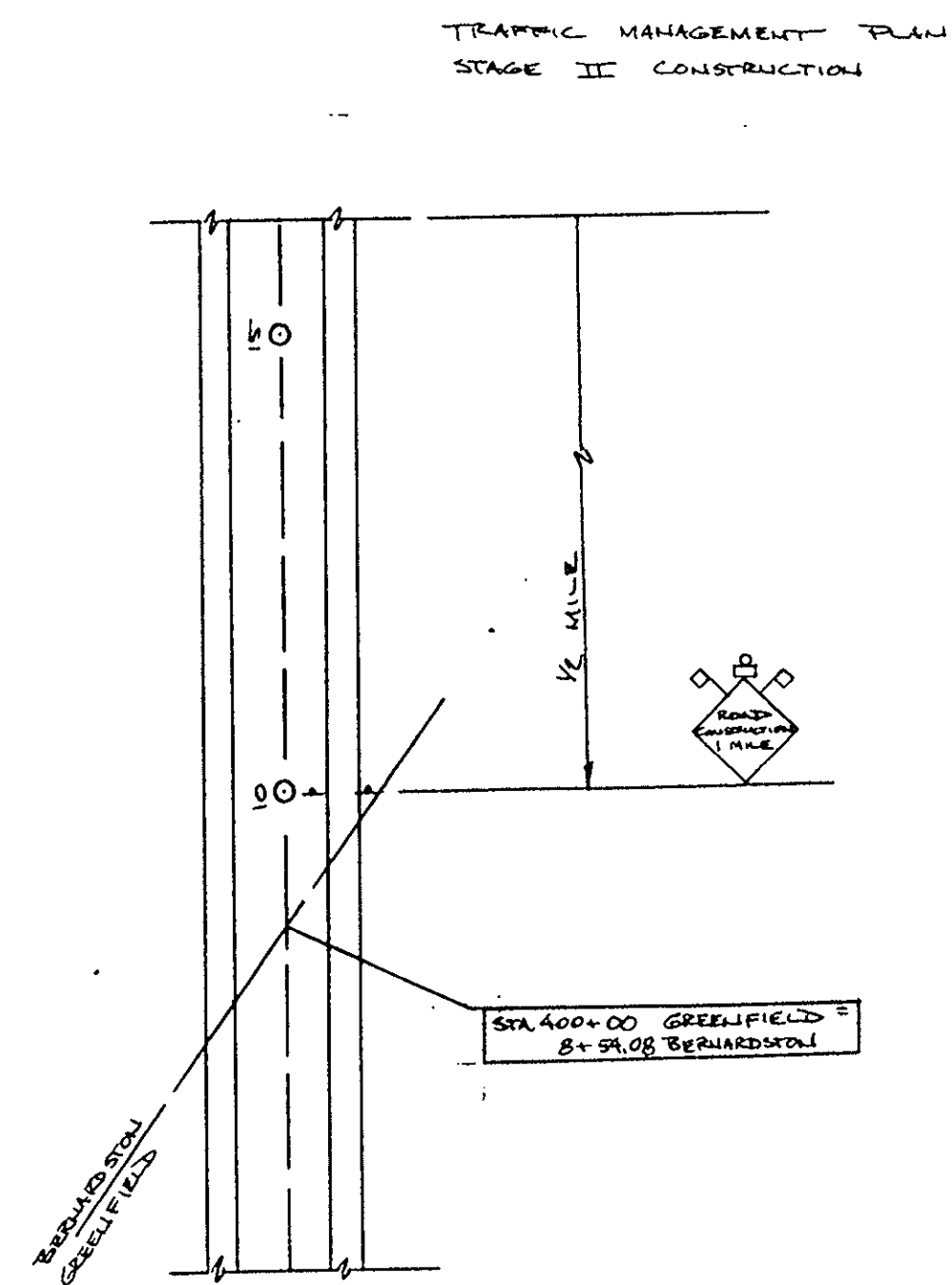
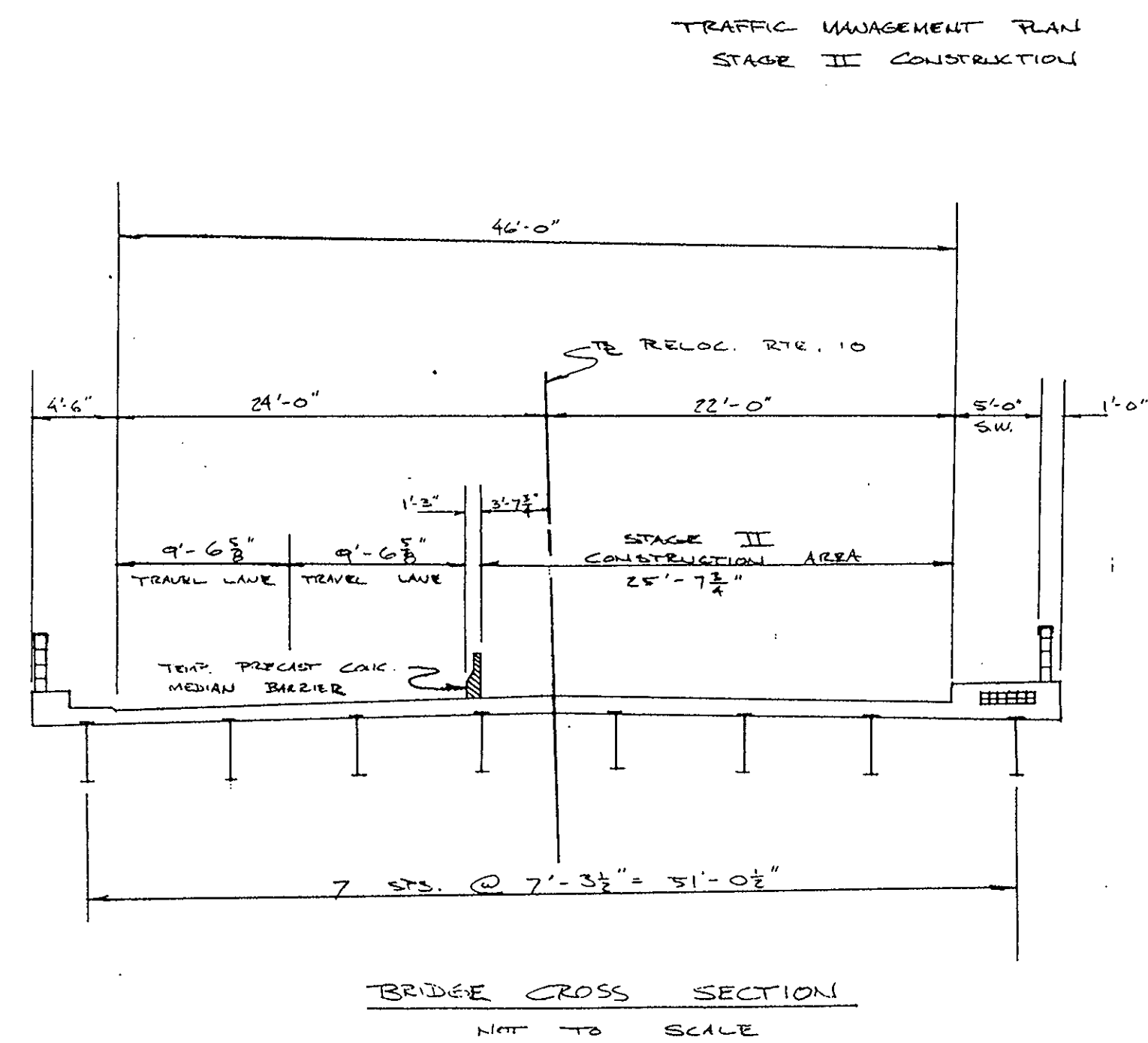
W20-1

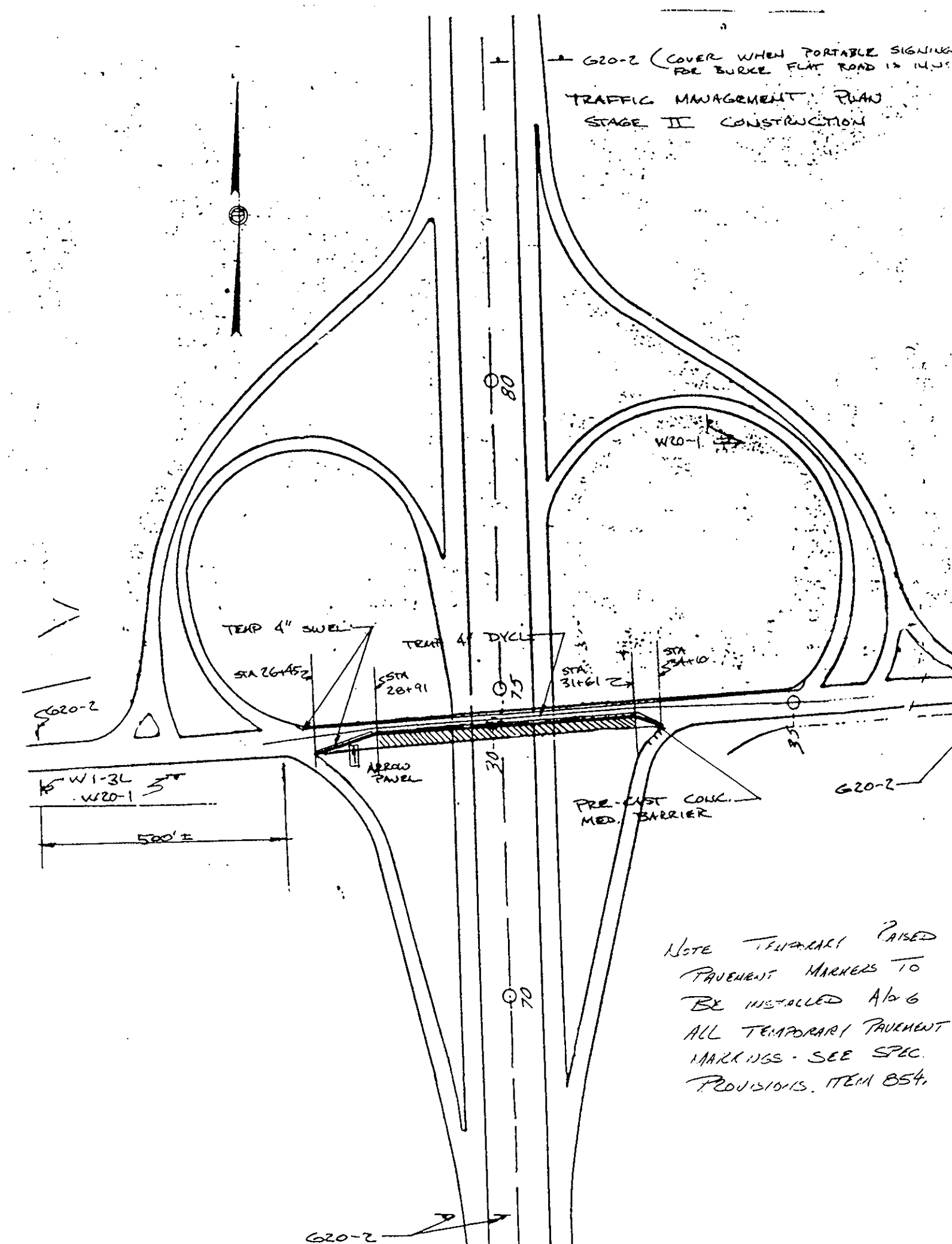
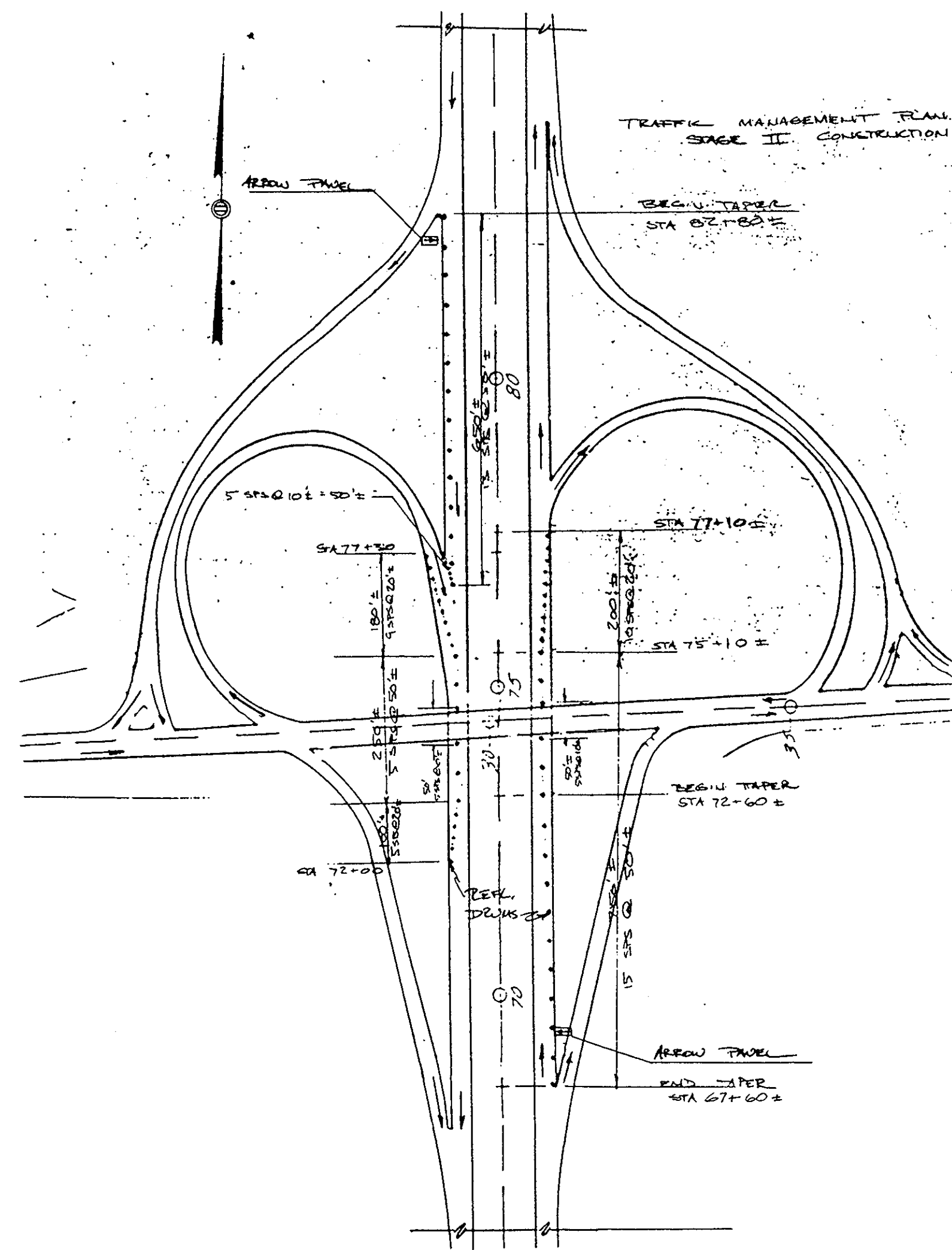
STA 11+50 RT 2 RTE 10



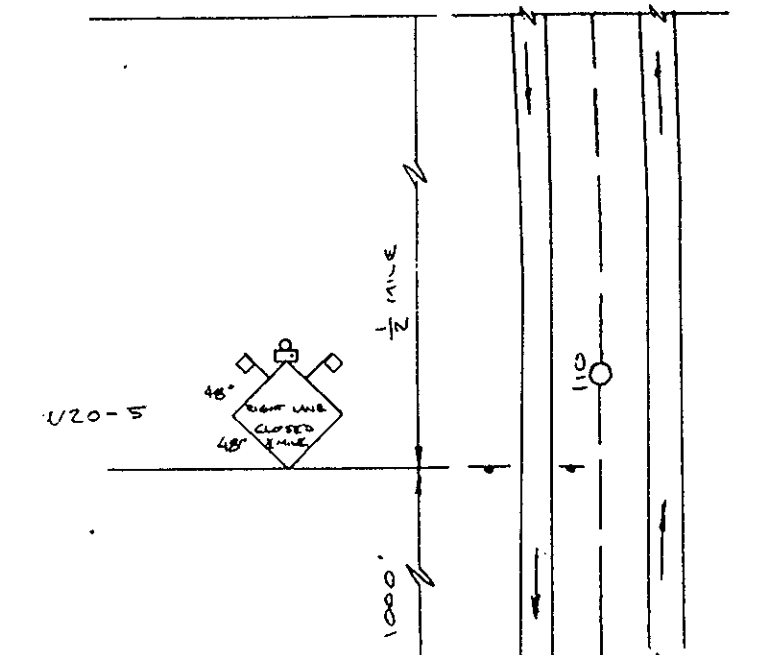
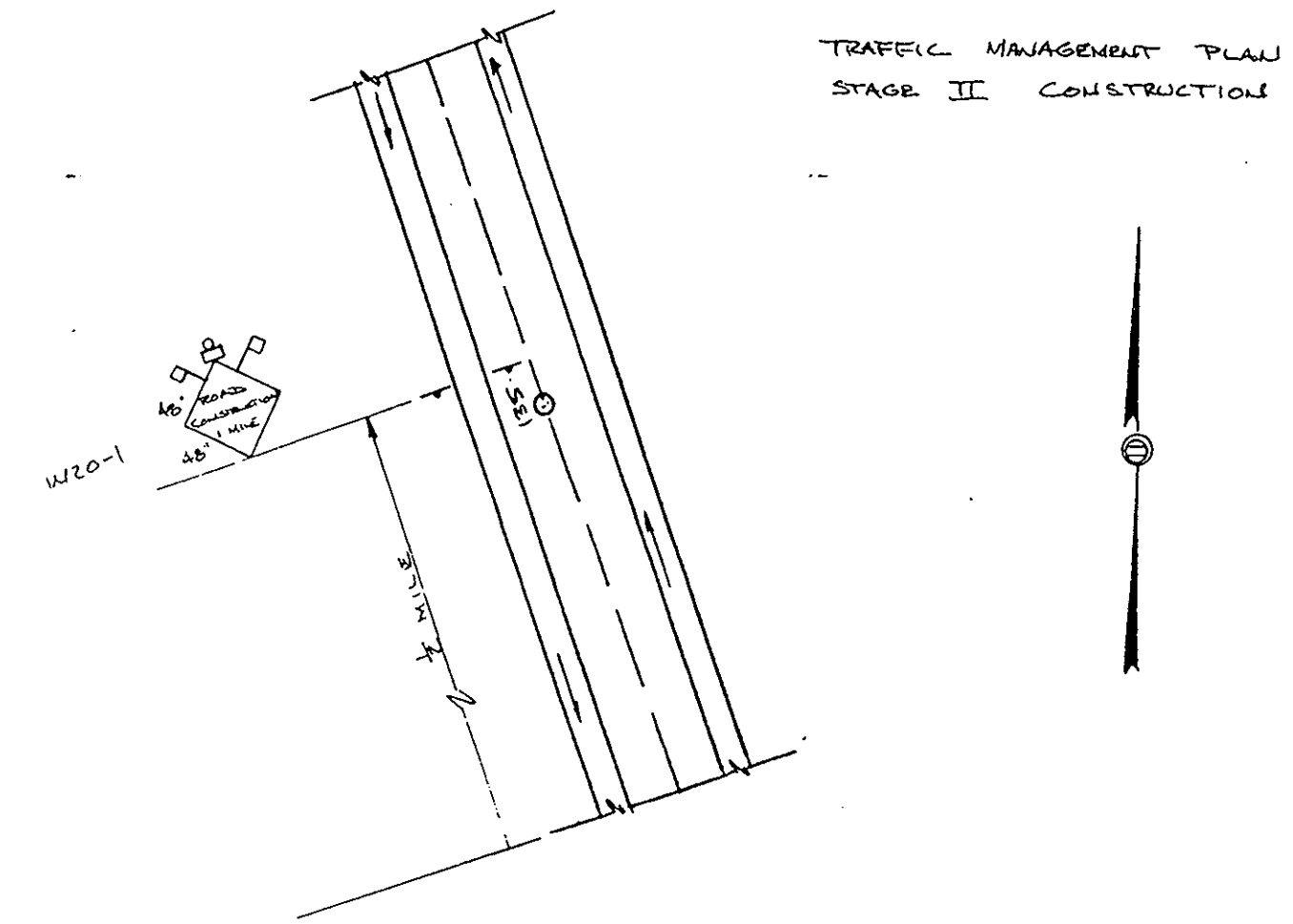
W/20-1

STA 10+00 RT E RNE 10





NOTE: TEMPORARY PAVED
PARKING MARKERS TO
BE INSTALLED A/D 6
ALL TEMPORARY PARKING
MARKINGS - SEE SPEC
PROVISIONS, ITEM 654.



BE NO. 3-10-18
STAGE II
ADDITIONAL ADVANCE SIGNING ON ROUTE 10 FOR WESTBOUND
TRAFFIC -

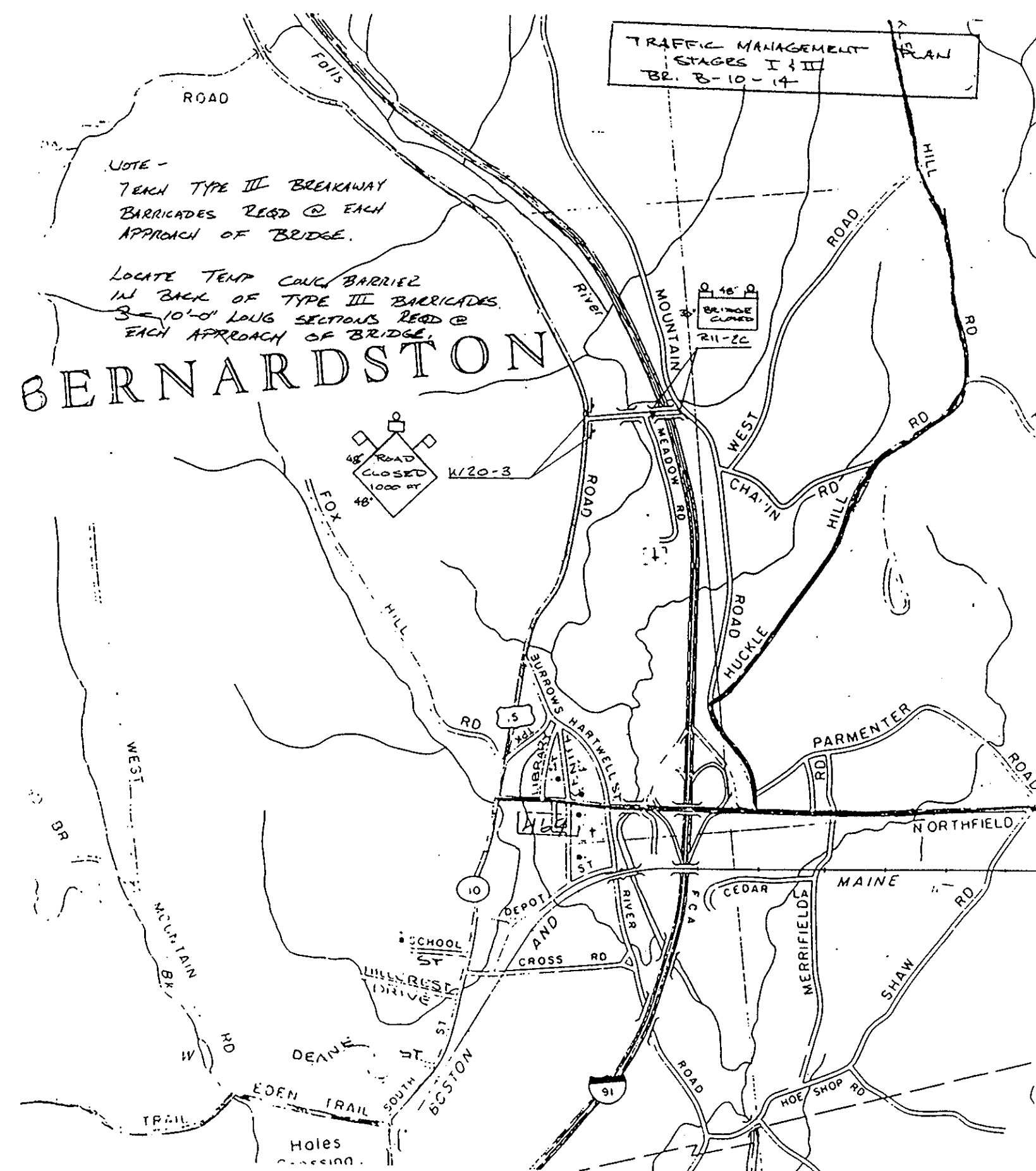


NOTE: RETAIN W20-1 ALREADY IN PLACE @ STATIONS
50+00 & 61+50 LT R RTE 10.

ADDITIONAL ADVANCE SIGNING ON ROUTE 10 FOR EASTBOUND
TRAFFIC -



NOTE: RETAIN W20-1 ALREADY IN PLACE @ STATIONS
11+50 & 10+00 RT R RTE 10.

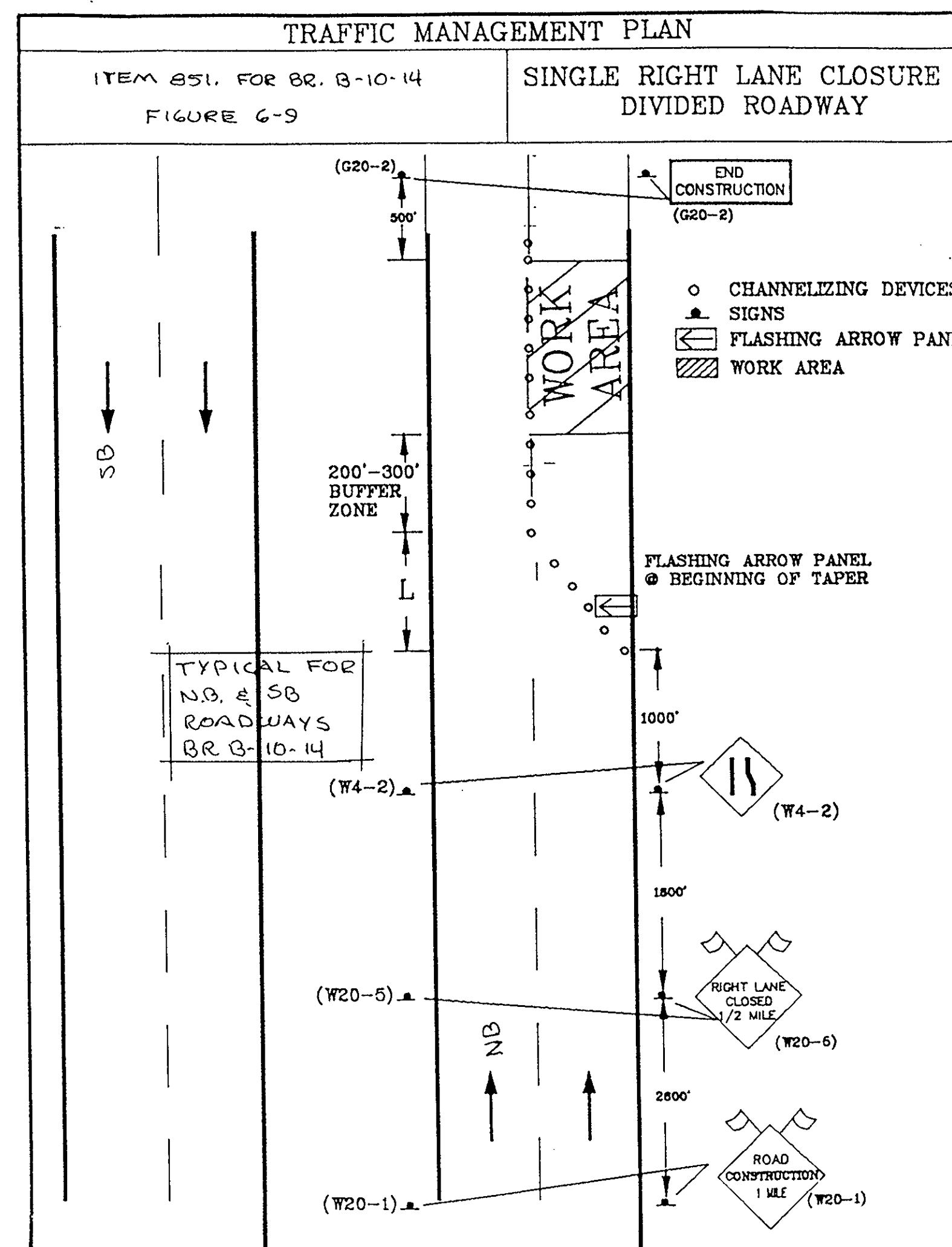
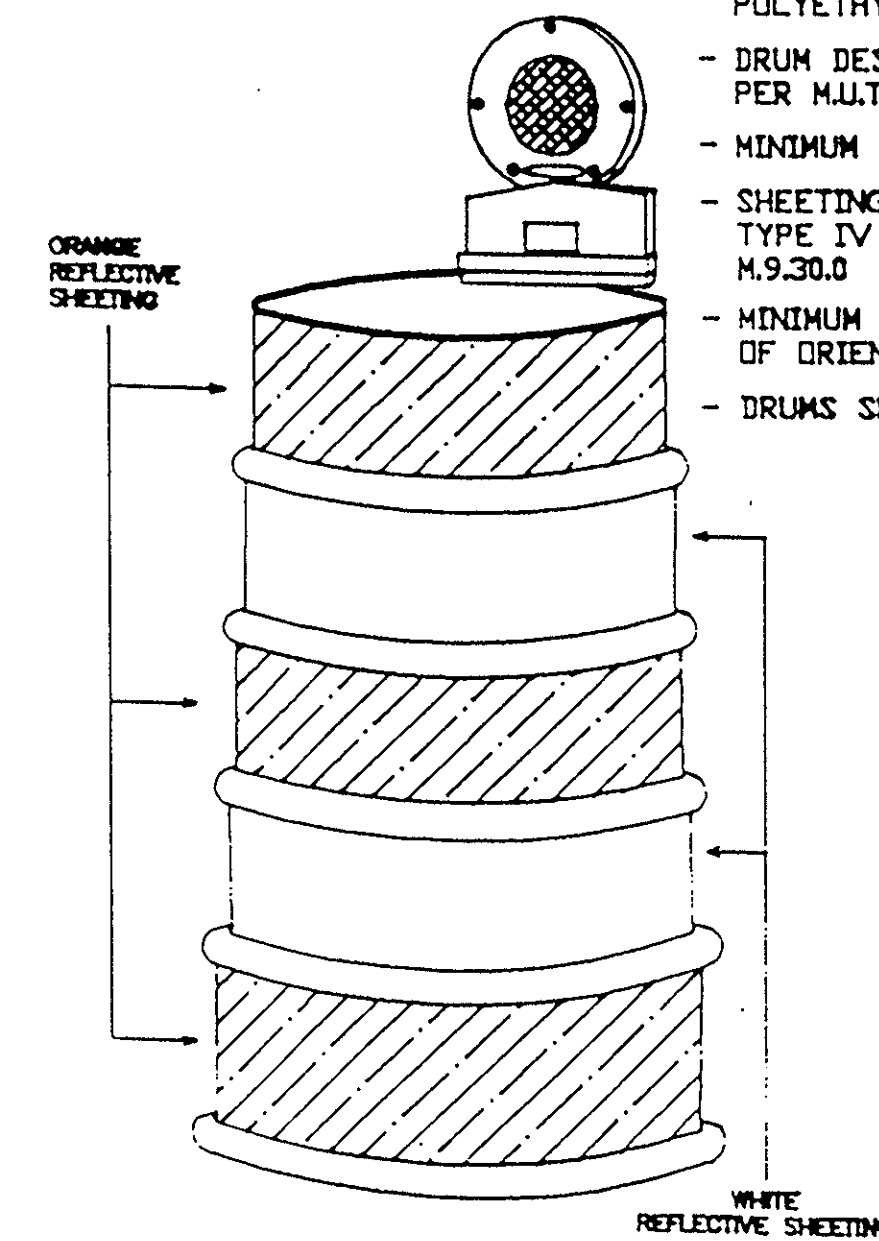


PLASTIC DRUMS

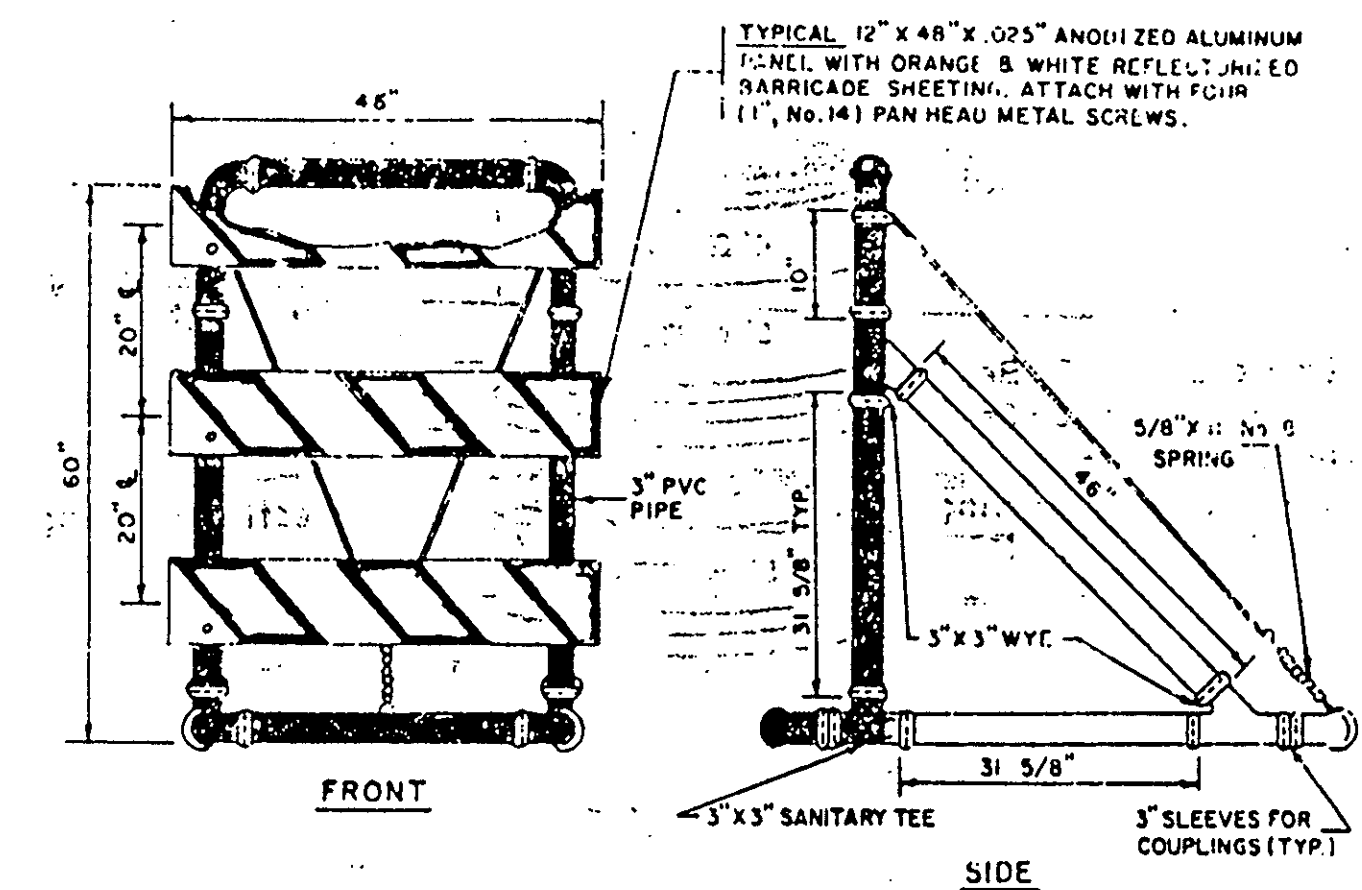
ITEM #	TYPE
859.	DRUM
859.1	'A' WITH FLASHER
859.2	'C' STEADY BURN

NOTES:

- PLASTIC DRUMS WITH TYPE 'C' LIGHTS SHALL BE USED AS CHANNELIZING DEVICES IN HIGHWAY WORK ZONE
- PLASTIC DRUMS WITH TYPE 'A' FLASHERS SHALL BE USED FOR HAZARD MARKINGS.
- DRUM MATERIAL MUST BE APPROVED U.V. RESISTANT LOW DENSITY, IMPACT RESISTANT LINEAR POLYETHYLENE (OR APPROVED EQUIVALENT)
- DRUM DESIGN AND DRUM APPLICATION MUST BE AS PER M.U.T.C.D.
- MINIMUM DRUM WALL THICKNESS SHALL BE 3/32"
- SHEETING MUST BE APPROVED ORANGE AND WHITE TYPE IV REFLECTORIZED SHEETING CONFORMING TO M.9.30.0
- MINIMUM DRUM DIAMETER SHALL BE 18" REGARDLESS OF ORIENTATION
- DRUMS SHALL BE APPROXIMATELY 36" IN HEIGHT.
- WHEN A DRUM IS NO LONGER NEEDED AT A LOCATION, BUT IS REQUIRED FOR FUTURE USE WITHIN A 5 DAY PERIOD IT MAY BE STORED ON LOCATION. OTHERWISE IT SHALL BE STORED IN A DRUM STORAGE AREA AND RESET AT A FUTURE DATE.
- ALL DRUMS SHALL BE MAINTAINED, INCLUDING REMOVAL OF DUST OR ROAD FILM, SO AS TO NOT REDUCE REFLECTIVE EFFICIENCY. WHEN A DRUM LOSES TARGET VALUE IT SHALL BE REPLACED.
- WHEN A DRUM IS NO LONGER NEEDED IT SHALL BE STORED IN A DRUM STORAGE AREA.
- METAL DRUMS ARE PROHIBITED FROM USE ON ALL STATE HIGHWAY PROJECTS.



PORTABLE BREAKAWAY BARRICADE TYPE III



NOTES:

1. ALL PIPE SHALL BE WHITE. WHITE FITTINGS ARE PREFERRED. 91 ALUM MAY BE USED.
2. ALL JOINTS SHALL BE FREE TO SEPARATE UPON VEHICLE IMPACT.
3. SHARP CONDUIT TO BE TIED TOGETHER WITH ROPE THREADED INTO PIPE INTERIOR. USE 3/16" No. 6 SOLID BRAIDED NYLON OR EQUIVALENT.
4. SANDBAGS SHALL BE USED TO WEIGH DOWN BARRICADE.
5. FOR DESCRIPTION, MATERIALS AND CONSTRUCTION METHOD, SEE SPECIFICATIONS.

