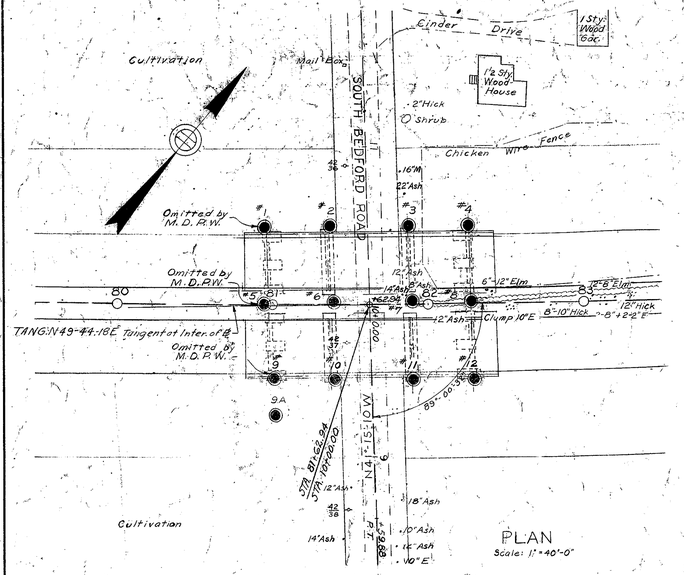
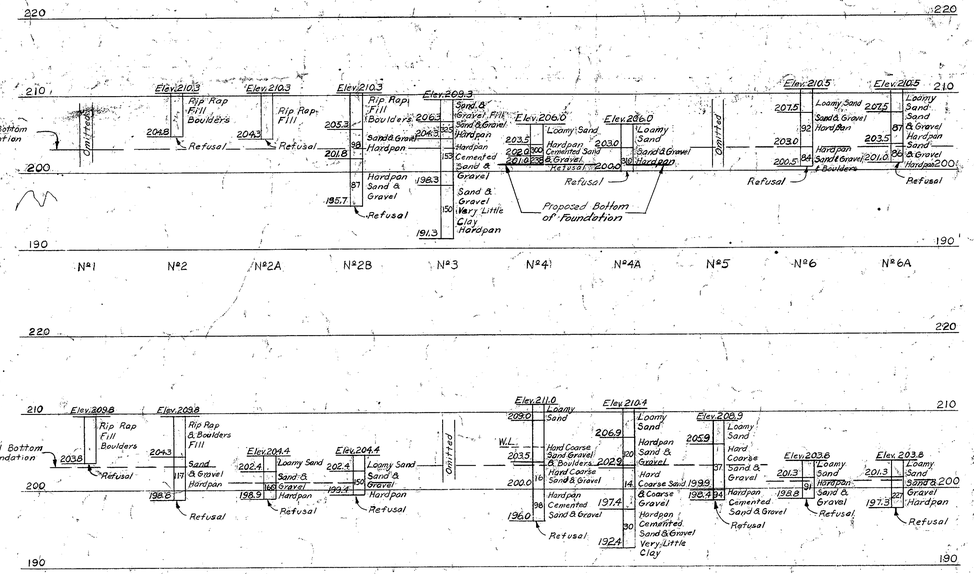
PUB. ROAD DIV. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
1	MASS.	U-272(2)	19	64	



PLAN

Scale: 1" = 40'-0"

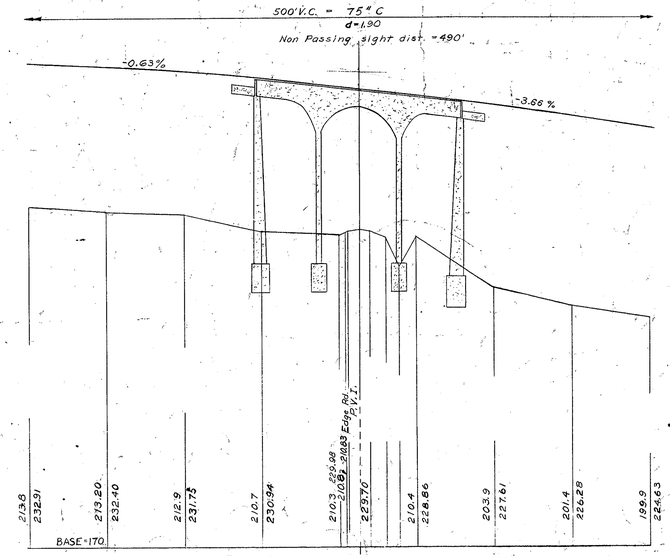


BORING NOTES

Location of Borings shown on Key Plan thus: ●1.
Borings taken for purposes of design and show conditions at boring points only but do not necessarily show nature of material to be encountered in connection with the construction of the bridge.
Figures in columns indicate blows per foot on a 1" ϕ pipe produced by a 30" drop of a 140" hammer.
Samples from test borings are available and may be seen at the office of the Bridge Engineer, Mr. R.O. Spofford, Room 609.

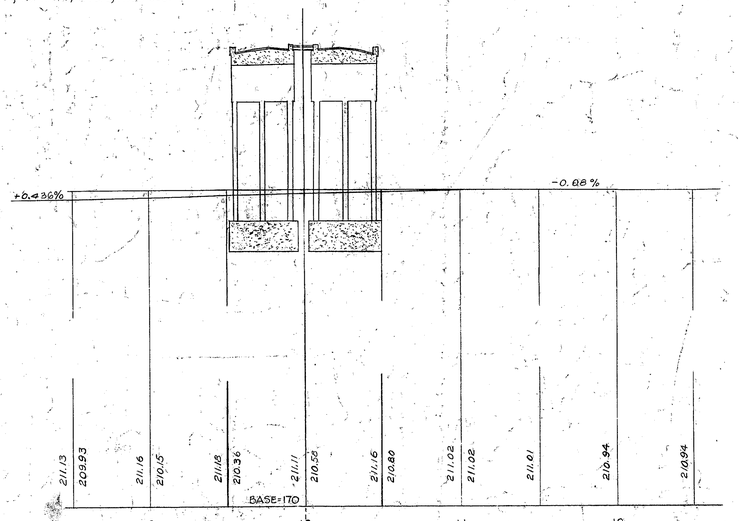
BORING DATA

Scale: 8" = 1'-0"
Borings taken Oct. 1949.



PROFILE N.C.H. STA. 81+62.94 N.C.H. - STA. 10+00.00 SO. BEDFORD RD.

Scale: Hor. 1" = 40'-0" ~ Scale: Vert. 1" = 8'-0"



PROFILE SO. BEDFORD RD. STA. 10+00.00 SO. BEDFORD RD. - STA. 81+62.94 N.C.H.

Scale: Hor. 1" = 40'-0" ~ Scale: Vert. 1" = 8'-0"

GENERAL NOTES

FOUNDATION May be altered if necessary to suit conditions of construction.

DATE & SEAL To be located at southerly face of pier No 3 and northerly face of Pier No 2, approximately 5'-2" above finished grade. See Detail Sheet 2.

DESIGN According to Specification of the American Association of State Highway Officials for H-20-44 loading

BENCHMARK Sta. 81+80 = 125' ± RT. Spike in 18" Ash Elev. 210.98 Sea Level Datum of 1929

ESTIMATED QUANTITIES
(NOT GUARANTEED)

BRIDGE EXCAVATION	1,225 CU.YDS.
CLASS B ROCK EXCAVATION	50 CU.YDS.
GRAVEL BORROW	2,285 CU.YDS.
CLASS I BIT. CONC. PAVEMENT TYPE I-1	158 TONS,
CEM. CONC. MASONRY CLASS A	2,000 CU.YDS.
MOVABLE BEARING PLATES (LUBRITE OR EQUAL)	24 EA.
STEEL REINFORCEMENT FOR STRUCTURES	317,300 POUNDS
STRUCTURAL STEEL	49,890 POUNDS
STEEL GRID FLOORING	1,540 SQ.YDS.
MEMBRANE WATERPROOFING (3 PLY)	1,165 SQ.YDS.
METAL BRIDGE RAILINGS (3 PIPES T)	288 LIN. FT.
GRANITE CURB TYPE VA STR. (6" X 11")	290 LIN. FT.
GRANITE EDGING TYPE SFA	264 LIN. FT.

ADVERTISING 12-31-49. CONSTRUCTION 12-31-49

THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE
NORTHERN CIRCUMFERENTIAL HIGHWAY
OVER SOUTH BEDFORD ROAD-BURLINGTON
STA. 81+62.94
SCALES AS NOTED
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
100 NASHUA ST. BOSTON, MASS.
1949

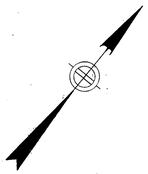
R.O. Spofford — BRIDGE ENGINEER
P.W. Sullivan — CHIEF ENGINEER

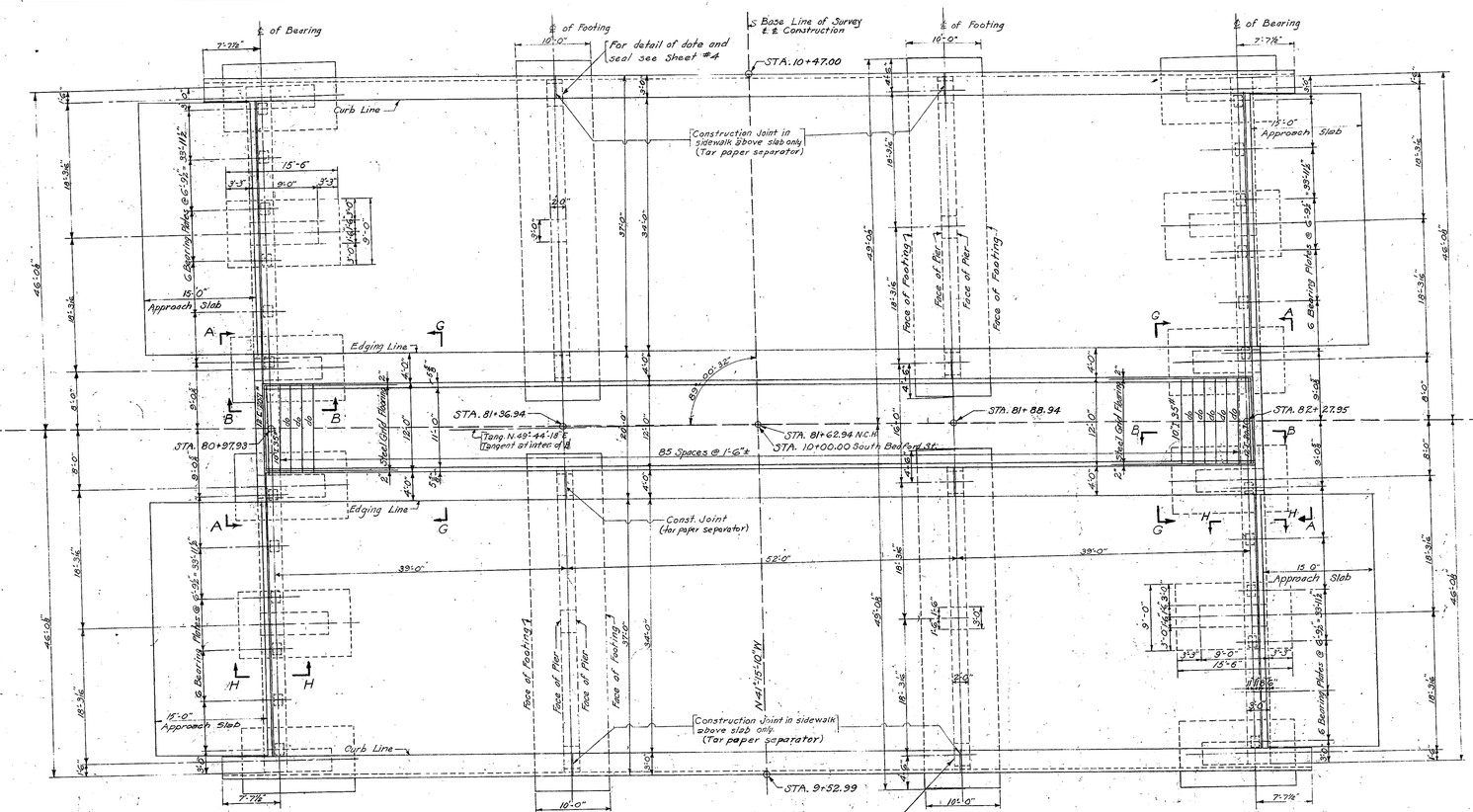
DESIGNED BY | TRACED BY | CHECKED BY

THOMAS WORCESTER INC.
CONSULTING ENG.
84 STATE ST. BOSTON, MASS.

SHEET 1 OF 4 SHEETS BRIDGE NO B-29-9

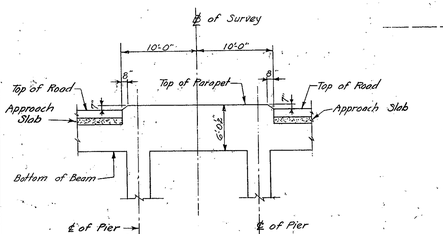
PUB. ROAD DIV. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET No.	TOTAL SHEETS
1	MASS	U-272(23)	19	65	





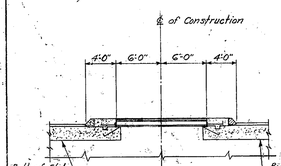
PLAN

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



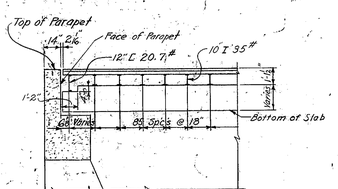
ELEV. A-A

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



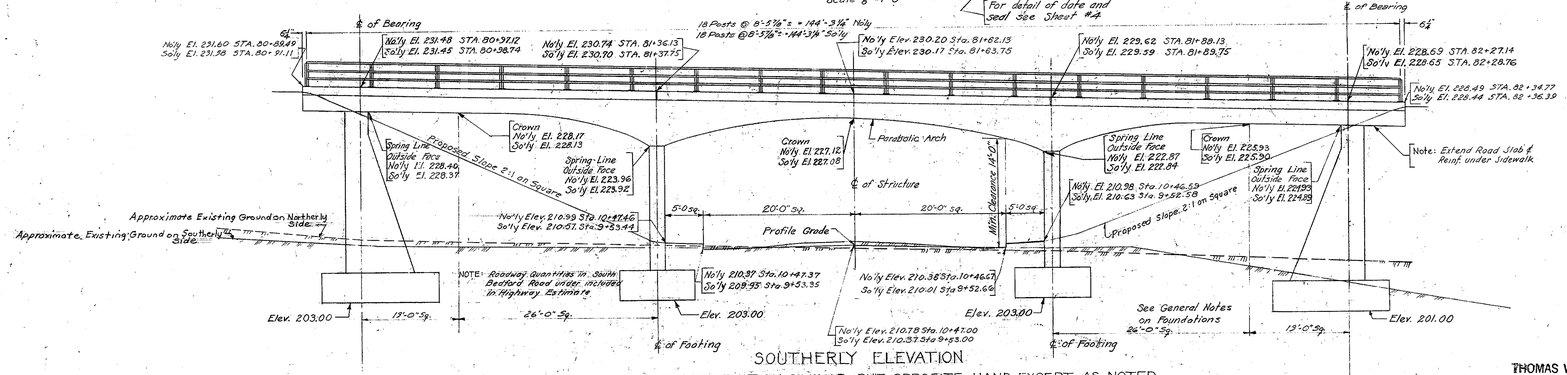
SECTION C-C

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



SECTION B-B

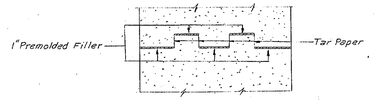
Scale $\frac{1}{4}$" = 1'-0"



SOUTHERLY ELEVATION

NORTHERLY ELEVATION SIMILAR BUT OPPOSITE HAND EXCEPT AS NOTED

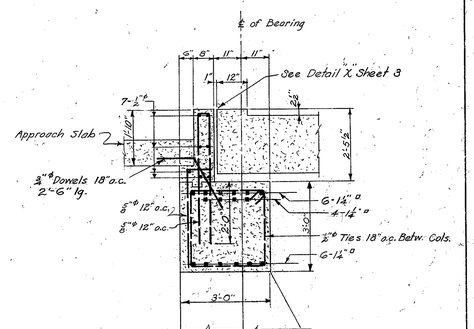
Scale $\frac{1}{8}$" = 1'-0"



TYPICAL EXPANSION JOINT

No Scale

NOTE: Similar to Typical Const. Joint except as noted. (See Sheet No. 3).



SECTION H-H

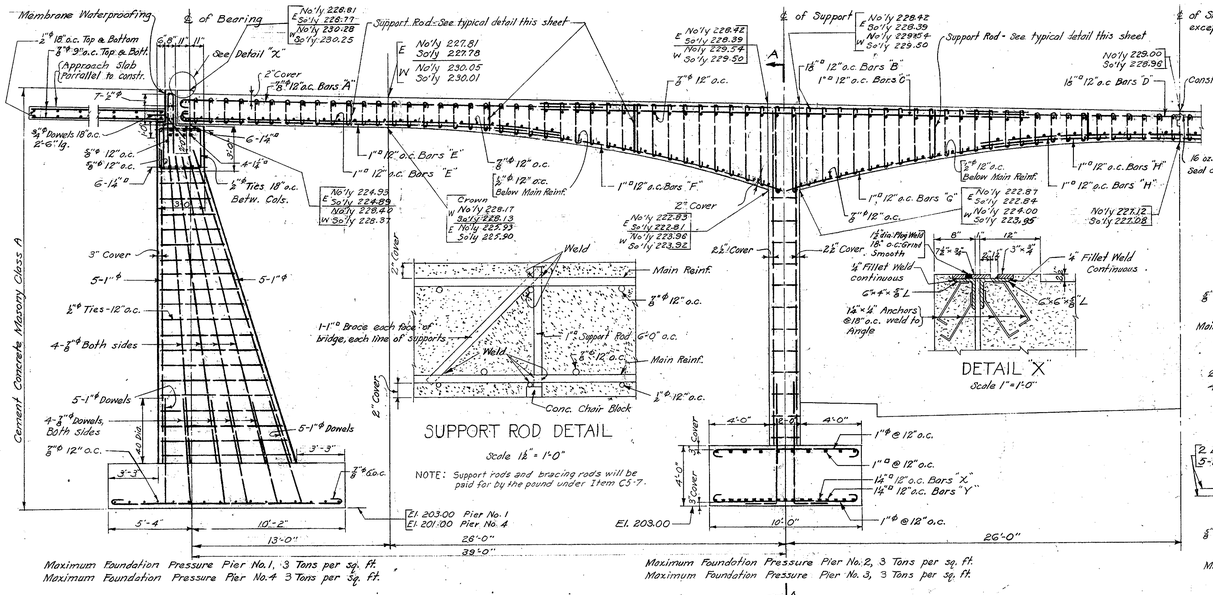
Scale $\frac{1}{2}$" = 1'-0"

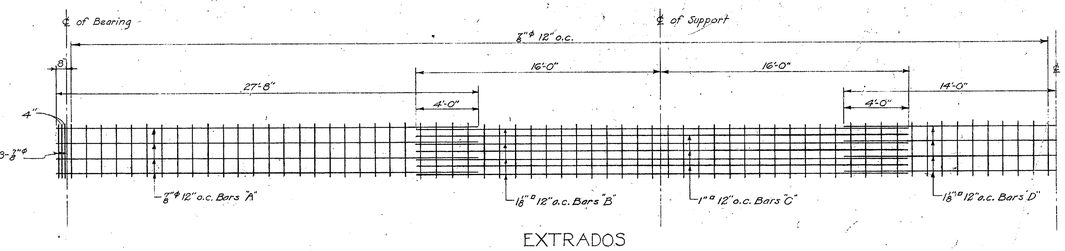
DATE	DESCRIPTION
12-31-47	CONSTRUCTION
12-31-47	ADVERTISING
	USE ONLY PRINTS OF LATEST DATE

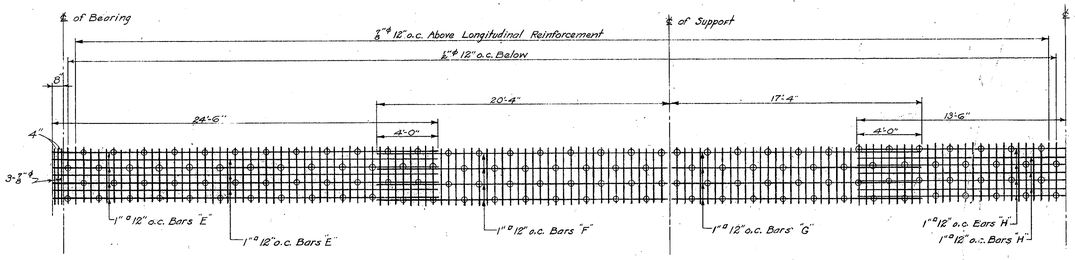
THOMAS WORCESTER INC.
CONSULTING ENG.
84 STATE ST. BOSTON, MASS.

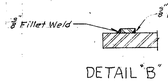
SHEET 2 OF 4 SHEETS BRIDGE NO. B-29-9

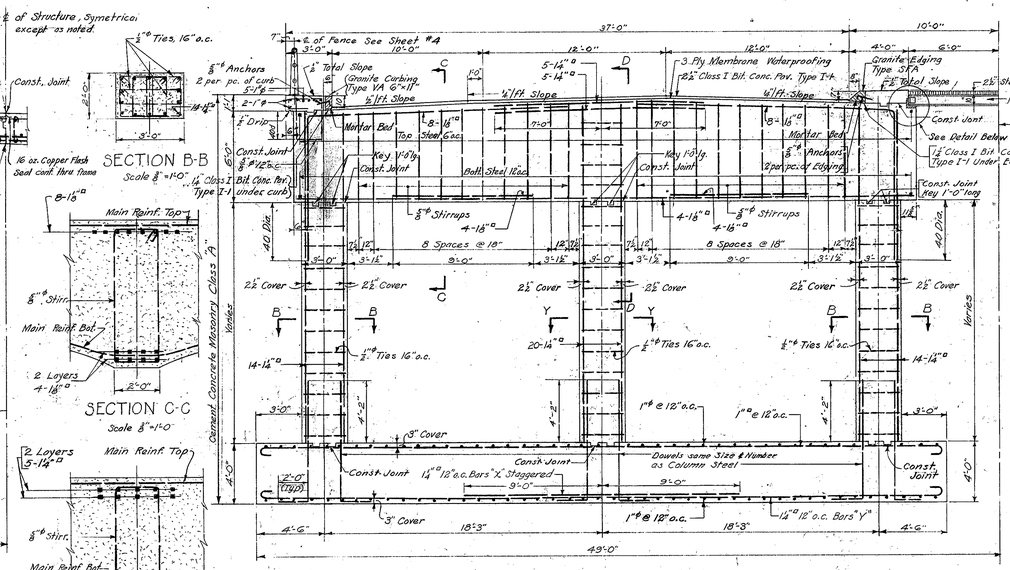
PUB. ROAD DIV. No.	STATE	FED. AID PROJ. No.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MASS.	U-272(23)	19	66	

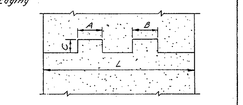




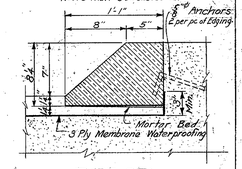


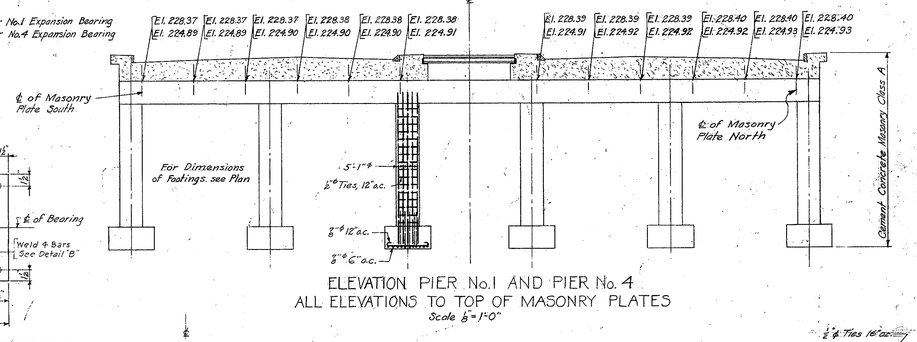


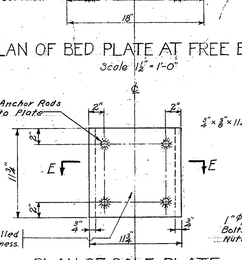


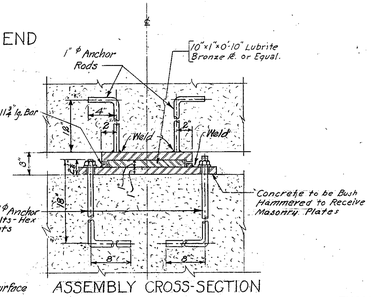


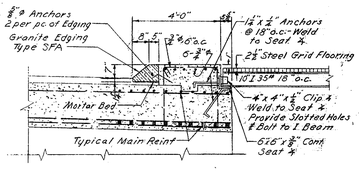
Where single key is shown A & B may be Combined.
A+B Approximately Equal to ½ C Approximately Equal to ⅓ B - 2" Min.
Contractor to Submit Placing Diagram for Engineer's Approval for all Concrete above Footings.
Vertical Construction Joints to be not more than 35'-0" o.c.

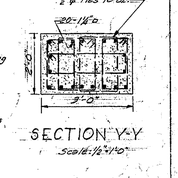












DETAIL FOR MOVABLE BEARING ℄ ON PIERS
Note: Lubrite Bronze Pl. or equal to be paid for under Item C7-1A
Scale 1½"=1'-0"

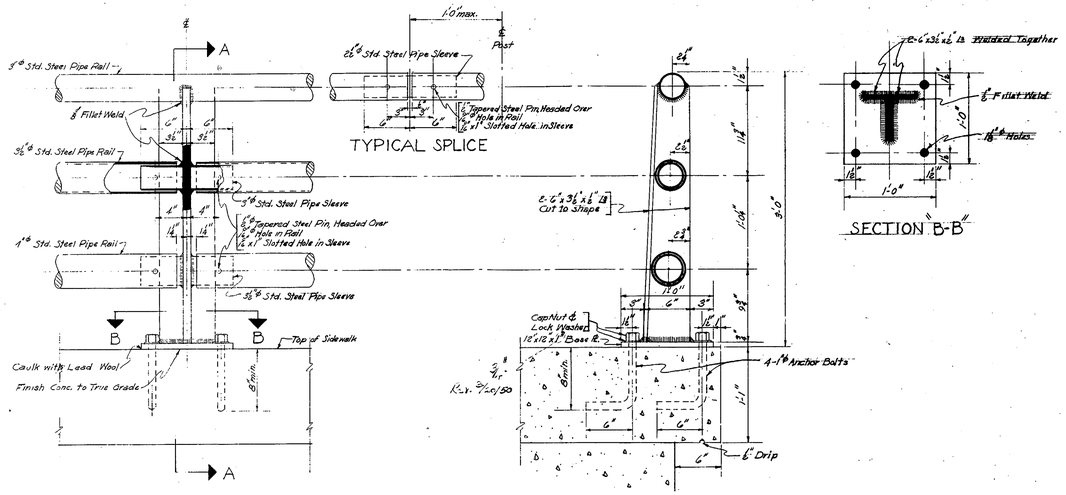
DATE	DESCRIPTION
12-27-48	CONSTRUCTION
12-31-48	ADVERTISING

USE ONLY PRINTS O. LATEST DATE

THOMAS WORCESTER INC.
CONSULTING ENG.
84 STATE ST. BOSTON, MASS.

SHEET 3 OF 4 SHEETS BRIDGE No. B-29-9

PLN. ROAD SYS. NO.	STATE	F.A. NO. PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	U-272(23)	19	67	



ELEVATION TOWARD BRIDGE

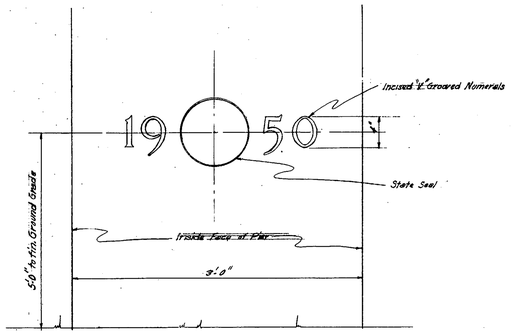
TYPICAL SPLICE

SECTION "A-A"

SECTION "B-B"

NOTES: Posts to be spaced approx. 9'-0" o.c. but not more than 9'-0".
Sleeves to be split longitudinally and reveided to fit, as required.
All fence posts to be plumb & vertical.
Base plates to be welded to post parallel to slope of highway. (parallel to chord on vertical curve)
The steel pipe shall conform to A.S.T.M. Specification A120 for black pipe. All other material shall conform to A.S.T.M. Specification A-7. Copper bearing steel will not be required.

RAILING DETAILS - TYPE "A" 3 PIPES T
Scale: 1½"=1'-0"



DETAIL - DATE & SEAL
Scale: 1½"=1'-0"

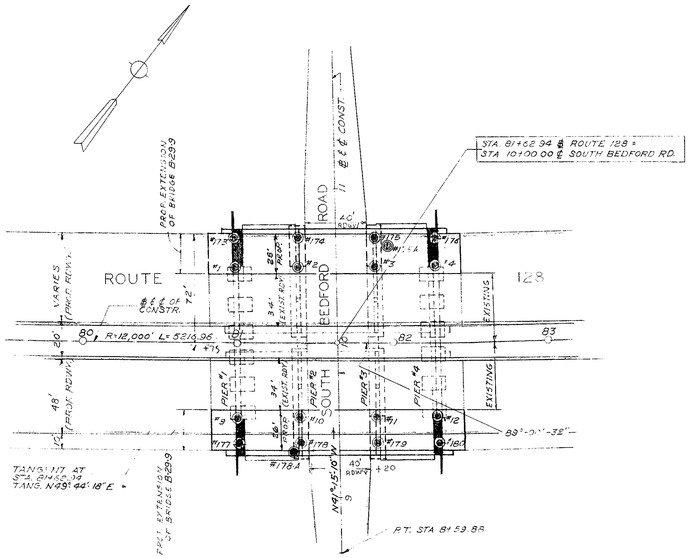
DATE	DESCRIPTION
12-31-49	FINAL AUCTION
12-31-49	ACCEPTED

USE ONLY PRINTS OF LATEST DATE

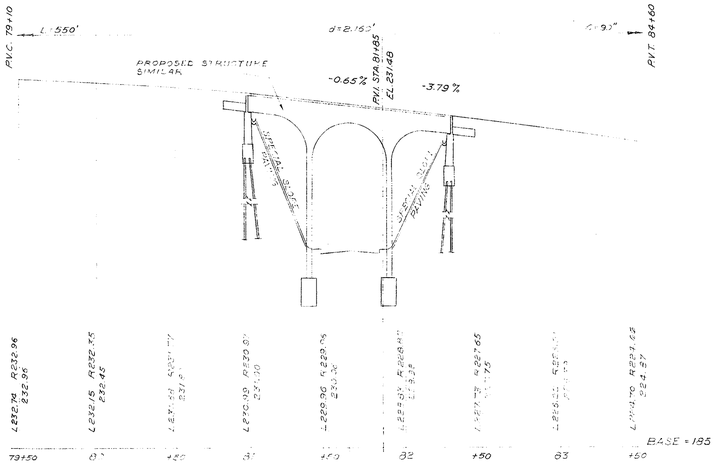
THOMAS WORCESTER INC.
CONSULTING ENG.
84 STATE ST. BOSTON, MASS.

SHEET 4 OF 4 SHEETS BRIDGE NO. B-29-9

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS	U-272 (60)		109	340

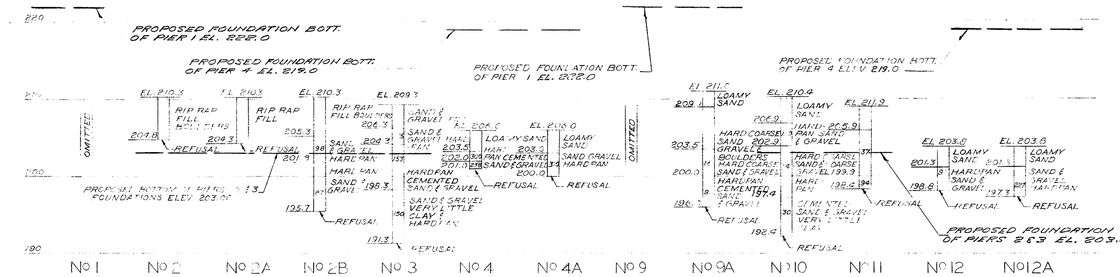


KEY PLAN
SCALE: 1"=40'

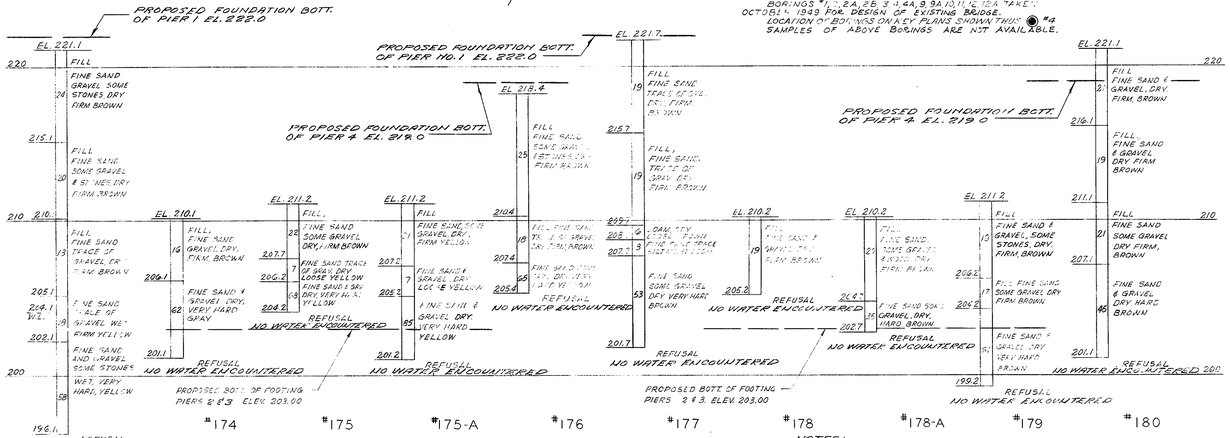


STA. 81+62.94 N.C.H. =
STA. 10+00 SO. BEDFORD RD.

PROFILE ROUTE 128
SCALE: HOR. 1"=40'
VERT 1"=8'



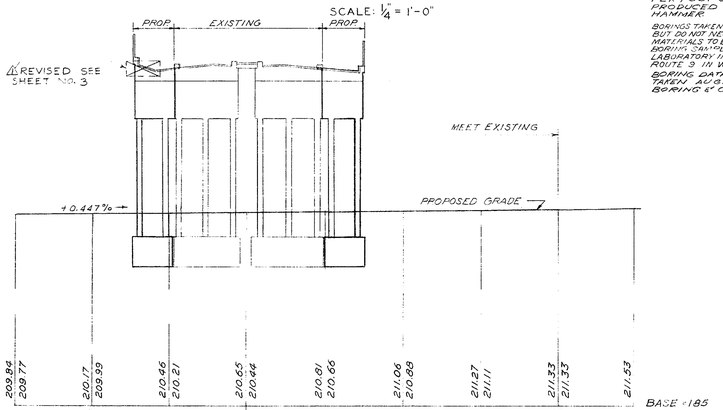
BORING DATA
SCALE 1/8" = 1'-0"



BORING DATA
SCALE: 1/4" = 1'-0"

NOTE:
FIGURES IN COLUMNS INDICATE BLOWS PER FT. ON A 1" DIA. PIPE SPL. SEL. 30" & 300 DROP OF A 140 LB. HAMMER
BORINGS 1&2, 2B, 3, 4, 4A, 9 & 9A WERE TAKEN OCTOBER 1949 FOR DESIGN OF EXISTING BRIDGE.
LOCATION OF BORINGS ON KEY PLANS SHOWN THUS: ◉ #4
SAMPLES OF ABOVE BORINGS ARE NOT AVAILABLE.

NOTES:-
LOCATION OF BORINGS SHOWN ON KEY PLAN THUS ◉ #173.
FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS PER FOOT ON 2" SPLIT TUBE SAMPLER PRODUCED BY 30" FALL OF 140 LB HAMMER.
BORINGS TAKEN FOR PURPOSE OF DESIGN ONLY, BUT DO NOT NECESSARILY SHOW NATURE OF MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
BORING SAMPLES MAY BE SEEN AT THE DEPARTMENT LABORATORY IN THE MAINTENANCE BUILDING ON ROUTE 9 IN WELLESLEY, FOR BORINGS #173 THROUGH #180 ONLY.
BORING DATA FOR BORINGS #173 THROUGH #180 TAKEN AUG. 10, 1959 BY CARR-DEE TEST BORING & CONST. CORP. BOSTON, MASS.



STA. 10+00 SO. BEDFORD RD. =
STA. 81+62.94 N.C.H.

PROFILE SOUTH BEDFORD ROAD
SCALE: HOR. 1"=40'
VERT. 1"=8'

GENERAL NOTES

FOUNDATIONS

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

DESIGN

ACCORDING TO SPECIFICATION OF AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS (1957 ED.) FOR H-20-44 LOADING.

REINFORCEMENT

ALL BARS SHALL HAVE DEFORMATIONS CONFORMING TO A.S.T.M. DESIGNATION A305 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 BARS SHALL BE LAPPED 35 DIAMETERS TO MAKE A SPLICE.

DATE AND SEAL

TO BE PLACED ON THE INSIDE FACES AT CENTERLINE OF FENCE PANELS ON THE SOUTHWEST AND NORTHEAST CORNERS OF BRIDGE. SEE DETAILS ON SHEET NO. 2. A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED. SEAL WILL BE FURNISHED BY THE COMMONWEALTH.

DIMENSIONS

ALL DIMENSIONS AND DETAILS SHOWN FOR THE EXISTING STRUCTURE MUST BE CHECKED IN THE FIELD BY THE CONTRACTOR.

BENCH MARK

CHISEL CUT IN LEDGE OUTCROP STA. 74+50
180 FT. LEFT EL. 234.94 LEVEL DATUM
1929 M.S.L. U.S.C. & G.S.

ESTIMATED QUANTITIES
(NOT GUARANTEED)

BRIDGE EXCAVATION	220 C.Y.
CLASS B ROCK EXCAVATION	10 C.Y.
GRAVEL BORROW	170 C.Y.
CONCRETE EXCAVATION	120 C.Y.
CLASS 1 BIT. CONC. PAVEMENT TYPE I-1	290 TONS
STEEL PILES (12 BP 53)	900 L.F.
STEEL PILE SPLICES (12 BP 53)	2 EACH
BRIDGE STRUCTURE (B-29-9)	1 L.S.
* REINFORCING STEEL	197,000 LBS.
* STRUCTURAL STEEL	18,300 LBS.

* ITEMS INCLUDED UNDER LUMP SUM FOR BRIDGE STRUCTURE

JAN. 15, 1963	⚠ NORTHBOUND ROADWAY REVISED
JAN. 15, 1963	⚠ REVISION SHEETS 1, 3 & 4
JUNE 30, 1962	ISSUED FOR CONSTRUCTION

THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE WIDENING

BURLINGTON

ROUTE 128 STA. 81+62.94 OVER
SOUTH BEDFORD RD. STA. 10+00

SCALES AS NOTED
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
100 NASHUA ST. - BOSTON, MASS.
JUNE 1962

J.H. Kane
BRIDGE ENGINEER

E.J. McCaig
CHIEF ENGINEER

COMMONWEALTH OF MASSACHUSETTS
CHARLES TERRENZIO No. 10601 REGISTERED PROFESSIONAL ENGINEER

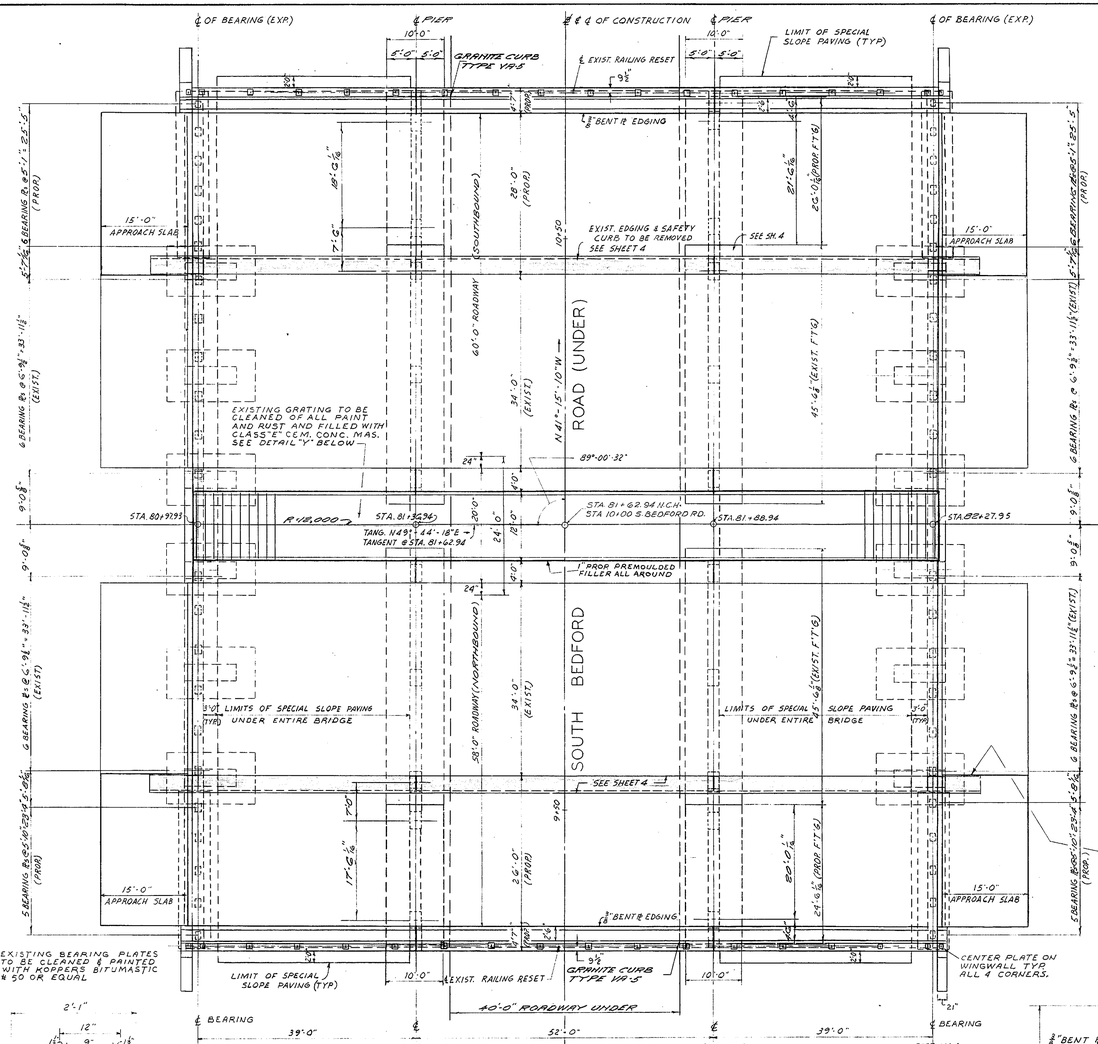
DUFFILL ASSOCIATES INC.,
CONSULTING ENGINEERS
BOSTON, MASS

SHEET 1 OF 5 SHEETS BRIDGE NO. B-29-9

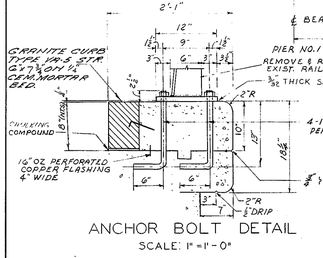
⚠

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	U-272 (60)		110	340

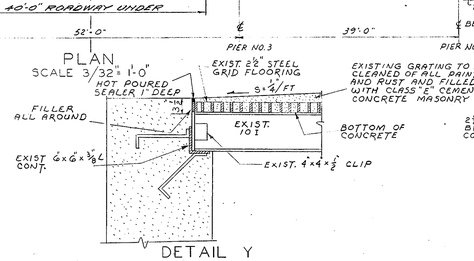
DRAWN BY
DESIGNED BY
CHECKED BY



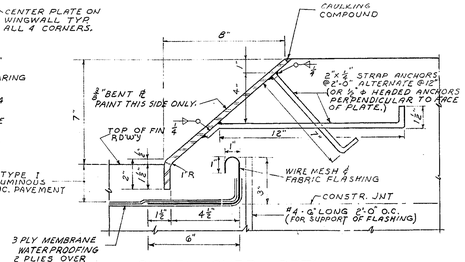
PLAN
SCALE 3/32" = 1'-0"



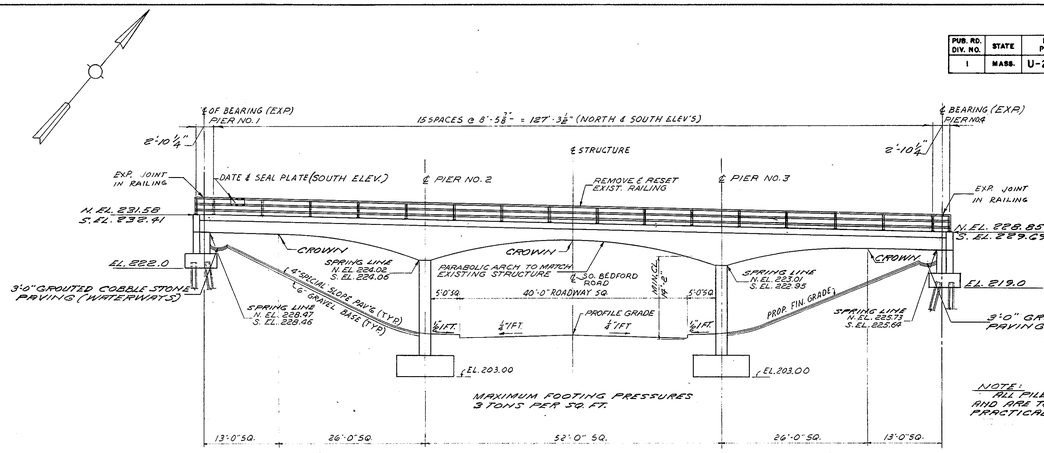
ANCHOR BOLT DETAIL
SCALE: 1" = 1'-0"



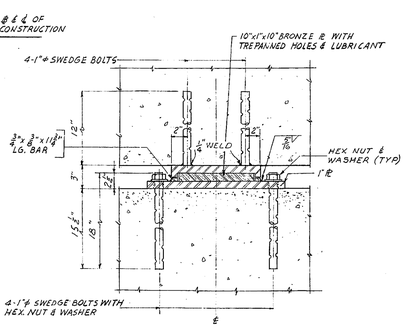
DETAIL Y
NO SCALE



STEEL CURB DETAIL
SCALE: 3" = 1'-0"

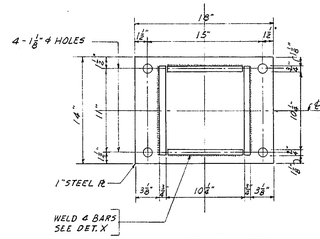


NOTE:
ALL PILES ARE TO BE 12 BP 53 AND ARE TO BE DRIVEN TO PRACTICAL REFUSAL.

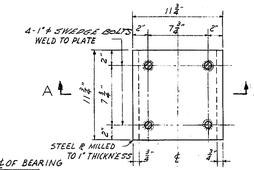


ASSEMBLY CROSS SECTION

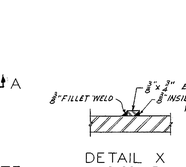
SOUTH ELEVATION
SCALE: 3/32" = 1'-0"



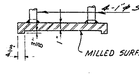
PLAN OF BASE PLATE



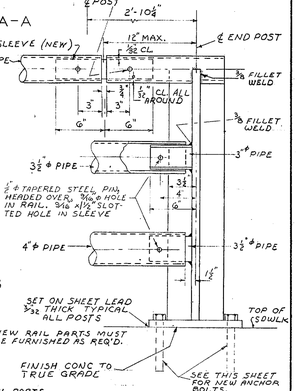
PLAN OF SOLE PLATE



DETAIL X
NO SCALE

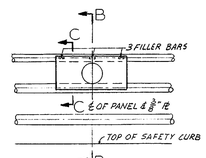


SECTION A-A

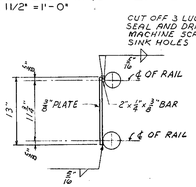


EXP. JOINT DETAIL FOR RELOCATED RAILING
SCALE 1-1/2" = 1'-0"

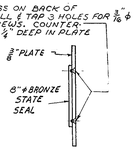
DETAILS FOR MOVABLE BEARING PLATE ON PIERS 1 & 4
SCALE: 1 1/2" = 1'-0"



LOCATION OF DATE & SEAL PL.
SCALE: 1/2" = 1'-0"

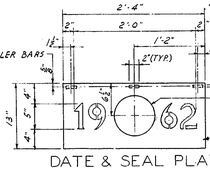


SECTION C-C
SCALE: 1"=1'-0"



SECTION B-B
NO SCALE

NOTE:—
NUMERALS BURNED THROUGH PLATE, FILED & GROUND SMOOTH TO EXACT DIMENSIONS.
PLATE WELDED TO RAIL.



DATE & SEAL PLATE
SCALE: 1" = 1'-0"

8"ϕ BRONZE STATE SEAL. SEAL WILL BE FURNISHED BY THE COMMONWEALTH.

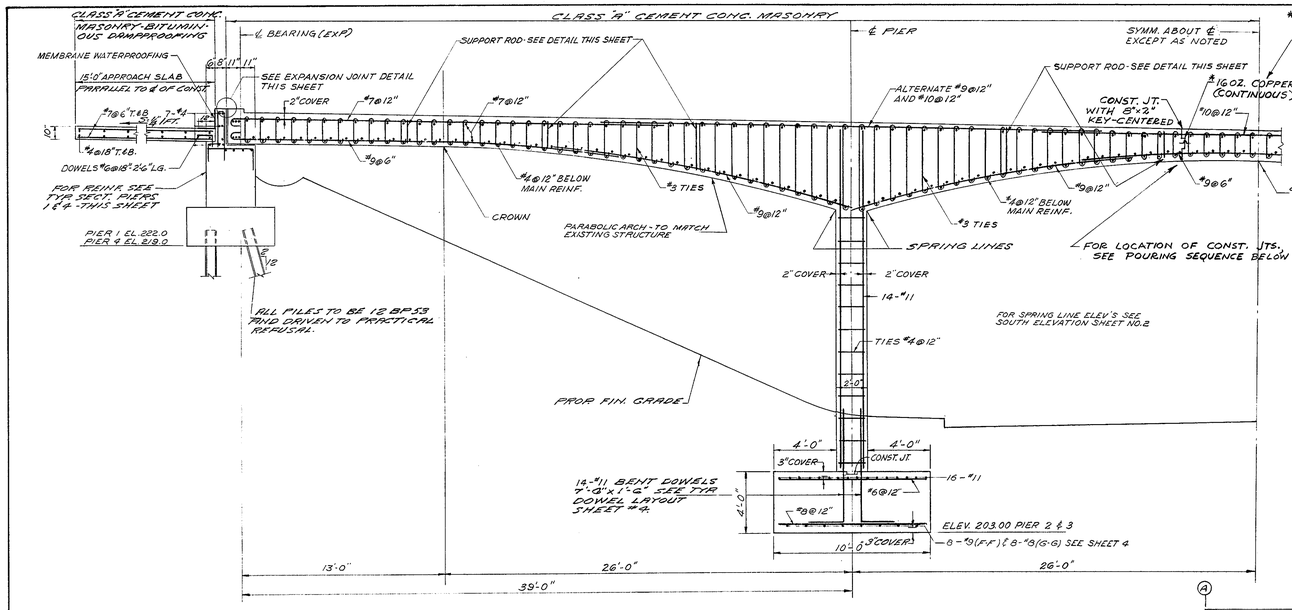
ALL EXISTING RAIL PARTS MUST BE CUT AS SHOWN IN THIS DETAIL - EXISTING SLOTTED HOLES TO BE ENLARGED.

NOTE
EXISTING BEARING PLATES TO BE CLEANED & PAINTED WITH KOPPERS BITUMASTIC # 50 OR EQUAL

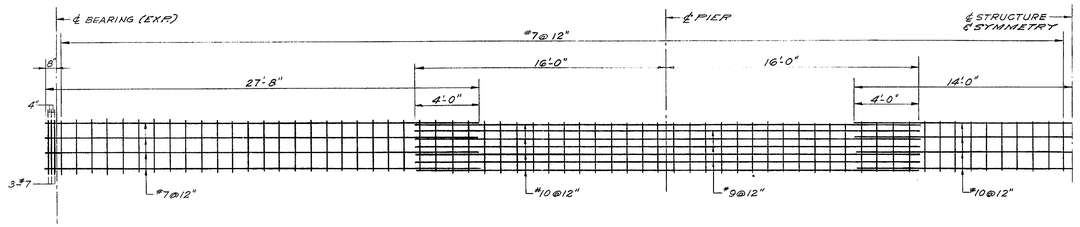
JUNE 30, 1962	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE

Brodus Blue Print-100-1-59

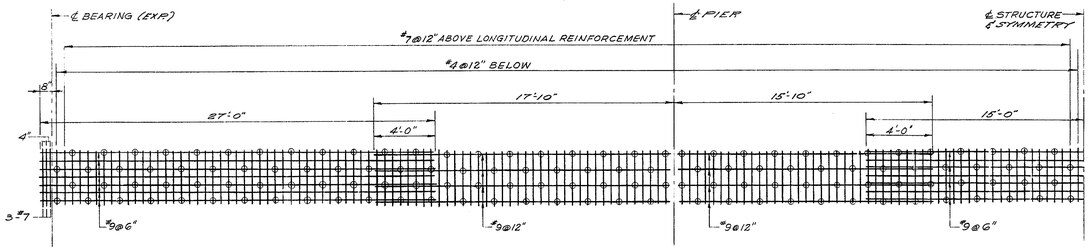
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
I	MASS.	U-272 (60)		III	340



HALF SQUARE SECTION
SCALE: 1/4" = 1'-0"

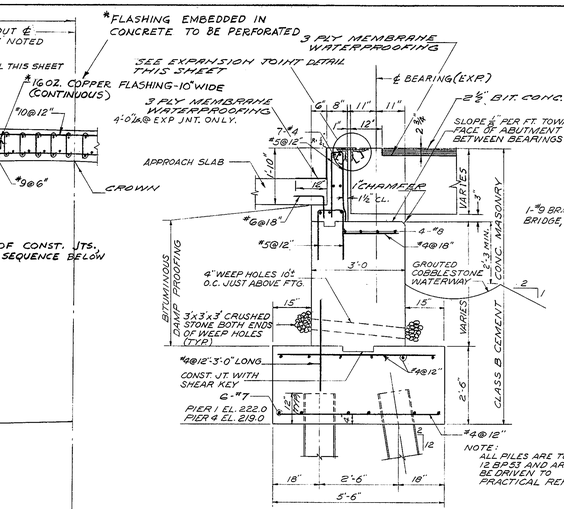


EXTRADOS
SCALE: 1/4" = 1'-0"



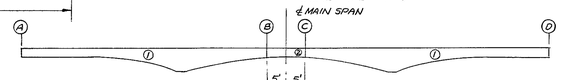
INTRADOS
REINFORCEMENT DIAGRAM
HALF STRUCTURE DEVELOPED
SCALE: 1/4" = 1'-0"

DENOTES LOCATION OF #3 HOOKED TIES



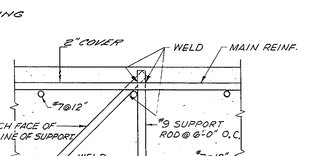
TYPICAL SECTION PIERS I AND 4
SCALE 1/2" = 1'-0"

NOTE:
ALL PILES ARE TO BE 12 BP 53 AND ARE TO BE DRIVEN TO PRACTICAL REFUSAL

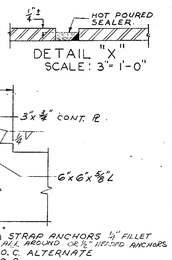


POUR SECTIONS ① SIMULTANEOUSLY STARTING AT Ⓑ AND AT Ⓒ AND POURING TOWARDS Ⓐ AND Ⓓ RESPECTIVELY. AFTER CONCRETE HAS CURED FOR 24 HOURS, POUR SECTION ②

POURING SEQUENCE
NO SCALE

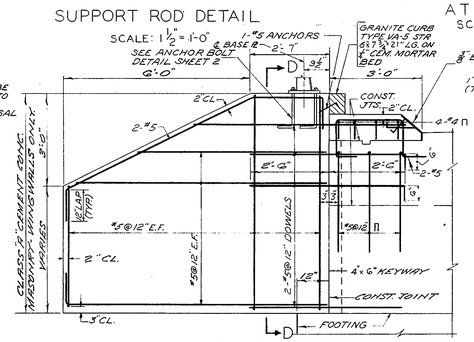


1-#9 BRACE EACH FACE OF BRIDGE, ℄ EA. LINE OF SUPPORT

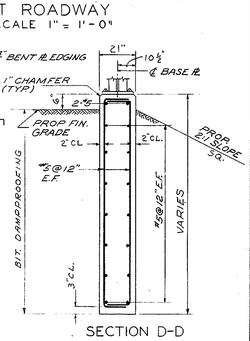


EXPANSION JOINT DETAIL AT ROADWAY
SCALE 1" = 1'-0"

SUPPORT ROD DETAIL
SCALE: 1½" = 1'-0"

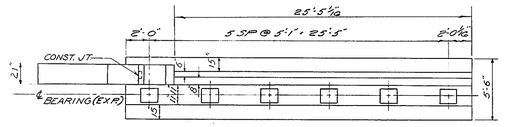


ELEVATION

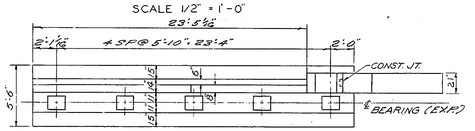


SECTION D-D

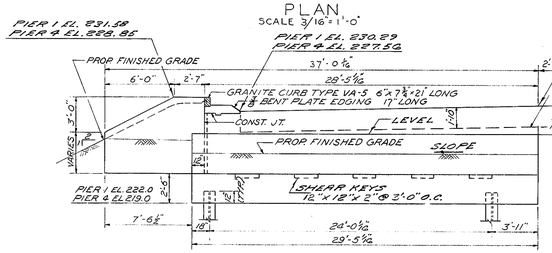
WINGWALL REINFORCEMENT DETAILS
SCALE 1/2" = 1'-0"



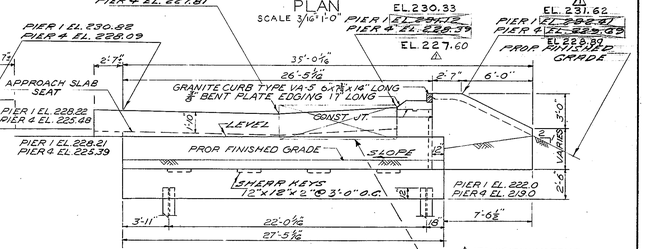
PLAN
SCALE 3/16" = 1'-0"



PLAN
SCALE 3/16" = 1'-0"



ELEVATION PIERS I AND 4 SOUTHBOUND
SCALE 3/16" = 1'-0"



ELEVATION PIERS I AND 4 NORTHBOUND
SCALE 3/16" = 1'-0"

NOTE:
FOR TIES BETWEEN EXISTING AND PROPOSED STRUCTURES, PIERS 1 & 4, SEE ELEVATION SHEET NO. 4.

⚠ REVISION-NORTHBOUND ROADWAY SECTION TO HAVE SAME SLOPES AS SOUTHBOUND

JAN 15, 1963	⚠ REVISION - NORTHBOUND ROADWAY REVISED
JUNE 20, 1962	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

DRAWN BY
DESIGNED BY
CHECKED BY

Brakin Blue Print-100-1-59

SHEET 3 OF 5 SHEETS BRIDGE NO. B-29-9

⚠ ⚠ ⚠

PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	U-272 (60)		112	340

NOTE: ROADWAY DIMENSIONS ONLY ARE SHOWN SQUARE

EXIST. REINF. TO BE CUT & CONC. REPAIRED WITH CEM. MORTAR

CONST. JNT. CUT

EXISTING RAILING, REMOVE & RESET.

℄ CONST. AND ℄ RTE. 128

76'-7" — 60'-0" PROPOSED ROADWAY SOUTHBOUND — 24'-0" MEDIAN (EXISTING) — 58'-0" PROPOSED ROADWAY NORTHBOUND — 74'-7"

4'-7" — 12'-0" — 12'-0" — 12'-0" — 12'-0" — 12'-0" — 2'-0" SH'DR — 10'-0" — 10'-0" — 2'-0" SH'DR — 12'-0" — 12'-0" — 12'-0" — 12'-0" — 10'-0" — 4'-7"

28'-0" PROPOSED EXTENSION — 34'-0" (EXISTING ROADWAY) — 34'-0" (EXISTING ROADWAY) — 26'-0" PROPOSED EXTENSION

EXIST. RAIL RESET

VA-2 GRANITE CURB (TYP.)

BENT & EDGING (TYP.)

1" PREMOULDED FILLER ALL AROUND, SEE DETAIL 'Y' SHEET 2

EXISTING GRATING TO BE CLEANED OF ALL PAINT AND RUST AND FILLED WITH CLASS 'E' CEMENT CONCRETE MASONRY TO BOTTOM OF EXISTING GRATING

SEE SAFETY CURB DETAIL

⚠ REVISED SEE "EL. OF PIERS" BELOW

S=1/2"/FT. (EXIST.)

S=1/2"/FT. (PROP.) CROWN (EXIST.) — CROWN (PROP.) S=1/2"/FT. — PROFILE GRADE S=1/2"/FT. (EXIST.) & (PROP.)

EXIST. REINF. TO BE CUT & CONC. REPAIRED WITH CEM. MORTAR. SEE OTHER SIDE

SEE CONSTRUCTION JOINT DETAIL SHEET NO. 5

EXIST. BIT. CONC. TO BE REMOVED

2½" CLASS I BIT. CONC. PAVING TYPE I-1 ON 3 PLY MEMBRANE WATERPROOFING

PIER NO. 2 EXIST. EL. 224.02
PIER NO. 3 EXIST. EL. 223.01

PIER NO. 2 EXIST. EL. 224.06
PIER NO. 3 EXIST. EL. 222.95

LEVEL — 2" COVER — 4'-5" □ 3/4" EACH END — #5 □ (TYP.) — 3.5P@ 9"-8"-9" — 4.5P@ 9"-3"-3"-3"-3" — 3.5P@ 9"-8"-9" — 5'-6" — 5'-0"

18'-3⅛" — 8'-0" — 8'-0" — 18'-3⅛" — 18'-3⅛"

7'-6" — 7'-0"

2" COVER (TYP.) — 14-#11 — #4 TIES @ 12" — #4 TIES @ 18" — 3'-0" (TYP.) — 14-#11 BENT DOWELS 7'-6"x1'-6" — 14-#11 BENT DOWELS 7'6"x1'-6"

44'-6⅛" — 44'-6⅛"

PROPOSED FINISHED GRADE — EXISTING FINISHED GRADE

4'-0" — 4'-0"

#6 @ 12" — #6 @ 18" — #8 @ 9 — 3'-0" — 6'-0"

ELEV. 203.00 PIER 2 AND PIER 3

82'-0⅛" — 49'-0⅛" — 75'-0⅜" — 49'-0⅛" — 73'-6⅜"

ELEVATION PIER 2 AND PIER 3

NOTES:
① EXISTING WATERPROOFING TO BE REMOVED AND EXISTING DECK THOROUGHLY CLEANED AND ALL PROJECTIONS & DEPRESSIONS SMOOTHED AND FILLED PRIOR TO PLACING NEW WATERPROOFING
② EXIST. CONCRETE SHOWN IN SHADED AREAS TO BE REMOVED.
③ PROP. CONCRETE TO BE CLASS "A" CEMENT CONCRETE MASONRY.

38'-0" LIMITS OF NEW RDWY. EXP. DAM — 76'-7" — 74'-7" — 36'-0" LIMITS OF NEW RDWY. EXP. DAM

SEE SAFETY CURB DETAIL

PROP. FIN. GRADE

28'-0" PROPOSED EXTENSION — 26'-0" PROPOSED EXTENSION

2½" CLASS I BIT. CONC. PAVING TYPE I-1 ON 3-PLY MEMBRANE WATERPROOFING. ADD 2-#7 BARS

WIDTH OF MEMBRANE WATERPROOFING AT EXP. JNT. IN PARAPET

4'-0" — 10'-0"

CONCRETE IN SHADED AREA TO BE REMOVED.

APPROACH SLAB SEAT — 4'-0" — 10'-0"

3 LAYERS TARPAPER JOINT

CONST. JOINT

PIER NO. 1 (EXIST.) EL. 225.32
PIER NO. 4 (EXIST.) EL. 222.98

EXIST. CONCRETE MUST BE MADE SMOOTH WITH A RICH MORTAR (TYP.)

PIER NO. 1 (EXIST.) EL. 225.81
PIER NO. 4 (EXIST.) EL. 222.39

EXIST. CONCRETE MUST BE MADE SMOOTH WITH A RICH MORTAR (TYP.)

⚠ REVISION - NORTHBOUND ROADWAY SECTION TO HAVE SAME SLOPES AS SOUTHBOUND

E.L. 222.00 PIER NO. 1 EL. 219.00 PIER NO. 4

18 BP 57 PILES TO BE DRIVEN TO PRACTICAL REFUSAL 89'-5½"

18 BP 57 PILES TO BE DRIVEN TO PRACTICAL REFUSAL 87'-5½"

EXIST. GROUND

PIER NO. 1 EL. 203.00
PIER NO. 4 EL. 201.00

ELEVATION PIER 1 AND PIER 4

SCALE: ⅛" = 1'-0"

WIDTH OF MEMBRANE WATERPROOFING AT EXP. JNT. IN PARAPET

SCALE: ¼" = 1'-0"

3'-0" — 2" CL. (TYP.) — 14-#11 — #4 TIES @ 12" — 8'-0"

SECTION E-E

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

4'-0" — 2'-0" — 4'-0" — 3" CL. — 10-#11 — #6 @ 12" — 8-#8 — 10'-0"

SECTION F-F

SECTION G-G

TYPICAL DOWEL LAYOUT

SCALE: 1/4" = 1'-0"

2½" BIT. CONC. PAVING — 3 PLY MEMBRANE WATERPROOFING — 4-#6 — 2" CL. — #5 □ — 4-#11 — 2'-0"

SECTION H-H

2½" BIT. CONC. PAVING — BENT & EDGING — 8-#9 — #5 □ — 2" CL. — 2½" BIT. CONC. PAVING — 3 PLY MEMBRANE WATERPROOFING — ⚠ REVISED SEE "EL. OF PIERS" AT LEFT — 4-#11 — 2'-0" — ℄ CL. PIERS AT LEFT

SECTION J-J

SCALE: 1/4" = 1'-0"

GRANITE CURB TYPE VA-2 STR. 6"x17½" ON 4" CEM. MORTAR BED — CLASS 'D' CONC. — 4'-7" — 2'-0" — 9½" — EXIST. RAILING RESET, SEE ANCHOR BOLT DET'S SHEET 2 — 10-#4 — 10" — 8" — 18½" — CLASS 'A' MASONRY — 3/4" GROOVE — 5@12" — 7" — MAIN REINF. — #5 ANCHORS @ PIER PC CURB

SAFETY CURB DETAIL

SCALE: ½" = 1'-0"

29'-5½" — 4 SPLICES @ 5'-0½" = 22'-0⅛" — 4'-11

SOUTHBOUND PILE PLAN (PIER 1 AND 4)

SCALE 1/8" = 1'-0"

M — 12" BP 53 PILE — 12" BP 53 PILE — M — USE SINGLE BEVEL OR SINGLE VEE, BUTT WELD AS REQUIRED CONFORMING TO A.W.S. (FLANGES & WEB)

PILE SPLICE DETAILS

SCALE 1"-1'-0"

SECTION M-M

27'-5½" — 4 SPLICES @ 5'-0½" = 22'-0⅛" — 4'-11

NORTHBOUND PILE PLAN (PIER 1 AND 4)

SCALE 1/8"=1'-0"

DRAWN BY
TRACED BY
CHECKED BY

DATE	DESCRIPTION
JAN. 15, 1968	⚠ REVISION - NORTHBOUND ROADWAY - REVISED
JUNE 30, 1962	ISSUED FOR CONSTRUCTION

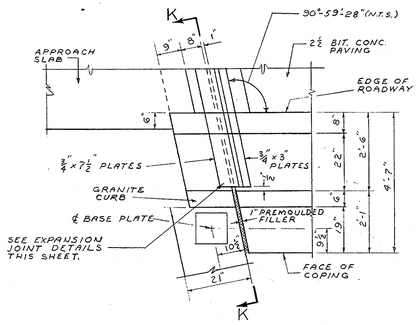
USE ONLY PRINTS OF LATEST DATE

SHEET 4 OF 5 SHEETS — BRIDGE NO. B-29-9

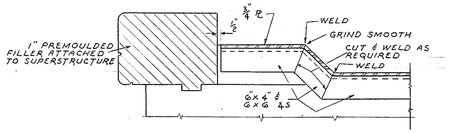
⚠ ⚠ ⚠

Bruton Blue Print-100-1-59

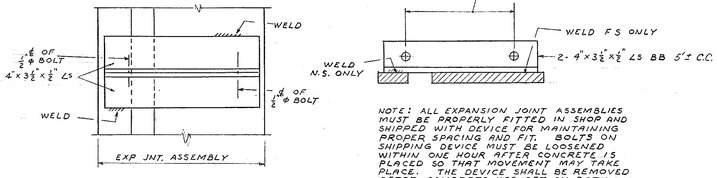
PUB. RD. DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.			113	340



PLAN OF EXPANSION JOINT AT SIDEWALK
SCALE 1/2" = 1'-0"



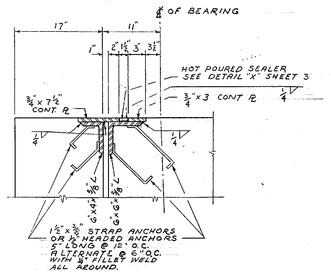
SECTION K - K
SCALE 3/4" = 1'-0"



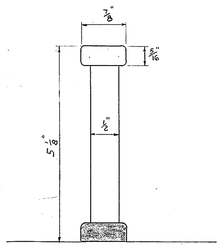
NOTE: ALL EXPANSION JOINT ASSEMBLIES MUST BE PROPERLY FITTED IN SHOP AND SHIPPED WITH DEVICE FOR MAINTAINING PROPER SPACING AND FIT. BOLTS ON SHIPPING DEVICE MUST BE LOOSENED WITHIN ONE HOUR AFTER CONCRETE IS PLACED SO THAT MOVEMENT MAY TAKE PLACE. THE DEVICE SHALL BE REMOVED AFTER CONCRETE HAS SET ON BOTH SIDES OF ASSEMBLY.

PLAN SECTION

SHIPPING DEVICE FOR EXPANSION JOINT ASSEMBLY
NO SCALE

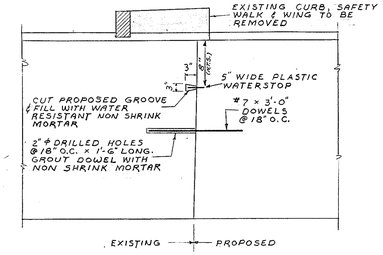


EXPANSION JOINT DETAIL AT SIDEWALK
SCALE 1"= 1'-0"



HEADED ANCHOR
NO SCALE

NOTE: HEADED ANCHOR MAY BE USED AS ALTERNATIVE FOR STRAP ANCHORS ON BENT PLATE EDGING OF CURBS ℄ ON EXP. PLATE ASSEMBLIES



CONSTRUCTION JOINT DETAIL
SCALE 1/2" = 1'-0"

DRAWN BY
DESIGNED BY
CHECKED BY

JUNE 30, 1962.	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

SHEET 5 OF 5 SHEETS BRIDGE NO. B-29-9

Bruton Blue Print-100-1-59

LEXINGTON / BURLINGTON
I-95 / ROUTE 128

FHWA DIV.NO.	STATE	FED.AID PROJ.NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MA	AC-IM-95-2(101) IM-95-2(101)	2000	42	44
PROJECT FILE NO. 602041					

RESURFACING & RELATED WORK

BRIDGE NO. L-10-11 (I-95 OVER LINCOLN)
BRIDGE NO. B-29-7 (I-95 OVER MIDDLESEX)
BRIDGE NO. B-29-9 (I-95 OVER S. BEDFORD)

GENERAL NOTES:

PLANS

PLANS FOR EXISTING BRIDGES MAY BE SEEN AT THE OFFICE OF THE BRIDGE ENGINEER, MASSACHUSETTS HIGHWAY DEPARTMENT, 10 PARK PLAZA, BOSTON, MASSACHUSETTS.

TRAFFIC

REFER TO SPECIAL PROVISIONS FOR TRAFFIC MANAGEMENT AND THE FOLLOWING: AT LEAST TWO LANES OF I-95 IN EACH DIRECTION MUST BE KEPT OPEN TO TRAFFIC AT ALL TIMES DURING CONSTRUCTION. THE ENTIRE ROADWAY MUST BE OPEN TO TRAFFIC DURING DAYTIME HOURS.

IF AND WHENEVER ANY WORK IS BEING DONE TO THE BOTTOM OF ANY SLAB (INCLUDING THE CONCRETE DIAPHRAGMS), THE TRAFFIC SHALL BE RESTRICTED FROM THE TOP OF SLAB DIRECTLY ABOVE THE AREA OF WORK TO MINIMIZE LIVE LOADING OF THE SLAB.

EXISTING CONDITIONS

DIMENSIONS SHOWN OF EXISTING DETAILS ARE TAKEN FROM THE ORIGINAL DESIGN DRAWINGS AND ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND EXISTING DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE WORK AND SHALL NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION UNTIL HE HAS MADE THE MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER. REMOVAL AND REPAIRS OF ALL UNSOUND CONCRETE IN THE BRIDGE DECK, END DIAPHRAGM AND SLAB SOFFITS, OR WHERE DETERMINED IN THE FIELD SHALL BE COORDINATED BY THE CONTRACTOR WITH THE ENGINEER. FOR DETAILS OF REINFORCING STEEL AND CONCRETE DECK REPAIRS, MATERIALS, AND CONSTRUCTION METHODS THE ENGINEER SHALL CONTACT THE DISTRICT STRUCTURES MAINTENANCE ENGINEER.

EXISTING STEEL REINFORCING BARS SHOWN ON THE PLANS IS DESIGNATED WITH ASTM STANDARD METRIC BAR REINFORCING DESIGNATION.

CONSTRUCTION SEQUENCE

FOR MIDDLESEX TURNPIKE, SOUTH BEDFORD STREET AND LINCOLN STREET UNDER I-95/128:

FOR I-95/128:

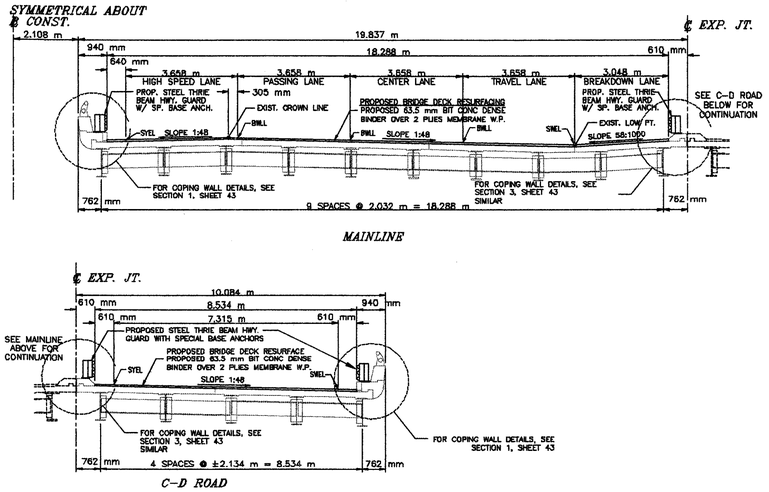
1. COLD-PLANE BITUMINOUS CONCRETE PAVEMENT PARTIAL-DEPTH.
2. REMOVE AND REPLACE UNSOUND CONCRETE IN BRIDGE DECKS, SAFETY CURBS AND COPINGS. SPOT REMOVAL OF REMAINING BITUMINOUS CONCRETE PAVEMENT WILL BE REQUIRED. REMOVAL AND RESETTING OF SOME GRANITE CURB-STONES WILL ALSO BE REQUIRED. COORDINATE CONCRETE REPAIRS WITH THE STRUCTURE MAINTENANCE ENGINEER.
3. REMOVE REMAINING BITUMINOUS CONCRETE PAVEMENT AND MEMBRANE WATERPROOFING.
4. APPLY TWO PLIES OF MEMBRANE WATERPROOFING, BITUMINOUS CONCRETE DENSE BINDER COURSE FOR BRIDGE DECKS, AND ASPHALTIC BRIDGE JOINT SYSTEMS. MINIMUM DEPTH OF THE DENSE BINDER AND ASPHALTIC BRIDGE JOINT SYSTEMS SHALL BE 63.5 MILLIMETERS.
5. INSTALL STEEL THRIE BEAM HIGHWAY GUARDS WITH SPECIAL BASE ANCHORS ON BRIDGE SAFETY CURBS. INSTALL LEADING ENDS AT THE BRIDGE APPROACHES AS SHOWN IN THESE SKETCHES.

STEEL THRIE BEAM HIGHWAY GUARD WITH SPECIAL BASE ANCHORS

1. THIS INSTALLATION IS SUITABLE FOR ALL SIDEWALKS AND SAFETY WALKS WITH WIDTHS GREATER THAN 450 mm.
2. POSTS SHALL BE SPACED AT 1.905 m OR LESS ON CENTERS.
3. ALL ANCHOR BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. EACH ADHESIVE ANCHORAGE SYSTEM SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
4. INSTALL A THRIE BEAM EXPANSION SECTION AT EACH BRIDGE EXPANSION JOINT.
5. INSTALL A DEMOUNTABLE REFLECTORIZED DELINEATOR (GUARDRAIL) IN THE UPPER VALLEY OF THE THRIE BEAM AT EACH FIFTH POST.
6. THE TRANSITION HIGHWAY GUARD TO HIGHWAY AT BRIDGE WITH SPECIAL BASE ANCHOR APPLICATION SHALL BE USED FOR BOTH LEADING AND TRAILING END APPLICATIONS.
7. INSTALL TWO ROWS OF STEEL THRIE BEAM HIGHWAY GUARD W/ SPECIAL BASE ANCHOR AT C-D ROADWAY MEDIAN AT MIDDLESEX TURNPIKE BRIDGES.
8. FACE OF W BEAM RAIL SHALL ALIGN WITH EDGE OF ROADWAY AT CURB LINE.
9. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD VERIFY TRANSITION HIGHWAY GUARD TO HIGHWAY GUARD AT BRIDGE WITH SPECIAL BASE ANCHOR TO TAPER GUARD RAIL IN ADVANCE FOR STRAIGHT LINE ALIGNMENT WITH NO KINKS OR ANGLES VISIBLE.
10. CONTRACTOR SHALL FIELD VERIFY AND CONSTRUCT ALL GUARD RAIL TO THE CONSTRUCTION AND TRAFFIC STANDARD DETAILS. THE CONTRACTOR SHALL VERIFY ALL CURBING AND EDGING AND PROVIDE THE FACE OF GUARD RAIL ALIGNMENT PLUMB WITH FACE OR EDGE OF GRANITE AT ROADWAY. GUARD RAIL SHALL BE LOCATED AT THE HIEGHT ABOVE THE ROADWAY ROADWAY PER THE PLAN DETAILS AND CONSTRUCTION AND TRAFFIC STANDARD DETAILS.

PLAN SYMBOL LEGEND

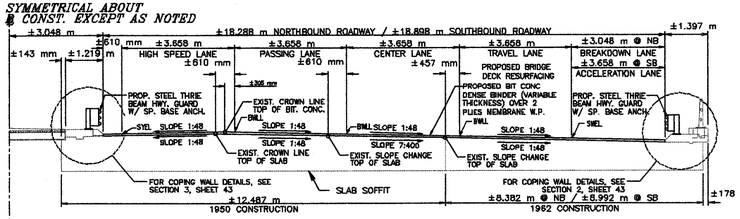
(1/42) DETAIL NUMBER / SHEET NUMBER



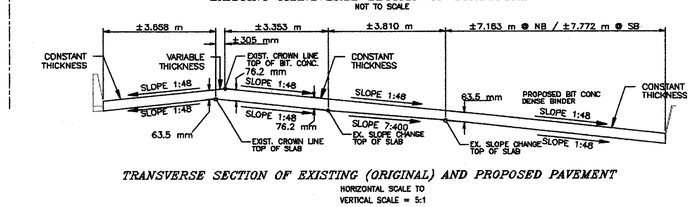
MAINLINE

C-D ROAD

(1/42) EXISTING TRANSVERSE SECTION
MIDDLESEX TURNPIKE UNDER I95 / ROUTE 128
NORTHBOUND STRUCTURE B-29-007 (2EP) LOOKING NORTH
SOUTHBOUND STRUCTURE B-29-007 (2EQ) LOOKING SOUTH
NOT TO SCALE

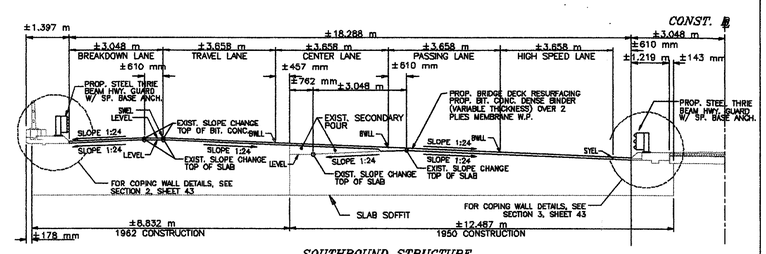


EXISTING TRANSVERSE SECTION OF STRUCTURE
NOT TO SCALE

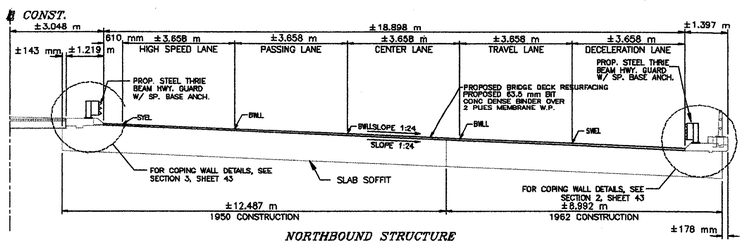


TRANSVERSE SECTION OF EXISTING (ORIGINAL) AND PROPOSED PAVEMENT
HORIZONTAL SCALE TO VERTICAL SCALE = 5:1

(2/42) EXISTING TRANSVERSE SECTION
SOUTH BEDFORD STREET UNDER I95 / ROUTE 128
NORTHBOUND STRUCTURE B-29-009 (2ER) LOOKING NORTH
SOUTHBOUND STRUCTURE B-29-009 (2ET) LOOKING SOUTH
NOT TO SCALE

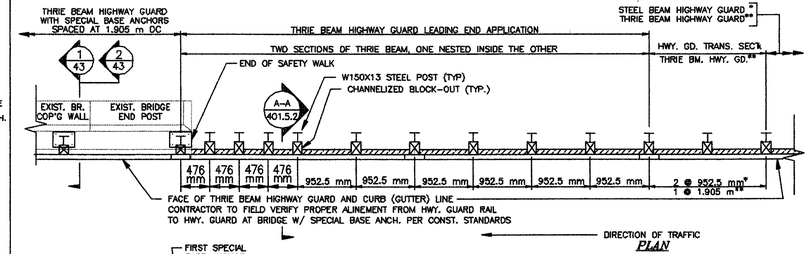


SOUTHBOUND STRUCTURE



NORTHBOUND STRUCTURE

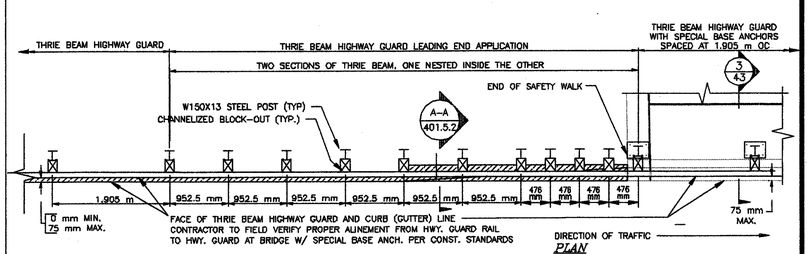
(3/42) LINCOLN STREET UNDER I-95 / ROUTE 128
EXISTING TRANSVERSE SECTION
STRUCTURE L-10-011 (2EY) LOOKING NORTH
NOT TO SCALE



(4/42) TRANSITION HWY. GUARD TO HWY. GUARD AT BRIDGE
W/ SPECIAL BASE ANCHOR
NOT TO SCALE

NOTES:

1. THESE APPLICATIONS ARE FOR BRIDGES B-29-007 (2EP & 2EQ) AS SHOWN FOR BREAKDOWN LANE AND OPPOSITE HAND FOR MEDIAN. THESE APPLICATIONS ARE ALSO FOR BRIDGES B-29-009 (2ER & 2ET) AND L-10-011 (2EY) AS SHOWN FOR BREAKDOWN LANE ONLY.
2. ALL APPLICATIONS AND FEATURES MARKED WITH AN ASTERISK (*) APPLY TO THE BREAK-DOWN LANE ONLY.
3. ALL APPLICATIONS AND FEATURES MARKED WITH A DOUBLE ASTERISK (**) APPLY TO THE MEDIAN ONLY.
4. SECTION 1, SHEET 43 APPLY TO BRIDGE B-29-007 (2EP & 2EQ).
5. SECTION 2, SHEET 43 APPLY TO BRIDGES B-29-009 (2ER & 2ET) AND L-10-011 (2EY) AT BREAKDOWN LANE ONLY.
6. STEEL BEAM HIGHWAY GUARD AND STEEL THRIE BEAM HIGHWAY GUARD, INCLUDING TRAILING AND LEADING ENDS AND THRIE BEAM TO W BEAM TRANSITION SECTIONS, SHALL BE FLUSH WITH GRANITE CURB WHERE SAID CURB IS DESIGNATED TO REMAIN OR BE INSTALLED ON HIGHWAY PLANS.
7. FOR TYPE A BERM TO GRANITE CURB TRANSITION SECTIONS REFER TO CONST. & TRAFFIC STANDARD DETAILS DWG. 401.5.1



(5/42) TRANSITION HWY. GUARD TO HWY. GUARD AT BRIDGE
W/ SPECIAL BASE ANCHOR
NOT TO SCALE

NOTES:

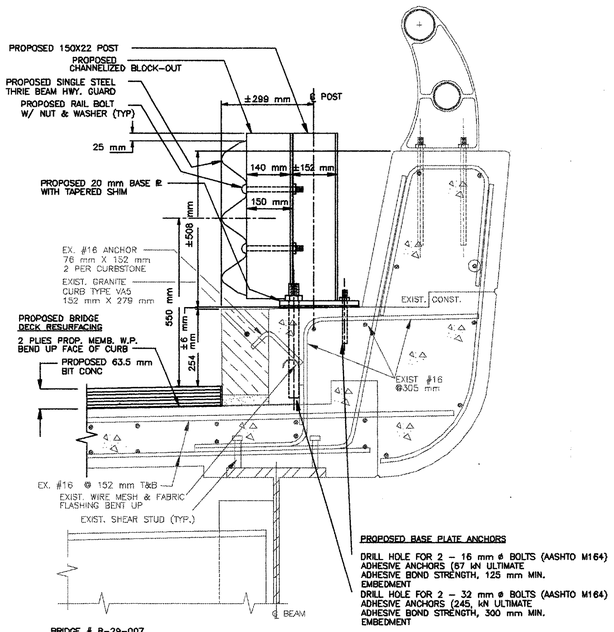
1. THESE APPLICATIONS ARE FOR BRIDGES B-29-009 (2ER & 2ET) AND L-10-011 (2EY) AS SHOWN FOR MEDIAN ONLY.
2. STEEL BEAM HIGHWAY GUARD AND STEEL THRIE BEAM HIGHWAY GUARD, INCLUDING TRAILING AND LEADING ENDS AND THRIE BEAM TO W BEAM TRANSITION SECTIONS, SHALL BE, WHERE POSSIBLE, FLUSH WITH GRANITE CURB WHERE SAID CURB IS DESIGNATED TO REMAIN OR BE INSTALLED ON HIGHWAY PLANS.
3. FOR TYPE A BERM TO GRANITE CURB TRANSITION SECTIONS REFER TO CONST. & TRAFFIC STANDARD DETAILS DWG. 401.5.1
4. PLAN DETAIL AT END OF BRIDGE IS AS SHOWN FOR BRIDGE B-29-009 (2ER & 2ET). FOR PLAN DETAIL AT END OF BRIDGE L-10-011 (2EY) SEE DETAIL 5 SHEET 44

LEXINGTON / BURLINGTON
I-95 / ROUTE 128

FHWA DIV.NO.	STATE	FED.AID PROJ.NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MA	AC-IM-95-2(101) IM-95-2(101)	2000	43	44
PROJECT FILE NO. 602041					

RESURFACING & RELATED WORK

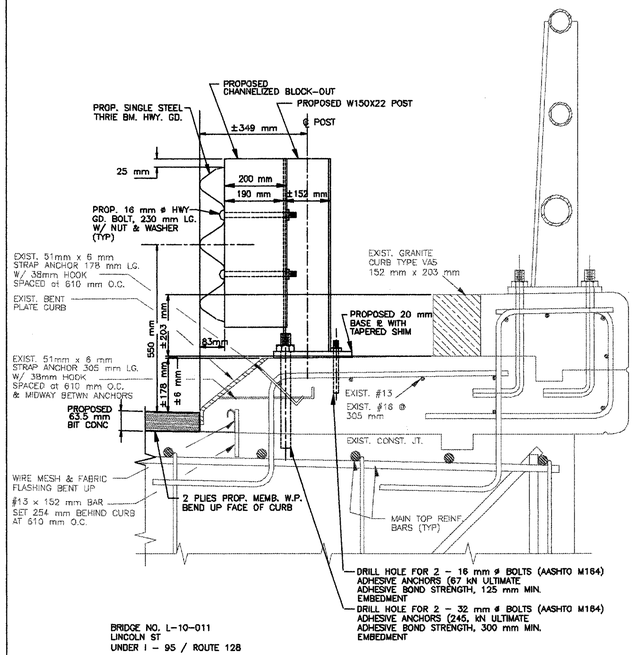
BRIDGE NO. L-10-11 (I-95 OVER LINCOLN)
BRIDGE NO. B-29-7 (I-95 OVER MIDDLESEX)
BRIDGE NO. B-29-9 (I-95 OVER S. BEDFORD)



BRIDGE # B-29-007
MIDDLESEX TURNPIKE
UNDER I - 95 / ROUTE 128

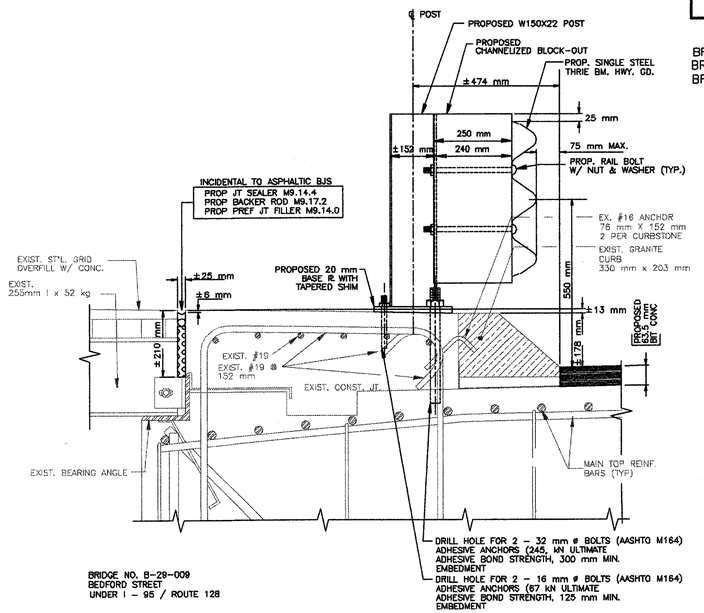
1/43 SECTION 1 - COPING WALL DETAIL
NOT TO SCALE

NOTE: SHOULDER SECTION SAME FOR OPEN BRIDGE WELL AT MEDIAN



BRIDGE NO. L-10-011
LINCOLN ST
UNDER I - 95 / ROUTE 128

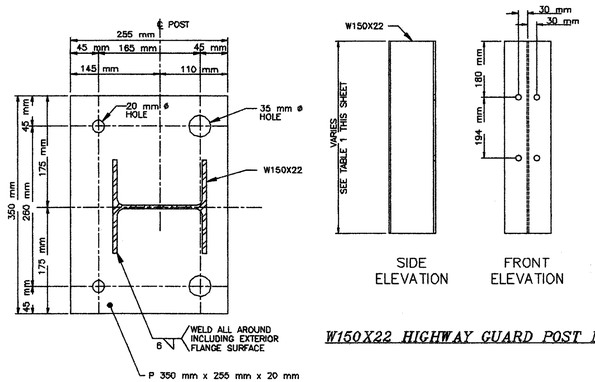
2/43 SECTION 2 - COPING WALL DETAIL
NOT TO SCALE



BRIDGE NO. B-29-009
BEDFORD STREET
UNDER I - 95 / ROUTE 128

MIDDLESEX TURNPIKE MEDIAN
BETWEEN CD ROADWAY AND MAINLINE

3/43 SECTION 3 - COPING WALL DETAIL
NOT TO SCALE



BASE PLATE DETAIL
SCALE = 1:5

W150X22 HIGHWAY GUARD POST DETAILS

TABLE 1		
BRIDGE	LOCATION	POST HEIGHT
B-29-007 (2EP & 2EQ)	TYPICAL COPING WALL	543 mm ±3 mm
B-29-009 (2ER & 2ET)	MEDIAN	621 mm ±3 mm
	SHOULDER	622 mm ±3 mm
L-10-011 (2EY)	MEDIAN	621 mm ±3 mm
	SHOULDER	622 mm ±3 mm

4/43 BASE PLATE AND POST DETAILS
STEEL THRIE BEAM HWY. GUARD W/ SPECIAL BASE ANCHOR
NOT TO SCALE

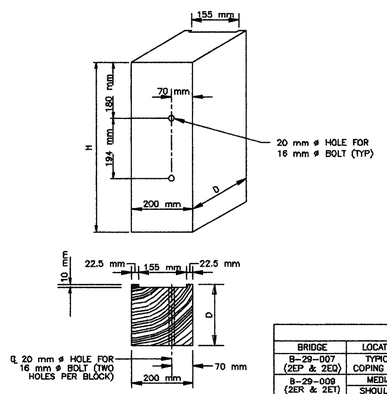
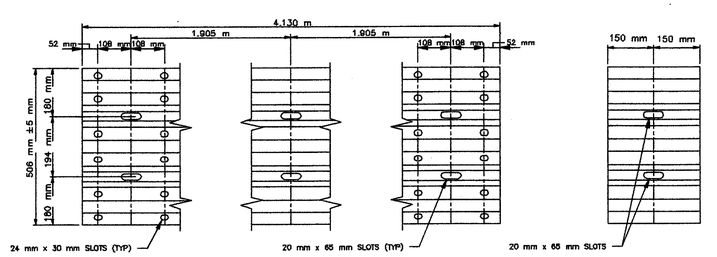


TABLE 2			
BRIDGE	LOCATION	BLOCK DEPTH "D"	BLOCK HEIGHT "H"
B-29-007 (2EP & 2EQ)	TYPICAL COPING WALL	150 mm	540 mm
B-29-009 (2ER & 2ET)	MEDIAN	250 mm	550 mm
	SHOULDER	200 mm	550 mm
L-10-011 (2EY)	MEDIAN	250 mm	550 mm
	SHOULDER	200 mm	550 mm

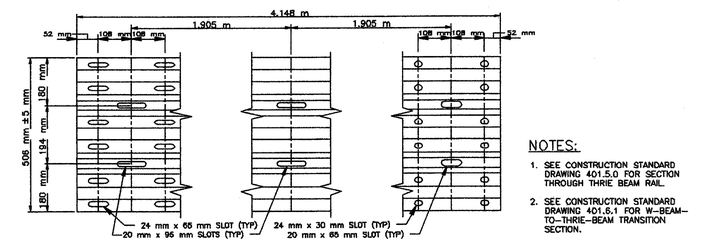
NOTES:
CONTRACTOR SHALL VERIFY CHANNELIZED BLOCK DIMENSIONS. COPING WALL DETAILS VARY. FIELD VERIFY, FURNISH AND INSTALL CHANNELIZED BLOCK-OUTS AS REQUIRED TO ALIGN FACE OF GUARD RAIL PER COPING WALL DETAILS.

5/43 CHANNELIZED BLOCK-OUT DETAILS
STEEL THRIE BEAM HWY. GUARD W/ SPECIAL BASE ANCHOR
NOT TO SCALE



TYPICAL THRIE BEAM PANEL

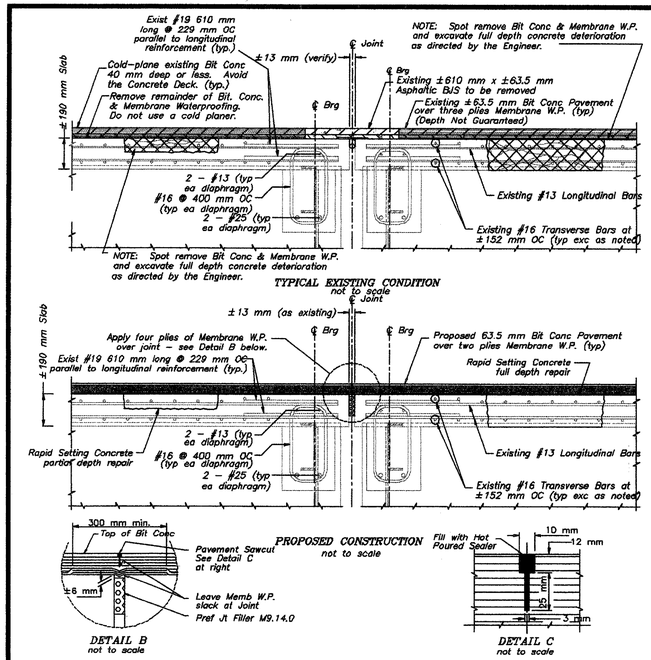
BACK-UP PLATE



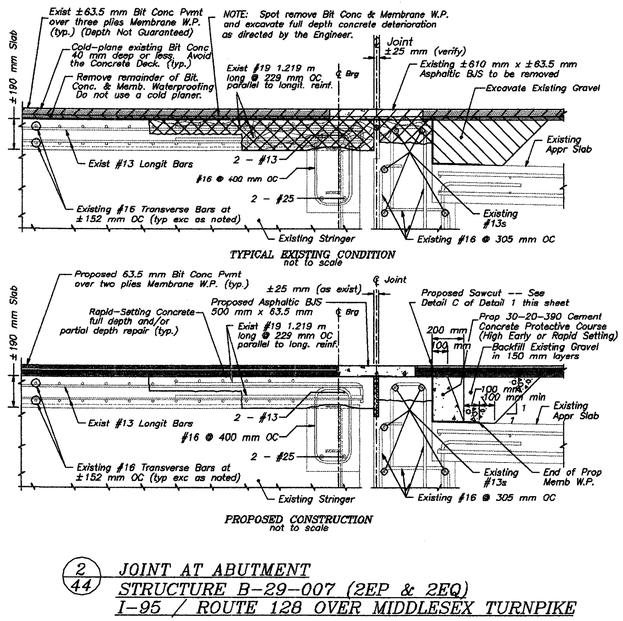
TYPICAL THRIE BEAM EXPANSION SECTION

NOTES:
1. SEE CONSTRUCTION STANDARD DRAWING 401.5.0 FOR SECTION THROUGH THRIE BEAM RAIL.
2. SEE CONSTRUCTION STANDARD DRAWING 401.6.1 FOR W-BEAM-TO-THRIE-BEAM TRANSITION SECTION.

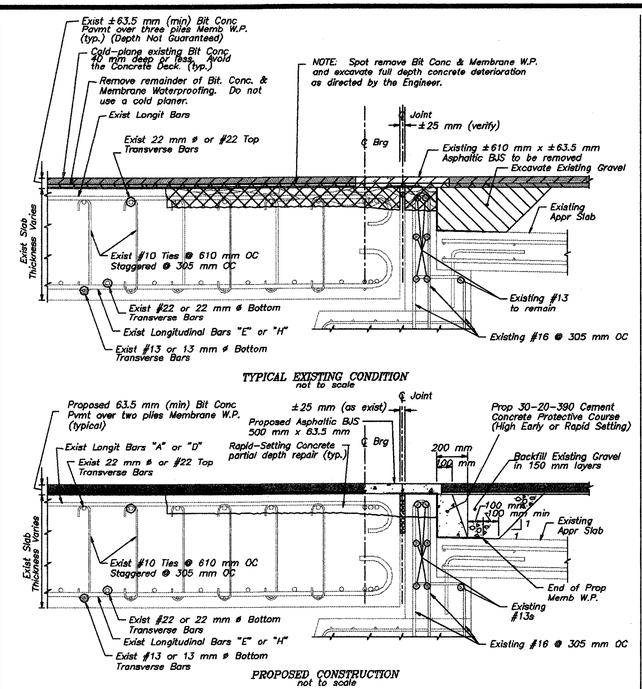
6/43 HIGHWAY GUARD RAIL DETAILS
STEEL THRIE BEAM HWY. GUARD W/ SPECIAL BASE ANCHOR
NOT TO SCALE



1/44 *JOINT AT CENTER PIER*
STRUCTURE B-29-007 (2EP & 2EQ)
I-95 / ROUTE 128 OVER MIDDLESEX TURNPIKE



2/44 *JOINT AT ABUTMENT*
STRUCTURE B-29-007 (2EP & 2EQ)
I-95 / ROUTE 128 OVER MIDDLESEX TURNPIKE



3/44 *JOINT AT ABUTMENT*
BURLINGTON-S. BEDFORD ST. - B-29-009 (2ER & 2ET)
LEXINGTON-LINCOLN ST - L-10-011 (2EY)

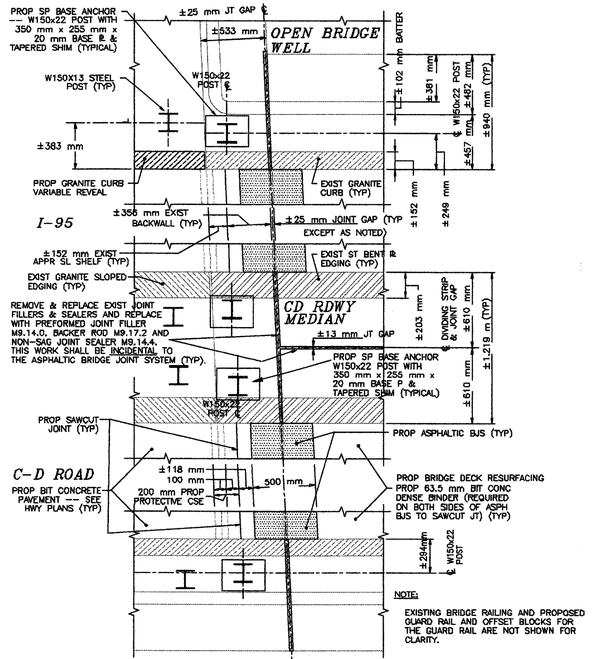
LEXINGTON / BURLINGTON
I-95 / ROUTE 128

FHWA DIV.NO.	STATE	FED.AID PROJ.NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MA	AC-IM-95-2(101) IM-95-2(101)	2000	44	44
PROJECT FILE NO. 602041					

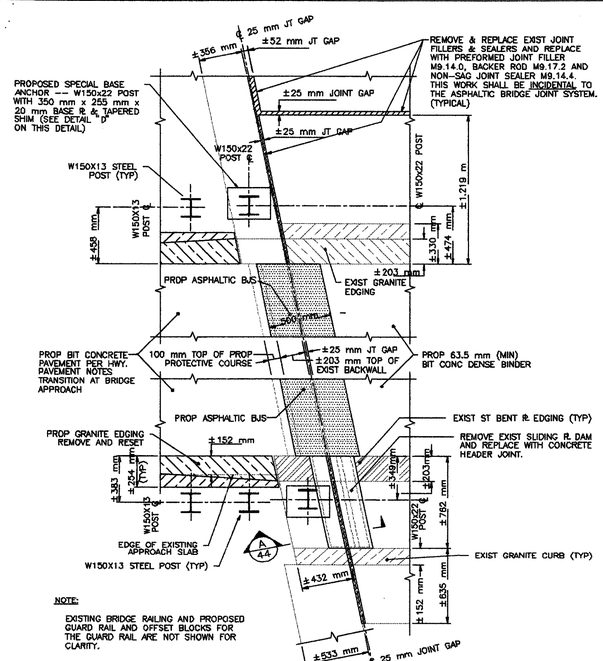
RESURFACING & RELATED WORK
BRIDGE NO. L-10-11 (I-95 OVER LINCOLN)
BRIDGE NO. B-29-7 (I-95 OVER MIDDLESEX)
BRIDGE NO. B-29-9 (I-95 OVER S. BEDFORD)

NOTES:

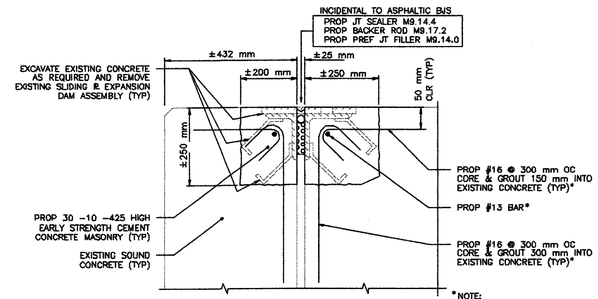
1. Hatched areas shown thus (▨, ▧ or ▩) denotes portion of existing structure to be removed.
2. Deteriorated concrete in the deck slabs at the joint gap and in the diaphragm encasements is not shown for clarity.
3. Deteriorated concrete in diaphragm encasements is not shown for clarity.
4. Deteriorated concrete in slab soffit and bridge seat is not shown for clarity.
5. All existing rebars to remain, whenever deteriorating concrete is removed.
6. For any bridge work, full depth or partial depth concrete repairs or any other issue with bridge work, consult with the Engineer. All work must have prior approval of District Four Structures Maintenance Engineer and must not exceed the contract quantities. Any E.W.O. must have prior approval before work is started.



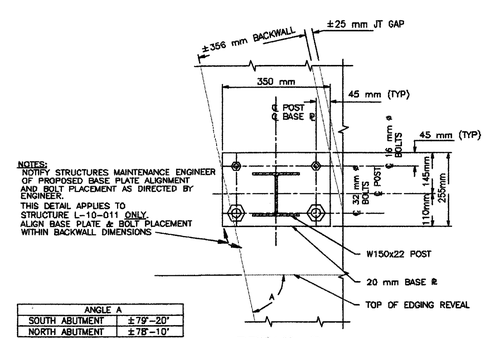
4/44 *HALF SQUARE PLAN DETAIL -- JOINT AT ABUTMENT*
I-95 / ROUTE 128 OVER MIDDLESEX TURNPIKE
STRUCTURE B-29-007 (2EP & 2EQ) NOT TO SCALE



5/44 *PLAN DETAIL -- JOINT AT ABUTMENT*
LEXINGTON - LINCOLN ST. STRUCTURE L-10-011 (2EY) AS SHOWN
BURLINGTON/S. BEDFORD ST. STRUCT. B-29-009 (2ER & 2ET) SIMILAR
NOT TO SCALE



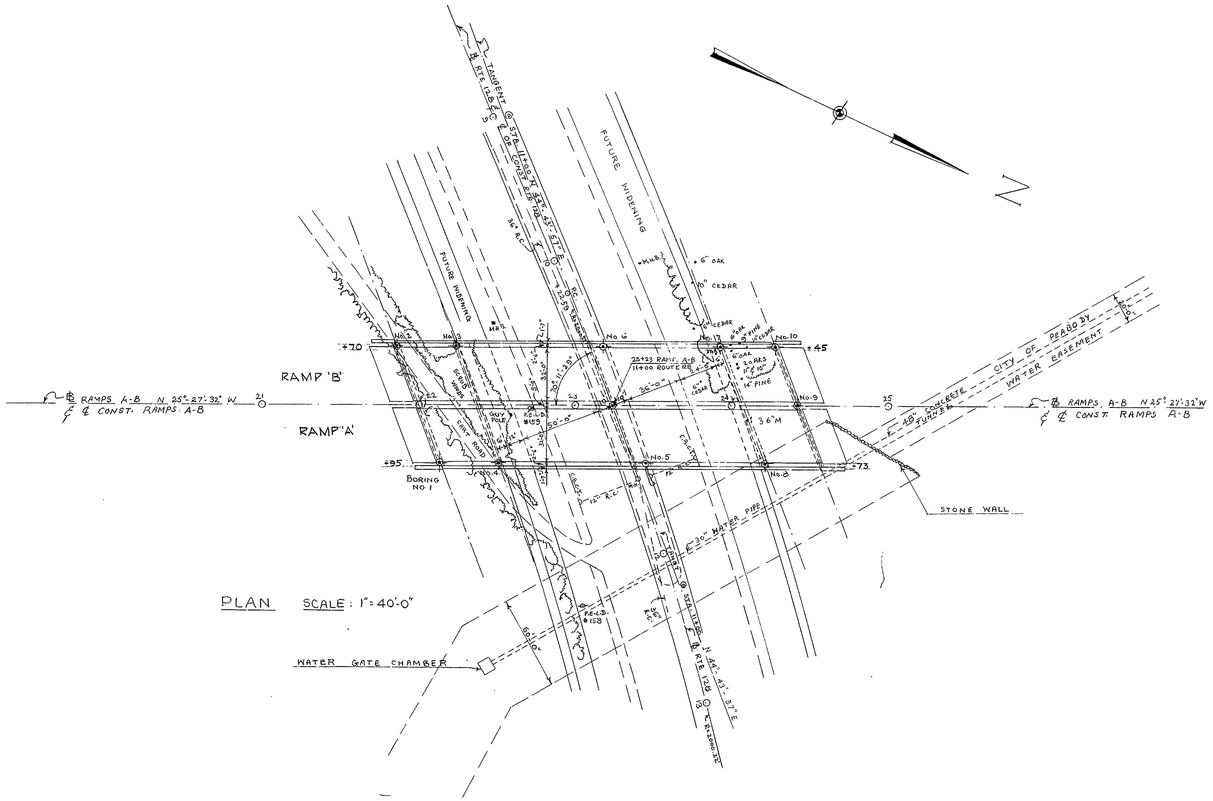
A 44 *SECTION*
NOT TO SCALE



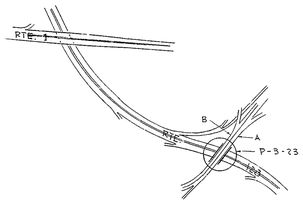
ANGLE A	
SOUTH ABUTMENT	±79°-20'
NORTH ABUTMENT	±78°-10'

DETAIL D
not to scale

PUB. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	U 272 (30)		141	430



PLAN SCALE: 1" = 40'-0"



LOCUS PLAN

NOTE:

SEE SHEET 2 FOR BORING LOG

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 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:
LOCATIONS OF 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 IN CONNECTION WITH CONSTRUCTION OF THE BRIDGE
FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE 2" O.D. SPLIT BARREL SAMPLER 1 FOOT USING 140 LB. WEIGHT FALLING 30 INCHES

DESIGN:
IN ACCORDANCE WITH THE CURRENT SPECIFICATIONS OF THE A.A.S.H.O. FOR H 20-S16-44 LOADING (1957 EDITION) MODIFIED FOR MILITARY LOADING

BENCH MARKS:
B.M. STA. 4+50 (OLD RTE 128 ℄) LT. 40' CHIS. □ CORNER C.B.
STONE EL. 125.98 SEA LEVEL DATUM OF 1929

DATE SEAL:
TO BE PLACED ON THE INSIDE FACES OF THE NORTHWESTERLY AND SOUTHEASTERLY END POSTS AS SHOWN IN DETAIL ON SHEET 11
A SHEET SHOWING SIZE & CHARACTER OF NUMERALS WILL BE FURNISHED.
SEAL WILL BE FURNISHED BY THE COMMONWEALTH, AND PLACED BY THE CONTRACTOR.

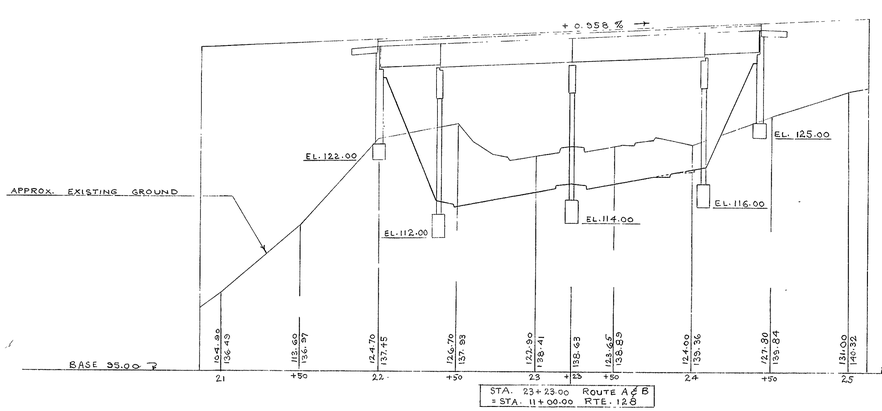
ESTIMATED QUANTITIES
(NOT GUARANTEED)

BRIDGE EXCAVATION	1300 CU. YDS.
GRAVEL BORROW	1000 CU. YDS.
CLASS I BIT. CONC. PAVEMENT TYPE I-1	261 TONS
BRIDGE STRUCTURE (P-3-23)	1 LUMP SUM
CLASS "B" ROCK EXCAVATION	10 CU YDS.

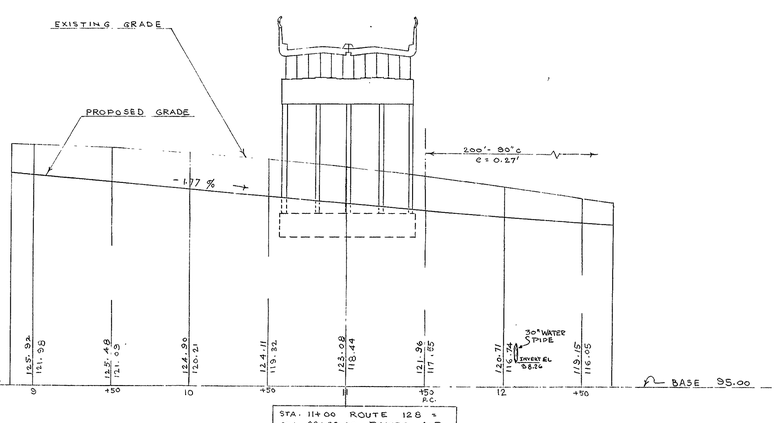
NOTE:

REINFORCING STEEL	239,000 LBS.
STRUCTURAL STEEL	671,000 LBS.

THESE ITEMS ARE PART OF THE LUMP SUM FOR BRIDGE STRUCTURE (P-3-23) AND ARE NOT GUARANTEED



PROFILE RAMPS A & B SCALE: HORIZ. 1" = 40'-0" VERT. 1" = 8'-0"



PROFILE ROUTE 128 SCALE: HORIZ. 1" = 40'-0" VERT. 1" = 8'-0"

JULY 25, 1959	ISSUED FOR CONSTRUCTION

THE COMMONWEALTH OF MASSACHUSETTS
PROPOSED BRIDGE
PEABODY
RAMPS A & B - STATION 23+23
OVER CIRCUMFERENTIAL HIGHWAY
SCALE AS NOTED

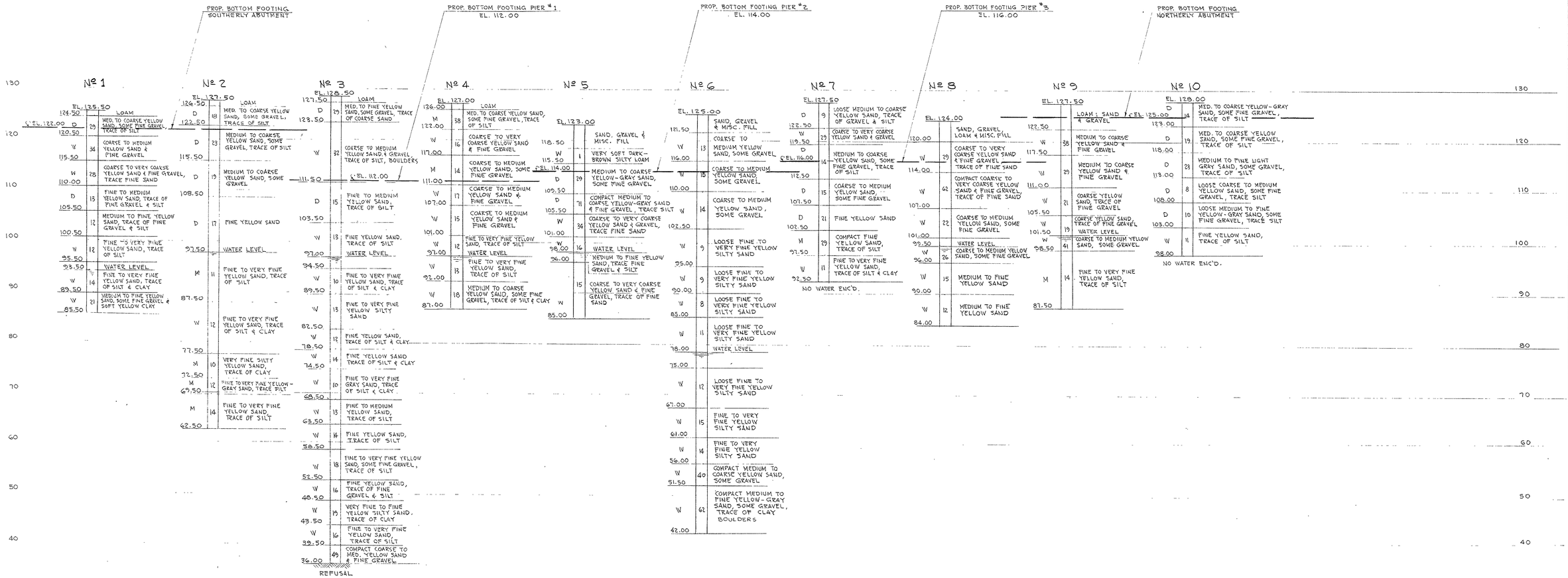
OFFICE OF
DEPARTMENT OF PUBLIC WORKS
100 NASHUA ST. BOSTON, MASS.
JULY 1959

CONSULTING ENGINEERS
C.J. D'AMATO & ASSOC.
BOSTON MASS.

J.J. Kane — BRIDGE ENGINEER
E.J. McCarthy — CHIEF ENGINEER

SHEET 1 OF 11 SHEETS BRIDGE Nº P-3-23

PUB. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	U272(36)		142	430



BORING DATA

SCALE: 1" = 1'-0"

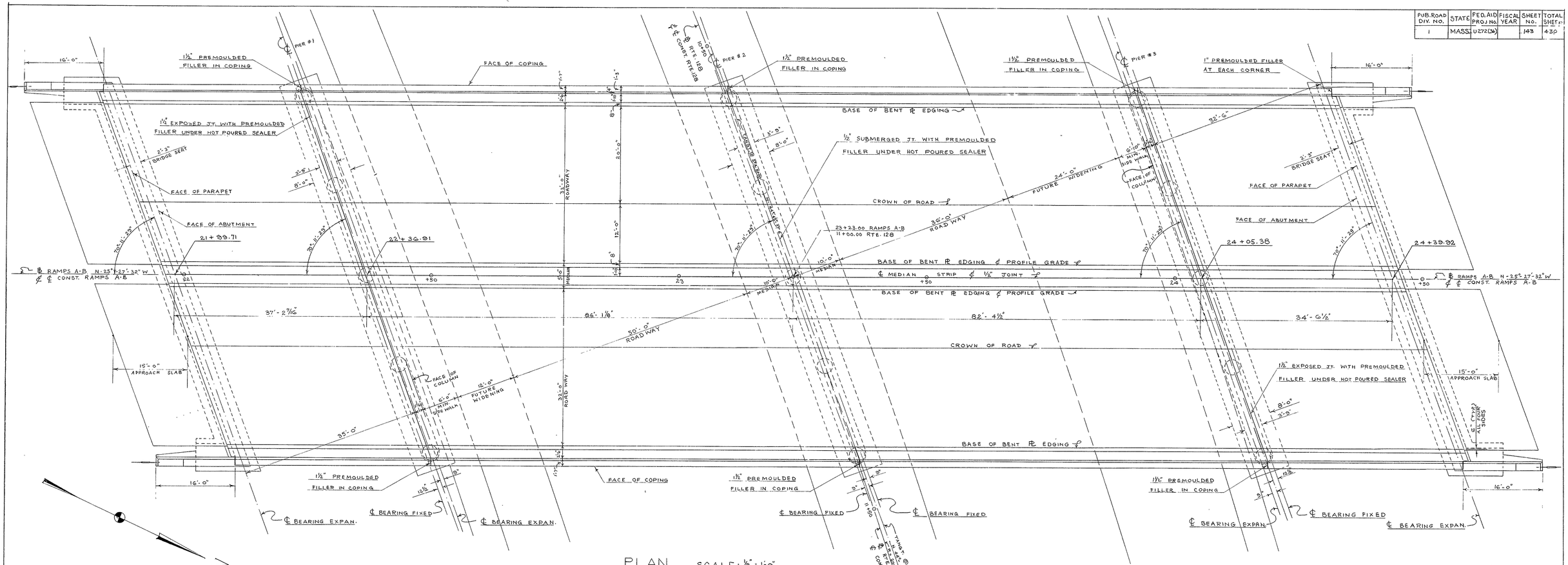
D = DRY
M = MOIST
W = WET

NOTES:

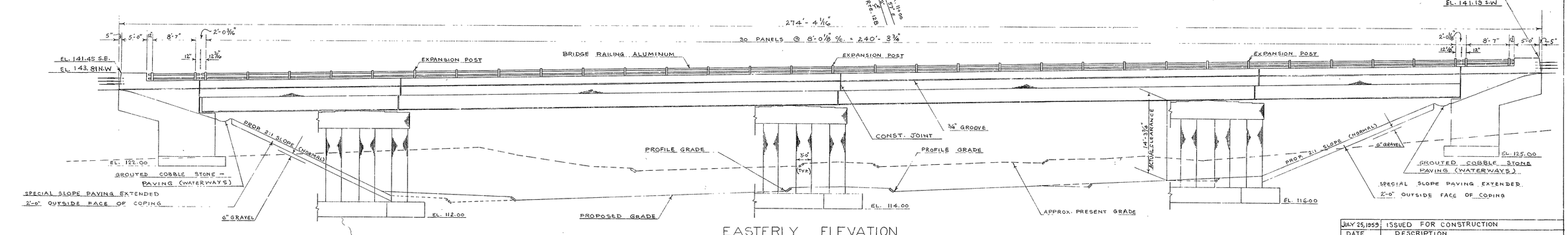
1. BORINGS TAKEN ON NOV. 28, 1958 BY CARR CONSTRUCTION CORPORATION.
2. LOCATIONS OF BORINGS SHOWN ON KEY PLAN THUS -⊙- No. 1
3. BORINGS TAKEN FOR PURPOSE OF DESIGN AND SHOW CONDITIONS AT BORING POINTS ONLY, BUT DO NOT NECESSARILY SHOW NATURE OF MATERIALS TO BE ENCOUNTERED DURING CONSTRUCTION.
4. FIGURES IN COLUMNS INDICATE NUMBER OF BLOWS REQUIRED TO DRIVE 2" O.D. SPLIT BARREL SAMPLER ONE FOOT, USING 140-LB. WEIGHT FALLING 30 INCHES.
5. BORING SAMPLES MAY BE SEEN AT THE DEPARTMENT'S LABORATORY IN THE MAINTENANCE BUILDING ON ROUTE 9 IN WELLESLEY.

DATE	DESCRIPTION
JULY 25, 1959	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

PUB. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	U272(36)		143	430



PLAN SCALE: ⅛" = 1'-0"

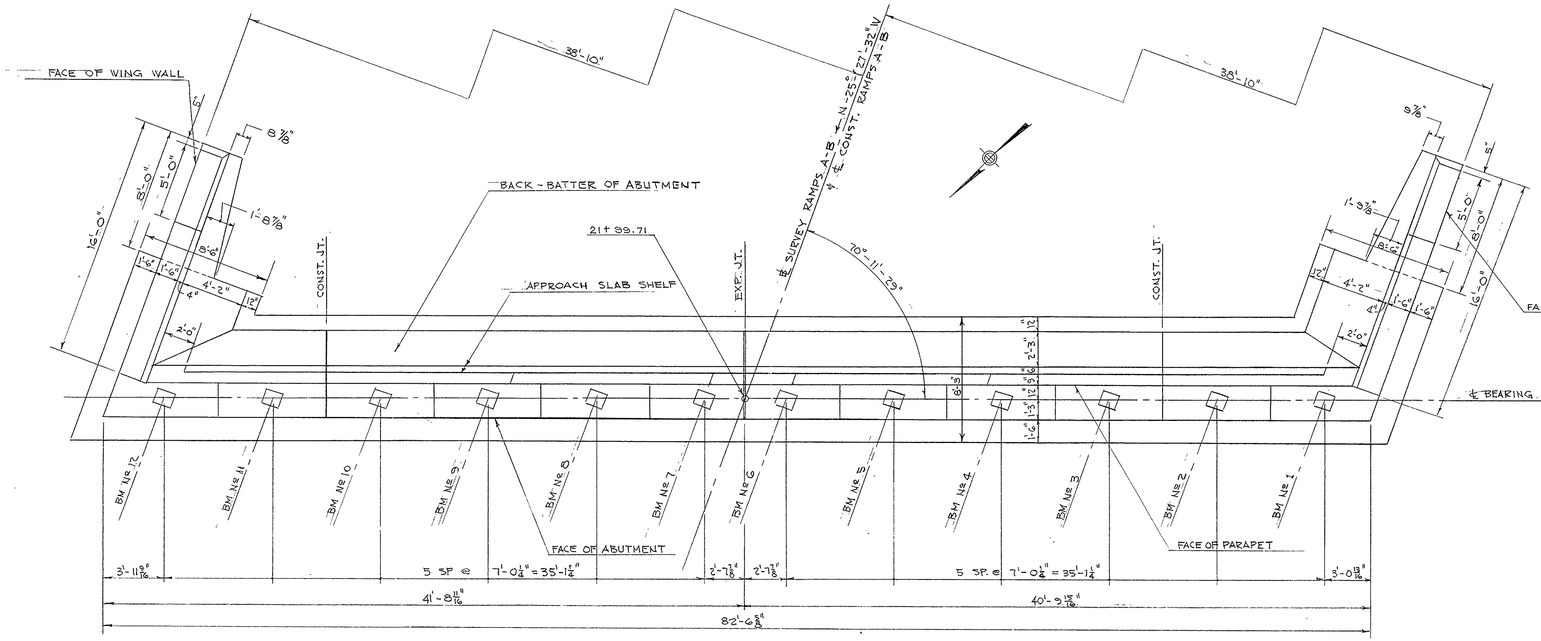


EASTERLY ELEVATION (WESTERLY ELEV. SIMILAR) SCALE: ⅛" = 1'-0"

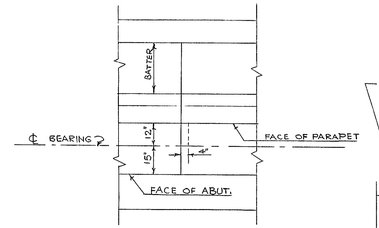
DATE	DESCRIPTION
JULY 25, 1959	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

SHEET 3 OF 11 SHEETS BRIDGE Nº P-3-23

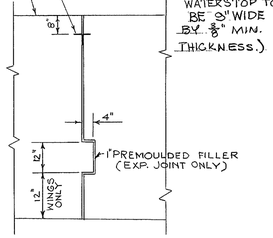
PUB. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	U272(36)		T-4	430



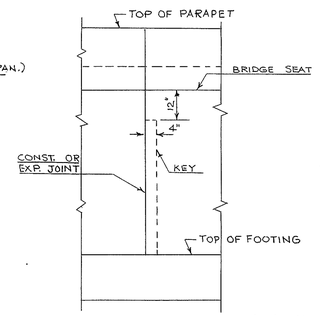
PLAN OF SOUTH ABUTMENT
SCALE: 1/4" = 1'-0"



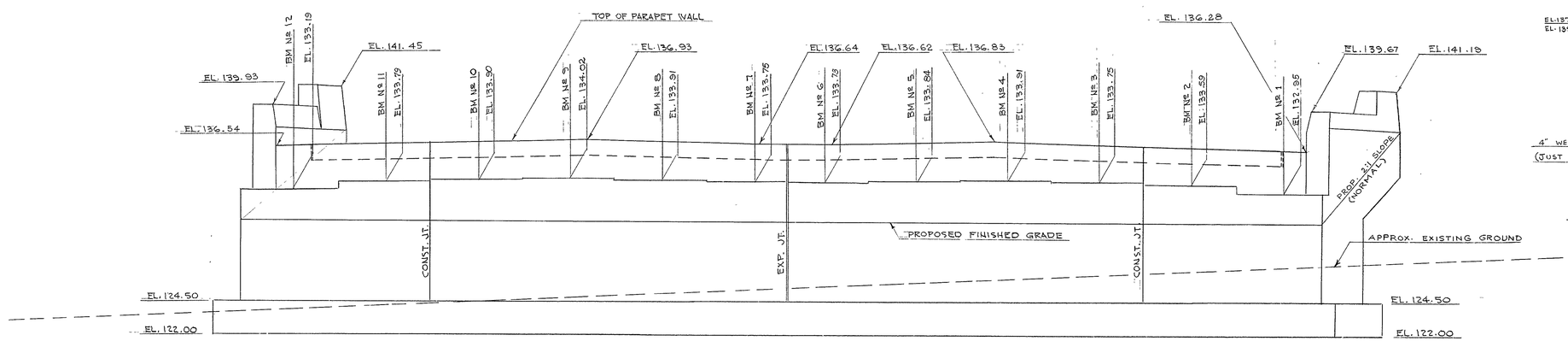
PLAN OF ABUTMENT
NO SCALE



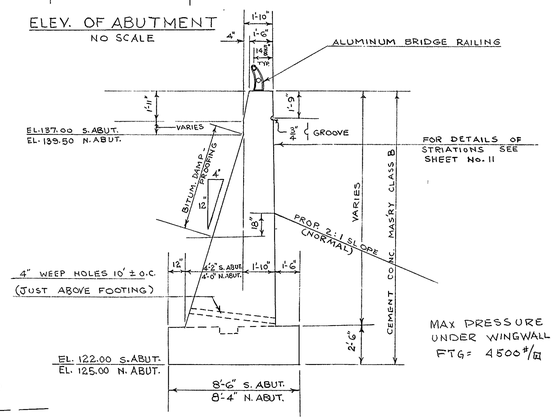
HORIZONTAL SECTION
NO SCALE



ELEV. OF ABUTMENT
NO SCALE



ELEVATION OF SOUTH ABUTMENT
SCALE: 1/4" = 1'-0"

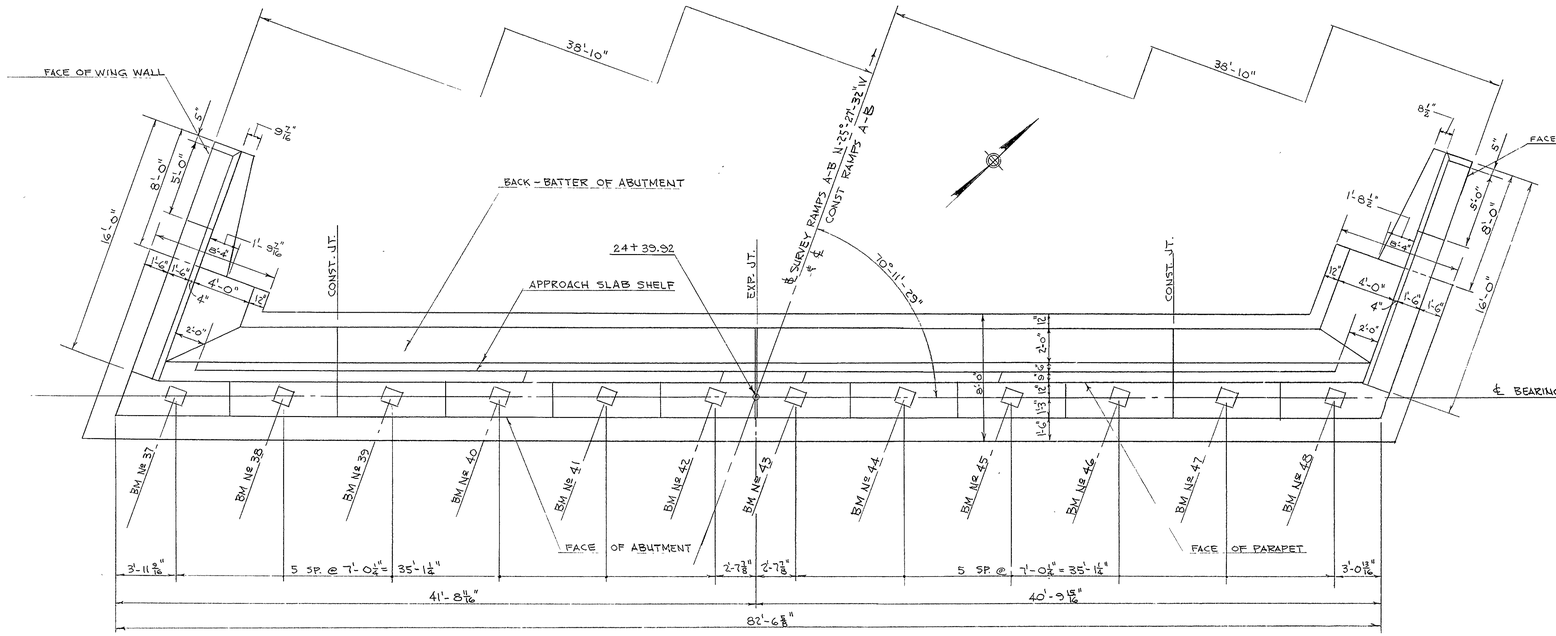


TYPICAL WINGWALL SECTION
SCALE: 1/4" = 1'-0"

MAX PRESSURE UNDER WINGWALL
FTG = 4500 #/□

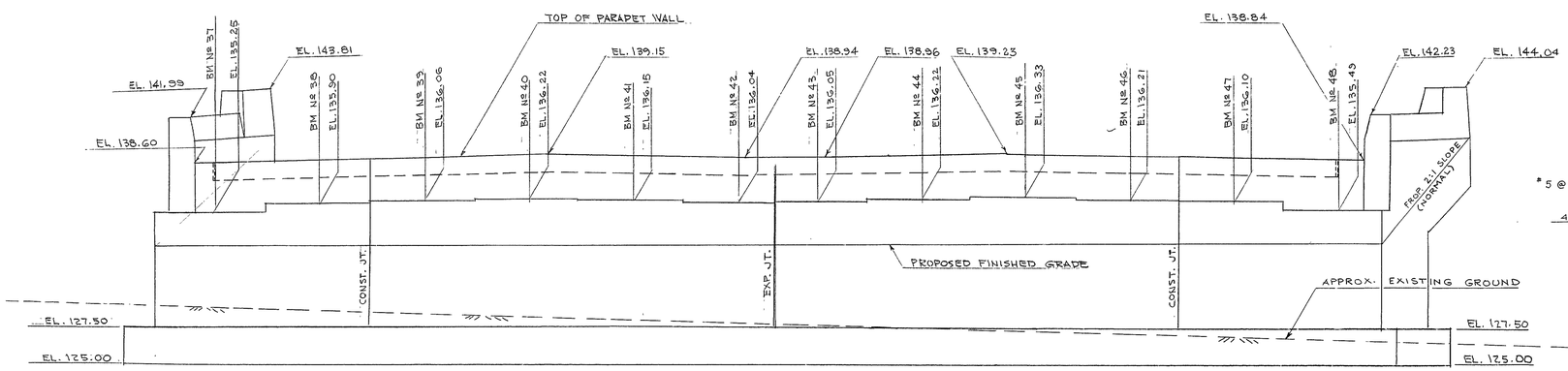
JULY 25, 1989	ISSUED FOR CONSTRUCTION
	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE

PUB ROAD DIV NO.	STATE	FED AID PROJ. NO	FISCAL YEAR	SHEET NO	TOTAL SHEETS
1	MASS.	0312(38)		14-5	4-30



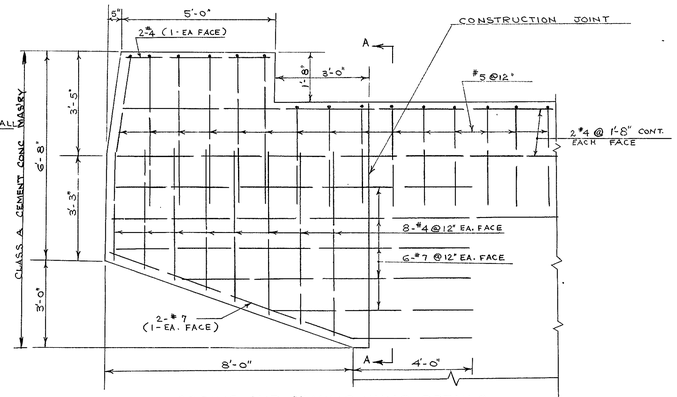
PLAN OF NORTH ABUTMENT

SCALE: 1/4" = 1'-0"



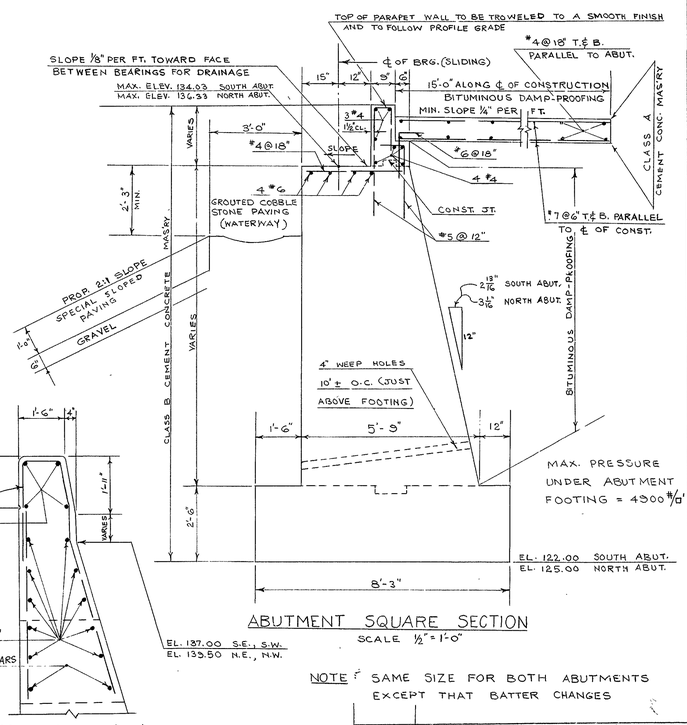
ELEVATION OF NORTH ABUTMENT

SCALE: 1/4" = 1'-0"



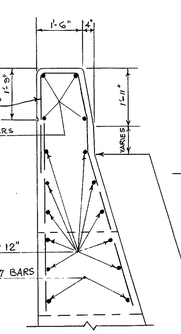
COPING AND FLYING WING DETAILS

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



ABUTMENT SQUARE SECTION

SCALE 1/2" = 1'-0"



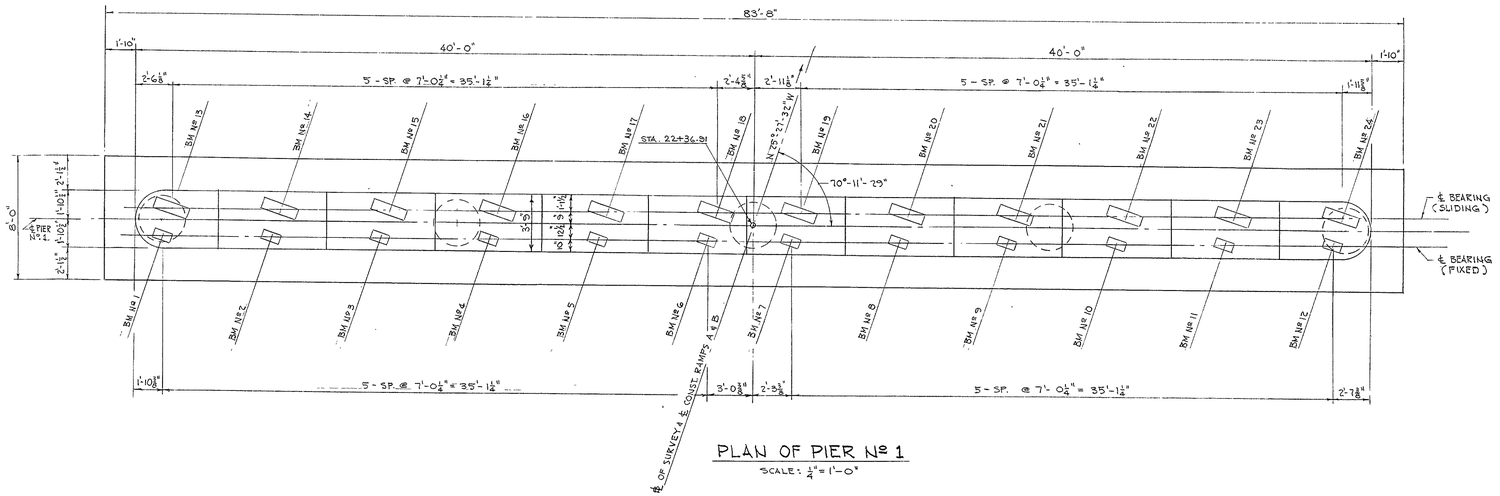
SECTION A-A

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

NOTE: SAME SIZE FOR BOTH ABUTMENTS EXCEPT THAT BATTER CHANGES

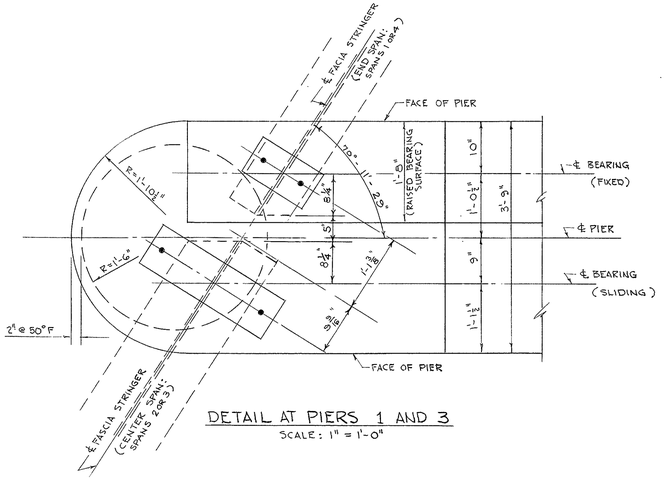
JULY 25, 1959	ISSUED FOR CONSTRUCTION
	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE

PUB. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	~~MASS.~~	U272(26)		146	430



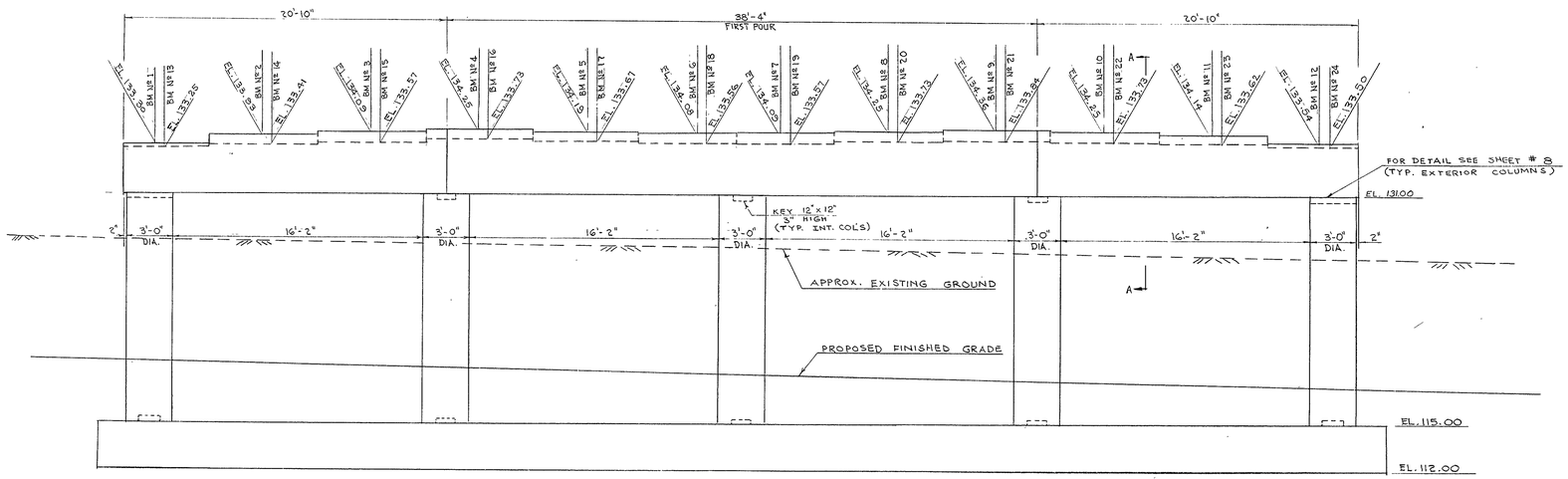
PLAN OF PIER Nº 1

SCALE: ¼" = 1'-0"



DETAIL AT PIERS 1 AND 3

SCALE: 1" = 1'-0"



EASTERLY ELEVATION OF PIER Nº 1

SCALE: ¼" = 1'-0"

NOTE: ALL PIERS CLASS "A" CEMENT CONCRETE MASONRY

FOR PIER REINFORCEMENT SEE SHEET # 7

DATE	DESCRIPTION
JULY 25, 1969	ISSUED FOR CONSTRUCTION
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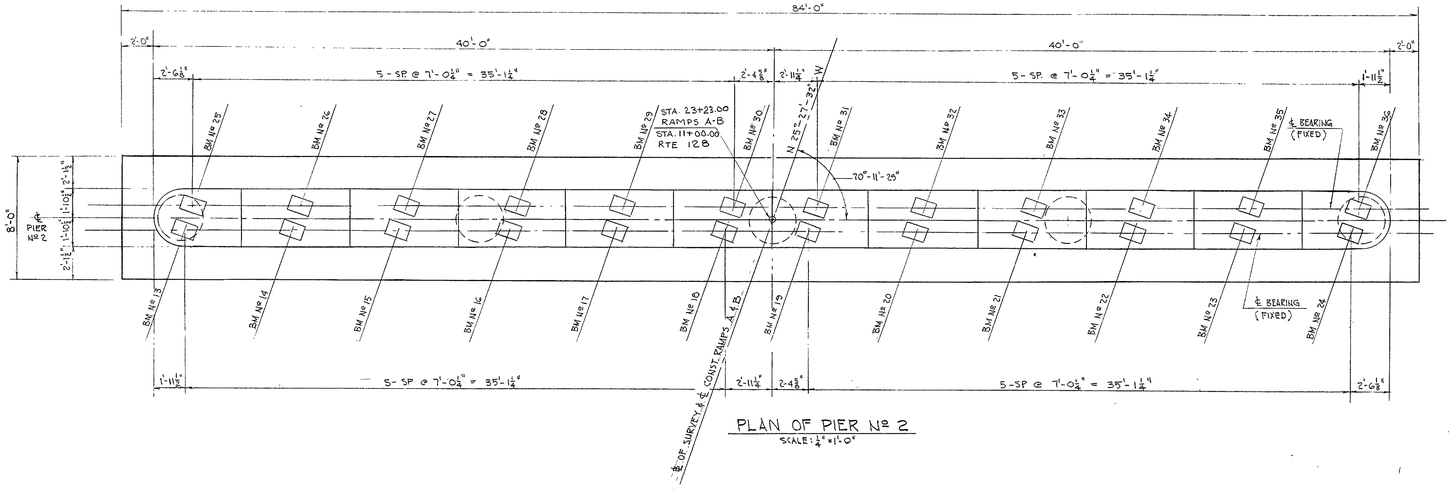
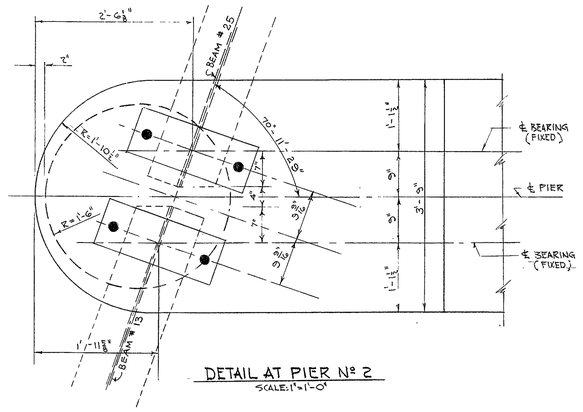
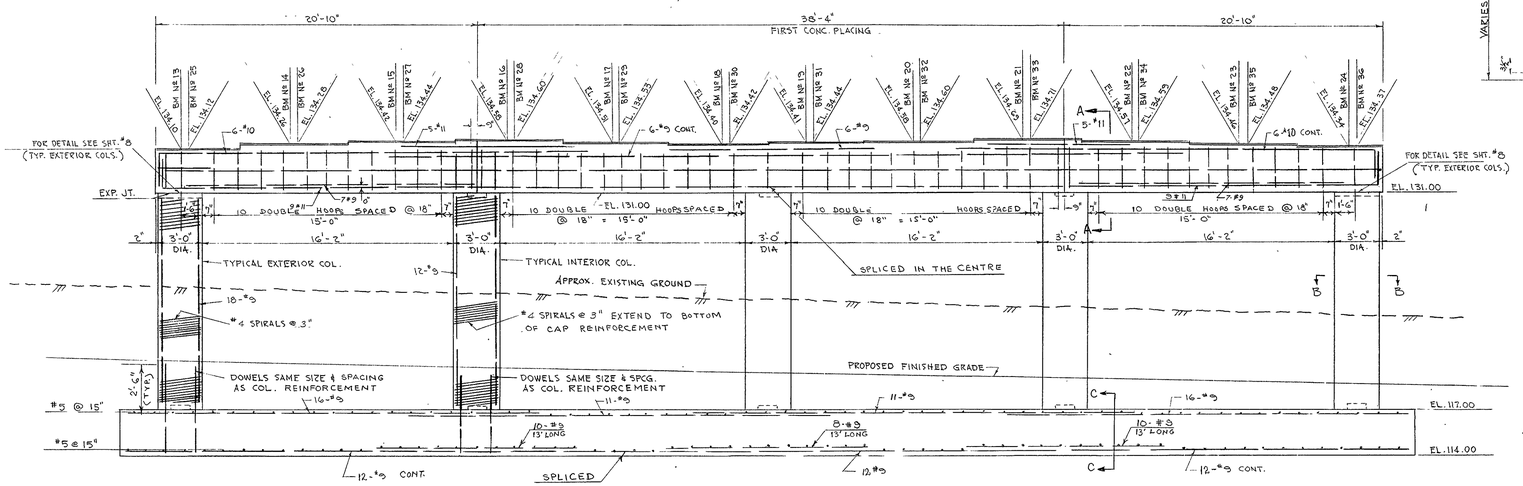
PUB. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	U272(36)		147	430



PLAN OF PIER Nº 2
SCALE: ¼" = 1'-0"



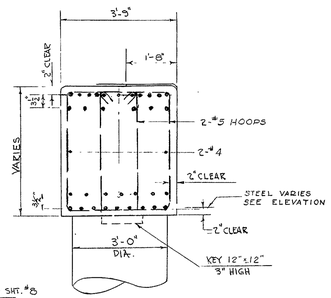
DETAIL AT PIER Nº 2
SCALE: 1" = 1'-0"



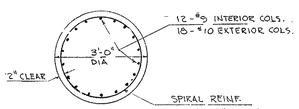
EASTERLY ELEVATION OF PIER Nº 2
SCALE: ¼" = 1'-0"

MAX. BEARING PRESSURE UNDER PIER FOOTING — 4000 LBS. PER SQ. FEET

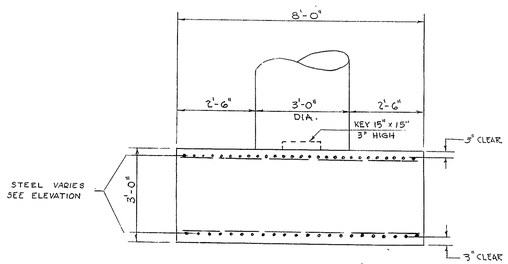
(REINF. TYPICAL ALL PIERS)



SECTION A-A
SCALE: ½" = 1'-0"



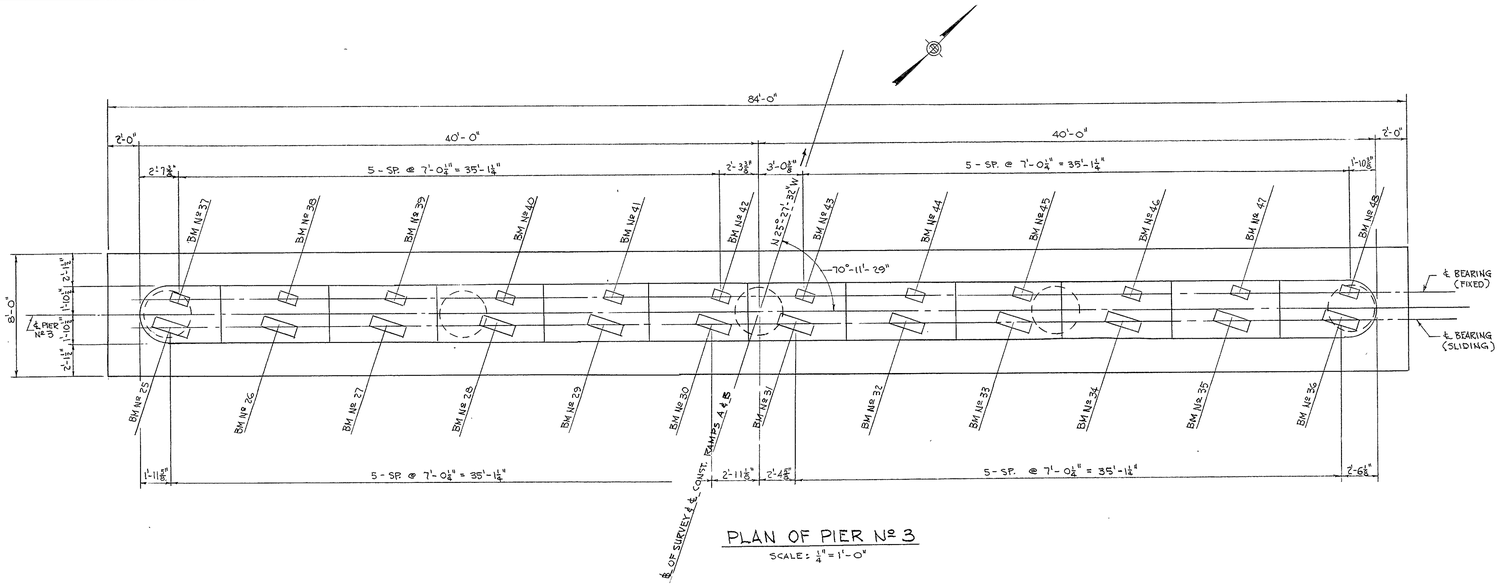
SECTION B-B
SCALE: ½" = 1'-0"



SECTION C-C
SCALE: ½" = 1'-0"

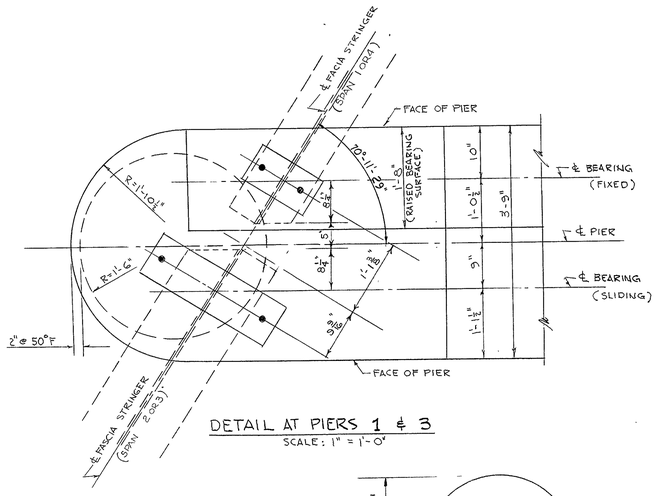
DATE	DESCRIPTION
JULY 25, 1969	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

PUB. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	U272(36)		T48	430



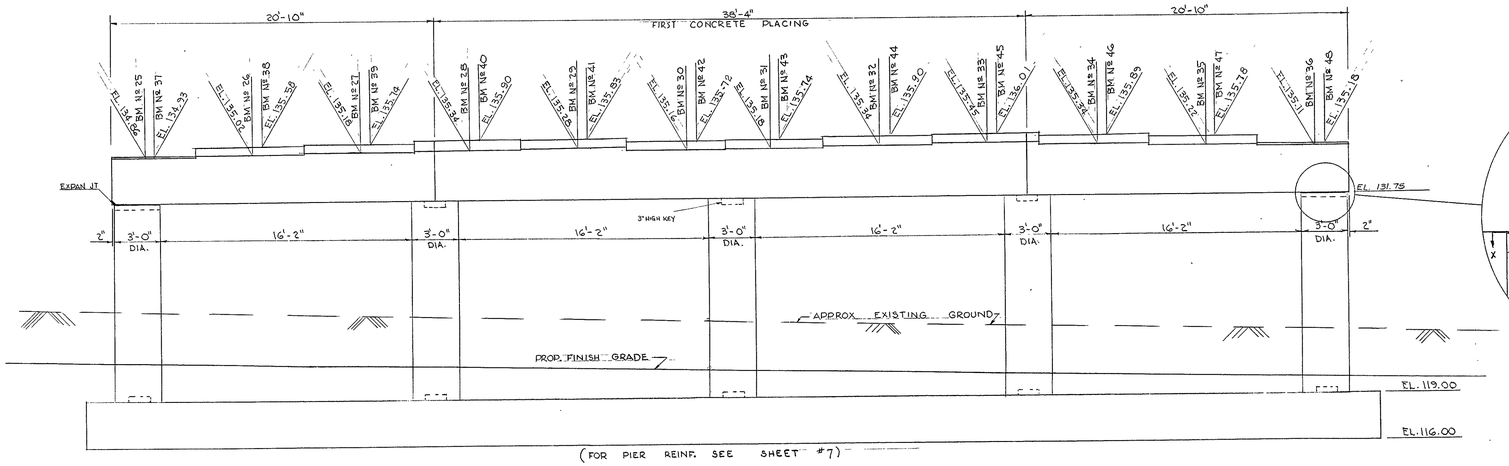
PLAN OF PIER Nº 3

SCALE: 1/4" = 1'-0"



DETAIL AT PIERS 1 & 3

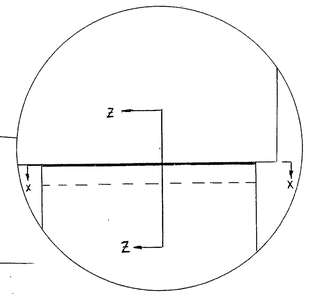
SCALE: 1" = 1'-0"



(FOR PIER REINF. SEE SHEET #7)

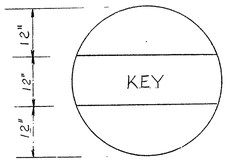
EASTERLY ELEVATION OF PIER Nº 3

SCALE: 1/4" = 1'-0"



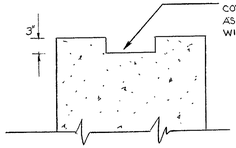
DETAIL "A"

NO SCALE



SECTION XX

NO SCALE



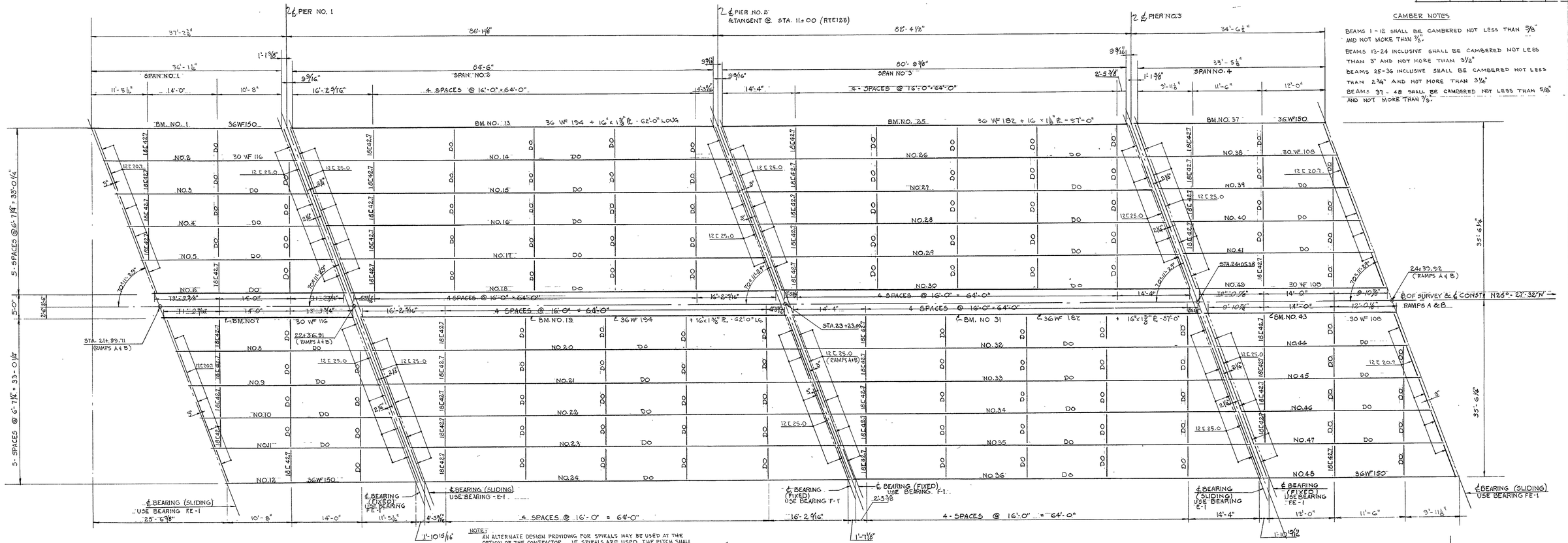
SURFACES TO BE TROWLED TO A SMOOTH FINISH & COVERED WITH 2 LAYERS OF ASBESTOS IMPREGNATED WITH GRAPHITE.

SECTION Z Z

NO SCALE

DATE	DESCRIPTION
JULY 25, 1959	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

PUB. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	U272(30)		149	430



NOTE:
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:
- #6 SPIRAL (3½" TO 4" M.D.) 1 PITCH PER 1.40 - ⅞" ϕ STUDS
- #5 SPIRAL (3½" TO 4" M.D.) 1 PITCH PER 1.75 - ⅞" ϕ STUDS
- #6 SPIRAL (3½" TO 4" M.D.) 1 PITCH PER 2.10 - ⅞" ϕ STUDS

⅞" ϕ STUDS MAY BE SUBSTITUTED FOR ¾" ϕ STUDS BY PROVIDING AN EQUIVALENT CROSS SECTIONAL AREA & ADJUSTING THE PITCH ACCORDINGLY.

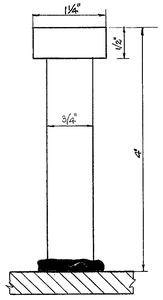
STEEL LAYOUT PLAN
SCALE: 1/8" = 1'-0"

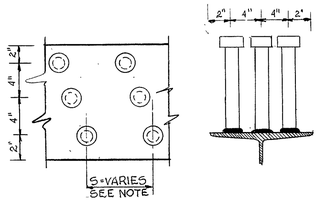
CAMBER NOTES
BEAMS 1 - 12 SHALL BE CAMBERED NOT LESS THAN 5/8" AND NOT MORE THAN ¾".

BEAMS 13-24 INCLUSIVE SHALL BE CAMBERED NOT LESS THAN 3" AND NOT MORE THAN 3½"

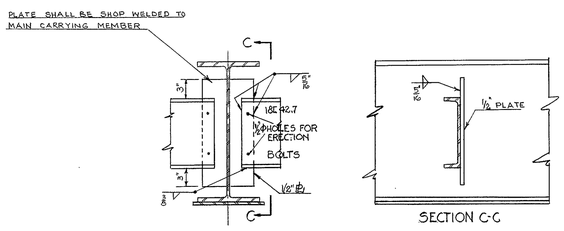
BEAMS 25-36 INCLUSIVE SHALL BE CAMBERED NOT LESS THAN 2¾" AND NOT MORE THAN 3⅛"

BEAMS 37 - 48 SHALL BE CAMBERED NOT LESS THAN 5/8" AND NOT MORE THAN ⅞".

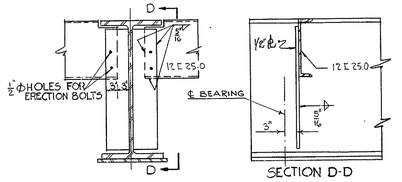




DETAILS OF STUD SHEAR CONNECTOR
NOT TO SCALE

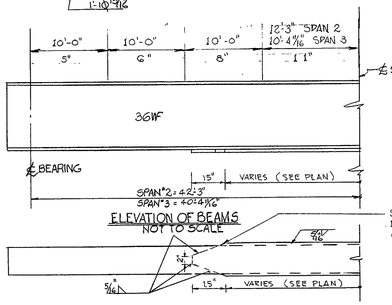


WELDED INTERMEDIATE DIAPHRAGMS CONNECTION
SCALE: 3/4"=1'-0"



WELDED END DIAPHRAGMS CONNECTION
SCALE: 3/4"=1'-0"

TRIPLE STUD SPACING

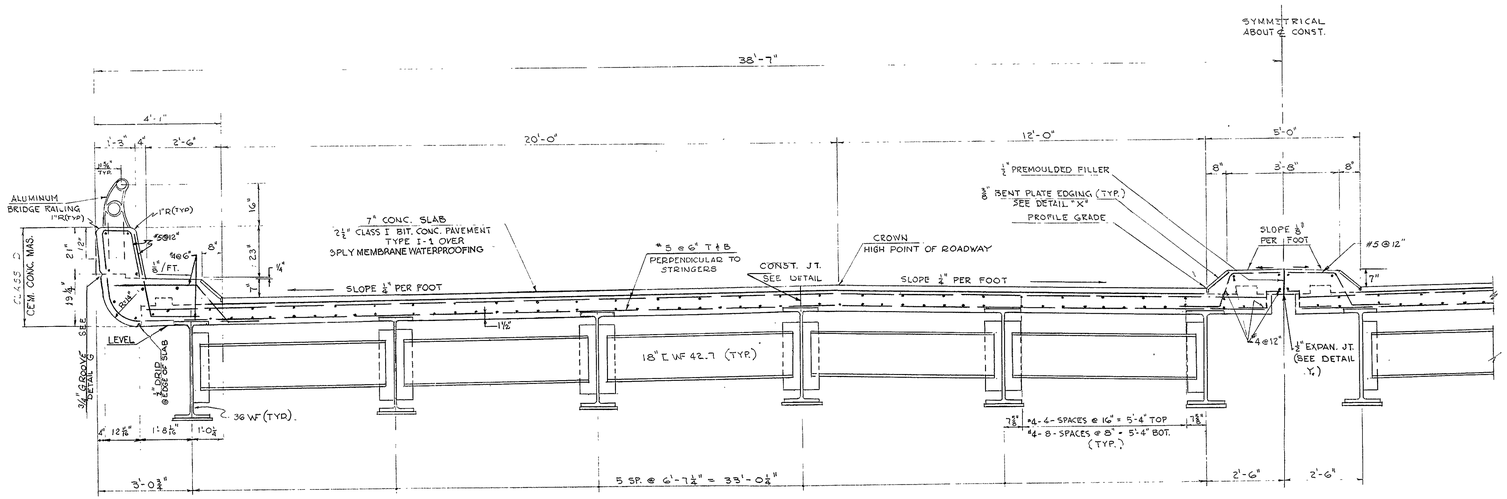


ELEVATION OF BEAMS
NOT TO SCALE

PLAN OF BOTTOM FLANGE
NOT TO SCALE

DATE	DESCRIPTION
JULY 25, 1969	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

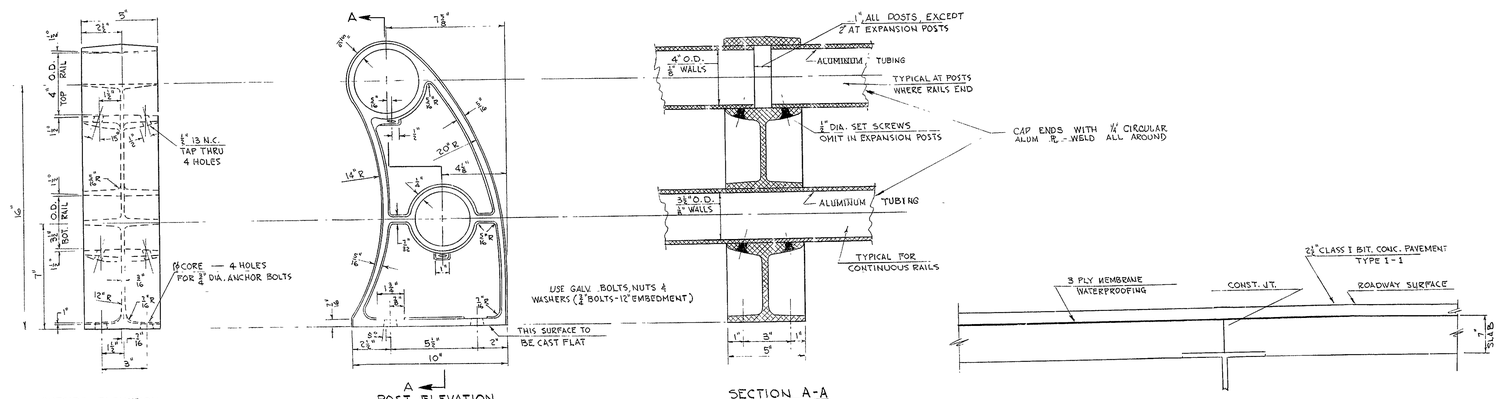
PUB. ROAD DIV. NO	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	U 272(30)		150	430



CROSS SECTION LOOKING NORTHERLY

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

NOTE: ALL LONGITUDINAL REINFORCING #4 PLACED PARALLEL TO ℄ OF CONSTRUCTION.



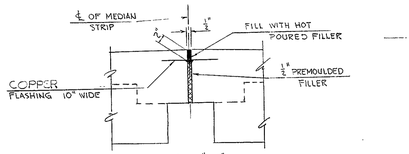
ALUMINUM RAIL DETAILS

SCALE: 3" = 1'-0"

NOTE: RAILS TO BE CONTINUOUS THRU THREE POSTS.

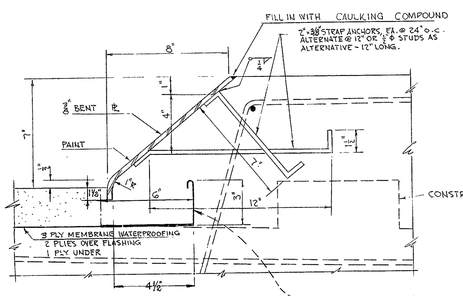
CONSTRUCTION JOINT IN ROADWAY SLABS

SCALE: 1" = 1'-0"



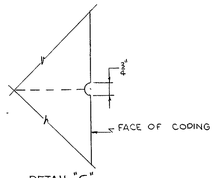
DETAIL "Y"

SCALE: 1" = 1'-0"



DETAIL "X"

SCALE: 3" = 1'-0"

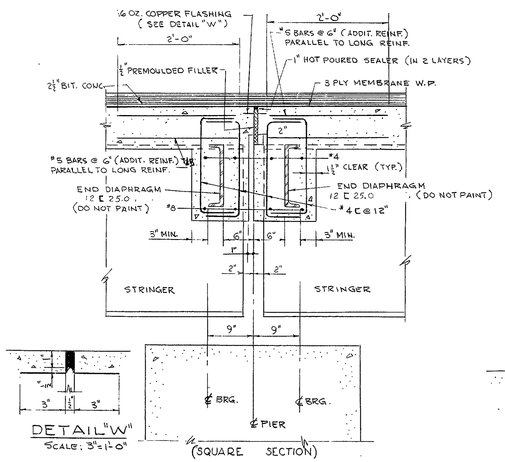


DETAIL "G"

SCALE: 3" = 1'-0"

DATE	DESCRIPTION
JULY 25, 1969	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

PUB. ROAD DIV. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
1	MASS.	U222(30)		151	436

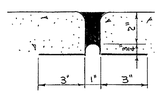


TYPICAL DETAIL — PIER Nº 2

SCALE: 1" = 1'-0"

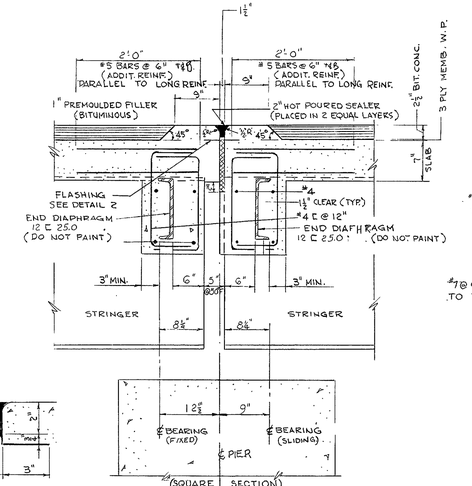
DETAIL "W"

SCALE: 3" = 1'-0"



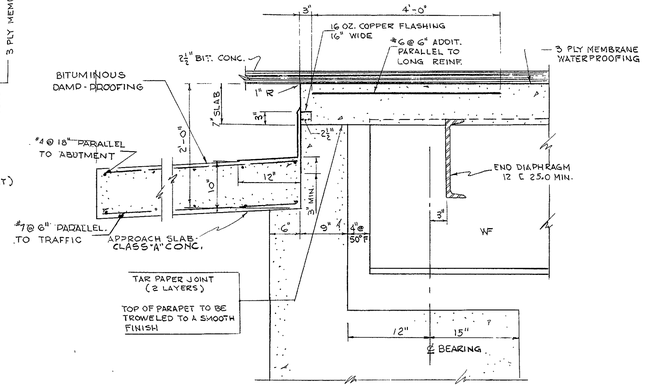
DETAIL "Z"

SCALE: 3" = 1'-0"



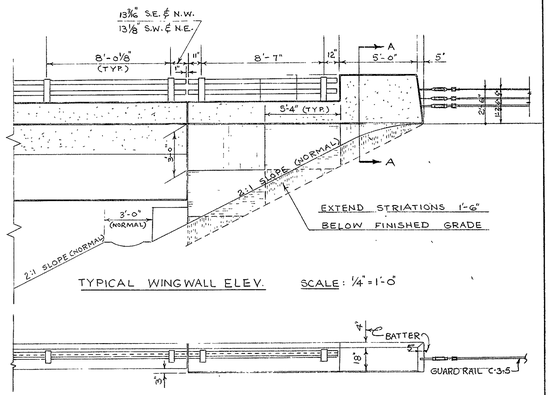
TYPICAL DETAILS — PIERS 1 & 3

SCALE: 1" = 1'-0"



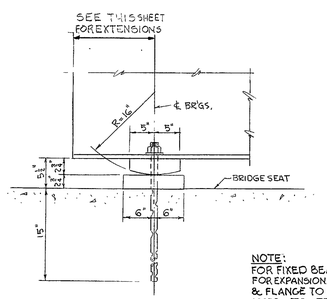
TYPICAL DETAIL AT ABUTMENTS

SCALE: 1" = 1'-0"

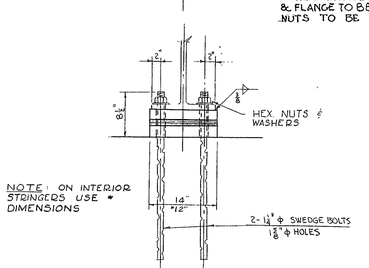


TYPICAL WINGWALL ELEV. SCALE: ¼" = 1'-0"

PLAN SCALE: ¼" = 1'-0"



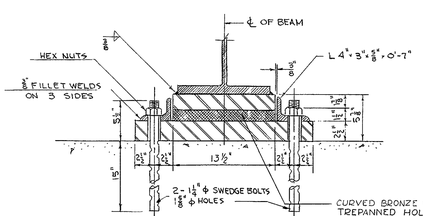
NOTE:
FOR FIXED BEARINGS USE 1⅝" ϕ HOLES FOR EXPANSION BEARING HOLES IN SOLE PL. & FLANGE TO BE 1⅝" x 2⅛" SLOTS, NUTS TO BE HAND TIGHT.



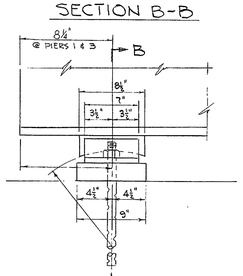
NOTE: ON INTERIOR STRINGERS USE * DIMENSIONS

BEARING DETAIL (FE-1)

SCALE: 1" = 1'-0"



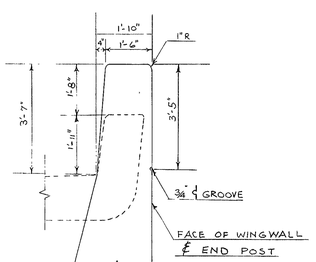
SECTION B-B



EXPANSION BEARING DETAIL (E-1)

SCALE: 1½" = 1'-0"

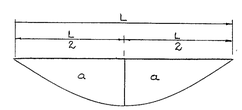
NOTE:
FOR STRIATIONS USE FORMTEX TYPE B AS MANUFACTURED BY CHARLES M. CASEY U.S. PLYWOOD CO. - OR EQUAL



SECTION A-A

SCALE: ½" = 1'-0"

BEAM NO.	a
1-12 (INCL)	0.15
13-24 (INCL)	1.33
25-36 (INCL)	1.21
37-48 (INCL)	0.14

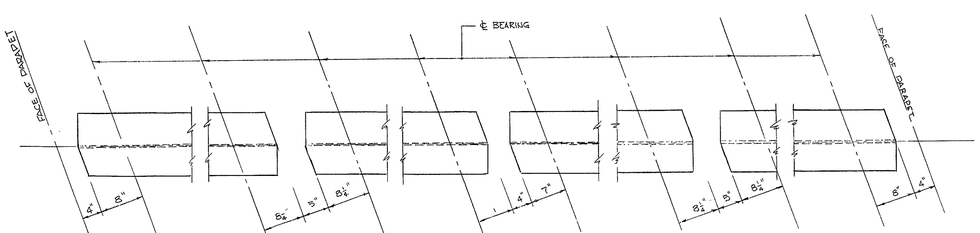


DEFLECTION DIAGRAM

NO SCALE

(DUE TO DEAD WEIGHT OF SLAB ALONE)

(FOR USE OF RESIDENT ENGINEER (DPW) ONLY)

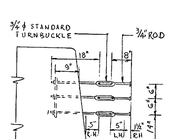


BEAM EXTENSIONS AT SUPPORTS

SCALE: 1" = 1'-0"

ANCHOR PLATE

SCALE ½" = 1'-0"



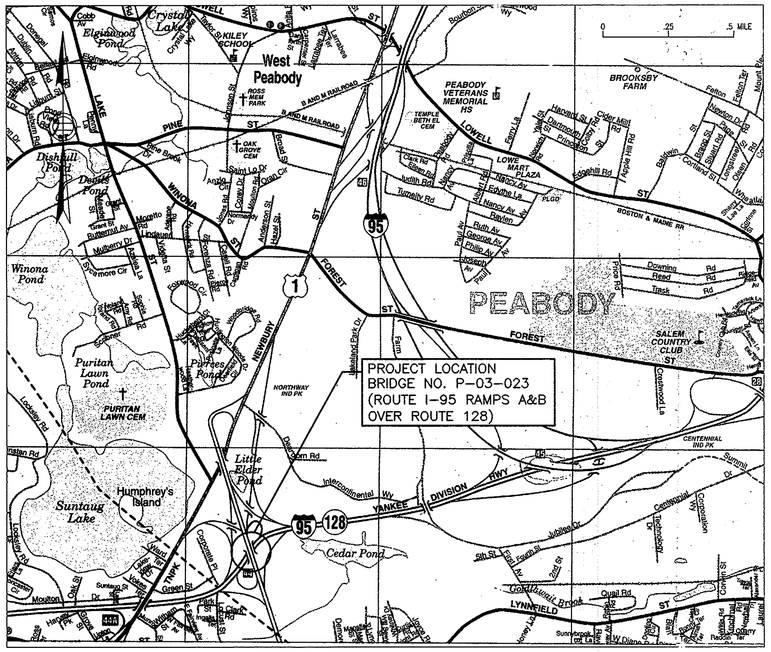
BRIDGE ANCHOR ASSEMBLY

SCALE ½" = 1'-0"

JULY 25, 1980	ISSUED FOR CONSTRUCTION
	DESCRIPTION
	USE ONLY PRINTS OF LATEST DATE

SHEET 11 OF 11 SHEETS BRIDGE Nº P-3-23

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	N.F.A.	2008	16	36
PROJECT FILE NO. 604981				



LOCUS MAP
SCALE AS NOTED

ESTIMATED QUANTITIES
(NOT GUARANTEED)

ITEM	QUANTITY
PRESSURE INJECTION OF CRACKS	100 LF
DEMOLITION OF DECK SLAB OF BRIDGE NO. P-03-023	1 LS
REINFORCED CONCRETE EXCAVATION	17 CY
REINFORCED CONCRETE EXCAVATION FOR REPAIRS	2 CY
BRIDGE EXCAVATION	51 CY
GRAVEL BORROW FOR BACKFILLING STRUCTURES AND PIPES	7 CY
HOT MIX ASPHALT	191 TONS
HOT MIX ASPHALT DENSE BINDER COURSE FOR BRIDGES	191 TONS
SAWING ASPHALT PAVEMENT	152 LF
4000 PSI, 3/8 IN, 660 CEMENT CONCRETE MASONRY	5 CY
DRILLED AND GROUTED #5 DOWELS	516 EA.
CEMENTITIOUS MORTAR FOR PATCHING	100 SF
ASPHALTIC BRIDGE JOINT SYSTEM	152 LF
TEMPORARY PRECAST CONCRETE MEDIAN BARRIER ON BRIDGE (SINGLE FACED)	976 LF
TEMPORARY PRECAST CONCRETE MEDIAN BARRIER ON BRIDGE (SINGLE FACED) REMOVE AND RESET	482 LF
TEMPORARY PROTECTIVE SHIELDING OUTSIDE FASCIA BEAMS BRIDGE NO. P-03-023	1 LS
TEMPORARY PROTECTIVE SHIELDING BETWEEN FASCIA BEAMS BRIDGE NO. P-03-023	1 LS
BRIDGE SUPERSTRUCTURE BRIDGE NO. P-03-023	1 LS

GENERAL NOTES

DESIGN
ALL NEW CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE 2002 17 TH EDITION OF THE STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS WITH CURRENT INTERIM SPECIFICATIONS THROUGH 2006 FOR HS-25 LOADING.

EXISTING PLANS
PLANS FOR EXISTING BRIDGE MAY BE SEEN AT THE OFFICE OF THE BRIDGE ENGINEERING MASSACHUSETTS HIGHWAY DEPARTMENT, 10 PARK PLAZA, BOSTON, MASSACHUSETTS.

BENCH MARKS
TEMPORARY BENCHMARKS SHALL BE ESTABLISHED DURING CONSTRUCTION.

TRAFFIC
BRIDGE P-03-023 (2VN) DECK REPLACEMENT SHALL BE CONSTRUCTED IN 2 STAGES. TRAFFIC MANAGEMENT SHALL BE IN ACCORDANCE WITH THE APPROVED TRAFFIC MANAGEMENT PLAN.

EXISTING CONDITIONS
ALL DIMENSIONS AND DETAILS SHOWN FOR THE EXISTING STRUCTURE ARE NOT GUARANTEED. THE CONTRACTOR SHALL DETERMINE AND ESTABLISH ALL DIMENSIONS AND DETAILS NECESSARY FOR COMPLETION OF ALL WORK BY FIELD MEASUREMENT AND SURVEY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY AND ACCURACY THEREOF, AND NOT ORDER ANY MATERIAL OR COMMENCE ANY FABRICATION OR WORK UNTIL HE/SHE HAS MADE THE REQUIRED MEASUREMENTS ON THE ACTUAL STRUCTURE AND THE EXTENT OF THE PROPOSED WORK HAS BEEN APPROVED BY THE ENGINEER.

THE CONTRACTOR SHALL PERFORM AN INSTRUMENT SURVEY AND TAKE EXISTING ELEVATIONS AT 20' STATIONS AND ALL CENTERLINES OF BEARINGS ALONG THE CROWN LINE OF NORTHBOUND & SOUTHBOUND ROADWAYS, (12'-0" FROM GUTTER LINE OF EXISTING MEDIAN) BOTTOM OF CURB AND CENTER LINE OF MEDIAN ON THE BRIDGE AND FOR 400 FT FROM THE ENDS OF THE BRIDGE ON EACH APPROACH ALONG THE NORTHBOUND AND SOUTHBOUND ROADWAYS AND RAMPS. THE CONTRACTOR WILL THEN SUBMIT THESE ELEVATIONS TO THE ENGINEER. THE ENGINEER WILL USE THESE ELEVATIONS TO DEVELOP A ROADWAY PROFILE FROM WHICH ALL ELEVATIONS WILL BE RECALCULATED.

STATIONING IS BASED ON THAT USED ON EXISTING PLANS. THE CONTRACTOR SHALL VERIFY ALL STATIONING WITH FIELD SURVEY.

DATE
TO BE PLACED ON THE INSIDE FACE OF THE NORTHWEST AND SOUTHEAST HIGHWAY GUARDRAIL TRANSITION. A SHEET SHOWING SIZE AND CHARACTER OF NUMERALS WILL BE FURNISHED. THE DATE USED SHALL BE THE LATEST YEAR OF CONTRACT COMPLETION AS OF THE DATE THE FIRST HIGHWAY GUARDRAIL TRANSITION IS CONSTRUCTED. ALL HIGHWAY GUARDRAIL TRANSITIONS SHALL FEATURE THE SAME DATE.

SURVEY NOTEBOOKS
SURVEY TO BE BY CONTRACTOR DURING CONSTRUCTION.

UNSUITABLE MATERIAL
ALL UNSUITABLE MATERIAL SHALL BE REMOVED WITHIN THE LIMITS OF THE EXCAVATION, AS DIRECTED BY THE ENGINEER.

REINFORCEMENT
REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615 (AASHTO M31) GRADE 60. ALL REINFORCING BARS & SUPPORTING DEVICES SHALL BE EPOXY COATED UNLESS OTHERWISE NOTED ON THE PLANS. COATING FOR REINFORCING SHALL CONFORM TO AASHTO DESIGNATION M284 (ASTM D3963). UNLESS OTHERWISE NOTED ON THE PLANS, ALL BARS SHALL BE LAPPED AS FOLLOWS:

MODIFICATION CONDITION	#4 BARS	#5 BARS
1. NONE	21"	26"
2. 12 INCHES OF CONCRETE BELOW BAR	29"	36"
3. COATED BARS, COVER <3db, OR CLEAR SPACING < 6db	31"	39"
4. COATED BARS, ALL OTHER CASES	24"	30"
5. CONDITION 2 AND 3	35"	44"
6. CONDITION 2 AND 4	33"	42"

IF THE ABOVE BARS ARE SPACED 6 INCHES OR MORE ON CENTER, THE LAP LENGTH SHALL BE 80% OF THE LAP LENGTH GIVEN ABOVE. ALL OTHER BARS SHALL BE LAPPED AS SHOWN ON THE CONSTRUCTION DRAWINGS.

DOWEL BAR SPLICERS
ALL REINFORCING BARS SHALL BE MADE CONTINUOUS ACROSS STAGE CONSTRUCTION JOINTS BY DOWEL BAR SPLICERS. DOWEL BAR SPLICERS SHALL HAVE THE SAME COATINGS AS THE REINFORCING BARS THEY ARE SPLICING.

CONCRETE
ALL CONCRETE SHALL BE AIR-ENTRAINED PORTLAND CEMENT TYPE I CONCRETE.

ALL EXPOSED CORNERS SHALL HAVE 1" CHAMFER UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PREVENTING CONCRETE STAINS OR DISCOLORATIONS DURING CONSTRUCTION UNTIL SUCH TIME AS THE SURFACES ARE APPROVED AND ACCEPTED, ANY CONCRETE STAINS OR DISCOLORATIONS OCCURRING PRIOR TO ACCEPTANCE OF THE SURFACES SHALL BE REMOVED BY THE CONTRACTOR AT HIS OWN EXPENSE.

THE FOLLOWING CONCRETE MIXES ARE TO BE USED:
4000 PSI-⅜"-660 LB/CY: SUBSTRUCTURE REPAIRS
4000 PSI-¾"-610 LB/CY: ABUTMENT BACKWALLS
4000 PSI-1½"-565 LB/CY: HIGHWAY GUARDRAIL TRANSITION BASE
4000 PSI-¾"-585 LB/CY HP: DECK; PIER DIAPHRAGMS
5000 PSI-¾"-685 LB/CY HP: HIGHWAY GUARDRAIL TRANSITION; CF-PL3 BARRIER/MEDIAN BARRIER

UTILITIES
THE CONTRACTOR SHALL LOCATE AND PROTECT FROM DAMAGE ALL EXISTING UTILITIES. THE CONTRACTOR SHALL TEMPORARILY SUPPORT THE UTILITIES THAT ARE SUPPORTED FROM THE DECK.

INDEX OF DRAWINGS

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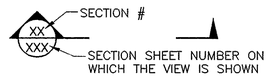
MEDIAN BARRIER HIGHWAY GUARDRAIL TRANSITION AND TRANSITION BASE	12

GENERAL NOTES (CONT.)

SCALES
SCALES AS NOTED ON PLANS ARE NOT APPLICABLE TO REDUCED SIZE PRINTS. DIVIDE SCALE BY TWO FOR HALF-SIZE PRINTS.

STRUCTURAL STEEL AND WELDING
ALL STRUCTURAL STEEL SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M 270 GRADE 50W. UNLESS OTHERWISE SHOWN ON THE PLANS, ALL WELDING AND PREPARATION AND ASSEMBLY OF MATERIAL FOR WELDING SHALL CONFORM TO THE STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, AND THE LATEST COPY, AS OF THE BID OPENING DATE, OF THE ANSI/AASHTO/AWS BRIDGE WELDING CODE.

DRILLING AND GROUTING REINFORCING STEEL
DRILLING AND GROUTING SHALL BE SUFFICIENT TO PRODUCE THE FULL TENSILE CAPACITY OF EACH REINFORCING BAR DRILLED AND GROUTED.

SECTION MARK


COMMONWEALTH OF MASSACHUSETTS
JEFF E. LEWIS
STRUCTURAL
No. 37202
REGISTERED
PROFESSIONAL ENGINEER

GAROFALO
GAROFALO & ASSOCIATES, INC.
CIVIL & STRUCTURAL ENGINEERS/SURVEYORS/ LANDPLANNERS/ENVIRONMENTAL SCIENTISTS
P.O. BOX 6145 85 CORLISS STREET PROVIDENCE, RHODE ISLAND 02940

AUGUST 02, 2008	ISSUED FOR CONSTRUCTION

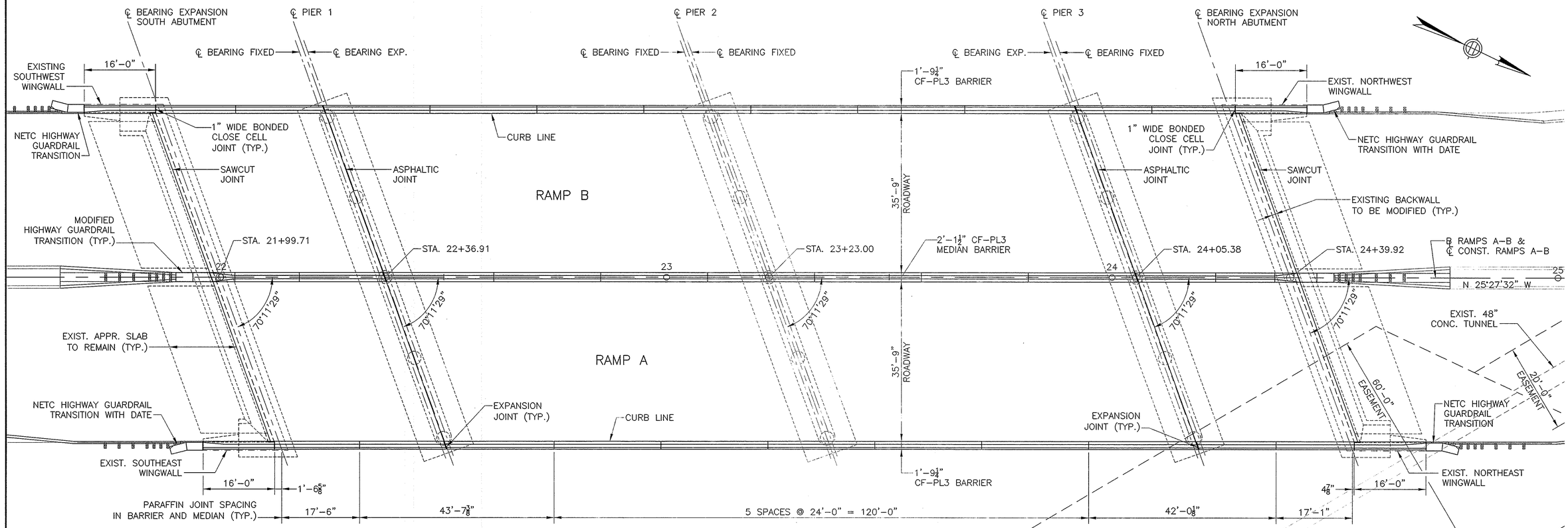
MASSHIGHWAY

PROPOSED DECK REPLACEMENT
PEABODY
ROUTE I-95 RAMPS A & B
OVER ROUTE 128
THE COMMONWEALTH OF MASSACHUSETTS
MASSACHUSETTS HIGHWAY DEPARTMENT
10 PARK PLAZA BOSTON, MASS

DIRECTOR OF BRIDGES & STRUCTURES — CHIEF ENGINEER — 7/31/08

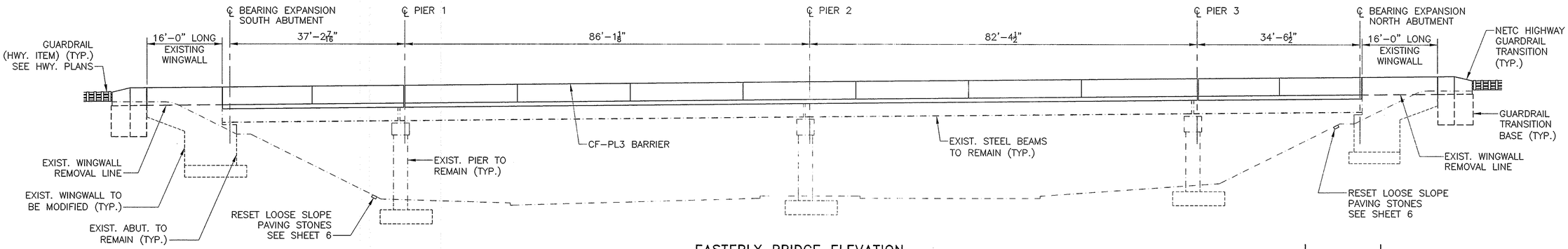
SHEET 1 OF 12 SHEETS BRIDGE NO. P-03-023 (2VN)

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	NFA	2008	17	36
PROJECT FILE NO. 604981				



BRIDGE GENERAL PLAN

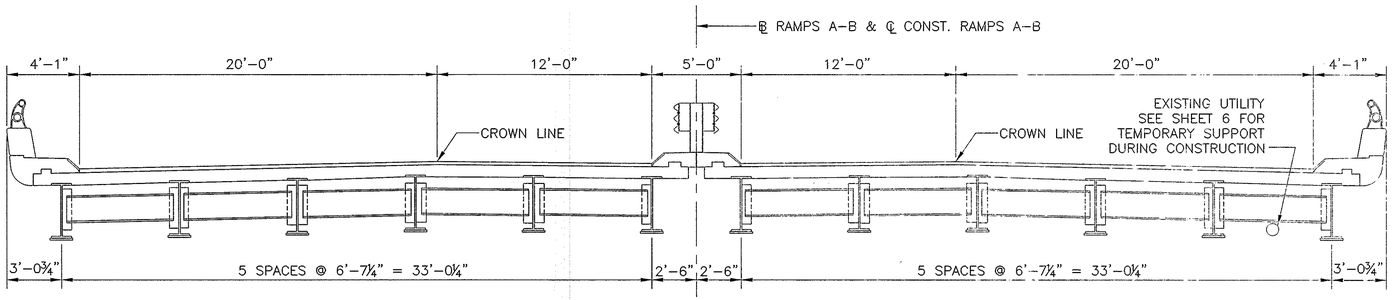
SCALE: $\frac{3}{32}$" = 1'-0"



EASTERLY BRIDGE ELEVATION

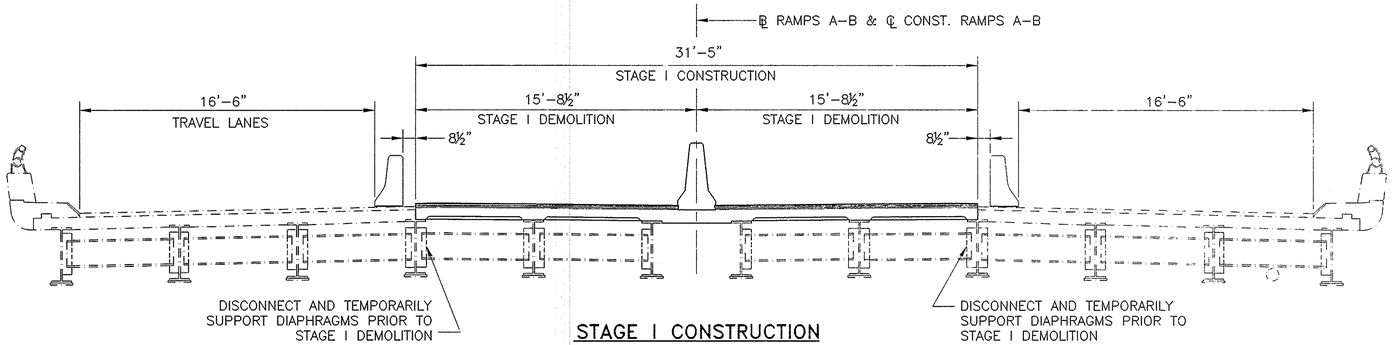
SCALE: $\frac{3}{32}$" = 1'-0"

	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	



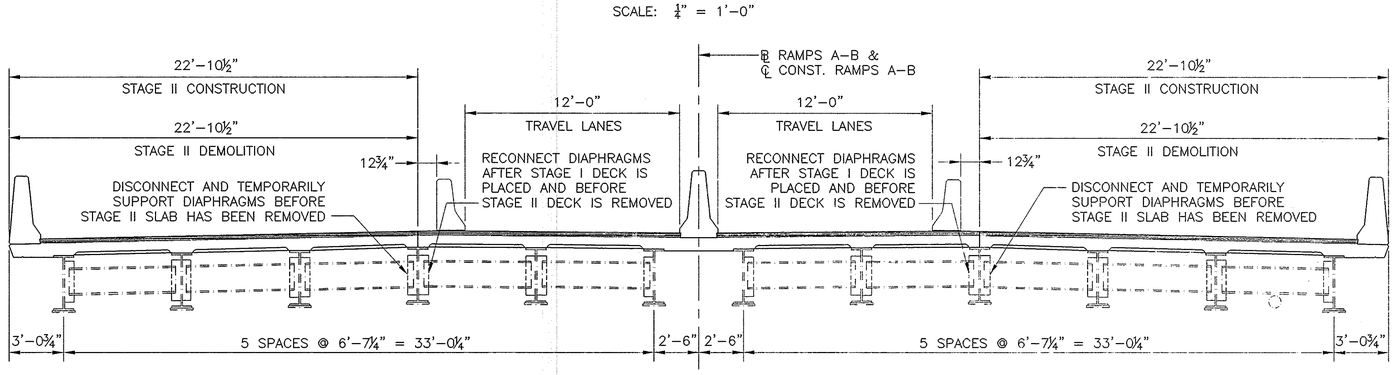
EXISTING CROSS SECTION

SCALE: ¼" = 1'–0"



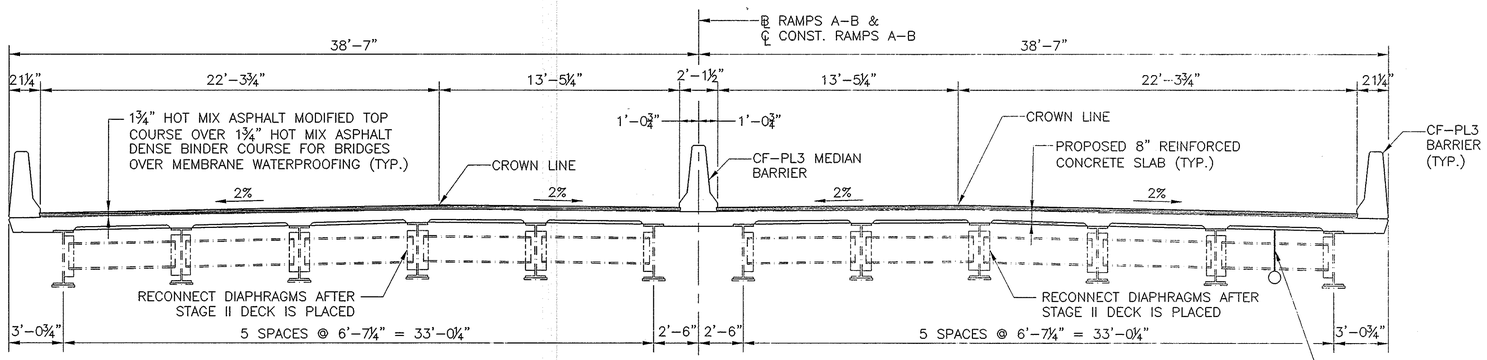
STAGE I CONSTRUCTION

SCALE: ¼" = 1'–0"



STAGE II CONSTRUCTION

SCALE: ¼" = 1'–0"



PROPOSED CROSS SECTION

SCALE: ¼" = 1'–0"

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	NFA	2008	18	36
PROJECT FILE NO. 604981				

NOTE:

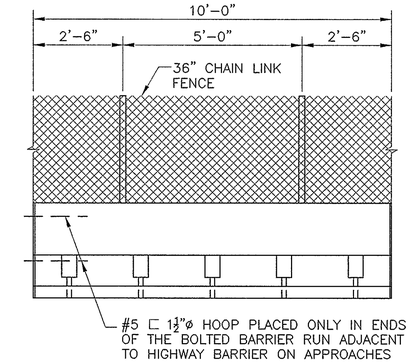
ALL CROSS SECTIONS ARE LOOKING UP–STATION.

BOLTED BARRIER NOTES:

1. THROUGH BOLTING IS NOT PERMITTED IN THE NEW DECK.
2. THE METHOD OF FASTENING THE TEMPORARY BARRIERS TO THE DECK SHALL BE SUBMITTED WITH DESIGN CALCULATIONS, CRASH TEST RESULTS, AND DETAILS TO THE ENGINEER FOR APPROVAL. SEE SPECIAL PROVISIONS FOR ADDITIONAL INFORMATION.
3. REMOVABLE ANCHOR BOLTS SHALL BE BONDED WITH RESIN ADHESIVE IN HOLES DRILLED IN THE EXISTING OR PROPOSED DECK. THE RESIN BONDED ADHESIVE ANCHORING SYSTEM SHALL BE CRASH TESTED FOR A MINIMUM TL–4 RATING AND SHALL CONFORM TO THE SPECIAL PROVISIONS. BOLT HOLE DIAMETER TO BE DETERMINED BY THE MANUFACTURER OF THE ANCHORING SYSTEM. FILL HOLES WITH EPOXY GROUT AFTER REMOVAL OF THE TEMPORARY BARRIERS FROM THE NEW DECK.
4. TYPICAL BARRIER SYSTEM SHOWN. SPECIFIC BARRIER DETAILS MAY VARY DEPENDING ON THE CRASH TESTED SYSTEM CHOSEN, SUBJECT TO THE APPROVAL OF THE ENGINEER.
5. BOLTS SHALL CONFORM TO ASTM A449.

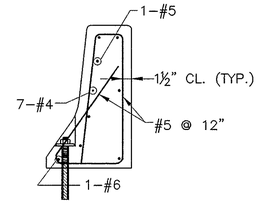
STAGE CONSTRUCTION NOTES.

1. INSTALL TRAFFIC CONTROL.
2. INSTALL SHIELDING.
3. DISCONNECT DIAPHRAGMS AS NOTED.
4. PERFORM STAGE I DEMOLITION.
5. CONSTRUCT STAGE I.
6. RECONNECT/DISCONNECT DIAPHRAGMS AS NOTED.
7. RESET TRAFFIC CONTROL FOR STAGE II.
8. PERFORM STAGE II DEMOLITION.
9. CONSTRUCT STAGE II DECK AND COVER PLATES.
10. RECONNECT DIAPHRAGMS AS NOTED.
11. REMOVE SHIELDING.



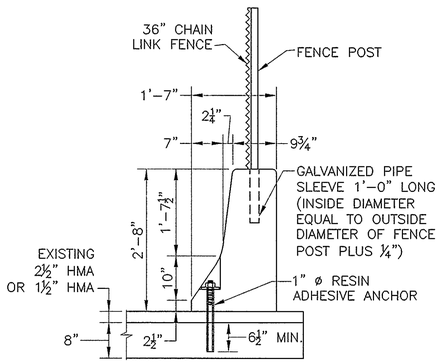
SECTION OF TEMPORARY BARRIER

NOT TO SCALE



TEMPORARY BARRIER REINFORCING

NOT TO SCALE

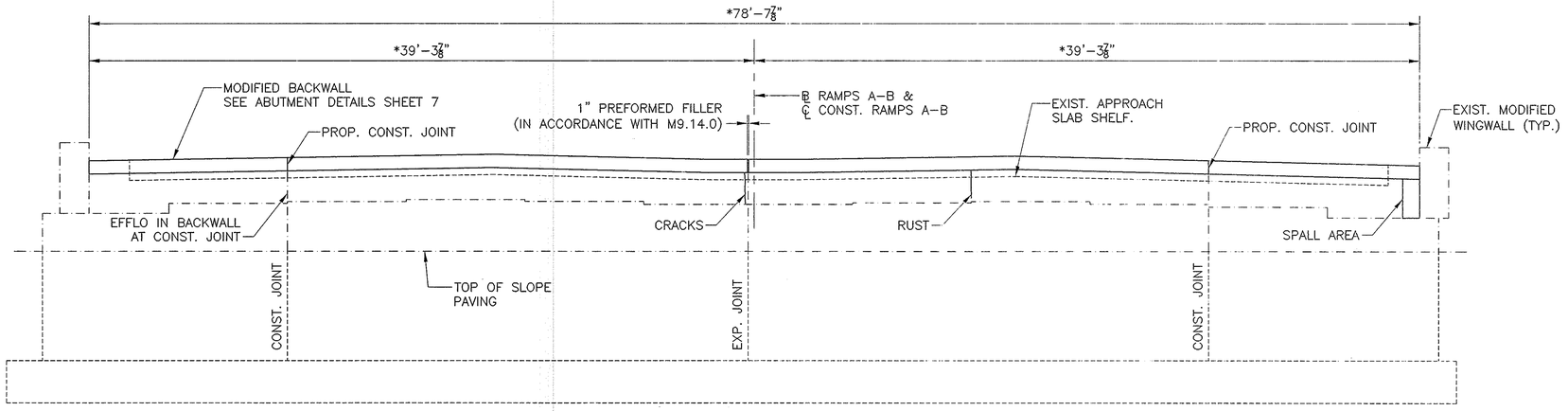


TEMPORARY BARRIER DETAIL

NOT TO SCALE

DATE	DESCRIPTION
08-02-08	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	NFA	2008	19	36
PROJECT FILE NO. 604981				

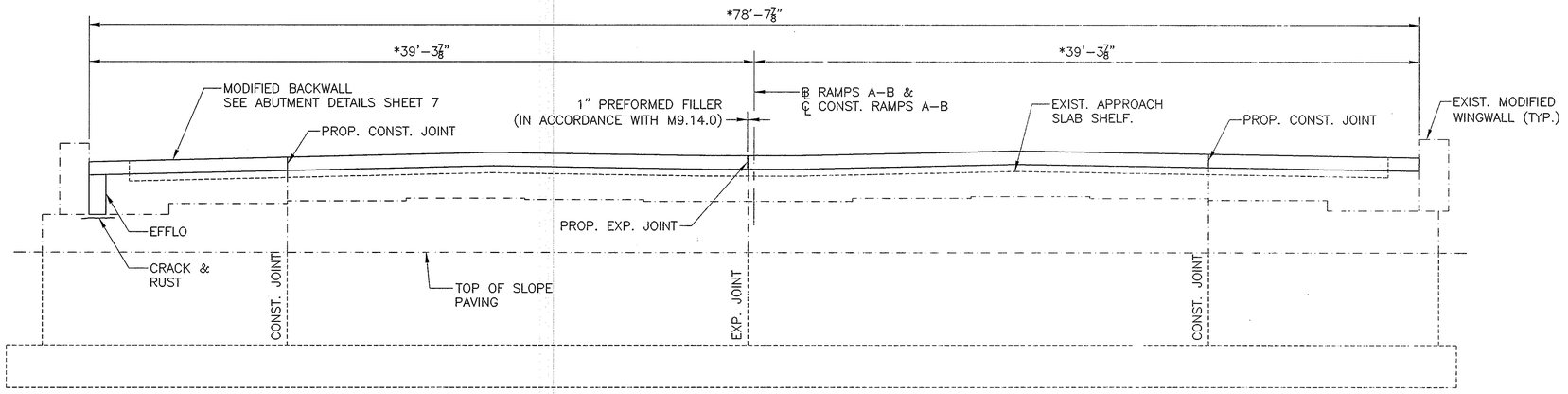


NOTE: TOP OF WINGWALL AND BACKWALL ELEVATIONS ARE NOT TO SCALE.

* MEASURED ALONG FRONT FACE OF BACKWALL

SOUTH ABUTMENT ELEVATION

SCALE: ¼" = 1'-0"



NOTE: TOP OF WINGWALL AND BACKWALL ELEVATIONS ARE NOT TO SCALE.

* MEASURED ALONG FRONT FACE OF BACKWALL

NORTH ABUTMENT ELEVATION

SCALE: ¼" = 1'-0"

SUBSTRUCTURE REPAIR NOTES:

1. CONTRACTOR SHALL ESTABLISH LIMITS OF VARIOUS REPAIRS AS SHOWN ON THIS SHEET AND AT THE DIRECTION OF THE ENGINEER. THE EXACT LOCATION AND REPAIR TYPE OF ALL CONCRETE REPAIRS ARE TO BE FIELD VERIFIED AND APPROVED BY THE ENGINEER AFTER THE CONTRACTOR HAS SOUNDED AND MARKED OUT THE REPAIR AREAS. REPAIR CONFIGURATIONS SHOULD BE KEPT AS SIMPLE AS POSSIBLE. PREFERABLY WITH SQUARE CORNERS.
2. THE LIMITS OF THE REPAIRS SHALL BE SAWCUT ALONG NEAT LINES TO A DEPTH OF 1/2" WHERE PRACTICAL TO PRODUCE A CLEAN EDGE.
3. REMOVE DETERIORATED AND UNSOUND CONCRETE. IF REINFORCEMENT BARS ARE COMPLETELY EXPOSED, THE REMOVAL SHALL EXTEND A MINIMUM OF 1" BEYOND THE BAR. UNDERCUT EXPOSED REINFORCING STEEL TO PROVIDE MINIMUM CLEARANCE OF 1" AROUND BARS. REMOVE ADDITIONAL CONCRETE AS NECESSARY TO PROVIDE MINIMUM REQUIRED THICKNESS OF REPAIR MATERIAL.
4. MISSING OR DETERIORATED REINFORCING STEEL SHALL BE REPLACED AS DIRECTED BY THE ENGINEER.
5. FOR ALL REPAIRS GREATER THAN 1 1/2" USE 4000 PSI. 3/8", 660 LB CEMENT CONCRETE. FOR REPAIRS LESS THAN OR EQUAL TO 1 1/2" USE CEMENTITIOUS MORTAR FOR PATCHING.
6. IF REINFORCING STEEL IS EXPOSED THEN CLEAN BY MECHANICAL CLEANING AND HIGH PRESSURE WASHING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. WHERE ACTIVE CORROSION HAS OCCURRED (THAT WHICH WOULD INHIBIT BONDING) SANDBLAST STEEL TO WHITE METAL FINISH.
7. AFTER REMOVAL AND EDGE PREPARATION ARE COMPLETE. REMOVE BOND INHIBITING MATERIALS (DIRT, GREASE, LOOSELY BONDED AGGREGATE) BY ABRASION BLASTING OR HIGH PRESSURE WATER BLASTING WITH WATER THAT CONTAINS NO DETERGENTS OR BOND INHIBITING CHEMICALS. CHECK THE CONCRETE SURFACES AFTER CLEANING TO INSURE THAT THE SURFACE IS FREE FROM ADDITIONAL LOOSE AGGREGATE OR THAT ADDITIONAL DELAMINATIONS ARE NOT PRESENT.
8. WHERE NEW CONCRETE IS PLACED IN CONTACT WITH EXISTING CONCRETE, THE SURFACE OF THE PREVIOUSLY CAST CONCRETE SHALL BE BLAST CLEANED, ROUGHENED, WETTED WITH CLEAN WATER, AND THEN FLUSHED WITH A MORTAR COMPOSED OF EQUAL PART OF THE CEMENT AND SAND SPECIFIED FOR THE NEW CONCRETE. BEFORE NEW CONCRETE IS PLACED ADJACENT THERETO, NEW CONCRETE SHALL BE PLACED BEFORE MORTAR HAS TAKEN INITIAL SET. CONCRETE AND REINFORCING STEEL PRIOR TO PLACEMENT OF REPAIR MATERIAL.
9. IN LIEU OF THE MORTAR, AN EPOXY ADHESIVE SUITABLE FOR BONDING FRESH CONCRETE TO HARDENED CONCRETE FOR LOAD BEARING APPLICATIONS MAY BE USED. THE EPOXY ADHESIVE SHALL CONFORM TO AASHTO M 235 TYPE V AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
10. ALL SURFACES SHALL BE RUBBED TO PRODUCE A SMOOTH FINISH TO MATCH EXISTING SURFACES. IF THE EXISTING SUBSTRUCTURE IS FINISHED WITH RUSTICATION, PANEL JOINTS AND STRIATIONS AT VARIOUS LOCATIONS. THE CONTRACTOR SHALL REPLICATE THESE WITH HIS FINISHED REPAIRS WITH NO ADDED MATERIAL.
11. THE EXISTING CRACKS IDENTIFIED TO BE SEALED SHALL BE DONE IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

CONSTRUCTION/EXPANSION JOINT NOTES:

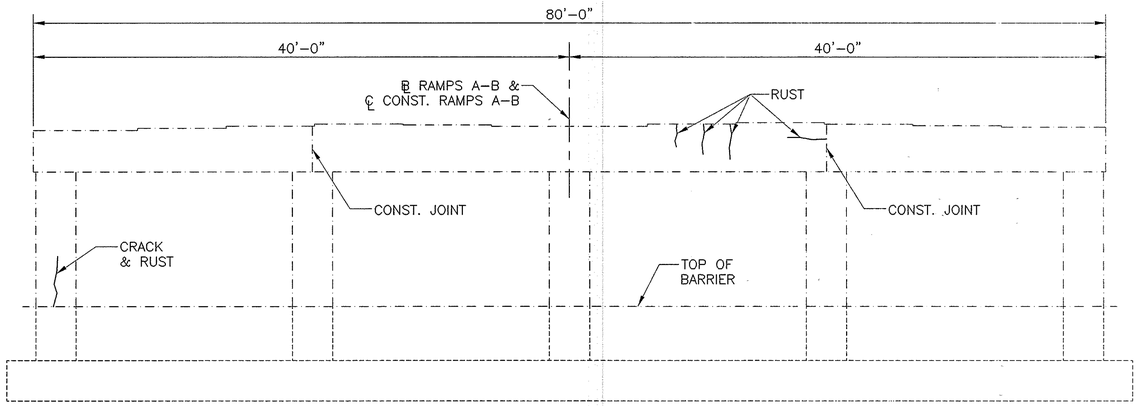
1. REINFORCEMENT SHALL BE CONTINUOUS THRU CONSTRUCTION JOINTS.
2. LONGITUDINAL REINFORCEMENT SHALL END 2" CLEAR OF EXPANSION JOINT.

08-02-08	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	NFA	2008	20	36
PROJECT FILE NO. 604981				

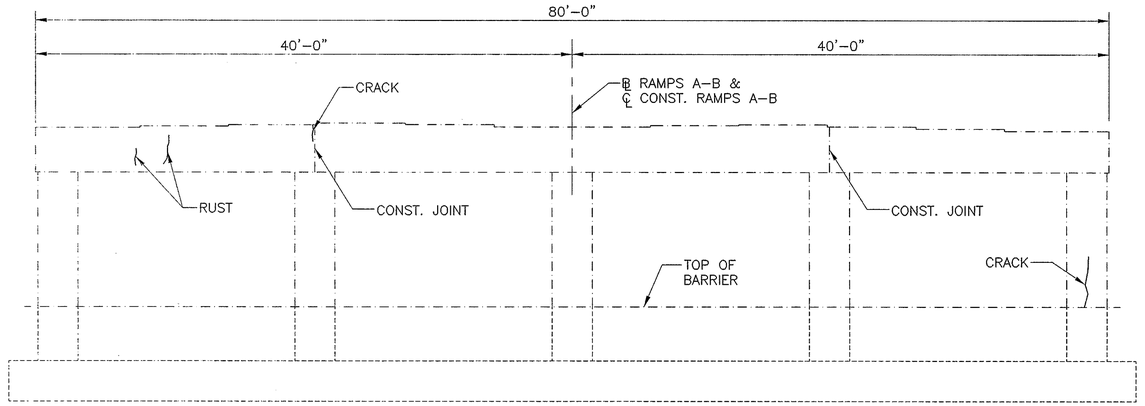
NOTE:

1. SEE SHEET 4 FOR SUBSTRUCTURE REPAIR NOTES.



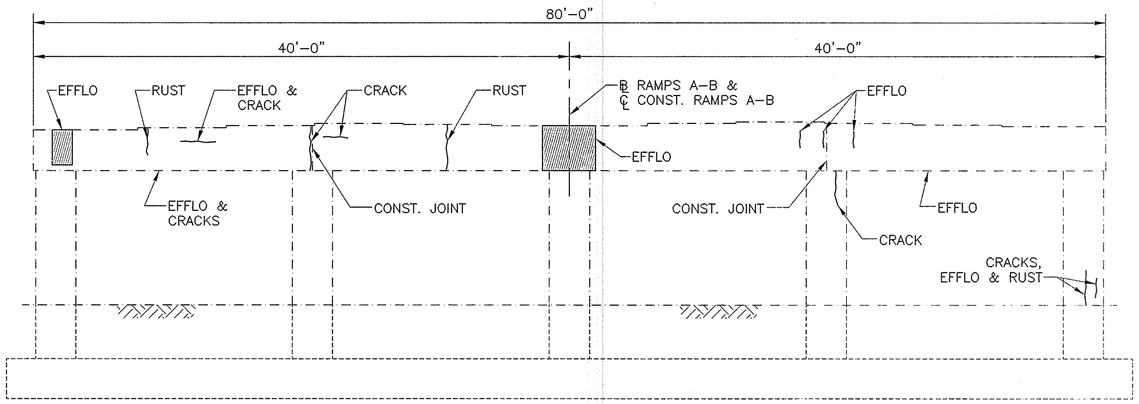
PIER #2 SOUTH FACE

SCALE: $\frac{3}{16}$" = 1'–0"



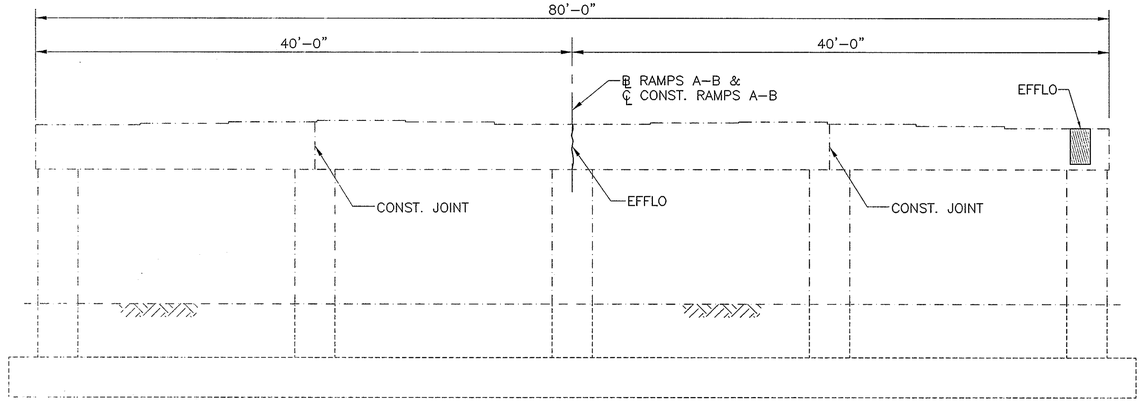
PIER #2 NORTH FACE

SCALE: $\frac{3}{16}$" = 1'–0"



PIER #3 SOUTH FACE

SCALE: $\frac{3}{16}$" = 1'–0"

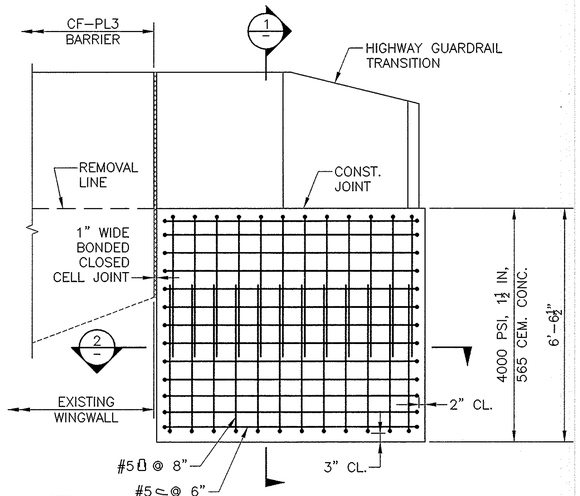


PIER #3 NORTH FACE

SCALE: $\frac{3}{16}$" = 1'–0"

08-02-08	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	NFA	2008	21	36
PROJECT FILE NO. 604981				

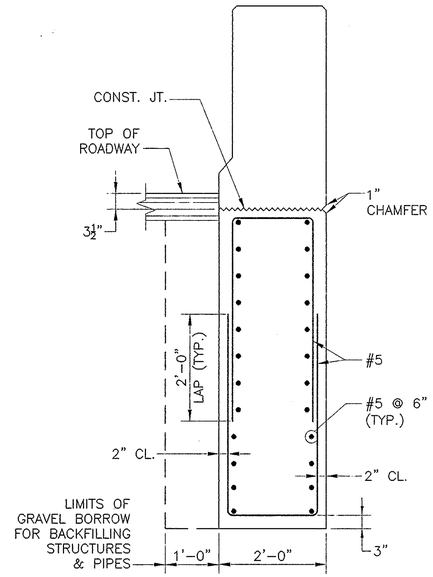


NOTE:

1. GRAVEL BORROW SHALL BE PLACED AND THOROUGHLY COMPACTED TO THE GRADE OF THE BOTTOM OF THE GUARDRAIL TRANSITION BASE. WHERE NO GRAVEL BORROW IS REQUIRED BELOW THE GUARDRAIL TRANSITION BASE, THE CONCRETE SHALL BE PLACED ON UNDISTURBED SOIL.

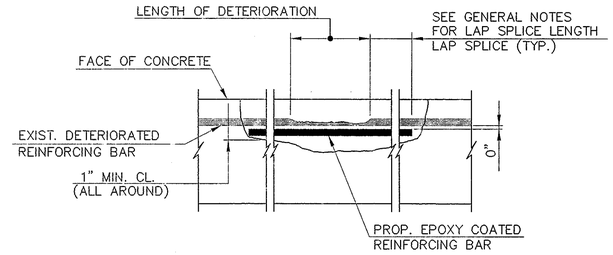
GUARDRAIL TRANSITION BASE ELEVATION

SCALE: ½" = 1'-0"



SECTION 1

SCALE: ¾" = 1'-0"

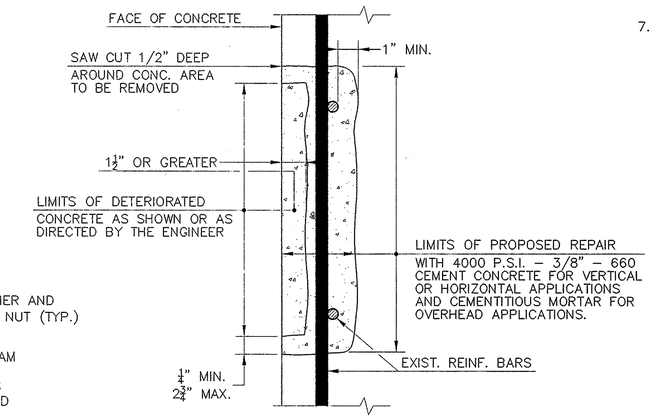


DETERIORATED REINFORCING BAR REPAIR DETAIL (TYP.)

NOT TO SCALE

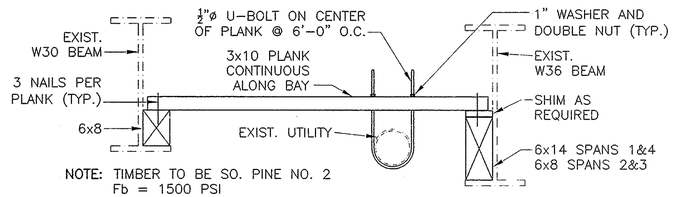
SEQUENCE OF CONSTRUCTION FOR DEEP PATCH REPAIRS:

1. REMOVE CONCRETE.
2. CLEAN EXISTING REINFORCING STEEL AND CONCRETE (NEWLY EXPOSED). MISSING OR DETERIORATED REINFORCING STEEL SHALL BE REPLACED, AS DIRECTED BY THE ENGINEER (SEE SUBSTRUCTURE REPAIR NOTES, SHEET 4).
3. APPLY EPOXY BONDING COMPOUND TO ALL EXISTING REINFORCING STEEL AND CONCRETE TWICE (NEWLY EXPOSED) IMMEDIATELY PRIOR TO PLACING CONCRETE.
4. FORM AND PATCH SURFACE.
5. ALL WELDED WIRE FABRIC SHALL BE EPOXY COATED.
6. ALL CONCRETE SHALL BE 4000 P.S.I.-3/8"-660 CEMENT CONCRETE.
7. ALL SURFACES SHALL BE RUBBED TO PRODUCE A SMOOTH FINISH. NO ADDITIONAL MATERIAL SHALL BE ADDED TO CONCRETE.



PARTIAL DEPTH SUBSTRUCTURE REPAIR DETAIL

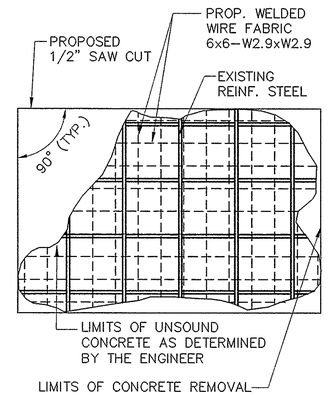
NOT TO SCALE



NOTE: TIMBER TO BE SO. PINE NO. 2
Fb = 1500 PSI

TEMPORARY UTILITY SUPPORT (SPANS 1&4 SHOWN 2&3 SIMILAR)

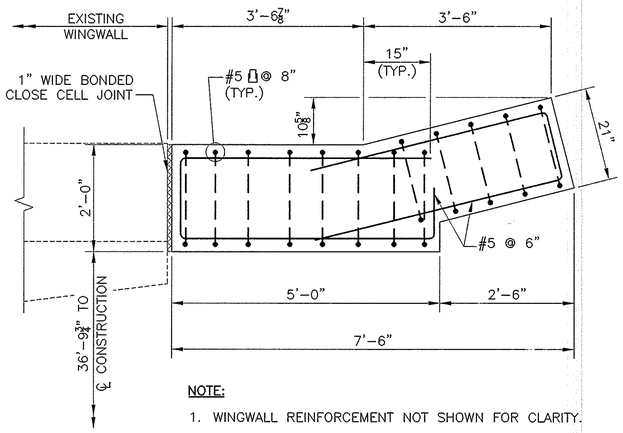
NOT TO SCALE



ELEVATION

TYPICAL DEEP PATCH REPAIR

NOT TO SCALE

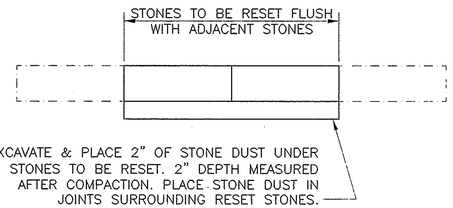


NOTE:

1. WINGWALL REINFORCEMENT NOT SHOWN FOR CLARITY.

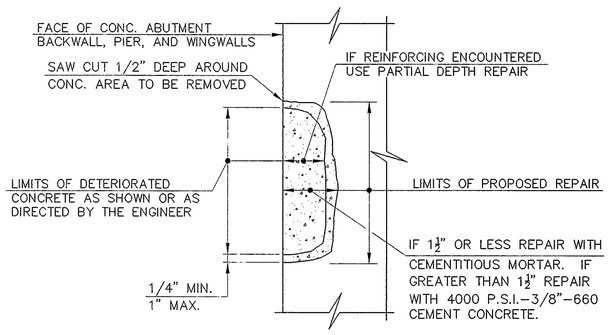
SECTION 2

SCALE: ¾" = 1'-0"



TYPICAL SLOPE PAVING SECTION REPAIR DETAIL

SCALE: 1" = 1'-0"



SHALLOW DEPTH SUBSTRUCTURE REPAIR DETAIL

NOT TO SCALE

08-02-08	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

TOP OF FORM ELEVATIONS FOR DECK SLAB PRIOR TO PLACEMENT OF CONCRETE

BEAM NO.	INCREASING STATIONS →								
	℄ BRG.	1/8 L	1/4 L	3/8 L	1/2 L	5/8 L	3/4 L	7/8 L	℄ BRG.
1	XX	XX	XX	XX	XX	XX	XX	XX	XX
2	XX	XX	XX	XX	XX	XX	XX	XX	XX
3	XX	XX	XX	XX	XX	XX	XX	XX	XX
4	XX	XX	XX	XX	XX	XX	XX	XX	XX
5	XX	XX	XX	XX	XX	XX	XX	XX	XX
6	XX	XX	XX	XX	XX	XX	XX	XX	XX
7	XX	XX	XX	XX	XX	XX	XX	XX	XX
8	XX	XX	XX	XX	XX	XX	XX	XX	XX
9	XX	XX	XX	XX	XX	XX	XX	XX	XX
10	XX	XX	XX	XX	XX	XX	XX	XX	XX
11	XX	XX	XX	XX	XX	XX	XX	XX	XX
12	XX	XX	XX	XX	XX	XX	XX	XX	XX
13	XX	XX	XX	XX	XX	XX	XX	XX	XX
14	XX	XX	XX	XX	XX	XX	XX	XX	XX
15	XX	XX	XX	XX	XX	XX	XX	XX	XX
16	XX	XX	XX	XX	XX	XX	XX	XX	XX
17	XX	XX	XX	XX	XX	XX	XX	XX	XX
18	XX	XX	XX	XX	XX	XX	XX	XX	XX
19	XX	XX	XX	XX	XX	XX	XX	XX	XX
20	XX	XX	XX	XX	XX	XX	XX	XX	XX
21	XX	XX	XX	XX	XX	XX	XX	XX	XX
22	XX	XX	XX	XX	XX	XX	XX	XX	XX
23	XX	XX	XX	XX	XX	XX	XX	XX	XX
24	XX	XX	XX	XX	XX	XX	XX	XX	XX
25	XX	XX	XX	XX	XX	XX	XX	XX	XX
26	XX	XX	XX	XX	XX	XX	XX	XX	XX
27	XX	XX	XX	XX	XX	XX	XX	XX	XX
28	XX	XX	XX	XX	XX	XX	XX	XX	XX
29	XX	XX	XX	XX	XX	XX	XX	XX	XX
30	XX	XX	XX	XX	XX	XX	XX	XX	XX
31	XX	XX	XX	XX	XX	XX	XX	XX	XX
32	XX	XX	XX	XX	XX	XX	XX	XX	XX
33	XX	XX	XX	XX	XX	XX	XX	XX	XX
34	XX	XX	XX	XX	XX	XX	XX	XX	XX
35	XX	XX	XX	XX	XX	XX	XX	XX	XX
36	XX	XX	XX	XX	XX	XX	XX	XX	XX
37	XX	XX	XX	XX	XX	XX	XX	XX	XX
38	XX	XX	XX	XX	XX	XX	XX	XX	XX
39	XX	XX	XX	XX	XX	XX	XX	XX	XX
40	XX	XX	XX	XX	XX	XX	XX	XX	XX
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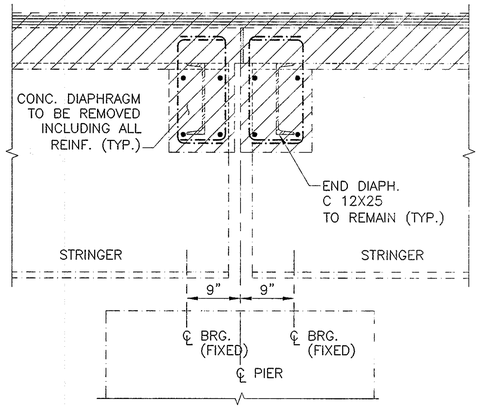
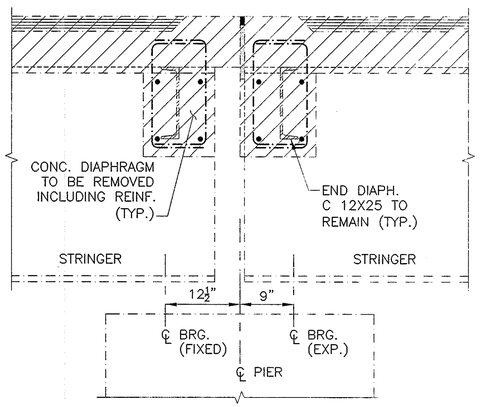
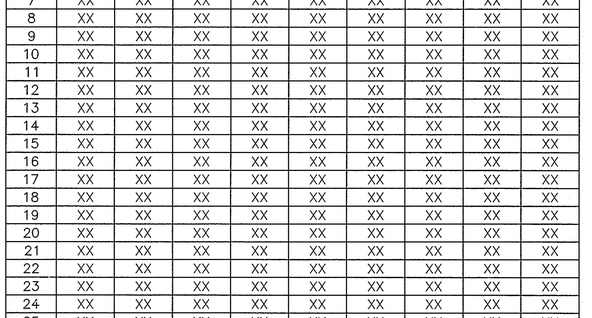
44	XX	XX	XX	XX	XX	XX	XX	XX	XX
45	XX	XX	XX	XX	XX	XX	XX	XX	XX
46	XX	XX	XX	XX	XX	XX	XX	XX	XX
47	XX	XX	XX	XX	XX	XX	XX	XX	XX
48	XX	XX	XX	XX	XX	XX	XX	XX	XX



EXISTING PIER 2 DETAIL
SCALE: 1" = 1'–0"

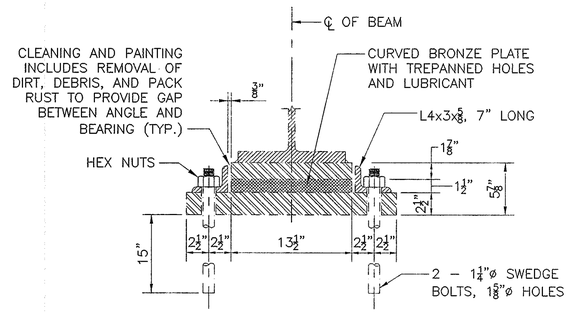


EXISTING PIERS 1&3 DETAILS
(PIER 1 SHOWN, PIER 3 SIMILAR)
SCALE: 1" = 1'–0"



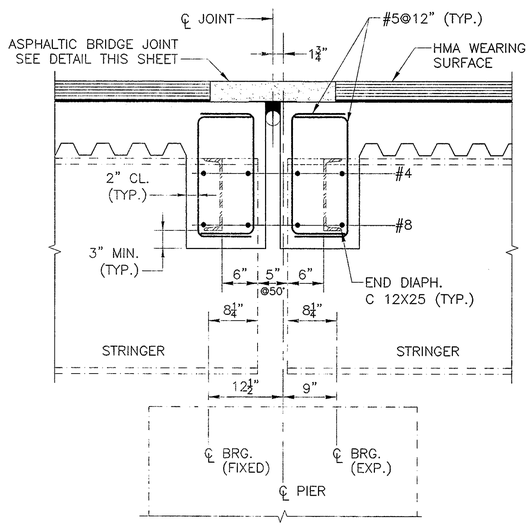
NOTE: SEE SHEET 10 FOR ASPHALTIC JOINT DETAIL AT CF BARRIERS.

ASPHALTIC BRIDGE JOINT DETAIL
SCALE: 1½" = 1'–0"

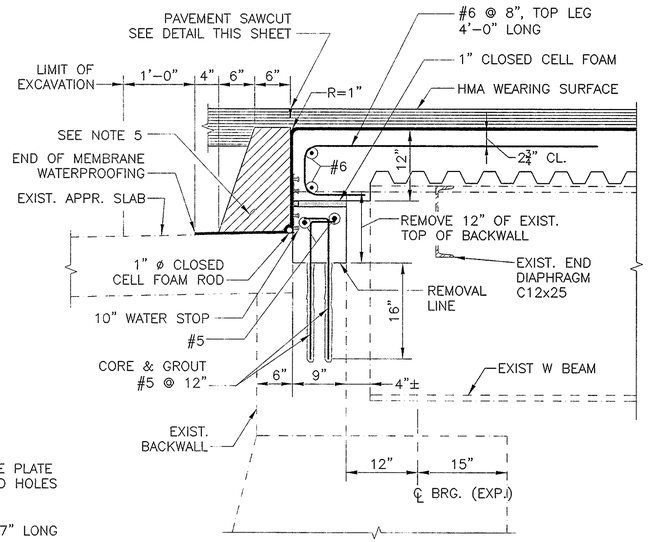


NOTE: CLEANING AND PAINTING OF STEEL INCLUDES ALL BEARINGS.

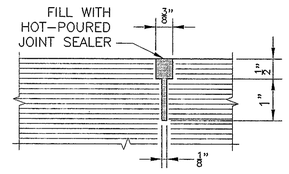
EXISTING EXPANSION BEARING DETAIL PIERS 1 & 3
SCALE: 1½" = 1'–0"



PROPOSED PIERS 1&3 DETAILS
(PIER 1 SHOWN, PIER 3 SIMILAR)
SCALE: 1" = 1'–0"



ABUTMENT DETAILS – ROADWAY SECTION
SCALE: 1" = 1'–0"



PAVEMENT SAWCUT DETAIL
NOT TO SCALE

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	NFA	2008	22	36
PROJECT FILE NO. 604981				

ABUTMENT ROADWAY SECTION NOTES:

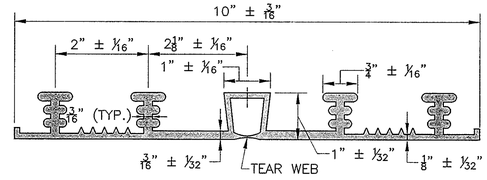
1. ALL REINFORCEMENT SHOWN IN THIS DETAIL SHALL BE EPOXY COATED.
2. TOP OF BACKWALL SHALL BE TRAWLED SMOOTH PARALLEL TO THE PROFILE GRADE.
3. PRIOR TO PLACING THE CONCRETE DECK, CLOSED CELL FOAM OF THE SPECIFIED THICKNESSES SHALL BE ATTACHED WITH ADHESIVE TO THE TOP OF EXISTING BACKWALL AS SHOWN ON THE PLANS.
4. DRAPE MEMBRANE WATERPROOFING OVER CLOSED CELL FOAM BACKER ROD.
5. PROTECTIVE COURSE TO BE HOT MIX ASPHALT DENSE BINDER COURSE FOR BRIDGES, PLACED IN 2" LAYERS AND COMPACTED WITH A MECHANICAL HAND–GUIDED TAMPER WITHIN 12 HOURS AFTER PLACING MEMBRANE WATERPROOFING.

ASPHALTIC JOINT CONSTRUCTION SEQUENCE NOTES:

1. CENTER 19" WIDE STRIP OF ROOFING FELT OVER THE JOINT LOCATION.
2. PLACE WATERPROOFING MEMBRANE AND HMA WEARING SURFACE UNIFORMLY ACROSS THE DECK AND JOINT LOCATIONS.
3. SAW CUT AND REMOVE THE HMA WEARING SURFACE AND MEMBRANE WATERPROOFING TO THE LIMITS REQUIRED.
4. PLACE BACKER ROD, POLYMER MODIFIED BINDER AND STEEL PLATE SECURED IN PLACE WITH GALVANIZED NAILS.
5. COAT THE SURFACES OF THE BLOCK–OUT WITH THE POLYMER MODIFIED ASPHALTIC BINDER.
6. PLACE COMPACTED AGGREGATE/BINDER TO FILL ALL VOIDS AND OBTAIN A FINAL AND EVEN SURFACE WITH THE ADJACENT WEARING SURFACE.
7. IT IS NOT NECESSARY TO CONSTRUCT THE JOINT AT MEAN TEMPERATURE, HOWEVER, THE MANUFACTURER SHOULD BE CONSULTED FOR INSTALLATION GUIDELINES FOR EXTREME CLIMATE CONDITIONS.

TOP OF FORM ELEVATION NOTES:

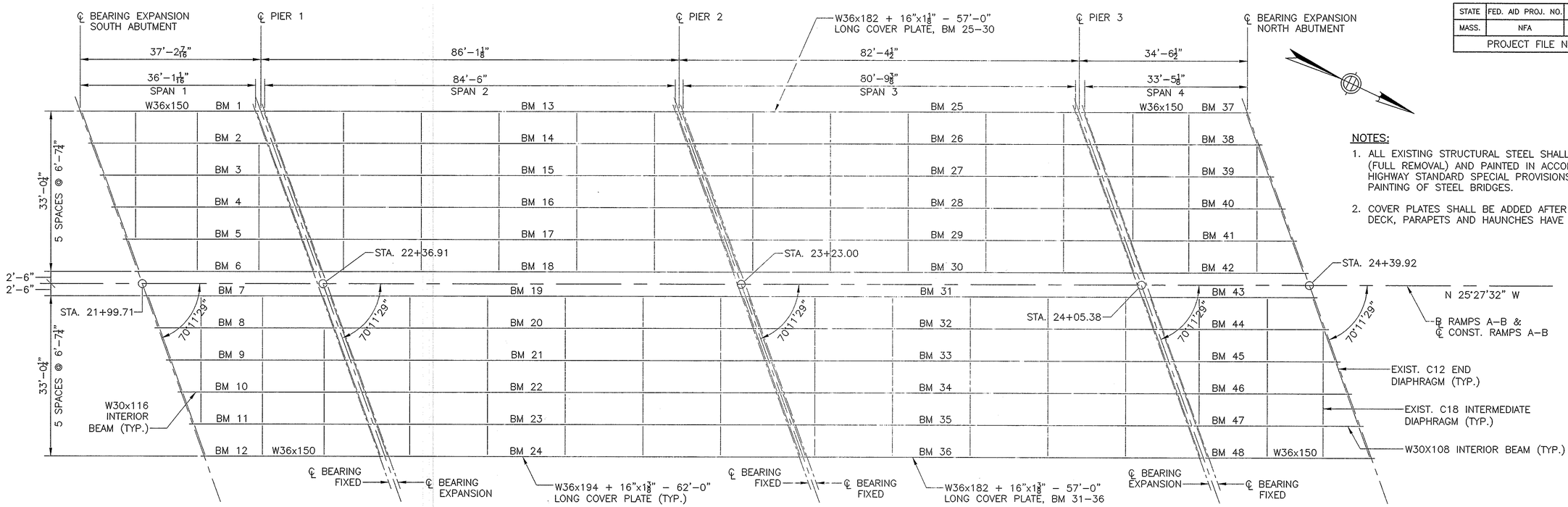
1. BEFORE THE DECK IS REMOVED THE EXISTING ROADWAY PROFILE MUST BE ESTABLISHED. AFTER DECK IS REMOVED BUT BEFORE THE FORMS ARE BUILT ELEVATIONS ON THE TOP FLANGE OF THE BEAMS ARE TO BE OBTAINED AT THE POINTS INDICATED IN THE TABLE. THE DIFFERENCE BETWEEN THE ELEVATIONS OBTAINED AND THOSE TO BE PROVIDED IN THE TABLE GIVES THE ACTUAL BLOCKING DISTANCE FROM THE TOP OF BEAM TO THE BOTTOM OF THE DESIGN SLAB AT THE CENTER LINE OF BEAM.
2. TOP OF FORM ELEVATIONS WILL BE GIVEN AND RECORDED BY THE ENGINEER IN THE APPROPRIATE SPACES PROVIDED IN THE TABLE ONCE FIELD MEASUREMENTS HAVE BEEN OBTAINED BY CONTRACTOR SURVEY DURING CONSTRUCTION.
3. SEE NOTE 7 OF S.I.P. FORM NOTES ON SHEET 9.



10" WATERSTOP DETAIL
NOT TO SCALE

DATE	DESCRIPTION
	ISSUED FOR CONSTRUCTION
	USE ONLY PRINTS OF LATEST DATE

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	NFA	2008	23	36
PROJECT FILE NO. 604981				

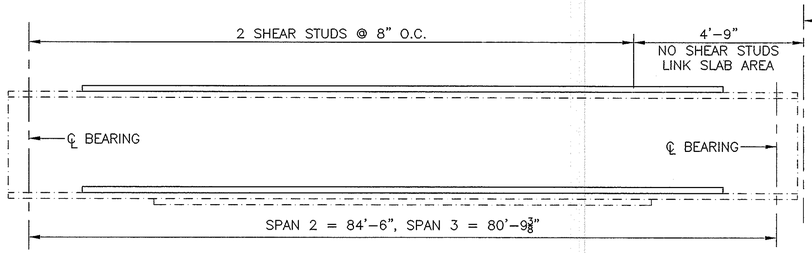


EXISTING FRAMING PLAN

SCALE: 3/32" = 1'-0"

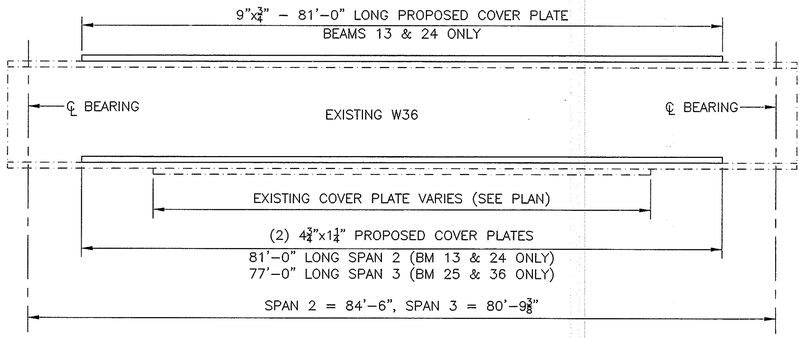
NOTES:

1. ALL EXISTING STRUCTURAL STEEL SHALL BE CLEANED (FULL REMOVAL) AND PAINTED IN ACCORDANCE WITH MASS HIGHWAY STANDARD SPECIAL PROVISIONS FOR MAINTENANCE PAINTING OF STEEL BRIDGES.
2. COVER PLATES SHALL BE ADDED AFTER DEAD LOAD FROM DECK, PARAPETS AND HAUNCHES HAVE BEEN REMOVED.



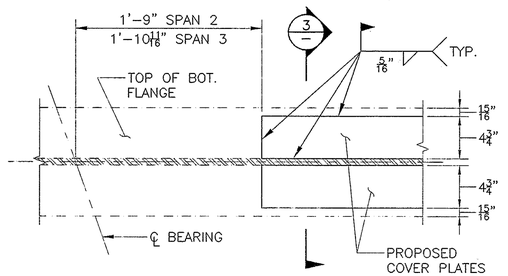
TYPICAL SHEAR STUD CONNECTOR SPACING (BEAMS 13 THRU 36 ONLY)

NOT TO SCALE



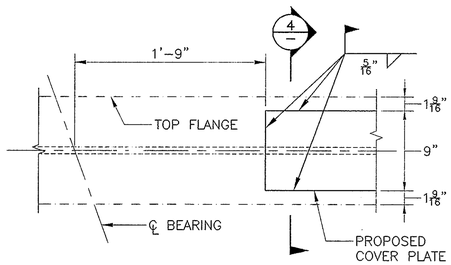
BEAM NO. 13, 24, 25 & 36 ELEVATION

NOT TO SCALE



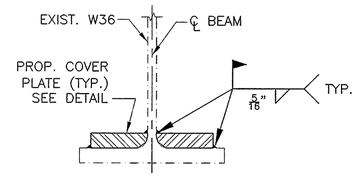
BOTTOM FLANGE PLAN OF BEAMS 13, 24, 25 & 36

NOT TO SCALE



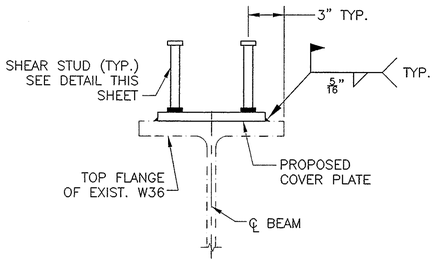
TOP FLANGE PLAN OF BEAMS 13 & 24

NOT TO SCALE



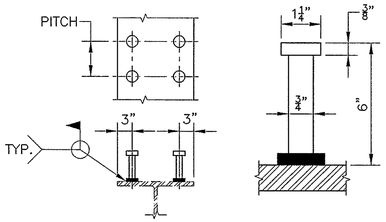
SECTION 3

NOT TO SCALE



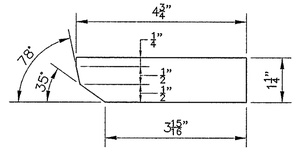
SECTION 4

NOT TO SCALE



SHEAR STUD CONNECTORS

NOT TO SCALE

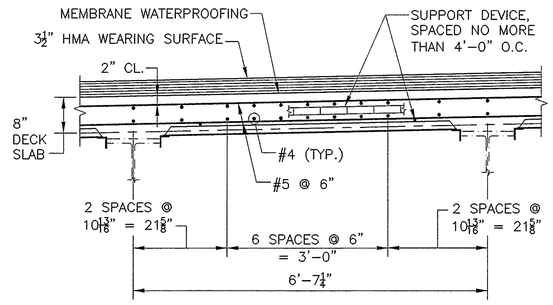


BOTTOM COVER PLATE DETAIL

NOT TO SCALE

DATE	DESCRIPTION
08-02-08	ISSUED FOR CONSTRUCTION
USE ONLY PRINTS OF LATEST DATE	

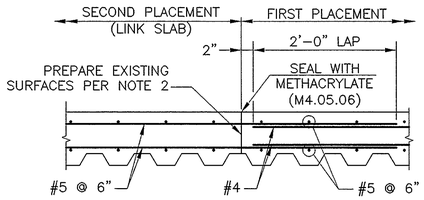
STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	NFA	2008	24	36
PROJECT FILE NO. 604981				



TYPICAL DECK REINFORCEMENT

(SEE DECK DETAIL OVER PIER 2 THIS SHEET FOR DECK REINFORCEMENT OVER PIER 2)

SCALE: ¾" = 1'-0"

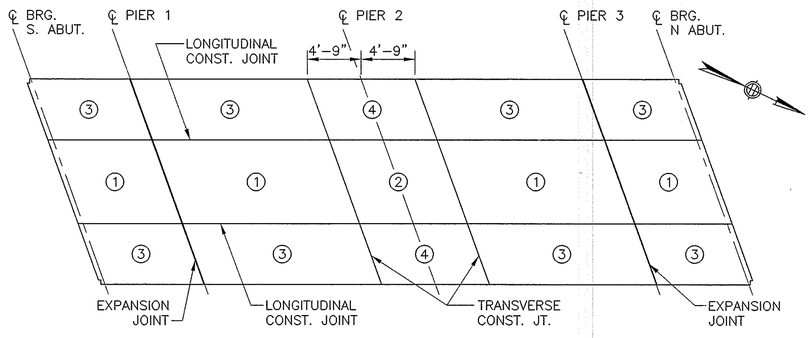


TRANSVERSE CONSTRUCTION JOINT DETAIL IN DECK SLAB

SCALE: 1" = 1'-0"

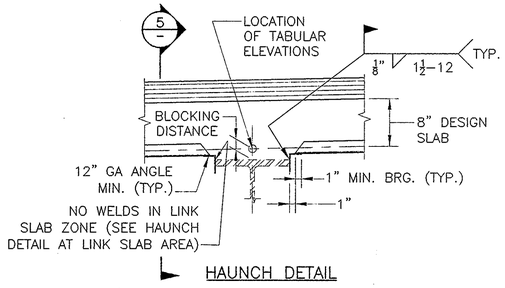
LONGITUDINAL CONSTRUCTION JOINT DETAIL IN DECK SLAB

SCALE: 1" = 1'-0"

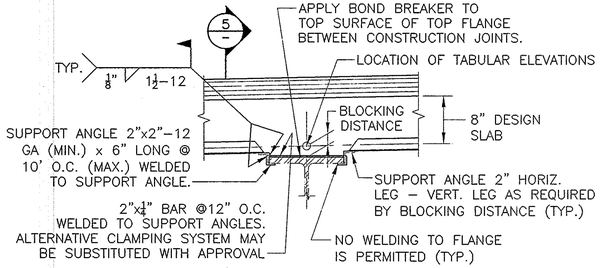


DECK PLACEMENT SEQUENCE

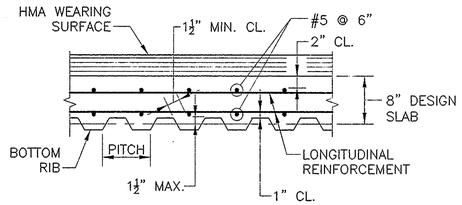
NOT TO SCALE



HAUNCH DETAIL



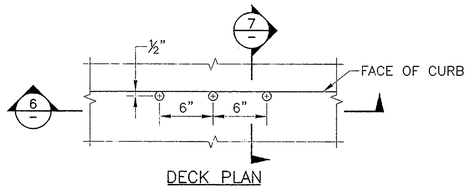
HAUNCH DETAIL AT LINK SLAB AREA



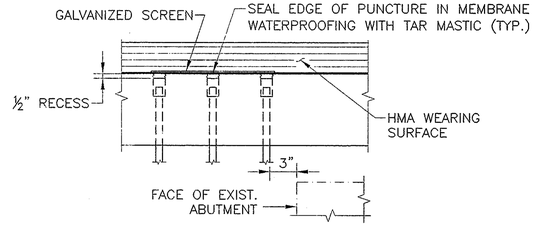
SECTION 5

STAY-IN-PLACE FORM DETAILS

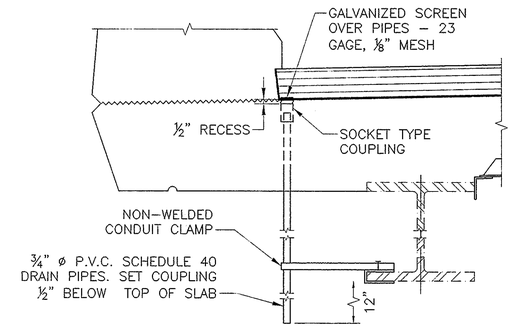
NOT TO SCALE



DECK PLAN



SECTION 6

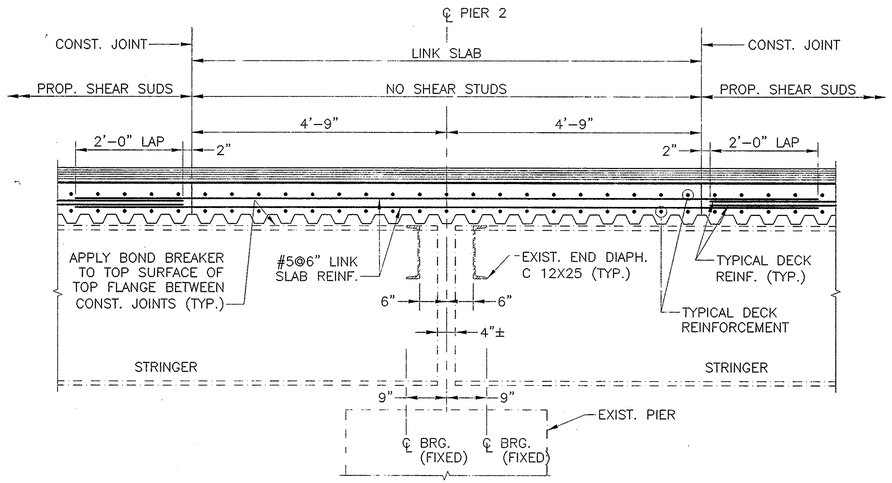


SECTION 7

NOTE: DRAINS SHALL BE LOCATED AT ALL ROADWAY JOINTS AND/OR LOW POINT OF VERTICAL CURVE.

DECK DRAIN PIPE DETAILS

SCALE: 1½" = 1'-0"



DECK REINFORCEMENT DETAIL OVER PIER 2

SCALE: ¾" = 1'-0"

STAY-IN-PLACE FORM NOTES:

1. FOR 2" S.I.P FORM, SET BOTTOM OF FORM 1" BELOW ELEVATION GIVEN IN TABLES. FOR 2½" S.I.P. FORM, SET BOTTOM OF FORM 1½" BELOW TABLE ELEVATIONS.
2. FORM ENDS SHALL BE CRIMPED CLOSED IN A TAPERED MANNER. SEPARATE END CLOSURE PIECES WILL NOT BE ALLOWED.
3. SUPPORT ANGLES SHALL BE PLACED IN THE "LEG DOWN" POSITION WHERE POSSIBLE. WHERE "LEG UP" POSITION IS NECESSARY, THE UPPER MOST PORTION OF THE ANGLE SHALL NOT PROJECT MORE THAN 1" ABOVE THE TOP FLANGE OR COVER PLATE. THE CONTRACTOR SHALL HAVE AN ASSORTMENT OF ANGLES OF VARIOUS SIZES AVAILABLE ON THE SITE TO CONFORM TO THIS REQUIREMENT.
4. ALL MAIN STEEL REINFORCEMENT IN THE LOWER MAT SHALL BE CENTERED OVER THE VALLEY OF THE S.I.P. FORM.
5. THE AREA BETWEEN TRANSVERSE CONSTRUCTION JOINTS (LINK SLAB) SHALL BE TREATED AS IF TENSION FLANGE AREA.
6. REMOVABLE FORMS SHALL BE USED IN THE MEDIAN BARRIER BAY AND AT THE EXTERIOR OVERHANGS.
7. TOP OF FORM ELEVATIONS WILL BE FURNISHED BY THE ENGINEER WITHIN SEVEN WORKING DAYS FROM THE TIME THE TOP OF BEAM ELEVATIONS ARE RECEIVED BY THE ENGINEER.

CONSTRUCTION JOINT NOTES:

1. PLACED IN ACCORDANCE WITH THE PLACEMENT SEQUENCE SHOWN ON THE PLANS. THE CONTRACTOR MAY PLACE THE ENTIRE DECK IN ONE CONTINUOUS OPERATION WITHOUT CONSTRUCTION JOINTS WITH THE APPROVAL OF THE ENGINEER PROVIDED THAT THE INITIAL SET (Fc = 500 PSI) OF ALL CONCRETE DOES NOT OCCUR UNTIL AFTER THE COMPLETION OF THE PLACEMENT. AN APPROVED RETARDER SHALL BE USED, WHEN NECESSARY, TO RETAIN THE WORKABILITY OF THE CONCRETE. IF MULTIPLE PLACEMENTS ARE MADE, POSITIVE MOMENTS REGIONS SHALL BE PLACED PRIOR TO NEGATIVE MOMENT REGIONS AND A MINIMUM OF 72 HOURS SHALL PASS BETWEEN PLACEMENTS.
2. THE SURFACE OF THE PREVIOUSLY CAST CONCRETE SHALL BE BLAST CLEANED, ROUGHENED, WETTED WITH CLEAN WATER, AND THEN FLUSHED WITH A MORTAR COMPOSED OF EQUAL PARTS OF THE CEMENT AND SAND SPECIFIED FOR THE NEW CONCRETE, BEFORE NEW CONCRETE IS PLACED ADJACENT THERETO. NEW CONCRETE SHALL BE PLACED BEFORE THE MORTAR HAS TAKEN INITIAL SET.
3. IN LIEU OF THE MORTAR, AN EPOXY ADHESIVE SUITABLE FOR BONDING FRESH CONCRETE TO HARDENED CONCRETE FOR LOAD BEARING APPLICATIONS MAY BE USED. THE EPOXY ADHESIVE SHALL CONFORM TO AASHTO M 235 TYPE V AND SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
4. THE CONTRACTOR MAY SUBMIT A PROPOSAL DETAILING THE ELIMINATION OF THE CLOSURE POUR FOR THE APPROVAL OF THE ENGINEER. THE PROPOSAL SHALL DETAIL THE CONTRACTOR'S MEANS AND METHODS FOR THE ACCURATELY CONSTRUCTION THE DECK SLAB TO THE LINES, GRADES, AND THICKNESS SHOWN ON THE PLANS WITHOUT LEAKAGE OF CONCRETE.
5. DOWEL BAR SPLICERS SHALL BE USED WHERE USE OF LAP SPLICES IS NOT FEASIBLE.

DECK NOTES:

1. ROADWAY DECK SLAB SHALL BE 4000 PSI, ¾ IN, 585 HP CEMENT CONCRETE.
2. #4 LONGITUDINAL REINFORCEMENT SHALL BE PLACED PARALLEL TO THE ℄ OF CONSTRUCTION.
   #5 MAIN REINFORCEMENT SHALL BE PLACED PERPENDICULAR TO THE ℄ OF CONSTRUCTION.
3. ALL REINFORCEMENT AND SUPPORT DEVICES SHALL BE COATED.

08-02-08	ISSUED FOR CONSTRUCTION
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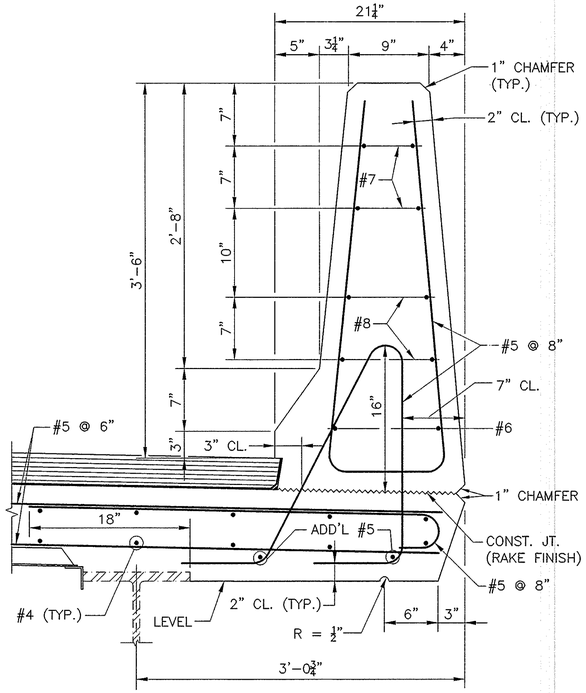
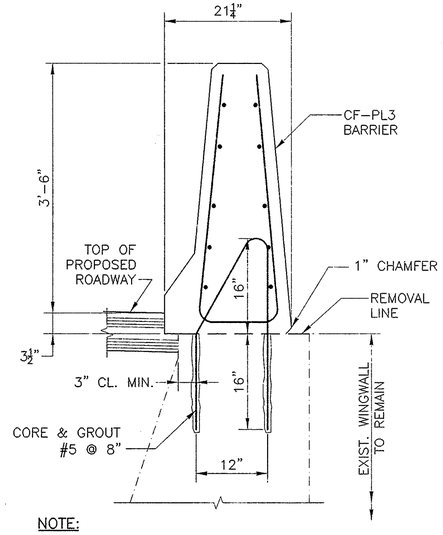
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	NFA	2008	25	36
PROJECT FILE NO. 604981				



SECTION THRU CF-PL3 BARRIER

SCALE: 1½" = 1'-0"

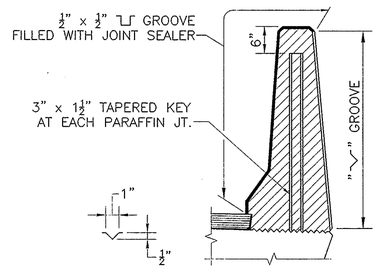


NOTE:

SEE SECTION THRU CF-PL3 BARRIER FOR DIMENSIONS AND REINFORCEMENT NOT SHOWN HERE.

TOP OF EXISTING MODIFIED U-WINGWALL DETAILS

SCALE: 1" = 1'-0"

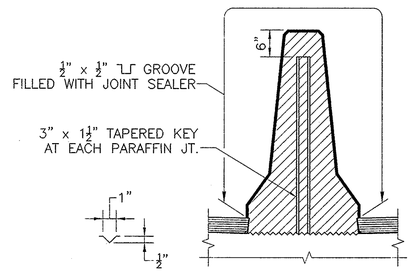


PARAFFIN JOINT DETAILS @ CF BARRIER

SCALE: ¾" = 1'-0"

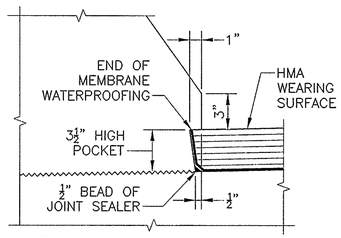
PARAFFIN JOINT NOTES:

1. ALL CONCRETE ABOVE SLAB SHALL BE POURED IN ALTERNATING SECTIONS WITH NOT LESS THAN 3 DAYS BETWEEN POURS.
2. DO NOT CARRY LONGITUDINAL BARS THROUGH THE PARAFFIN JOINTS. END THE REINFORCEMENT 2" CLEAR OF JOINT.
3. JOINT SHALL BE SQUARE TO FACE OF CURB



PARAFFIN JOINT DETAILS @ CF MEDIAN BARRIER

SCALE: ¾" = 1'-0"

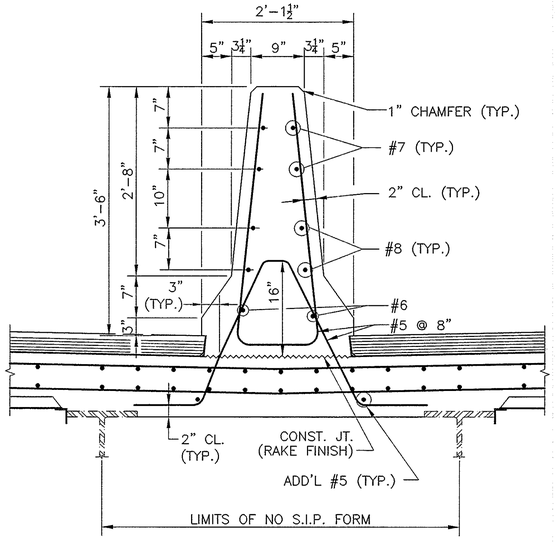


NOTE:

TURN MEMBRANE UP INTO 3½" HIGH POCKET.

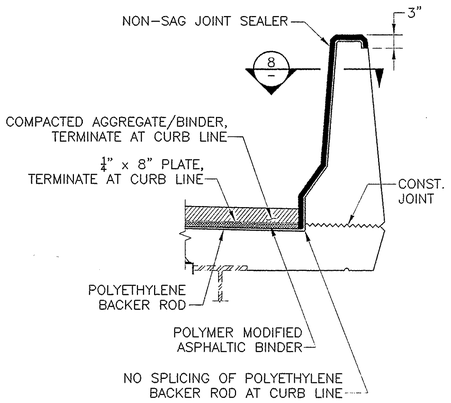
FACE OF SAFETY CURB DETAILS

NOT TO SCALE



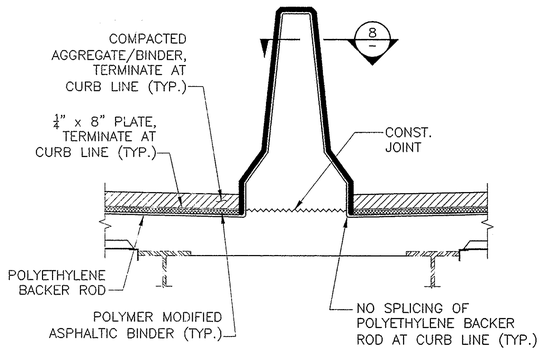
CF-PL3 MEDIAN BARRIER

SCALE: 1" = 1'-0"



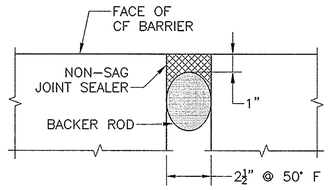
ASPHALTIC JOINT DETAIL AT CF BARRIER

SCALE: ¾" = 1'-0"



ASPHALTIC JOINT DETAIL AT CF MEDIAN BARRIER

SCALE: ¾" = 1'-0"

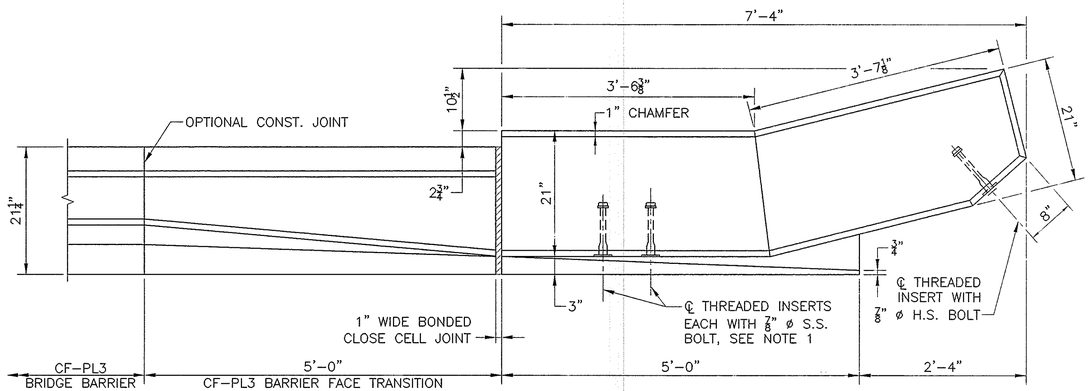


SECTION 8

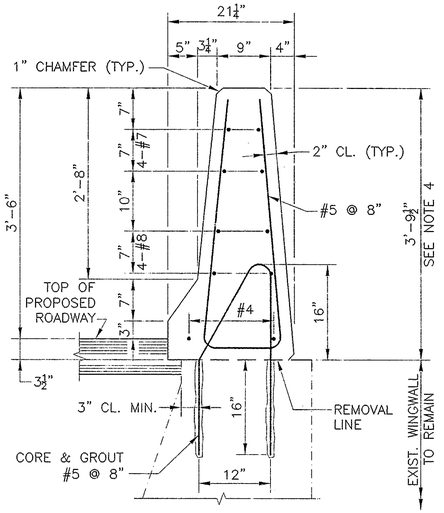
SCALE: 3" = 1'-0"

08-02-08	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

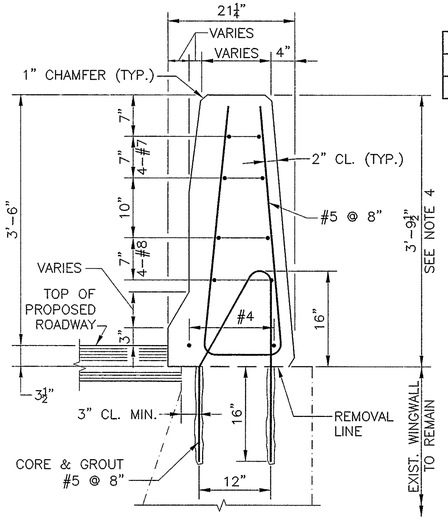
STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	NFA	2008	26	36
PROJECT FILE NO. 604981				



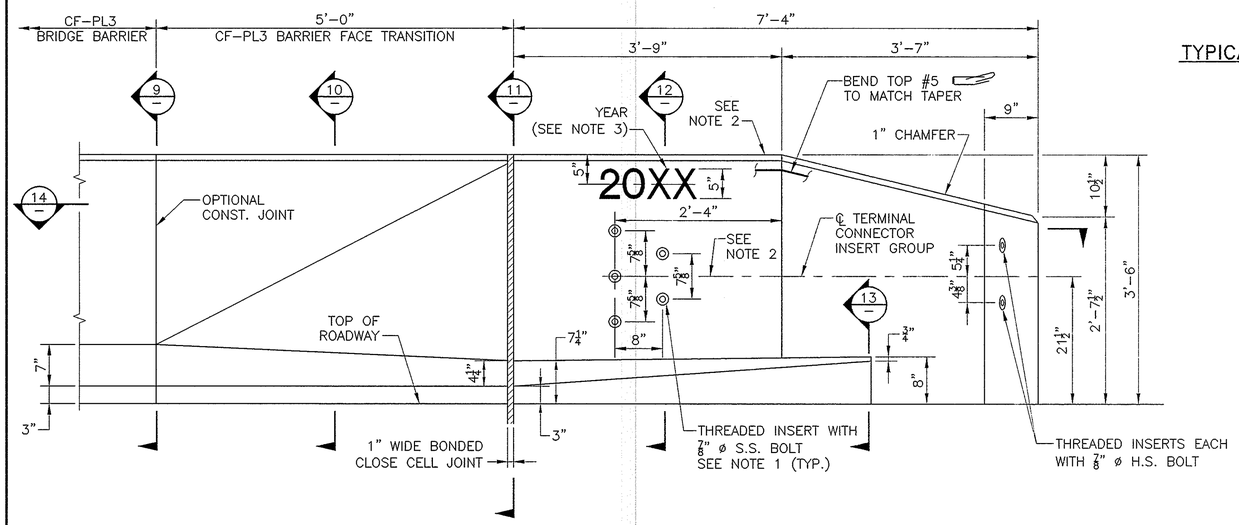
PLAN
SCALE: 1" = 1'-0"



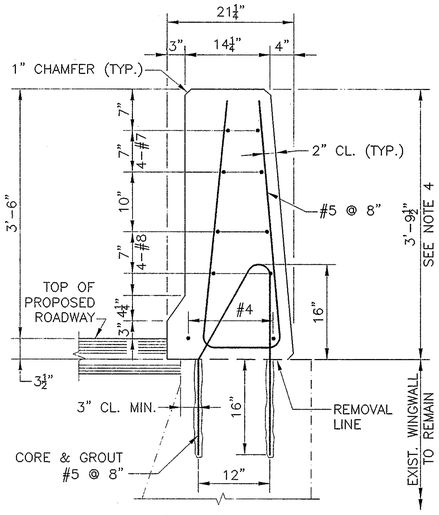
SECTION 9
TYPICAL CF-PL3 BRIDGE BARRIER
SCALE: 1" = 1'-0"



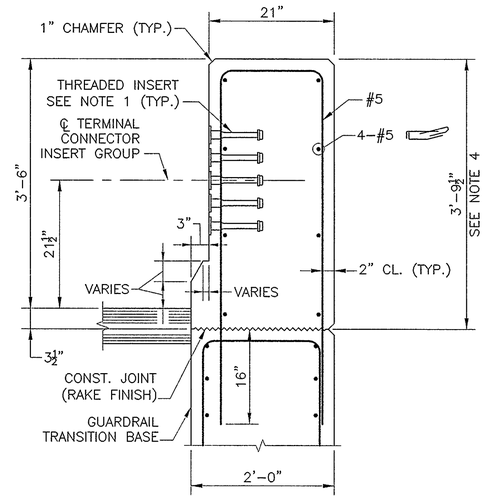
SECTION 10
SCALE: 1" = 1'-0"



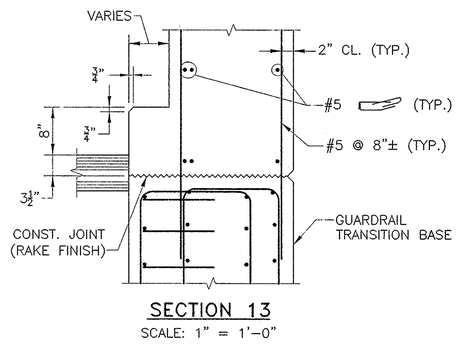
ELEVATION
SCALE: 1" = 1'-0"



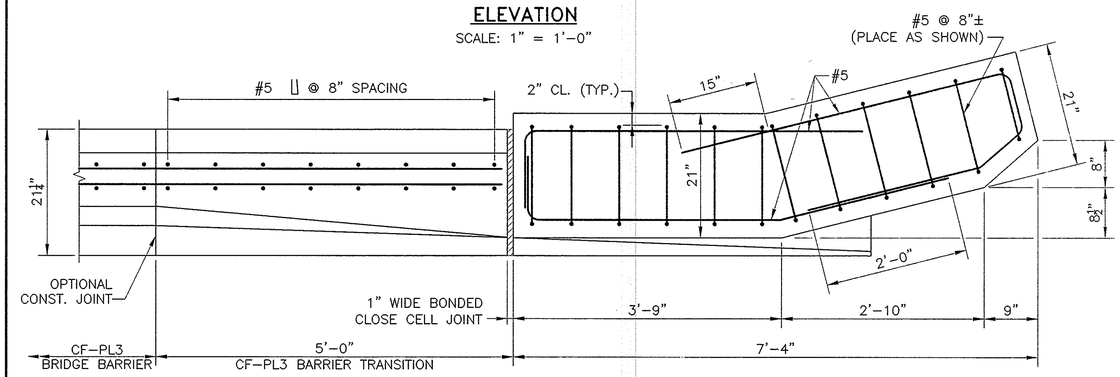
SECTION 11
SCALE: 1" = 1'-0"



SECTION 12
SCALE: 1" = 1'-0"



SECTION 13
SCALE: 1" = 1'-0"



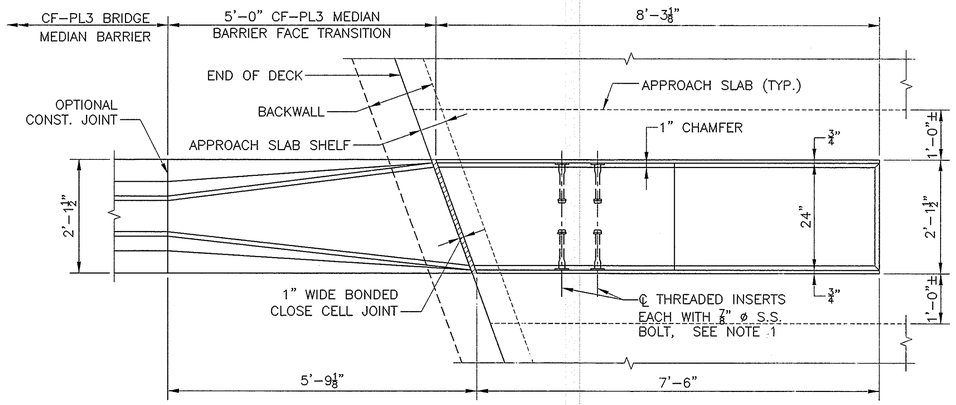
SECTION 14
SCALE: 1" = 1'-0"

NOTES:

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING AN ULTIMATE SHEAR CAPACITY OF 20 KIPS PER ⅞" ø S.S. BOLT. S.S. BOLTS SHALL BE ⅞" ø x 1½" LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR ⅞" S.S. BOLTS SHALL BE CAST-IN-PLACE AND GALVANIZED.
2. TOP OF GUARDRAIL TRANSITION AND TERMINAL CONNECTOR INSERT GROUP SHALL BE SLOPED TO MATCH THE PROFILE GRADE.
3. USE LATEST CONTRACT COMPLETION YEAR IN EFFECT WHEN THE FIRST GUARDRAIL TRANSITION IS CAST. USE THIS YEAR FOR ALL GUARDRAIL TRANSITIONS.
4. ALL CONCRETE FOR THE HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 PSI, ¾", 685 HP CEMENT CONCRETE.

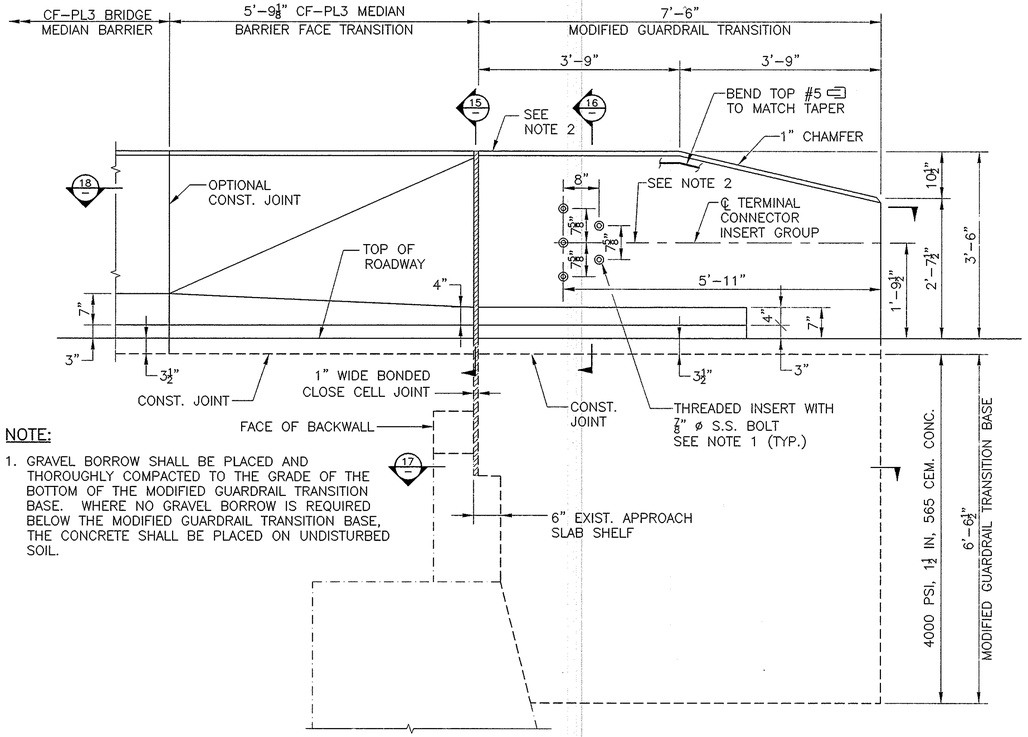
08-02-08	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	

STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
MASS.	NFA	2008	27	36
PROJECT FILE NO. 604981				



PLAN

SCALE: 3/4" = 1'–0"

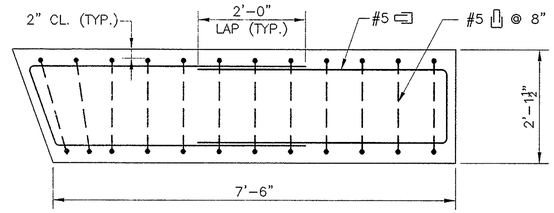


NOTE:

1. GRAVEL BORROW SHALL BE PLACED AND THOROUGHLY COMPACTED TO THE GRADE OF THE BOTTOM OF THE MODIFIED GUARDRAIL TRANSITION BASE. WHERE NO GRAVEL BORROW IS REQUIRED BELOW THE MODIFIED GUARDRAIL TRANSITION BASE, THE CONCRETE SHALL BE PLACED ON UNDISTURBED SOIL.

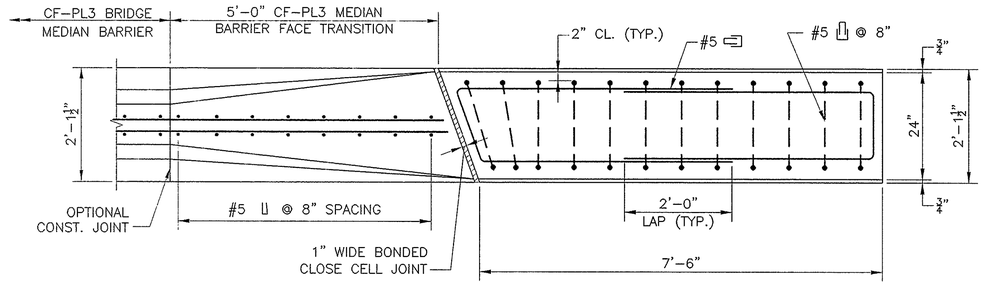
ELEVATION

SCALE: 1" = 1'–0"



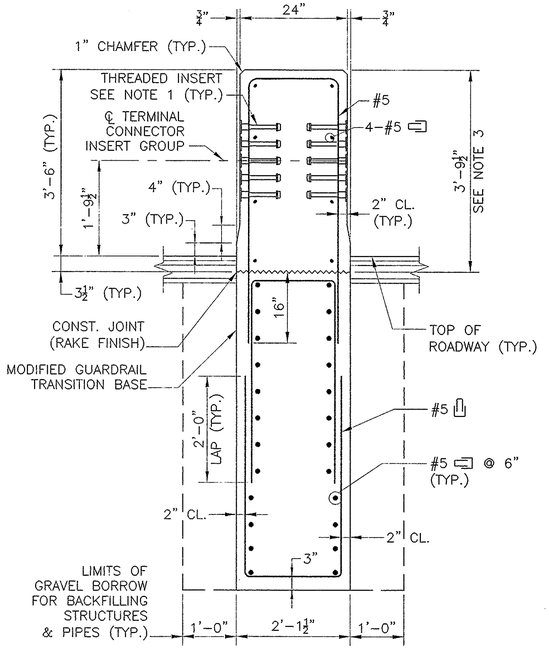
SECTION 17

SCALE: 1" = 1'–0"



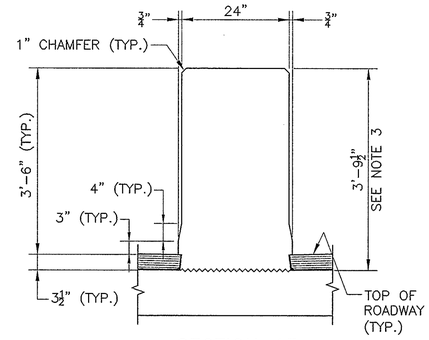
SECTION 18

SCALE: 1" = 1'–0"



SECTION 16

SCALE: ¾" = 1'–0"



SECTION 15

SCALE: 1" = 1'–0"

NOTES:

1. THREADED INSERTS SHALL BE PREQUALIFIED BY THE MANUFACTURER AS BEING CAPABLE OF DEVELOPING AN ULTIMATE SHEAR CAPACITY OF 20 KIPS PER ⅞" ø S.S. BOLT. S.S. BOLTS SHALL BE ⅞" ø x 1½" LONG FULLY THREADED AISI TYPE 304N STAINLESS STEEL. INSERTS FOR ⅞" S.S. BOLTS SHALL BE CAST–IN–PLACE AND GALVANIZED.
2. TOP OF GUARDRAIL TRANSITION AND TERMINAL CONNECTOR INSERT GROUP SHALL BE SLOPED TO MATCH THE PROFILE GRADE.
3. ALL CONCRETE FOR THE HIGHWAY GUARDRAIL TRANSITION SHALL BE 5000 PSI, ¾", 685 HP CEMENT CONCRETE.

08-02-08	ISSUED FOR CONSTRUCTION
DATE	DESCRIPTION
USE ONLY PRINTS OF LATEST DATE	