FORM 129 A REV. '64

CONVENTIONAL SIGNS

Minn. Proj. No. BH RS 6379(11)

STATE OF MINNESOTA

DEPARTMENT OF TRANSPORTATION

CONSTRUCTION PLAN FOR BRIDGE NO. 02501

County State Aid Highway No. 24

Between C.S.A.H. NO. 28 And ST. FRANCIS

From A PT. 1500' EAST & 950' NORTH OF S.W. COR. SEC 32, T34N, R 24W To A PT. 1890.67' EAST & 950' NO. OF S.W. COR. SEC. 32, T34 N, R24W.

Give proper reference to Sections, Township and Range

GROSS LENGTH ___ FEET ___ MILES
BRIDGES-LENGTH 390.67 FEET 0.074 MILES
EXCEPTIONS-LENGTH ___ FEET ___ MILES
NET LENGTH 390.67 FEET 0.074 MILES

INDEX OF SHEETS

Title Sheet & Layout Map

SHT. NO. 1-27 BRIDGE PLANS

ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH, IN THE CONSTRUCTION OF THIS PROJECT

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Paul K. Ruud DATE June 24 1985
COUNTY ENGINEER

ANOKA COUNTY REG. NO. 6549

RECOMMENDED FOR APPROVAL 6/27. 1985
DISTRICT STATE AID ENGINEER

RECOMMENDED FOR APPROVAL 7-2. 1985
BRIDGE ENGINEER

APPROVED 7/3 1985
STATE AID ENGINEER

DESIGN DESIGNATION

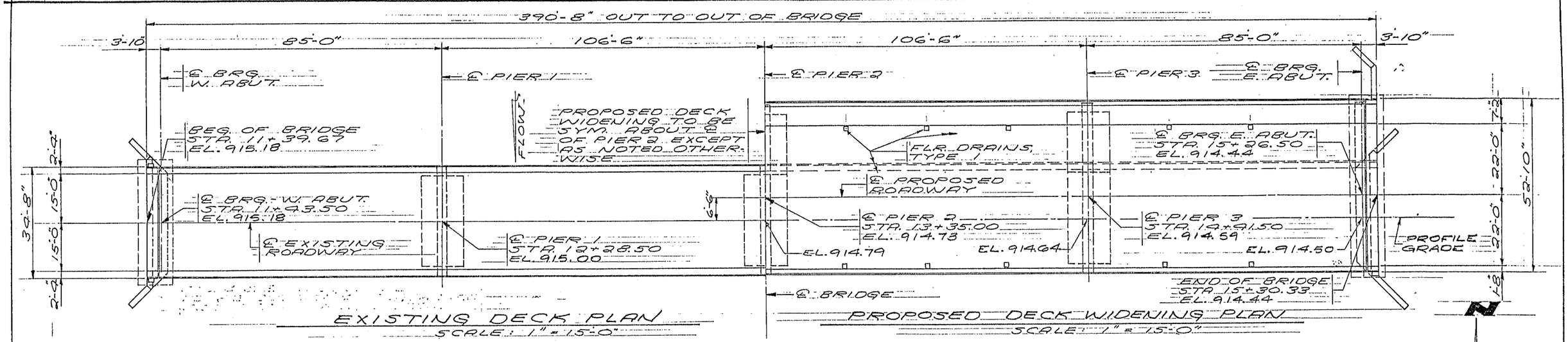
ADT (CURRENT YEAR) 5045 (1985)
ADT (FUTURE YEAR) 8071 (2005)
T (HEAVY COMMERCIAL)
___ Ton Design
Design Speed ___ MPH
Design Speed not achieved at:
STA. ___ TO STA. ___ MPH ___
STA. ___ ___ MPH ___

GOVERNING SPECIFICATIONS

THE 1983 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

Minn. Proj. No. ___ County Proj. No. ___
State Proj. No. 02-624-19 S.A.P. ___

ANOKA County. Minnesota. Plan No. 02501



CONSTRUCTION NOTES

THE 1983 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

BRIDGE SEAT REINFORCEMENT SHALL BE PLACED TO AVOID INTERFERENCE WITH DRILLING HOLES FOR ANCHOR RODS. THE SUPERSTRUCTURE GIRDERS SHALL BE ERECTED IN FINAL POSITION PRIOR TO DRILLING HOLES FOR AND PLACING ANCHOR RODS.

THE FIRST DIGIT OR THE FIRST TWO DIGITS OF EACH BAR MARK INDICATE THE BAR SIZE. BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED

DESIGN DATA (WIDENING)

1977 & INTERIM A.A.S.H.T.O. DESIGN SPECIFICATIONS LOAD FACTOR DESIGN METHOD - H-S20 LOADING.
REINFORCED CONCRETE:
f'c = 4000 P.S.I. n = 8
fy = 60 000 P.S.I. REINFORCEMENT
STRUCTURAL STEEL:
fy = 36 000 P.S.I. SPEC. 3306
fy = 50 000 P.S.I. SPEC. 3309

APPROX. DECK AREA = 20640 SQ. FT.
PROJECTED A.D.T. FOR 2005 = 8071

1985 =

LIST OF SHEETS

NO.	DESCRIPTION
1	GENERAL PLAN & ELEVATION
2	DECK CROSS SECTIONS
3 - 8	ABUTMENT DETAILS
9 & 10	PIER DETAILS
11 & 12	SUPERSTRUCTURE DETAILS
13	FRAMING PLAN
14	STRUCTURAL STEEL DETAILS
15	CAMBER & DEFLECTION DIAGRAMS
16	RAILING ELEVATION
17	CONCRETE & PIPE RAILING (TYPE M)
18	CONCRETE RAILING (TYPE J)
19 & 20	EXPANSION DEVICE
21 - 25	DETAILS
26 & 27	BRIDGE SURVEYS

THE FOLLOWING STANDARD PLATES APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

PLATE NO.	DESCRIPTION
0004A	SPECIFICATION REFERENCE TO STANDARD PLATES
8000I	BREAKAWAY BARRICADES
8003B	BREAKAWAY SIGN SUPPORT
8333A	TEMPORARY PORTABLE PRECAST CONCRETE BARRIER

APPROVED:
Paul K. Lund
COUNTY ENGINEER
ANOKA COUNTY
DATE: 7/19/84

I HEREBY CERTIFY THAT THIS PLAN IS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
REG. NO. 6924
DATE: 7-9-84

MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO. 02501
WIDEN ROWY. & ADD A SIDEWALK
19 MI. NO. OF ANOKA ON C.S.A.H. 24 OVER THE RUM RIVER.
85'-106'-6"-106'-6"-85'-0" CONT. WELDED BEAM SPANS
29'-0" ROWY, 6'-0" SIDEWALK
SPAN IDENT. NO. 401
GENERAL PLAN & ELEVATION
ST. FRANCIS TOWNSHIP
SEC. 32 TWP. 34N R. 24W
ANOKA COUNTY

APPROVED: [signature] 7-2-85
BRIDGE ENGINEER

PLANS PREPARED BY: ERICKSON ENGINEERING
3340 REPUBLIC AVE
ST. LOUIS PARK, MINNESOTA 55426

S.A. 02-629-19

SHEET 1 OF 27 SHEETS

02501

D.J.V.
R.R.T.

NOTES

NO CUTTING WILL BE PERMITTED UNTIL THE CUTTING LIMITS HAVE BEEN OUTLINED BY THE CONTRACTOR AND APPROVED BY THE ENGINEER. REMOVAL AND RECONSTRUCTION SHALL CONFORM TO SPEC. 2433.

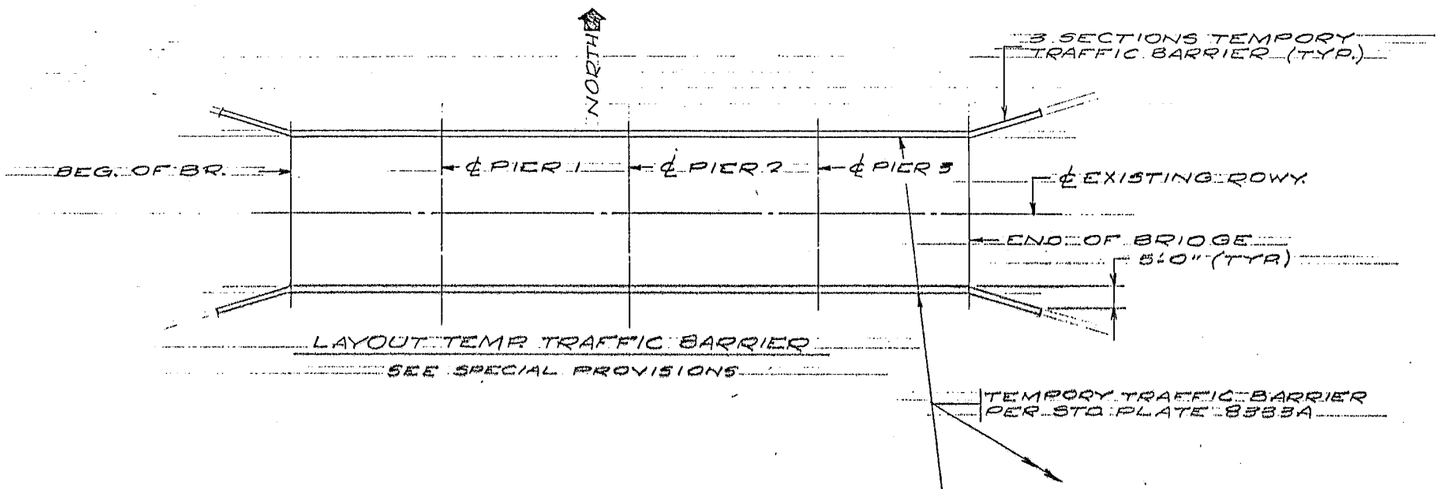
ALL ELEVATIONS AND DIMENSION SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD.

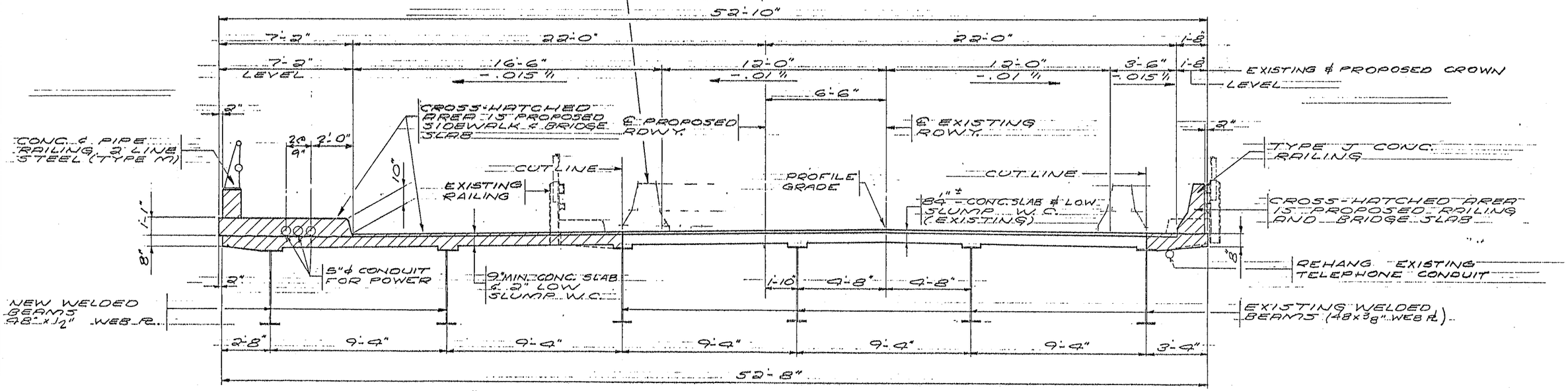
ALL STRUCTURAL STEEL SHALL BE PAINTED PER SPEC. 2477.

REMOVE GLAND FROM EXISTING EXPANSION DEVICE AND REPLACE IN RECONSTRUCTED EXP DEVICE IN ONE LENGTH. (SEE SPECIAL PROVS.)

SPECIAL SURFACE FINISH ON ALL NEW AND EXISTING CONCRETE.

PAINT ABUTMENT BRIDGE SEAT WITH EPOXY.





TYPICAL SECTION THRU PROPOSED NEW DECK

SCALE: ⅜" = 1'-0"

SCHEDULE OF QUANTITIES FOR BRIDGE WIDENING

ITEM NO.	ITEM	QUANT.	UNIT
2401.512	BRIDGE SLAB CONCRETE (3X36)	9700 (P)	SQ FT.
2404.501	CONCRETE OVERLAY (3U17A)	6185 (P)	SQ. FT.
2401.501	STRUCTURE CONCRETE (1A43)	101 (P)	CU.YD.
2401.501	STRUCTURE CONCRETE (3Y43)	149 (P)	CU.YD.
2401.501	STRUCTURE CONCRETE (3X46)	168 (P)	CU.YD.
2401.541	REINFORCEMENT BARS	57000 (P)	POUND
2401.541	REINFORCEMENT BARS (EPOXY COATED)	52490 (P)	POUND
2402.521	STRUCTURAL STEEL, (3309)	185100 (P)	POUND
2402.546	FLOOR DRAINS, TYPE 1	20	EACH
0401.601	FOUNDATION PREPARATION (PIER 1)	1	LUMP SUM
0401.601	FOUNDATION PREPARATION (PIER 2)	1	LUMP SUM
0401.601	FOUNDATION PREPARATION (PIER 3)	1	LUMP SUM
2402.591	EXPANSION JOINT DEVICES TYPE 3	32	LIN. FT.
2402.585	PIPE RAILING, TYPE M	391 (P)	LIN. FT.
2433.501	STRUCTURE REMOVALS	1	LUMP SUM
2477.501	ZINC-RICH PAINT SYSTEM (NEW)	1	LUMP SUM
0401.601	STRUCTURE EXCAVATION	1	LUMP SUM
2021.501	MOBILIZATION	1	LUMP SUM
0401.612	SPECIAL SURFACE FINISH	9580	SQ. FT.
0402.607	EXP. CURVED PLATE BRG. A55'M. TYPE 1	8	EACH
0402.607	EXP. (VULCANIZED) CURVED PLATE BRG. A55'M, TYPE 2	4	EACH
0402.607	EXP. CURVED PLATE BRG. A55'M, TYPE 3	4	EACH
0402.606	FIXED CURVED PLATE BRG. A55'M. TYPE 1	2	EACH
0514.601	FABRIC-FORMED SLOPE PAVING	490	SQ.YD.
2511.511	GRANULAR FILTER	74	CU.YD.
2452.510	STEEL H-PILING DRIVEN, 12"	840	LIN. FT.
2452.511	STEEL H-PILING DELIVERED, 12"	840	LIN. FT.
2452.520	STEEL H-TEST PILES, 45 FT. LONG, 12".	3	EACH
2452.503	TREATED TIMBER PILING DELIVERED	585	LIN. FT.
2452.504	TREATED TIMBER PILING DRIVEN	585	LIN. FT.
2452.517	TREATED TIMBER TEST PILES, 35 FT. LG.	1	EACH
0546.601	CONDUIT SYSTEM PROVISIONS (TELEPHONE)	1	LUMP SUM
2452.517	TREATED TIMBER TEST PILES, 40 FT. LG.	1	EACH
0104.601	REMOVE MISCELLANEOUS STRUCTURES	1	LUMP SUM
0433.604	CONCRETE REPAIR	1	LUMP SUM
0452.602	PILE TIP PROTECTION, 12"	27	EACH
2545.509	CONDUIT SYSTEM (POWER)	1	LUMP SUM
2477.501	ZINC-RICH PAINT SYSTEM (OLD)	1	LUMP SUM
0554.603	CONCRETE MEDIAN BARRIER, DES. 8333	890	LIN. FT.

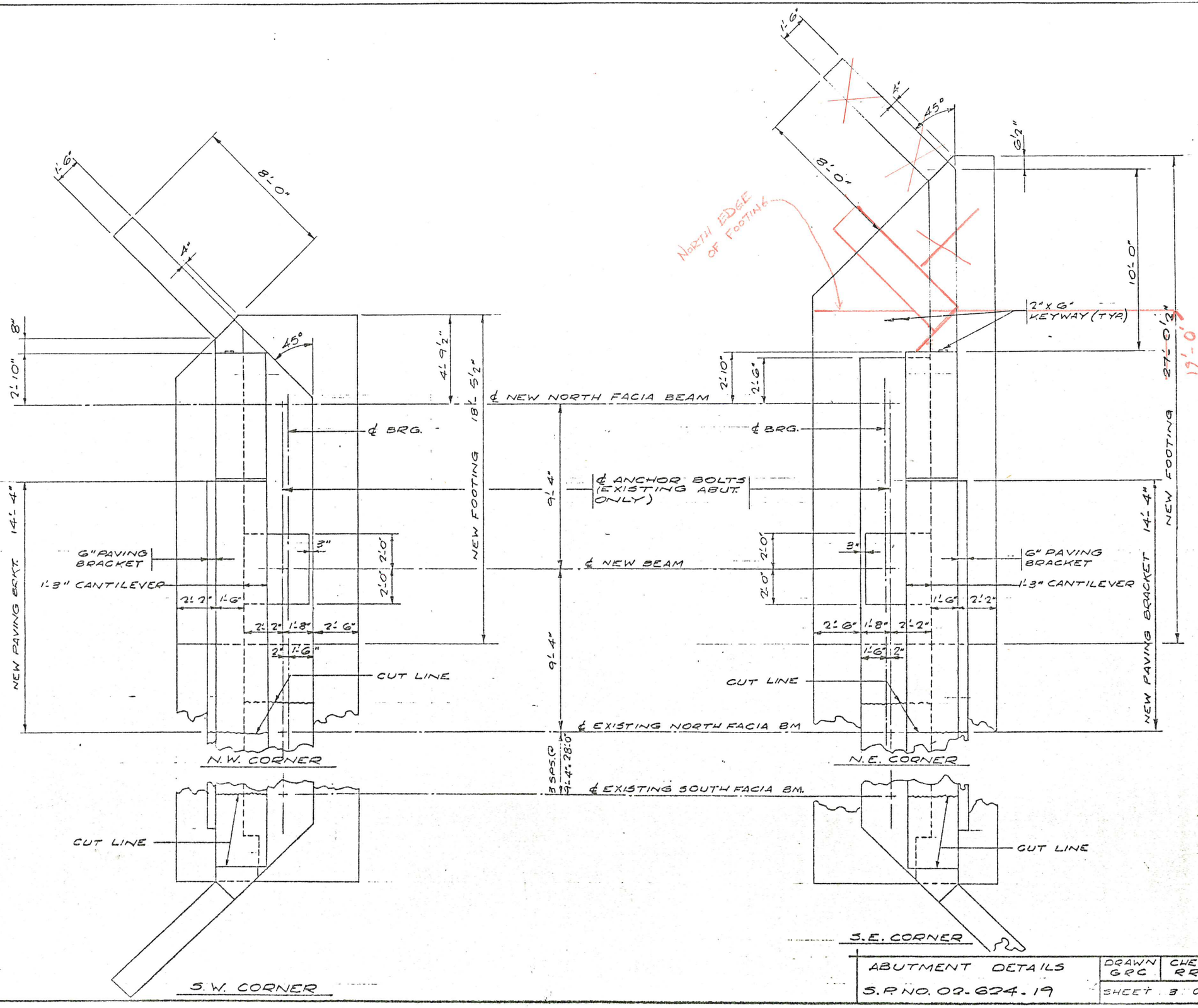
DECK CROSS SECTION

DRAWN: D.J.V.	CHECKED: A.R.T.	APPROVED

SHEET 2 OF 27 SHEETS

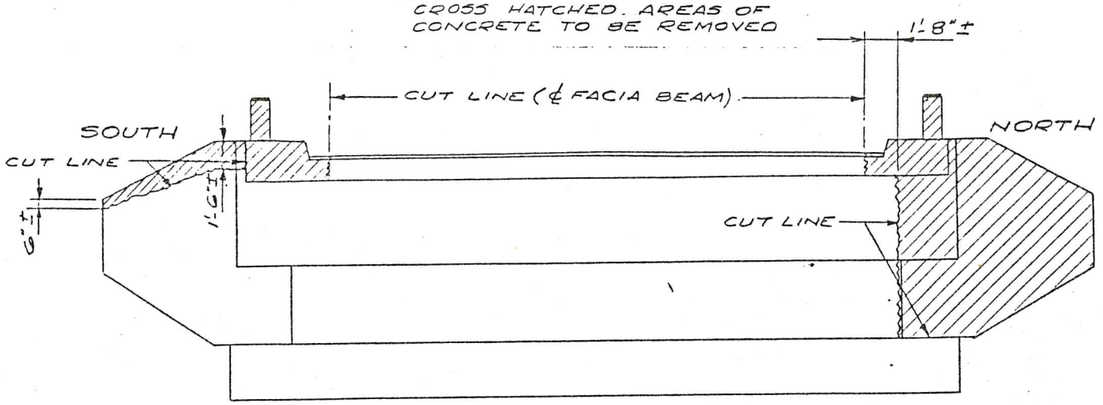
BRIDGE NUMBER 02501

SPN 0.00.404.19



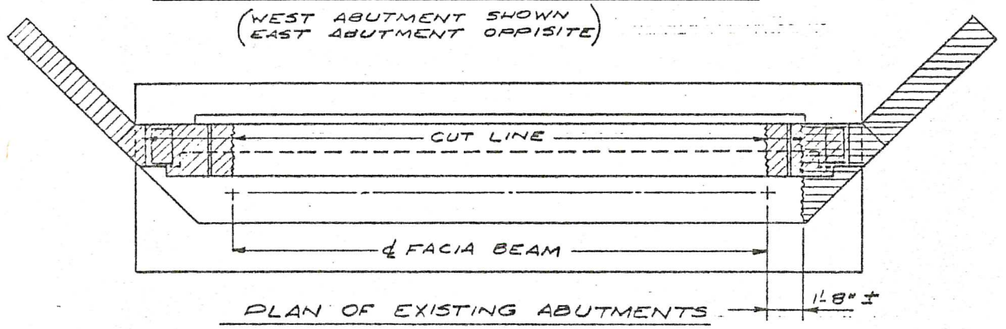
ABUTMENT DETAILS	DRAWN GRC	CHECK RRT	APPROVED:
S.P NO. 02-624-19	SHEET 3 OF 27 SHEETS		BRIDGE NUMBER 02501

NOTE:
CROSS HATCHED AREAS OF CONCRETE TO BE REMOVED

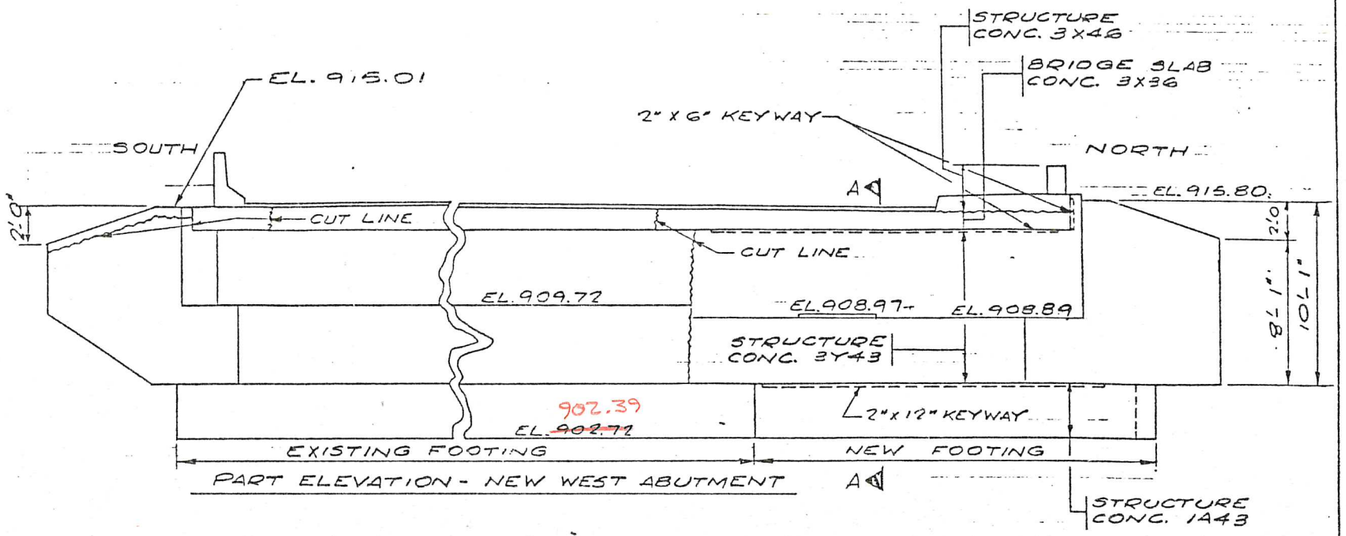


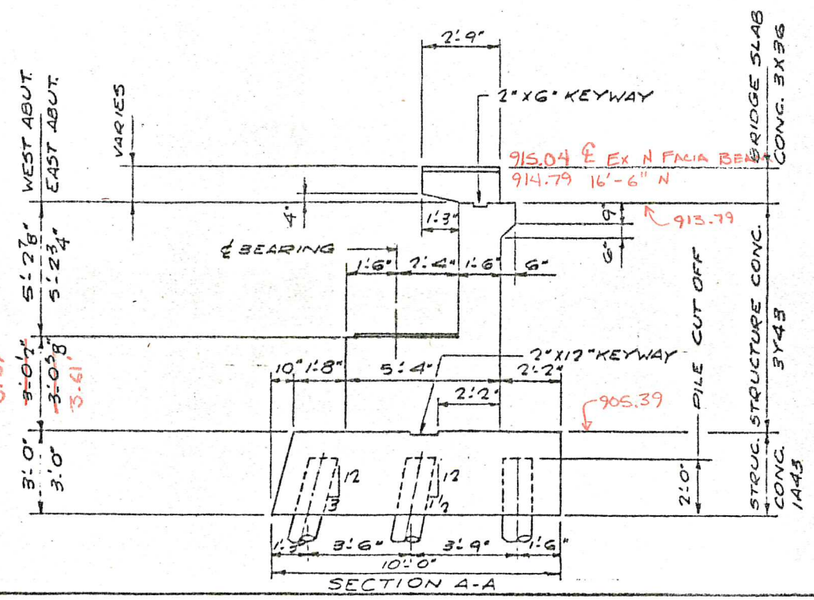
ELEVATION OF EXISTING ABUTMENTS

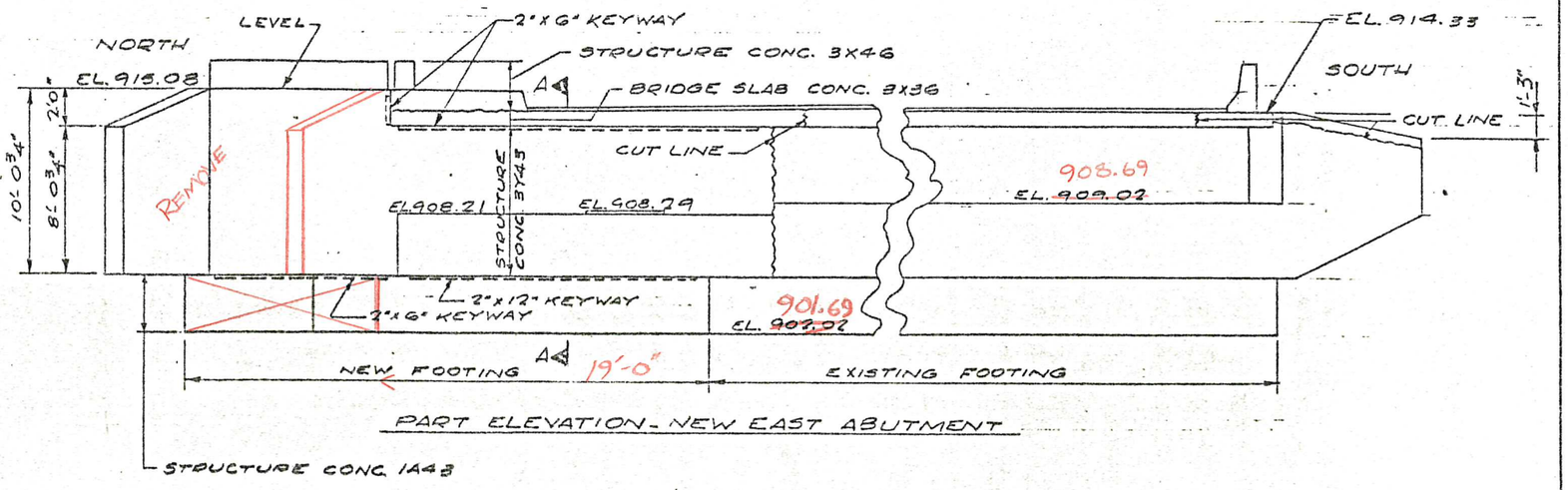
(WEST ABUTMENT SHOWN
EAST ABUTMENT OPPISITE)



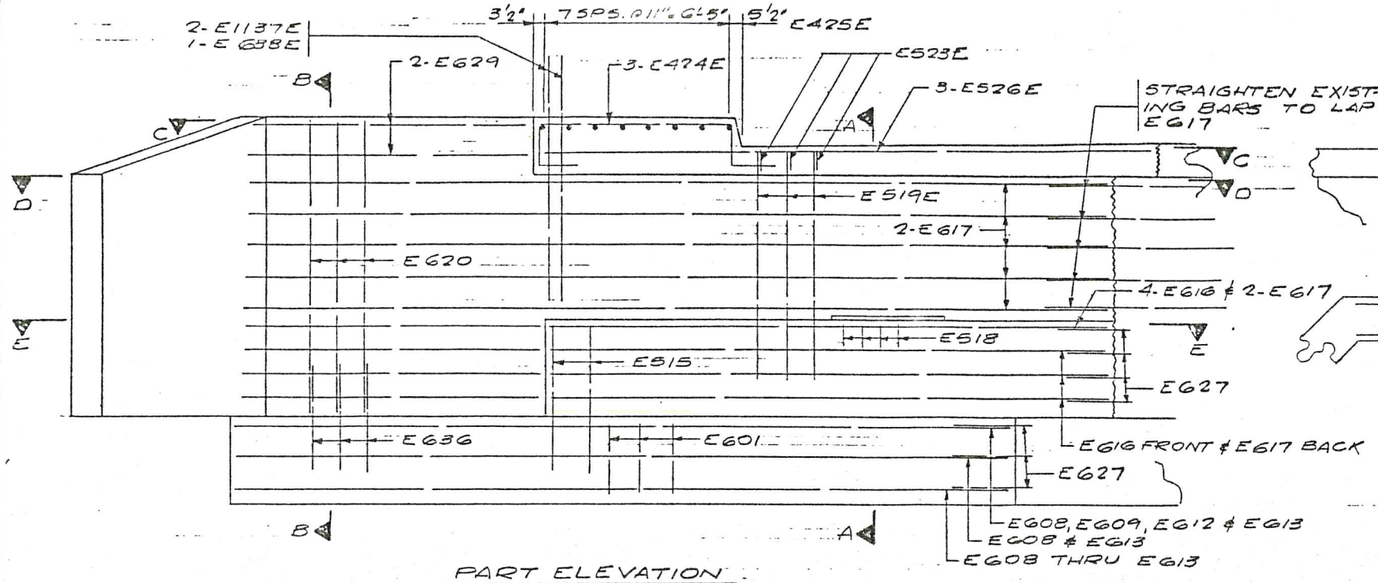
PLAN OF EXISTING ABUTMENTS





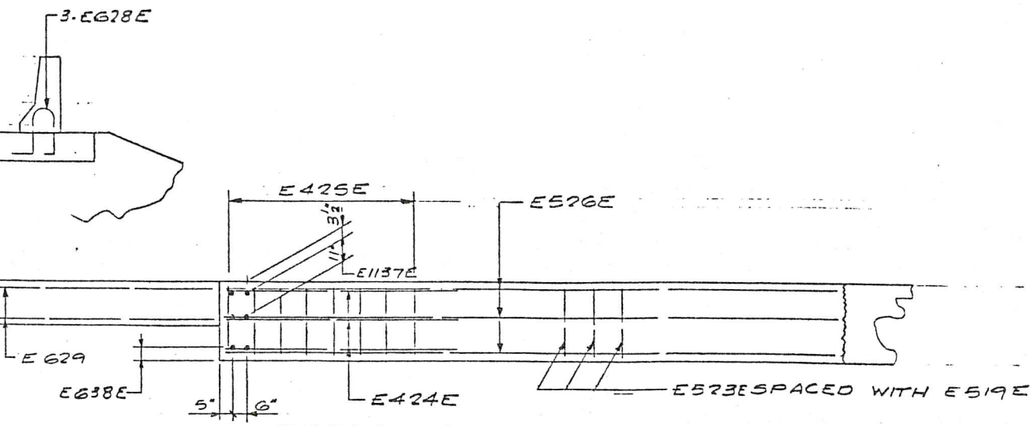


ABUTMENT DETAILS	DRAWN GRC	CHECK RRT	APPROVED:	BRIDGE NUMBER 07501
S.P.NO. 02-624-19	SHEET 4 OF 27 SHEETS			

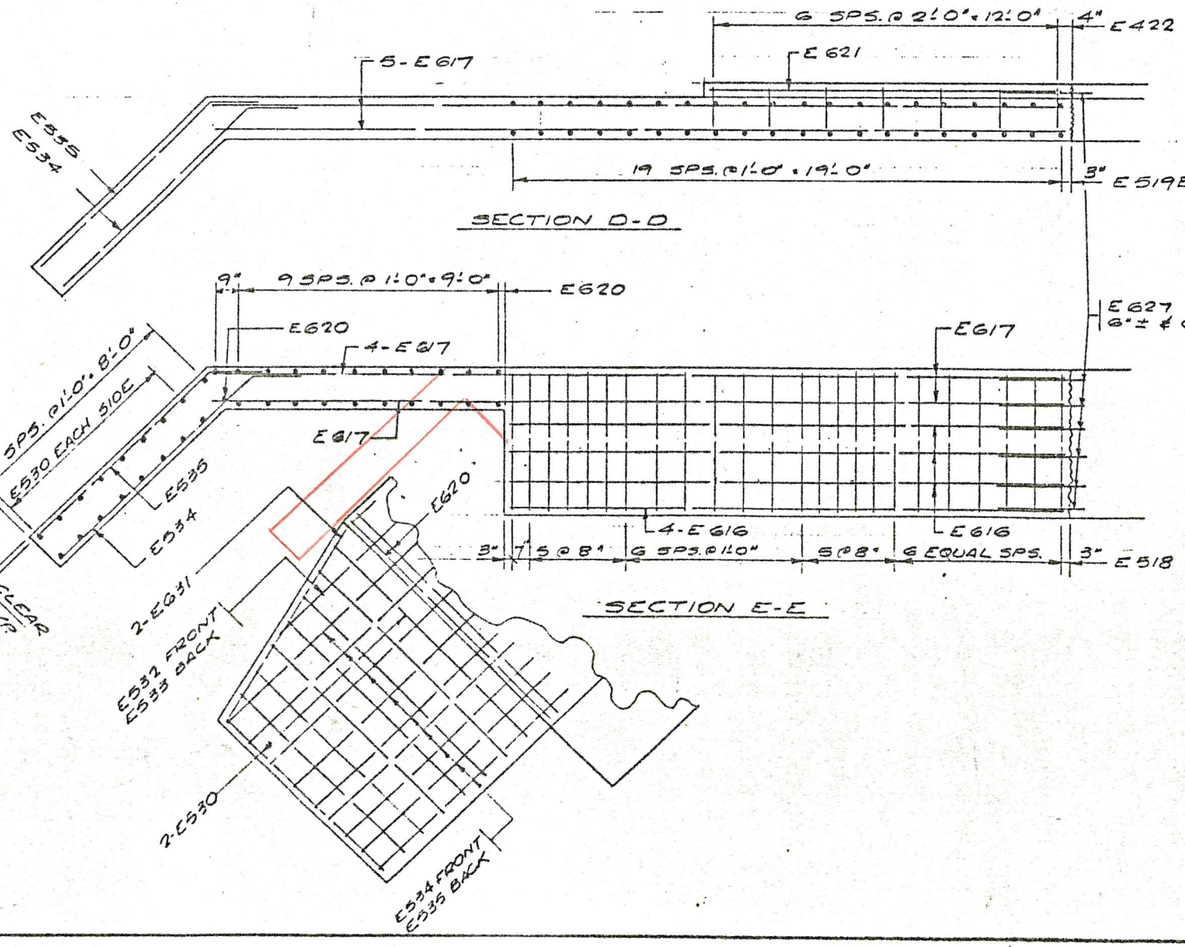


PART ELEVATION

SCALE : 3/8" = 1'-0"

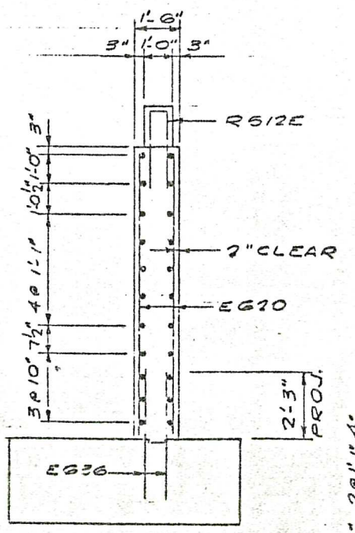


SECTION C-C

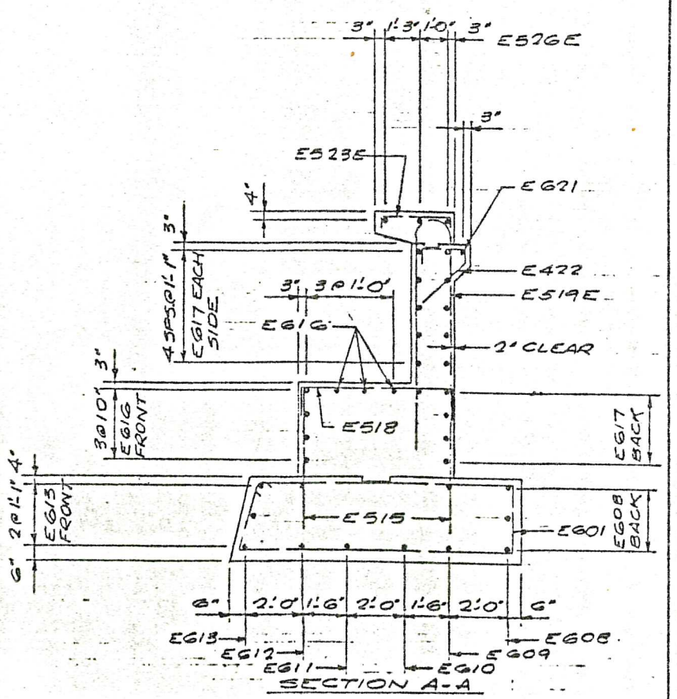


SECTION D-D

SECTION E-E

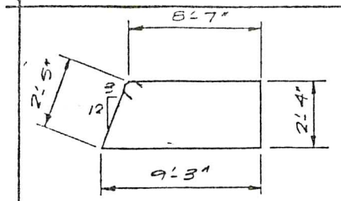


SECTION B-B

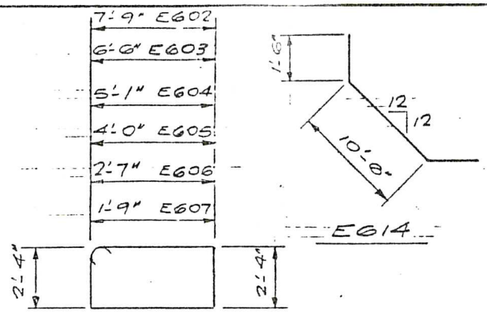


SECTION A-A

EAST ABUTMENT S.P. NO. 02-624-19	DRAWN GRC	CHECK RRT	APPROVED:	BRIDGE NUMBER 02501
	SHEET 7 OF 27 SHEETS			

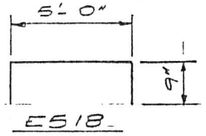


E601

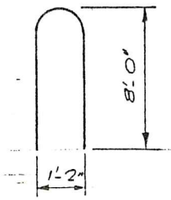


E602 - E607

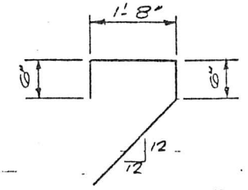
E614



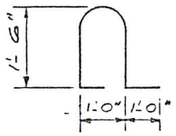
E523E



E519E

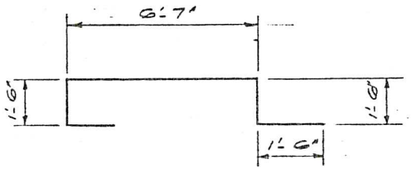


E422

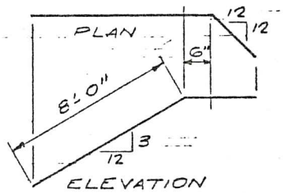


E628E

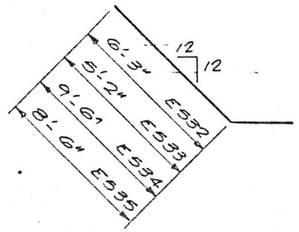
E638E



E424E

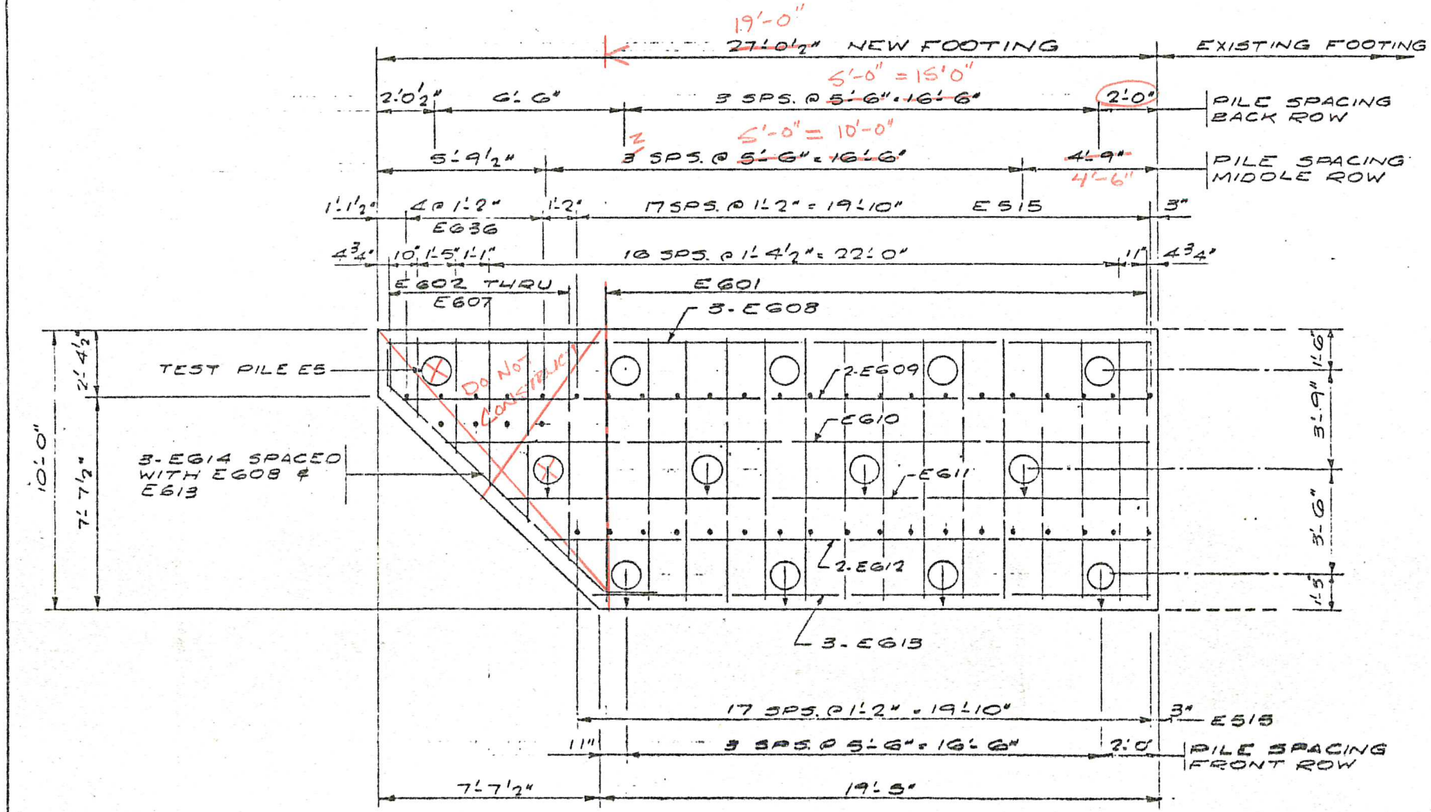


E631



E532 - E535

BILL OF REINF. - EAST ABUTMENT				
BAR	NO.	LEN.	SHAPE	LOCATION
E601	15	23'-6"	BENT	FOOTING - TIES
E607	1	20'-11"	"	" "
E603	1	18'-5"	"	" "
E604	1	15'-7"	"	" "
E605	1	13'-5"	"	" "
E606	1	10'-5"	"	" "
E607	1	8'-11"	"	" "
E608	3	26'-4"	STR.	"
E609	2	26'-0"	"	"
E610	1	24'-5"	"	"
E611	1	22'-4"	"	"
E612	2	21'-0"	"	"
E613	3	19'-0"	"	"
E614	3	13'-6"	BENT	"
E515	36	4'-2"	STR.	" DOWELS
E616	7	19'-3"	"	BR. SEAT
E617	15	29'-7"	"	" " & PARAPET
E518	24	6'-6"	BENT	" "
E519E	20	16'-8"	"	PARAPET
E620	23	10'-0"	STR.	"
E621	1	12'-4"	"	PAVING BRACKET
E422	7	4'-9"	BENT	" "
E523E	20	3'-4"	"	ROADWAY
E424E	3	12'-6"	"	"
E425E	8	2'-5"	STR	"
E526E	3	21'-0"	"	"
E627	25	3'-0"	"	DOWELS
E628E	3	5'-6"	"	END POST DOWEL
E529	4	8'-5"	STR.	PARAPET HORZ.
E530	2 SERIES OF 8	7'-3" TO 9'-0"	"	WINGWALL
E631	2	10'-0"	BENT	"
E532	1	7'-9"	"	"
E533	1	6'-8"	"	"
E534	9	11'-0"	"	"
E535	9	10'-0"	"	"
E636	9	5'-6"	STR.	PARAPET DOWELS
E1137E	4	8'-0"	"	END POST
E638E	2	4'-9"	BENT	" "



FOOTING PLAN

SCALE: ⅜" = 1'-0"

SUMMARY OF QUANTITIES - EAST ABUTMENT			
STRUCTURE CONCRETE (1A43)	21	27	CU.YD.
STRUCTURE CONCRETE (3Y43)	24	29	CU.YD.
REINFORCEMENT BARS	3010	3310	LB.
(2) STRUCTURE EXCAVATION			
(1) TREATED TIMBER PILING DELIVERED		360	LIN. FT.
TREATED TIMBER PILING DRIVEN		360	LIN. FT.
TREATED TIMBER TEST PILES, 40 FT. LG.		1	EACH
REINFORCEMENT BARS (EPOXY COATED)		730	LB.
(2)(3) CONCRETE REPAIR			

(1) DOES NOT INCLUDE TEST PILES
(2) SEE SPECIAL PROVISIONS
(3) APPROX. AREA: 45 SQ. FT.

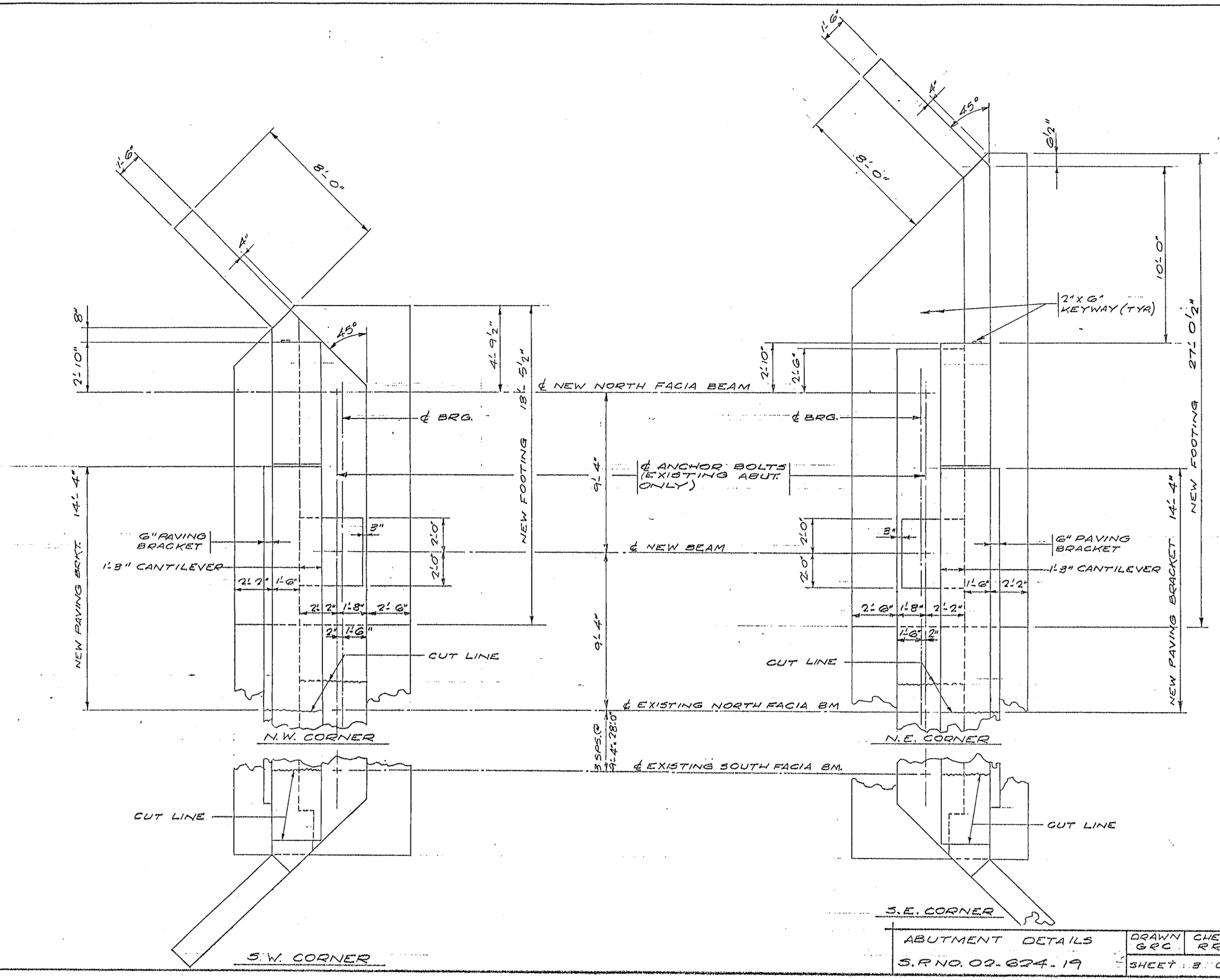
PILE NOTES

1 TREATED TIMBER TEST PILE 40 FT. LONG
12 " " PILES EST. LENGTH 30 FT.
13 " " REQ'D FOR EAST ABUT.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
PILES MARKED THUS ⟶ TO BE BATTERED 3" PER FT. IN FRONT ROW AND 1½" PER FT IN MIDDLE ROW IN DIRECTION SHOWN.

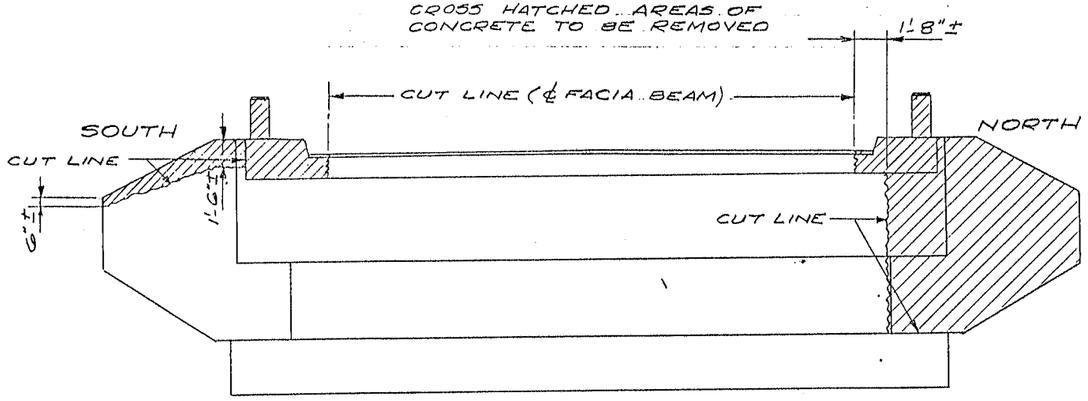
COMPUTED PILE LOADS - TONS / PILE	
DEAD LOAD + EARTH PRESSURE	23.4
LIVE LOAD	5.6
TOTAL	29.0

EAST ABUTMENT	DRAWN GRC	CHECK RRT	APPROVED:	BRIDGE NUMBER 02501
S.P NO. 02-624.19	SHEET 8 OF 27 SHEETS			

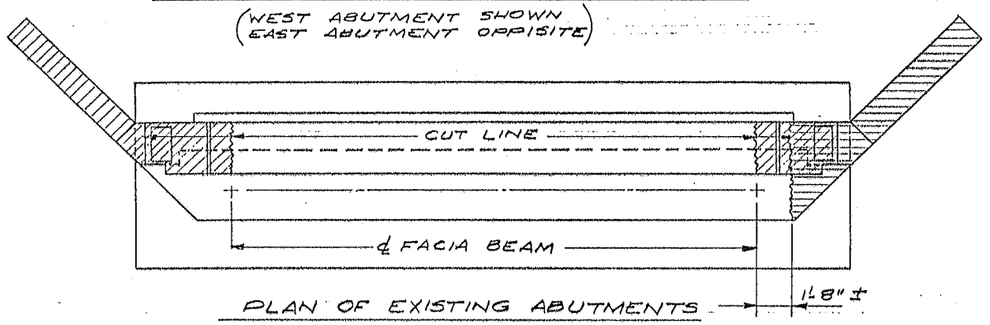


ABUTMENT DETAILS	DRAWN GRC	CHECK RRT	APPROVED:
S.P.NO. 00-624-19	SHEET 8 OF 27 SHEETS		BRIDGE NUMBER 02501

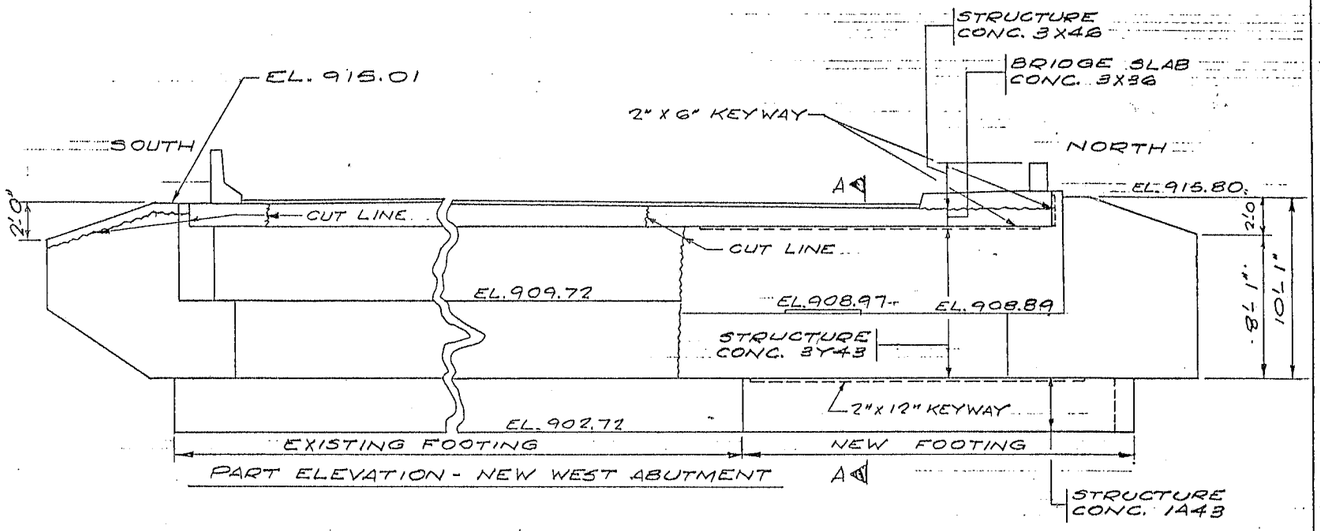
NOTE:
CROSS HATCHED AREAS OF CONCRETE TO BE REMOVED



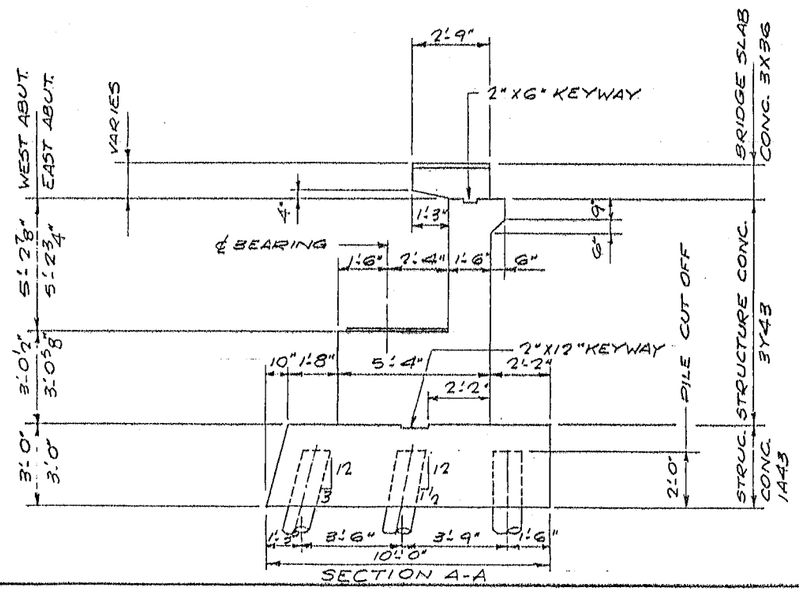
ELEVATION OF EXISTING ABUTMENTS
(WEST ABUTMENT SHOWN
EAST ABUTMENT OPPISITE)

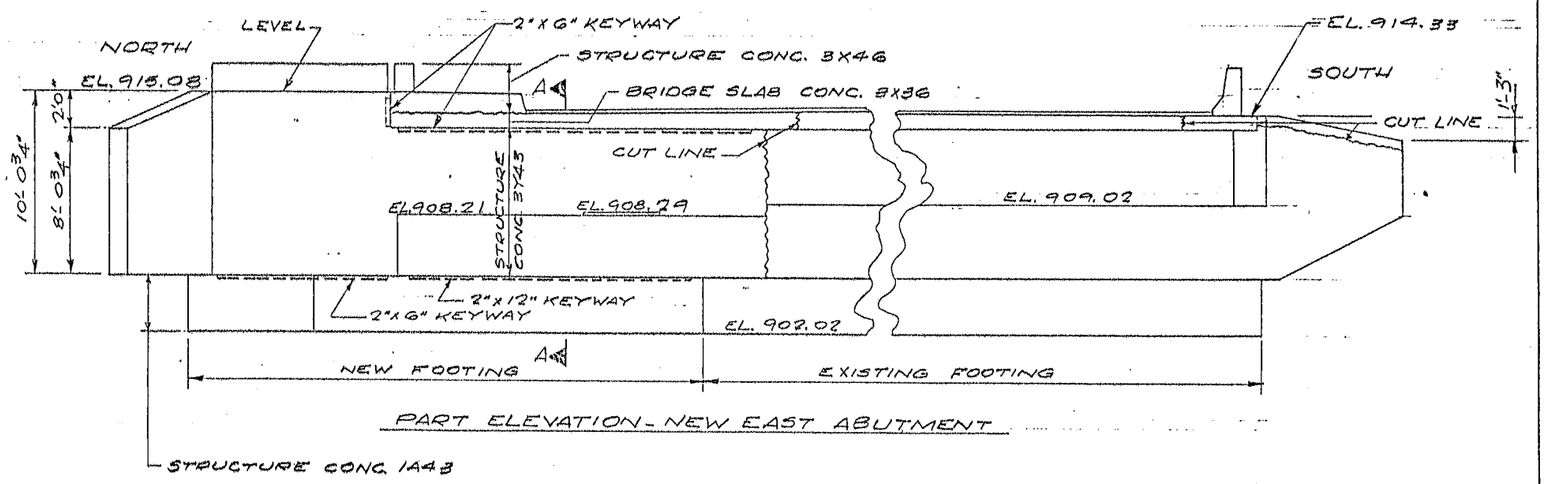


PLAN OF EXISTING ABUTMENTS



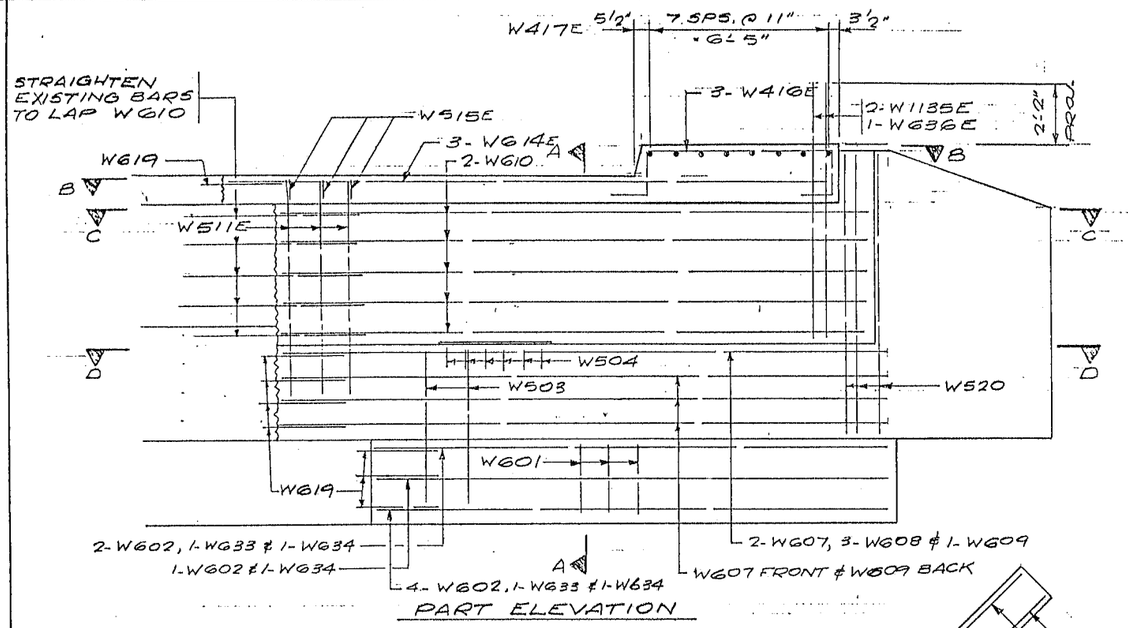
PART ELEVATION - NEW WEST ABUTMENT



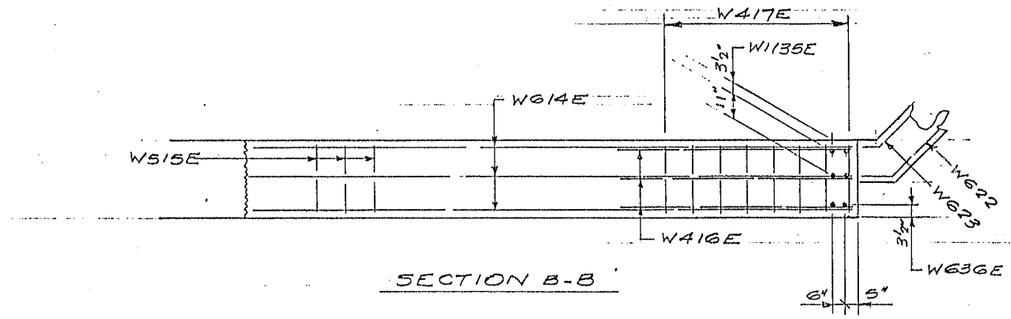


PART ELEVATION - NEW EAST ABUTMENT

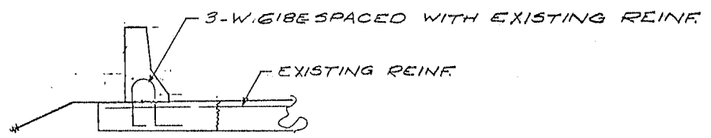
ABUTMENT DETAILS	DRAWN GRC	CHECK RRT	APPROVED:	BRIDGE NUMBER 02501
S.R NO. 02-604-19	SHEET 4 OF 27 SHEETS			

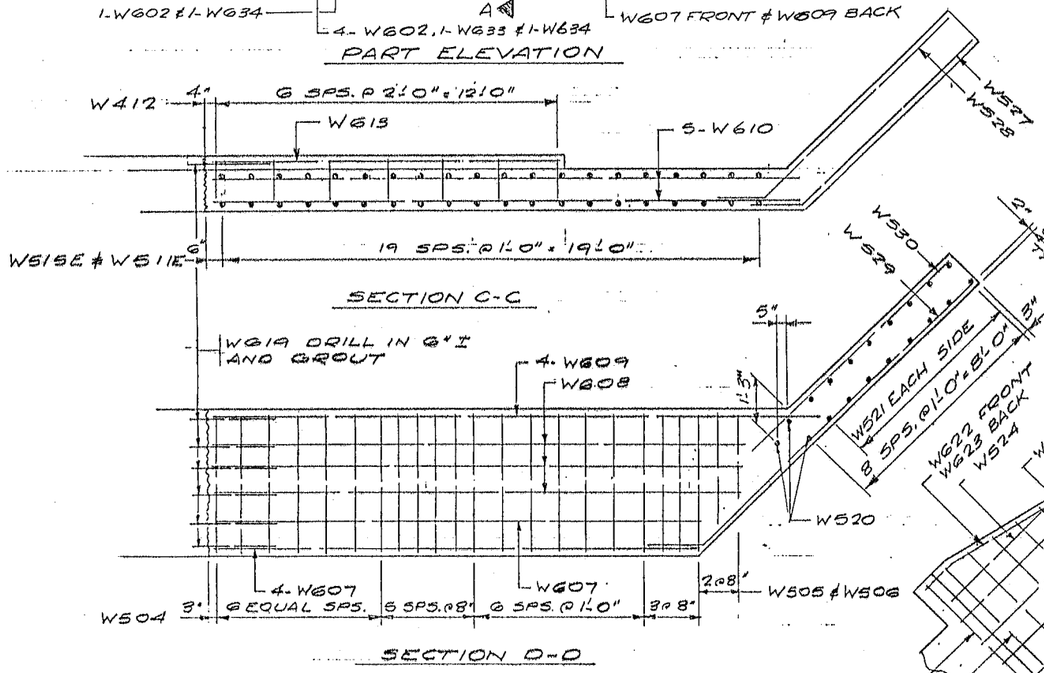


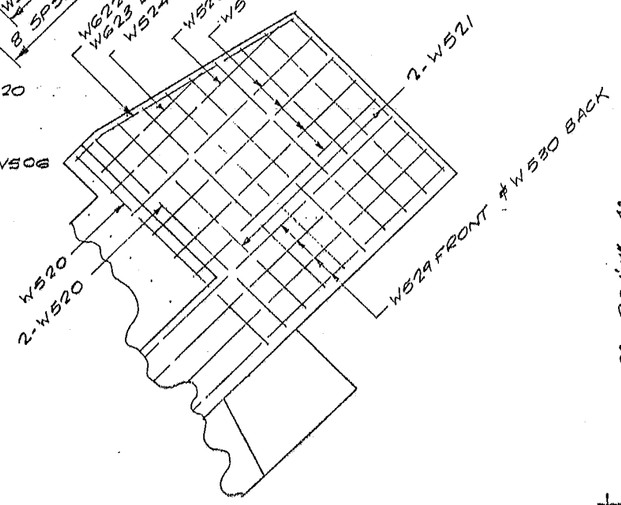
PART ELEVATION

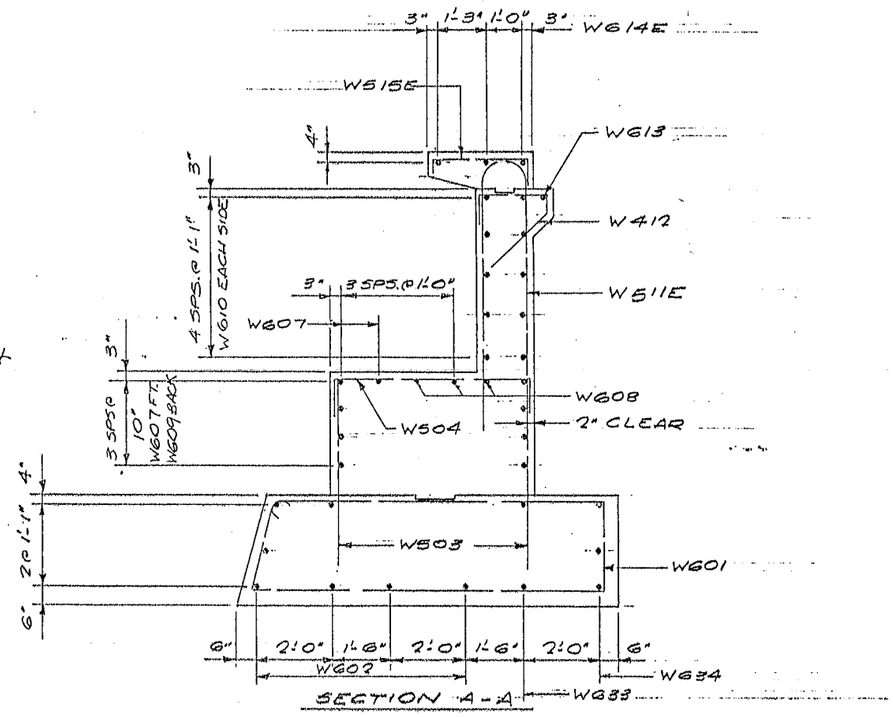


SECTION B-B

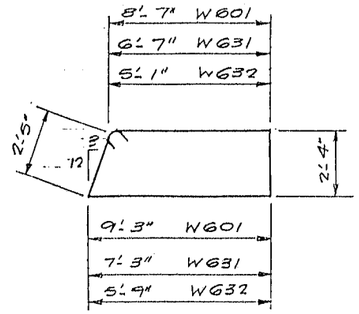




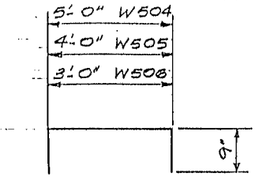




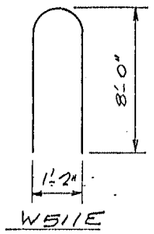
WEST ABUTMENT	DRAWN GRC	CHECK RRT	APPROVED:	BRIDGE NUMBER 02501
S.P.NO. 02-02-4-19	SHEET 6 OF 27 SHEETS			



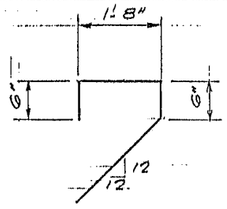
W601, W631 & W632



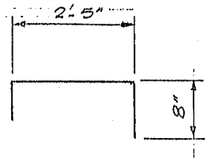
W504, W505 & W506



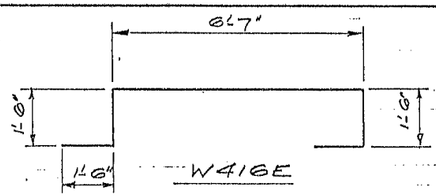
W511E



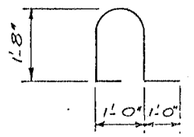
W412



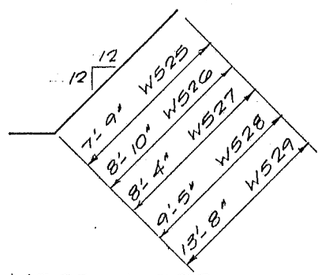
W515E



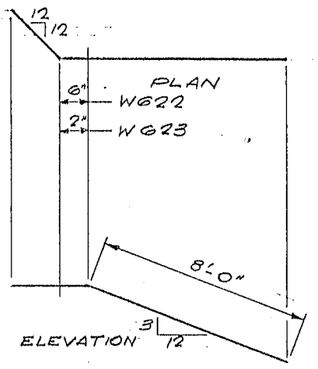
W416E



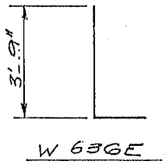
W 618E



W525 - W529

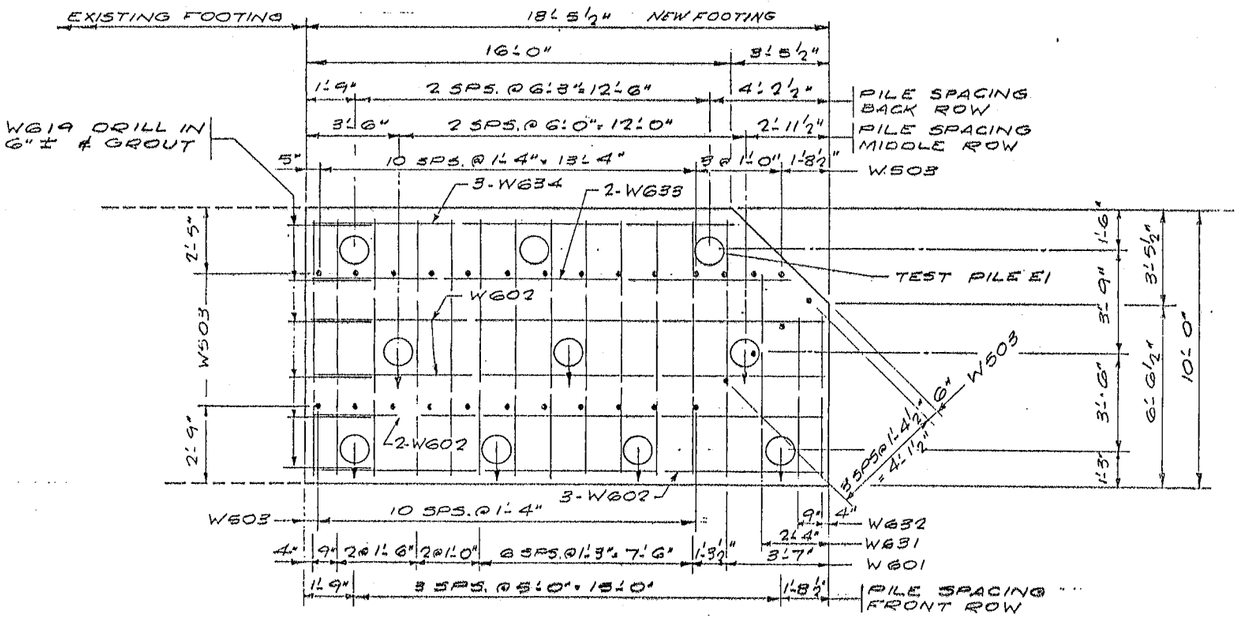


A622 & A623



W 636E

BILL OF REINF. - WEST ABUTMENT				
BAR	NO.	LEN.	SHAPE	LOCATION
W601	18	23'-6"	BENT	FOOTING - TIES
W602	7	17'-11"	STR.	" LONGIT.
W603	29	4'-2"	"	" DOWELS
W604	21	6'-6"	BENT	BRIDGE SEAT
W505	1	5'-6"	"	" "
W506	1	4'-6"	"	" "
W607	5	17'-3"	STR.	" "
W608	3	18'-9"	"	" "
W609	4	21'-6"	"	" "
W610	10	20'-9"	"	PARAPET
W511E	20	16'-8"	BENT	"
W412	7	4'-9"	"	PAVING BRACKET
W613	1	12'-0"	STR.	" "
W614E	3	21'-0"	"	ROADWAY
W515E	20	3'-4"	BENT	"
W416E	3	12'-6"	"	"
W417E	8	2'-5"	STR.	"
W618E	3	5'-6"	BENT	END POST - DOWEL
W619	25	3'-0"	STR.	DOWEL
W520	3	9'-9"	STR.	WINGWALL
W521	2 SERIES OF 8	7'-6" TO 9'-3"	"	"
W622	1	9'-6"	BENT	"
W623	1	8'-9"	"	"
W524	2	4'-10"	STR.	"
W525	1	9'-9"	BENT	"
W526	1	10'-10"	"	"
W527	4	10'-4"	"	"
W528	4	11'-5"	"	"
W529	4	13'-8"	"	"
W530	4	9'-9"	STR.	"
W631	1	19'-6"	BENT	FOOTING - TIES
W632	2	16'-6"	"	" "
W633	2	17'-0"	STR.	" LONGIT.
W634	3	18'-0"	"	" "
W115E	4	8'-0"	"	END POST
W636E	2	4'-9"	BENT	" "



FOOTING PLAN

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

SUMMARY OF QUANTITIES - WEST ABUTMENT		
STRUCTURE CONCRETE (1A43)	20	CU. YD.
STRUCTURE CONCRETE (3Y43)	22	CU. YD.
REINFORCEMENT BARS	2330	LB.
REINFORCEMENT BARS (EPOXY COATED)	780	LB.
② STRUCTURE EXCAVATION		
① TREATED TIMBER PILING DELIVERED	225	LIN. FT.
① TREATED TIMBER PILING DRIVEN	225	LIN. FT.
TREATED TIMBER TEST PILES, 35 FT. LG.	1	EACH

① DOES NOT INCLUDE TEST PILES.

② SEE SPECIAL PROVISIONS.

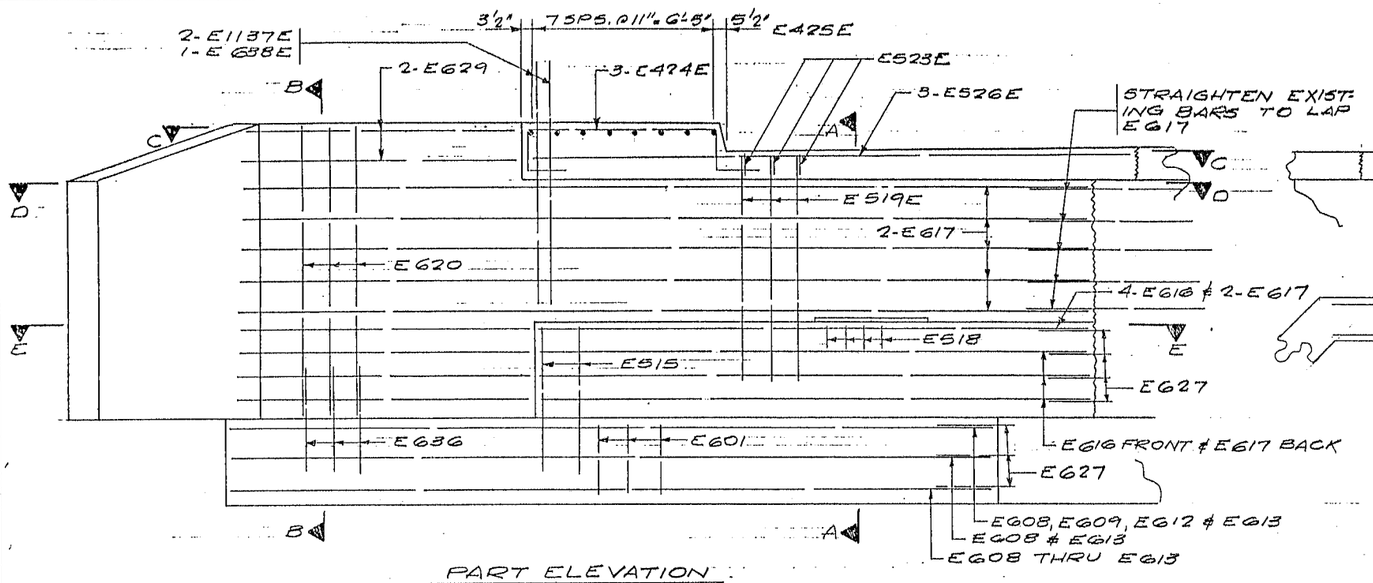
PILE NOTES

1 TREATED TIMBER TEST PILES 35 FT. LG.
9 " " PILES EST. LENGTH 25 FT.
10 " " REQ'D FOR WEST ABUT.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
PILES MARKED THUS ⊖ TO BE BATTERED 3" PER FT. FRONT ROW AND 1½" PER FT IN MIDDLE ROW IN DIRECTION SHOWN.

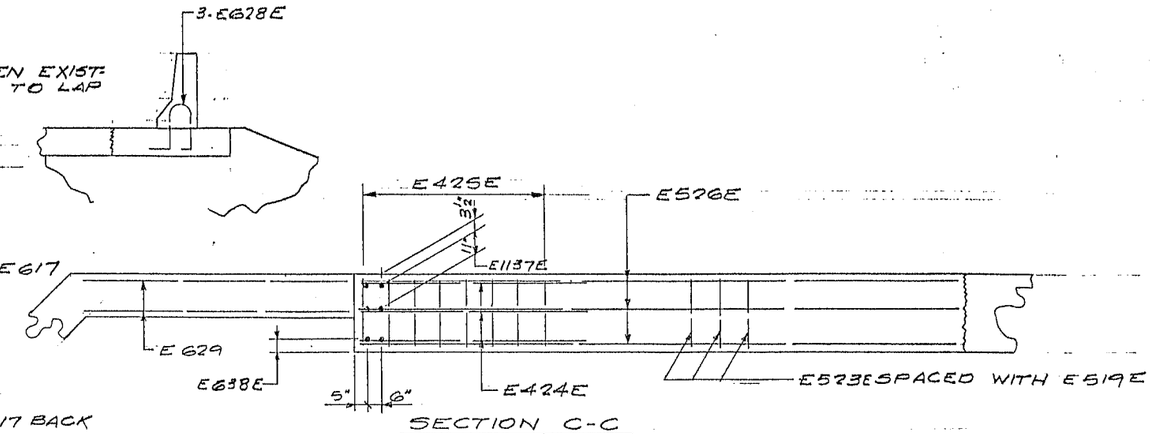
COMPUTED PILE LOADS TONS PER PILE	
DEAD LOAD + EARTH PRESSURE	23.4
LIVE LOAD	5.6
	29.0

WEST ABUTMENT	DRAWN GRC	CHECK RRT	APPROVED:	BRIDGE NUMBER 02501
SR NO. 02-624.19	SHEET 6 OF 127 SHEETS			

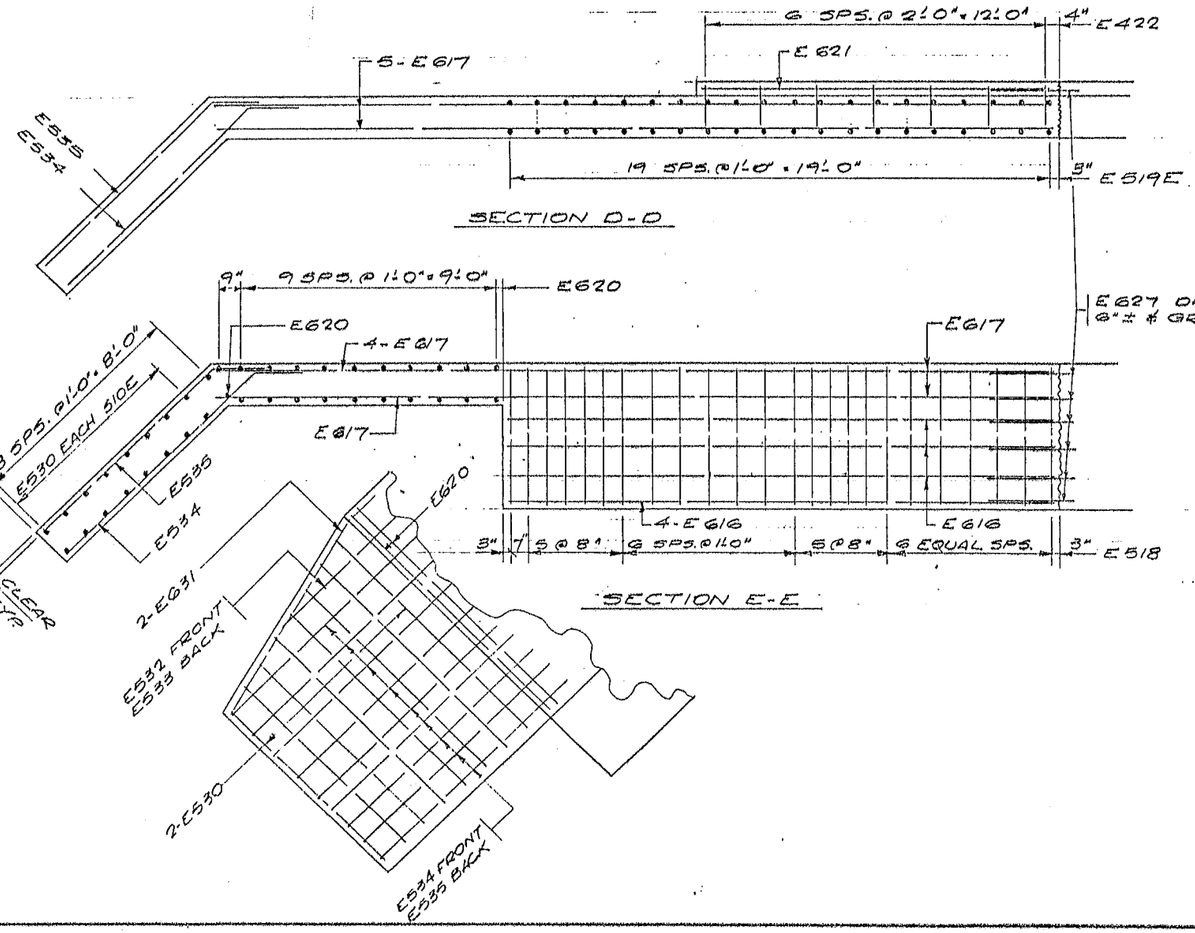


PART ELEVATION

SCALE : 3/8" = 1'-0"

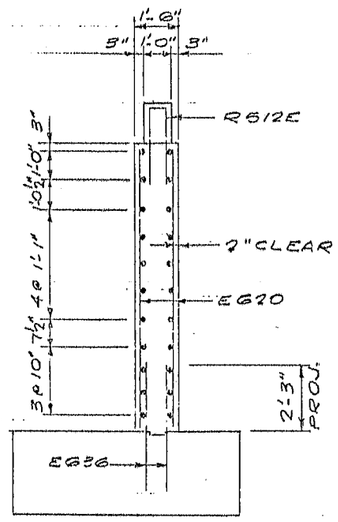


SECTION C-C

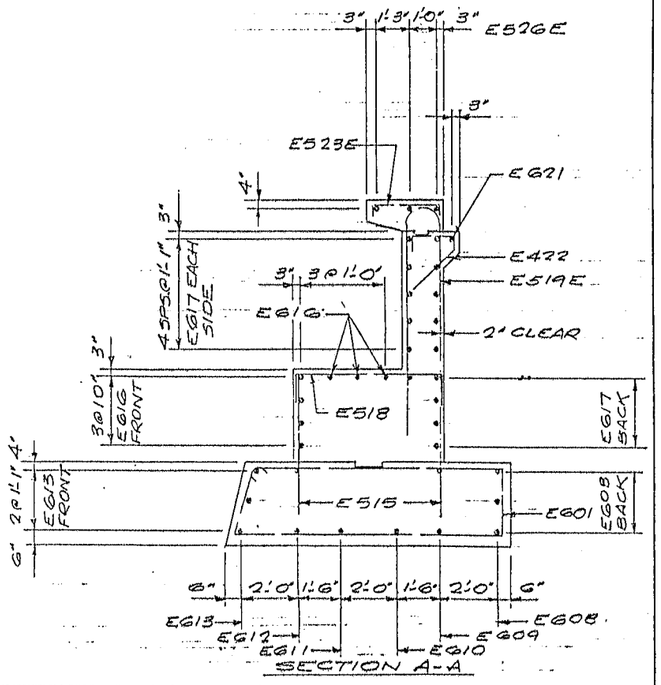


SECTION D-D

SECTION E-E

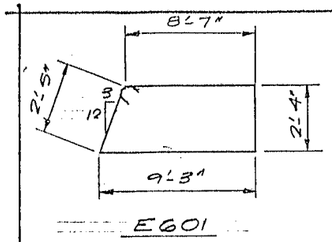


SECTION B-B

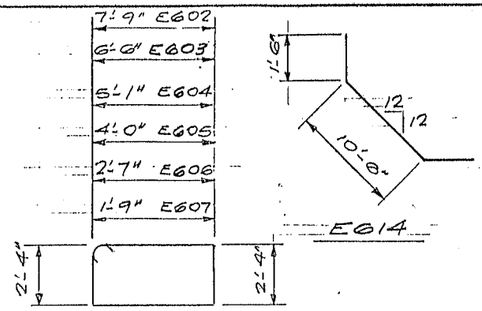


SECTION A-A

EAST ABUTMENT S.P. NO. 02-624-19	DRAWN GRC	CHECK RRT	APPROVED:	BRIDGE NUMBER 02501
	SHEET 7 OF 27 SHEETS			

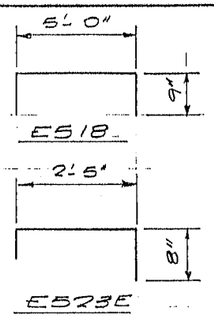


E601



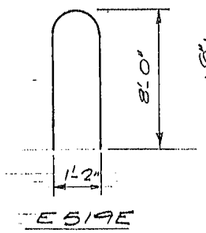
E602-E607

E614

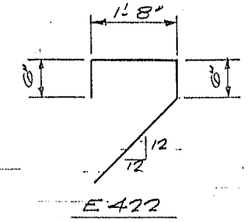


E518

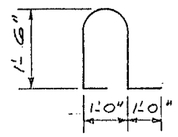
E523E



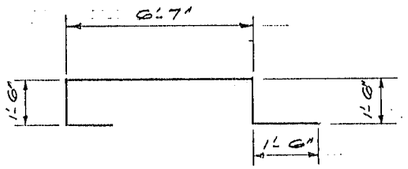
E519E



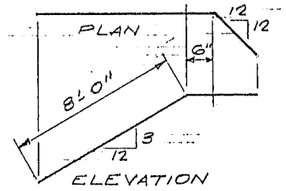
E422



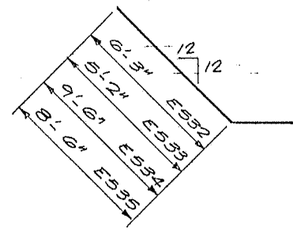
E 628E



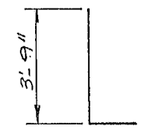
E424E



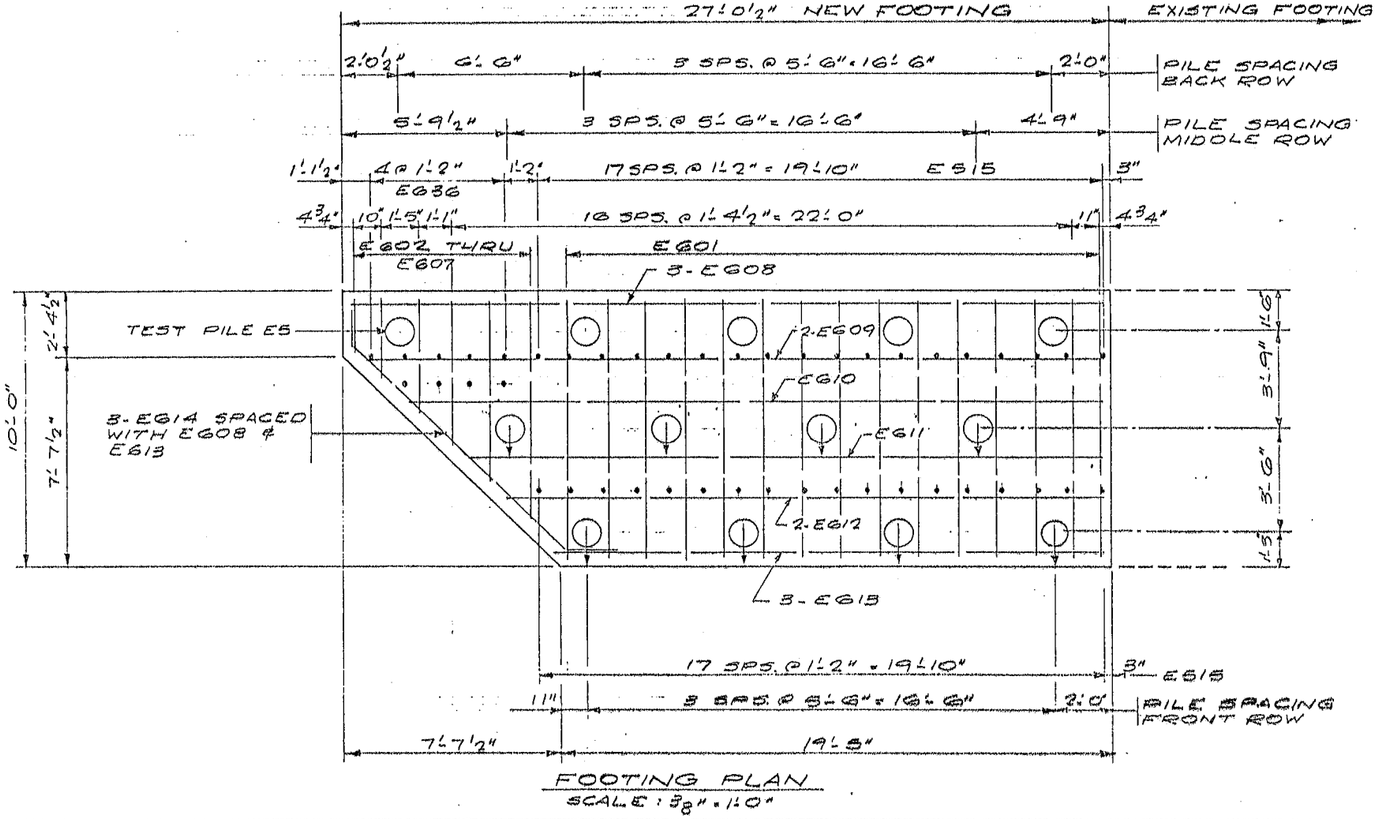
E631



E532-E535



E638E



FOOTING PLAN

SCALE: 3/8" = 1'-0"

BILL OF REINF. - EAST ABUTMENT

BAR	NO.	LEN.	SHAPE	LOCATION
E601	15	23'-6"	BENT	FOOTING - TIES
E602	1	20'-11"	"	" "
E603	1	18'-5"	"	" "
E604	1	15'-7"	"	" "
E605	1	13'-5"	"	" "
E606	1	10'-5"	"	" "
E607	1	8'-11"	"	" "
E608	3	26'-4"	STR.	"
E609	2	26'-0"	"	"
E610	1	24'-5"	"	"
E611	1	22'-4"	"	"
E612	2	21'-0"	"	"
E613	3	19'-0"	"	"
E614	3	15'-6"	BENT	"
E515	36	4'-2"	STR.	" DOWELS
E616	7	19'-3"	"	BR. SEAT
E617	15	29'-7"	"	" " & PARAPET
E518	24	6'-6"	BENT	" "
E519E	20	16'-8"	"	PARAPET
E620	23	10'-0"	STR.	"
E621	1	12'-4"	"	PAVING BRACKET
E422	7	4'-9"	BENT	" "
E523E	20	3'-4"	"	ROADWAY
E424E	3	12'-6"	"	"
E425E	8	2'-5"	STR	"
E526E	3	21'-0"	"	"
E627	25	3'-0"	"	DOWELS
E628E	3	5'-6"	"	END POST DOWEL
E529	4	8'-5"	STR.	PARAPET HORZ.
E530	2 SERIES OF 8	7'-3" TO 9'-0"	"	WINGWALL
E631	2	10'-0"	BENT	"
E532	1	7'-9"	"	"
E633	1	6'-8"	"	"
E634	9	11'-0"	"	"
E635	9	10'-0"	"	"
E636	9	5'-6"	STR.	PARAPET DOWELS
E1137E	4	8'-0"	"	END POST
E638E	2	4'-9"	BENT	" "

SUMMARY OF QUANTITIES - EAST ABUTMENT

	STRUCTURE CONCRETE (1A43)	27	CU.YD.
	STRUCTURE CONCRETE (3Y43)	29	CU.YD.
	REINFORCEMENT BARS	3370	LB.
②	STRUCTURE EXCAVATION		
①	TREATED TIMBER PILING DELIVERED	360	LIN. FT.
①	TREATED TIMBER PILING DRIVEN	360	LIN. FT.
	TREATED TIMBER TEST PILES, 40 FT. LG.	1	EACH
	REINFORCEMENT BARS (EPOXY COATED)	730	LB.
②③	CONCRETE REPAIR		

① DOES NOT INCLUDE TEST PILES
② SEE SPECIAL PROVISIONS
③ APPROX. AREA: 45 SQ. FT.

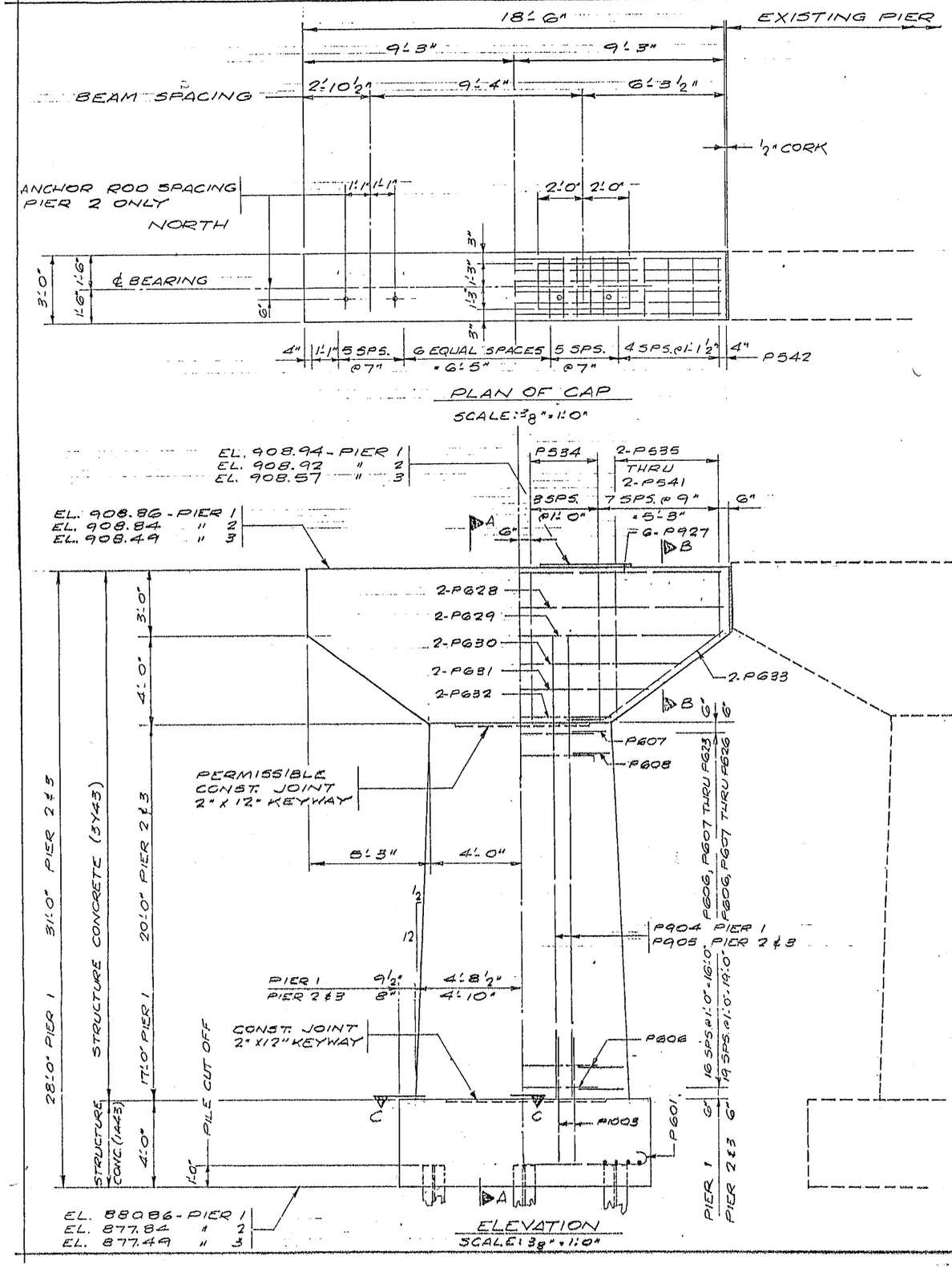
PILE NOTES

1 TREATED TIMBER TEST PILE 40 FT. LONG
12 " " PILES EST. LENGTH 30 FT.
13 " " REQ'D FOR EAST ABUT.

PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
PILES MARKED THUS ⊖→ TO BE BATTERED 3" PER FT. IN FRONT ROW AND 1 1/2" PER FT IN MIDDLE ROW IN DIRECTION SHOWN.

COMPUTED PILE LOADS - TONS / PILE	
DEAD LOAD + EARTH PRESSURE	23.4
LIVE LOAD	6.6
TOTAL	29.0

EAST ABUTMENT	DRAWN GRC	CHECK RRT	APPROVED:	BRIDGE NUMBER 02501
S.P NO. 02-624.19	SHEET 8 OF 27 SHEETS			

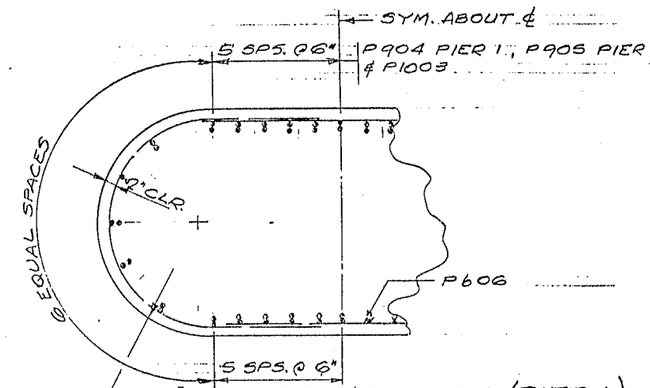


PLAN OF CAP

SCALE: ⅜" = 1'-0"

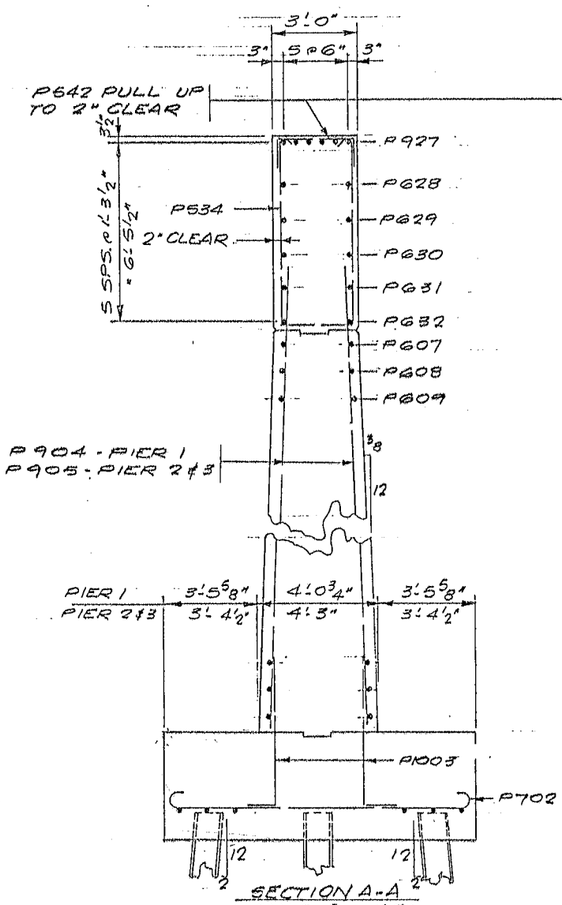
ELEVATION

SCALE: ⅜" = 1'-0"



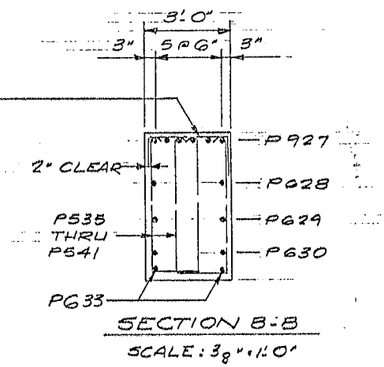
SECTION C-C

SCALE ¾" = 1'-0"



SECTION A-A

SCALE: ⅜" = 1'-0"



SECTION B-B

SCALE: ⅜" = 1'-0"

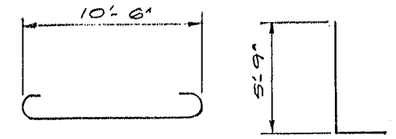
PIER DETAILS

S.R NO. 02-624-19

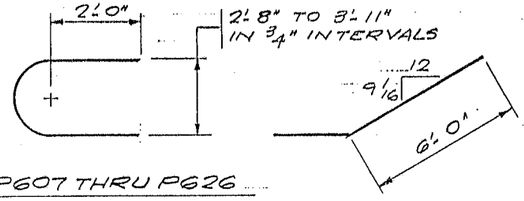
DRAWN	CHECK	APPROVED
GRC	RRT	

SHEET 9 OF 27 SHEETS

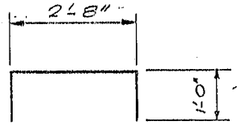
BRIDGE NUMBER 02501



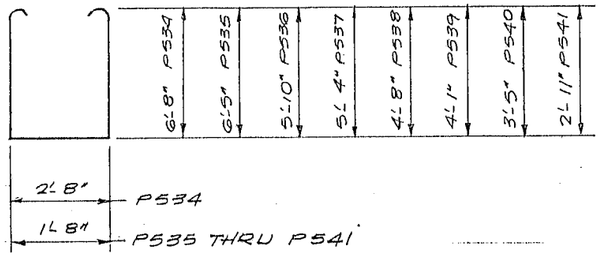
P601 & P702 — P1003



P607 THRU P626 — P633



P542



P534 THRU P541

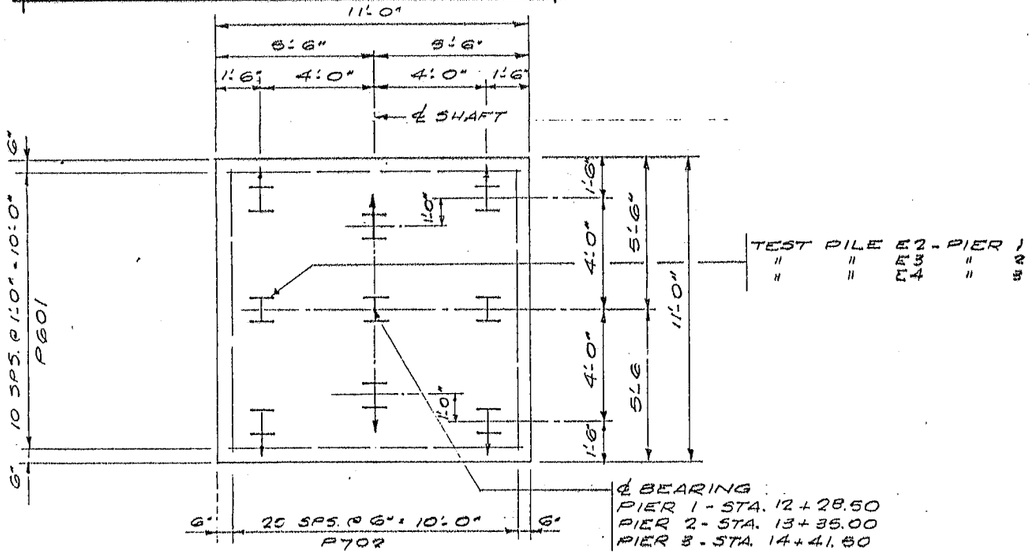
PILE NOTES

3 STEEL H-TEST PILES 45 FT. LONG
24 " " PILES EST. LENGTH 35 FT.
27 " " " REQ'D. FOR 3 PIERS

ALL PILES TO BE HP 12X53
PILE SPACING SHOWN IS AT BOTTOM OF FOOTING.
PILES MARKED THUS H→ TO BE BATTERED 2" PER FT. IN DIRECTION SHOWN.
FOR SPLICES SEE DETAIL B202.

COMPUTED PILE LOADS TONS PER PILE		
DEAD LOAD	38.0	
LIVE LOAD	5.6	
OVERTURNING	33.0	
TOTAL	76.6 /1.4 = 54.7*	

*GROUP VI LOADING REDUCTION PER AASHTO 1.2.22



FOOTING PLAN
SCALE: 3/8" = 1'-0"

BILL OF REINFORCEMENT - 3 PIERS

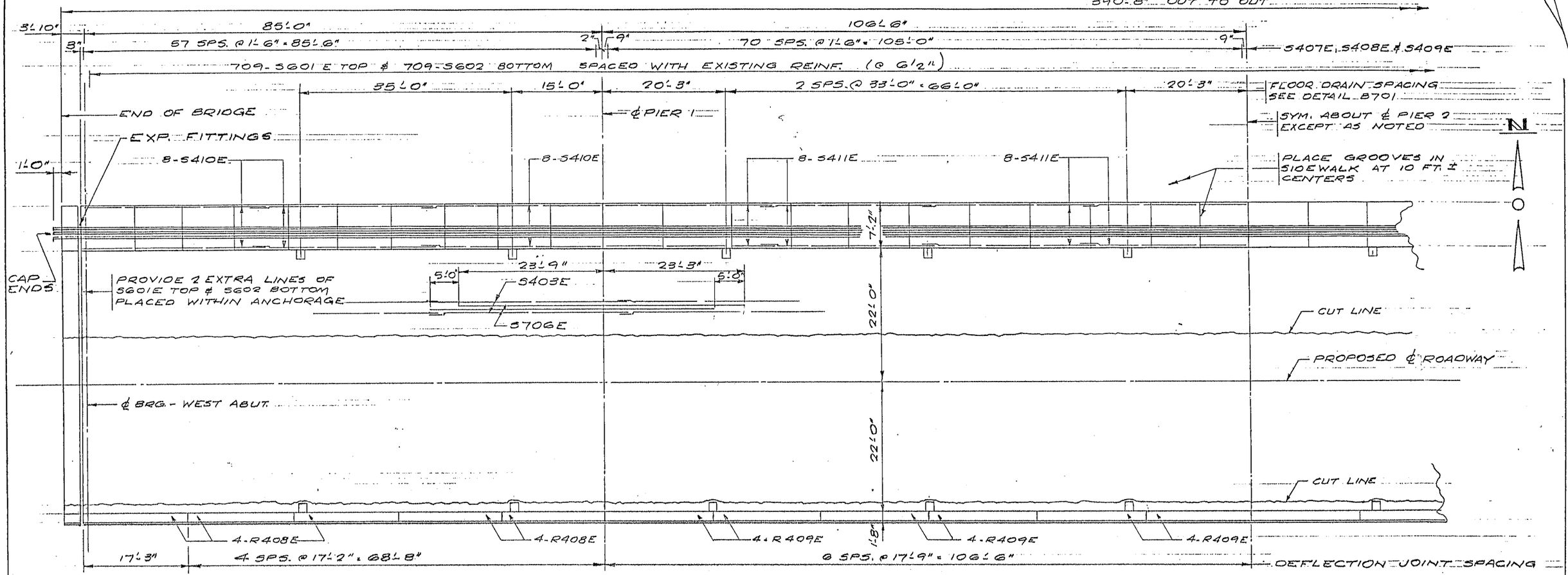
BAR	NUMBER PIER 1	PIER 2	PIER 3	TOTAL	LEN.	SHAPE	LOCATION
P601	11	11	11	33	11'-10"	BENT	FOOTING
P702	21	21	21	63	12'-2"	↓	↓
P1003	32	32	32	96	7'-0"	↓	DOWELS
P904	32	0	0	32	19'-3"	STR.	SHAFT-VERT.
P905	0	32	32	64	22'-3"	↓	↓
P606	34	40	40	114	6'-0"	↓	HORZ.
P607	2	2	2	6	8'-2"	BENT	ENDS
P608	2	2	2	6	8'-3"	↓	↓
P609	2	2	2	6	8'-4"	↓	↓
P610	2	2	2	6	8'-6"	↓	↓
P611	2	2	2	6	8'-7"	↓	↓
P612	2	2	2	6	8'-8"	↓	↓
P613	2	2	2	6	8'-10"	↓	↓
P614	2	2	2	6	8'-11"	↓	↓
P615	2	2	2	6	9'-0"	↓	↓
P616	2	2	2	6	9'-2"	↓	↓
P617	2	2	2	6	9'-3"	↓	↓
P618	2	2	2	6	9'-4"	↓	↓
P619	2	2	2	6	9'-6"	↓	↓
P620	2	2	2	6	9'-7"	↓	↓
P621	2	2	2	6	9'-8"	↓	↓
P622	2	2	2	6	9'-10"	↓	↓
P623	2	2	2	6	9'-11"	↓	↓
P624	0	2	2	4	10'-0"	↓	↓
P625	0	2	2	4	10'-1"	↓	↓
P626	0	2	2	4	10'-2"	↓	↓
P927	6	6	6	18	18'-1"	STR.	CAP
P628	2	2	2	6	18'-1"	↓	↓
P629	2	2	2	6	18'-1"	↓	↓
P630	2	2	2	6	14'-8"	↓	↓
P631	2	2	2	6	11'-0"	↓	↓
P632	2	2	2	6	8'-2"	↓	↓
P633	4	4	4	12	8'-0"	BENT	↓
P634	8	8	8	24	16'-11"	↓	↓
P635	4	4	4	12	15'-5"	↓	↓
P636	4	4	4	12	14'-3"	↓	↓
P637	4	4	4	12	13'-3"	↓	↓
P638	4	4	4	12	11'-11"	↓	↓
P639	4	4	4	12	10'-9"	↓	↓
P640	4	4	4	12	9'-5"	↓	↓
P641	4	4	4	12	8'-5"	↓	↓
P642	22	22	22	66	4'-8"	↓	↓

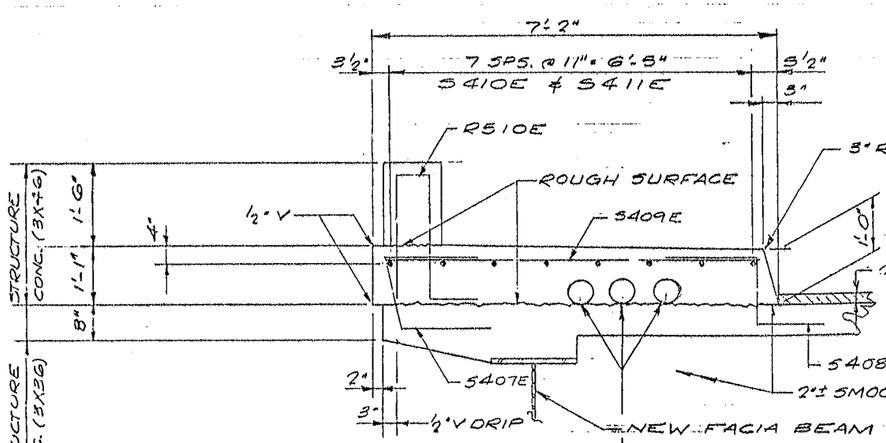
SUMMARY OF QUANTITIES - 3 PIERS

		PIER 1	PIER 2	PIER 3	TOTAL
	STRUCTURE CONCRETE (1A43)	18	18	18	54 CU YD.
	STRUCTURE CONCRETE (3Y43)	30	34	34	98 CU. YD.
	REINFORCEMENT BARS	5770	6245	6245	18260 LB.
(2)	FOUNDATION PREPARATION (PIER 1)	1			1 LUMP SUM
(2)	" " (PIER 2)		1		1 LUMP SUM
(2)	" " (PIER 3)			1	1 LUMP SUM
(1)	STEEL H PILING DELIVERED	280	280	280	840 LIN. FT.
(1)	STEEL H PILING DRIVEN	280	280	280	840 LIN. FT.
	STEEL H-TEST PILES, 45 FT. LONG	1	1	1	3 EACH
(2)(3)	PREFORMED CORK JT. FILLER 36" x 1/2" x 3'-0"	1	1	1	3 PIECES

(1) DOES NOT INCLUDE TEST PILES.
(2) SEE SPECIAL PROVISIONS.
(3) INCLUDED IN PRICE BID FOR OTHER ITEMS

PIER DETAILS	DRAWN GRC	CHECK RRT	APPROVED:	BRIDGE NUMBER 02501
S.R NO. 02-824-19	SHEET 10 OF 27 SHEETS			





SECTION THRU SIDEWALK.

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

5" ℄ CONDUIT FOR POWER

HALF PLAN OF DECK

SCALE: 1/8" = 1'-0"

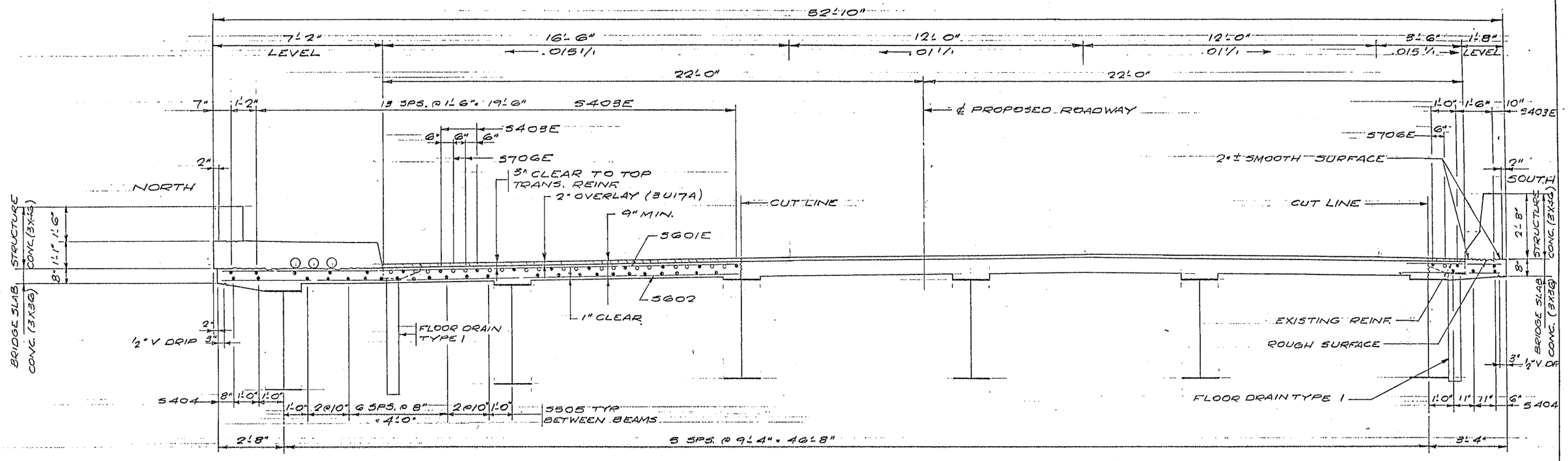
DECK OVERLAY REPAIR
APPROX. AREA = 12.5 SQ. FT.
(9) APPROX. AREA = 12,015 SQ. FT.
(10) APPROX. AREA = 22,375 SQ. FT.

SUMMARY OF QUAN. - CONDUIT SYSTEM (POWER)		
5" ℄ CONDUIT (RMC)	1178	LIN. FT.
EXPANSION - DEFLECTION FITTINGS	6	EACH
END CAPS	6	EACH

	SUMMARY OF QUANTITIES - SUPERSTRUCTURE		
(2)	BRIDGE SLAB CONCRETE (3X36)	9700	SQ. FT.
(3)	CONCRETE OVERLAY (3U17A)	6185	SQ. FT.
	STRUCTURE CONCRETE (3X46)	168	CU. YD.
	REINFORCEMENT BARS	33100	POUND
	REINFORCEMENT BARS (EPOXY COATED)	50980	POUND
	STRUCTURAL STEEL, (3309)	188220	POUND
	FLOOR DRAINS, TYPE I	20	EACH
(4)	EXPANSION JOINT DEVICE, TYPE I	32	LIN. FT.
(4)	PIPE RAILING, TYPE M	391	LIN. FT.
(4)	ZINC RICH PAINT SYSTEM	1	LUMP SUM
(4)	FIXED CURVED PLATE BRG. ASSEMBLY, TYPE I	2	EACH
(7)(5)(4)	EXP " " " " " 1	8	EACH
(4)	" (VUL.) " " " " " 2	4	EACH
(4)	" " " " " " 3	4	EACH
(6)	NAME PLATE (SEE DETAIL B103)	1	EACH
(8)(6)	NAME PLATE (RESET)	1	EACH
(4)(6)	PREFORMED CORK JT. FILLER 11" X 1" X 1'-7" DEFL. JTS. TYPE J RAIL	21	PIECES
(4)(6)	" " " " 12" X 1" X 1'-6" " " " M "	21	PIECES
(4)	CONDUIT SYSTEM (POWER)	1	LUMP SUM
(4)(9)	ZINC-RICH PAINT SYSTEM (NEW)	1	LUMP SUM
(4)(10)	ZINC-RICH PAINT SYSTEM (OLD)	1	LUMP SUM

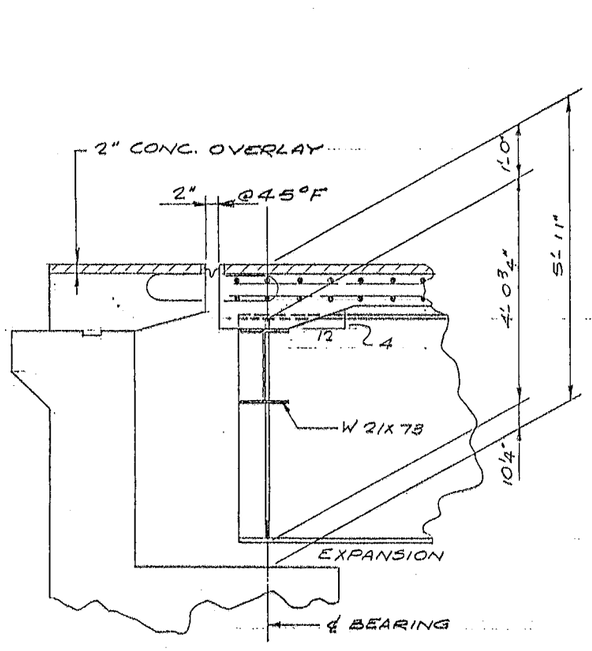
(1) INCLUDES RAILING QUANTITIES
(2) APPROX. VOLUME = 233 CU. YD. (COMPUTED USING AVG. STOOL OF 2").
(3) APPROX. VOLUME = 39 CU. YD.
(4) SEE SPECIAL PROVISIONS.
(5) REPLACES EXISTING ABUTMENT BEARING ASSEMBLIES.
(6) INCLUDED IN PRICE BID FOR OTHER ITEMS.
(7) CONTRACTOR WILL BE REQ'D. TO ADJUST THESE BRG'S. AT 45° F. SEE SPECIAL PROVISIONS.
(8) SEE SHT. 17

SUPERSTRUCTURE DETAILS	DRAWN GRC	CHECK RRT	APPROVED:	BRIDGE NUMBER 02501
S.R NO. 02-624.19	SHEET 11 OF 27 SHEETS			



SECTION THRU DECK

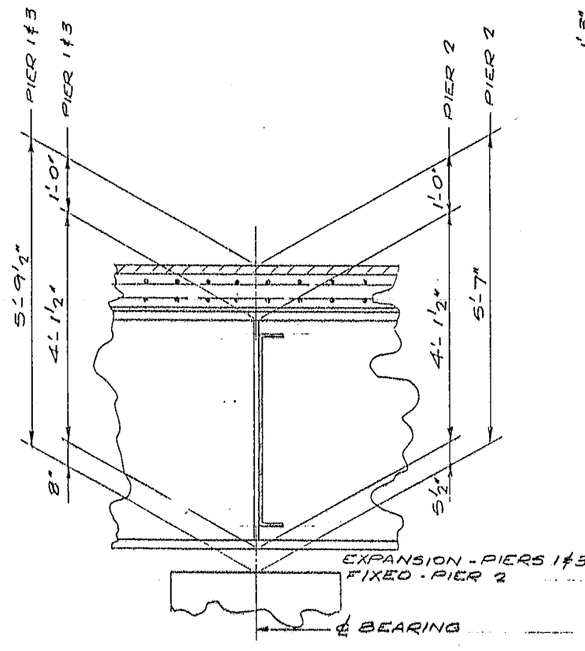
SCALE: 1/2" = 1'-0"



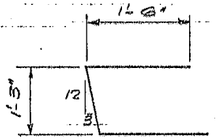
ABUTMENTS

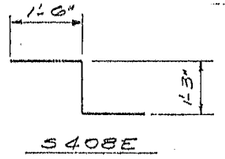
PART LONGITUDINAL SECTION AT NEW BEAM

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



PIERS





BILL OF REINF. - SUPERSTRUCTURE

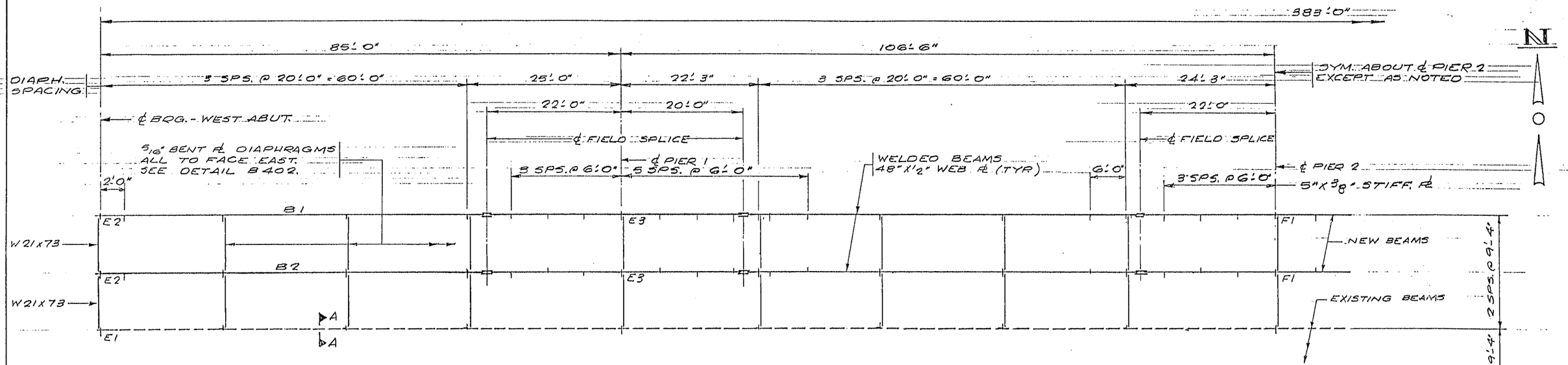
	BAR	NO.	LEN.	SHAPE	LOCATION
	S601E	713	71'-0"	STR.	SLAB - TRANS. TOP
	S602	713	21'-0"	"	" " BOTT.
(1)	S403E	216	38'-5"	"	" LONGIT - TOP.
(1)	S404	60	38'-5"	"	" " BOTT.
(2)	S505	242	36'-9"	"	" " "
	S706E	60		"	" OVER PIERS
	S407E	258	4'-3"	BENT	SIDEWALK
	S408E	258	4'-3"	"	"
	S409E	258	6'-7"	STR	"
(3)	S410E	48	29'-6"	"	" LONGIT.
(3)	S411E	64	28'-10"	"	" "

(1) 12 LINES, 1'-6" MIN. LAP

(2) 11 LINES, 1'-11" MIN. LAP

(3) 1'-6" MIN. LAP

SUPERSTRUCTURE DETAILS	DRAWN GRC	CHECK ART	APPROVED:
S.R NO. 02-624-19	SHEET 12 OF 27 SHEETS		BRIDGE NUMBER 02501



HALF FRAMING PLAN

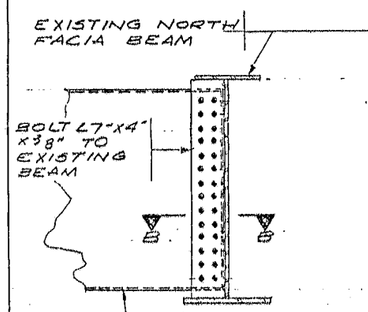
1/8" = 1'-0"

NOTE:

E1 : EXPANSION CURVED PLATE BEARING ASSEMBLY, TYPE 1 (SEE DETAIL B355)
E2 : " (VUL.) " " " " 2 " " B357
E3 : " " " " " 3 " " B356
F1 : FIXED " " " " 1 " " B354

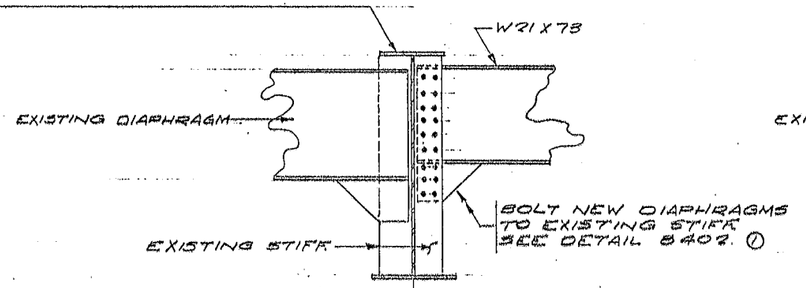
NOTE

ALL EXISTING BEARINGS AT BOTH ABUTMENTS ARE TO BE REPLACED WITH EXR CURVED PLATE BRG. ASSEMBLY, TYPE 1 (SEE SPEC. PROVS.). NEW BEARINGS (E1) UNDER EXISTING BEAMS AT THE ABUTMENTS WILL BE REQUIRED TO BE RESET AT A TEMPERATURE OF 45° F.

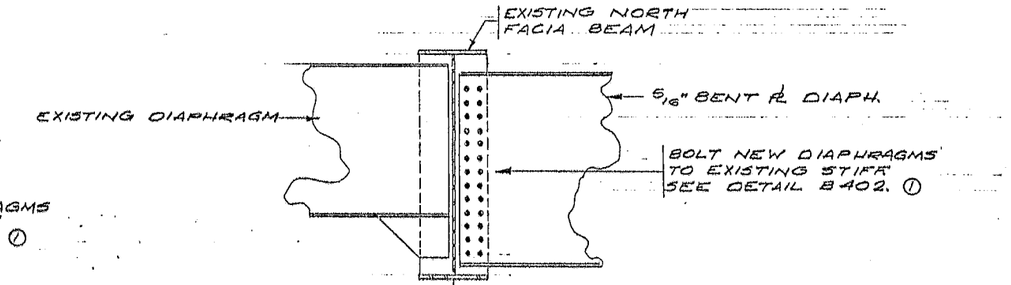


VIEW A-A

SECTION B-B



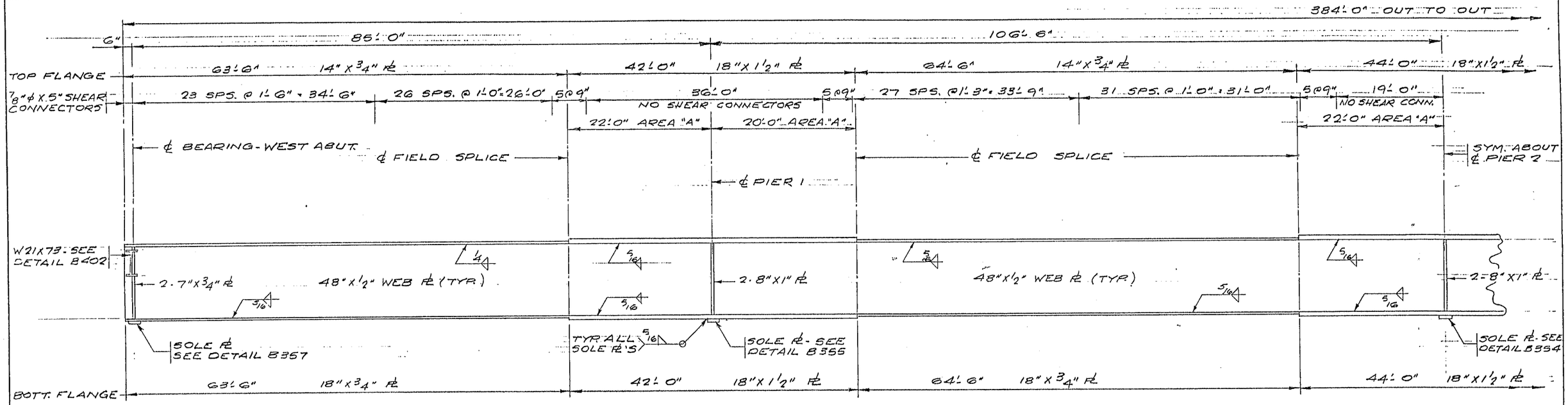
ABUT. DIAPHRAGMS



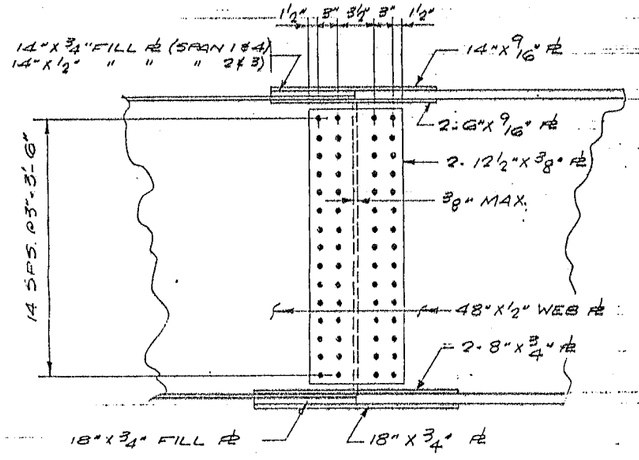
PIER DIAPHRAGM

① NEW DIAPHRAGM CONNECTIONS TO THE EXISTING BEAM SHALL NOT BE TIGHTENED UNTIL THE DECK IS IN PLACE.

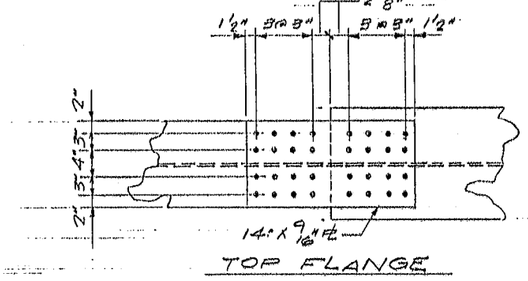
FRAMING PLAN	DRAWN GRC	CHECK RRT	APPROVED:	BRIDGE NUMBER 02501
S.R NO. 02-624-19	SHEET 13 OF 27 SHEETS			



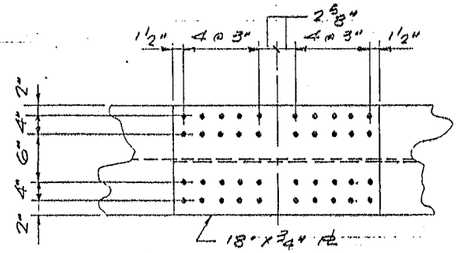
HALF ELEVATION OF BEAM



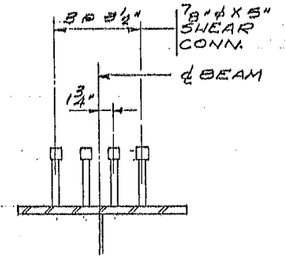
SPLICE DETAIL



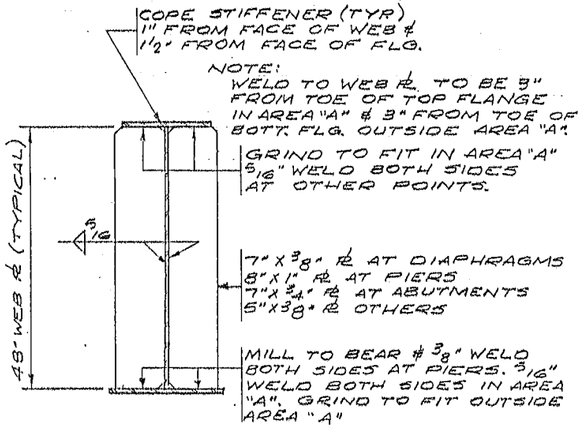
TOP FLANGE



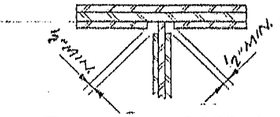
BOTTOM FLANGE



SHEAR CONNECTOR DETAIL



SECTION THRU BEAM AT STIFFENER



PART SECTION AT SPLICE

STRUCTURAL STEEL NOTES:

ALL STRUCTURAL STEEL SHALL CONFORM TO SPEC. 3309 UNLESS OTHERWISE NOTED.

FIELD CONNECTIONS SHALL BE MADE USING 7/8"ϕ HIGH STRENGTH BOLTS OR 7/8"ϕ PIN BOLTS, EXCEPT AS NOTED.

SHEAR CONNECTORS TO BE INCLUDED IN WEIGHT OF STRUCTURAL STEEL 3309.

WEB PLATES SHALL BE FURNISHED IN AVAILABLE MILL LENGTHS. LOCATION OF SPLICES SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER AND SHALL BE A MINIMUM OF 1'-0" FROM STIFFENERS OR FLANGE SPLICES.

ALL BUTT SPLICES SHALL BE FULL BUTT WELDS USING LOW HYDROGEN PROCESS AND SHALL BE GROUND FLUSH.

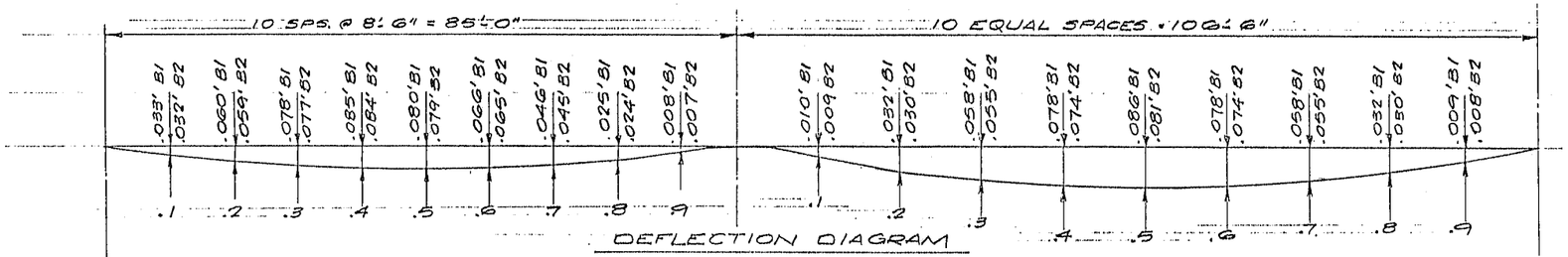
BEARING STIFFENERS SHALL BE PERPENDICULAR TO FLANGE.

END OF BEAMS SHALL BE VERTICAL.

TO OF ALL DIAPHRAGMS TO FACE DOWN GRADE.

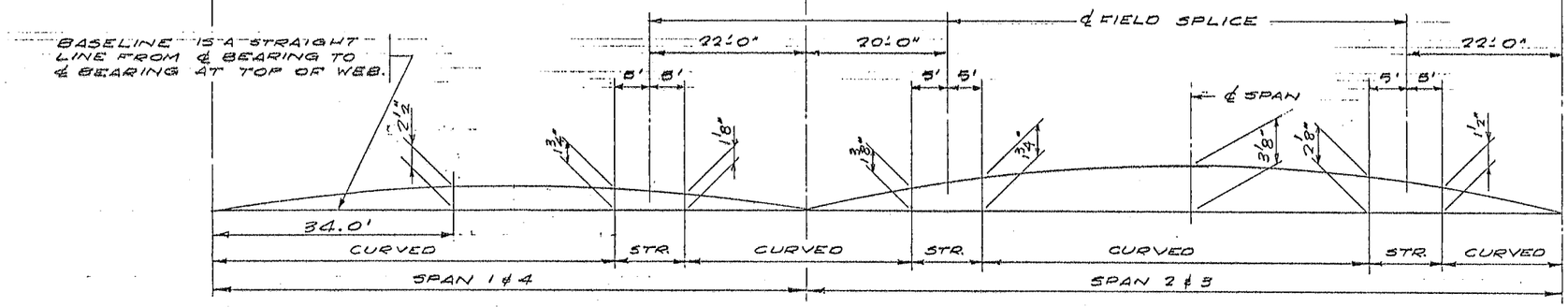
SPECIAL REAMING PER SPEC. 2471.3E1d WILL BE REQUIRED FOR THE BEAM SPLICES.

STRUCTURAL STEEL DETAILS S.R NO. 02-624-19	DRAWN GRC	CHECK RRT	APPROVED:	BRIDGE NUMBER 02501
	SHEET 14 OF 27 SHEETS			



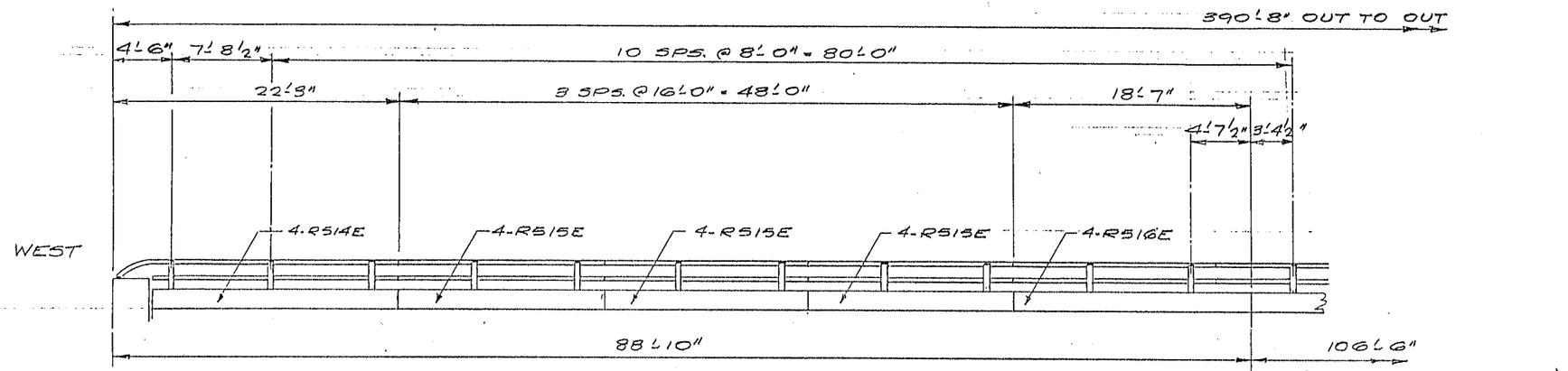
DEFLECTION DIAGRAM

DEFLECTIONS SHOWN ARE FOR WEIGHT OF SLAB, FUTURE WEARING COURSE, STOOLS, SIDEWALK AND RAILING.

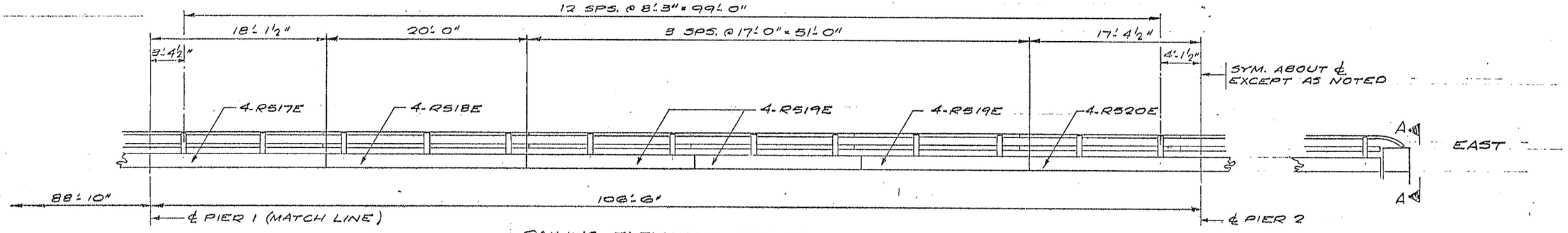


CAMBER DIAGRAM

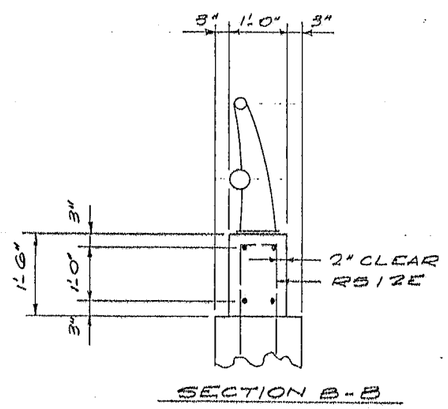
CAMBER & DEFLECTION DIAGRAMS S.P.NO. 02-624-19	DRAWN GRC.	CHECK RRT	APPROVED:	BRIDGE NUMBER 02501
	SHEET 15 OF 27 SHEETS			



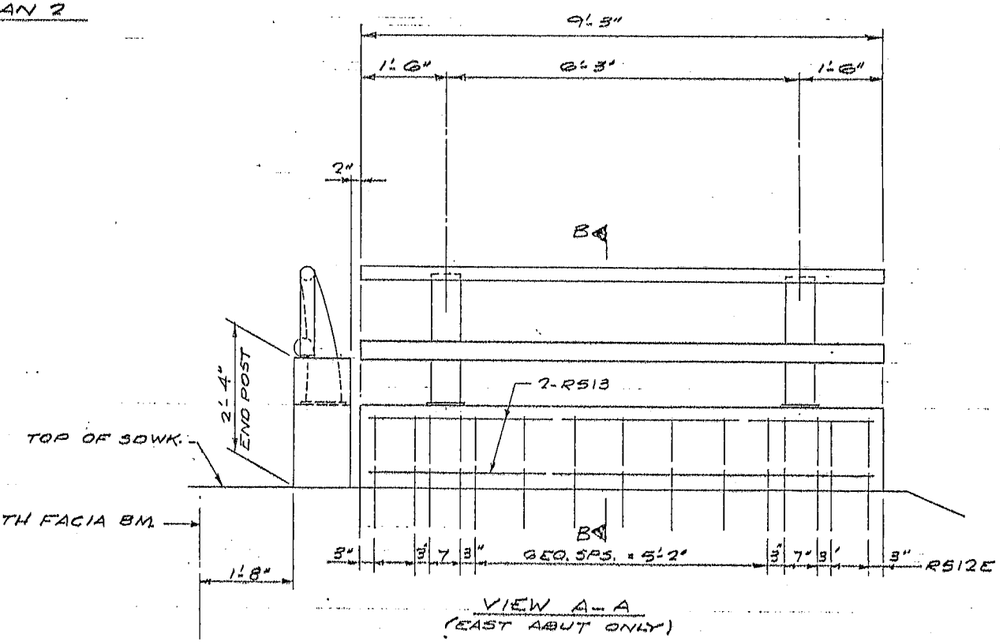
RAILING ELEVATION - SPAN 1



RAILING ELEVATION - SPAN 2

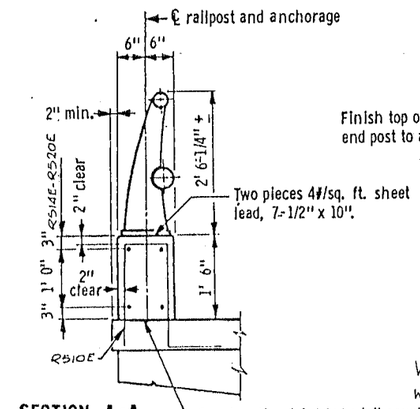


SECTION B-B

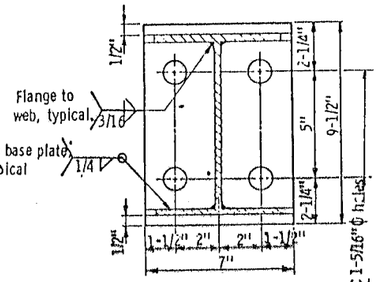


VIEW A-A
(EAST ABUT ONLY)

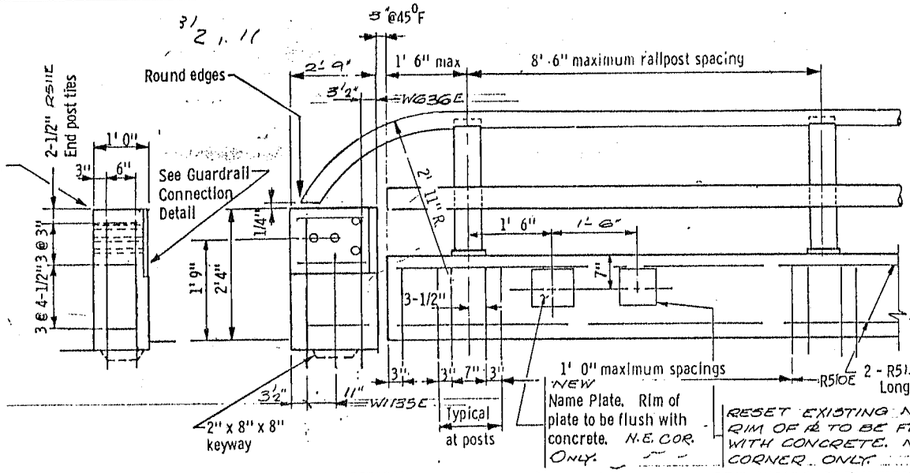
RAILING ELEVATION	DRAWN	CHECK	APPROVED:	BRIDGE NUMBER 02601
S.P.NO 02-624.19	SHEET 16 OF 27 SHEETS			



SECTION A-A



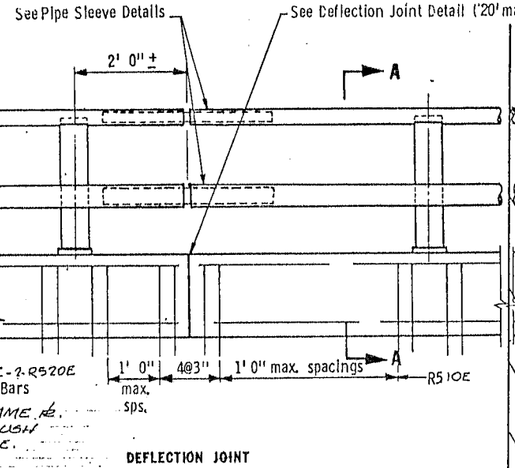
SECTION B-B



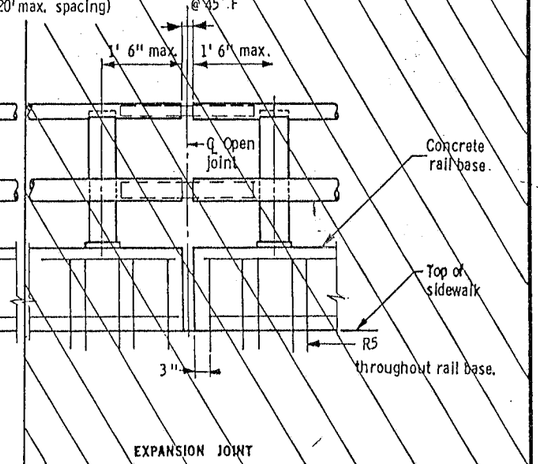
W1135E
W8X36E

END POST VERTICAL

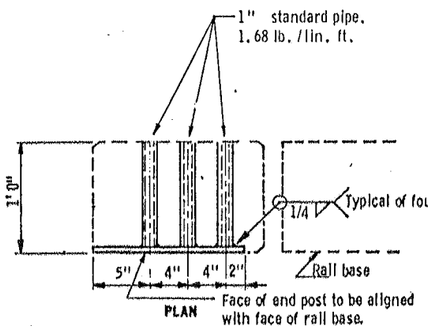
PART INSIDE ELEVATION



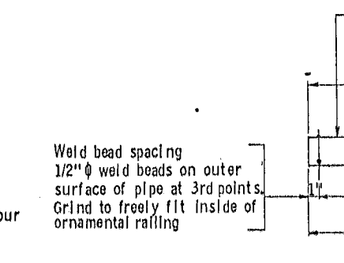
DEFLECTION JOINT



EXPANSION JOINT

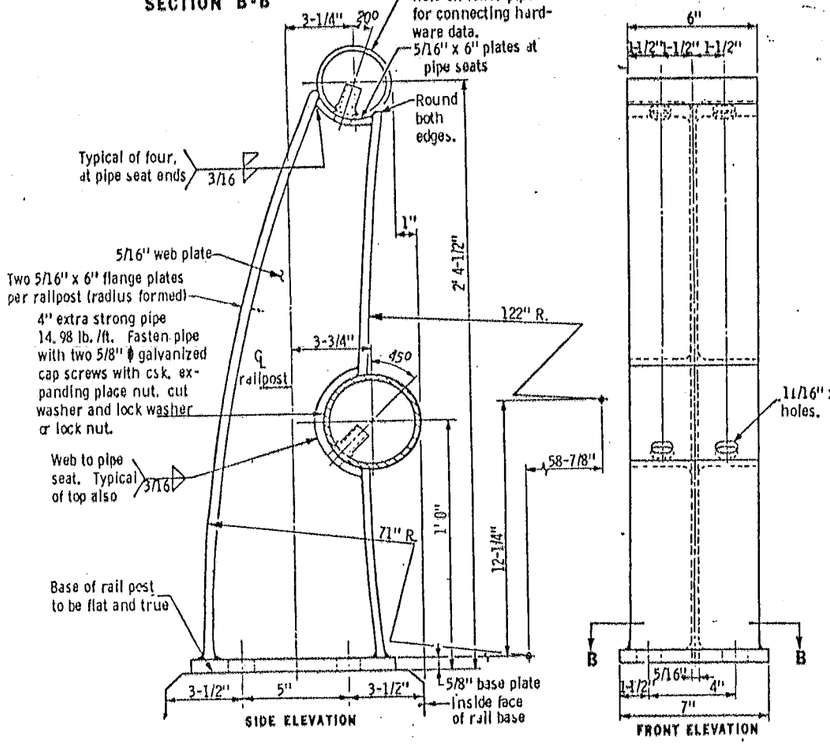


PLAN

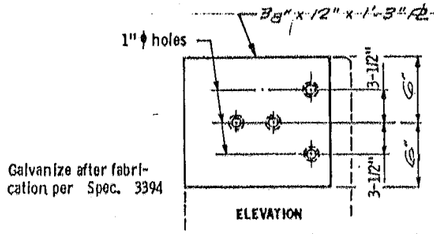


ALTERNATE PIPE SLEEVE

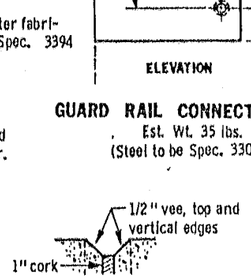
BILL OF REINFORCEMENT FOR RAILING				
BAR	NO.	LENGTH	SHAPE	LOCATION
R510E	541	5' 8"	Bent	Rail Vertical
R511E	14	7' 4"	Bent	End Post
R512E	15	6' 8"	BENT	RAIL VERT.
R513E	4	8' 11"	STR	RAIL HORZ.
R514E	8	18' 11"	"	"
R515E	24	15' 8"	"	"
R516E	8	18' 3"	"	"
R517E	8	17' 9"	"	"
R518E	8	19' 8"	"	"
R519E	24	16' 8"	"	"
R520E	8	17' 0"	"	"



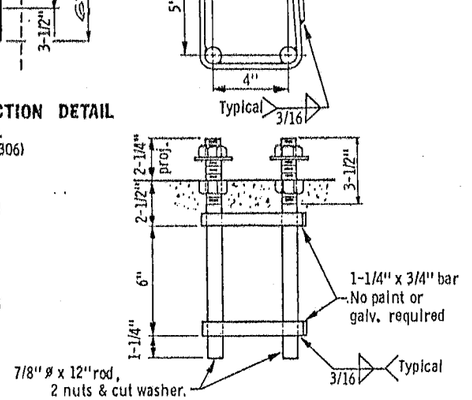
RAILPOST DETAILS



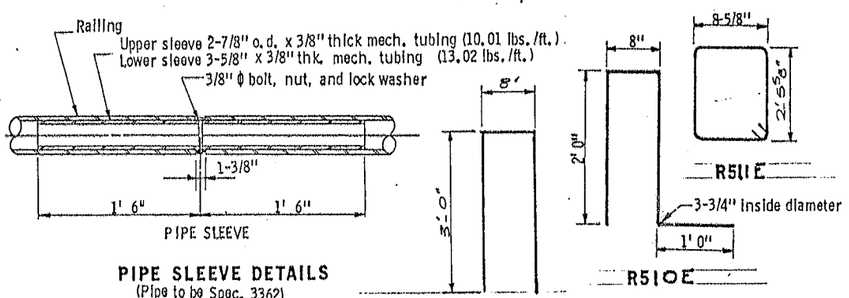
GUARD RAIL CONNECTION DETAIL
Est. Wt. 35 lbs.
(Steel to be Spec. 3306)



DEFLECTION JOINT DETAILS



RAILPOST ANCHORAGE
(Steel to be Spec. 3306)



PIPE SLEEVE DETAILS
(Pipe to be Spec. 3362)

GENERAL NOTES

Concrete in railbase and end posts shall be mix No. 3X46

For materials, galvanizing and workmanship see special provisions.

Railpost spacing is measured horizontally along top of rail base.

Place metal railposts and anchorages normal to grade.

For railpost spacing, joints in railing and reinforcement details see superstructure sheet.

Place the R511E end post stirrups when the No. 11 vertical bars are cast in the abutment.

Finish edges of concrete rail base and end post to a 1/2" V except where noted. Holes for expanding place nuts in rail pipe may be drilled in the field.

All material in concrete rail base and concrete end posts except railpost anchorages, is included in superstructure quantities. Guardrail connection to be included in price bid for other items.

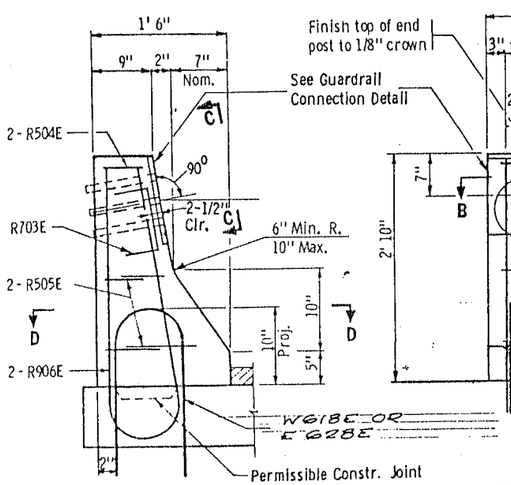
Length of concrete and pipe railing for payment is measured between outside faces of concrete end posts.

Price bid for pipe railing includes the railpost anchorage and all material above top of rail base.

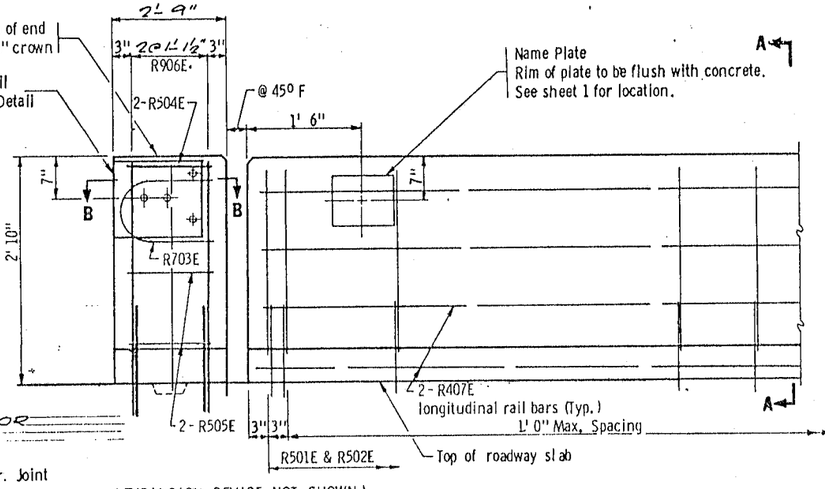
Fig. 5-397.105
Approved: July 11, 1977

TITLE: CONCRETE & PIPE RAILING 2 LINE STEEL (TYPE M)	DES:	DR: GPC	APPROVED:	Bridge No. 02501
	CHK:	CHK: RPT		
	Sheet No. 17 of 21 Sheets			

SIP No. 07-024.19

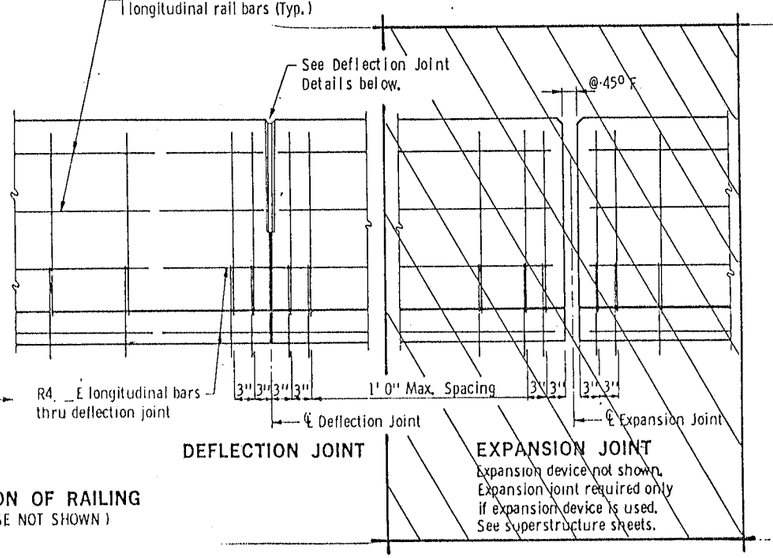


END VIEW



VERTICAL END POST

(EXPANSION DEVICE NOT SHOWN)



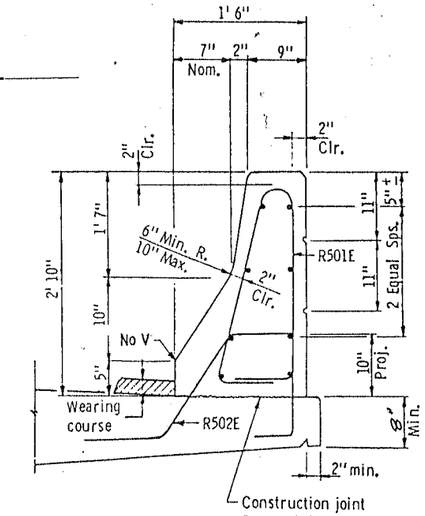
INSIDE ELEVATION OF RAILING

(WEARING COURSE NOT SHOWN)

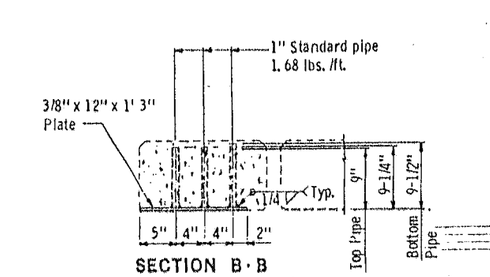
DEFLECTION JOINT

EXPANSION JOINT

Expansion device not shown.
Expansion joint required only
if expansion device is used.
See superstructure sheets.

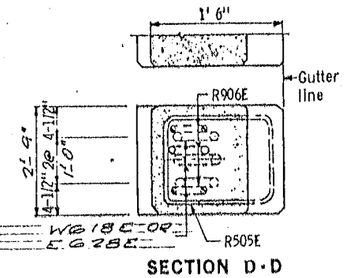


SECTION A-A

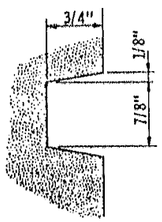


SECTION B-B

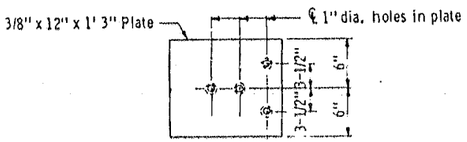
(Reinforcement not shown)



SECTION D-D



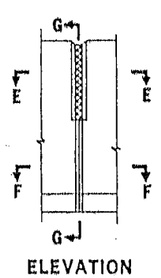
RAIL RUSTICATION



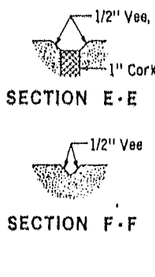
VIEW C-C

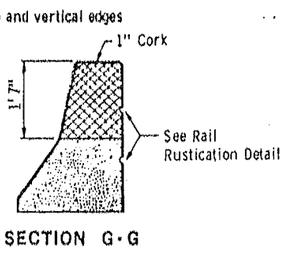
GUARDRAIL CONNECTION DETAIL

Galvanize after fabrication per Spec. 3394
Estimated Weight = 23 lbs.



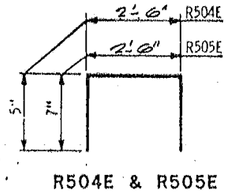
ELEVATION



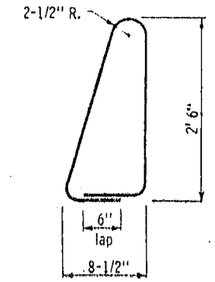


SECTION G-G

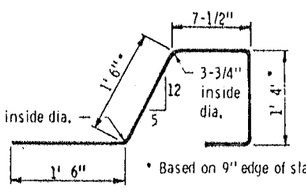
CONCRETE JOINT
DEFLECTION JOINT DETAILS



R504E & R505E

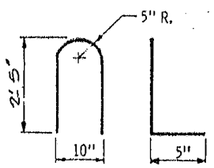


R501E

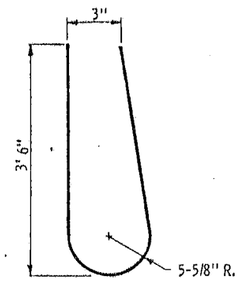


* Based on 9" edge of slab

R502E



R703E



R906E

BILL OF REINFORCEMENT FOR RAILING				
BAR	NO.	LENGTH	SHAPE	LOCATION
R501E	484	6' 6"	Bent	Rail Vertical
R502E	484	5' 6"	Bent	Rail Vertical
R703E	2	6' 2"	Bent	End Post
R504E	4	3' 4"	Bent	End Post
R505E	8	3' 8"	Bent	End Post
R906E	6	7' 6"	Bent	End Post
R407E	48	33' 5"	Str't.	Rail Long.
R408E	40	16' 10"	Str't.	Rail Long.
R409E	48	17' 5"	"	" "

① 12 LINES, 1' 6" MIN. LAP

GENERAL NOTES:

Bars marked with the suffix 'E' shall be epoxy coated

Conc. Railing = 440 lbs./ft.

Conc. Railing = .109 cu. yds./ft.

Rail and end post to be Concrete Mix No. 3X46

Guardrail connection to be Structural Steel, Spec. 3306

Finish all edges of rail and end post with 1/2" vee except where otherwise noted.

See superstructure sheet for joint spacing.

Maximum spacing of concrete deflection joints shall be 20' 0".

Guardrail connection to be included in price bid for other items.

Rail quantities are included in summary of quantities for superstructure.

Length of railing concrete to be measured for payment between outside faces of end posts.

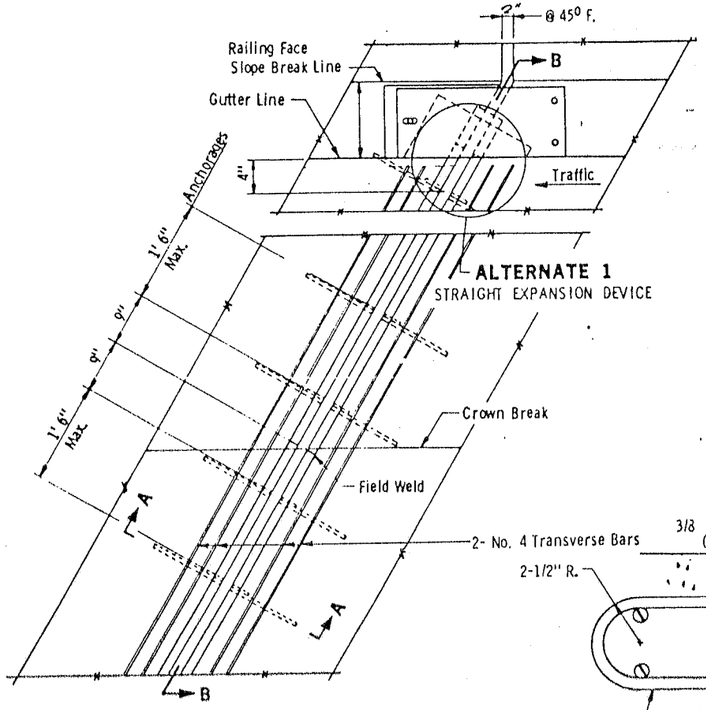
Fig. 5-397.116

Revised: June 9, 1980

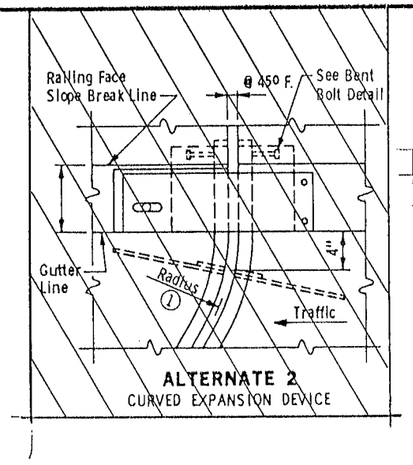
Approved: April 23, 1980

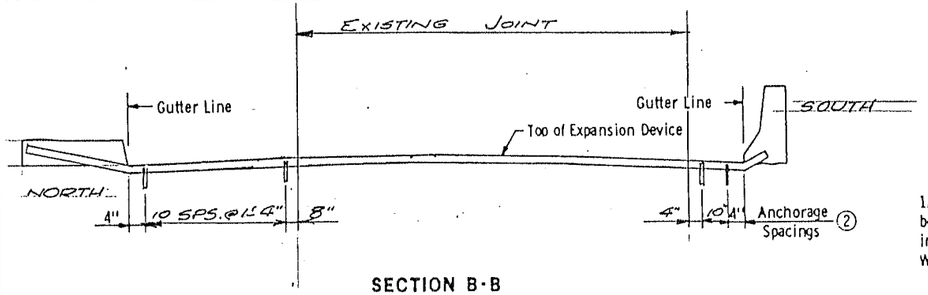
TITLE: CONCRETE RAILING (TYPE J) WITH SEPARATE END POST	DES:	DR:	APPROVED:	Bridge No. 02501
	CHK:	CHK:		
	Sheet No. 18 of 27 Sheets			

S.P. No. 02-624.19

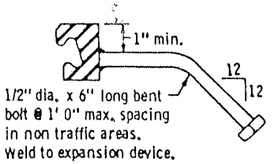


PLAN VIEW AT EXPANSION DEVICE

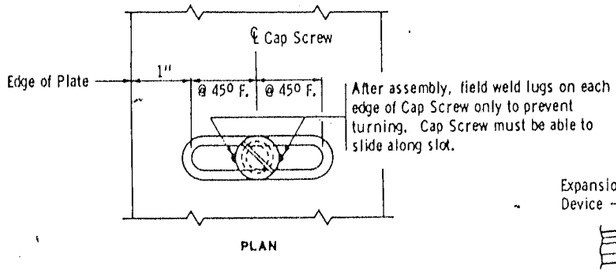




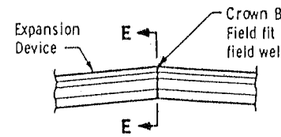
SECTION B-B



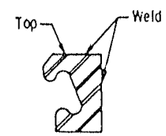
BENT BOLT DETAIL



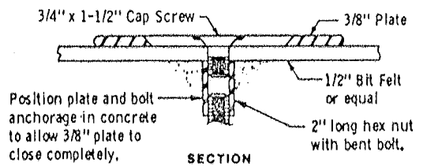
PLAN



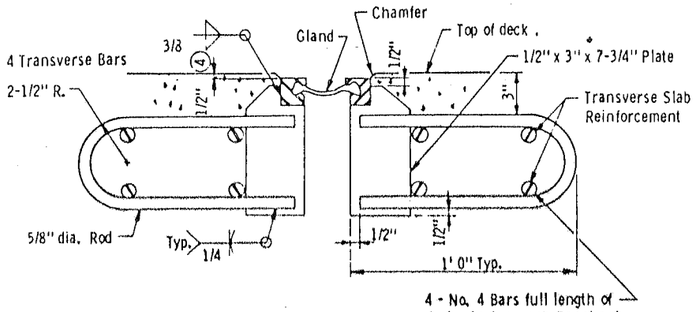
DETAIL D



SECTION E-E



DETAIL C
SLOTTED HOLE & CAP SCREW



SECTION A-A
ANCHORAGE

NOTES:

Galvanize structural steel after fabrication as per Spec. 3394.

Joints in roadway plate or extrusion shall be located at breaks in transverse profile and as otherwise required. Joints shall be close fit and welded. Repair after welding as per Spec. 2471.3L.

Structural steel shall comply with Spec. 3306, Spec. 3307 & Spec. 3309.

Expansion device shall be straightened to a tolerance of 1/8" in 10 ft.

Cap screws shall be countersunk 1/16" below top of plate.

Galvanize screws and nuts as per Spec. 3392.

See superstructure sheets for expansion device alternate at railing.

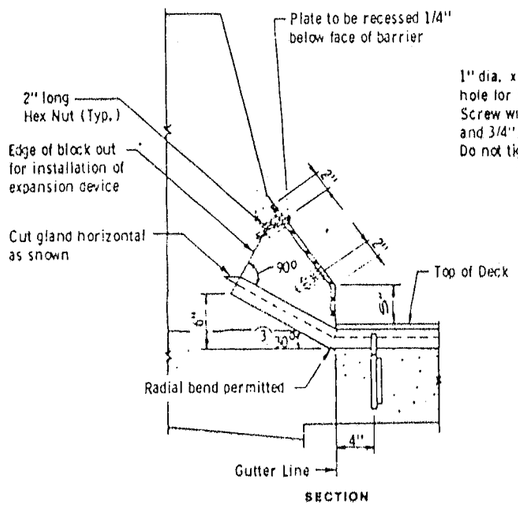
~~When expansion devices are used at ends of bridge, the bridge contractor shall furnish expansion device and gland. The roadway contractor shall install the part of the expansion device which includes the gland as shown on this sheet.~~

(1) Varies 18" to 24"

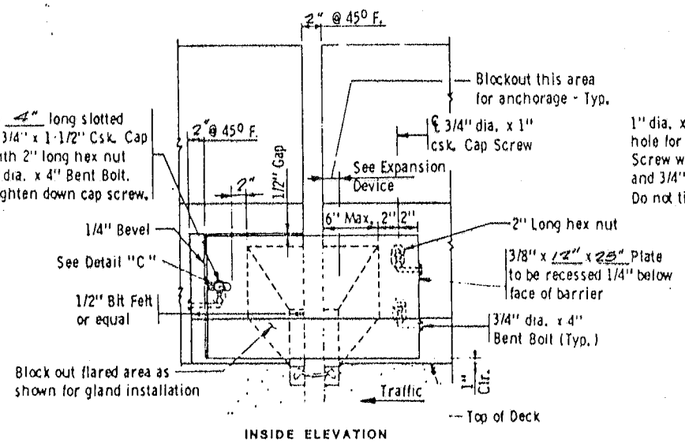
(2) Dimension along centerline of joint.

(3) For roadway skews over 25° use 45°.

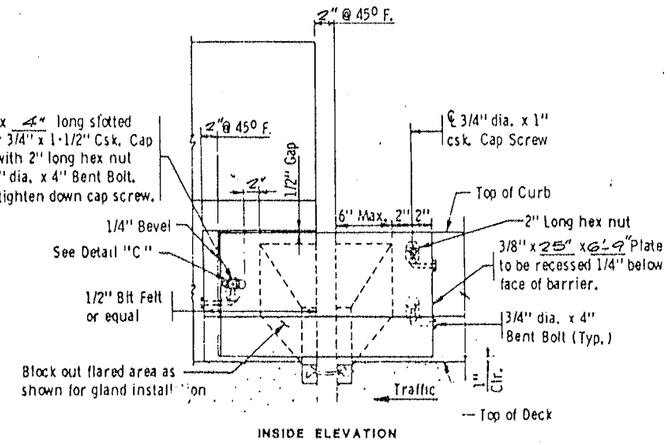
(4) 5/8" max. when Snowplow Fingers are used. Use 1/8" (with 1/4" max.) when Snowplow Fingers are not used.



SECTION



INSIDE ELEVATION



INSIDE ELEVATION

RAILING AT CURB TRANSITION

RAILING OR MEDIAN
SQUARE BRIDGE APPLICATION

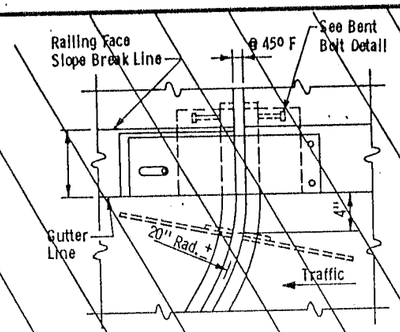
FIG. 5-397.627

Revised: October 15, 1982 Approved: July 16, 1982

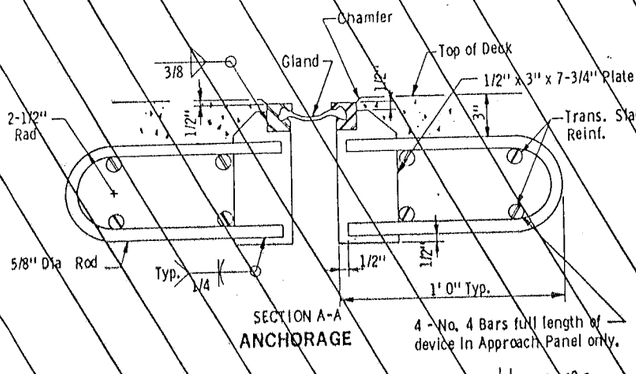
TITLE:	DES:	DR:	APPROVED:	
WATERPROOF EXPANSION DEVICE WITH TYPE J BARRIER	CHK:	CHK:		Bridge No. 02601
	Sheet No. 14 of 27 Sheets			

S.P. No. 08-624-19

17M

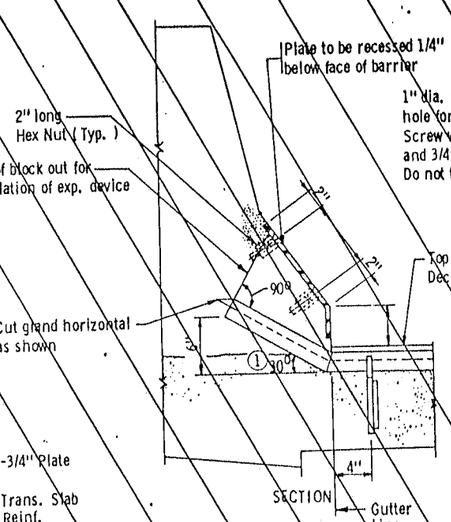


ALTERNATE 2
(Curved Expansion Device)

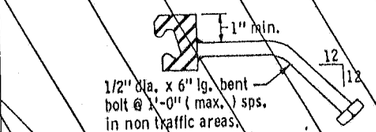


SECTION A-A
ANCHORAGE

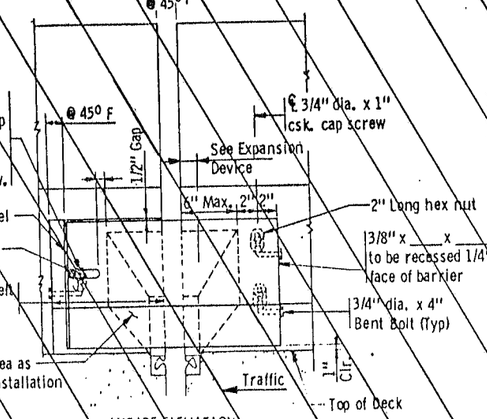
4 - No. 4 Bars full length of device in Approach Panel only.



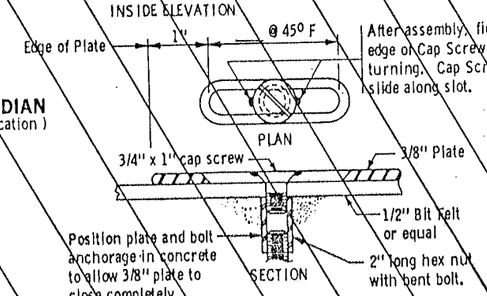
RAILING OR MEDIAN
(Square Bridge Application)



BENT BOLT DETAIL

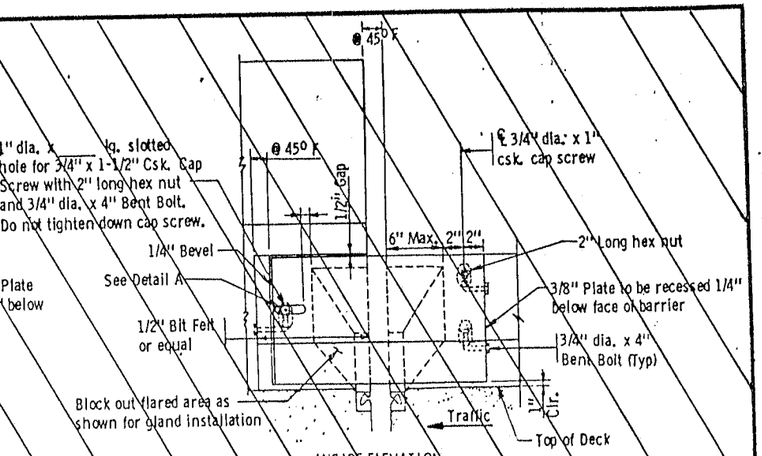


INSIDE ELEVATION



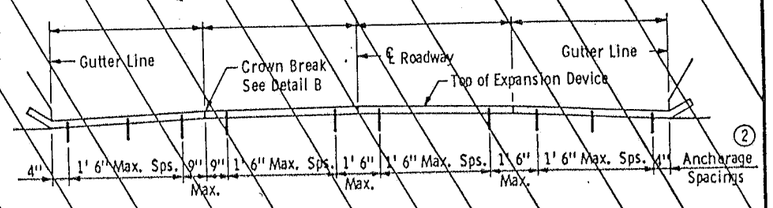
DETAIL A

After assembly, field weld lugs on each edge of Cap Screw only to prevent turning. Cap Screw must be able to slide along slot.

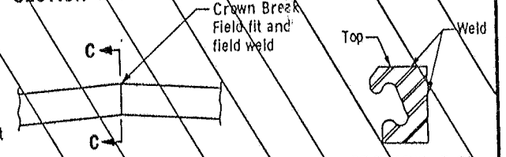


INSIDE ELEVATION

RAILING AT CURB TRANSITION

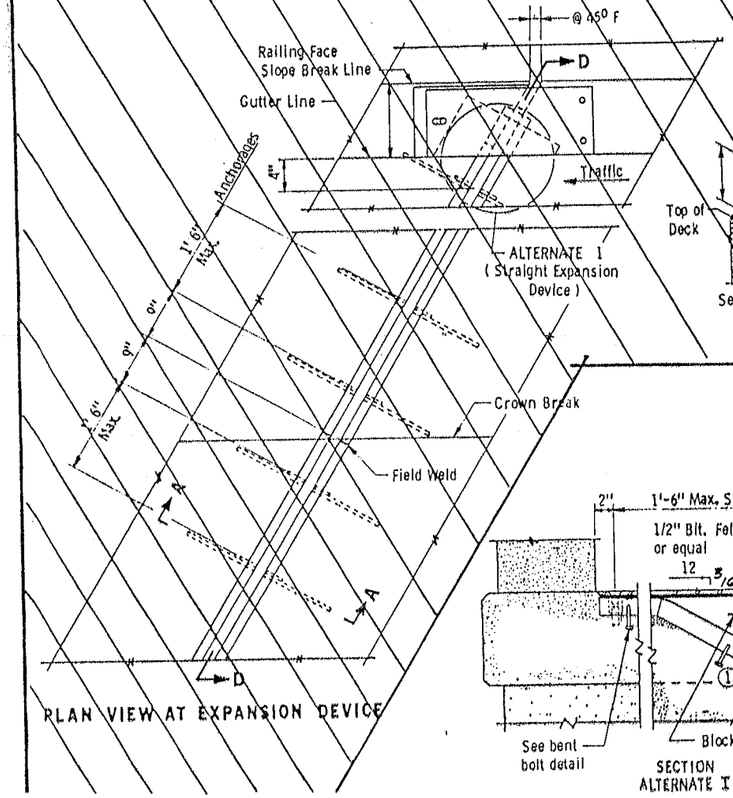


SECTION B-B

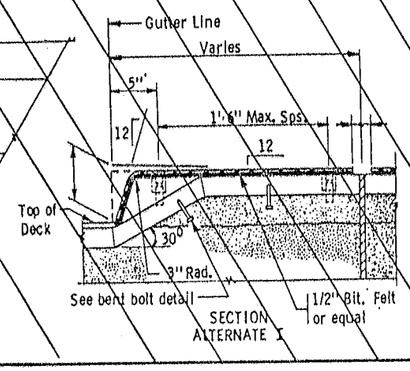


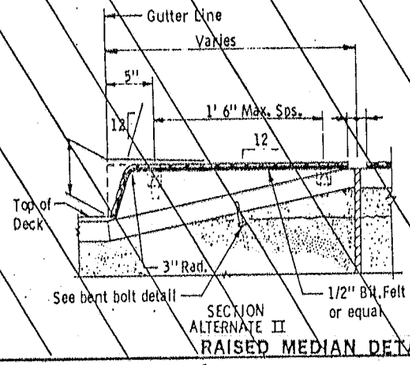
DETAIL B

SECTION C-C

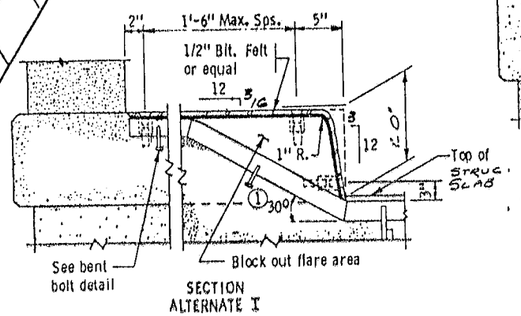


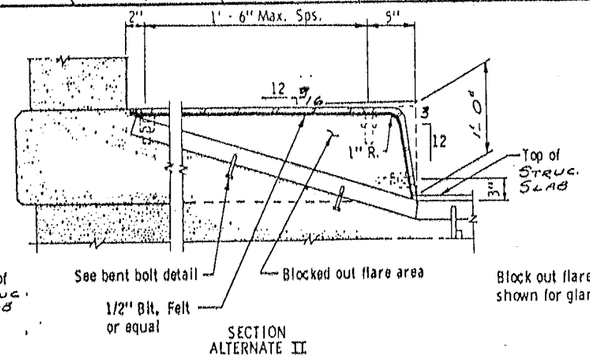
PLAN VIEW AT EXPANSION DEVICE

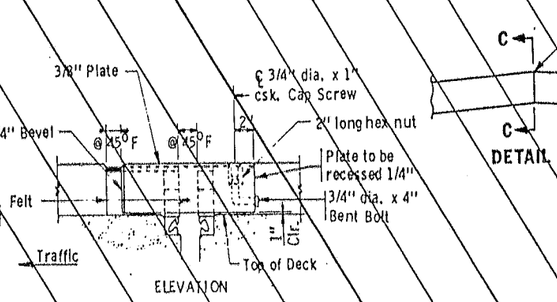




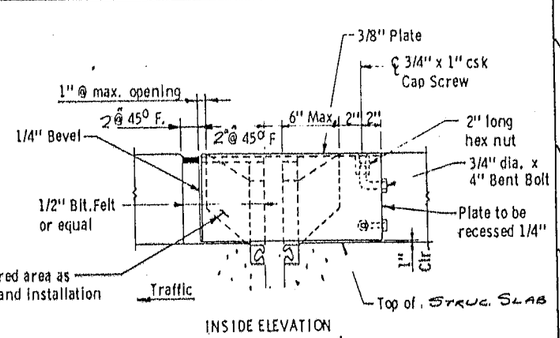
RAISED MEDIAN DETAILS







ELEVATION



INSIDE ELEVATION

SIDEWALK DETAILS ① For skews over 25° use 45°
② Dimension along skew.

NOTES:

Galvanize structural steel after fabrication as per Spec. 3394.

Joints in roadway plate or extrusion shall be located at breaks in transverse profile and as otherwise required. Joints shall be close fit and welded. Repair after welding as per Spec. 2471.3E.

Structural steel shall comply with Spec. 3306, Spec. 3307 & Spec. 3309.

Expansion device shall be straightened to a tolerance of 1/8" in 10 ft.

Cap screws shall be countersunk 1/16" below top of plate.

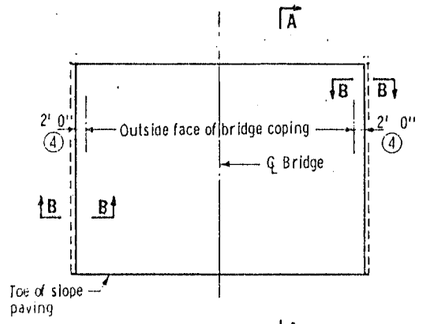
Galvanize screws and nuts as per Spec. 3392.

See superstructure sheets for Alternate 1 or Alternate 2.

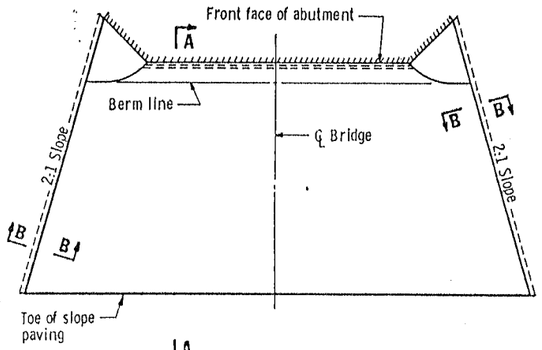
When expansion devices are used at ends of bridge, the bridge contractor shall furnish expansion device. Roadway contractor shall install gland and part of device as shown on this sheet.

Fig. 5-397.627
Approved: October 9, 1980

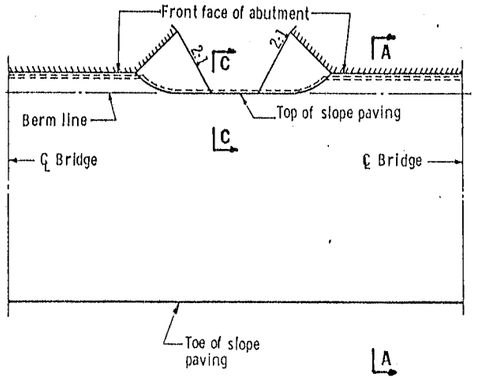
TITLE:	DES:	DR:	APPROVED:	Bridge No.
WATERPROOF EXPANSION DEVICE	CHK:	CHK:		02501
SP No. 02-624-19	Sheet No. 20 of 27 Sheets			



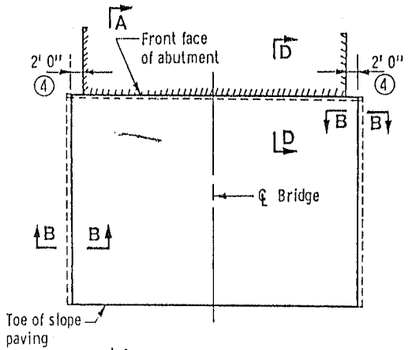
SQUARE BRIDGE



SQUARE BRIDGE



SQUARE BRIDGE



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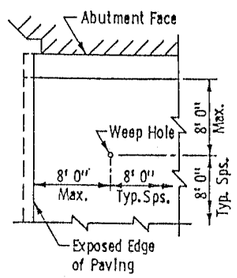
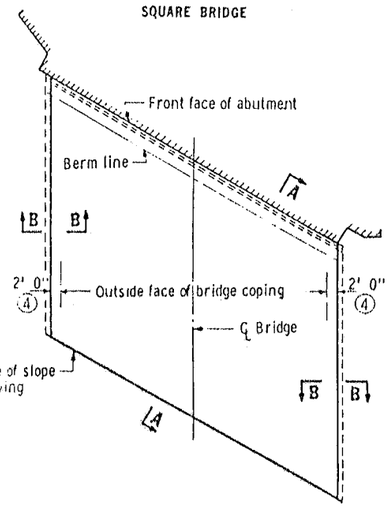
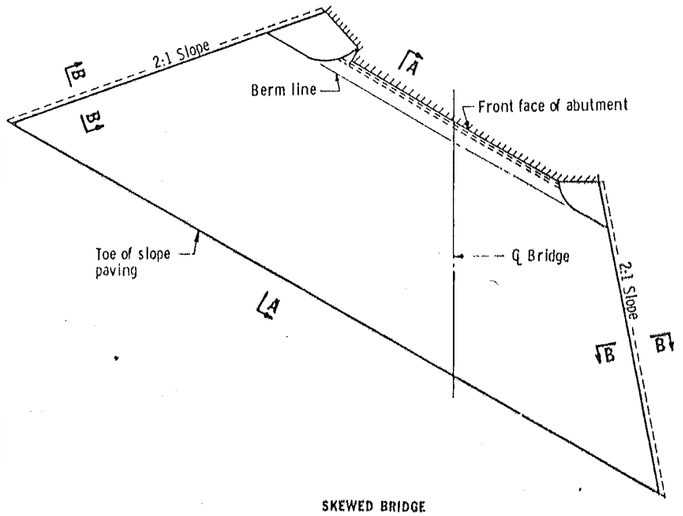


WEEP HOLE DETAIL
PLAN VIEW
(All Slopes and Abutments)



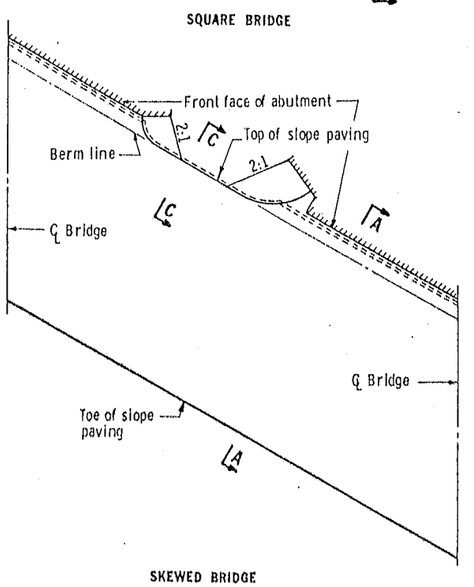
SKEWED BRIDGE

LAYOUTS FOR SLOPES 2:1 OR FLATTER



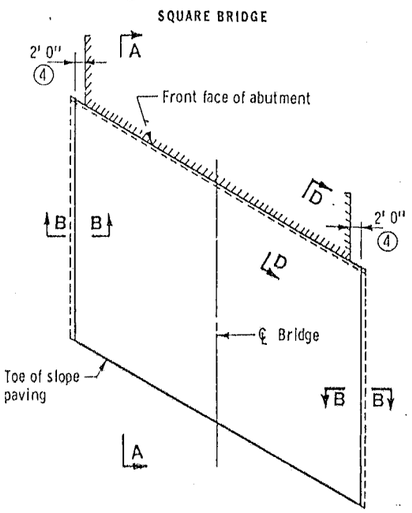
SKEWED BRIDGE

LAYOUTS FOR SLOPES STEEPER THAN 2:1



SKEWED BRIDGE

LAYOUTS FOR SLOPES STEEPER THAN 2:1 BETWEEN BRIDGES

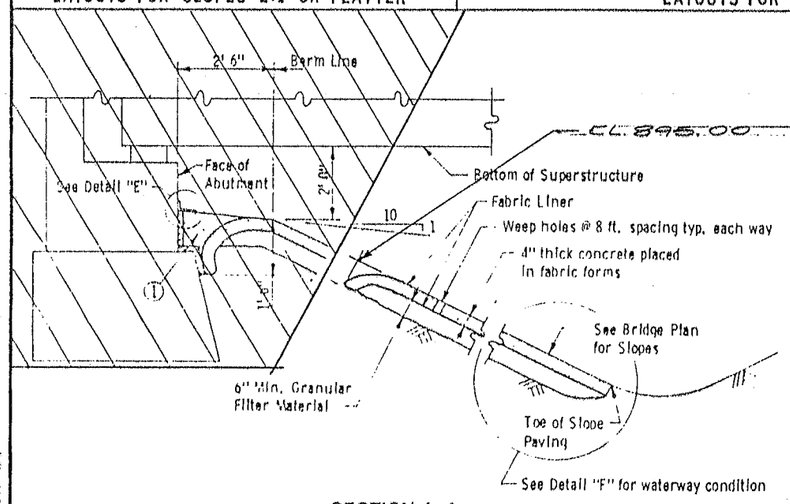


SKEWED BRIDGE

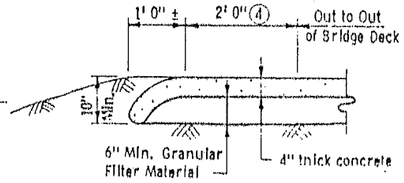
LAYOUTS FOR SLOPES AT HIGH ABUTMENTS

NOTES:

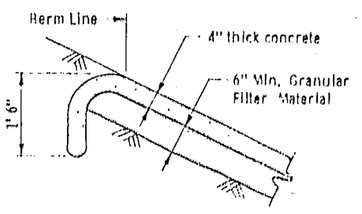
1. Fill recess with concrete, slope and compact to form a smooth surface.
2. See Special Provisions for Materials, Preparation, Placement and Payment.
3. Granular filter material as per Spec. 3601.
4. 2' 0" for tangent bridge superstructures. Varies 2' 0" minimum for curved bridge superstructures.



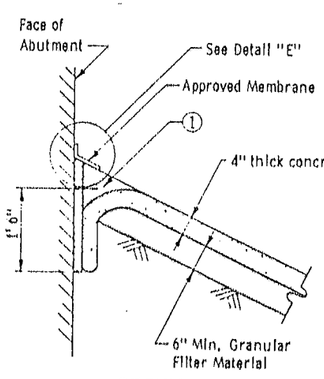
SECTION A-A
(Low Abutment shown)



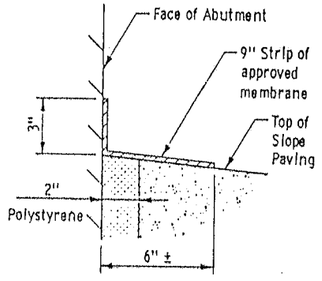
SECTION B-B



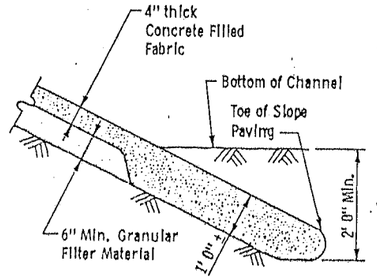
SECTION C-C



SECTION D-D
(High Abutment)



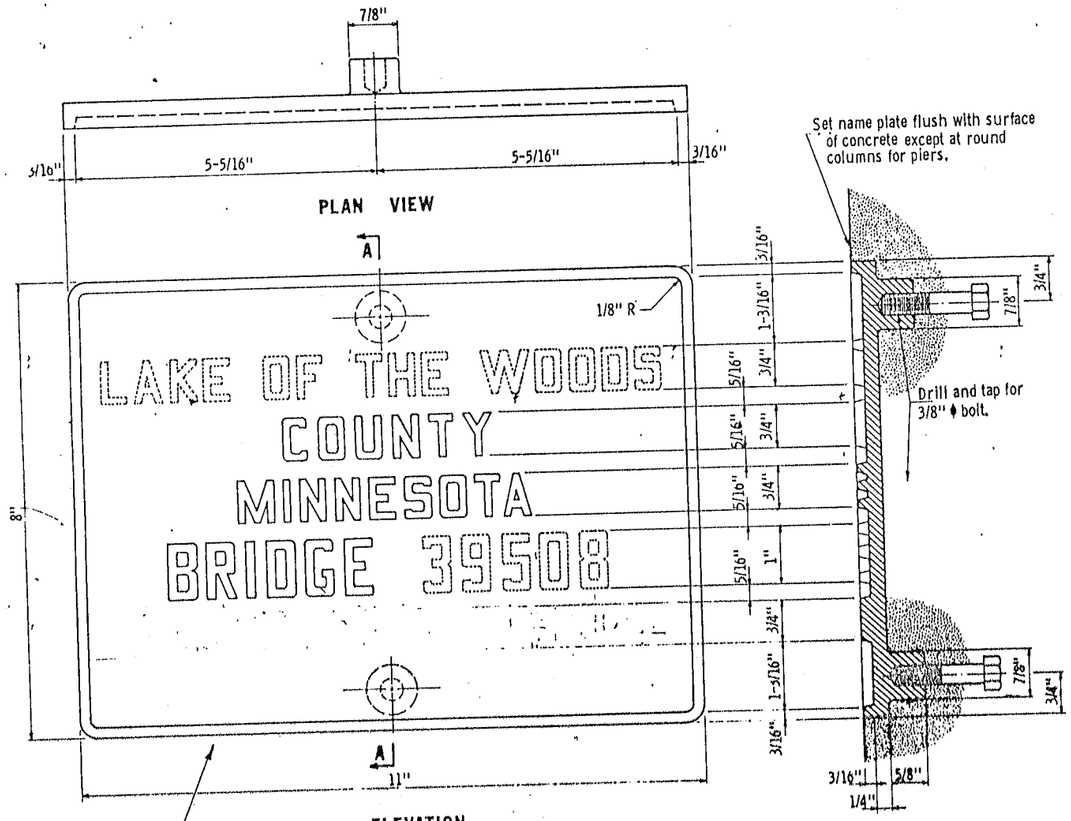
DETAIL E



DETAIL F
(Toe of Slope Paving for Waterway Condition)

FIG. 5-397.300
Approved: August 6, 1984

TITLE	DES:	DR.	APPROVED:	Bridge No.
GROUT INJECTED FABRIC-FORMED SLOPE PAVING	CHK.	CHK.		02501
	Sheet No. 21 of 27 Sheets			

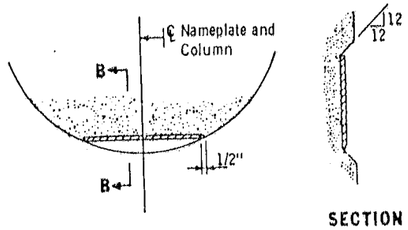


ELEVATION

The numbers shown above are for illustration. Data to be shown on name plate is as follows:

BRIDGE 02501
YEAR 1985
COUNTY ANOKA

BRIDGE 02501
WIDENED
1985
S.P. 02-624-19



SECTION B-B

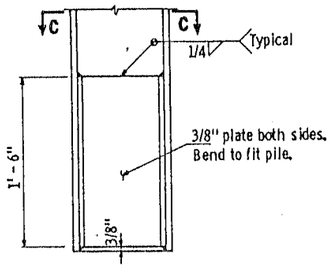
NAMEPLATE PLACEMENT

(Round Concrete Pier Columns)

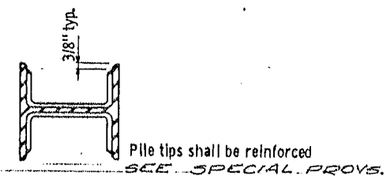
SECTION A - A

NOTES:

No shop drawing required.
Material shall comply with SPEC. 3327.
Numbers and letters shall conform to those shown.
Draft on letters shall not be more than 3" in 12"
Horizontal spacing of letters shall produce a balanced layout in proportion to spacing shown.
Top surface of letters and frames shall be burnished.
Furnish 2 steel bolts 3/8" ϕ x 3" long with each plate.
All dimensions for 3/4" high letters and numbers shall be in direct proportion to those shown for the 1" high letters and numbers.

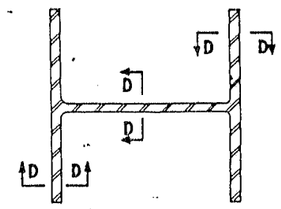


ELEVATION

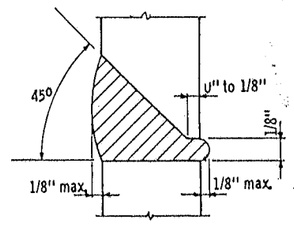


SECTION C - C

DETAIL OF PILE TIP REINFORCEMENT



SECTION AT JOINT



SECTION D - D

100% BUTT WELDED PILE SPLICE

NOTES:

A. W. S. Type E7016 or E7018 (low-hydrogen) electrodes shall be used for 100% butt welded splices.

A. W. S. Type E6010, E6011 electrodes, or E7016 or E7018 (low-hydrogen) electrodes, shall be used for the alternate plate type pile splice.

Low-hydrogen electrodes shall be supplied in hermetically (air-tight) sealed containers.

Low-hydrogen electrodes shall be stored in holding ovens at a temperature of not less than 250° F.

Low-hydrogen electrodes shall be placed in a holding oven for at least 8 hours, after having been exposed to the atmosphere for more than 2 hours.

Any type electrode which has become wet, soiled, or damaged shall not be used.

Welding shall not be done when the ambient temperature is lower than 0° F. or when the pile is wet or exposed to falling rain or snow. When the pile metal temperature is below 32° F., the pile metal in the area of the weld shall be heated to a minimum temperature of 70° F. and maintained at this temperature during welding.

ABCDEFGHIJKLMN OPQRSTUVWXYZ 2½" L.

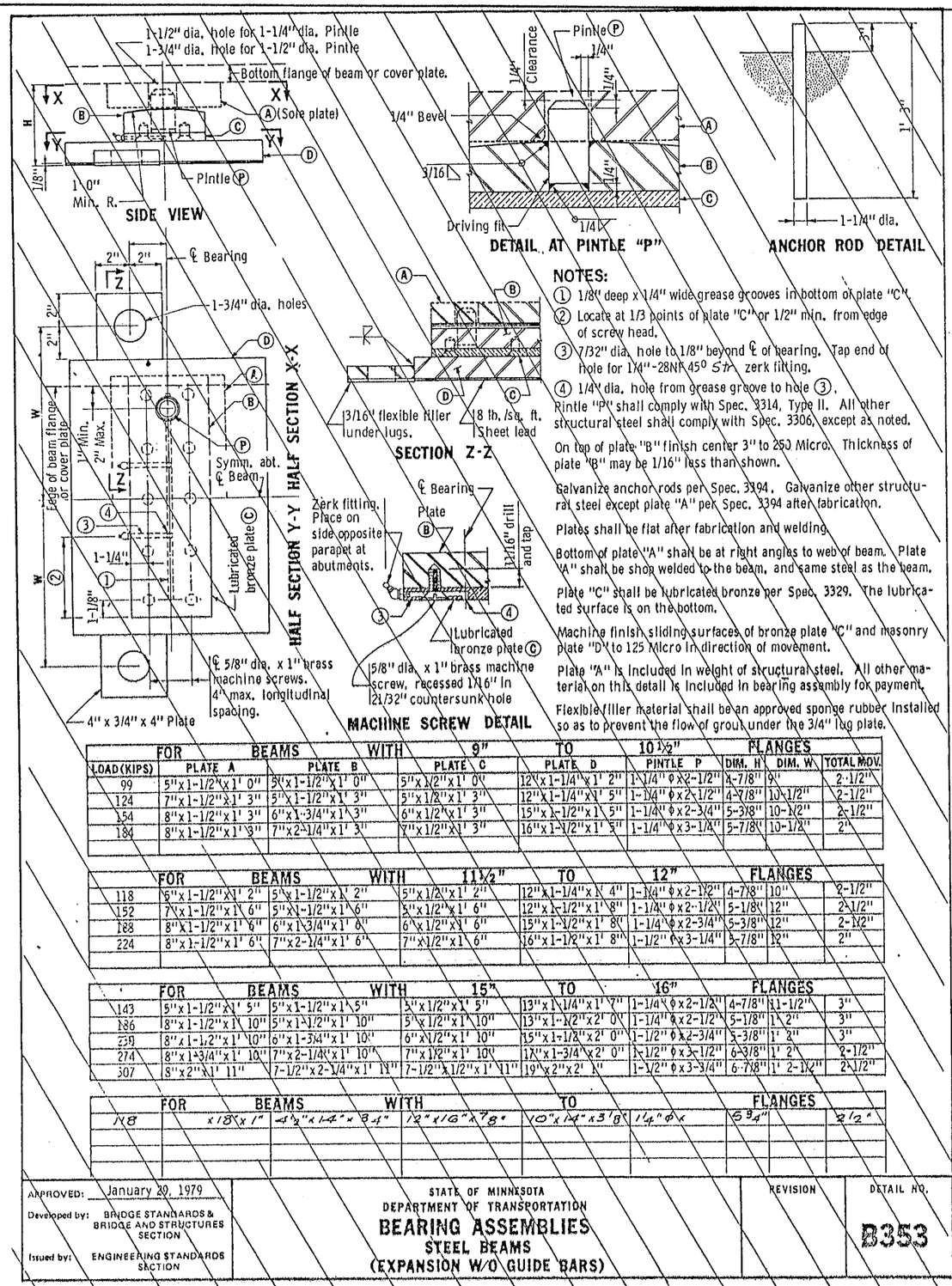
1234567890 2½" L.

Specification reference: 2471.3H, A.S.T.M. Designation: B145 - Alloy 836.

LETTERS & NUMBERS FOR NAMEPLATES

APPROVED: March 15, 1976 Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN Issued by: OFFICE OF ENGINEERING STANDARDS	MINNESOTA DEPARTMENT OF TRANSPORTATION BRIDGE NAMEPLATE COUNTY BRIDGES		DETAIL NO. B103

APPROVED: November 5, 1979 Developed by: BRIDGE STANDARDS & BRIDGE AND STRUCTURES SECTION Issued by: ENGINEERING STANDARDS SECTION	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION PILE SPLICE and TIP REINFORCEMENT STEEL H BEARING PILES 10" TO 14"		DETAIL NO. B202



NOTES:

1. 1/8" deep x 1/4" wide grease grooves in bottom of plate "C".
2. Locate at 1/3 points of plate "C" or 1/2" min. from edge of screw head.
3. 7/32" dia. hole to 1/8" beyond ℄ of bearing. Tap end of hole for 1/4"-28NF 45° S.A. zerk fitting.
4. 1/4" dia. hole from grease groove to hole (3).

Pintle "P" shall comply with Spec. 3314, Type II. All other structural steel shall comply with Spec. 3306, except as noted.

On top of plate "B" finish center 3" to 250 Micro. Thickness of plate "B" may be 1/16" less than shown.

Galvanize anchor rods per Spec. 3394. Galvanize other structural steel except plate "A" per Spec. 3394 after fabrication.

Plates shall be flat after fabrication and welding.

Bottom of plate "A" shall be at right angles to web of beam. Plate "A" shall be shop welded to the beam, and same steel as the beam.

Plate "C" shall be lubricated bronze per Spec. 3329. The lubricated surface is on the bottom.

Machine finish sliding surfaces of bronze plate "C" and masonry plate "D" to 125 Micro in direction of movement.

Plate "A" is included in weight of structural steel. All other material on this detail is included in bearing assembly for payment.

Flexible filler material shall be an approved sponge rubber installed so as to prevent the flow of grout under the 3/4" lug plate.

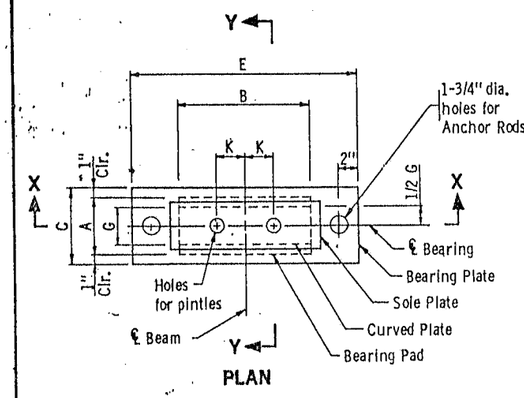
FOR BEAMS WITH 9" TO 10½" FLANGES						
LOAD (KIPS)	PLATE A	PLATE B	PLATE C	PLATE D	PINTLE P	DIM. H	DIM. W	TOTAL MOV.
99	5"x1-1/2"x1' 0"	5"x1-1/2"x1' 0"	5"x1/2"x1' 0"	12"x1-1/4"x1' 2"	1-1/4" ϕx2-1/2"	4-7/8"	9"	2-1/2"
124	7"x1-1/2"x1' 3"	5"x1-1/2"x1' 3"	5"x1/2"x1' 3"	12"x1-1/4"x1' 5"	1-1/4" ϕx2-1/2"	4-7/8"	10-1/2"	2-1/2"
154	8"x1-1/2"x1' 3"	6"x1-3/4"x1' 3"	6"x1/2"x1' 3"	15"x1-1/2"x1' 5"	1-1/4" ϕx2-3/4"	5-3/8"	10-1/2"	2-1/2"
184	8"x1-1/2"x1' 3"	7"x2-1/4"x1' 3"	7"x1/2"x1' 3"	16"x1-1/2"x1' 5"	1-1/4" ϕx3-1/4"	5-7/8"	10-1/2"	2"
FOR BEAMS WITH 11½" TO 12" FLANGES								
118	6"x1-1/2"x1' 2"	5"x1-1/2"x1' 2"	5"x1/2"x1' 2"	12"x1-1/4"x1' 4"	1-1/4" ϕx2-1/2"	4-7/8"	10"	2-1/2"
152	7"x1-1/2"x1' 6"	5"x1-1/2"x1' 6"	5"x1/2"x1' 6"	12"x1-1/2"x1' 8"	1-1/4" ϕx2-1/2"	5-1/8"	12"	2-1/2"
188	8"x1-1/2"x1' 6"	6"x1-3/4"x1' 6"	6"x1/2"x1' 6"	15"x1-1/2"x1' 8"	1-1/4" ϕx2-3/4"	5-3/8"	12"	2-1/2"
224	8"x1-1/2"x1' 6"	7"x2-1/4"x1' 6"	7"x1/2"x1' 6"	16"x1-1/2"x1' 8"	1-1/2" ϕx3-1/4"	5-7/8"	12"	2"
FOR BEAMS WITH 15" TO 16" FLANGES								
143	5"x1-1/2"x1' 5"	5"x1-1/2"x1' 5"	5"x1/2"x1' 5"	13"x1-1/4"x1' 7"	1-1/4" ϕx2-1/2"	4-7/8"	11-1/2"	3"
186	8"x1-1/2"x1' 10"	5"x1-1/2"x1' 10"	5"x1/2"x1' 10"	13"x1-1/2"x2' 0"	1-1/4" ϕx2-1/2"	5-1/8"	1' 2"	3"
239	8"x1-1/2"x1' 10"	6"x1-3/4"x1' 10"	6"x1/2"x1' 10"	15"x1-1/2"x2' 0"	1-1/2" ϕx2-3/4"	5-3/8"	1' 2"	3"
274	8"x1-3/4"x1' 10"	7"x2-1/4"x1' 10"	7"x1/2"x1' 10"	17"x1-3/4"x2' 0"	1-1/2" ϕx3-1/2"	6-3/8"	1' 2"	2-1/2"
307	8"x2"x1' 11"	7-1/2"x2-1/4"x1' 11"	7-1/2"x1/2"x1' 11"	19"x2"x2' 1"	1-1/2" ϕx3-3/4"	6-7/8"	1' 2-1/2"	2-1/2"
FOR BEAMS WITH TO FLANGES								
168	x18"x1"	4½"x14"x 84"	12"x16"x 78"	10"x14"x3'8"	1¼" ϕx	5¾"		2½"

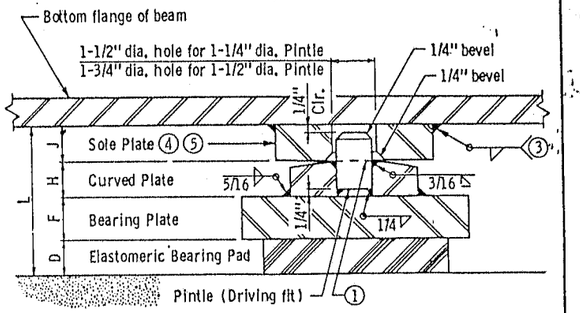
APPROVED: January 20, 1979
Developed by: BRIDGE STANDARDS & BRIDGE AND STRUCTURES SECTION
Issued by: ENGINEERING STANDARDS SECTION

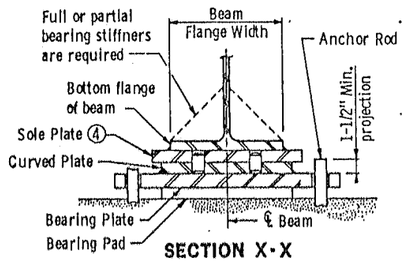
STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
BEARING ASSEMBLIES
STEEL BEAMS
(EXPANSION W/O GUIDE BARS)

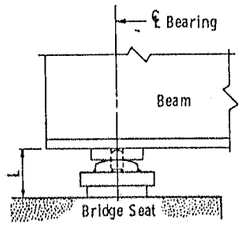
REVISION

DETAIL NO. B353









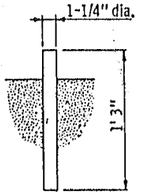


TABLE (2)

Beam Flange Size	Bearing Pad Size A	B	D	Shape Factor	Bearing Plate Size C	E	F	Curved Plate Size G	B	H	Sole Plate Size Width	Length	J (5)	Pintle Dia.	Pintle Spacing K	Assy. Height L	Assembly Type
9" to 10-1/2"															2-3/4"		
11-1/2" to 12"																	
15" to 16"																	
18"	20"	20"	3¼"	6.7	22"	30"	2"	8"	20"	1½"	10"	22"	1¼"	1½"	2¾"	5½"	1 PIER 2

NOTES:

For elastomeric materials and pad construction, see Spec. 3741 and special provisions, except as noted.

All steel plates & anchor rods shall comply with Spec. 3306, except as noted.

All plates shall be flat after fabrication and galvanizing.

Pintles shall comply with Spec. 3314, Type II

Galvanize structural steel bearing assembly after fabrication per Spec. 3394, except as noted.

Payment for bearing assembly shall include all material on this detail, except the Sole Plate.

(1) The radius of the curved plate shall be 1' 0" min. and 1' 6" max. Finish to 250 Micro. The finished thickness of the plate may be 1/16" less than shown.

(2) See Bridge Design Manual for design requirements.

(3) 5/16" min. fillet weld for 3/4" up to & including 1-1/2" thick sole plates. 3/8" min. fillet weld for over 1-1/2" to 2-1/4" thick sole plates, except as noted in the plans.

(4) Sole plate may be tapered. See superstructure details.

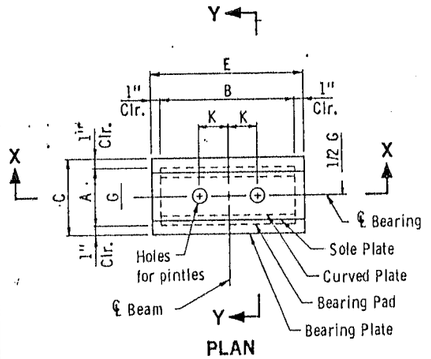
(5) When the sole plate is tapered, dimension "J" is the minimum thickness of the plate.

APPROVED: May 25, 1982
Developed by: ENGINEERING STANDARDS & BRIDGES AND STRUCTURES OFFICES
Issued by: OFFICE OF ENGINEERING STANDARDS

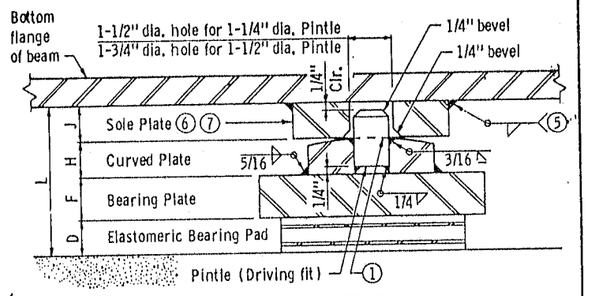
STATE OF MINNESOTA
DEPARTMENT OF TRANSPORTATION
CURVED PLATE BEARING ASSEMBLY
STEEL BEAMS
(FIXED)

REVISION

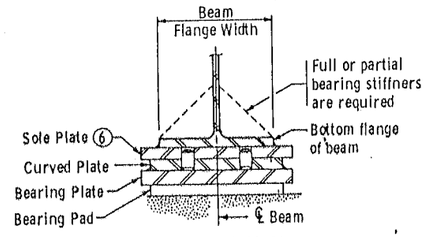
DETAIL NO. B354



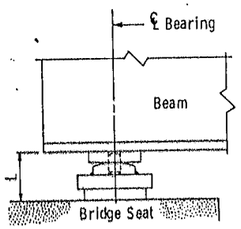
PLAN



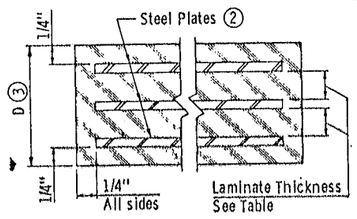
SECTION Y-Y
(ENLARGED BEARING ASSEMBLY)



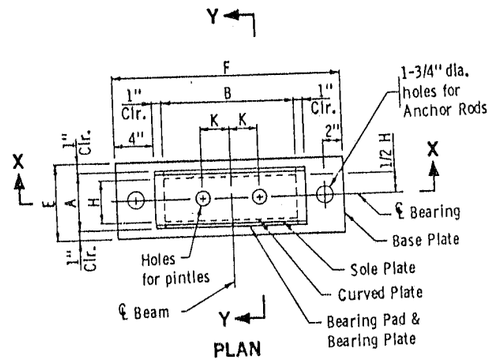
SECTION X-X



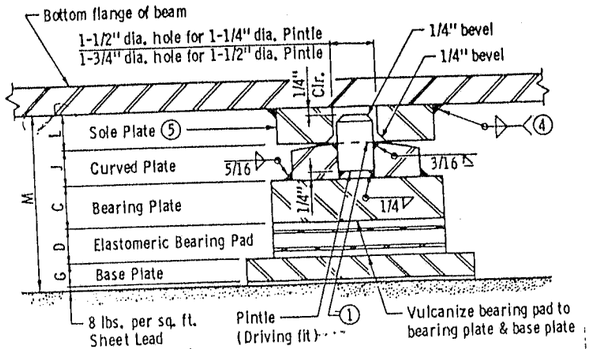
END ELEVATION



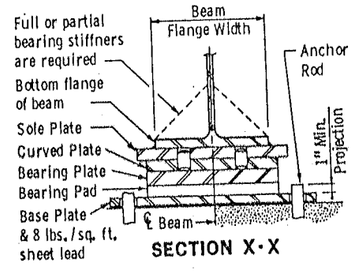
SECTION THRU BEARING PAD



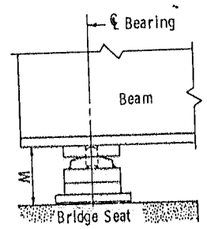
PLAN



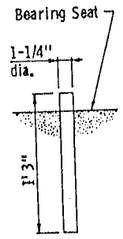
SECTION Y-Y
(ENLARGED BEARING ASSEMBLY)



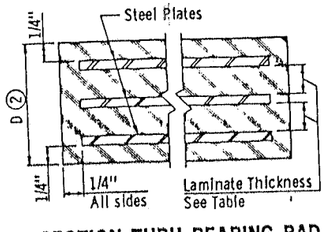
SECTION X-X



END ELEVATION
(Anchor Rods Not Shown)



ANCHOR ROD DETAIL



SECTION THRU BEARING PAD

EXISTING ABUTS. PIERS 1 & 3 — NEW ABUTS.

TABLE ④

Beam Flange Size	Bearing Pad Size			Steel Plates		Laminates		Shape Factor	Bearing Plate Size			Curved Plate Size			Sole Plate Size			Pintle Dia.	Pintle Spacing	Assy. Height	Assembly Type
	A	B	D	No.	Thick.	No.	Thick.		C	E	F	G	B	H	Width	Length	J ⑦		K	L	
9" to 10-1/2"																			2-3/4"		
11-1/2" to 12"	10"	14"	3'8"	6	18"	5	3/8"	7.8	12"	10"	7/8"	4 1/2"	14"	3 3/4"	0"	10"	1"	11 1/2"	2 3/4"	5 3/4"	1
15" to 16"																					
18"	20"	20"	3 1/4"	4	3/16"	3	3/4"	6.7	22"	22"	2"	8"	20"	1 1/2"	10"	22"	1 1/4"	11 1/2"	2 3/4"	8"	3

NOTES:

For elastomeric materials and pad construction, see Spec. 3741 and special provisions, except as noted.

All steel plates shall comply with Spec. 3306, except as noted.

All plates shall be flat after fabrication and galvanizing.

Pintles shall comply with Spec. 3314, Type II

Galvanize structural steel bearing assembly after fabrication per Spec. 3394, except as noted.

Payment for bearing assembly shall include all material on this detail, except the Sole Plate.

① The radius of the curved plate shall be 1' 0" min. and 1' 6" max. Finish to 250 Micro. The finished thickness of the plate may be 1/16" less than shown.

② Do not galvanize these plates.

③ The total thickness shown includes the steel plates.

④ See Bridge Design Manual for design requirements.

⑤ 5/16" min. fillet weld for 3/4" up to & including 1-1/2" thick sole plates. 3/8" min. fillet weld for over 1-1/2" to 2-1/4" thick sole plates, except as noted in the plans.

⑥ Sole plate may be tapered. See superstructure details.

⑦ When sole plate is tapered, dimension "J" is min. thickness of plate.

APPROVED: May 25, 1982	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION CURVED PLATE BEARING ASSEMBLY STEEL BEAMS (EXPANSION)	REVISION	DETAIL NO.
Developed by: ENGINEERING STANDARDS & BRIDGES AND STRUCTURES OFFICES Issued by: OFFICE OF ENGINEERING STANDARDS			B355

TABLE ③

Beam Flange Size	Bearing Pad Size			Steel Plates		Laminates		Bearing Plate Size			Shape Factor	Base Plate Size			Curved Plate Size			Sole Plate Size			Pintle Dia.	Pintle Spacing	Assy. Height	Assembly Type
	A	B	D	No.	Thick.	No.	Thick.	A	B	C		E	F	G	H	B	J	Width	Length	Thick. L ⑤		K	M	
9" to 10-1/2"														3/4"								2-3/4"		
11-1/2" to 12"																								
15" to 16"																								
18"	14"	12"	5 5/8"	9	18"	8	1/2"	14"	10"	1 1/2"	7.5	10"	20"	↑	6"	16"	1 1/4"	8"	20"	1"	1 1/2"	2 3/4"	10 1/4	2

NOTES:

For elastomeric materials and pad construction, see Spec. 3741 and special provisions, except as noted.

All steel plates shall comply with Spec. 3309, except as noted.

Anchor rods shall comply with Spec. 3306

All plates shall be flat after fabrication.

Pintles shall comply with Spec. 3314, Type II

Paint structural steel bearing assembly same as structural steel, except as noted.

Payment for bearing assembly shall include all materials on this detail, except sole plate. Sole plate to be included in weight of structural steel.

Galvanize anchor rods per Spec. 3394

① The radius of the curved plate shall be 1' 0" min. and 1' 6" max. Finish to 250 Micro. The finished thickness of the plate may be 1/16" less than shown.

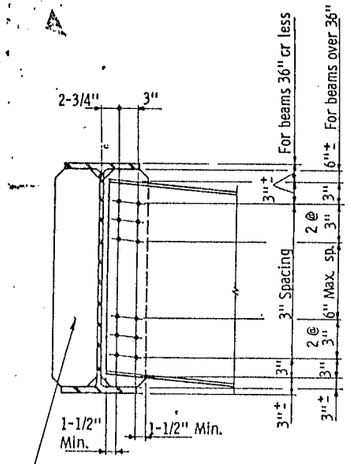
② The total thickness shown includes the steel plates.

③ See Bridge Design Manual for design requirements.

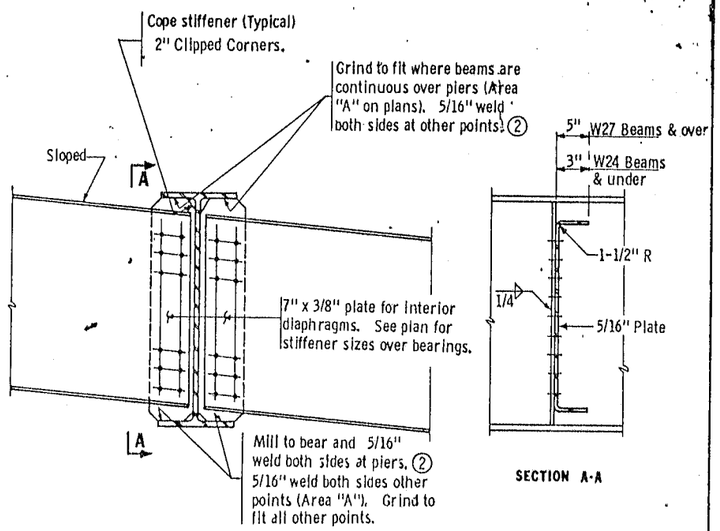
④ 5/16" min. fillet weld for 3/4" up to & including 1-1/2" thick sole plates. 3/8" min. fillet weld for over 1-1/2" to 2-1/4" thick sole plates, except as noted in the plans.

⑤ Sole plate may be tapered. See superstructure details. When sole plate is tapered, dimension "L" is min. thickness of plate.

APPROVED: October 18, 1982	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION CURVED PLATE BEARING ASSEMBLY STEEL BEAMS (VULCANIZED EXPANSION)	REVISION	DETAIL NO.
Developed by: ENGINEERING STANDARDS & BRIDGES AND STRUCTURES OFFICES Issued by: OFFICE OF ENGINEERING STANDARDS			B357



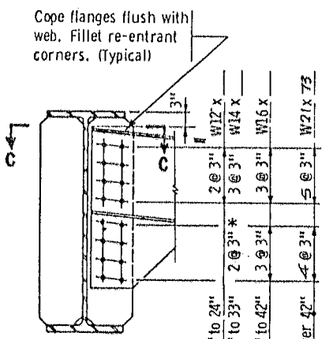
FASCIA BEAM



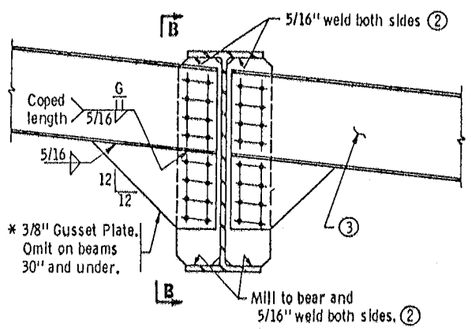
INTERMEDIATE BEAMS

SECTION A-A

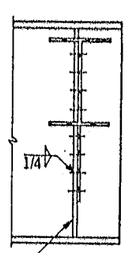
INTERMEDIATE AND PIER DIAPHRAGMS



FASCIA BEAM

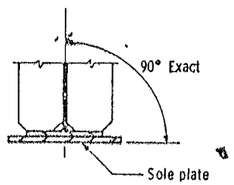


INTERMEDIATE BEAMS

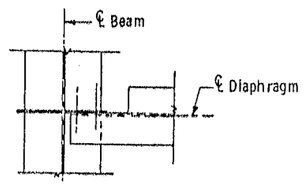


SECTION B-B

ABUTMENT DIAPHRAGMS



TYPICAL DETAIL AT BEARINGS

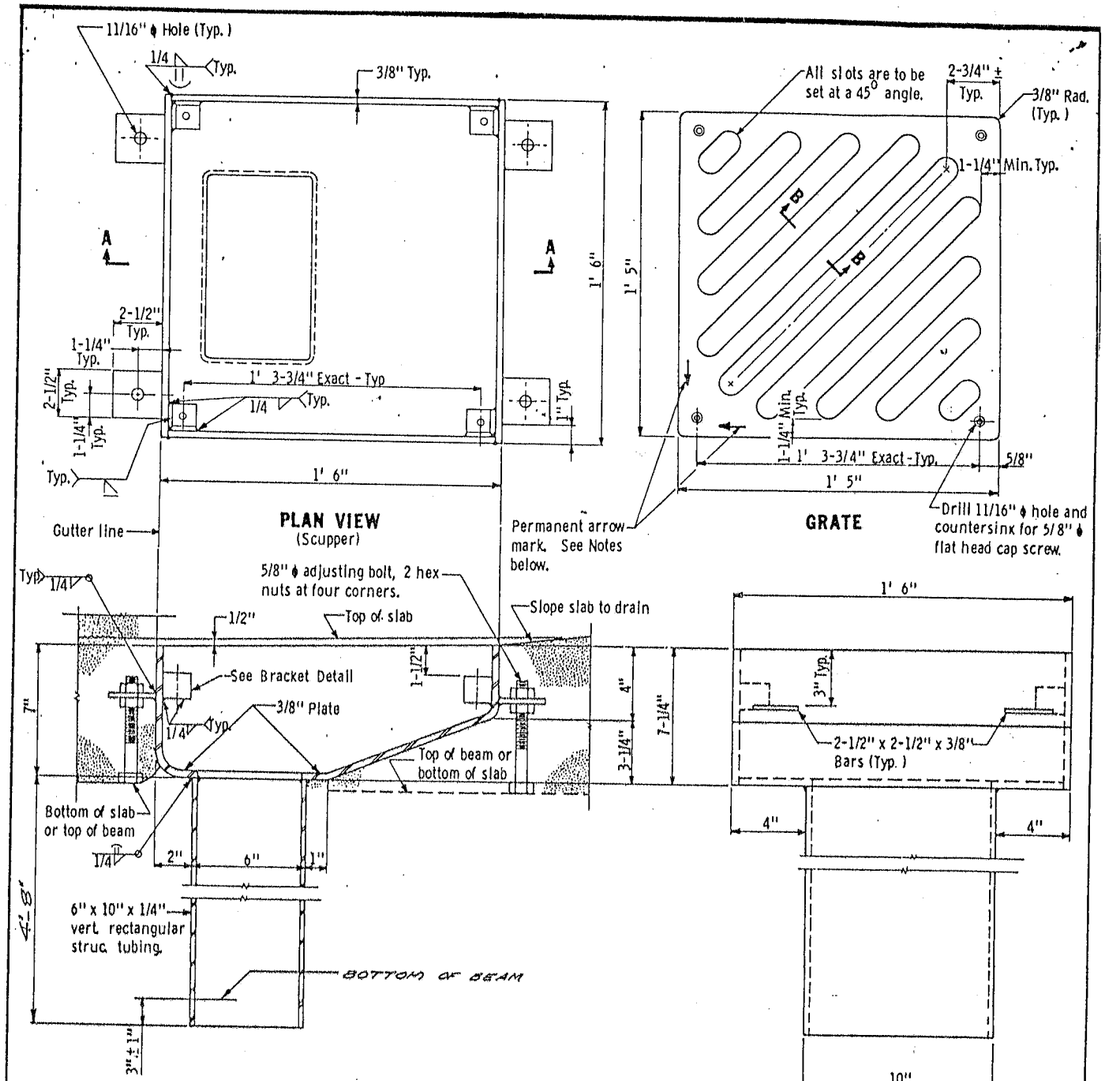


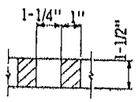
SECTION C-C

NOTES

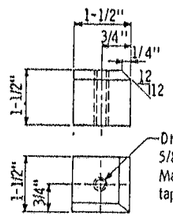
1. Use 7/8" high strength bolts or 7/8" pin bolts
2. For flange material over 1-1/2" thick, use 3/8" weld.
3. Where expansion device is bolted to end diaphragm, use W12 x 53 (for 21" to 24" beams), W14 x 61 (for 27" to 33" beams) and W16 x 71 (for 36" to 42" beams). For beam heights over 42", see framing plan for size of diaphragm.
4. For beam heights over 42", diaphragm to be at least 1/3 the beam height.

APPROVED:	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Developed by: ENGINEERING STANDARDS AND BRIDGES AND STRUCTURES	**BOLTED DIAPHRAGMS FOR STEEL BEAMS**	Nov. 2, 1977	**B402**
Issued by: ENGINEERING STANDARDS			





SECTION B-B

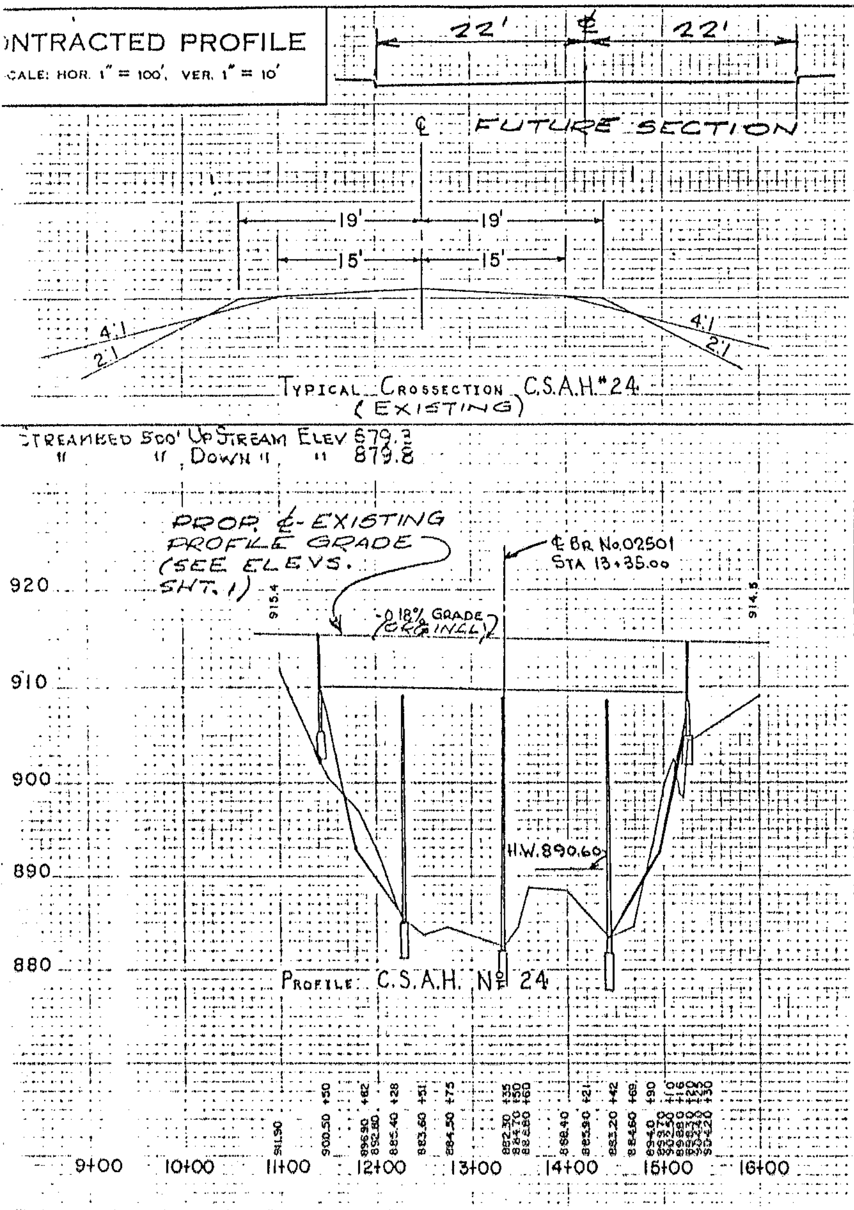


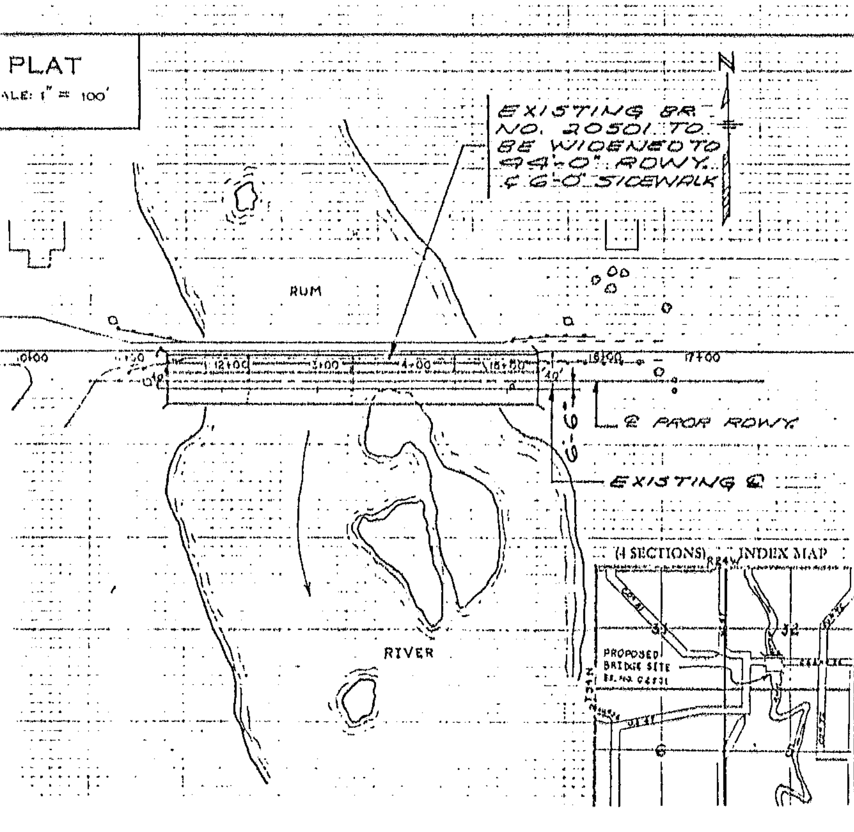
BRACKET DETAIL

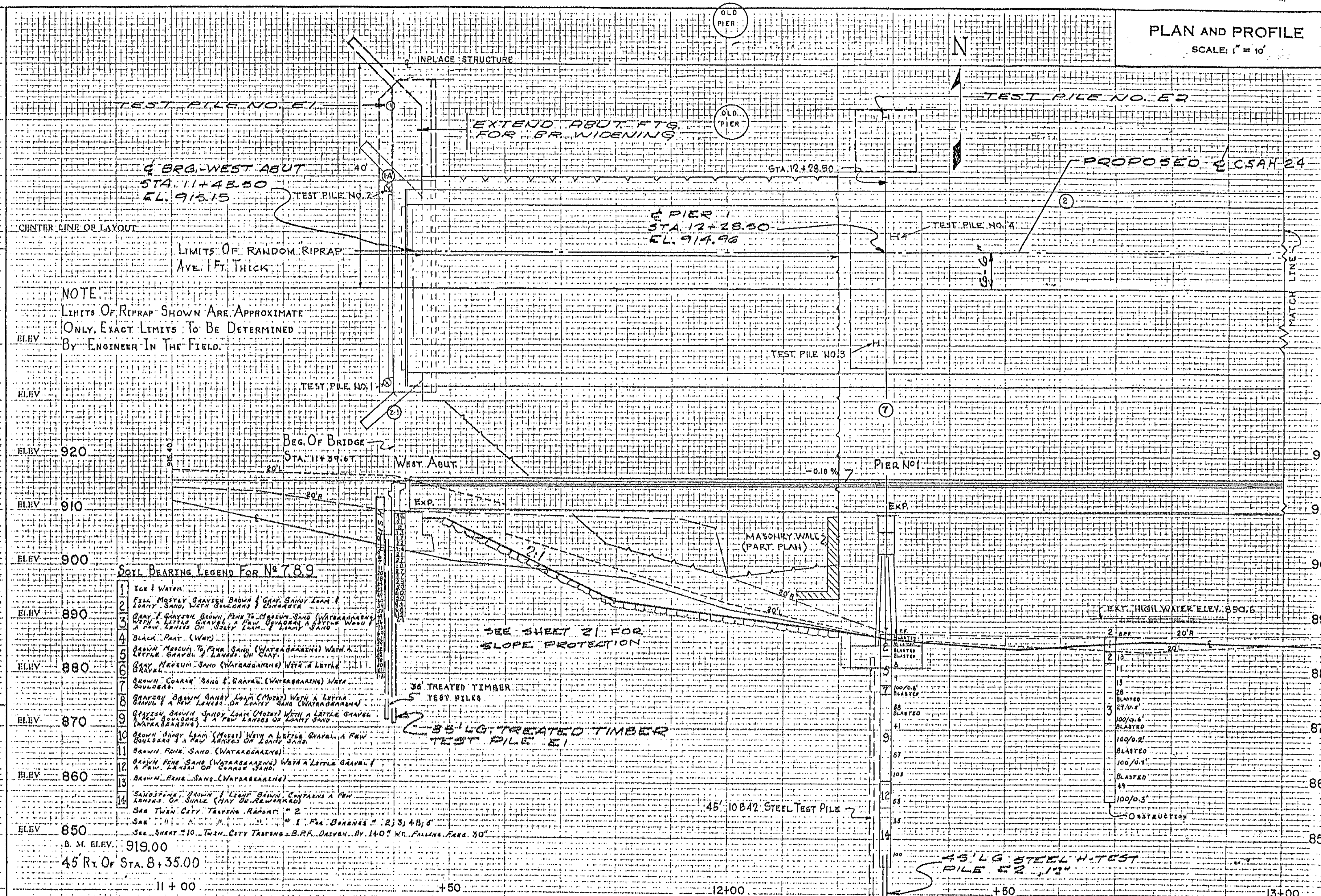
NOTES

All steel plates per Spec. 3306. Fabricate grate using automatically controlled cutting torch.
Malleable iron grate alternate per Spec. 3324 Grade 35018.
Workmanship and fabrication per Spec. 2471.
Blast clean scupper and grate after fabrication.
Galvanize scupper and grate per Spec. 3394.
Galvanize hardware per Spec. 3392.
Install grate with arrow on curb side and in direction of flow.
Payment for Floor Drain, Type 1 shall include all material shown on this detail.
Grate opening area 110 sq. in.

APPROVED: Aug. 12, 1975	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN	**BRIDGE FLOOR DRAIN WELDED BOX**	Feb. 13, 1979	**B701**
Issued by: OFFICE OF ENGINEERING STANDARDS			







FOLLOW SEPARATE "INSTRUCTIONS FOR PREPARATION OF BRIDGE SURVEYS" WHEN MAKING BRIDGE SURVEYS.

DATA

1. Preliminary recommendations of Engineer in charge of Bridge Survey:
   - *a.* Net span length and type of bridge....85'-106'6"-106'6"-85'
   - *b.* Width of roadway on bridge....30' - WIDEN TO 44'-0"
   - *c.* Number and width of sidewalks, if any....2-2'0" WIDE WALKS - 1-6'-0" NO. SIDE
   - *d.* Locate center of bridge at station....STA. 13+35.00
   - *e.* If a skew bridge is recommended, the angle of skew should be....NONE
   - *f.* Is piling required?....YES
2. Special features: Waterfalls, dams, exceptional floods, ice, driftwood, sliding banks, logging, etc.
3. Changes: In height or length from that of old bridge, and reasons why....

DATA (Contd.)

4. Other bridges in vicinity:
   - *a.* Over same stream (particularly structures which carry high water without overflow of roadway); give location, length, height above water, net cross-sectional area at high water stage and estimated age....
   - *b.* Over or under same highway or railroad; give location, length, horizontal and vertical clearances and estimated age....NOT APPLICABLE
   - *c.* Reasons why these bridges are, or are not, fair indications of what length the proposed bridge should be....
5. If structure is over a drainage ditch, is ditch gradient liable to be altered?....NO
6. Navigation clearances required, if any....NONE
7. Information and evidence in regard to high water stages was obtained as follows....
8. Must contractor provide for traffic during construction of proposed bridge?....NO
   If so by what means?....SEE SPECIAL PROVISIONS

HIGH AND LOW WATER ELEVATIONS

Data obtained from....LOCAL RESIDENTS.... reflects highest water elevation in the area of this construction to be....890.60....and the lowest water elevation to be....DRY.... The above figures are for informational purposes only. The state neither warrants nor represents that these figures for high water and low water are in any way indicative of the high water or low water to be expected or encountered during this construction.

SHIPPING POINT

Proposed Bridge is....14....miles....NORTH....of
*....ANOKA....which is the nearest Railroad shipping point.
*(Give name of town, station or siding)

March 6, 1963 — Date   E. L. [signature] — Project or County Engineer

.... Date   .... District Engineer

STATE OF MINNESOTA
DEPARTMENT OF HIGHWAYS

BRIDGE SURVEY

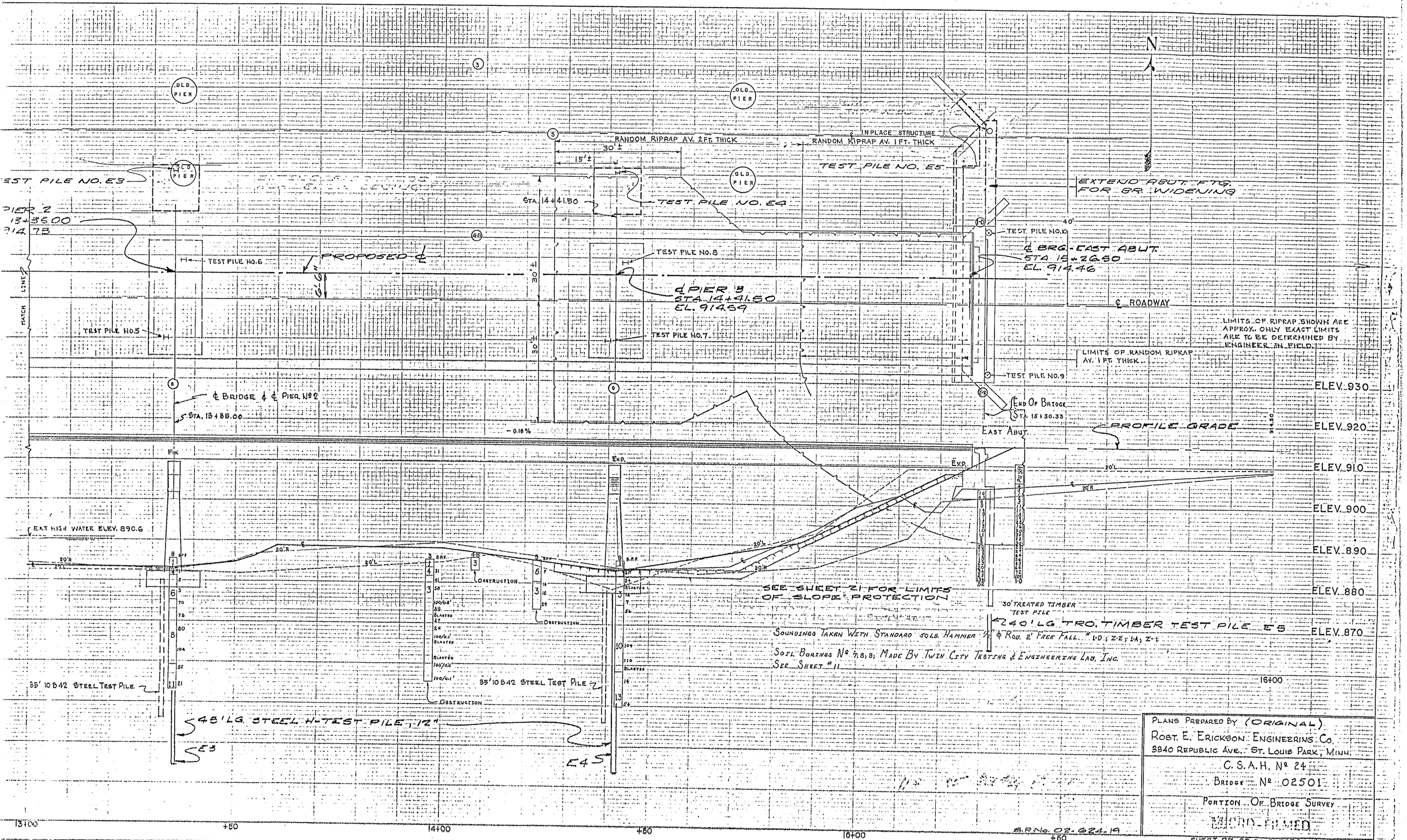
FOR

PROPOSED BRIDGE LOCATED....14....MILES NORTH OF
ANOKA (TOWN OR CITY) ON C.S.A.H. 24 (T.H., S.A.R. OR C.A.R. NUMBER)

SEC....32.... TWP....34 N.... R....24 W....
TOWNSHIP SAINT FRANCIS....COUNTY....ANOKA....
SURVEY MADE DURING MONTH OF....AUG....19 59
SURVEY MADE BY....

MICRO-FILMED

BRIDGE No....02501



PLANS PREPARED BY (ORIGINAL)
ROBT. E. ERICKSON ENGINEERING CO.
3840 REPUBLIC AVE. - ST. LOUIS PARK, MINN.

C. S. A. H. Nº 24
BRIDGE Nº 02501

PORTION OF BRIDGE SURVEY

RECORD FILMED

S.P. No. 02-624-19

SHEET 27 OF 27 SHEETS

02501