MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR GRADING, SURFACING AND CONC. CURB & GUTTER

LOCATED ON C.S.A.H. 18 **BETWEEN** T.H. 52 **AND** C.S.A.H. 12 IN ORONOCO **(GEOGRAPHIC DESCRIPTION)**

FROM APPROX. 1265' W. & 640' N. OF CEN. SEC. 17 R14W-T108N **TO** APPROX. 1665' W. & 989' S. OF N.1/4 COR. SEC. 17 R14W-T108N **(LEGAL DESCRIPTION)**

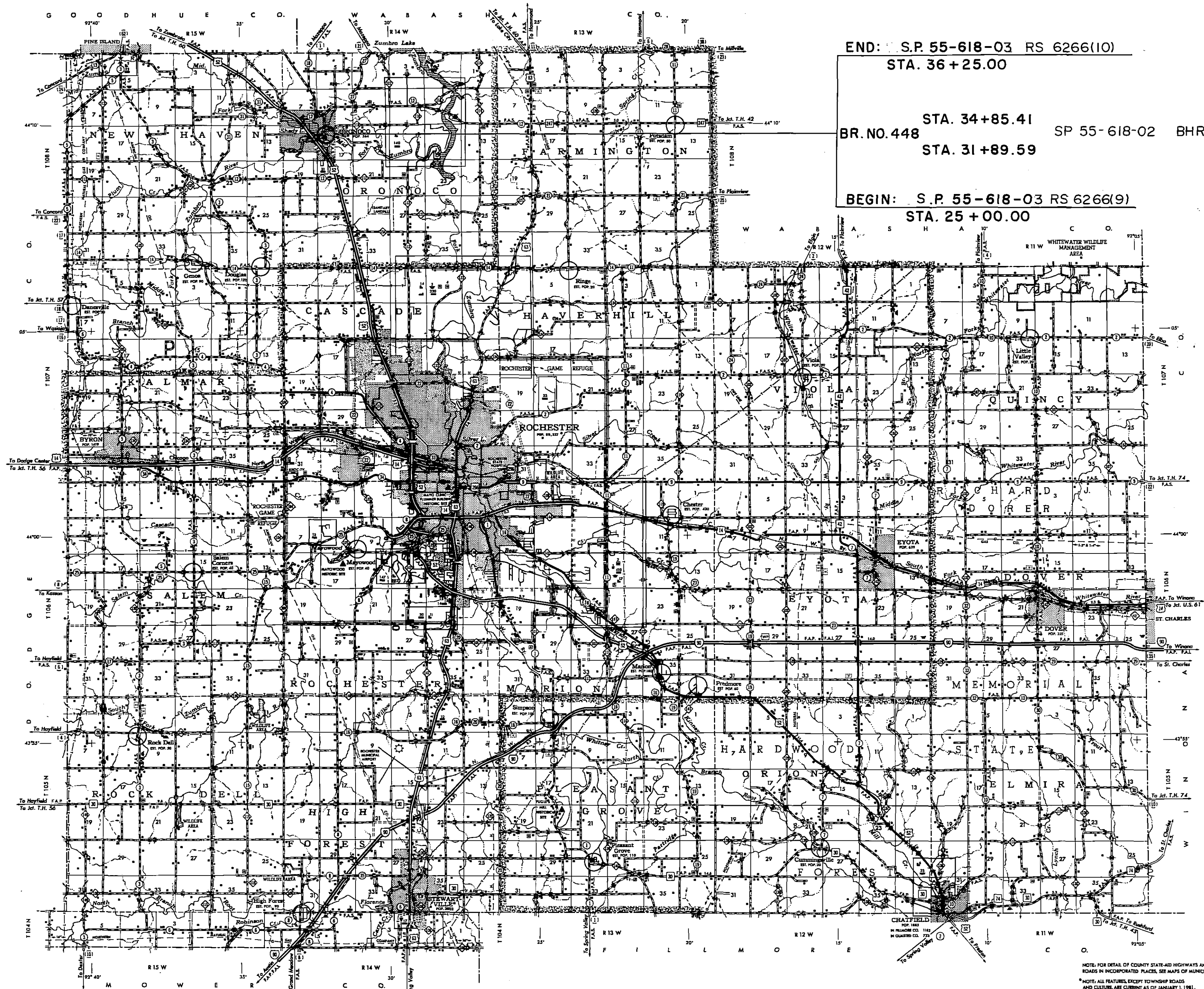
STATE PROJ. NO.					**STATE PROJ. NO.** 55-618-02				
GROSS LENGTH		FEET		MILES	GROSS LENGTH	1125.00	FEET	0.213	MILES
BRIDGES-LENGTH		FEET		MILES	BRIDGES-LENGTH	295.82	FEET	0.056	MILES
EXCEPTIONS-LENGTH		FEET		MILES	EXCEPTIONS-LENGTH	0.00	FEET	0.000	MILES
NET LENGTH		FEET		MILES	NET LENGTH	829.18	FEET	0.157	MILES

PLANS SYMBOLS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
RIGHT-OF-WAY LINE
PRESENT RIGHT-OF-WAY LINE
CONTROL OF ACCESS LINE
PROPERTY LINE (Except Land Lines)
VACATED PLATTED PROPERTY
CORPORATE OR CITY LIMITS
TRUNK HIGHWAY CENTER LINE
RETAINING WALL
RAILROAD
RAILROAD RIGHT-OF-WAY LINE
RIVER OR CREEK
DRY RUN
DRAINAGE DITCH
DRAIN TILE
CULVERT
DROP INLET
GUARD RAIL
BARBED WIRE FENCE
WOVEN WIRE FENCE
CHAIN LINK FENCE
RAILROAD SNOW FENCE
STONE WALL OR FENCE
HEDGE
RAILROAD CROSSING SIGN
RAILROAD CROSSING BELL
ELECTRIC WARNING SIGN
CROSSING GATE
MEANDER CORNER
SPRINGS
MARSH
TIMBER / ORCHARD / BRUSH / NURSERY (TIMBER)
CATCH BASIN C.B.
FIRE HYDRANT
CATTLE GUARD
OVERPASS (Highway Over)
UNDERPASS (Highway Under)
BRIDGE
BUILDING (One Story Frame) I-S-F 75' 35'
F-FRAME C-CONCRETE
S-STONE T-TILE
B-BRICK ST-STUCCO
IRON PIPE OR ROD
MONUMENT (STONE, CONCRETE, OR METAL)
WOODEN HUB
GRAVEL PIT (G)
SAND PIT (S)
BORROW PIT (B)
ROCK QUARRY (Q)
SLOPE EASEMENT SE

UTILITIES SYMBOLS

POWER POLE LINE
TELEPHONE OR TELEGRAPH POLE LINE
JOINT TELEPHONE AND POWER ON POWER POLES
ON TELEPHONE POLES
ANCHOR
STEEL TOWER
STREET LIGHT
PEDESTAL (TELEPHONE CABLE TERMINAL)
GAS MAIN — G —
WATER MAIN — I —
CONDUIT
TELEPHONE CABLE IN CONDUIT — T —
ELECTRIC CABLE IN CONDUIT — P —
TELEPHONE MANHOLE [T]
ELECTRIC MANHOLE [P]
BURIED TELEPHONE CABLE — T-BUR —
BURIED ELECTRIC CABLE — P-BUR —
AERIAL TELEPHONE CABLE — T-AE —
SEWER, (SANITARY OR STORM)
SEWER MANHOLE



SCALES

PLAN 0 — 100'
PROFILE 0 — 100' HOR. 0 — 10' VER.
INDEX MAP 0 — 2 MILES
X-SECTIONS ~~GENERAL LAYOUT~~ 0 — 10'

STATE AID TITLE SHEET ALBINSON MPLS 55405

MINN. PROJ. NO. BHRS 6266(9) & RS 6266(10)

- GOVERNING SPECIFICATIONS -

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

INDEX

SHEET NO. 1 TITLE SHEET
" NO. 2 ESTIMATE OF QUANTITIES & TYPICAL SECTIONS
" NO. 3&4 PLAN & PROFILE
" NO. 5-7 X-SECTION

Approved *Merle Krause* *May 28th* 19*86*
MAYOR OF ORONOCO

DESIGN DESIGNATION

R		ΣN18(20)	
ADT (Current Year)	= 2944 (86)	Design Speed	30 ✓ MPH
ADT (Future Year)	= 5299 (06)	Based on STOPPING Sight Distance	
DHV (Design Hr. Vol.)	=	Height of eye 3.5'	Height of object 0.5'
D (Directional Distr.)	= %	Design Speed not achieved at:	
T (Heavy Commercial)	= 5 %	STA. TO STA.	MPH
SOIL FACTOR	130	STA. TO STA.	MPH
9 TON DESIGN		STA. TO STA.	MPH

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.

DATE *5/9/86* REG. NO. *10397* ENGR *Michael J. Sheehan*

COUNTY *Olmsted*

Recommended for Approval *[signature]* *5-12* 19*86*
DISTRICT STATE AID ENGINEER

Recommended for Approval *Julie Skallman* *10-13* 19*86*
STATE AID PLANS AND SPECS ENGINEER

Approved *10/14* 19*86* *[signature]*
STATE AID ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR DATE

STATE PROJ. NO. 55-618-02
~~**STATE PROJ. NO.**~~ S.P. 55-618-03 **SHEET NO.** 1 **OF** 7 **SHEETS**

AS BUILT PLANS

ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	MUNICIPAL	RURAL	TOTAL ESTIMATED QUANTITIES
2021.501	MOBILIZATION	LUMP SUM	0.10		0.10
2101.502	CLEARING	TREE	6		6
2101.507	GRUBBING	TREE	14		14
2104.501	REMOVE PIPE CULVERTS	LIN. FT.	100		100
2104.503	REMOVE SIDEWALK	SQ. FT.	66		66
2105.501	COMMON EXCAVATION	CU. YD.	(P) 2959		(P) 2959
2105.503	ROCK EXCAVATION	CU. YD.	1647		1647
2105.507	SUBGRADE EXCAVATION	CU. YD.	(P) 797		(P) 797
2105.535	SALVAGED TOPSOIL	CU. YD.	(P) 501		(P) 501
(1) 2123.503	MOTOR GRADER	HOUR	3		3
(1) 2123.508	14 CU. YD. SCRAPER	HOUR	4		4
(1) 2123.509	DOZER	HOUR	4		4
(2) 2211.501	AGGREGATE BASE, CLASS 2	TON	3535		3535
2331.504	BITUMINOUS MAT'L. FOR MIXTURE	TON	43		43
(4) 2341.508	WEARING COURSE MIXTURE	TON	518		518
2331.514	BASE COURSE MIXTURE	TON	806		806
2357.502	BITUMINOUS MAT'L. FOR TACK COAT	GALLON	326		326
2501.511	18" C.S. PIPE CULVERT	LIN. FT.	48		48
2501.515	18" G.S. PIPE APRONS	EACH	2		2
2501.515	12" R.C. PIPE APRONS	EACH	1		1
2501.515	18" R.C. PIPE APRONS	EACH	2		2
2503.511	12" R.C. PIPE SEWER CLASS IV	LIN. FT.	94		94
2503.511	15" R.C. PIPE SEWER CLASS IV	LIN. FT.	38		38
2503.511	18" R.C. PIPE SEWER CLASS IV	LIN. FT.	80		80
2506.509	CONST. CATCH BASINS DESIGN C OR G	EACH	6		6
2531.501	CONCRETE CURB AND GUTTER DESIGN B624	LIN. FT.	1658		1658
(3) 2575.505	SODDING	SQ. YD.	7800		7800
2341.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	34		34

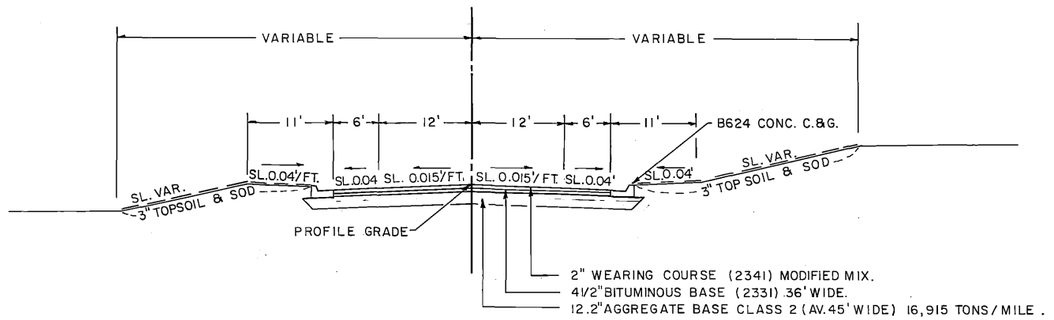
(1) EQUIPMENT HOURS TO BE USED FOR OBLITERATING OLD ROAD IN LOCATION SHOWN IN THE PLANS.
(2) ITEM NO. 2211.501 AGGREGATE BASE CL.2 INCLUDES 2662 TONS FOR ROADWAY AND 871 TONS FOR 7 APPROACHES.
(3) SOD TO BE PLACED ON ALL SLOPES AND DITCH BOTTOMS AS DIRECTED BY THE ENGINEER.
(4) INCLUDES 160 TONS FOR 6 APPROACHES

STANDARD PLATES

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

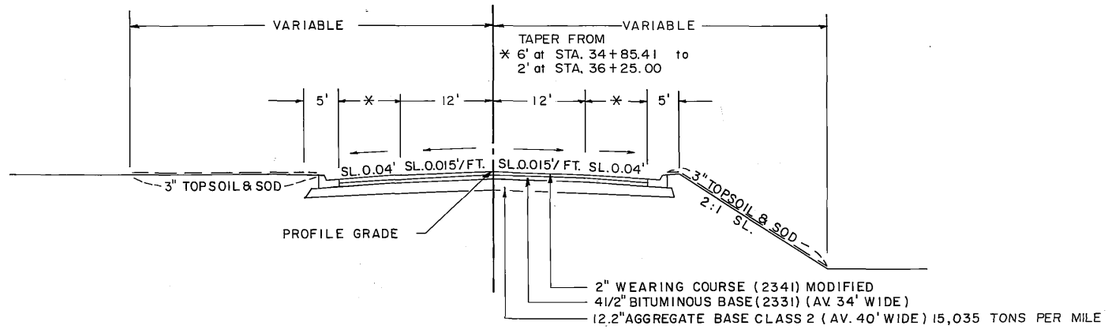
PLATE NO	DESCRIPTION
0004 A	SPECIFICATION REFERENCE TO STANDARD PLATES
3000 K	REINFORCED CONCRETE PIPE
3040 F	CORRUGATED METAL PIPE CULVERT
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3123 I	METAL APRON FOR C.S. PIPE
3124 B	METAL APRON CONNECTION
3145 E	CONCRETE PIPE TIES (U BOLTS)
3221 C	CORRUGATED STEEL PIPE COUPLING BAND
4002 E	MANHOLE OR CATCH BASIN
4010 F	CONC. SHORT CONE & ADJUSTING RING
4011 D	PRECAST CONCRETE BASE
4129 F	CATCH BASIN FRAME CASTING
4151 B	GRATE CASTING FOR CATCH BASIN
4160 D	CURB BOX CASTING FOR CATCH BASIN CASTING
7035 J	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7100 F	CONCRETE CURB AND GUTTERS
7111 G	INSTALLATION & REINFORCEMENT OF CATCH BASIN CASTINGS
8000 I	STANDARD BARRICADES
9000 B	APPROACHES AND ENTRANCES
8003 B	BREAKAWAY SIGN SUPPORT (PLASTIC)

TYPICAL SECTIONS



STA. 25+00.00 TO STA. 31+89.59

REHABILITATED BRIDGE 448 STA. 31+89.59 TO STA. 34+85.41



STA. 34+85.41 TO STA. 36+25.00

BASIS FOR PLANNED QUANTITIES FOR PLANT MIXED BITUMINOUS SURFACE

BITUMINOUS MATERIAL: WEARING – 6.5 % OF MIXTURE BY WEIGHT. (2341)
BASE – 5.3 % OF MIXTURE BY WEIGHT. (2331)

TACK COMPUTED AT TWO APPLICATIONS AT 0.05 GAL./SQ.YD.

BITUMINOUS MIXTURE: 110 POUNDS/SQ.YD./INCH OF DEPTH. (2341 WEARING)
110 POUNDS/SQ.YD./INCH OF DEPTH. (2331 BASE)

TYPICAL SECTION IN APPROACHES
3" WEARING COURSE (2341)
12" AGGREGATE BASE CLASS2

S.P. 55-618-03
~~State Proj. No.~~

OLMSTED COUNTY **Sheet No.** 2 **of** 7 **Sheets**

ALBINSON, INC. MINNEAPOLIS 55455

Fed. Proj. No.

5th STREET S.E. LT. STA. 18+45
INPL. 15"x24' CMP

NO CHANGE

RES. DR. LT. STA. 21+55
INPL. 12"x 25' RCP

NO CHANGE

3rd ST. S.E. LT. STA. 25+65
NO CULV. INPL. 15"x 48' C.M.P.

NO CULV. REQ'D. Remove

ENT. LT. OLD ROAD STA. 28+90
INPL. 15"x 20' CMP

REMOVE CULV.
NO ENT. REQ'D.

RES. DR. LT. STA. 30+95
INPL. 15"x 58' CMP

REMOVE CULV.
NO CULV. REQ'D.

CONST. C.B.1 19' LT. STA. 28+00
CONST. CATCH BASIN DESIGN "C"
GRATE ELEV. 02.58 OUTLET ELEV. 98.70
GRATE FRAME NO. 802A GRATE NO. 811
CURB BOX NO. 823A
(38 LIN. FT. 15" R.C. PIPE CL. IV.

CONST. C.B. 2 19' RT. STA. 28+00
CONST. CATCH BASIN DESIGN "C"
GRATE ELEV. 03.26 INLET ELEV. S. 98.45
OUTLET ELEV. N. 98.10 GRATE FRAME NO. 802A
GRATE NO. 811 CURB BOX NO. 823A
(22 LIN. FT. 18" R.C. PIPE CL. IV.
(1-18" R.C. PIPE APRON OUTLET)
APRON OUTLET ELEV. 97.92
F. & I. CONC. PIPE JOINT TIES.

ORONOCO

HOUSE

5th ST. S.E.

+45

+55

20

+42

+69

+64

25

BEGIN: S.P. 55-618-03
STA. 25+00.00

CHURCH

P.C. 24+58.75

SIGN

BEGIN B624 CONC. CURB & GUTTER
LT. & RT. STA. 25+00.00

P.I. 26+47.71
Δ LT. 53° 51'
D 15° 24'
T 188.96'
L 349.68
E 45.23
R 372.05
RATE SUPER ELEV. 0.05'/FOOT
140' TRANSITION

15' R.

24'

+65

3rd ST. S.E.

+46

+70

SHED

P.T. 28+08.43

C.B.1

C.B.2

B624 CONC. C&G

B624 CONC. C&G

50'

OBLITERATE OLD ROAD

+55

+89.59

BEGIN BR. NO. 448

SIDEWALK

REMOVE GUARD RAIL

+01.65 GUARD RAIL TO BE REMOVED BY OTHERS

C.B.3

C.B.4

BR. NO. 448

GUARD RAIL

30

24'

+30

END CONST.
STA. 1+20

P.I. 30+78.01
Δ RT. 50° 00'
D 21° 00'
T 127.23'
L 238.10'
E 28.21'
R 272.84'
RATE SUPER ELEV. 0.06'/FOOT
140' TRANSITION

P.C. 29+50.78

P.T. 31+88.88

CONST. 2ND ST. RT. STA. 30+30
18"x 48' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS
ALIGNMENT
Δ- 36° ±
T- 39.61'
L- 76.6'
R- 121.9'

2nd ST. S.E.

5th ST. S.E. RT. STA. 18+23
INPL. 2'x 2.5'x 24' CONC. BOX

NO CHANGE

RES. DR. RT. STA. 20+42
INPL. 15"x 20' CMP

NO CHANGE

RES. DR. RT. STA. 22+69
NO CULV. INPL.

NO CHANGE

RES. DR. RT. STA. 23+64
NO CULV. INPL.

NO CHANGE

3rd ST. S.E. RT. STA. 25+46
NO CULV. INPL.

NO CULV. REQ'D.
MOVE ST. TO STA. 25+55

RES. DR. RT. STA. 25+70
NO CULV. INPL.

NO CULV. REQ'D.
CONST. DR. OFF 3RD. ST. S.E.

1st. AVE. S.E.

CONST. 1ST. AVE. S.E. RT. STA. 26+75
NO CULV. REQ'D.
ALIGNMENT
Δ- 58° ±
T- 30.25'
L- 55.24'
R- 54.57'
No Ent. Required

CL. 6 TREES
GR. 14 TREES

B.M. EL. 1000.88
SPK. IN P.P. 27'
RT. STA. 21+86

B.M. ELEV. 1012.21
PAINT MARK STEP
LT. STA. 24+35

B.M. EL. 986.96
PUNCH MARK S.E.
CORNER BR. NO. 448

PROFILE 2ND ST. S.E.
RT. STA. 30+30

℄ C.S.A.H. 18
94.1
+12 93.92
+18 93.68
+50 93.52
90.57
+20 89.39
89.18
FINISHED ℄ GRADE ELEV.
91.40
96.50
01.60
06.70
11.11
12.65
11.16
07.32
03.32
99.32
93.32
91.52
FINISHED ℄ GRADE ELEV.

1020
1010
1000
990
980

-0.5%
-5.9%
-0.7%
END CONST. STA. 1+20

+5.1%

BEGIN CONSTRUCTION
STA. 25+00.00.

P.V.C. +32.63736
ELEV. 08.36449

P.I. +82.63736
ELEV. 16.01448
300' V.C.
M = 3.4125

P.V.T. +32.63736
ELEV. 10.01452

-4.0%

P.V.C. +20.0
ELEV. 94.52

SO. END NEW BR. DECK +89.59
ELEV. 988.53

-3.0%

P.I. +00
ELEV. 91.32
160' V.C.
M = 0.3125

P.V.T. +80.0
ELEV. 88.92

VERTICAL CONTROL

ELEVATIONS SHOWN IN THIS PLAN ARE BASED ON MEAN SEA-LEVEL DATUM, 1929 ADJ. AND TIED TO THE U.S. LEVEL NET. B.M. NO. 5508K LOCATED S.E. COR. BR. NO. 9234 ON T.H. NO. 52 ELEV. 963.36

75' LT.
75' RT.

SUBGRADE TREATMENT:
EXCAVATE 1.0' BELOW SUBGRADE ELEV.
FROM STA. 25+00 TO STA. 31+89.59

COMMON EXC.	2671	CU. YDS.
SALVAGED TOPSOIL	501	CU. YDS.
ROCK EXC.	1647	CU. YDS.
SUBGRADE EXC.	588	CU. YDS.
EMB.	2569	CU. YDS.

NOTE: APPROXIMATELY 889 CU. YDS. COMMON EXC. & 80 CU. YDS. TOPSOIL EXC. TO BE HAULED FROM BALANCE STA. 25+00 TO STA. 31+89.59 AND PLACED IN BALANCE STA. 34+85.41 TO STA. 36+25.

NOTE: APPROXIMATELY 1500 CU. YDS. OF EXCESS EXCAVATION TO BE WASTED BY THE CONTRACTOR.

+00
+89.59

83.0 86.8 91.4 96.8 01.9 03.2 05.1 06.8 09.8 10.3 11.2 12.4 11.5 11.4 10.9 10.7 09.5 05.2 01.7 03.9 02.1 01.5 00.0 94.2 89.9 90.0 88.2 87.3 86.5

18 20 22 24 26 28 30 32

S.P. 55-618-03 OLMSTED COUNTY

Fed. Proj. No.

CONST. C.B. NO.3 19' LT. STA. 31+80
CONST. CATCH BASIN DESIGN "C"
GRATE ELEV. 88.49 OUTL. ELEV. E. 83.92
GRATE FRAME NO. 802A GRATE NO. 811
CURB BOX NO. 823A
(38 LIN. FT. 18" R.C. PIPE CL. IV.

CONST. C.B. NO.4 19' RT. STA. 31+80
CONST. CATCH BASIN DESIGN "C"
GRATE ELEV. 88.49 INLET ELEV. W. 83.67
OUTLET ELEV. E. 83.57 GRATE FRAME NO. 802A
GRATE NO. 811 CURB BOX NO. 823A
(20 LIN. FT. 18" R.C. PIPE CL. IV.)
(1-18" R.C. PIPE APRON OUTLET)
APRON OUTLET ELEV. 83.40
F. & I. CONC. PIPE JOINT TIES

REMOVE 66 SQ. FT.
SIDEWALK LT. 31 + 30

PARK ENT. & RES. DR. LT. 35+78
INPL. 15"x22' CMP

REMOVE CULV.

NO CULV. REQ'D.

CATCH BASIN LT. 39+16
INPL. ℄ CULV. 2.5'x2'x106' CONC. BOX .

NO CHANGE

CONST. C.B.6 15.7' LT. STA. 36+00
CONST. CATCH BASIN DESIGN "C"
GRATE ELEV. 77.55 INLET ELEV. E. 73.86
OUTLET EL. S. 73.76 GRATE FRAME NO. 802A
GRATE NO. 811 CURB BOX NO. 823A
(62 LIN. FT. 12" R.C. PIPE CL. IV & 1-12" R.C.
PIPE APRON OUTLET) OUTLET EL. 72.0

Add c.m.p to drain into lake by County forces

CONST. C.B.5 15.7' RT. STA. 36+00
CONST. CATCH BASIN DESIGN "C"
GRATE EL. 77.55 OUTLET EL. W. 74.05
GRATE FRAM NO. 802A GRATE NO. 811
CURB BOX NO. 823A
(32 LIN. FT. 12" R.C. PIPE CL. IV)
F & I. CONC. PIPE JOINT TIES.

ZUMBRO RIVER

300'

350'

+73 448 END BR. NO. 448 NEW BR. DECK

+23

34+77.40 END BR. NO. 448
+85.41 END NEW BR. DECK

P.I. 35+27.40
Δ RT. 04° 08'

END: S.P. 55-618-0.
STA. 36+25.00

+78

HO.

V.F.W.

+43 STREET

P.I. 39+44.15
Δ LT. 00° 29'

+73 80' BEGIN NEW BR. DECK
+89.59 BEGIN BR. NO. 448

01.65

GUARD RAIL TO BE REMOVED BY OTHERS.

GUARD RAIL

C.B.6

CATCH BASIN

+85

C.B.3

BR. NO. 448 SP 55-618-02

C.B.4

C.B.5

+34

+02

BURG STORE

HO. PROP. COR.

HO.

BAR

STREET +43

GUARD RAIL

+03

86'

HO.

50'

30

44

24

@ 90

P.I. 30+78.01
Δ RT. 50° 00'
D= 21°
T= 127.23'
L= 238.10'
E= 28.21'
R= 272.84'

P.C. 29+50.78

P.T. 31+88.88

B624 CONC. C.B.

B624 CONC. C.B.16

DR. RT. 36+34
NO CULV. INPL.

NO CHANGE

RES. DR. RT. 37+02
NO CULV. INPL.

NO CHANGE

ORONOCO

B.M. ELEV. 986.96
PUNCH MARK S.E.
CORNER BR. 448

B.M. ELEV. 977.98
SPK. IN TEL. P. 24'
LT. 35+94

FINISHED ℄ GRADE ELEV.

95.32 91.52 88.32 85.32 82.32 79.34 77.93 77.97 79.00 80.26 80.20 78.80

1010 1000 990 980 970 960

P.I. +00
ELEV. 91.32
160' V.C.
M = 0.2

P.V.C. +20.0
ELEV. 94.52

4.0%

P.V.T. +80.0
ELEV. 88.92

-3.0%

BRIDGE NO. 448
SP 55-618-02

SO. END NEW BR. DECK +89.59
ELEV. 988.63

P.V.C. +86.40
ELEV. 79.728

NO. END NEW BR. DECK +85.41
ELEV. 979.76

+25.0 77.97

P.I. +86.40
ELEV. 76.728
200' V.C.
M = 1.25

P.V.T. +86.40
ELEV. 78.728

P.V.C. +95.0
ELEV. 78.90

P.I. +45.0
ELEV. 81.90
300' V.C.
M = 1.5

P.V.T. +95.0
ELEV. 78.90

-2.0%

+2.0%

CB.586

END CONSTRUCTION
STA. 36+25.00

SUBGRADE TREATMENT
EXCAVATE 1.0' BELOW SUBGRADE ELEV.
FROM STA. 34+85.41 TO STA. 36+25.0.

COMMON EXC. 288 CU. YDS.
SUBGRADE EXC. 209 CU. YDS.
EMB. 1047 CU. YDS.

NOTE: APPROXIMATELY 889 CU. YDS. COMMON EXC. AND 80 CU. YDS TOPSOIL EXC. TO BE HAULED FROM BALANCE STA. 25+00 TO STA. 31+89.59 AND PLACED IN BALANCE STA. 34+85.41 TO STA. 36+25.

75' LT.
75' RT.

+89.59
+85.41
+25.0

00.0 +50 94.2 +95 89.9 90.0 +50 88.2 +80 87.3 86.5 +77 78.2 77.8 +75 77.9 78.1 +50 78.5 79.0 +50 79.9 80.5 +85 80.3 80.2 +44 79.7 78.6 76.5 74.8

30 32 34 36 38 40

S.P. 55-618-03 OLMSTED COUNTY Sheet No. 4 of 7 Sheets

AS BUILT

PLANS SYMBOLS

- STATE LINE
- COUNTY LINE
- TOWNSHIP OR RANGE LINE
- SECTION LINE
- QUARTER LINE
- SIXTEENTH LINE
- RIGHT-OF-WAY LINE
- PRESENT RIGHT-OF-WAY LINE
- CONTROL OF ACCESS LINE
- PROPERTY LINE (Except Land Lines)
- VACATED PLATTED PROPERTY
- CORPORATE OR CITY LIMITS
- TRUNK HIGHWAY CENTER LINE (P.I., 45, P.C., P.T.)
- RETAINING WALL
- RAILROAD
- RAILROAD RIGHT-OF-WAY LINE
- RIVER OR CREEK (NAME)
- DRY RUN
- DRAINAGE DITCH (SIZE)
- DRAIN TILE
- CULVERT
- DROP INLET
- GUARD RAIL
- BARBED WIRE FENCE
- WOVEN WIRE FENCE (W)
- CHAIN LINK FENCE (C-L)
- RAILROAD SNOW FENCE
- STONE WALL OR FENCE
- HEDGE
- RAILROAD CROSSING SIGN
- RAILROAD CROSSING BELL
- ELECTRIC WARNING SIGN
- CROSSING GATE
- MEANDER CORNER
- SPRINGS
- MARSH
- TIMBER / ORCHARD / BRUSH / NURSERY (TIMBER)
- CATCH BASIN C.B.
- FIRE HYDRANT
- CATTLE GUARD (ROAD)
- OVERPASS (Highway Over)
- UNDERPASS (Highway Under)
- BRIDGE
- BUILDING (One Story Frame) (1-S-F, 35', 75')
  - F-FRAME, C-CONCRETE
  - S-STONE, T-TILE
  - B-BRICK, ST-STUCCO
- IRON PIPE OR ROD
- MONUMENT (STONE, CONCRETE, OR METAL)
- WOODEN HUB
- GRAVEL PIT (G)
- SAND PIT (S)
- BORROW PIT (B)
- ROCK QUARRY (Q)
- SLOPE EASEMENT (SE)

UTILITIES SYMBOLS

- POWER POLE LINE
- TELEPHONE OR TELEGRAPH POLE LINE
- JOINT TELEPHONE AND POWER ON POWER POLES
- ON TELEPHONE POLES
- ANCHOR
- STEEL TOWER
- STREET LIGHT
- PEDESTAL (TELEPHONE CABLE TERMINAL)
- GAS MAIN (G)
- WATER MAIN (I)
- CONDUIT
- TELEPHONE CABLE IN CONDUIT (T)
- ELECTRIC CABLE IN CONDUIT (P)
- TELEPHONE MANHOLE (T)
- ELECTRIC MANHOLE (P)
- BURIED TELEPHONE CABLE (T-BUR)
- BURIED ELECTRIC CABLE (P-BUR)
- AERIAL TELEPHONE CABLE (T-AE)
- SEWER, (SANITARY OR STORM)
- SEWER MANHOLE

MINNESOTA DEPARTMENT OF TRANSPORTATION

THE COUNTY OF OLMSTED

CONSTRUCTION PLAN FOR GRADING, SURFACING AND CONC. CURB & GUTTER

LOCATED ON C.S.A.H. 18 **BETWEEN** T.H. 52 **AND** C.S.A.H. 12 IN ORONOCO **(GEOGRAPHIC DESCRIPTION)**

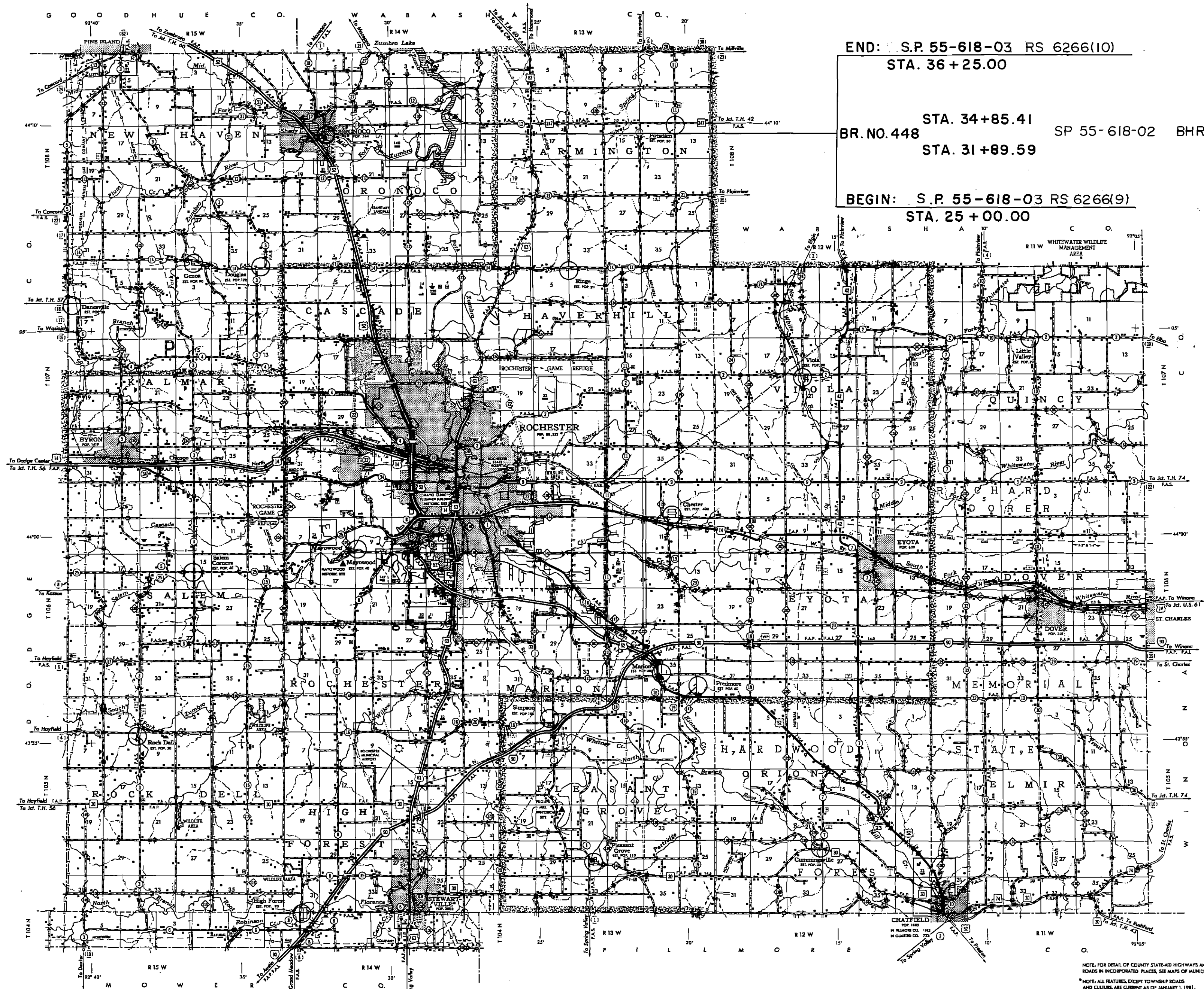
FROM APPROX. 1265' W. & 640' N. OF CEN. SEC. 17 R14W-T108N **TO** APPROX. 1665' W. & 989' S. OF N.1/4 COR. SEC. 17 R14W-T108N **(LEGAL DESCRIPTION)**

STATE PROJ. NO.					**STATE PROJ. NO.** 55-618-02				
GROSS LENGTH		FEET		MILES	GROSS LENGTH	1125.00	FEET	0.213	MILES
BRIDGES-LENGTH		FEET		MILES	BRIDGES-LENGTH	295.82	FEET	0.056	MILES
EXCEPTIONS-LENGTH		FEET		MILES	EXCEPTIONS-LENGTH	0.00	FEET	0.000	MILES
NET LENGTH		FEET		MILES	NET LENGTH	829.18	FEET	0.157	MILES

END: S.P. 55-618-03 RS 6266(10)
STA. 36+25.00

BR. NO. 448 STA. 34+85.41 / STA. 31+89.59 SP 55-618-02 BHRS 6266(9)

BEGIN: S.P. 55-618-03 RS 6266(9)
STA. 25+00.00



SCALES

PLAN	0 — 100'	
PROFILE	0 — 100' HOR.	0 — 10' VER.
INDEX MAP	0 — 2 MILES	
X-SECTIONS ~~GENERAL LAYOUT~~	0 — 10'	

STATE AID TITLE SHEET ALBINSON MPLS 55405

MINN. PROJ. NO. BHRS 6266(9) & RS 6266(10)

\- GOVERNING SPECIFICATIONS -

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

INDEX

SHEET NO. 1 TITLE SHEET
" NO. 2 ESTIMATE OF QUANTITIES & TYPICAL SECTIONS
" NO. 3&4 PLAN & PROFILE
" NO. 5-7 X-SECTION

Approved *Merle Krause* *May 28th* 19*86*
MAYOR OF ORONOCO

DESIGN DESIGNATION

R		ΣN18(20)	
ADT (Current Year) =	2944 (86)	Design Speed	30 MPH
ADT (Future Year) =	5299 (06)	Based on	STOPPING Sight Distance
DHV (Design Hr. Vol.) =		Height of eye 3.5'	Height of object 0.5'
D (Directional Distr.) =	%	Design Speed not achieved at:	
T (Heavy Commercial) =	5 %	STA. TO STA.	MPH
SOIL FACTOR	130	STA. TO STA.	MPH
9 TON DESIGN		STA. TO STA.	MPH

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.

DATE *5/9/86* REG. NO. *10397* ENGR *Michael Sheehan*

COUNTY *Olmsted*

Recommended for Approval *[signature]* *5-12* 19*86*
DISTRICT STATE AID ENGINEER

Recommended for Approval *Julie Skallman* *10-13* 19*86*
STATE AID PLANS AND SPECS ENGINEER

Approved *10/14* 19 *86* *[signature]*
STATE AID ENGINEER

DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED

DIVISION ADMINISTRATOR   DATE

STATE PROJ. NO. 55-618-02
~~**STATE PROJ. NO.**~~ S.P. 55-618-03 **SHEET NO.** 1 **OF** 7 **SHEETS**

AS BUILT PLANS

ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	MUNICIPAL	RURAL	TOTAL ESTIMATED QUANTITIES
2021.501	MOBILIZATION	LUMP SUM	0.10		0.10
2101.502	CLEARING	TREE	6		6
2101.507	GRUBBING	TREE	14		14
2104.501	REMOVE PIPE CULVERTS	LIN. FT.	100		100
2104.503	REMOVE SIDEWALK	SQ. FT.	66		66
2105.501	COMMON EXCAVATION	CU. YD.	(P) 2959		(P) 2959
2105.503	ROCK EXCAVATION	CU. YD.	1647		1647
2105.507	SUBGRADE EXCAVATION	CU. YD.	(P) 797		(P) 797
2105.535	SALVAGED TOPSOIL	CU. YD.	(P) 501		(P) 501
(1) 2123.503	MOTOR GRADER	HOUR	3		3
(1) 2123.508	14 CU. YD. SCRAPER	HOUR	4		4
(1) 2123.509	DOZER	HOUR	4		4
(2) 2211.501	AGGREGATE BASE, CLASS 2	TON	3535		3535
2331.504	BITUMINOUS MAT'L. FOR MIXTURE	TON	43		43
(4) 2341.508	WEARING COURSE MIXTURE	TON	518		518
2331.514	BASE COURSE MIXTURE	TON	806		806
2357.502	BITUMINOUS MAT'L. FOR TACK COAT	GALLON	326		326
2501.511	18" C.S. PIPE CULVERT	LIN. FT.	48		48
2501.515	18" G.S. PIPE APRONS	EACH	2		2
2501.515	12" R.C. PIPE APRONS	EACH	1		1
2501.515	18" R.C. PIPE APRONS	EACH	2		2
2503.511	12" R.C. PIPE SEWER CLASS IV	LIN. FT.	94		94
2503.511	15" R.C. PIPE SEWER CLASS IV	LIN. FT.	38		38
2503.511	18" R.C. PIPE SEWER CLASS IV	LIN. FT.	80		80
2506.509	CONST. CATCH BASINS DESIGN C OR G	EACH	6		6
2531.501	CONCRETE CURB AND GUTTER DESIGN B624	LIN. FT.	1658		1658
(3) 2575.505	SODDING	SQ. YD.	7800		7800
2341.504	BITUMINOUS MATERIAL FOR MIXTURE	TON	34		34

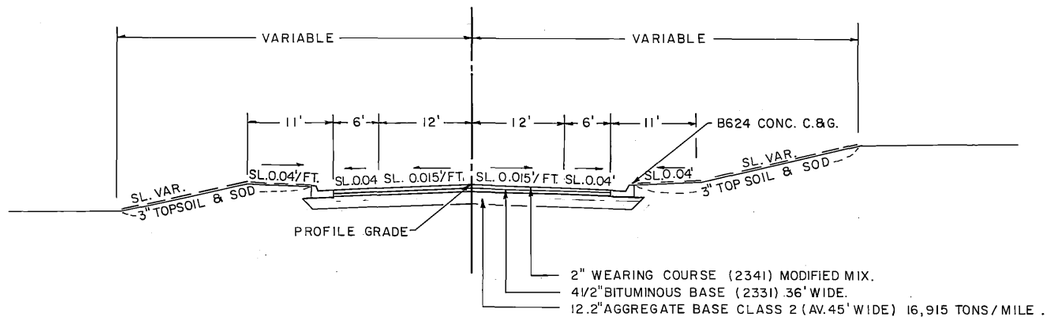
(1) EQUIPMENT HOURS TO BE USED FOR OBLITERATING OLD ROAD IN LOCATION SHOWN IN THE PLANS.
(2) ITEM NO. 2211.501 AGGREGATE BASE CL.2 INCLUDES 2662 TONS FOR ROADWAY AND 871 TONS FOR 7 APPROACHES.
(3) SOD TO BE PLACED ON ALL SLOPES AND DITCH BOTTOMS AS DIRECTED BY THE ENGINEER.
(4) INCLUDES 160 TONS FOR 6 APPROACHES

STANDARD PLATES

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

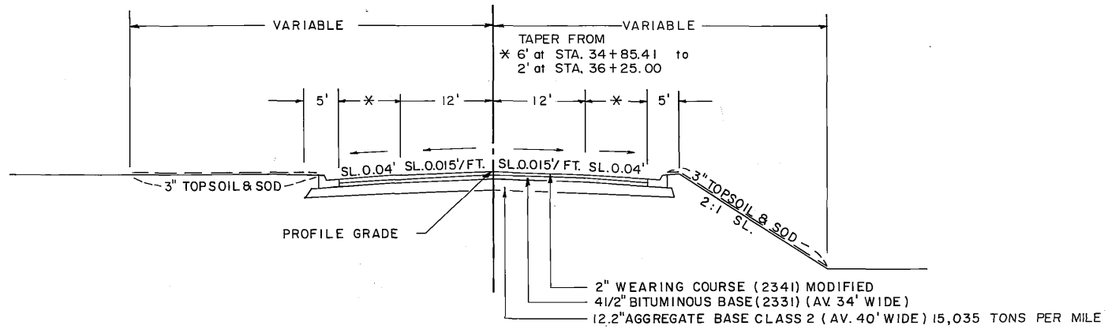
PLATE NO	DESCRIPTION
0004 A	SPECIFICATION REFERENCE TO STANDARD PLATES
3000 K	REINFORCED CONCRETE PIPE
3040 F	CORRUGATED METAL PIPE CULVERT
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3123 I	METAL APRON FOR C.S. PIPE
3124 B	METAL APRON CONNECTION
3145 E	CONCRETE PIPE TIES (U BOLTS)
3221 C	CORRUGATED STEEL PIPE COUPLING BAND
4002 E	MANHOLE OR CATCH BASIN
4010 F	CONC. SHORT CONE & ADJUSTING RING
4011 D	PRECAST CONCRETE BASE
4129 F	CATCH BASIN FRAME CASTING
4151 B	GRATE CASTING FOR CATCH BASIN
4160 D	CURB BOX CASTING FOR CATCH BASIN CASTING
7035 J	CONCRETE WALK & CURB RETURNS AT ENTRANCES
7100 F	CONCRETE CURB AND GUTTERS
7111 G	INSTALLATION & REINFORCEMENT OF CATCH BASIN CASTINGS
8000 I	STANDARD BARRICADES
9000 B	APPROACHES AND ENTRANCES
8003 B	BREAKAWAY SIGN SUPPORT (PLASTIC)

TYPICAL SECTIONS



STA. 25+00.00 TO STA. 31+89.59

REHABILITATED BRIDGE 448 STA. 31+89.59 TO STA. 34+85.41



STA. 34+85.41 TO STA. 36+25.00

BASIS FOR PLANNED QUANTITIES FOR PLANT MIXED BITUMINOUS SURFACE

BITUMINOUS MATERIAL: WEARING – 6.5 % OF MIXTURE BY WEIGHT. (2341)
BASE – 5.3 % OF MIXTURE BY WEIGHT. (2331)

TACK COMPUTED AT TWO APPLICATIONS AT 0.05 GAL./SQ.YD.

BITUMINOUS MIXTURE: 110 POUNDS/SQ.YD./INCH OF DEPTH. (2341 WEARING)
110 POUNDS/SQ.YD./INCH OF DEPTH. (2331 BASE)

TYPICAL SECTION IN APPROACHES
3" WEARING COURSE (2341)
12" AGGREGATE BASE CLASS2

S.P. 55-618-03
~~State Proj. No.~~

OLMSTED COUNTY **Sheet No.** 2 **of** 7 **Sheets**

ALBINSON, INC. MINNEAPOLIS 55455

Fed. Proj. No.

5th STREET S.E. LT. STA. 18+45
INPL. 15"x24' CMP

NO CHANGE

RES. DR. LT. STA. 21+55
INPL. 12"x 25' RCP

NO CHANGE

3rd ST. S.E. LT. STA. 25+65
NO CULV. INPL. 15"x 48' C.M.P.

NO CULV. REQ'D. Remove

ENT. LT. OLD ROAD STA. 28+90
INPL. 15"x 20' CMP

REMOVE CULV.
NO ENT. REQ'D.

RES. DR. LT. STA. 30+95
INPL. 15"x 58' CMP

REMOVE CULV.
NO CULV. REQ'D.

CONST. C.B.1 19' LT. STA. 28+00
CONST. CATCH BASIN DESIGN "C"
GRATE ELEV. 02.58 OUTLET ELEV. 98.70
GRATE FRAME NO. 802A GRATE NO. 811
CURB BOX NO. 823A
(38 LIN. FT. 15" R.C. PIPE CL. IV.

CONST. C.B. 2 19' RT. STA. 28+00
CONST. CATCH BASIN DESIGN "C"
GRATE ELEV. 03.26 INLET ELEV. S. 98.45
OUTLET ELEV. N. 98.10 GRATE FRAME NO. 802A
GRATE NO. 811 CURB BOX NO. 823A
(22 LIN. FT. 18" R.C. PIPE CL. IV.
(1-18" R.C. PIPE APRON OUTLET)
APRON OUTLET ELEV. 97.92
F. & I. CONC. PIPE JOINT TIES.

ORONOCO

HOUSE

5th ST. S.E.

+45

+55

20

+42

+69

+64

25

BEGIN: S.P. 55-618-03
STA. 25+00.00

CHURCH

P.C. 24+58.75

SIGN

BEGIN B624 CONC. CURB & GUTTER
LT. & RT. STA. 25+00.00

P.I. 26+47.71
Δ LT. 53° 51'
D 15° 24'
T 188.96'
L 349.68
E 45.23
R 372.05
RATE SUPER ELEV. 0.05'/FOOT
140' TRANSITION

15' R.

24'

+65

3rd ST. S.E.

+46

+70

SHED

P.T. 28+08.43

C.B.1

C.B.2

B624 CONC. C&G

B624 CONC. C&G

50'

OBLITERATE OLD ROAD

+55

+89.59

BEGIN BR. NO. 448

SIDEWALK

REMOVE GUARD RAIL

+01.65 GUARD RAIL TO BE REMOVED BY OTHERS

C.B.3

C.B.4

BR. NO. 448

GUARD RAIL

30

24'

+30

END CONST.
STA. 1+20

P.I. 30+78.01
Δ RT. 50° 00'
D 21° 00'
T 127.23'
L 238.10'
E 28.21'
R 272.84'
RATE SUPER ELEV. 0.06'/FOOT
140' TRANSITION

P.C. 29+50.78

P.T. 31+88.88

CONST. 2ND ST. RT. STA. 30+30
18"x 48' C.S. PIPE CULV.
2-18" G.S. PIPE APRONS
ALIGNMENT
Δ- 36° ±
T- 39.61'
L- 76.6'
R- 121.9'

2nd ST. S.E.

5th ST. S.E. RT. STA. 18+23
INPL. 2'x 2.5'x 24' CONC. BOX

NO CHANGE

RES. DR. RT. STA. 20+42
INPL. 15"x 20' CMP

NO CHANGE

RES. DR. RT. STA. 22+69
NO CULV. INPL.

NO CHANGE

RES. DR. RT. STA. 23+64
NO CULV. INPL.

NO CHANGE

3rd ST. S.E. RT. STA. 25+46
NO CULV. INPL.

NO CULV. REQ'D.
MOVE ST. TO STA. 25+55

RES. DR. RT. STA. 25+70
NO CULV. INPL.

NO CULV. REQ'D.
CONST. DR. OFF 3RD. ST. S.E.

1st. AVE. S.E.

CONST. 1ST. AVE. S.E. RT. STA. 26+75
NO CULV. REQ'D.
ALIGNMENT
Δ- 58° ±
T- 30.25'
L- 55.24'
R- 54.57'
No Ent. Required

CL. 6 TREES
GR. 14 TREES

B.M. EL. 1000.88
SPK. IN P.P. 27'
RT. STA. 21+86

B.M. ELEV. 1012.21
PAINT MARK STEP
LT. STA. 24+35

B.M. EL. 986.96
PUNCH MARK S.E.
CORNER BR. NO. 448

PROFILE 2ND ST. S.E.
RT. STA. 30+30

℄ C.S.A.H. 18
94.1
+12 93.92
+18 93.68
+50 93.52
90.57
+20 89.39
89.18
FINISHED ℄ GRADE ELEV.
91.40
96.50
01.60
06.70
11.11
12.65
11.16
07.32
03.32
99.32
93.32
91.52
FINISHED ℄ GRADE ELEV.

1020
1010
1000
990
980

-0.5%
-5.9%
-0.7%
END CONST. STA. 1+20

+5.1%

BEGIN CONSTRUCTION
STA. 25+00.00.

P.V.C. +32.63736
ELEV. 08.36449

P.I. +82.63736
ELEV. 16.01448
300' V.C.
M = 3.4125

P.V.T. +32.63736
ELEV. 10.01452

-4.0%

P.V.C. +20.0
ELEV. 94.52

SO. END NEW BR. DECK +89.59
ELEV. 988.53

-3.0%

P.I. +00
ELEV. 91.32
160' V.C.
M = 0.3125

P.V.T. +80.0
ELEV. 88.92

VERTICAL CONTROL

ELEVATIONS SHOWN IN THIS PLAN ARE BASED ON MEAN SEA-LEVEL DATUM, 1929 ADJ. AND TIED TO THE U.S. LEVEL NET. B.M. NO. 5508K LOCATED S.E. COR. BR. NO. 9234 ON T.H. NO. 52 ELEV. 963.36

75' LT.
75' RT.

SUBGRADE TREATMENT:
EXCAVATE 1.0' BELOW SUBGRADE ELEV.
FROM STA. 25+00 TO STA. 31+89.59

COMMON EXC.	2671	CU. YDS.
SALVAGED TOPSOIL	501	CU. YDS.
ROCK EXC.	1647	CU. YDS.
SUBGRADE EXC.	588	CU. YDS.
EMB.	2569	CU. YDS.

NOTE: APPROXIMATELY 889 CU. YDS. COMMON EXC. & 80 CU. YDS. TOPSOIL EXC. TO BE HAULED FROM BALANCE STA. 25+00 TO STA. 31+89.59 AND PLACED IN BALANCE STA. 34+85.41 TO STA. 36+25.

NOTE: APPROXIMATELY 1500 CU. YDS. OF EXCESS EXCAVATION TO BE WASTED BY THE CONTRACTOR.

+00
+89.59

83.0 86.8 91.4 96.8 01.9 03.2 05.1 06.8 09.8 10.3 11.2 12.4 11.5 11.4 10.9 10.7 09.5 05.2 01.7 03.9 02.1 01.5 00.0 94.2 89.9 90.0 88.2 87.3 86.5

18 20 22 24 26 28 30 32

S.P. 55-618-03 OLMSTED COUNTY

Fed. Proj. No.

CONST. C.B. NO.3 19' LT. STA. 31+80
CONST. CATCH BASIN DESIGN "C"
GRATE ELEV. 88.49 OUTL. ELEV. E. 83.92
GRATE FRAME NO. 802A GRATE NO. 811
CURB BOX NO. 823A
(38 LIN. FT. 18" R.C. PIPE CL. IV.

CONST. C.B. NO.4 19' RT. STA. 31+80
CONST. CATCH BASIN DESIGN "C"
GRATE ELEV. 88.49 INLET ELEV. W. 83.67
OUTLET ELEV. E. 83.57 GRATE FRAME NO. 802A
GRATE NO. 811 CURB BOX NO. 823A
(20 LIN. FT. 18" R.C. PIPE CL. IV.)
(1-18" R.C. PIPE APRON OUTLET)
APRON OUTLET ELEV. 83.40
F. & I. CONC. PIPE JOINT TIES

REMOVE 66 SQ. FT.
SIDEWALK LT. 31 + 30

PARK ENT. & RES. DR. LT. 35+78
INPL. 15"x22' CMP

REMOVE CULV.

NO CULV. REQ'D.

CATCH BASIN LT. 39+16
INPL. ℄ CULV. 2.5'x2'x106' CONC. BOX .

NO CHANGE

CONST. C.B.6 15.7' LT. STA. 36+00
CONST. CATCH BASIN DESIGN "C"
GRATE ELEV. 77.55 INLET ELEV. E. 73.86
OUTLET EL. S. 73.76 GRATE FRAME NO. 802A
GRATE NO. 811 CURB BOX NO. 823A
(62 LIN. FT. 12" R.C. PIPE CL. IV & 1-12" R.C.
PIPE APRON OUTLET) OUTLET EL. 72.0

Add c.m.p to drain into lake by County forces

CONST. C.B.5 15.7' RT. STA. 36+00
CONST. CATCH BASIN DESIGN "C"
GRATE EL. 77.55 OUTLET EL. W. 74.05
GRATE FRAM NO. 802A GRATE NO. 811
CURB BOX NO. 823A
(32 LIN. FT. 12" R.C. PIPE CL. IV)
F & I. CONC. PIPE JOINT TIES.

ZUMBRO RIVER

300'

350'

+73 448 END BR. NO. 448 NEW BR. DECK

+23

34+77.40 END BR. NO. 448
+85.41 END NEW BR. DECK

P.I. 35+27.40
Δ RT. 04° 08'

END: S.P. 55-618-0.
STA. 36+25.00

+78

HO.

V.F.W.

+43 STREET

P.I. 39+44.15
Δ LT. 00° 29'

+73 80' BEGIN NEW BR. DECK
+89.59 BEGIN BR. NO. 448

01.65

GUARD RAIL TO BE REMOVED BY OTHERS.

GUARD RAIL

C.B.6

CATCH BASIN

+85

C.B.3

BR. NO. 448 SP 55-618-02

C.B.4

C.B.5

+34

+02

BURG STORE

HO. PROP. COR.

HO.

BAR

STREET +43

GUARD RAIL

+03

86'

HO.

50'

30

44

24

@ 90

P.I. 30+78.01
Δ RT. 50° 00'
D= 21°
T= 127.23'
L= 238.10'
E= 28.21'
R= 272.84'

P.C. 29+50.78

P.T. 31+88.88

B624 CONC. C.B.

B624 CONC. C.B.16

DR. RT. 36+34
NO CULV. INPL.

NO CHANGE

RES. DR. RT. 37+02
NO CULV. INPL.

NO CHANGE

ORONOCO

B.M. ELEV. 986.96
PUNCH MARK S.E.
CORNER BR. 448

B.M. ELEV. 977.98
SPK. IN TEL. P. 24'
LT. 35+94

FINISHED ℄ GRADE ELEV.

95.32 91.52 88.32 85.32 82.32 79.34 77.93 77.97 79.00 80.26 80.20 78.80

1010 1000 990 980 970 960

P.I. +00
ELEV. 91.32
160' V.C.
M = 0.2

P.V.C. +20.0
ELEV. 94.52

4.0%

P.V.T. +80.0
ELEV. 88.92

-3.0%

BRIDGE NO. 448
SP 55-618-02

SO. END NEW BR. DECK +89.59
ELEV. 988.63

P.V.C. +86.40
ELEV. 79.728

NO. END NEW BR. DECK +85.41
ELEV. 979.76

+25.0 77.97

P.I. +86.40
ELEV. 76.728
200' V.C.
M = 1.25

P.V.T. +86.40
ELEV. 78.728

P.V.C. +95.0
ELEV. 78.90

P.I. +45.0
ELEV. 81.90
300' V.C.
M = 1.5

P.V.T. +95.0
ELEV. 78.90

-2.0%

+2.0%

CB.586

END CONSTRUCTION
STA. 36+25.00

SUBGRADE TREATMENT
EXCAVATE 1.0' BELOW SUBGRADE ELEV.
FROM STA. 34+85.41 TO STA. 36+25.0.

COMMON EXC. 288 CU. YDS.
SUBGRADE EXC. 209 CU. YDS.
EMB. 1047 CU. YDS.

NOTE: APPROXIMATELY 889 CU. YDS. COMMON EXC. AND 80 CU. YDS TOPSOIL EXC. TO BE HAULED FROM BALANCE STA. 25+00 TO STA. 31+89.59 AND PLACED IN BALANCE STA. 34+85.41 TO STA. 36+25.

75' LT.
75' RT.

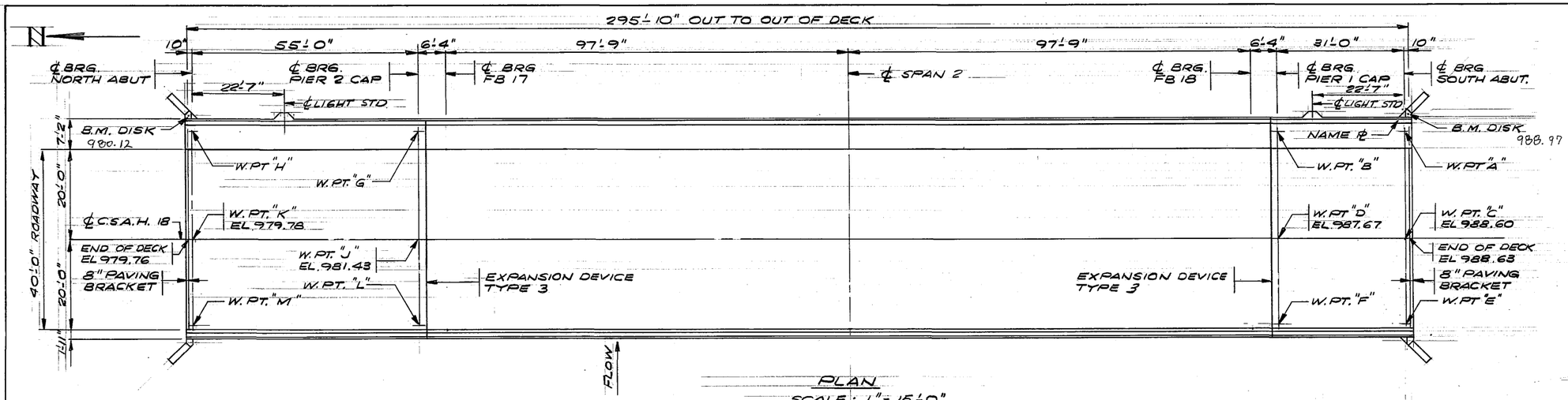
+89.59
+85.41
+25.0

00.0 +50 94.2 +95 89.9 90.0 +50 88.2 +80 87.3 86.5 +77 78.2 77.8 +75 77.9 78.1 +50 78.5 79.0 +50 79.9 80.5 +85 80.3 80.2 +44 79.7 78.6 76.5 74.8

30 32 34 36 38 40

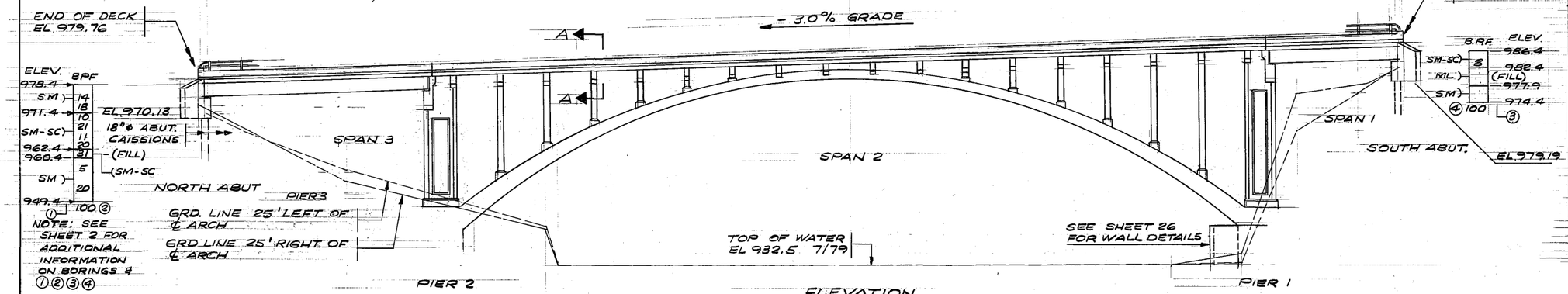
S.P. 55-618-03 OLMSTED COUNTY Sheet No. 4 of 7 Sheets

AS BUILT

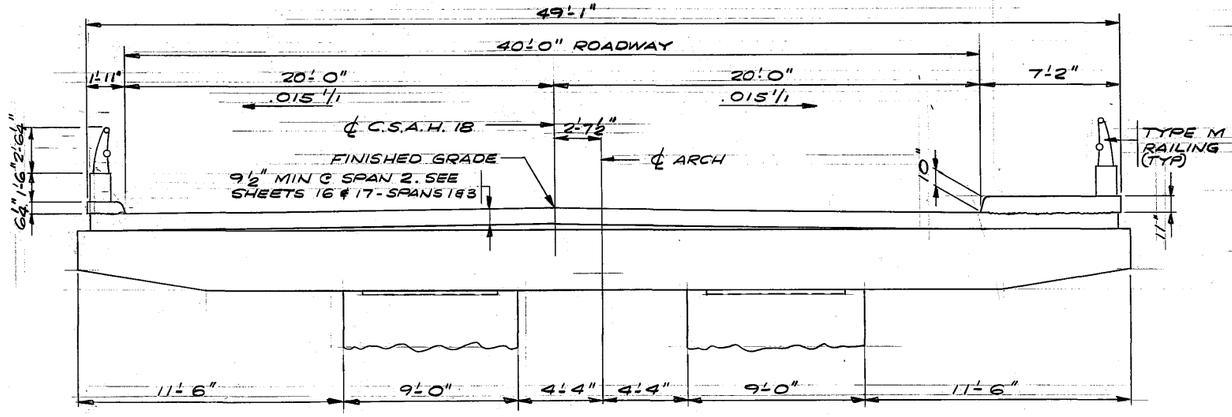


PLAN

SCALE: 1"=15'-0"



ELEVATION



SECTION A-A

SCALE: ¼"=1'-0"

DESIGN DATA FOR NEW CONSTRUCTION

1983 & INTERIM A.A.S.H.T.O. DESIGN SPECIFICATIONS. LOAD FACTOR DESIGN METHOD
HS 20 LOADING INCLUDES 17. P.S.F. D.L. ALLOWANCE FOR FUTURE WEARING COURSE MODIFICATIONS.
REINFORCED CONCRETE:
f'C = 4000 P.S.I. n=8
fY = 60000 P.S.I. REINFORCEMENT
STRUCTURAL STEEL:
fY = 36000 P.S.I. SPEC. 3306
PRESTRESSED CONCRETE:
f'C = 5000 P.S.I. n=6
f'S = 270000 P.S.I. 270 K STRANDS
DECK AREA = 14520 SQ. FT.
PROJECTED A.D.T. FOR YR. 2001 = 5826
CURRENT A.D.T. FOR YR. 1986 = 3237

B.M. ELEV. 986.96
S.E. COR. ORANGE MARK

LIST OF SHEETS

NO.	TITLE
1	GENERAL PLAN & ELEVATION
2	GENERAL PLAN & ELEVATION - EXISTING BRIDGE
3&4	REMOVAL DETAILS
5	SOUTH ABUTMENT DETAILS
6	NORTH ABUTMENT DETAILS
7	FRAMING PLAN
8	PIER 1 DETAILS
9	PIER 2 DETAILS
10	FLOOR BEAM 17 & 18 DETAILS & REINF.
11&12	FLOOR BEAM DETAILS
13	FLOOR BEAM REINFORCEMENT
14	PRESTRESSED CONCRETE BEAMS
15	PRESTRESSED CONCRETE BEAMS
16&17	SUPERSTRUCTURE DETAILS
18-20	CONC. & PIPE RAILING, TYPE M
21&22	WATERPROOF EXPANSION DEVICE
23	CONDUIT SYSTEM FOR BRIDGE LIGHTING
24-28	DETAILS

CONSTRUCTION NOTES

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

BRIDGE SEAT REINFORCEMENT SHALL BE CAREFULLY PLACED TO AVOID INTERFERENCE WITH DRILLING HOLES FOR ANCHOR RODS. THE SUPERSTRUCTURE BEAMS IN SPANS 1 & 3 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 INDICATES THE BAR SIZE.

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 MN. D.O.T. SPEC. 2433.

2451.501	0433.605	0502.603			
STRUCTURE EXCAVATION (CLASS R)	WALL TIEBACKS	DRAINAGE SYSTEM			
CU. YD.	EACH	LUMP SUM.			
5	7	1			

SUMMARY OF QUANTITIES CONT'D

2545.509	2545.509	2402.590	2402.592	2405.511	2401.541
CONDUIT SYSTEM (TELEPHONE)	CONDUIT SYSTEM (LIGHTING)	ELASTOMERIC BRG. PADS, TYPE 2	ELASTOMERIC BRG. ASS'Y TYPE 2	DIAPHRAGMS FOR TYPE 36 PRESTRESS BEAMS	REINFORCEMENT BARS (EPOXY COATED)
LUMP SUM	LUMP SUM	EACH	EACH	LIN. FT	POUND
1	1	5	5	42 (P)	97740 (P)

SUMMARY OF QUANTITIES FOR ENTIRE BRIDGE

ITEM NO.	2433.501	0401.601	0452.604	0452.604	2401.501	2401.501	2401.501	2401.541	2402.521	2405.501	2405.501	2405.511	2402.590	2402.592	2402.585	2402.591	0401.612
ITEM	STRUCTURE REMOVALS	STRUCTURE EXCAVATION	CAISSON 18 DIA. (ROCK)	CAISSON 18 DIA. (EARTH)	STRUCTURE CONCRETE (3Y43)	STRUCTURE CONCRETE (3X33)	STRUCTURE CONCRETE (3X46A)	REINFORCEMENT BARS	STRUCTURAL STEEL, (3306)	PRESTRESS CONCRETE BEAMS TYPE 36-32	PRESTRESS CONCRETE BEAMS TYPE 40-56	DIAPHRAGMS FOR TYPE 40 PRESTRESS BEAMS	ELASTOMERIC BRG. PADS, TYPE 1	ELASTOMERIC BRG. ASS'Y, TYPE 1	PIPE RAILING (TYPE M)	EXPANSION JT. DEVICES TYPE 3	SPECIAL SURFACE FINISH
UNIT	LUMP SUM	LUMP SUM	LIN. FT	LIN. FT.	CU. YD.	CU. YD.	CU. YD.	POUND	POUND	EACH	EACH	LIN. FT.	EACH	EACH	LIN. FT.	LIN. FT.	SQ. FT.
QUANTITY	1	1	50	135	504 (P)	438 (P)	113 (P)	184420 (P)	530 (P)	4	5	42 (P)	4	4	594 (P)	95	28500

APPROVED
J.K. Dolan
COUNTY ENGINEER
OLMSTED COUNTY
DATE: 1-30-81

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.
Robert R. Tomczak
REG. NO. 6924
DATE: 1-27-81

PLANS PREPARED BY
ERICKSON ENGINEERING
3338 REPUBLIC AVE
ST. LOUIS PARK, MINN. 55426

C.S.A.H. 18 OLMSTED COUNTY
MINNESOTA DEPARTMENT OF TRANSPORTATION

BRIDGE NO 448

ON C.S.A.H. 18 OVER ZUMBRO RIVER IN ORONOCO.

REMOVAL & RECONSTRUCTION OF EXISTING SUPERSTRUCTURE & PORTIONS OF SUBSTRUCTURE. REMOVE EXISTING ABUTS. & CONSTRUCT NEW ABUTS. ROADWAY WIDENED TO 40'-0"

GENERAL PLAN & ELEVATION

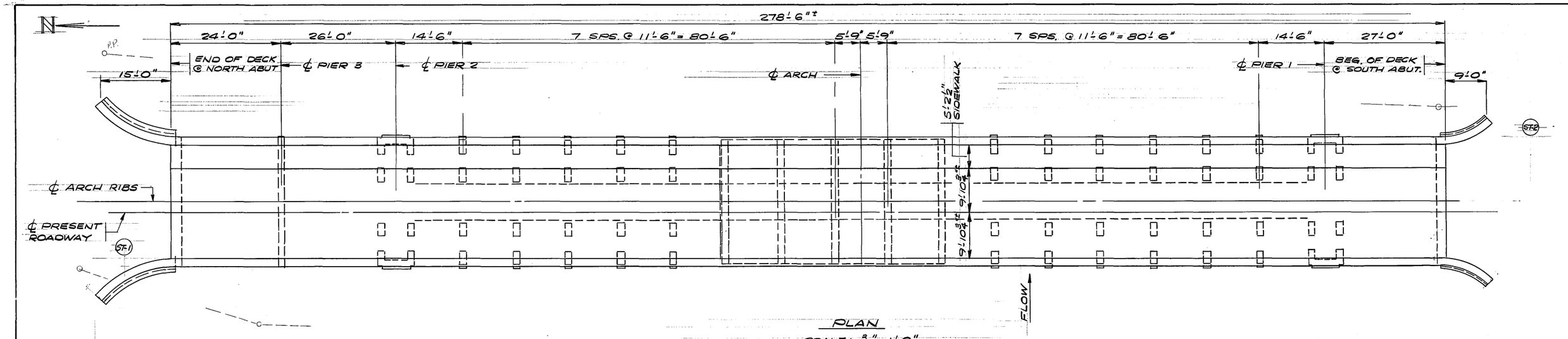
SEC. 8 TWP. 108 N R 14 W
ORONOCO TWP. OLMSTED COUNTY

448 | W.N.J. | R.R.T.

S.P. 55-618-02

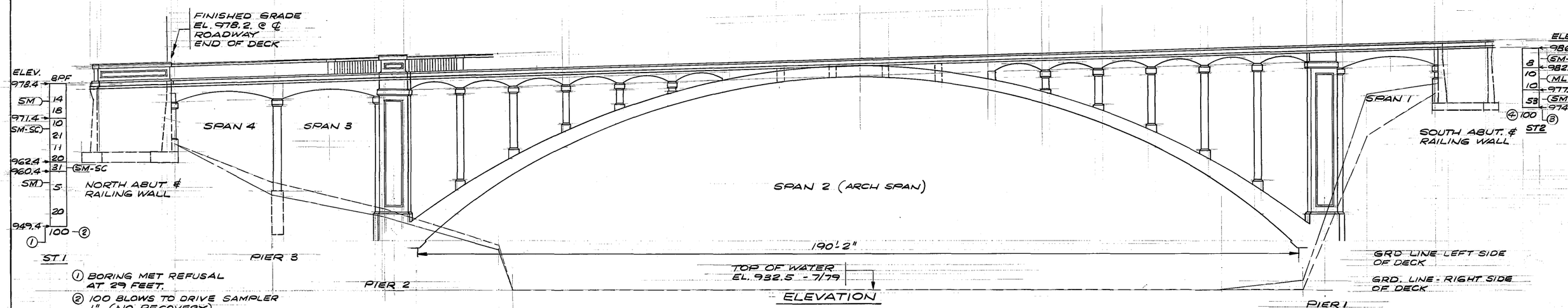
SHEET 1 OF 28 SHEETS

APPROVED 10-6-86
Donald J. Flemming
BRIDGE ENGINEER



PLAN

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

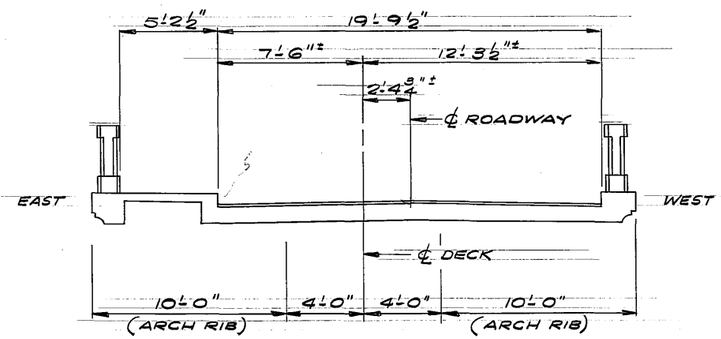


ELEVATION

① BORING MET REFUSAL AT 29 FEET.

② 100 BLOWS TO DRIVE SAMPLER 1". (NO RECOVERY) BORING IMMEDIATELY BACKFILLED.

NOTE:
WATER LEVEL NOT ENCOUNTERED WITH 30' OF HOLLOW-STEM AUGER IN GROUND. WATER LEVEL DOWN 24.5' IMMEDIATELY AFTER WITHDRAWAL OF AUGER.



SECTION THRU EXISTING DECK
LOOKING SOUTH
SCALE: ¼" = 1'-0"

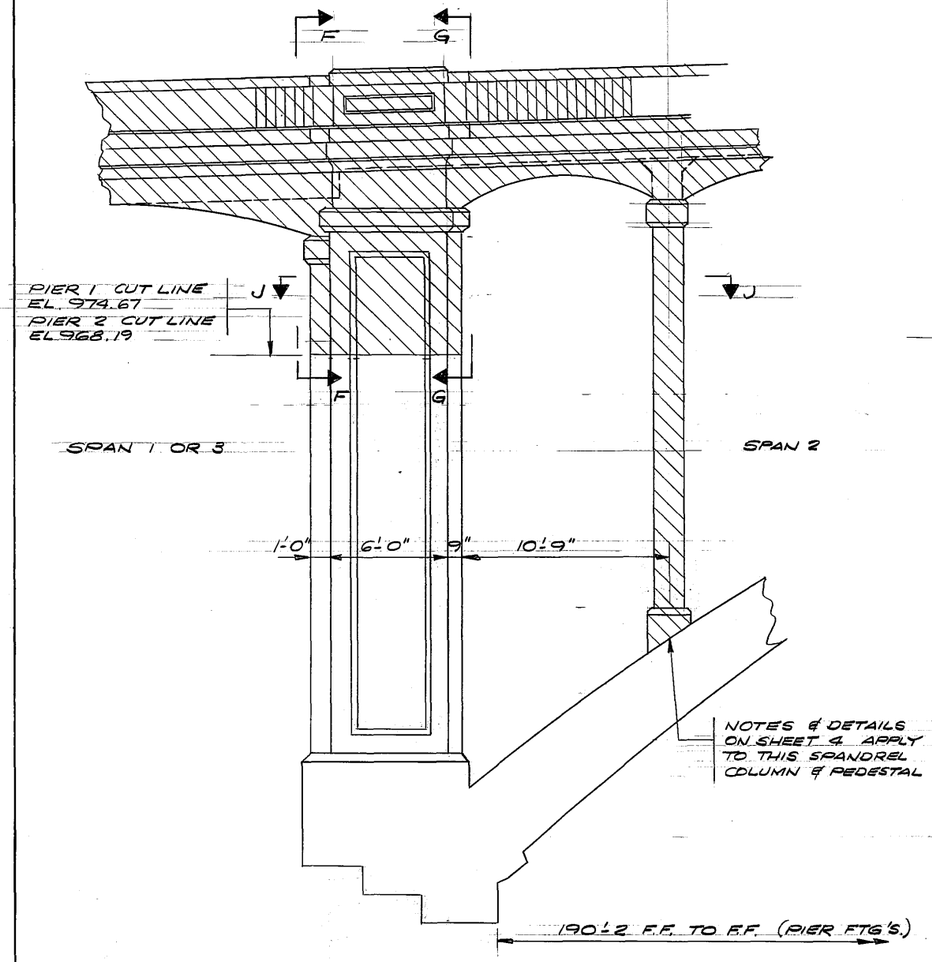
③ BORING MET REFUSAL AT 12 FEET.

④ 100 BLOWS TO DRIVE SAMPLER ½".

NOTE:
WATER LEVEL NOT ENCOUNTERED WITH 13' OF HOLLOW-STEM AUGER IN GROUND. WATER LEVEL NOT ENCOUNTERED TO CAVE-IN DEPTH OF 8.5' IMMEDIATELY AFTER WITHDRAWAL OF AUGER. BORING IMMEDIATELY BACKFILLED.

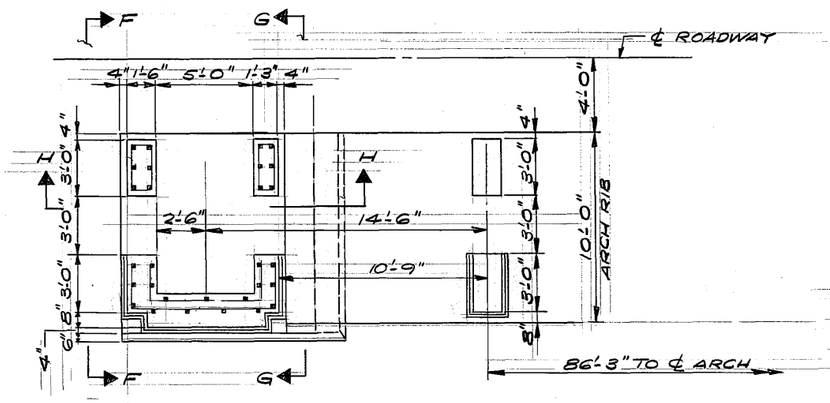
S.P. 55-618-02

GENERAL PLAN & ELEVATION EXISTING BRIDGE	W.N.J.	R.R.T.	10-6-86	BRIDGE NO. 448
	SHEET 2 OF 28 SHEETS			



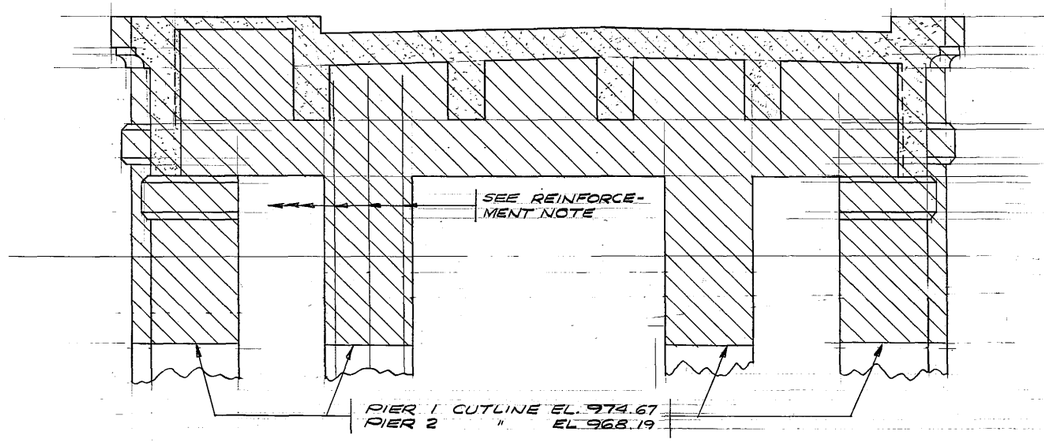
ELEVATION

PIER 2 SHOWN – PIER 1 SIMILAR



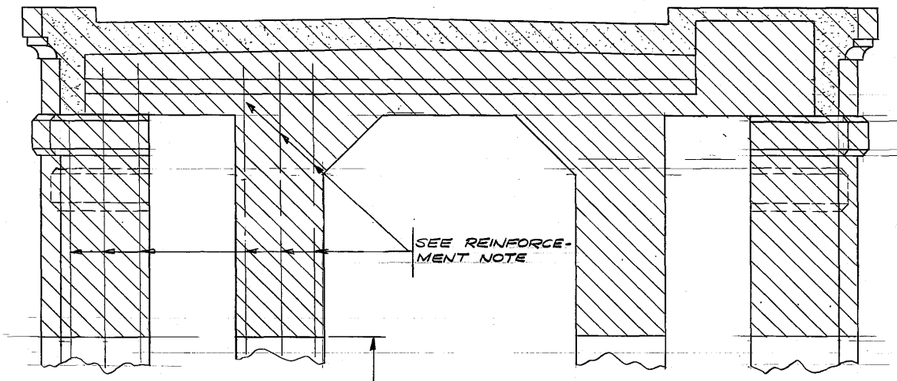
SECTION J-J (HALF PLAN)

SECTIONS F-F & G-G THRU ENTIRE DECK



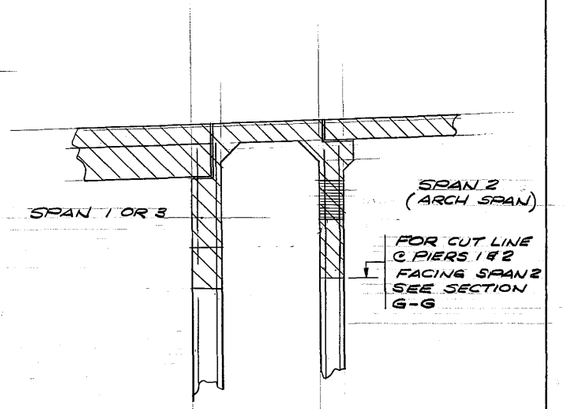
SECTION F-F

SHOWING EXTERIOR & INTERIOR COLUMNS @ PIER 2
(CURB & SIDEWALK REV. @ PIER 1)



SECTION G-G

SECTION SHOWN @ PIER 2
(CURB & SIDEWALK REV. @ PIER 1)



SECTION H-H

SHOWING INTERIOR COLUMNS AT PIER 2. (SIMILAR @ PIER 1.)

CONSTRUCTION NOTES

RAILING NOT SHOWN IN SECTIONS F-F & G-G.

INDICATES AREA TO BE REMOVED.

INPLACE REINFORCEMENT EXTENDING THROUGH A CUT LINE SHALL BE RETAINED FOR A MINIMUM OF 36 BAR DIAMETERS FROM THE CUT LINE AND CLEANED AND STRAIGHTENED AS DIRECTED BY THE ENGINEER.

NOTE:

THE FOLLOWING PARTS OF THE EXISTING BRIDGE NOT SHOWN ON SHEETS 3 & 4 ARE TO BE REMOVED:
SOUTH ABUTMENT AND RETAINING WALLS
NORTH " " " "
PIER 3
SUPERSTRUCTURE IN SPANS 1, 3, & 4 (PORTION SHOWN IN ELEVATION THIS SHEET).
SEE TABLE BELOW FOR APPROX. CONC. REMOVAL VOLUMN IN CU. YDS.

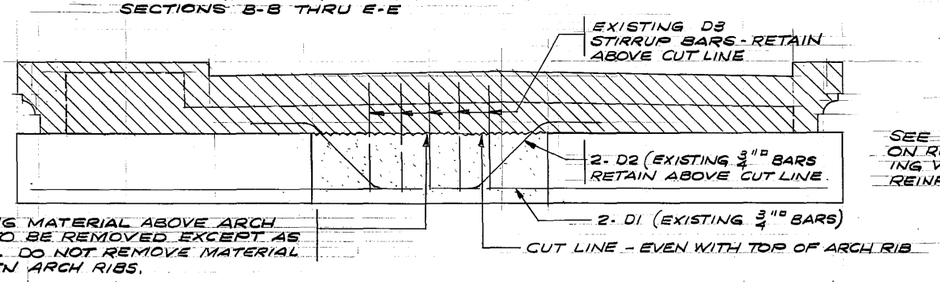
EXISTING BRIDGE SHOWN ON SHEET 2.

PORTIONS OF EXISTING BRIDGE THAT ARE TO BE REMOVED (APPROX VOLUMN SHOWN IN CU. YDS)	
LOCATION	APPROX. CU. YDS
SOUTH ABUTMENT & RET. WALLS	52
PIER 3	43
NORTH ABUTMENT & RET. WALLS	90
SUPERSTRUCTURE - SPANS 1, 3, & 4	101
PIER 1	35
PIER 2	36
COLUMNS & SPANDRELS - SPAN 2	170
SUPERSTRUCTURE - SPAN 2	242

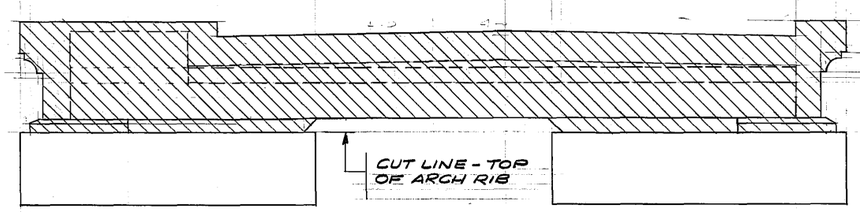
S.P. 55-618-02

REMOVAL DETAILS	WNJ.	R.R.T.	10-6-86	BRIDGE NO. 448
	SHEET 3 OF 28 SHEETS			

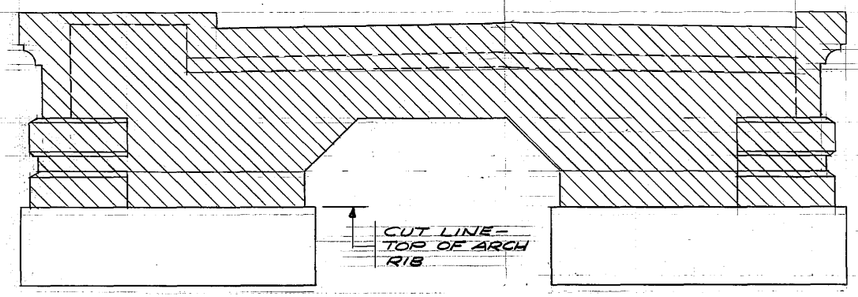
NOTE:
SEE NOTES THIS SHEET FOR REMOVAL OF MATERIAL IN CROSS HATCHED AREA SECTIONS B-B THRU E-E



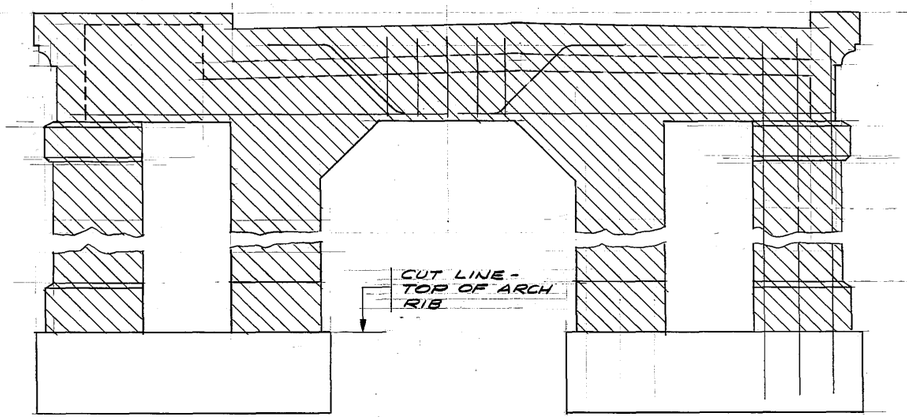
SECTION B-B



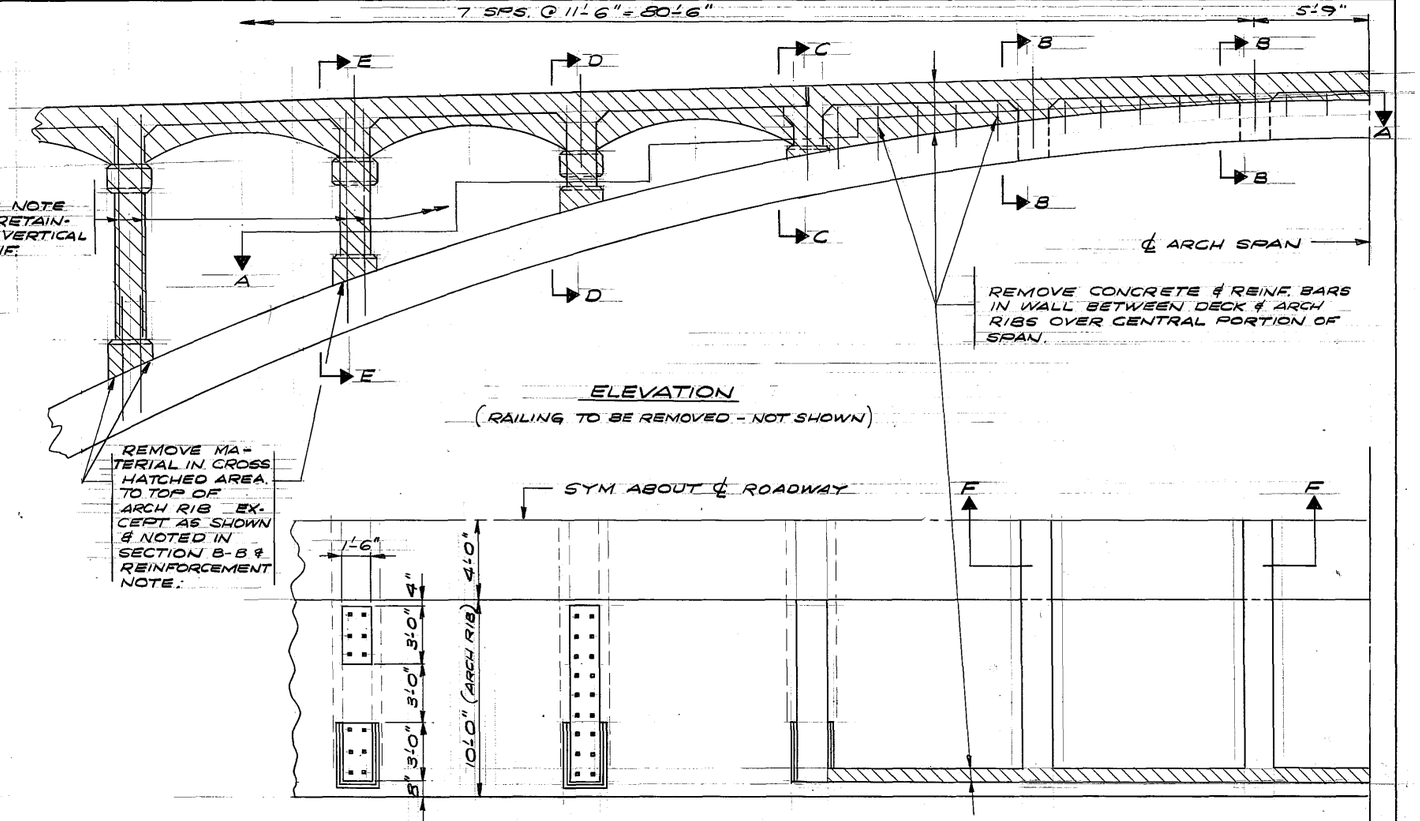
SECTION C-C



SECTION D-D



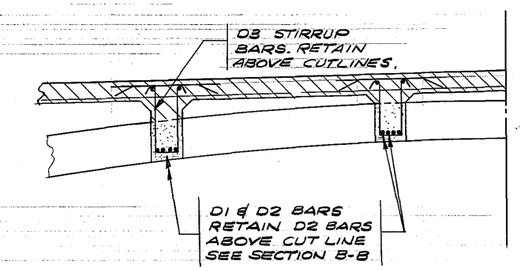
SECTION E-E



ELEVATION
(RAILING TO BE REMOVED - NOT SHOWN)

NOTE:
INPLACE REINFORCEMENT EXTENDING THROUGH A CUT-LINE (CROSS HATCHED AREA) SHALL BE RETAINED FOR A MINIMUM OF 36 BAR DIAMETERS FROM THE CUT LINE AND CLEANED AND STRAIGHTENED AS DIRECTED BY THE ENGINEER.

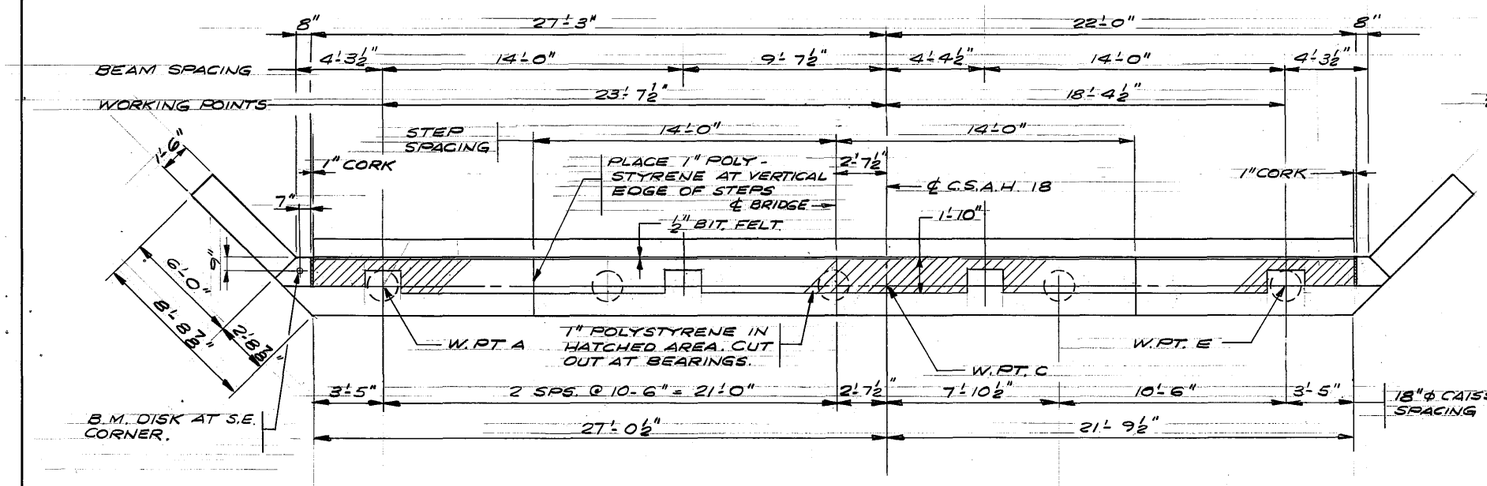
SECTION A-A



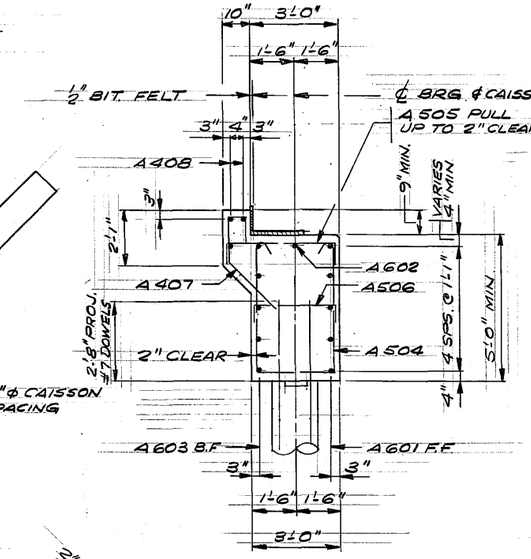
SECTION F-F

S.B. 55-618-02

REMOVAL DETAILS	W.N.J.	R.R.T.	10-6-86	BRIDGE NO. 448
	SHEET 4 OF 28 SHEETS			



PLAN

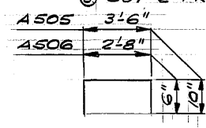


SECTION A-A

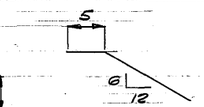
SCALE: 3/8" = 1'-0"

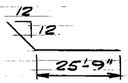
BILL OF REINFORCEMENT FOR SOUTH ABUTMENT				
BAR	NO.	LENGTH	SHAPE	LOCATION
A601	10	28'-2"		WALL - LONG.
A602	2	27'-2"	STR.	" - "
A603	10	28'-2"	"	" - "
A504	38	12'-7"		" - STIRRUPS
A505	51	5'-2"		" - TIES
A506	38	3'-8"		" - "
A407	51	6'-2"		SHEAR BLOCK - TIES
A408	6	25'-3"	STR.	" " - LONG
A609	4	6'-8"		SE. & SW WINGWALLS - TOP
A510	2	3'-0"	STR.	" " - LONG
A611	2	3'-0"	"	" " " - "
A512	2	5'-9"	"	" " " - "
A613	2	5'-9"	"	" " " - "
A514	4	6'-4"	"	" " " - "
A615	4	6'-4"	"	" " " - "
A516	10	8'-1"	"	" " " - "
A617	10	8'-5"	"	" " " - "
A418	10	5'-5"		" " " - TIES
③ A519	3	15'-9"	STR	S.W. WINGWALL - VERT.
③ A620	3	15'-9"	"	" " " - "
A521	2	9'-0"	"	" " " - "
A622	2	9'-0"	"	" " " - "
③ A523	3	16'-5"	"	S.E. WINGWALL - "
③ A624	3	16'-5"	"	" " " - "
A525	2	9'-4"	"	" " " - "
A626	2	9'-4"	"	" " " - "

③ CUT 2 FROM 1

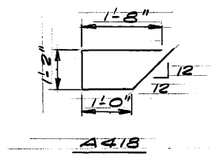


A505 TO A506

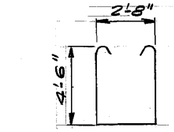




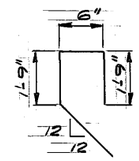
A601



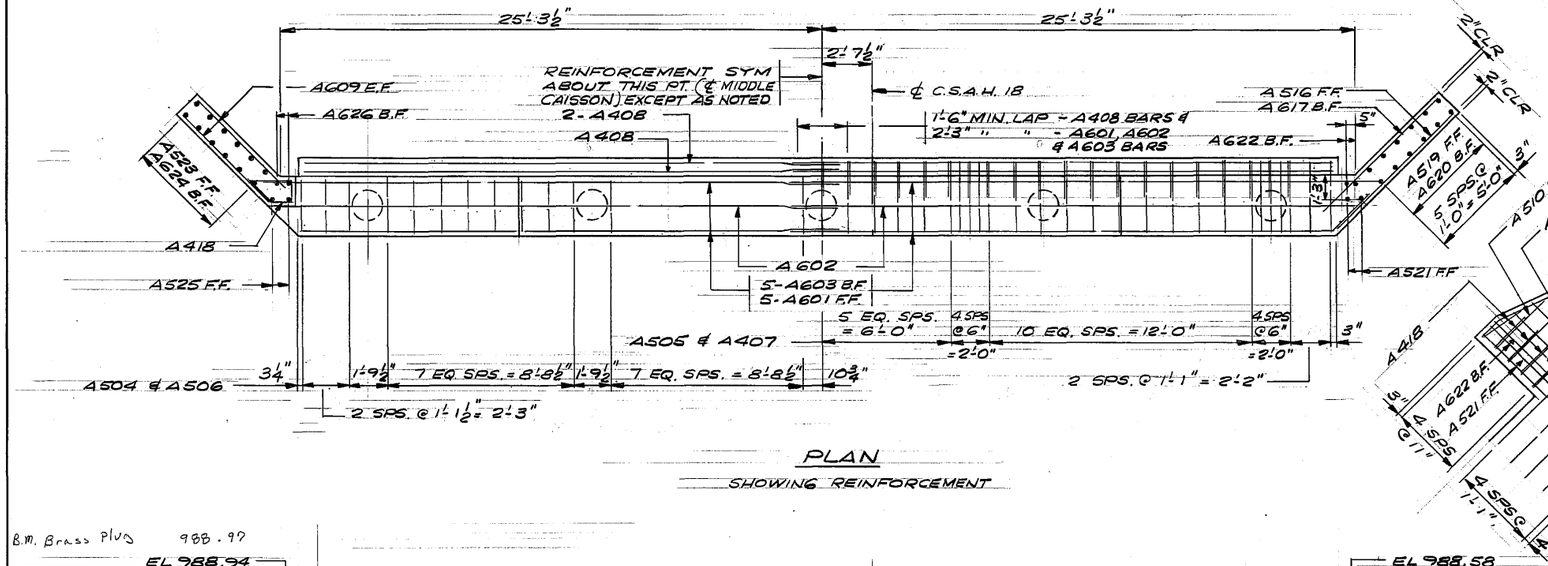
A418



A504

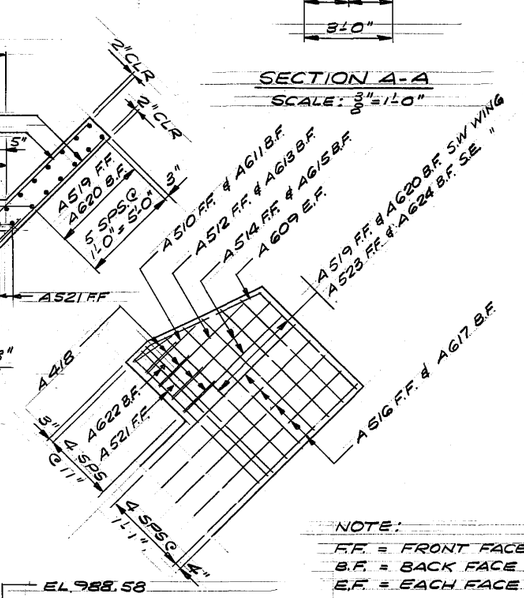


A407



PLAN

SHOWING REINFORCEMENT



NOTE:

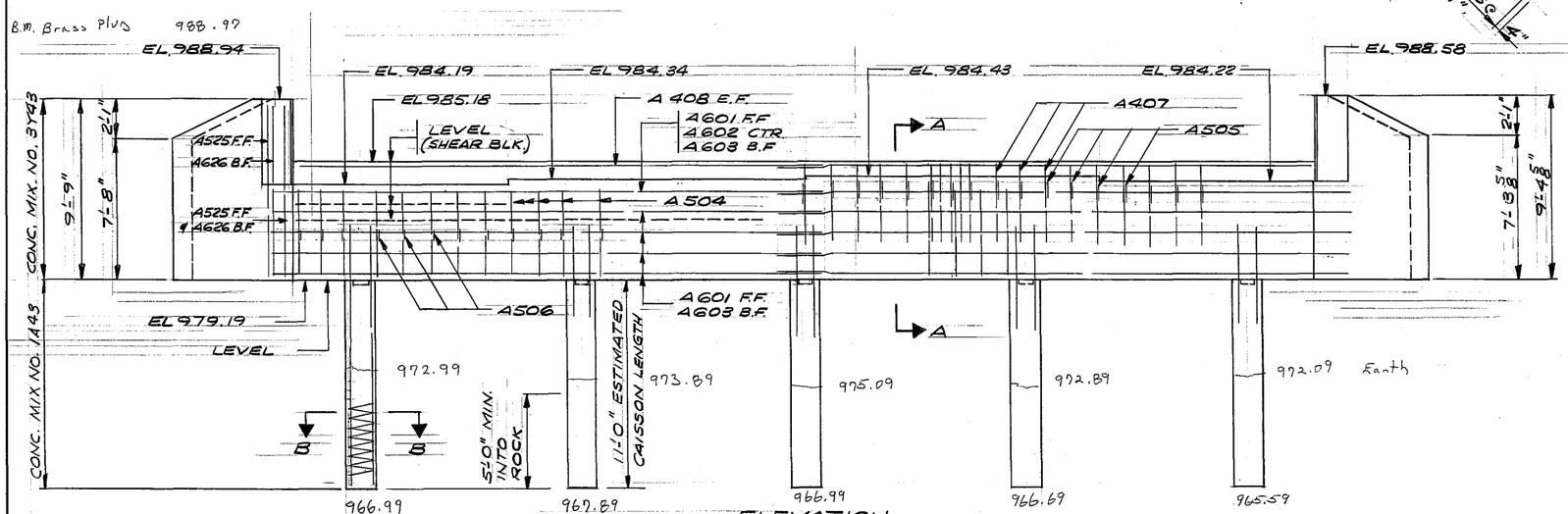
F.F. = FRONT FACE
B.F. = BACK FACE
E.F. = EACH FACE

SUMMARY OF QUANTITIES FOR SOUTH ABUTMENT.		
CONCRETE MIX. NO. 3Y43	40	CU. YD.
③ STRUCTURE EXCAVATION		
REINFORCEMENT BARS	2905	POUND
③② 18"℄ CAISSONS (EARTH)	30	LIN. FT.
③② 18"℄ CAISSONS (ROCK)	25	LIN. FT.
① B.M. DISK PER STD. # 9300	ONE	

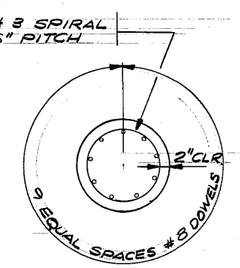
① COUNTY WILL FURNISH DISK. PAYMENT FOR PLACEMENT TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS. SEE STANDARD PLATE NO. 9301 FOR PLACING.

② QUANTITY IS FOR BIDDING PURPOSES ONLY. ACTUAL LENGTHS TO BE DETERMINED DURING CONSTRUCTION. SEE SPECIAL PROVISIONS. INCLUDES ALL CONCRETE, REINFORCEMENT, FORMS, & DOWELS.

③ SEE SPECIAL PROVISIONS



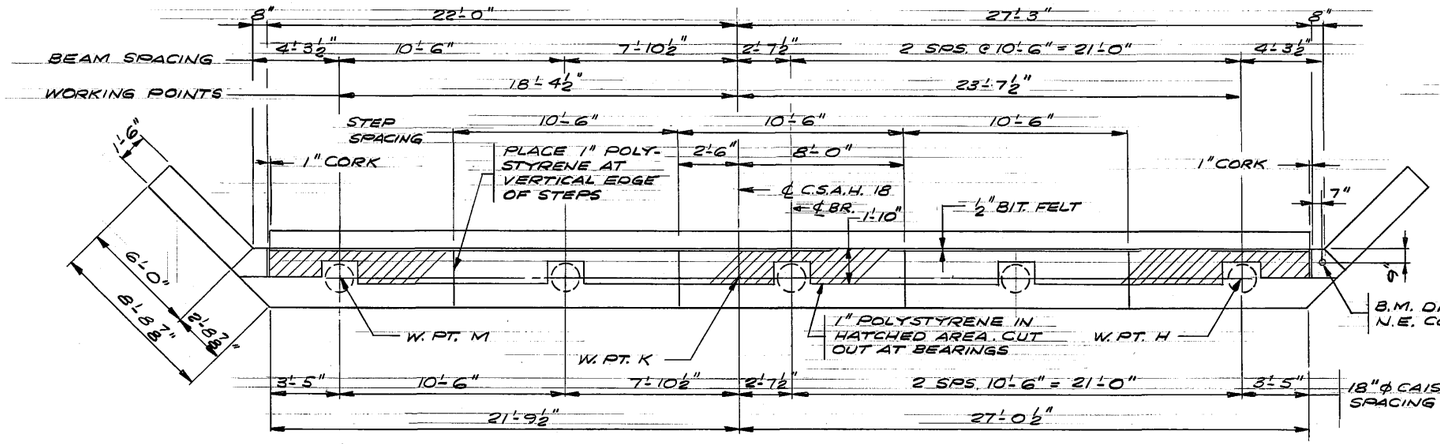
ELEVATION



SECTION B-B

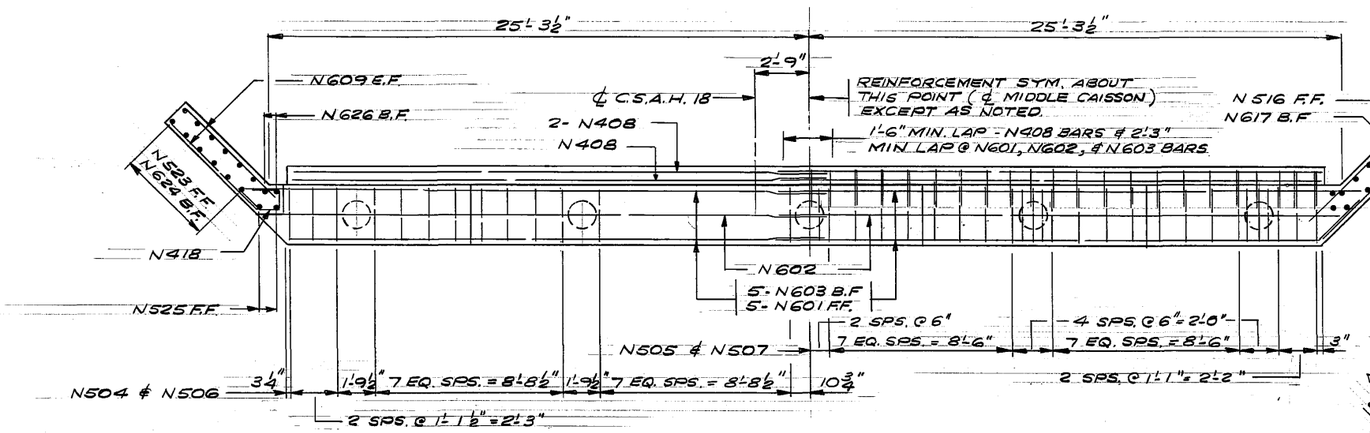
S.P. 55-618-02

SOUTH ABUTMENT DETAILS	WNJ	R.R.T.	10-6-86	BRIDGE NO. 448
	SHEET 5 OF 28 SHEETS			



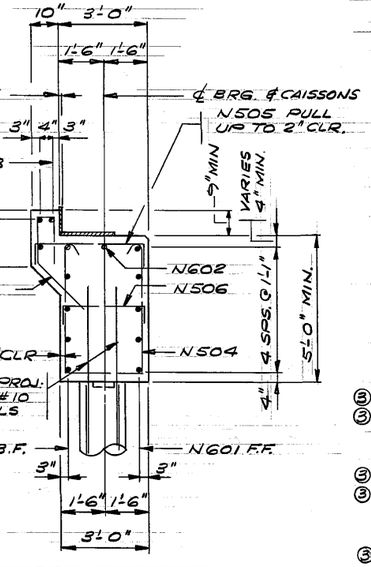
PLAN

SCALE: ¼"=1'-0"



PLAN

SHOWING REINFORCEMENT

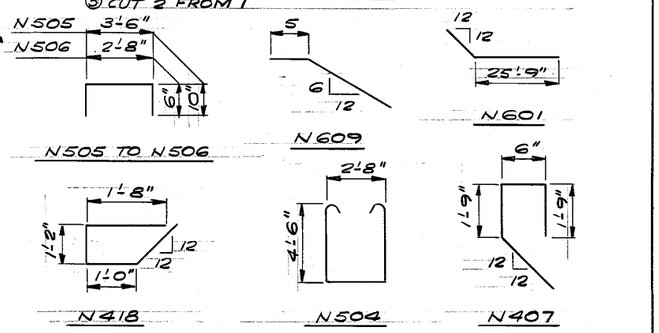


SECTION A-A

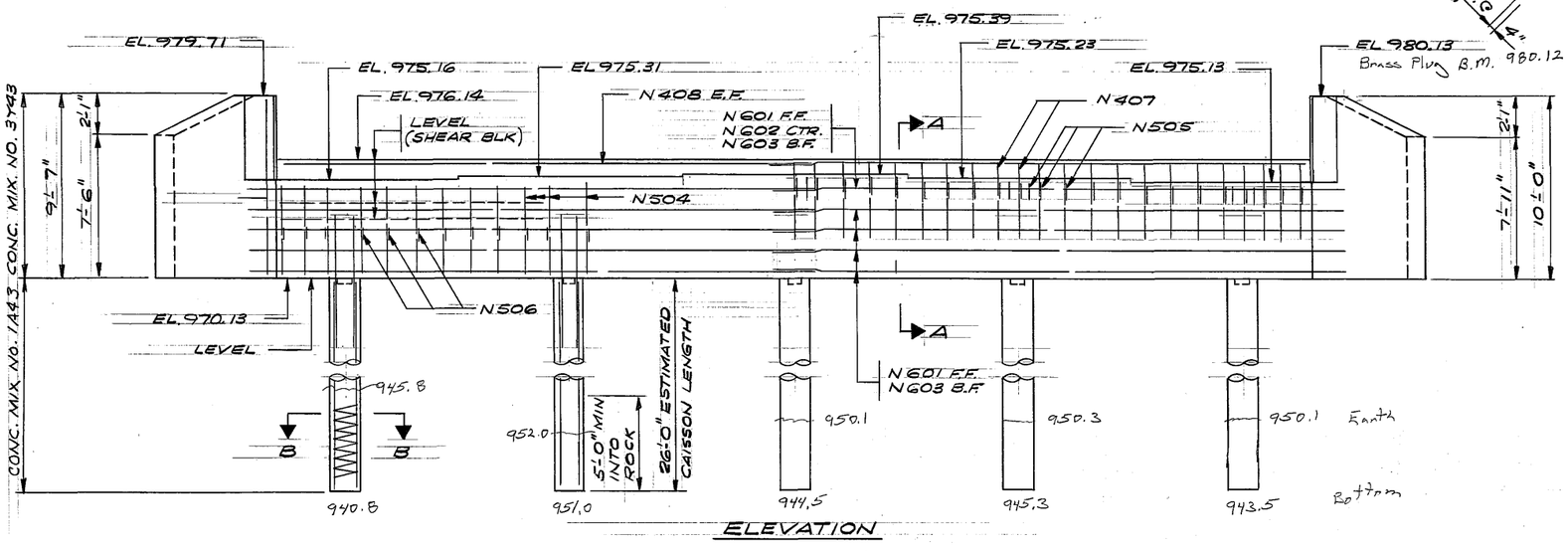
SCALE: ⅜"=1'-0"

BILL OF REINFORCEMENT FOR NORTH ABUTMENT				
BAR	NO.	LENGTH	SHAPE	LOCATION
N601	10	28'-2"		WALL - LONG
N602	2	27'-2"	STR	" - "
N603	10	28'-2"		" - "
N504	38	12'-7"		" - STIRRUPS
N505	51	5'-2"		" - TIES
N506	38	3'-8"		" - "
N407	51	6'-2"		SHEAR BLOCK - TIES
N408	6	25'-3"	STR.	" " - LONG.
N609	4	6'-8"		N.E. & N.W WINGWALL - TOP
N510	2	3'-0"	STR.	" - LONG
N611	2	3'-0"	"	" - "
N512	2	5'-9"	"	" - "
N613	2	5'-9"	"	" - "
N514	4	6'-4"	"	" - "
N615	4	6'-4"	"	" - "
N516	10	8'-7"	"	" - "
N617	10	8'-5"	"	" - "
N418	10	5'-5"		" - TIES
③ N519	3	16'-11"	STR	N.E. WINGWALL - VERT.
③ N620	3	16'-11"	"	" - "
N521	2	9'-7"	"	" - "
N622	2	9'-7"	"	" - "
③ N523	3	16'-1"	"	N.W. WINGWALL - "
③ N624	3	16'-1"	"	" - "
N525	2	9'-2"	"	" - "
N626	2	9'-2"	"	" - "

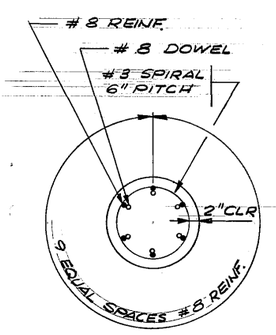
③ CUT 2 FROM 1



SUMMARY OF QUANTITIES FOR NORTH ABUTMENT		
CONCRETE MIX. NO. 3Y43	40	CU.YD.
③ STRUCTURE EXCAVATION		
REINFORCEMENT BARS	2910	POUND
③② 18"ϕ CAISSONS (EARTH)	105	LIN. FT.
③② 18"ϕ CAISSONS (ROCK)	25	LIN. FT.
① B.M. DISK PER STD # 9300	ONE	



ELEVATION



SECTION B-B

NOTE:

F.F. = FRONT FACE

B.F. = BACK FACE

E.F. = EACH FACE

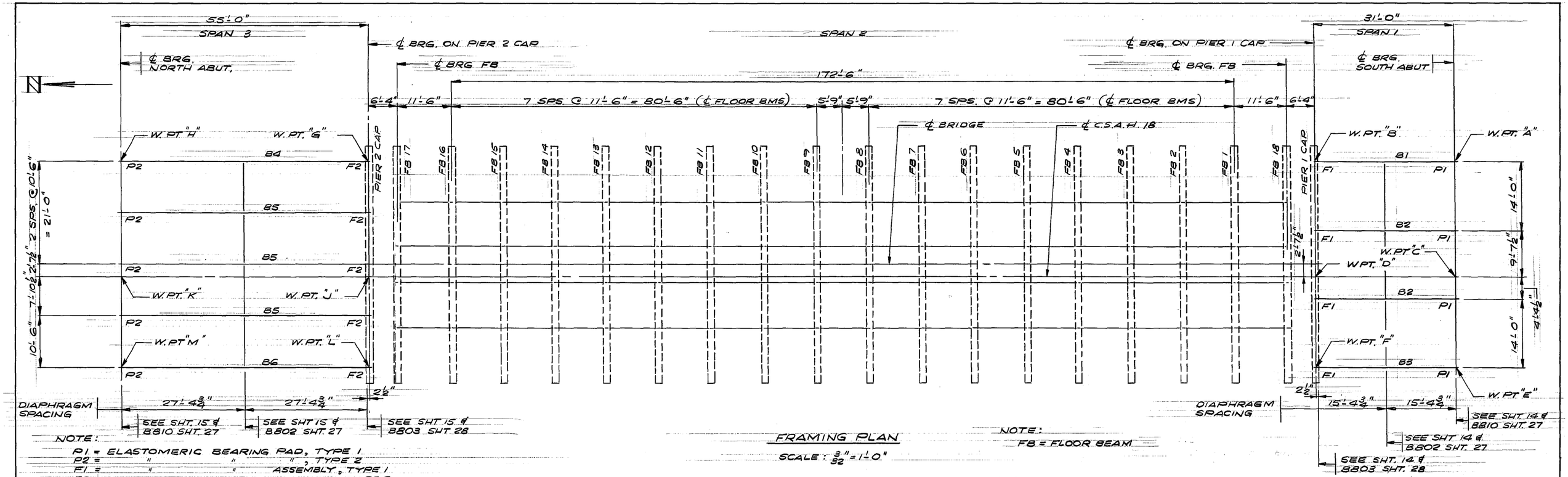
① COUNTY WILL FURNISH DISK. PAYMENT FOR PLACEMENT TO BE INCLUDED IN PRICE BID FOR OTHER ITEMS. SEE STANDARD PLATE NO. 9301 FOR PLACING.

② QUANTITY IS FOR BIDDING PURPOSES ONLY. ACTUAL LENGTHS TO BE DETERMINED DURING CONSTRUCTION. SEE SPECIAL PROVISIONS. INCLUDES ALL CONCRETE, REINFORCEMENT, DOWELS & FORMS.

③ SEE SPECIAL PROVISIONS

S.P. 55-618-02

NORTH ABUTMENT DETAILS	WNJ	R.R.T.	10-6-86	BRIDGE NO 448
	SHEET 6 OF 28 SHEETS			

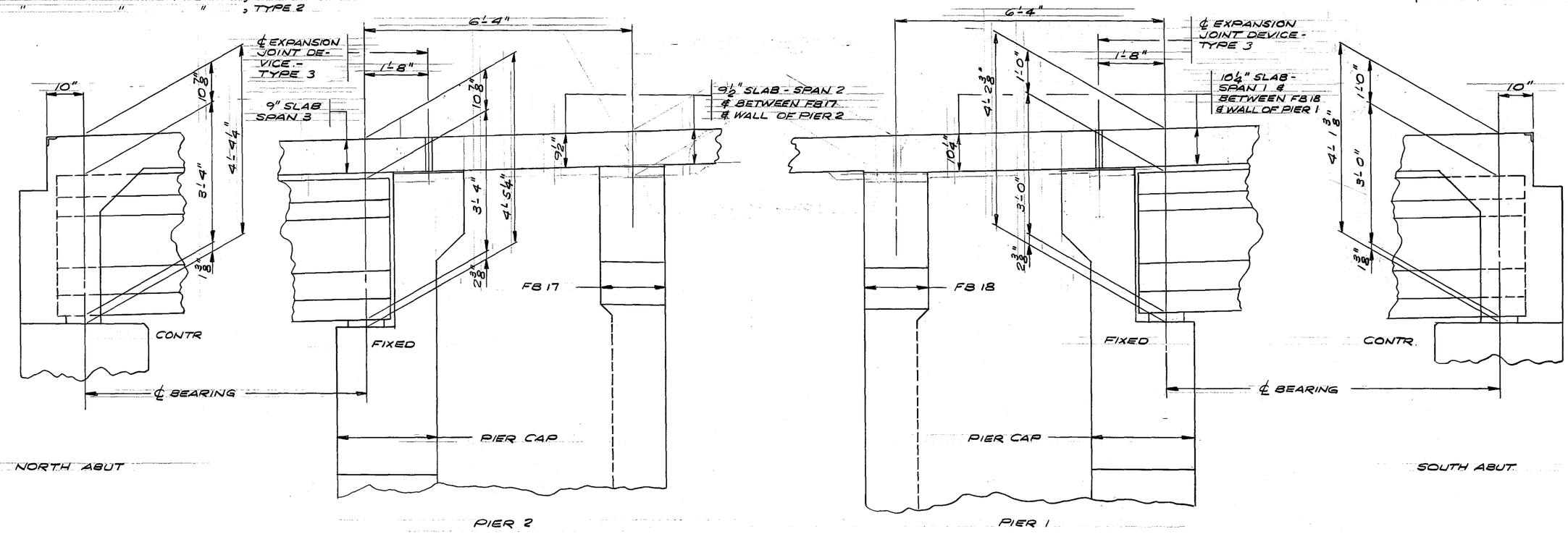


NOTE:
P1 = ELASTOMERIC BEARING PAD, TYPE 1
P2 = " " " , TYPE 2
F1 = " " ASSEMBLY, TYPE 1
F2 = " " " , TYPE 2

FRAMING PLAN

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

NOTE:
FB = FLOOR BEAM

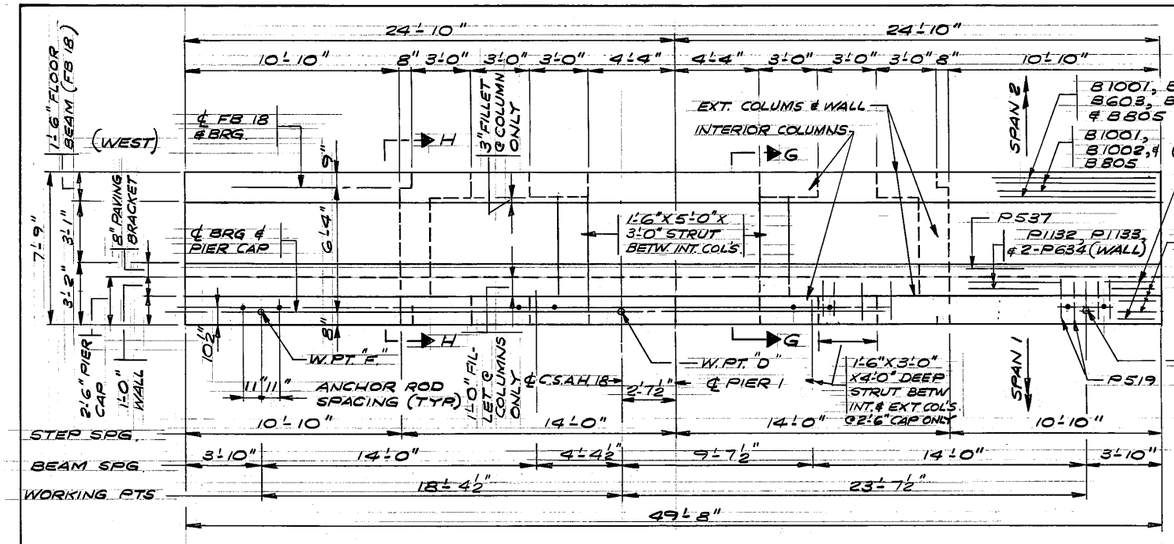


PART LONGITUDINAL SECTION @ FACIA BEAM

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

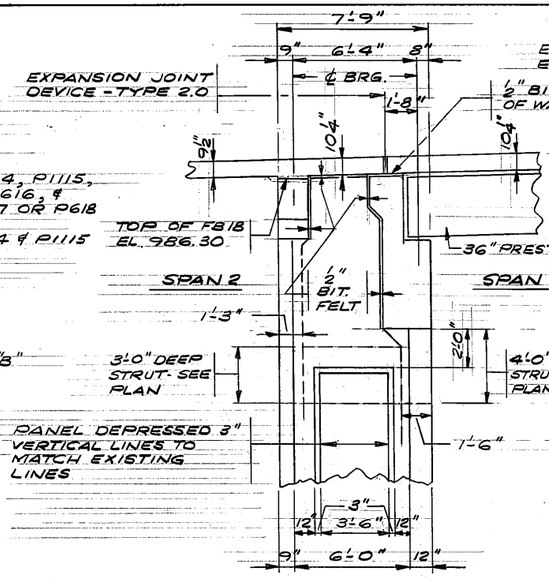
S.P. SS-618-02

FRAMING PLAN	WNJ	R.R.T.	10-6-86	BRIDGE NO. 448
	SHEET 7 OF 28 SHEETS			



PLAN

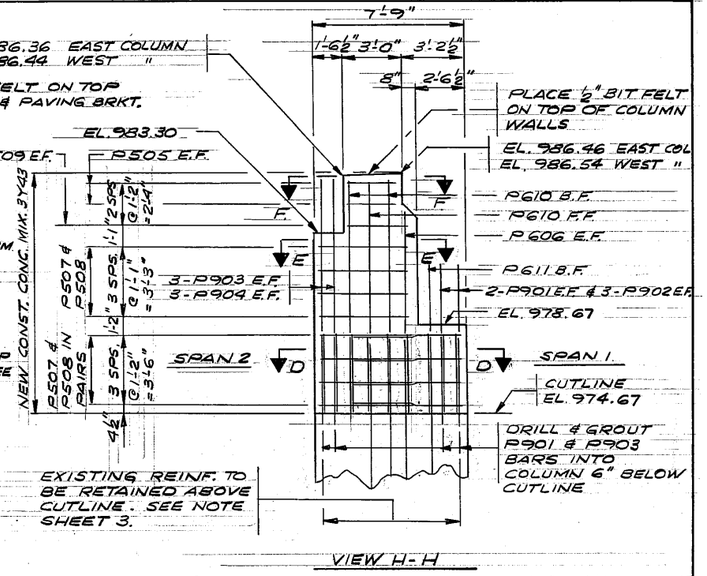
SCALE: ¼"=1'-0"



END ELEVATION

LOOKING EAST (DOWNSTREAM)

SCALE: ¼"=1'-0"



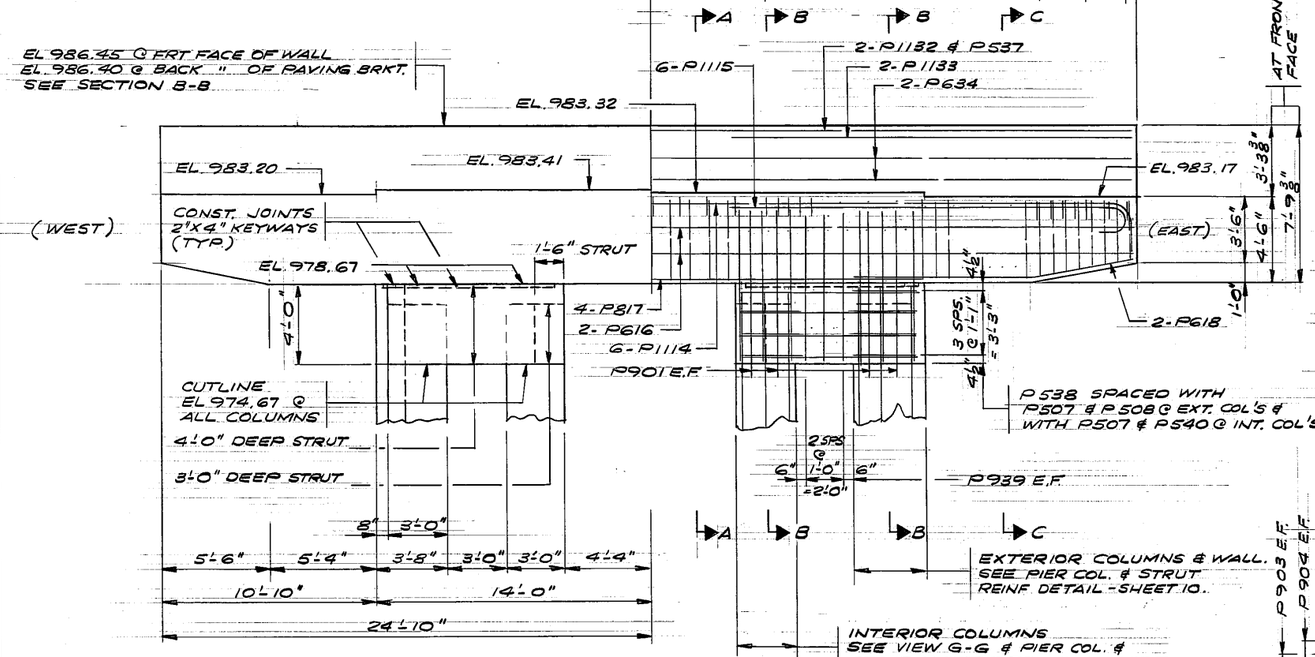
VIEW H-H

EXTERIOR COLUMNS & WALL REINFORCEMENT

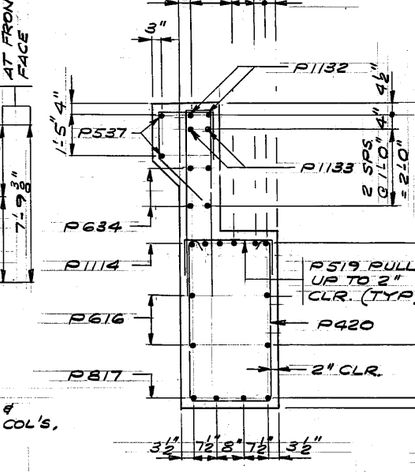
NOTE:

REINFORCEMENT & SPACING SAME IN SECTIONS A-A THRU C-C EXCEPT AS NOTED

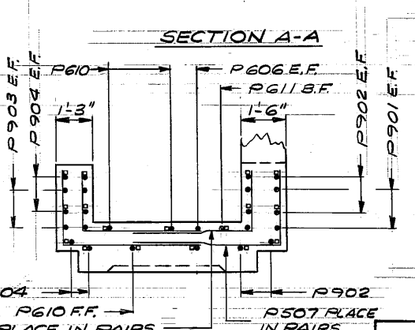
SEE SHEET 10 FOR VIEW G-G



ELEVATION - PIER 1 CAP

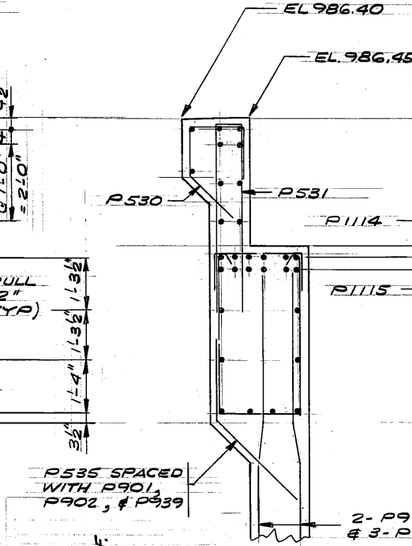


SECTION A-A

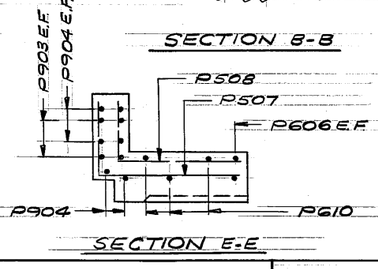


SECTION D-D

SEE PIER COLUMN & STRUT REINFORCEMENT DETAIL - SHEET 10

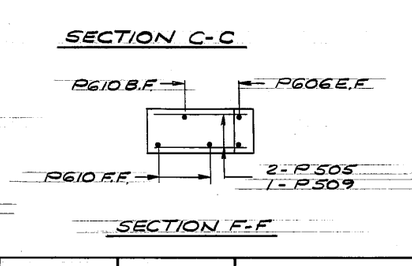


SECTION B-B



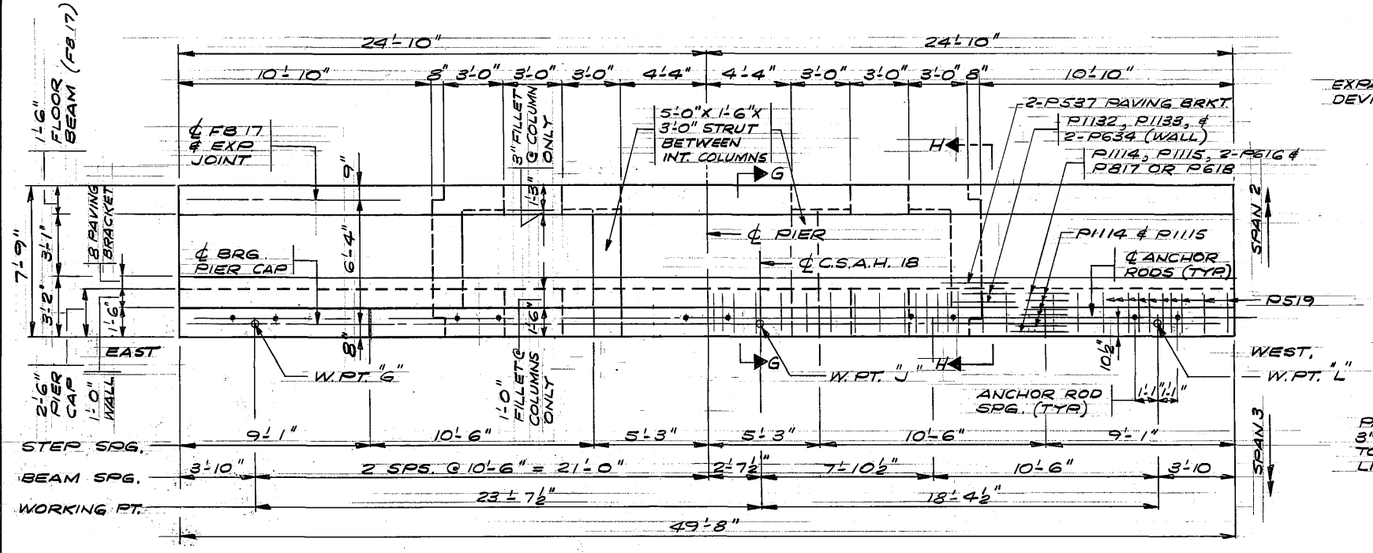
SECTION E-E

SECTION C-C



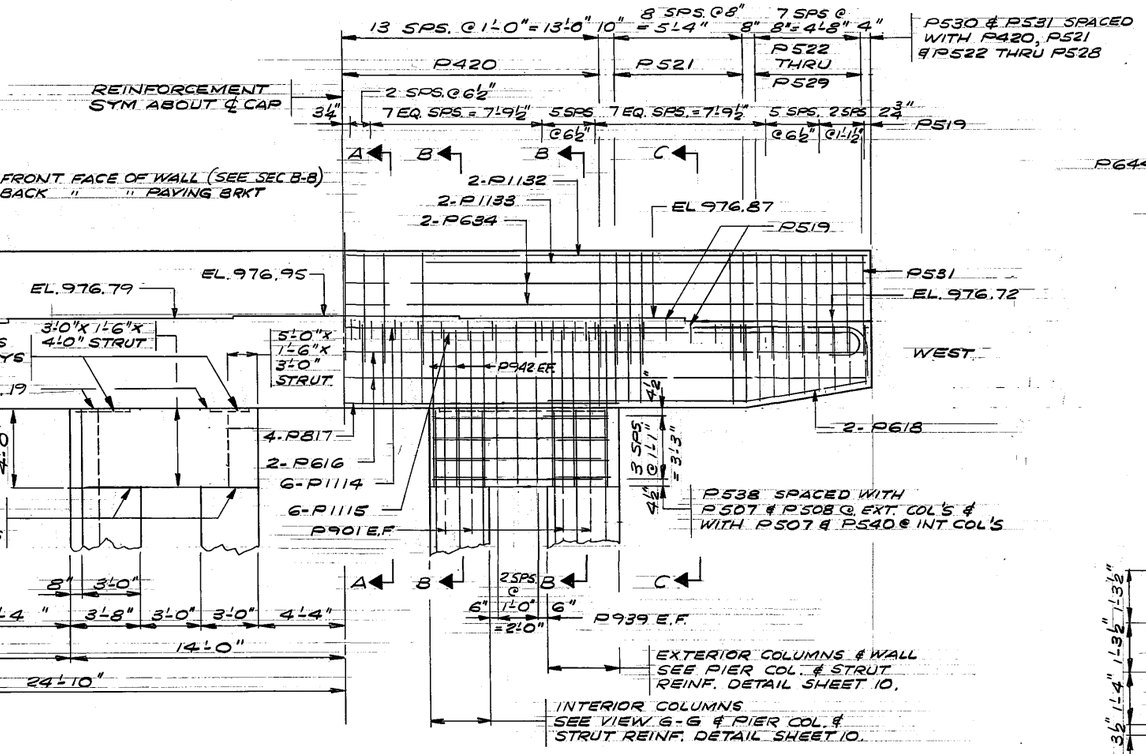
SECTION F-F

PIER 1 DETAILS S.P. SS-618-02	W.N.J	R.R.T	10-6-86
	SHEET 8 OF 28 SHEETS		BRIDGE NO. 448

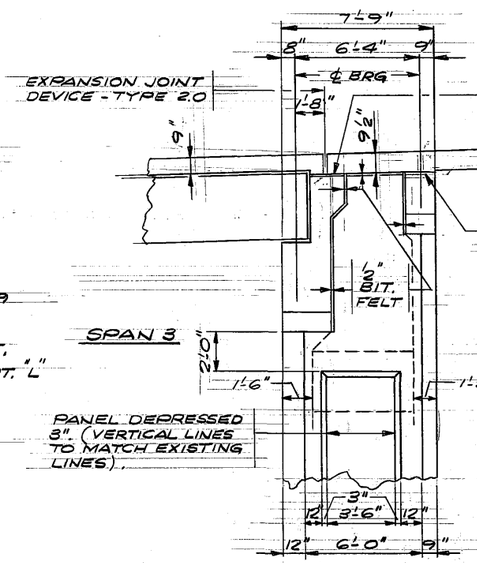


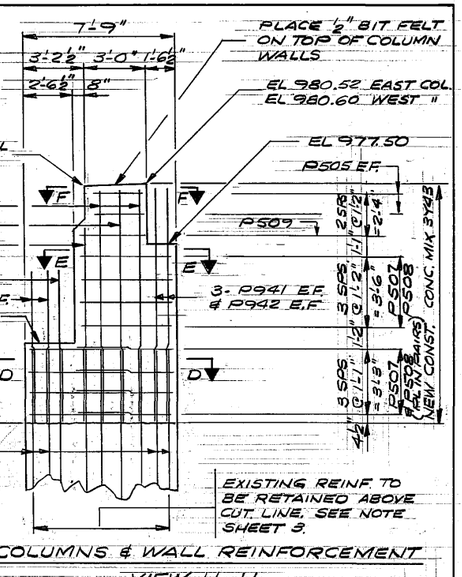
PLAN

SCALE: ¼"=1'-0"



ELEVATION - PIER 2 CAP



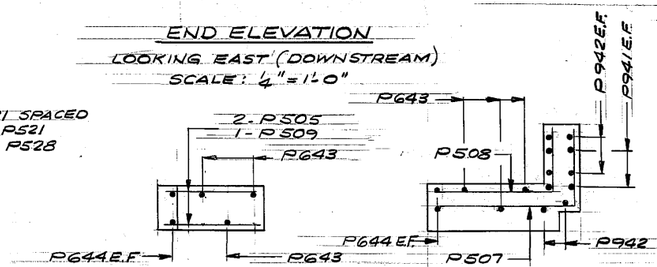


EXTERIOR COLUMNS & WALL REINFORCEMENT

END ELEVATION

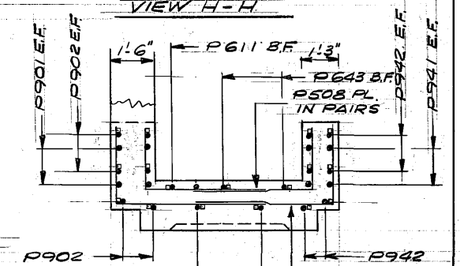
LOOKING EAST (DOWNSTREAM)

SCALE: ¼"=1'-0"



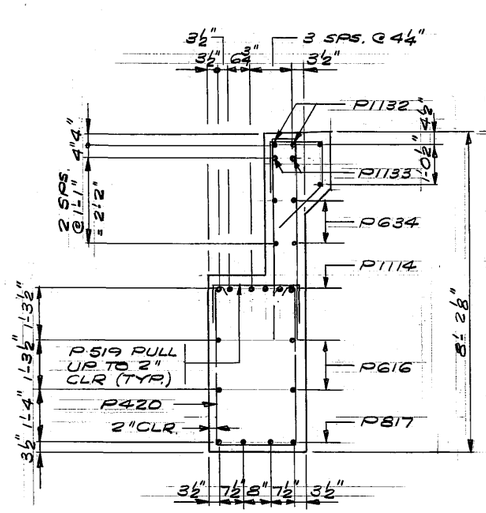
SECTION F-F

SECTION E-E

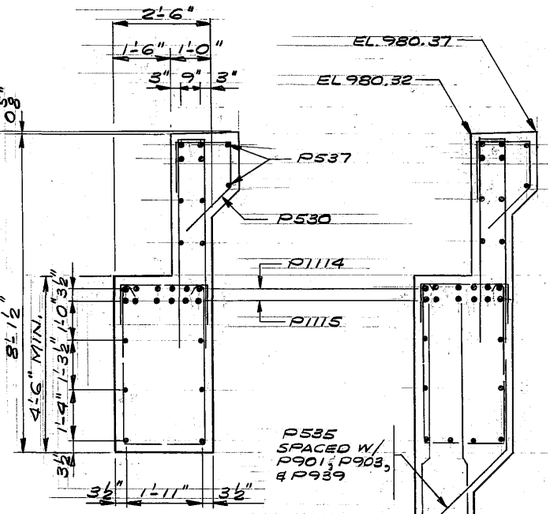


SECTION D-D

SEE PIER COLUMN & STRUT REINFORCEMENT DETAIL - SHEET 10



SECTION A-A



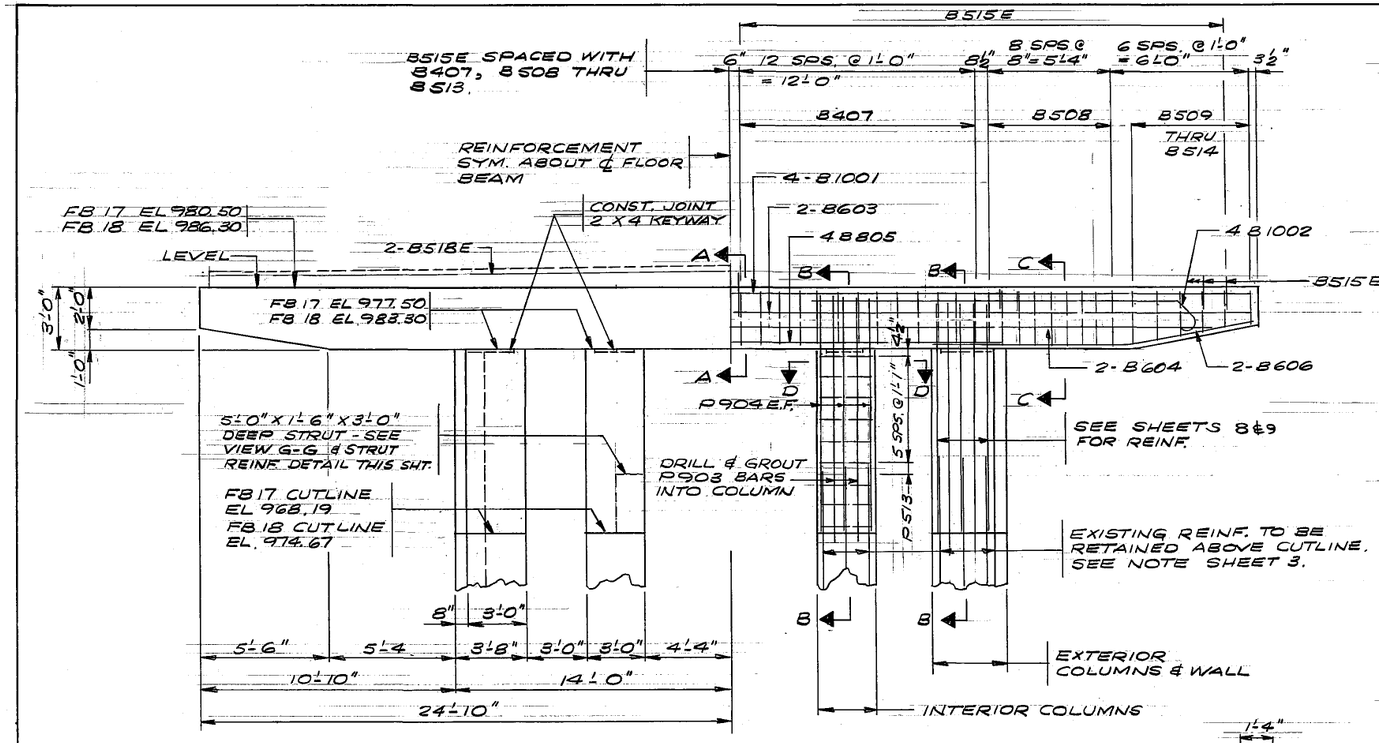
SECTION C-C

SECTION B-B

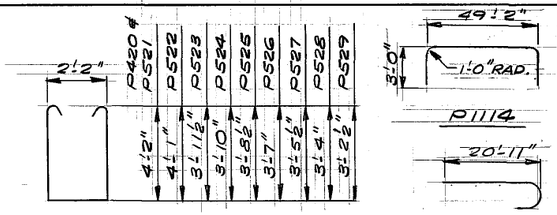
NOTE:

REINFORCEMENT & SPACING SAME IN SECTIONS A-A THRU C-C EXCEPT AS SHOWN OR NOTED.

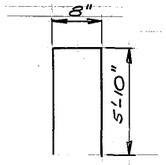
PIER 2 DETAILS S.R. 55-618-02	W.N.J.	R.R.T.	10-6-86	BRIDGE NO 448
	SHEET 9 OF 28 SHEETS			



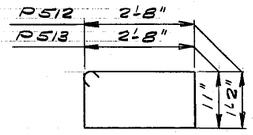
ELEVATION - FLOOR BEAMS 17 & 18



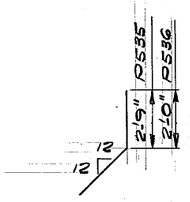
P420 & P521 THRU P529



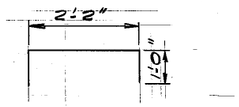
P531



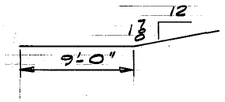
P512 & P513



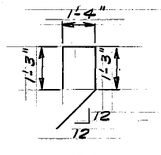
P535 & P536



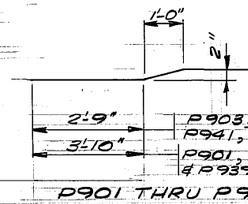
P519



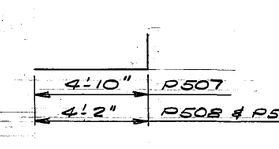
P618



P530



P901 THRU P904 & P941, P942, & P939



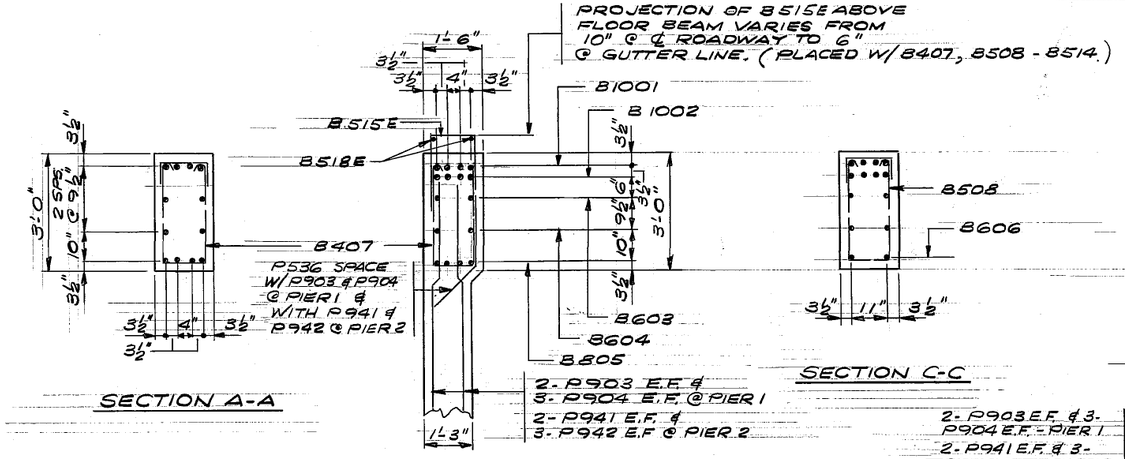
P507 & P508

BILL OF REINFORCEMENT FOR PIERS 1 & 2 (FB17 & 18 NOT INCL)				
BAR	NO	LENGTH	SHAPE	LOCATION
P901	32	8'-4"		EXT. & INT. COLUMNS @ CAP-VERT
P902	48	7'-10"		" " " " " " " - "
P903	16	11'-7"		" & INT COLUMNS @ FB 17 & 18 "
P904	24	11'-1"		" " " " " " " " "
P505	16	2'-8"	STR	EXT. WALL - LONG
P606	4	10'-1"	"	" " - VERT.
P507	72	7'-6"		EXT. & INT WALL & COL'S & STRUT-LG
P508	48	6'-4"		EXT. WALL & COLUMNS - LONG
P509	8	3'-4"	STR	" " - LONG
P610	6	11'-7"	"	" " - VERT.
P611	4	7'-10"	"	" " - " @ CAPS
P512	20	8'-7"		STRUT @ INT COL'S - TIES
P513	24	8'-1"		INT. COL @ FLR BEAMS - TIES
P1114	12	54'-4"		PIER CAP - LONG
P1115	24	22'-6"		" " - "
P616	8	49'-2"	STR	" " - "
P817	8	28'-0"	"	" " - "
P618	8	14'-3"		" " - BOTTOM
P519	103	4'-2"		" " - BR SEAT-TIES
P420	54	11'-3"		" " - STIRRUPS
P521	36	11'-5"	"	" " - "
P522	4	11'-3"	"	" " - "
P523	4	11'-0"	"	" " - "
P524	4	10'-9"	"	" " - "
P525	4	10'-6"	"	" " - "
P526	4	10'-3"	"	" " - "
P527	4	10'-0"	"	" " - "
P528	4	9'-9"	"	" " - "
P529	4	9'-6"	"	" " - "
P530	122	5'-5"		" " - "
P531	122	12'-4"		" " - WALL - TIES
P1132	4	49'-2"	STR	" " - " - LONG
P1133	8	20'-11"	"	" " - " - "
P634	8"	49'-2"	"	" " - " - "
P535	52	5'-6"		EXT. & INT. COLUMNS @ CAP-TIE
P536	40	4'-0"		" " " " @ FLR BM "
② P537	8	25'-2"	STR.	PAVING BRACKET - LONG
P538	32	8'-0"	"	4'-0" STRUT - LONG
P939	24	7'-8"	"	" " - VERT
P540	24	5'-8"		INT. WALLS & STRUT - LONG
P941	8	11'-8"		EXT. & INT COLUMNS @ FB 17
P942	12	12'-2"		" " " " " " " "
P643	6	12'-1"	STR.	" WALL - VERT. @ PIER 2
P644	4	10'-7"	"	" " - " " " "

② MIN. LAP 1'-11"

① SUMMARY OF QUANTITIES FOR PIER CAPS & RECONSTRUCTION OF UPPER PORTIONS OF EXISTING EXT. & INT. PIER 1 & 2 COLS	
CONCRETE MIX, NO. 3Y43	95 CU. YD.
② REINFORCEMENT BARS	22070 POUND

① DOES NOT INCLUDE FLOOR BEAM 17 & 18 QUANTITIES
② INCLUDES DRILLING AND GROUTING AS NOTED

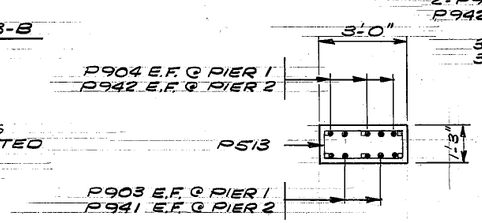


SECTION A-A

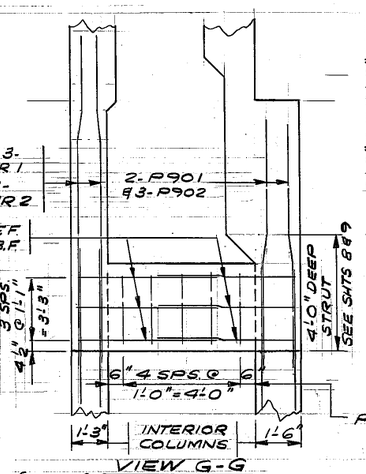
SECTION B-B

SECTION C-C

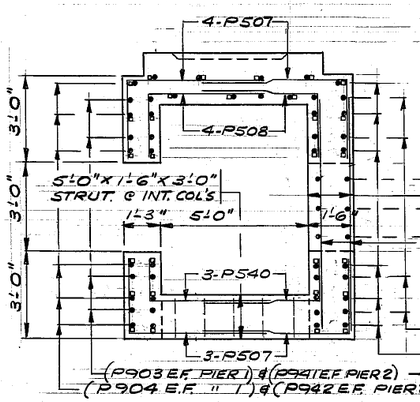
NOTE :
REINF. & SPACING SAME IN SECTIONS A-A THRU C-C EXCEPT AS SHOWN OR NOTED



SECTION D-D

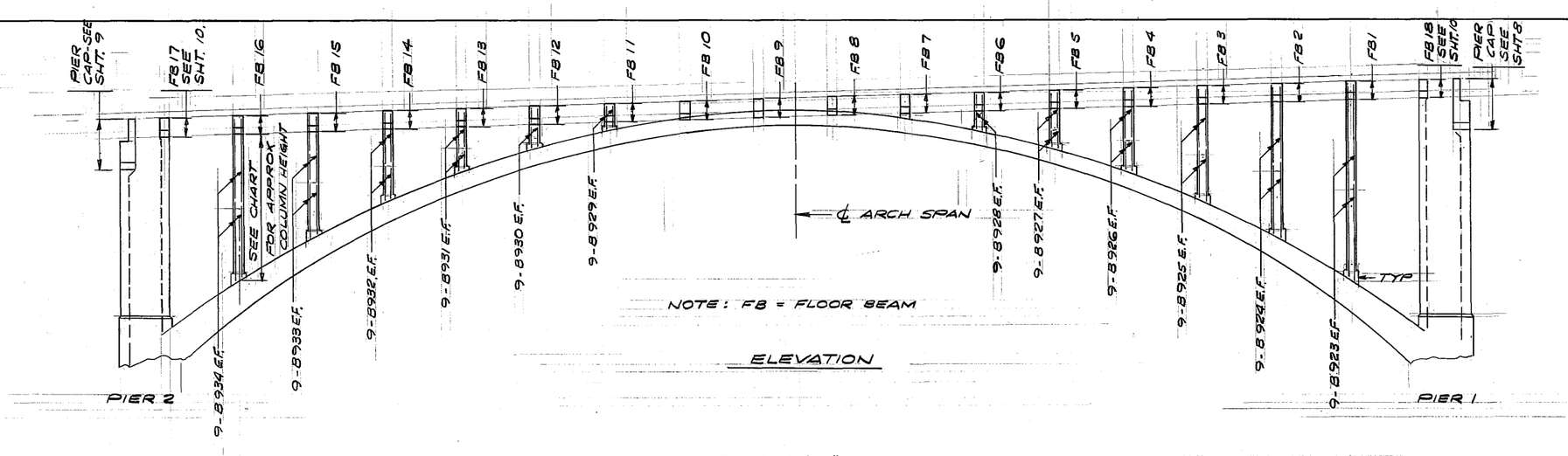


VIEW G-G (SEE SHEETS 8 & 9)



PIER COLUMN & STRUT REINF. DETAIL

FB 17 & FB 18 DETAILS & REINFORCEMENT S.P. 55-618-02	W.N.J.	R.R.T.	10-6-86
	SHEET 10 OF 28 SHEETS		BRIDGE NO. 448

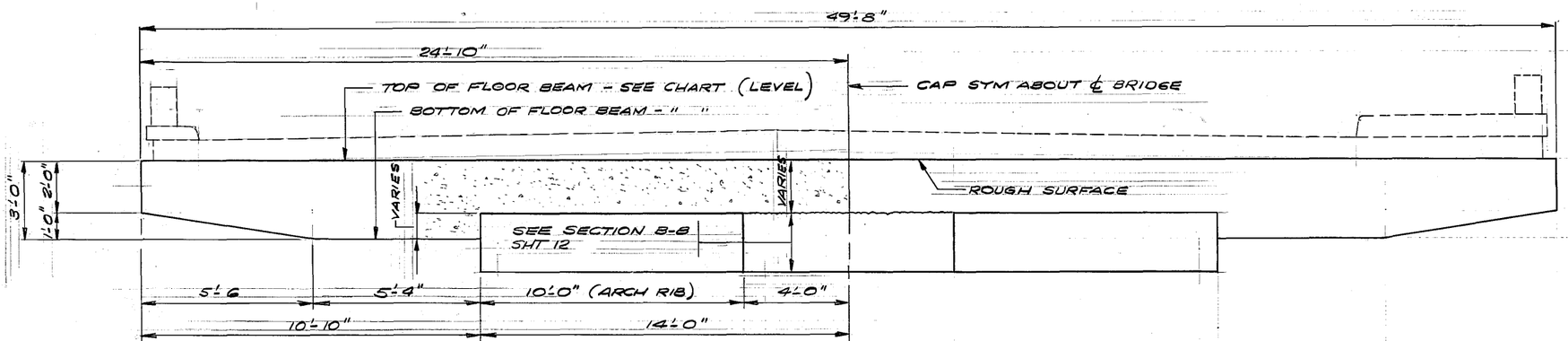


NOTE: F8 = FLOOR BEAM

ELEVATION

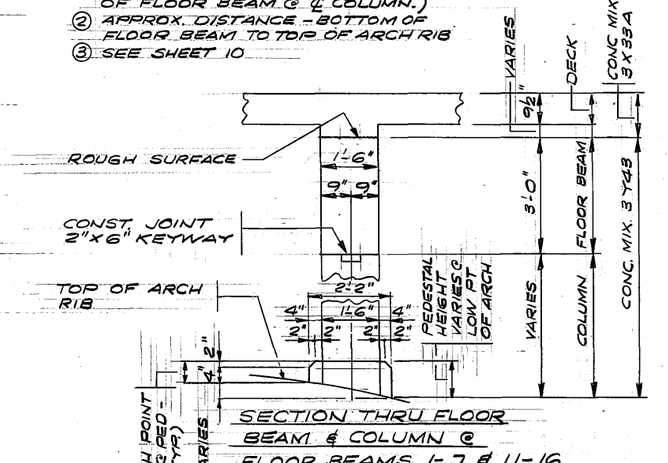
	FLOOR BEAM	FINISH GRADE ELEV	TOP OF FLR BEAM ELEV	BOTTOM OF FLR BM. ELEV	
29.33'	F8 1	987.14	986.01	983.01	+ 27'-11½" (1)
19.67'	F8 2	986.79	985.66	982.66	+ 20'-6⅝" (1)
13.5'	F8 3	986.45	985.32	982.32	+ 14'-4¼" (1)
8.5'	F8 4	986.10	984.97	981.97	+ 9'-3" (1)
5.0'	F8 5	985.76	984.63	981.63	+ 5'-4" (1)
2.0'	F8 6	985.41	984.28	981.28	+ 2'-3¼" (1)
	F8 7	985.07	983.94	980.94	+ 0'-2" (1)
	F8 8	984.72	983.59	980.59	- 1'-0" (2)
	F8 9	984.38	983.25	980.25	- 1'-4½" (2)
	F8 10	984.03	982.90	979.90	- 0'-10½" (2)
	F8 11	983.69	982.56	979.56	+ 0'-6⅝" (1)
2.25'	F8 12	983.34	982.21	979.21	+ 2'-10⅞" (1)
5.5'	F8 18	983.00	981.87	978.87	+ 6'-1¾" (1)
9.75'	F8 14	982.65	981.52	978.52	+ 10'-6⅝" (1)
15.5'	F8 15	982.31	981.18	978.18	+ 16'-0⅜" (1)
22.0'	F8 16	981.96	980.83	977.83	+ 22'-9⅜" (1)
	F8 17	981.62	980.50	977.50	(3)
	F8 18	987.48	986.30	983.30	(3)

(1) APPROX. COLUMN HEIGHT (TOP OF ARCH R18 TO BOTTOM OF FLOOR BEAM @ ℄ COLUMN.)
(2) APPROX. DISTANCE - BOTTOM OF FLOOR BEAM TO TOP OF ARCH R18
(3) SEE SHEET 10

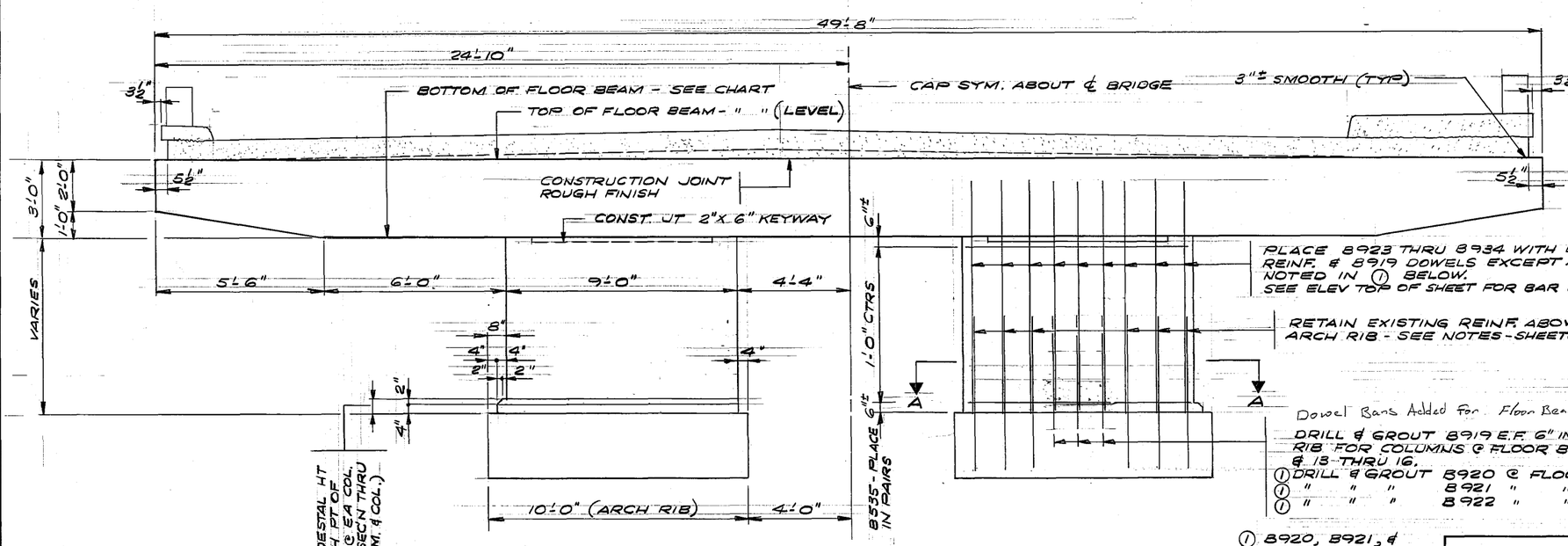


ELEVATION - FLOOR BEAMS 7, 8, 9, & 10

SCALE: ⅜"=1'-0"



SECTION THRU FLOOR BEAM & COLUMN @ FLOOR BEAMS 1-7 & 11-16



ELEVATION - FLOOR BEAMS 1 THRU 6 & 11 THRU 16

SCALE: ⅜"=1'-0"

PLACE 8923 THRU 8934 WITH EXISTING REINF. & 8919 DOWELS EXCEPT AS NOTED IN (1) BELOW. SEE ELEV TOP OF SHEET FOR BAR LOCATION

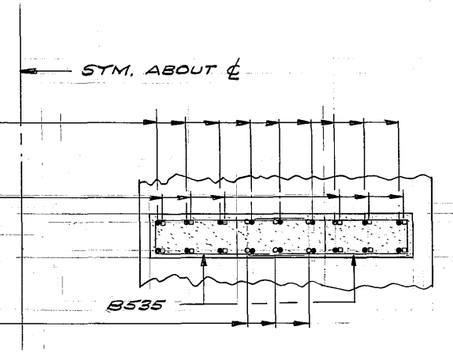
RETAIN EXISTING REINF. ABOVE ARCH R18 - SEE NOTES - SHEETS 3 & 4

Dowel Bars Added for Floor Beam 7 - 10

DRILL & GROUT 8919 E.F. 6" INTO ARCH RIB FOR COLUMNS @ FLOOR BEAMS 1 THRU 5 & 13 THRU 16.

(1) DRILL & GROUT 8920 @ FLOOR BEAM 6
(1) " " " 8921 " " " 11
(1) " " " 8922 " " " 12

(1) 8920, 8921, & 8922 EXTEND INTO FLOOR BEAMS.



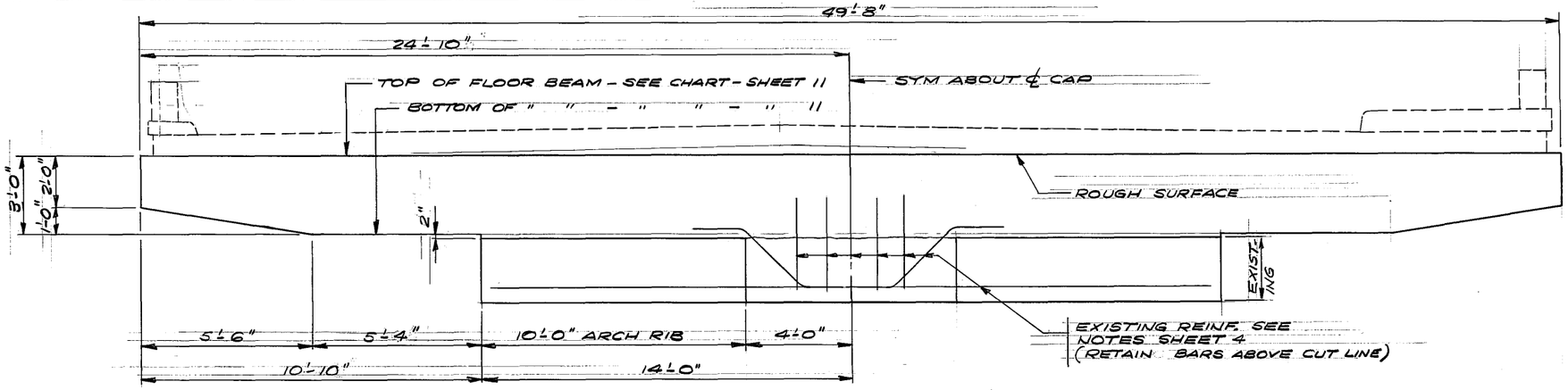
SECTION A-A

FLOOR BEAM DETAILS	W.N.J.	R.R.T.	10-6-86
S.P. 55-618-02	SHEET 11 OF 28 SHEETS		BRIDGE NO. 448

SUMMARY OF QUANTITIES FOR FLOOR BEAMS & COLUMNS		
CONCRETE MIX. NO. 3Y43	291 278	CU.YDS.
(2)(1) REINFORCEMENT BARS	81285	POUND
(1) REINFORCEMENT BARS, EPOXY COATED	8415	POUND

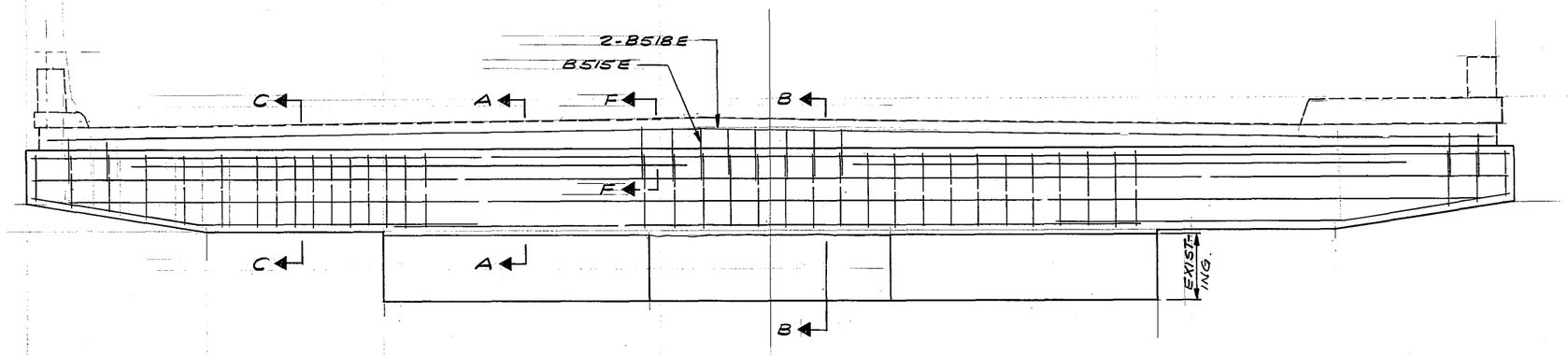
(1) CONTRACTOR SHALL NOT ORDER MATERIAL UNTIL COLUMN HEIGHTS ON ARCHES HAVE BEEN DETERMINED AND VERIFIED IN FIELD

(2) INCLUDES DRILLING AND GROUTING AS NOTED.



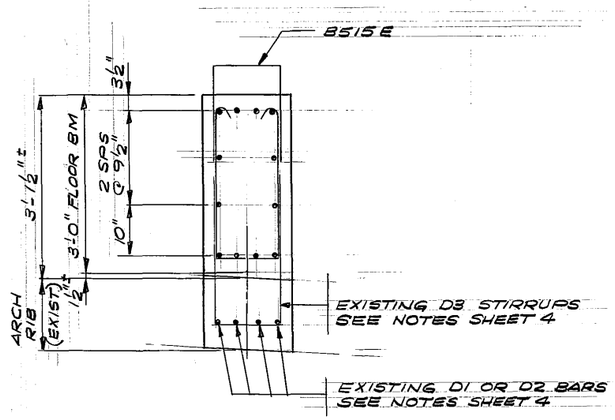
ELEVATION - FLOOR BEAM 7

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

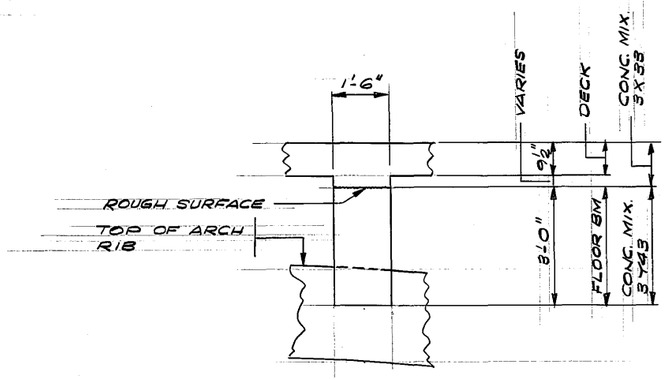


FLOOR BEAM 7

REINFORCEMENT FOR FLOOR BEAM 7 SAME AS THAT FOR FLOOR BEAM 1 THRU 6 & 11 THRU 16 SEE SHEET 13 FOR REINF. SPACING, BARS, & SECTIONS A-A & C-C.

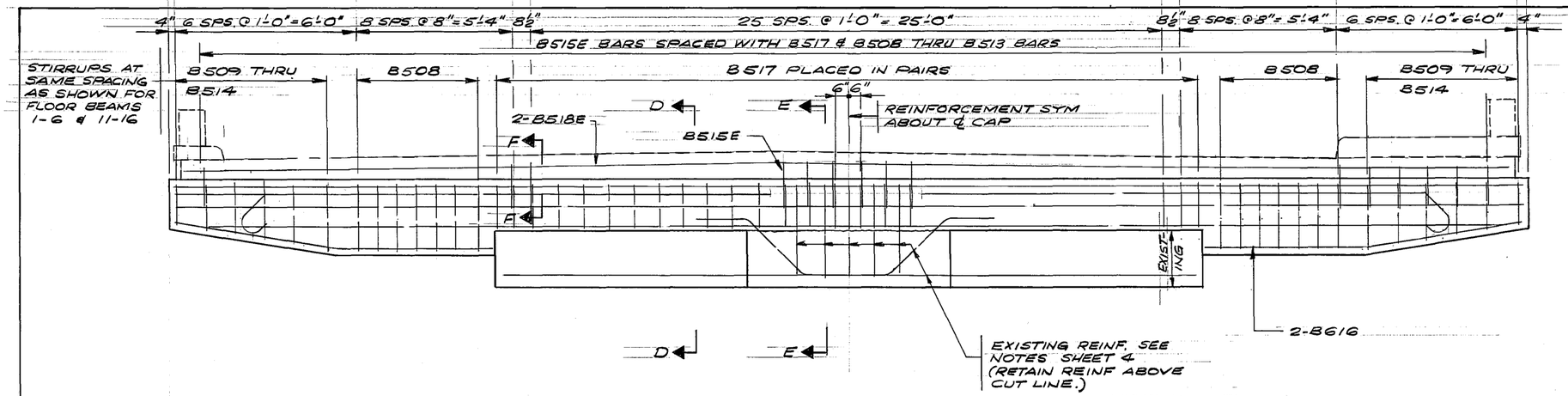


SECTION B-B



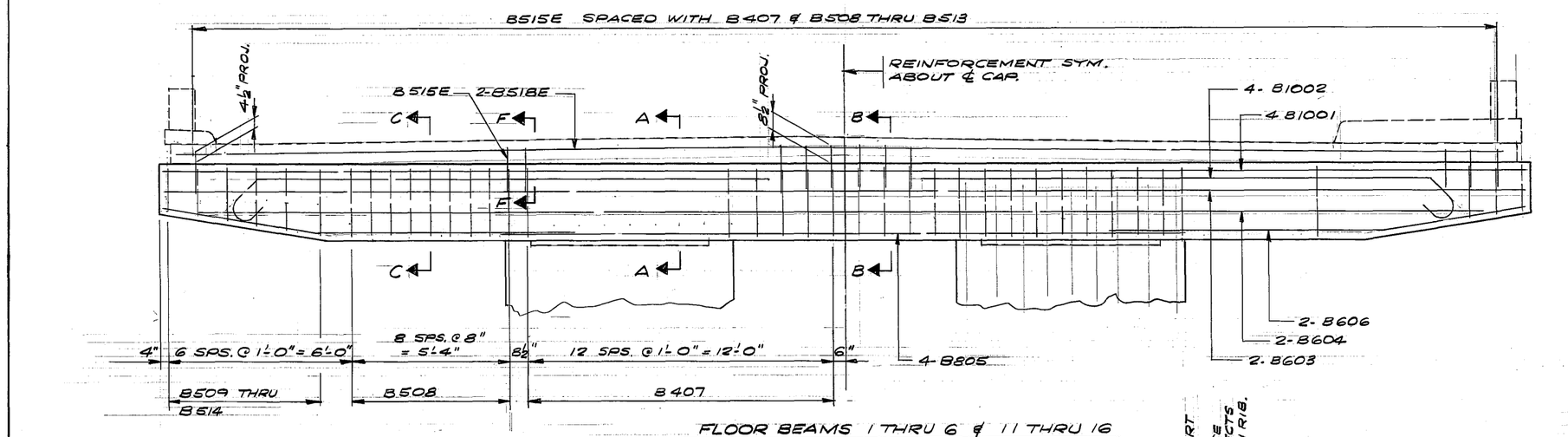
SECTION THRU FLOOR BEAM (FB 8, 9, & 10)

FLOOR BEAM DETAILS S.P. 55-618-02	WNJ	R.R.T.	10-6-86	BRIDGE NO. 448
	SHEET 12 OF 28 SHEETS			

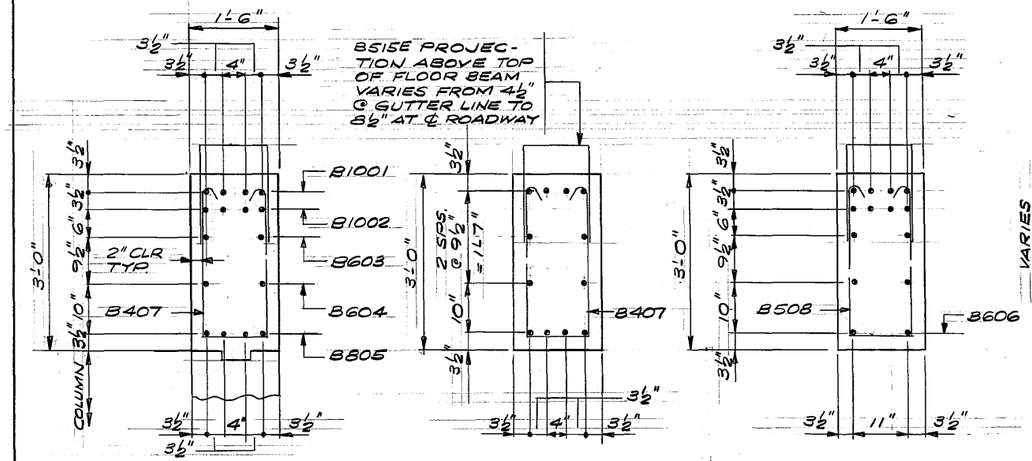


FLOOR BEAMS 8, 9, & 10

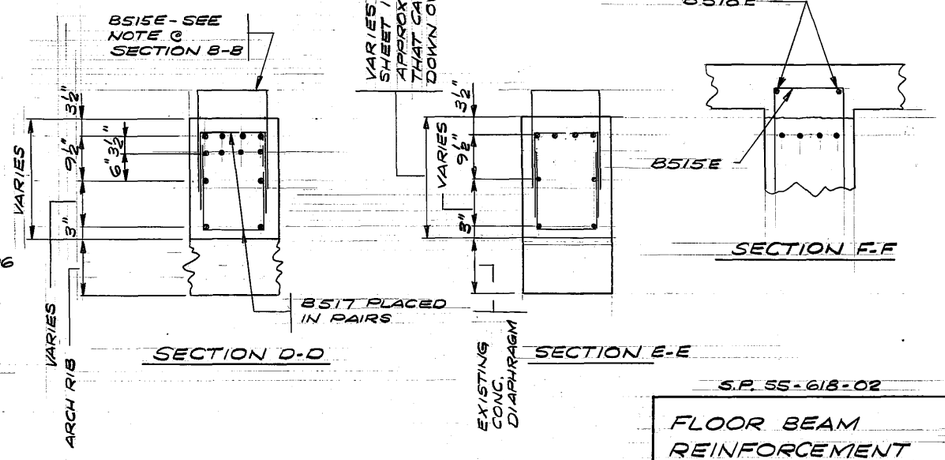
REINFORCEMENT SAME AS FOR FLOOR BEAMS 1-6 & 11-16 EXCEPT AS SHOWN OR NOTED



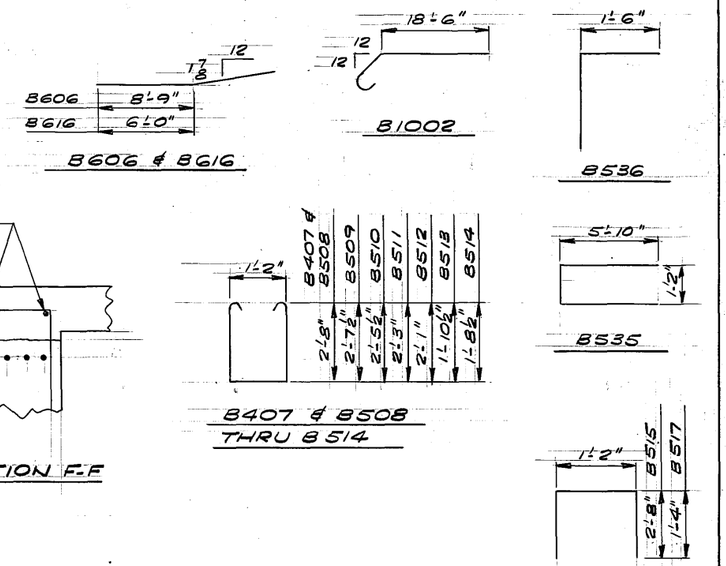
FLOOR BEAMS 1 THRU 6 & 11 THRU 16



SECTION A-A SECTION B-B SECTION C-C



SECTION D-D SECTION E-E SECTION F-F



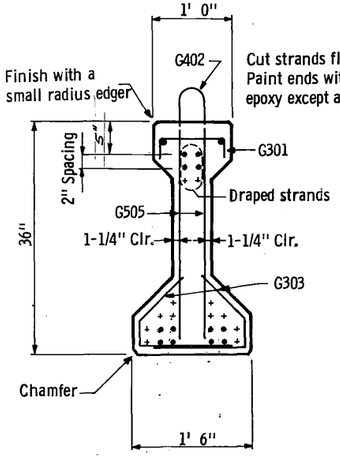
B407 & B508 THRU B514

BILL OF REINFORCEMENT FOR FLOOR BEAMS 1 THRU 18				
BAR	NO	LENGTH	SHAPE	LOCATION
B1001	72	49'-2"	STR	FLOOR BEAMS 1 THRU 18 - LONG.
B1002	144	21'-4"	⌐	" " " " " - "
B603	36	49'-2"	STR.	" " " " " - "
B604	36	47'-10"	"	" " " " " - "
B805	60	28'-8"	"	" " " 1 THRU 7 & 11 " 18 - "
B606	60	13'-10"	⌒	" " " " " - "
B407	390	7'-3"	⊓	" " 1 THRU 18 - STIRRUPS
B508	312	7'-5"	"	" " " " " - "
B509	36	7'-4"	"	" " " " " - "
B510	36	7'-0"	"	" " " " " - "
B511	36	6'-7"	"	" " " " " - "
B512	36	6'-3"	"	" " " " " - "
B513	36	5'-10"	"	" " " " " - "
B514	36	5'-6"	"	" " " " " - "
② B515E	972	6'-6"	⊓	" " 1 " 18 - TIES
B616	12	11'-4"	⌒	" " 8, 9, & 10 - LONG
B517	180	3'-10"	⊓	" " " " " - STIRRUPS
② B518E	36	48'-6"	STR	" " & SLAB - TIE LONG
B919	108	4'-4"	"	FLOOR BM COLUMNS 1 THRU 5 & 12 " 16 - VERT.
B920	12	5'-7"	"	COLUMN - FLOOR BEAM 6 - "
B921	12	3'-10"	"	" - " " 11 - "
B922	12	6'-3"	"	" - " " 12 - "
① B923	72	17'-6"	"	" - " " 1 - VERT
① B924	72	13'-10"	"	" - " " 2 - "
① B925	72	10'-9"	"	" - " " 3 - "
① B926	72	8'-2"	"	" - " " 4 - "
① B927	72	6'-1"	"	" - " " 5 - "
① B928	24	5'-0"	"	" - " " 6 - "
① B929	24	3'-5"	"	" - " " 11 - "
① B930	24	5'-8"	"	" - " " 12 - "
① B931	72	6'-7"	"	" - " " 13 - "
① B932	72	8'-10"	"	" - " " 14 - "
① B933	72	11'-7"	"	" - " " 15 - "
① B934	72	15'-1"	"	" - " " 16 - "
B535	568	12'-10"	⊏	FLOOR BM COLUMNS 1 THRU 16 - TIES

① 2 LINES, MIN LAP 3'-5" SEE NOTE ① ON SHEET 12
② BARS MARKED WITH SUFFIX "E" SHALL BE EPOXY COATED

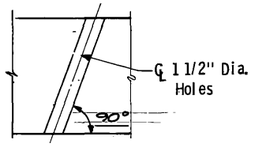
S.P. 55-618-02

FLOOR BEAM REINFORCEMENT	WNJ	R.R.T	10-6-86	BRIDGE NO. 448
	SHEET 13 OF 28 SHEETS			



Details not shown are the same as the SECTION AT ℄ BEAM

END VIEW



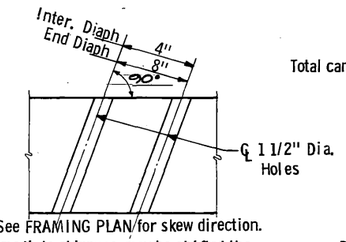
See FRAMING PLAN for skew direction. Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

SECTION Y-Y

FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE BENT ABUTMENTS

SECTION X-X

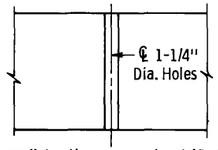
USE AT FASCIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



See FRAMING PLAN for skew direction. Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

SECTION X-X

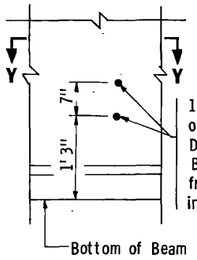
USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM



Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

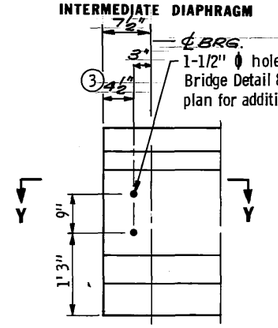
SECTION Y-Y

USE AT INTERIOR BEAM WITH STEEL DIAPHRAGM



1 1/4" ϕ hole for 7/8" bolts or Anchorage for 7/8" Diameter Bolts. See Bridge Detail B403 and framing plan for additional information.

FOR USE WITH STEEL INTERMEDIATE DIAPHRAGM



CONCRETE END DIAPHRAGMS PILE BENT ABUTMENT

#4 Bar or 1/2" ϕ rod. Weld to insert and to two stirrups

3/4" ϕ Threaded rod

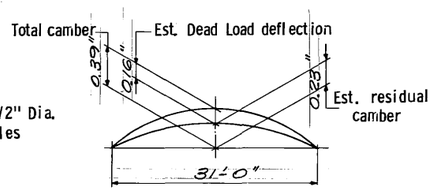
Hex nut, 2 1/2" long

stirrups

3/4" ϕ x 2' 0" rod. 2" Thread.

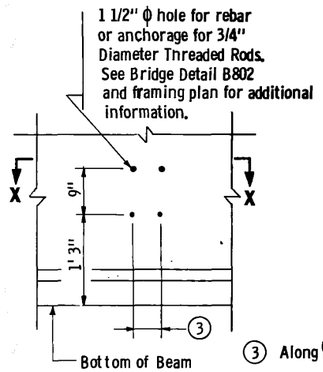
Nuts and rods per Spec. 3306. No paint

SECTION Z-Z

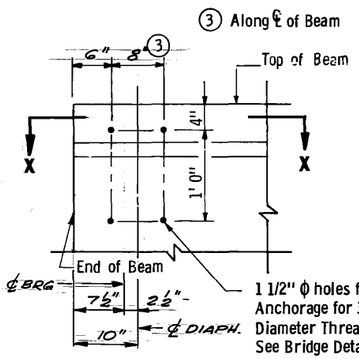


Deflections shown are for weight of slab, wearing course, railing, sidewalk, ~~median~~ and diaphragms only. Engineer will take elevations at top of beams after erection and will allow for deflections shown to enable contractor to build forms to correct grade and specified slab thickness.

CAMBER DIAGRAM

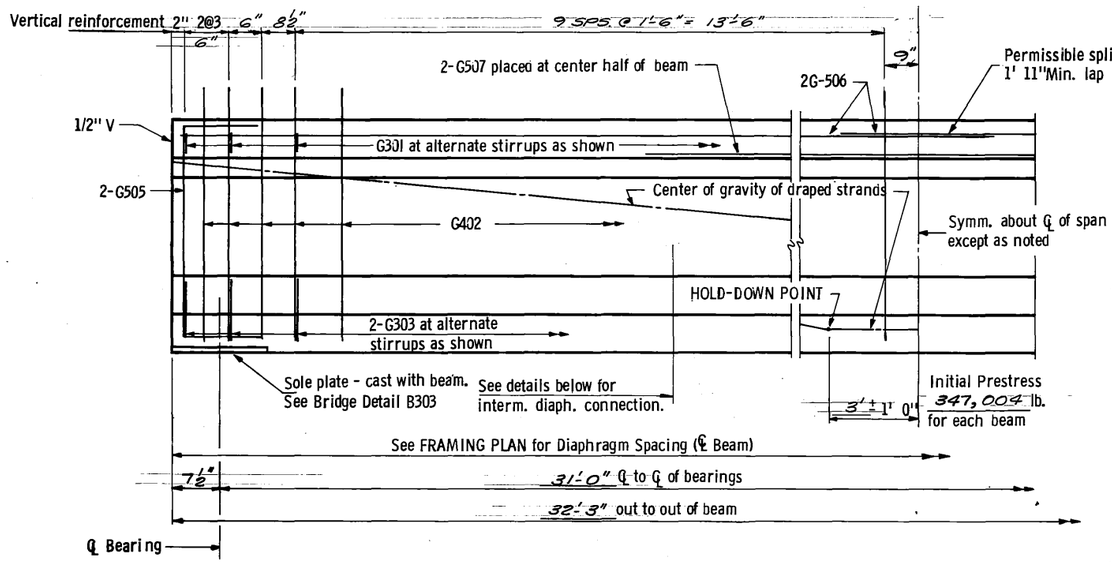


FOR USE WITH CONCRETE INTERMEDIATE DIAPHRAGM

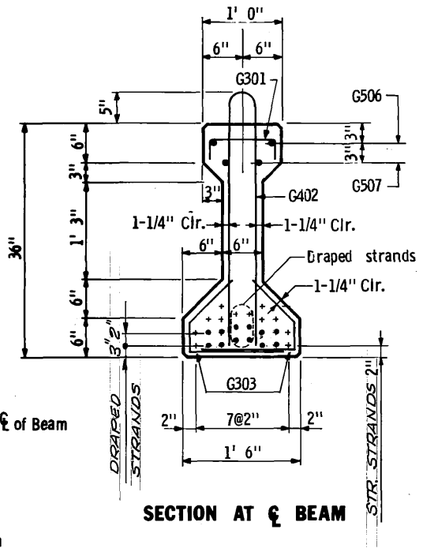


1 1/2" ϕ holes for rebars or Anchorage for 3/4" Diameter Threaded Rods. See Bridge Detail B803 for additional information.

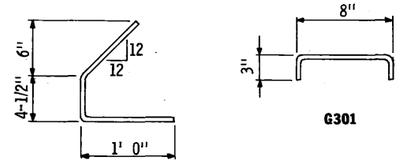
CONCRETE END DIAPHRAGMS PARAPET WALL @ PIER 1

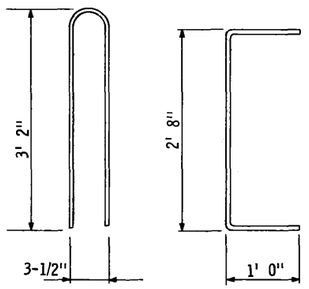


HALF ELEVATION



SECTION AT ℄ BEAM





First digit of bar mark indicates bar size. All bar dimensions are out-to-out.

Bar	Wt.
G 301	.44 lb.
G 402	3.56 lb.
G 303	.78 lb.
G 505	4.87 lb.
G 506	
G 507	

Girder Section Data
Wt./Ft. = 385 lbs.
Cross sec. area at ℄ of span = 369 in.^{2}
C. G. (from bottom) = 15.83 in.
I = 50,980 in.^{4}
S_B = 3,221 in.^{3}
1/2" ϕ 270k strand wt./ft. = .525 lb.
1/2" ϕ 270k strand area = .1531 sq. in.

Y DISTANCES (IN INCHES)			
	NO.	℄ SPAN	END
Straight strands	8	3.00	
Draped strands	4	4.00	30.00 □
Total strands	12	3.33	

Y = distance of Center of Gravity of strands from bottom of beam. All strands spaced 2" c-c, horizontally and vertically except as noted.

All strands 1/2" ϕ 270 kip, ultimate strength.

□ A tolerance of ± 2" will be permitted in this dimension.

GENERAL NOTES:

Tops of beams shall be rough floated and broomed transversely for bond.

Provide handling hooks or devices as required by Contractor. Hooks or devices provided will be subject to approval of Engineer and shall be installed within 4' 0" of the end of beam.

A modified strand pattern or a bundled strand pattern which does not change center of gravity of strands may be submitted to the Engineer for approval.

A post-tensioned beam may be used as an alternate for the pretensioned design shown. ~~Designer~~ will provide plans for the post-tensioned alternate on request.

Each beam shall be marked, showing bridge number, casting date, and individual identification letters and numbers. Markings shall be made on the face of the beam, near the end, so located that they will be exposed after the end diaphragms have been cast. Fascia beams shall be marked on an inside face. All markings shall be stencilled and be clearly legible. For location of beams, see framing plan.

All material and work shown or noted on this sheet shall be included in unit price bid for prestressed concrete beams. See Spec. 2405.

See framing plan for beam ends marked "X".

Approximate weight of beam 6.2 tons.

As an alternate to the diaphragm anchorages shown, the contractor may submit details of a cast-in-place anchorage to the engineer for approval. Anchorage must provide an ultimate pull out strength of 15 kips per anchorage.

MINIMUM CONCRETE STRENGTH - P.S.I.		
	① f'ci	② f'c
Required min. Concrete Strength	4000	5000

① Minimum concrete strength at time of prestress transfer.

② Minimum concrete strength when curing can be discontinued and beam transported and installed.

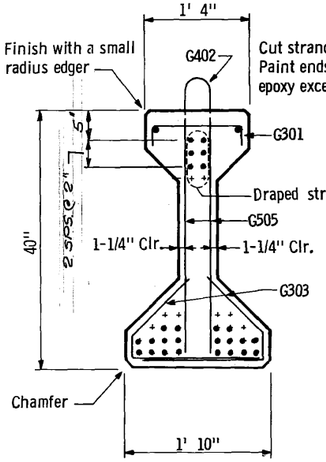
Fig. 5-397.502

Revised: January 22, 1980 Approved: May 18, 1977

BEAMS B1, B2, & B3

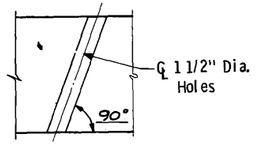
TITLE: S.P. 55-618-02 36" PRESTRESSED CONCRETE BEAM (PRETENSIONED) TYPE 36-33	DES:	DR:	APPROVED: 10-6-86
	CHK:	CHK:	Sheet No. 14 of 28 Sheets
			Bridge No. 448

Seconlink - Andrews Prestress



Details not shown are the same as the SECTION AT ℄ BEAM

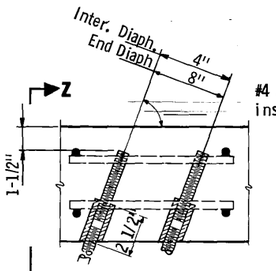
END VIEW



See FRAMING PLAN for skew direction. Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

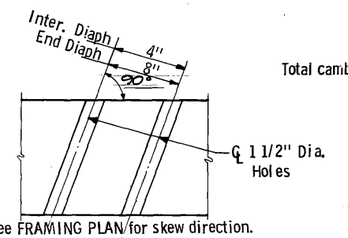
SECTION Y-Y

FOR USE WITH CONCRETE END DIAPHRAGMS WITH PILE BENT ABUTMENTS



SECTION X-X

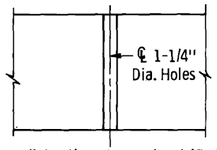
USE AT FASCIA BEAM AND INTERIOR BEAM WITH STAGGERED DIAPHRAGMS



See FRAMING PLAN for skew direction. Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

SECTION X-X

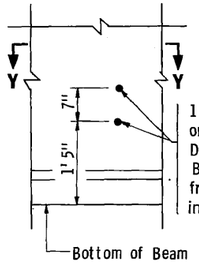
USE AT INTERIOR BEAM WITH CONTINUOUS CONCRETE DIAPHRAGM



Intermediate stirrups may be shifted the minimum distance required to clear holes or inserts for intermediate diaphragms.

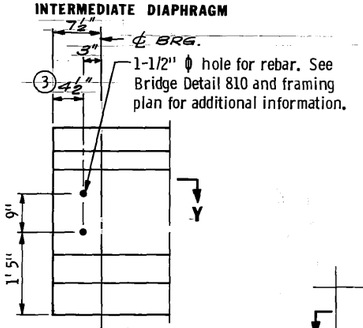
SECTION Y-Y

USE AT INTERIOR BEAM WITH STEEL DIAPHRAGM

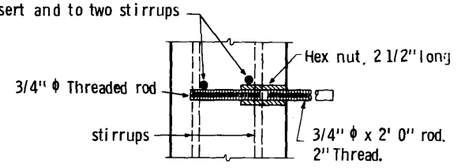


1 1/4" ϕ hole for 7/8" bolts or Anchorage for 7/8" Diameter Bolts. See Bridge Detail B403 and framing plan for additional information.

FOR USE WITH STEEL INTERMEDIATE DIAPHRAGM

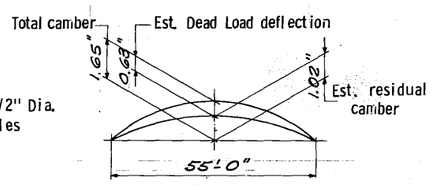


CONCRETE END DIAPHRAGMS PILE BENT ABUTMENT



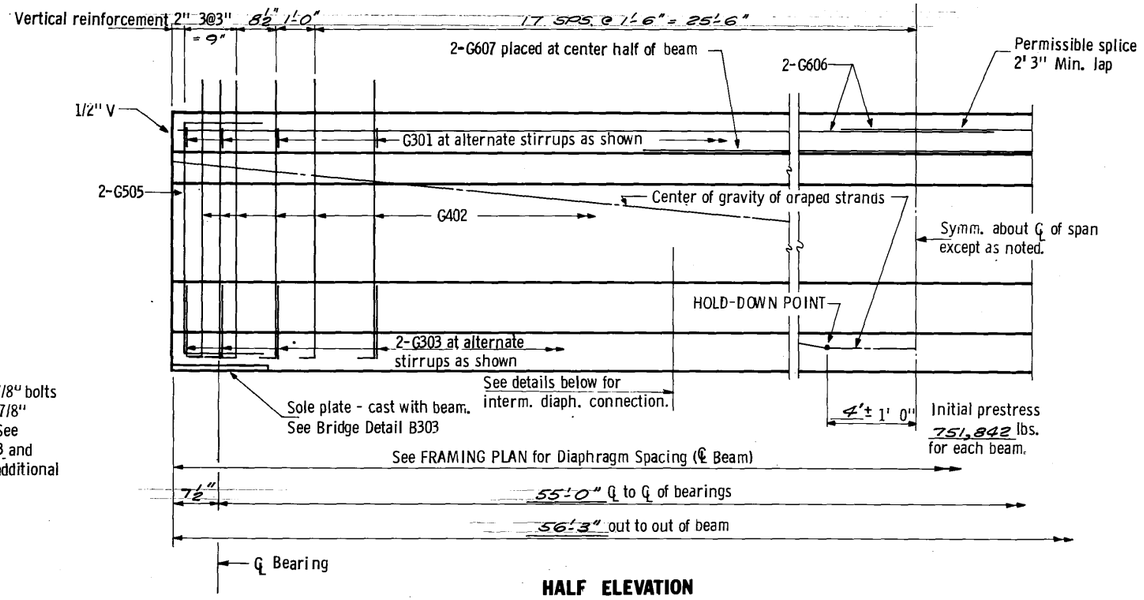
Nuts and rods per Spec. 3306. No paint

SECTION Z-Z



Deflections shown are for weight of slab, wearing course, railing, sidewalk, and diaphragms only. Engineer will take elevations at top of beams after erection and will allow for deflections shown to enable contractor to build forms to correct grade and specified slab thickness.

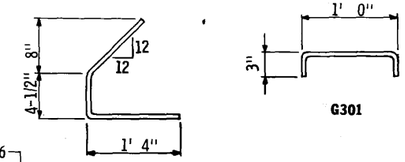
CAMBER DIAGRAM



HALF ELEVATION

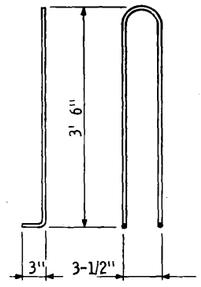
Bar	Wt.
G 301	.56 lb.
G 402	5.12 lb.
G 303	1.00 lb.
G 505	5.13 lb.
G 606	
G 607	

Girder Section Data
Wt./Ft. = 505 lbs.
Cross sec. area at ℄ of span = 485 in.^{2}
C. G. (from bottom) = 17.88 in.
I = 87,690 in.^{4}
S_b = 4,904 in.^{3}
1/2" ϕ 270k strand wt./ft. = .525 lb.
1/2" ϕ 270k strand area = .1531 sq. in.

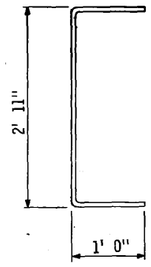


G303

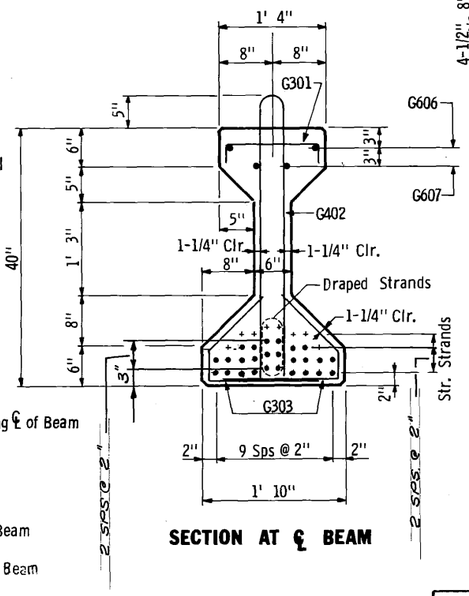
G301



G402



G505



SECTION AT ℄ BEAM

First digit of bar mark indicates bar size. All bar dimensions are out-to-out.

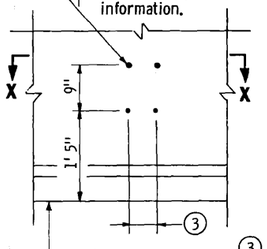
Y DISTANCES (IN INCHES)			
	NO.	℄ SPAN	END
Straight strands	20	3.60	
Draped strands	6	5.00	33.00 □
Total strands	26	3.92	

Y = distance of Center of Gravity of strands from bottom of beam. All strands spaced 2" c-c, horizontally and vertically except as noted.

All strands 1/2 ϕ 270 kip, ultimate strength.

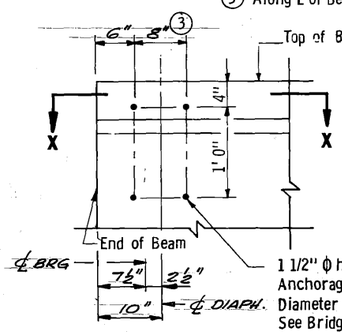
□ A tolerance of ± 2" will be permitted in this dimension.

1 1/2" ϕ hole for rebar or anchorage for 3/4" Diameter Threaded Rods. See Bridge Detail B802 and framing plan for additional information.



③ Along ℄ of Beam

FOR USE WITH CONCRETE INTERMEDIATE DIAPHRAGM



1 1/2" ϕ holes for rebars or Anchorage for 3/4" Diameter Threaded Rods. See Bridge Detail B803 for additional information.

CONCRETE END DIAPHRAGMS PARAPET WALL @ PIER 2

GENERAL NOTES:

Tops of beams shall be rough floated and broomed transversely for bond.

Provide handling hooks or devices as required by Contractor. Hooks or devices provided will be subject to approval of Engineer and shall be installed within 4' 0" of the end of beam.

A modified strand pattern or a bundled strand pattern which does not change center of gravity of strands may be submitted to the Engineer for approval.

A post-tensioned beam may be used as an alternate for the pretensioned design shown. DESIGNER will provide plans for the post-tensioned alternate on request.

Each beam shall be marked, showing bridge number, casting date, and individual identification letters and numbers. Markings shall be made on the face of the beam, near the end, so located that they will be exposed after the end diaphragms have been cast. Fascia beams shall be marked on an inside face. All markings shall be stencilled and be clearly legible. For location of beams, see framing plan.

All material and work shown or noted on this sheet shall be included in unit price bid for prestressed concrete beams. See Spec. 2405.

See framing plan for beam ends marked "X".

Approximate weight of beam 14.2 tons.

As an alternate to the diaphragm anchorages shown, the contractor may submit details of a cast - in - place anchorage to the engineer for approval. Anchorage must provide an ultimate pull out strength of 15 kips per anchorage.

MINIMUM CONCRETE STRENGTH - P.S.I.		
	① f'ci	② f'c
Required min. Concrete Strength	4850	5000

① Minimum concrete strength at time of prestress transfer.

② Minimum concrete strength when curing can be discontinued and beam transported and installed.

Fig. 5-397.503

Revised: December 29, 1977 Approved: May 18, 1977

BEAMS B4, B5, B6

TITLE: S.P. 55-618-02 40" PRESTRESSED CONCRETE BEAM (PRETENSIONED) TYPE 40 - 57	DES:	DR:	APPROVED: 10-6-86	Bridge No. 448
	CHK:	CHK:	Sheet No. 15 of 28 Sheets	

Supplied by Andrews Prestress

S416E, S417E, & S418E SPS. EXCEPT AS NOTED - SEE SHEET 17 NO REINF. @ ℄ EXP. DEVICE

297'-2" OUT TO OUT OF SIDEWALK & TYPE M RAILING (EAST SIDE)

4" 40 SPS. @ 1'-4½" = 57'-6" 4" 4" 136 SPS. @ 1'-6" = 204'-0" 4" 4" 23 SPS. @ 1'-5½" = 23'-6½" 3½"

8" PAVING BRACKET (TYP) 1'-8" ℄ EXPANSION JOINT DEVICE - TYPE 3 ℄ EXPANSION JOINT DEVICE - TYPE 3 1'-8" 8"

USE 2-S416E & 1-S418E (1ST ROW OF SIDEWALK TRANSV. BARS ONLY @ PAVING BRACKET - BOTH ABUTS.

295'-10" OUT TO OUT OF DECK

10" 55'-0" 6'-4" 17 SPS. @ 11'-6" = 195'-6" 6'-4" 31'-0" 10"

℄ BRG NORTH ABUT ℄ BRG, PIER 2 CAP ℄ BRG FB 17 ℄ BRG FB 18 ℄ BRG PIER 1 CAP ℄ BRG. SOUTH ABUT.

TELEPHONE CONDUIT EXP. JOINTS AT BRIDGE EXP. JT. (TYPICAL)

4" TELEPHONE CONDUIT. TELEPHONE COMPANY TO FURNISH MATERIALS AND THE CONTRACTOR SHALL INSTALL CONDUIT ON BRIDGE - P.V.C. TO BE USED ON BRIDGE. EXTEND OFF BRIDGE APPROX. 10 FT. WITH R.S.C.

24'-1" ℄ LAMP ANCHORAGE STANDARD SEE SHEET 23 (TYP)

ANGLE TO BE DETERMINED DURING CONSTRUCTION.

W. PT. "H" W. PT. "G" W. PT. "B" W. PT. "A"

8" PAVING BRACKET 8" PAVING BRACKET

W. PT. "K" W. PT. "J" W. PT "D" W. PT. "C"

S712 (BOT.) S747 (BOT.) S406 (STAGGERED) (TOP) S747 (BOT.) S712 (BOT.)

2'-8" MIN. LAP (TYP) S407 (STAGGERED) (TOP)

S708 (TOP)

℄ C.S.A.H. 18 ℄ C.S.A.H. 18

EXPANSION DEVICE TYPE 3 EXPANSION DEVICE TYPE 3

2'-8" MIN. LAP (TYP)

W. PT "M" W. PT. "L" W. PT "E" W. PT "E"

S745E (TOP) S746E (TOP) S406 (STAGGERED) (TOP) S746E (TOP) S745E (TOP)

2'-7½" 20'-0" 20'-0" 1'-9" 1'-11"

4" 40 SPS. @ 1'-4½" = 57'-6" 136 SPS. @ 1'-6" = 204'-0" 23 SPS. @ 1'-5½" = 23'-6½" 3½"

4" 4" 4" 4" S448

BEND LEG OF S448 DOWN @ PAVING BRKT. ONLY - BOTH ABUTS.

PLAN OF DECK

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

2"± OPEN (EXPANSION JOINT DEVICE) @ 45° F. 2"± OPEN (EXPANSION JOINT DEVICE) @ 45° F.

57'-5" 204'-8" 33'-5"

S642E TOP & S601 BOTTOM 5" 97 SPS. @ 7" = 56'-7" 5" 3" 6" 59 SPS. @ 6½" = 31'-11½" 5" 3½" S642E TOP & S601 BOTTOM

1'-10" 134 SPS. @ 1'-6" = 201'-0" 1'-10" S406E & S407E (TOP)

1'-3" 1'-4" 133 SPS. @ 1'-6" = 199'-6" 1'-4" 1'-3" S708E (TOP)

8" 9" MIN. S642E (TOP REINF) S745E (TOP REINF) S746E (TOP REINF) S745E (TOP) S642E (TOP) 104' MIN. 8"

S444E (TOP REINF.) S642E (TOP REINF) S712 (BOTTOM) S747 (BOTTOM) 1" MIN. CLR 1¾" MIN. CLR. 3" CLR. S443E

S505 (BOTTOM REINF) S712 (BOT.) S503

S509 BOTTOM S509 BOT. REINF. S509 BOT. REINF. S509 (BOT. REINF.) S601 (BOT. REINF.)

S601 BOT.

SPAN 3 SPAN 2 SPAN 1

1½" 1½" 1½" 1½"

10" 3" 6" 4 SPS. @ 9" = 3'-0" 9" 10½" 13 SPS. @ 9" = 9'-9" 10½" 10½" 13 SPS. @ 9" = 9'-9" 10½" 10" 4 SPS. @ 9" = 3'-0" 6" 3" 10"

1'-6" 55'-0" 6'-4" 11'-6" 11'-6" 6'-4" 31'-0" 1'-6"

℄ BRG. - NORTH ABUT ℄ BRG - PIER 2 CAP ℄ BRG FB 17 ℄ FB 16 ℄ FB 1 ℄ FB 18 ℄ BRG PIER 1 CAP

℄ BRG, SOUTH ABUT.

SEE TYPICAL SECTION BETWEEN FLOOR BEAMS FOR SPACING OF BOTTOM REINF. BARS.

PART LONGITUDINAL SECTION THRU DECK

(SHOWING REINFORCEMENT)

S406E & S407E STAGGER AS SHOWN IN DECK PLAN

S708E 3" CLR. S746E (TOP) REINF. SEE DECK PLAN.

B515 1" CLR 9½" SLAB TYP BETWEEN FLOOR BEAMS 1 THRU 17

B518 S747 (BOTTOM) REINF. BARS - SEE DECK PLAN

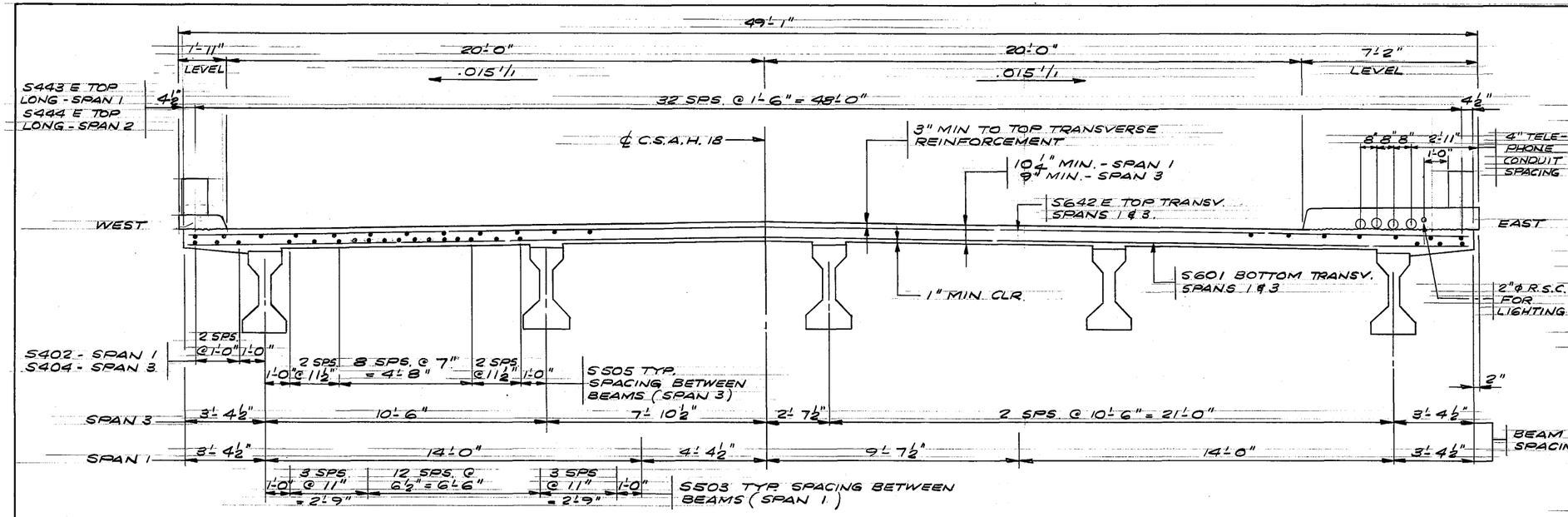
1½" 13 SPS. @ 9" = 9'-9" 1½" S509 BOTTOM REINF.

TYPICAL SECTION BETWEEN BEAMS 1 THRU 16

(SHOWING REINFORCEMENT)

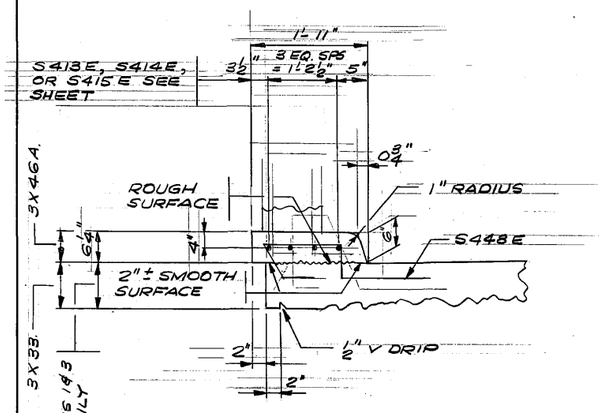
SUPERSTRUCTURE DETAILS S.P. 55-618-02	W.N.J.	R.R.T.	10-6-86	BRIDGE NO. 448
	SHEET 16 OF 28 SHEETS			

AS BUILT PLANS



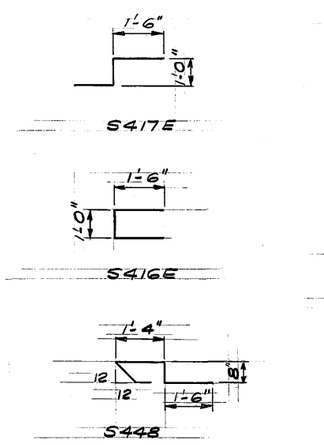
SECTION THRU DECK (SPANS 1 & 3)

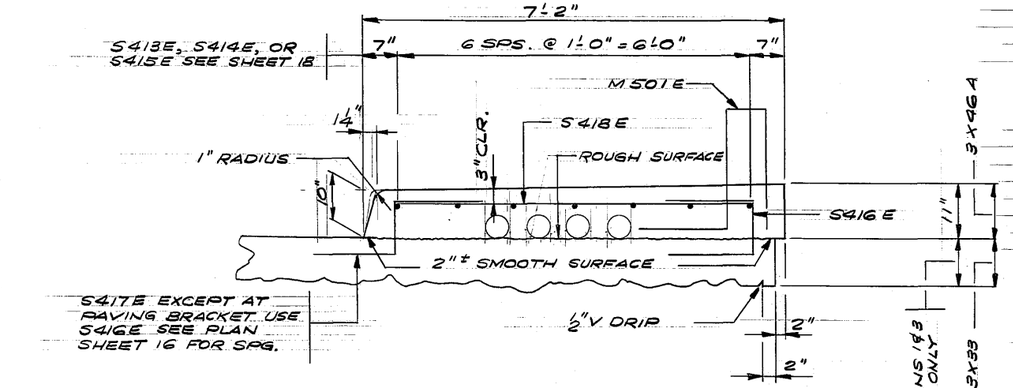
SCALE: ⅜"=1'-0"



SECTION THRU DECK & RAILING

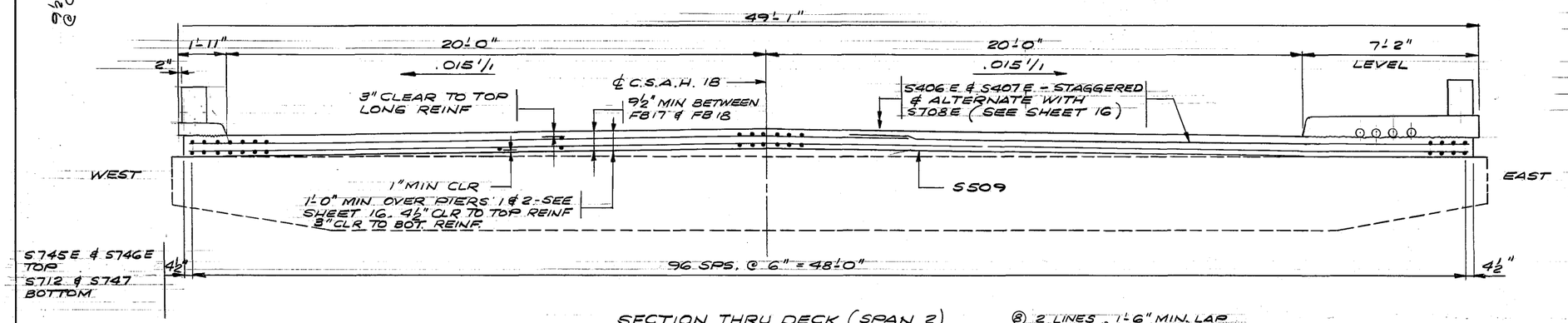
SCALE: ¾"=1'-0"





SECTION THRU SIDEWALK

SCALE: ¾"=1'-0"



SECTION THRU DECK (SPAN 2)

SCALE: ⅜"=1'-0"

⑧ 2 LINES, 1'-6" MIN. LAP
⑨ 3 " , 1'-6" " "
⑩ 6 " , 1'-6" " "
⑪ 2 " , 1'-11" " "
⑫ 3 " , 2'-8" " "

BILL OF REINFORCEMENT FOR SUPERSTRUCTURE

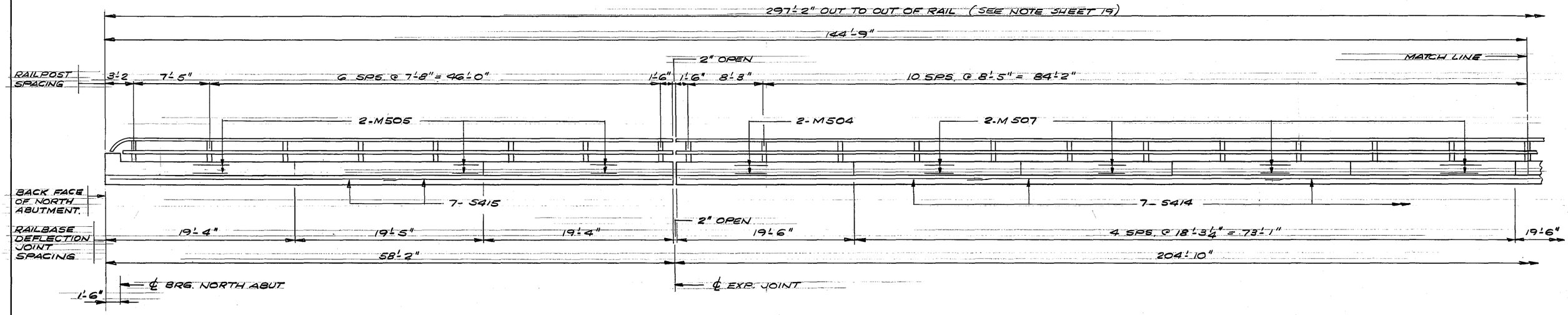
	BAR	NO.	LENGTH	SHAPE	LOCATION
	S601	164	48'-5"	STR.	DECK - BOT. TRANSV - SPANS 1 & 3
	S402	6	33'-0"	"	" - BOT. LONG - SPAN 1
	S503	57	33'-0"	"	" - BOT. " - " "
⑨	S404	18	20'-4"	"	" - BOT. " - SPAN 3
⑪	S505	104	29'-11"	"	" - BOT " - " "
⑥	S406E	135	16'-9"	"	" - TOP TRANSV - " 2
⑥	S407E	135	33'-5"	"	" - " " " "
⑥	S708E	136	48'-4"	"	" - " " " "
	S509	246	48'-4"	"	" - BOT " " "
	S410	6	12'-8"	"	END DIAPH. @ PIER 1 - TOP LONG
	S911	6	13'-2"	"	" " " " 1 - BOT. "
	S712	194	51'-9"	"	DECK - BOT TRANSV. - SPAN 2
⑥	S413E	7 11	33'-9"	"	SIDEWALK - LONG - SPAN 1
⑥⑫	S414E	42 66	35'-5"	"	" - " - SPAN 2
⑥⑧	S415E	14 22	29'-8"	"	" - " - SPAN 3
⑥	S416E	206	4'-0"	⊏	" - TIES
⑥	S417E	198	4'-0"	⊐	" - "
⑥	S418E	202	6'-2"	STR	" - TRANSV.
⑧	S419	16	25'-8"	"	ABUT DIAPH. - LONG N. & S. ABUT
	S520	8	6'-0"	"	" " - TIES - " " "
	S521	10	5'-0"	"	" " - " - " " "
	S422	2	2'-0"	"	" " - LONG - SO. "
	S423	3	12'-0"	"	" " - " - SO ABUT.
	S424	4	8'-2"	"	" " - " - NO. "
	S425	6	13'-2"	"	" " - " - SO. "
	S426	8	9'-8"	"	" " - " - NO. "
	S427	3	12'-8"	"	" " - " - SO. "
	S428	4	8'-10"	"	" " - " - NO. "
⑥	S429E	55	5'-11"	⌐	" " - TIES " "
⑥	S430E	28	9'-8"	⌐	" " - " " "
⑥	S431E	6	9'-4"	⌐	" " - " " "
⑥	S432E	27	9'-2		" " - " SO. "
⑥	S433E	6	8'-10"		" " - " SO. "
	S434	2	2'-2	STR	" " - LONG. - " "
⑥	S1035E	3	2'-6"	⌒	END DIAPH. @ PIER 1 - LONG
⑥	S436E	30	6'-4"	⊏	" " " " 1 - TIES
	S737	10	5'-0"	STR.	" " " PIERS 1 & 2 - TIES
	S438	8	8'-10"	"	" " " PIER 2 - LONG.
	S739	8	9'-8"	"	" " " " 2 - "
⑥	S640E	4	17'-4"	⌒	" " " " 2 - "
⑥	S441E	28	6'-2"	⊏	" " " " 2 - TIES
⑥	S642E	164	48'-2"	STR.	DECK - TOP TRANSV - SPANS 1 & 3
⑥	S443E	33	33'-0"	"	" - " LONG - SPAN 1
⑥⑨	S444E	99	20'-4"	"	" - " " - SPAN 3
⑥	S745E	194	34'-6"	"	" - TOP " - SPAN 2
⑥⑫	S746E	291	48'-10"	"	" - " " - " 2
⑫	S747	291	37'-4"	"	" - BOT. " - " 2
	S448E	202	5'-0"	⌒	CURB - TIES

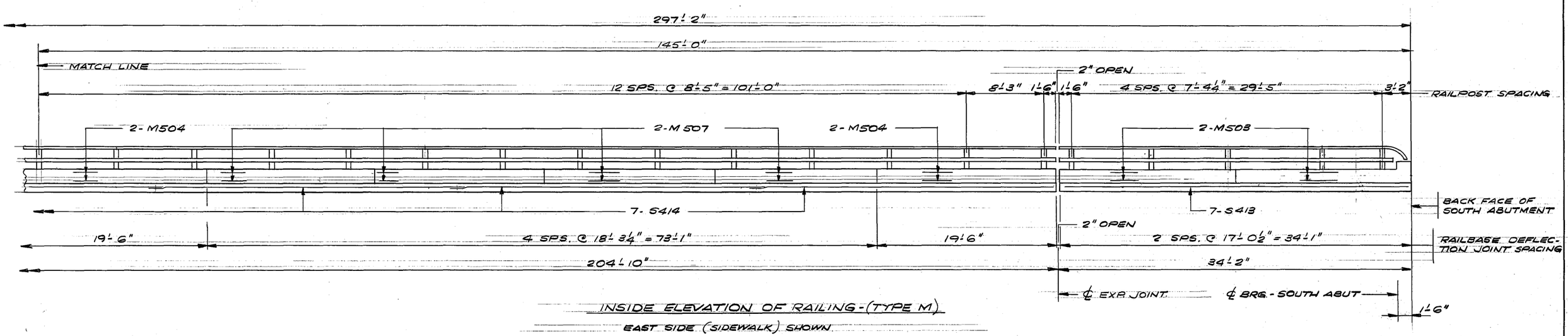
⑦	SUMMARY OF QUANTITIES FOR SUPERSTRUCTURE		
	DIAPHRAGMS FOR CONC. BEAMS TYPE 36	42	LIN. FT.
⑤	CONCRETE MIX. NO. 3X33	438	CU. YD.
	CONCRETE MIX. NO. 3X46A	113	CU. YD.
③	CONCRETE MIX. NO. 3Y43	28	CU. YD.
	REINFORCEMENT BARS	73850	POUND
	PRESTRESS. CONC. BEAMS TYPE 36 - 32	4	EACH
	PRESTRESS. CONC. BEAMS. TYPE 40 - 56	5	EACH
④	ELASTOMERIC BRG. PAD, TYPE 1	4	EACH
④	ELASTOMERIC BRG. ASSEMBLY, TYPE 1	4	EACH
	DIAPHRAGMS FOR CONC. BEAMS TYPE 40	42	LIN. FT.
④	EXPANSION JOINT DEVICE, TYPE 3.0	95	LIN. FT.
④	ELASTOMERIC BRG. PAD, TYPE 2	5	EACH
①	NAMEPLATE (SEE DETAIL B 103)		
②	PROTECTION ANGLE (SEE DETAIL B551)		
	STRUCTURAL STEEL, (3306)	530	POUND
⑭	PREFORMED JOINT FILLER (SEE SHEET 18)		
④	CONCRETE & PIPE RAILING	594	LIN. FT.
④①	3-PLY JOINT WATERPROOFING	120	LIN. FT.
④	CONDUIT SYSTEM (TELEPHONE)	1	LUMP SUM
④	CONDUIT SYSTEM (LIGHTING)	1	LUMP SUM
⑥	REINFORCEMENT BARS, EPOXY COATED	89325	POUND
④	ELASTOMERIC BRG. ASSEMBLY, TYPE 2	5	EACH

① INCLUDED IN PRICE BID FOR OTHER ITEMS.
② INCLUDED IN WEIGHT OF STRUCTURAL STEEL (3306).
③ END DIAPHRAGM CONCRETE
④ SEE SPECIAL PROVISIONS
⑤ THE VOLUME OF DECK CONCRETE FOR PAYMENT SHALL BE COMPUTED USING AN AVERAGE STOOL HEIGHT OF: 1⅜" AT SPAN 1 & 1½" AT SPAN 3.
⑥ BARS MARKED WITH SUFFIX "E" SHALL BE EPOXY COATED.
⑦ INCLUDES RAILING QUANTITIES ⑬ INCLUDES REINF & ANCHORAGE

SUPERSTRUCTURE DETAILS S.P. 55-618-02	WNJ	R.R.T.	10-6-86	BRIDGE NO. 448
	SHEET 17 OF 28 SHEETS			

AS BUILT PLANS





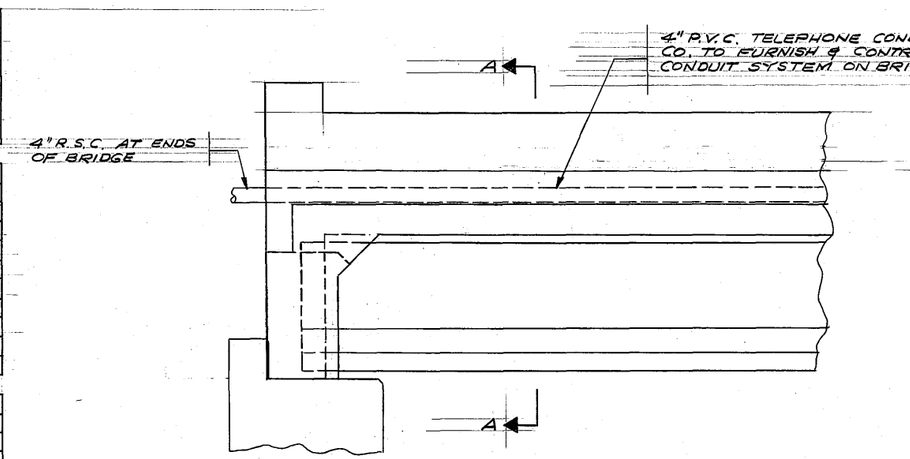
INSIDE ELEVATION OF RAILING - (TYPE M)

EAST SIDE (SIDEWALK) SHOWN.

LIST OF PREFORMED CORK JOINT FILLER
2 - PCS. 18"X1"X4'-9" ABUTMENT RECESS
2 - PCS. 18"X1"X5'-0" " "
26 - PCS. 12"X1"X1'-6" RAILING DEFLECTION JOINTS (TYPE M)

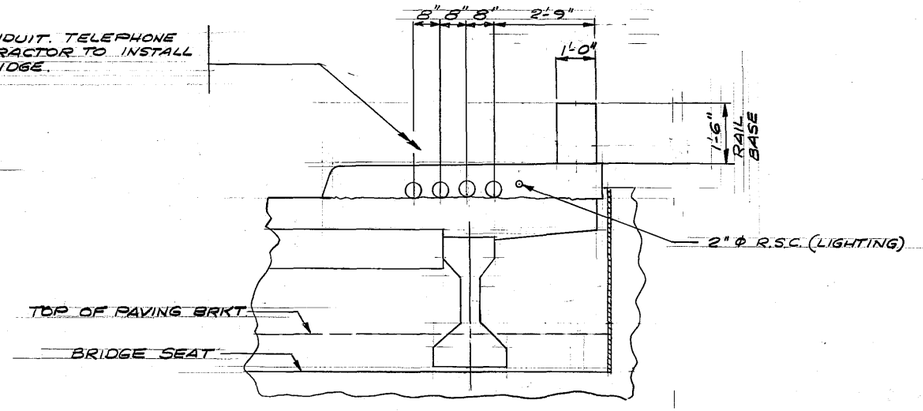
LIST OF PREFORMED BITUM. JOINT FILLER					
1 - PC. 13"X1/2"X11'-3"	SHEAR BLOCK	-	SOUTH	ABUT.	
1 - PC. 12"X1/2"X11'-3"	"	"	-	"	"
1 - PC. 10"X1/2"X15'-4"	"	"	-	"	"
1 - PC. 9"X1/2"X15'-4"	"	"	-	"	"
1 - PC. 13"X1/2"X9'-6"	"	"	-	NORTH	"
1 - PC. 14"X1/2"X9'-6"	"	"	-	"	"
2 - PCS. 11"X1/2"X11'-6"	"	"	-	"	"
1 - PC. 9"X1/2"X11'-6"	"	"	-	"	"

LIST OF POLYSTYRENE - TYPE A
108 LIN. FT. X1"X1'-10" ABUT. BRIDGE SEATS
18 - PCS. 3"X1"X11 1/2" SIDES OF BEARINGS.
9 - PCS. 3"X2"X2'-0" BACK OF BEARINGS



SECTION AT ABUTMENT

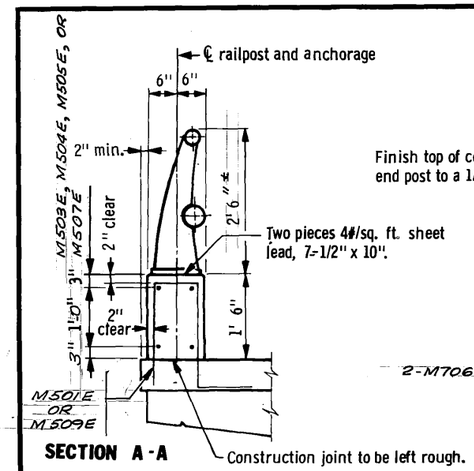
SHOWING CONDUIT AT EAST SIDE OF BR.



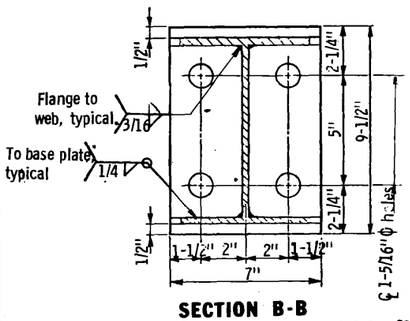
SECTION A-A

(NO SCALE)

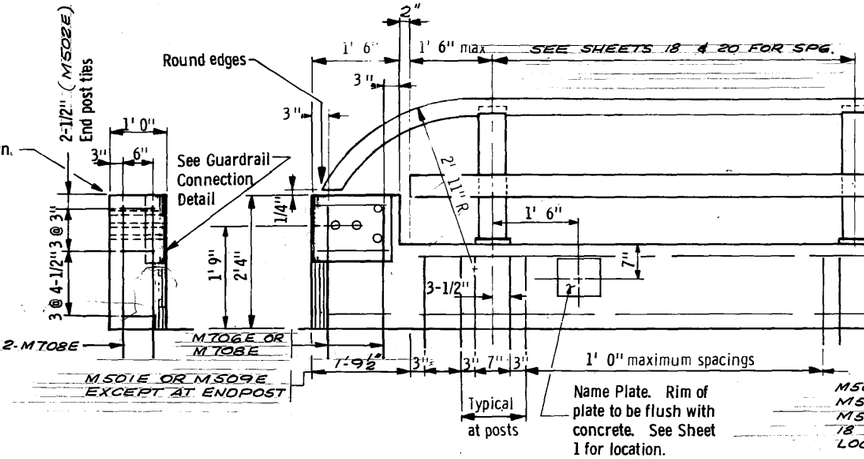
CONCRETE & PIPE RAILING - TYPE M S.P. 55-618-02	W. N J	R.R.T.	10-6-86	BRIDGE NO 448
	SHEET 18 OF 28 SHEETS			



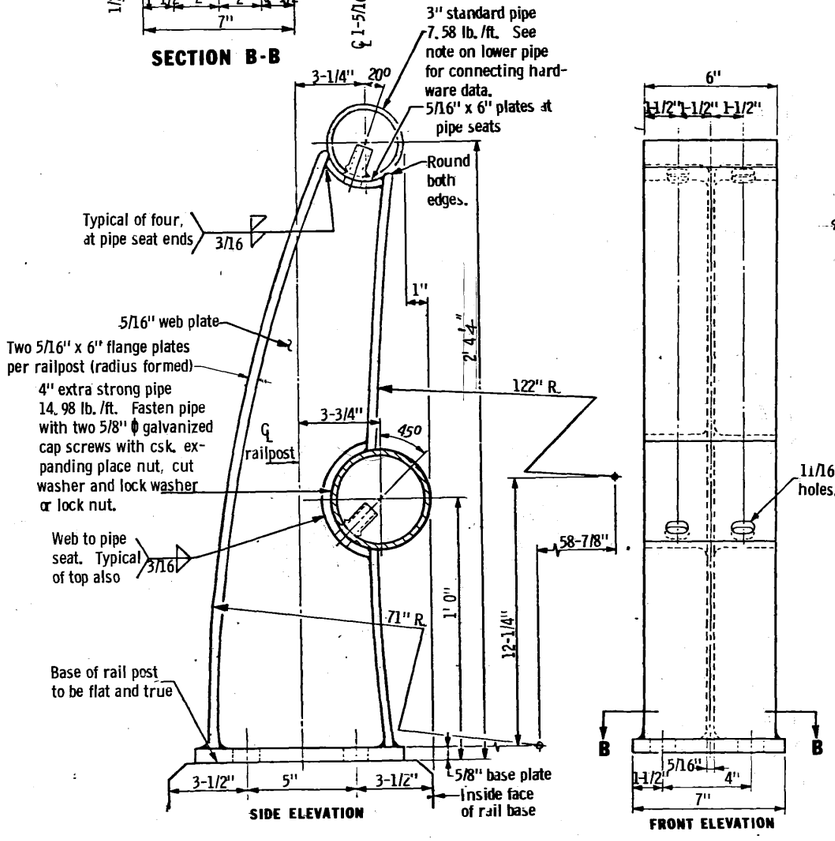
SECTION A-A



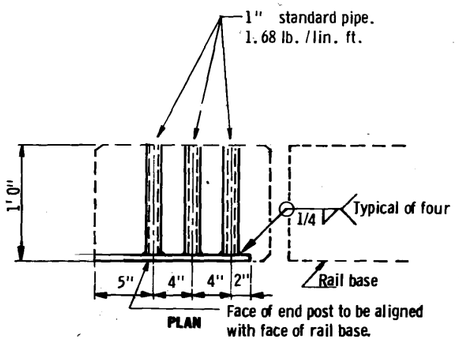
SECTION B-B

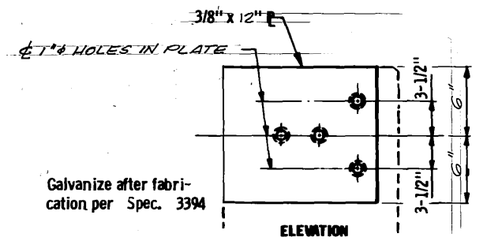


END POST VERTICAL **PART INSIDE ELEVATION** **DEFLECTION JOINT** **EXPANSION JOINT**



RAILPOST DETAILS

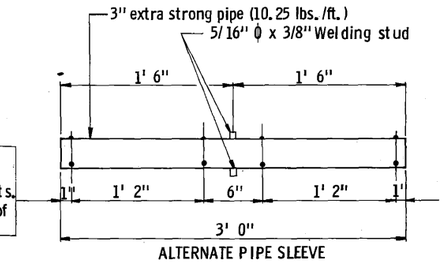




GUARD RAIL CONNECTION DETAIL
Est. Wt. 24 lbs.
(Steel to be Spec. 3306)

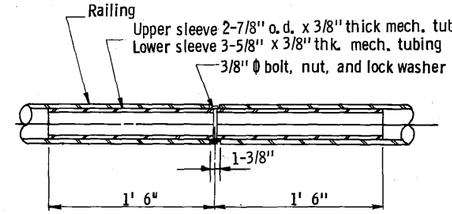


DEFLECTION JOINT DETAILS

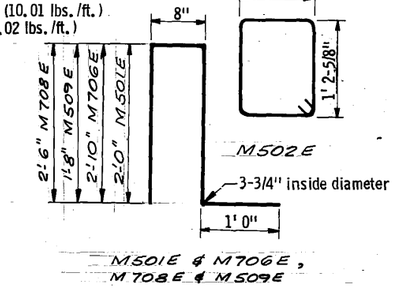


ALTERNATE PIPE SLEEVE

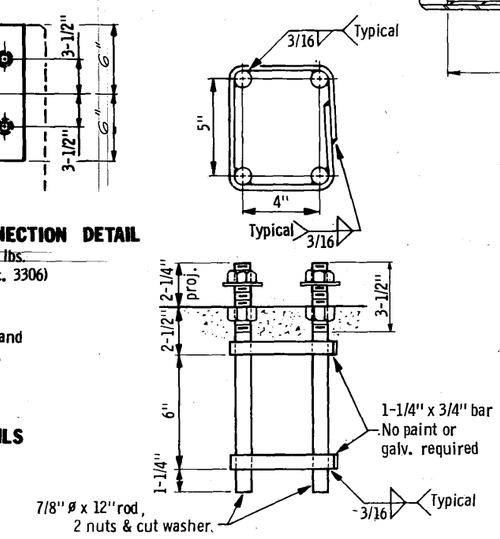
BILL OF REINFORCEMENT FOR RAILING					
	BAR	NO.	LENGTH	SHAPE	LOCATION
1	M501E	404	5'8"	Bent	Rail Vertical
2	M502E	12	4'10"	Bent	End Post
3	M503E	8	16'7"	Strt.	Rail Long.
3	M504E	12	19'7"	"	" "
3	M505E	12	19'0"	"	" "
1	M706E	4	7'4"	BENT	END POST
3	M507E	32	17'10"	STR.	RAIL-LONG
2	M708E	4	6'8"	BENT	END POST
2	M509E	404	5'0"	"	RAIL-VERT
1	RAILING AT EAST SIDE (SIDEWALK)				
2	" AT WEST SIDE (CURB)				
3	" AT BOTH SIDES				



PIPE SLEEVE



PIPE SLEEVE DETAILS
(Pipe to be Spec. 3362)



RAILPOST ANCHORAGE
(Steel to be Spec. 3306)

GENERAL NOTES

Concrete in railbase and end posts shall be mix No. 3X46A

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.
BARS MARKED WITH THE SUFFIX "E" SHALL BE EPOXY COATED.

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.

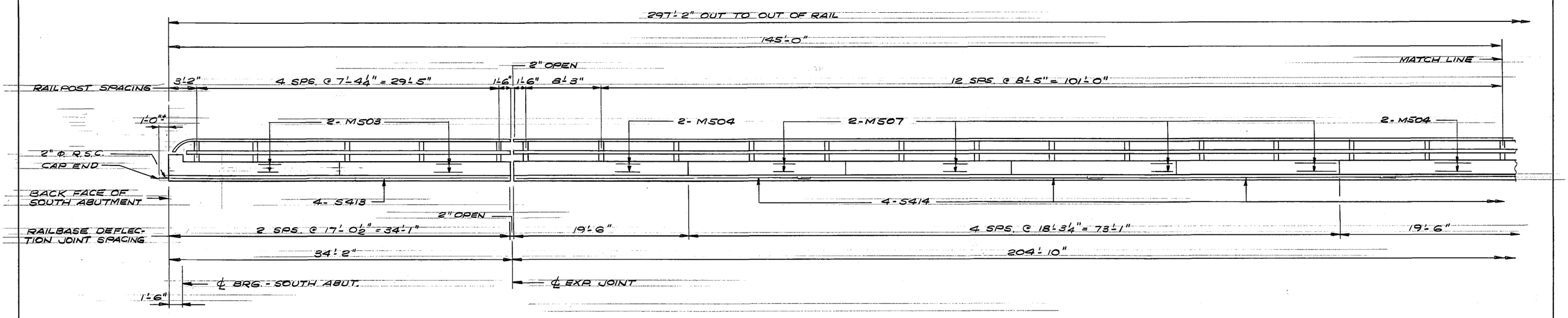
Length of concrete and pipe railing for payment is measured between outside faces of concrete end posts.

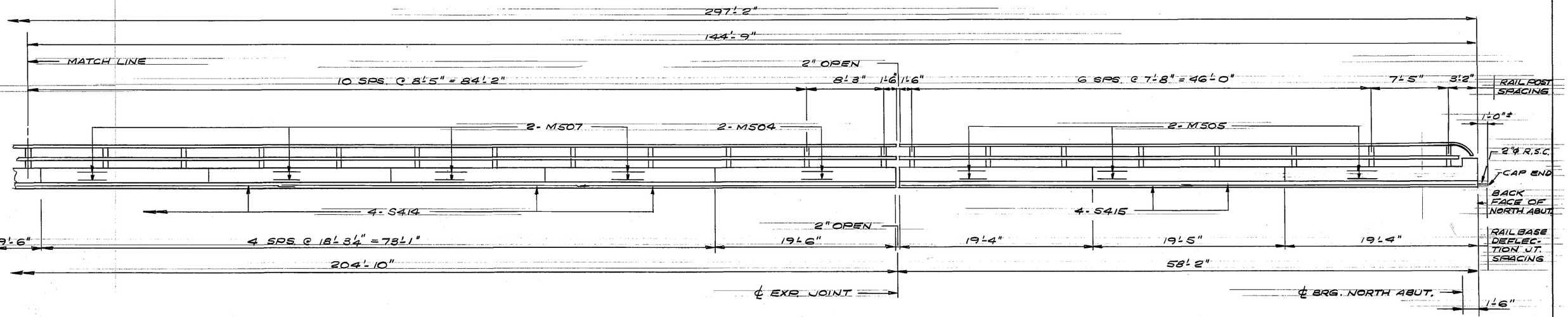
Price bid for pipe railing includes the railpost anchorage and all material above top of rail base.

Fig. 5 - 397.105
Approved: July 11, 1977

TITLE: S.P. 55-618-02 CONCRETE & PIPE RAILING 2 LINE STEEL (TYPE M)	DES:	DR:	APPROVED: 10-6-86	Bridge No. 448
	CHK:	CHK:	Sheet No. 19 of 28 Sheets	

Supplied by Lewis Engineering

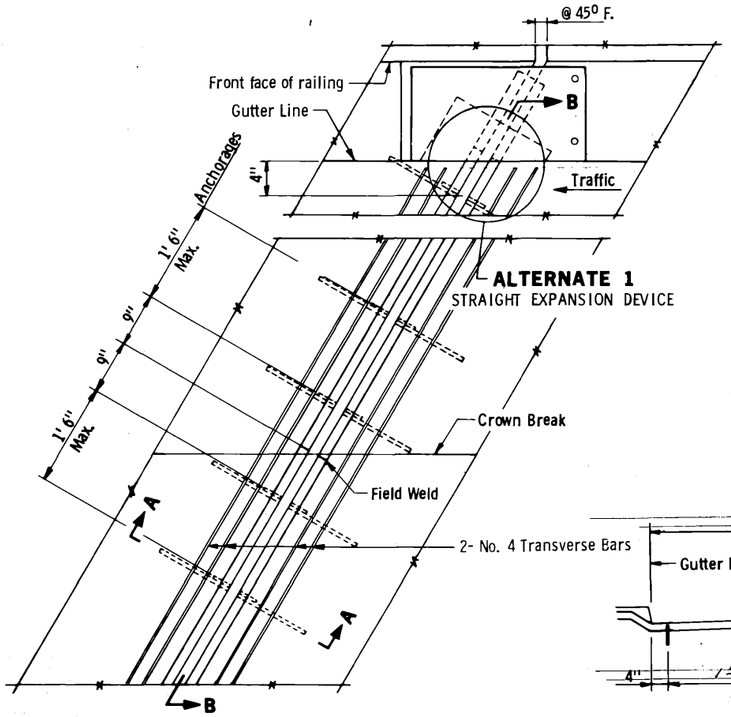




INSIDE ELEVATION OF RAILING (TYPE M)

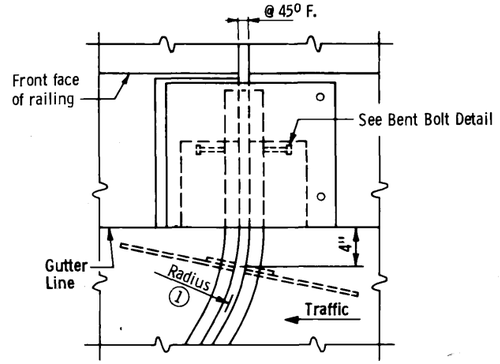
WEST SIDE (CURB) SHOWN

CONCRETE & PIPE RAILING - TYPE M S.R. 55 - 618 - 02	W.N.J.	R.R.T.	10-6-86	BRIDGE NO. 448
	SHEET 20 OF 28 SHEETS			

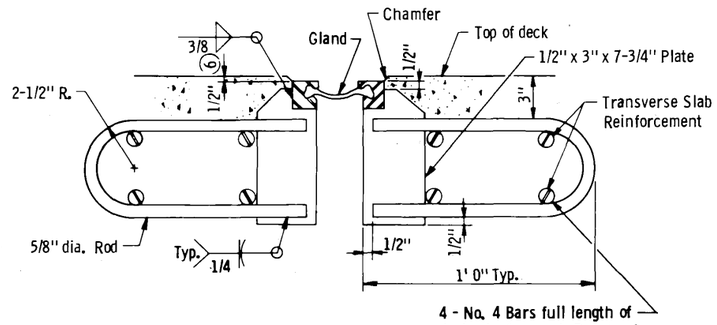


ALTERNATE 1
STRAIGHT EXPANSION DEVICE

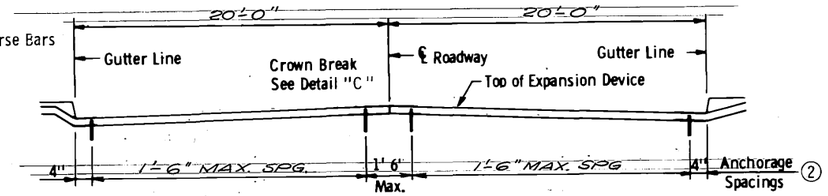
PLAN VIEW AT EXPANSION DEVICE



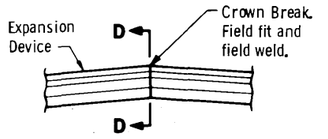
ALTERNATE 2
CURVED EXPANSION DEVICE



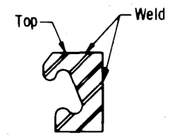
SECTION A-A
ANCHORAGE



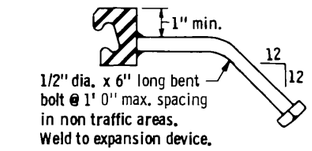
SECTION B-B



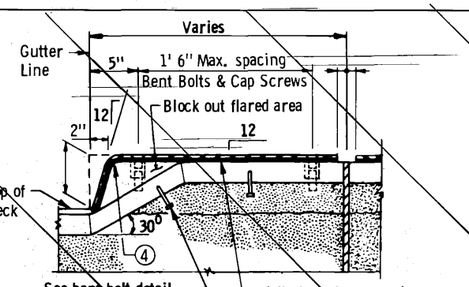
DETAIL C



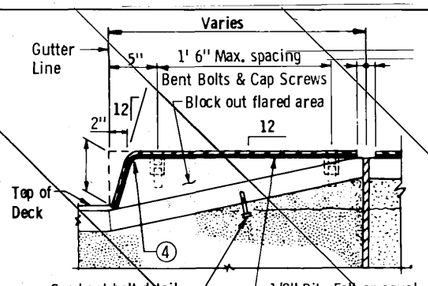
SECTION D-D



BENT BOLT DETAIL

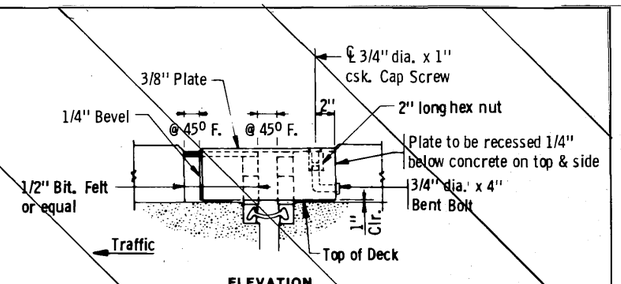


SECTION
ALTERNATE X

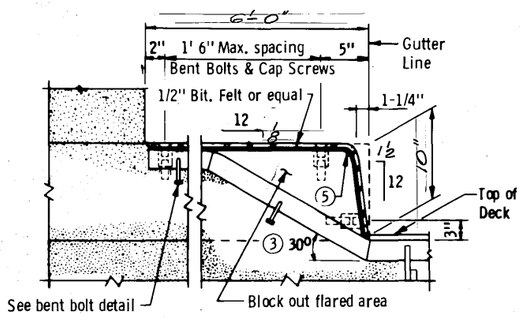


SECTION
ALTERNATE Y

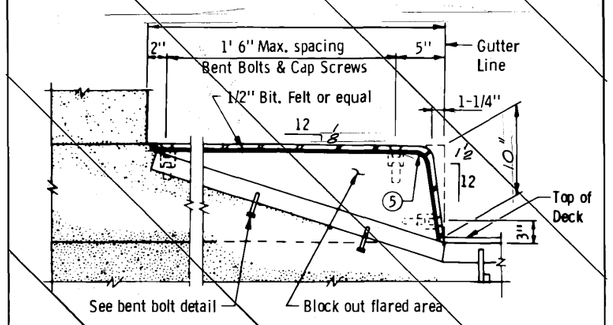
RAISED MEDIAN DETAILS



ELEVATION

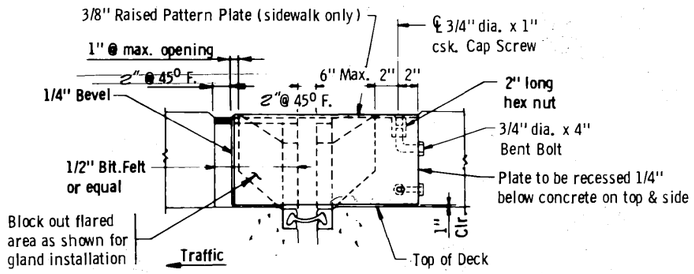


SECTION
ALTERNATE X



SECTION
ALTERNATE Y

SIDEWALK DETAILS



INSIDE ELEVATION

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 incudes 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) 2-3/4" outside radius of steel plate

(5) 3/4" outside radius of steel plate

(6) 5/8" max. when Snowplow Fingers are used. Use 1/8" (with 1/4" max.) when Snowplow Fingers are not used.

S.P. 55-618-02 C

CMI DS15 RS3 EXTRUSION A-900 GLAND

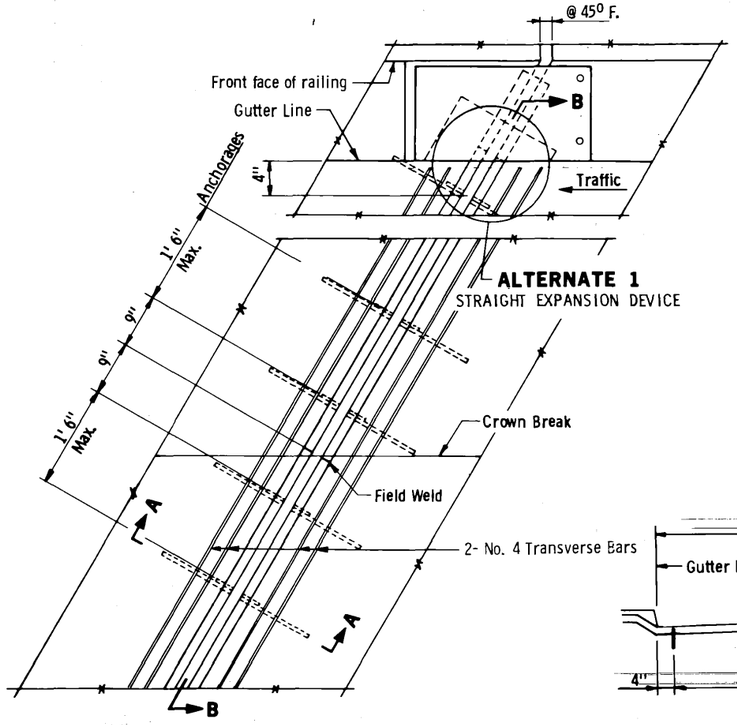
FIG. 5-397.630

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

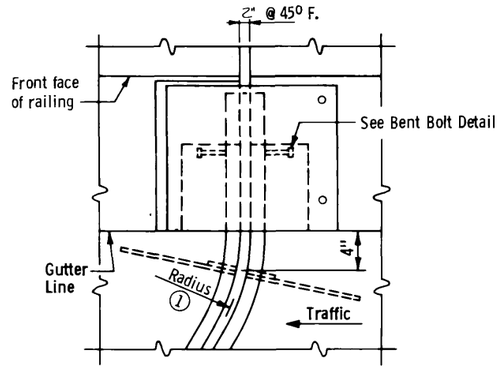
TITLE: WATERPROOF EXPANSION DEVICE WITH SIDEWALK OR RAISED MEDIAN	DES:	DR:	APPROVED: 10-6-86	Bridge No. 448
	CHK:	CHK:	Sheet No. 21 of 28 Sheets	

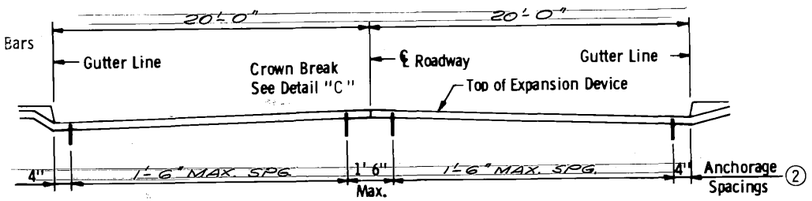
Supplied by Construction Materials Engr.

17M

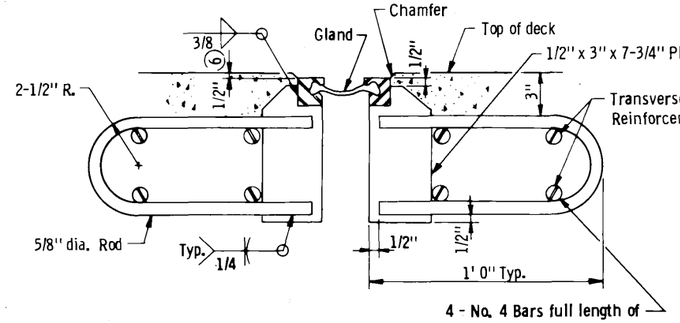


PLAN VIEW AT EXPANSION DEVICE

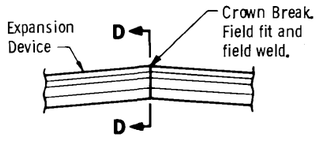




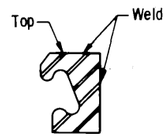
SECTION B-B



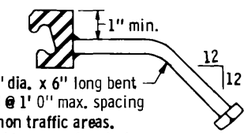
SECTION A-A
ANCHORAGE



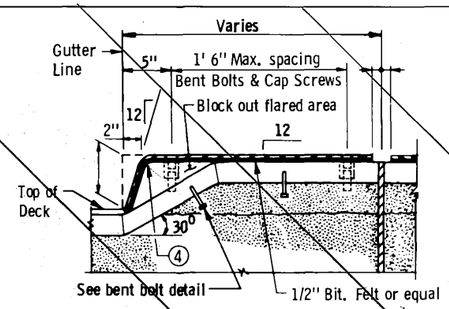
DETAIL C



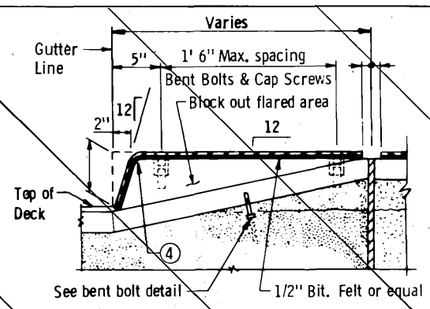
SECTION D-D



BENT BOLT DETAIL

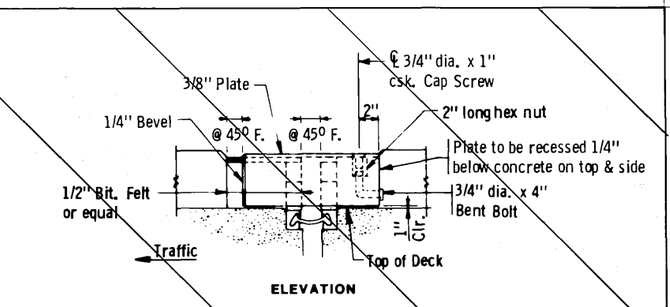


SECTION
ALTERNATE X

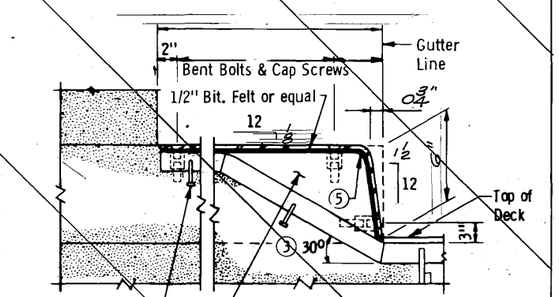


SECTION
ALTERNATE Y

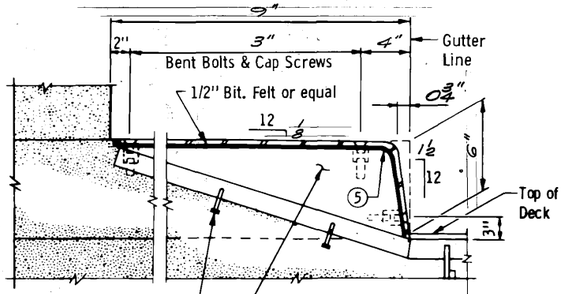
RAISED MEDIAN DETAILS



ELEVATION

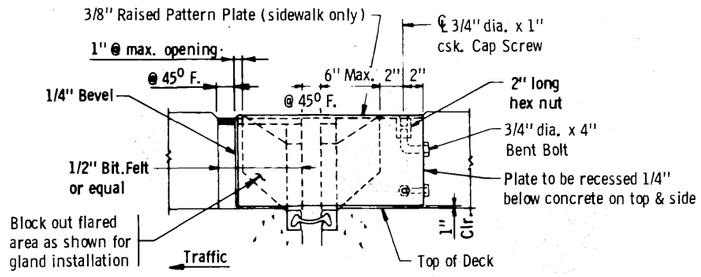


SECTION
ALTERNATE X



SECTION
ALTERNATE Y

CURB DETAILS



INSIDE ELEVATION

NOTES:

Galvanize structural steel after fabrication as per Spec. 3394.

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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.

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(1) Varies 18" to 24"

(2) Dimension along centerline of joint.

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

(4) 2-3/4" outside radius of steel plate

(5) 3/4" outside radius of steel plate

(6) 5/8" max. when Snowplow Fingers are used. Use 1/8" (with 1/4" max.) when Snowplow Fingers are not used.

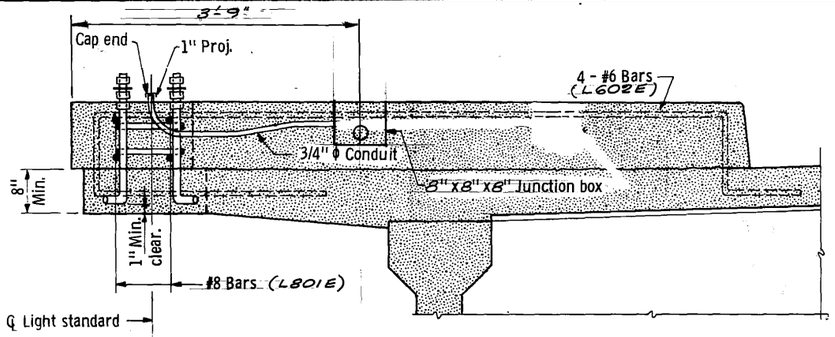
FIG. 5-397.630

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

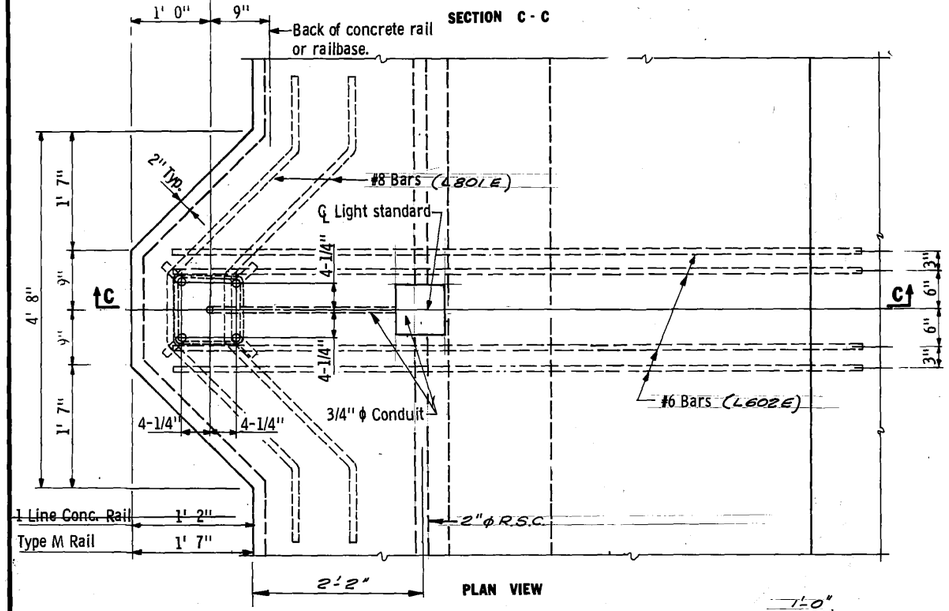
S.R. 55-618-02

TITLE: WATERPROOF EXPANSION DEVICE WITH CURB	DES:	DE:	APPROVED: 10-6-86	Bridge No. 448
	CHK:	CHK:	Sheet No. 22 of 28 Sheets	

17M



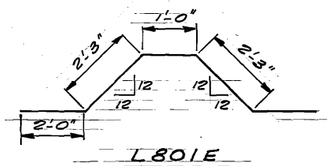
SECTION C - C



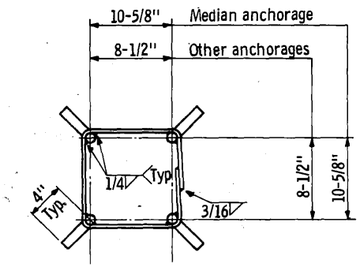
PLAN VIEW

LIGHT STANDARD ON SIDEWALK

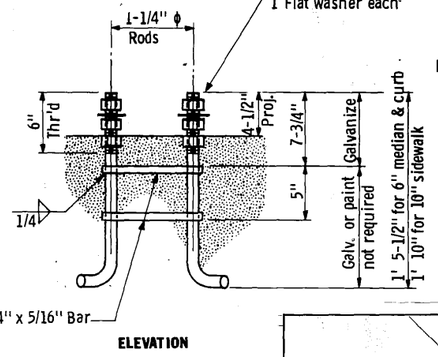
BILL OF REINFORCEMENT AT LIGHT STANDARD				
BAR	NO.	LENGTH	SHAPE	LOCATION
L801E	8	9'-6"	BENT	AT LIGHT ANCHORAGE
L602E	8	13'-6"	"	" " "



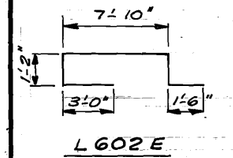
L801E



PLAN

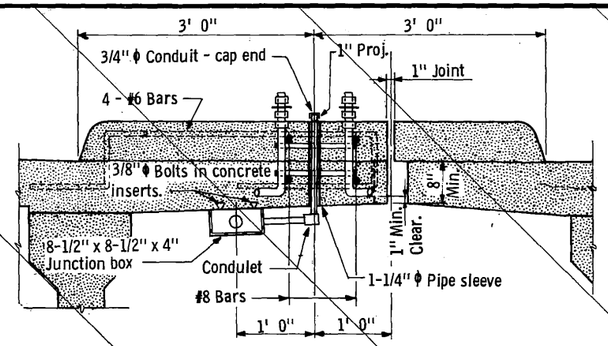


ELEVATION

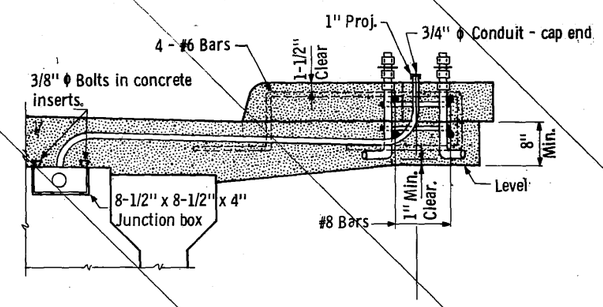


L602E

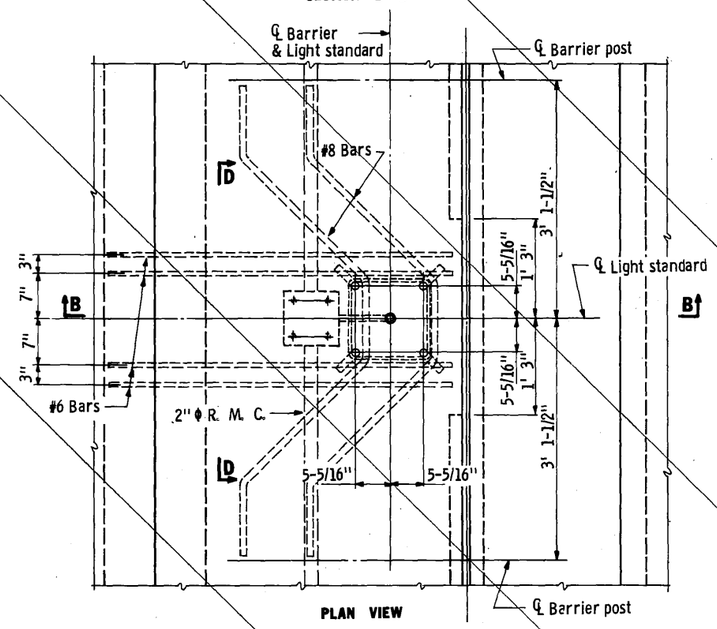
LIGHT STANDARD ANCHORAGES
(For 40' light standard)



SECTION B - B

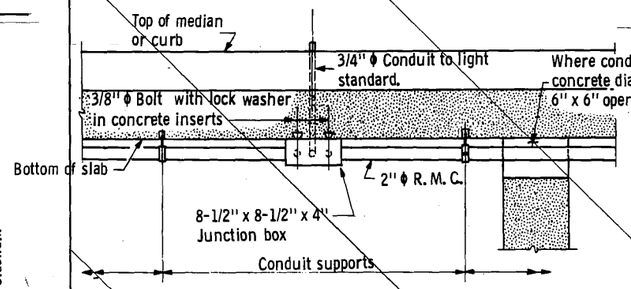


SECTION A - A

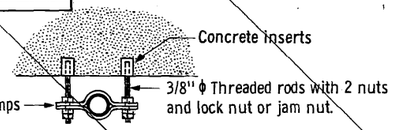


PLAN VIEW

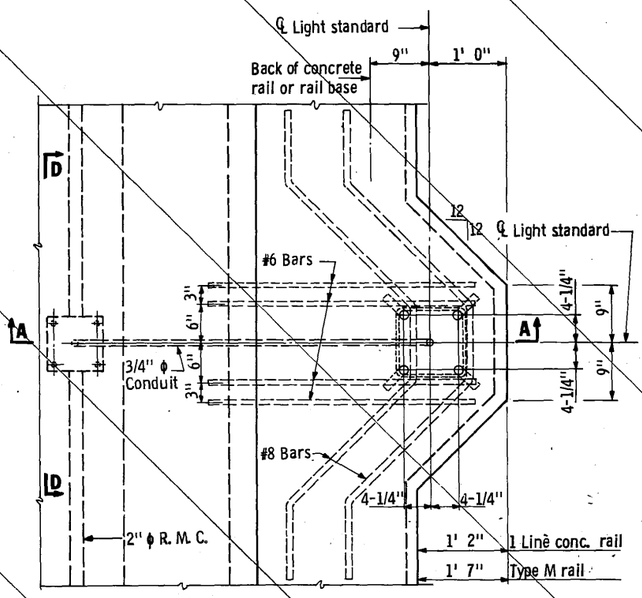
LIGHT STANDARD ON MEDIAN



SECTION D - D
Anchorage and reinforcement not shown



CONDUIT SUPPORT ASSEMBLY



PLAN VIEW

LIGHT STANDARD ON CURB

NOTES:

Flat bars and anchorages as per SPEC. 3306.

Concrete inserts shall be an approved type malleable iron. Material as per SPEC. 3324 Grade 35018. Tap after galvanizing.

Galvanize bolts, nuts, washers, rods and inserts as per SPEC. 3392. Galvanize other material as per SPEC. 3394 after fabrication.

Pipe sleeves shall comply with SPEC. 3362.

Bend conduit down at abutments and provide expansion fitting.

SUMMARY OF QUANTITIES
CONDUIT SYSTEM (LIGHTING)

~~Precast Hand Holes (Std. Plate 8117)~~	~~—~~	~~Units~~
~~8-1/2" x 8-1/2" x 4" C. I. Jct. Box & Supports~~	~~—~~	~~Units~~
8" x 8" x 8" Cast Iron Junction Box	2	Units
~~Light Standard Anchorage (Median)~~	~~—~~	~~Units~~
Light Standard Anchorage (Sidewalk)	2	Units
~~Light Standard Anchorage (Curb)~~	~~—~~	~~Units~~
Expansion, DEFLECTION FITTINGS	2	Units
3/4" ϕ Rigid Steel Conduit	8	Lin. Ft.
2" ϕ Rigid Steel Conduit	297	Lin. Ft.
~~1-1/4" ϕ Pipe Sleeves~~	~~—~~	~~Units~~
① ~~3" ϕ Pipe Sleeves~~	~~—~~	~~Units~~
~~Conduit Support Assembly (Includes inserts)~~	~~—~~	Units
3/4" ϕ Conduit Caps	2	Units
Drainage Tees	2	Units
~~Condulet~~	~~—~~	~~Units~~
2"ϕ CONDUIT END CAPS	2	UNITS
② REINFORCEMENT BARS, EPOXY COATED	280	POUND

ALL MATERIAL LISTED ABOVE IS INCLUDED IN "CONDUIT SYSTEM (LIGHTING)".

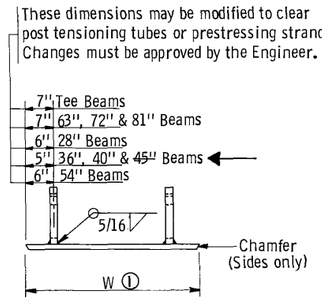
① See Abutment Sheets for locations and details.

② BARS MARKED WITH SUFFIX "E" SHALL BE EPOXY COATED.

Fig. 5-397.401
Feb. 9, 1970

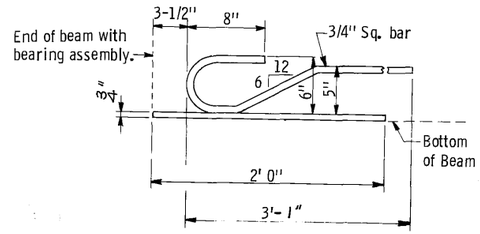
S.P. 55-618-02

TITLE: CONDUIT SYSTEM FOR BRIDGE LIGHTING	DES:	DR:	APPROVED: 10-6-86	Bridge No. 448
	CHK:	CHK:	Sheet No. 23 of 28 Sheets	



FRONT VIEW

① Dimension "W" to be the width at the bottom flange of the beam. - 4"



SIDE VIEW

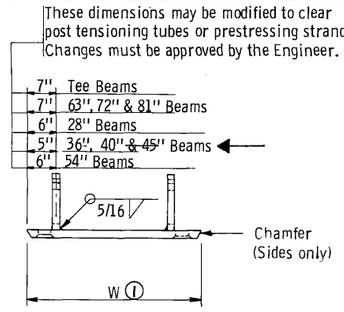
SOLE PLATE FOR B305 BEARING

NOTES

Material to be Structural Steel per SPEC. 3306

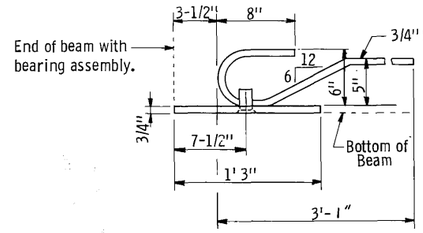
Sole plate for Bearing Assembly to be hot dipped galvanized as per SPEC. 3394 after fabrication.

Payment for sole plates to be included in price bid for Prestressed Concrete Beams.



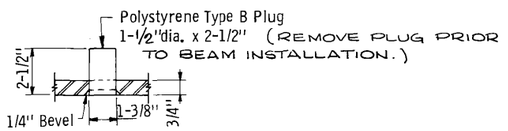
FRONT VIEW

① Dimension "W" to be the width at the bottom flange of the beam. - 4"



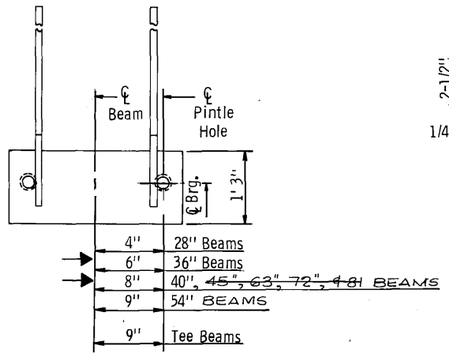
SIDE VIEW

Showing placement in beam



PINTLE HOLE DETAIL

(2 Required)



PLAN VIEW

SOLE PLATE FOR B302, & B304 BEARING ASSEMBLY

NOTES

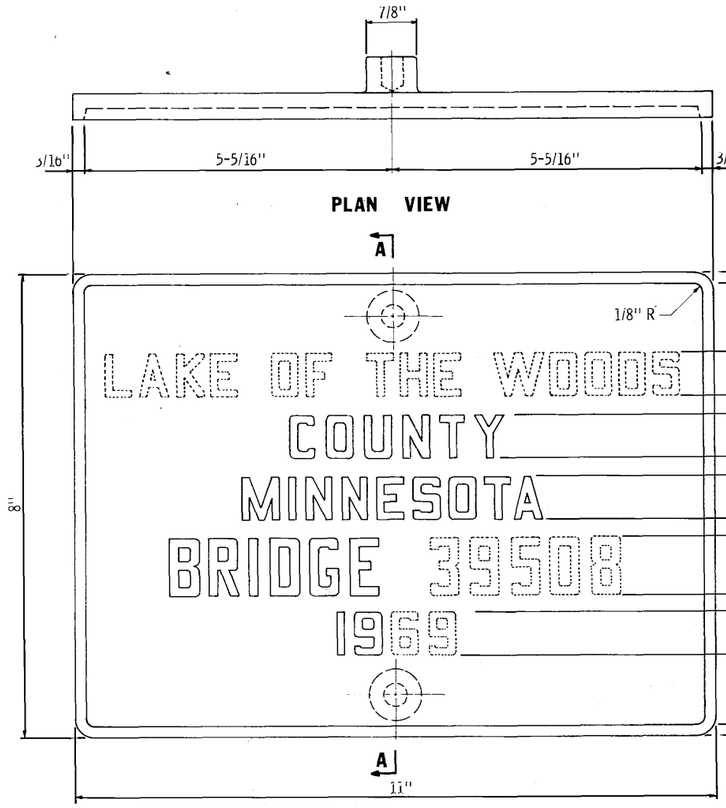
Material to be Structural Steel per SPEC. 3306

Sole plate for Bearing Assembly to be hot dipped galvanized as per SPEC. 3394 after fabrication. Pintle holes shall be free of zinc build up from galvanizing.

Payment for sole plates to be included in price bid for Prestressed Concrete Beams

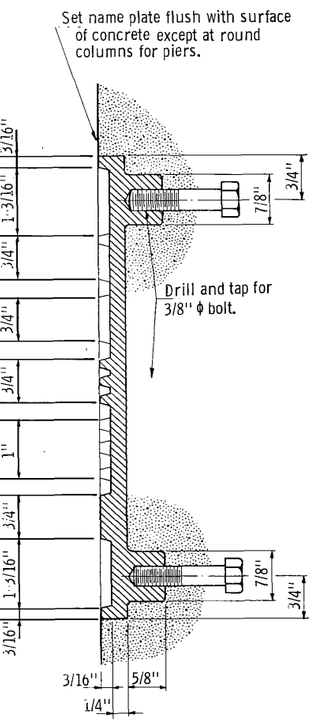
APPROVED: Sept. 17, 1976 Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN Issued by: OFFICE OF ENGINEERING STANDARDS	MINNESOTA DEPARTMENT OF TRANSPORTATION **SOLE PLATES** **PRESTRESSED CONCRETE BEAMS**	REVISION SEPT. 7, 1978	DETAIL NO. **B303**

Supplied by Lewis Engineering

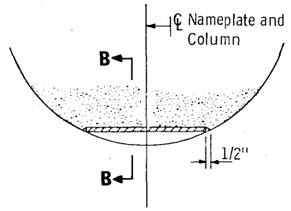


The numbers shown above are for illustration.
Data to be shown on name plate is as follows:

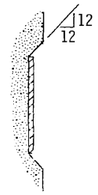
BRIDGE 448
YEAR 1987
OLMSTED COUNTY



SECTION A - A



SECTION B-B



NAMEPLATE PLACEMENT

(Round Concrete Pier Columns)

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.



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

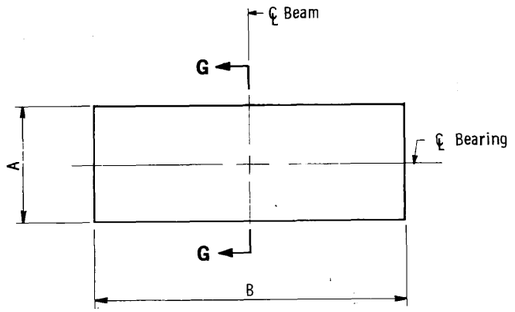
LETTERS & NUMBERS FOR NAMEPLATES

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**

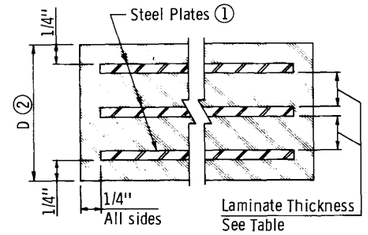
App'd. 10-6-86

S.P. 55-618-02	SHEET 24 OF 28 SHEETS	DETAILS	488

AS BUILT PLANS



PLAN



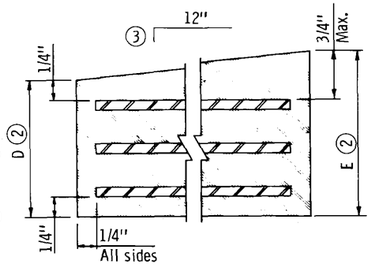
SECTION G-G
(Section Thru Level Pad)

① Do not galvanize these plates.
② The total thickness shown includes the steel plates.

ELASTOMERIC BEARING PAD TABLE ⑤

Beam Size	A	B	Pad Thickness D	Pad Thickness E	Steel Plates No.	Steel Plates Thickness	Laminates No.	Laminates Thickness	Shape Factor	Pad Type
28"										
↓										
36"	10"	16"	1 1/4"	1 1/2"	2	1/8"	1	1/2"	6.2	1 (P1)
40"	10"	20"	1 1/4"	1 1/2"	2	1/8"	1	1/2"	6.7	2 (P2)
↓										
45"										
↓										
54"										
↓										
63"										
↓										
72"										
↓										
81"										
↓										
30" Bulb										
↓										

⑤ See Bridge Design Manual for design requirememts.



SECTION G-G
(Section Thru Sloped Pad)

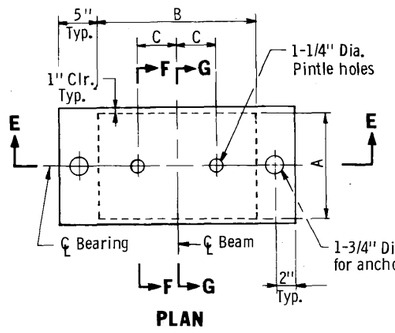
③ Slopes to be made in 1/8" increments per foot.
④ Mark high side of sloped pads with an "E" for field placement.

NOTES:

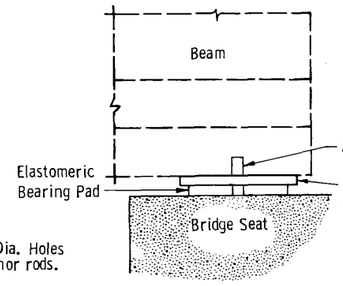
For elastomeric materials and pad construction, see Spec. 3741.

All steel plates shall comply with Spec. 3306.

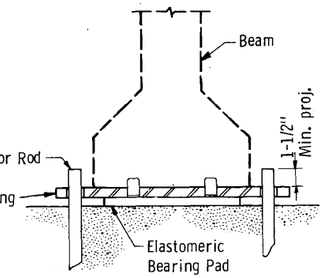
APPROVED: May 8, 1979	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Developed by: BRIDGE STANDARDS & BRIDGE AND STRUCTURES SECTION	**ELASTOMERIC BEARING PAD**		**B305**
Issued by: ENGINEERING STANDARDS SECTION	**PRESTRESSED CONCRETE BEAMS (EXPANSION)**		



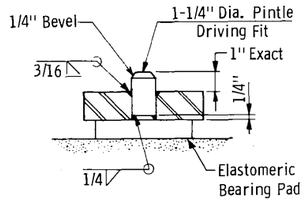
PLAN



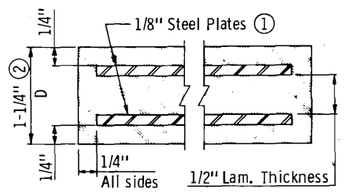
END ELEVATION



SECTION E-E

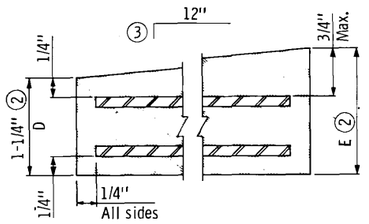


SECTION F-F
(ENLARGED)



SECTION G-G
(Section Thru Level Pad)

① Do not galvanize these plates.
② The total thickness shown includes the steel plates.



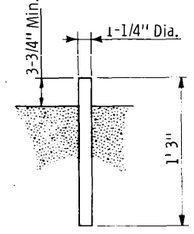
SECTION G-G
(Section Thru Sloped Pad)

③ Slopes to be made in 1/8" increments per foot.
④ Mark high side of sloped pads with an "E" for field placement.

ELASTOMERIC BEARING PAD TABLE ⑤

Beam Size	A	B	C	E	Bearing Plate Size	Assembly Type	DL + LL Min. (Kips)	DL Max. (Kips)	DL + LL Max. (Kips)	Shape Factor
28"	10"	14"	4"		12" x 24" x 1"		28	69	110	5.7
↓	12"				14" x 24" x 1"		33	83	132	6.4
	14"	↓	↓		16" x 24" x 1"		39	97	155	6.9
36"	10"	16"	6"	1 1/2"	12" x 26" x 1"	1	32	79	126	6.1 (F1)
↓	12"				14" x 26" x 1"		38	95	152	6.8
	14"	↓	↓		16" x 26" x 1"		44	111	177	7.4
40" & 45"	10"	20"	8"	1 1/2"	12" x 30" x 1"	2	40	99	158	6.6 (F2)
↓	12"				14" x 30" x 1"		48	119	190	7.4
	14"	↓	↓		16" x 30" x 1"		56	139	222	8.2
54"	10"	24"	9"		12" x 34" x 1"		48	118	190	7.0
↓	12"		↓		14" x 34" x 1"		57	143	228	7.9
	14"				16" x 34" x 1"		67	167	267	8.8
63" - 81"	10"		8"		12" x 34" x 1"		48	118	190	7.0
↓	12"	↓	↓		14" x 34" x 1"		57	143	228	7.9
	14"				16" x 34" x 1"		67	167	267	8.8
30" Bulb	10"	22"	9"		12" x 32" x 1"		44	109	174	6.8
↓	12"	↓	↓		14" x 32" x 1"		52	131	209	5.7
	14"				16" x 32" x 1"		61	153	244	8.5
	16"				18" x 32" x 1"		70	175	280	9.2

⑤ See Bridge Design Manual for additional information.



ANCHOR ROD DETAIL

NOTES:

For elastomeric materials and pad construction, see Spec. 3741.

All steel plates and anchor rods shall comply with Spec. 3306.

Pintles shall comply with Spec. 3314, Type II.

Galvanize structural steel bearing plate and pintle after assembly as per Spec. 3394.

Payment for bearing assembly shall include all material on this detail.

APPROVED: May 8, 1979	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION	DETAIL NO.
Developed by: BRIDGE STANDARDS & BRIDGE AND STRUCTURES SECTION	**ELASTOMERIC BEARING ASSEMBLY**		**B304**
Issued by: ENGINEERING STANDARDS SECTION	**PRESTRESSED CONCRETE BEAMS (FIXED)**		

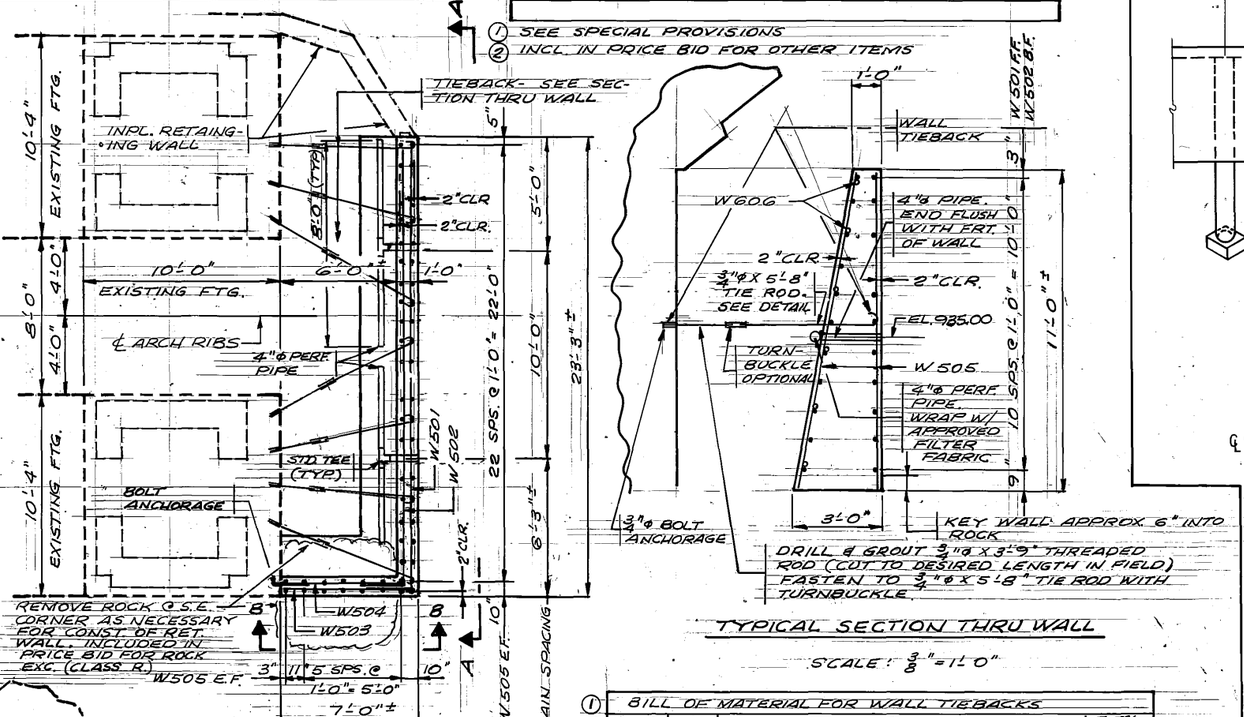
BILL OF REINFORCEMENT FOR RETAINING WALL

BAR	NO.	LENGTH	SHAPE	LOCATION
W501	11	24'11"	BENT	WALL - LONG - F.F.
W502	11	24'5"	"	" - " - B.F.
W503	11	6'9"	STR.	" - " - F.F.
W504	11	6'4"	"	" - " - B.F.
W505	60	10'10"	"	" -

SUMMARY OF QUANTITIES FOR RETAINING WALL

	STRUCTURE CONCRETE (3Y43)	23	CU.YD
	REINFORCEMENT BARS	1400	POUND
	STRUCTURAL STEEL, 3309	110	POUND
	ROCK EXCAVATION (CLASS R)	5	CU.YD
(1)	WALL TIEBACKS	7	EACH
(2)	BOLT ANCHORAGES W/ $\frac{3}{4}$"ϕ X 15" BOLT	6	EACH
	DRAINAGE SYSTEM	1	LUMP SUM

(1) SEE SPECIAL PROVISIONS
(2) INCL. IN PRICE BID FOR OTHER ITEMS

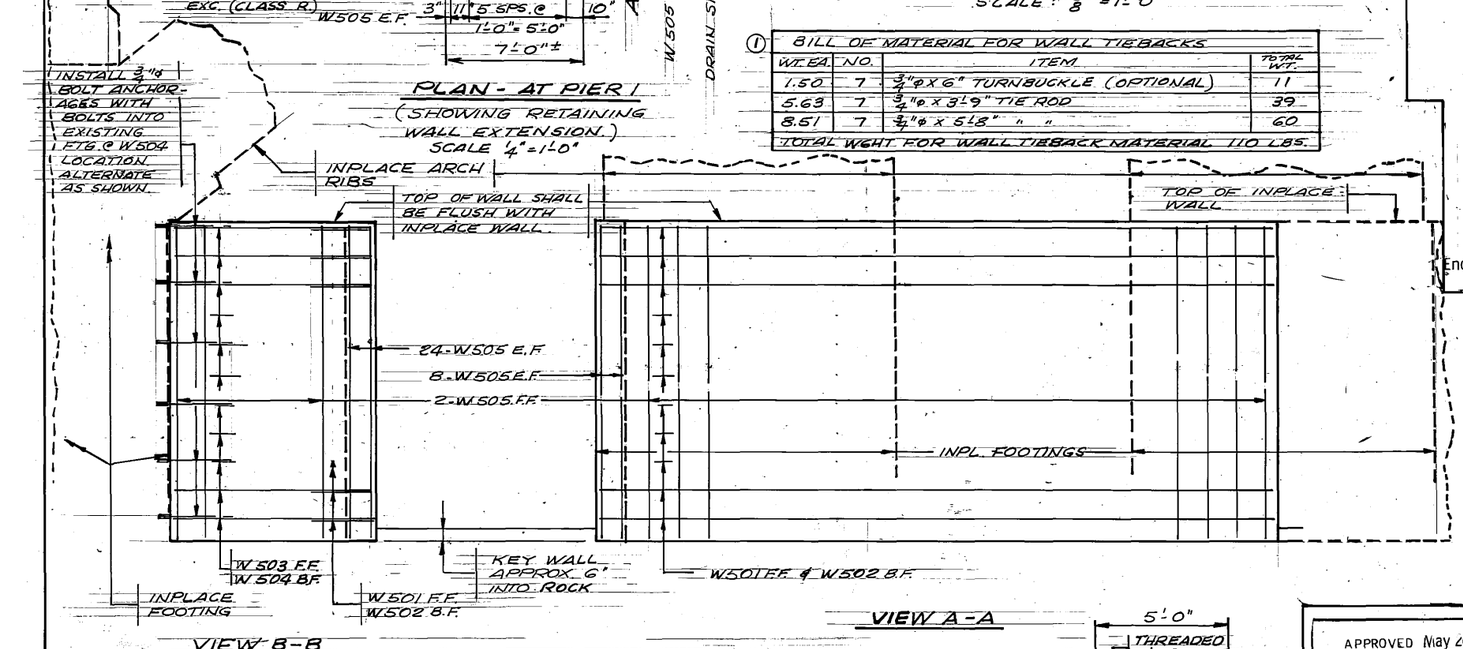


TYPICAL SECTION THRU WALL

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

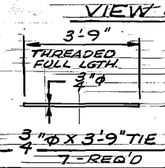
(1) BILL OF MATERIAL FOR WALL TIEBACKS

WT. EA.	NO.	ITEM	TOTAL WT.
1.50	7	$\frac{3}{4}$"ϕ X 6" TURNBUCKLE (OPTIONAL)	11
5.63	7	$\frac{3}{4}$"ϕ X 3'-9" TIE ROD	39
8.51	7	$\frac{3}{4}$"ϕ X 5'-8" " "	60
TOTAL WGHT FOR WALL TIEBACK MATERIAL 110 LBS.			



PLAN - AT PIER 1
(SHOWING RETAINING WALL EXTENSION.)
SCALE 4" = 1'-0"

VIEW B-B



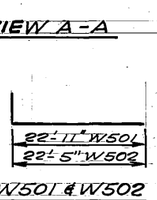
$\frac{3}{4}$"ϕ X 3'-9" TIE ROD
7-REQ'D

PIER 1 RETAINING WALL DETAILS

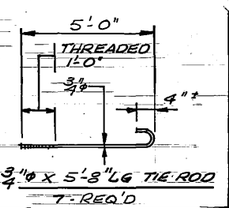
(1) BILL OF MATERIAL FOR DRAINAGE SYSTEM

4" ϕ PERF. PIPE (3245)	16	LIN. FT.
4" ϕ PIPE (3245)	5	LIN. FT.
STD. TEES (3245)	2	EACH
4"ϕ END CAPS (3245)	4	EACH

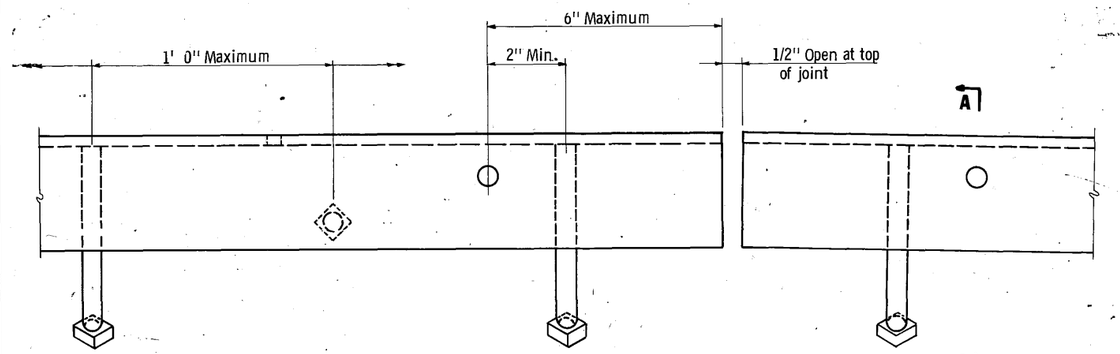
VIEW A-A



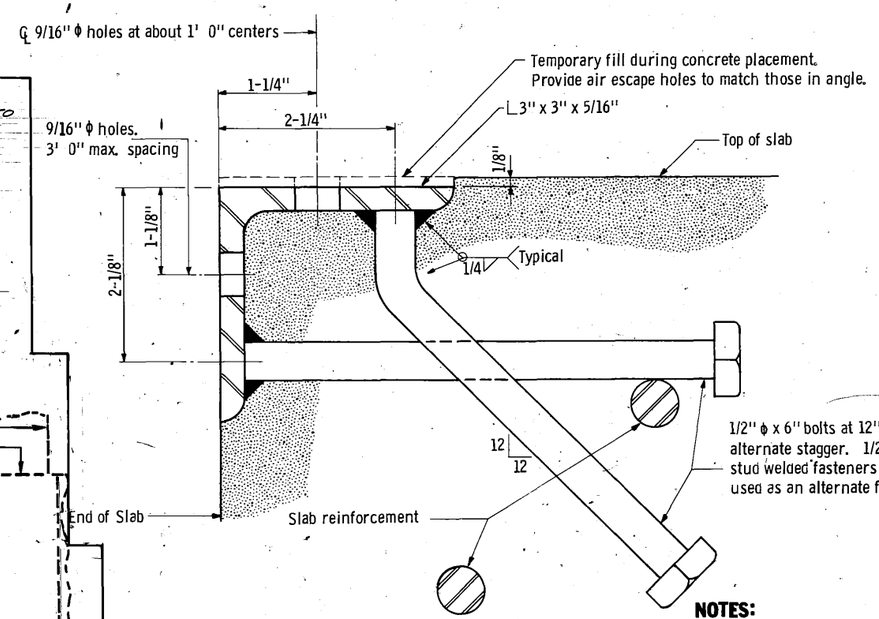
W501 & W502



$\frac{3}{4}$"ϕ X 5'-8" LG TIE ROD
7-REQ'D



ELEVATION
(Concrete not shown)



SECTION A - A

NOTES:

Angles shall extend full width of roadway between curbs with a 1/2" open joint at each break in crown profile. Maximum length 22 feet.

Angles shall be straightened to a tolerance of 1/16" in 10 feet after galvanizing.

Material: Structural steel per SPEC. 3306. Galvanize after fabrication per SPEC. 3394.

Set angle to proper grade and crown.

All material will be paid for as structural steel SPEC. 3306.

APPROVED May 26, 1972
Douglas Dethmers
Engineering Standards Engineer
RESEARCH AND STANDARDS DIVISION

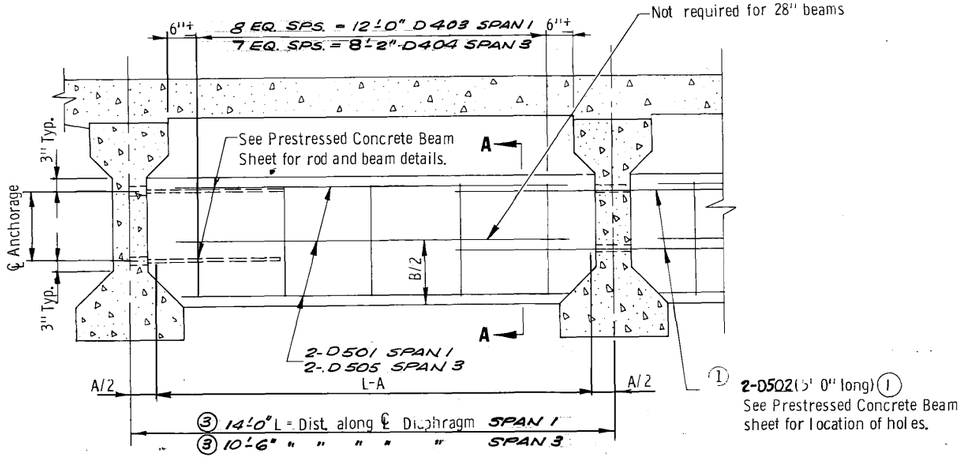
MINNESOTA DEPARTMENT OF TRANSPORTATION

PROTECTION ANGLE FOR END OF SLAB

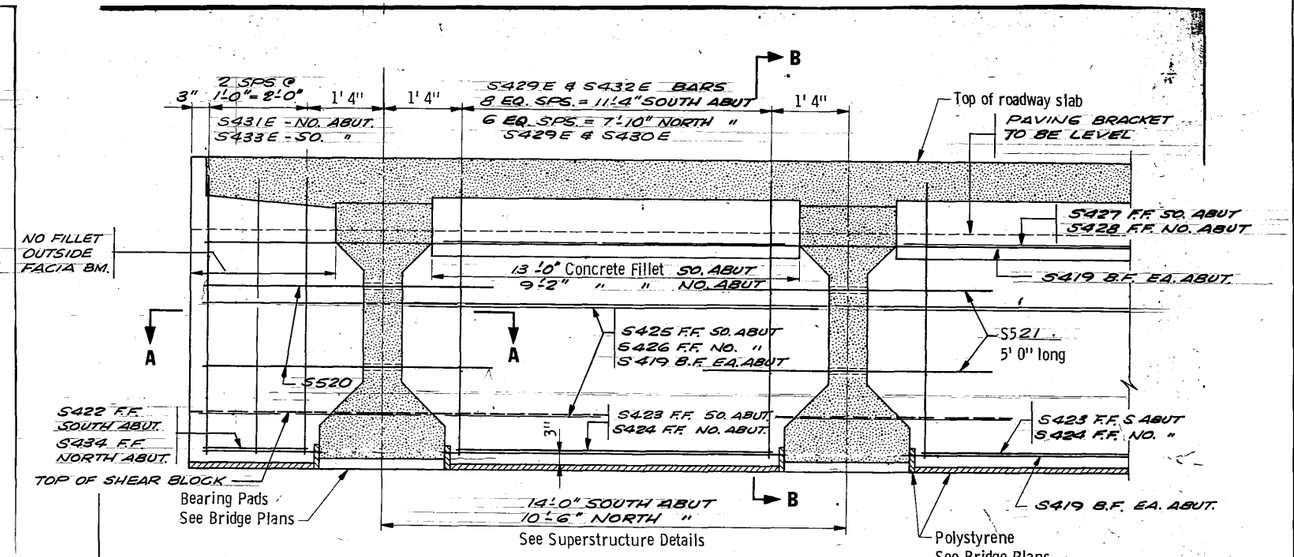
DETAIL NO. **B551**

10-6-86

S.P. 55-618-02	SHEET 26 OF 28 SHEETS	DETAILS	448



PART TRANSVERSE SECTION

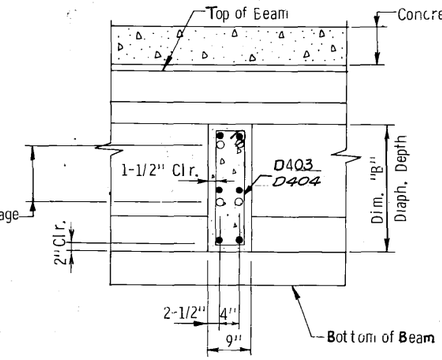


PART TRANSVERSE SECTION AT END DIAPHRAGM

	Bm. Ht.	Dim. "A" For comp. volume	Diaph. Dim. "B"	S403 Length
SPAN 1 →	28"	7-1/2"	1'-4"	3'-9"
	36"	7-3/4"	1'-9"	4'-7"
SPAN 3 →	40"	8-3/4"	1'-11"	4'-11"
	45"	9"	2'-2 1/2"	5'-6"
	54"	10-1/2"	2'-8"	6'-5"

Concrete volume per diaphragm

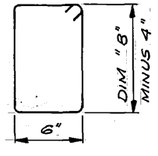
$$\frac{(L - A) \times B \times .75}{27} = \text{(Cu. yd.)}$$



SECTION A-A

BILL OF REINFORCEMENT - DIAPH'S @ SPAN 1				
BAR	NO	LENGTH	SHAPE	LOCATION
D501	18	13'-0"	STR.	DIAPH. HORIZ.
D502	8	5'-0"	STR.	DIAPH. HORIZ
D403	27	4'-11"	BENT	DIAPH. VERT.

BILL OF REINFORCEMENT - DIAPH'S @ SPAN 3				
BAR	NO.	LENGTH	SHAPE	LOCATION
D502	12	5'-0"	STR	DIAPH. HORIZ
D404	32	4'-11"	BENT	DIAPH. VERT.
D505	24	10'-2"	STR	DIAPH. HORIZ

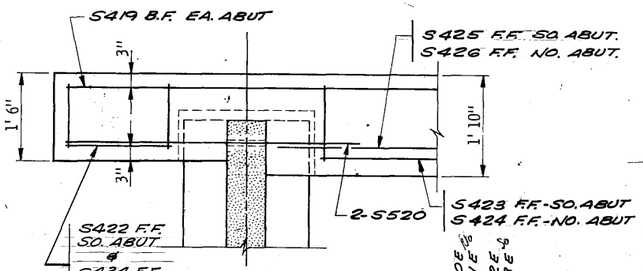


D403
&
D404

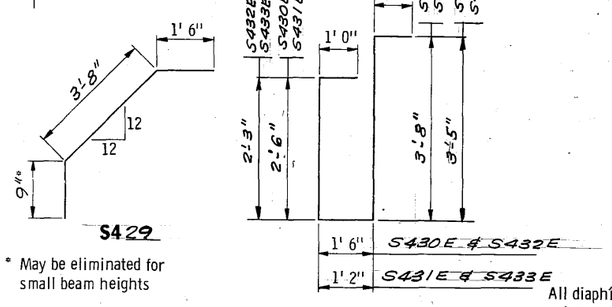
GENERAL NOTES

1. For Diaphragms 20° and over, use threaded rods as shown on standard prestressed concrete beam sheet.
2. All diaphragm concrete and reinforcement bars shown on this detail to be included in payment for diaphragms for prestressed beams. Threaded rods are included in payment for prestressed concrete beams.
3. PAYMENT LENGTH FOR DIAPHRAGMS.

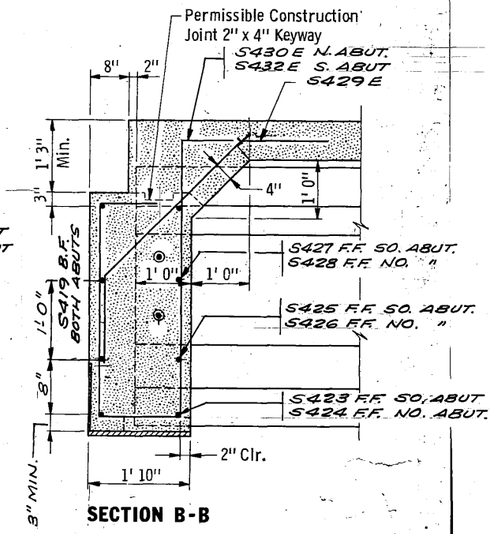
APPROVED: MARCH 27, 1979	MINNESOTA DEPARTMENT OF TRANSPORTATION	DETAIL NO.
Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN	**CONCRETE INTERMEDIATE DIAPHRAGM**	**B802**
Issued by: OFFICE OF ENGINEERING STANDARDS	**(FOR 28"-54" PRESTRESSED CONCRETE BEAM SPANS)**	



SECTION A-A



* May be eliminated for small beam heights



SECTION B-B

All diaphragm bars shown are listed with the superstructure reinforcement. Diaphragm concrete and reinforcement quantities are included in superstructure quantities.

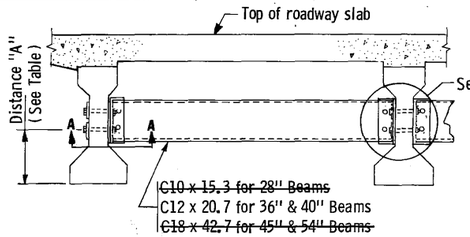
(1) SEE NOTE ON SHEETS 17, 18, & 20.

APPROVED: Oct. 20, 1976	MINNESOTA DEPARTMENT OF TRANSPORTATION	DETAIL NO.
Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN	**CONCRETE END DIAPHRAGM**	**B810**
Issued by: OFFICE OF ENGINEERING STANDARDS	**(PRESTRESSED CONC. BEAMS WITH PILE BENT ABUTMENT)**	

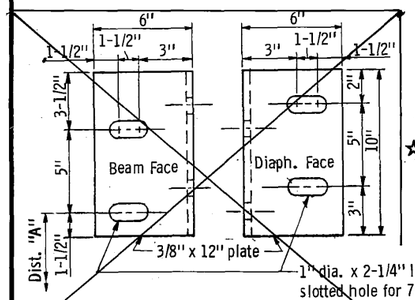
10-6-86

TABLE	
Beam Ht.	Distance "A"
28"	1' 0"
30"	1' 1-1/2"
36"	1' 3"
40"	1' 5"
45"	1' 4-1/2"
54"	1' 9"

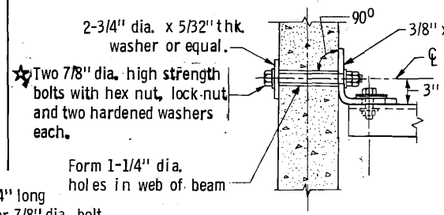
Bulb Tee



PART TRANSVERSE SECTION AT DIAPHRAGM

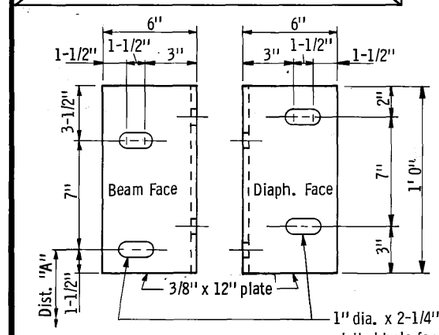


DIAPHRAGM SUPPORT FOR 28" BEAMS

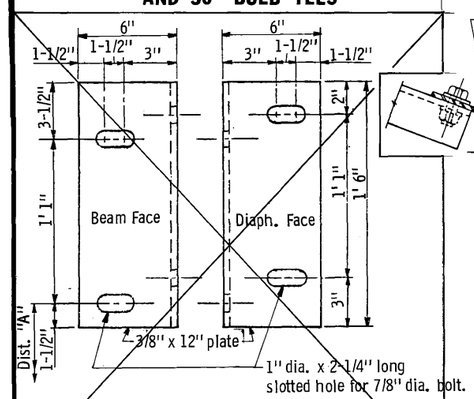


SECTION A-A

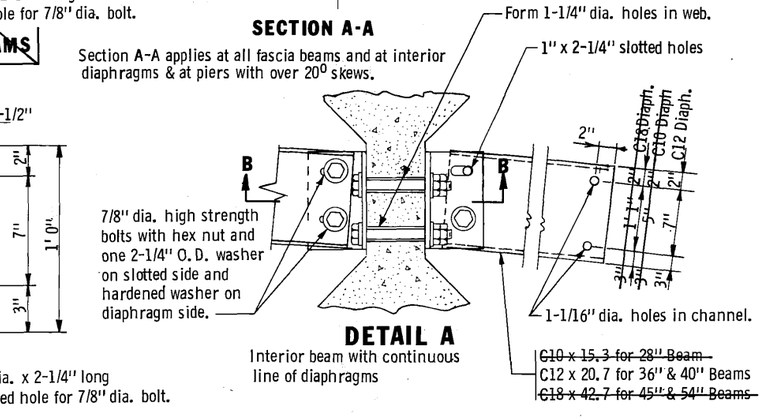
Section A-A applies at all fascia beams and at interior diaphragms & at piers with over 20° skews.



DIAPHRAGM SUPPORT FOR 36" & 40" BEAMS AND 30" BULB TEES



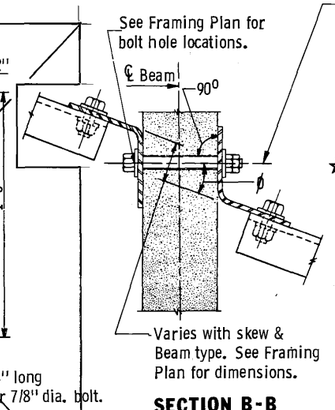
DIAPHRAGM SUPPORT FOR 45" & 54" BEAMS



DETAIL A

Interior beam with continuous line of diaphragms

~~C10 x 15.3 for 28" Beam~~
C12 x 20.7 for 36" & 40" Beams
~~C18 x 42.7 for 45" & 54" Beams~~



SECTION B-B

Typ. Section for Skews under 20°

GENERAL NOTES:

The leg of the 12" plate shall be shop bent to conform to diaphragm line. When the ϕ angle is less than 30, shop bends will not be required and a 3/8" x 6" x 6" angle may be used.

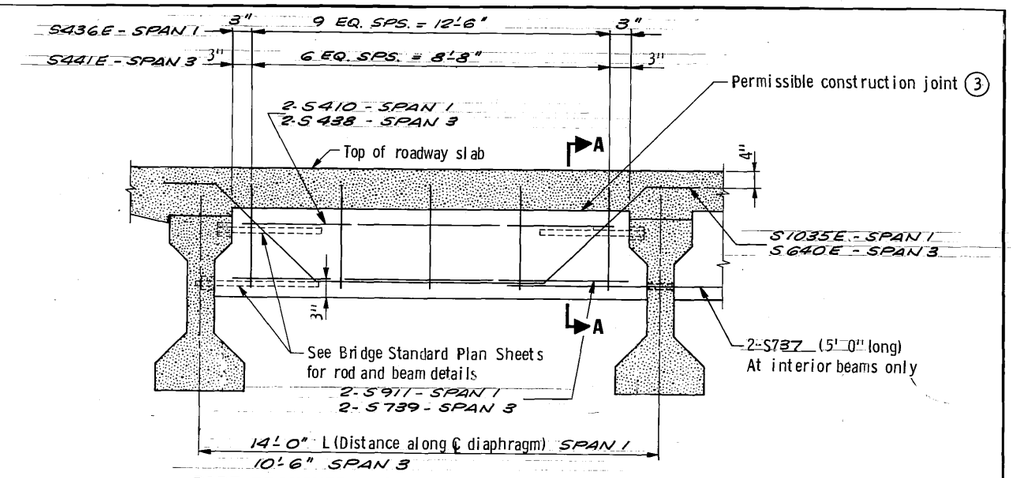
☆ As an alternate to the 7/8" bolt connection shown, the contractor may submit details of a cast-in-place anchorage to the engineer for approval. Anchorage must provide ultimate pull out strength of 15 kips per anchorage.

The use of concrete intermediate diaphragms or steel intermediate diaphragms shall be optional to the contractor. All structural steel shown on this detail including bolts and washers to be included in payment for diaphragms for prestressed beams.

Diaphragms over piers considered to be intermediate if slab is continuous.

APPROVED: July 8, 1976	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION: May 2, 1978 Sept. 28, 1978	DETAIL NO.
Developed by: OFFICE OF ENGINEERING STANDARDS AND BRIDGE DESIGN Issued by: OFFICE OF ENGINEERING STANDARDS	**STEEL INTERMEDIATE DIAPHRAGM (FOR 28"-54" PRESTRESSED CONCRETE BEAM SPANS AND 30" BULB TEE BEAMS)**		**B403**

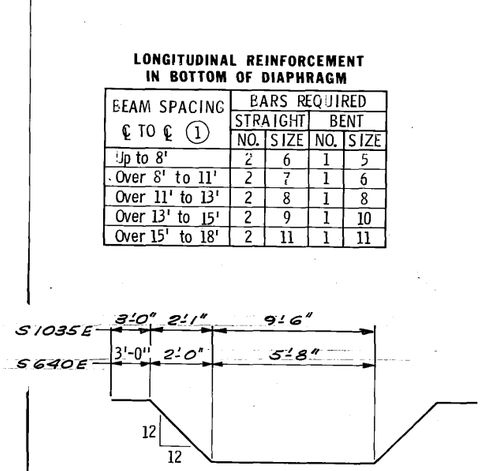
Lewis Engineering



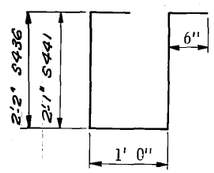
PART TRANSVERSE SECTION AT END DIAPHRAGM

LONGITUDINAL REINFORCEMENT IN BOTTOM OF DIAPHRAGM

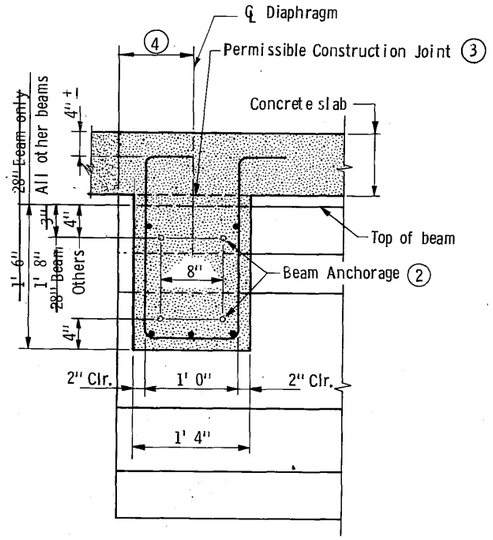
BEAM SPACING ℄ TO ℄ (1)	BARS REQUIRED			
	STRAIGHT		BENT	
	NO.	SIZE	NO.	SIZE
Up to 8'	2	6	1	5
Over 8' to 11'	2	7	1	6
Over 11' to 13'	2	8	1	8
Over 13' to 15'	2	9	1	10
Over 15' to 18'	2	11	1	11



S1035E & S640E



S436E & S441E



SECTION A-A

NOTE:

(1) Distance measured along ℄ of diaphragm.

(2) BEAM ANCHORAGES
Fascia beams only: four 3/4" dia. threaded rods.
Interior beams: Two 3/4" dia. threaded rods on top two No. 7 bars on bottom.

(3) When construction joint is used at this location, diaphragm falsework shall remain in place until completion of slab curing period.

(4) See plans for dimensions. (SHEETS 7, 14, & 15.)

(5) All diaphragm bars shown are listed with the superstructure reinforcement. Diaphragm concrete and reinforcement quantities are included in superstructure quantites (except threaded rods are included in payment for prestressed beams).

APPROVED: March 3, 1977	STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION	REVISION AUG. 23, 1978	DETAIL NO.
Developed by: ENGINEERING STANDARDS, AND BRIDGES AND STRUCTURES Issued by: ENGINEERING STANDARDS	**END DIAPHRAGM (28"-54" PRESTRESSED CONCRETE BEAM SPAN WITH PARAPET WALL ℄ PIERS 1 & 2)**		**B803**

10-6-86